

# General Catalog

Unlocking the full potential of your machines



# Welcome to the EROWA General Catalog

Competence means understanding the facts. EROWA products are based on this competence. The use of the EROWA FMC concept only has one single aim: **to increase competitiveness.** We'll be glad to be of assistance. With practical advice.

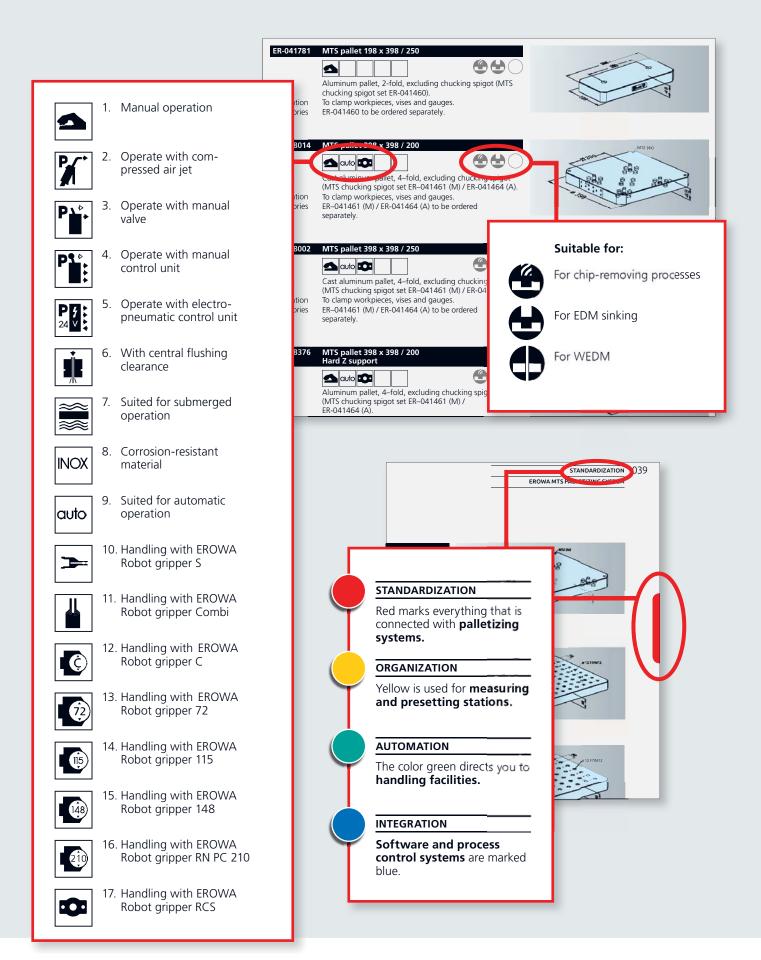
Your EROWA Team



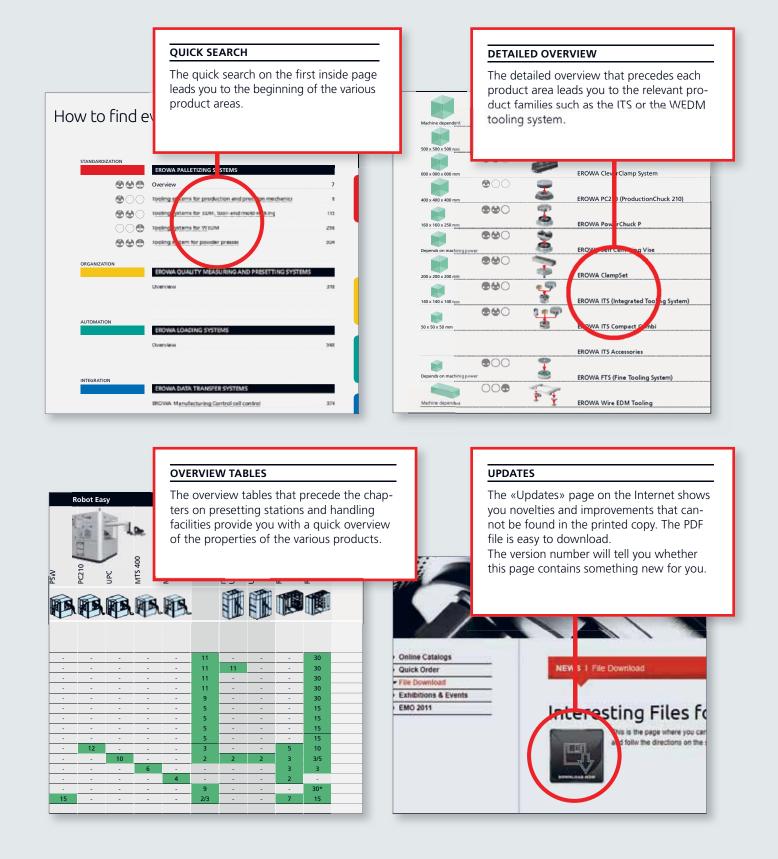
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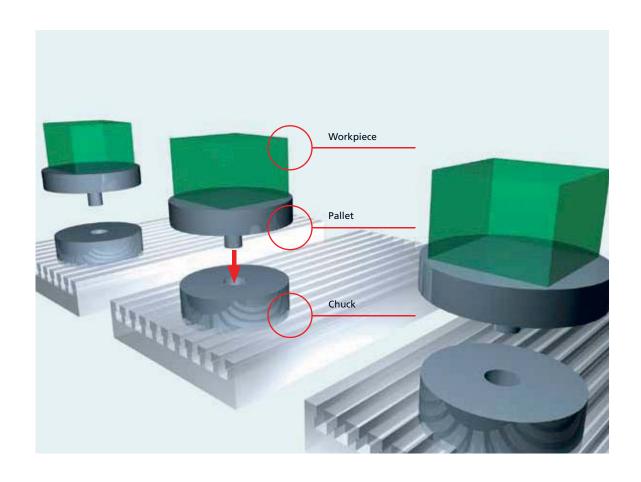
# This is how the General Catalog works



To make it easier for you to find your bearings among all the applications of EROWA products, we use the following icons in all our documents:



# **EROWA Palletizing systems**



Standardization of mechanical interfaces. The integration of a universal tooling system on all machine tools will significantly reduce any downtimes.



For chip-removing processes



For EDM sinking



For WEDM

# EROWA PALLETIZING SYSTEMS

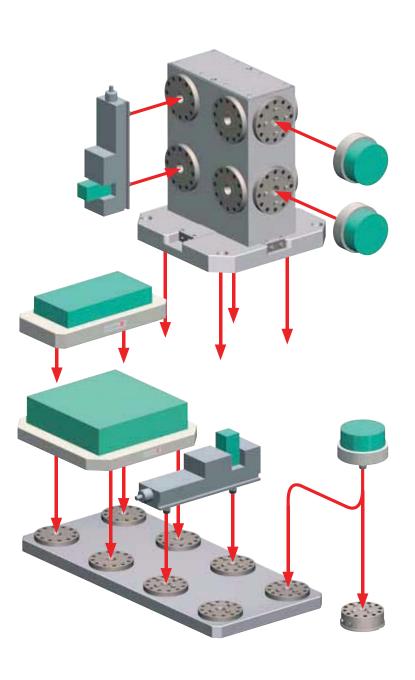
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# The datum point tooling system

The EROWA MTS (Modular Tooling System) is a flexible system.

The maximum workpiece size exclusively depends on the possibilities offered by the machine. Whether it is a case of single palletization with one MTS chuck or multiple palletization with several MTS chucks or base plates - any combination is possible.

MTS chucks can be operated manually or automatically. New jobs are set up while the machine is in productive operation. Express jobs can be positioned on the machine within seconds. After that, the previous production process can be resumed. Therefore, machine down-times are reduced to a minimum.



### The datum point is defined!

No alignment is necessary.

# Minimum set-up times thanks to a standardized interface!

The interface between the machine and the workpieces/fixtures is standardized. The modular design of the clamping equipment allows for an almost unlimited number of combinations of all the components.

### Make use of existing equipment!

Vises, gauges and fixtures are palletized or equipped with chucking spigots and put into production right away.

# 5-sided machining in one single clamping process!

Once the workpiece has been clamped on an EROWA pallet, 5 sides can be machined with that one clamping process.

- Play-free prismatic centering in MTS single chucks.
- Indexable 4 x 90°.
- More than 500,000 clamping processes without any loss of power or reference accuracy.
- Clamping surfaces without recesses can be cleaned with compressed air.
- Low profile design.
- Suitable for automatic pallet change.
- Standardized pitch\* of 200 mm or 250 mm on all EROWA base plates.

<sup>\*)</sup> The pitch is the distance between the MTS chucks on a base plate.

# Systematic clamping

A base plate with integrated MTS chucks.



An individual MTS chuck, mounted on or directly integrated in the machine table.

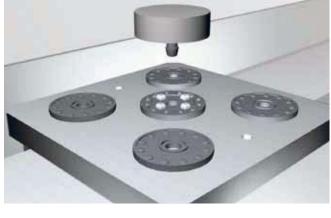




Single and/or multiple MTS chucks integrated in a customized base plate.



Several MTS chucks mounted on or directly integrated in the machine table.







# The palletizing system for your manufacturing processes

Practical work demonstrates the flexibility of the EROWA MTS tooling system. Whether it is a standard solution or a customized configuration, the system will adapt to virtually any machine situation.

The system's universality allows for a wide variety of workpiece carriers to be loaded and unloaded in next to no time. The automation of the workpiece loading/unloading cycle can be retrofitted at any time.





Various jobs can be done on one machine. Express jobs can easily be placed in between. Resetting the clamping equipment only takes a few seconds.

#### SERVICE

We'll be glad to advise you. No doubt we will find an optimal «clamping solution» for you, too.





Customized solutions are included. We will gladly advise you.



Thanks to the medium duct between chuck and pallet, workpieces may be clamped pneumatically, hydraulically or with a vacuum.





MTS chuck integrated in the mineral cast cube. In combination with the EROWA CleverClamp tooling system - a crucial production factor.



Flexible clamping devices. EROWA center clamps on MTS pallet.



MTS single base plates are quickly installed and ready to use. Fit on machine tables with R50 and 63 mm hole grid and 100 mm T- slot spacing.



MTS chuck, able to automate. During the workpiece change, the contact surfaces are cleaned automatically.



Variable use of tombstones. The MTS system provides an interface to fixtures and vises. Refitting takes no time at all.



From the manual handling facility to the complex Robot system, EROWA supplies the handling solution you require.





Automatic pallet change in mixed operation with MTS and ITS pallets. Such combinations allow for an optimal use of the tooling system according to part sizes.

# The various EROWA MTS palletizing systems at a glance

### **EROWA MTS 81**

## Small size, high clamping power

MTS 81 is used wherever available space is limited.

There is no need to give up the benefits of a datum point tooling system and high clamping power.

### **EROWA MTS**

### The universal interface

Used and proven in tens of thousands of practical applications, the MTS datum point tooling system is indispensable in machining production and the EROWA product portfolio.

### **EROWA MTS 2.0**

## The datum point tooling system for highest demands

With integrated open monitoring, a maximum clamping power of 20,000 N and enhanced precision, the new MTS 2.0 generation fulfills even the most exacting demands. A top product with an attractive price-performance ratio!

On the following pages, you will find detailed product information including a portfolio overview of the individual EROWA MTS palletizing systems.

### **EROWA MTS+**

Contact your EROWA dealer for information about MTS+.

To make it easier for you to find your way about the fields of application for EROWA products, we use the following symbols in all our documents:



1. Manual operation



2. Operate with compressed air jet



3. Operate with manual valve



4. Operate with manual control unit



5. Operate with electropneumatic control unit



6. With central flushing clearance



7. Suited for submerged operation



8. Corrosion-resistant material



9. Suited for automatic operation



10. Handling with EROWA Robot gripper S



11. Handling with EROWA Robot gripper Combi



12. Handling with EROWA Robot gripper C



13. Handling with EROWA Robot gripper 72



14. Handling with EROWA Robot gripper 115



15. Handling with EROWA Robot gripper 148



16. Handling with EROWA Robot gripper RN PC 210



17. Handling with EROWA Robot gripper RCS

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# Small size, high clamping power!

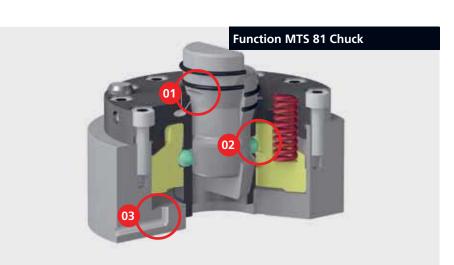
### **Applications**

## Handling

Manual / Loading facility / Robot







#### 01 | Precise

Play-free, conical centering. Repeatability: < 0.005 mm. Easy insertion of the pallets without any jamming.

### 02 | Clamping mechanism

Reliable clamping mechanism through self-locking ball lock. Stable, low level of vibration.

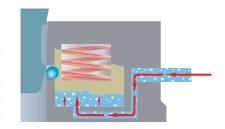
#### 03 | Open

MTS 81 chucks are operated pneumatically.

	MTS 81	
Repeatability	< 0.005 mm	
Activation	clamped without pressure	
Opening pressure	min. 8.5 bar	
Process monitoring	pneumatically	
Clamping power		
with reclamping	10,000 N/chuck	
Holding power	> 60,000 N/chuck	
Reclamp	yes	
Clamping cycles	> 500,000	

### Power package

A reclamping feature provides up to 10,000 N of clamping power. The chucks are opened pneumatically.



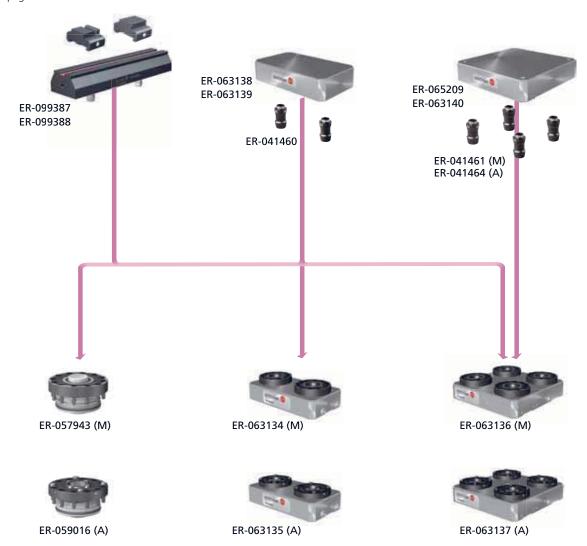


# ITS 81

# The components

(M) = manual
(A) = automatic





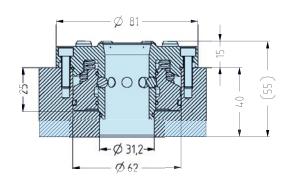
# Integral chucks

Technical data	MTS 81 integral chucks
	pneumatic
Repeatability	< 0.005 mm
Clamping	Spring tension
Opening pressure	min. 8.5 bar
Process monitoring	pneumatic
Clamping power	
with reclamping	up to 10,000 N/chuck

M = Multi

P = pneumatically operated A = able to automate

Integration variant applicable to MTS 81 IntegralChucks. Observe tolerances according to integration instructions!

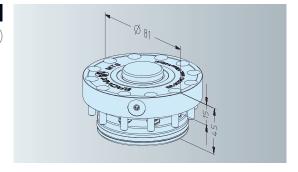


reclamping.

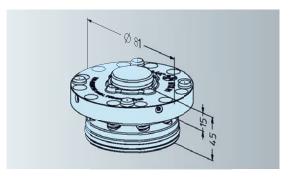
Application

ER-057943	MTS 81 IntegralChuck M-P
Version	To be fitted directly to machine tables, plates, tombstones, squares or dividing heads. Suitable for manual loading.
Connections	2 pneumatic connections: one for opening and one for

To accommodate multiple pallets.



ER-059016	MTS 81 IntegralChuck M-P/A
	Pi 24 i auto
Version	To be fitted directly to machine tables, plates,
	tombstones, squares or dividing heads. Suitable for automatic loading.
Connections	3 pneumatic connections: one for opening, one for reclamping, and one for presence checks and cleaning.
Application	To accommodate multiple pallets.

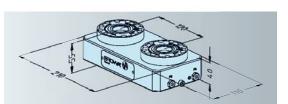


# Base plates, 2-fold

Technical data	MTS 81 Base plates, 2-fold pneumatic
Repeatability	< 0.005 mm
Indexation, pallet	1 x 180°
Clamping	Spring tension
Opening pressure	min. 8.5 bar
Process monitoring	pneumatic
Clamping power	up to 20,000 N
with reclamping	(2 x 10,000 N)

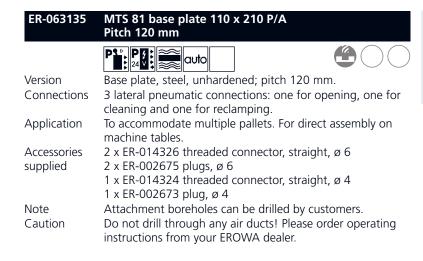
P = pneumatically operated A = able to automate

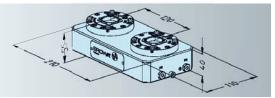




# **EROWA MTS 81**

# Base plates, 2-fold with cleaning facility, automatable

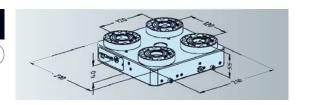




# Base plates, 4-fold

Technical data	MTS 81 Base plates, 4-fold	
	pneumatic	
Repeatability	< 0.005 mm	arr your
Indexation, pallet	4 x 90°	
Clamping	Spring tension	
Opening pressure	min. 8.5 bar	
Process monitoring	pneumatic	-
Clamping power	up to 40,000 N	
with reclamping	(4 x 10,000 N)	

ER-063136	MTS 81 base plate 210 x 210 P pitch 120 mm
Version	Base plate, steel, unhardened; pitch 120 mm.
Connections	2 lateral pneumatic connections: one for opening and one
	for reclamping.
Application	To accommodate multiple pallets. For direct assembly on
	machine tables.
Accessories	2 x ER-014326 threaded connector, straight, ø 6
supplied	2 x ER-002675 plugs, ø 6
	1 x ER-014324 threaded connector, straight, ø 4
	1 x ER-002673 plug, ø 4
Note	Attachment boreholes can be drilled by customers.
Caution	Do not drill through any air ducts! Please order operating
	instructions from your EROWA dealer.



# **EROWA MTS 81**

# Base plates, 4-fold with cleaning facility, automatable

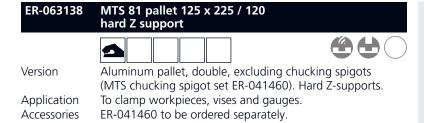
MTS 81 base plate 210 x 210 P/A pitch 120 mm
Base plate, steel, unhardened; pitch 120 mm.
3 lateral pneumatic connections: one for opening, one for cleaning and one for reclamping.
To accommodate multiple pallets. For direct assembly on machine tables.
2 x ER-014326 threaded connector, straight, ø 6
2 x ER-002675 plugs, ø 6
1 x ER-014324 threaded connector, straight, ø 4
1 x ER-002673 plug, ø 4
Attachment boreholes can be drilled by customers.
Do not drill through any air ducts! Please order operating instructions from your EROWA dealer.

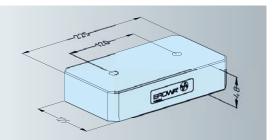


# **Pallets**

Accessories

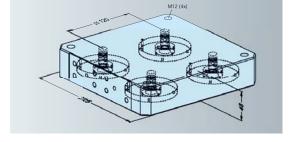
separately.



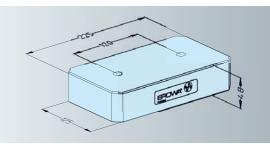


# Version Aluminum pallet, excluding chucking spigots (MTS chucking spigot set ER-041461 (M) / ER-041464 (A). Hard Z-supports. Application To clamp workpieces, vises and gauges.

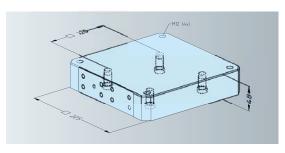
ER-041461 (M) / ER-041464 (A) to be ordered







ER-063140 MTS 81 pallet 225	
auto auto	<b>6</b>
	-fold, excluding chucking spigots ot set ER-041461 (M) / ER-041464 (A).
	es, vises and gauges. R-041464 (A) to be ordered



Note: You will find the MTS chucking spigots overview starting on page: 48.

# The universal interface

Manual / Loading facility / Robot

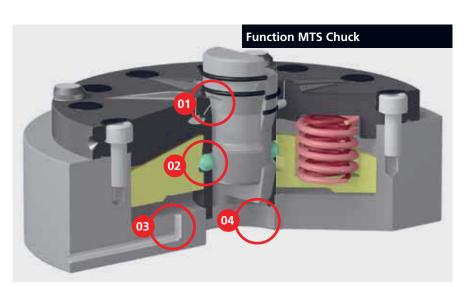
### **Applications**

## Handling









#### 01 | Precise

Play free, conical centering. Repeatability: <0.005 mm. Easy insertion of the pallets without any jamming.

### 02 | Clamping mechanism

Reliable clamping mechanism through self-locking ball lock. Stable, low level of vibration.

#### 03 | Open

MTS chucks are available as pneumatic and hydraulic versions.

### 04 | Cleanliness

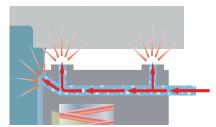
Liquids can drain off. No dirt traps.

# Technical data - MTS

	MTS	
Repeatability	< 0.005 mm	
Activation	clamped without pressure	
Opening pressure pneumatically	min. 7 bar	
Opening pressure hydraulically	min. 25 bar / max. 35 bar	
Clamping power	12,000 N/chuck	
Holding power	> 60,000 N/chuck	
Reclamp	no	tuanes.
Clamping cycles	> 500,000	

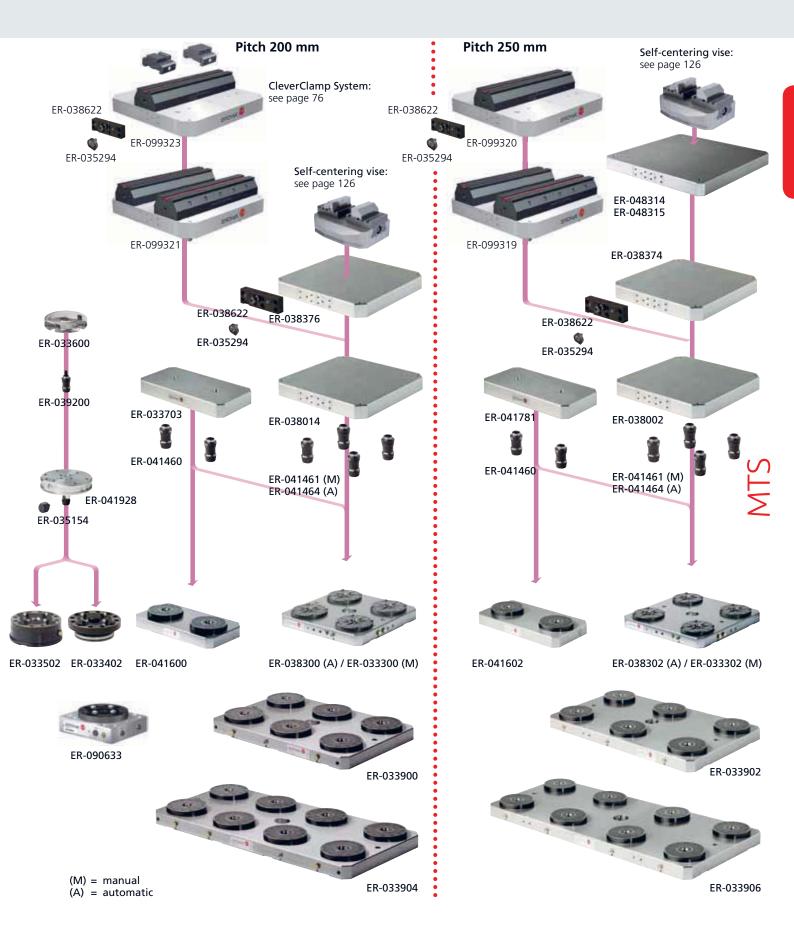
### MTS chuck, automatable

Automatic cleaning of contact surfaces and of the centering spigot cone while the workpiece is changed.





# The components



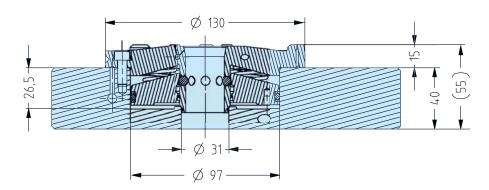
# Integral chucks

Technical data	MTS integral chucks	
	pneumatic	hydraulic
Repeatability	< 0.005 mm	< 0.005 mm
Indexation, pallet	4 x 90° (MTS IntegralCh	nuck S)
Clamping	Spring tension	Spring tension
Opening pressure	min. 7 bar	min. 25 /max. 35 bar
Process monitoring	pneumatic	pneumatic
Clamping power	12,000 N/chuck	20,000 N/chuck

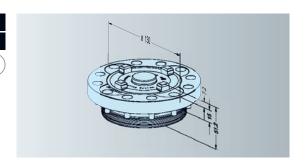
S = Single M = Multi

P = pneumatically operated H = hydraulically operated A = able to automate

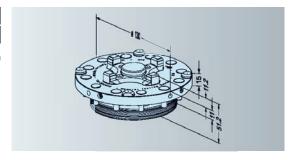
Integration variant (applicable to MTS IntegralChucks Single and Multi). Observe tolerances according to integration instructions!

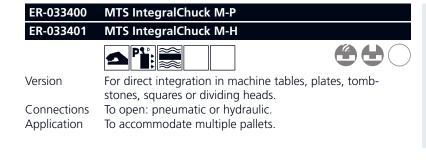


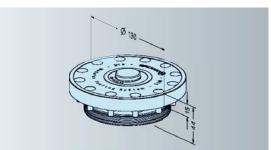
ER-033402	MTS IntegralChuck S-P	
ER-033403	MTS IntegralChuck S-H	
Version	For direct integration in machine tables, plates, tomb- stones, squares or dividing heads.	
Connections Application	To open: pneumatic or hydraulic. To accommodate single or multiple pallets.	



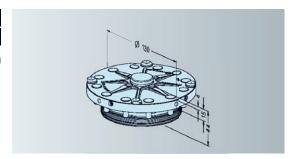
ER-036802	MTS IntegralChuck S-P/A
ER-036803	MTS IntegralChuck S-H/A
Version	For direct integration in machine tables, plates, tombstones, squares or dividing heads.
Connections	To open: pneumatic or hydraulic. To clean: pneumatic.
Application	To accommodate single or multiple pallets.







ER-036800	MTS IntegralChuck M-P/A
ER-036801	MTS IntegralChuck M-H/A
Version	For direct integration in machine tables, plates, tombstones, squares or dividing heads.
Connections	To open: pneumatic or hydraulic. To clean: pneumatic.
Application	To accommodate multiple pallets.



# Mounted chucks

Technical data	MTS mounted chucks pneumatic	
Repeatability	< 0.005 mm	
Indexation, pallet	4 x 90° (MTS Chuck S)	
Clamping	Spring power	
Opening pressure	min. 7 bar	
Process monitoring	pneumatic	
Clamping power	12,000 N/Chuck	

S = Single M = Multi

P = pneumatically operated

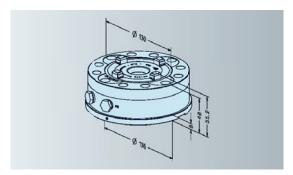
A = able to automate

# Version For direct mounting on machine tables, plates, tombstones, squares or dividing heads. Connections Lateral, to open: pneumatic.

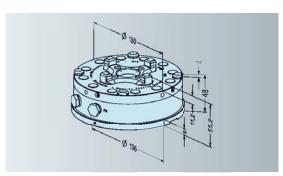
Application To accommodate single or multiple pallets.

Accessories Order separately: to fit MTS Chuck, MTS bracket

ER-033804 or ER-033805.



ER-035502	MTS Chuck S-P/A	
Version	For direct mounting on machine tables, plates, tomb-	
	stones, squares or dividing heads.	
Connections	Lateral, to open: pneumatic.	
	Lateral to clean: pneumatic	
Application	To accommodate single or multiple pallets.	
Accessories	Order separately: to fit MTS Chuck, MTS bracket	
	ER-033804 or ER-033805.	



# ER-033500 MTS Chuck M-P





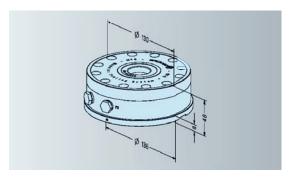
Version For direct mounting on machine tables, plates, tomb-

stones, squares or dividing heads.

Connections Lateral, to open: pneumatic.
Application To accommodate multiple pallets.

Accessories Order separately: to fit MTS Chuck, MTS bracket

ER-033804 or ER-033805.



# ER-035500 MTS Chuck M-P/A





Version For direct mounting on machine tables, plates, tomb-

stones, squares or dividing heads.

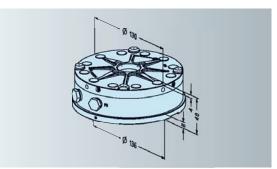
Connections Lateral, to open: pneumatic.

Lateral to clean: pneumatic.

Application To accommodate multiple pallets.

Accessories Order separately: to fit MTS Chuck, MTS bracket

ER-033804 or ER-033805.





# Base plates, 1-fold

Technical data	MTS base plates, 1-fold pneumatic
Repeatability	< 0.005 mm
Indexation, pallet	4 x 90° (MTS Chuck S)
Clamping	Spring tension
Opening pressure	min. 7 bar
Process monitoring	pneumatic
Clamping power	12,000 N

S = Single M = Multi

P = pneumatically operated

## ER-090633 MTS base plate 149 x 180 S-P



Version Baseplate, steel not heat treated Connections At the side for opening the chuck.

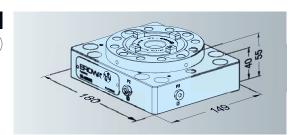
1x air jet valve 2x threaded plug

Application Mounting on to machine tables. For holding MTS single-

and multiple pallets

Installation Hole pattern for R50 / M12 grid plates and for machine

tables with T-slot distance 63 / 100 mm



### ER-090634 MTS base plate 149 x 180 M-P





Version Baseplate, steel not heat treated Connections At the side for opening the chuck.

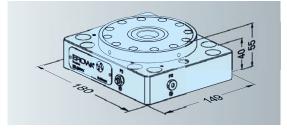
1x air jet valve 2x threaded plug

Application Mounting on to machine tables. For holding MTS single-

and multiple pallets

Installation Hole pattern for R50 / M12 grid plates and for machine

tables with T-slot distance 63 / 100 mm



# Base plates, 2-fold

Technical data	MTS base plates, 2-fold pneumatic
Repeatability	< 0.005 mm
Indexation, pallet	1 x 180°
Clamping	Spring power
Opening pressure	min. 7 bar
Process monitoring	pneumatic
Clamping power	24,000 N
	(2 x 12,000 N)

pneumatically operated

#### ER-041600 MTS base plate 180 x 360 / 200 P Pitch 200

Base plate, steel, unhardened; Pitch: 200 mm.

Connections Lateral, to open: pneumatic.

To accommodate double pallets. For direct assembly Application

on machine tables.

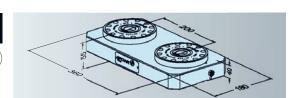
Accessories supplied

Version

1 x ER-036672 MTS air jet valve

Note Attachment boreholes can be drilled by customers. Do not drill through any air ducts! Please order operating Caution

instructions from your EROWA dealer.



#### ER-041602 MTS base plate 200 x 410 P Pitch 250





Base plate, steel, unhardened; Pitch: 250 mm. Version

Connections Lateral, to open: pneumatic.

Application To accommodate double pallets. For direct assembly

on machine tables. 1 x ER-036672.

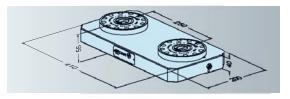
Accessories

supplied Note Caution

Attachment boreholes can be drilled by customers.

Do not drill through any air ducts! Please order operating

instructions from your EROWA dealer.





# Base plates, 4-fold

Technical data	MTS base plates, 4-fold pneumatic
Repeatability	< 0.005 mm
Clamping	Spring power
Opening pressure	min. 7 bar
Process monitoring	pneumatic
Clamping power	48,000 N
	(4 x 12,000 N)

P = pneumatically operated

### ER-033300 MTS base plate 360 x 360 P Pitch 200





Version Base plate, steel, unhardened; Pitch: 200 mm.

Connections Lateral, to open: pneumatic.

Application To accommodate multiple pallets. For direct assembly

on machine tables.

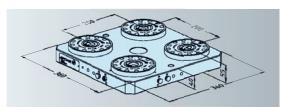
Accessories 1 x E

supplied

1 x ER-036672.

Note Attachment boreholes can be drilled by customers.
Caution Do not drill through any air ducts! Please order operating

instructions from your EROWA dealer.



### ER-033302 MTS base plate 410 x 410 P Pitch 250





Version Base plate, steel, unhardened; Pitch: 250 mm.

Connections Lateral, to open: pneumatic.

Application To accommodate multiple pallets. For direct assembly

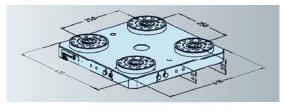
on machine tables. 1 x ER-036672.

Accessories

supplied

Note Attachment boreholes can be drilled by customers.
Caution Do not drill through any air ducts! Please order operating

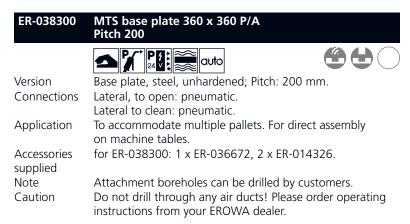
instructions from your EROWA dealer.

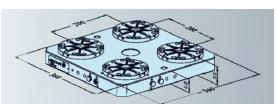


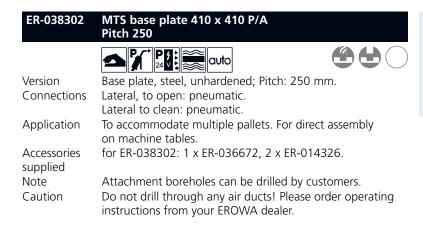
pneumatically operated

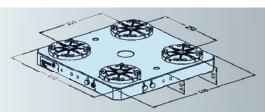
# Base plates, 4-fold, with cleaning facility, automatable

Technical data	MTS base plates, 4-fold,
	with cleaning facility, automatable
	pneumatic
Repeatability	< 0.005 mm
Clamping	Spring tension
Opening pressure	min. 7 bar
Process monitoring	pneumatic
Clamping power	48,000 N
	(4 x 12.000 N)









# Base plates, 6-fold

Technical data	MTS base plates, 6-fold pneumatic
Repeatability	< 0.005 mm
Clamping	Spring tension
Opening pressure	min. 7 bar
Process monitoring	pneumatic
Clamping power	72,000 N
	(6 x 12,000 N)

P = pneumatically operated

# ER-033900 MTS base plate 360 x 560 P Pitch 200



Base plate, steel, unhardened; Pitch: 200 mm.

Connections Lateral, to open: pneumatic.

Application To accommodate multiple pallets. For direct assembly

on machine tables.

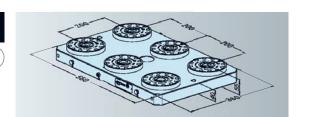
Accessories 1 x ER-036672. supplied

Version

Accessories

Note Attachment boreholes can be drilled by customers.
Caution Do not drill through any air ducts! Please order operating

instructions from your EROWA dealer.



# ER-033902 MTS base plate 410 x 660 P Pitch 250

Version Base plate, steel, unhardened; Pitch: 250 mm.

Connections Lateral, to open: pneumatic.

Application To accommodate multiple pallets. For direct assembly

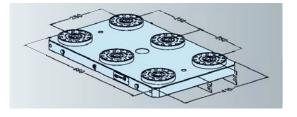
on machine tables. 1 x ER-036672.

supplied

Note Attachment boreholes can be drilled by customers.

Caution Do not drill through any air ducts! Please order operating

instructions from your EROWA dealer.



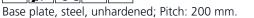
# Base plates, 8-fold

Technical data	MTS base plates, 8-fold pneumatic	
Repeatability	<0.005 mm	
Clamping	Spring power	
Opening pressure	min. 7 bar	
Process monitoring	pneumatic	
Clamping power	96,000 N	
	(8 x 12,000 N)	

P = pneumatically operated

### ER-033904 MTS base plate 360 x 760 P Pitch 200





Connections Lateral, to open: pneumatic.

Application To accommodate multiple pallets. For direct assembly

on machine tables.

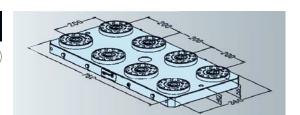
Accessories supplied

Version

1 x ER-036672.

Note Attachment boreholes can be drilled by customers.
Caution Do not drill through any air ducts! Please order operating

instructions from your EROWA dealer.



# ER-033906 MTS base plate 410 x 910 P Pitch 250





Version Base plate, steel, unhardened; Pitch: 250 mm.

Connections Lateral, to open: pneumatic.

Application To accommodate multiple pallets. For direct assembly

on machine tables.

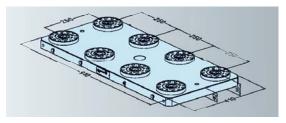
Accessories supplied

1 x ER-036672.

Note Attachment boreholes can be drilled by customers.

Caution Do not drill through any air ducts! Please order operating

instructions from your EROWA dealer.





# The datum-point system for the highest demands

Manual / Loading facility / Robot

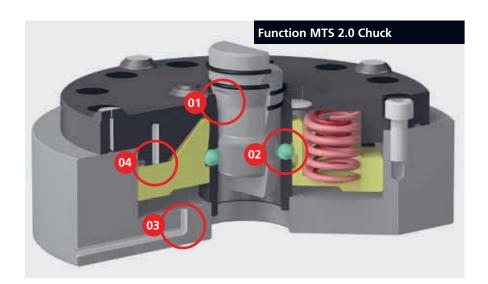
### **Applications**

## Handling









Technical	data - I	MTS20

	MTS 2.0
Repeatability	< 0.003 mm
Activation	clamped without pressure
Opening pressure	6 bar
Reclamp pressure	max. 6 bar
Process monitoring	pneumatically: opening controll and monitoring
Clamping power	9,000 N/Chuck (spring tension)
with reclamping	20,000 N/Chuck
Holding power	> 60,000 N/Chuck
Reclamp	yes
Clamping cycles	> 500,000
Material	INOX

#### **CRUCIAL ADVANTAGES**

- Open check
- Extreme process safety
- Clamping power: 20,000 N
- Opening pressure: 6 bar
- Clamping mechanism with ceramic balls
- Rust-resistant

### 01 | High precision

Play free, conical centering. Repeatability: < 0.003 mm. Easy insertion of the pallets without any jamming.

#### 02 | Clamping mechanism

Reliable clamping mechanism through self-locking ball lock. Stable, low level of vibration.

#### 03 | Open

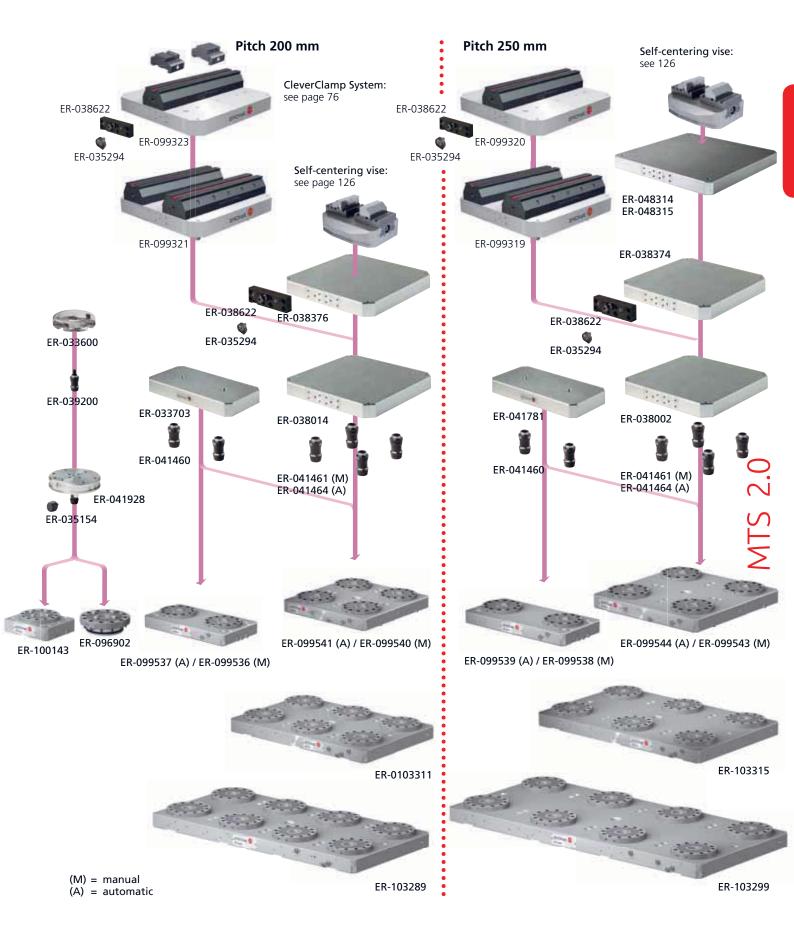
MTS 2.0 chucks are operated pneumatically. The chucks require only 6 bar opening pressure despite their high clamping power of 20,000 N.

#### 04 | Open monitoring

Know for sure when the MTS 2.0 chuck is open thanks to integrated open monitoring.



# The components



# Integral chucks

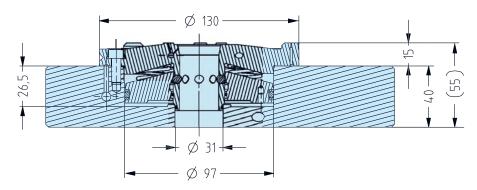
Technical data	MTS 2.0 integral chuck, pneumatic
Repeatability	< 0.003 mm
Indexation, pallet	4 x 90° (MTS 2.0 IntegralChuck S)
Clamping	Spring tension
Opening pressure	6 bar
Process monitoring	Pneumatically: opening controll and monitoring
Clamping power	9,000 N (spring tension)
with reclamping	20,000 N

S = Single M = Multi

P = pneumatically operated

A = able to automate

Integration variant (applicable to MTS 2.0 IntegralChucks Single and Multi). Observe tolerances according to integration instructions!



# ER-096902 MTS 2.0 IntegralChuck S-P





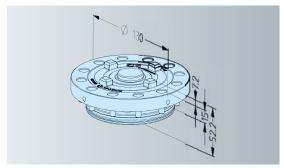
Version For direct attachment to machine tables, plates,

tombstones, angles or dividing heads.

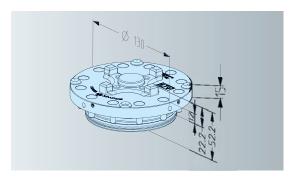
Connections 3 pneumatic connections: for opening, reclamping and

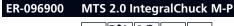
open check.

Application To hold individual and multiple pallets.

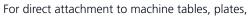


EK-090903	WITS 2.0 IntegralChuck S-P/A
	Pi 24 NOX auto
Version	For direct attachment to machine tables, plates,
	tombstones or dividing heads.
Connections	4 pneumatic connections: for opening, cleaning/presence
	checks, reclamping and open check.
Application	To hold individual and multiple pallets.









**99** 

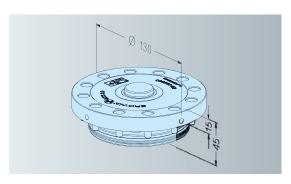
tombstones or dividing heads.

Connections 3 pneumatic connections: for opening, reclamping and

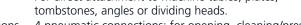
open check.

Application To hold multiple pallets.

Version



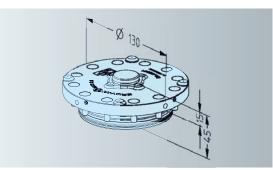
### ER-096901 MTS 2.0 IntegralChuck M-P/A NOX auto Version For direct attachment to machine tables, plates,



Connections 4 pneumatic connections: for opening, cleaning/presence

check, reclamping and open check.

To hold multiple pallets. Application





# Base plates, 1-fold

Technical data	MTS 2.0 base plate, 1-fold, pneumatic
Repeatability	< 0.003 mm
Indexation, pallet	4 x 90° (MTS 2.0 IntegralChuck S)
Clamping	Spring tension
Opening pressure	6 bar
Process monitoring	Pneumatically: opening control and monitoring
Clamping power	9,000 N (spring tension)
with reclamping	20,000 N

S = Single M = Multi

P = pneumatically operated

A = able to automate

# ER-100143 MTS 2.0 base plate 149 x 180 S-P single





Version Base plate, unhardened steel.

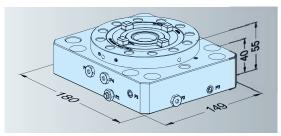
Connections: Laterally: for opening, reclamping and open check.

Application To hold individual and multiple pallets. To be set up on

machine tables.

Mounting Mounting hole configuration for R50/M12 grids and for

tables with T-slot distances of 60/100 mm.



# ER-100145 MTS 2.0 base plate 149 x 180 S-P/A single





Version Base plate, unhardened steel.

Connections: Laterally: for opening, reclamping, open check and for

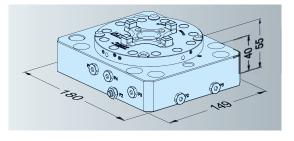
cleaning/presence check.

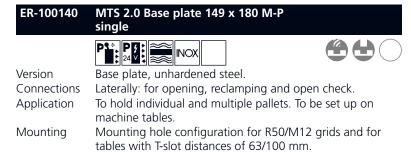
Application To hold individual and multiple pallets. To be set up on

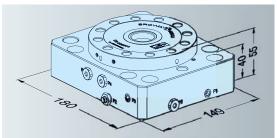
machine tables.

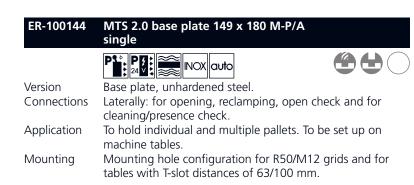
Mounting Mounting hole configuration for R50/M12 grids and for

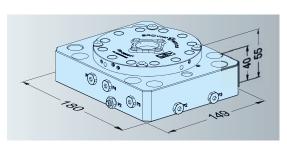
table with T-slot distances of 63/100 mm.











#### **EROWA MTS 2.0**

# Base plates, 2-fold

Technical data	MTS 2.0 base plate, 2-fold, pneumatic		
Repeatability	< 0.003 mm		
Indexation, pallet	1 x 180° (MTS 2.0 IntegralChuck S)		
Clamping	Spring tension		
Opening pressure	6 bar		
Process monitoring	Pneumatically: opening controll and monitoring		
Clamping power	18,000 N (2 x 9,000 N) (spring tension)		
with reclamping	40,000 N (2 x 20,000 N)		

Single Multi Μ

pneumatically operated

able to automate

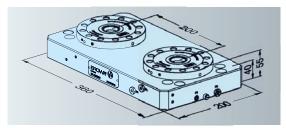
#### ER-099536 MTS 2.0 base plate 200 x 360 P Pitch 200





Version Connections **Applicatin** Mounting

Base plate, unhardened steel. Pitch: 200 mm. Laterally: for opening, reclamping and open check. To hold double pallets. To be set up on machine tables. Mounting hole configuration for R50/M12 grids and for tables with T-slot distances of 63/100 mm.



#### ER-099537 MTS 2.0 base plate 200 x 360 P/A Pitch 200





Version Connections Base plate, unhardened steel. Pitch: 200 mm.

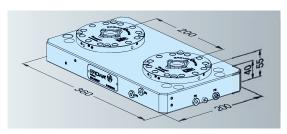
Laterally: for opening, reclamping, open check and for

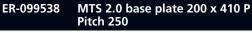
cleaning/presence check.

Application Mounting

To hold double pallets. To be set up on machine tables. Mounting hold configuration for R50/M12 grids and for

tables with T-slot distances of 63/100 mm.





Version

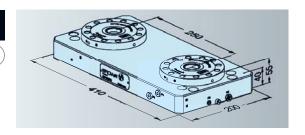
Connections Application

Mounting

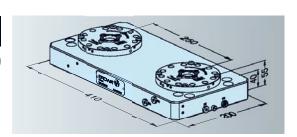




Base plate, unhardened steel. Pitch: 250 mm.
Laterally: for opening, reclamping and open check.
To hold double pallets. To be set up on machine tables.
Mounting hold configuration for R50/M12 grids and for tables with T-slot distances of 63/100 mm.



# Version Connections Application Mounting MTS 2.0 base plate 200 x 410 P/A Pitch 250 NOX auto Base plate, unhardened steel. Pitch: 250 mm Laterally: for opening, reclamping, open check and for cleaning/presence check. To hold double pallets. To be set up on machine tables. Mounting hole configuration for R50/M12 grids and for tables with T-slot distances of 63/100 mm.





#### **EROWA MTS 2.0**

# Base plates, 4-fold

Technical data MTS base plate 2.0, 4-fold, pneumatic		
Repeatability	< 0.003 mm	
Clamping	Spring tension	
Opening pressure	6 bar	
Process monitoring	Pneumatically: opening controll and monitoring	
Clamping power	36,000 N (4 x 9,000 N) (spring tension)	
with reclamping	80,000 N (4 x 20,000 N)	

S = Single M = Multi

P = pneumatically operated

A = able to automate

PC\* = pitch circle

# ER-099540 MTS 2.0 base plate 360 x 360 P Pitch 200

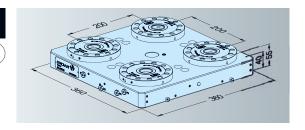
Version Connections Base plate, unhardened steel. Pitch: 200 mm.

Laterally and underneath (PC\* ø57 mm): for opening,

reclamping and open check.

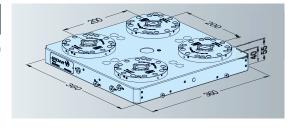
Application Mounting To hold multiple pallets. To be set up on machine tables. Mounting hole configuration for R50/M12 grids and for

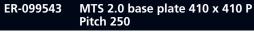
tables with T-slot distances of 63/100 mm.



# Version Connections MTS 2.0 base plate 360 x 360 P/A Pitch 200 Price | Price | NOX | auto | Base plate, unhardened steel. Pitch: 200 mm. Laterally and underneath (PC\* Ø57 mm): for opening,

Application Mounting Base plate, unhardened steel. Pitch: 200 mm.
Laterally and underneath (PC\* ø57 mm): for opening, reclamping, open check and for cleaning/presence check. To hold mutliple pallets. To be set up on machine tables. Mounting hole configuration for R50/M12 grids and for tables with T-slot distances of 63/100 mm.





Version

Connections



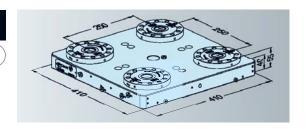
Base plate, unhardened steel. Pitch: 250 mm. Laterally and underneath (PC\* ø57 mm): for opening,

**4** 

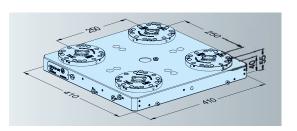
reclamping and open check.

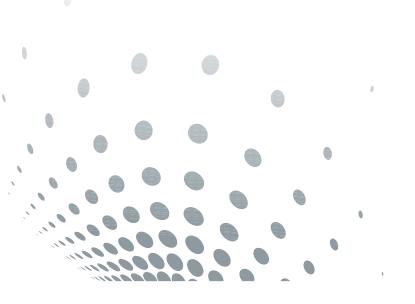
Application To hold multiple pallets. To be set up on machine tables. Mounting Mounting hole configuration for R50/M12 grids and for

tables with T-slot distances of 63/100 mm.



# Version Connections Application Mounting MTS 2.0 base plate 410 x 410 P/A Pitch 250 Prich 250 NOX auto Base plate, unhardened steel. Pitch: 250 mm. Laterally and underneath (PC\* ø57 mm): for opening, reclamping, open check and for cleaning/presence check. To hold multiple pallets. To be set up on machine tables. Mounting hole configuration for R50/M12 grids and for tables with T-slot distances of 63/100 mm.





#### **EROWA MTS 2.0**

# Base plates, 6-fold

Technical data	MTS 2.0 base plate, 6-fold, pneumatic		
Repeatability	< 0.003 mm		
Clamping	Spring tension		
Opening pressure	6 bar		
Process monitoring	Pneumatically: opening controll and monitoring		
Clamping power	54,000 N (6 x 9,000 N) (spring tension)		
with reclamping	120,000 N (6 x 20,000 N)		

S = Single M = Multi

P = pneumatically operated

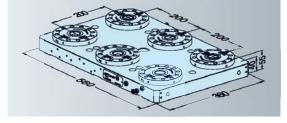
A = able to automate

#### ER-103311 MTS 2.0 base plate 360 x 560 P Pitch 200





Version Connections Application Mounting Base plate, unhardened steel. Pitch: 200 mm.
Laterally: for opening, reclamping and open check.
To hold multiple pallets. To be set up on machine tables.
Mounting hole configuration for tables with T-slot distances of 63/100 mm.

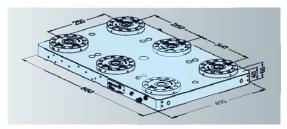


#### ER-103315 MTS 2.0 base plate 410 x 660 P





Version Connections Application Mounting Base plate, unhardened steel. Pitch: 250 mm.
Laterally: for opening, reclamping and open check.
To hold multiple pallets. To be set up on machine tables.
Mounting hole configuration for tables with T-slot distances of 63/100 mm.



#### **EROWA MTS 2.0**

# Base plates, 8-fold

Technical data	MTS 2.0 base plate, 8-fold, pneumatic		
Repeatability	< 0.003 mm		
Clamping	Spring tension		
Opening pressure	6 bar		
Process monitoring	Pneumatically: opening controll and monitoring		
Clamping power	72,000 N (8 x 9,000 N) (spring tension)		
with reclamping	160,000 N (8 x 20,000 N)		

Single Multi

pneumatically operated

able to automate

#### MTS 2.0 base plate 360 x 760 P ER-103289



distances of 63/100 mm.



Version Connections Application Mounting

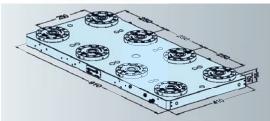
Mounting

Base plate, unhardened steel. Pitch: 200 mm. Laterally: for opening, reclamping and open check. To hold multiple pallets. To be set up on machine tables. Mounting hole configuration for tables with T-slot distances of 63/100 mm.





Mounting hole configuration for tables with T-slot





Application

Accessories

#### **EROWA MTS**

# **Pallets**

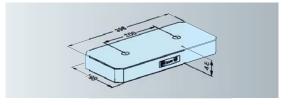
#### ER-033703 MTS pallet 198 x 398 / 200





Aluminum pallet, 2-fold, excluding chucking spigot Version

(MTS chucking spigot set ER-041460). To clamp workpieces, vises and gauges. ER-041460 to be ordered separately.



#### ER-041781 MTS pallet 198 x 398 / 250

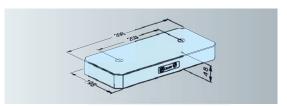




Version Aluminum pallet, 2-fold, excluding chucking spigot

(MTS chucking spigot set ER-041460).

**Application** To clamp workpieces, vises and gauges. ER-041460 to be ordered separately. Accessories



#### ER-038014 MTS pallet 398 x 398 / 200



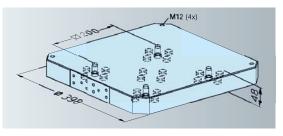


Aluminum pallet, 4-fold, excluding chucking spigot Version

(MTS chucking spigot set ER-041461 (M) / ER-041464 (A).

To clamp workpieces, vises and gauges. Application ER-041461 (M) / ER-041464 (A) to be ordered Accessories

separately.



#### ER-038002 MTS pallet 398 x 398 / 250



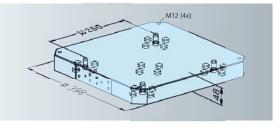


Aluminum pallet, 4-fold, excluding chucking spigot Version

(MTS chucking spigot set ER-041461 (M) / ER-041464 (A).

Application To clamp workpieces, vises and gauges. Accessories ER-041461 (M) / ER-041464 (A) to be ordered

separately.



#### ER-038376 MTS pallet 398 x 398 / 200

#### Hard Z support





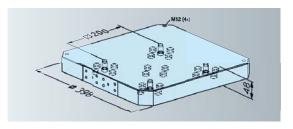
Aluminum pallet, 4-fold, excluding chucking spigot Version

(MTS chucking spigot set ER-041461 (M) /

ER-041464 (A).

Application To clamp workpieces, vises and gauges. ER-041461 (M) / ER-041464 (A) to be ordered Accessories

separately.



#### MTS pallet 398 x 398 / 250 Hard Z support ER-038374





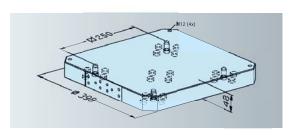
Aluminum pallet, 4-fold, excluding chucking spigot Version

(MTS chucking spigot set ER-041461 (M) /

ER-041464 (A).

To clamp workpieces, vises and gauges. Application ER-041461 (M) / ER-041464 (A) to be ordered Accessories

separately.



#### ER-058819 MTS Pallet 398 x 398/200 R50





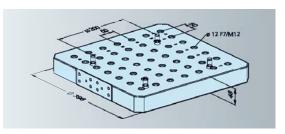
Version Aluminum pallet (hard anodized), 4-fold, excluding

chucking spigot (MTS chucking spigot set ER-041461 (M) /

ER-041464 (A).

To clamp workpieces, vises and gauges. **Application** ER-041461 (M) / ER-041464 (A) to be ordered Accessories

separately.



#### ER-044906 MTS Pallet 498 x 498/250 R50





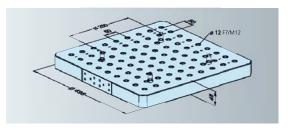
Aluminum pallet (hard anodized), 4-fold, excluding Version

chucking spigot (MTS chucking spigot set ER-041461 (M) /

ER-041464 (A).

**Application** To clamp workpieces, vises and gauges. Accessories ER-041461 (M) / ER-041464 (A) to be ordered

separately.



#### ER-048314 MTS Pallet 498 x 498 / 250



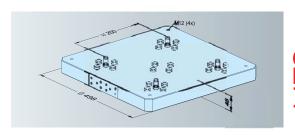


Aluminum pallet, 4-fold, excluding chucking spigot (MTS Version

chucking spigot set ER-041461 (M) / ER-041464 (A).

To clamp workpieces, vises and gauges. Application Accessories ER-041461 (M) / ER-041464 (A) to be ordered

separately.



#### ER-048315 MTS Pallet 498 x 498 / 250 Hard Z support



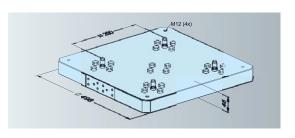


Aluminum pallet, 4-fold, excluding chucking spigot Version

(MTS chucking spigot set ER-041461 (M) / ER-041464 (A).

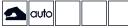
**Application** To clamp workpieces, vises and gauges. ER-041461 (M) / ER-041464 (A) to be ordered Accessories

separately.



#### ER-054981 MTS pallet 600 x 800 x 57 / 250

hard Z support





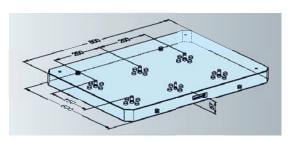


Version Aluminum pallet, 6-fold, excluding chucking spigot (MTS chucking spigot set ER-054710(A), ER-041462 (M).

Application To clamp workpieces, vises and gauges, for chip-cutting

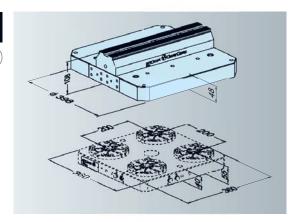
operations

To be ordered separately ER-054710(A), ER-041462 (M). Accessories

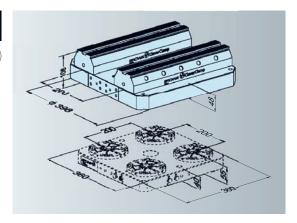


# Pallets CleverClamp System

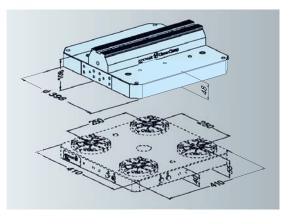
# Version Combination of MTS aluminum pallet with 398 rail (MTS spigot set ER-041461 (M)/ ER-041464 (A)). Application Optimal accessibility for 5-axis applications with single and multiple fixtures. Accessories Order separately: ER-041461 (M) / ER-041464 (A) or MTS GripperLink Rapid ER-038622.



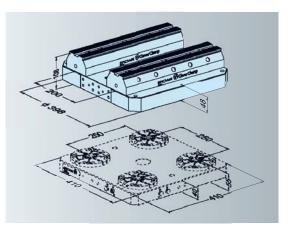
# Version Combination of MTS aluminum pallet with two 298 rails (MTS spigot set ER-041461 (M) / ER-041464 (A)). Application Optimal for multiple fixtures and for clamping big workpieces. Accessories Order separately: ER-041461 (M) / ER-041464 (A) or MTS GripperLink Rapid ER-038622.







ER-099319	Base MTS 250 duo CleverClamp
	auto C
Version	Combination of MTS aluminum with two 398 rails (MTS spigot set ER-041461 (M) / ER-041464 (A)).
Application	Optimal for multiple fixtures and for clamping big workpieces.
Accessories	Order separately: ER-041461 (M) / ER-041464 (A) or MTS GripperLink Rapid ER-038622.



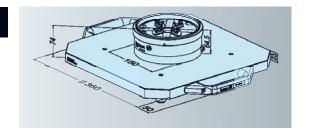
## ER-054315 Adapter pallet MTS-PowerChuck 360x360, pitch 200

Version Adapterpallet MTS to PowerChuck P. Chuck ER-029391

installed and aligned.

Operation PowerChuck P with lateral valve. Operate with air-jet. Application On machines with MTS base to receive ITS pallets and

standard holders.



#### ER-033602 MTS pallet P ø 148 Alu

Version

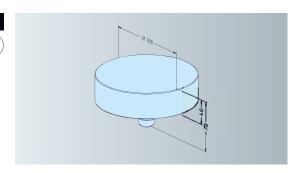


Aluminum pallet, fitted with centering plate ER-033600,

including chucking spigot ER-039200.

Application To clamp workpieces and gauges. For manual

handling.



#### ER-033600 MTS centering plate P

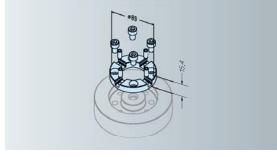




Version Steel, including attachment bolts and positioning pins. Application For the production of customized and indexable

MTS pallets.

Accessories Chucking spigot ER-039200 to be ordered separately.



#### ER-041928 MTS pallet P ø 148 Inox





Version Steel pallet, not hardened, including chucking spigot ER-040999. Centering segment integrated in the pallet

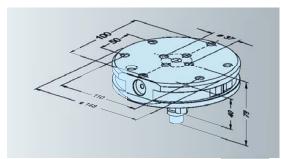
body.

Application To clamp workpieces and gauges. For manual handling

and automatic operation.

Note Compatible with EROWA PC210 CombiChuck and

PowerChuck P (ITS chucking spigot ER-010742 required).



#### ER-040999 MTS chucking spigot P

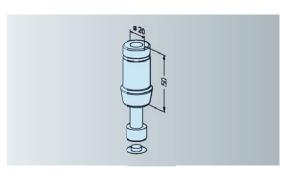


Version One chucking spigot, including attachment bolt and

protective cap.

Application For the conversion of ITS pallet ø 148 ER–041912 into

MTS pallet P ø 148 ER-041928.



# Chucking spigots

MTS centering spigot:

ER-033800 MTS centering spigot ER-038000 MTS centering spigot / A

The centering spigot defines the datum point (free of play).



MTS chucking spigot:

ER-039200 MTS chucking spigot / A

(centering play 0.1 mm).

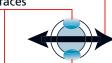


MTS compensation spigot:

ER-039201 MTS compensation spigot / A The compensation spigot positions the pallet in one axis only (X or Y) and is capable of compensating for a maximum set-up distance difference of 0.1 mm.

Possible compensation movements

Centering surfaces



#### ER-033800 MTS centering spigot

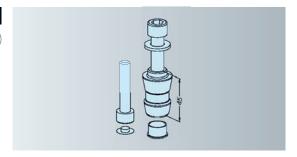




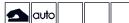
Version

Version

One chucking spigot with centering function (without play), including attachment bolts (M10x50, M12x55), U-disc and protective caps.



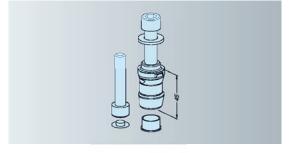
#### ER-039201 MTS compensation spigot / A







One chucking spigot with compensation function, including attachment bolts (M10x50, M12x55), U-disc and protective caps.



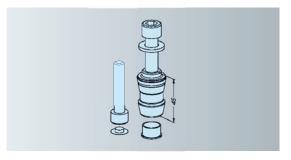
#### ER-039200 MTS chucking spigot / A



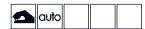


Version

One chucking spigot without centering (centering play 0.1mm), including attachment bolts (M10x50, M12x55), U-disc and protective caps.



#### ER-038000 MTS centering spigot / A



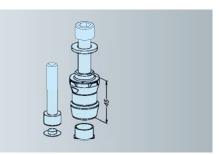


Version

One chucking spigot with centering function, including attachment bolts (M10x50, M12x55), U-disc, O-ring and protective caps.

Application

For MTS pallets which are loaded/unloaded automatically. The centering spigot defines the datum point without play and closes the cleaning boreholes in the MTS Chucks / A.



# Chucking spigot set

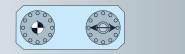
# ER-041460 MTS chucking spigot set 2





Version 1 centering spigot, 1 compensation spigot / A. Mounting With the bolts supplied through the pallet or

through the chucking spigot.



#### ER-041461 MTS chucking spigot set 4



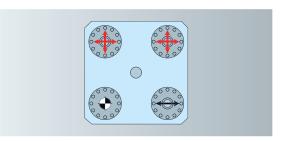


Version 1 centering spigot, 1 compensation spigot / A,

2 chucking spigots / A.

