

System 3R


Tooling for wire EDM



Becoming better every day – since 1802

GF Machining Solutions


When all you need is everything, it's good to know that there is one company that you can count on to deliver complete solutions and services. From unmatched Electrical Discharge Machining (EDM), Laser texturing, Laser micromachining, Additive Manufacturing and first-class Milling and Spindles to Tooling and Automation, all of our solutions are backed by unrivaled customer service and expert GF Machining Solutions training. Our AgieCharmilles, Microlution, Mikron Mill, Liechti, Step-Tec and System 3R technologies help you raise your game—and our digital business solutions for intelligent manufacturing, offering embedded expertise and optimized production processes across all industries, increase your competitive edge.


 We are System 3R.
We are GF Machining Solutions.

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Dimensions and weights stated in the product boxes are not normative unless this is expressly stated.

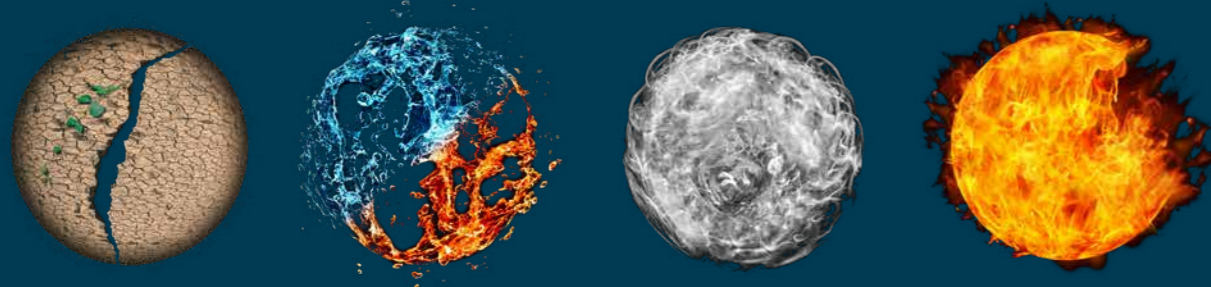
 Manufactured to meet System 3R's quality requirements, but partly or completely made in a production plant that is not covered by System 3R's ISO 9000 certificate.

 Indicates that the product is normally shipped within two weeks, provided that it is in stock when the order is placed.

3R-XXX in an article number means that the article is established on the market and has proven its quality in extensive use by customers. All 3R articles are to be regarded as standard articles and thus have a quality certificate.

NOTE: All wire EDM articles in this catalogue are made of rust-resistant material.

Care for the environment and protection of natural resources are key elements in System 3R's operations



We take all necessary precautions to prevent contamination of soil, air and water.

In our production processes, we continually improve the efficiency of our energy use.

The products and methodologies we offer the market improve the efficiency of our customers' use of existing resources.

Three steps to success

The route to rational production in wire EDM machines can be summarised in three steps – mounting, reference system and automation.

1. Mounting

First, the workpiece needs to be positioned and secured in the machine's working area, preferably on the zero line. The risk of it colliding with the machine's wire guides must also be minimised. Furthermore, to handle the high flushing pressures of modern machines, it must be held tightly.

2. Reference system

Once the problem of effective workpiece mounting has been solved, the next step is to minimise downtime when retooling. In recent years, the technical development of machines has resulted in significantly higher material removal rates. However, this cannot be exploited if machines are idle for lengthy, troublesome retooling. This is why retooling downtime has to be minimised.

With a reference system, you can prepare and preset workpieces away from machines. Fitting and securing them in the machines is then quick and precise. Downtime is minimal and there is better utilisation of machine capacity.

3. Automation

With a reference system and a pneumatic chuck on the machine table, you have laid a firm foundation for the crucial step towards automation and maximum machine utilisation.

Add a pallet changer to your machine and you have created an automated production cell. A cell that can generate revenue 24 hours a day, 7 days a week, all year round!



Matrix system
 Matrix is our automatic pallet system with a large through hole.
 See page 71 for more information.

Highlights



Swivelling units
 Single or dual-axis.
 See page 62 for more information.

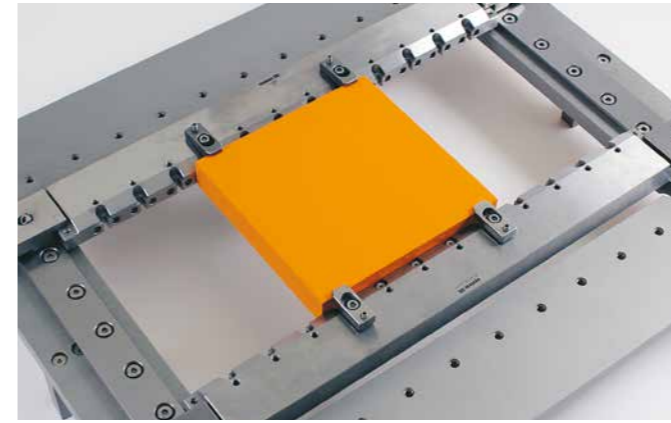


A and B-Axis
 Various A and B-axis units for, semi-automatic or fully automatic solutions.
 See page 37-38 for more information.



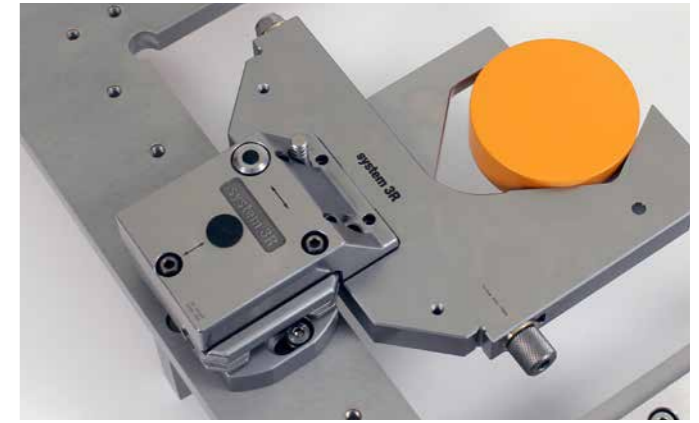
New accessory
 Designed for 3Ruler and EconoRuler. Supports round workpieces. Flexible and multiple set-ups below or above the zero-line.
 See page 19 for more information.

3R offers four main categories of WEDM tooling



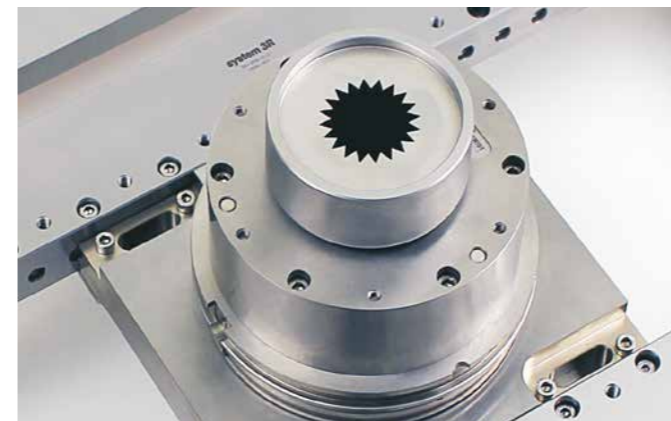
Reference dovetail – WEDM, 3Ruler, EconoRuler and 3P

- Basic reference products machine model dedicated (ask for separate MIC-drawing)
- Flexible enough to handle single or multiple workpieces in a single set-up
- Manual operation only
- Can handle small to very large (by size and weight) pieces
- Approximate max. loads:
 - 3P = 50 kg
 - 3Ruler, one piece = 50 kg
 - 3Ruler, two pieces = 200 kg



Macro – Macro, MacroWEDM, B-axis and DelphinShort Twin

- Macro is the most universal interface system for different machining operations
- Not restricted by machine model
- Both manual and automatic chucks are available and can have indexing or rotating options
- Vertical or horizontal loading enables automation
- Can handle workpieces of up to 15 kg or approx. Ø160 mm
- Approximate max. loads:
 - Macro WEDM = 25 kg
 - MacroTwin = 50 kg
 - DelphinShort Twin = 50 kg



Matrix

- This system is not restricted by machine model, but requires 3Ruler
- Both manual and automatic chucks are available and can have indexing or rotating options
- Vertical loading enables automation
- Main feature is a central through hole of up to Ø147 mm.



Do-it-yourself fixture – MacroWEDM

- Fixtures that are machine model specific
- Automation ready
- Can handle weights of up to 100 kg

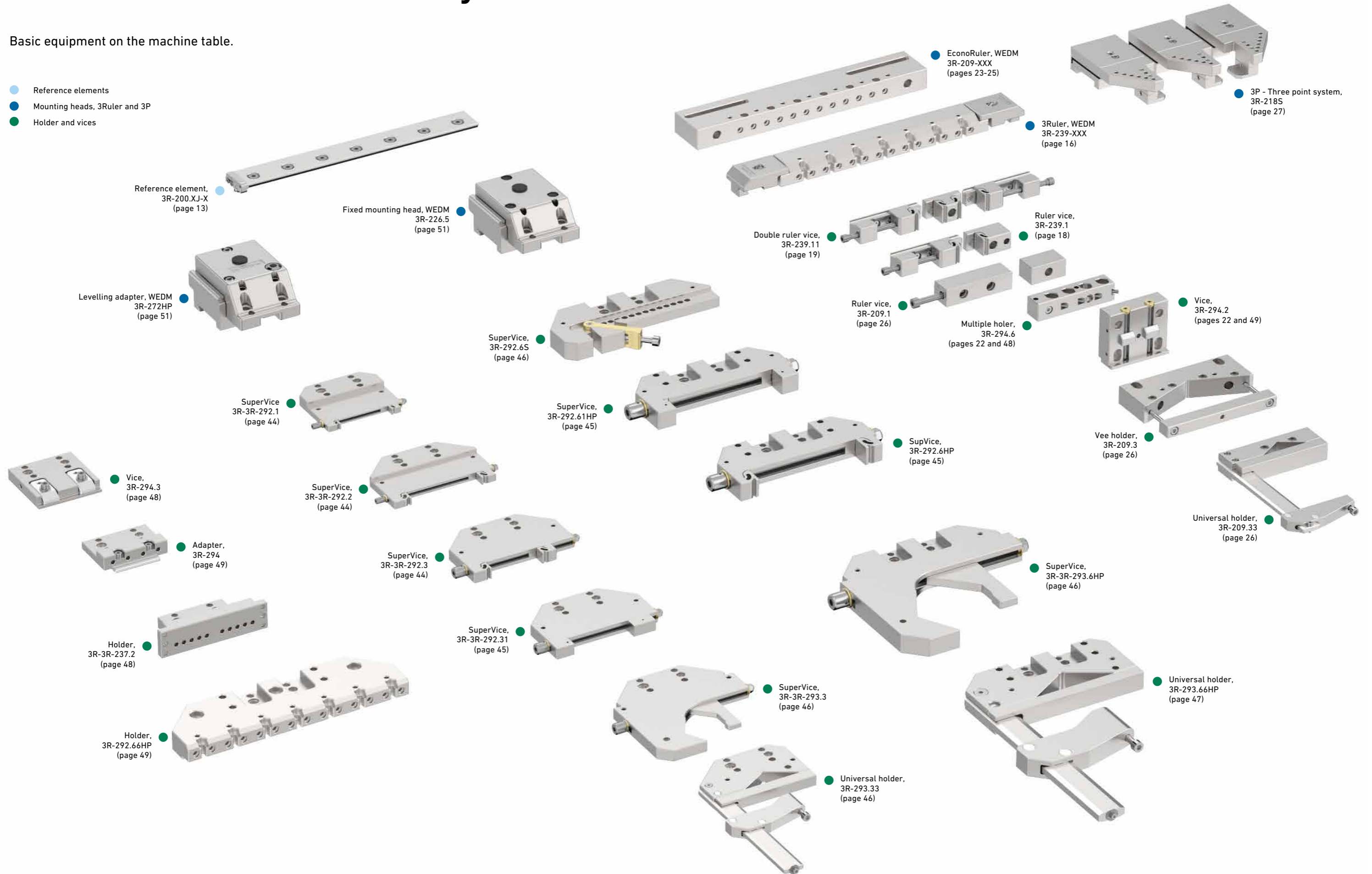
Frames

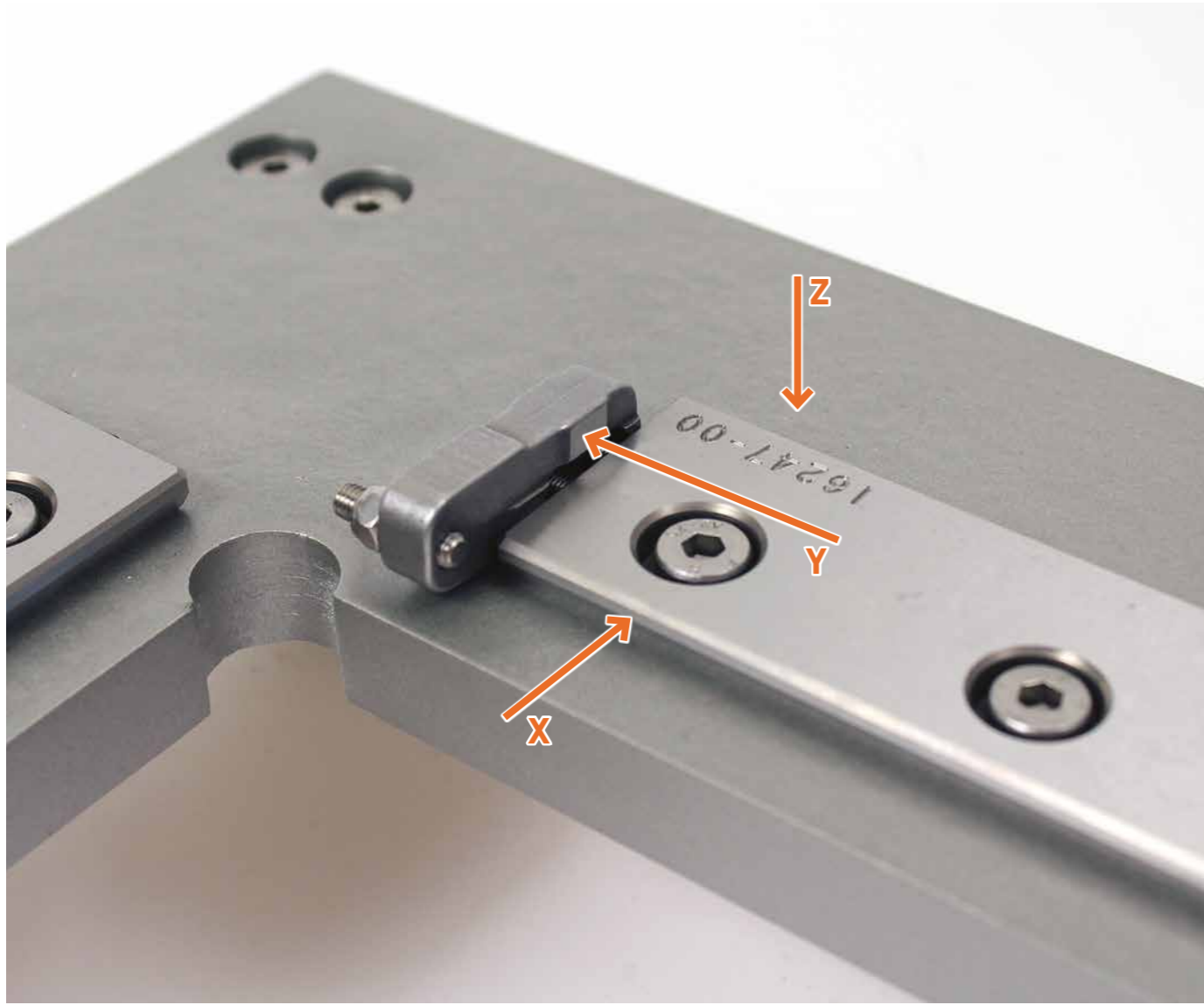
- Full frames with clamping bars
- Payloads of up to 150 kg

Overview of the WEDM system

Basic equipment on the machine table.

- Reference elements
- Mounting heads, 3Ruler and 3P
- Holder and vices





Machine table with reference elements.

Basic equipment WEDM

WEDM positions the workpiece on the zero line in the machine's working area. Whether the workpiece is rectangular or round, small or large, thin or thick, tall or short, it is clamped with minimal risk of collision. There are infinitely many possible combinations in the product range, the only limitation being the user's imagination.

Furthermore, System 3R also leads in number of installations worldwide.

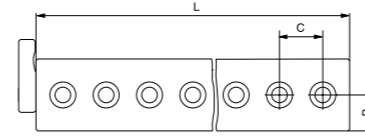
- Exceptional flexibility
- Accurately ground-in references
- Repeatable accuracy
- Double-sided parallel references
- Fits all machine tables with 25 or 50 mm pitch

Reference element WEDM, 3R-200.XJ-X

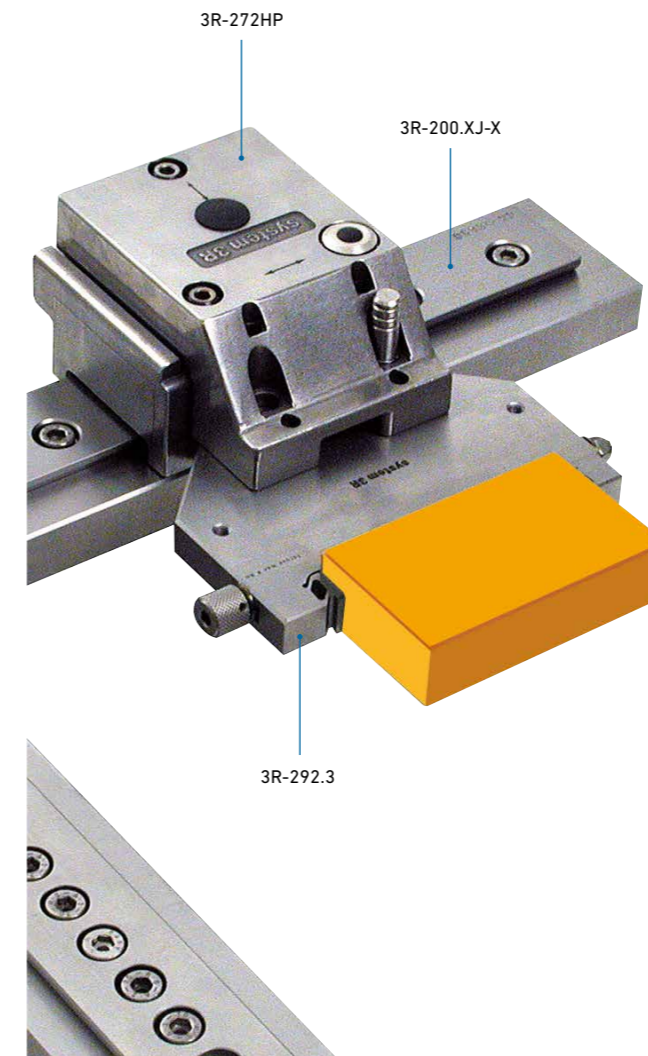
Reference elements for machines with zero-line table. The length (L), hole spacing (C) and hole edge spacing (B) of the hardened reference elements are matched to the machine in question.

NOTE: When ordering, state machine brand and model.

- Supplied with end stops

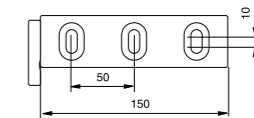


Please consult the reference element guides for your machine on www.system3R.com



Reference element WEDM, 3R-200.1J-U

Universal 150 mm reference element with oval holes for all machines with tables that have M8 holes 30 to 40 mm from the edge.



Reference stop, 3R-225

Can be moved steplessly along the entire reference element.