Mounting With the bolts supplied through the pallet or

through the chucking spigot.



#### ER-041464 MTS chucking spigot set 4 / A



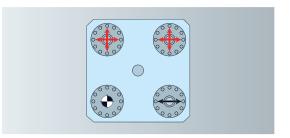


Version 1 centering spigot / A, 1 compensation spigot / A,

2 chucking spigots / A.

Mounting With the bolts supplied through the pallet or

through the chucking spigot.



#### ER-062465 MTS centering spigot set 4 / A

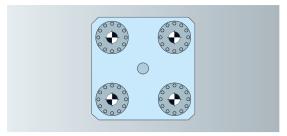




Version 4 centering spigots / A. Application For 5-axis machining.

To fit With the bolts supplied, through the pallet, or through

chucking spigots.



#### ER-041462 MTS chucking spigot set 6



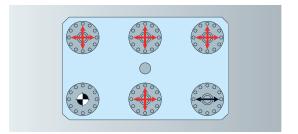


Version 1 centering spigot, 1 compensation spigot / A,

4 chucking spigots / A.

Mounting With the bolts supplied through the pallet or

through the chucking spigot.



#### ER-054710 MTS Chucking spigot set 6 / A



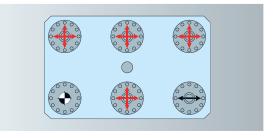


Version 1 centering spigot / A, 1 compensation spigot / A,

4 chucking spigots / A.

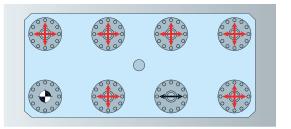
Mounting With the bolts supplied through the pallet or

through the chucking spigot.



# Chucking spigot set

#### MTS chucking spigot set 8 ER-041463 Version 1 centering spigot, 1 compensation spigot / A, 6 chucking spigots / A. With the bolts supplied through the pallet or Mounting through the chucking spigot.



#### **EROWA MTS**

# Operation

ER-0	73872	Manual control unit with booster	
			<b>940</b>
Versio	on	Manual valve to control the EROWA chucks:	

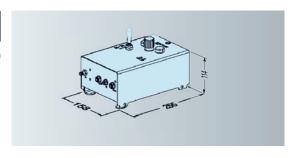
Opening/Reclamping/Cleaning.

Operation of: EROWA ITS Compact Combi Chuck, ITS, Application

UPC, MTS, PC 210 chucks and PowerChuck P.

Integrated booster with load ratio 1:2 (up to output pres-Note

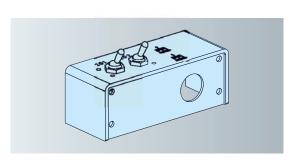
sure of 10 bar max.).



ER-099200	MTS 2.0 manual control unit
	<b>640</b>
Version	Manually operated valve for the control of the MTS 2.0 chuck functions. Opening / reclamping / monitoring / open check. Open control status: display possible through pressure gage and additional electrical signal.
Application	Operation of MTS 2.0 chucks.



ER-039466	Additional valve double
Version	For mounting to the manual control units ER-008988 and ER-073872, incl. set of hoses.
Application	Operating of two separate chucks with one single control unit.



# Operation

#### ER-001846 Air jet



Version Plastic, smooth regulation of air flow, connection

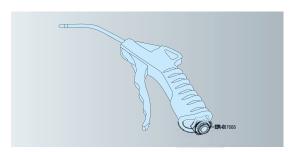
1/4", inside thread.

Application Operation of manual chucks.

Option Volume and pressure reduction to air jet (ER-087668).

Pressure build up is reduced if Air Jet is not pushed against

an air valve.



#### ER-074893 Pressure booster



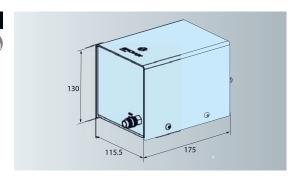
Version Quick-connect couplings for hose  $\emptyset$  i = 8 mm.

Compression ratio: 1:2

Application On insufficient system pressure and on pressure

fluctuations.

Installation Integrate in air circuit near application.



#### ER-034820 MTS air coupling

ER-034822 MTS air coupling pallet

1 piece

Application The MTS air coupling ER-034820 combined with the MTS

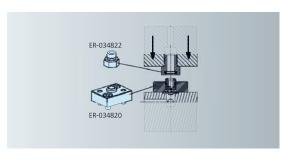
air coupling ER-034822 serves as a pneumatic interface

between MTS base plates (A) and MTS pallets (B).

For use with compressed air.

Working pres- max. 10 bar.

sure





#### **ER-044428** Coupling for MTS pallets

Application The coupling for MTS pallets ER-044428, in combination

with the nipple for MTS base plates ER-044426, serves as an interface for the medium connection between MTS

base plates (A) and MTS pallets (B).

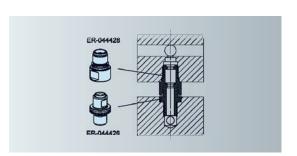
For use with compressed air,

with vacuum, with oil / hydraulic.

Working pres- max. 200 bar.

sure

Important Docking- and undocking only depressurized.



ER-042038

#### **EROWA MTS**

# Accessories

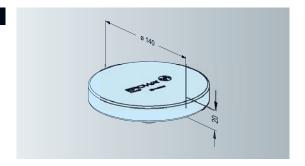
Version Aluminum cover, anodized. Suitable for MTS and

MTS 2.0 chucks.

MTS cover

Application Protects MTS and MTS 2.0 chucks that are not in use from

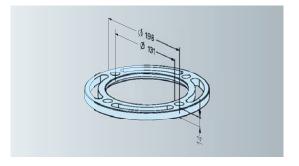
chips and coolant.



#### ER-033804 MTS ring bracket

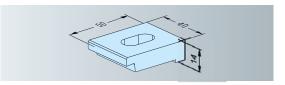
Version Bracket made of steel, excluding attachment bolts.
Application Suitable for MTS chucks only. To attach mounted

MTS chucks to the machine table.



#### ER-033805 MTS bracket 1 piece

Version Bracket made of steel, excluding attachment bolt.
Application To attach MTS chucks onto the machine table.
Note Four brackets are necessary per MTS chuck.



# ER-037967 MTS Locking bolt with M6 with internal thread M6

Version Steel

Application To plug the central borehole in MTS and MTS 81 chucks.



#### ER-067563 Rubber seal MTS ø25.25 x 17 for EDM





Version Rubber seal

Note Assembly according to operating instructions. Prevents

liquid from penetrating from below.

#### ER-034168 MTS Connector block 1/8" double

Version Connector block made of steel, excluding attachment

To receive pneumatic and hydraulic threaded connectors, Application

nipples and couplings.







Version Steel, hardened

**Application** The Z-support bolts (1, 2) serve as Z-support surface for

customized MTS pallets.

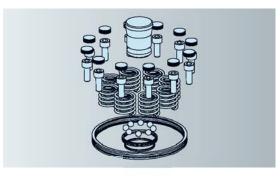
#### ER-034382 MTS repair set pneumatic

Version All the wearing parts for pneumatic MTS chucks. Application As a repair set or for the conversion of hydraulic MTS

chucks into pneumatic ones.

Note Repair or conversion according to instruction manual

supplied.



#### ER-061558 MTS 81 Repair Kit



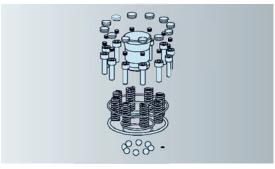


Application Repair Kit

Version All the wearing parts for MTS IntegralChuck ø 81

M-P (ER-057943) and MTS IntegralChuck ø 81 M-P/A

(ER-059016).



# Accessories

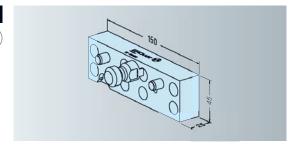
#### ER-038622 MTS GripperLink Rapid





Version Application Coupling for MTS pallets, mounting accessories included. Suited for MTS pallets to be used on EROWA handling

devices with the RCS coupling system.



ER-035294 EWIS™ Rapid chip with chip holder RCS

with chip ø 12.4 x 2 mm



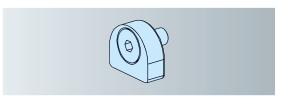






Holder with built-in data carrier. EWIS chip: read only. To build into RCS coupling, PalletSet W holder and

Basic WEDM holder.



EWIS™ Rapid chip with chip holder SW14 with chip ø 12.4 x 2 mm ER-035154





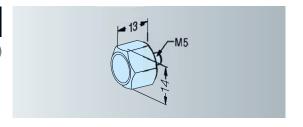




EWIS Rapid chip: read only.

Application In any EROWA electrode holder and pallet which has been

prepared for it.



ER-048478 MTS Chip guard low





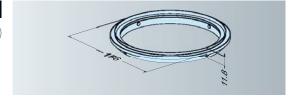
Version Aluminum, anodized

Application The MTS chip guard serves to seal the automatic MTS

chucks and base plates when MTS pallets are used.

Note The MTS chip guard low cannot be combined with the

MTS pallet P ø 148 Inox, ER-041928.



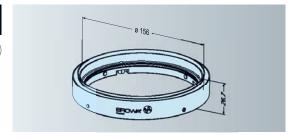
ER-056879 MTS Chip guard ø 156 with axial deaeration



Application For use with MTS pallet P ø 148.

Prevents dirt and chips from penetrating into the

MTS SingleChuck



#### ER-049041 MTS seal frame set / 200

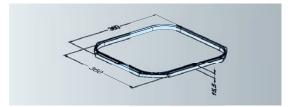




Aluminum anodized, with seal FPM (Viton). Version

The MTS seal frame set serves to protect MTS chucks Application against dirt and liquids when in use with an EROWA

MTS pallet.



#### ER-075393

MTS seal / 200 for MTS base plate 360 x 360 mm





Version FPM (Viton).

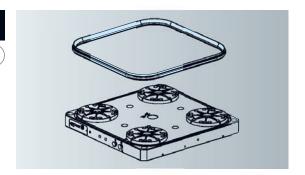
Prevents dirt from penetrating into MTS base plates 360 x Application

360 in combination with MTS pallets

398 x 398 / 200.

The MTS base plate must have, or be equipped with, the Note

groove (A) to accommodate the seal.



#### ER-071604 MTS seal /250

for MTS base plate 410 x 410 mm



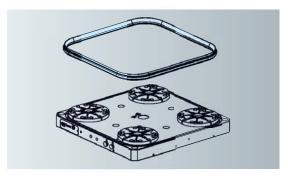


Version FPM (Viton)

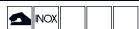
Application Prevents dirt from penetrating into MTS base plates

410 x 410 with the use of EROWA MTS pallets

398 x 398 / 250 and 498 x 498 / 250.



#### ER-078823 MTS alignment pallet P ø 148 for MTS single chuck

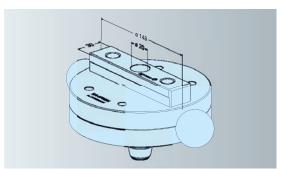






Version Pallet ø 148 mm, center borehole ø 20 mm. Alignment of radial, axial and angular position of Application

MTS single chucks.



#### ER-037870 MTS Alignment pallet / 200

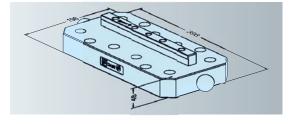
#### MTS Alignment pallet / 250 ER-037875





Version Twin aluminum pallet with precision ground alignment rail. Alignement of MTS chucks. Application

Rail length ER-037870 = 200 mm. Rail length ER-037875 = 250 mm.



ER-002023 from damage.

Meter.

Order units

# Accessories

ER-014326 Straight threaded connector 3101 06 10 ø6 / Ğ1/8 Application Pneumatic. ER-002814 Angled connector 3199 06 10 ø6 1/8 Application Pneumatic. ER-014366 Threaded T-connector 3198 06 10 Pneumatic. Application ER-014333 **T-connector** Application Pneumatic. ER-034095 **Cross-connector** ø6 Application Pneumatic. ER-002023 Tube ø 6/4 black Legris 1100 U06 01 Application Pneumatic. Max. operating pressure: 9 bar. Order unit Meters. ER-036672 MTS air jet valve Application Pneumatic. For air jet ER-001846. Reinforced pipe PMAFlex Co-Flex divisible ER-002147 Hydraulic and pneumatic. Protects tubes ER-033495 and Application

# ER-034098 Reduction nipple G1/4" - G1/8" Application Hydraulic and pneumatic. ER-034372 Reduction bushing IG1/8" - IG1/4" Application Hydraulic and pneumatic. ER-034373 Reduction bushing IG 1/8" - IG 1/8" AD FA 40-1/8-1/8

Application Hydraulic and pneumatic.

## ER-034375 Reduction nipple AG 1/4" - IG 1/8"

Application Hydraulic and pneumatic.

#### ER-001617 Threaded plug 1/8"

Application Hydraulic and pneumatic.

#### ER-033504 Nipple 1/8"

Application Hydraulic. With blocking device. Fits fast coupling ER-033499.

#### ER-033499 Rapid-action coupling 1/8" IG

Application Hydraulic. With blocking device. Fits fast nipple ER-033504.













# Mineral Cast Cube

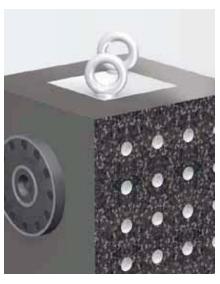
The whole working area of the machine is utilized optimally by using mineral cast cubes. Mineral cast as base material has many beneficial properties: The vibration damping is up to 10 times better than that of cast iron. Mineral cast also has a very high temperature stability.

Paired with the ingenious MTS datum point tooling system, the EROWA mineral cast cube becomes a key productivity factor.





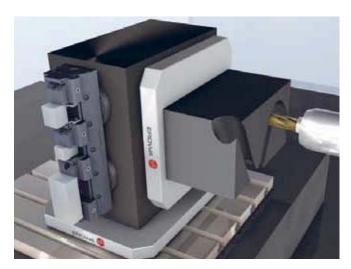
Changeover times are eliminated: Workpieces are prepared conveniently at the set-up station outside of the machine. They are then clamped in the MTS datum point tooling system for machining.



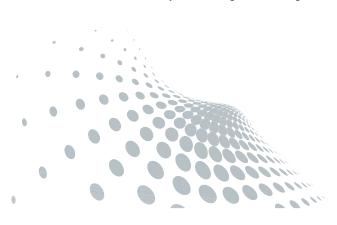
Moving the cube from the machine to the setup station? Simply lift it with the overhead crane.



Rust-resistant built-in pockets and internal pneumatic supply for safe operation in the challenging production environment.



Ultimate machine utilization by maximizing the working area.





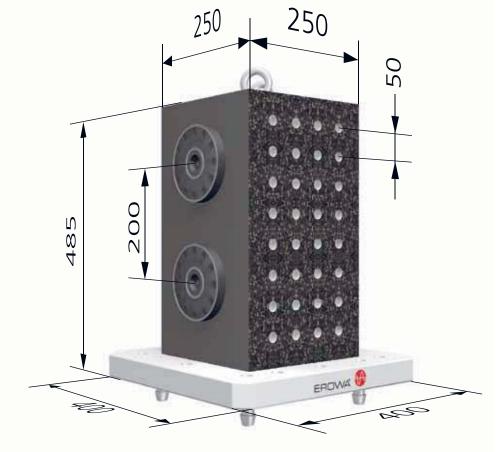
Reduce set-up time even further with EROWA CleverClamp, the modular tooling system. Easy to handle, versatile in use.

# Mineral Cast Cube Variations

All devices, including tombstones, should be clamped on the machine table as quickly and accurately as possible. The basis is the MTS datum point tooling system. So, all job changes are done in no time with only two pallets. The fixtures are stored in racks, saving space, but can be called up at any time.

#### Standard version:

ER-094454	MTS mineral cast cube 250 x 250 x 485 mm
Version	Mineral cast cube 250 x 250 x 445 mm.
	Including 2 sides each with 2 MTS chuck M-P (pitch 200 mm)
	and 2 sides with hole grid R50 / M12 F7.
	With mounted steel base plate 400 x 400 x 40 mm.
Operation	MTS chuck with air gun.
Note	Base plate with borehole for 63 / 100 mm slot spacing
	as well as preparation for 4 chucking spigots
	(set-up distance 200 mm).
Weiaht	Approx. 135 kg.
5 5	1-1







#### MTS Mineral Cast Cube

Scan the code and choose your mineral cast cube on our homepage.

For clamping of MTS 4-way, 2-way and single pallets.

The following examples show some of the possibilities.

Various sizes, other forms, any number of chucks, with or without hole patterns – almost everything is possible.

The MTS mineral cast cubes are produced according to customer specifications. Simply order "Your Cube".



Example 01

8 chucks in the smallest space. Clamp pallets from the tooling station directly on the cube.



Example 02

4-way or 2-way MTS pallets can be used on two sides.



Example 03

Additional four positions for MTS single pallets..



Example 04

For optimal use of the available height in the machine.



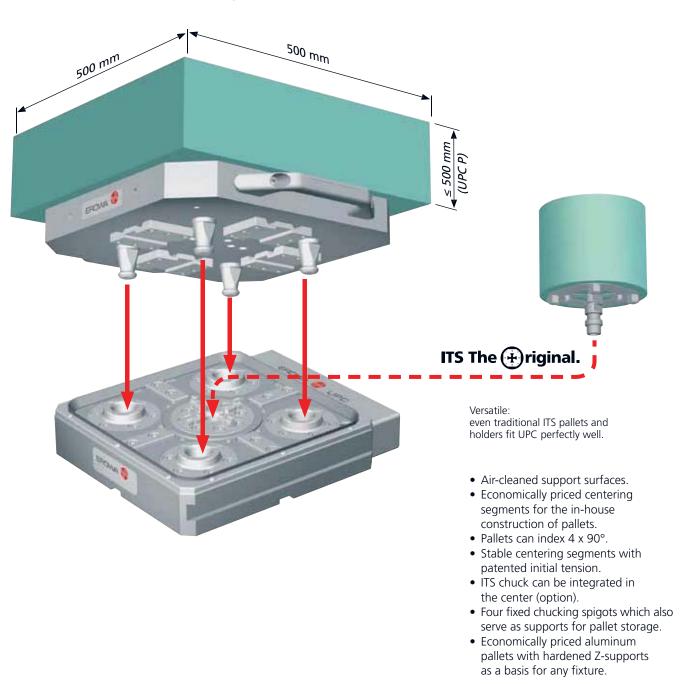
Example 05

Optimal use of the machine working envelope.

# You might as well try to move a mountain

EROWA's UPC (Universal Power Chuck) breaks through the conventional limits of precision, stability and workpiece size. Now, 500 x 500 x 500 mm have ceased to be a problem. And the 2-µm precision will not be impaired at all.

A decisive factor for ITS users: the central ITS chuck guarantees seamless integration into the existing system.



#### Applications

#### Handling

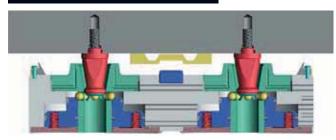




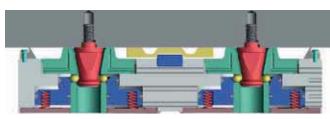


Manual / Loading facility / Robot

#### **Function**



UPC open



**UPC** closed

The functional elements have been designed with every conceivable simplicity. This makes for a favorable price. The few movable parts guarantee high functional safety.

The lock creates a retaining power of 50,000 N. The big distance between the supports creates an extreme degree of platform stability.

Precentering is done by means of the chucking spigots. Precise positioning is then achieved by four stable centering segments in the pallet and chuck. Release and cleaning are achieved by means of compressed air.

Technical data - UPC				
	UPC	UPC P «Production» 320 x 320 mm		
Pallet size	320 x 320 mm			
Chuck dimensions	280 x 280 mm	320 x 300 mm		
System height				
(chuck and pallet)	105 mm	105 mm		
Recommended				
workpiece sizes	500 x 500 x 350 mm	500 x 500 x 500 mm		
Repeatability	0.002 mm	0.002 mm		
Indexation, pallet	4 x 90° 4 x 90°			
Activation	clamped without pressure	e		
Air pressure, dry	min. 6 bar	min. 6 bar		
Operation	manually or with automatic control unit			
Process monitoring	pneumatically, evaluation electro-pneumatically			
Clamping power	32,000 N 50,000 N			



#### EROWA UPC in operation

# Universal, powerful, micronaccurate

The UPC tooling system is suitable for flexible use.
Whether big electrodes on the quill of EDM centers or big workpieces in milling machines: the UPC has been designed to cope with them, and it does

With a repeatability of 2  $\mu m,$  the UPC does not leave any wishes unfulfilled with regard to precision, either.

#### RELIABLE

Resistant to dirt.

Robust - developed for continuous operation.







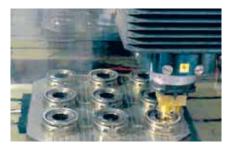
Customized solutions including. We'll be happy to advise you!



Low construction height leaves much room for workpieces.



Suitable PreSet stations are available for setting up and presetting - manual or CNC.



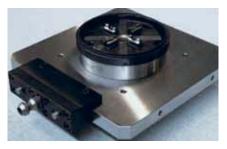
Practical! EDMing on the UPC magnet pallet.



On a clamping surface of up to 500 x 500 mm, even large workpieces or fixtures can be attached to the UPC pallet without any problems.



Powerful in heavy machining.



2 in 1: UPC adapter pallet with EROWA PowerChuck P.



The UPC pallet CleverClamp workpiece tooling system makes it simple to clamp different workpieces on a pallet with different clamping elements. The pallets can be automated.



UPC Pallet Alu DG – light and handy.



Short set-up times with flexible clamping elements: EROWA ClampSet vises on UPC grid pallet.



The UPC on the machine table constitutes the interface with the workpiece carrier. Resetting takes next to no time, and production can resume.



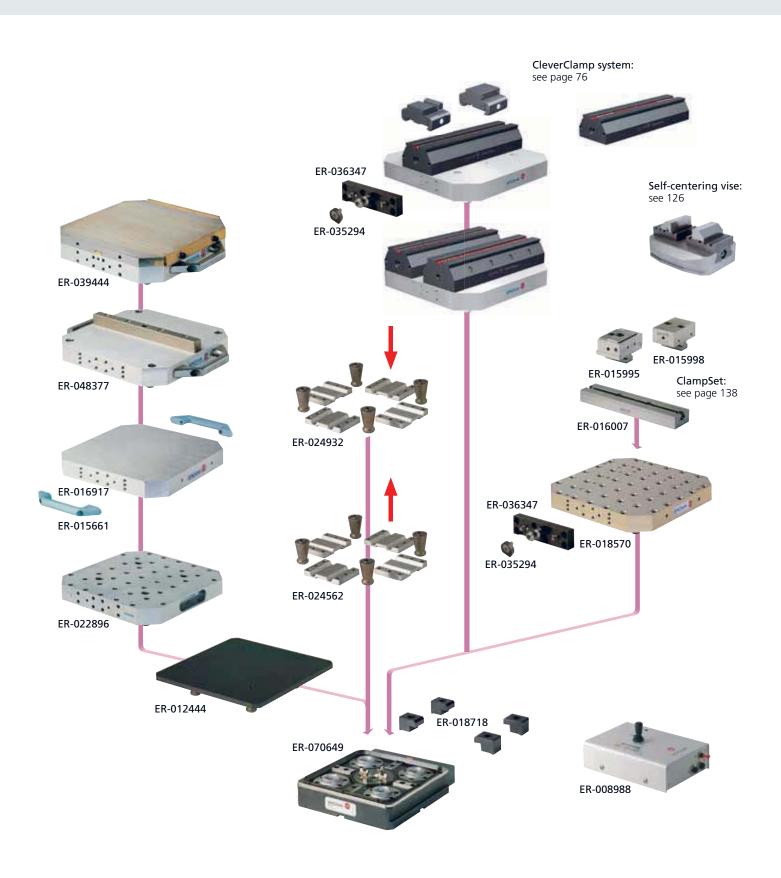
The UPC palletizing system is consistently automatable.



The chucks are completely sealed against ingress of coolant and chips. The contact surfaces are cleaned automatically and thoroughly with air.

# Palletizing System

#### The components



To make it easier for you to find your way about the fields of application for EROWA products, we use the following symbols in all our documents:



1. Manual operation



2. Operate with compressed air jet



3. Operate with manual valve



4. Operate with manual control unit



5. Operate with electropneumatic control unit



6. With central flushing clearance



7. Suited for submerged operation



8. Corrosion-resistant material



9. Suited for automatic operation



10. Handling with EROWA Robot gripper S



11. Handling with EROWA Robot gripper Combi



12. Handling with EROWA Robot gripper C



13. Handling with EROWA Robot gripper 72



14. Handling with EROWA Robot gripper 115



15. Handling with EROWA Robot gripper 148



16. Handling with EROWA Robot gripper RN PC 210



17. Handling with EROWA Robot gripper RCS



#### **EROWA UPC PALLETIZING SYSTEM**

UPC	Chucks	68
UPC	Pallets	69
UPC	Auxiliary equipment	71



For chip-removing processes



For EDM sinking



For WEDM

# Chucks

Technical data	UPC	UPC P «Production»	ITS Chuck 100P	PowerChuck
Repeatability	0.002 mm	0.002 mm	0.002 mm	0.002 mm
Indexing, pallet position-oriented	4 x 90°	4 x 90°	4 x 90°	4 x 90°
Chuck clamping power	32,000 N	50,000 N	6000 N	10 000 N
Generated by	spring power	spring power	spring power	spring power
Chuck opens, air pressure dry	min. 6 bar	min. 6 bar	min. 6 bar	min. 6 bar

**4** 

#### ER-074524 **UPC** chuck

Version

Version

Version

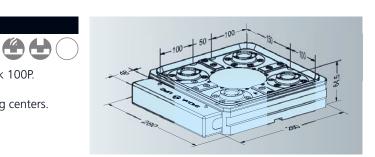


UPC, prepared to accommodate an ITS chuck 100P.

Through the base and on the side. Connections

On milling, grinding, drilling and EDM sinking centers. Application

In production lines.



#### ER-070649 UPC chuck with ITS Chuck 100 P

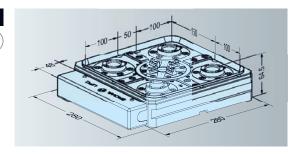


UPC with ITS chuck 100P fitted and aligned.

Connections Through the base and on the side.

On milling, grinding, drilling and EDM sinking centers. Application

In production lines.



#### ER-016841 **UPC P chuck**



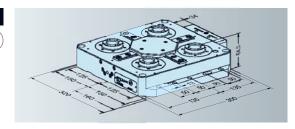
Chuck for high machining forces during chip removal.

Connections Through the base and on the side.

Application On milling, grinding, drilling and EDM centers and in

production lines.

UPC Sealing-Set ER-016650. Option



#### ER-078728 **UPC P with connection on TK 57 mm** with 2 air docks





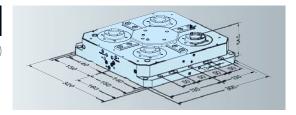
Version Connections Application

Chuck for high machining forces during chip removal. Through the base on pitch circle 57 mm and on the side. For milling, grinding, drilling and EDM centers and in

production lines.

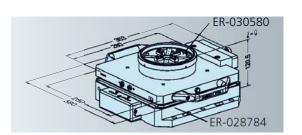
UPC Sealing kit ER-016650 and ER-030580. Option

Another system adaptations on request.



# Chucks

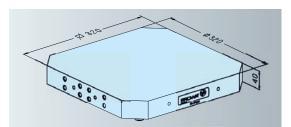
ER-030581	UPC P / PowerChuck P kit automatic
Version	UPC P with air dock for the automatic operation of Power-
	Chuck P.
Content	1 x ER-028784, UPC P with air duct and UPC seal kit
	1 x ER-030580, PowerChuck P on UPC pallet with air duct
	1 x Pneumatic tube.
Requirements	*At least 4 air ducts available on the machine table.
	*Air ducts for the PowerChuck P are only possible laterally.
	If required, an adapter plate can be used.
Please note	Another system adaptations on request



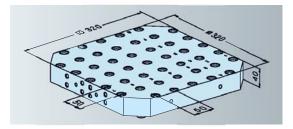
### EROWA UPC

# **Pallets**

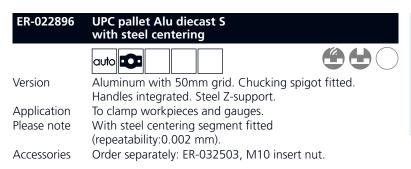
ER-016917 UPC pallet Alu 320 x 320 x 40	
auto 🕶 🕒	
Version Aluminum, with centering segments and chucking sp fitted. Hard Z-support.	oigots
Application To clamp workpieces and gauges. Please note Holes to be drilled as required.	

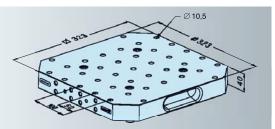


ER-018570	UPC pallet Alu R50 320 x 320 x 40 anodized
ER-016003	UPC pallet Alu R50 320 x 320 x 40
	auto C
Version	Aluminum with 50 mm grid. Centering segments and chucking spigots fitted. Hard Z-support.
Application	Basis for gauges and workpieces.
Info	Pattern borehole ø 12F7, M12 thread.

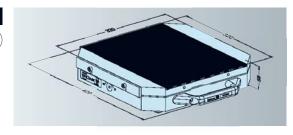


# **Pallets**





# Version Application UPC magnet plate Neomicro 320x320x58 We sion Application UPC magnet plate Neomicro 320x320x58 We sion Application To clamp workpieces for surface and profile grinding, EDM

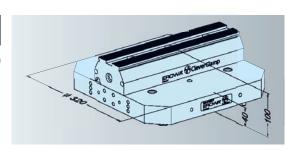


#### **EROWA UPC**

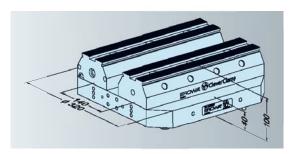
sinking, and high speed milling.

# Pallets CleverClamp System

ER-099318	Base UPC mono CleverClamp
	<b>△</b> auto <b>△</b>
Version	Combination of UPC aluminum pallet with 320 rail; centering segments and chucking spigots fitted. Z-Support hard.
Application	Optimal accessibility for 5-axis applications with single and multiple fixtures.
Accessories	Order separately: GripperLink RCS / EWIS™ Rapid FR-036347 for Automation



ER-099317	Base UPC duo CleverClamp
	△ auto ◆
Version	Combination of UPC aluminum pallet with two 320 rails; centering segments and chucking spigots fitted. Z-support hard.
Application	Optimal for multiple fixtures and for clamping big workpieces.
Accessories	Order separately: GripperLink RCS / EWIS™ Rapid ER-036347 for Automation.



# Auxiliary equipment

UPC centering segments and chucking spigots, for mounting from above ER-024932



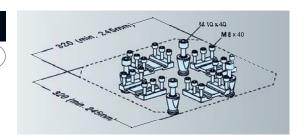


Version Four segments and chucking spigots for UPC,

including bolts.

To produce special UPC pallets. **Application** 

With bolts through the pallet from above. Mounting Easy to assemble on the UPC chuck. Note



#### ER-024562 **UPC** centering segments and spigots

to mount from lower side





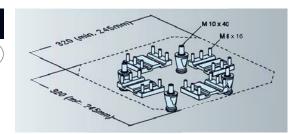
Four segments and chucking spigots for UPC, Version

including bolts.

To produce special UPC pallets. Application

With bolts through the pallet from below. Mounting Note Easy to assemble on the PreSet Basic UPC

presetting station.



#### ER-048377 UPC alignment pallet, 320x320x40



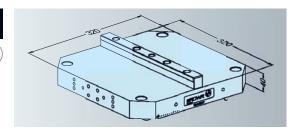




UPC chucks.

System parallelism 0.005 mm. Please note

Borehole concentricity 0.005 mm.



#### ER-029453 PowerChuck P on UPC pallet



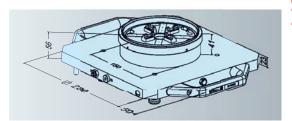
Version Adapter pallet UPC - PowerChuck P.

Connections Laterally on pallet.

**Application** On machining centers. Operate with air-jet or fixed

Manual change into UPC. Possible automatic change into Note

PowerChuck P.



#### ER-030580 PowerChuck P on UPC pallet with air connection



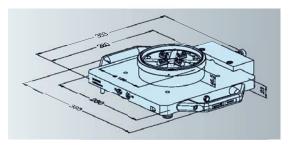


Adapter pallet UPC - PowerChuck P. Version

From the bottom through of the pallet. Suitable for Connections

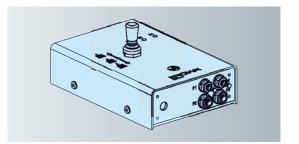
ER-028784 and ER-078728.

Application On machining centers.

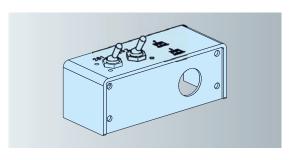


# Auxiliary equipment

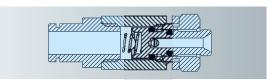
ER-008988	Manual control unit
	<b>640</b>
Version	Manual valve to control all the functions of ITS, ITS Compact CombiChuck, PowerChuck P and UPC: opening/reclamping/cleaning.
Application	Operation of chucks on machines.



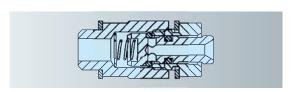
# Version For mounting to the manual control units ER-008988 and ER-073872, incl. set of hoses. Application Operating of two separate chucks with one single control unit.



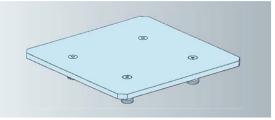
ER-016531	UPC air jet connection
	<b>64</b> 0
Version	Valve for the manual operation of UPC ER-016092,
	ER-016093, ER-074527 and ER-070649 with an air jet.
Application	To be fitted on UPC cover.



ER-018168	UPC P air jet connection
Version	Valve for the manual operation of UPC P ER-016841 with an air jet.
Application	To be fitted on UPC P cover.







#### ER-094178 Cover set for UPC / ITS 50 C

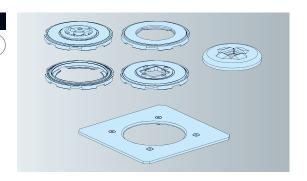




Version Aluminum with inserts, to protect UPC chuck when used

wih holder 72, pallet ø115, pallet ø148, electrode holders

ITS 50 C.



#### ER-018247 Cover UPC pallet ø 148

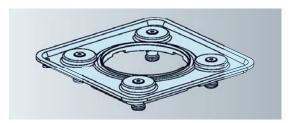




Version Aluminum. Cover for UPC ER-070649.

Protects UPC system when ø 148 mm pallets are used in Application

the ITS central chuck.



#### **UPC** sealing kit ER-016650





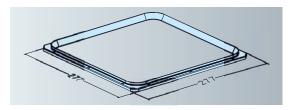


Application To seal the UPC P against chips.

With supplied bolts. Mounting

Fits UPC No. ER-016841/ER-070649/ER-074524/ Please note

ER-078728.



#### ER-018718 **UPC clamping bracket**

4 pieces

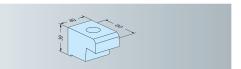


High tension steel, mounting accessories not included. Version

Application To mount UPC chucks to machine tables.

Please note Fits UPC chuck No. ER-016841/ER-070649/ER-074524/

ER-078728.



#### Handles for UPC pallets / FrameSet ER-015661

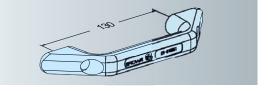
2 pieces





Version Aluminum die-casting, set of 2 units. Application Safe handles for UPC pallets.

Mounting With the enclosed bolts to the prepared threads.





# **EROWA UPC**

# Auxiliary equipment

Sealing bolt M12x16 50 pieces ER-018817



Version Set of 50, including square wrench.

Plastic bolts to seal grid boreholes that are not in use. Application

Suitable for ER-018570 and ER-016003.



ER-022646 Plug ø 10.6x20

50 pieces



Version Set of 50.

Plastic plug to seal grid boreholes that are not in use. Application

Suitable for ER-022896.

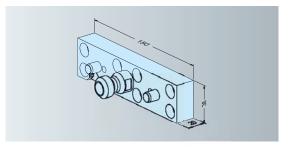


GripperLink RCS / EWIS™ Rapid ER-036347



Version Coupling for UPC pallets, mounting accessories included. Suited for UPC pallets to be used on EROWA handling Application

devices with the «RCS coupling system».



ER-035294 EWIS™ Rapid chip with chip holder RCS

with chip ø 12,4 x 2mm



Version Holder with built-in data carrier. EWIS chip: read only. To build into RCS coupling, PalletSet W holder and Basic Application

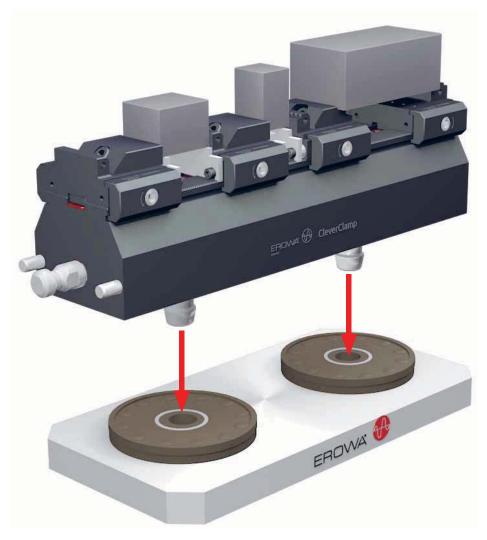
WEDM holder.



# The flexible workpiece clamping system for chip-cutting processes

The EROWA CleverClamp system is a modular and universal workpiece clamping system. It is simple to operate and can be used in a wide variety of ways.

CleverClamp base rails are fitted directly to the machine table, a tombstone, a pallet, etc. Thanks to the standardized interface, they can be universally used in EROWA's UPC and MTS palletizing systems.





- The base rails constitute the foundation of the CleverClamp workpiece clamping system.
- The base rails are available in various versions.
- Large and well-thought-out selection of clamping and stop elements.
- Precise 2mm positioning grid to place clamping and stop elements.
- MTS clamping spigots can be directly fitted to the base rails.
- The integrated scale with a 2mm gradation helps the operator to position the clamping and stop elements quickly and repeatably during setting-up operations.
- Clamping surfaces are available in various versions.
- Base rails can be directly automated.

## **Applications**

# Handling







Manual / Loading facility / Robot

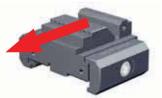
#### **Function**



Tochnica	Idata	Clamping	alamanta
LEIGH HEGG	i uata -		elements

	Pull-down clamping elements	Linear clamping elements
Clamping range	0 - 4.1mm	0 - 5mm
Clamping power	up to 28kN	up to 16kN





## 01 | Precise

Steel, hardened and ground, 2mm positioning grid.

#### 02 | Scale

for the quick positioning of the clamping elements.

## 03 | Automation

Attachment borehole for the coupling required for automatic handling.

## 04 | Stop element

## 05 | Clamping element

Depending on requirements, as a pull-down or linear clamping element.

#### 06 | Locking bolt

Threaded spindle mechanism for the quick attachment of the modules.

#### 07 | Support

Various versions and heights.

#### 08 | Clamping jaw

A suitable stop surface for every clamping position.

#### 09 | Chucking spigot

for quick positioning in the EROWA MTS tooling system.

## 10 | Automation coupling (option)

More productive machine hours through automatic loading.

# EROWA CleverClamp system in operation

# Perfect combination

The CleverClamp system clamps any workpiece and adapts to any machine situation.

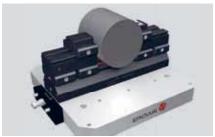
Suitable clamping and stop elements can be placed quickly with the help of the precise positioning grid. The base rails take up hardly any room but still provide a great deal of space for the flexible attachment of a wide variety of workpiece shapes and sizes.

## **EXTREMELY VERSATILE**

Everything matches up and can be combined flexibly.



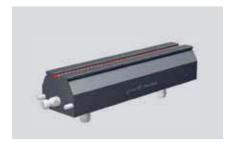




Use of elevation elements to clamp larger workpieces.



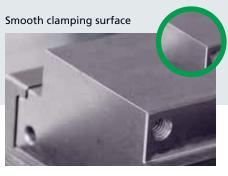
- As a single rail to be individually fitted onto the machine table, fixture, EROWA UPC or MTS pallet, etc.



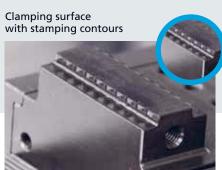
- With a fitted chucking spigot and automation coupling (option) for direct integration into the EROWA MTS tooling system.
- Can be directly automated.



- On EROWA UPC and MTS pallets.







You can choose the clamping surface structure according to materials and workpieces.



The CleverClamp base rails have holes on both sides to attach eye bolts.



Clamping of workpieces with stamping technology at the minimum clamping height of 3mm.



Various clamping and stop jaws for every requirement. Soft jaws can be used for the production of clamping jaws with contours according to requirements, for example.



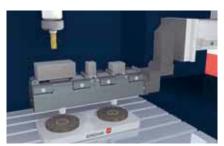
EROWA CleverClamp to clamp big workpieces with great holding power.



Multiple clamping of the same or different workpieces on the same base.



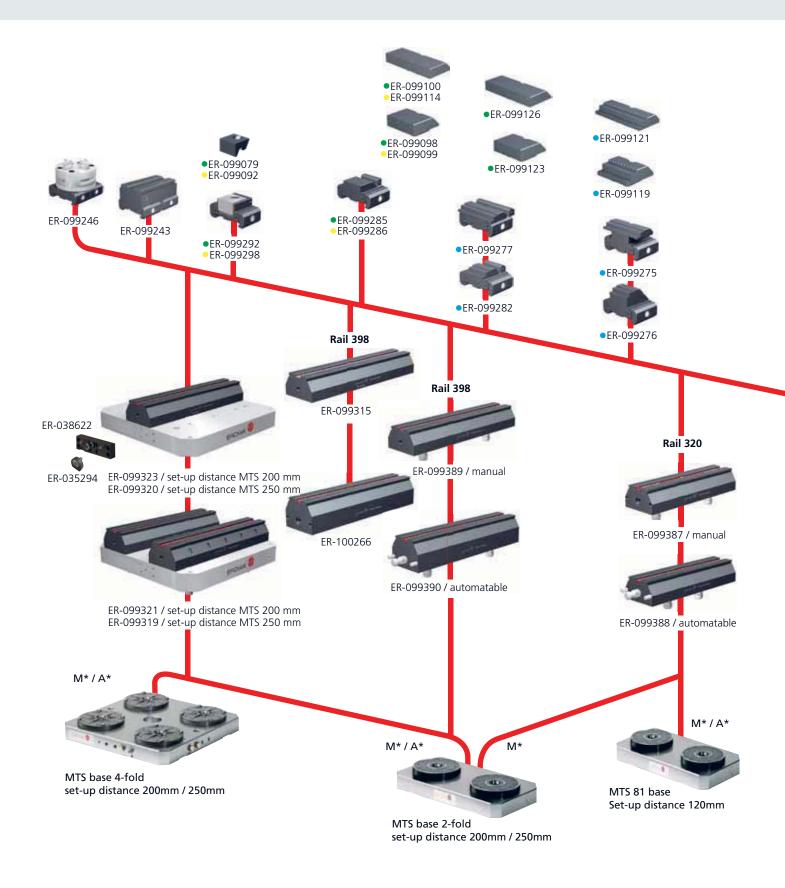
Simple handling, short set-up times. Setting up and resetting in just a few steps.



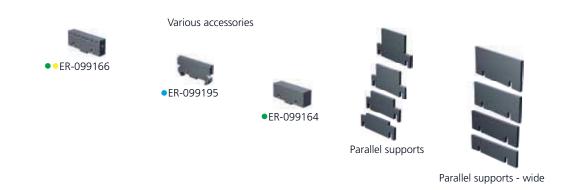
The CleverClamp can be directly automated. The Robot places the workpiece carrier on the machine with precision and speed.

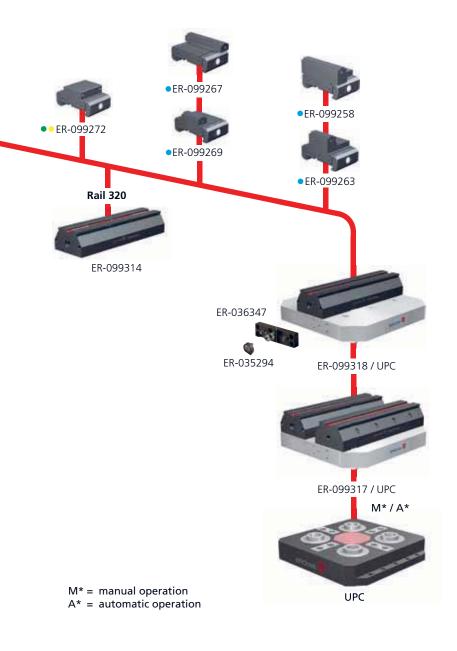
# Tooling system

# The components



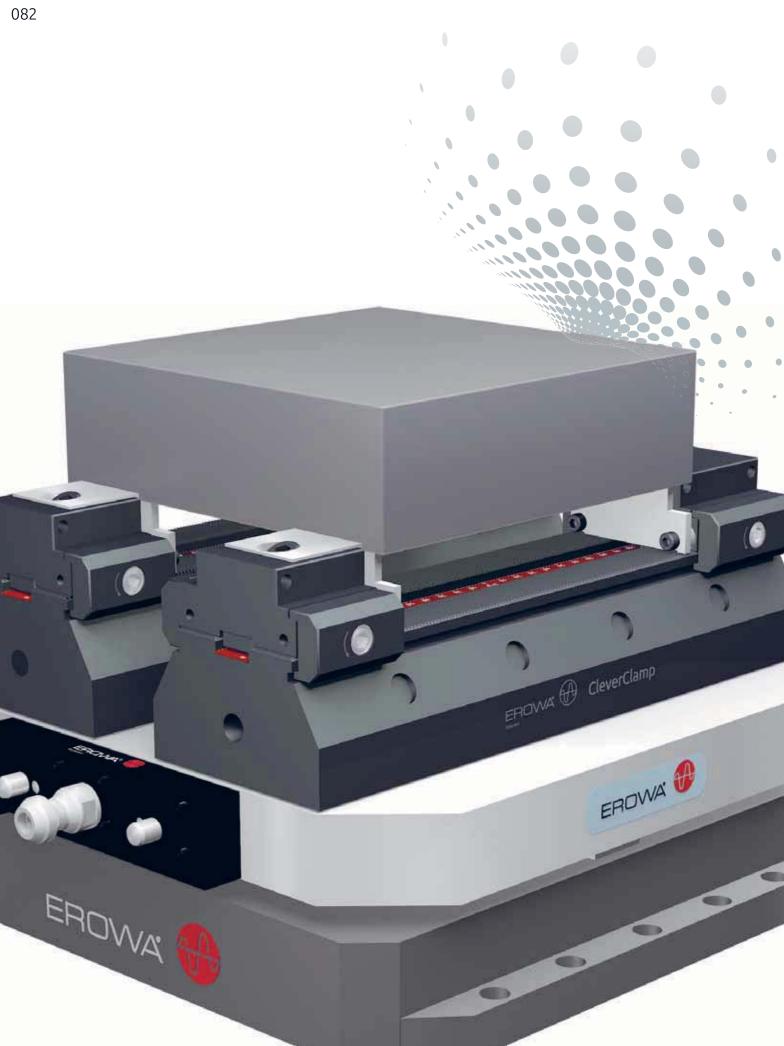
# EROWA provides you with a full range of products - everything fits together!







surface finish.



**EROWA CLEVERCLAMP SYSTEM** 

To make it easier for you to find your way about the fields of application for EROWA products, we use the following symbols in all our documents:



1. Manual operation



2. Operate with compressed air jet



3. Operate with manual valve



4. Operate with manual control unit



5. Operate with electropneumatic control unit



6. With central flushing clearance



7. Suited for submerged operation



8. Corrosion-resistant material



9. Suited for automatic operation



10. Handling with EROWA Robot gripper S



11. Handling with EROWA Robot gripper Combi



12. Handling with EROWA Robot gripper C



13. Handling with EROWA Robot gripper 72



14. Handling with EROWA Robot gripper 115



15. Handling with EROWA Robot gripper 148



16. Handling with EROWA Robot gripper RN PC 210



17. Handling with EROWA Robot gripper RCS



CLEVERCE	AMD WORK	DIECE TOOI	ING CVCTEM

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For chip-removing processes

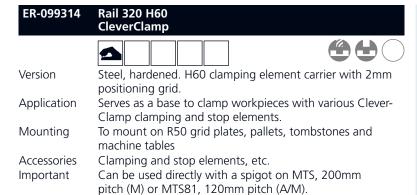


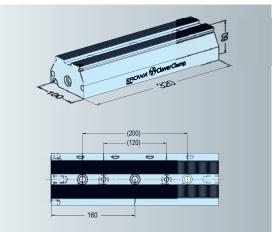
For EDM sinking



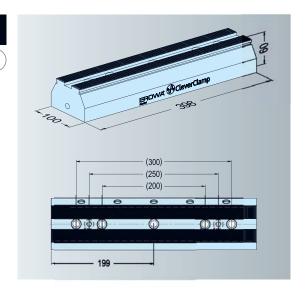
For WEDM

# Rails

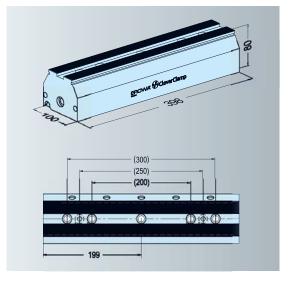




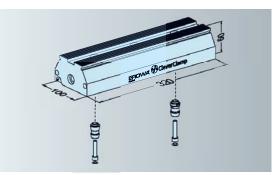
#### ER-099315 Rail 398 H60 CleverClamp Steel, hardened. H60 clamping element carrier with 2mm Version positioning grid. Serves as a base to clamp workpieces with various Clever-Application Clamp clamping and stop elements. Mounting To fit on R50 grid plates, pallets, tombstones and machine Accessories Clamping and stop elements, etc. Important Can be used directly with a spigot on MTS, 200mm pitch (M) or 250mm pitch (M).



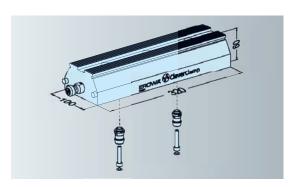
ER-100266	Rail 398 H80 CleverClamp
Version	Steel, hardened. H80 clamping element carrier with 2mm positioning grid.
Application	Serves as a base to clamp workpieces with various Clever-Clamp clamping and stop elements.
Mounting	To fit on R50 grid plates, pallets, tombstones and machine tables.
Accessories Important	Clamping and stop elements, etc. Can be used directly with a spigot on MTS, 200mm pitch (A/M) or 250mm pitch (A/M).

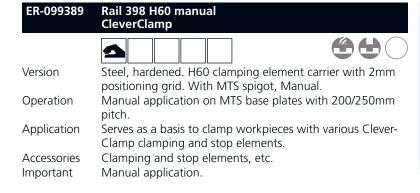


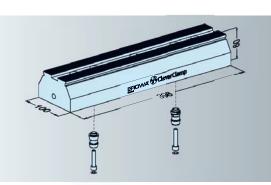




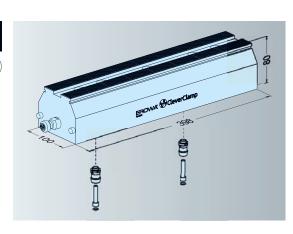
ER-099388	Rail 320 H60 automated CleverClamp
	<b>△</b> auto <b>△ △ △</b>
Version	Steel, hardened. H60 clamping element carrier with 2mm
	positioning grid. With MTS spigot, automatic, and Grip-
	perLink.
Operation	Automated application on MTS81 base plates with
	120mm pitch.
<b>Application</b>	Serves as a base to clamp workpieces with various Clever-
	Clamp clamping and stop elements.
Accessories	Clamping and stop elements, etc.
Important	Automated application.





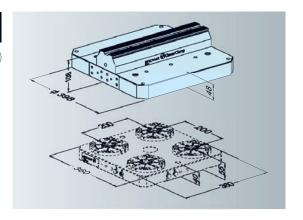


ER-099390	Rail 398 H80 automated CleverClamp
	auto C
Version	Steel, hardened. H80 clamping element carrier with 2mm
	positioning grid. With MTS spigot, automatic, and Grip-
	perLink.
Operation	Automated application of MTS base plates with
	200/250mm pitch.
Application	Serves as a base to clamp workpieces with various Clever-
	Clamp clamping and stop elements.
Accessories	Clamping and stop elements, etc.
Important	Automated application.

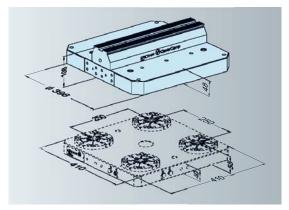


# MTS Base rails

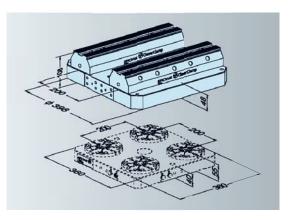
# Version Combination of MTS aluminum pallet with 398 rail (MTS spigot set ER-041461 (M)/ ER-041464 (A)). Application Optimal accessibility for 5-axis applications with single and multiple fixtures. Accessories Order separately: ER-041461 (M) / ER-041464 (A) or MTS GripperLink Rapid ER-038622.



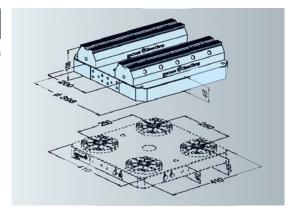
ER-099320	Base MTS 250 mono CleverClamp
	<b>△</b> auto <b>△</b>
Version	Combination of MTS aluminum pallet with 298 rail (MTS spigot set ER-041461 (M) / ER-041464 (A)).
Application	Optimal accessibility for 5-axis applications with single and multiple fixtures.
Accessories	Order separately: ER-041461 (M) / ER-041464 (A) with GripperLink Rapid ER-038622.





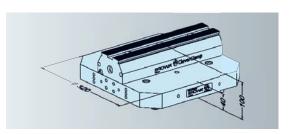


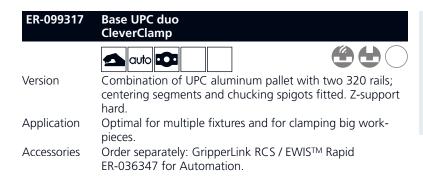
ER-099319	Base MTS 250 duo CleverClamp
	<b>△</b> auto <b>△ ← ←</b>
Version	Combination of MTS aluminum with two 398 rails (MTS spigot set ER-041461 (M) / ER-041464 (A)).
Application	Optimal for multiple fixtures and for clamping big workpieces.
Accessories	Order separately: ER-041461 (M) / ER-041464 (A) or MTS GripperLink Rapid ER-038622.

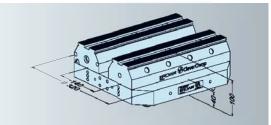


# **UPC** Base rails

ER-099318	Base UPC mono CleverClamp
	auto C
Version	Combination of UPC aluminum pallet with 320 rail; centering segments and chucking spigots fitted. Z-Support hard.
Application	Optimal accessibility for 5-axis applications with single and multiple fixtures.
Accessories	Order separately: GripperLink RCS / EWIS™ Rapid ER-036347 for Automation.

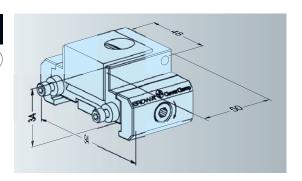




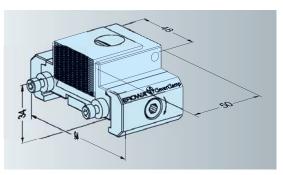


# Pull down clamping elements

EK-099292	CleverClamp
Version	Steel, hardened, width 48mm, height 34mm, clamping and stop sides smooth.
Application	Pull-down element for clamping jobs with high clamping forces. Surface: smooth. Ideal for two-side machining and for clamping workpieces with machined surfaces.
Mounting	On a CleverClamp rail.
Important	Suitable for single or multiple fixtures.
Clamping force	Up to 28kN max. at a torque of 40Nm max.
Clamping stroke	Up to 4.1mm.



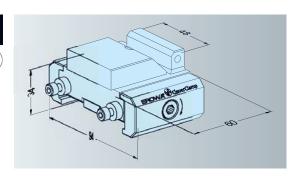




# EROWA CleverClamp System

# Linear clamping elements

ER-099285	Linear Slide Multi Flat CleverClamp
Version	Steel, hardened, width 48mm, height 34mm, clamping and stop sides smooth.
Application	For the linear clamping of workpieces with machined surfaces.
Mounting	On CleverClamp rail.
Important	Modularly compatible with all linear jaws. Suitable for single and multiple fixtures.
Clamping force	Up to 16kN max. with a torque of 40Nm max.
Clamping stroke	Up to 5mm.



# Linear clamping elements

# ER-099286 **Linear Slide Multi Grip** CleverClamp

Version Steel, hardened, width 48mm, height 34mm, clamping

and stop sides with grip contours. Linear clamping with grip contours for additional purchase. **Application** 

On CleverClamp rail. Mountaing

Important Modularly compatible with all linear jaws. Suitable for

single and multiple fixtures.

Linear Slide Multi Stamp

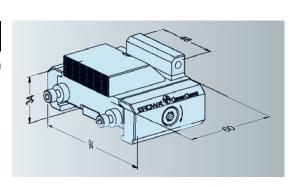
Clamping Up to 16kN max. with a torque of 40Nm max.

force

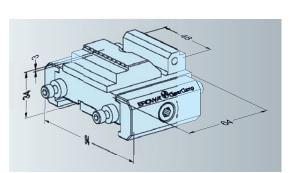
Up to 5mm. Clamping

stroke

ER-099282



	CleverClamp
Version	Steel, hardened, width 48mm, height 34mm, clamping and stop sides with stamp contours
Application	Ideal for clamping blanks at the minimum clamping height of 3mm. Secure grip thanks to stamp technology for direct stamping. Can also be used for two-side machining.
Mounting	On CleverClamp rail.
Important	Modularly compatible with all linear jaws. Suitable for single and mutliple fixtures.
Clamping force	Up to 16kN max. with a torque of 40Nm max.







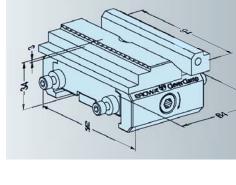
Mounting On CleverClamp rail. Important Modularly compatible with all linear jaws. Suitable for

single and multiple fixtures.

Clamping Up to 16kN max. with a torque of 40Nm max. force

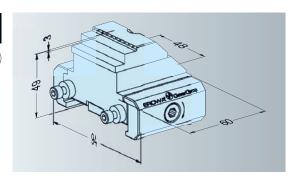
Clamping stroke

Up to 5mm.

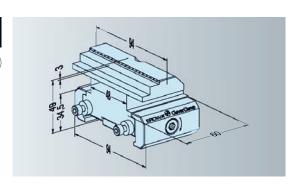


# Linear clamping elements

ER-099276	Linear Slide 5X Stamp CleverClamp
Version	Steel, hardened, width48mm, height 49mm, clamping side with stamp contours.
Application	Optimised machine spindle accessibility for 5-axis applications. Ideal for clamping blanks at a minimum clamping height of 3mm. Secure grip thanks to stamp technology for direct stamping.
Mounting	On CleverClamp rail.
Important	Modularly compatible with all linear jaws. Can be used for single and multiple fixtures.
Clamping force	Up to 16kN max. with a torque of 40Nm max.
Clamping stroke	Up to 5mm.



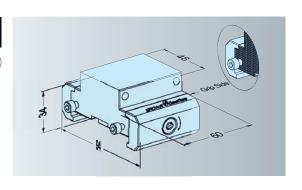
ER-099275	Linear Slide 5X Stamp Wide CleverClamp
Version	Steel, hardened, width 94mm, height 49mm, clamping side with stamp contours.
Application	Optimised machine spindle accessibility for 5-axis applications. Ideal for clamping blanks at a minimum clamping height of 3mm. Secure grip thanks to stamp technology for direct stamping.
Mounting	On CleverClamp rail.
Important	Modularly compatible with all linear jaws. Can be used for single and multiple fixtures.
Clamping force	Up to 16kN max. with a torque of 40Nm max.
Clamping stroke	Up to 5mm.



# EROWA CleverClamp System

# Stop elements

ER-099272	Stop Flat/Grip CleverClamp
Version	Steel, hardened, width 48mm, height 34mm; two stop sides: one smooth, one with grip contours.
Application	Stop element in the modular CleverClamp system. Smooth stop side for workpieces with a machined surface, grip side for additional purchase.
Mounting	On CleverClamp rail.



# Stop elements

# ER-099269 **Stop Multi Stamp** CleverClamp

Steel, hardened, width 48mm, height 34mm, with stamp Version

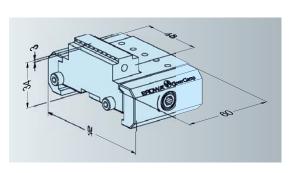
Application Stop element in the modular CleverClamp system. Stop element with stamp contours, ideal in combination

with stamp clamping elements for clamping blanks at a

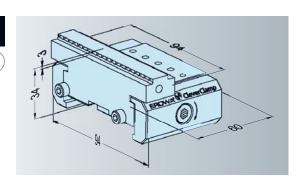
mimimum clamping height of 3mm.

Mounting On CleverClamp rail.

ER-099267 Stop Multi Stamp Wide



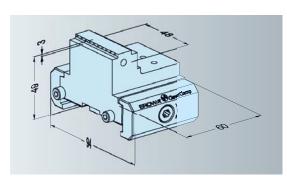
	CleverClamp
Version	Steel, hardened, width 94mm, height 34mm, with stamp countours.
Application	Stop element in the modular CleverClamp system. Stop element with stamp contours, ideal in combination with stamp clamping elements for clamping blanks at a minimum clamping height of 3mm.
Mounting	On CleverClamp rails.



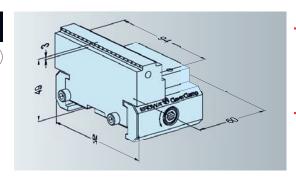
ER-099203	CleverClamp
Version	Steel, hardened, width 48mm, height 49 mm, with stamp contours.
Application	Stop element in the modular CleverClamp system. Stop

element with better machine spindle accessiblity for 5-axis applications. With stamp contours, ideal in combination with stamp clamping elements for clamping blanks at a minimum clamping height of 3mm.

On CleverClamp rail. Mounting

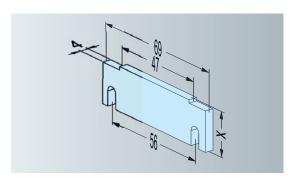


ER-099258	Stop 5X Stamp Wide CleverClamp
Version	Steel, hardened, width 94mm, height 49mm, with stamp countours.
Application	Stop element in the modular CleverClamp system. Stop element with better machine spindle accessibility for 5-axis applications. With stamp countours, ideal in combination with stamp clamping elements for clamping blanks at a minimum clamping height of 3mm.
Mounting	On CleverClamp rail.



# Accessories / Parallel supports

ER-099204	Support 20 CleverClamp
ER-099206	Support 24 CleverClamp
ER-099227	Support 29 CleverClamp
ER-099228	Support 31 CleverClamp
ER-099229	Support 34 CleverClamp
ER-099230	Support 39 CleverClamp
ER-099231	Support 44 CleverClamp
ER-099232	Support 46 CleverClamp









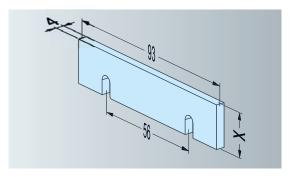
Version Application Steel, hardened, width 47mm, height x mm. Ground support for setting the workpiece clamping height

Important

between the CleverClamp clamping and stop elements. Supports of the heights 34, 39, 44 and 46 can only be used in combination with the 5-axis clamping and stop

elements.

ER-099233	Support 20 Wide CleverClamp	
ER-099234	Support 24 Wide CleverClamp	
ER-099235	Support 29 Wide CleverClamp	
ER-099236	Support 31 Wide CleverClamp	
ER-099237	Support 34 Wide CleverClamp	
ER-099238	Support 39 Wide CleverClamp	
ER-099239	Support 44 Wide CleverClamp	
ER-099240	Support 46 Wide CleverClamp	





Version Application Steel, hardened, width 93mm, height x mm.

Ground support for setting the workpiece clamping height between the CleverClamp clamping and stop elements.

Important

Supports of the heights 34, 39, 44 and 46 can only be used in combination with the 5-axis clamping and stop elements.

# CleverClamp System

# EROWA CleverClamp System

# Accessories

# ER-099243 Elevation for rail H60 CleverClamp





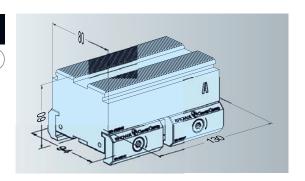
Version Steel, hardened, height 60mm, width 94mm, length

130mm.

Application CleverClamp 5-axis elevation - enables optimal machine

spindle accessibility in 5-axis applications.

Mounting On CleverClamp rail.



# ER-099246 Quick Chuck 100 P CleverClamp





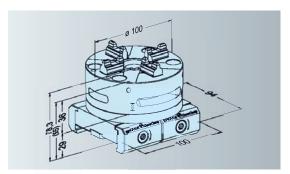
Version CleverClamp carrier element with QuickChuck 100P,

manual.

Application Adapter between CleverClamp and EROWA ITS pallets/

holders.

Mounting On CleverClamp rail.



# ER-099166 Stop Jaw Flat / Grip Wide CleverClamp





Version Steel, hardened, width 94mm, height 34mm, one side

smooth, the other with grip contours.

Application Widening the stop surface for better grip when clamping

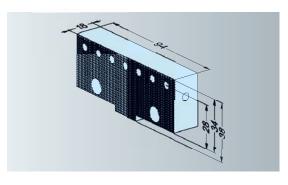
wide workpieces.

Mounting Use the bolts supplied to fit it to the front of the Clever-

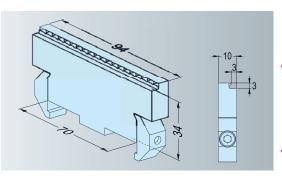
Clamp clamping or stop elements of your choice.

Important Can be ideally combined for use with the 94mm-width

linear jaws.