- Weight 0.3 kg

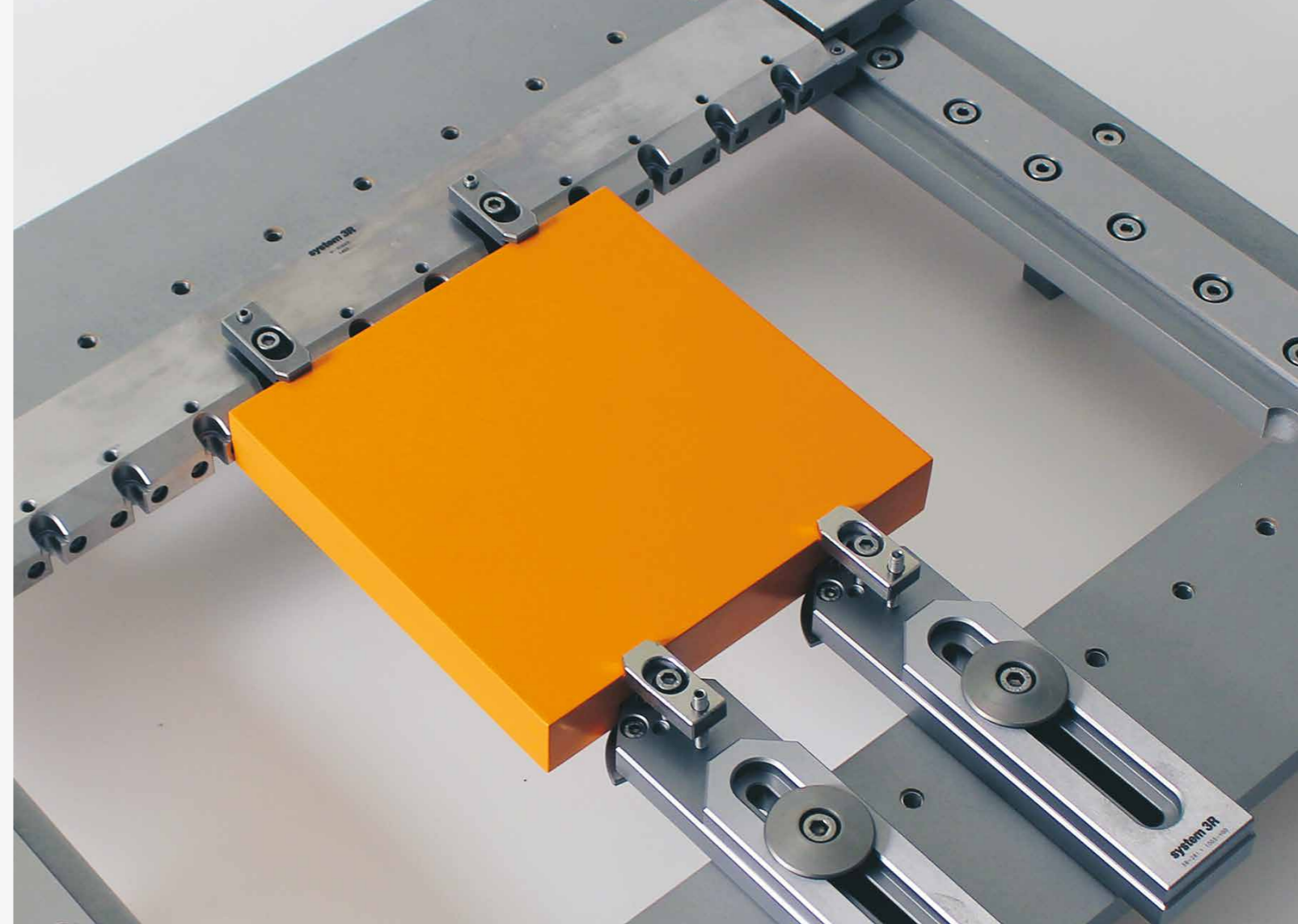


The 3Ruler system

The 3Ruler system has been developed for clamping medium-sized and large workpieces in machines with parallel, U-shaped or frame tables, as well as for machines with a frame table. The system's rulers have in-built height adjustment and are used singly or in pairs.

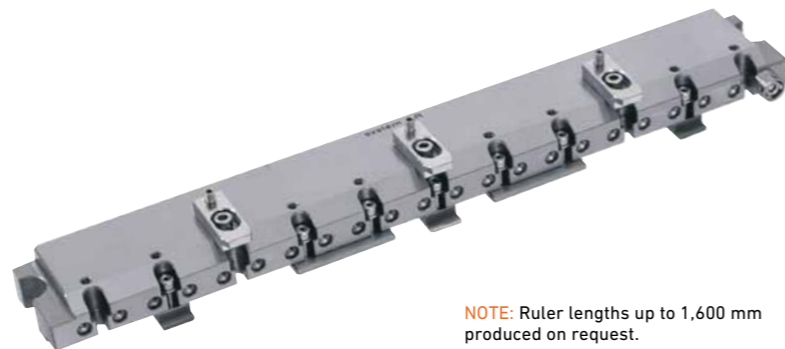
Using this system makes it easy to position workpieces (rectangular, round, light, heavy, large or small) on the zero line with no risk of collision. A comprehensive range of accessories gives an unsurpassed range of applications.

- Machine-adapted ruler lengths
- Repeatable accuracy with the aid of reference elements
- Stable mounting of large workpieces
- A broad range of accessories gives great flexibility.



3Ruler, 3R-239-XXX

The rulers are available in various lengths (-XXX) to match different machines. To ensure optimal stability, the cross section is matched to the length.



NOTE: Ruler lengths up to 1,600 mm produced on request.

XXX = length (mm)	<370	371-544	545-645	646-950	951-1600
Width (mm)	45	60	60 or 86*	86	86
Height (mm)	30	30	36	36	50
Eccentric stops supplied	1	1	1	1	1
Quick fasteners supplied	2	2	2	2	2
Zero line tabs supplied	2	2	2 or 3	3	5*
5 mm tabs supplied	2	2	2	2	3*
Clamps supplied	2	2	2 or 3*	3	5*

*Always ask. Please consult the 3Ruler for your machine on www.system3R.com

3Ruler, double-sided, 3R-239-XXX-D

Double-sided rulers are available in various lengths (-XXX) to match different machines. To ensure optimal stability, the cross section is matched to the length. Accessories can be clamped on both sides of these rulers.

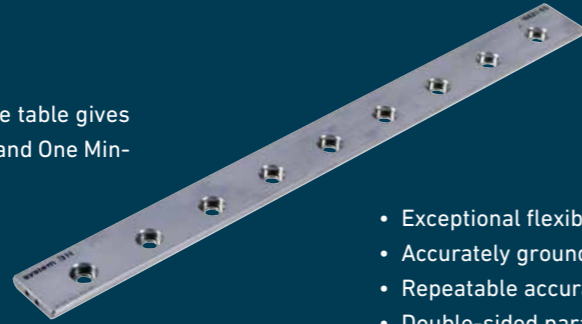


XXX = length (mm)	<370	371-595	596-950	>951
Width (mm)	45	60	86	86
Height (mm)	30	30	36	56
Eccentric stops supplied	2	2	2	2
Quick fasteners supplied	2	2	2	2
Zero line tabs supplied	4	4	6	10
5 mm tabs supplied	4	4	4	6
Clamps supplied	4	4	6	10

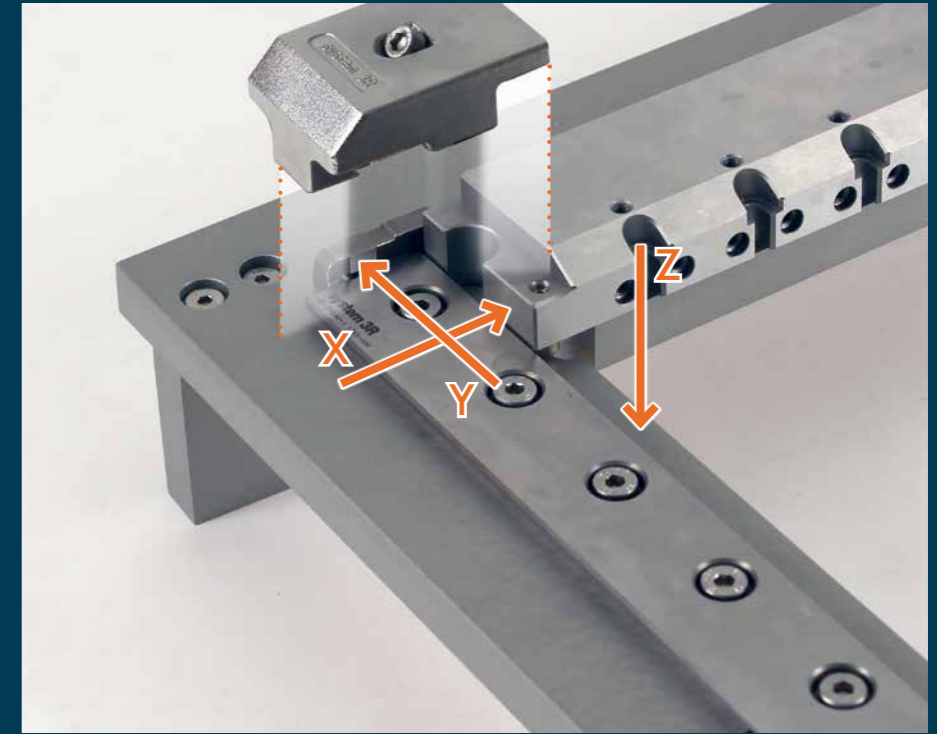
System 3R basic equipment for rigid, stable and accurate of workpieces

Reference element WEDM

Fitting a reference element to your machine table gives you fixed references in all three directions and One Minute set-up.



- Exceptional flexibility
- Accurately ground-in references
- Repeatable accuracy
- Double-sided parallel references
- Fits all machine tables with 25 or 50 mm pitch



3Ruler

This system makes it easy to position workpieces (small, large, light or heavy) on the zero line with no risk of collision.

In-built height adjustment on rulers that are at least 385 mm long.



5-mm (0.96-in) tabs for positioning workpieces 5 mm above machine zero line.

Zero line tabs for optimum positioning along the ruler in 40-mm (1.57-in) steps.

Eccentric stop, movable along the ruler in 20-mm (0.78-in) steps

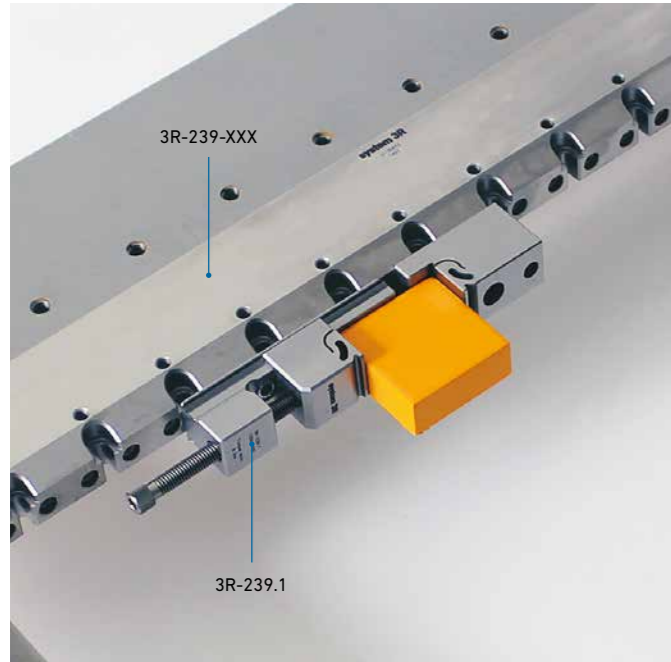


Quick-fasteners facilitate simple fitting/removal of rulers

Clearance for wire between workpiece and ruler.



3Ruler accessories



Ruler vice, 3R-239.1

Our SuperVice design jaws provide a wide clamping range for rectangular workpieces. Detachable Z-support tabs ensure simple setting-up.

- Recommended maximum workpiece weight with one vice 15 kg
- Recommended maximum workpiece weight with two vices 200 kg
- Tightening torque 8 Nm
- Weight 0.7 kg



Low-profile holder, 3R-239.2

For clamping thin workpieces.

- Clamping range 0-27 mm
- Supplied in sets of 4
- Weight per set 0.6 kg



V-holder, 3R-239.3

For clamping round workpieces. To be mounted on ruler or holder 3R-237.2, 3R-292.66HP or 3R-239-XXX.

- Suitable for horizontal or vertical mounting
- Clamping range $\varnothing 25$ -130 mm
- Additional support <300 mm
- Weight 0.9 kg



3Ruler accessories

Double ruler vice, 3R-239.11

Movable jaws for mounting two rectangular workpieces at the same time. Detachable Z-support tabs ensure simple setting-up.

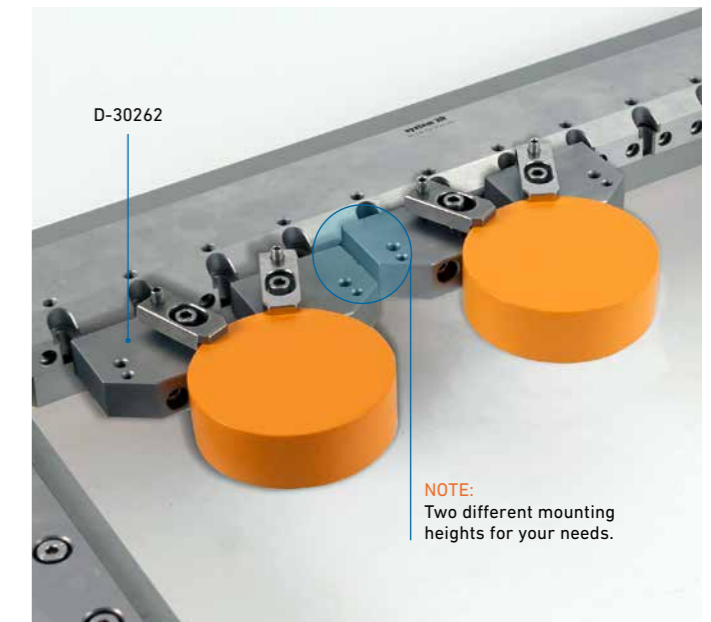
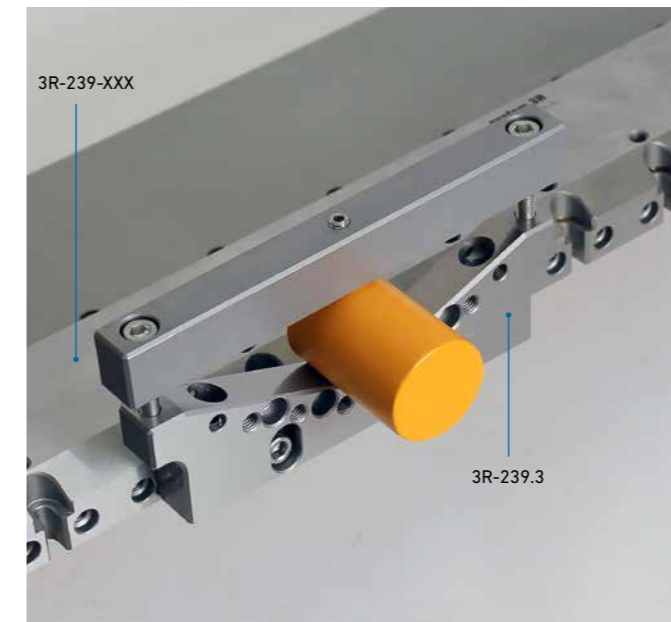
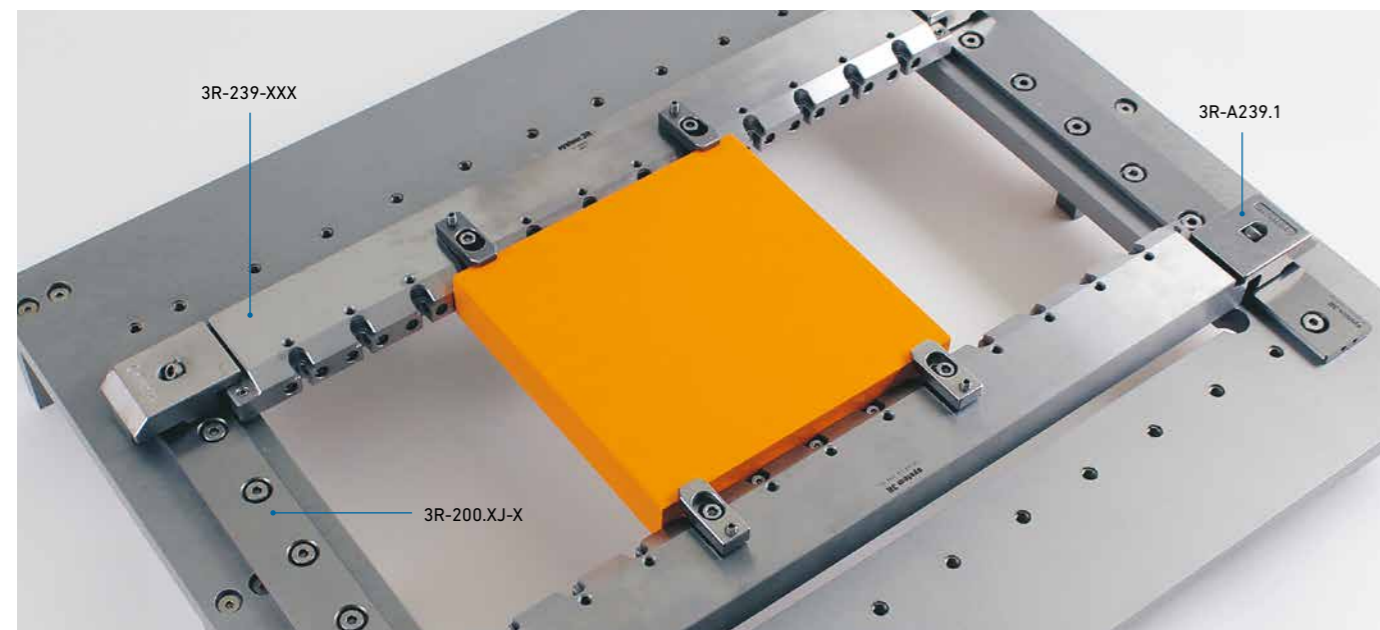
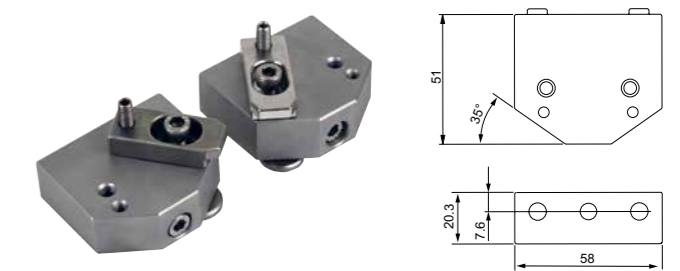
- Recommended maximum workpiece weight 7 kg
- Tightening torque 8 Nm
- Weight 1 kg



Modular V-holder, EconoRuler, D-30262

Zero-line support is required by tabs that comes with these units or add additional support by accessory for and with 3Ruler or by other means. Fits onto any 3Ruler and EconoRuler.

- Clamping range round $\varnothing 30$ -75 mm (closest apart)
- Recommended torque 7 Nm
- Weight 0.9 kg



NOTE:
Two different mounting heights for your needs.

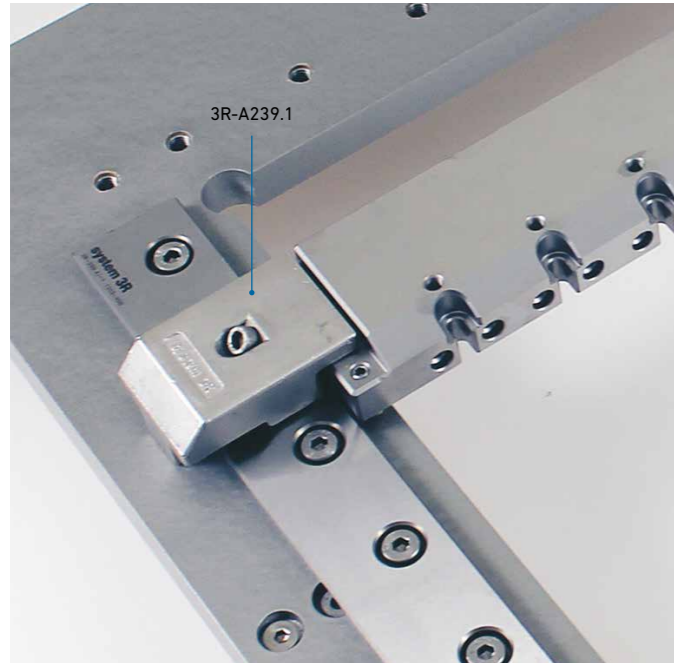
3Ruler kit, 3R-239.20

Kit for clamping rectangular, round or thin workpieces.

3R-239.1	Ruler vice	x1
3R-239.2	Low-profile holder	x1
3R-239.3	V-holder	x1
3R-914-10L	Torque wrench, 8 Nm	x1
3R-333-03	Allen key, 3 mm	x1
45600-N039	Allen key, 4 mm	x1



3Ruler accessories



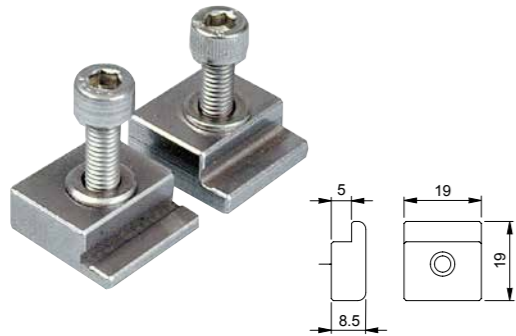
Clamps, 3R-A239.1

- Clamps for clamping rulers on reference elements.
- Supplied in sets of 2



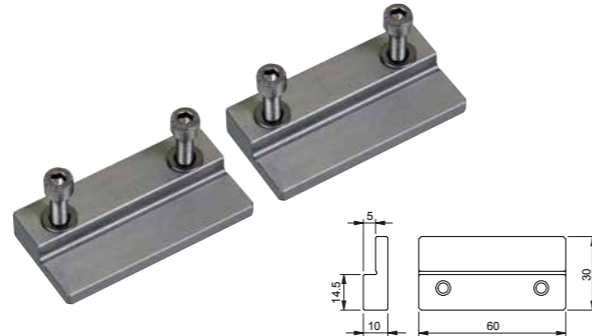
Zero-line support tab 5 mm, 3R-239.22

- Recommended maximum workpiece weight per tab 50 kg
- Supplied in sets of 2



Zero-line support tab 5 mm, 3R-239.26

- Recommended maximum workpiece weight per tab 50 kg
- Supplied in sets of 2



Miniclamps, 3R-239.24

For clamping thin workpieces. To be fitted together with zero-line support tab.

- Recommended maximum workpiece weight per tab 1 kg
- Supplied in sets of 2



Clamps, 3R-A239

Aluminium clamps for mounting a ruler directly on the machine table without reference elements.

- Supplied in sets of 2
- Weight per set 0.3 kg



3Ruler accessories

Zero-line support tab 5 mm, 3R-239.25

- Recommended maximum workpiece weight per tab 50 kg
- Supplied in sets of 2



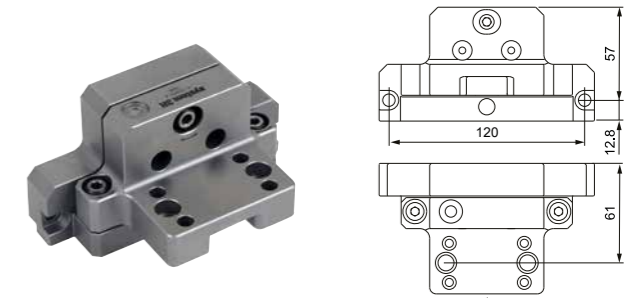
Fixed head, 3Ruler, D-30253-B

- Enables use of regular vices in combination with 3Ruler.
- Weight 0.8 kg



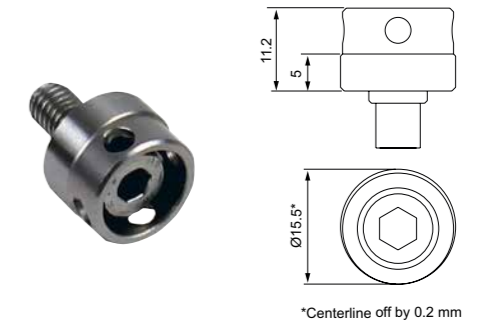
Levelling head, 3Ruler, D-30253-A

- Enables use of regular vices in combination with 3Ruler.
- Weight 2.1 kg.



Eccentric stop, 3Ruler, 3R-239.27

- Adjustable eccentric stop for mounting on 3Ruler or EconoRuler in 20-mm steps.
- Weight 0.02 kg



Reference stop, 3R-225.2

For positioning 3Ruler anywhere on the reference elements. The stops have adjusting screws for accurate alignment.

- Tightening torque 7 Nm
- Supplied in sets of 2
- Weight per set 0.6 kg



Clamp kit M6, 3R-230.1

For clamping workpieces on rulers, etc.

- Weight 1.8 kg

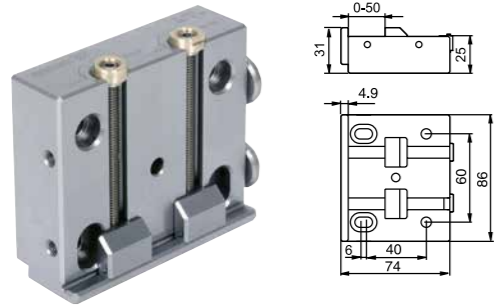


3Ruler accessories

Vice, 3R-294.2

Mounts on: 3R-237.2; 3R-292.66HP; 3R-294; any ruler in the 3Ruler system; and, Macropallet 54x54.

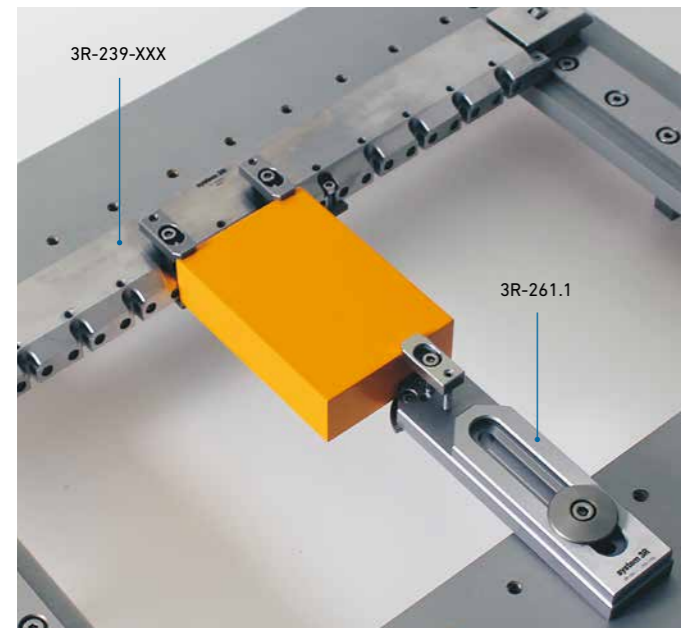
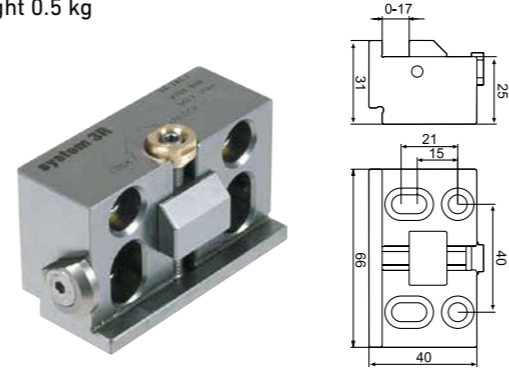
- Clamping range 0-50 mm
- Recommended maximum workpiece weight 5 kg
- Tightening torque 3 Nm
- Weight 1.2 kg



Vice, 3R-294.1

Mounts on: 3R-237.2; 3R-292.66HP; 3R-294; and, any ruler in the 3Ruler system.

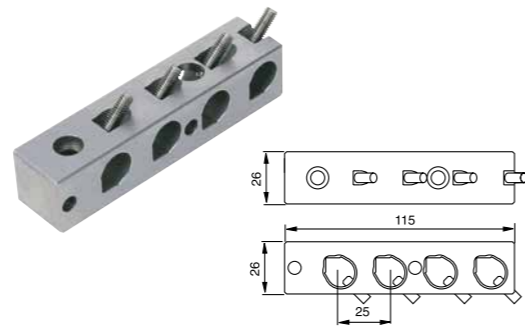
- Clamping range 0-17 mm
- Recommended maximum workpiece weight 2.5 kg
- Tightening torque 3 Nm
- Weight 0.5 kg



Multiple holder, 3R-294.6

For mounting four workpieces (Ø 5-13 mm) at the same time. Mounts on: 3R-237.2; 3R-292.66HP; 3R-294; and, any ruler in the 3Ruler system.

- Tightening torque 3 Nm
- Weight 0.6 kg



Support, 3R-261.1

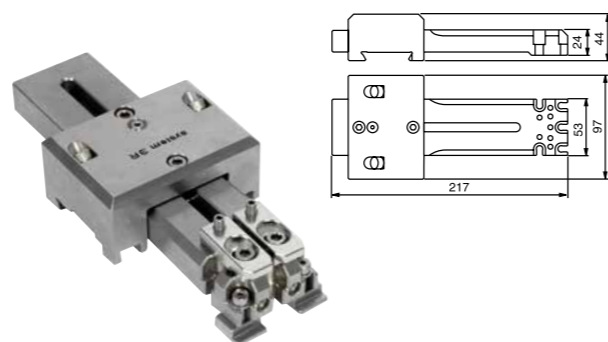
For mounting directly on the machine table.

- Adjustable length 35-135 mm
- Includes 5 mm spacer for collision free set-up
- Recommended maximum workpiece weight 20 kg
- Weight 1.5 kg



Adjustable support WEDM, 3R-261

- Adjustable length 38-138 mm
- Adjustable height 0-0.2 mm
- Recommended maximum workpiece weight 20 kg



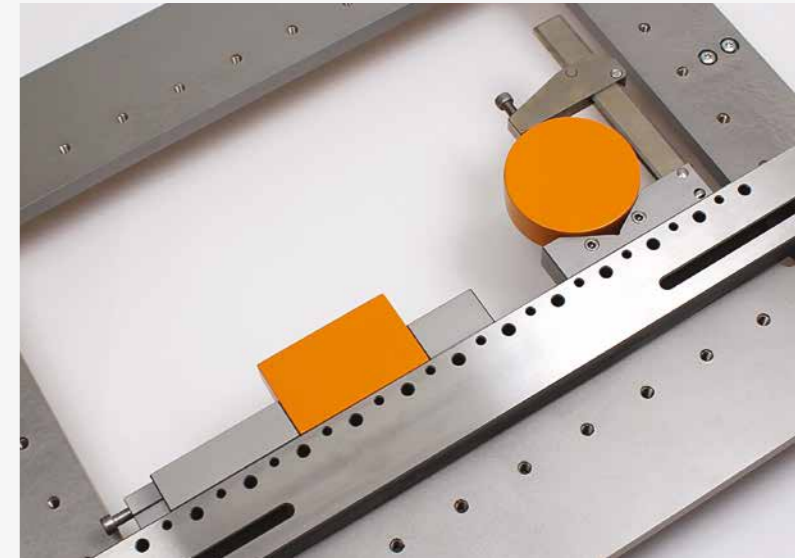
The EconoRuler system

The EconoRuler system has been developed for clamping medium-sized and large workpieces in machines with parallel, U-shaped or frame tables.

A comprehensive range of accessories gives a wide variety of applications.

- Robust design
- Flexibility (depending on your set-up, rulers can be used in pairs or alone)
- Best possible cutting rates (as the workpiece is secured on the zero line)
- Collision free set-up (using spacers under the rulers)
- Fits wide range of machine tables
- Enables use of workpieces of various sizes

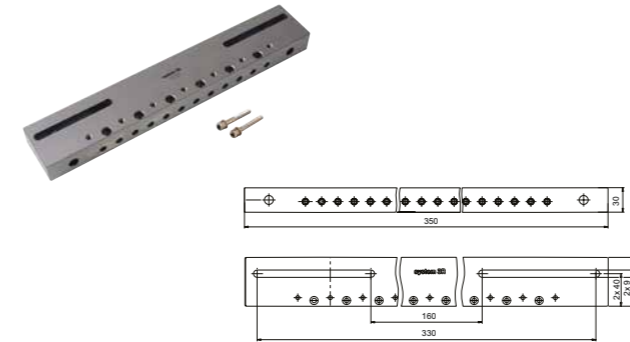
NOTE: Other EconoRuler lengths can be produced on request



EconoRuler, 3R-209-350

Universal ruler for mounting directly on the machine table. Fits machine tables with hole pitch 160-330 mm.

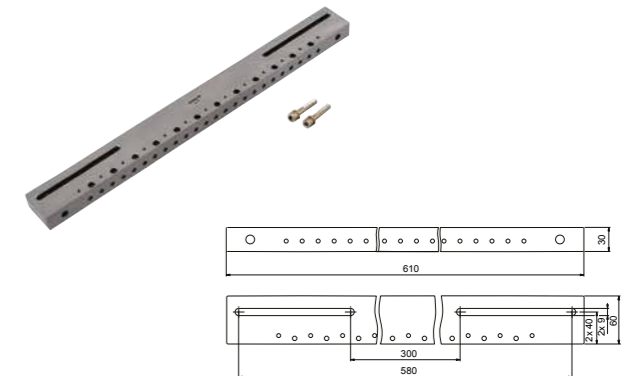
- Dimensions 350x60x30 mm



EconoRuler, 3R-209-610

Universal ruler for mounting directly on the machine table. Fits machine tables with hole pitch 300-580 mm.

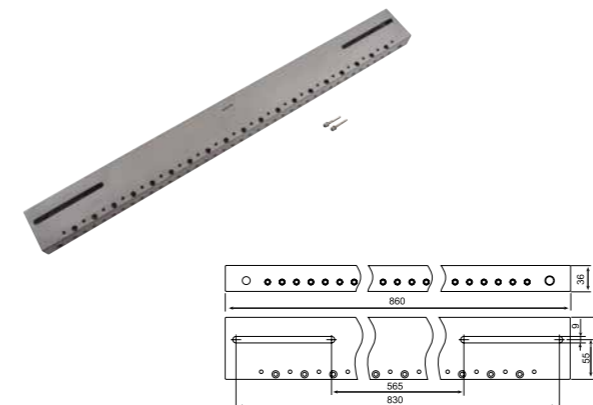
- Dimensions 610x60x30 mm



EconoRuler, 3R-209-860

Universal ruler for mounting directly on the machine table. Fits machine tables with hole pitch 565-830 mm.

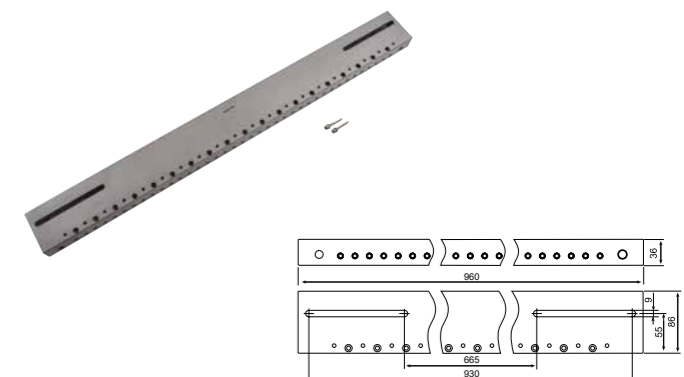
- Dimensions 860x86x36 mm



EconoRuler, 3R-209-960

Universal ruler for mounting directly on the machine table. Fits machine tables with hole pitch 665-930 mm.

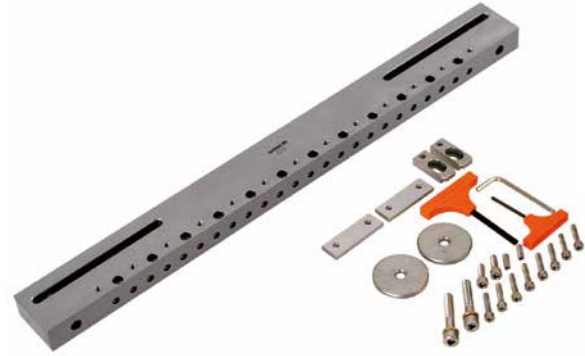
- Dimensions 960x86x36 mm



EconoRuler kits

EconoRuler kit

Kit for clamping rectangular workpieces.

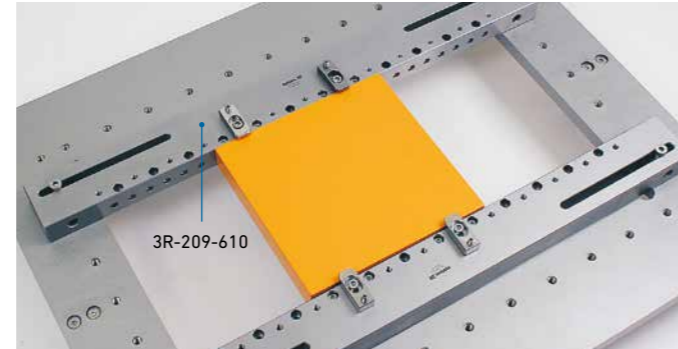
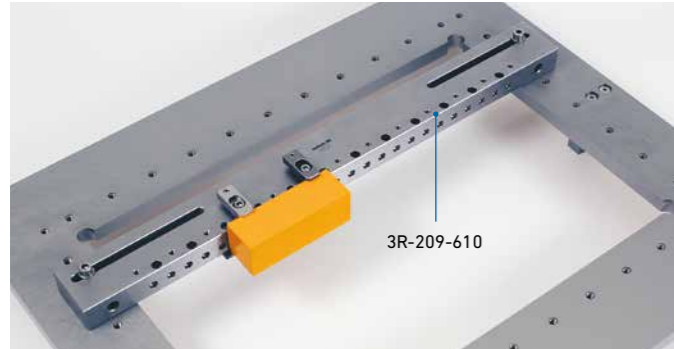


3R-209-350.1			
3R-209-350	Ruler, 350 mm	x1	
3R-333-03	Allen key, 3 mm	x1	
3R-333-05	Allen key, 5 mm	x1	
	+ Accessories		

3R-209-610.1			
3R-209-610	Ruler, 610 mm	x1	
3R-333-03	Allen key, 3 mm	x1	
3R-333-05	Allen key, 5 mm	x1	
	+ Accessories		

3R-209-860.1			
3R-209-860	Ruler, 860 mm	x1	
3R-333-03	Allen key, 3 mm	x1	
3R-333-05	Allen key, 5 mm	x1	
	+ Accessories		

3R-209-960.1			
3R-209-960	Ruler, 960 mm	x1	
3R-333-03	Allen key, 3 mm	x1	
3R-333-05	Allen key, 5 mm	x1	
	+ Accessories		



EconoRuler kits

EconoRuler kit

Kit for clamping rectangular workpieces.

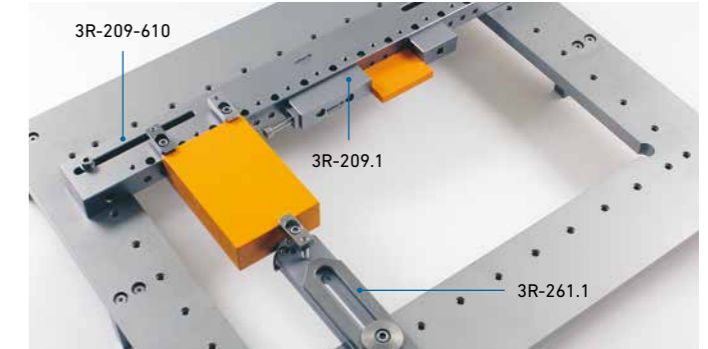
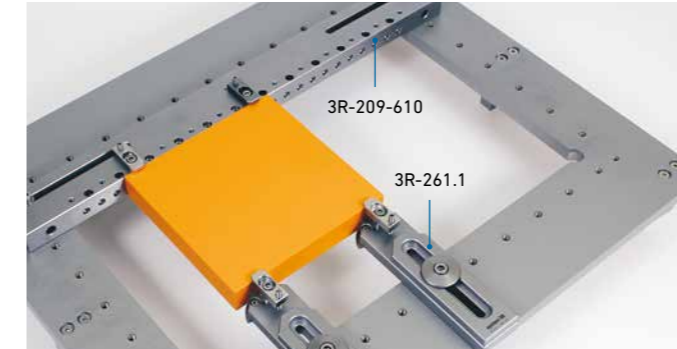


3R-209-350.3			
3R-209-350	Ruler, 350 mm	x1	
3R-261.1	Support	x2	
3R-333-03	Allen key, 3 mm	x1	
3R-333-05	Allen key, 5 mm	x1	
	+ Accessories		

3R-209-610.3			
3R-209-610	Ruler, 610 mm	x1	
3R-261.1	Support	x2	
3R-333-03	Allen key, 3 mm	x1	
3R-333-05	Allen key, 5 mm	x1	
	+ Accessories		

3R-209-860.3			
3R-209-860	Ruler, 860 mm	x1	
3R-261.1	Support	x2	
3R-333-03	Allen key, 3 mm	x1	
3R-333-05	Allen key, 5 mm	x1	
	+ Accessories		

3R-209-960.3			
3R-209-960	Ruler, 960 mm	x1	
3R-261.1	Support	x2	
3R-333-03	Allen key, 3 mm	x1	
3R-333-05	Allen key, 5 mm	x1	
	+ Accessories		



EconoRuler kit

Kit for clamping rectangular workpieces.



3R-209-350.2			
3R-209-350	Ruler, 350 mm	x2	
3R-333-03	Allen key, 3 mm	x1	
3R-333-05	Allen key, 5 mm	x1	
3R-A209	Clamps	x2	
	+ Accessories		

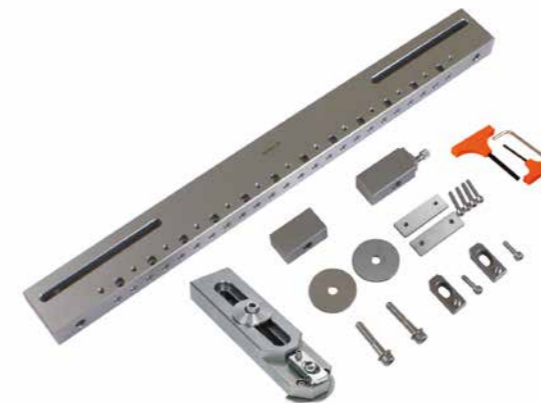
3R-209-610.2			
3R-209-610	Ruler, 610 mm	x2	
3R-333-03	Allen key, 3 mm	x1	
3R-333-05	Allen key, 5 mm	x1	
3R-A209	Clamps	x2	
	+ Accessories		

3R-209-860.2			
3R-209-860	Ruler, 860 mm	x2	
3R-333-03	Allen key, 3 mm	x1	
3R-333-05	Allen key, 5 mm	x1	
3R-A209	Clamps	x2	
	+ Accessories		

3R-209-960.2			
3R-209-960	Ruler, 960 mm	x2	
3R-333-03	Allen key, 3 mm	x1	
3R-333-05	Allen key, 5 mm	x1	
3R-A209	Clamps	x2	
	+ Accessories		

EconoRuler kit

Kit for clamping rectangular workpieces.