ER-099195	Stop Jaw Stamp Wide CleverClamp
Version	Steel, hardened, width 94mm, height 34mm, with stamping.
Application	Widening the stamping stop surface for better grip when clamping wide workpieces at minimum clamping height with stamping.
Mounting	Place stop jaw behind the clamping or stop element of your choice and attach with lateral bolt.



# Accessories

ER-099164 Stop Jaw Soft Wide CleverClamp

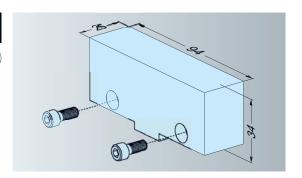
Version Steel, soft, width 94mm, height 34mm.

Application Soft stop jaw, ideal for milling workpiece-specific clamping

contours.

Mounting Use the bolts supplied to fit it to the front of the Clever-

Clamp clamping or stop elements of your choice.



ER-099079	Pull Down Jaw Flat CleverClamp	
ER-099092	Pull Down Jaw Grip CleverClamp	
		41 94 9

Version Steel, hardened, stop side smooth or with grip contours. Application **ER-099079:** stop side smooth - ideal for clamping work-

pieces with machined surfaces.

**ER-099092:** stop side with grip contours for additional

grip.

Mounting Can be used on all CleverClamp pull-down clamping

elements.



Application **ER-099098:** stop side smooth - ideal for clamping work-

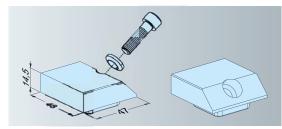
pieces with machined surfaces.

**ER-099099:** stop side with grip contours for additional

grip.

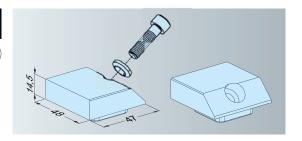
Mounting

Mounting Can be used on all CleverClamp linear clamping elements.



ER-099123	Linear Jaw Soft CleverClamp	
Version	Steel, soft, width 48mm. To produce jaws with contours of your choice	

Can be used on all CleverClamp linear clamping elements.



#### ER-099126 Linear Jaw Soft Wide CleverClamp

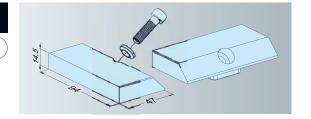




Version Steel, soft, width 94mm.

**Application** To produce jaws with contours of your choice.

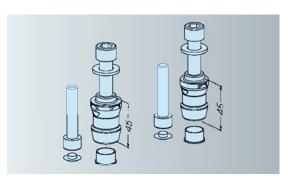
Can be used on all CleverClamp linear clamping elements. Mounting

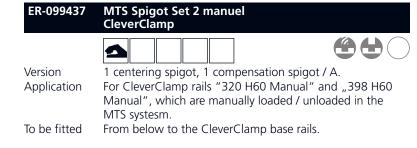


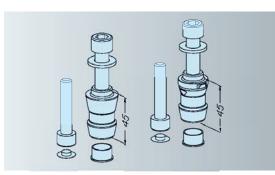
# MTS Spigot Set 2 automated CleverClamp ER-099334 **auto** Version centering spigot / A, 1 compensation spigot / A. For CleverClamp rails "320 H60 automated" and "398 Application

automated", which are automatically loaded / unloaded in the MTS System.

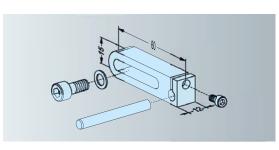
From below to the CleverClamp base rails. To be fitted



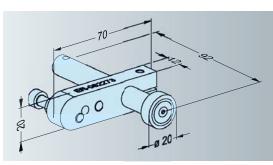




ER-099201	MillStop CleverClamp
Version Application	Adjustable stop made of steel. Lateral stop on any CleverClamp clamping or stop element.
Mounting	Use the bolts supplied to fit it laterally to the CleverClamp clamping or stop elements of your choice.



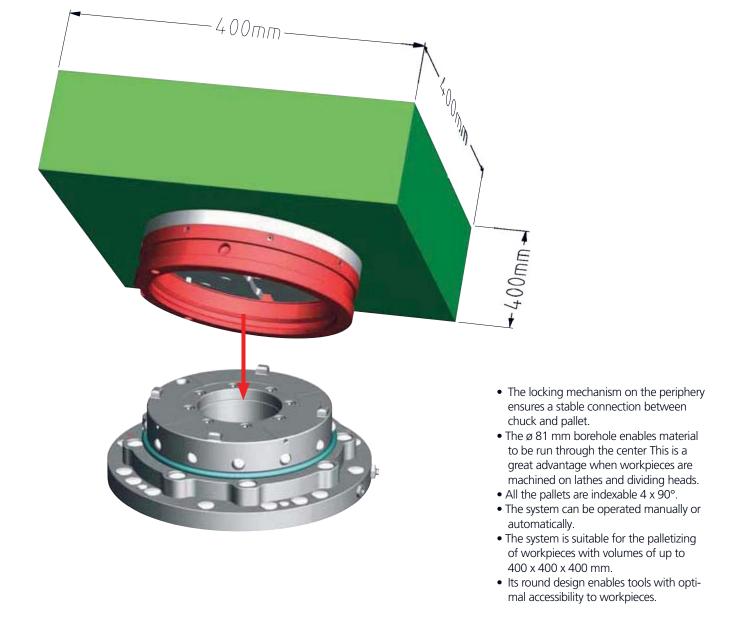




# **EROWA ProductionChuck 210**

# Palletizing system with centralized material pass-through

The EROWA ProductionChuck 210 ingeniously combines the endurance-tested EROWA precision with the flexible operation of a palletizing system such as required by modern parts manufacturing.



## **Applications**

## Handling

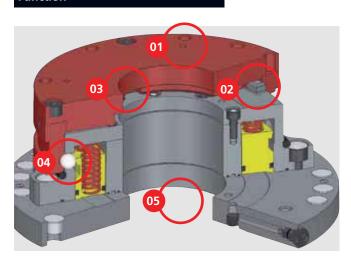






Manual / Loading facility / Robot

#### **Function**



#### 05 | Material pass-through

Rod material of up to Ø 81 mm can be led directly through the chuck. The Ø 81 mm boreholes also provides for air, hydraulic and vacuum lines to operate the fixtures that are clamped on pallets.

#### 01 | Mounting

Workpieces, fixtures and plates are directly mounted on the PC 210 pallet.

#### 02 | Centering system

The widely spaced centering system enables the transfer of maximum torque.

#### 03 | Z-supports

The Z-supports are positioned on the far outside, thus accommodating the tilting moment in the best possible way. The Z-supports are automatically cleaned with air. Dynamic pressure is used to check whether a pallet is in place.

## 04 | Ball lock

The self-locking ball lock generates a clamping power of 20,000 N. Compressed air is necessary to open the chuck and to clean the Z-supports.

Technical data - ProductionChuck 210	
	ProductionChuck 210
Repeatability	<0.002 mm
Pallet indexation	4 x 90°
Clamping power	20,000 N / 29,000 N
Clamping power (central PowerChuck P)	9,000 N
Generated by	spring power
Opening with compressed air	7.5 bar
Chuck fits directly to:	
– machine tables with T-slots	50, 63, 100 mm
- round tables with T-slots	4 x 90°, 45°



# EROWA ProductionChuck 210 in action

# Flexible palletizing of workpieces and fixtures

The ProductionChuck 210 pallet serves as a workpiece and fixture carrier.

A borehole in the center of the pallet also enables material up to a diameter of 81 mm to be led through the ProductionChuck 210.

## RELIABLE

Dirt-resistant, robust, designed for continuous use.





The existing attachment boreholes allow for quick mounting on all well-established machines.



Another advantage: the workpiece or the fixture can be fitted directly on the PC pallet 210.





Working space well exploited! 5-side machining in one clamping process thanks to optimal accessibility.



The Z-supports are placed as far on the outside that they provide a stable and precise support even for bigger workpieces.

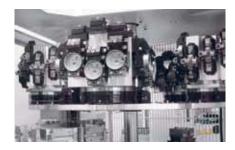


Fixture stability. Access from all sides. Best use of horizontal/vertical milling machines.



PC 210 is an tooling system that is ideal for rotary transfer machines:

- quick fixture change,
- sufficient room to dock on the hydraulic system to operate the fixtures.



Palletized clamping devices in the robot magazine.

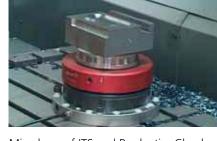


precision palletizing system with a borehole for central material feed.



Particularly suitable for use on lathes. The ProductionChuck 210 is the only





Mixed use of ITS and ProductionChuck 210 pallets.



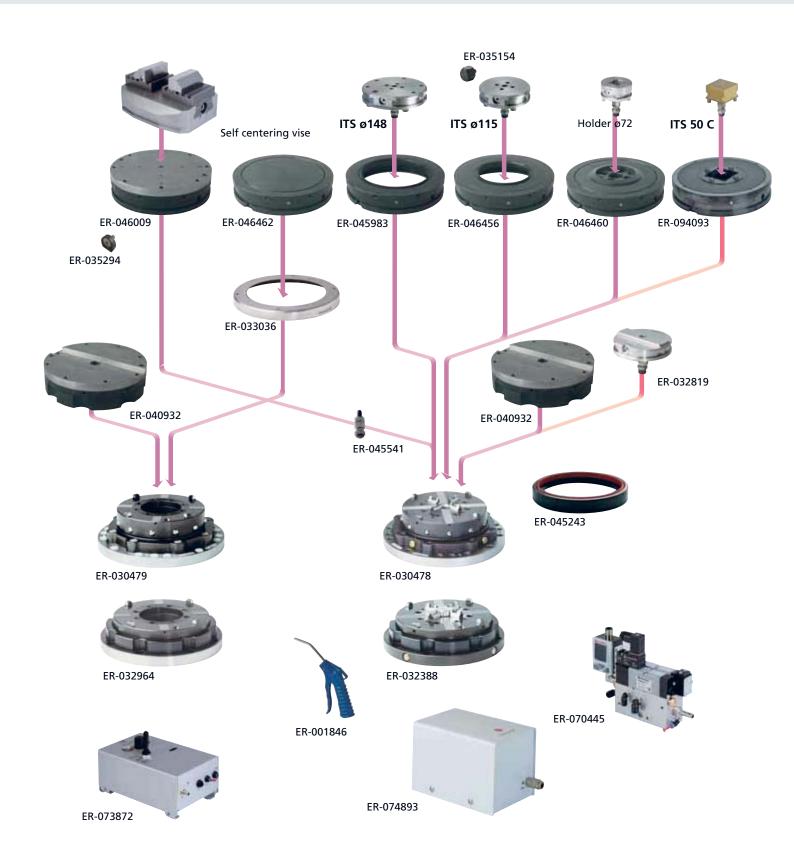
Would you like to automate? We will gladly advise you as to how an EROWA handling facility will increase your productivity up to three times.



# **EROWA ProductionChuck 210**

# palletizing system

The components



To make it easier for you to find your way about the fields of application for EROWA products, we use the following symbols in all our documents:



1. Manual operation



2. Operate with compressed air jet



3. Operate with manual valve



4. Operate with manual control unit



5. Operate with electropneumatic control unit



6. With central flushing clearance



7. Suited for submerged operation



8. Corrosion-resistant material



9. Suited for automatic operation



10. Handling with EROWA Robot gripper S



11. Handling with EROWA Robot gripper Combi



12. Handling with EROWA Robot gripper C



13. Handling with EROWA Robot gripper 72



14. Handling with EROWA Robot gripper 115



15. Handling with EROWA Robot gripper 148



16. Handling with EROWA Robot gripper RN PC 210



17. Handling with EROWA Robot gripper RCS



# **EROWA PRODUCTIONCHUCK 210 PALLETIZING SYSTEM**

ProductionChuck 210	Chucks	102
ProductionChuck 210	Workpiece carriers	104
ProductionChuck 210	Auxiliary Equipment	106



For chip-removing processes



For EDM sinking



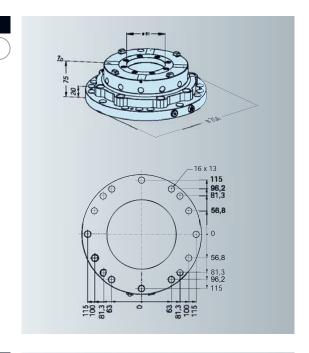
For WEDM

# EROWA ProductionChuck 210

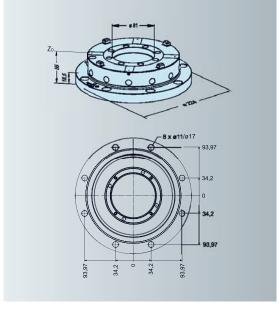
# Chucks

Technical data	ProductionChuck 210
Repeatability	0.002 mm
Indexing	4 x 90°
Clamping power	20,000 N
Clamping power (central PowerChuck P)	9,000 N
Generated by	spring power
Opening with compressed air	min. 7.5 bar

ER-030479	ProductionChuck 210
	Pi Pi auto
Version	Chuck for high machining forces in chip cutting. Low design. Through-borehole ø 81 mm.
Connections	Laterally or from below with two lines.
Operation	With air gun, laterally. With control unit, through
	the two connections laterally or from below.
Application	On milling machines, lathes and grinding machines. To clamp pallets PC 210.



ER-032964	ProductionChuck 210 without base plate
	Pi Pi auto
Version	Chuck for high machining forces in chip cutting.
	Low design. Through-borehole ø 81 mm.
Application	On milling machines, lathes and grinding machines. To clamp pallets PC 210.
Connections	2 air connections: on the sides and from below through customized base plate.
Operation	With air gun or control unit.
Note	Base plate must be customized.



# Chucks

#### ER-030478 ProductionChuck 210 Combi





Version

Chuck for strong machining forces in chip-cutting opera-

tions. PC 210 with integrated PowerChuck P.

Connections

Laterally or from below with two lines.

Operation

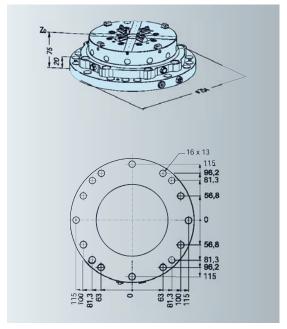
With air gun, laterally. With control unit, through

the two connections laterally or from below.

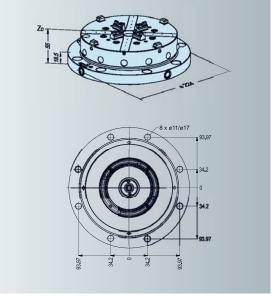
Application

On milling machines, lathes, grinding machines and EDM centers. To clamp pallets PC 210, ITS pallets Ø 148, Ø 115,

ITS 50 holders and PM pallets.



#### ER-032388 ProductionChuck 210 Combi without base plate Chuck for high machining forces in chip cutting. System Version PC210 and ITS. On milling machines, lathes, grinding machines and EDM centers. To clamp pallets PC 210, ITS pallets $\emptyset$ 148, $\emptyset$ 115, **Application** ITS 50 holders and PM pallets. 2 air connections: on the sides and from below through Connections customized base plate. With air gun or control unit. Operation Base plate must be customized. Note



# **EROWA ProductionChuck 210**

# Workpiece carriers

## ER-046473 Clamping ring RN PC 210





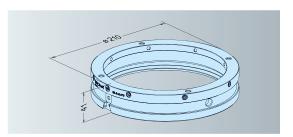
Version

Steel, hardened.

Application

Clamping ring for centering pallet PC 210 and centering pallet PC 210 /  $\emptyset$  81. Can be automated with gripper

PC 210 RN (option).



## ER-042865 PC Centering pallet 210

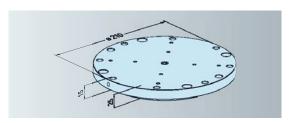


Version Steel, without clamping ring (option ER-046473).

Fitting 8 x M10 attachment threads and two ø 10 boreholes.

Application To accommodate workpieces, clamping jigs and

plates PC 210.



## ER-042866 PC Centering pallet 210 ø 81



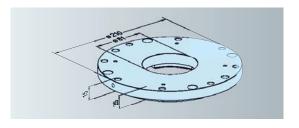
Version Steel, without clamping ring (option ER-046473).

Fitting 8 x M10 attachment threads and two

ø 10 boreholes.

Application To accommodate workpieces, clamping jigs and

plates PC 210.



## ER-046009 Pallet RN PC 210



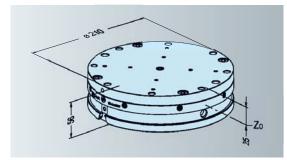


Version Steel. Centering segments integrated. Assembly 8 x M10 attachment threads and two

ø 10 boreholes.

Application To clamp workpieces, clamping jigs and pallets PC 210.

Can be automated with gripper RN PC 210 (option).



## ER-046474 Pallet RN PC 210 ø 81





Version Steel. Centering segments integrated.

Through borehole ø 81 mm.

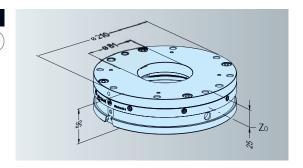
Fitting 8 x M10 attachment threads and two

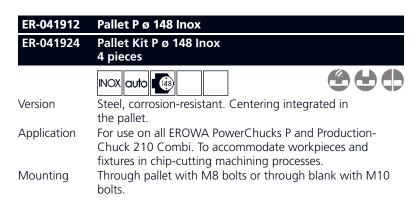
ø 10 boreholes.

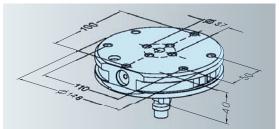
Application To accommodate workpieces, clamping jigs and

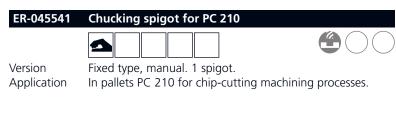
plates PC 210.

Can be automated with gripper RN PC 210 (Option).











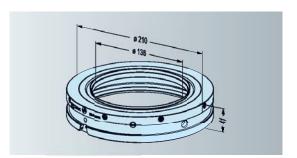
Please note: Further pallets and electrode holders for the ProductionChuck 210 Combi can be found from pages 172.



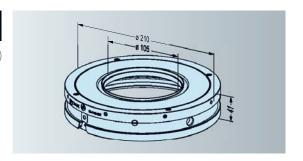
# **EROWA ProductionChuck 210**

# Auxiliary Equipment

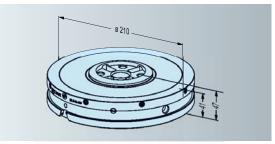
# Version Application Application Application Application Application Application Application Application Application Chuck 210 by application of EROWA ITS pallets Ø 148. For automatic handling with gripper RN PC 210 (option).



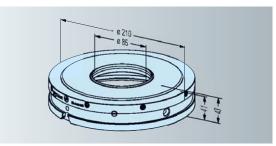
# Version Application Application Application Application Application Chuck 210 by application of EROWA ITS pallets Ø 115. For automatic handling with gripper RN PC 210 (option).

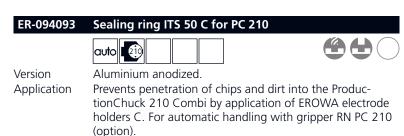


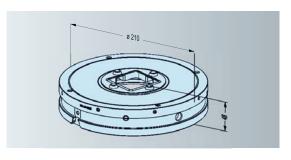


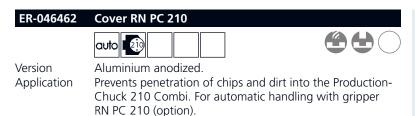


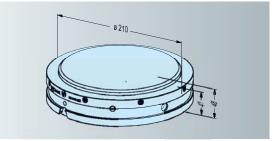




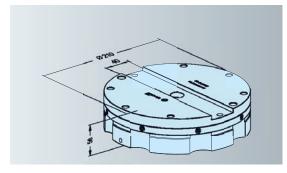


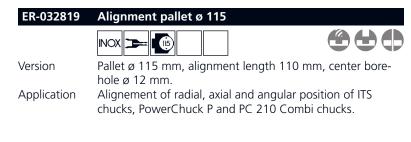


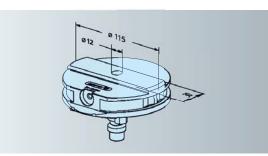


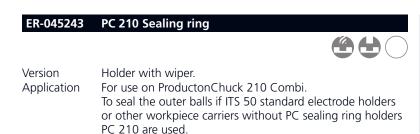


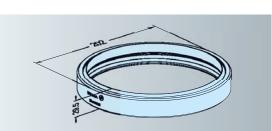
# Version Alignment pallet with ground alignment rail and central borehole. Application Application Application Application Application Application Application Alignment of angular position, and determination of the center of PC 210 chucks.











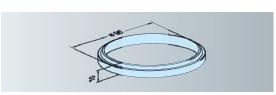
# ER-045249 Wiper for pallet PC 210 ø 81



Version Rubber

Application Prevents penetration of chips and dirt into the Production-

Chuck 210 in use with pallets PC 210 / ø 81.



# **EROWA ProductionChuck 210**

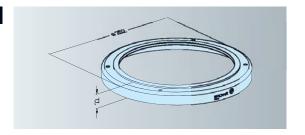
# Auxiliary Equipment

#### ER-033036 **Covering ring PC 210**

**Application** Covering ring for the attachment bolts of the

PC 210: ER-030479, ER-030478 (Recommended for

application on lathes).



ER-035294 EWIS™ Rapid chip with chip holder RCS

with chip ø 12,4 x 2mm







Holder with built-in data carrier. EWIS chip: read only. Version To build into RCS coupling, PalletSet W holder and Application

Basic WEDM holder.



#### ER-035154 EWIS™ Rapid chip with chip holder SW14

with chip ø 12,4 x 2mm





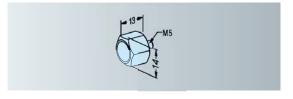


Sleeve fitting with built-in data carrier. Version

EWIS Rapid chip: read only.

In any EROWA electrode holder and pallet which has been Application

prepared for it.



#### Manual control unit with booster ER-073872







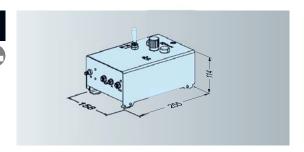
Version Manual valve to control the EROWA chucks:

Opening/Reclamping/Cleaning.

Operation of: EROWA ITS Compact Combi Chuck, ITS, Application

UPC, MTS, PC 210 chucks and PowerChuck P. Integrated booster with load ratio 1:2 (up to output

pressure of 10 bar max.).



#### ER-070445 **Control unit with monitoring**

Note







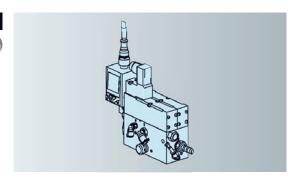
Version Electropneumatic valve. Outputs for chucks: opening/clea-

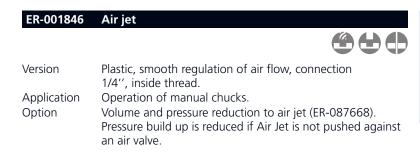
ning/reclamping. 24 V, incl. mounting accessories and 3 m

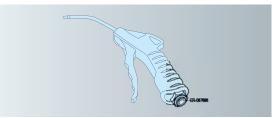
connection hose.

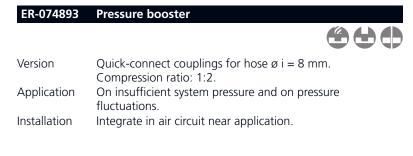
Operation and monitoring of machine-integrated chucks, Application

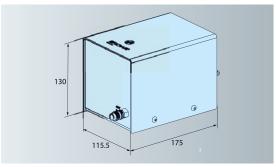
for instance through the CNC M-function.









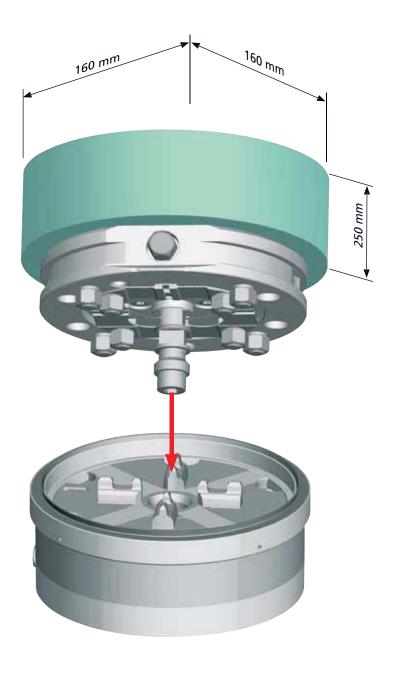




## **EROWA PowerChuck P**

# Accessible from all sides

EROWA PowerChucks are quick and easy to integrate on a wide variety of machining centers.



- Whether affixed to the T-slot table or built into the integrated axis, there is always a good solution.
- Access from all five open sides is particularly important with horizontal machining. The low height of the chuck plays a significant role on smaller machines.
- Operation is manual with an air jet, or with one of the pneumatic control units through the permanently screwed-in connections.
- In automatic operation, the presence and proper position of the pallets in the chuck is monitored (EROWA standard). Support surfaces are automatically cleaned.
- The different variants enable the chuck to be optimally fitted to the existing machine base.

## **Applications**

## Handling

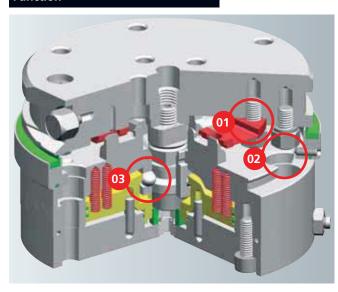






Manual / Loading facility / Robot

#### **Function**



## 01 | Centering plates

The G-centering plates with their ground centering slots and their 0.7-mm-thick spring plate ensure clean and powerful poitioning.

#### 02 | Cleaning

During the clamping process, the contact surfaces of the supports are cleaned with compressed air.

## 03 | Ball lock

The self-locking ball lock generates a clamping power of 10,000 N; full clamping power is even retained in the case of a pressure failure.

#### Technical data - PowerChuck P PowerChuck P Pallet size ø 115 mm, ø 148 mm and ITS 50 Chuck dimensions H x ø $H = 51 \text{ mm} \times \emptyset 156 \text{ mm}$ System height (chuck and pallet) H = 91 mmRecommended workpiece size up to 160 x 160 x 250 mm Repeatability 0.002 mm Indexing 4 x 90° Clamping power 10,000 N Generated by springs Release compressed air, min. 6 bar Operation control unit or air jet



## EROWA PowerChuck P in action

# Powerful, flexible, universally applicable

Manufacturing is virtually inconceivable anymore without PowerChucks. Whether on milling or drilling machines, whether on profile-grinding or surface-grinding machines, whether on spindles of dividing heads or lathes: wherever it is, they fit like a glove.

Downtimes are completely eliminated by integrating a consistent clamping system on all machine tools.

#### CLEAN

By automatic cleaning of the contact surfaces.







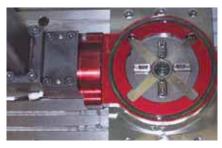
Horizontal chuck on a dividing head.



Flexible and automatic loading of a machine tool with an EROWA handling unit. The ratio of productive hours is considerably increased.



Universal combination of EROWA clamping systems with automatic handling.



Gaskets protect the chucks and ensure secure automatic loading.



Securely clamped also for heavy machining.



We would like to advise you. Please describe your clamping problem to us.



Clamped with  $\mu m$ -accuracy with one movement of the hand.



Practical clamping elements for universal operation.



Grinding or milling: EROWA PowerChucks are just right.



Prepare, clamp and complete the job.

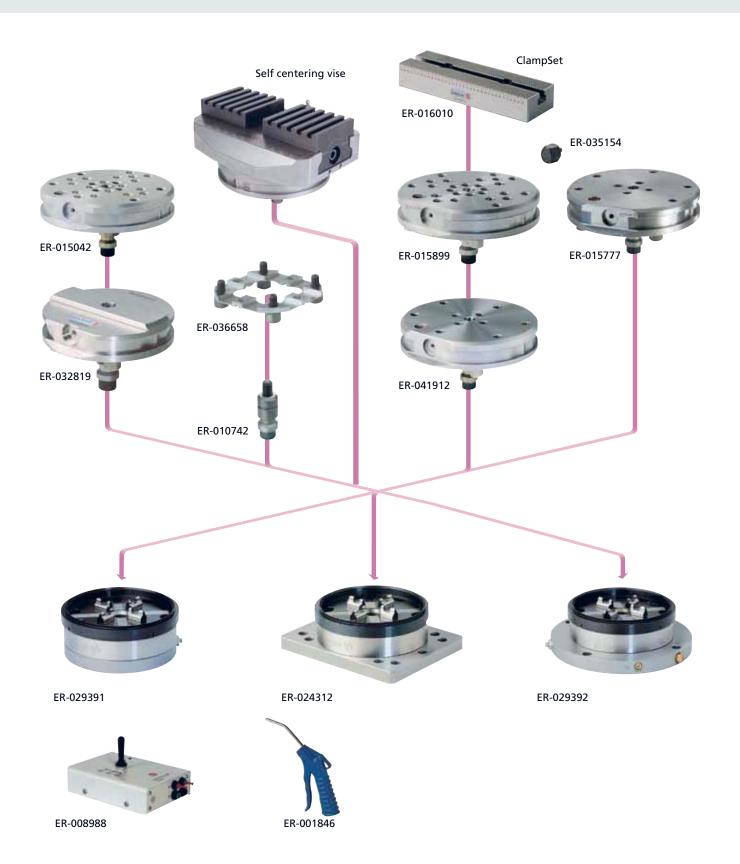




## EROWA PowerChuck P

# Palletizing system

## The components



To make it easier for you to find your way about the fields of application for EROWA products, we use the following symbols in all our documents:



1. Manual operation



2. Operate with compressed air jet



3. Operate with manual valve



4. Operate with manual control unit



5. Operate with electropneumatic control unit



6. With central flushing clearance



7. Suited for submerged operation



8. Corrosion-resistant material



9. Suited for automatic operation



10. Handling with EROWA Robot gripper S



11. Handling with EROWA Robot gripper Combi



12. Handling with EROWA Robot gripper C



13. Handling with EROWA Robot gripper 72



14. Handling with EROWA Robot gripper 115



15. Handling with EROWA Robot gripper 148



16. Handling with EROWA Robot gripper RN PC 210



17. Handling with EROWA Robot gripper RCS



## **EROWA POWERCHUCK P PALLETIZING SYSTEM**

PowerChuck P	Chucks	116
PowerChuck P	Workpiece carrier	118
PowerChuck P	Auxiliary Equipment	122



For chip-removing processes



For EDM sinking



For WEDM

## EROWA PowerChuck P

## Chucks

Technical data	PowerChuck P
Repeatability	0.002 mm
Pallet indexation	4 x 90°
Clamping power	10,000 N
Generated by	spring power
Opening with compressed air	min. 6 bar

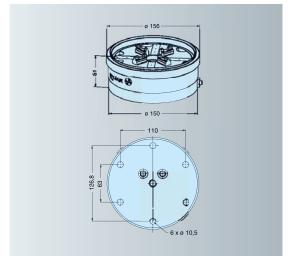
## ER-029391 PowerChuck P ø 150

PI PI auto

Version Connections Operation Extra-flat version. Height 51 mm. Base plate  $\emptyset$  150 mm. On the side or at the rear with two lines.

With airjet, laterally. With control unit through the two

lines on the side and at the rear.



## ER-029392 PowerChuck P ø 204



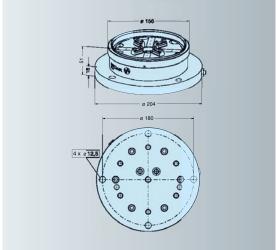


Version Connections Operation Extra-flat version. Height 51 mm. Base plate ø 204 mm.

ections On the side or at the rear with two lines.

With airjet, laterally. With control unit through the two

lines on the side and at the rear.



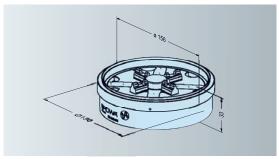
## ER-029436 PowerChuck P without base plate





Version Connections Operation Extra flat version. Height 33 mm. Without base plate. At the rear according the instruction manual.

Pneumatically.



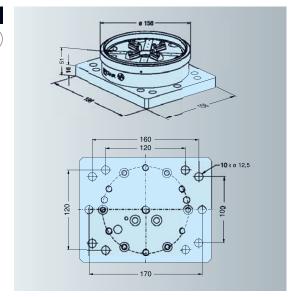
#### ER-024312 PowerChuck P 158 x 198



**90** 

Extra-flat version. Height 51 mm. Version Base plate 158 mm x 198 mm.

Connections On the side or at the rear with two lines. Operation With airjet, laterally. With control unit through the two lines on the side and at the rear.



#### ER-044310 PowerChuck P 158 x 230





Version Extra-flat version. Height 51 mm. Base plate 158 mm x 230 mm.

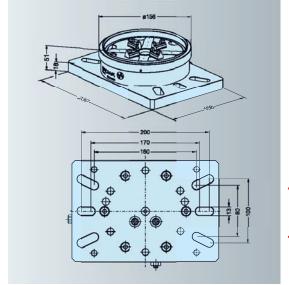
On the side or at the rear with two lines. Connections

Operation With airgun on the side. With control unit through

the two lines on the side or at the rear.

The borehole pattern of this plate fits 40mm and 50mm Information

T-slot distances.



#### ER-029422 PowerChuck P / R



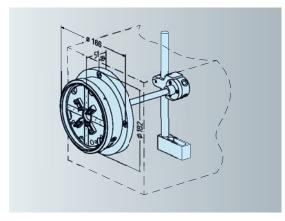


PowerChuck P with rotatable connection, Version

max. 50 rpm.

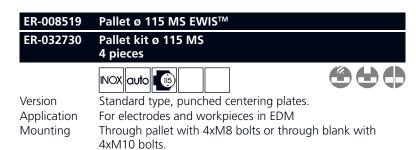
Connections Two lines to the rotatable connection.

Operation With control unit, manually and automatically. Application For use on dividing heads and round tables.

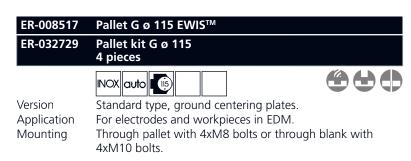


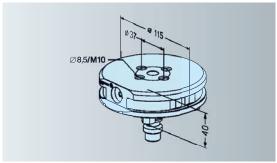
## EROWA PowerChuck P

# Workpiece carriers

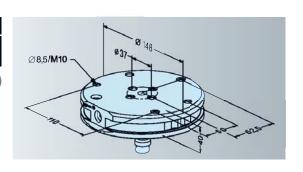






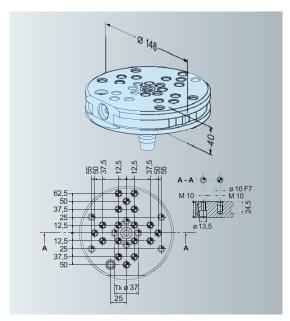


ER-015776	Pallet ø 148 MS EWIS™
ER-032731	Pallet kit ø 148 MS 4 pieces
	INOX auto B
Version	Standard type, punched centering plates.
Application	For electrodes and workpieces, and for the construction of fixtures.
Mounting	Through pallet with M8 bolts or through blank with M10 bolts.

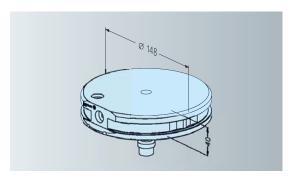


ER-015042	Pallet ø 148 MS ALU R25	
ER-033051	Pallet Kit ø 148 MS ALU R25 4 pieces	
	auto 48	
Version	Body of casted aluminum with borehole pattern 25,	
	ø 10 F7, thread M10.	
Application	Palletizing of workpieces and electrodes, mounting of	
	fixtures and ClampSet Base 220.	
Mounting	Through pallet with M8 bolts or through blank with M10	

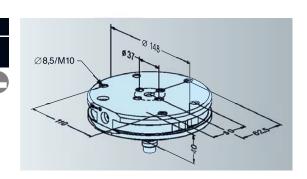
bolts.

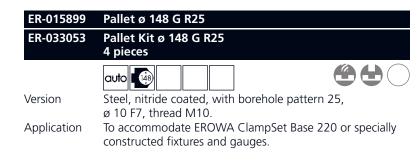


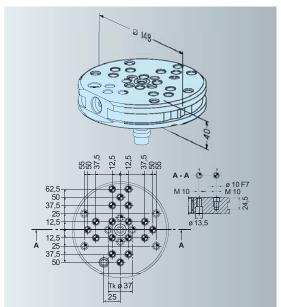
ER-032699	Pallet ø 148 G
ER-033048	Pallet Kit ø 148 G 4 pieces
	NOX auto 49
Version	Without bore holes apart from center borehole and borehole for reference bolt.
Application Mounting	For work pieces machined in chip-cutting machining. According to your preference.



ER-015777	Pallet ø 148 G EWIS™
ER-032732	Pallet kit G ø 148 EWIS™ 4 pieces
	INOX auto (49)
Version	Standard type, ground centering plates.
Application	To accommodate workpieces and fixtures in chip-cutting machining processes.
Mounting	Through pallet with M8 bolts or through blank with M10 bolts.



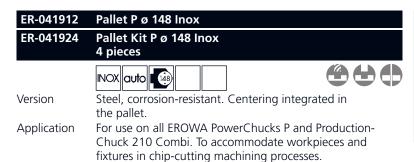


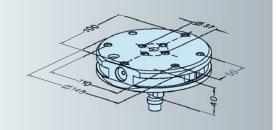


Mounting

## **EROWA PowerChuck P**

# Workpiece carriers





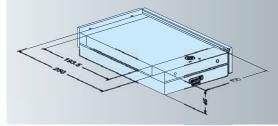
# ER-038189 Magnetic clamping plate Neospark 250 x 150 x 46 Version Magnetic clamping plate of steel with M8 attachment

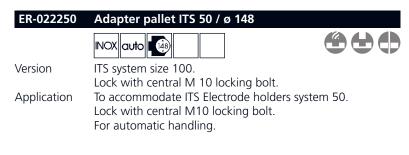
Through pallet with M8 bolts or through blank with M10

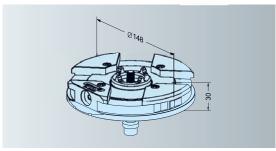
boreholes for ITS Pallet Ø 148.

Application To clamp workpieces for surface and profile grinding,

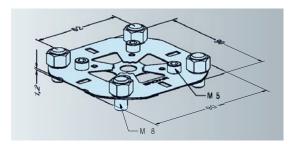
WEDM and high-frequency milling.



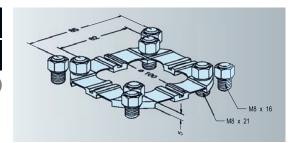




ER-050195	Centering plate 100 M8 1 unit	
ER-011599	Centering plate 100 M8 10 pieces	
	i NOX	
Version	Corrosion-resistant, including	
	4 supporting feet M8 and 4 x M5 screws per plate.	
Application	Workpieces and electrodes.	
Mounting	Mounted directly on of blank plane surface of blank.	



ER-036657	Centering plate G Inox 1 unit	
ER-036658	Centering plate G Inox 5 pieces	
	i NOX	
Version	Ground including 8 supporting feet M8 per plate.	
Application	For workpieces, jigs and fixtures in chip-removal machi-	
	ning.	
Mounting	According to accompanying fitting instructions.	



## **EROWA PowerChuck P**

## Auxiliary Equipment

#### ER-032819 Alignment pallet ø 115



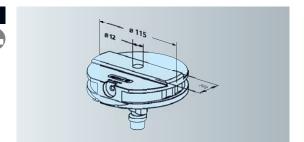


Pallet ø 115 mm, alignment length 110 mm, center bore-Version

hole ø 12 mm.

Alignement of radial, axial and angular position of ITS Application

chucks, PowerChuck P and PC 210 Combi chucks.



#### EWIS<sup>™</sup> Rapid chip with chip holder SW14 ER-035154

with chip ø 12,4 x 2mm





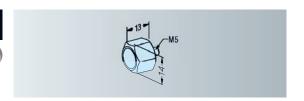


Version Sleeve fitting with built-in data carrier.

EWIS Rapid chip: read only.

In any EROWA electrode holder and pallet which has been Application

prepared for it.



#### ER-008988 Manual control unit

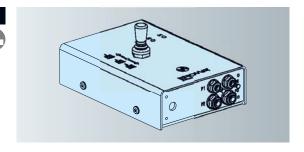


Manual valve to control all the functions of ITS, Version

ITS Compact CombiChuck, PowerChuck P and UPC:

opening/reclamping/cleaning.

Operation of chucks on machines. Application

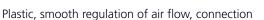


#### ER-001846 Air jet

Version







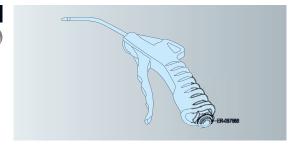
1/4", inside thread.

Application Operation of manual chucks.

Option Volume and pressure reduction to air jet (ER-087668).

Pressure build up is reduced if Air Jet is not pushed against

an air valve.



#### ER-015962 Repair kit PowerChuck P



All the wear parts of PowerChuck P. Version

Dismantle chuck according to instructions supplied, replace Application

Every chuck is supplied with instructions. Please keep in a Please note

safe place.



#### ER-035365 Sealing ring PowerChuck P ø 72

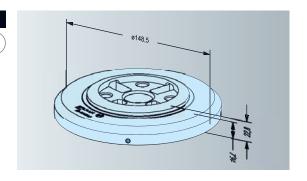




Version Aluminium anodized.

Prevents penetration of chips and dirt into the Power-Application

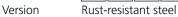
Chuck P by application of EROWA Holders ø 72.



## Sealing ring for holder 72 PowerChuck P ER-055761

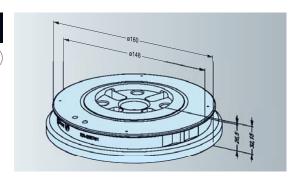






Application Prevents penetration of chips and dirt into the Power-

Chuck P by application of EROWA Holders 72.



#### ER-038918 Sealing ring PowerChuck P / ø 85

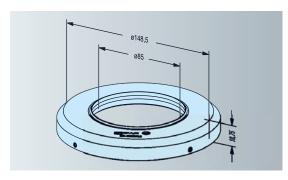






Prevents penetration of chips and dirt into the Application

PowerChuck P by application of EROWA pallets PM85.



#### ER-092203 Sealing ring ITS 50 C for PowerChuck P manual



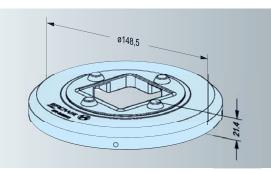




Version Aluminium anodized.

Prevents penetration of chips and dirt into the Power-Application

Chuck P by application of EROWA electrode holders C.

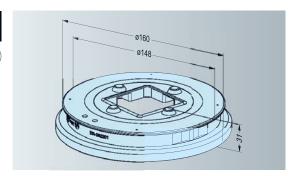


## EROWA PowerChuck P

# Auxiliary Equipment

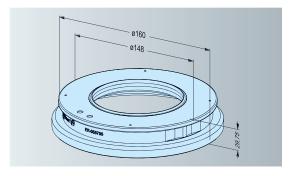


Application Prevents penetration of chips and dirt into the PowerChuck P during machining with EROWA electrode holders C.

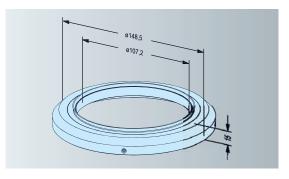


# Version Application PowerChack P PowerChuck P Rust-resistant steel. Prevents penetration of chips and dirt into the

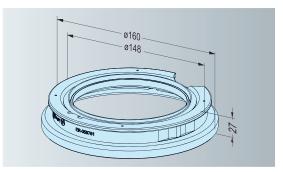
Prevents penetration of chips and dirt into the PowerChuck P by application of EROWA pallets PM85.







ER-055751	Sealing ring for pallet ø115 PowerChuck P		
	INOX auto (18)		
Version	Rust-resistant steel.		
Application	Prevents penetration of chips and dirt into the Power-Chuck P by application of EROWA ITS pallets ø 115.		



#### ER-016131 Sealing ring holder ø 148



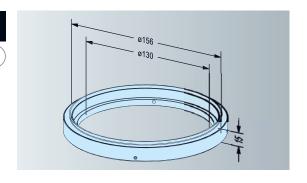


Version Steel black oxide coated.

Prevents penetration of chips and dirt into the **Application** 

PowerChuck P by application of EROWA ITS

pallets ø 148.



## Sealing ring for pallet ø148 PowerChuck P ER-054219



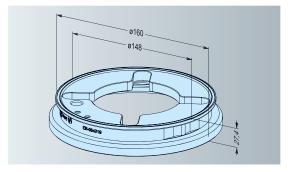






Rust-resistant steel.

Application Prevents penetration of chips and dirt into the Power-Chuck P by application of EROWA ITS pallets ø 148.



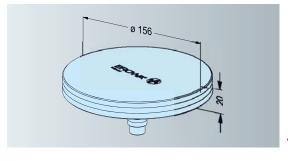
#### ER-008972 **Cover for PowerChuck P**





Version Aluminum. Without centering plate and supports. Application Protects the PowerChuck P from chips and cooling water

when not in use.



#### ER-055763 Cover to PowerChuck P





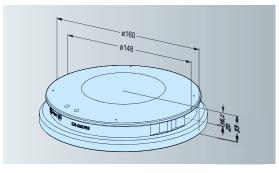


Version

Rust-resistant steel.

Application Prevents penetration of chips and dirt into the

PowerChuck P. For automatic handling.

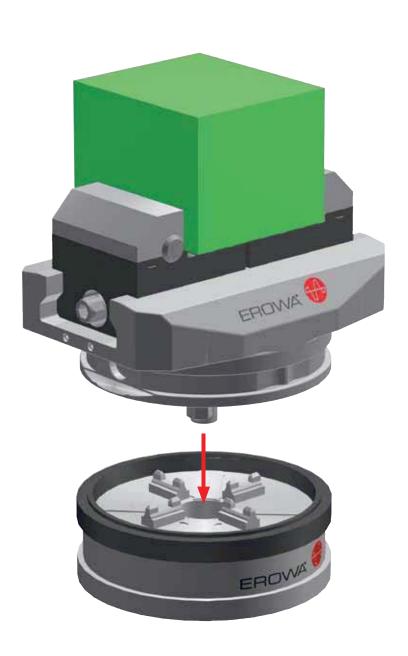




## Secure and flexible clamping

For producing workpieces as completely as possible and economically, 5-sided machining in one setup offers great benefits. The downtimes are significantly reduced and errors during reclamping are avoided.

The EROWA Self Centering Vise is the precise and flexible interface between the workpiece and the machine.



- The pallet and vise body of the selfcentering vise are made of one piece.
   But, the center of the vise can still be adjusted.
- The entire body of the self-centering vise is manufactured from rust-resistant hardened steel.
- In addition, the slide and the spindle have a high-tech coating and are wear-free.
- The spindle is sealed and protected against contamination.
- Wide selection of jaws.
- Two different sizes (85 + 148).
- Depending on size, the EROWA selfcentering vise is also available with an integrated EROWA G pallet or without a pallet for direct mounting on an EROWA pallet or machine table.

## **Applications**

## Handling

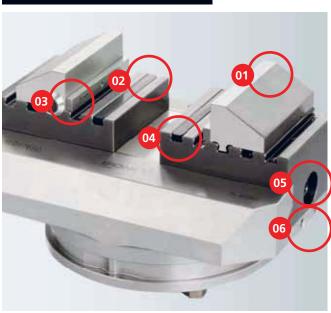






Manual / Loading facility / Robot

## Function



#### 01 | Jaws

Various types of jaws can be changed quickly without tools

## 02 | Dirt covers

Dirt covers for grid grooves and highprecision spindle

## 03 | Pads

Various pads

## 04 | Grid

15 mm grid for jaw positioning

## 05 | Operation

Double-sided clamping and unclamping

## 06 | Center

Center adjustment

## **Technical Data - Self Centering Vise**

	Self Centering Vise 148	Self Centering Vise 85
Clamping force at 60 Nm	19,000 N	
Clamping force at 35 Nm		14,000 N
Repeatability	0.01 mm	0.01 mm
Clamping stroke of spindle	30 mm	30 mm
Opening width	5-155 mm	5-95 mm
Contact spacing of jaw positioning	15 mm	15 mm
Clamping mechanism	maintenance-free	maintenance-free
Material	hardened, rust-resistant	hardened, rust-proof
Compatibility with EROWA tooling (depending on model)	ITS, PowerChuck P, PC210 Combi, MTS Single Chuck	ITS, PowerChuck P, PM85
Options	<ul> <li>different jaws,</li> <li>dust cover for profiles</li> <li>pads in various heights</li> <li>clamping pin for ITS or MTS</li> <li>torque wrench</li> </ul>	<ul><li>different jaws,</li><li>dust cover for profiles</li><li>pads in various heights</li><li>clamping pin for ITS</li><li>torque wrench</li></ul>

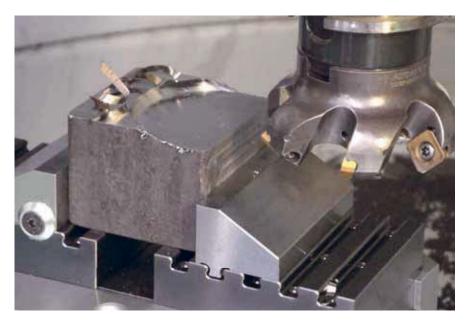
## EROWA Self Centering Vise in action

# Precise and protected clamping

Wherever good access, high holding power and variable clamping is required, the self-centering vise is the first choice.

## CHANGE WITH SYSTEM

Replacing jaws without tools.







All moving parts of the self centering vise are protected.



Also suitable for heavy cutting operations: The Self Centering Vise 148 holds workpieces in position with 19,000 N. Selecting the appropriate jaws adds even more stability.



The grooves are protected by covers against pollution.



Simple means fast – changing jaws in no time and without any tools.



Securely clamped and well accessible from all sides.



No matter how many chips, the Self Centering Vise remains clean at crucial points such as the spindle and guides.



The Self Centering Vise 148 is made of rust-resistant material. All components are hardened. Highly stressed parts are specially surface-coated for increased durability.





A few manual steps – and the workpiece is positioned in the Self Centering Vise.



Wholly made of one piece. Self Centering Vise P 148 with utmost stability.



The SlipStop® surface prevents unhardened workpieces from slipping. The holding force is more than doubled.

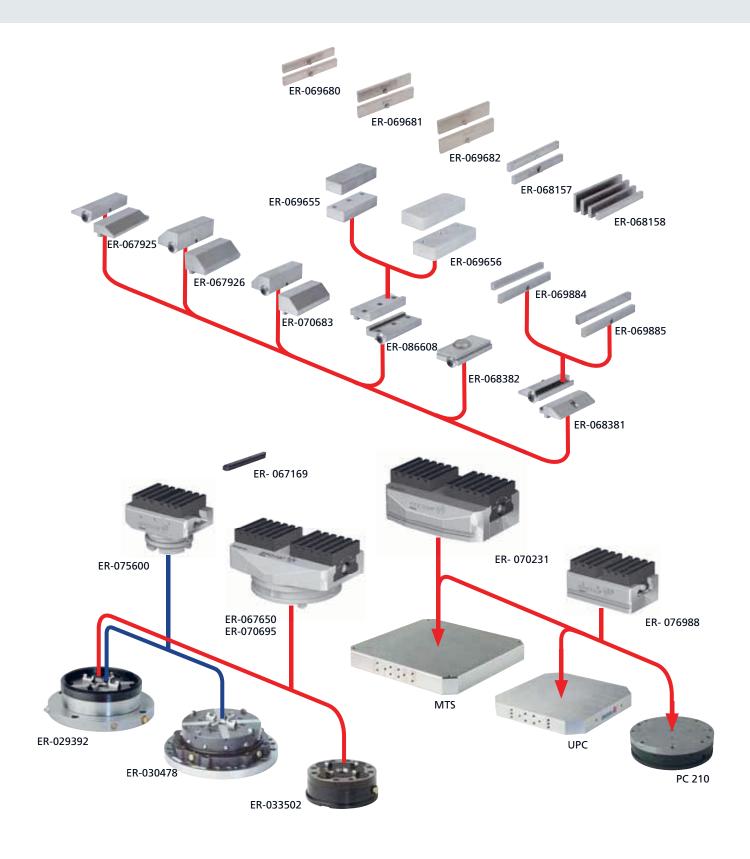


Despite its small and compact design, the Self Centering Vise 85 P is also ideally suitable for clamping large workpieces.



The Self Centering Vises fit perfectly in the magazines of EROWA robots. Contact us for more information on EROWA automation solutions.

## The components



To make it easier for you to find your way about the fields of application for EROWA products, we use the following symbols in all our documents:



1. Manual operation



2. Operate with compressed air jet



3. Operate with manual valve



4. Operate with manual control unit



5. Operate with electropneumatic control unit



6. With central flushing clearance



7. Suited for submerged operation



8. Corrosion-resistant material



9. Suited for automatic operation



10. Handling with EROWA Robot gripper S



11. Handling with EROWA Robot gripper Combi



12. Handling with EROWA Robot gripper C



13. Handling with EROWA Robot gripper 72



14. Handling with EROWA Robot gripper 115



15. Handling with EROWA Robot gripper 148



16. Handling with EROWA Robot gripper RN PC 210



17. Handling with EROWA Robot gripper RCS



## **EROWA SELF CENTERING VISE**

Self Centering Vise	132
Self Centering Vise auxiliary equipment	133



For chip-removing processes



For EDM sinking



For WEDM

## Self Centering Vise

	Self Centering Vise 148	Self Centering Vise 85
Clamping force at 60 Nm (35 Nm by Typ 85)	19,000 N	14,000 N
Repeatability	0.01 mm	0.01 mm
Clamping stroke of spindle	30 mm	30 mm
Opening width	5-155 mm	5-95 mm
Contact spacing of jaw positioning	15 mm	15 mm

## ER-070231 Self Centering Vise 148 without pallet

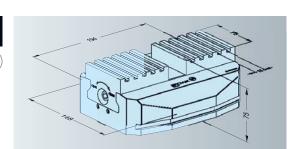
**△** INOX

Version Self-Centering Vise 148, including lateral stop.

Accessories Various jaws, torque wrenches etc.

Application To clamp workpieces. Mounting on pallets.

Mounting directly on the machine table.



## ER-067650 Self Centering Vise 148 P





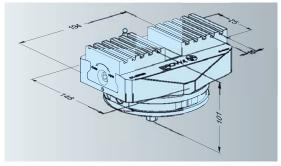
Version Self-Centering Vise 148 P, including lateral stop.
Optional Chucking spigot F/M Production ER-010742 or MTS

chucking spigot P/M Production ER-010742 of M chucking spigot P ER-040999.

Accessories Various jaws, torque wrenches etc.

Application To clamp workpieces. For use on PC 210 Combi,

PowerChuck P, MTS SingleChuck.



## ER-070695 Self Centering Vise 148 G

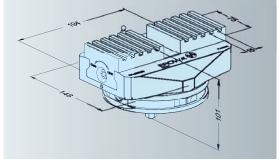




Version Self-Centering Vise 148 G, including lateral stop.
Optional Chucking spigot F/M Production ER-010742.
Accessories optional Various jaws, torque wrenches etc.

To clamp workpieces. For use on PC 210 Combi,

PowerChuck P & F, UPC with ITS.



## ER-075600 Self Centering Vise 85 P

Application





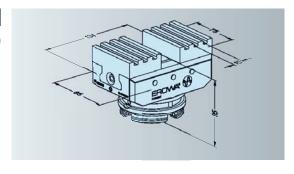
Version Stainless material, hardened and ground. Pallet fully

integrated.

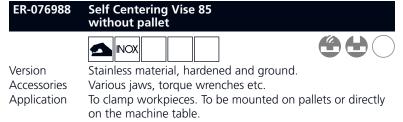
Application On milling and grinding machines.

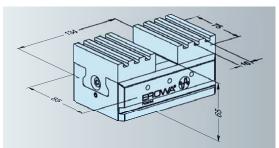
Note Compatible with EROWA tooling systems: ITS, PM85,

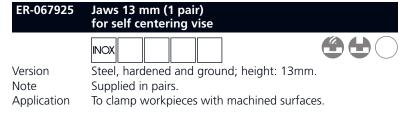
PowerChuck P.

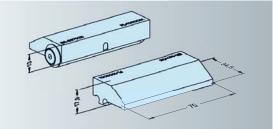


# Auxiliary equipment

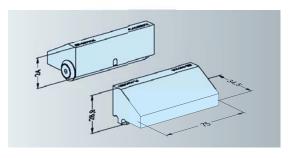




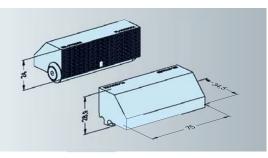




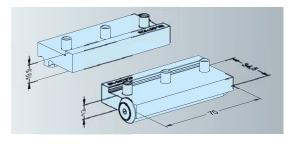
ER-06/926	Jaws 24 mm (1 pair) for self centering vise
Version Note Application	Steel, hardened and ground; height: 24mm. Supplied in pairs. To clamp workpieces with machined surfaces.



EK-0/0683	for self centering vise
Version	Steel, hardened and ground; height: 24mm; with grip contours.
Note	Supplied in pairs.
Application	Ideal to clamp unhardened workpieces.



ER-086608	Adapters for interchangeable jaws 1 pair, for self centering vise	
Application	Steel, hardened and ground, with attachment bolts.	
Note	Supplied in pairs.	
Application	To accommodate customized interchangeable jaws of your choice.	



# Auxiliary equipment

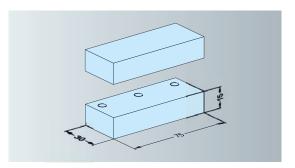
## ER-069655 Interchangeable jaws steel unhardened 1 pair, to fit adapter ER-086608



Version Steel, unhardened, dimensions: 75 x 30 x 15 mm, including attachment boreholes, fully prepared.

Note To fit adapter ER-067929.

Application To produce jaws with contours of your choice.



### ER-069656 Interchangeable jaws Alu 1 pair, to adapter ER-086608



Version Aluminum, dimensions: 75 x 30 x 15 mm, including

attachment boreholes, fully prepared.

Note To fit adapter ER-067929.

Insert.

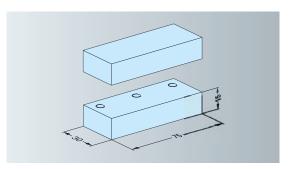
ER-069885.

To fit

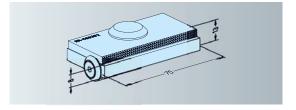
Application

Application

Application To produce jaws with contours of your choice.

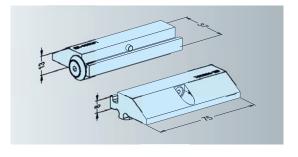


# Version Application Pendulum jaw 1 piece, for self centering vise NOX Hardened ground jaw with pendulum compensation for oblique workpieces. To clamp workpieces with oblique outer surfaces.



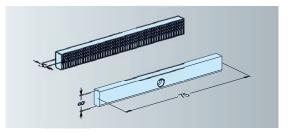
ER-068381	Adapter 5 mm for SlipStop® jaw inserts 1 pair, for self centering vise	
Version	Steel, hardened and ground. With fixing screw for inserts, clamping height 5 mm.	
Note	Delivered in pairs.	

To accomodate SlipStop® inserts ER-069884 and



ER-069884	SlipStop® insert, riffled 1 pair, for adapter ER-068381		
	NOX		
Version	Steel, hardened and ground, height: 24mm, with riffled		
	contour.		
Note	Supplied in pairs		

To clamp workpieces with machined surfaces.





INOX

Steel hardened and ground.

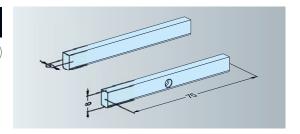
Note Delivered in pairs.

Version

Version

Application Suitable for Adapter ER-068381. Ideal for the clamping

of ground workpieces.



## ER-068157 Spacers 8 mm, 1 pair for self Centering vise



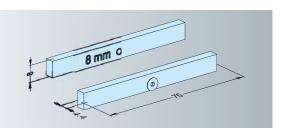
1 pair of hardened, ground supports.

Application For the optimal positioning of workpieces at the correct

height on the self-centering vise.

To fit Insert in the jaws, the insert jaws with the supports into

the profile.



## ER-069680 Support 12 mm mounted self centering vise



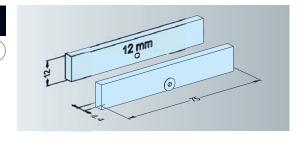
Version 1 pair of hardened, ground supports.

Application For the optimal positioning of workpieces at the correct

height on the self-centering vise.

To fit Insert in the jaws, the insert jaws with the supports into

the profile.



## ER-069681 Support 16 mm mounted self centering vise





**4** 

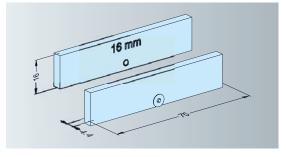
Version 1 pair of hardened, ground supports.

Application For the optimal positioning of workpieces at the correct

height on the self-centering vise.

To fit Insert in the jaws, the insert jaws with the supports into

the profile.



### ER-069682 Support 20mm mounted Self Centering vise





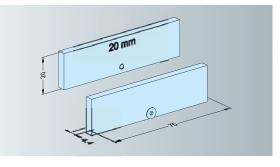
Version 1 pair of hardened, ground supports.

Application For the optimal positioning of workpieces at the correct

height on the self-centering vise.

To fit Insert in the jaws, the insert jaws with the supports into

the profile.



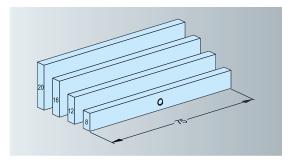
## Auxiliary equipment

## ER-068158 Spacer set (4 pairs) for self centering vise



Version Application Mounting Set of ground supports, heights 8, 12, 16 and 20 mm. Support for the height positioning of workpieces. Insert the support into the groove of the jaw with the

help of the holding device.



## ER-067169 Chip cover

## for self centering vise



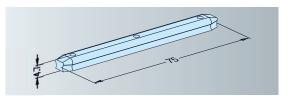


Version 1 plastic cover.

Application To protect the empty profile inserts at the base of the

self-centering vise.

To fit Insert.



## ER-040999 MTS chucking spigot P

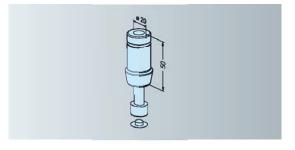


Version One chucking spigot, including attachment bolt and

protective cap.

Application For the conversion of ITS pallet ø 148 ER–041912 into

MTS pallet P ø 148 ER-041928.



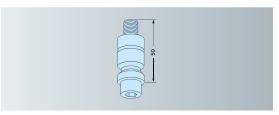
## ER-010742 Chucking spigot F/M production

1 unit





Version Fixed type, manual. Bolt 12.9, without flushing hole. Application In pallets for chip-cutting machining processes.



## ER-082273 Magnetic stop

CleverClamp

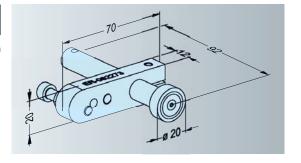




Version Stop made of anodized aluminum.

Application Magnetic stop used for positioning

Application Magnetic stop used for positioning workpieces in vises. Important Remove the magnetic stop before machining the part.

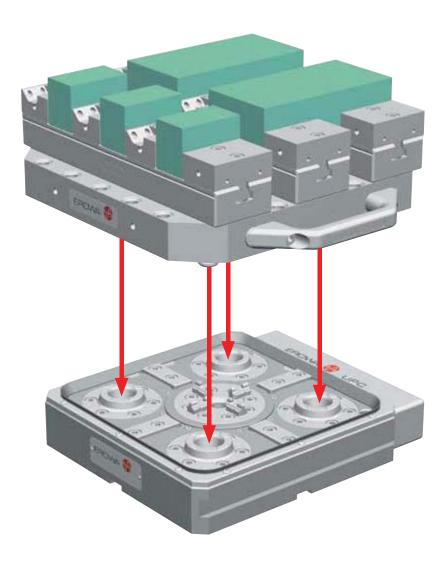


## **EROWA ClampSet**

# For universal use and high precision

EROWA ClampSet is the modular system for the precise clamping of workpieces. It can be universally used throughout the EROWA manufacturing concept.

The base rails and clamping elements have been produced in accordance with the highest standards and enable operators to position workpieces with a high degree of precision. ClampSet is optimally suitable for the high precision requirements in tool- and mold-making.



- The ClampSet offers enormous flexibility. A great number of various precise clamping elements are available.
- It serves to clamp both machined workpieces and blanks.
- A variety of jaws enable many different workpiece forms to be clamped.
- A maximum clamping range of 225 mm also provides room for large workpieces.
- Workpieces are set up and preset outside the machine; this makes for an optimal use of time and cuts costs.
- Once the ClampSet has been palletized, it is immediately suitable for the automatic loading of machines.

## **Applications**

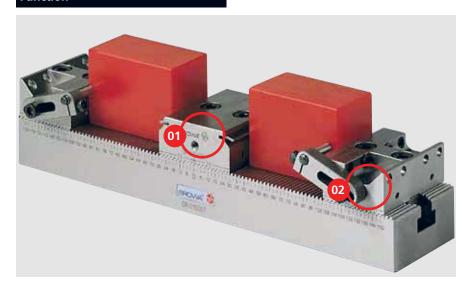
## Handling





Manual / Loading facility / Robot

## **Function**



## 01 | ClampSet Block N

the pull-down jaw in combination with the ClampSet Standard Block offers the ideal pull-down effect.

## 02 | ClampSet Stop

the lateral stop can be attached to any ClampSet jaw.

## **Technical data - ClampSet**

	ClampSet Base 220	ClampSet Base 320
Clamping range	max. 126 mm	max. 225 mm
Material	steel, hardened, ground	



## EROWA ClampSet in action

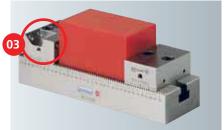
# Modular, flexible, precise

Whether it's drilling, milling, grinding or EDM, ClampSet will reduce set-up times.

## FLEXIBLE

Can be used vertically and horizontally.

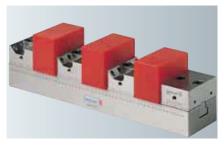




## 03 | Standard Block

The Standard Block with 4 ball pressure bolts at an angle of 3° to the base surface for an optimal pull-down function.