3R-209-350.4			
3R-209-350	Ruler, 350 mm	x1	
3R-261.1	Support	x1	
3R-209.1	Ruler vice, Econo	x1	
3R-333-03	Allen key, 3 mm	x1	
3R-333-05	Allen key, 5 mm	x1	
	+ Accessories		

3R-209-610.4			
3R-209-610	Ruler, 610 mm	x1	
3R-261.1	Support	x1	
3R-209.1	Ruler vice, Econo	x1	
3R-333-03	Allen key, 3 mm	x1	
3R-333-05	Allen key, 5 mm	x1	
	+ Accessories		

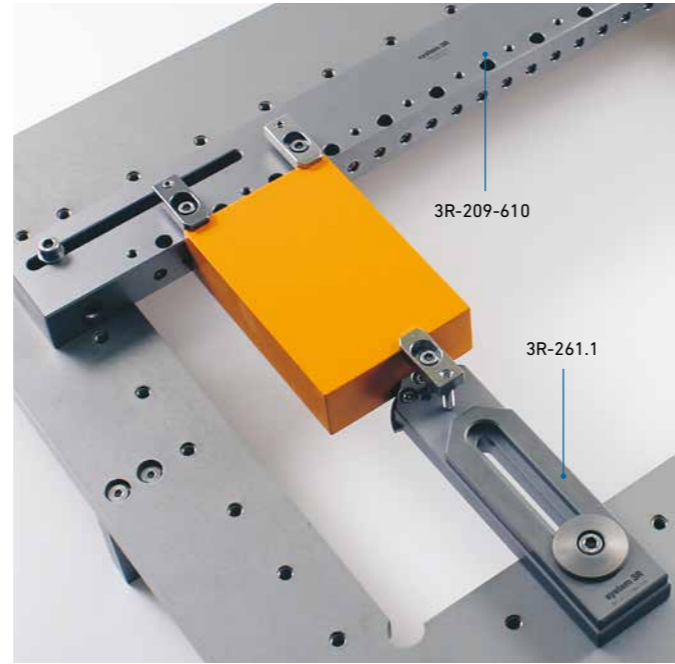
3R-209-860.4			
3R-209-860	Ruler, 860 mm	x1	
3R-261.1	Support	x1	
3R-209.1	Ruler vice, Econo	x1	
3R-333-03	Allen key, 3 mm	x1	
3R-333-05	Allen key, 5 mm	x1	
	+ Accessories		

EconoRuler accessories

Ruler vice, Econo, 3R-209.1

Our SuperVice design jaws provide a wide clamping range for rectangular workpieces. Detachable Z-support tabs ensure simple setting-up.

- Recommended maximum workpiece weight with one vice 15 kg
- Recommended maximum workpiece weight with two vices 200 kg
- Tightening torque 8 Nm
- Weight 0.7 kg



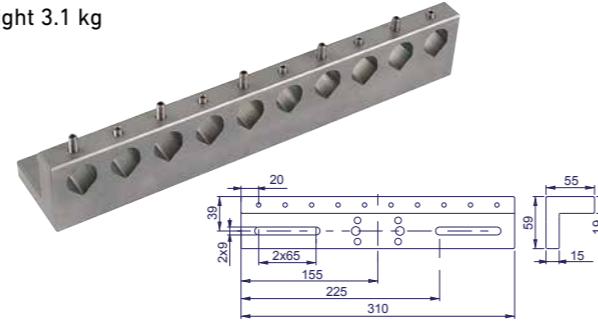
Other usable accessories can be found in the 3Ruler accessories section.



Multiple holder, Econo, 3R-294.7

Multiple holder for ten workpieces (Ø2-20 mm) at the same time. Mount direct on table or with a levelling head.

- C-C = 30 mm
- Squareness 0.1 mm/100 mm
- Weight 3.1 kg



Other usable accessories can be found in the 3Ruler accessories section.

V-holder, Econo, 3R-209.3

For clamping round workpieces. To be mounted on EconoRuler.

Suitable for horizontal or vertical mounting

- Clamping range Ø20-130 mm
- Additional support <300 mm
- Weight 0.9 kg



Clamps, 3R-A209

Aluminium clamps for mounting EconoRuler.

- Supplied in sets of 2



Universal holder, Econo, 3R-209.33

For clamping round workpieces.

To be mounted on EconoRuler.

- Clamping range Ø15-110 mm or 120x120 mm
- Weight 1.5 kg



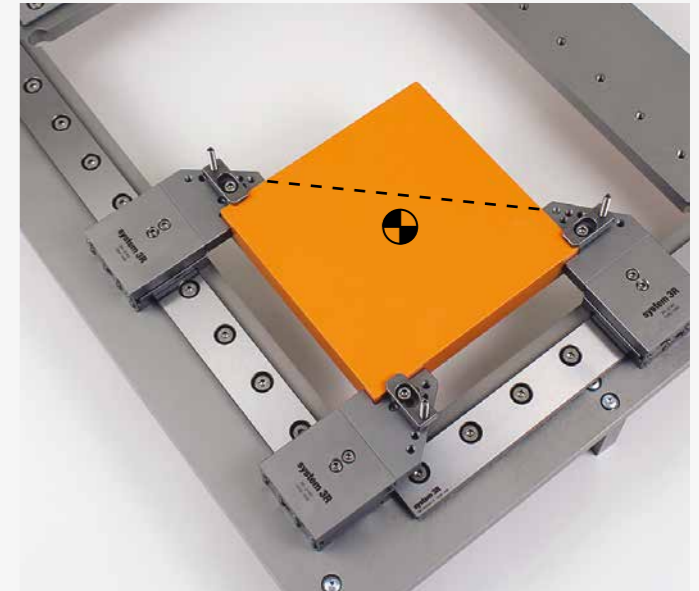
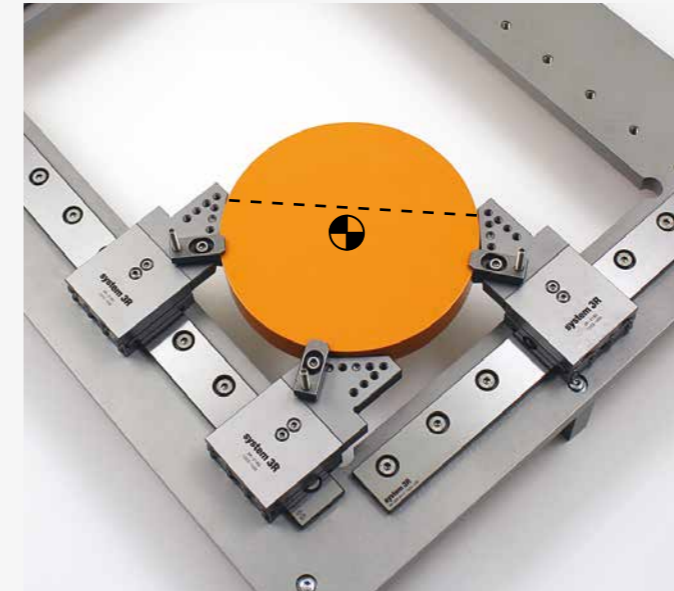
Other usable accessories can be found in the 3Ruler accessories section

3P Three-point system

Minimal risk of collision with three-point clamping. 3P is equally well suited to rectangular or round workpieces. Clamping takes only a few seconds.

3P has been developed for medium-sized and large workpieces in wire-EDM machines with L-shaped, U-shaped or frame tables, as well as in machines with a frame table. The holders are matched to the size of the workpiece by sliding them along the reference element. The holders can be adjusted vertically.

- Can be aligned in the machine
- Gives great flexibility
- Excellent value for money
- Easy cleaning
- Mounting on or above the machine's zero line



Holder set, 3R-2185

Set of three holders and fixing parts.

- Tightening torque 7 Nm
- Reversible jaws
- Holder length 70/23.5 mm.
- Recommended maximum workpiece weight 60 kg
- Weight per set 3 kg



Macro in detail



Basic equipment – Macro

With a Macro chuck as basic equipment on your machine table, you can interconnect all your machines to create a single system. Move workpieces quickly and precisely from wire EDM machines to grinding machines or die-sinking machines with no need for subsequent re-alignment.

If you choose a pneumatic Macro chuck, you can operate around the clock if you wish.

- Allows fully automated production
- Links all your machines together
- Z-references with automatic air-blast cleaning
- X and Y-references of cemented carbide
- Repetition accuracy:
 - Macro 0.002 mm
 - MacroNano 0.001 mm
- Turbo locking (for enhanced clamping)



NOTE: The pneumatic chucks require an air pressure of 6±1 bar.

Recommendations for loading in Macro chucks

Table chucks with horizontal mounting of the workpiece

Article number	Max. torque	Capacity (X=150mm)
3R-600.24RS	6 Nm	4 kg
3R-600.24-4RS	8 Nm	5 kg
3R-602.10-1	30 Nm	20 kg
3R-602.12-1	45 Nm	30 kg
3R-602.26	30 Nm	20 kg
3R-602.27	30 Nm	20 kg
3R-602.27-1	18 Nm	12 kg
3R-602.81RS	30 Nm	20 kg

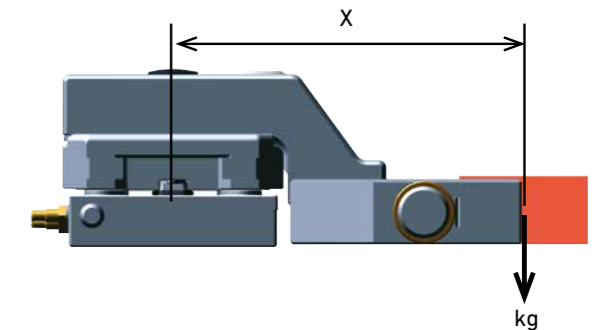
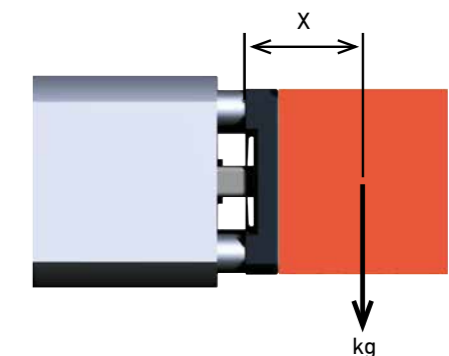


Table chucks with vertical mounting of the workpiece

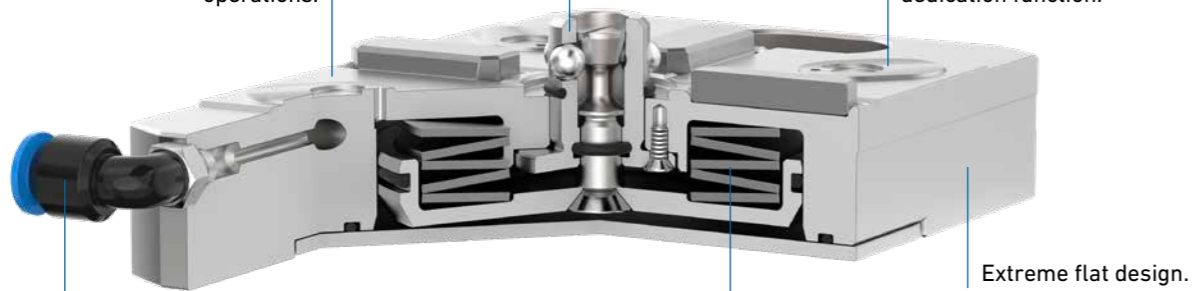
Article number	Max. torque	Capacity (X=100mm)
3R-600.24RS	8 Nm	6 kg
3R-600.24-4RS	8 Nm	7-8 kg
3R-602.4.1	8 Nm	7-8 kg
3R-602.27-1	8 Nm	7-8 kg
3R-60.360-X	8 Nm	7-8 kg



Our Macro system facilitates multiple and various machining operations.

Drawbar interface for best clamping force.

Z-reference with cleaning and pallet dedication function.



Extreme flat design.

Air inlets to operate chuck from side or bottom (depending on model).

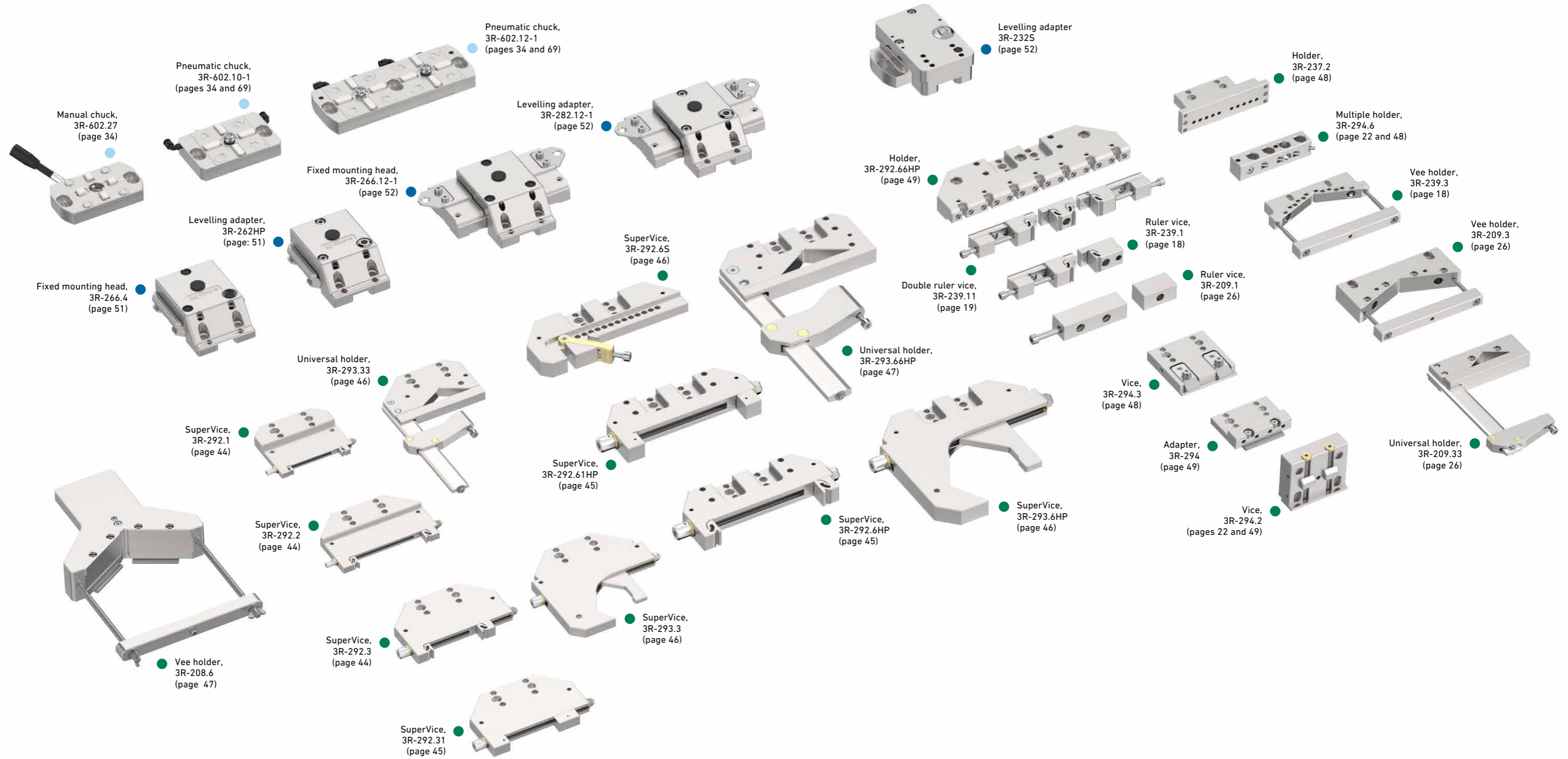
Spring-loaded when idling; special Turbo function via added air pressure.

NOTE: System 3R chucks are also available in the following versions: MacroNano for the highest precision; MacroHT and MacroInconel for extreme high temperatures; and, VDP for superior vibration damping.

Overview of the Macro system with horizontal mounting

Basic equipment on the machine table.

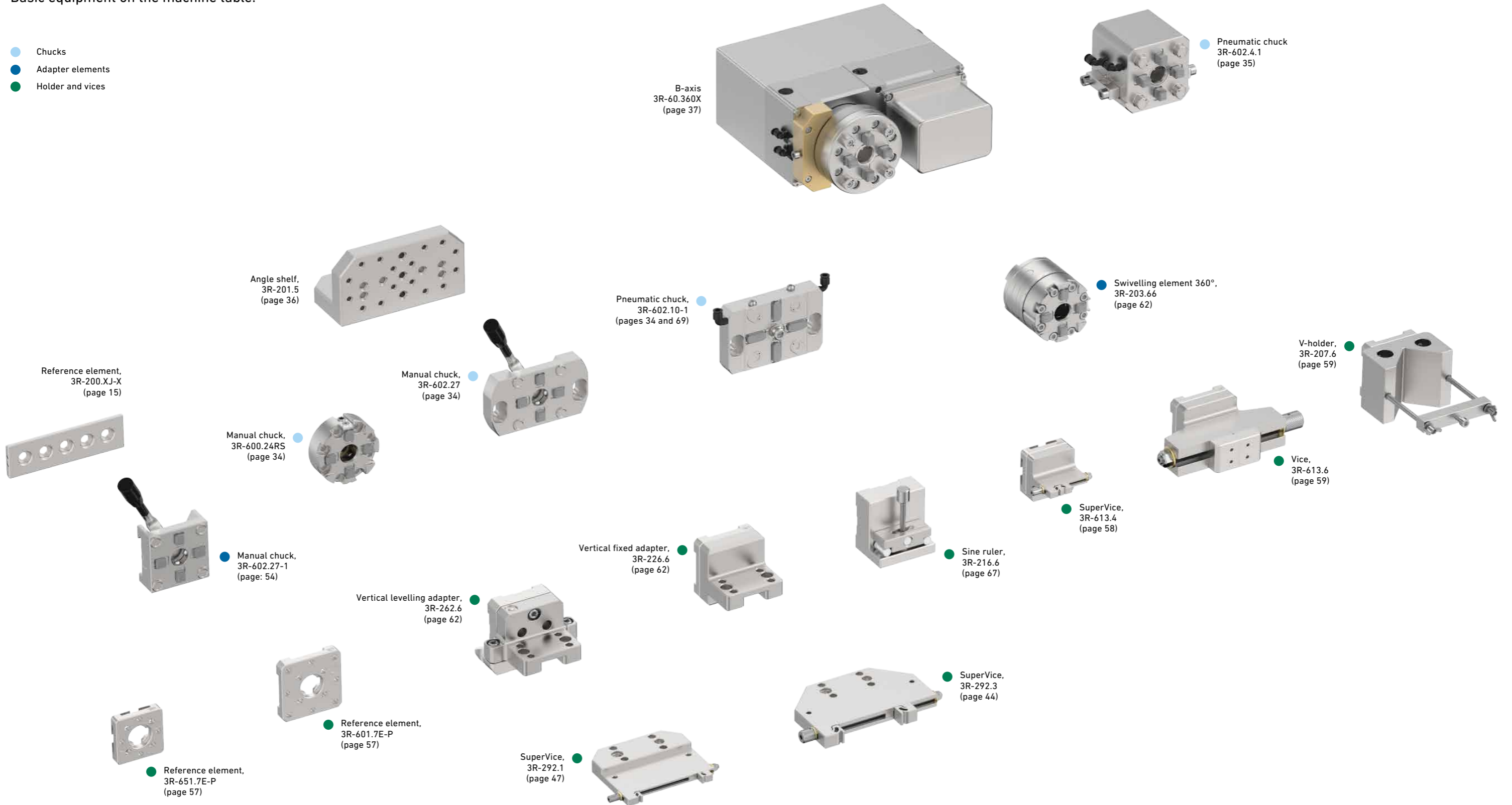
- Manual and pneumatic chucks
- Mounting heads
- Holder and vices



Overview of the Basic equipment – Macro

Basic equipment on the machine table.

- Chucks
- Adapter elements
- Holder and vices

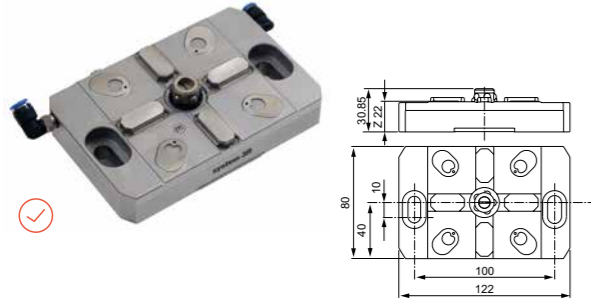


Basic equipment – Macro

Pneumatic chuck, Macro, 3R-602.10-1

Pneumatic chuck for Macro holders.

- Clamping force 6.7 kN
- Fixed index positions 4x90°
- Supplied with drawbar 3R-605.10
- Air-blast cleaning of Z-references
- Protective cover
- Weight 1.4 kg



Protective cover, Macro, 3R-SP37513

Suitable for manual or automatic applications (if gripped on drawbar). Gripper interface is related to choice of drawbar.

- Requires drawbar 3R-605.XX or similar
- Equipped with rubber pads for sealing
- Weight 0.6 kg

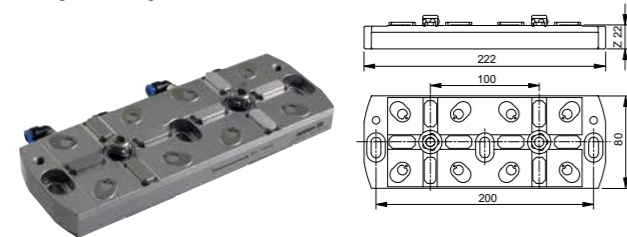


Pneumatic chuck, MacroTwin, 3R-602.12-1

Pneumatic chuck for Macro or MacroTwin. Horizontal mounting on the machine table.

NOTE: With automatic changing via WorkPal, MacroTwin holders only. Clamping force 2x6.7 kN

- Fixed index positions 4x90°
- Supplied with drawbars 3R-605.10
- Air-blast cleaning of the Z-references
- Protective covers
- Weight 2.4 kg

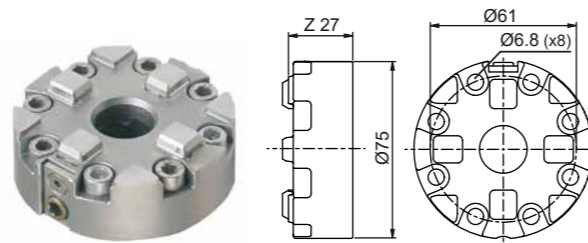


Manual chuck, Macro, 3R-600.24RS

Manual chuck for Macro holder.

Designed for permanent mounting.

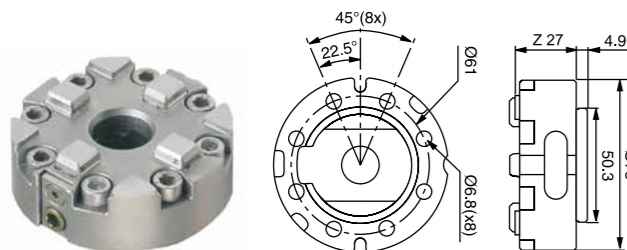
- Clamping force 6 kN
- Fixed index positions 4x90°
- Required drawbar 3R-605.2RS
- Tightening torque 6 Nm
- Weight 0.7 kg



Manual chuck, Macro, 3R-600.23RS

Manual chuck with mounting flange for Macro holder. Designed for permanent mounting.

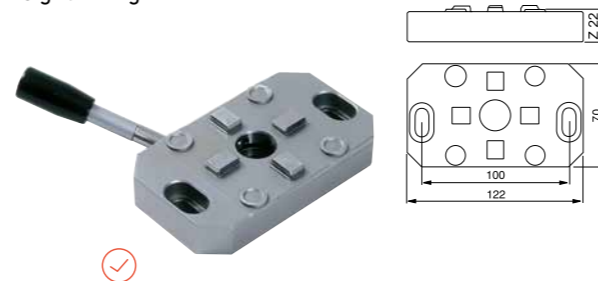
- Clamping force 6 kN
- Fixed index positions 4x90°
- Required drawbar 3R-605.2RS
- Tightening torque 6 Nm
- Weight 0.7 kg



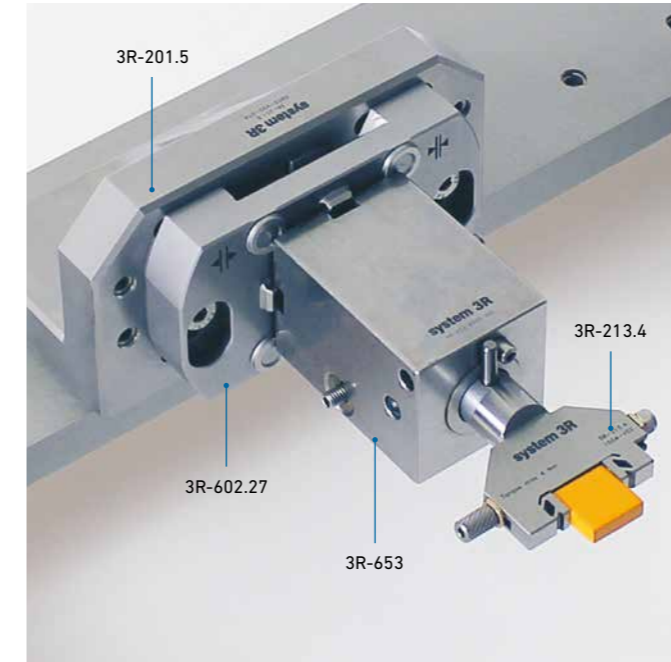
Manual chuck, Macro, 3R-602.27

Manual chuck with lever for Macro holder.

- Clamping force 6 kN
- Fixed index positions 4x90°
- Supplied with drawbar 3R-605.27RS.
- Built-in latch function
- Weight 1.1 kg



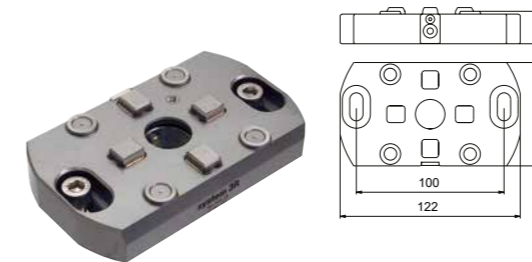
Basic equipment – Macro



Manual chuck, Macro, 3R-602.26

Manual chuck for Macro holder.

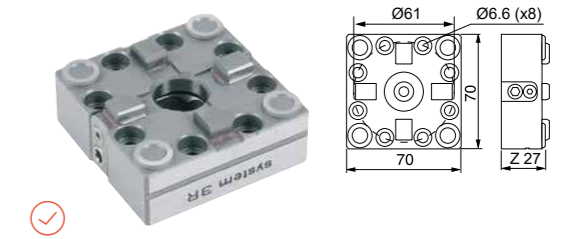
- Clamping force 6 kN
- Fixed index positions 4x90°
- Supplied with drawbar 3R-605.26.
- Tightening torque 6 Nm
- Weight 1.1 kg



Manual chuck, Macro, 3R-600.24-4RS

Manual chuck for Macro holder. Mounts on a suitable fixture.

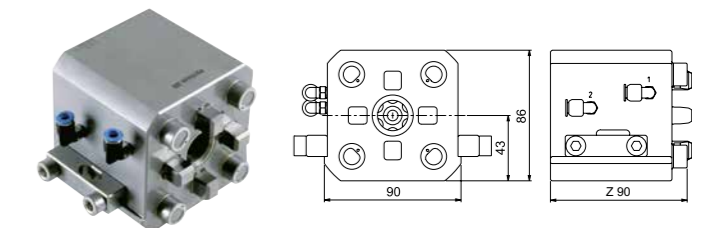
- Clamping force 6 kN
- Fixed index positions 4x90°
- Required drawbar 3R-605.2RS
- Tightening torque 6 Nm
- Ground front edge
- Weight 1 kg



Pneumatic chuck, Macro, 3R-602.4.1

Pneumatic chuck for Macro holder.

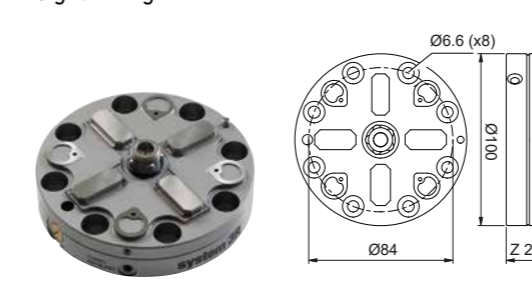
- Clamping force 6 kN
- Fixed index positions 4x90°
- Required drawbar 3R-605.1RS
- Air-blast cleaning of Z-references
- Weight 4.1 kg



Pneumatic chuck, Macro, 3R-602.81RS

Pneumatic chuck, low-profile, for Macro holder.

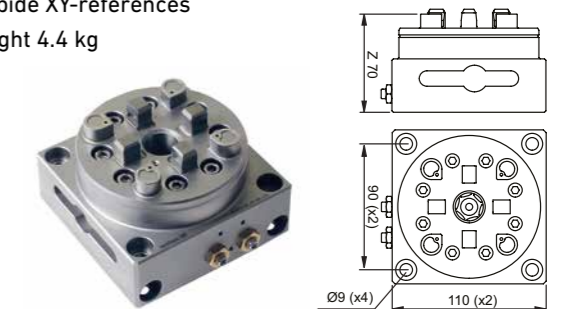
- Clamping force 6 kN
- Fixed index positions 4x90°
- Required drawbar 3R-605.10
- Air-blast cleaning of Z-references
- Weight 4.1 kg



Pneumatic chuck, MacroHP, 3R-600.10-3RS

Pneumatic chuck locked/opened with air gun.

- Clamping force 6 kN
- Fixed index positions 4x90°
- Required drawbar 3R-605.1RS
- Air-blast cleaning of the Z-references
- Carbide XY-references
- Weight 4.4 kg

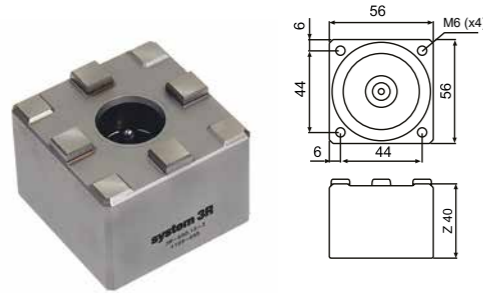


Basic equipment – Macro

Pneumatic chuck, Macro, 3R-600.15-3

Pneumatic chuck for permanent mounting on the machine table.

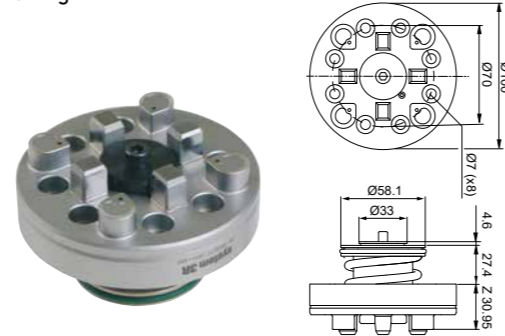
- Clamping force 4.5 kN
- Fixed index positions 4x90°
- Supplied with drawbar 3R-605.2RS
- Weight 0.8 kg



Pneumatic in-built chuck, Macro, 3R-SP26771-RS

Chuck for Macro holder. For permanent mounting on the machine spindle or fixture.

- Clamping force 6 kN
- Fixed index positions 4x90°
- Required drawbar 3R-605.1RS
- Weight 2 kg

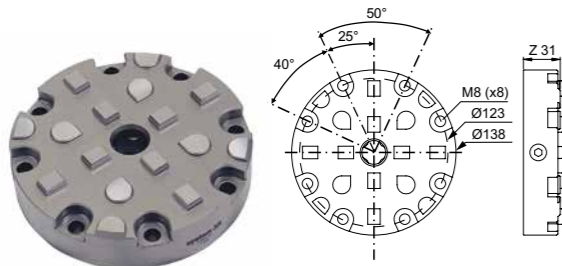


Manual chuck (low profile), MacroMagnum, 3R-680.24RS

Chuck for MacroMagnum holder. For permanent mounting on the machine spindle or table.

NOTE: Master 3R-606.1 or 3R-686.1-HD required at installation.

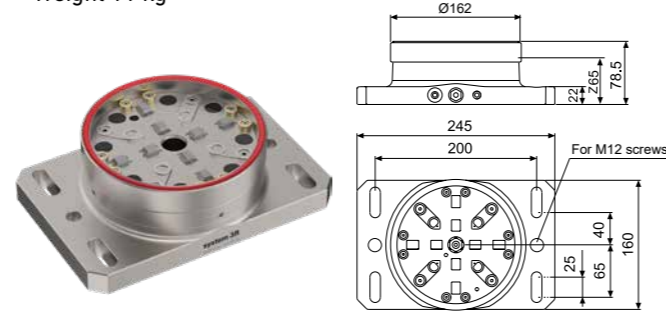
- Clamping force – Macro at 4 kN; 6 kN, MacroMagnum at 10 kN; 16 kN
- Fixed index positions 4x90°
- Required drawbar 3R-605.2RS
- Tightening torque Macro 4 Nm, MacroMagnum 10 Nm
- Weight 5 kg



Pneumatic chuck MacroMagnum, 3R-680.10-2RS

Pneumatic table chuck for MacroMagnum holder.

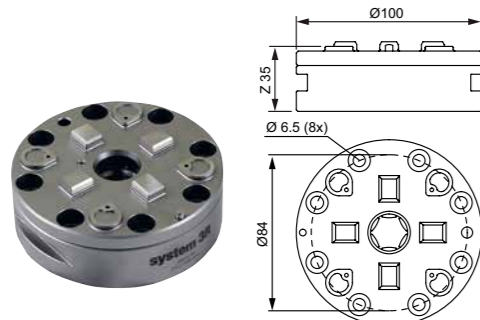
- Carbide XY-references
- Rust resistant
- Fixed index positions 4x90°
- Required drawbar 3R-605.1RS
- Clamping force – Macro at 5 kN with Turbo MacroMagnum at 15.5 kN
- Weight 11 kg



Pneumatic chuck (low profile), Macro, 90945.01

Pneumatic chuck for permanent mounting on the machine table.

- Clamping force 6.2 kN
- Required drawbar 3R-605.2RS
- Fixed index positions 4x90°
- Weight 2 kg

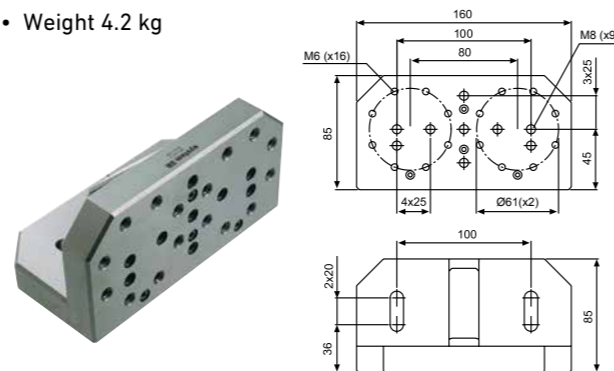


Angle shelf, 3R-201.5

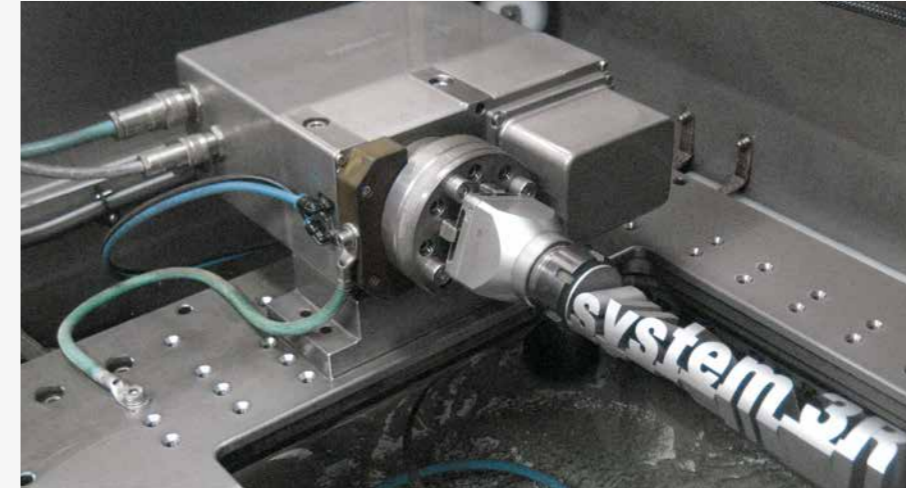
Mounts directly on the machine table. For vertical mounting of a Macro chuck or short reference element in the machine.

Examples of suitable chucks: 3R-600.24RS, 3R-602.10-1, 3R-602.26, 3R-602.27 and Reference element 3R-200.1J-U.

- Weight 4.2 kg



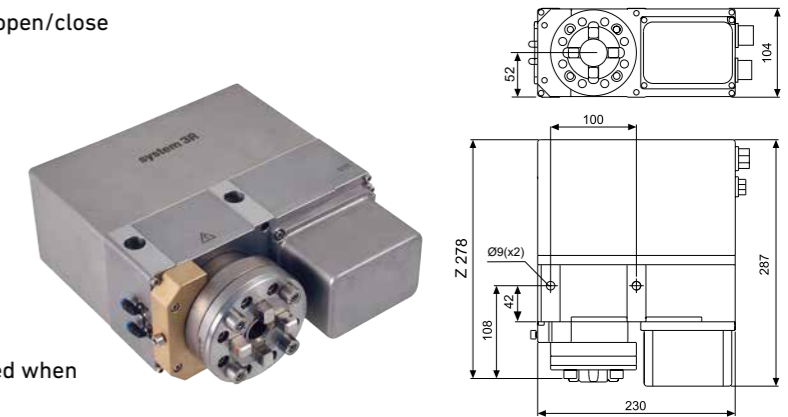
B-axis, rotating spindles and rotary table



B-axis, Macro

Compact rotary indexing tables with pneumatic Macro chuck. Indexing 0-360° with smallest step 0.001°. Air connections for open/close as well as turbo-locking/air-blast cleaning.

- Required drawbar 3R-605.1RS
- Indexing accuracy ±0.003° without correction
- Speed range 0-10 rpm
- Automatic air-blast cleaning of the Z-references
- Weight 18 kg



Machine-adapted B-axis, 3R-60.360X

NOTE: The units are controlled by the machine.

The mark and type of the machine must therefore be stated when ordering.

Neutral B-axis, 3R-60.360SA

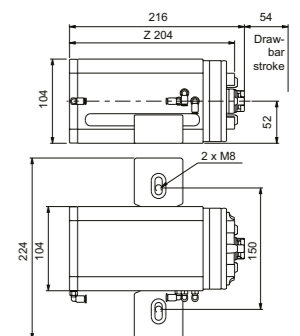
Supplied with a separate control unit.

Spare part kit brushes, 3R-SSP100 (same for all B-axis units).

Automatic indexing chuck, Macro, D-30206

Pneumatic in-built chucks for Macro holders. Can also be used in milling and grinding operations without high cutting forces.

- Automatic index positions 4x90°
- Submersible
- Clamps 3R-A239 included
- Suitable control unit D-30206-01 (not included)
- Weight 14 kg



B-axis, rotating spindles and rotary table

Really small parts that are difficult to produce in lathes or grinders can usefully be wire-EDMed using a rotating spindle on the machine table.

Rotating spindle, 3R-6.600-VHS

For clamping in a horizontal or vertical Macro chuck. Flushing via the spindle or an external flushing connection.

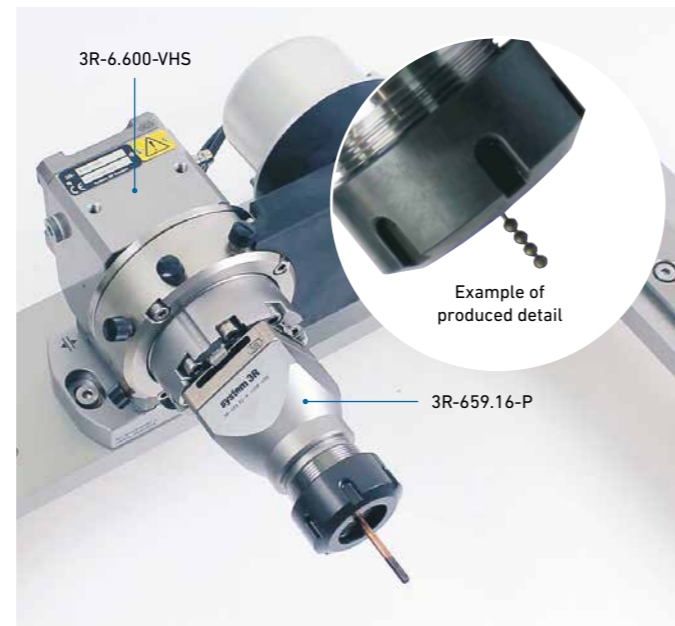
- Control unit included
- Required drawbar 3R-605.2RS
- Immersible
- Speed range 60-1,500 rpm
- Maximum workpiece weight 2 kg
- Maximum flushing pressure through the chuck 15 bars
- Maximum external flushing pressure 40 bars
- Weight 9.5 kg



Rotating spindle, 3R-6.300-EHS16

For clamping in a vertical Macro chuck. Flushing via the spindle or an external flushing connection. Recommended collets are Balzer EHS16, Regofix ER16 or Tecnopinz ETS16.

- Control unit included
- Drawbar depends on chosen chuck
- Immersible
- Speed range 60-2,000 rpm
- Maximum flushing pressure through the chuck 15 bars
- Maximum external flushing pressure 80 bars
- Weight 10 kg

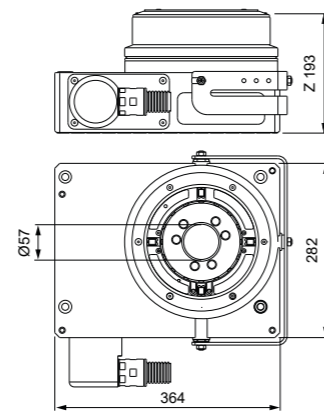
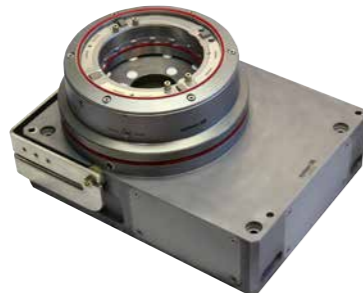


Rotary table, Matrix 185, D-30229-X

Rotary table with Matrix 185 interface.

NOTE: The units are controlled by the machine. The mark and type of the machine must therefore be stated when ordering.

- Speed 8 rpm (variable 0-8 rpm)
- Maximum load 300 kg
- Submersible, IP68
- Weight 77 kg



Accessories

Spare parts kit, 3R-SSP012

Spare parts kit including instructions for 3R-602.10-1 or 3R-602.12-1 (Twin chuck, use 2 pcs. 3R-SSP012).