Base 220, ClampSet Standard Block and ClampSet Block F (hard jaw) to clamp blanks.



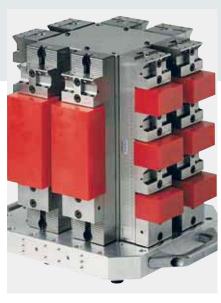
Base 320 with 3 ClampSet Standard Blocks and Block F for multiple fixtures.



A fixture with Base 220 on an ITS pallet ø 148 mm.



ClampSet vise on ITS pallet. Positioning to  $\mu$ -accuracy and ready for use within seconds.



The multiple fixture on Cube and the UPC pallet for horizontal machining.



04 | ClampSet Slide ClampSet Slide; the precision clamping jaw for multiple clamping.

Base 220, ClampSet Slide and Block F to clamp machined parts (grinding vise).





Base 220, ClampSet Slide and prismatic jaw to clamp various cylindrical parts,



both horizontally and vertically.



05 | Support N Support N; to clamp flat, low workpieces. Base 220, ClampSet Slide, Block F and Support N (in two parts).





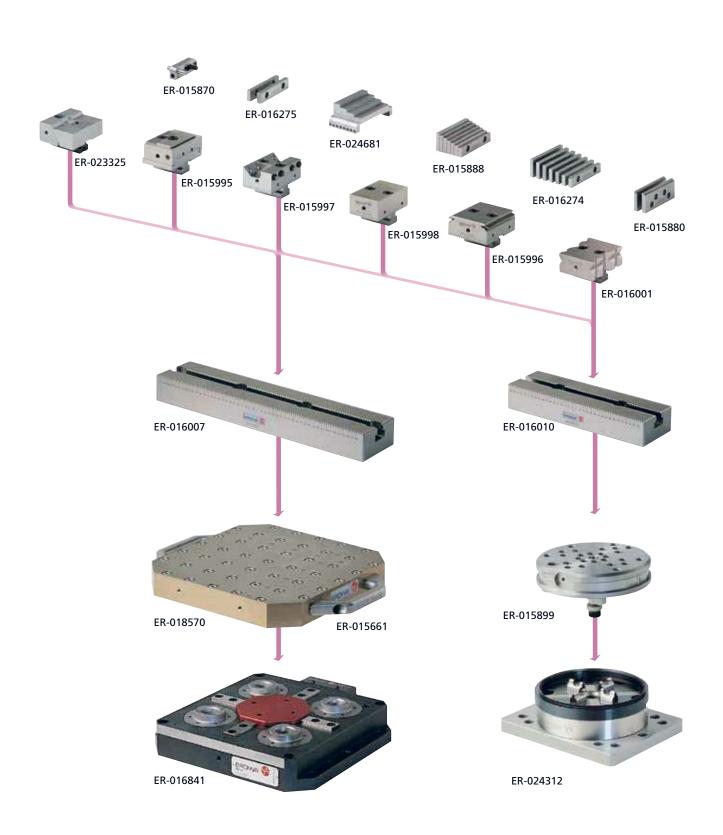
ClampSet also for long and big workpieces.



## EROWA ClampSet

# Clamping elements

## The components





1. Manual operation



2. Operate with compressed air jet



3. Operate with manual valve



4. Operate with manual control unit



5. Operate with electropneumatic control unit



6. With central flushing clearance



7. Suited for submerged operation



8. Corrosion-resistant material



9. Suited for automatic operation



10. Handling with EROWA Robot gripper S



11. Handling with EROWA Robot gripper Combi



12. Handling with EROWA Robot gripper C



13. Handling with EROWA Robot gripper 72



14. Handling with EROWA Robot gripper 115



15. Handling with EROWA Robot gripper 148



16. Handling with EROWA Robot gripper RN PC 210



17. Handling with EROWA Robot gripper RCS

## **EROWA CLAMPSET CLAMPING ELEMENTS**

ClampSet	Technical data	144
ClampSet	Base	146
ClampSet	Clamping elements	147



For chip-removing processes



For EDM sinking



For WEDM

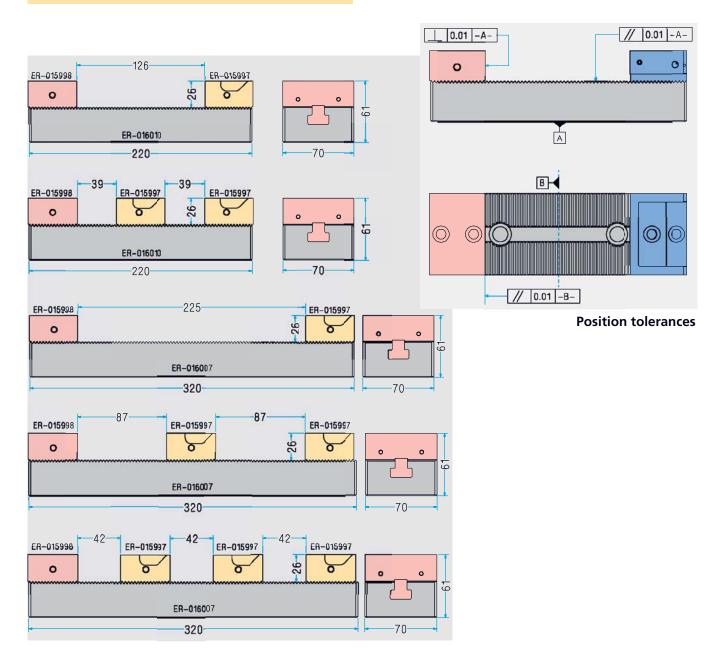
## EROWA ClampSet

# clamping elements

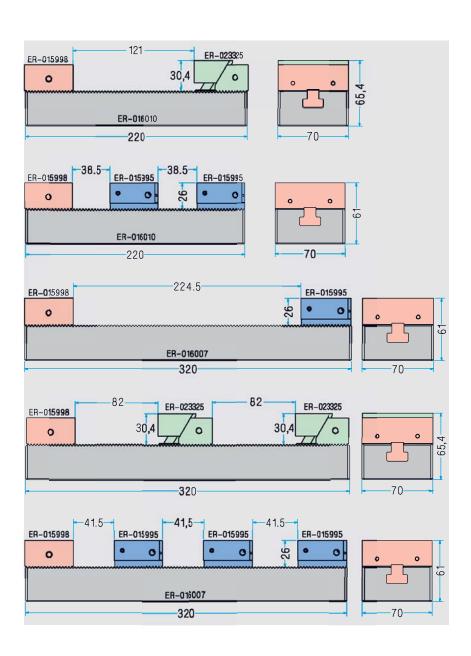
#### **Application ClampSet Standard block** ER-015997 ClampSet Standard block ER-015998 ClampSet Block F ER-016010 ClampSet Base 220 ER-016007 ClampSet Base 320 ClampSet Standardblock Clamping power in kg ±10% Number of at a torque of ball-pressure bolts 5 Nm 10 Nm 15 Nm 1750 2 900 2500 1450 2750 3900

For the sake of clamping precision and safety, it is very important to tighten the bolts with a torque wrench.

Data given are guiding values, which may be impaired by dirt and other environmental influences.



Application ClampSet Slide / Jaw			
ER-015995	ClampSet Slide		
ER-023325	ClampSet Jaw		
ER-015998	ClampSet Block F		
ER-016010	ClampSet Base 220		
ER-016007	ClampSet Base 320		
	Clamping power in kg ±10% at a torque of 5 Nm 10 Nm 15 Nm 20 Nm		
ClampSet Slide	250 500 750 1000		
ClampSet Jaw	300 600 900 1200		



## **EROWA ClampSet**

# Base

## ER-016010 ClampSet base 220





Version Steel, hardened, ground. Clamping element carrier with

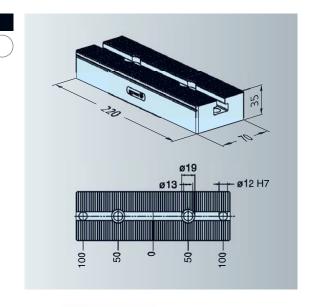
3 mm positioning grid.

Application On ITS pallets 148 with 25 mm grid and on UPC pallets

with 50 mm grid, as a base for the various ClampSet

clamping jaws.

Mounting On all EROWA grid pallets. Note R40 subject to consultation.



## ER-016007 ClampSet base 320



Version Steel, hardened, ground. Clamping element carrier with

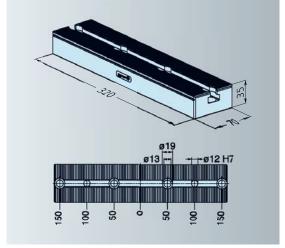
3 mm positioning grid.

Application On UPC grid pallets R50 or Cube R50, as a base for the

various ClampSet clamping jaws.

Mounting On EROWA UPC and MTS grid pallets R50 or Cube R50.

Note R40 subject to consultation.



### ER-023325 ClampSet Jaw





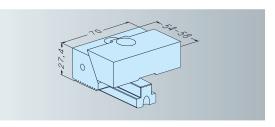
Version Steel, hardened, including tenon block for

attachment.

Application To clamp workpieces with machined surfaces.

Mounting On ClampSet Base 320 or 220 with tenon block supplied. Note Favorably priced alternative to the Clamp Set Slide.

The fixed stop side enables multiple fixtures.



# **EROWA ClampSet**

# Clamping elements

#### ER-015995 **ClampSet Slide**





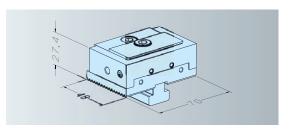
Version Application Mounting

Note

Steel, hardened, incl. T-nut for fixation. To clamp workpieces with machined sides.

On ClampSet Base 320 or 220 with the T-nut supplied. Fixed stop side for the multiple fixture of machined workpieces. The precision clamping jaw in the ClampSet

system.



#### ER-015997 ClampSet standard block M8





Version **Application**  Steel, hardened, incl. T-nut for attachment.

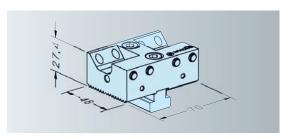
The blanks are clamped with the M8 stud bolts. A clamping jaw in EROWA's modular vise system.

Mounting

Note

On ClampSet Base 320 or 220 with the T-nut supplied.

The fixed stop side allows for multiple fixtures.



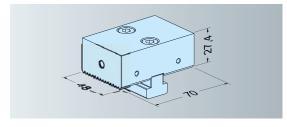
#### ClampSet block F ER-015998





Version Application Mounting

Steel, hardened, incl. T-nut for attachment. Hard jaw in EROWA's modular vise system. On ClampSet 320 or 220 with the T-nut supplied.



## ER-015999

## ClampSet block S

steel soft







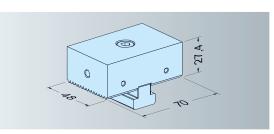
Steel, soft, incl. T-nut for attachment.

Application

The soft block serves to produce a workpiece-specific

Mounting

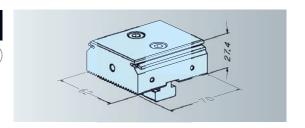
On ClampSet 320 or 220 with the T-nut supplied.



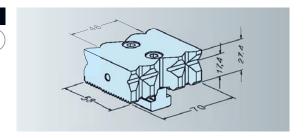
# EROWA ClampSet

# Clamping elements

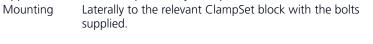
# Version Steel, hardened, incl. T-nut for attachment. Application To clamp blanks. Hard jaw in EROWA's modular vise system. Mounting On ClampSet 320 or 220 with the T-nut supplied. Pull-down function when clamping.

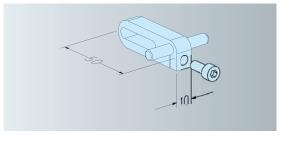


ER-016001	ClampSet block Prisma
Version Application	Steel, hardened, incl. T-nut for attachment. To clamp round parts. Hard jaw in EROWA's modular vise system.
Mounting	On ClampSet 320 or 220 with the T-nut supplied.

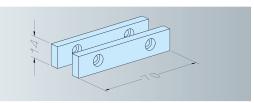


ER-015870	ClampSet Stop adjustable stop	
Version Application	Adjustable stop, steel. Lateral stop for every ClampSet element.	





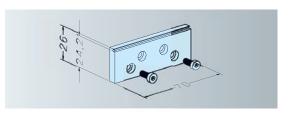
ER-016275	ClampSet support kit 14mm
Version Application Mounting	Ground support (1 pair), 14 mm high, with four bolts. Support for the height positioning of workpieces. To the ClampSet Standard Block with the bolts supplied.



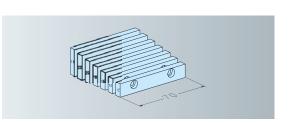
ER-015880	ClampSet Support N 1 pair
Version	Steel, hardened, ground, with bolts.
<b>Application</b>	Pull-down element for ClampSet Slide and ClampSet
	Block. To clamp workpieces of aluminum and non-ferrous
	heavy metal.
Mounting	To ClampSet Slide and ClampSet Block with the bolts
	supplied.

Note

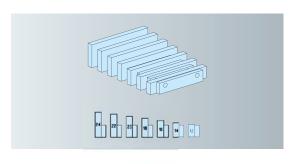
Also suitable for clamping workpieces of low height.



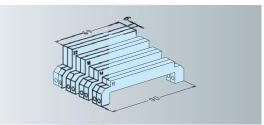




ER-016274	ClampSet support kit 7 parts, stepped
Version Application Mounting	Set of 7 ground, offset supports, with bolts. Supports for the height positioning of workpieces. To ClampSet Slide with the bolts supplied.

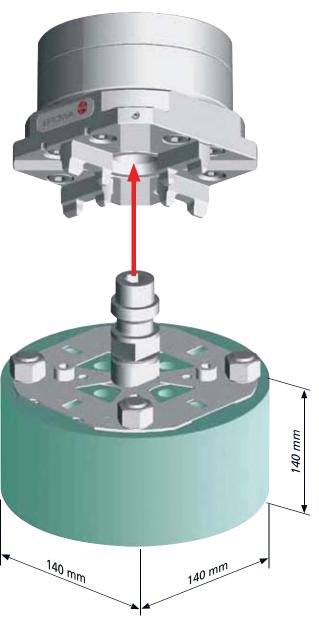




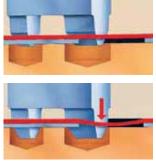


# Simple, practical, good

EROWA's ITS chuck operates on a principle that is as simple as it is ingenious. It holds both tools and workpieces with equal precision and with a high degree of repeatability. Its applications are so numerous that it forms the basis for a well thought-out modular tooling system.



- Tens of thousands of ITS chucks are in daily operation worldwide with their guaranteed 2-µm accuracy and with a reliability they have earned for themselves in practical working application.
- Integrated on milling, grinding and drilling machines, on EDM sinking and WEDM centers or on measuring and presetting stations, ITS helps us week after week to achieve a profitable use of production time.



The two pictures illustrate the ITS patent. After a rough precentering process, the reference position is only reached when the centering plate is flexed. Together with the contact points, this flexing action creates the stability of the frictional connection. This is how positioning accuracy is created between the flexible centering plate and the rigid centering prisms.

# ITS The 攘 riginal.

Nothing is copied as fast as a pioneering invention. But then a copy always lags behind the times. It won't be different with the next innovative idea. We will ensure that you continue to do well if you invest your money in originals. In originals by EROWA.

## **Applications**

## Handling

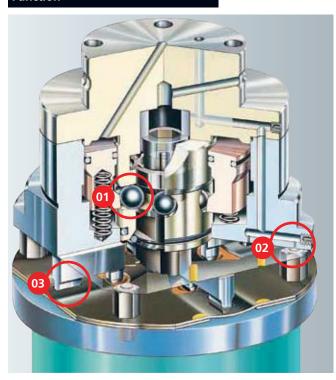






Manual / Loading facility / Robot

### **Function**







## 01 | Ball lock

The reliable clamping mechanism with the self-locking ball lock generates a clamping power of up to 7,000 N (NSF) and does not unlock even if the pressure fails.





### 02 | Cleaning

Experience shows that precision and dirt are do not go hand in hand. This is why the contact points of the support feet are cleaned with compressed air at the very moment of clamping. This also functions when the chuck is submerged in liquid.



### 03 | Precision

The second important effect: the flexing plate wipes off any dirt. Centering plate and prism only touch on one line. A small contact area also reduces the possibility of interference by chips and dirt particles.

### Technical data - ITS chuck

	ITS chuck, pneumatic	
System sizes	50 and 100	
Repeatability	0.002 mm	
Indexing	4 x 90°	
Clamping power	2,500 N - 7,000 N	
Recommended workpiece sizes	up to 140 x 140 x 140 mm	
Generated by	springs (+ 6 bar NSF chucks)	
Opening	compressed air min. 6 bar	
Operation	control unit or air jet	

## **EROWA ITS chuck in action**

# A suitable version for each job

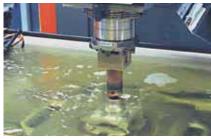
The applications of ITS chucks are as numerous as the jobs to be done in precision mechanics and in tool and mold manufacturing. This is why we offer such a diverse variety of chucks.

### **SAVE TIME**

Machine changes and inprocess-control without loss of time thanks to fixed reference position.







Precision and reliability in the tank and on the quill of the EDM machine.







ITS chucks can be used on all machines.



Ideally suitable for milling, drilling, grinding, turning . . .





Exploit marginal and night hours by loading EDM machines automatically: ITS provides you with the necessary prerequisites.



ITS chucks: Perfectly suited for integration in special fixtures.



The centering plate is fitted directly on to the electrode or the workpiece... ...which is then transferred to the ITS chuck at once!



Checking outside the machine: quick, simple, precise.



Loading machines with preset parts will increase your capacity.

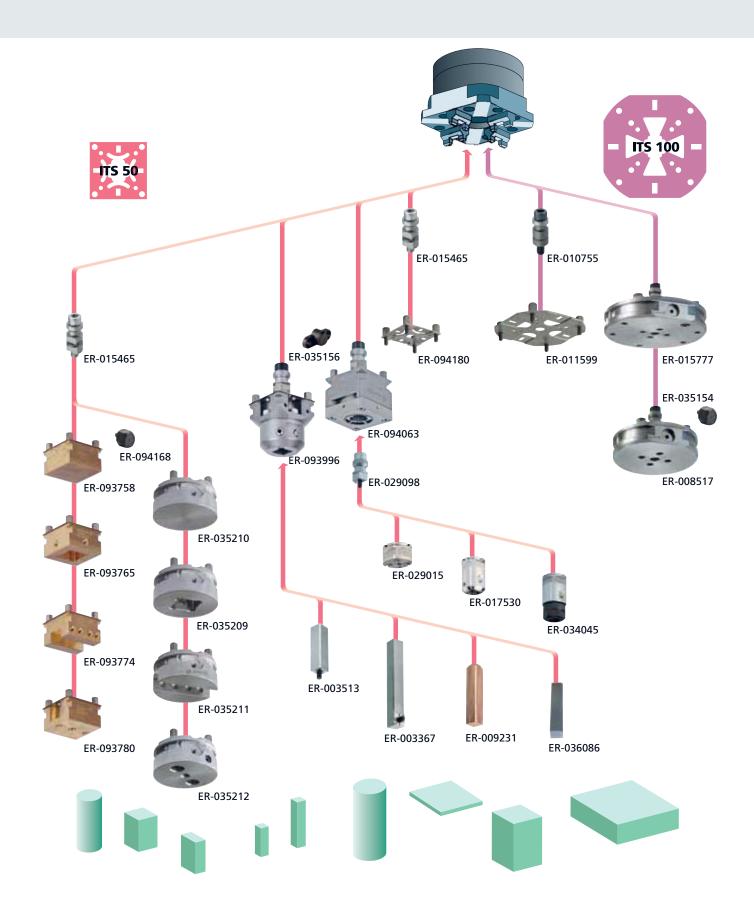


High degree of safety. The sealing plate of the EROWA ITS 50 holder C and the sealing ring constitute a form-fit seal. This provides the chuck with maximum protection against contamination.

## **EROWA ITS**

# Integrated tooling system

The components



To make it easier for you to find your way about the fields of application for EROWA products, we use the following symbols in all our documents:



1. Manual operation



2. Operate with compressed air jet



3. Operate with manual valve



4. Operate with manual control unit



5. Operate with electropneumatic control unit



6. With central flushing clearance



7. Suited for submerged operation



8. Corrosion-resistant material



9. Suited for automatic operation



10. Handling with EROWA Robot gripper S



11. Handling with EROWA Robot gripper Combi



12. Handling with EROWA Robot gripper C



13. Handling with EROWA Robot gripper 72



14. Handling with EROWA Robot gripper 115



15. Handling with EROWA Robot gripper 148



16. Handling with EROWA Robot gripper RN PC 210



17. Handling with EROWA Robot gripper RCS

## **EROWA ITS TOOLING SYSTEM**

EROWA ITS chucks	
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For chip-removing processes

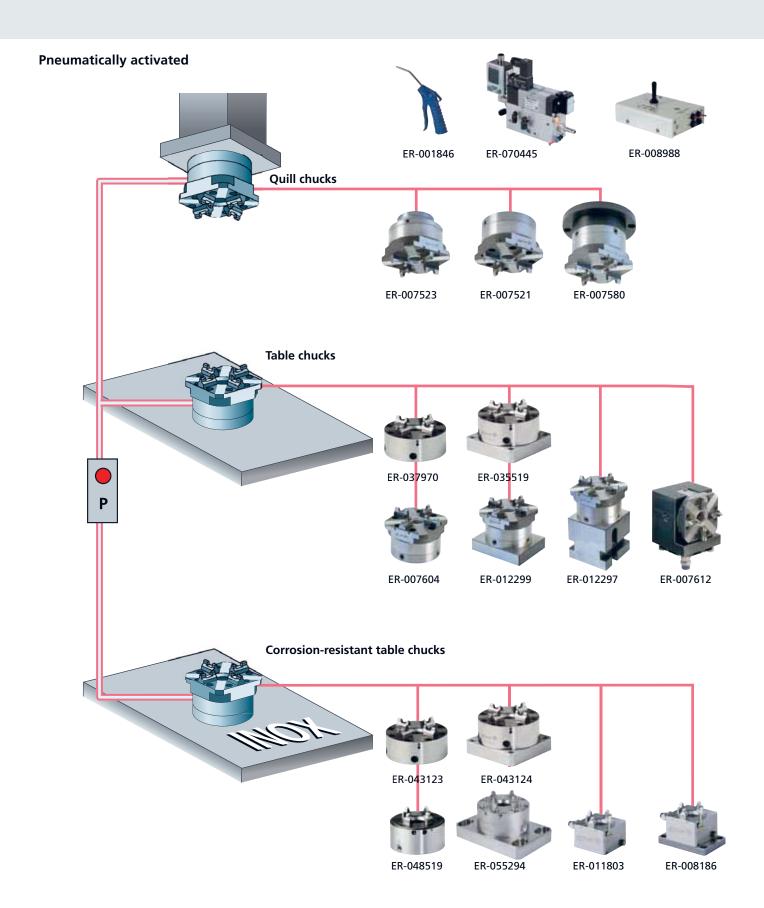


For EDM sinking

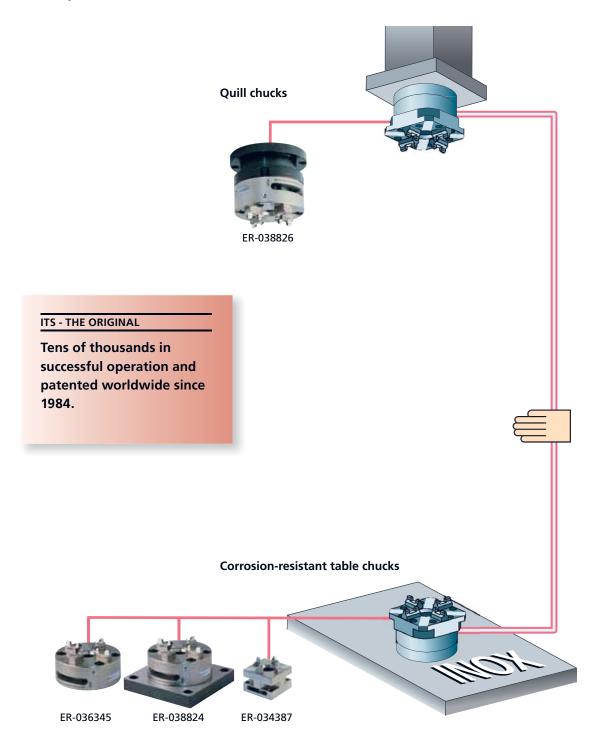


For WEDM

# ITS chucks



## Mechanically activated



# pneumatic, quill

Technical data	Chuck	Chuck «NSF» (with reclamping)
Repeatability	0.002 mm	0.002 mm
Indexing	4 x 90°	4 x 90°
Generated by	springs	springs
Opening	min. 6 bar	min. 6 bar
Reclamp		min. 6 bar

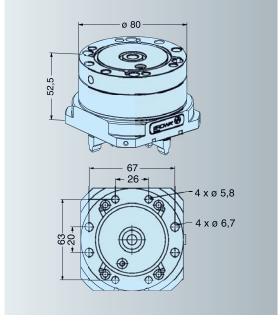
### ER-007521 Rapid-action chuck automatic

P1 auto

Version Standard type. Clamping power up to 2500 N. Connections On back.

Application EDM sinking machines with automatic electrode change,

machine tools with automatic loading, production lines.

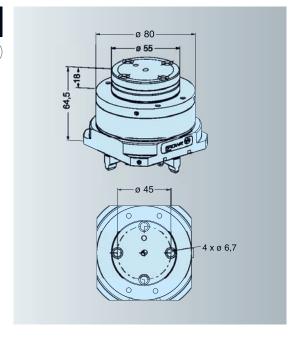


ER-007523	Rapid-action chuck automatic with shoulder for flushing	
	P\$   P\$   auto	<b>(4</b> )
Version	Shoulder for flushing connection. Clar	nping power up to

Version Shoulder for flushing connection. Clamping power up to 2500 N.

Connections On back.

Application EDM sinking machines with automatic electrode change.



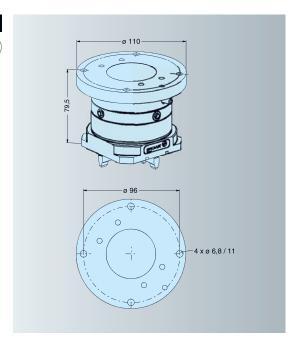
#### ER-007580 Manual rapid-action chuck

With flange ø 110 mm. Clamping power up to 2500 N.

Version

Connections

Hose coupling fitting on side. Retrofitting on EDM sinking machines. Application





# pneumatic, table, able to automate

#### ER-037970 ITS chuck 100 P without base plate





Version Clamping Steel, hardened.

power

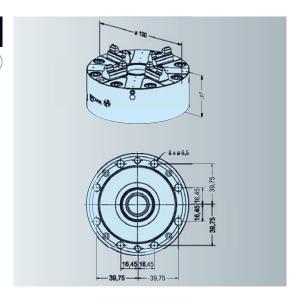
6000 N.

Connections

At the rear, with two lines.

Operation Application With control unit. For receiving pallets ø 115 / ø 148, electrode holders,

pallets PM56, PM60 and PM85 Precise.



#### ER-035519 ITS chuck 100 P 102 x 102





Version Clamping Steel, hardened.

6000 N.

power

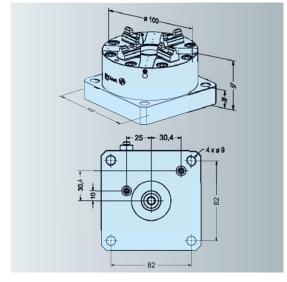
On the side or at the rear, with two lines.

Connections Operation

With control unit or with air jet.

Application For receiving pallets ø 115 / ø 148, electrode holders,

pallets PM56, PM60 and PM85 Precise.



#### ER-045076 ITS chuck 100 P 118 x 118





Version Clamping Steel, hardened.

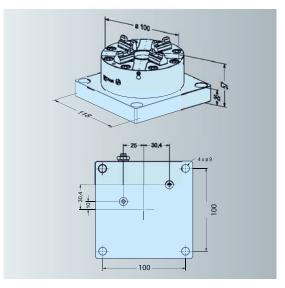
6000 N.

power

Connections Laterally or at the rear, with two lines. Operation With control unit or compressed-air jet.

For receiving pallets ø 115 / ø 148, electrode holders, Application

pallets PM56, PM60 and PM85 Precise.



# pneumatic, table, manual

#### ER-058250 ITS Chuck 100 P with base plate ø100





Version Clamping Steel, hardened, with P-profile.

power

6000 N.

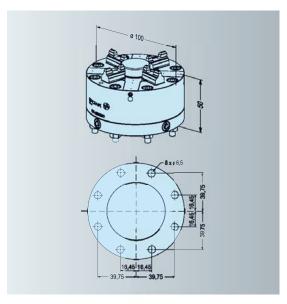
Connections

Air valves, lateral. With air jet.

Operation Application

To hold pallet ø 115 / ø 148 and pallets PM56, PM60,

PM85 Precise.



#### ER-082885 ITS Chuck 100 P Inox with base plate ø 100









Clamping power

5000 N.

Connections

Air valves, lateral. With air jet.

Operation Application

To hold pallet ø 115 / ø 148 and pallets PM56, PM60,

PM85 Precise.

#### ER-007604 Manual rapid-action chuck NSF





Version Connections

NSF = increased clamping power up to 7000 N. Pneumatic valves on side, flushing on back.

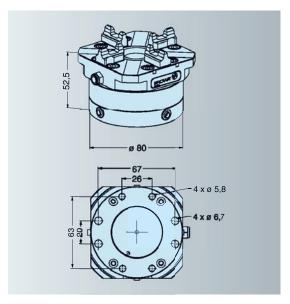
Electrode fabrication general. Application

Note

To clamp pallets of ø 115 / ø 148, ø 72 and electrode

Pallets with P centering system are excluded.







# pneumatic, table, manual

## ER-012299 Rapid-action chuck NSF on plate





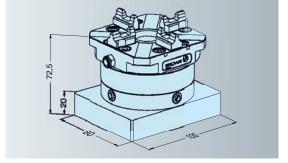
Version Connections NSF = increased clamping power up to 7000 N.

Pneumatic valves on side.

Application Electrode fabrication, e.g. on magnetic plate.

Note To hold pallets ø 115 / ø 148, electrode holders, with the

exception of pallets with a P-profile.



## ER-012297 Rapid-action chuck NSF on block





Version Connections NSF = increased clamping power up to 7000 N.

nections Pneumatic valves on side.

Application

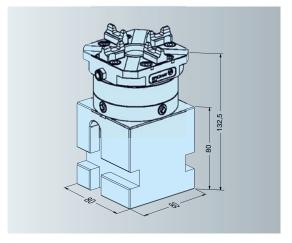
Electrode fabrication. For use in horizontal and vertical

positions.

Note

To hold pallets ø 115 / ø 148, electrode holders, with the

exception of pallets with a P-profile.



## ER-007612 Rapid-action chuck NSF on angle plate







Version

Standard type on type G angle plate.

NFS = increased clamping power up to 7000 N.

Connections Pneumatic valves on the side, flushing through

chucking spigot.

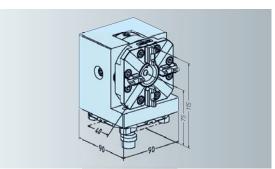
Application

To produce electrodes, and on EDM quill.

Note

To hold pallets ø 115 / ø 148, electrode holders, with the

exception of pallets with a P-profile.



# pneumatic, table, able to automate, INOX

#### ER-043123 ITS chuck 100 P Inox without base plate



844

Version Clamping Steel, hardened, INOX.

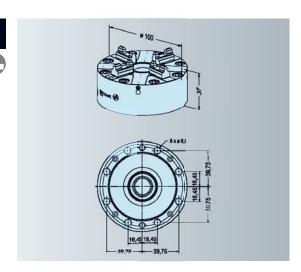
5000 N.

power

Connections At the rear, with two lines.

Operation With control unit Note

To hold pallets ø 115 / ø 148, electrode holders and pallets PM56, PM60 and PM85 Precise.



#### ER-043124 ITS chuck 100 P Inox 102 x 102





Version

Steel, hardened, INOX.

Clamping

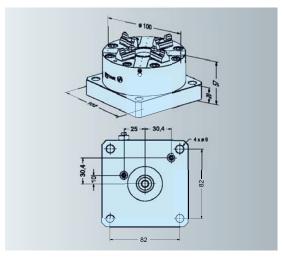
5000 N. power

Connections On the side or at the rear, with two lines. With control unit or with air jet. Operation

Application

To hold pallets ø 115 / ø 148, electrode holders and pallets

PM56, PM60 and PM85 Precise.



#### ER-047743 ITS chuck 100 P Inox 118 x 118





Version Clamping Steel, hardened, stainless

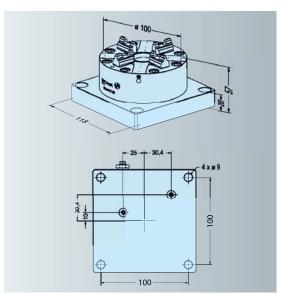
5,000 N

power

Laterally or at the rear, with two lines. Connections Operation With control unit or with compressed-air jet.

Application To hold pallets ø 115 / ø 148, electrode holders and pallets

PM56, PM60 and PM85 Precise.



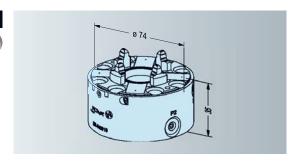
# pneumatic, table, able to automate, INOX

# Version System size 50, corrosion-resistant. Clamping power To be fitted with 8 M5 bolts from the front.

Application For fixtures produced by users themselves.

Note Chuck can be operated manually or automatically.

Air connections laterally or at the rear.



# Version Clamping power ITS Chuck 50 Inox with base plate 80 x 120 Pi Pi NOX auto System size 50, corrosion-resistant. 2800 N.

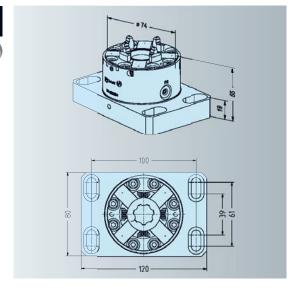
Attachment With 4xM8 bolts from the front.

Application On milling and grinding machines and on EDM/WEDM

centers.

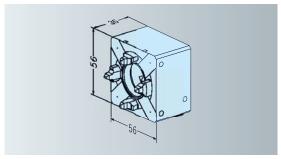
Note Chuck can be operated manually or automatically.

Pneumatic connections on the side of the chuck.

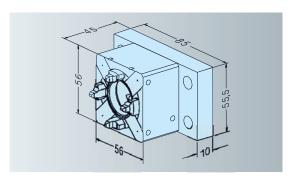




Application ITS basis for the manual loading of ITS elements or for automatic operation.



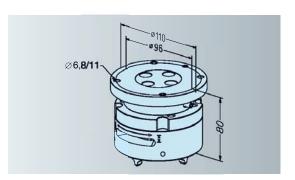
ER-008186	Chuck 50 RSA with base plate 10 x 55.5 x 85
	Pi: 24 in Nox auto
Version	Chuck 50 RSA, automatic, with pneumatic connection.
Clamping power	2800 N.
Application	ITS basis for the manual loading of ITS elements or for automatic operation.



# manual, quill

Technical data	ITS chuck, manual
Repeatability	0.002 mm
Indexing	4 x 90°
Operation/clamping	manually with clamping lever

ER-038826	QuickChuck 100 P / R
Version	On a ø 110 mm base plate with a rotatable flushing
	connection.
Attachment	With 4 x M6 bolts.
Application	On EDM centers with quill rotation.
Note	Clamping power: up to 10000 N.



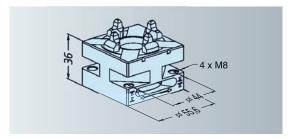


Note

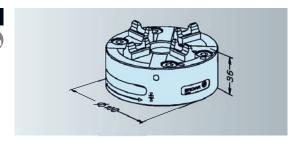
# manual, table, INOX

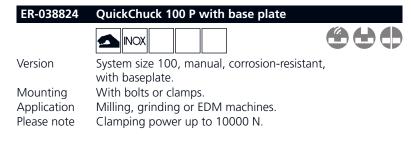
# Version Attachment Application QuickChuck 50 System size 50, manual, corrosion-resistant. 4 x M8 from the rear or 4 x M6 stud bolts with nuts. On EDM/WEDM centers for light milling and grinding work. Max. revolutions on rotating axes 200min<sup>1</sup>

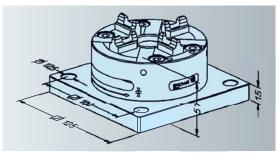
Clamping power up to 4000 N.



# Version Nounting Application Note QuickChuck 100 P System size 100, manual, corrosion-resistant. With four M8 bolts supplied. Turning, milling, grinding or EDM/WEDM machines, in dividers and fixtures. Clamping power up to 10000 Nm. max. 3000 rpm.



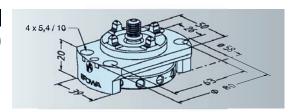




# ITS screw chucks manual

Technical data	ITS screw chuck, manual
Repeatability	0.002 mm
Indexing	4 x 90°
Operation/clamping	manually with locking bolt

ER-007697	697 Screw chuck 50 D		
Version	Only 20 mm overall height. For holders of system size 50.		
Connections Application	Central flushing possible. Small lathes, on tapers, flanges, jigs and fixtures.		





# Accessories

#### ER-019424 **Universal square block**



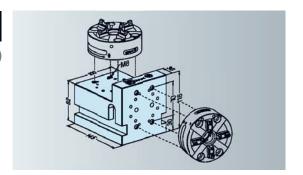


Version Steel, hardened, corrosion-resistant.

For attaching 1 or 2 chucks in horizontal and/or vertical Application position. Fits ITS chucks, QuickChuck 50, QuickChuck 100.

Note

Delivery without chucks.



#### ER-032832 Sealing ring ITS chuck 50



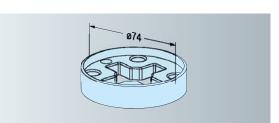




Version Plastic.

Application Prevents penetration of chips and dirt into the ITS Chuck 50

by application of EROWA Holders ø 72.



#### ER-034665 Cover ITS chuck 50





Version Aluminium anodized. Without centering plate.

Prevents penetration of chips and dirt into the ITS Chuck Application

50 in combination with the seal ring ER-032832.



#### ER-094955 Sealing ring ITS 50 C for chuck 50



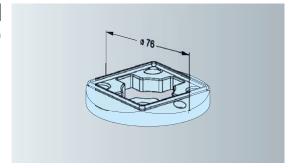




Version Plastic.

Application Prevents penetration of chips and dirt into the ITS Chuck

50 with application of EROWA HoldersITS50 C.



#### ER-094152 Sealing ring ITS50 C for ITS 100 P

manual





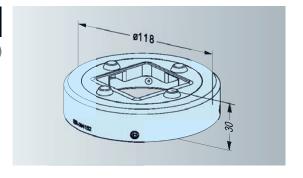




Prevents penetration of chips and dirt into the Application

QuickChuck 100 P or ITS chuck 100 P by application of

EROWA electrode holders C.



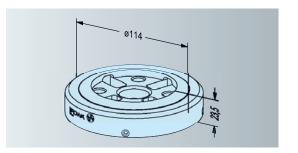




Version Aluminium anodized.

**Application** Prevents penetration of chips and dirt into the rapid action

chuck by application of EROWA Holders ø 72.



#### ER-035356 Sealing ring QuickChuck 100 P ø 72





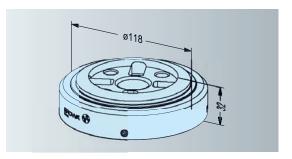


Version Aluminium anodized.

Prevents penetration of chips and dirt into the Application

QuickChuck 100 P or ITS chuck 100 P by application of

EROWA Holders ø 72.



#### ER-094112 Sealing ring ITS50 C for SSF





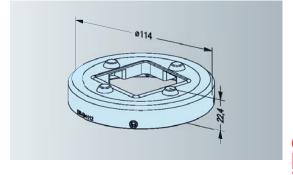




Version Aluminium anodized.

Application Prevents penetration of chips and dirt into the rapid action

chuck during machining of EROWA electrode holders C.



### ER-046046

Chip guard ø 115 to QuickChuck 100 P / ITS Chuck 100 P







Version Aluminum, for pallets ø 115 mm.

Seals QuickChuck 100 P / ITS Chuck 100 P in use with **Application** 

pallets ø 115 mm against liquid and chips. Can be

combined with ER-029313.



#### ER-046044 Chip guard ø 148

for QuickChuck 100 P / ITS Chuck 100 P



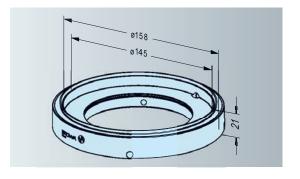
Version

Aluminum, for pallets ø 148 mm.

Seals QuickChuck 100 P / ITS Chuck 100 P in use with Application

pallets ø 148 mm against liquid and chips. Can be

combined with ER-029313.



# Accessories

ER-029313

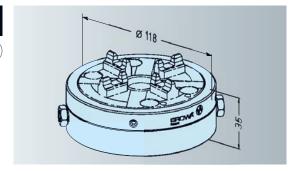
Chip guard for QuickChuck 100 P



Version Aluminum.

Seals the locking mechanism of the QuickChuck 100 P Application

against the penetration of liquids and chips.



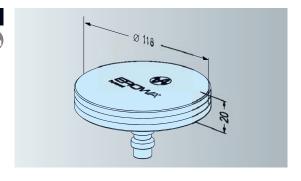
#### ER-007618 Cover for rapid-action chuck





Version Aluminum, without supports and centering plate. Application

To protect rapid-action chucks against dirt.



#### ER-041374 **Sealing ring PM56**

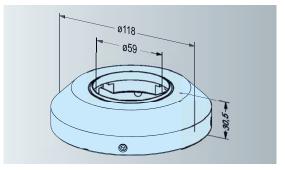






Version Aluminum, for pallets PM56.

Prevents dirt from penetrating into ITS chuck 100 P. Application



#### ER-034677 Sealing ring ITS 100 P / ø 85

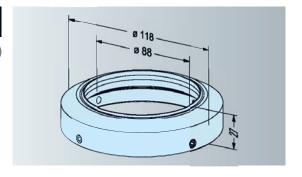






Aluminum, for pallets PM85. Version

Prevents dirt from penetrating into ITS chuck 100 P. Application



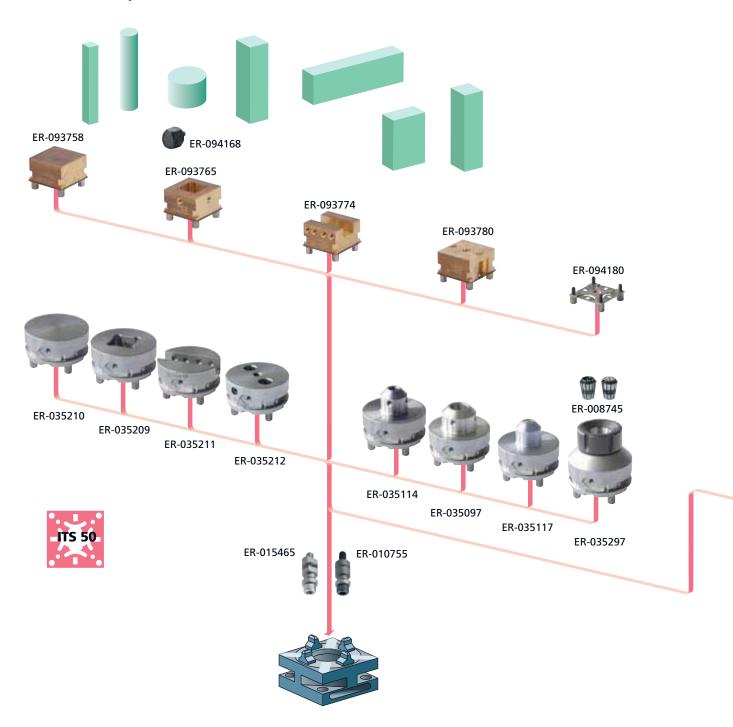


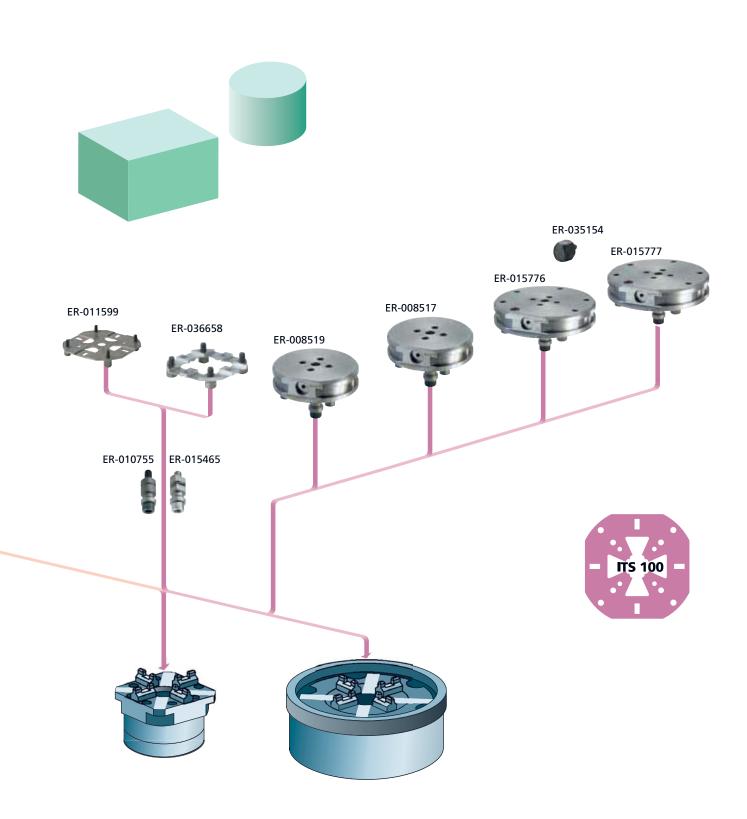
## **EROWA**

# ITS System carriers

# The components

Universality starts with the system carrier. Whether you use completely prepared electrode holders, pallets or the very economically priced centering plates, they all depend on the application. However, the workpiece will be ready for universal and flexible use in any case.



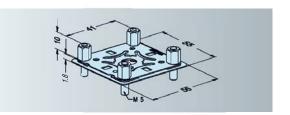


# ITS centering plates

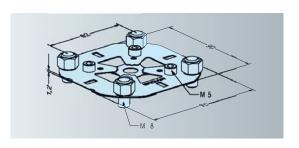
The centering plates are the most cost-effective base for clamping electrodes. They are mounted directly onto the blanks. This way, jigs and fixtures are also ITS compatible. The hole pattern for mounting is simply drilled into the blank with a drilling template, or by means of an NC program.

Technical data	ITS centering plates
Material	corrosion-resistant
System accuracy in chuck	0.002 mm
Versions:	
Centering plate 50	small electrode weights
Centering plate 100 M8	workpieces and electrodes
Centering plate G	workpieces, jigs and fixtures
	for chip-removal machining
Handling	with EROWA Handlingsystems
	or electrode changer.

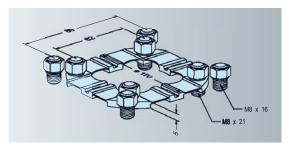
ER-094180	Centering plate 50 C 50 pieces
ER-094181	Centering plate 50C 5 pieces
Version	Corrosion-resistant, including sealing plate and 4 supporting feet each.
Application	Small electrode weights.
Mounting	Mounted directly on plane surface of blank.



ER-011599	Centering plate 100 M8 10 pieces	
ER-050195	Centering plate 100 M8 1 unit	
Version	Corrosion-resistant, including	
	4 supporting feet M8 and 4 x M5 screws per plate.	
Application	Workpieces and electrodes.	
Mounting	Mounted directly on of blank plane surface of blank.	



ER-036658	Centering plate G Inox 5 pieces
ER-036657	Centering plate G Inox 1 unit
Varaina	
Version	Ground, including 8 supporting feet M8.
Application	For workpieces, jigs and fixtures in chip-removal machining.
Fixation of blank	According to accompanying fitting instructions.

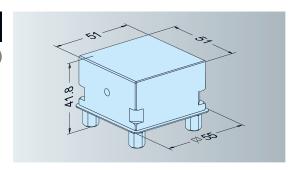


# ITS standard electrode holders

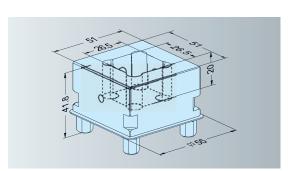
Standard electrode holders are used to contain electrodes for the entire machining cycle and for storage. Their economical unit price enables users to stock such holders in large quantities. The standard holders are supplied without chucking spigots.

Technical data	ITS standard electrode holders
Material	body: brass
	centering plate: corrosion-resistant
System accuracy in chuck	0.002 mm
Recommended max.	
weight with electrode	20 kg / 44 lbs
Handling	with EROWA Handlingsystems
	or electrode changer.

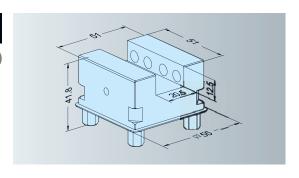
ER-093758	Uniblank C EWIS™ 12 pieces
	NOX auto C
Version	Set of 12 units, fitted without machining of body.
	With gripper slot and sealing plate.
Application	To mount electrodes and workpieces of various shapes.
Mounting	As required.
Note	Order EWIS™ chip, ER-094168 separately.



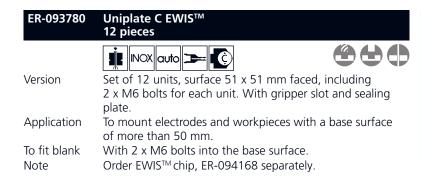
ER-093765	Prisround C EWIS™ 12 pieces	
	NOX auto	
Version	Set of 12 units, with gripper slot and sealing plate.	
	Prepared for receiving the code carrier.	
Application	To mount blank parts with shaft size up to 25 mm	
Mounting	Fit into recess and tighten bolts. If necessary center part	
	with insert plates ER-010523.	
Note	Order EWIS™, ER-094168 seperatly!	

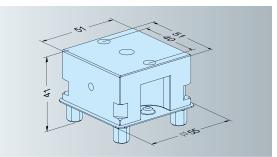


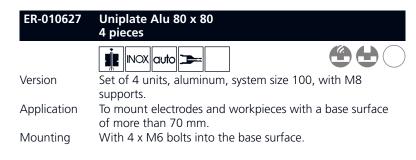
ER-093774	Uniholder C EWIS™ 12 pieces
	NOX auto C
Version	Set of 12 units, including 2 setscrews for each unit.
	With gripper slot and sealing plate.
Application	To mount electrodes and workpieces with a base surface
	of up to 20 mm.
Mounting	Insert and tighten setscrews. If necessary, center with
	spacer plate ER-010532.
Note	Order EWIS™ chip, ER-094168 separately!

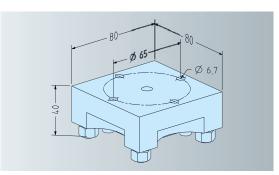


# ITS standard electrode holders

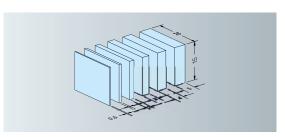




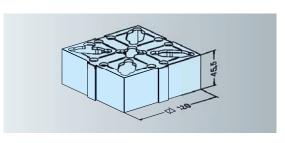




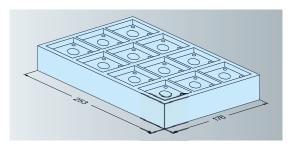
ER-010532	Spacer plate 300 pieces	
		840
Version	6 x 50 plates. Corrosion-resistant. Thicknesses from 0.5 mm to 5 mm.	
Application	Centering of blanks in electrode holders.	



ER-013913	System stand 10 pieces
Version	Plastic, set of 10.
Application	As a rack for four electrode holders 50 or a pallet ø 115/148 mm.
Please note	System racks can be stuck together without any gaps, e. g. to be stored in drawers.



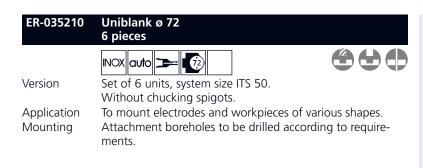
ER-011591	System stand 50 12-fold 10 pieces
Version Application	Set of 10 styrene stands. Storage and transport of electrode holders system size 50.

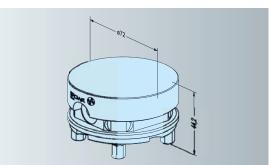


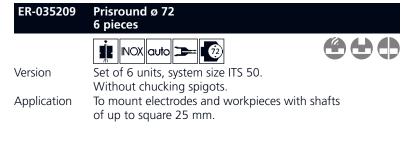
# Holder ø 72

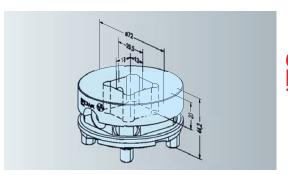
The EROWA holders ø 72 in combination with covers provides maximum protection against the contamination of table chucks. The holders are the optimal solution for automatic production.

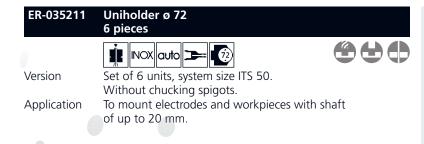
Technical data	EROWA Holder ø 72
Material	steel, corrosion-resistant
System accuracy, chuck	0.002 mm
Recommended max.	
weight with electrode	20 kg / 44 lbs
Handling	with EROWA handling systems
	or electrode changers.

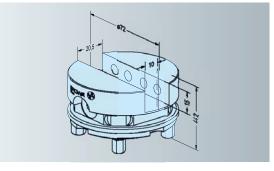










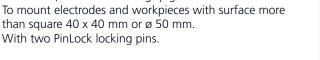


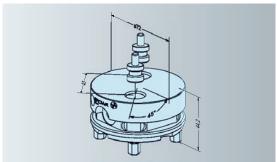
Mounting

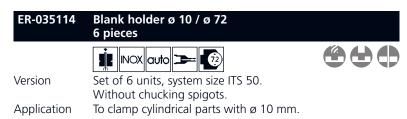
# **EROWA ITS System carriers**

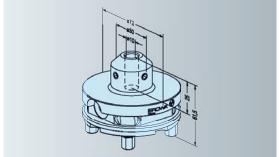
# Holder ø 72

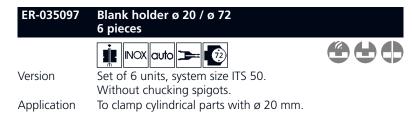


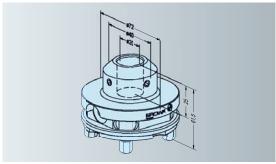


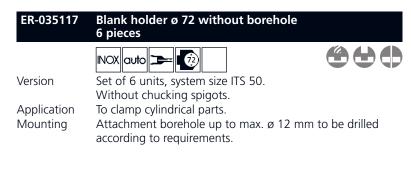


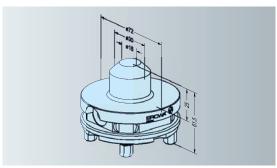




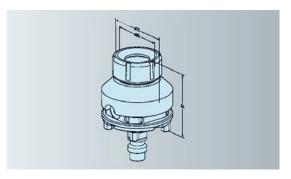








ER-035297	Collet chuck holder ø 72 1 piece
	auto (2)
Version	One collet chuck holder with chucking spigot.
	System size ITS 50.
Application	To clamp cylindrical parts.
	Clamping range ø 2 mm - ø 20 mm.
Please note	Order collet chucks type ETS 32 separately.





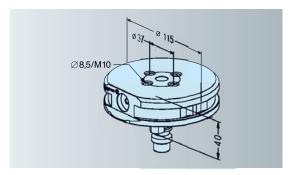
# ITS precision pallets

ITS precision pallets are workpiece and electrode carriers.

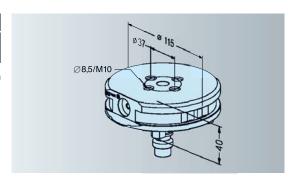
The pallets are prepared for automatic handling and to accommodate EWIS chips. Marginal and night hours are thus put to productive use.

Technical data	ITS precision pallets
Material	corrosion-resistant
System accuracy in chuck	0.002 mm
Run-out	< 0.01 mm
Variants	
Pallets MS	die cut centering plates
Pallets G	ground centering plates
Pallets P	Centering integrated in the pallet
Borehole pattern	standard, can be supplemented
Handling	with EROWA Handlingsystems
Unit supplied	pallet including chucking spigot

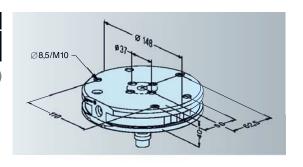
ER-008519	Pallet ø 115 MS EWIS™
ER-032730	Pallet kit ø 115 MS 4 pieces
Version Application Mounting	Standard type, punched centering plates. For electrodes and workpieces in EDM Through pallet with 4xM8 bolts or through blank with 4xM10 bolts.

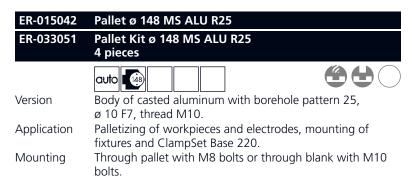


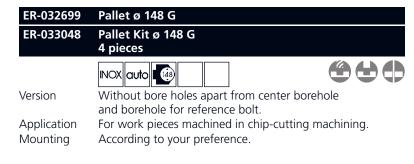
ER-008517	Pallet G ø 115 EWIS™
ER-032729	Pallet kit G ø 115 4 pieces
Version Application Mounting	Standard type, ground centering plates. For electrodes and workpieces in EDM. Through pallet with 4xM8 bolts or through blank with 4xM10 bolts.

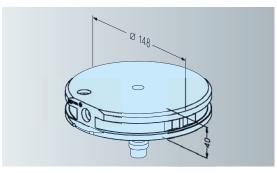


ER-015776	Pallet ø 148 MS EWIS™
ER-032731	Pallet kit ø 148 MS 4 pieces
	INOX auto 49
Version	Standard type, punched centering plates.
Application	For electrodes and workpieces, and for the construction of fixtures.
Mounting	Through pallet with M8 bolts or through blank with M10 bolts.

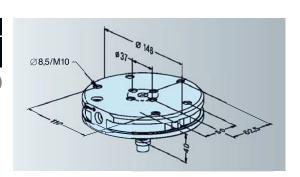








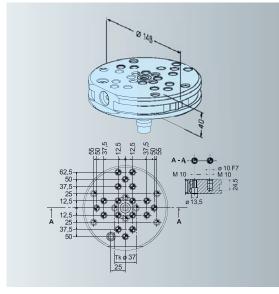
ER-015777	Pallet ø 148 G EWIS™
ER-032732	Pallet kit G ø 148 EWIS™ 4 pieces
	INOX auto 48
Version	Standard type, ground centering plates.
Application	To accommodate workpieces and fixtures in chip-cutting machining processes.
Mounting	Through pallet with M8 bolts or through blank with M10 bolts.



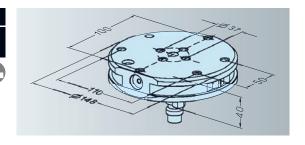
## **EROWA ITS System carriers**

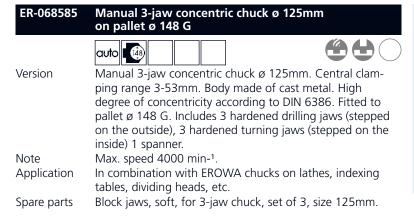
# ITS precision pallets

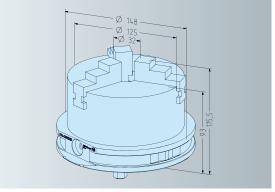


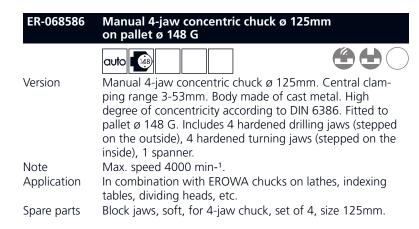


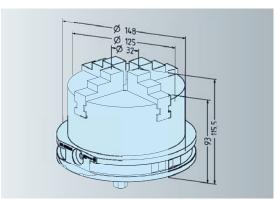
ER-041912	Pallet P ø 148 Inox
ER-041924	Pallet Kit P ø 148 Inox 4 pieces
	INOX auto 43
Version	Steel, corrosion-resistant. Centering integrated in the pallet.
Application	For use on all EROWA PowerChucks P and Production- Chuck 210 Combi. To accommodate workpieces and fixtures in chip-cutting machining processes.
Mounting	Through pallet with M8 bolts or through blank with M10 bolts



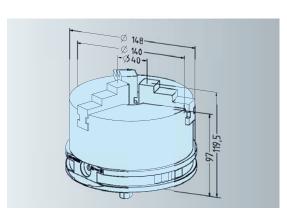


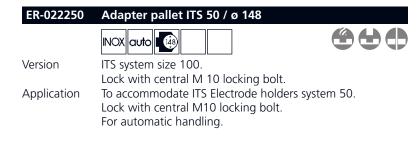


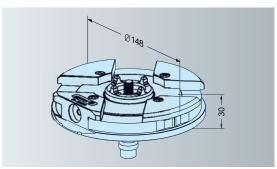




ER-068697	Manual 3-jaw concentric chuck ø 140mm on pallet ø 148 G
	auto 163
Version	Manual 3-jaw concentric chuck ø 140mm. Central clamping range 3-53mm. Body made of cast metal. High degree of concentricity according to DIN 6386. Fitted to pallet ø 148 G. Includes 3 hardened drilling jaws (stepped on the outside), 3 hardened turning jaws (stepped on the inside) 1 spanner.
Note Application	Max. speed 4000 min-1. In combination with EROWA chucks on lathes, indexing tables, dividing heads, etc.
Spare parts	Block jaws, soft, for 3-jaw chuck, set of 3, size 140mm.







## **EROWA ITS System carriers**

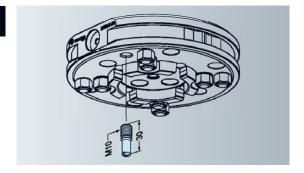
# ITS precision pallets

Reference bolt ø 7.7, M10x30 ER-046221

10 pieces

Set of 10 bolts. Bolts have been reworked. Version On pallets ø 148 mm: for positional orientation in Application

PowerChucks and Robot magazines.



EWIS™ Rapid chip with chip holder SW14 with chip ø 12,4 x 2mm ER-035154

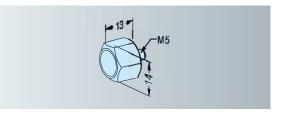


Version Sleeve fitting with built-in data carrier.

EWIS Rapid chip: read only.

In any EROWA electrode holder and pallet which has Application

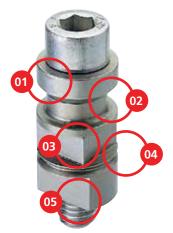
been prepared for it.



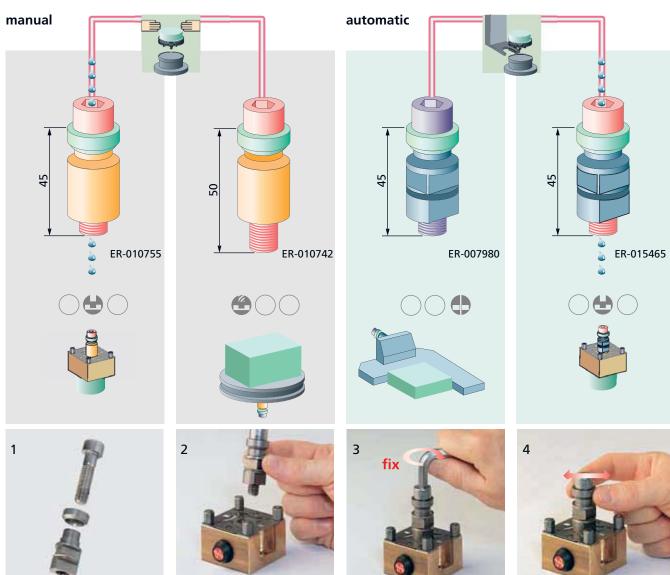


## **EROWA ITS Chucking spigots**

# For every application the proper version



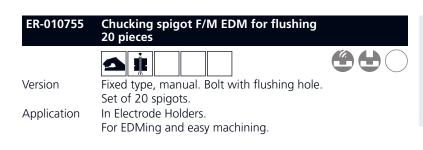
- **01** | Movable upper part for error compensation
- 02 | Groove for ball lock
- **03** | Flats for magazine engagement
- **04** | Groove for O-ring seal
- 05 | Flats for gripper

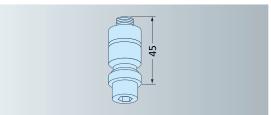


The various versions are exactly tailored to individual applications.

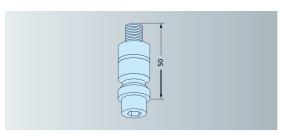
Chucking spigots are screwed into the holder or into the pallet for the machining cycle only. Since it has no influence on the reference position, it is removed for the purpose of spacesaving storage and only screwed in again when the holder or pallet is used next time.

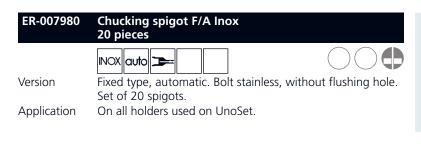
Technical data	ITS Chucking spigot	
Material	Steel, hardened	
Bolt	M10	

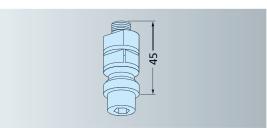


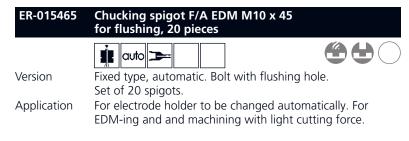


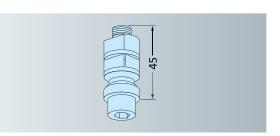
ER-010742	Chucking spigot F/M production 1 unit
ER-051381	Chucking spigot F/M Production 20 pieces
Version	Fixed type, manual. Bolt 12.9, without flushing hole.
Application	In pallets for chip-cutting machining processes.