Several spare part kits are available; please ask.

Locking ring key, 3R-605-GE

To lift the drawbar locking ring.

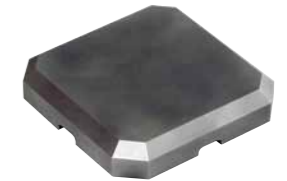
- Supplied in sets of 2



Protective cover, Macro, 3R-SP37513

Suitable for manual or automatic applications (if gripped on drawbar). Gripper interface is related to choice of drawbar.

- Requires drawbar 3R-605.xx or similar
- Equipped with rubber pads for sealing
- Weight 0.6 kg



Air unit, 3R-611.46

Unit for operation of pneumatic chucks. Three positions – open/neutral/closed.



Air unit, 3R-611.4

Unit for operation of pneumatic chucks. Two positions – open/closed.



Air unit, 3R-611.60

Unit for operating pneumatic chucks in B-axes. Two functions – open/close with four-second delay for air-blast cleaning.

Air unit, 3R-611.62

For serial use with 3R-611.2 or 3R-611.4.



Drawbars

3R-605.1RS

- Drawbar Ø20x57.1 mm with flushing hole Ø7 mm ✓



3R-605.1E-RS

- Sets of 10 pcs

3R-605.2RS

- Drawbar Ø20x36.9 mm with flushing hole Ø7 mm ✓



3R-605.2E-RS

- Sets of 5 pcs

3R-605.27RS

- Drawbar Ø20x27 mm ✓



3R-605.26

- Drawbar Ø20x32 mm



3R-605.10

- Drawbar Ø20x13 mm ✓

3R-605.10E

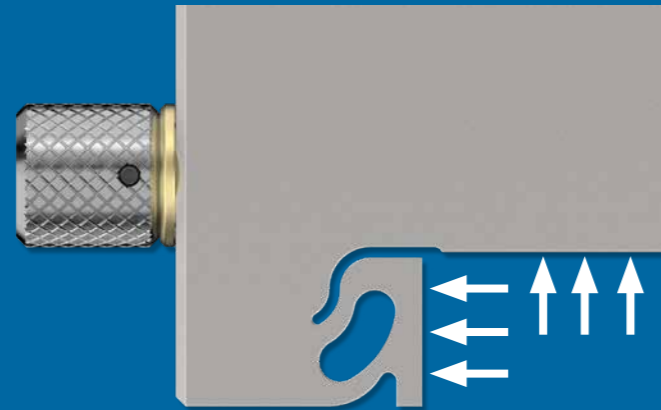
- Drawbar Ø20x13 mm ✓
- Supplied in sets of 10 ✓

3R-605.10EE

- Drawbar Ø20x13 mm ✓
- Supplied in sets of 20 ✓



SuperVice in detail

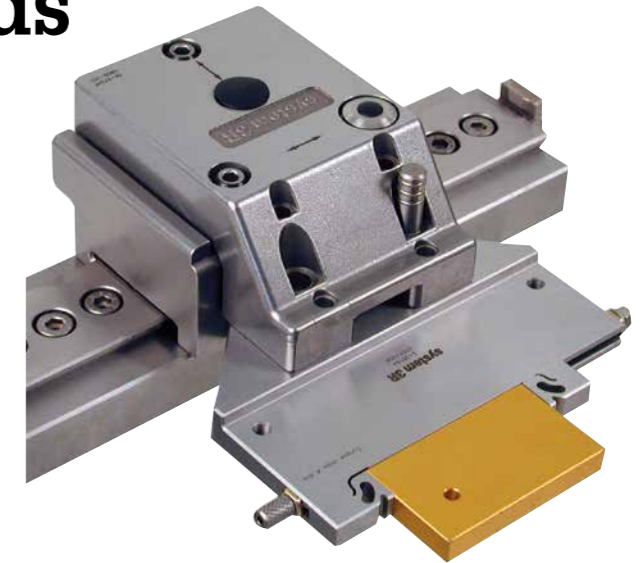


The jaws' asymmetric cut-out squeezes the workpiece and actively pushes it to the end stop.

HOLDERS and vices for mounting heads

SuperVice solves set-up problems for the most frequently occurring sizes of workpiece (small to medium). The high repetition accuracy not only facilitates presetting and fast set-up, it also provides a solid foundation for rational series production. Springback is minimal and resonance damping is significant. Put all this together and you have a very firm grip on production. SuperVice delivers more than others dare to promise.

- The low profile gives clearance from the upper and lower wire guides
- High clamping force

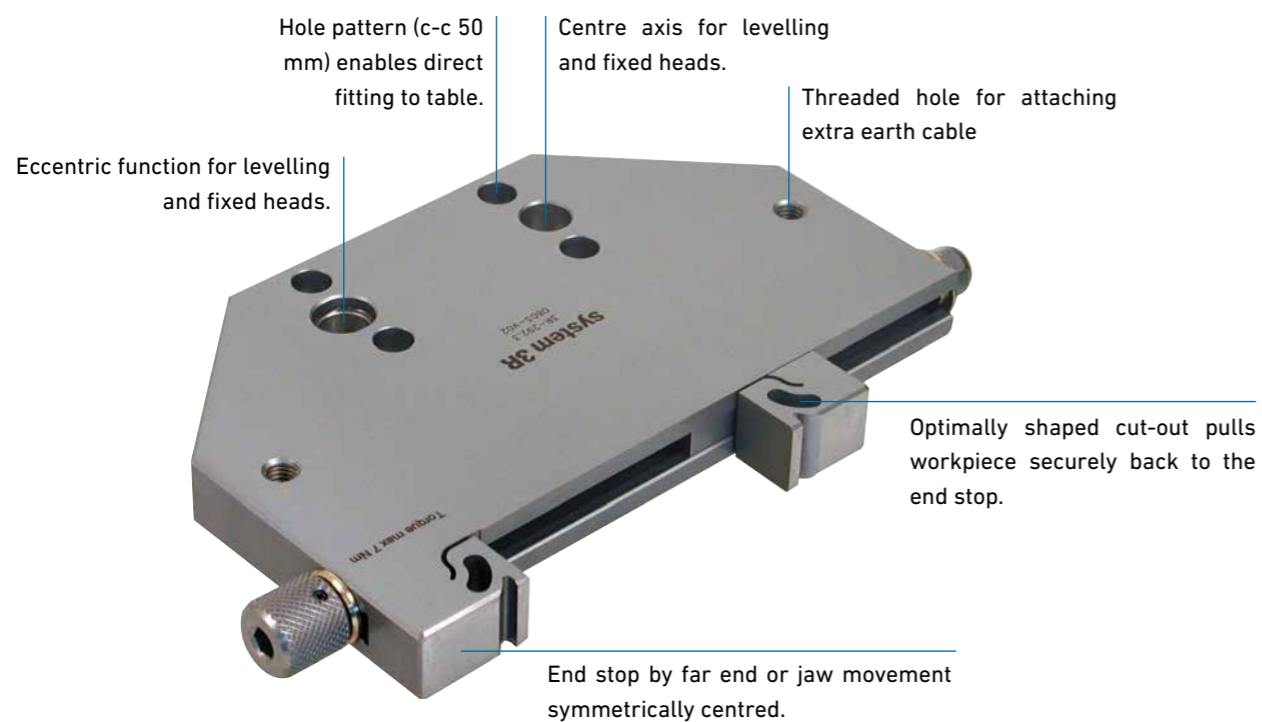
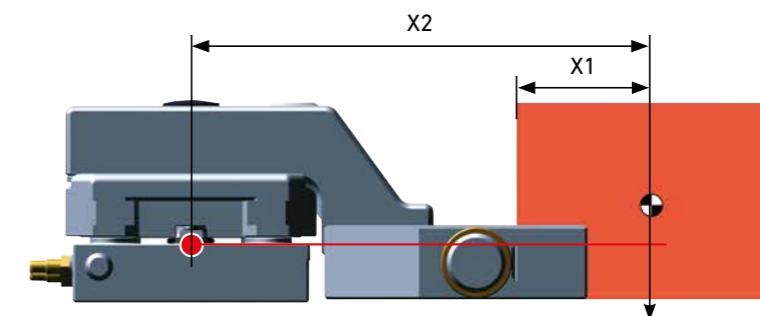


The unique, patented asymmetric design of the locking jaws gives extremely high locking force and, simultaneously, enhances contact between the workpiece and the reference surface.



Article number	X1 Recommended maximum torque	Maximum workpiece weight X1*=50mm	Maximum workpiece weight X1*=100mm	X2 Torque generated in chuck coupling
3R-292.1	1.5 Nm	3 kg	1.5 kg	5.4 Nm
3R-292.2	1.75 Nm	3.5 kg	1.75 kg	6.2 Nm
3R-292.3	4 Nm	8 kg	4 kg	14.3 Nm
3R-292.3D	4 Nm	8 kg	4 kg	14.3 Nm
3R-292.3P	4 Nm	8 kg	4 kg	14.3 Nm
3R-292.31	2.75 Nm	5.5 kg	2.75 kg	10 Nm
3R-292.6HP	10 Nm	20 kg	10 kg	31.5 Nm
3R-292.61HP	6.5 Nm	13 kg	6.5 kg	19.8 Nm
3R-292.6S	4.5 Nm	9 kg	4.5 kg	15.2 Nm
3R-294.1	1.25 Nm	2.5 kg	1.25 kg	4.65 Nm
3R-294.2	2.5 Nm	5 kg	2.5 kg	9.4 Nm
3R-294.3	3 Nm	6 kg	3 kg	10.2 Nm

*Centre of gravity of the workpiece with X mm overhang.



Ledger – workpiece holding tools

Section 1: Horizontal holding

The following vices require an intermediate unit (fixed or levelling head) to fit to a table related interface of reference element 3R-200.xJ-yy, Macro, MacroTwin or MacroWEDM chucks

Product no.	Torque	Thickness	Rectangular workpieces	Round workpieces	Page
3R-292.1	3 Nm	8 mm	0-77 mm		44
3R-292.2	3 Nm	10 mm	0-100 mm		44
3R-292.3	7 Nm	15 mm	0-100 mm		44
3R-292.3D	7 Nm	15 mm	0-100 mm	Ø3-15 mm	45
3R-292.3P	7 Nm	15 mm	0-100 mm	Ø3-15 mm	45
3R-292.23	5 Nm	15 mm	115x145 mm		47
3R-292.31	7 Nm	15 mm	0-90 mm		45
3R-292.6HP	15 Nm	25 mm	0-150 mm		45
3R-292.6S	10 Nm	25 mm	0-150 mm		46
3R-292.61HP	15 Nm	25 mm	0-150 mm		45
3R-292.66HP*		25 mm	(0-180 mm)	See section 4	49
3R-293.3	7 Nm	25 mm		Ø4-90 mm	46
3R-293.6HP	10 Nm	25 mm		Ø15-155 mm	46
3R-293.33	3 Nm	25 mm	100x100 mm	Ø8-100 mm	46
3R-293.66HP	4 Nm	25 mm	150x150 mm	Ø15-150 mm	47

*Requires either 3R-239.1 or 3R-239.3. See also section 5 for more information.

Section 2: Vertical holding

Product no.	Torque	Thickness	Height	Round Workpieces	Page
3R-292.66HP**		25 mm	(1-150 mm)		49
3R-294.1	4 Nm	40 mm	1-17 mm		22, 49
3R-294.2	4 Nm	76 mm	1-50 mm		22, 49
3R-294.3		15 mm	0-120 mm		48
3R-294.6	3 Nm	26 mm		Ø5-13 mm	22, 48
3R-294.7	3 Nm	55 mm		Ø2-20 mm	26

**Requires either 3R-239.2 or 3R-230.1 for extended height. See also section 5 for more information.

Ledger – workpiece holding tools

Section 3: Macro pallets for horizontal loading

The following vices are intended for horizontal loading onto Macro chucks without a tilting function.

Product no.	Torque	Thickness	Rectangular workpieces	Round workpieces	Page
3R-207.6		70 mm	10-52 mm	Ø8-70 mm	59
3R-613.4	3 Nm	8 mm	0-25 mm		58
3R-613.6	15 Nm	35 mm	1-80 mm	Ø5-55 mm***	59

***Requires 3R-SP16115

Section 4: Macro pallets for vertical loading

In addition to section 2 (vertical loading), the following item does not require an additional fixed or levelling head.

Product no.	Torque	Thickness	Rectangular workpieces	Round workpieces	Page
3R-208.6		50 mm	(1-150 mm)	Ø25-160 mm	47

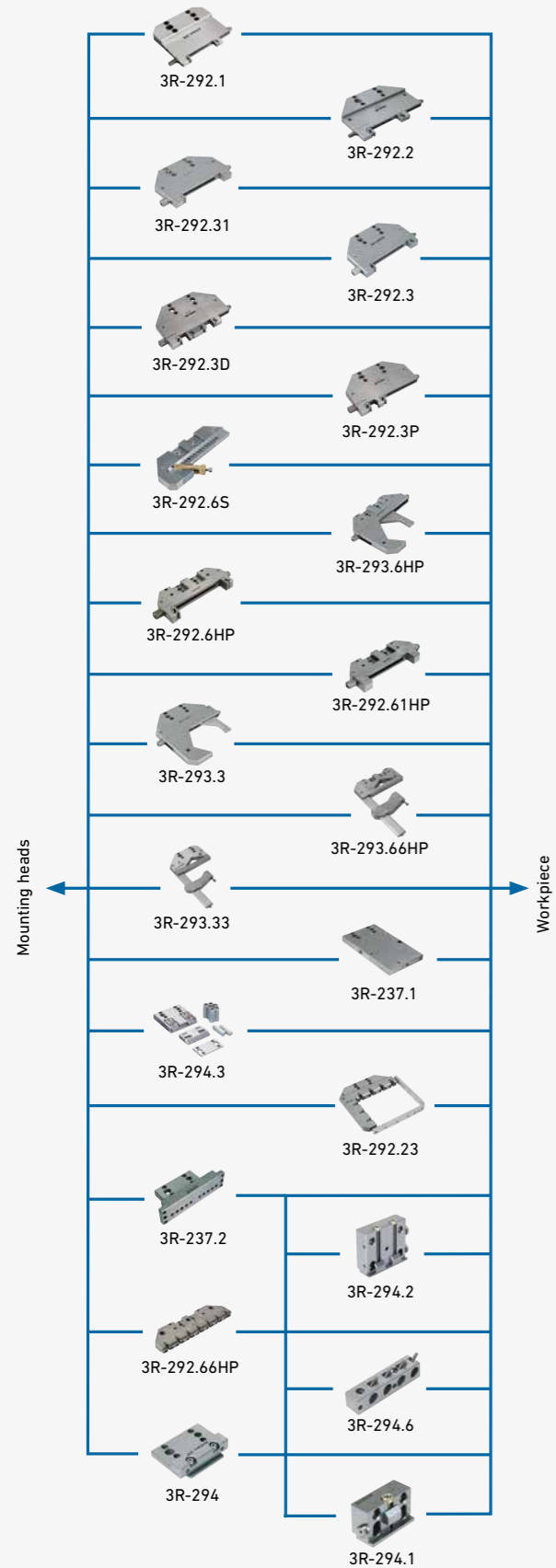
Section 5: Accessories for 3Ruler and EconoRuler

The following workholding devices are attachments onto either 3Ruler or EconoRuler. This is also to include 3R-292.66HP

Product no.	Torque	Thickness	Rectangular workpieces	Round workpieces	Page
3R-209.1	8 Nm	25 mm	5-xxx mm		26
3R-209.3	7 Nm	25.5 mm		Ø20-130 mm	26
3R-292.33	3 Nm	25 mm	0.120 mm	Ø15-110 mm	26
3R-239.1	8 Nm	25 mm	20-xxx mm		18
3R-239.11	8 Nm	25 mm	20-xxx mm		19
3R-239.3	7 Nm	15 mm		Ø25-130 mm	18

Product no.	Torque	Thickness	Height	Round workpieces	Page
3R-239.2			0-27 mm		18
3R-294.1	4 Nm	40 mm	0-17 mm		22, 49
3R-294.2	3 Nm	76 mm	0-50 mm		22, 49
3R-294.6	3 Nm	26 mm		Ø5-13 mm	22, 48

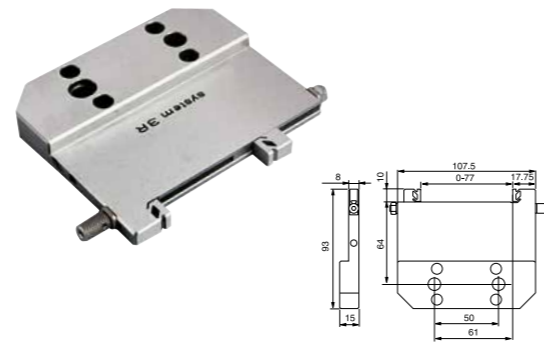
Holders and vices for mounting heads



SuperVice, 3R-292.1

For clamping rectangular workpieces up to 77 mm.

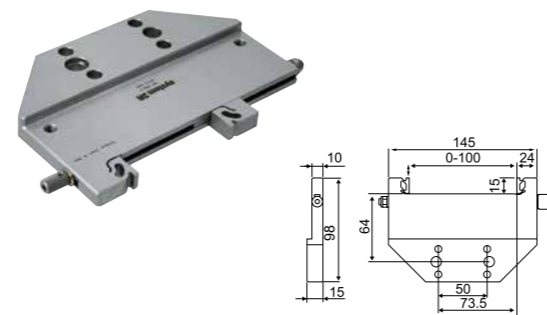
- Tightening torque 3 Nm
- Weight 0.6 kg



SuperVice, 3R-292.2

For clamping rectangular workpieces up to 100 mm.

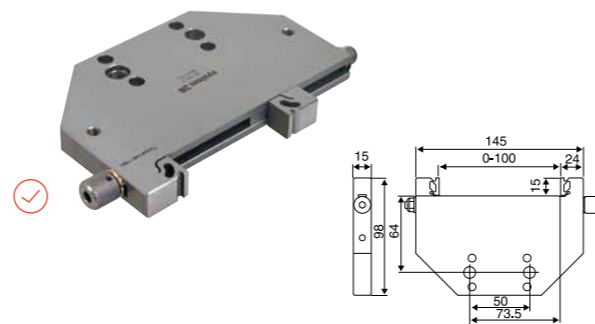
- Tightening torque 3 Nm
- Weight 0.9 kg



SuperVice, 3R-292.3

For clamping rectangular workpieces up to 100 mm.

- Tightening torque 7 Nm
- Weight 1.1 kg

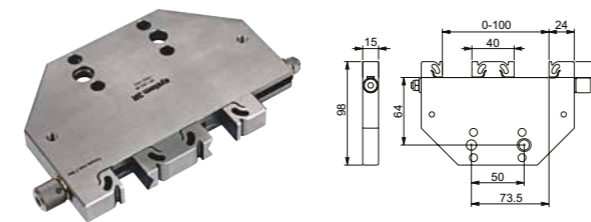


Holders and vices for mounting heads

SuperVice, Double, 3R-292.3D

For collision-free clamping of both rectangular and round workpieces (14-45 mm and Ø3-15 mm respectively). Total clamping range 60 mm (split between two workpieces). Alternatively, dismount the double jaw and use as a regular 3R-292.3 vice for rectangular workpieces (0-100 mm).

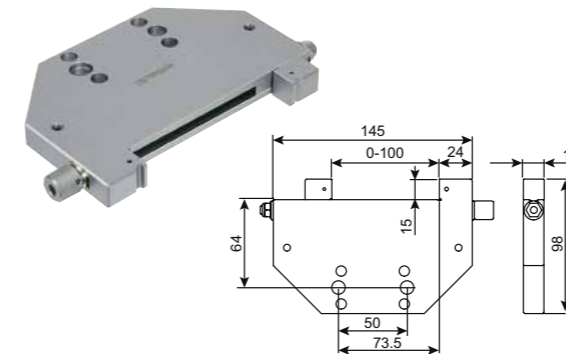
- Tightening torque 7 Nm
- Weight 1.2 kg



SuperVice, 3R-292.31

Vice with solid jaws for clamping rectangular workpieces up to 100 mm.

- Tightening torque 8 Nm
- Weight 1.1 kg

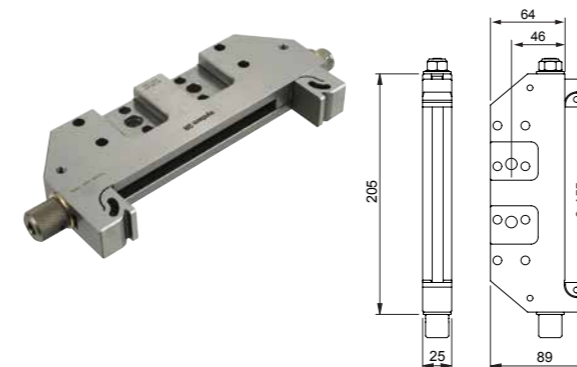


SuperVice, Magnum, 3R-292.6HP

Vice for clamping rectangular workpieces up to 155 mm.

NOTE: Mounts on HP, Magnum or MacroTwin levelling adapter.