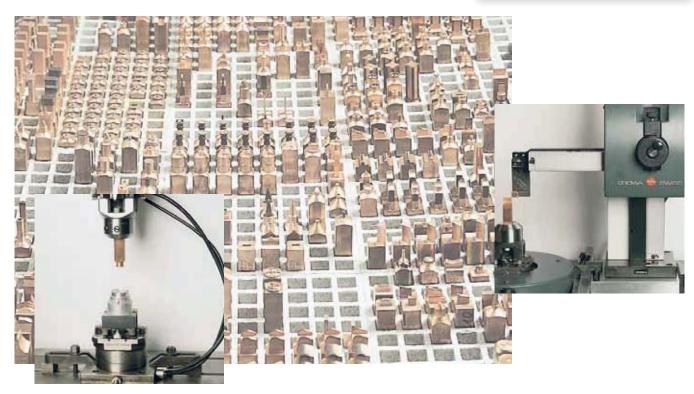


# Square Electrode System and System Plus

EROWA square holders are higly suitable for the manufacture of small electrodes. Their applications consists of milling, turning, grinding, as well as EDM sinking and WEDM. Used in addition to the System Plus, they represent a well-rounded, well thought-out range of products for everyone who works with many small electrodes.

#### SAVE SPACE

Store up to 1600 square electrodes safe and handy on 1 m<sup>2</sup>.



# **System Plus**The stamped centering profile directly on the blank forms the system reference.



**1. Preparation** Stamp in the centering profile.



**2. Milling**On a straight System Plus holder.



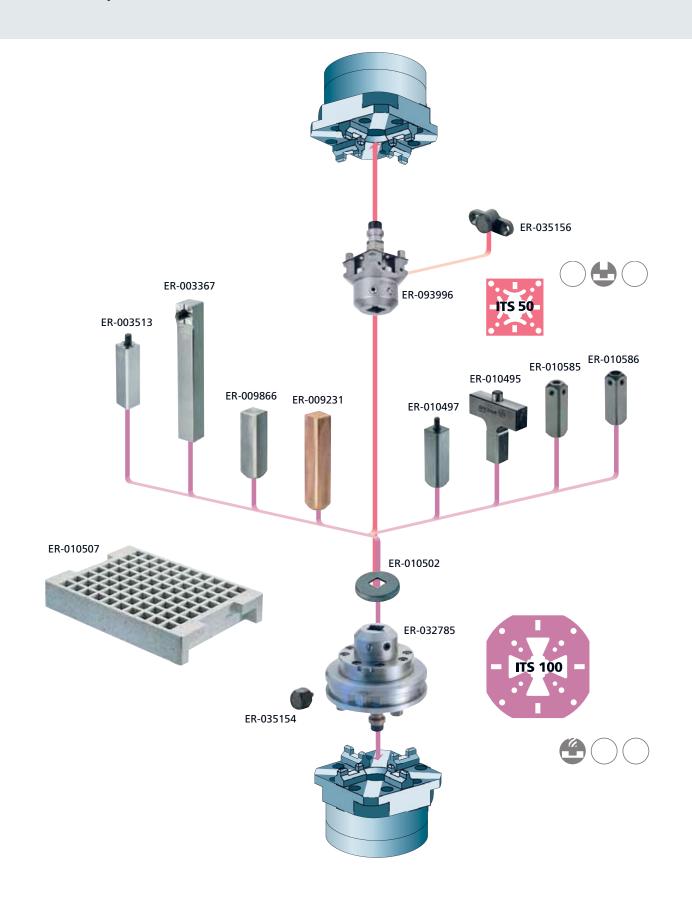
**3. WEDM** On an angle holder.



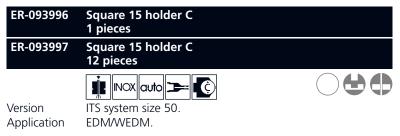
**4. EDM**On a straight holder.

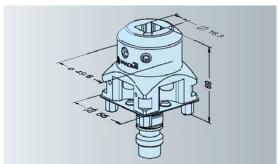
# ITS Integrated tooling system

## The components

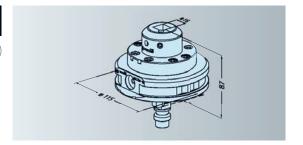


# Square Electrode Clamping System 15





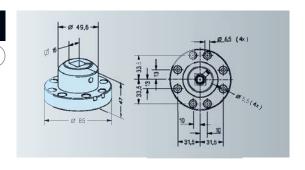
# ER-032785 Square 15 holder EWIS™ for ITS 100 Version Application Square 15 holder EWIS™ For ITS 100 EDM and chip-cutting processes.

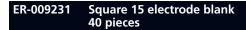


ER-007870	Square 15 holder front part	
Version Application	Only clamping part of the holder. For the construction on multiple fixtures.	



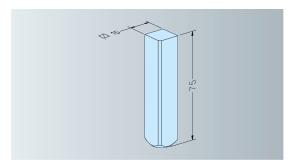
ER-015627	Square 15 holder on adapter ø 85
	<b>66</b>
Version Application Mounting	Clamping part fitted to flange, positioned with rods. For the construction on multiple fixtures. From above through the flange into the base.







Version Set of 40 blanks. EDM copper, drawn profile. Application Blank for electrodes of up to 15 mm square.

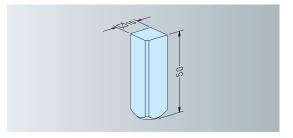


## ER-009866 Square 15 electrode shaft 40 pieces



Version Set of 40 shafts, drawn steel.

Application To solder or bond to copper or graphite electrode blanks.

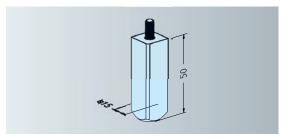


## ER-010497 Square 15 electrode shaft M5 10 pieces



Version Set of 10 blanks, hardened, ground, including M5 bolts.

Application To screw on to electrode blanks.



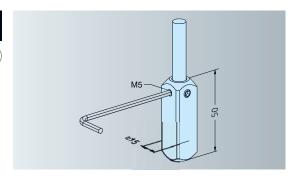
#### ER-010585 Square 15 blank holder ø 8mm





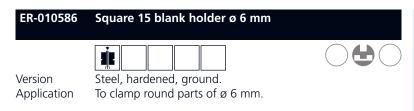
Version Steel, hardened, ground.

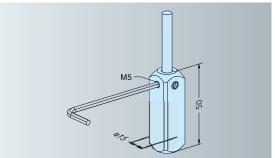
Application To clamp round parts of ø 8 mm.

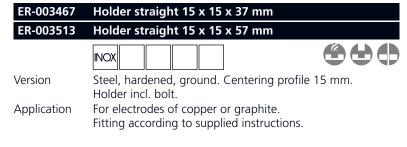




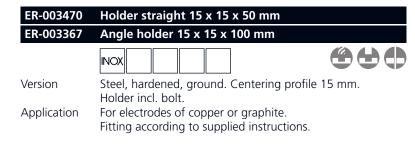
# Square Electrode Clamping System 15 and System Plus

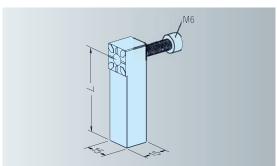


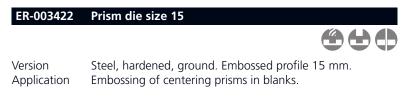


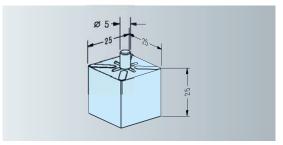












#### Square 15 electrode stand 10 pieces ER-010507

Version Set of 10 stands, styrene.

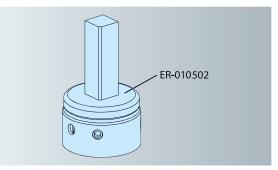
Application Storage and transport of blanks and electrodes.



Version

Set of 10 guards, oil-resistant rubber. Application Protection against chips during electrode

manufacturing.



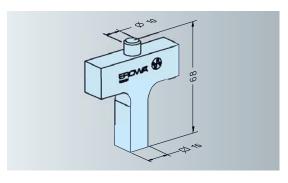
#### ER-010495 Square 15 alignment rail



Version Steel, hardened, ground.

Testing of concentricity and angular accuracy of holder to Application

ITS system.





# ITS Square 15 Element Set

This will provide you with the complete basic equipment to work with EROWA's square 15 system. Additional material, consumables in particular, can be ordered according to requirements.



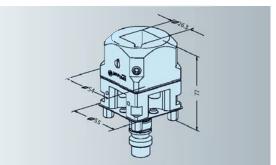
#### ER-103676 Square 15 Electrode Set

Order number	Description	Units per set	Units supplied by
			order number
ER-006641	Socket wrench SW4 for square holder	2	1
ER-093996	Square 15 electrode holder 50 C,		
	for use on EDM centers	2	1
ER-009231	Square 15 electrode blank, copper	20	40
ER-009866	Square 15 electrode shaft, steel	20	40
ER-032785	Square 15 holder EWIS,		
	for chip-cutting processes	1	1
ER-010495	Square 15 checking pin	1	1
ER-010497	Square 15 electrode shaft, M5	8	10
ER-010502	Square 15 chip guard	10	10
ER-010507	Square 15 electrode stand, styrene	2	10

# Square Electrode Clamping System 25







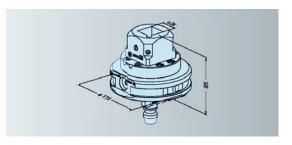
#### ER-032810 Square 25 holder EWIS™ for ITS 100

INOX auto



Version ITS system size 100.

Application EDM and chip-cutting processes.

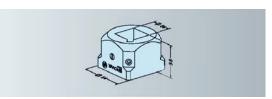


#### ER-010622 Square 25 holder front part



44

Version Only clamping part of the holder. Application For the construction on multiple fixtures.

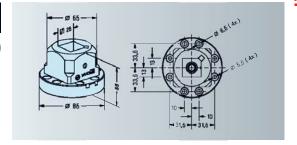


#### ER-015629 Square 25 holder on adapter ø 85





Version Clamping part fitted to flange, fixed with rods. Application For the construction on multiple fixtures. From above through the flange into the base. Mounting





# Square Electrode Clamping System 25 and System Plus

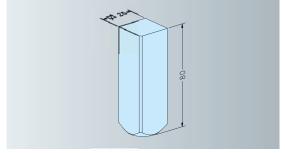
### ER-009209 Square 25 electrode blank

24 pieces



Version Set of 24 blanks. EDM copper, drawn profile.

Application Blank for electrodes of up to 25 mm edge square.



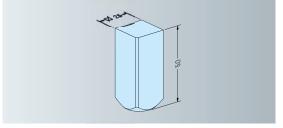
### ER-010491 Square 25 electrode shaft

24 pieces



Version Set of 24 shafts, soft steel, drawn profile.

Application To solder or bond to blanks of up to 40 mm square.



# ER-003405 Holder straight 25 x 25 x 40 mm ER-003439 Holder straight 25 x 25 x 65 mm

INOX



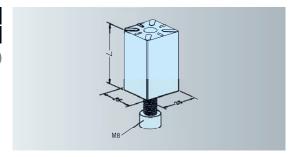


Version Steel, hardened, ground. Centering profile 25 mm. Holder

incl. bolt.

Application For electrodes of copper or graphite.

Fitting according to supplied instructions.



#### ER-003393 Angle holder 25 x 25 x 90 mm

INOX



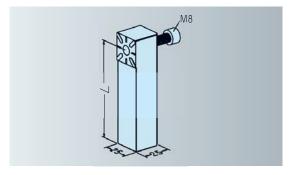


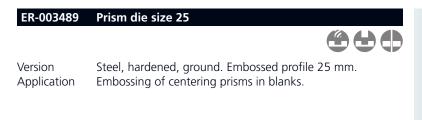
Version Steel, hardened, ground. Centering profile 25 mm. Holder

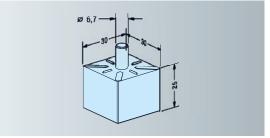
incl. bolt

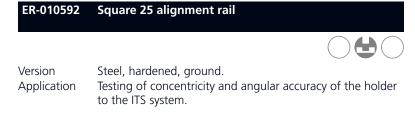
Application For electrodes of copper or graphite. Fit according

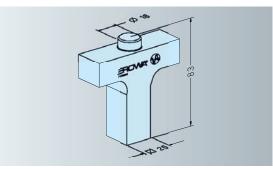
to supplied instructions.



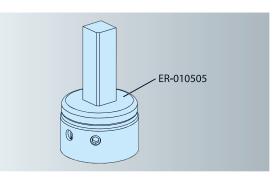


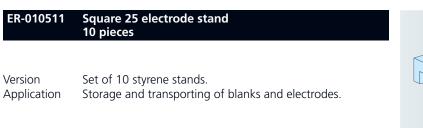


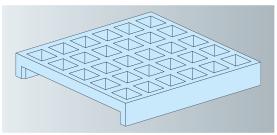




ER-010505	Square 25 chip guard 10 pieces	
Version Application	Set of 10 guards, oil-resistant rubber. Protection against chips during electrode manufacturing.	







# ITS Square 25 Element Set

This will provide you with the complete basic equipment to work with EROWA's square 25 system. Additional material, consumables in particular, can be ordered according to requirements.



ER-103678 Square 25 Electrode Set

This material is packed into one solid plastic box.

Order number	Description	Units per set	Units supplied by order number
ER-032810	Square 25 holder EWIS, for chip-cutting processes	1	1
ER-006641	Socket wrench SW4 for square holder	3	1
ER-009209	Square 25 electrode blank, holder	24	24
ER-010491	Square 25 electrode shaft, steel	24	24
ER-010505	Square 25 electrode chip guard	10	10
ER-010511	Square 25 electrode stand, styrene	2	10
ER-010592	Square 25 checking pin	1	1
ER-093992	Square 25 electrode holder 50 C,		
	for use on EDM centers	2	1

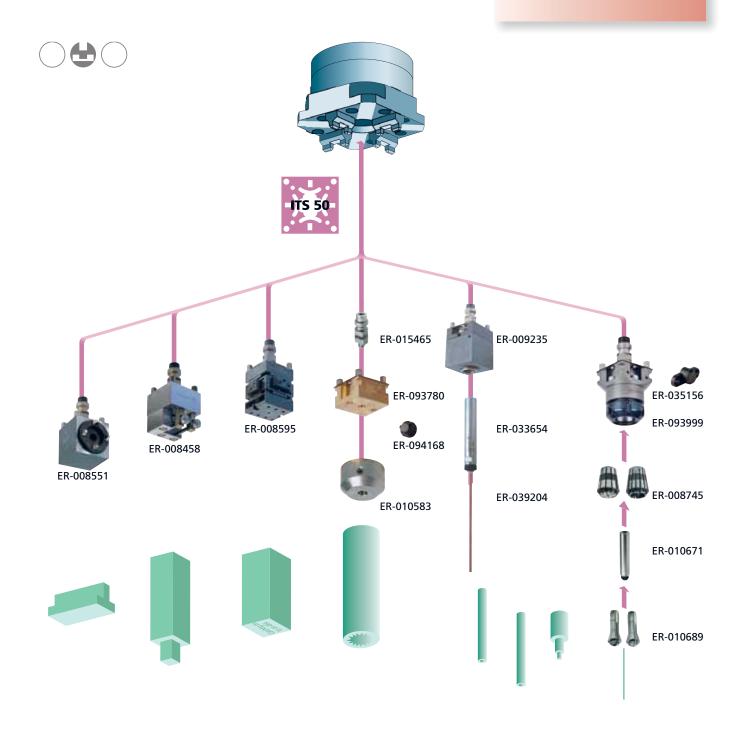
# ITS Special Electrode Holders

## The components

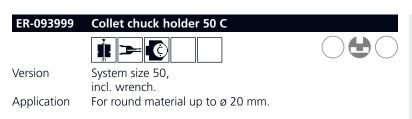
These holders support the manufacturing of special electrodes. Thanks to their adjustable angular and axial positions, existing electrodes can be integrated into the system. One of each of these holders should be kept ready for use in every workshop.

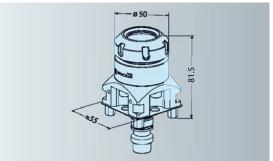
#### **SAVE TIME**

Machine changes and inprocess-control without loss of time thanks to fixed reference position.



# ITS Special Electrode Holders





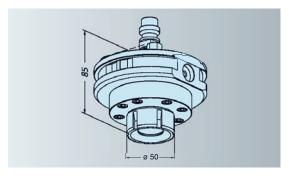
#### ER-032815 Collet chuck holder 100





Version System size 100

Application For round material up to ø 20 mm.

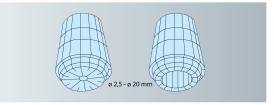


#### ER-008745 Set of collet chucks ETS 32 ø 2.5 - 20 mm



Version 19 collet chucks from ø 2.5 mm to ø 20 mm.

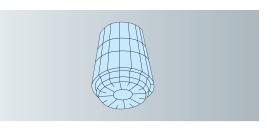
Application For round material up to ø 20 mm.





# ITS Special Electrode Holders

ER-006700	Collet chuck ø 2.5 mm ETS 32
ER-006701	Collet chuck ø 3 mm ETS 32
ER-006702	Collet chuck ø 4 mm ETS 32
ER-006703	Collet chuck ø 5 mm ETS 32
ER-006704	Collet chuck ø 6 mm ETS 32
ER-006705	Collet chuck ø 7 mm ETS 32
ER-006706	Collet chuck ø 8 mm ETS 32
ER-006707	Collet chuck ø 9 mm ETS 32
ER-006708	Collet chuck ø 10 mm ETS 32
ER-006709	Collet chuck ø 11 mm ETS 32
ER-006710	Collet chuck ø 12 mm ETS 32
ER-006711	Collet chuck ø 13 mm ETS 32
ER-006712	Collet chuck ø 14 mm ETS 32
ER-006713	Collet chuck ø 15 mm ETS 32
ER-006714	Collet chuck ø 16 mm ETS 32
ER-006715	Collet chuck ø 17 mm ETS 32
ER-006716	Collet chuck ø 18 mm ETS 32
ER-006717	Collet chuck ø 19 mm ETS 32
ER-006718	Collet chuck ø 20 mm ETS 32



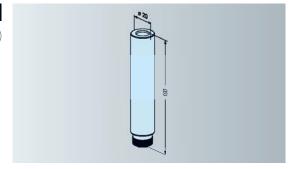


Version Delivered separately, clamping range per collet chuck:

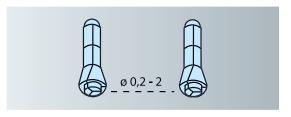
ø 2.5 mm = 0.5 mm ø 3-20 mm = 1 mm

Application Round material from ø 2 mm to ø 20 mm.

ER-010671	Mini collet chucks holder ø 20
Version	Steel ground ø 20 mm.
Application	In ø 20 mm adapter or in ø 20 mm collet chuck for mini
	collet chucks of ø 0.2 mm to ø 2 mm.



ER-010689	Set of mini collet chucks		
Version	Set of 19 collet chucks ø 0.2 mm to ø 2.0 mm, steel		
	ground, with brass seal for appropriate diameter.		
Application	Clamping of small electrode tubes ø 0.2 mm to ø 20 mm.		



ER-002403	Mini collet chuck ø 0.2 mm	
ER-002404	Mini collet chuck ø 0.3 mm	
ER-002405	Mini collet chuck ø 0.4 mm	
ER-002406	Mini collet chuck ø 0.5 mm	
ER-002407	Mini collet chuck ø 0.6 mm	
ER-002408	Mini collet chuck ø 0.7 mm	
ER-002409	Mini collet chuck ø 0.8 mm	
ER-002410	Mini collet chuck ø 0.9 mm	
ER-002411	Mini collet chuck ø 1.0 mm	
ER-002412	Mini collet chuck ø 1.1 mm	
ER-002413	Mini collet chuck ø 1.2 mm	
ER-002414	Mini collet chuck ø 1.3 mm	
ER-002415	Mini collet chuck ø 1.4 mm	
ER-002416	Mini collet chuck ø 1.5 mm	
ER-002417	Mini collet chuck ø 1.6 mm	
ER-002418	Mini collet chuck ø 1.7 mm	
ER-002419	Mini collet chuck ø 1.8 mm	
ER-002420	Mini collet chuck ø 1.9 mm	
ER-002421	Mini collet chuck ø 2.0 mm	



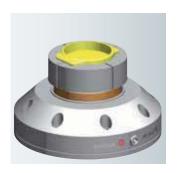
Version Steel, ground, with brass seal for appropriate diameter. Application Clamping of small electrode tubes.

## **EROWA**

# Collet Chuck Tooling System

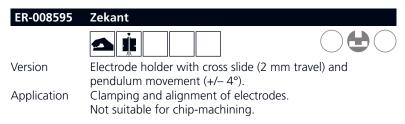
For workpieces in many shapes, including workpieces that are not rotationally symmetrical, a collet chuck is the optimal holding device. EROWA CTS combines the features of the tooling system with the well-known advantages of collet chucks.

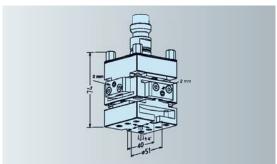




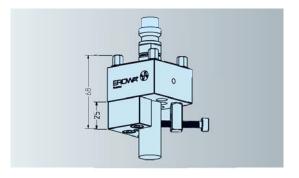


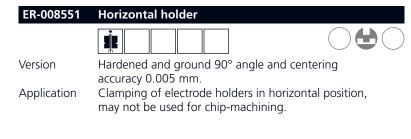
# ITS Special Electrode Holders

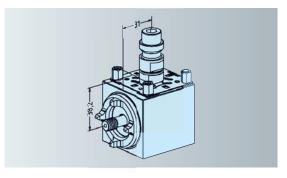




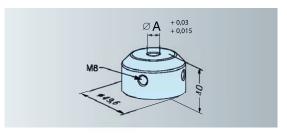
# V-block holder stainless Version Prism ground bearing surfaces 10 mm +/- 0.005 mm from the center. Application Clamping from outside, precision machined electrodes or small workpieces.







ER-010583	Blank holder ø 10 mm
ER-010581	Blank holder ø 12 mm
ER-010577	Blank holder ø 20 mm
	i NOX O
Version Application	Steel, hardened, ground bore. Fit to Uniplate C ER-093780 for clamping of precision copper tubes or bars.



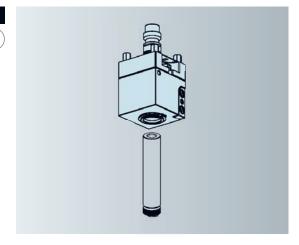
#### ER-009235 Adapter ø 20 mm





Version Application Hydraulic holding of ø 20 mm shafts. Recommended to hold the 20 mm EROWA

thread holder.



ER-033654	Thread holder M3 P=0.5mm / ø 2.3 mm / L= 100
ER-033655	Thread holder M4 P=0.7mm / ø 2.9 mm / L= 100
ER-033656	Thread holder M5 P=0.8mm / ø 3.8 mm / L= 120
ER-033657	Thread holder M6 P=1mm / ø 4.5 mm / L= 120





Application Defined positioning of threaded EROWA electrodes.

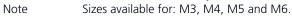
Systems for M3, M4, M5 and M6. Note

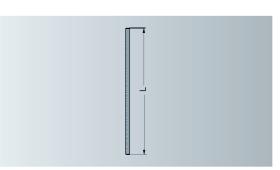


	Threaded electrode M4 / L= 80	
ER-033206	Threaded electrode M5 / L= 120	
ER-033207	Threaded electrode M6 / L= 120	



Version EDM copper with precision thread. For EDM-ing threads with Application EROWA Thread holder System.



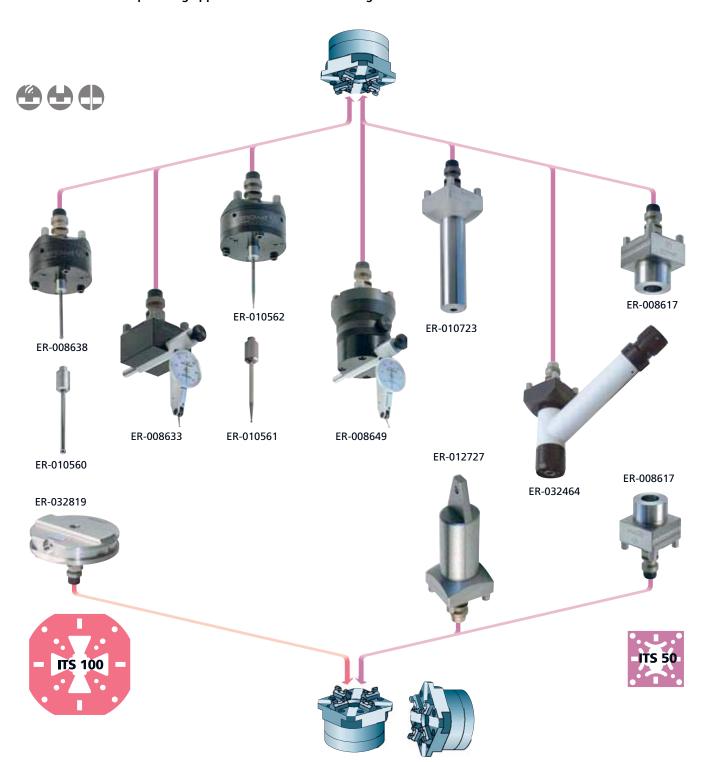




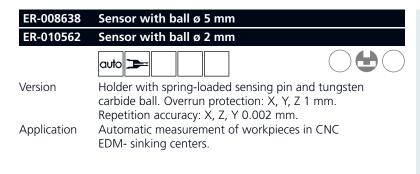
# Measuring and Checking Elements

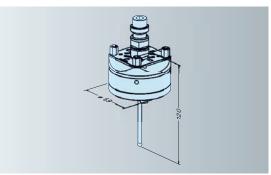
## The components

Trusting is good - checking is better. These specially designed elements will make it easier for you to check your production equipment. These elements are for use both in chip-cutting applications and in EDM sinking and WEDM.

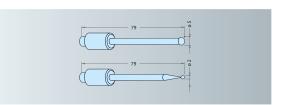


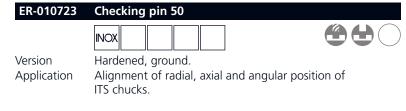
# Measuring and Checking Elements

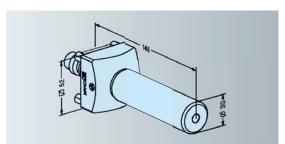


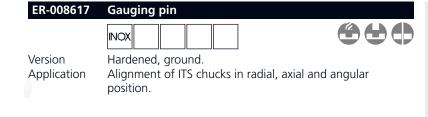


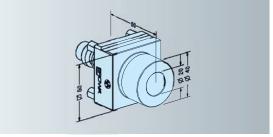
ER-010560	Replacement sensor pin ø 5 mm
ER-010561	Replacement sensor pin ø 2 mm
Version	Tungsten carbide, incl. adapter part, without spacer washer
Application	Replacement of pins in sensors ER-008638 and ER-010562 Attention: spacer washer is matched to the respective sensor.







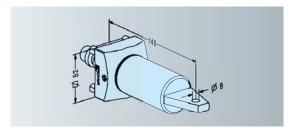




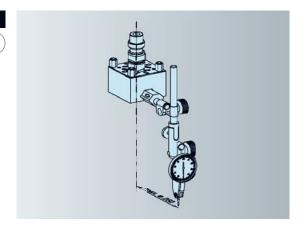


# Measuring and Checking Elements

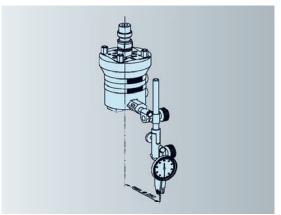
# Version Application Reference pin UnoSet NOX Hardened, ground, borehole ø 8 mm. To determine reference measurements on horizontal chucks.



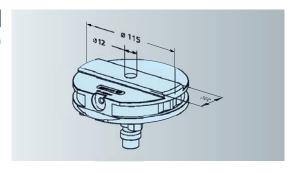
ER-008633	Fixed centering device
Version	Holder with sliding part and metric dial gauge mm. Scale graduation: 0.01 mm.
Application	Concentricity measurement of workpieces on machines with C-axis or rotating spindle.



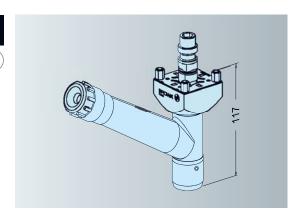
ER-008649	Rotatable centering device complete
	<b>(4</b> )
Version	Holder with rotating and sliding part, including metric dial gauge mm. Scale graduation: 0.01 mm.
Application	Concentricity measurement of workpieces on machines without rotating axis.



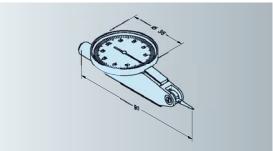
ER-032819	Alignment pallet ø 115
Version	Pallet ø 115 mm, alignment length 110 mm, center borehole ø 12 mm.
Application	Alignement of radial, axial and angular position of ITS chucks, PowerChuck P and PC 210 Combi chucks.



# Version Amplification factor: 40x Illumination: 5 V, Tansformer: 100-240 V. Application Determination of dimensions for complicated contours. The checking pin with tip serves for adjustment of the optical system.









# EROWA ITS Element Set My first EROWA

We have compiled practical sets for newcomers to the modern ITS Integrated Tooling System. Additional material, consumables in particular, can be ordered according to requirements.



#### ER-103679 My first EROWA

Order number	Description	Units per set	Units supplied by order number
ER-093758	Uniblank C EWIS	3	12
ER-093765	Prisround C EWIS	3	12
ER-093774	Uniholder C EWIS	3	12
ER-093780	Uniplate C EWIS	3	12
ER-010438	Setscrew M8 x 16 for Prisround	6	25
ER-010441	Setscrew M8 x 16 for Uniholder	6	25
ER-010577	Blank holder ø 20 mm	1	1
ER-010581	Blank holder ø 12 mm	1	1
ER-010583	Blank holder ø 10 mm	1	1
ER-103692	Hexagon socket bolt M6 x 20 for Uniplate C	6	12
ER-010723	Checking pin	1	1
ER-010906	Toolkit ITS	1	1
ER-038824	QuickChuck 100 P with base plate	1	1
ER-015465	Chucking spigot F/A EDM	5	20
ER-103687	Set of SW5 hex keys for ITS C	1	1



## **EROWA ITS Element Set**

# **EDM Set**

We have compiled practical sets for newcomers to the modern ITS Integrated Tooling System. Additional material, in particular consumables, can be ordered according to requirements.

User set for manual or CNC EDM centers with ITS quill chuck. The supplied chuck has been designed for manual electrode manufacturing.



#### ER-103680 QuickChuck 100 EDM Set

Order number	Description	Units per set	Units supplied by order number
ER-000974	M10 x 20 hex socket head bolt	1	1
ER-001483	Key for collet holder 50	1	1
ER-006702	Collet ø 4mm	1	1
ER-006704	Collet ø 6 mm	1	1
ER-006706	Collet ø 8 mm	1	1
ER-006708	Collet ø 10 mm	1	1
ER-006710	Collet ø 12 mm	1	1
ER-006718	Collet ø 20 mm	1	1
ER-008458	Prism holder, stainless	1	1
ER-093999	Collet holder 50 C	1	1
ER-103687	Set of SW5 hex keys for ITS C	1	1

## ER-103680 QuickChuck 100 EDM Set

Order number	Description	Units per set	Units supplied by order number
ER-094180	Centering plate 50 C with washer	20	50
ER-011599	Centering plate 100 M5 with washer	5	10
ER-093765	Prisround C EWIS	6	12
ER-093774	Uniholder C EWIS	6	12
ER-093780	Uniplate C EWIS	6	12
ER-010438	Setscrew M8 x 16 for Prisround	12	25
ER-010441	Setscrew M8 x 16 for Uniholder	12	25
ER-010514	Spacer plate 0,5 mm	50	50
ER-010518	Spacer plate 1 mm	50	50
ER-010521	Spacer plate 2 mm	50	50
ER-010523	Spacer plate 3 mm	50	50
ER-010525	Spacer plate 4 mm	50	50
ER-010526	Spacer plate 5 mm	50	50
ER-103692	Hexagon socket bolt for Uniplate C	12	12
ER-010694	Sealing washers	12	24
ER-010710	Drilling template for borehole patterns, centering		
	plates 50 and 100	1	1
ER-010723	Checking pin	1	1
ER-010753	Support feet M5	100	100
ER-010906	Toolkit ITS	1	1
ER-038824	QuickChuck 100 P with base plate	1	1
ER-015465	Chucking spigot F/A EDM	10	20
007752	M8 support foot	20	_
000999	M5 x 8 socket head bolt	20	_



## **EROWA ITS Element Set**

# EDM Standard Set

We have compiled practical sets for newcomers to the modern ITS Integrated Tooling System. Additional material, in particular consumables, can be ordered according to requirements.

User set for manual or CNC centers. Containing, among other things, 50 electrode holders and a chuck.



#### ER-103681 EDM Standard Set

Order number	Description	Units per set	Units supplied by order number
000714	Setscrew M8 x 16	25	1
ER-001483	Key for collet holder 50	1	1
ER-006702	Collet ø 4 mm	1	1
ER-006704	Collet ø 6 mm	1	1
ER-006706	Collet ø 8 mm	1	1
ER-006708	Collet ø 10 mm	1	1
ER-006710	Collet ø 12 mm	1	1
ER-006718	Collet ø 20 mm	1	1
ER-103687	Set of SW5 hex keys for ITS C	1	1

#### ER-103681 EDM Standard Set

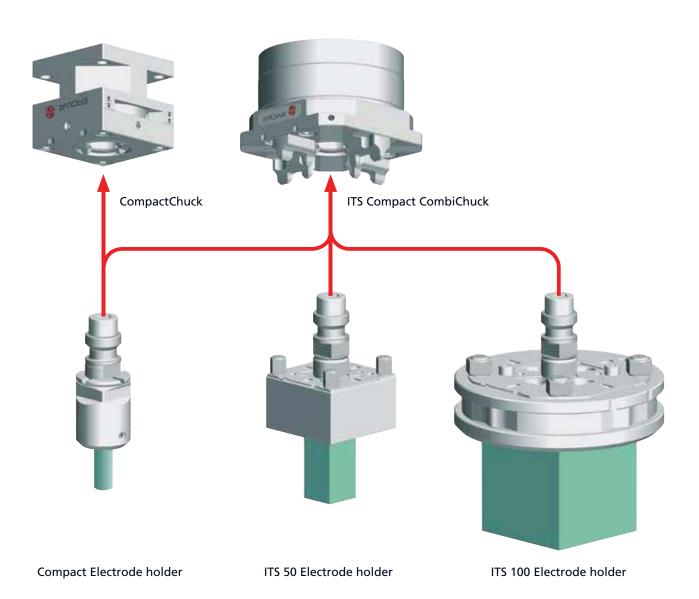
Order number	Description	Units per set	Units supplied by order number
ER-012297	Rapid-action chuck, manual, on block	1	1
ER-008458	Prism holder	1	1
ER-093999	Collet holder 50 C	1	1
ER-094180	Centering plate 50 C with washer	20	50
ER-011599	Centering plate 100 M8 with washer	5	10
ER-093765	Prisround C EWIS	12	12
ER-093774	Uniholder C EWIS	6	12
ER-093780	Uniplate C EWIS	12	12
ER-010438	Setscrew M8 x 16 für Prisround	25	25
ER-010441	Setscrew M8 x 16 for Uniholder	12	25
ER-010514	Spacer plate 0,5 mm	100	50
ER-010518	Spacer plate 1 mm	100	50
ER-010521	Spacer plate 2 mm	100	50
ER-010523	Spacer plate 3 mm	100	50
ER-010525	Spacer plate 4 mm	100	50
ER-010526	Spacer plate 5 mm	100	50
ER-103692	Hexagon socket bolt for Uniplate C	24	12
ER-010694	Sealing washers	12	24
ER-010710	Drilling template for borehole patterns, centering		
	plates 50 and 100	1	1
ER-010723	Checking pin	1	1
ER-010685	Supports M5, adjustable	12	12
ER-010744	Chip guard for rapid-action chuck	1	1
ER-010753	Supports M5	100	100
ER-010906	Toolkit ITS	1	1
ER-015465	Chucking spigot F/A EDM	20	20
ER-022354	Seal ring for chucking spigot	10	10
007752	M8 support foot	20	<del>-</del>
000999	M5 x 8 socket head bolt	20	_



## **EROWA ITS Compact Combi**

## Three in one

Seamless integration into the existing ITS system. The ITS Compact CombiChucks have the same mounting borehole grid as the conventional EROWA ITS chucks. Universal clamping of three systems in one single chuck. High precision and great performance due to the patented EROWA tooling technology. Whether on the machine table or in the tool quill: EROWA's ITS Compact CombiChucks can be used everywhere.



# **Applications**

# Handling

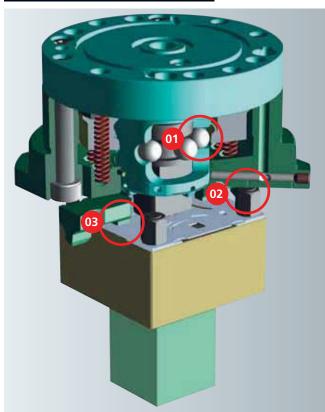


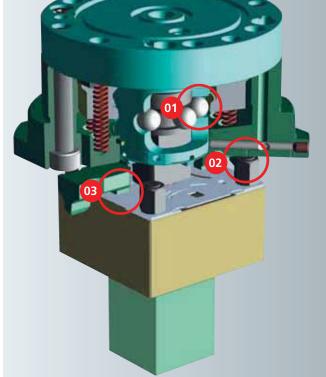




Manual / Loading facility / Robot

# **Function**





ITS Compact CombiChuck with Compact holder.

## 01 | Ball-lock

The self-locking ball-lock generates a clamping power of 5,000 N (with reclamping) and does not open even if the pressure fails.

ITS Compact CombiChuck with ITS holder.

# 02 | Cleaning

The support feet are cleaned during the clamping process.

## 03 | Prismatic spigots

After latching to the centering plate, the prismatic spigots in combination with the spring slots ensure powerful and high-precision positioning.

	ITS Compact CombiChuck
System sizes	Compact 30, ITS 50 and ITS 100
Indexing	4 x 90°
Clamping power	3,000 N, 5,000 N with reclamping
Clamping	Spring power
Opening	Compressed air min. 6 bar
Operation	With manual or electropneumatic
	control unit

# EROWA ITS Compact Combi in action

# Versatile and universal

Compact – the best investment value tooling system for electrodes up to  $\emptyset$  50 mm. Compactness, precision, great performance. EROWA's Compact System consists of a complete range of chucks, electrode holders, electrode changers and accessories.

# FLEXIBLE

Universal clamping of three systems in one chuck.





Storage capacity of up to 900 parts per square meter.

Three pallet sizes - one chuck. EROWA ITS Compact CombiChuck.







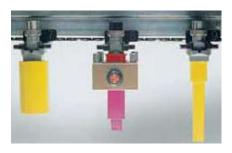
Economical automation by a combined loading of the EDM center.



Quick and precise clamping of electrode holders with a fitted chip guard.



Compact chucking spigot Combi: for the integration of all Compact electrodes and electrode holders into the EROWA ITS Compact Combi system.



Mixed up in the electrode magazine.



Compact ITS Adapter for the integration of Compact holders into regular ITS chucks.



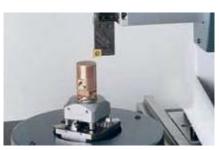
Robust and precise. The Compact standard holder is the base for most clamping applications.



Ready - steady - GO! Insert chucking spigot and start machining. Use the ready made copper blank, you won't find a quicker way.



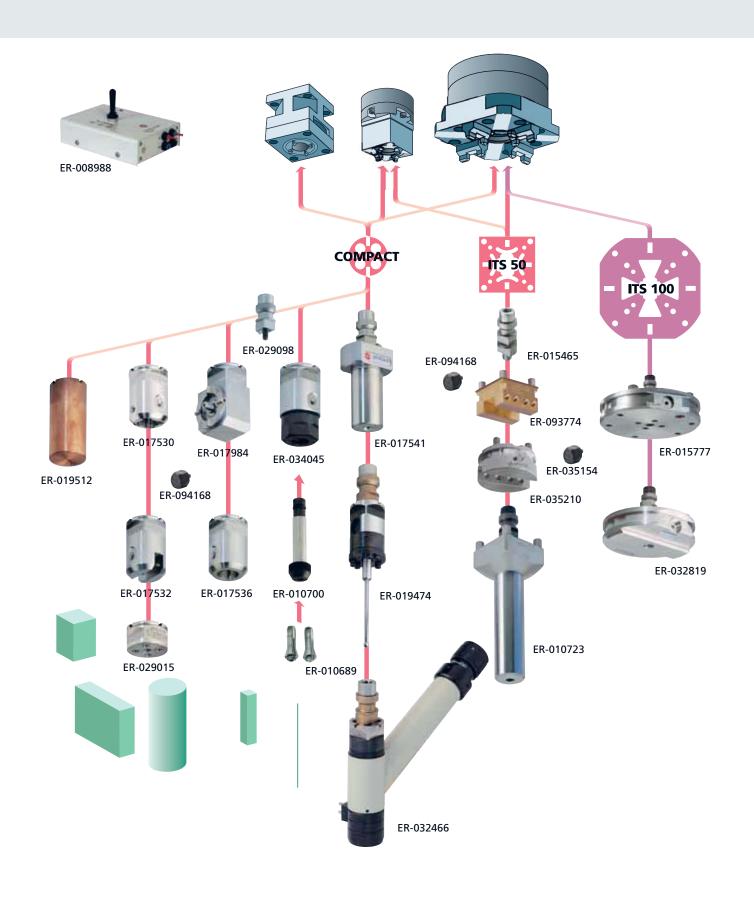
With a Compact ITS adapter, Compact electrode holders become compatible with regular EROWA ITS chucks. The electrode holder can be manually clamped in the adapter with precision and speed.



Setting-up and measuring outside the machine: quickl, simple and accurate.

# Tooling system

The components



To make it easier for you to find your way about the fields of application for EROWA products, we use the following symbols in all our documents:



1. Manual operation



2. Operate with compressed air jet



3. Operate with manual valve



4. Operate with manual control unit



5. Operate with electropneumatic control unit



6. With central flushing clearance



7. Suited for submerged operation



8. Corrosion-resistant material



9. Suited for automatic operation



10. Handling with EROWA Robot gripper S



11. Handling with EROWA Robot gripper Combi



12. Handling with EROWA Robot gripper C



13. Handling with EROWA Robot gripper 72



14. Handling with EROWA Robot gripper 115



15. Handling with EROWA Robot gripper 148



16. Handling with EROWA Robot gripper RN PC 210



17. Handling with EROWA Robot gripper RCS



STANDARDIZATION

# **EROWA ITS COMPACT COMBI TOOLING SYSTEM**

 ITS Compcat Combi	a survey	222
 ITS Compcat Combi	ITS Compact CombiChuck	224
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ITS Compcat Combi	Compact Electrodeholder Set	238



For chip-removing processes



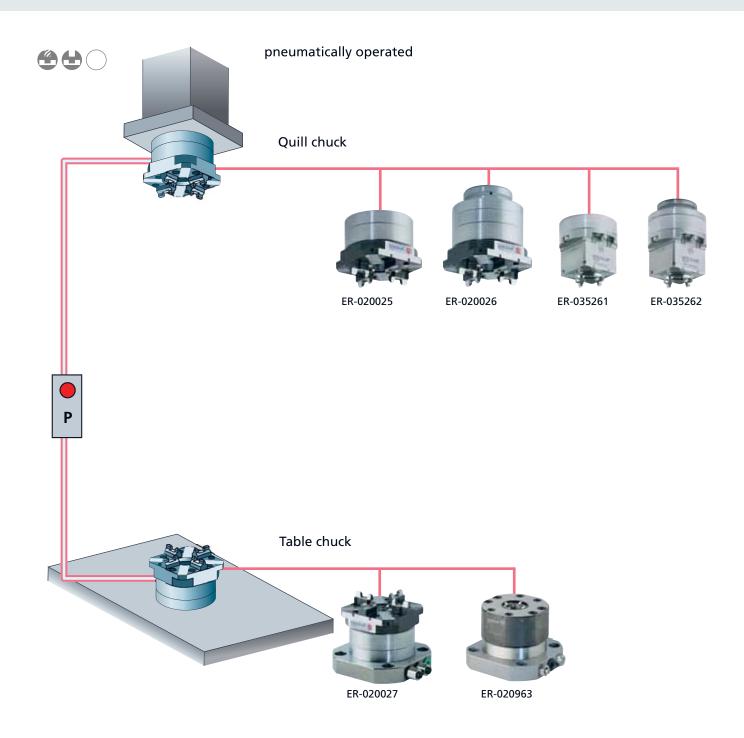
For EDM sinking

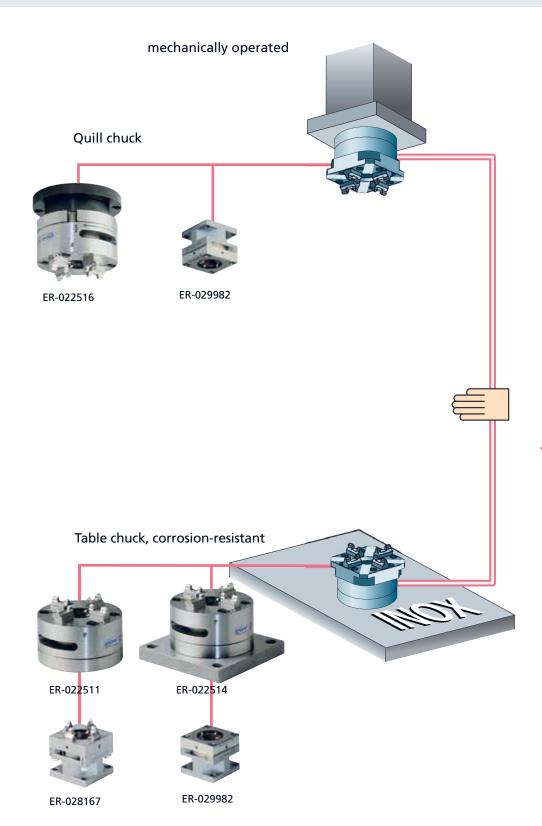


For WEDM

# Tooling system

The chucks





# Chucks

Technical data	ITS Compact CombiChuck	ITS 50 Compact CombiChuck
Repeatability	0,002 mm	0,002 mm
Indexing	4 x 90°	4 x 90°
Clamping power with		
reclamping 6 bar (without)	5000 N (3000 N)	(4'000 N)
Generated by	springs	springs
Opening with compressed air, dry	min. 6 bar	min. 6 bar
Operation	with manual or electro-	with manual or electro-
	pneumatic control unit.	pneumatic control unit.

# ER-020025 ITS Compact CombiChuck

Pi Pi auto

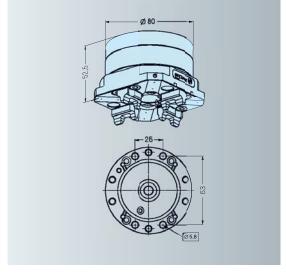
**(4**)

Version Connections Application ITS rapid-action chuck with built-in CompactChuck.

At the rear.

EDM centers with automatic electrode change, machine tools with automatic loading of ITS and Compact electrode

holders.



# ER-020026 ITS Compact CombiChuck with collar

P1 24 auto



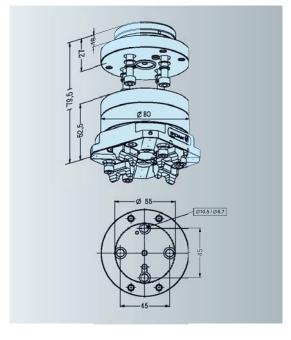
Version Connections With flange ø 80/55 mm for flushing connection.

Connections At the rear.

Application EDM center

EDM centers with automatic electrode change of ITS and

Compact electrode holders.



### **ITS 50 Compact CombiChuck** ER-035261

**auto** 

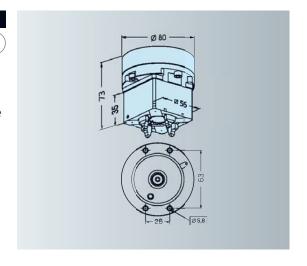
Version Connections ITS QuickChuck 50 with built-in CompactChuck.

At the rear.

EDM centers with automatic electrode change, machine Application

tools with automatic loading of ITS and Compact electrode

holders.



### ER-035262 ITS 50 Compact CombiChuck with collar

P 7 auto

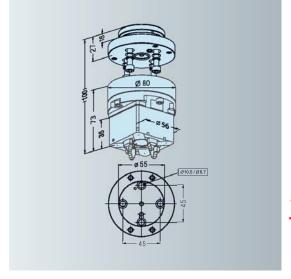
With flange ø 80/55 mm for flushing connection.

Connections At the rear.

Version

EDM centers with automatic electrode change of ITS Application

and Compact electrode holders.



### ER-020027 **ITS Compact CombiChuck** with base plate





Version Connections

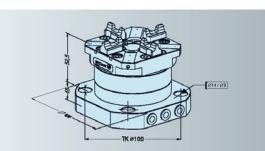
With base plate 106 x 106 mm.

Laterally on base plate for manual and pneumatic

control unit.

On milling, grinding and EDM centers with manual Application

and automatic loading facilities.



# Chucks

Technical data	QuickChuck 100 Combi	QuickChuck 50 Combi
Repeatability	0,002 mm	0,002 mm
Indexing	4 x 90°	4 x 90°
Max. clamping power	up to 10'000 N	up to 4′000 N
Operation	manual	manual

# ER-022511 QuickChuck 100 Combi

**△** INOX

Combi system for EROWA ITS and Compact.

To fit With 4 x M8 bolts.

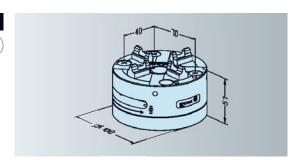
Operation Manual

Version

Version

Application To clamp EROWA electrode holders and pallets of

the system sizes Compact, ITS 50 und ITS 100.



# ER-022514 QuickChuck 100 Combi with base plate 125x125



Combi system for EROWA ITS and Compact with

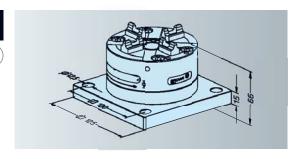
base plate.

Mounting With bolts or brackets.

Operation Manual.

Application To clamp EROWA electrode holders and pallets of

the system sizes Compact, ITS 50 and ITS 100.



## ER-022516 QuickChuck 100 Combi R





Version Combi system for EROWA ITS and Compact with

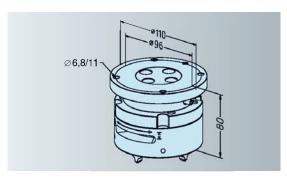
rotatable flushing connection.

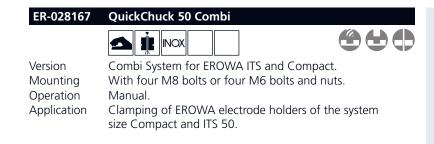
Mounting With 4 x M6 bolts.

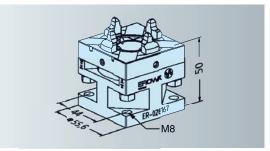
Operation Manual.

Application To fit to rotating axes of EDM centers with lateral flushing

connection.







# Compact chucks

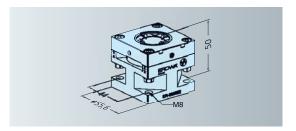
Technical data	CompactChuck
Repeatability	0.002 mm
Indexing	4 × 90°
Clamping power with	
reclamping 6 bar (without)	5,000 N (2,200 N)
Opening with compressed air	min. 6 bar
Operation mode	PA = Pneumatic, automatic
	PM = Pneumatic, manual
	M = Manual

# ER-029982 CompactChuck M Mounting With four M8 bolts or with four M6 bolts and nuts

Operation Rapid-action lock with lever.

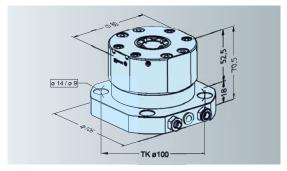
Application Clamping of EROWA Compact electrode holders.

Note The CompactChuck M can also be used as a quill chuck.



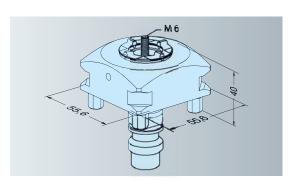
# Version Connections Application CompactChuck PM/PA CompactChuck PM/PA Cuto Cuto Connections On 106 x 106 mm clamping plate. On the side on clamping plate. On milling, grinding and EDM centers with manual

operation.

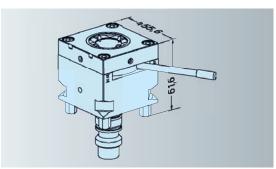


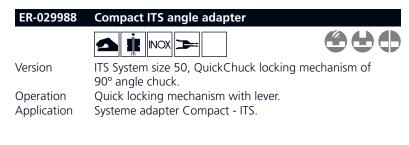
# Compact ITS Adapter

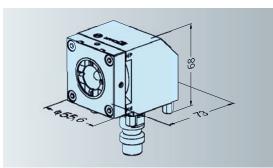
# Version ITS system size 50, lock with central locking bolt. Prepared to accommodate chip holder for EWIS chip. Tighten central locking bolt. System adapter Compact - ITS.

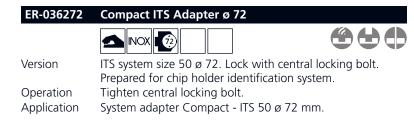


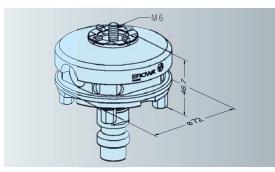
# Version ITS system size 50 C, QuickChuck action for Compact holders. Operation Application Application Compact ITS adapter chuck C University INOX Operation Application Application Compact chuck for machines which are equipped with standard ITS. System adapter Compact - ITS.











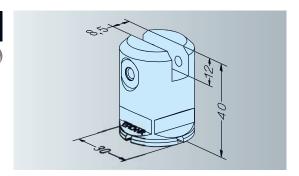
# Electrode Holder



Version Set of 18 units.

Without chucking spigot.

Application To hold blanks up to 8 mm width. To fit blank Insert and tighten M5 bolts.



ER-017529	Compact Prisround 10mm 18 pieces	
ER-017530	Compact Prisround 15mm 18 pieces	
	INOX auto	<b>640</b>

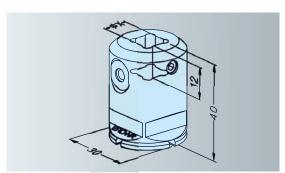
Version Set of 18 units.

Without chucking spigot.

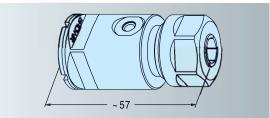
Application To hold blanks with shaft of

up to X = 10 mm square (ER-017529), up to X = 15 mm square (ER-017530).

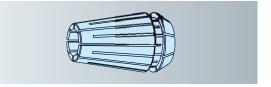
Mounting Insert and tighten M5 bolts.

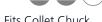






ER-002394	Collet chuck ER16 ø 2mm	
ER-002395	Collet chuck ER16 ø 3mm	
ER-002396	Collet chuck ER16 ø 4mm	
ER-002397	Collet chuck ER16 ø 5mm	
ER-002398	Collet chuck ER16 ø 6mm	
ER-002399	Collet chuck ER16 ø 7mm	
ER-002400	Collet chuck ER16 ø 8mm	
ER-002401	Collet chuck ER16 ø 9mm	
ER-002402	Collet chuck ER16 ø 10mm	

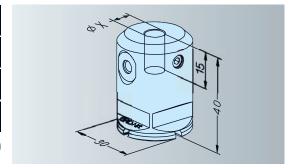




Version Clamping range 1 mm per collet chuck. Fits Collet Chuck

Holder ER-034045. Option: Sealing ring ER-005064.

ER-017533	Compact Electrode Holder 8mm 18 pieces	
ER-017534	Compact electrode holder 10mm 18 pieces	
ER-017535	Compact electrode holder 12mm 18 pieces	
ER-017536	Compact electrode holder 16mm 18 pieces	
	INOX auto	<b>640</b>



INOX auto Set of 18 units. Version

Application To hold cylindrical parts with respective diameter.

Without chucking spigot.

Insert and tighten M5 bolts. Mounting



# Electrode

Compact electrode ø 30 x 60 12 pieces, without gripper groove ER-019512

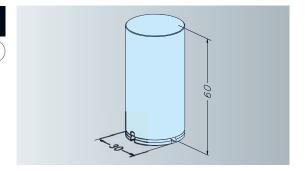




Electrode copper. Version

Application

Set of 18 units. Without chucking spigot. To produce electrodes up to ø 30 mm.



ER-030161 Compact electrode 10 x 10 x 45 copper

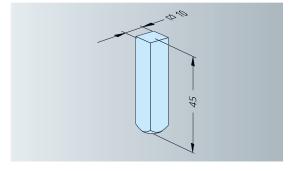
36 pieces





Version Electrode copper. Set of 36.

Application Production of electrodes of up to 10 x 10 mm.



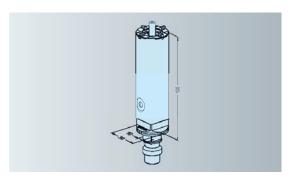
# Accessories

### ER-017982 **Compact extension 100mm**



Version Shaft ø 30 x 100 mm.

Application Extends the electrode by 100 mm. Lock via central bolt through shaft. Operation



### ER-017984 Compact angle chuck

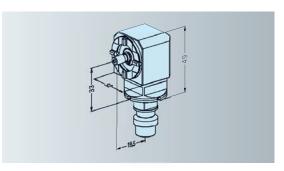


Version Compact Chuck at 90° angle.

Operation Central locking bolt.

Change from vertical to horizontal machining Application

position.



### ER-029015 Compact standard holder H=16 20 pieces

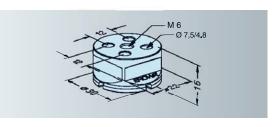


Set of 20 per package, without chucking spigot.

Application To fit electrodes and workpieces.

Attach blank through the center with the chucking spigot Note bolt or through the holder with four M4 bolts (option

ER-023125, 100 M4 x 14 socket head bolts).



### ER-029098 **Chucking spigot Compact Combi** 20 pieces





640

Version

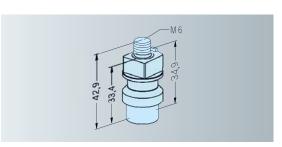
Version

Set of 20.

To accommodate all the compact electrodes and electrode Application

holders in CompactChucks, ITS-Compact-CombiChucks and electrode changers. For handling with the EROWA

Combi gripper.





# Accessories

Chucking spigot clip 2 open electroconductive / 20 pieces ER-051968

INOX auto

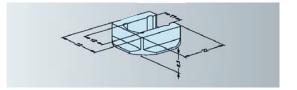
840

Version Synthetic, set of 20. Electroconductive.

To be fitted to ITS chucking spigot F/A.

To fit on ITS chucking spigot F/A. To load/unload ITS elec-Application

trodes and electrode holders with EROWA Combi gripper.



Chucking spigot clip 2 closed electroconductive / 20 pieces ER-051969

INOX auto

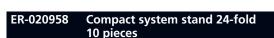


Synthetic, set of 20. Electroconductive. Version

To be fitted to ITS chucking spigot F/A.

Application To fit to ITS chucking spigot F/A. To load/unload ITS elec-

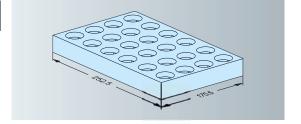
trodes and electrode holders with EROWA Combi gripper.



Styrene, set of 10. Version

Storage and transport of 24 parts each. Compact elec-Application

trodes ø 30 mm, with fitted Compact chucking spigot.



EWIS™ Rapid chip with chip holder SW14 with chip ø 12,4 x 2mm ER-035154

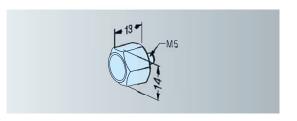


Version Sleeve fitting with built-in data carrier.

EWIS Rapid chip: read only.

In any EROWA electrode holder and pallet which has been Application

prepared for it.



ER-094168 EWIS™ rapid chip with chip holder SW14

for holder C

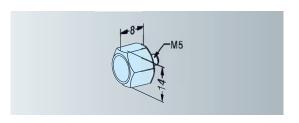


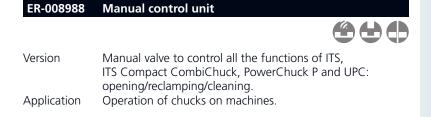
Version Sleeve fitting with built-in data carrier.

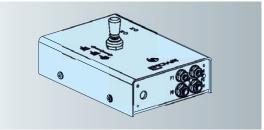
EWIS Rapid chip: read only.

In any EROWA electrode holder and pallet which has been Application

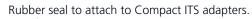
prepared for it.







# ER-022921 Chip guard for CompactChuck 10 pieces



Set of 10.

Version

Application Protects Compact ITS adapter and prevents the intrusion of

liquids and chips. To be used in combination with sealing

ring ER-022922.

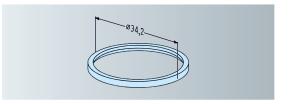




Version Plastic seal, set of 10.

Protects Compact chucks and prevents the intrusion of Application

liquids and chips. To be used in combination with sealing ring ER-022922 or Combi sealing ring ER-022924.



### ER-022922 Sealing ring for Compact holder 50 pieces



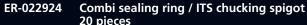




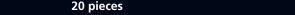
**Application** To be fitted to Compact holder. In combination with chip

guards ER-022921 or ER-022923, this prevents the intrusion of liquids and chips into the CompactChuck and the

CombiChuck.







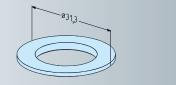


To be fitted to ITS chucking spigots. In combination with Application

the chip guard ER-022923, this prevents the intrusion of

liquids and chips into the CombiChuck.





# Measuring equipment

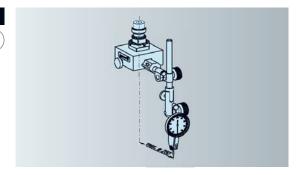
### ER-019979 Compact centering equipment fixed

Holder with slide and metric dial gauge. Version

Gradation: 0.01 mm.

Application Centric alignment of workpieces on machines with C-axes

or rotation spindles.



### ER-019951 **Compact centering equipment rotate**

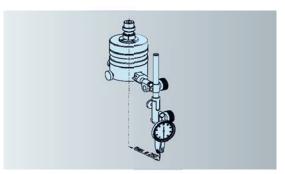


Version Holder with slide and metric dial gauge.

Gradation: 0.01 mm.

Application Centric alignment of workpieces on machines without

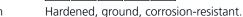
rotation axis.



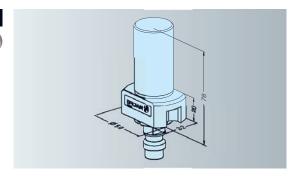
### ER-017541 Compact checking pin







Version To align radial, axial and angular position of Compact Application



### ER-019473 Compact probe with ball ø 2 mm

ER-019474 Compact probe with ball ø 5mm

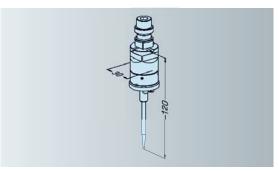




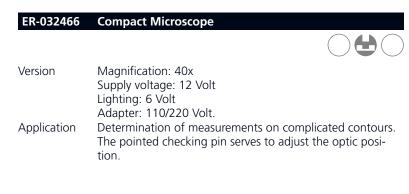
Version Version with spring-mounted probe and carbide bolt.

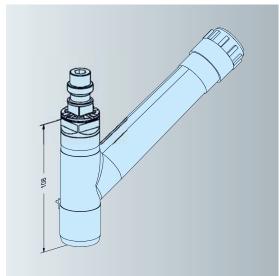
Overrun protection: X-, Y-, Z-axes, 0.3 mm. Repeatability: X-, Y-, Z-axes, 0.002 mm.

Application Automatic measuring of workpieces in CNC EDM centers.



STANDARDIZATION





# **EROWA**

# Compact Electrode holder Set

We have compiled a helpful set for the introduction of the EROWA Compact System. Additional material, in particular consumable parts, can be ordered according to your requirements.



# ER-018858 Compact Electrode holder Set

The material is packed in a practical plastic box.

Article number	Description	Number of	Number supplied
		units in the set	according to article
			number
000682	Stud bolt M5 x 8	4	1
018293	Stud bolt M5 x 10	12	1
018294	Stud bolt M5 x 6	16	1
ER-017529	Compact Prisround 10 mm	4	18
ER-017530	Compact Prisround 15 mm	4	18
ER-017532	Compact Uniholder	2	18
ER-017533	Compact Electrode holder ø 8 mm	2	18
ER-017535	Compact Electrode holder ø 12 mm	2	18
ER-017536	Compact Electrode holder ø 16 mm	2	18
ER-029015	Compact Standard holder	6	20

Order chucking spigots according to requirements.

# Chuck operation

### ER-001846 Air jet







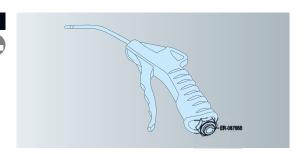
1/4", inside thread.

Application Operation of manual chucks.

Option Volume and pressure reduction to air jet (ER-087668).

Pressure build up is reduced if Air Jet is not pushed against

an air valve.



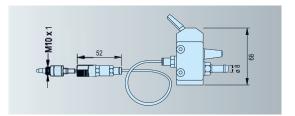
### ER-010538 Manual valve





Operation of chucks with an air connection for opening. Application

Connecting thread M10x1. Note



### ER-011598 Rapid-action coupling chuck side (A)



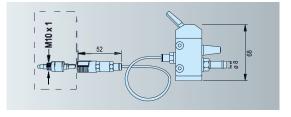




Version Fast coupling for compressed air.

Application Screw into a suitable EROWA chuck. Cf. manual.