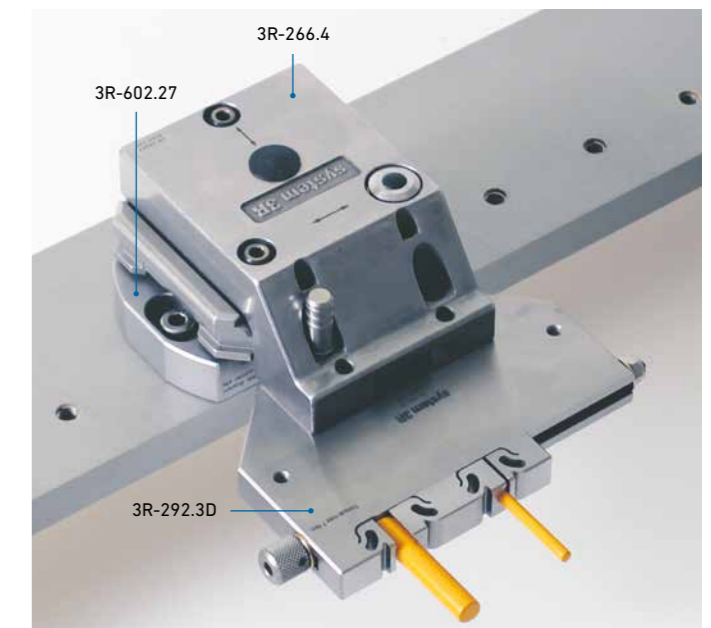
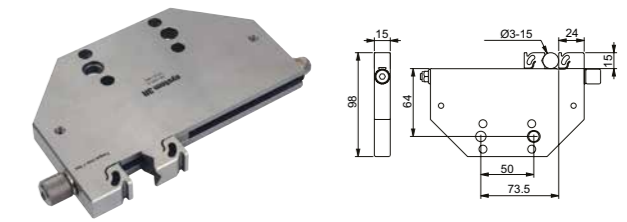
- Tightening torque 15 Nm
- Weight 2.8 kg



SuperVice, Prism, 3R-292.3P

For vertical or horizontal collision-free clamping of round workpieces (Ø3-15 mm). Alternatively, rotate the movable jaw and use as a regular 3R-292.3 vice for rectangular workpieces (0-100 mm).

- Tightening torque 7 Nm
- Weight 1.1 kg

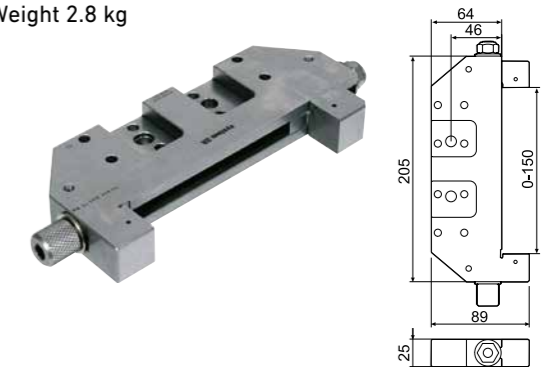


SuperVice, Magnum, 3R-292.61HP

Vice with solid jaws for clamping rectangular workpieces up to 150 mm.

NOTE: Mounts on HP, Magnum or MacroTwin levelling adapter.

- Tightening torque 15 Nm
- Weight 2.8 kg



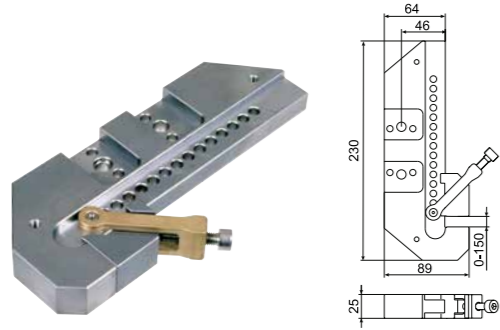
Holders and vices for mounting heads

SuperVice, Magnum, 3R-292.6S

Vice for clamping rectangular workpieces up to 150 mm.

NOTE: Mounts on HP, Magnum or MacroTwin levelling adapter.

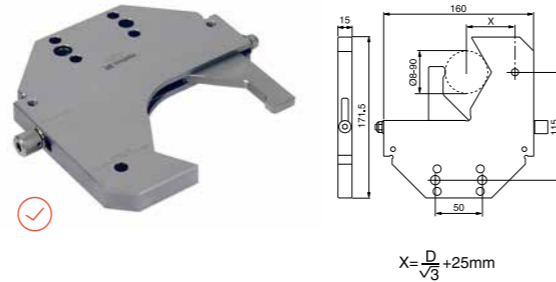
- Tightening torque 10 Nm
- Weight 2.7 kg



SuperVice, 3R-293.3

Vice for clamping round workpieces 8-90 mm.

- Tightening torque 8 Nm
- Recommended maximum workpiece weight 7 kg
- Weight 1.7 kg



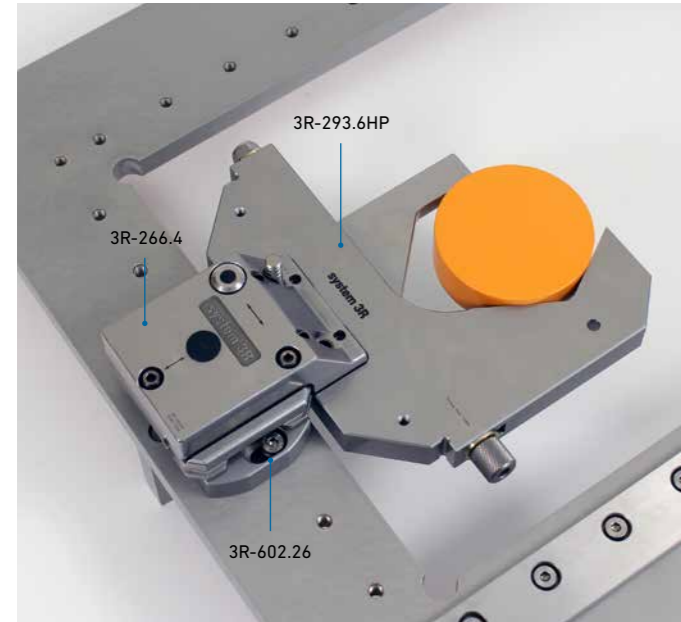
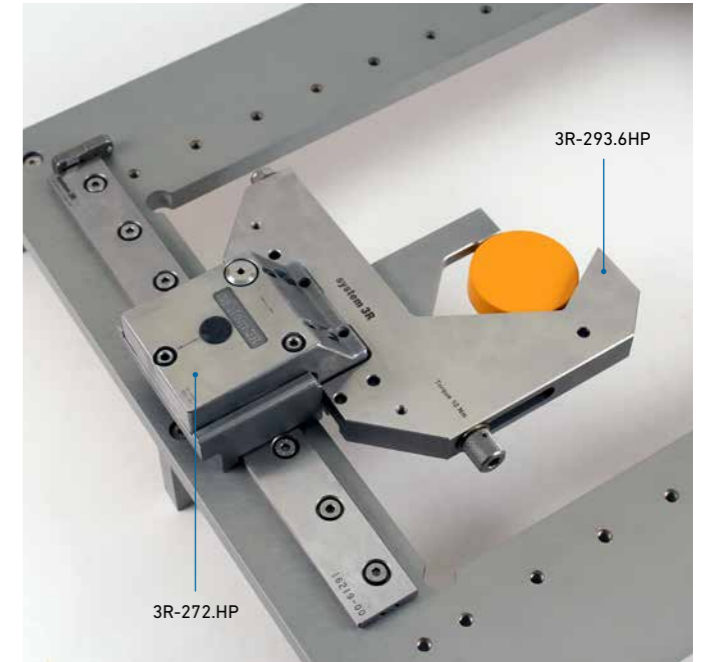
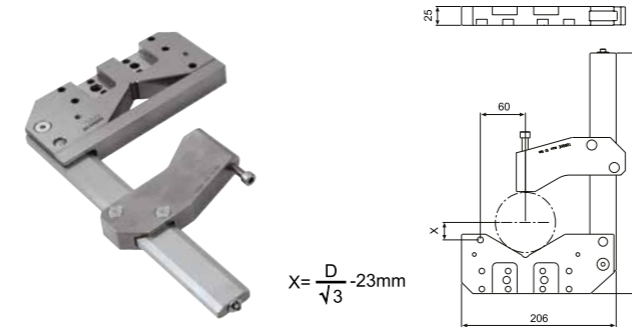
Holders and vices for mounting heads

Universal holder, Magnum, 3R-293.66HP

For round workpieces 15-150 mm diameter, or rectangular workpieces up to 150 mm.

NOTE: Mounts on HP, Magnum or MacroTwin mounting head.

- Tightening torque 6 Nm
- Recommended maximum workpiece weight 12 kg
- Weight 4.2 kg

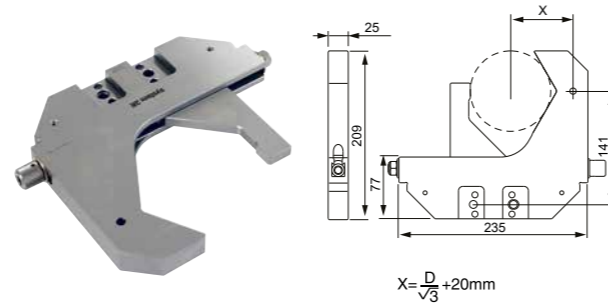


SuperVice, Magnum, 3R-293.6HP

Vice for clamping round workpieces 15-155 mm.

NOTE: Mounts on HP, Magnum or MacroTwin levelling adapter.

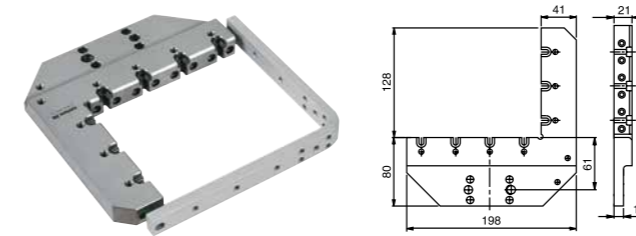
- Tightening torque 10 Nm
- Recommended maximum workpiece weight 12 kg
- Weight 4.5 kg



Angled holder, 3R-292.23

For clamping a workpiece or fixture on a mounting head. Can be supplemented with 3Ruler accessories.

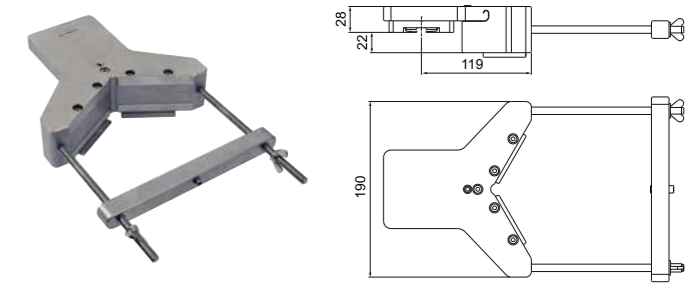
- Weight 3 kg



V-holder, MacroWEDM, 3R-208.6

Holder with tilting function. For round workpieces 26-60 mm. To align workpiece prior to machining, can be adjusted in one axis.

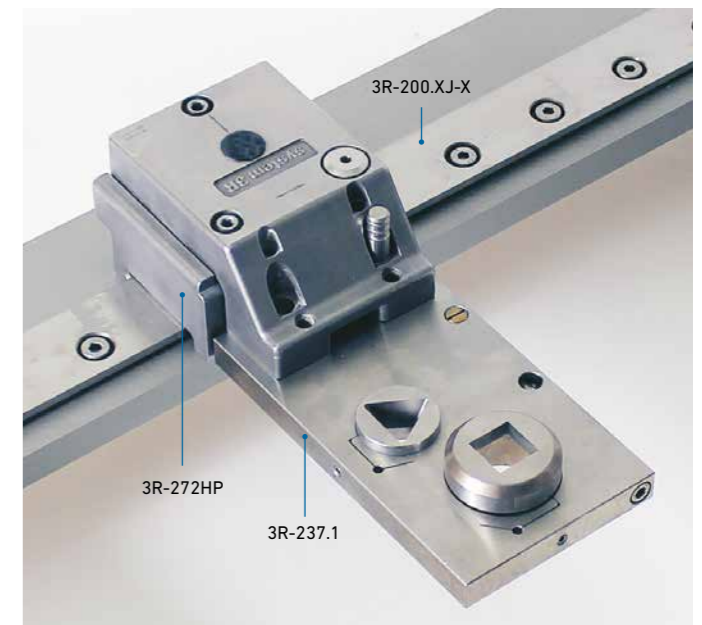
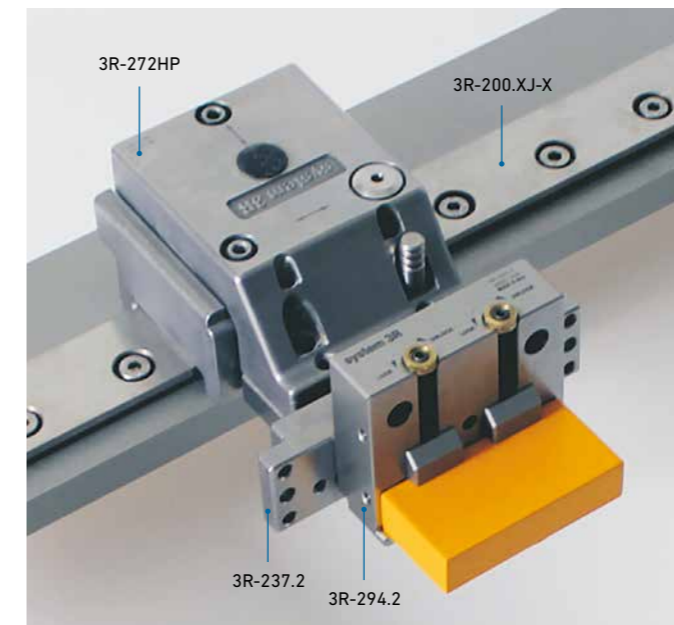
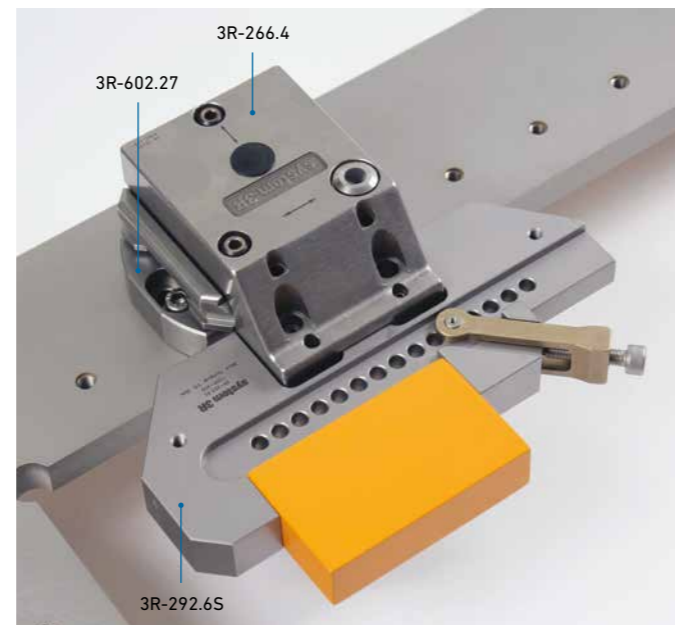
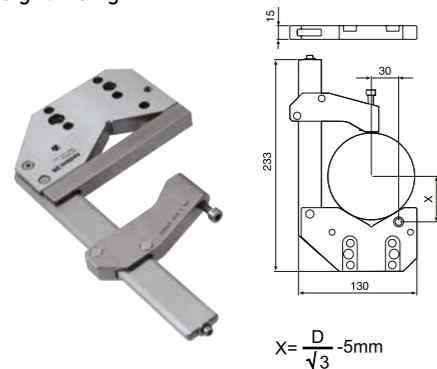
- Recommended maximum load 12 kg
- Weight 5.5 kg



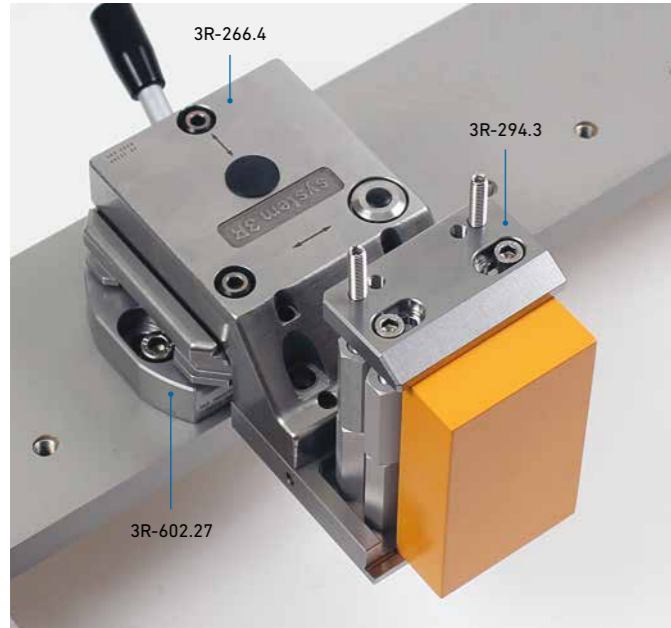
Universal holder, 3R-293.33

Holder for round workpieces 8-100 mm, or rectangular workpieces up to 100 mm.

- Tightening torque 3 Nm
- Recommended maximum workpiece weight 7 kg
- Weight 1.5 kg



Holders and vices for mounting heads

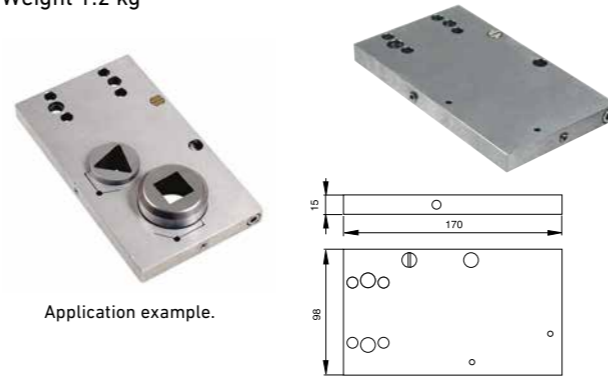


Holder, 3R-237.1

Stainless steel, hardened, do-it-yourself holder. With start hole for wire EDM of the required shape for clamping one or more workpieces.

Recommended maximum weight 7 kg

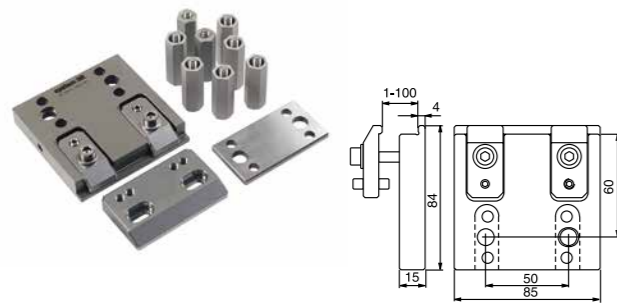
- Weight 1.2 kg



Vice, 3R-294.3

For clamping workpieces up to 100 mm.

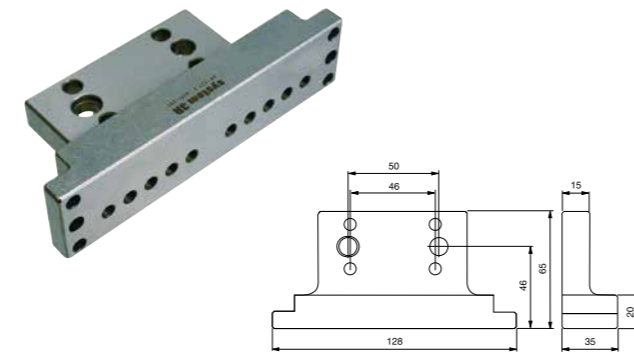
- Tightening torque 7 Nm
- Weight 0.7 kg



Holder, 3R-237.2

For fixture, workpiece or 3R-239.2, 3R-239.3, 3R-294.1, 3R-294.2, 3R-294.6 and 3R-402.1.

- Weight 0.6 kg



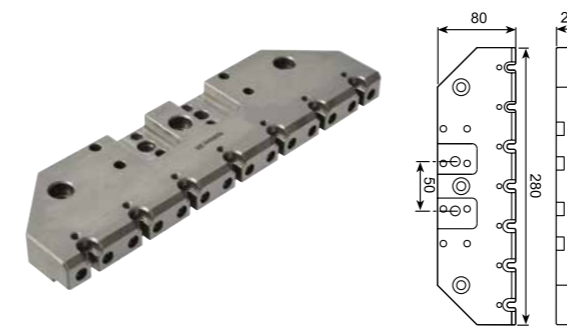
Holders and vices for mounting heads

Holder, Magnum, 3R-292.66HP

Can be supplemented with 3Ruler accessories.

NOTE: Mounts on an HP mounting head.

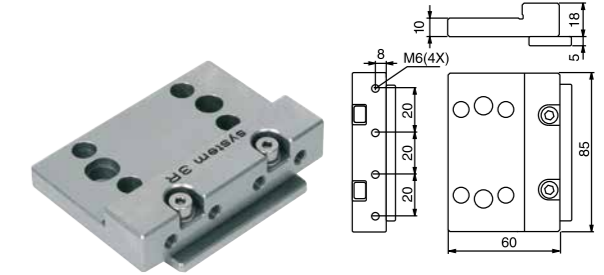
- Weight 3 kg



Adapter, 3R-294

For mounting 3R-294.1, 3R-294.2 and 3R-294.6 on a levelling adapter.