For connecting thread M10x1. Note



### ER-011597 Rapid-action coupling hose side (B)

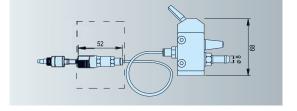






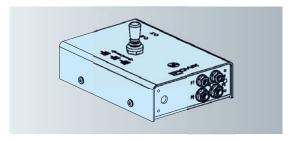
Version Fast coupling for compressed air Application For use on the air supply

Application



# ER-008988 Manual control unit Manual valve to control all the functions of ITS, Version ITS Compact CombiChuck, PowerChuck P and UPC: opening/reclamping/cleaning.

Operation of chucks on machines.



### ER-039466 Additional valve double



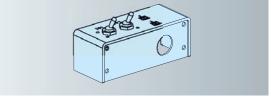


Version For mounting to the manual control units ER-008988 and

ER-073872, incl. set of hoses.

Application Operating of two separate chucks with one single control

unit.



### ER-074893 **Pressure booster**







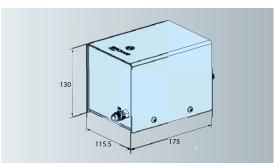
Version Quick-connect couplings for hose  $\emptyset$  i = 8 mm.

Compression ratio: 1:2

**Application** On insufficient system pressure and on pressure

fluctuations.

Installation Integrate in air circuit near application.



### ER-011362 Twin rotatable pneumatic connector

### ER-011412 Triple rotatable pneumatic connector







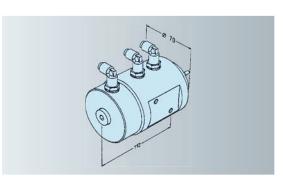
Non machine specific connection flange. Two (three) air Version

Max. speed: 6000 rpm.

Max. operating pressure: 10 bar.

Air supply to EROWA chucks on rotatable spindles. Application

Only operate when spindle is at stand still! Operation



### ER-070445 **Control unit with monitoring**







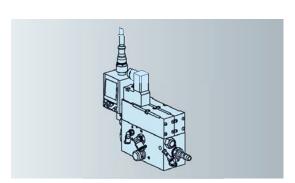
Version Electropneumatic valve. Outputs for chucks: opening/clea-

ning/reclamping. 24 V, incl. mounting accessories and 3 m

connection hose.

Operation and monitoring of machine-integrated chucks, Application

for instance through the CNC M-function.





# Toolroom accessories

# ER-010906 Set of tools

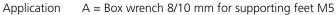
ER-010532

Application

Spacer plate



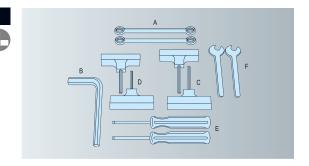




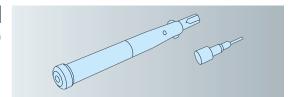
B = Key 8 mm for chucking spigot C = Key with handle 4 mm D = Key with handle 3 mm

E = Screwdriver for slotted screws in Uniplate

F = Open-end wrench 8 mm

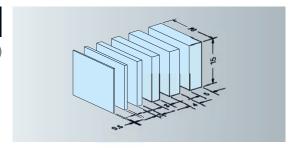


# Version Torque range up to 20 Nm, inc. 3, 4, 5, 6 mm key and one WS 8 mm bit. Application Torque range up to 20 Nm, inc. 3, 4, 5, 6 mm key and one WS 8 mm bit. Service and fitting work on ITS system parts.

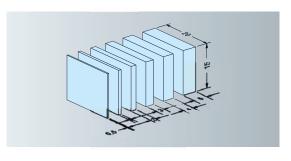


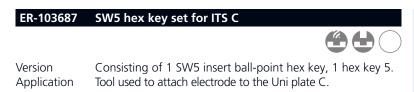
		300 pieces		
			4	<b>(</b>
Ve	ersion	6 x 50 plates. Corrosion-resistant. Thicknesses from 0.5 mm to 5 mm.		

Centering of blanks in electrode holders.



ER-010514	Insert plates 0.5mm 50 pieces
ER-010518	Insert plates 1mm 50 pieces
ER-010521	Insert plates 2mm 50 pieces
ER-010523	Insert plates 3mm 50 pieces
ER-010525	Insert plates 4mm 50 pieces
ER-010526	Insert plates 5mm 50 pieces







### ER-013913 System stand 10 pieces

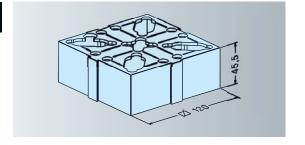
Version Plastic, set of 10.

As a rack for four electrode holders 50 or a pallet **Application** 

ø 115/148 mm.

System racks can be stuck together without any gaps, e. g. Please note

to be stored in drawers.



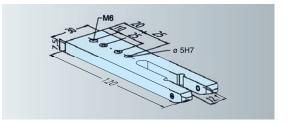
### ER-010661 Carrier fork for electrode changer



Version Steel, hardened, ground.

To build simple electrode changers, suitable for ER-007521 Application

and ER-007523



### ER-024808 Pick-up fork Combi

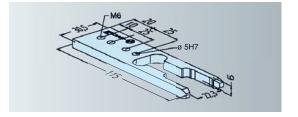
Version



Corrosion-resistant steel.

Application To make simple electrode changers suitable for chucks

ER-020025 and ER-020026.



ER-022457	Supporting foot SW13H/L=16/L1=11.4
	20 pieses

ER-008547 Support foot SW13/L=16/L1=10.2

20 pieces

Support. foot SW13/L=21/L1=10.2 ER-008553

20 pieces



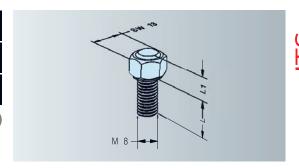
Version Set of 20 supportfeet.

ER-022457  $\dot{L}$  = 16 in combination with.

G-centering plates,

Position outside the centering plate.

ER-008547 L = 16 for punched centering plates, ER-008553 L = 21 for G-centering plates.



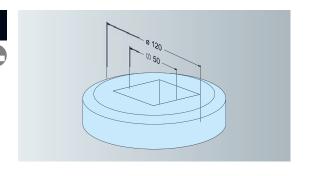
### ER-010744 Chip guard 50 x 50mm, ø 120 mm for rapid-action chuck







**Application** On Uniplate, Prisround and all other standardholders.



# Toolroom accessories

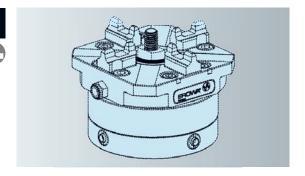
### ER-022355 Sealing ring for ITS chucking spigot 50 pieces





Application Set of 50 sealing rings. Sealing between chucking spigot

and Rapid-action chuck.



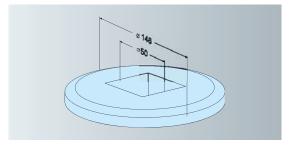
### ER-008475 Chip guard 50 x 50 for PowerChuck







On Uniplate, Prisround and all other standard holders. Application



### EWIS™ Rapid chip with chip holder SW14 ER-035154

with chip ø 12,4 x 2mm





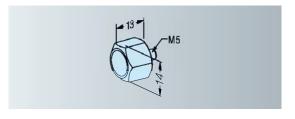


Version Sleeve fitting with built-in data carrier.

EWIS Rapid chip: read only.

Application In any EROWA electrode holder and pallet which has been

prepared for it.



### EWIS™ rapid chip with chip holder SW14 ER-094168

for holder C





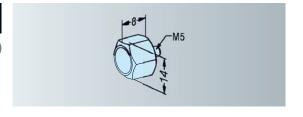


Version Sleeve fitting with built-in data carrier.

EWIS Rapid chip: read only.

In any EROWA electrode holder and pallet which has been Application

prepared for it.



# EWIS™ Rapid chip with chip holder long with chip ø 12,4 x 2mm ER-035156









Holder with built-in datacarrier.

EWIS™ Chip: read only.

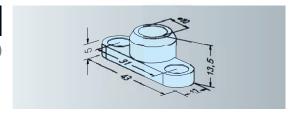
Application

With EROWA Collet Chuck holders and

Square 15/25 holders.

Mounting

With supplied M4 bolts.



# Spare parts

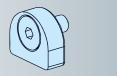
EWIS™ Rapid chip with chip holder RCS with chip ø 12,4 x 2mm ER-035294





Holder with built-in data carrier. EWIS chip: read only. To build into RCS coupling, PalletSet W holder and

Basic WEDM holder.



ER-010694 Sealing washer 24 pieces

Version

**Application** 

**Application** 

ER-015962

Set of 24 washers. Insertion in Prisround for sealing on

central flushing.



ER-013062 Repair kit for ITS chuck ER-015985 Repair kit for ITS chuck INOX



All the wear parts of ITS rapid-action chucks. Version

Repair kit PowerChuck P

Application Dismantle chuck according to instructions supplied, replace

Every chuck is supplied with instructions. Please keep in a Please note

safe place.

safe place.



Version All the wear parts of PowerChuck P. Application Dismantle chuck according to instructions supplied, replace Please note Every chuck is supplied with instructions. Please keep in a





# Spare parts



Version All the wearing parts of UPC ER-016092, ER-016093,

ER-070649 and ER-074524.

Application Dismantle UPC according to instructions supplied, replace

parts.

Note Each UPC is supplied with an operating manual, which you

will please keep.



ER-023120	Repair kit for UPC P O-rings, springs, balls
	<b>66</b>
Version	All the wear parts of UPC P ER-016841, ER-078728 and ER-028784.
Application	Dismantle UPC P according to instructions supplied, replace parts.
Note	Each UPC P is supplied with an operating manual, which



ER-009007	Viton seal ø18.5/12 x 9 mm 10 pieces	

Version Set of 10 seals.

Application To fit ITS rapid-action and power.

you will please keep.



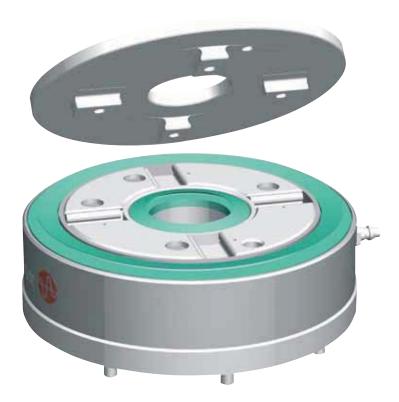


**EROWA FTS Fine Tooling System** 

# Workpiece palletization on small machines

The significance of setting up while the machine is at work is not a function of workpiece size. Rather, it is the time spent on changing from one production batch to another that has a crucial impact on machine productivity. Even with very small parts on machines designed for fine and finest processes, setting up outside the machine can be a critical success factor for production.

The FTS Fine Tooling System has been adapted to exactly these circumstances. With a positioning accuracy of less than 0.002 mm and its extremely flat design, it contributes toward an optimal exploitation of the working range of small machines.



- The pallet is positioned and clamped with special profiles.
- The pallet has to be raised only 4 mm before it can be removed from the chuck.
- The precision pallet is made of one piece.
- The chuck centers and clamps the pallet by means of spring tension. Thus functional safety is also guaranteed in the case of air-pressure failure.
- The compressed air required to open and clean the chuck is supplied through the lateral connections or directly through the base plate.
- Central through borehole of ø 18 mm.
- The seals ensure that the pallet is neatly and precisely clamped and positioned.

# **Applications**

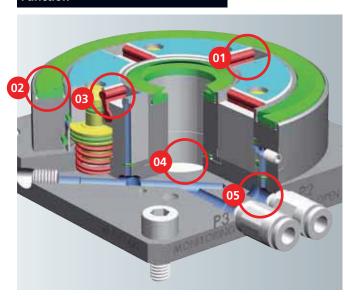
# Handling





Manual / Loading facility / Robot

## **Function**



# 01 | Cleaning

Contact surfaces are automatically cleaned with compressed air.

## 02 | Seals

The seals ensure reliable protection from contamination.

# 03 | Clamping mechanism

Reliable clamping mechanism thanks to spring tension.

## 04 | Through-hole

Central through borehole of ø 18 mm.

## 05 | Connections

Pneumatic system can be connected up laterally or through the base plate.

# Technical data - FTS Fine Tooling System FTS Fine Tooling System Repeatability < 0.002 mm Indexation 4 x 90° Clamping power 400 N Recommended workpiece size depends on machining power Clamping by spring tension Opening by compressed air, min. 6 bar Operation control unit or air gun



# EROWA FTS Fine Tooling System in Operation

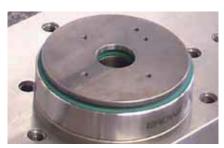
# The palletizing system for micro-machining

Have a closer look at EROWA's FTS Fine Tooling System. All its components are made of stainless steel. The chucks can be fitted to a wide variety of machine tables, either directly or with adapter plates. A standard pallet covers the main range of applications.

# FLAT DESIGN

For a maximum utilization of the machine working range.







Chuck height: only 23 mm!

FTS in operation on a laser marking machine. The system's high positioning accuracy ensures the quality of signage even on the smallest of workpieces.





Setting up outside the machine is an essential success factor for increased machine productivity.



Fixture with set-up workpieces.



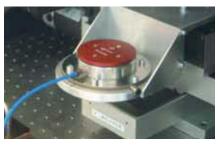
Positioning accuracy is below 0.002 mm on all machines. Precision is retained after every machining process change.



The chucks can be fitted to the machine table directly or with adapter plates.



The flat precision pallet is the basis for all clamping processes.



The cover prevents penetration of chips and dirt into the FTS chuck.



4 mm vertical movement to remove the pallet. This, too, saves space.



FTS is ideally suitable for the high-precision machining of small and smallest workpieces.

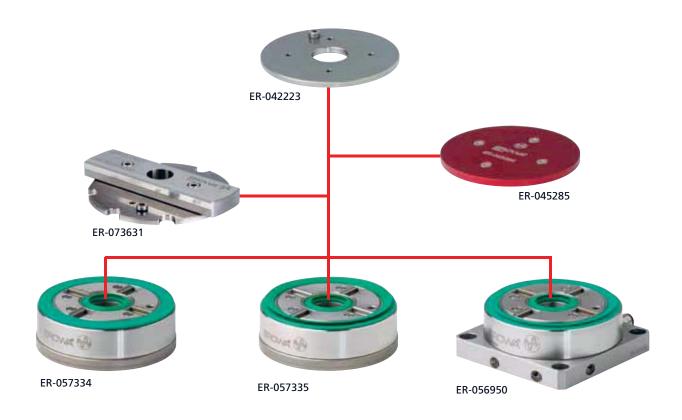


All axes, X, Y, Z and the center are checked with the same alignment plate.

# EROWA FTS Fine Tooling System

# Tooling System

# The components







FTS Fine Tooling System	Chucks	254
FTS Fine Tooling System	Auxiliary equipment	255

2. Operate with compressed air jet

1. Manual operation

To make it easier for you to find your way about the fields of application for EROWA products, we use the following symbols in all our documents:



3. Operate with manual valve



4. Operate with manual control unit



5. Operate with electropneumatic control unit



6. With central flushing clearance



7. Suited for submerged operation



8. Corrosion-resistant material



9. Suited for automatic operation



10. Handling with EROWA Robot gripper S



11. Handling with EROWA Robot gripper Combi



12. Handling with EROWA Robot gripper C



13. Handling with EROWA Robot gripper 72



14. Handling with EROWA Robot gripper 115



15. Handling with EROWA Robot gripper 148



16. Handling with EROWA Robot gripper RN PC 210



17. Handling with EROWA Robot gripper RCS



For chip-removing processes



For EDM sinking



For WEDM

## **EROWA FTS Fine Tooling System**

# Chucks

Technical Data	FTS Fine Tooling System
Repeatability	< 0.002 mm
Indexation	4 x 90°
Clamping power	400 N
Recommended workpiece size	depends on machining power
Clamping	by spring tension
Opening	by compressed air, min. 6 bar
Operation	control unit or air jet

#### ER-057334 FTS Chuck manual Inox



Pneumatic FTS chuck.

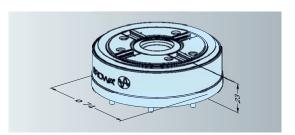
To fit With 7 x M3 bolts through the chuck.

Connections Lateral for opening.

Version

Version

Operation With air jet ER-001846 (option).



#### **ER-057335** FTS Chuck pneumatic Inox



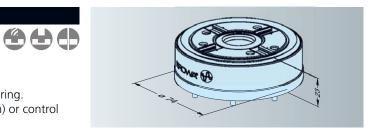


To fit With 7 x M3 bolts through the chuck.

Connections At the rear for opening and cleaning/monitoring.

Operation With manual control unit ER-008988 (option) or control

unit with monitoring ER-070445 (option).



#### ER-056950 FTS Chuck with base plate Inox





**840** 

Version Pneumatic FTS chuck with base plate.

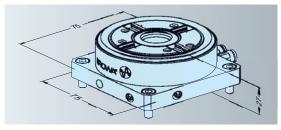
To fit With 4 x M5 bolts on grid dimension 63 mm through the

base plate.

Connections Lateral for opening and cleaning/monitoring.

Operation With manual control unit ER-008988 (option) or control

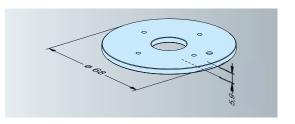
unit with monitoring ER-070445 (option).



## EROWA FTS Fine Tooling System

# Auxiliary equipment

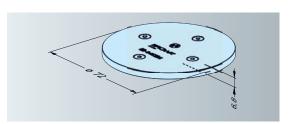
ER-042223 Pallet FTS **ĕ**∥inox Steel pallet, hardened, including positioning pin for safe Version positioning. With central borehole ø 18 mm. Application To accommodate workpieces or fixtures. To fit blanks Through the pallet with 4 x M3 bolts.



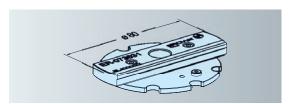


Application To protect chucks that are not in operation on the

CANNOT be used as a pallet. Note



EII 0/303 I	115 diigiiiieite panet
	NOX
Version	Steel, corrosion-resistant, hardened and ground.
Application	To align and check the chuck position on the machine.
Note	All the axes – $X$ , $Y$ and $Z$ – as well as the center are
	checked with the same alignment pallet.

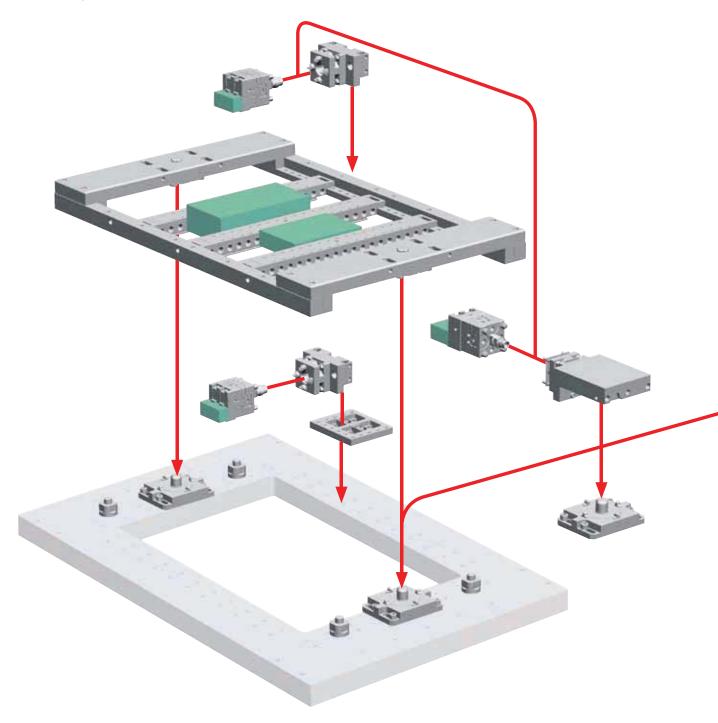




# The modular tooling system for WEDM purposes

EROWA tooling systems make WEDM centers considerably more flexible and productive. Down-times can be virtually eliminated. Expensive machines can work round the clock.

Our program contains system components for newcomers, for those who would like to extend the use of ITS, and for top-end users. You define the framework and you are bound to win.



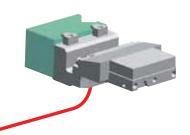
### **Applications**

## Handling



Manual / Loading facility / Robot

- Modular tooling system.
- Single and multiple palletization.
- Repeatability of clamping elements 0.002 mm.
- WEDM basic kits for all popular WEDM centers
- Can be automated with EROWA handling handling facilities.



	Flat clamping chuck pneumatisch	manuell	Chuck RSA 50	QuickChuck 50 RSM
Repeatability	0.002 mm	0.002 mm	0.002 mm	0.002 mm
Indexing			4 x 90°	4 x 90°
Clamping power	with reclamping	without reclamping		
	7′000 N	3'000 N	2'800 N	4'000 N
Clamping process	Spring tension	mechanically	Spring tension	Spring tension
Opening, compressed air, dry	min. 6 bar			min. 6 bar
Operation	pneumatically	mechanically	pneumatically	mechanically
Max. weight of pallet	30 kg (with support)	30 kg (with support)		

# EROWA Wire EDM Tooling Quick and precise resetting

The right solution for every application. With well-thought-out combinations of vises, clamping elements and clamping beams, any conceivable workpiece can be clamped. The repeatability of EROWA's Wire EDM tooling system allows for workpieces to be preset outside the machine and for safe automatic loading. Ongoing jobs can be interrupted for express jobs and then continued later.

#### FLEXIBLE

Suitable workpiece carriers for all workpiece sizes.







Use removable supports where they make sense. Thread in EDM wire through the special grooves.



Special mounting for cylindrical parts. Mounted to the pendulum holder, the workpiece is adjustable in three axes.



Adjustable in all axes: the pendulum holder with fitted flat vise.



Use removable supports where they make sense. Thread in EDM wire through the special grooves.





EROWA Lift to load the WEDM center.



Special accommodation for cylindrical parts. Fitted to the pendulum holder, workpieces can be adjusted in three axes.



Single palletization in a manned shift: this is where the tricky jobs are done.



EDM electrode holders are positioned on the WEDM center for machining both quickly and with high precision.



Its low design creates more space for workpieces.



Presetting the workpieces saves time.



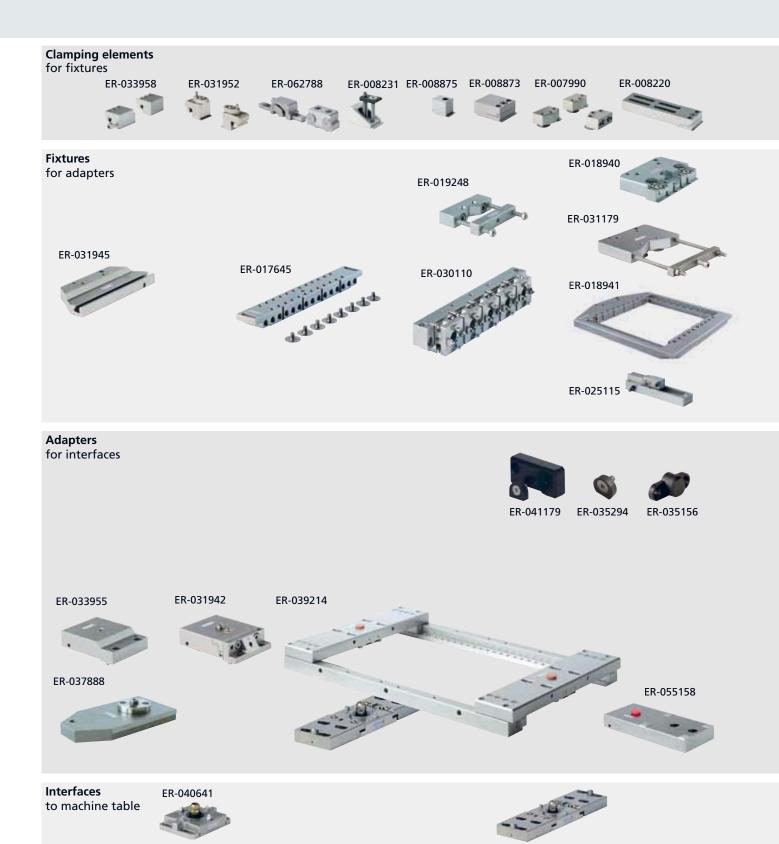
Presetting made easy. While the WEDM center is in operation, the next job is being preset quickly and accurately on the EROWA PreSet station.



Load Robots for more autonomy at night and at weekends. We'll be glad to advise you how to increase your productivity with an EROWA handling facility.

# Tooling System

## The components







To make it easier for you to find your way about the fields of application for EROWA products, we use the following symbols in all our documents:



1. Manual operation



2. Operate with compressed air jet



3. Operate with manual valve



4. Operate with manual control unit



5. Operate with electropneumatic control unit



6. With central flushing clearance



7. Suited for submerged operation



8. Corrosion-resistant material



9. Suited for automatic operation



10. Handling with EROWA Robot gripper S



11. Handling with EROWA Robot gripper Combi



12. Handling with EROWA Robot gripper C



13. Handling with EROWA Robot gripper 72



14. Handling with EROWA Robot gripper 115



15. Handling with EROWA Robot gripper 148



16. Handling with EROWA Robot gripper RN PC 210



17. Handling with EROWA Robot gripper RCS



#### **EROWA WIRE EDM TOOLING**

 Wire EDM Tooling	Interfaces to machine table	264
 Wire EDM Tooling	Adapters for interfaces	268
 Wire EDM Tooling	Fixtures for adapters	273
Wire EDM Tooling	Clamping elements for fixtures	282
Wire EDM Tooling	System accessories	285
Wire EDM Tooling	Wire EDM Tooling Kits	290
 Wire EDM Tooling	Clamping equipment sets	292



For chip-removing processes



For EDM sinking

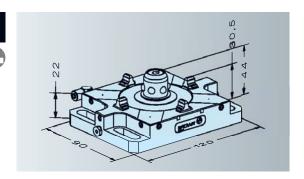


For WEDM

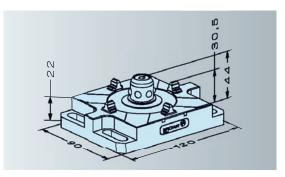
# Interfaces to machine table

Technical data	Flat chuck	Flat chuck	Basic WEDM chuck
	pneumatic	manual	manual
Repeatability	0.002 mm	0.002 mm	0.002 mm
Clamping power	with reclamping	without reclamping	without reclamping
	7,000 N	3,000 N	8,000 N
Generated by	spring power	mechanic	mechanic
Opening with compressed air, dry	min. 6 bar		
Operation	pneumatic	manual	manual
Max. pallet weight	30 kg (with support)	30 kg (with support)	15 kg (with support)

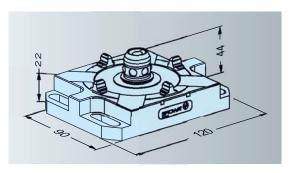
ER-035714	Flat chuck pneumatic PalletSet W / FrameSet
	Pi Pi Nox auto
Version	Pneumatic chuck for a direct fit to the Z = 0 base of the WEDM center.
Application	On WEDM centers with manual or automatic workpiece loading.
Connections	On the side for opening, cleaning, reclamping.



ER-035715	Flat chuck manual PalletSet W / FrameSet
Version	Mechanical chuck for a direct fit to the $Z = 0$ base of the
	WEDM center.
Application	On WEDM centers with manual workpiece loading.
Operation	With a manually operated ball lock.



ER-040641	Basic WEDM chuck Basic Tooling
Version	Mechanical chuck for a direct fit to the $Z = 0$ base of the WEDM center.
Application Operation	On WEDM centers with manual workpiece loading. With a manually operated ball lock.



Technical data	Chuck RSA 50	QuickChuck 50 RSM	
Repeatability	0.002 mm	0.002 mm	
Indexing	4 x 90°	4 x 90°	
Clamping power	2,800 N	4,000 N	
Clamping	Spring power	mechanical	
Opening with compressed air, dry	min. 6 bar		
Operation	pneumatic	mechanical	

#### ER-007851 Chuck 50 RSA / on universal plate UnoSet

∰INOX||auto|

Automatic, with pneumatic valve.

ITS base for the manual or automatic loading of Application

ITS elements.

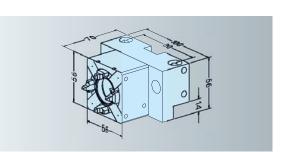
Version

Version

Application

Use On all machine bases and FrameSet beams.

Can be used either horizontally or vertically.



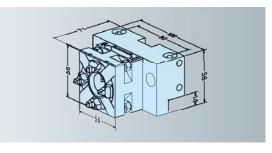
#### ER-007852 QuickChuck 50 RSM / on universal plate UnoSet



Version Manual.

ITS base for the manual loading of ITS elements. Application Use

On all machine bases and FrameSet beams. Can be used either horizontally or vertically.



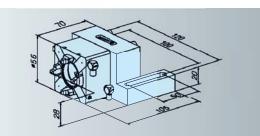
#### ER-022583 Clamping chuck 50 RSA / UnoSet on adapter plate R=100mm



Chuck 50 on adapter plate, manual.

Version To be fitted directly to any machine bases with attachment Application

boreholes in a 100 mm grid.



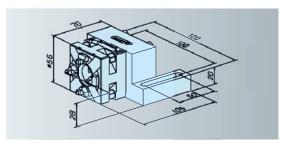
#### ER-022584 QuickChuck 50 RSM UnoSet on adapter plate R=100mm



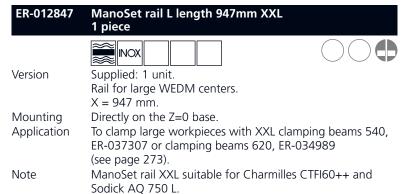
Chuck 50 on adapter plate, manual.

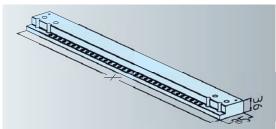
To be fitted directly to any machine bases with attachment

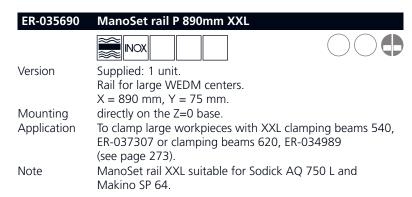
boreholes in a 100 mm grid.

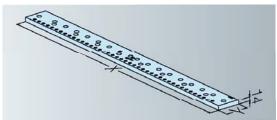


# Interfaces to machine table

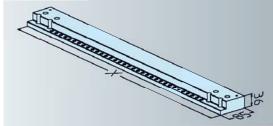












Version

Supplied: 1 unit.
Rail for large WEDM centers.
X = 1010 mm.

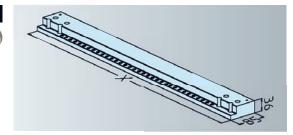
Mounting

Application

ManoSet rail L Length 1010mm XXL

ER-037307 or clamping beams 620, ER-034989

ManoSet rail XXL suitable for Makino EU 64 and SP 64.

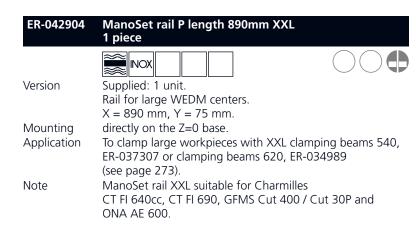


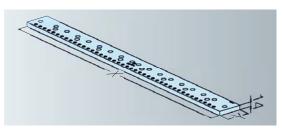
Note ManoSet rail XXL suitable for Makino U86 and

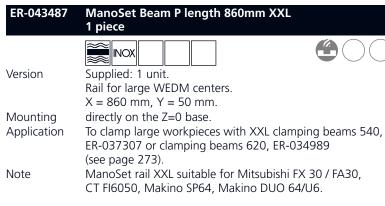
Note

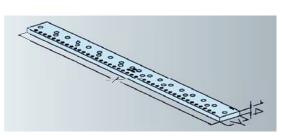
Seibu M 750.

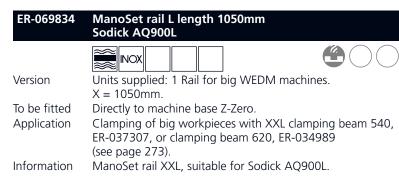
(see page 273).

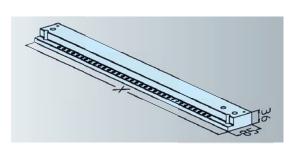


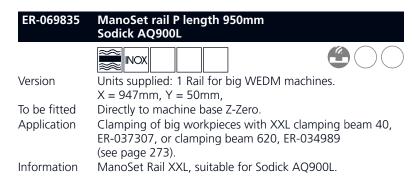


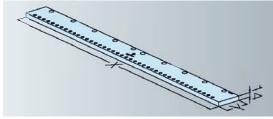












Application

Options

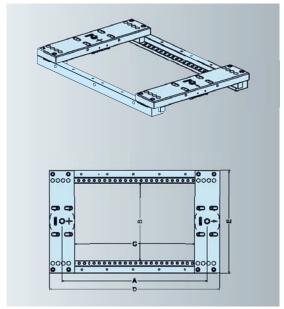
## EROWA Wire EDM Tooling

# Adapters for interfaces

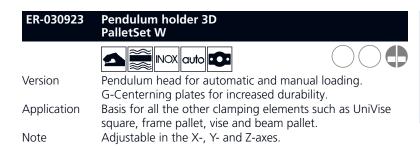
ER-045555	Clamping frame FrameSet 430/220-335
ER-039212	Clamping frame FrameSet 430/300-335
ER-039211	Clamping frame FrameSet 490/220-395
ER-039213	Clamping frame FrameSet 500/300-405
ER-039214	Clamping frame FrameSet 560/300-465
ER-039215	Clamping frame FrameSet 650/300-555
ER-039216	Clamping frame FrameSet 650/380-555
ER-039217	Clamping frame FrameSet 710/380-615
	NOX auto
Version	Clamping frame for the multiple palletization of workpieces.

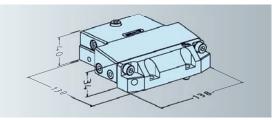
To fit on EROWA flat chucks (see page 264).

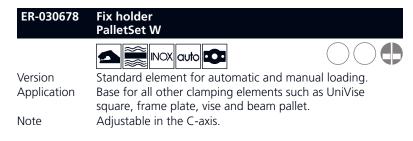
See Clamping beams and clamping elements for the EROWA Wire Tooling System, starting from page 273.

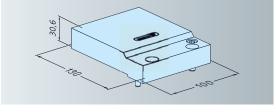


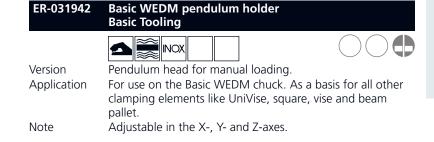
	Α	В	С	D	E
ER-045555	430	220	335	525	396
ER-039212	430	300	335	525	396
ER-039211	490	220	395	585	316
ER-039213	500	300	405	595	396
ER-039214	560	300	465	655	396
ER-039215	650	300	555	745	396
ER-039216	650	380	555	745	476
ER-039217	710	380	615	805	476

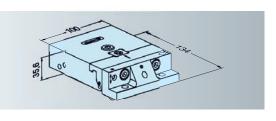


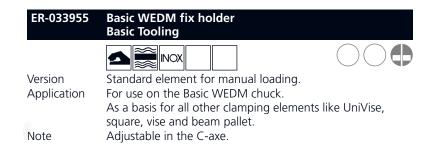


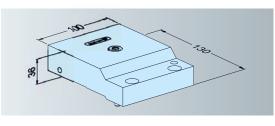












# Adapters for interfaces

# ER-030645 UnoSet adapter PalletSet W centering plate G

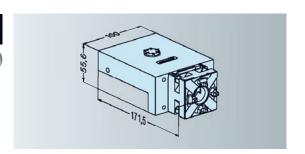




Application Clamps workpieces of system size ITS 50 horizontally into

the workspace.

Note Fits all UnoSet and ITS 50 clamping elements.



# ER-030643 UnoSet adapter with RSA 50 PalletSet W



Version System adapter from Palletset W to UnoSet. Application Clamps workpieces of the ITS 50 system size

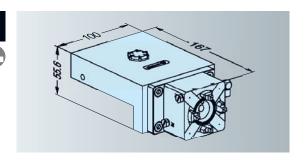
horizontally into the workspace.

Clamping

power

Version

Note Suitable for all UnoSet and ITS 50 clamping elements.



#### ER-033933 PSW adapter QuickChuck 50 Combi PalletSet W / centering plate G



Version System adapter from Palletset W to UnoSet and/or

Compact.

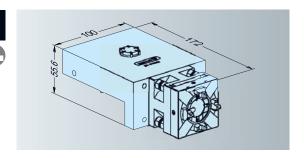
2800 N.

Application Clamps workpieces of the ITS 50 and Compact system

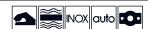
sizes horizontally into the workspace.

Note Suitable for all UnoSet and ITS 50 clamping elements and

Compact clamping elements.



#### ER-033974 PSW adapter QuickChuck 100 P



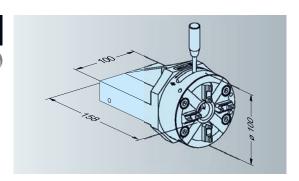
Version System adapter from Palletset W to UnoSet, ITS 50,

holder ø 72, and pallets 148, 115.

Application Clamps workpieces of the ITS 50 and ITS 100 system sizes

horizontally into the workspace.

Note Suitable for all UnoSet clamping elements.



## ER-035994 PSW adapter QuickChuck 100 P 360° turnable





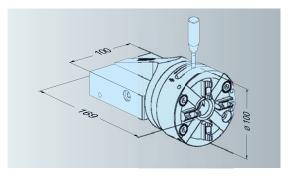
holder ø 72, and pallets 148, 115.

Application Clamps workpieces of system size ITS 50 and ITS 100

horizontally into the working range. Can be rotated

around 360°

Note Fits all UnoSet clampingelements and ITS 115/148 pallets.





NOX auto

Version System adapter from Palletset W to UnoSet.

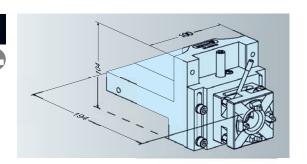
Z-axis height adjustable.

Application To clamp UnoSet and electrodes/workpieces

in the ITS 50 system size horizontally into the workspace. Suitable for use with the whole ITS 50 system and elec-

trode holders.

Note



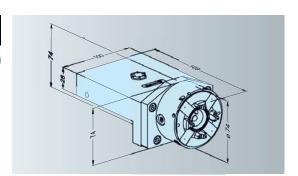
# ER-039795 Holder ø 72 PalletSet W

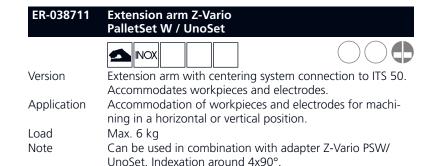
Version System adapter from Palletset W to ITS 50 holder ø 72 Application Clamps workpieces of holder ø 72 size horizontally into

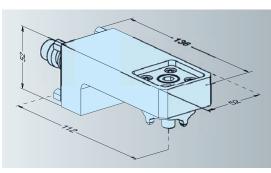
the workspace.

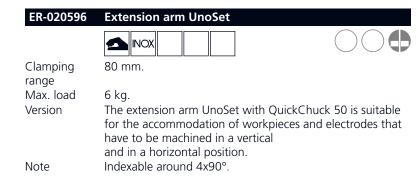
Operation Pneumatically with air jet.

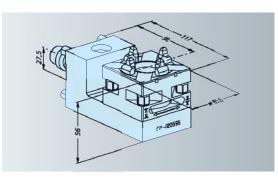
Note Suitable for all holders ø 72 and ITS 50. Option ER-032832 Sealing ring ITS Chuck 50.











piece size

Connections

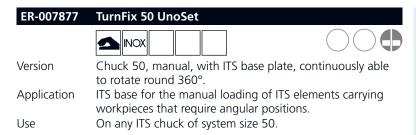
Application

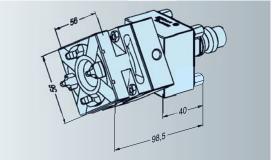
Connections

Connections

## **EROWA Wire EDM Tooling**

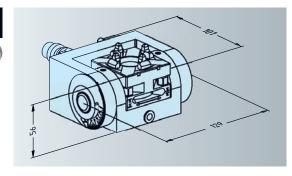
# Adapters for interfaces

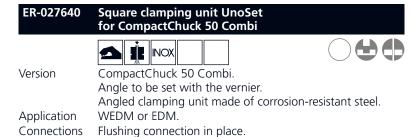


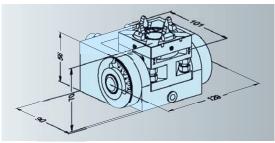


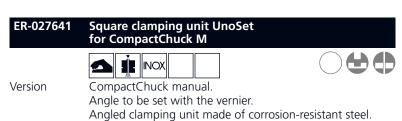
# Version Application Max. load Max. work Angle clamping unit UnoSet for QuickChuck 50 Chuck 50 Chuck 50, angle to be set with the vernier. WEDM or EDM. To fit lateral sprues to casting tools. 6 kg. 100 x 100 x 100 mm.

Flushing connection in place.





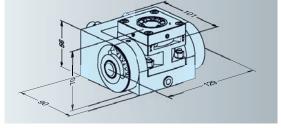




WEDM or EDM.

Flushing connection in place.

Flushing connection in place.



Version

Angle clamping unit UnoSet for collet chuck electrode holder

Version

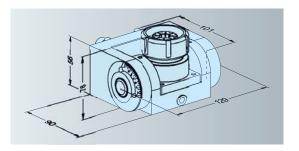
Angled clamping unit made of corrosion-resistant steel, except collet chuck unit.

Angle to be set with the vernier.

Application

Application

Angle clamping unit UnoSet for collet chuck electrode holder



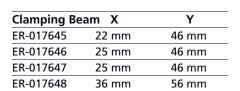
# Fixtures for adapters

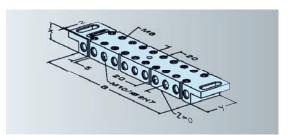
ER-017645	Clamping beam 220mm	
ER-017646	Clamping beam 300mm	
ER-017647	Clamping beam 380mm	
ER-017648	Clamping beam 460mm	
		O O 11



Application To clamp workpieces with clamping claws on Z-discs.

Version Cross boreholes, ground.



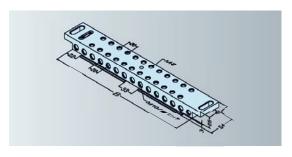


ER-021126	Double-sided clamping beam 300mm	
ER-021127	Double-sided clamping beam 380mm	
ER-021128	Double-sided clamping beam 460mm	

Application To clamp workpieces with clamping claws on Z-support

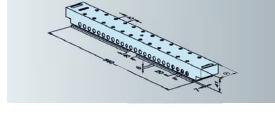
ledges.

Version Cross boreholes, ground.

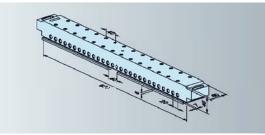


ER-037307	Double-sided clamping beam 540 ManoSet XXL	
Application	Clamping of workpieces with clamping claws on 7 support	

Application Clamping of workpieces with clamping claws on Z-support ledges.



LIX-03-1303	ManoSet XXL
	$\bigcirc \bigcirc \spadesuit$
Application	Clamping of workpieces with clamping claws on Z-support ledges.



# Fixtures for adapters

#### ER-030110 Beam 5-fold 300 QuickChuck 50

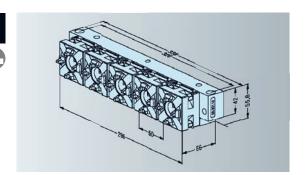


Five chucks 50, manual, in a row.

Application Use

Version

ITS adapter for the manual loading of five ITS elements. On all FrameSet clamping frames. Width 300 mm. In combination with the basic adapter set (ER-016652) on the WEDM machine table.

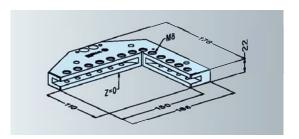


#### ER-018938 UniVise square PalletSet W



Version Square with all the clamping accessories. Application To be fitted to fix holders or pendulum holders.

Note Max. load: 10 kg.



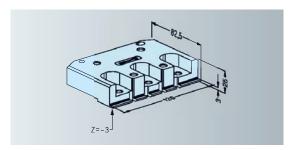
#### ER-018940 Vise PalletSet W



Clamping element with clips for one-sided attachment to Version

To be fitted to fix holders or pendulum holders. Application

Note Max. load: 12 kg.



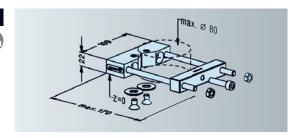
#### ER-019248 Prism holder 80 PalletSet W



Version Prism and clamping part with detachable Z-supports. Clamping of cylindrical workpieces of up to Ø 80 mm. Application To be fitted to the front of beam pallet ER-018937 or Assembly

clamping beams (cf. p 273).

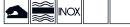
Max. load: 6 kg. Note



#### ER-031179 Prism holder 120 mm

PalletSet W





Prism and clamping bars with detachable

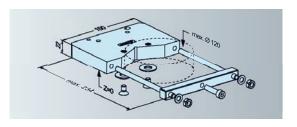
Z-supports.

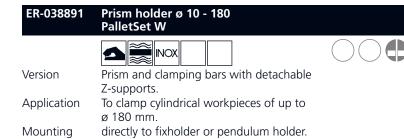
Application To clamp cylindrical workpieces of up to

directly to fixholder or pendulum holder. Mounting

Max. load: 10 kg. Note

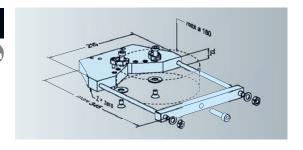
Version

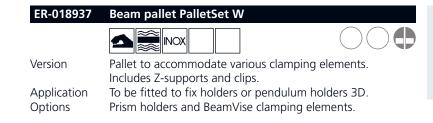


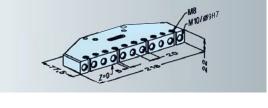


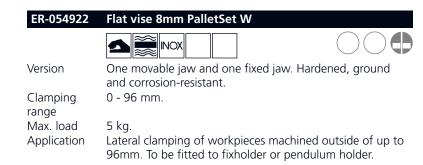
Max. load: 12 kg.

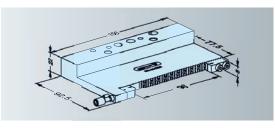
Note

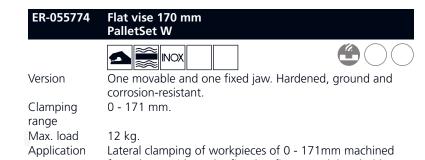


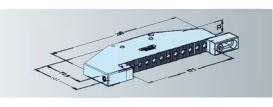


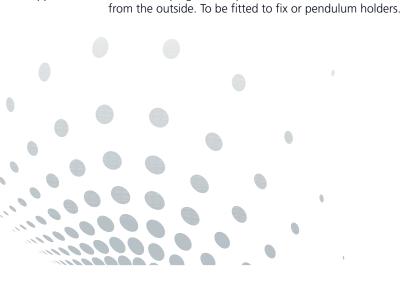










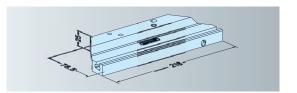


# Fixtures for adapters

# ER-031945 Basic holder PalletSet W

Version To accommodate various clamping elements. Application To fit to fixholder or pendulum holder 3D.

Options Jaw holder ER-033958 or bracket holder ER-031952.



#### ER-025895 Vise PalletSet W 40 mm



Version Vise with fixed Z-lip and jaws attached from above.

Hardened and ground.

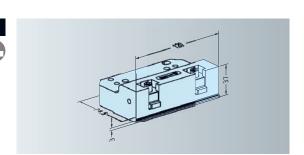
Clamping max. 150 x 150 x 40 mm.

range

Max. load 12 kg.

Application Lateral clamping of workpieces of 0 -150 mm machined

from the outside. To be fitted to fix or pendulum holders.



#### ER-025896 Vise PalletSet W 100 mm



Version Vise with fixed Z-lip and jaws fitted from above.

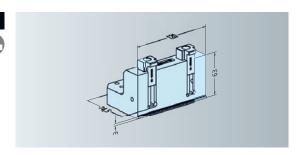
Application To clamp workpieces of up to 100 mm in height.

To be fitted to fixholder or pendulum holder.

Max. clamping 150 x 150 x 100 mm.

range

Max. load 12 kg.



#### ER-034631 Vise PalletSet W 140 mm





and ground.

Application To clamp workpieces of up to 140mm in height.

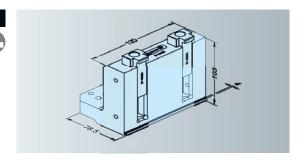
To be fitted to fixholder or pendulum holder.

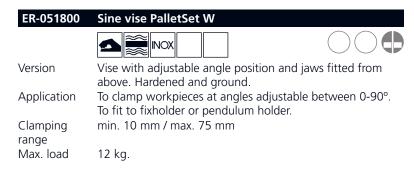
Max. load 12 kg.

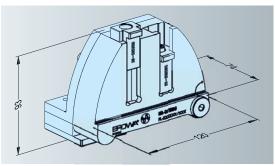
Max. clamping 150 x 100 x 140 mm.

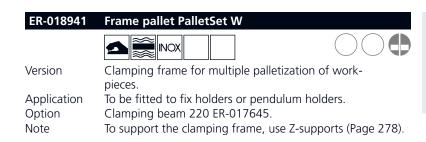
range

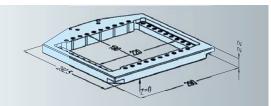
Version

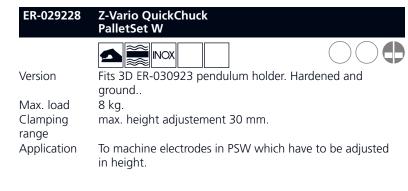


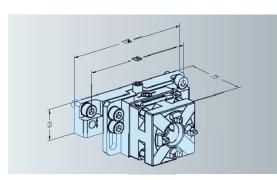


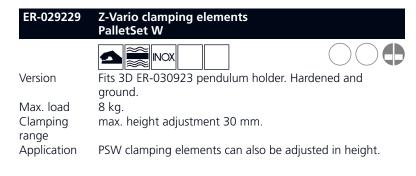


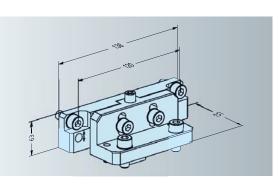












# Fixtures for adapters

# ER-025115 Z-support PalletSet W universal pneumatic, 1 pair



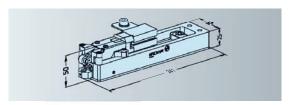


Operation With manual control unit.

Application Support and clamping of the frame plate with weights

of up to 30kg. Stabilizes the frame plate in case of high

flushing pressure.



## ER-025116 Z-support PalletSet W universal manual 1 pair



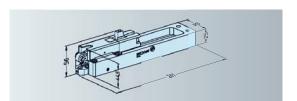
Version 1 pair of supports. Hardened and ground.
Mounting Directly on the Z=0 base of the WEDM center.

Operation Manually.

Application Support and clamping of the frame plate with weights

of up to 30 kg. Stabilizes the frame plate in case of high

flushing pressure.



### ER-025100 Z-support beam 300 PalletSet W manual

ER-025101 Z-support beam 380 PalletSet W manual

ER-027205 Z-support beam 460 PalletSet W manual

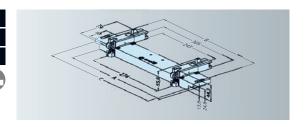


Version Support beam for use in EROWA ManoSet.

Operation Manually.

Application Support and clamping of the frame plate with weights of up to 30 kg in combination with EROWA ManoSet.

Stabilizes the frame plate in case of high flushing pressure.





ER-025030 Z-support beam 380 PalletSet W pneumatic

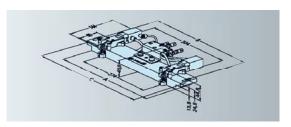
ER-028306 Z-support beam 460 PalletSet W pneumatic

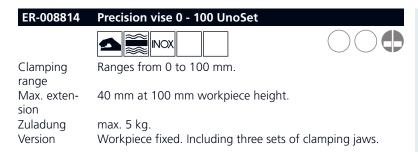


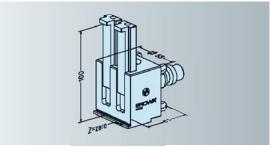
Version Support beam for use in EROWA ManoSet. Operation Pneumatically.

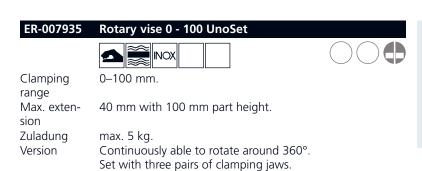
Application Support and clamping of the frame plate with weights of up to 30kg in combination with EROWA ManoSet.

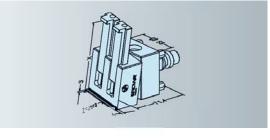
Stabilizes the frame plate in case of high flushing pressure.

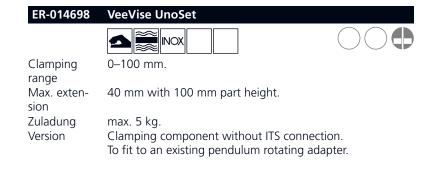




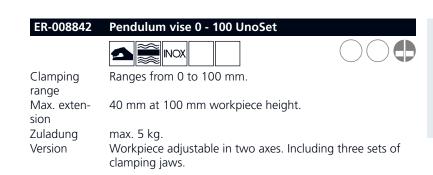


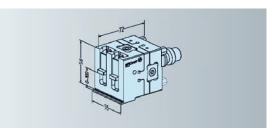












# Fixtures for adapters

# Clamping range Max. extension Rotatable pendulum vise 0 - 100 UnoSet 0-100 mm. 40 mm with 100 mm part height.

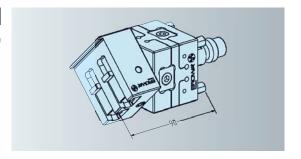
Zuladung max. 5 kg.

max. 5 kg.

Zuladung

Version For adjustable workpiece positioning in three axes.

Continuously able to rotate around 360°. Set with three pairs of clamping jaws.

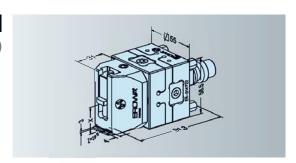


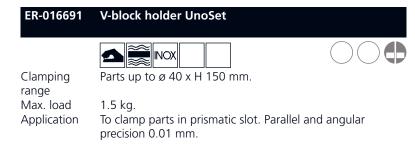
# Clamping 0-100 mm. Max. extension VeeVise TP UnoSet 0-100 mm. 40 mm with 100 mm part height.

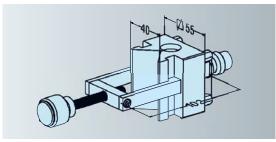
Version For adjustable workpiece positioning in three axes.

Continuously able to rotate around 360°.

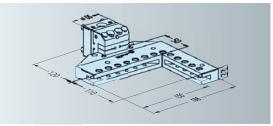
Set with three clamping jaws.

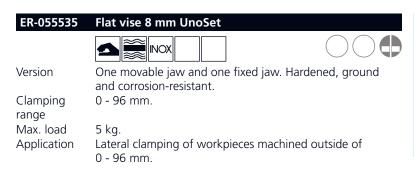


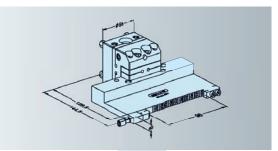


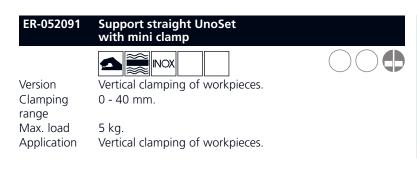


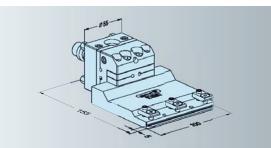




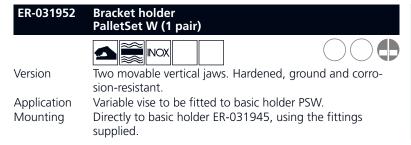


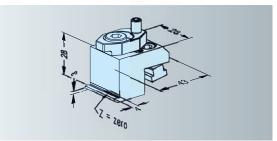




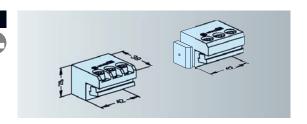


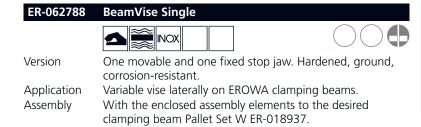
# Clamping elements for fixtures

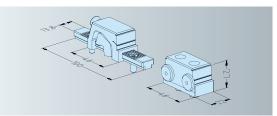




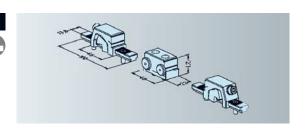
# Version One movable jaw and one fixed jaw. Hardened, ground and corrosion-resistant. Application Mounting One movable jaw and one fixed jaw. Hardened, ground and corrosion-resistant. Variable vise to be fitted to basic holder PSW. Directly to basic holder ER-031945, using the fittings supplied.



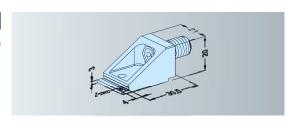


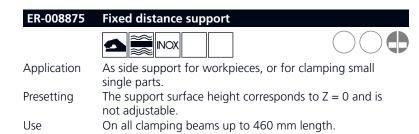


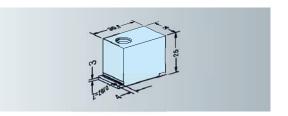
ER-062789	BeamVise Twin
Version	Two movable stop jaws and one fixed stop jaw. Hardened, ground, corrosion-resistant.
Application	Variable vise laterally on EROWA clamping beams.
Assembly	With the enclosed assembly elements to the desired clamping beam PalletSet W ER-018937.



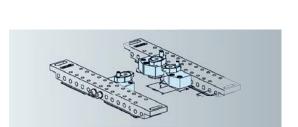
ER-008231	Mini distance support
Application	As side support for workpieces, or for clamping small, flat
	single parts.
Presetting	The support surface height corresponds to $Z = 0$ and is not adjustable.
Use	On all clamping and gripping beam ER-018937.

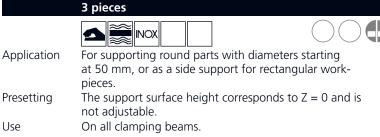






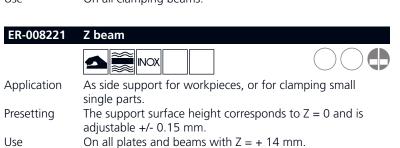
# Application As side support for workpieces, or for clamping small single parts. Presetting The support surface height corresponds to Z = 0 and is adjustable +/- 0.15 mm. Use On all clamping and gripping beams.

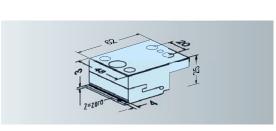


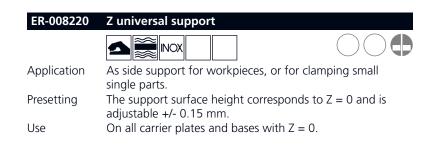


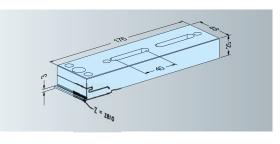
DiaFix

ER-007990





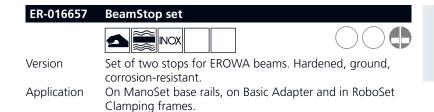




Assembly

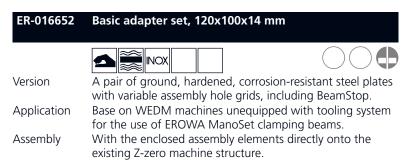
## **EROWA Wire EDM Tooling**

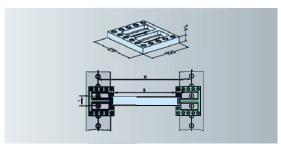
# Clamping elements for fixtures

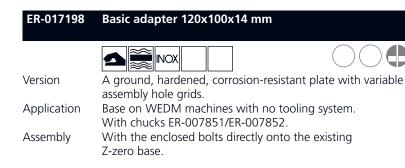


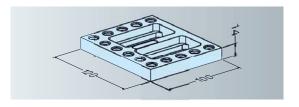
With the enclosed bolts.



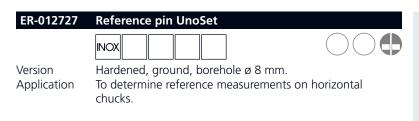


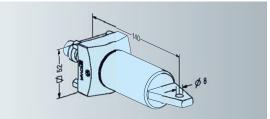


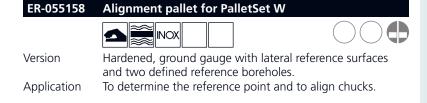


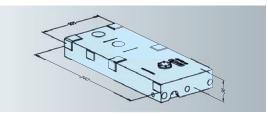


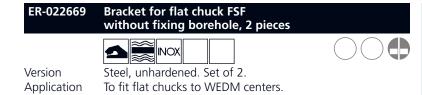
# Accessories

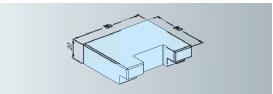


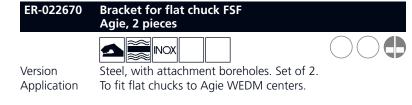


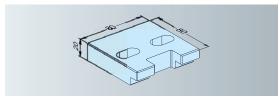


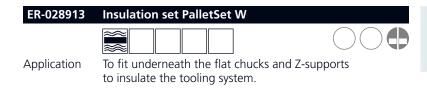














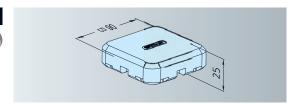
# Accessories

#### ER-026768 Cover for flat chuck FSF INOX

Version Cover for flat chucks

Protects flat chucks that are not in use against contamina-Application

tion and damage.



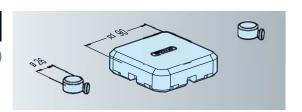
#### ER-027695 Cover for flat clamping chuck PalletSet W INOX

Set consisting of 2 covers for flat chucks and 4 covers for Version

Z-supports.

Application Protects flat chucks and Z-supports that are not use

against contamination and damage.



#### **EWIS™ Rapid chip with chip holder long** ER-035156

with chip ø 12,4 x 2 mm







Holder with built-in datacarrier. Version

EWIS™ Chip: read only.

Application With EROWA Collet Chuck holders and

Square 15/25 holders.

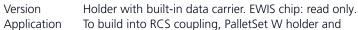
With supplied M4 bolts. Mounting



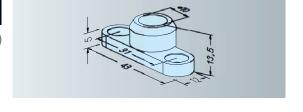








Basic WEDM holder.

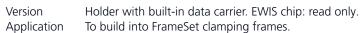


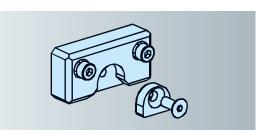










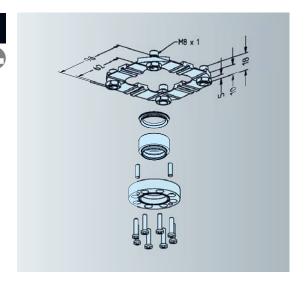




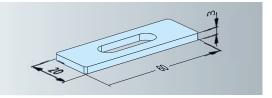
Version Set of 5, including support feet.

Application To be fitted directly to workpiece and electrodes

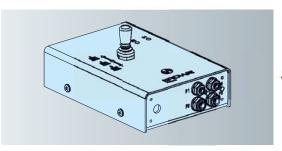
to be used on flat chucks.



# Version Application Spacer plate 3 mm 8 pieces Version Application Set of 8 plates. Ground, hardened. To fit underneath clamping beams to raise the Z-support by 3 mm. This prevents collisions in the working range of the lower flushing nozzles.



ER-008988	Manual control unit
	940
Version	Manual valve to control all the functions of ITS, ITS Compact CombiChuck, PowerChuck P and UPC: opening/reclamping/cleaning.
Application	Operation of chucks on machines.

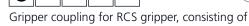


Version

## **EROWA Wire EDM Tooling**

# Accessories

#### ER-018936 **GripperLink RCS PalletSet W**

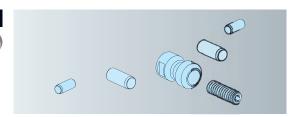


4 positioning pins and a chucking spigot. Application On all EROWA handling devices equipped with the RCS

coupling system.

Assembly Glue in pins according to instructions, fit chucking spigot

Recess for EWIS chip (not included) in the chucking spigot. Note



#### ER-034533 FrameSet gripper bolts 4 pieces

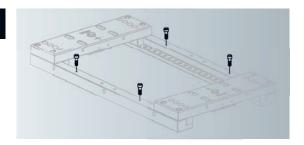
Version Set of 4 gripper bolts.

Application For FrameSet clamping frames with EROWA handling

facilities.

Note Can only be used in connection with FrameSet gripper

automation.



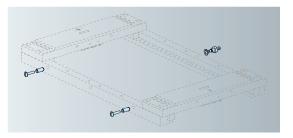
#### ER-022465 **Coupling kit FrameSet manual**



Version Set including 2 gripper pins, 2 M6x30 bolts, 1 cord holder,

1 spring washer.

To take up FrameSet frames with the EROWA Lift. Application

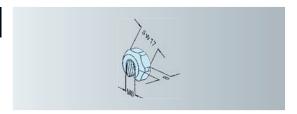


ER-008846	Slotted nut M8
	10 pieses

Quantity

Application On long setscrews, to avoid time-consuming nut

tightening.



#### ER-008848 Eye bolt M8 1 couple

Quantity

To raise loaded clamping frames with a crane or lifting Application

device.



Spacer plate large 50 pieces ER-007799

Quantity Application As supports for chucking claws.

Spacer plate small 50 pieces ER-007781

Quantity 50

Application As supports for chucking claws.

Erogrease (corrosion protection)
1 kg OKS 403 ER-001674



Version 1kg tin.

Application For the durable lubrication of guides, joints and threads

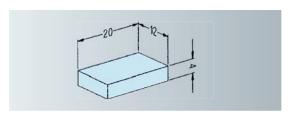
submerged in water.

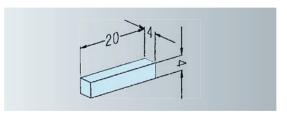
ER-010734 **Branotect maintenance spray** 0.4 liter

Version 0.4 litre aerosol.

Application For the maintenance and conservation of all the clamping

elements used for WEDM purposes.









# EROWA Wire EDM Tooling

# Kit

ER-009696	UnoSet Basic Kit manual
ER-007962	UnoSet Basic Kit pneumatic
Version	Basic tooling system equipment for WEDM centers.
Application	Suitable for the palletization of small and medium sized workpieces.
Mounting	Depending on the machine base, we recommend the multi-adapter plate ER-017198.
Kit contains	1 chuck 1 UniVise universal vise
Note	Machine-specific information can be found at www.erowa.com/unoset or at your EROWA dealer.



ER-017198	Multi-adapter plate
Application	To fit the UnoSet chuck to the machine base
Mounting	Through the adjustable borehole grids with the bolts supplied.



ER-021502	Starter Kit PalletSet W, manual	
ER-021503	Starter Kit PalletSet W pneumatic	
Version	Basic tooling system equipment for WEDM centers.	
Application	Suitable for the palletization of medium-sized workpieces.	
Mounting	Directly to the machine base with the fittings supplied.	
Kit contains	1 chuck 1 fixholder 1 vise 1 manual control unit (pneumatic)	
Note	Machine-specific information can be found at www.erowa.com/palletset or at your EROWA dealer.	



	Starter Kit FrameSet, fix	
	Starter Kit FrameSet, basic	
	Starter Kit Frameset, manual	
	Starter Kit Frameset, pneumatic	
Version	Basic frame tooling system equipment for WEDM centers.  Manually or pneumatically controlled chucks according to your choice. With the FrameSet fix version, the clamping frames are firmly bolted to the machine base.	
Application	Suitable for the palletization of small and medium-sized workpieces.	
Mounting	directly to the machine base with the fittings supplied.	
Kit contains	2 FrameSet fix plates or corresponding chucks 1 clamping frame of the machine-specific size 2 fitting clamping beams 1 set clamping equipment 1 set frame supports Fittings and pneumatic materials where necessary	
Note	Machine-specific information can be found at www.erowa.com/frameset or at your EROWA dealer.	



	ManoSet Kit XXL
Version	Basic frame tooling system equipment for WEDM centers. Fixed rails serve as the basis for the clamping beams.
Application	On large WEDM centers.
Mounting	Directly to the machine base with the fittings supplied.
Kit contains	1 set machine-specific base rails 2 fitting clamping beams 1 set clamping equipment
Note	Machine-specific information can be found at www.erowa.com/manoset or at your EROWA dealer.



# **EROWA Wire EDM Tooling**

# Set of clamping elements

EROWA's extensive accessory sets contain a number of practical and economically priced auxiliaries which turn clamping jobs into fun.





## ER-019989 Set of clamping elements, PalletSet W

Order number	Description	Units per set	Units supplied by order number
ER-002611	Hex key SW 5	1	1
ER-007729	Z-washer 3 mm	10	1
ER-007768	Hex key SW 3	1	1
ER-007781	Spacer, small	50	50
ER-007799	Spacer, large	50	50
ER-008884	Clip, universal	10	4
ER-017920	Countersunk bolt M8 x 14	10	1
ER-022109	Socket head bolt M8 x 20	10	50
ER-022110	Socket head bolt M8 x 30	10	50
ER-022111	Socket head bolt M8 x 40	10	50
ER-022113	Socket head bolt M8 x 60	10	50
ER-022118	Threaded pin M6 x 12	10	50
ER-022119	Threaded pin M6 x 20	10	50
ER-022120	Threaded pin M6 x 30	10	50
ER-022121	Threaded pin M6 x 40	10	50
ER-022122	Threaded pin M6 x 50	10	50

EROWA WIRE EDM TOOLING

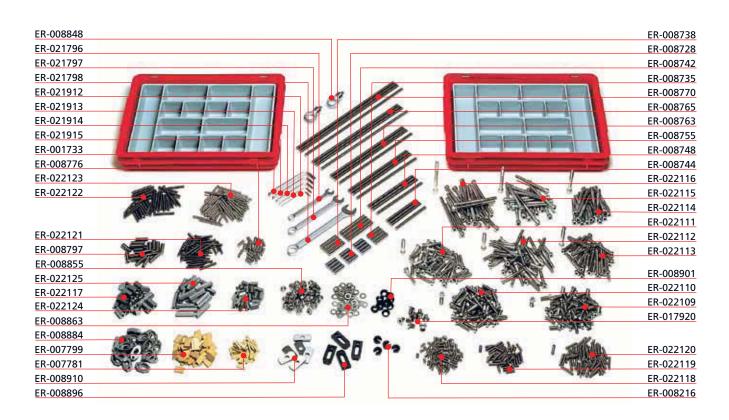


# **EROWA Wire EDM Tooling**

# Set of clamping elements for Wire EDM Tooling Standard

EROWA's extensive accessory sets contain a number of practical and economically priced auxiliaries which turn clamping jobs into fun.





#### ER-008868 Set of clamping elements, standard

These materials have been packed in one solid plastic box.

Order number	Description	Units per set	Units supplied by order number
ER-001733	Hex key SW 8	1	1
ER-007781	Spacer plate, small	50	50
ER-007799	Spacer plate, large	50	50
ER-008216	Slotted nut M8	4	4
ER-008728	Straight pin ø9 L = 30	12	4
ER-008735	Straight pin $Ø9 L = 40$	4	4
ER-008738	Straight pin $Ø9 L = 50$	4	4
ER-008742	Straight pin ø9 L = 80	4	4
ER-008744	Threaded rod M8 x 100	4	4
ER-008748	Threaded rod M8 x 150	4	4
ER-008755	Threaded rod M8 x 200	4	4
ER-008763	Threaded rod M8 x 250	4	4
ER-008765	Threaded rod M8 x 300	4	4
ER-008770	Threaded rod M8 x 350	4	4
ER-008776	Threaded pin, hex, M8 x 20	20	50

# ER-008868 Set of clamping elements, standard

Order number	Description	Units per set	Units supplied by
			order number
ER-008797	Threaded pin, hex, M10 x 30	20	50
ER-008848	Eye bolt	2	2
ER-008855	Hex nut, M8 x 0.8	50	50
ER-008863	Washer	50	50
ER-008884	Bracket, universal	20	4
ER-008896	Bracket	4	4
ER-008901	Sliding disk	10	20
ER-008910	Spacer plate	8	8
ER-017920	Countersunk head bolt M8 x 14	10	1
ER-021796	Ring spanner, SW 10	1	1
ER-021797	Ring spanner, SW 13	1	1
ER-021798	Ring spanner, SW 17	1	1
ER-021912	Hex key SW 3	1	1
ER-021913	Hex key SW 4	1	1
ER-021914	Hex key SW 5	1	1
ER-021915	Hex key SW 6	1	1
ER-022109	Socket head bolt, hex, M8 x 20	50	50
ER-022110	Socket head bolt, hex, M8 x 30	50	50
ER-022111	Socket head bolt, hex, M8 x 40	40	50
ER-022112	Socket head bolt, hex, M8 x 50	40	50
ER-022113	Socket head bolt, hex, M8 x 60	20	50
ER-022114	Socket head bolt, hex, M8 x 70	20	20
ER-022115	Socket head bolt, hex, M8 x 80	20	20
ER-022116	Socket head bolt, hex, M8 x 100	20	20
ER-022117	Hex extension nut M8	20	20
ER-022118	Threaded pin, hex, M6 x 12	100	50
ER-022119	Threaded pin, hex, M6 x 20	50	50
ER-022120	Threaded pin, hex, M6 x 30	50	50
ER-022121	Threaded pin, hex, M6 x 40	50	50
ER-022122	Threaded pin, hex, M6 x 50	50	50
ER-022123	Threaded pin, hex, M6 x 60	50	50
ER-022124	Extension nut, hex / M6	20	20
ER-022125	Spacer, hex / M6 / L = 40	20	20



# **EROWA Wire EDM Tooling**

# set of clamping elements for Wire EDM Tooling Economy

EROWA's extensive accessory sets contain a number of practical and economically priced auxiliaries which turn clamping jobs into fun.





#### ER-008215 Set of clamping elements Economy

Order number	Description	Units per set	Units supplied by order number
ER-001733	Hex key SW 8	1	1
ER-007781	Spacer plate, small	50	50
ER-007799	Spacer plate, large	50	50
ER-008216	Slotted nut M8	4	4
ER-008728	Straight pin, ø9 L = 30	12	4
ER-008735	Straight pin, ø9 L = 40	4	4
ER-008738	Straight pin, ø9 L = 50	4	4
ER-008742	Straight pin, ø9 L = 80	4	4
ER-008744	Threaded rod M8 x 100	4	4
ER-008748	Threaded rod M8 x 150	4	4
ER-008755	Threaded rod M8 x 200	4	4
ER-008763	Threaded rod M8 x 250	4	4
ER-008765	Threaded rod M8 x 300	4	4
ER-008770	Threaded rod M8 x 350	4	4
ER-008776	Threaded pin, hex, M8 x 20	10	50

# ER-008215 Set of clamping elements Economy

Order number	Description	Units per set	Units supplied by order number
ER-008797	Threaded pin, hex, M10 x 30	10	50
ER-008848	Eye bolt	2	2
ER-008855	Hex nut, M8 x 0.8	50	50
ER-008863	Washer	50	50
ER-008884	Bracket universal	15	4
ER-008896	Bracket	4	4
ER-008901	Sliding disk	10	20
ER-008910	Spacer plate	8	8
ER-017920	Countersunk head bolt M8 x 14	10	1
ER-021796	Ring spanner, SW 10	1	1
ER-021797	Ring spanner, SW 13	1	1
ER-021798	Ring spanner, SW 17	1	1
ER-021912	Hex key SW 3	1	1
ER-021913	Hex key SW 4	1	1
ER-021914	Hex key SW 5	1	1
ER-021915	Hex key SW 6	1	1
ER-022109	Socket head bolt, hex, M8 x 20	20	50
ER-022110	Socket head bolt, hex, M8 x 30	10	50
ER-022111	Socket head bolt, hex, M8 x 40	10	50
ER-022112	Socket head bolt, hex, M8 x 50	10	50
ER-022113	Socket head bolt, hex, M8 x 60	10	50
ER-022114	Socket head bolt, hex, M8 x 70	10	20
ER-022115	Socket head bolt, hex, M8 x 80	10	20
ER-022116	Socket head bolt, hex, M8 x 100	10	20
ER-022117	Hex extension nut, M8	10	20
ER-022118	Threaded pin, hex, M6 x 12	20	50
ER-022119	Threaded pin, hex, M6 x 20	10	50
ER-022120	Threaded pin, hex, M6 x 30	10	50
ER-022121	Threaded pin, hex, M6 x 40	10	50
ER-022122	Threaded pin, hex, M6 x 50	10	50
ER-022123	Threaded pin, hex, M6 x 60	10	50
ER-022124	Extension nut, hex / M6	10	20
ER-022125	Spacer, hex/M6/L = 40	10	20



# **EROWA Wire EDM Tooling**

# Set of clamping elements for Wire EDM Tooling XL

EROWA's extensive accessory sets contain a number of practical and economically priced auxiliaries which turn clamping jobs into fun.





### ER-008301 Set of clamping elements, XL

Order number	Description	Units per set	Units supplied by order number
ER-001417	Wrench SW13	1	1
ER-002613	Hex key SW 5	1	1
ER-007781	Spacer plate, small, 4 x 4 x 20 mm	50	50
ER-007799	Spacer plate, large, 4 x 12 x 20 mm	50	50
ER-008744	Threaded rod M8 x 100	4	4
ER-008748	Threaded rod M8 x 150	4	4
ER-008755	Threaded rod M8 x 200	4	4
ER-008763	Threaded rod M8 x 250	4	4
ER-008765	Threaded rod M8 x 300	4	4
ER-008770	Threaded rod M8 x 350	4	4
ER-008776	Threaded rod M8 x 20	10	50
ER-008786	Threaded rod M8 x 30	10	50
ER-008790	Threaded rod M8 x 40	10	50
ER-008794	Threaded rod M8 x 50	10	50
ER-008812	Countersunk head bolt M8 x 40	20	40
ER-008855	Hex nut M8 x 0.8D	20	50
ER-008861	Hex nut M8 x 3D	4	10
ER-008863	Washer ø 15 x 8,4 x 1.6	20	50
ER-008896	Clamp 45 mm	8	4

# ER-008301 Set of clamping elements XL

Order number	Description	Units per set	Units supplied by order number
ER-008901	Sliding disk	20	20
ER-010115	Clamps, aluminum, bronzed	4	1
ER-010120	Column, 100 mm	4	1
ER-010123	Column, 60 mm	4	1
ER-010126	Adjustment supports	4	1



**EROWA Wire EDM Tooling** 

# Set of clamping elements for Wire EDM Tooling

EROWA's extensive accessory sets contain a number of practical and economically priced auxiliaries which turn clamping jobs into fun.

ER-008868 Set of clamping elements, standard



ER-019989 Set of clamping elements PalletSet W

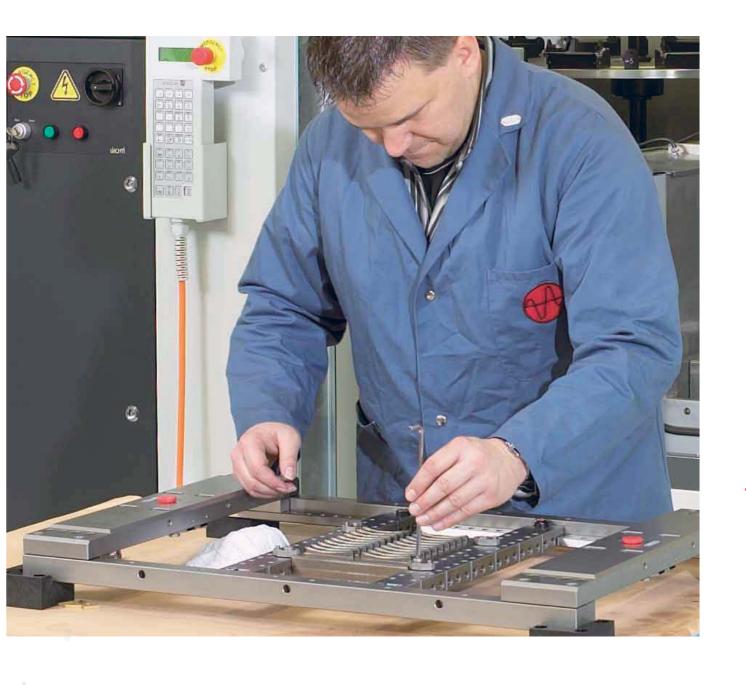


ER-008215 Set of clamping elements Economy



ER-008301 Set of clamping elements XL







# **EROWA Sine Dividing Head ITS**

# The highest precisionthe simplest handling

#### Your advantages

Workpieces and electrodes are clamped and machined simply, quickly, and with precision.

Thanks to the precision of the integrated ITS rapid-action chuck, workpieces need not be realigned when they are changed.

Full ITS universality is guaranteed.

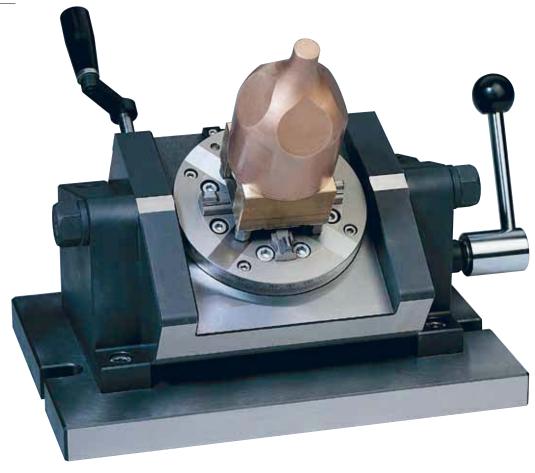
Simple to fit on any milling, grinding or EDM center.

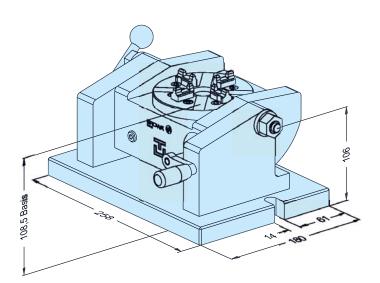


The EROWA Sine Dividing Head ITS is easy and quick to fit on the machine table, with only two bolts.



The workpiece is clamped with the precision of the ITS tooling system, with a repeatability of 0.002 mm.





#### **Technical data** ER-010427 **EROWA Sine Dividing Head** 0°-90° Titling range 360° Rotating axis, rapid-action chuck Chuck indexing 4 x 90° 4,5° 1 turn on crank Air connection M5 Air pressure 7 bar Weight 22 kg Concentricity rapid-action chuck/rotating axis ± 0,015 mm Axial load 500 N Clamping, indexing and rotating axes mechanical Materials Corrosion resistant Option ER-010567 Manual valve

# Function

The Sine Dividing Head offers you the following possibilities:



ITS S rapid-action chuck, able to rotate round 360°, indexing vernier 5 minutes (0.08°).



. . . swivelable round 90° with . . .



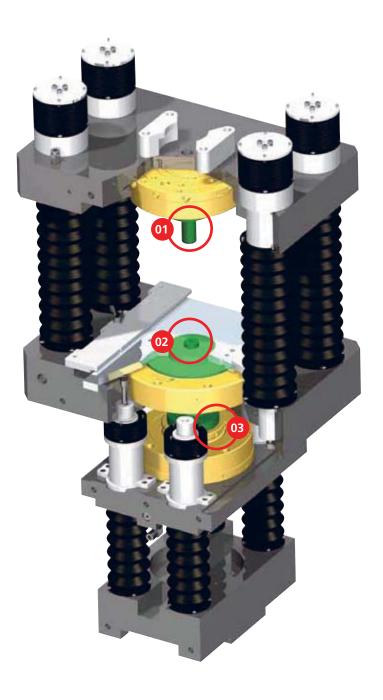
... sine function.

# **EROWA PM Tooling**

# Pressing powder systematically

Pressed-powder parts are becoming ever more refined, and the diversity of product shapes is on the increase. Batch sizes are becoming smaller, which means that powder presses must be reset frequently.

EROWA has developed a solution for the minimization of resetting times: Single- or multi-level powder presses are equipped with the suitable PM tooling system. In this way, pressing tools can be exchanged in next to no time and with the highest degree of precision.



The EROWA PM tooling system was developed for use under high pressing forces. Depending on the field of application and on requirements, the optimal tooling system can be chosen.

Crucial advantages of the PM tooling systems:

- Repeatability for the highest precision requirements.
- High degree of stability thanks to patented outside clamping.
- User-friendliness.
- Capable of being automated.

These factors directly aim to increase the productivity and economy of your powder press!

- **01** | Upper punch on EROWA PM Tooling pallet: Positioning accuracy < 0.002 mm.
- **02** | Die-plate on EROWA PM Tooling pallet: Positioning accuracy < 0.002 mm.
- **03** | Lower punch on the EROWA PM Tooling pallet: Positioning accuracy < 0.002 mm.

# **Applications**

# Handling

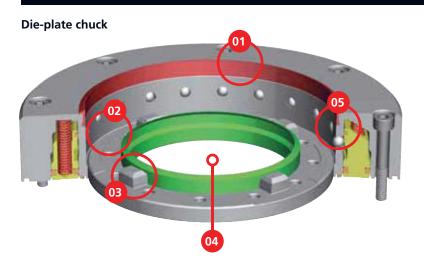






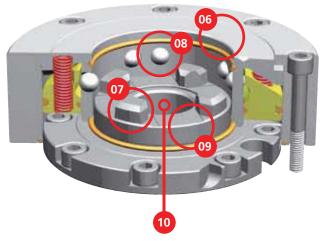
Manual / Loading facility / Robot

# **Function**



- **01** | Fully sealed system; resistant to powder, contamination and liquids.
- **02** | Large contact surface for great force absorption.
- 03 | Precise «P» centering.
- **04** | Wide opening for bottom punch.
- **05** | Patented outside clamping.
- **06** | Fully sealed system.
- 07 | Precise «P» centering.
- **08** | Patented outside clamping.
- **09** | Large contact surface for great force absorption.
- **10** | 25 mm clearance for center pin or second punch.

#### **Punch chuck**



Technical data - PM Tooling Precise			
PM Tooling Precise	System size	Max. admissible pressing force	
Punch chuck	PM56	500 kN	
	PM60	500 kN	
	PM85	1000 kN	
Die-plate chuck	PM128	1000 kN	

# **EROWA PM Tooling**

# Universal from milling to pressing

With the EROWA PM tooling system, punches and die plates are fitted to pallets and manufactured with datum-point precision.

Compatibility with other EROWA tooling systems enables your production machine to be fully automated. Workpieces run through the entire production chain on pallets:



**Milling** Electrodes used to EMD the molds are machined on ITS system holders.



**EDM**Shapes in the surface of the punches are EDMed.



**Grinding**Punches may also be machined on cylindrical grinding machines.



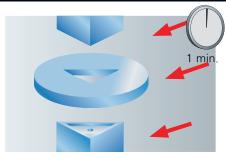
**Wire-EDM**The contours are produced on a
WEDM center. The reference position
is provided by the chuck.



**Powder pressing**Top and bottom punches and the die plate are inserted into the press. The reference positions are provided by the precisely aligned chucks.

# Changing variants in 2 minutes 0 min.

Pneumatically loosen die-plate and both punches.



Insert and clamp new die-plate and punches.



Produce new molds.

To make it easier for you to find your way about the fields of application for EROWA products, we use the following symbols in all our documents:







 PM Tooling	Chucks	308
 PM Tooling	Pallets	310
 PM Tooling	Accessories	311
 PM Tooling	Spindle adaptation, chucks	316
PM Tooling	Spindle adaptation, pallets	317



1. Manual operation



2. Operate with compressed air jet



3. Operate with manual valve



4. Operate with manual control unit



5. Operate with electropneumatic control unit



6. With central flushing clearance



7. Suited for submerged operation



8. Corrosion-resistant material



9. Suited for automatic operation



10. Handling with EROWA Robot gripper S



11. Handling with EROWA Robot gripper Combi



12. Handling with EROWA Robot gripper C



13. Handling with EROWA Robot gripper 72



14. Handling with EROWA Robot gripper 115



15. Handling with EROWA Robot gripper 148



16. Handling with EROWA Robot gripper RN PC 210



17. Handling with EROWA Robot gripper RCS



For chip-removing processes



For EDM sinking



For WEDM

# **EROWA PM Tooling Precise**

# Chucks

Technical data	PM chucks
Repeatability	0,002 mm
Indexation	4 x 90°
Opening with dry compressed air	min. 6 bar
Clamping	Spring pressure

## ER-047544 Die-plate chuck PM128 II Precise



Steel, hardened. Through borehole ø 86. External seal.

Clamping 23000 N (reclamped at 6 bar).

power

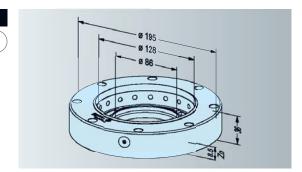
Version

Connections At the rear, with two lines.

Operation With control unit.

Application On milling machines and powder presses.

To accommodate die-plate pallets PM128 Precise.



#### ER-040697 Chuck PM85 Precise



Version Steel, hardened, corrosion-resistant.

Through borehole ø 25.

Clamping 9000 N.

power

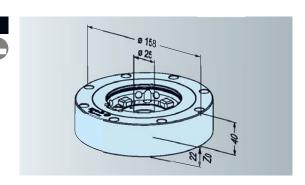
Connections At the rear, with two lines.

Operation With control unit.

Application On milling machines, lathes, EDM/WEDM centers and

powder presses.

To accommodate pallets PM85 Precise.



#### ER-055370 Chuck PM60 Precise



Version Steel, hardened, corrosion-resistant.

Through borehole ø 25.

Clamping 6500 N.

power

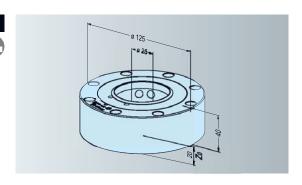
Connections At the rear, with two lines.

Operation With control unit.

Application On milling machines, lathes, EDM/WEDM centers and

powder presses.

To accommodate pallets PM60 Precise.

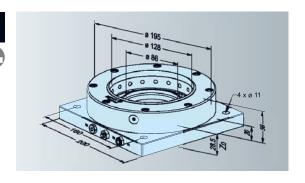


#### ER-047566 Die-plate chuck PM128 II Precise with base plate 940 INOX Version Steel, hardened, corrosion-resistant. Through borehole ø 86. External seal. 20000 N (reclamped at 6 bar) Clamping power Operation Laterally with compressed-air gun or with control unit. **Application**

On milling machines, lathes, grinding machines and EDM/WEDM centers.

To accommodate die-plate pallets PM128 Precise and

Multi.



#### ER-040696 **Chuck PM85 Precise** with base plate 940 P INOX Version Steel, hardened, corrosion-resistant. Through borehole ø 25. 9000 N. Clamping

power Laterally, with two lines. Connections With control unit. Operation

On milling and grinding machines and on Application

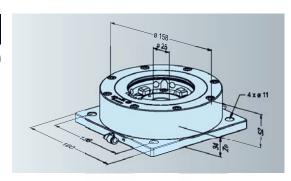
EDM/WEDM centers.

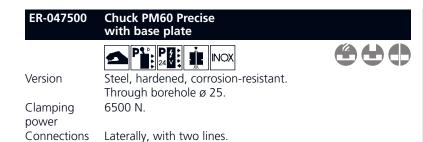
With control unit.

Operation

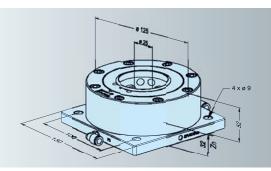
Application

To accommodate pallets PM85 Precise and Multi.



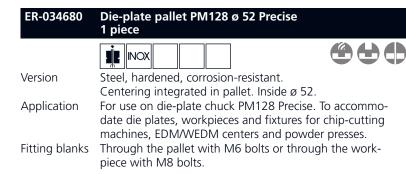


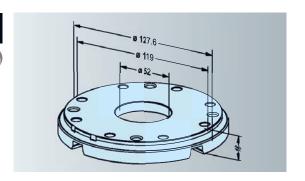


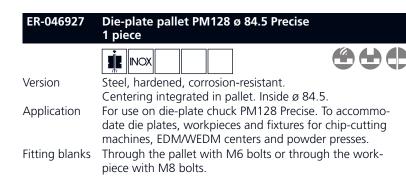


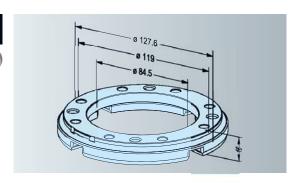
# **EROWA PM Tooling Precise**

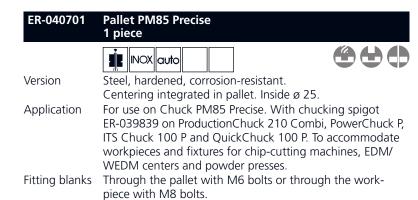
# **Pallets**

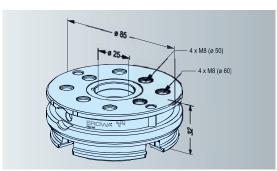




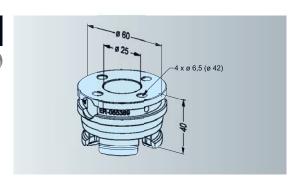








ER-055369	Pallet PM60 Precise 8 pieces
	NOX auto 4 th
Version	Steel, hardened, corrosion-resistant.
	Centering integrated in pallet. Inside ø 25.
Application	For use on Chuck PM60 Precise. With chucking spigot
	ER-041429 on ProductionChuck 210 Combi, PowerChuck P,
	ITS Chuck 100 P and QuickChuck 100 P. To accommodate
	workpieces and fixtures for chip-cutting machines, EDM/
	WEDM centers and powder presses.
Fitting blanks	Through the pallet with M6 bolts.



# **EROWA PM Tooling**

# Accessories

# Adapter pallet H24 PM Precise for die-plate pallet PM128 ER-035792



Hardened steel, corrosion-resistant. Height of pallet: 24 mm.

Serves as an adapter between the die-plate pallets PM128 Application

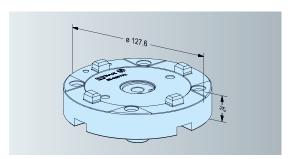
Precise and Multi and an ITS Chuck 100 P or a Power-

**64** 

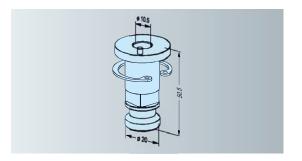
Chuck P.

Version

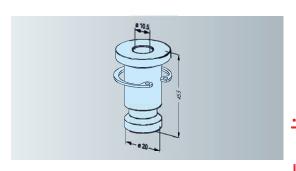
ER-042440



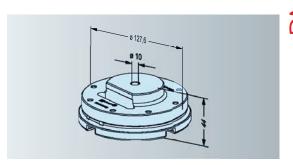
ER-039839	Chucking spigot PM85 automatic 8 pieces
ER-046075	Chucking spigot PM85 automatic 1 piece
	i auto
Version Application	Steel, hardened. Automatic, with borehole ø 10.5. In pallets PM85 Precise. To be fitted with securing ring.



ER-041429	Chucking spigot PM56 / PM60 manual 8 pieces
ER-045759	Chucking spigot PM56 / PM60 manual 1 piece
	<b>4</b>
Version Application	Steel, hardened. Manual, with borehole ø 10.5. In pallets PM56 and PM60 Precise. To be fitted with securing ring.

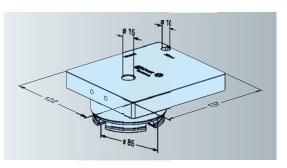


ER-049248	Alignment pallet PM128 Precise for die-plate chuck PM128 Precise
	NOX BUTTON BUTTO
Version	Steel hardened, corrosion-resistant. Ground alignment surface and centering borehole ø 10.
Application	In tool- and mold-making. For alignment of the angle position and determination of the center of the die-plate chuck PM128 Precise.



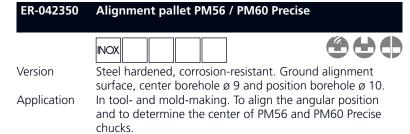
	NOX CONTRACTOR OF THE PROPERTY
Version	Steel hardened, corrosion-resistant. Ground alignment
	surface, center borehole ø 15 and position borehole ø 10.
Application	In tool- and mold-making. Alignment of the angle position and determination of the center of PM85 Precise chucks.

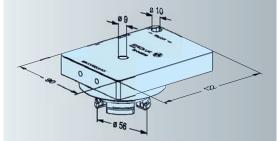
Alignment pallet PM85 Precise



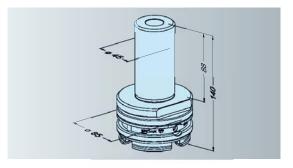
# **EROWA PM Tooling**

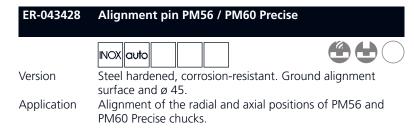
# Accessories

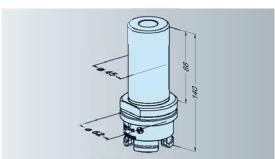




# Version Steel hardened, corrosion-resistant. Ground alignment surface and ø 45. Application Application Alignment pin PM85 Precise Chucks.







Please note: you can find the entire range in the EROWA PM Tooling System Catalog.

STANDARDIZATION

# EROWA spindle adaptation

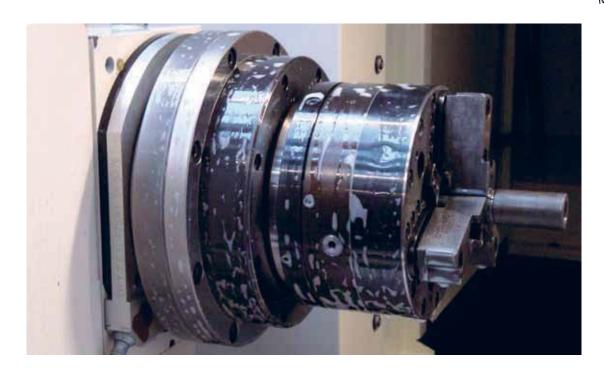
# The universal interface

Minimize resetting time - increase productivity! With the help of EROWA's spindle-adaptation solution, productive time - for instance in circular grinding - can be substantially increased.

The changeover from a three-jaw chuck to a pneumatically operated tooling system and to customized jigs only takes a few seconds - whilst the highest degree of precision is retained. The basis for all adaptations is the EROWA PM chuck. It is integrated with the machine spindle with the help of a suitable flange. The overall solution is impressive, not least owing to its robust and compact design.









Crucial advantages of EROWA's spindle adaptation:

- Substantially shorter resetting times.
- Minimum height.
- Highest stability and repeatability.
- Maximum concentric accuracy.
- Pneumatic control of adaptations.
- Fully sealed.
- Capable of being automated.

#### **Applications**

# Handling Manual







# Sample application



The chuck integrated with the machine spindle is opened with compressed air, either through an air-gun or through a fixed air supply.



The three-jaw chuck is inserted. Both run-out and concentricity are repeated to an accuracy of 0.002 mm.



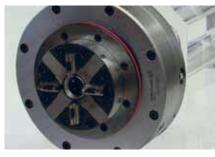
The system is ready for operation in next to no time. Resetting is no longer an essential time factor.



The base chuck is opened and the threejaw chuck is removed.



The palletized EROWA ITS chuck is inserted. The contour of the pallet completely seals off the spindle.



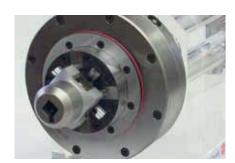
Ready for clamping and positioning to an accuracy of 0.002 mm.



The ITS chuck is opened through the integrated air coupling.



Any EROWA ITS system carrier can be clamped safely, quickly and precisely.



The ITS square holder, for example, serves as a fast-exchange facility for small workpieces or electrode blanks.

# EROWA spindle adaptation

# Chucks

Technical data	PM chuck
Repeatability	0,002 mm
Indexation	4 x 90°
Opening with dry compressed air	min. 6 bar
Clamping	Spring pressure

## ER-073369 Die-plate Chuck PM128 II AirDock





Version Hardened steel. Through hole: ø 48. Outside seal.

Positioning ring, including 2 AirDock valves.

Max. speed 4000 min-1.

Clamping power

23,000 N (reclamped at 6 bar).

Connections At the rear through customized base plate, flange or rota-

table pneumatic connector (not supplied with this unit).

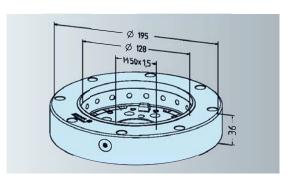
Operation With compressed-air gun, control unit or through the

machine control unit.

Application On dividing heads, indexing tables, lathes and circular grin-

ding machines. To accommodate adapter chuck, die-plates

PM128 and customer-specific jigs.



### ER-078473 ITS Chuck 100 P on die-plate pallet PM128 Precise





Version Hardened steel.
Clamping ITS Chuck 100 P: 6,000 N.

power

ŕ

Connections At the rear, to die-plate PM128.

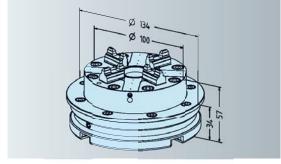
Operation Through AirDock valves. With compressed-air gun, control

unit or through the machine control unit.

Application As adapter chuck in the die-plate chuck PM 128 II AirDock.

To accommodate electrode holders, pallets ø 115, ø 148,

PM56, PM60 and PM85 Precise.



# ER-078474 Manual 3-jaw concentric chuck ø 125 mm on die-plate pallet PM128 Precise





Version

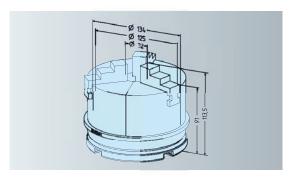
Manual 3-jaw concentric chuck ø 125 mm. Central clamping area 3-53mm. Body made of cast metal. High degree of concentricity according to DIN 6386. Includes

3 hardened drilling jaws (stepped on the outside), 3 hardened turning jaws (stepped on the inside),

1 spanner.

Note Max. speed 4000 min-1.

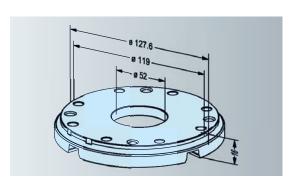
Application As adapter chuck in the die-plate chuck PM128 II AirDock.



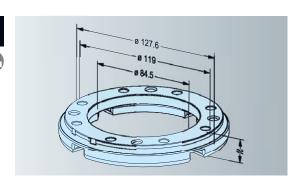
# EROWA spindle adaptation

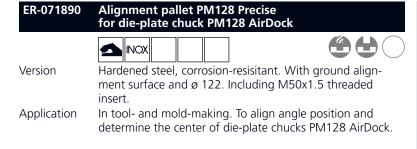
# **Pallets**

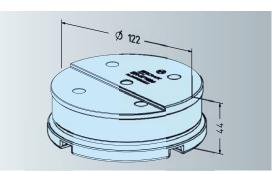
ER-034680	Die-plate pallet PM128 ø 52 Precise 1 piece
Version	Steel, hardened, corrosion-resistant.
	Centering integrated in pallet. Inside ø 52.
Application	For use on die-plate chuck PM128 Precise. To accommo-
	date die plates, workpieces and fixtures for chip-cutting
	machines, EDM/WEDM centers and powder presses.
Fitting blanks	Through the pallet with M6 bolts or through the work- piece with M8 bolts.



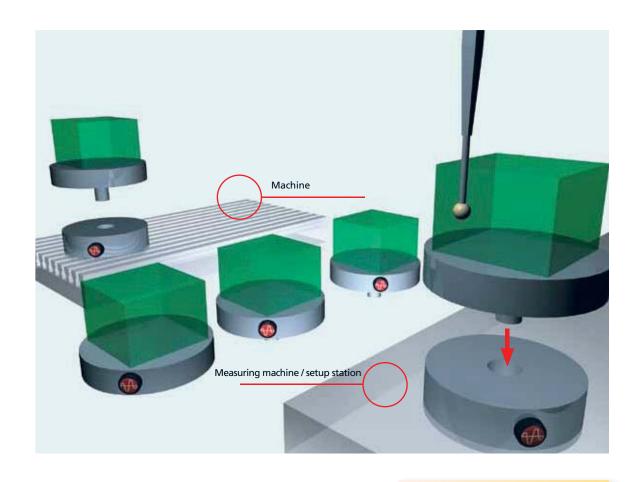
ER-046927	Die-plate pallet PM128 ø 84.5 Precise 1 piece
Version	Steel, hardened, corrosion-resistant.
	Centering integrated in pallet. Inside ø 84.5.
Application	For use on die-plate chuck PM128 Precise. To accommo-
	date die plates, workpieces and fixtures for chip-cutting
	machines, EDM/WEDM centers and powder presses.
Fitting blanks	Through the pallet with M6 bolts or through the work- piece with M8 bolts.







# EROWA quality measuring and presetting systems





For chip-removing processes



For EDM sinking



For WEDM

Organization of electrodes and workpieces. All the workpieces and electrodes are set up outside the machine. If necessary, their offset values are determined outside the machine. Thus programs can be generated in advance, and automation becomes possible.

Quality measurements enhance process safety and are an important factor for successful

quality management.

# **EROWA QUALITY MEASURING AND** PRESETTING SYSTEMS

	EROWA CMM Qi	320
	EROWA PreSet 3D CNC	326
	EROWA PreSet 3D MAN	328
	EROWA PreSet 2D EROWA PreSet 2D +C	330
	EROWA PreSet Basic PalletSet W	332
	EROWA PreSet Basic UnoSet	332
	EROWA PreSet Basic UPC	332
	Basic equipment / options for CMM Qi / PreSet 3D	334
<b>→</b> ◆	Measuring tools and options for EROWA measuring systems	336
	Software for EROWA measuring systems - EROWA PreSoft / ARCO-CAD - Metrolog X4 - EROWA Quick Link XT - EROWA JMS® Pro Organization - EROWA JMS® Pro Q-Measure - EROWA Manufacturing Control	338 340 342 344 344

# EROWA CMM Qi

# 844

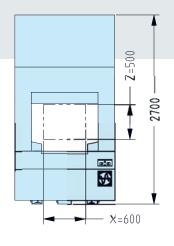
# Top-precision quality measurements

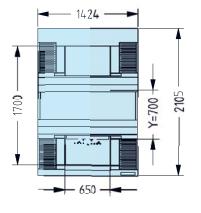
Precision is produced, not measured – this is an old saying.

Nevertheless, it is very advantageous if the measuring machine can measure as accurately as possible.

Thanks to its solid construction, the EROWA CMM Qi high-quality measuring machine provides utmost mechanical precision, combining EROWA products to a consistent high-precision system.







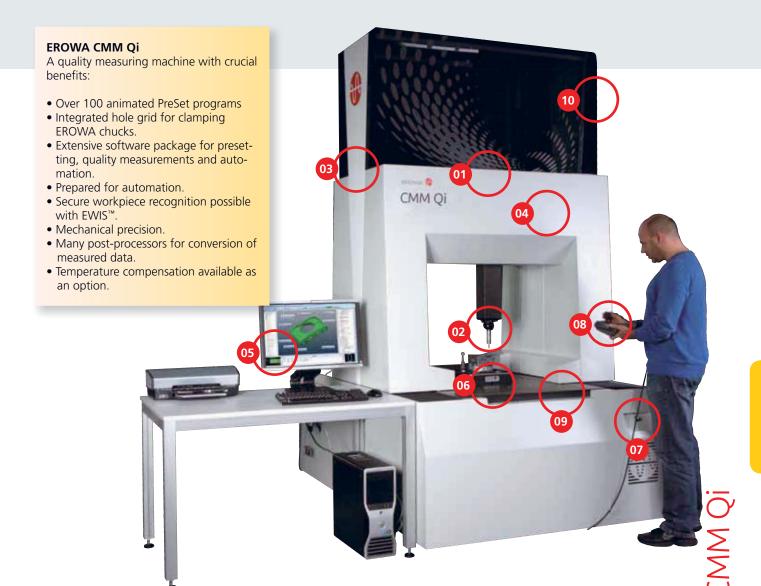
#### **EROWA CMM Qi**

- Measuring machine (working plate with borehole grid for all EROWA tooling systems)
- Pneumatic control system
- PC and color printer (option)
- Software for presetting and quality measuring
- Renishaw measuring probe (option)
- Calibration ball

For additional details, please contact your EROWA dealer.

## Technical data

	CMM Qi
X-axis travel	600 mm
Y-axis travel	700 mm
Z-axis travel	500 mm
Maximum distance between table and	
probe holder (without probe)	668 mm
Maximum distance between the columns at table height	650 mm
Usable area of the granite slab (with EROWA hole pattern)	650 x 1700 mm
Resolution	0.0001 mm
Standard	0.0001 mm
High Precision	0.00002 mm
Measurement uncertainty in the volume (according to ISO 10360/2)	
Standard	1.5 μm + L/500
High Precision (SP25 probe system)	0.7 μm + L/500
	(L in mm)
Machine dimensions	
Dimensions LxWxH	2100 x 1500 x 2700 mm
Maximum loadable workpiece weight	650 kg
Machine weight (no load)	2350 kg
Ambient conditions	
Standard	19°-21° Delta 0.5°/h
High Precision	19°-21° Delta 0.2°/h
Software	
Presetting software	- PreSoft by EROWA
	- EROWA PreSet Confi-
	gurator
Measuring software	- ARCO CAD
	- Metrolog X4



#### 01 | Rails

High-precision Renishaw rails with optical read heads ensure excellent results.

## 02 | Renishaw probing systems

high-precision measuring probe systems for the greatest flexibility.

### 03 | Centric drives

Centric drives for symmetric movements.

#### 04 | Symmetric machine layout

Special aluminum casting for excellent shape and temperature stability as well as guide rails made from granite.

#### 05 | Software

With the EROWA presetting and measuring software, presetting data can be recorded in a very simple way and quality measurements are both precise and retraceable.

## 06 | Various clamping systems

Depending on your requirements, one or more EROWA tooling systems can be mounted to the solid table. All the necessary boreholes already exist. FrameSet, MTS, UPC or ITS – all variants are supported.

#### 07 | Integrated operation

Already prepared for the control of the various tooling systems.

#### 08 | Joystick control

Optimal operation for secure measurements. One control lever for all axes. Optionally also available as a wireless joystick.

#### 09 | Natural granite

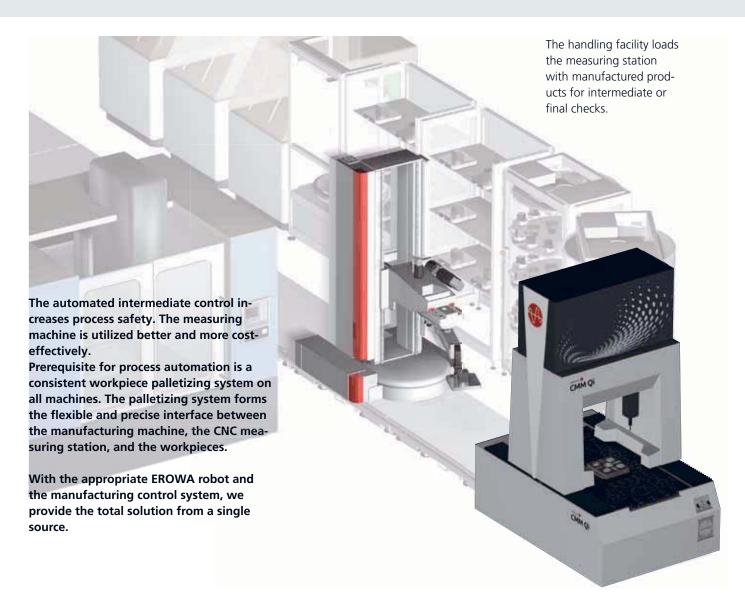
The solid granite slab combined with the specially cast portal constitutes the basis for precision.

## 10 | Closed casing

The best possible shield against ambient influences, as well as a controlled airflow around the measuring system.

# EROWA CMM Qi

# Continuous quality monitoring





With the automatic pallet detection feature via a chip, you can view where each part is located in the manufacturing chain at any time. Status messages can also be sent to the operator via SMS.



Using the automation kit (option), the CMM Qi can be loaded by an EROWA robot. The CNC control allows automatic quality measurements.



The automatic in-process or final check boosts process reliability to an essential degree. The machine is used to better capacity and thus becomes more profitable. Also, reject costs can be reduced.

# Integrated automation

Are you looking for a favorably priced way of automating a measuring machine with the aim of achieving more autonomy?

The solution: CMM Qi measuring machine with a gripper and an integrated workpiece magazine.



#### The advantages:

- Favorably priced automation.
- Simple operation.
- Stand-alone solution.
- Saves space since no additional loading robot is required.
- Autonomy for several hours of unmanned measuring.
- Independent automation for Q-Measure.
- Retrofit option for existing CMM Qi measuring machines.
- Operation with EROWA process control system possible.
- EROWA EWIS™ identification possible.
- All the necessary safety components are integrated.



Capacity: up to 30 ITS 50/72 electrode holders. Max. workpiece weight: 5 kg (including holder).



Integrated safety components



The integrated automation of the CMM Qi can be retrofitted to all CMM Qi measuring machines.

# **EROWA CMM Qi**

# Scanning – High-precision shape and profile measurements

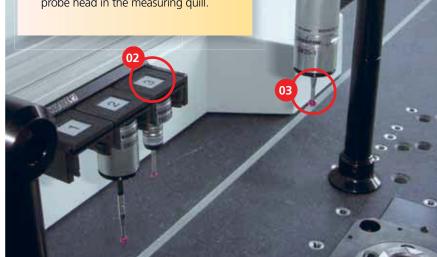
While "normal measurement" only results in individual measured points, scanning provides a large number of data giving much more detailed information on the form and shape of the feature or the workpiece.

Scanning is therefore used anywhere where complex freeform geometries are reproduced or where dimensional accuracy and complex surfaces must be within certain tolerances.

## **EROWA Scanning**

the crucial advantages.

- Very fast form and profile identification of prismatic and complex workpieces.
- More accurate information about the shape of a feature or workpiece thanks to a great number of data.
- Modular design and flexible probe change facilities allow for an optimal selection of probe configurations for every measuring application
- Possibility of using a wide range of probe insert lengths and tactile swit ching modules.
- Maximized working range of the CMM Qi through the integration of the probe head in the measuring quill.



#### 01 | Rotary/swivel head

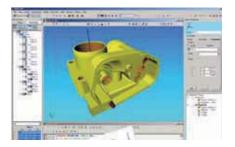
The PH10MQ is a motorized rotary/ swivel head with 7.5° indexation. It is mounted directly in the measuring quill. This maximizes working range of the CMM Qi.

#### 02 | Change magazine

The FCR25 change magazine allows a quick and automatic probe change to select the best probe configuration for each measuring application.

#### 03 | Scanning accuracy

The SP25M allows a scanning functionality. The Renishaw scanning modules 1 and 2 recommended by EROWA are optimized for probe lengths of 20 mm to 105 mm to achieve a superior scanning accuracy.



The EROWA measuring software assists you in all your measuring applications.



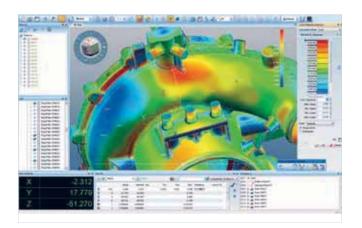
EROWA scanning solutions are configured individually to meet your needs. We are happy to advise you personally in order for you to find the optimal solution.

### EROWA CMM Qi

# Laser scanning High-speed data collection

Laser scanning is a non-contact and efficient measuring process. Objects are digitally recorded to a high level of detail and within a short period of time.





The laser scanner generates a point cloud. The easy-to-view and colored surface diagram (color mapping) allows for an intuitive inspection of dimensional accuracy.

#### **EROWA laser scanning**

The crucial advantages:

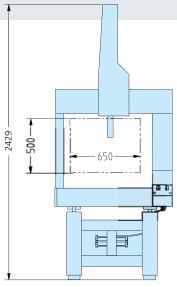
- Fast and economical measuring
- Very high level of detail.
- Efficient processing of a large amount of data in a short period of time.
- Non-contact measuring process for workpiece geometries which are difficult to record.
- Quick and easy recording of the entire part geometry freeform surfaces (as well as geometry features) for measuring and reverse engineering application.
- For complex freeform surfaces.
- For big surfaces.
- The measured data can be easily evaluated on the basis of the generated point cloud (color mapping)...
- Can be combined with all tactile measuring systems.

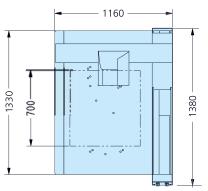
#### **EROWA PreSet 3D CNC**



# Simple presetting - automatic series measurements







#### **EROWA PreSet 3D CNC**

- Measuring machine (working plate with borehole grid for all EROWA tooling systems)
- Pneumatic control system
- PC and color printer (option)
- Presetting software
- Renishaw measuring probe (option)
- Calibration ball

	PreSet 3D CNC
Range, X-axis*	650 mm
Range, Y-axis*	700 mm
Range, Z-axis*	500 mm
Maximum distance between table and	
probe holder (without probe)	688 mm
Maximum distance between the columns at table height	819 mm
Usable surface of the granite plate (with EROWA borehole pattern)	819 x 1330 mm
Resolution, scales	0.0005 mm
Measuring accuracy according to volume (according ISO 10360/2)	2.5 μm + L/300
Machine dimensions	
Dimensions LxWxH	1380 x 1160 x 2429 mm
Maximum workpiece load	650 kg
Machine weight (without load)	775 kg

For additional details, please contact your EROWA dealer.

<sup>\*</sup> Other axis ranges on request.



#### 01 | Rails

High-precision Renishaw rails with optical probe heads guarantee the best results.

#### Renishaw probe unit

For top quality and unmatched flexibility.

#### 02 | Machine design

Specially cast aluminum for optimal dimensional and thermal stability.

#### 03 | Natural granite

The high-precision workplate of black granite constitutes the base for all EROWA tooling systems that can be set up. Attachment boreholes have been prepared.

#### 04 | Joystick control

Optimal operation for safe measurement. One joystick for all the axes.

#### **Software**

With the EROWA presetting software, presetting data can be collected very simply and with graphic support.

#### **Tooling system operation**

All the systems can be opened by means of simple levers.

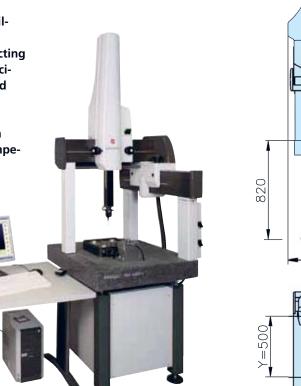
#### **Motorized axes**

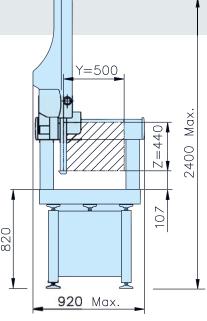
All the axes are driven by DC servo motors.

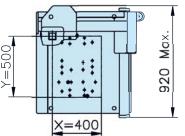


Presetting, setting up and measuring

When it comes to thousandths of a millimeter, you can't do things by halves. PreSet 3D MAN satisfies the most exacting requirements. Due to its modular principle, the system can be flexibly adapted and extended. We assume the system responsibility for the project from installation and training right through to maintenance. Comfortably and competently.







#### **EROWA PreSet 3D MAN**

- Measuring machine (working plate with borehole grid for all EROWA tooling systems)
- Pneumatic control system
- PC and color printer (option)
- Presetting software
- Renishaw measuring probe (option)
- Calibration ball

For additional details, please contact your EROWA dealer.

	PreSet 3D MAN
Range, X-axis	400 mm
Range, Y-axis	500 mm
Range, Z-axis	440 mm
Maximum distance between table and	
probe holder (without probe)	547 mm
Maximum distance between the columns at table height	590 mm
Usable surface of the granite plate (with EROWA borehole pattern)	590 x 840 mm
Resolution, scales	0.0005 mm
Measuring accuracy according to volume (according ISO 10360/2)	2.5 μm + 3 μm x L/1000
Machine dimensions	
Dimensions LxWxH	920 x 920 x 2400 mm
Maximum workpiece load	130 kg
Machine weight (without load	210 kg



#### 01 | Rails

High-precision Renishaw rails with optical probe heads guarantee the best results.

#### Renishaw probe unit

For top quality and unmatched flexibility.

#### 02 | Machine design

Specially cast aluminum for optimal dimensional and thermal stability.

#### 03 | Natural granite

The high-precision workplate of black granite constitutes the base for all EROWA tooling systems that can be set up. Attachment boreholes have been prepared.

#### **Tooling system operation**

All the systems can be opened by means of simple levers.

#### Software

With the EROWA presetting software, presetting data can be collected very simply and with graphic support.

#### **EROWA PreSet 2D**

# Electrode preset made easy

The electrode presetting station for every contingency. The matured design does justice to everyday life in the workshop. Measurements in the X-, Y-, Z- and C-axes can be carried out quickly and safely. The data output of the measured values are integrated. The presetting station can be equipped with various tooling systems.





Simply ingenious: the 2D edge probe (EROWA patent) enables you to make the necessary measurements on radii, edges, corners and oblique surfaces.



The practical user guidance in the EROWA mode shows step by step how offset values are determined.



With cutting-edge air bearing technology and perfect settings, the height measuring unit moves with maximum precision at minimal effort.

#### **EROWA PreSet 2D**

- Measuring slab with trolley
- Integrated chuck
- PT880 digital display with preset ting macros
- Two-axis measuring facility
- EROWA 2D edge probe
- Detergent for hard-stone slab

For additional details, please contact your EROWA dealer.

#### Order numbers EROWA PreSet 2D

# without C-axis ER-057208 PreSet 2D UnoSet ER-057209 PreSet 2D PalletSet W ER-057210 PreSet 2D UPC / ITS Chuck 100 P ER-057211 PreSet 2D ITS Compact Combi ER-057212 PreSet 2D ProductionChuck 210

#### with C-axis

WILLI C-AXIS	
ER-057213	PreSet 2D+C ITS Chuck 100
ER-057214	PreSet 2D+C ITS Compact Combi

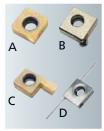
# Options and accessories



EROWA 2D edge probe ER-057471 Precise probing of sharp edges, angles, diameters and lengths.



ER-008617 Measuring pin Alignment of radial and axial and angular positions of ITS chucks.



Probe insert	<b>A</b> ER-008623
	<b>B</b> ER-008562
	<b>C</b> ER-008831
	<b>D</b> ER-008628
for 2D edge probe.	



Microscope ER-008756 To view profiles, indentations and boreholes, with a magnifying factor of 30.



3xM2 probe insert	<b>E</b> ER-009899
ø 2 mm	<b>F</b> ER-003350
ø 1 mm	<b>G</b> ER-003358
for 2D edge probe.	



Cold light ER-095529 for the microscope: for optimal light on the area to be magnified.



Lever gauge ER-059439 Analogue gauge with a diameter of 38 mm and a resolution of 0.002 mm.



Software for EROWA PreSet 2D - EROWA EMC - EROWA QuickLink - EROWA JMS® Pro Organization For data entry, conversion to machinespecific formats, and data transfer from

the EROWA PreSet 2D station to a ma-

chine control

#### **Technical data**

	PreSet 2D
Movement X-axis	240 mm
Movement Y-axis	320 mm
Movement Z-axis	335 mm
Evaluation unit	Heidenhain Positip 880 with
	<b>EROWA</b> presetting macros
Interface	Serial RS232 for data transfer
	to QuickLink / parallel output
	for printer
Probe system	EROWA 2D edge probe
Space requirements	500 x 800 x 1000 mm
Compressed-air supply	min. 6bar, dry

#### **EROWA PreSet Basic**



# Setup and alignment

PreSet Basic is the ideal setting and presetting station for a quick check of the Z-plane or to align workpieces in the Y-axis. Its stable trolley enables you to place it wherever it makes most sense in terms of work.





Choice of clamping system (here PalletSet W). The presetting station has a modular design. Select the clamping system as required.



Using the dial indicator on a flexible base, align workpieces in the Z-plane or the Y-axis along the stop guide rail.



Measuring slab made of top quality natural stone according to DIN 876/00. Delivered with certificate and measurement record.

Technical data			
PreSet Basic	UPC	PalletSet W	UnoSet
Operational weight (kg)	230	220	230
Max. load (kg)	100	25	10
Gauge gradation (mm)	0.002	0.002	0.002
Probe system	Analog dial gauge on flexible stand		
Space requirements (mm)	800 x 500 x 1000		



ER-057206	PreSet Basic UPC
Version Load	Presetting station with trolley, measuring top, UPC chuck and probe. 100 kg.
Application	Setting and aligning of workpieces on UPC pallets.



ER-057205	PreSet Basic PalletSet W
Version	Presetting station with trolley, measuring top,PSW chuck and probe.
Load	25 kg.
Application	Setting and aligning of workpieces on PalletSet W holders.



ER-057204	PreSet Basic UnoSet
Version	Presetting station with trolley, measuring top, UnoSet chuck and probe.
Load Application	10 kg. Setting and aligning of workpieces on UnoSet holders.

## EROWA CMM Qi / PreSet 3D



# Basic equipment

Measuring stations are equipped with EROWA tooling systems according to requirements. Some of these tooling systems can be mounted on one and the same table in combination.



ER-035526	MTS Chuck 3D
Version	Pneumatic MTS Single Chuck for PreSet 3D.
Mounting	With clamping ring directly to prepared borehole pattern.
Application	To accommodate MTS Single ITS 148 P pallets.
Combination	The MTS Chuck 3D can be fitted in combination with one
	of the following systems: FrameSet (on 3D CNC only),
	PalletSet W. UnoSet ITS Compact CombiChuck, Power Chuck P.



ER-035527 ER-067489	MTS 360 3D MTS+ 360 3D
Version	MTS Base plate with four clamping units. Plate dimension 360 x 360 mm.
Mounting	With fitting accessories directly to prepared borehole pattern.
Application	To accommodate MTS twofold and fourfold pallets with set-up distance of 200 mm.



MTS 410 3D MTS+ 410 3D
MTS Base plate with four clamping units.
Plate dimension 410 x 410 mm.
With fitting accessories directly to prepared borehole pattern.
To accommodate MTS twofold and fourfold pallets with set-up distance of 250mm.



ER-076397 ER-076398	UPC / ITS Chuck 100 P PreSet 3D UPC PreSet 3D
Version	ER-076397 = UPC chuck with integrated ITS chuck. ER-076398 = UPC chuck
Mounting	Directly to prepared borehole pattern.
Application	To accommodate all UPC, ITS 148 and ITS 115 pallets, as well as holders 72 and 50.
Combination	The UPC can be fitted in combination with one of the following systems: FrameSet (3D CNC only), PalletSet W, UnoSet.



ER-035529	PC 210 3D
ER-035530	PC 210 Combi 3D
Version	Pneumatic chucks. PC 210 Combi 3D with integrated PowerChuck.
Mounting	With fitting accessories directly to prepared borehole pattern.
Application	To accommodate PC 210 pallets. In the combined version, pallets
	148 and 115 and holder 72 and 50 can also be clamped.
Combination	The PC 210 can be fitted in combination with one of the following
	systems: PalletSet W, UnoSet.



ER-029434	PowerChuck P 3D
Version Mounting	Pneumatic chuck on base plate. Directly to prepared borehole pattern.
Application	To accommodate ITS 148 P, 148 and 115 pallets, as well as holders 72 and 50.
Combination	The PowerChuck can be fitted in combination with one of the following systems: FrameSet (on 3D CNC only), PalletSet W, UnoSet, MTS chuck.



ER-025060 ER-077292	ITS Compact CombiChuck 3D ITS Chuck 100P 3D
Version	ER-025060 = ITS chuck with integrated Compact Chuck.
	ER-077292 = ITS Schuck
Mounting	Directly to prepared borehole pattern.
Application	To accommodate ITS 148 and ITS 115 pallets, holders 72 and 50, and all the Compact 30 holders.
Combination	The ITS Compact CombiChuck can be fitted in combination
	with one of the following systems: FrameSet (on 3D CNC only),
	PalletSet W, UnoSet, MTS chuck.



ER-046080	FrameSet Base 3D
Version Mounting Application Combination	Pneumatic chuck (only for PreSet 3D CNC). With fitting accessories directly to prepared borehole pattern. To accommodate FrameSet clamping frame. The FrameSet can be fitted in combination with one of the following systems: UPC, PowerChuck P, ITS Compact CombiChuck, MTS Single Chuck.



ER-022683	PalletSet W Base 3D
Version Mounting Application Combination	Pneumatic flat chuck mounted on column.  Directly to prepared borehole pattern.  To accommodate all PalletSet W holders.  The PalletSet W can be fitted in combination with one of the following systems: UPC, PowerChuck P, ITS Compact CombiChuck, MTS Single Chuck, PC 210.



ER-012580	UnoSet Kit Support 3D
Version	Pneumatic chuck mounted on column.
Mounting	Directly to prepared borehole pattern.
Application	To accommodate all UnoSet holders, as well as holders 72 and 50,
	in a horizontal position.
Combination	The UnoSet can be fitted in combination with one of the following systems: UPC, PowerChuck P, ITS Compact CombiChuck, MTS Single
	Chuck, PC 210.

#### **EROWA PreSet**



# Measuring tools and options

Various ingenious components make it easy for you to have everything under control in a practical way.

For questions on measuring devices and options for EROWA measuring stations, please contact your authorized EROWA dealer.



Alignment pallet MTS 200 ER-037870
Alignment pallet MTS 250 ER-037875

To align the angular position and to establish the center of MTS chucks.

Pallet 396 x 198 mm Alignment length 200 / 250 mm



Alignment gauge PalletSet W

To align the angular position and to establish the center of flat chucks.

Pallet PalletSet W



Alignment pallet MTS ø 148 ER-078823

To align the angular position and to establish the center of MTS single chucks.

Pallet ø 148 mm Alignment length 130 mm



Measuring pin

ER-008617

ER-055158

Alignment of radial and axial and angular positions of ITS chucks.



Alignment pallet UPC ER-048377

To align the angular position and to establish the center of UPC chucks.

Pallet 320 x 320 mm Alignment length 320 mm



Checking pin 50

ER-010723

Alignment of radial and axial positions of ITS chucks.



Alignment pallet PC 210 ER-040932
To align the angular position and to

Pallet Clamping ring PC 210 Alignment length 210 mm

establish the center of PC-210 chucks.



Checking pin for Compact ER-017541
To align the tooling system on the PreSet station.



Alignment pallet ITS ER-032819

To align the angular position and to establish the center of ITS chucks.

Pallet ø 115 mm Alignment length 110 mm



Evaluation system ER-007805

To run the EROWA measurement and presetting software. Consists of a computer with operating system, flat screen, keyboard, printer and mouse.



Zero master ER-007796
To check the «Z = 0 height».



EWIS™ ER-035990 identification system Hardware module. Read/write head and evaluation unit.



Reference pin UnoSet ER-012727
Determination of reference measurements on horizontal chucks.

Borehole ø 8 mm



EWIS Chip ER-035154 with holder SW14
For pallets and electrode holders. EWIS™
Chip: read only. Compatible with the

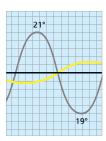
EWIS™ Rapid system.



Detergent ER-001516
For granite tables.



Wireless Joystick CMM Qi ER-067640
Wireless joystick CMM Qi ER-103113
«Upgrade» to wireless control panel.
Wireless control panel including receiver.
Machine control by joystick, control of the measurement software on the PC as well as CNC travel speed override.



Automatic temperature ER-067638 compensation CMM Qi

For automatic temperature absorption and consistent compensation. With three sensors for the axes and one sensor for the workpiece.



Software maintenance contract ER-054645
Hardware maintenance contract ER-064410
The maintenance contract ensures that the CMM Qi is checked at regular intervals.



Preparatory kit for CMM Qi ER-077882 automation , including barrier
Automation interface for robotic loading of the CMM Qi.



Air filter unit for ER-067636
air conditioning CMM Qi
Supplies the air bearings of the CMM
Qi measuring machine with high-quality
compressed air.

#### **EROWA PreSoft XP**

## Efficient presets

Presetting provides more productive time on machine tools. However, presetting must be as efficient as possible in itself. PreSoft XP takes this demand into account.



01 | Graphic user guidance enables every operator to preset parts correctly within a short period of time. The processes can be learned intuitively. Knowledge of 3D measurements is not required.



**02** | The reference positions are controlled, which guarantees that the offset values always receive the correct reference point.



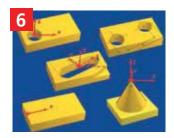
03 | The automatic assignment of offset values to the ID numbers of electrodes and workpieces creates a high degree of process safety.



**04** | Diameters or sections can be quickly checked using simple measuring macros.



**05** | Generate your own macros for quick and safe measurements. Process safety will increase since the optimized macros cover exactly your requirements.



**06** | Already integrated: more than 100 frequently used measuring processes as macros. Select, move, done!



07 | The animated arrow symbol shows the right measurement sequence: anyone can determine presetting data correctly without any prior training.

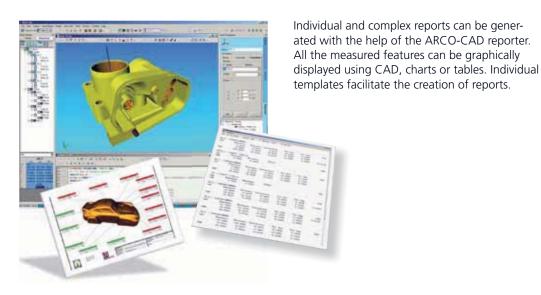


**08** | PreSoft XP is seamlessly integrated in JMS® Pro. The presetting function is activated by a mouseclick. The offset data that have been recorded are automatically transmitted from the measuring station into the JMS® Pro system.

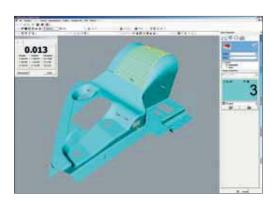
### ARCO-CAD measuring software

# Compelling benefits

ARCO-CAD includes all functions to import CAD models and to create measuring programs based on them or to measure them directly against CAD nominal values. This allows real quality measurements with complete data logging after corresponding training.



User guidance is based on ARCO-CAD using animated symbols. All users are able to operate the machine intuitively and safely thanks to the pictorial representation of the measurement tasks in this program.

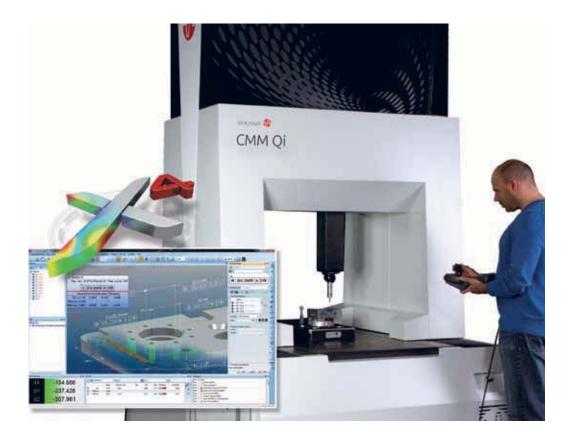


ARCO-CAD allows the integration of CAD data. The areas to be measured are selected and calculated on the basis of the imported data. This feature is particularly suitable for measuring complex 3D shapes.

## Measuring Software Metrolog X4

# High-end software to satisfy the highest standards

The Metrolog X4 3D measuring software offers advanced technology and the know-how for even faster and more efficient measurements. Profit from an optimal user surface for excellent user-friendliness, as well as a high performance capability even with large volumes of data.



- Simple-to-operate graphic user interface, completely adaptable to operator requirements in line with individual machine and measuring types.
- Assistant for manual measurements.
- Automatic adaptation of the display during point collection.
- Adjustable information windows.



## Simple CAD import function capable of processing big data sets in all established formats.



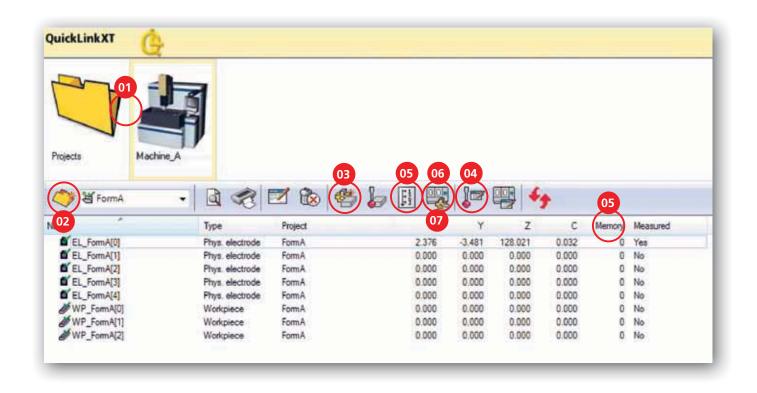
- Handling of form and position tolerances of the most complex kind within record time.
- Simplified definition of form and position tolerances.
- Comprehensive support for tolerance evaluation in accordance with applicable standards.
- Support of the ANSI and ISO standards.

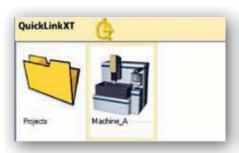


### EROWA QuickLinkXT

## Simple data transfer

QuickLink<sup>XT</sup> is a simple program for the data transfer from the EROWA PreSet 2D presetting station to a machine control unit. Set up a PC, insert the CD, install the program, plug in the connecting cable between PC and display, and the comfortable data transfer to the machine or the programming station is ready.





#### 01 | Stored projects

The projects are stored to document the working steps. This information can be called up and printed out at any time.



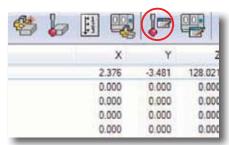
#### 02 | New project

Every new job is given a designation. In this way, it can easily be found again. Even at this early stage, the job has been allocated to a machine.



#### 03 | Number of electrodes

At the beginning, the number of electrodes to be measured is defined. This will guarantee an overview of the working progress.





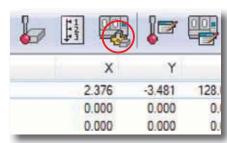
#### 04 | Data export

All the selected measured data are converted into the specific machine format at the push of a button. They can be stored on a diskette or in a network directory.

#### 05 | Control is good

Before the export, you can check whether the result comes up to expectations.

Presetting data of electrodes are transferred to the machine with ease and speed. The X-, Y-, Z- and C-values are determined on the PreSet 2D presetting station and transmitted to QuickLinkXT at the push of a button. All the data of one job are converted into the specific machine format.





#### 06 | Receive measured data

QuickLink<sup>XT</sup> is ready to take over the data from the presetting station. The transmission command is triggered in the control unit of the presetting station.

#### 07 | Allocate memory space

The memory positions are defined at once in order to avoid any confusion during the transfer to the machine control unit.

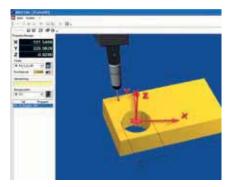


### EROWA JMS® Pro Organization

# Presetting and measuring made simple

JMS® Pro Organization consists of program modules that are connected with data import, setting up and presetting. Presetting data are the most important feature of job preparation. They must be accessible from everywhere at all times.

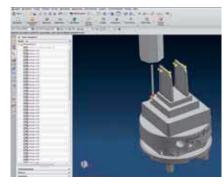
For this reason, the EROWA JMS® Pro software stores all the data in a machine-neutral format. Only the relevant JMS® Pro Cell Integration products will convert the data into the desired machine format. The decision as to the center on which the job will be processed need not be made at the point in time when the part is preset. Any available machine can be chosen just before the job is done.



JMS® Pro PreSet 3D the presetting software with user guidance and automatic data recording in JMS® Pro.



JMS® Pro PreSet Import links up the most popular measuring stations with JMS® Pro. Data import is largely automatic.



JMS® Pro Q-Measure
The measured points and tolerances are determined in the CAD system. On the EROWA CMM Qi measuring machine, the relevant measuring program is generated through EROWA Q-Measure, after which the quality measurement is carried out.



On the set-up and measuring stations, hand-held reading devices are used. (The EWIS™ Rapid equipment is available as an option).



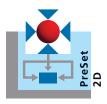
The EWIS<sup>TM</sup> Rapid identification system provides an overview of holders and pallets. With the modern transponder chips, every pallet can be identified at any time. The handling facilities examine the magazine loads automatically.

## The EROWA JMS® Pro PreSet software package offers you all the necessary tools for productive, routine-informed presetting.



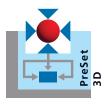
#### JMS® Pro Organizer

Data organization module for data management and to set up and identify workpieces.



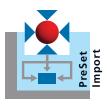
#### JMS® Pro PreSet 2D

Data organization module for the integration of the timetested electrode presetting station.



#### JMS® Pro PreSet 3D

Data organization module for the integration of the EROWA 3D measuring station.



#### JMS® Pro PreSet Import

Data organization module for the import of data from other measuring stations.



#### JMS® Pro JobManager CMM

Control module for automatic quality measurements on PreSet 3D CNC.



EWIS<sup>TM</sup> Rapid Identification System
The assignment of data to workpieces
provides a good overiew. With the modern transponder chips, every pallet can
be identified at any time. On set-up and
measuring stations, identification is
carried out with manual scanners, while
EROWA handling facilities identify their
magazine content automatically.

#### Your advantages:

- Entry into the EROWA
   Job Management System.
- A fully developed measuring software is included.
- More than 100 presetting programs are available.
- Quick change from presetting to measuring software with the help of a button.
- Automated quality control.



JMS® Pro JobManager

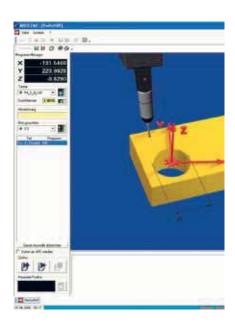
Automatic quality control: The measuring station is equipped with a Robot. The JMS® Pro JobManager will link up the right parts with the suitable measuring programs.

### EROWA Organization with EROWA Manufacturing Control V3

# Presetting and measuring made simple

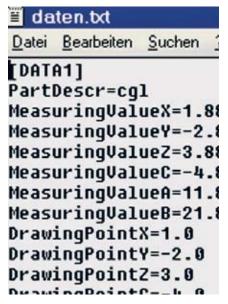
EROWA Manufacturing Control V3 Organization consists of program modules that are connected with data import, setting up and presetting. Presetting data is the most important feature of job preparation. It must be accessible from everywhere at all times.

For this reason, the EROWA Manufacturing Control V3 software stores all the data in a machine-neutral format. Only the relevant EROWA Manufacturing Control V3 products will convert the data into the desired machine format. The decision as to the center on which the job will be processed need not be made at the point in time when the part is preset. Any available machine can be chosen just before the job is done.



JMS® Pro PreSet 3D
the presetting software with

the presetting software with user guidance and automatic data recording in EROWA Manufacturing Control V3.



EROWA Manufacturing Control V3
PreSet Import Standard

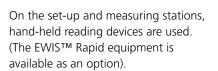
links up the most popular measuring stations with EROWA Manufacturing Control V3.

Data import is largely automatic.





The EWIS<sup>TM</sup> Rapid identification system provides an overview of holders and pallets. With the modern transponder chips, every pallet can be identified at any time. The handling facilities examine the magazine loads automatically.





#### The EROWA Manufacturing Control V3 software package offers you all the necessary tools for productive, routine-informed presetting.



PreSet Import 2D Option for connecting the proven electrode presetting station.



PreSet Import 3D Option for the integration of the EROWA 3D measuring machine CMM Qi.



**PreSet Import Standard** Option for importing data from other measuring machines.



Cell Manager CMM

Control module for automatic quality measurements using the 3D CNC measuring machine.



Cell Manager Auto Qi

Organizes an autonomously automated measuring cell with the user-friendly surface of the control system.



EWIS™ Rapid Identification System The assignment of data to workpieces provides a good overiew. With the modern transponder chips, every pallet can be identified at any time. On set-up and measuring stations, identification is carried out with manual scanners, while EROWA handling facilities identify their magazine content automatically.



#### The CMM Cell Manager

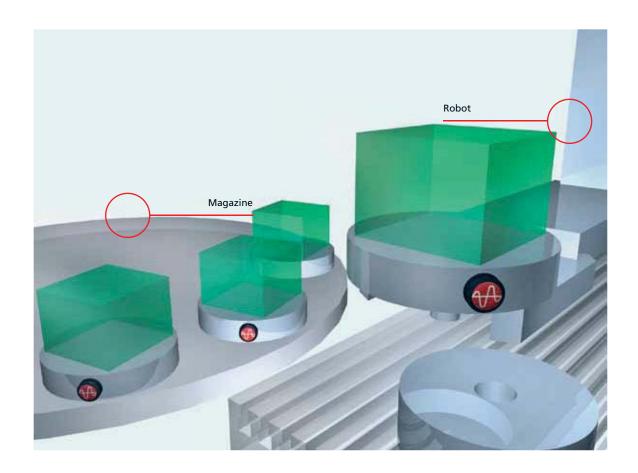
Automatic quality control: The measuring machine is equipped with a robot. The CMM Cell Manager associates the right parts with the appropriate measuring programs.



#### The Auto Qi Cell Manager

Autonomously automated stand-alone measuring machine for presetting and quality measurements. The EROWA CMM Qi measuring machine is equipped with an integrated handling device. The CMM Cell Manager connects the right parts with suitable measuring programs.

# **EROWA** loading systems



for the output of parts and for preparation. It also provides more space for your personnel's creativity.

Automation of machine tools. This relieves personnel of monotonous work, while at the same time creating a multiple capacity



For chip-removing processes



For EDM sinking



For WEDM

370

	EROWA LOADING SYSTEMS	
up to 250 kg	EROWA Robot Easy	352
up to 80 kg	EROWA Robot Compact 80	354
		25.6
up to 80 kg	EROWA Multi	356
		250
up to 250 kg	EROWA Robot Dynamic	358
up to 500 kg	EROWA Robot Dynamic 500	362
up to 500 kg	EROWA Robot Six	366
	EROWA Lift	368
up to 250 kg	EROWA LIIT	308

**EROWA LiftGear** 

up to 250 kg

# The automatic EROWA Handling Devices

	9									I			
	Robot Easy								Robot Compact 80 Robot Multi				
				1	1	<u>-</u>		Til beng.	11	CHRISTIN	7		
Туре	ITS 50 / 72	ITS115 ITS148	PSW	PC210	UPC	MTS 400	MTS 500	Maximum capacity	Loading station	Rack	Rotary		
7,1-2													
Tooling system/ magazine posi- tions per level													
Compact \$	-	-	-	-	-	-	-	11	-	-	30		
ITS 50 👳	60	-	-	-	-	-	-	11		-	30		
Holder 72	60	-	-	-	-	-	-	11	-	-	30		
PM 56	-	-	-	-	-	-	-	11	-	-	30		
PM 85	-	-	-	-	-	-	-	9	-	-	30		
PM 130	-	-	-	-	-	-	-	5	-	-	15		
TS 115 😛	-	24	-	-	-	-	-	5	2	-	15		
ITS 148 😛	-	24	-	-	-	-	-	5	2	-	15		
MTS 148	-			-	-	-		5	-	-	15		
PC 210 🥌	-	-	-	12	-	-	-	3	2	5	10		
JPC 320	-	-	-	-	10	-	-	2	2	3	3/5		
MTS 400 💚	-	-	-	-	-	6	-	-	-	3	3		
/ITS 500 💚	-	-	-	-	-	-	4	-	-	2	-		
JnoSet 🐸	-	-	-	-	-	-	-	9	-	-	30*		
PalletSet W 🤕	-	-	15	-	-	-	-	2/3	2	7	15		
PalletSet W rame	-	-	7	_	-	-	-	-	-	4	3		
FrameSet 😂	-	-	-	-	-	-	-	-	-	2	-		
Transfer weight													
(incl. pallet)	20	40	30/15	130	130	250	250	80**	80	80**	80**		
Number of possible	1	1	1	1	1	1	1	3 x 12	3 x 4	12	12		
machine levels		1		1		1		3 7 12	3 / 4	12	12		
Gripper arm swiveling	-	-	-	-	-	-	-	option	option	option	option		
Automatic gripper change	-	-	-	-	-	-	-	option	-	option	option		
Double gripper	-	-	-	_	-	-	_	-	-	option	option		
Loading station	-	-	-	-	-	-	-	option	option	option	option		
EWIS™ Rapid	option	option	option	option	option	option	option	option	option	option	option		
Remote diagnosis	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes		
				,					•				

	EROWA	A Robot	Dynamic		ERO	WA Robo	ot Dynan	nic 500		ERC	WA Rob	ot Six		
	EROWA	A Robot	Dynamic	ynamic Linear EROWA Robot Dynamic 500 Linear							EROWA Robot Six Linear			
	Transfer unit Linear Transfer unit	Rotary E	Rack Fack	Loading station	Transfer unit Linear Transfer unit	Rotary	Rack 250 kg	Rack Soo kg	Loading station	Transfer unit Linear Transfer unit	Rotary R	Rack H	Loading station	Туре
		1									1/2			Tooling system/ magazine posi- tions per level
	-	30	-	-	-	30	-	-	-	-				♥ Compact
	-	30	15	-	-	30	-	-	-	-		-	-	♥ ITS 50
	-	30	15 15	-	-	30	-	-	-	-	_	-		Holder 72
	-	30	15	-	-	30	-	-	-	-	je Sic	-	-	PM 56
	-	15	7	-	-	15	-	-	-	-	- EROWA Robot Dynamic on request	EROWA Robot Dynamic on request	-	● PM 130
-	-	15	7	-	-	15	-	-	-	-	رئ 5	Dyn	-	→ ITS 115
	-	15	7	-	-	15	-	-	-	-	oqo	ootl		⇒ ITS 148
	-	15	7	-	-	15	-	-	-	_	A Ro	Rok iest	-	MTS 148
	-	10	5	-	-	10	-	-	-	-	ow OW	WA	-	● PC 210
	-	3/5	3	-	-	5	3	-	-	-	- ER	- Rotary type - EROWA R - Individually on request - Rack type - EROWA Rok - Individually on request	-	WPC 320
	-	3	2	-	-	3	2	1	-	-	/pe ally	e - E	-	MTS 400
	-	30*	2 15	-	-	30	2	-	-	-	- Rotary type - Individually	typ idua	-	MTS 500
	-	15	3/4	-	-	15	-	-	-	-	tota	- ack ndiv		UnoSet PalletSet W
	_	15	3/4			13				_	~ =	~ =		
	-	3	-	-	-	3	-	-	-	-			-	PalletSet W frame
	-	-	1	-	-	-	-	-	-	-			-	FrameSet
	200/250**	-	-	-	500**	-	-	-	-	130/500**	-	-	-	Transfer weight (incl. pallet)
	-	12	12	-	-	12	12	12	-	-	- like Robo - individua	ot Dynamic Il	-	Number of possible machine levels
	option	-	-	-	-	-	-	-	-	yes	-	-	-	Gripper arm swiveling
	option	-	-	-	option	-	-	-	-	option	-	-	-	Automatic gripper change
	option	-	-	-	-	-	-	-	-	option	-	-	-	Double gripper
	option	-	-	-	option	-	-	-	-	option	-	-	-	Loading station
	option	-	-	-	option	-	-	-	-	option	-	-	-	EWIS™ Rapid
	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	Remote diagnosis

 <sup>\*</sup> Suspended in the magazine
 \*\* Depending on gripper, tooling system and the RCS or WGS coupling system

### **EROWA Robot Easy**



# Handling facility for large and heavy workpieces



- **03** | Up to 60 magazine positions per level.
- 04 | Max. 250 kg transfer weight.
- **05** | X-stroke: ~1600 mm.
- **06** | For big/overloaded pallets also with drip pan and controlled drainage.
- **07** | Integrated control system.
- 08 | Servicing-friendly casing.
- 09 | Integrated level adjustment.
- **10** | EWIS<sup>TM</sup> AutoLink Rapid as an option.



#### Simple magazine loading

Open, freely accessible loading positions for up to 60 workpieces.

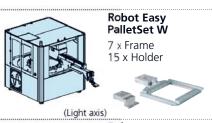


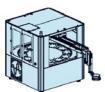
## Workpiece identification within seconds

EWIS™ Rapid identifies all the cell positions and transmits them to the cell computer.



Number of possible magazine positions per Robot version

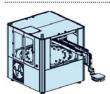




Robot Easy PC 210

12 x PC 210





**Robot Easy UPC** 

10 x UPC



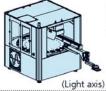


**Robot Easy** ITS 50/72

60 x ITS 50 Holder 72



(Light axis)



**Robot Easy** ITS 115/148

24 x ITS 115/148

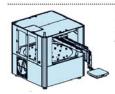




#### **Robot Easy** MTS 400

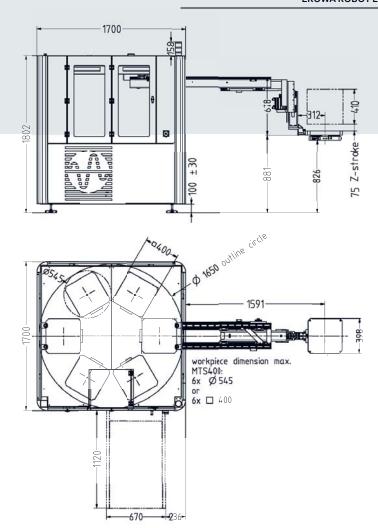
6 x MTS 400





#### Robot Easy MTS 500 4 x MTS 500



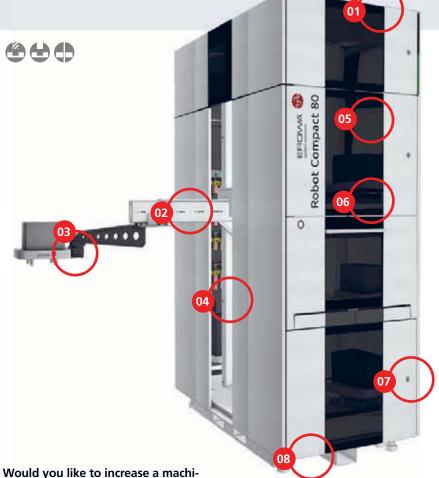


#### **Technical Data**

	<b>EROWA Robot Easy MTS</b>
Transfer weight	40 kg/ 250 kg
Axes	
M- and X-axes controlled	X: stroke ~1600 mm
	(option long axis)
Z-axis pneumatic	Z: stroke 75 mm
Pneumatic	
Min. pressure / max. consumption	5 bar / 200 l/min.
Electrical system	
Voltage (V+PE)	3x400
Frequency (Hz)	50/60
Power (VA)	710
Nominal current (A)	1.8
Control system	
Interface	Ethernet
	Serial RS232
	M-function
	Parallel I/O Bit
Workpiece identification	EWIS™ Rapid
JobManagement	Erowa Manufacturing Contro JMS <sup>® Pro</sup>

### **EROWA Robot Compact 80**

## Productivity on 2m<sup>2</sup>



Examples of the number of possible magazine positions. Possible mixed use.

Robot Compact 80

Robot Compact 80 Standard magazine 217 x ITS 50 217 x Holder 72 217 x PM 56

for more

information!



70 x ITS 115/148 70 x MTS 148 70 x PM 85/130





## Robot Compact 80 3. Magazine/Rack



327 x ITS 50 327 x Holder 72 327 x PM 56



105 x ITS 115/148 105 x MTS 148 105 x PM 85/130



8 x UPC

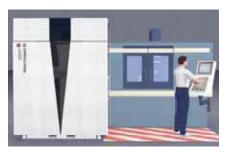
Would you like to increase a machine's autonomy? Are the workpieces numerous but not very big? Do you only have a little room left around the machine? Do you want to serve two machines with the same handling facility? If you can answer one of these question with YES, then we are just what you're looking for. The EROWA Robot Compact 80 is the answer to your requirements.

- **01** | Symmetrical design to enable positioning to the left or right of the machine.
- **02** | X-stroke 1380 mm.
- 03 | Max. 80 kg transfer weight.
- **04** | 330° swivel axis for the operation of the two frame magazines and up to two machines.
- **05** | 2 rack magazines with more than 200 magazine positions. A third magazine can be installed as an option.
- **06** | Freely adjustable height of magazine levels.
- **07** | Compact Monobloc construction on a mere 2 m<sup>2</sup>.
- **08** | Option: DockOn trolley for Robot Compact 80.

#### Layout example

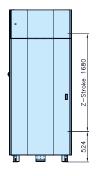
With longer machining times, it is worth using one Robot to serve two machines. The Robot's capacity is put to better use, and precious shop-floor space is optimally utilized.

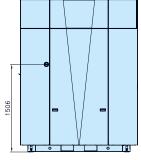


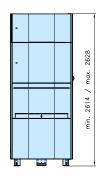


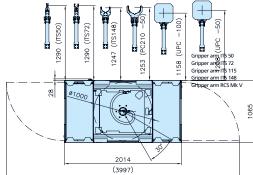












#### **Technical Data**

	EROWA Robot Compact 80		
Transfer weight	80 kg		
Magazine positions	> 200 ( > 300 with 3. Magazine / Option		
Magazine levels	12 per Rack Magazine		
Magazinbeladung max.	1000 kg		
Axes electrically powered	X-stroke 1380 mm	Z-stroke 1680 mm	
and controlled			
Swivel range, C-axis	330°		
Loading station UPC/PC210 (Option)	yes		
Axis control	Electrically controlled axes		
Connections			
Pneumatic			
Min. pressure/max. consumption	5 bar / 150 l/min.		
Electrical system			
Voltage (V+PE)	3x400		
Frequency (Hz)	50/60		
Power (kVA)	1.4		
Nominal current (A)	2.1		
Control system			
Interface	Ethernet		
	Serial RS232 / 422		
	M-function		
	Parallel I/O Bit		
Workpiece identification	EWIS™ Scan		
JobManagement	Erowa Manufacturing Control  JMS® Pro		

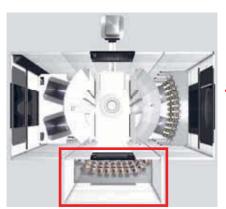
#### DockOn

The Robot can often only be placed on the operator's side of the machine. This blocks access for manual work. With the optional "DockOn" equipment, the facility can simply be moved to the side if the operator wants to do some manual work.



#### Integrated loading station (option)

To set up big and heavy workpieces at an ergonomically correct height. UPC pallets of up to 80kg in weight can be moved to the loading station, for instance with the help of an underslung crane. At the same time, the Robot continues to operate without any interruption.



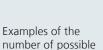
#### 50% more magazine capacity

The third magazine for the EROWA Robot Compact 80 can be retrofitted quickly, simply and with minimum space requirements.

#### **EROWA Robot Multi**

# For 270 workpieces and electrodes





#### To load one or two machines.



- **01** | Magazine can be loaded from 3 sides and is accessible for loading crane.
- **02** | Fast change times with double gripper.
- 03 | Gripper arm with swivel axis.
- **04** | X-stroke 1200 mm.
- **05** | 80 kg transfer weight.
- **06** | Integrated control system.

- **07** | Servicing-friendly casing.
- **08** | Short starting-up times through compact monobloc design.
- 09 | Up to 270 magazine positions.
- **10** | Reading time < 30 seconds for the whole magazine with workpiece identification EWIS™ Rapid.

To load one or two machines with 6 chucks max.



magazine positions.





5 x PC 210



3 x UPC



3 x MTS 400



2 x MTS 500



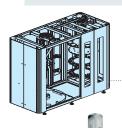
PalletSet W 2 x Frame



7 x Holder



FrameSet 2 x Frame



#### Robot Multi Rotary Magazine

30 x Compact



30 x ITS 50 30 x Holder 72



30 x PM 85 30 x PM 56 15 x PM 130



15 x ITS 115/148 15 x MTS 148



10 x PC 210



5 x UPC



3 x MTS 400



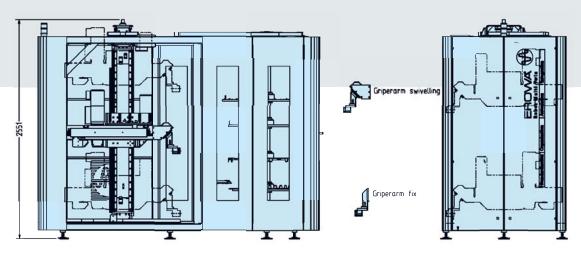
HSK, CAT, ISO, BT Tooling / up to 60 Holder

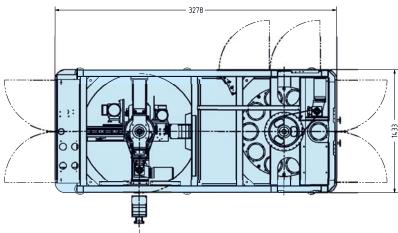


PalletSet W 3 x Frame 15 x Holder



30 x UnoSet

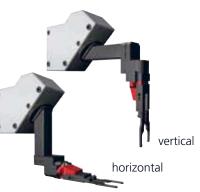






Loading station for user-friendly loading/unloading cycles.

	EROWA Robot Mult	i
Transfer weight	80 kg	
Magazine levels, max.	Rotary 12	Rack 12
Magazine level load, max.	Rotary 600 kg	Rack 400 kg
Magazine load max.	Rotary 1500 kg	Rack 1900 kg
electrically driven and controlled axes	X-stroke 1200 mm	Z-stroke 1450 mm
Pneumatic		
Min. pressure/max. consumption	5 bar / 200 l/min.	
Electrical system	Γ	ENCHAR S
Voltage (V+PE)	3x400	RobotMulti
Frequency (Hz)	50/60	1,00
Power (kVA)	3.6	
Nominal current (A)	3.5	
Control system		4 5
Interface	Ethernet	4.5
	Serial RS232 / 422	E Later I in
	M-function	
	Parallel I/O I/O-Bit	1
Remote diagnosis	yes	
Workpiece identification	EWIS™ Rapid	
JobManagement	Erowa Manufacturing Control	



#### Swiveling Gripper arm

The Robot Multi also serves CNC machines with vertically aligned chucks. The swiveling gripper arm turns the palletized workpiece into the right position.

for more information!

### **EROWA Robot Dynamic**

# Modular extensions to suit your wishes

The concept of the EROWA Robot Dynamics is as simple as it is ingenious. Depending on requirements, the Robot can be adapted and extended time and again, whilst the basic investment is preserved. As a stand-alone model to serve one single machine, or on rails to serve up to eight machines, everything is possible.



- **01** | Up to 9 magazines in the system; they can also be used in mixed composition. We will be glad to advise you about configurations.
- **02** | The X stroke varies between 1500 mm and 2350 mm depending on the axis.
- **03** | Great freedom of movement and lateral loading with the swivel arm.
- 04 | Maximum transfer weight: 250 kg.

- **05** | Surface scanner for additional safety.
- **06** | Reading time: <30 seconds for the entire magazine workpiece identification with EWIS™ Rapid.
- **07** | Transfer unit with +/- 225° swivel C-axis. Machines and magazines can be placed freely in a circle.



Examples of the number of possible magazine positions.

#### **Rack Magazine**



5 x PC 210



3 x UPC



2 x MTS 400



2 x MTS 500



Examples of the number of possible magazine positions.

#### **Rotary Magazine**

30 x Compact



30 x ITS 50 Holder 72



30 x PM 85

15x ITS 115/148 15 x MTS 148



10 x PC 210

5 x UPC



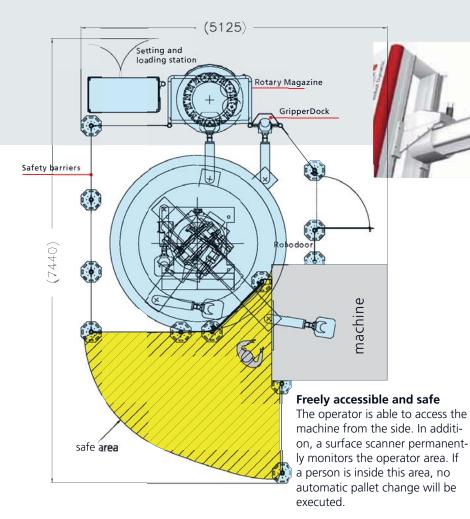
3 x MTS 400



PalletSet W 15 x Holder



PalletSet W 3 x Frame



#### Long range

The XT (telescopic) axis can extend to a maximum of 2000 mm.



### **Extending the machine tool store**

This is made simple by a rotary magazine for workpiece holders.



#### Workpiece identification within seconds

Each magazine position and each pallet is being monitored at all times. The  $\mathsf{EWIS^{TM}}$ Rapid identification system provides an overview.



#### **Buckling arm, axis**

The additional joint allows operating even in a small space.

for more information!

## **Technical Data**

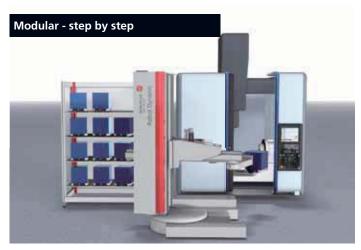
	EROWA Robot Dynamic
Transfer weight - RCS coupling	130 kg
- Fixed gripper	250 kg
Travel range, X-axis	1500 mm (transfer weight 250 kg)
Travel range, (telescopic) axis	2000 mm (transfer weight 250 kg)
Travel range, X/D-axis	2350 mm (transfer weight 170 kg)
Travel range, Z-axis	1750 mm
Travel range, Y (linear) axis	up to 20 m
Magazine positions	variable up to 1200
Magazine levels <b>Rack</b>	up to 12
Magazine levels, load max	500 kg
Magazine capacity max.	2000 kg
Magazine levels <b>Rotary</b>	up to 12
Magazine levels, load max	650 kg
Magazine capacity max.	2000 kg
Number of machine operations	up to 8
Automatic pallet recognition	EWIS™ Rapid
Swivel range, C-axis	+/- 225°
Swivel range, D-axis	+/- 135° +/- 180° RobotDynamic
Swivel arm	+/- 180°
Pneumatic system	
Min./max. consumption	5 bar / 300 l/min.
Electrical system	
Voltage (V+PE)	3x400
Frequency (Hz)	50/60
Power (kVA)	6
Rated current (A)	9
Control system	
Process control system interface	Yes

### **EROWA Robot Dynamic Linear**

## Flexible automation

The Robot Dynamic is capable of handling both big and small workpieces. One of the important features of the automatic manufacture of one-off parts and small series is the fact that the facility should be able to change autonomously from one different pallet size to the next.

The EROWA process control system provides you with an overview of all important information at a glance. All the relevant data and various planning aids are available to the machine operator on site and online



The first step is to equip the machine is such a way that most of the night hours can be utilized. One magazine is sufficient for this; with an average machine time of 30 minutes per workpiece, 5 hours can be put to productive use in this way.



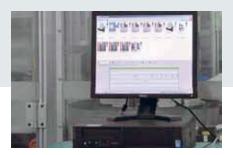
#### Various system sizes

There is a gripper to fit each tooling system size (different pallet sizes). The grippers are stored in the GripperDock and are automatically exchanged whenever required.

The Robot Dynamic loads/unloads pallets with an overall weight of up to 250 kg.



The production cell is extended and multiple machines are integrated. The Robot is equipped with a rail, additional magazines and a loading station. The initial investment is still used and extended, but now the production cell has the original capacity several times over.



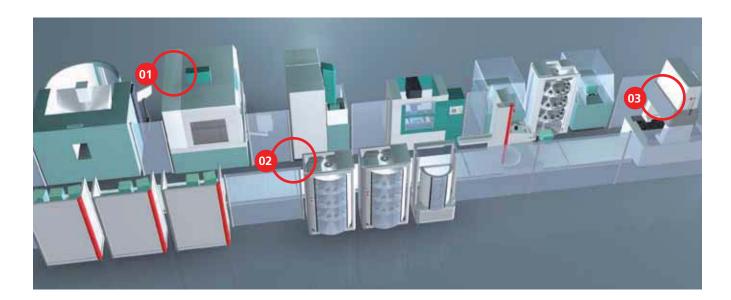
**01** | The process control system is a crucial factor for manufacturing security and helps operators to retain an overview at all times.



**02** | The stable linear rail is extended to the required length in segments.



**03** | The handling facility serves the measuring station with manufactured products for interim and final checks.





#### **Additional stroke**

If the Robot Dynamic cannot be placed close enough to the machine tool, it can be equipped with an additional XT (telescopic) axis. The XT axis has a stroke of 2000 mm and loads pallets with up to 200 kg weight on the machine.



**Double gripper**Quick part change with the double gripper.

### **EROWA Robot Dynamic 500**

# For small and large up to 500 kg

Small batch and mixed workpiece sizes as well as different machining techniques require flexible production systems.

With the exchange gripper system, the Robot Dynamic 500 automatically retrieves the largest MTS pallets from the rack and immediately afterward small electrodes from the rotary magazine.



- **01** | Rack magazine for large and heavy workpieces up to 500 kg per pallet.
- **02** | Rotary magazine with many storage locations for small workpieces and electrodes.
- 03 I Linear rail up to 20 m.
- 04 | Ingenious exchange gripper system also for large MTS pallets of 800 x 800 x 500 mm and up to 500 kg capacity.

- 05 I The X travel is 1500 mm.
- 06 I Transfer unit with +/- 225° swiveling C-axis. Machines and magazines can be freely placed in a circle.
- 07 I Z-axis with 1520 mm gripper move-



Specification based on maximum possible magazine positions per level.

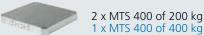
(max. 2000 kg per magazine)

Rack M 1475



3 x UPC of 130 kg

**Rack M 1475 Rack M 1000** 



Rack M 1475 **Rack M 1000** 

2 x MTS 500 of 200 kg 1 x MTS 500 of 500 kg

Specification based on maximum possible magazine positions per level.

(max. 2000 kg per magazine)

**Rotary Magazine** 

30 x Compact

30 x ITS 50 Holder 72

30 x PM 85

15x ITS 115/148 15 x MTS 148

10 x PC 210

5 x UPC

3 x MTS 400

30 x UnoSet

PalletSet W 15 x Holder

PalletSet W 3 x Frame

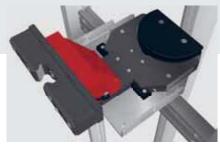




#### Standalone or linear solution

A Robot Dynamic 500 consists basically of a transfer unit and various magazines. They are supplemented with a gripper pool, loading station, and linear axis. Up to 8 machine tools can be operated.

Technical Data	
	EROWA Robot Dynamic 500
Transfer weight	up to 500 kg
Workpiece size max.	800 x 800 x 500 mm
Gripper exchange	Yes
Gripper types	Fixed mounted fork grippers
	Exchangeable fork grippers
	WGS gripper system (New)
Swivel arm	No
X-axis gripper movement	1500 mm
Z-axis gripper movement	1520 mm
Y (linear axis) gripper movement	up to 20 m
Rotation range	+/-225°
System height	2800 mm / with linear axis 3100 mm
Room height min.	3500 mm for linear
Magazine levels <b>Rack</b>	max. 12
Magazine levels load max.	500 kg
Magazine capacity max.	2000 kg
Magazine levels <b>Rotary</b>	max. 12
Magazine levels load max.	500 kg
Magazine capacity max.	2000 kg
Number of machine operations	up to 8 Robot Dynamic 500
Pneumatic system	Kopocas
Minimum pressure / maximum consumption	5 bar / 300 l/min.
Electrical system	
Voltage (V+PE)	3x400
Frequency (Hz)	50/60
Power (kVA)	16
Rated current (A)	25
Control system	
Process control system interface	Yes
Integrated safety system	Yes



#### GripperDock

The right gripper for each tooling system size. They are stored in the GripperDock and automatically employed when needed.



**New - Exchange gripper system WGS 500** Heavy MTS pallets of up to 500 kg are clamped in combination with WGS Gripper Link directly in the WGS 500 coupling. For smaller system sizes, the appropriate WGS gripper is used.



#### For large workpieces

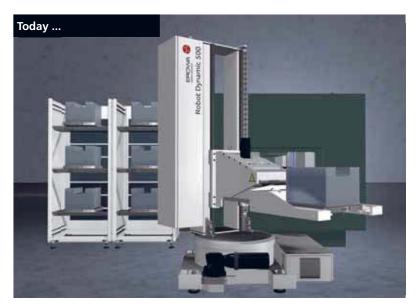
MTS pallets with part sizes up to  $800 \times 800 \times 500$  mm are easily loaded on the machine.

For more information!

### EROWA Robot Dynamic 500

# Flexible and modular automation

The EROWA Robot Dynamic 500 can always be adapted and extended. Due to the modular design, it is very easy to adapt the handling facility at any time exactly to the individual needs of the production plant.





The right gripper for each pallet size. That is flexible and productive manufacturing of small and large workpieces.

**Basic investment –** The machine tool is equipped with a transfer unit, different workpiece magazines, a loading station, and a process control system. So the production cell continues to produce after the manned shift efficiently and autonomously.



**Expand as needed** – More machines are added. The robot is equipped with rails and additional workpiece magazines. The initial investment is used further and supplemented. The capacity of the production line is multiplied, and more unmanned shifts can be realized.



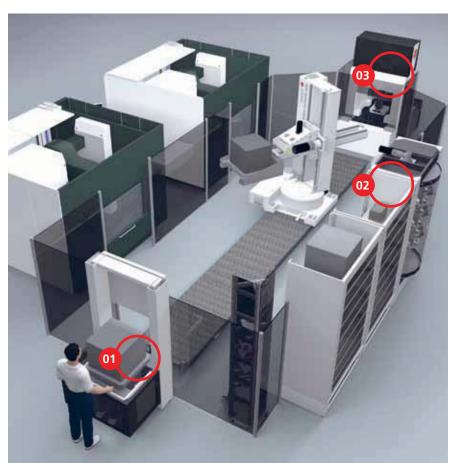
**01** | A loading station is available to facilitate the setup and preparation of heavy parts.



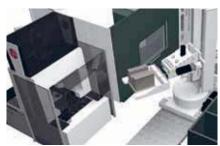
Each pallet is equipped with an EWIS™ identification chip. So you always have an overview of all magazine positions and pallets.



**02** | The different EROWA pallet sizes are used on one and the same machine. Depending on the assigned jobs, the Robot Dynamic 500 switches to the fitting system size automatically.



A highly efficient system for automating the manufacture of single parts and small batches. Workpieces are supplied and removed via the integrated setting-up and loading stations. When needed, simply another magazine is added.



**03** | Integrated quality control. Integrating an EROWA CMM Qi measuring machine in your process line will also take care of this requirement.



The EROWA process control system provides the operator with all relevant information and various planning tools online and at any time. This is one of the prerequisites to be able to manufacture small series and individual components flexibly and automatically.

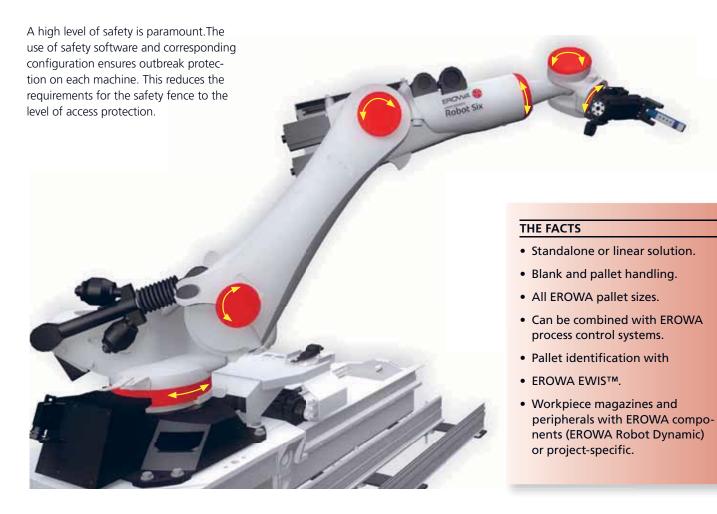
#### **EROWA Robot Six**



# Maximum versatility and flexibility

Using a 6-axis robot basically allows you to utilize more degrees of freedom and to use types of different weight classes.

This is based on standardized interfaces and options, to ensure optimal integration into the "EROWA World."



	EROWA Robot Six (ER6 K180L as shown)		EROWA Robot Six individual
Transfer weight	up to 180 kg		-
- with RCS5 coupling	up to 130 kg		-
- with WGS coupling	-		up to 500 kg
Max. range (overhang)	R = 2500 mm		Depending on robot and gripper type
Swiveling/indexing range		+/- 180°	
Y linear axis		Yes, length or	request
Magazine type	Base - ERD* Rack ma or project-specific up		ack magazine Components, cific upon request



**01** | Measuring software Full functionality for the highest demands. For intermediate and final inspection and quality measurement.

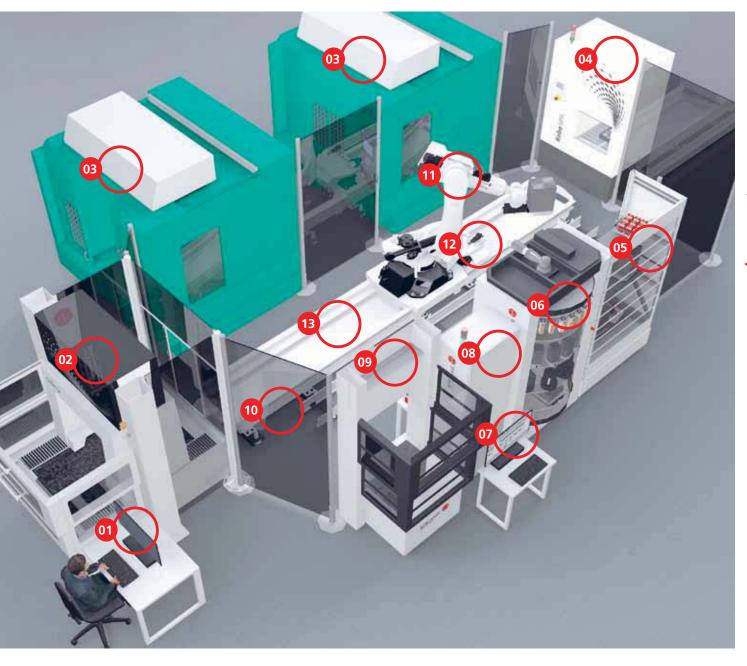
#### **02** | CMM Qi

Swiss quality measuring machine. The measuring machine fulfils all the criteria for successful automation.

- **03** | Machine tool Milling, turning, drilling, grinding.
- **04** | RoboSpa Cleaning station for workpieces and electrodes.

- **05** | Standard Rack magazine. with configurable levels and pallet positions:
- MTS and/or UPC pallets
- Pallets of sorted blanks
- Pallets with fixture
- **06** | Standard Rotary magazine with high capacity for pallets:
- ITS 50 / ITS 50 C, ITS 72 / ITS 148 pallets
- PC 210 / UPC pallets
- **07** | Process control system Control panel for loading station and rotary.
- **08** | Robot control Control including peripheral and machine connections.

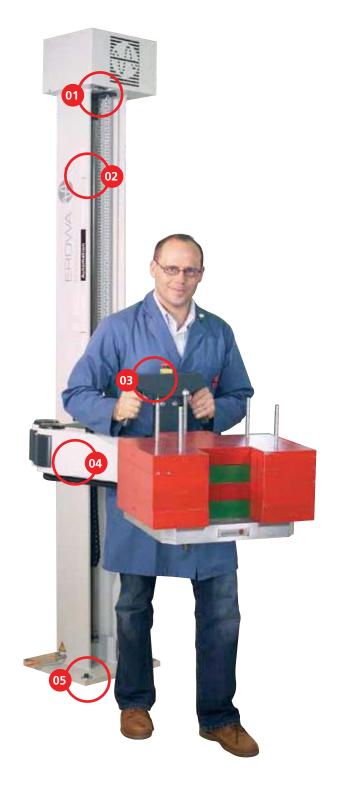
- **09** | Loading station for input and output of palletized workpieces in the production cell or for conversion operations.
- **10** | Safety / access protection No outbreak protection is necessary thanks to safe logic.
- **11** | EROWA Robot Six 6-axis robot for blank and pallet change. Transfer weight 130 kg with RCS5 coupling.
- **12** | Mobile gripper station for efficient gripper change.
- 13 | Rail system.



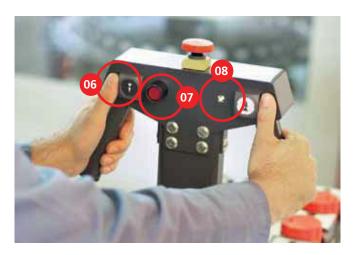
#### **EROWA Lift**



# Loading machines made easy

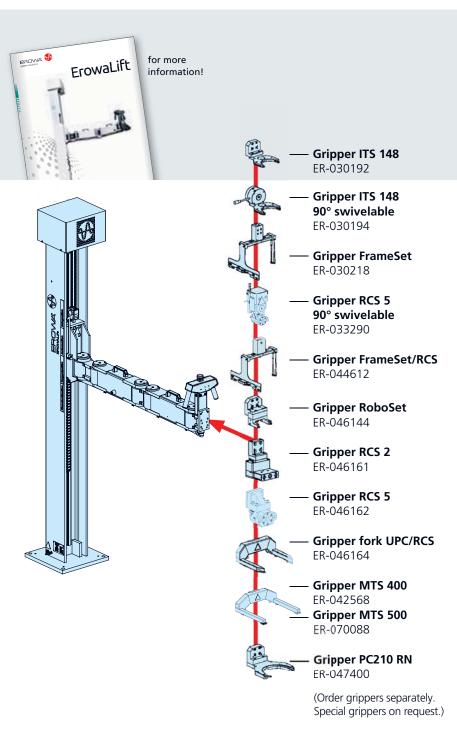


The EROWA Lift has been designed for frequent pallet changes directly onto the machine or into the handling facility. Fitted in a fixed position next to the machine, it is always where it is needed and moves palletized workpieces from transport pallets even up to the topmost magazine rack.



- **01** | Strong drive with two speeds.
- 02 | Stable guidance of the Z-axis.
- **03** | Two-handed control system with integrated operation.
- **04** | Segmented arm for optimal accessibility.
- **05** | Solid anchorage to the floor with leveling facility.
- **06** | Up/down movement at two speeds at the push of a button.
- 07 | "Open gripper" button.
- **08** | RCS 5 control light "Gripper clamped".

Lift pallets without straining your back. Directly from the shop-floor trolley into the magazine, even right to the top rack.





We also supply special grippers, for instance for the handling of large grinding wheels.



Simple and safe handling even of heavy workpieces up to 250 kg.



Flexible pallet positioning with the swivel arm.

ER-046250	EROWA Lift	
Transfer weight	max. 250 kg	
Movements	Z = 1660 mm	
	X = 1300  mm	
	Swivel range 360°	
Installation	4 heavy-duty anchors M12	
	concrete strength min. C20/25	
Pneumatic	min. 5 bar	
Voltage	3 x 380/400 V	
Frequency	50 Hz	
Drive	High speed 4m/min	
	Low speed 1 m/min	



Lifting the pallet from the transport system.

## **EROWA LiftGear**



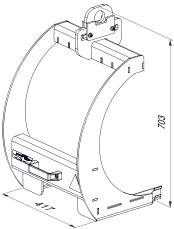
Pallets weighing more than 20 kg must be inserted into the UPCs or MTS chucks on the machine in a gentle and accurate manner. With the LiftGear and an overhead crane, this is child's play.

#### Your advantages

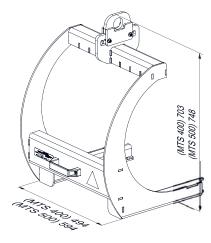
- Gentle machine loading.
- Increase in quality through careful and safe handling.
- Safety-conforming work

#### **Applications:**

Loading of machine tools, pallet magazines, Robot magazines, presetting and measuring stations.



**EROWA LiftGear UPC** 



EROWA LiftGear MTS 400 / MTS 500

Technical Data					
	ER-069551	ER-042800	ER-077012		
	LiftGear UPC	LiftGear MTS 400	LiftGear MTS 500		
Transfer weight	250 kg, incl. pallet	250 kg, incl. pallet	250 kg, incl. pallet		
Pallet type	UPC 320 x 320 mm	MTS 400	MTS 500		
Maximum workpiece dimensions					
LxWxH	320 x 380 x 450 mm	400 x 450 x 450 mm	500 x 550 x 450 mm		



EROWA LiftGear UPC

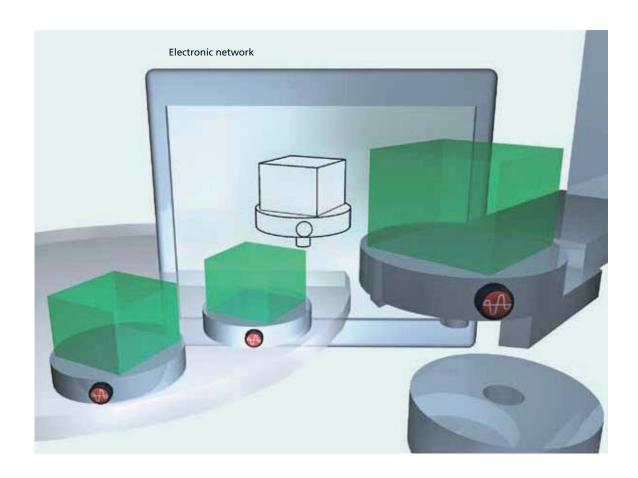


**EROWA LiftGear MTS** 



The EROWA LiftGear moves UPC and MTC pallets to the right place - quickly, safely and accurately.

# EROWA data transfer systems



Integration of systems and communication channels. This precludes sources of error as much as possible, and will guarantee a faster flow of communication.



For chip-removing processes



For EDM sinking



For WEDM

### EROWA DATA TRANSFER SYSTEMS

EROWA Manufacturing Control V3	374
Cell control for production machines	
EROWA JMS®Pro	376
From the production cell to	
networked production	

### EROWA Manufacturing Control V3

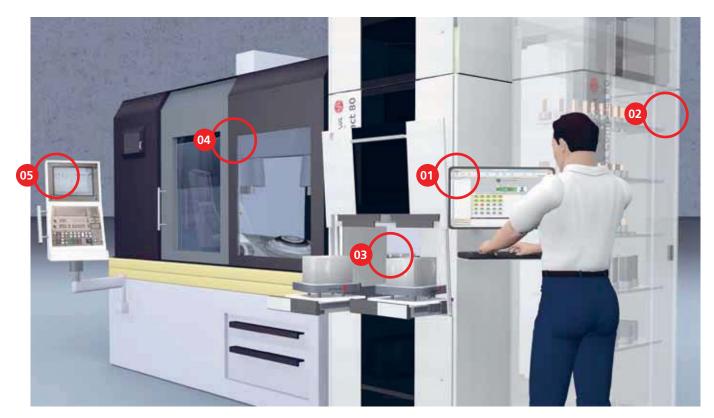
## Everything at a glance

Integration is the last step towards the successful implementation of EROWA FMC. The EROWA Manufacturing Control V3 process control system makes this step easy. The EROWA Manufacturing Control V3 software is the overriding tool through which the individual cells can be checked and controlled.

With EROWA Manufacturing Control V3, the machine operator has his production cell under control at all times. The refined features which have existed so far are now becoming even simpler thanks to active user guidance. Standard processes can be virtually run at the touch of a button. EROWA Manufacturing Control V3 is compatible with all the major control systems of lathes, milling and grinding machines.

#### FLEXIBLE MANUFACTURING

EROWA Manufacturing Control V3 controls and monitors the entire production cell.



Made for milling! With EROWA Manufacturing Control V3, it's easy to keep an overview. More productive hours are seen at a glance.

#### 01 | Cell control

The EROWA Manufacturing Control V3 software is the overriding tool through which the operator checks and controls the cell.

#### 02 | Identification

The Robot with the magazine: the entire work reserve is available on demand and is unmistakeably identified with the help of chips.

#### 03 | Loading station

The control system automatically loads/ unloads pallets between the loading station and the Robot magazine.

#### 04 | Production cell

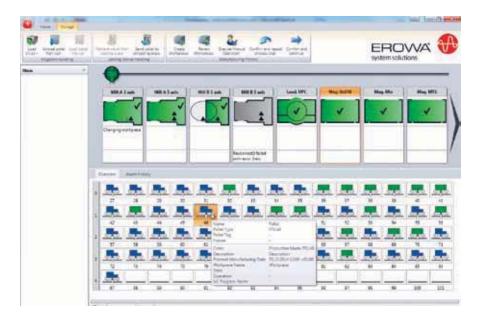
The machine tool with the EROWA table equipment, the automatic door and the tool magazine.

#### 05 | Data transmission

The machine control system transmits data from the tool changer to the EROWA Manufacturing Control V3.

## EROWA Manufacturing Control V3

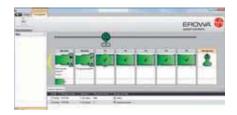
# Supported and guided user inputs





For more information, please contact your specialist EROWA dealer.

Everything at a glance: in this way, the machine operator can always see what is going on. The user surface in the current Microsoft Office look is the same for all cells, which facilitates a substitute operator's work



This is how much work reserve is still available. With each load, the system calculates how long the milling cell will still be productive.

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If there is a malfunction, this will automatically trigger off an alarm and information about the type of defect, if necessary by e-mail or SMS.



Workpiece oversize - working with oversized workpieces without any collisions and in optimized space conditions. The process control system takes into account workpiece sizes when placing workpieces in the magazine. Positions that are not available will be blocked automatically.

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Clearly arranged representation of the tools on the machine, including status, downtime and tool breakage.



Fixture Manager - quick reclamping made easy! Fixtures are managed jointly with the individual and pallet-specific offset data.

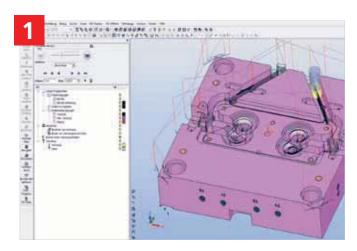
EROWA JMS® Pro

# Automatically documented production process

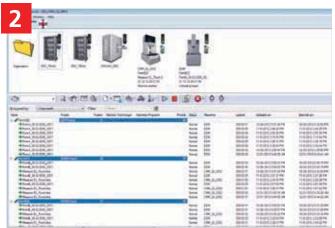
JMS® Pro Workflow-Management is not a slogan but a program. By making the data completely universal, it allows for comprehensive control throughout the workshop. From the CAD/CAM data import to the reporting of the completed jobs, everything can be viewed online.

#### WORKFLOW-MANAGEMENT

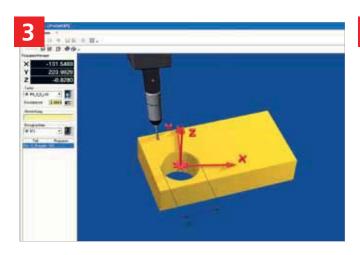
Planning, controlling and monitoring individual operations.



**01** | **Data import from CAD/CAM & PPS** Import of the job structure and generation of the work steps.



**02** | **Setting up and management of production data**Preparation of jobs while machine is at work. Identification of pallets through the electronic identification system EWIS™ Rapid. The pallets are automatically identified on the basis of the built-in chip. The data is then transmitted to JMS<sup>®</sup> Pro.



#### 03 | Determine presetting data.

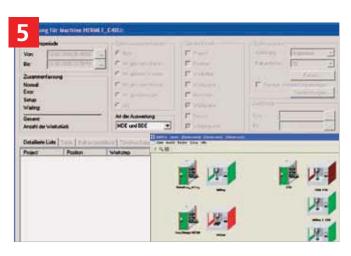
This is stored in an efficient database, in a machine-neutral format, and is available for all the users at any time.



#### 04 | Machining

The production cell is controlled online. The user is able to influence all the priorities. This will guarantee a quick response.





#### 05 | Status and evaluation

The entire production process is displayed in a clear structure: current status, registration of operational data, and utilization in the time axis.

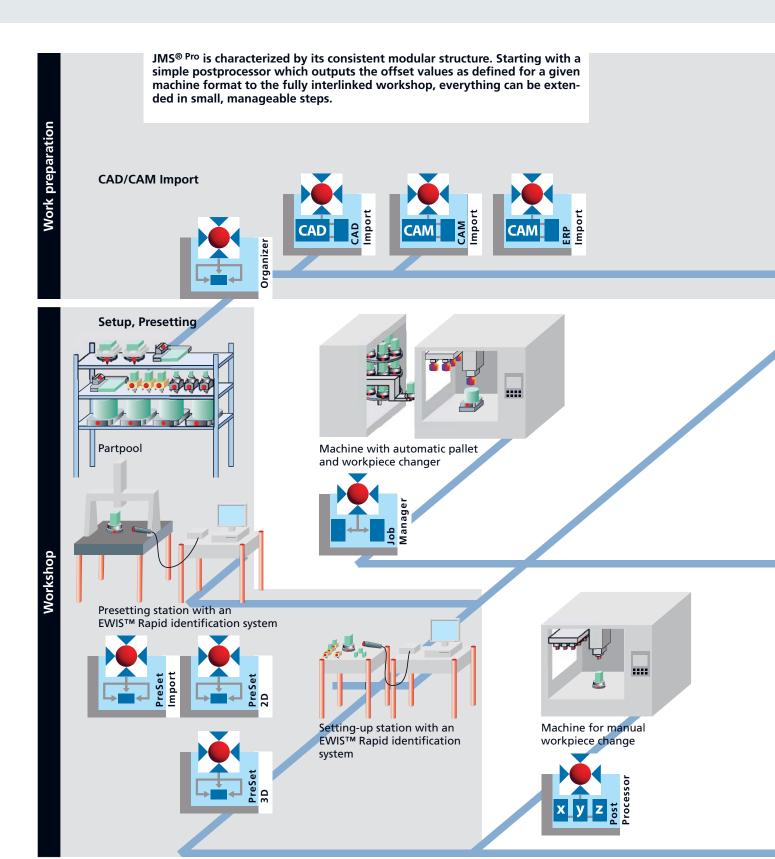


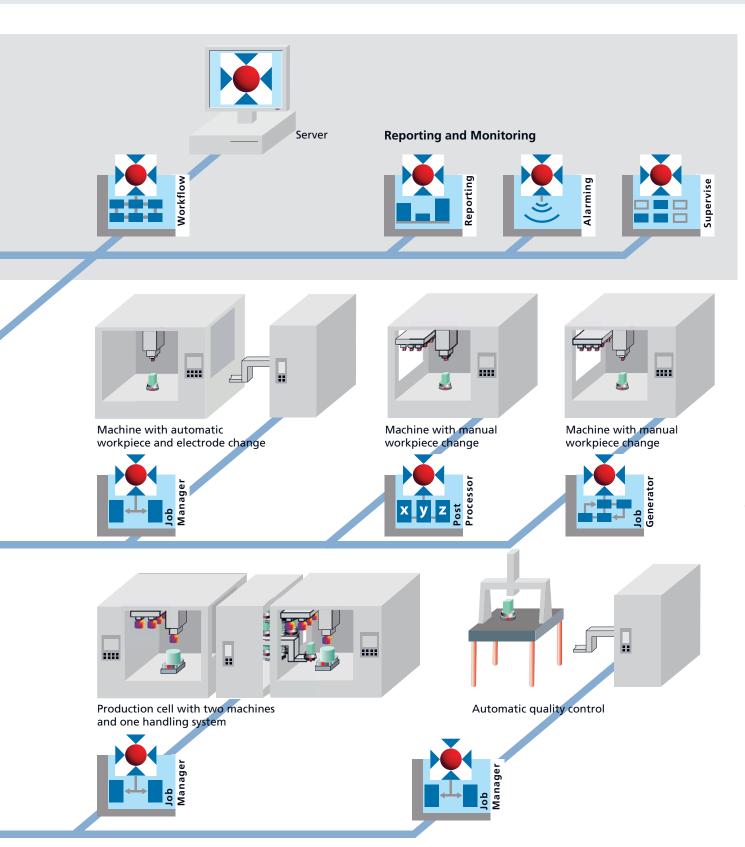
Collects and transmits special events from the production cells. The relevant users are always informed.

## JMS® Pro is workflow-management with crucial advantages.

- The production data is stored in a clear structure. You can access them at any time.
- The entire production process is displayed in JMS<sup>® Pro</sup>. You have an overview.
- Changes to the production process are effective online. You always know what is happening.
- JMS® Pro documents all the processes automatically. Traceability is guaranteed. You are in control of all the changes.
- The complete electronic dataflow from CAD to evaluation replaces the paper avalanche.
- JMS® Pro interlinks machines of a wide variety of technologies and generations. You choose yourself what should be part of the network.
- You determine the degree of integration yourself. Whether simple postprocessor or integrated workshop solution - we give you comprehensive advice.
- Workplaces become more interesting. With JMS® Pro users become machine managers.
- Whether EDM or WEDM, milling, drilling, turning, grinding or measuring: JMS® Pro integrates the facilities.

# From production cell to integrated manufacturing





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This is where you will find all the EROWA order numbers in numerically ascending order, together with the numbers of the pages on which the products are presented in pictures.

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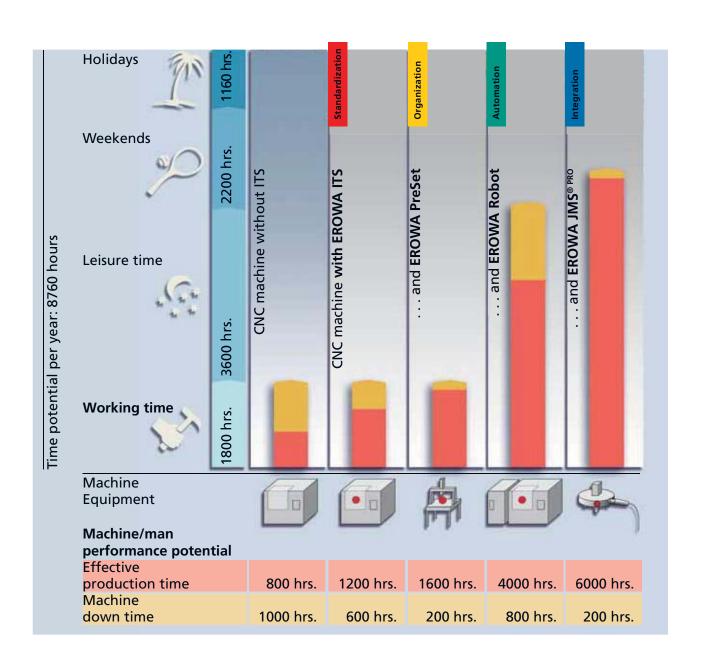
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# Optimal use of resources

Suitable EROWA components will enable you to put your machines to optimal use. We'll gladly assist you with our many years of experience. You call - we'll come.



### The next step

Important matters require planning. And your next step is certain to be such an important matter. After all, you are setting off into a new, rational age.

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## Take that important step.





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