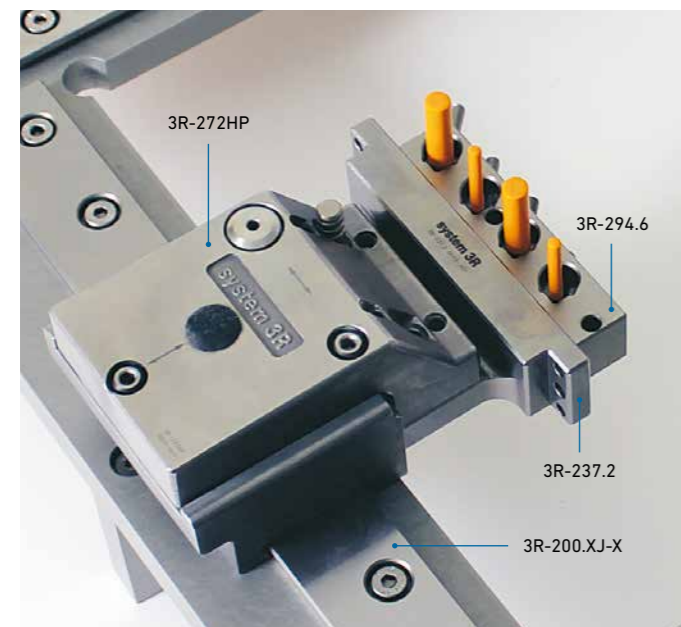
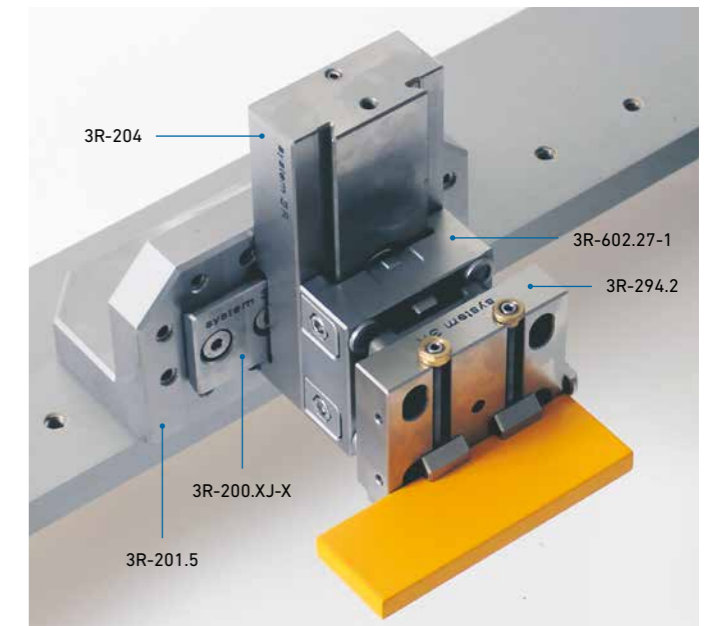
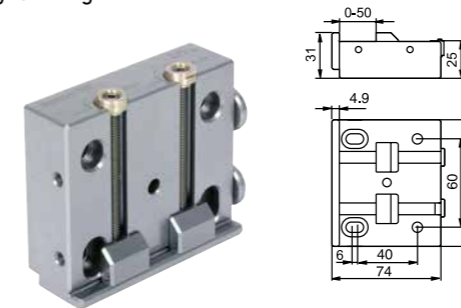
- Weight 0.6 kg



Vice, 3R-294.2

For clamping workpieces up to 50 mm. Mounts on 3R-237.2, 3R-294, 3R-292.66HP or a ruler in the 3Ruler system or Macropallet 54x54 mm.

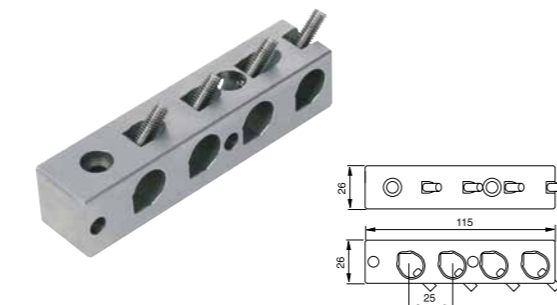
- Tightening torque 3 Nm
- Weight 1.2 kg



Multiple holder, 3R-294.6

For mounting four workpieces $\varnothing 5-13$ mm at the same time. Mounts on 3R-237.2, 3R-294, 3R-292.66HP or any ruler in the 3Ruler system.

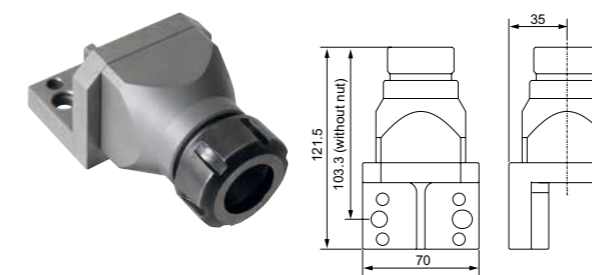
- Tightening torque 3 Nm
- Weight 0.6 kg



Collet chuck, D-30259

For use with a levelling head. Workpiece sizes 2-20 mm.

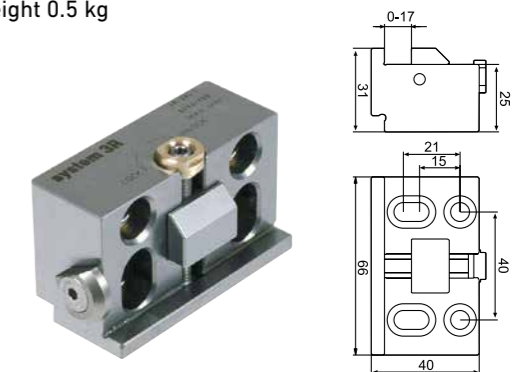
- For collets ER32
- Weight 1.5 kg



Vice, 3R-294.1

For clamping workpieces up to 17 mm. Mounts on 3R-237.2, 3R-294, 3R-292.66HP or rulers in the 3Ruler system.

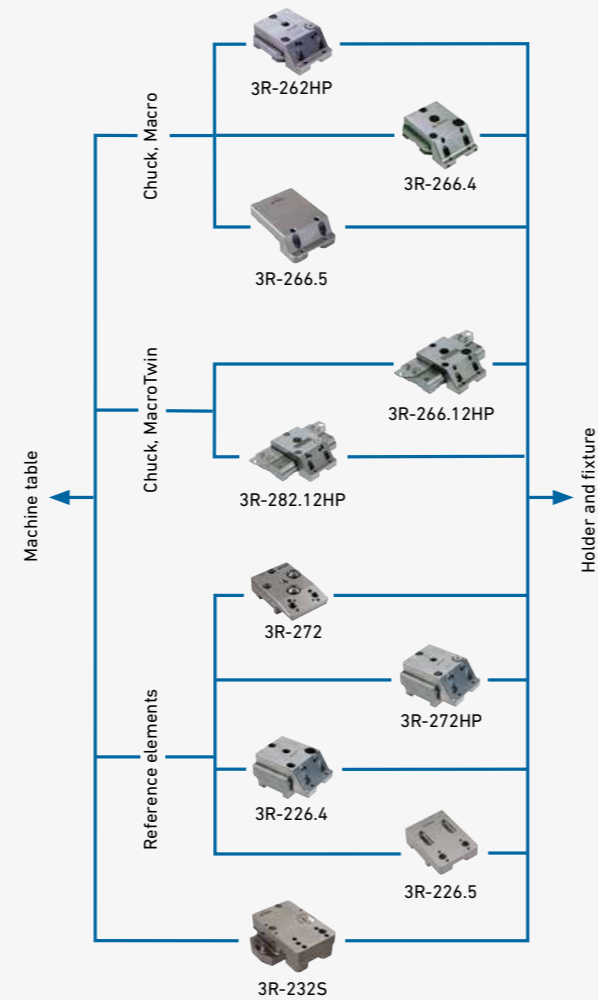
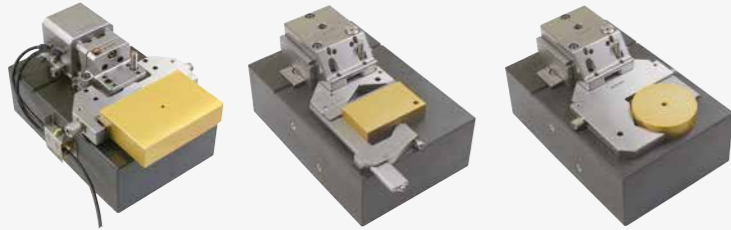
- Tightening torque 3 Nm
- Weight 0.5 kg



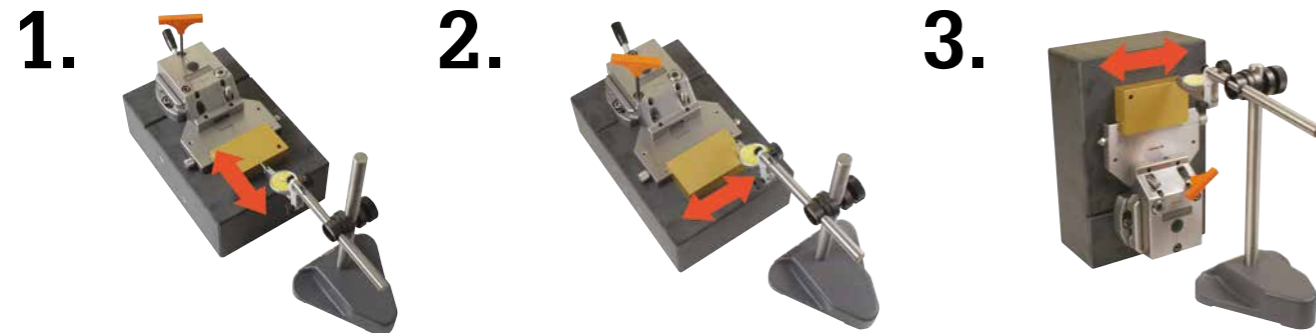
Mounting heads

Rapid set-up is essential if you want to benefit from the material removal capacity and accuracy offered by modern machines. However, faster machines with increased flushing pressure generate resonance and vibration. This is why stable tools and workpiece mountings are necessary for full utilisation of machine capacity. Using our mounting heads ensures the benefits outlined below.

- Set-up completed in seconds
- Maximum workpiece precision
- Full exploitation of machine capacity
- Greater stability than any other system
- Minimal vibration
- Minimal resonance



Preset in three axes



Presetting in three axes with System 3R's levelling adapter. This can be done with an accuracy of thousandths of a millimetre! The simple, directly measurable references of the levelling adapter mean that, using one of System 3R's presetting stones, presetting can be done on an ordinary surface plate.

Preset away from the machine. Lift the preset "package" (levelling adapter, holder and workpiece) into place, fix with a few simple manual operations and start the machine. Simple, quick and precise.

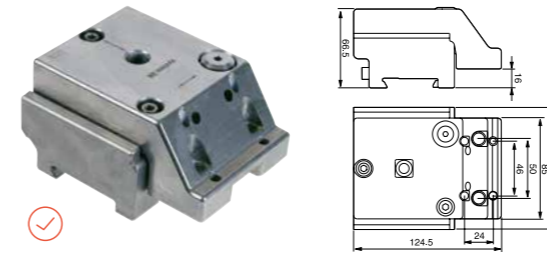
Mounting heads

Levelling adapter, WEDM, 3R-272HP

For manual mounting of SuperVice, a holder or a fixture in the WEDM system.

NOTE: All holders including HP can be mounted. Also fits the ICS system if the clamping jaw (17850-00) is changed.

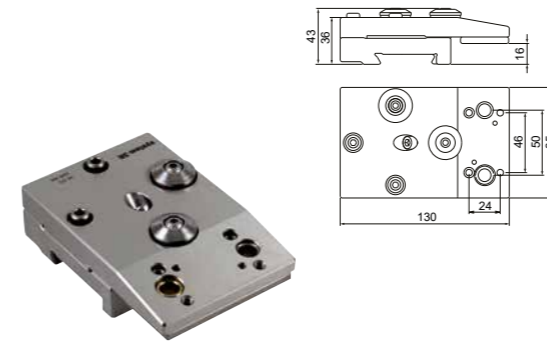
- Adjustable in three axes
- Recommended maximum load 15 kg
- Weight 3.1 kg



Levelling head, WEDM, 3R-272

Extra flat levelling head to avoid collision with upper wire guide.

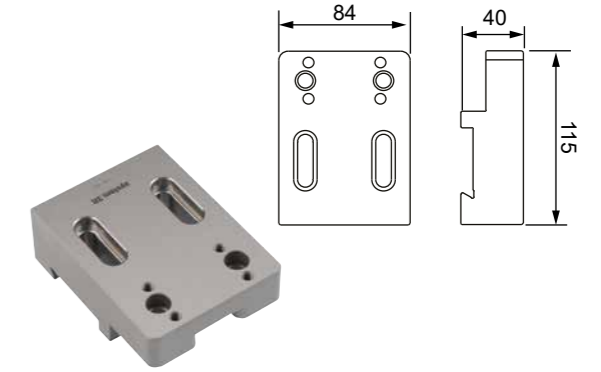
- Adjustable in three axes
- Recommended maximum load 7 kg
- Weight 2.1 kg



Fixed mounting head, WEDM, 3R-226.5

To align workpiece prior to machining, C-axis adjustable.

- Recommended maximum load 15 kg
- Weight 2.2 kg

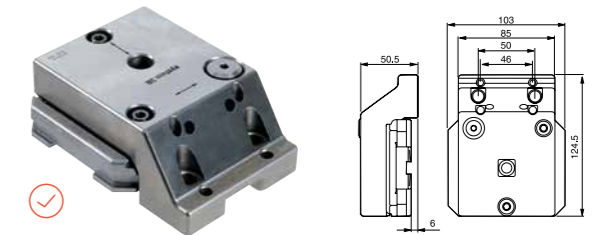


Levelling adapter, Macro, 3R-262HP

For mounting SuperVice, a holder or a fixture in the Macro system.

NOTE: All holders including HP can be mounted.

- Adjustable in three axes
- Recommended maximum load 15 kg
- Adapted for automatic changing
- Ready for code carrier
- Weight 2.9 kg

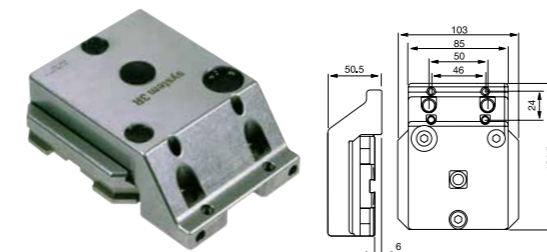


Fixed mounting head, Macro, 3R-266.4

For manual mounting of SuperVice, a holder or a fixture in the Macro system.

NOTE: All holders including HP can be mounted.

- Recommended maximum load 15 kg
- Adapted for automatic changing
- Ready for code carrier
- Weight 2.4 kg

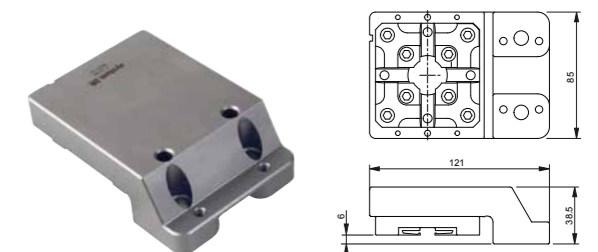


Fixed mounting head, Macro, 3R-266.5

For mounting SuperVice, a holder or a fixture in the Macro system.

NOTE: All holders including HP can be mounted.

- Recommended maximum load 15 kg
- Adapted to automatic changing with 3R-WP1
- Ready for code carrier
- Weight 2.1 kg



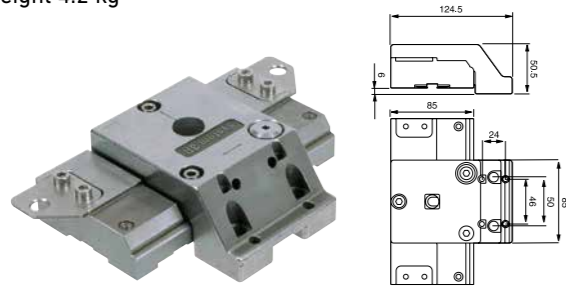
Mounting heads and adapters

Levelling adapter, Magnum MacroTwin, 3R-282.12-1

For mounting Magnum holders in the MacroTwin system.

NOTE: All holders including HP can be mounted.

- Adjustable in three axes
- Recommended maximum load 15 kg
- Supplied with drawbar 3R-605.10 x2
- Adapted for automatic changing with 3R-W12-S
- Ready for code carrier
- Weight 4.2 kg

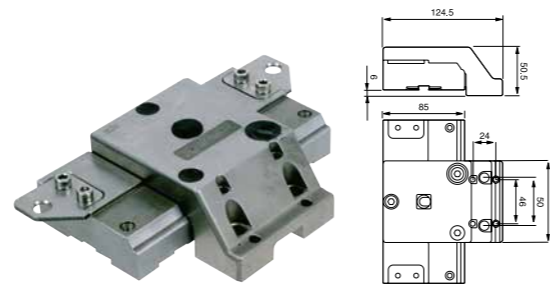


Fixed mounting head, Magnum MacroTwin, 3R-266.12-1

For manual mounting of Magnum holders in the MacroTwin system.

NOTE: All holders including HP can be mounted.

- Recommended maximum load 15 kg
- Supplied with drawbar 3R-605.10 x2
- Can be adapted for automatic changing with 3R-W12-S
- Ready for code carrier
- Weight 4.2 kg

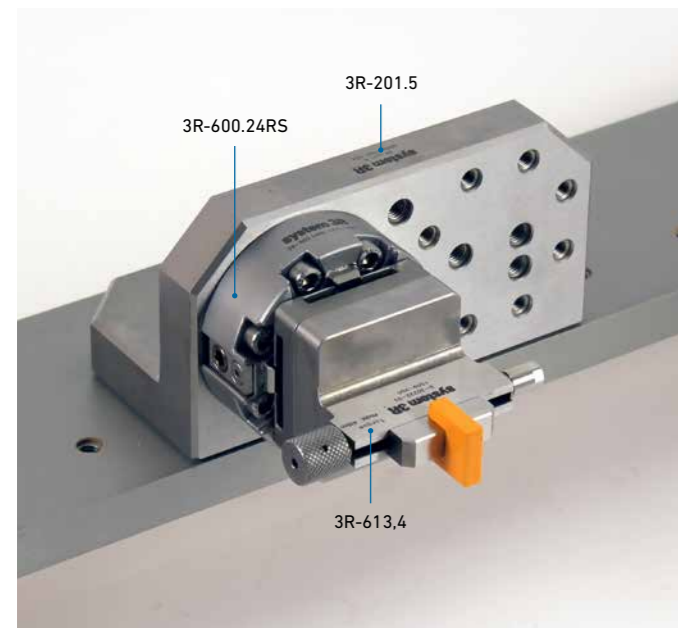
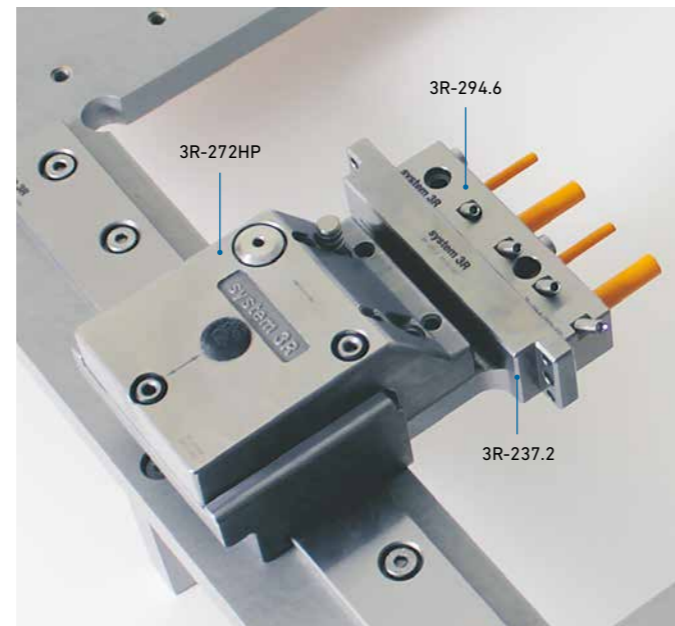
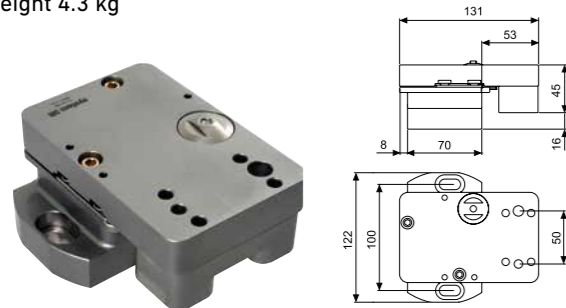


Levelling adapter, 3R-232S

For mounting SuperVice, a holder or a fixture directly on the machine table.

NOTE: All holders including HP can be mounted.

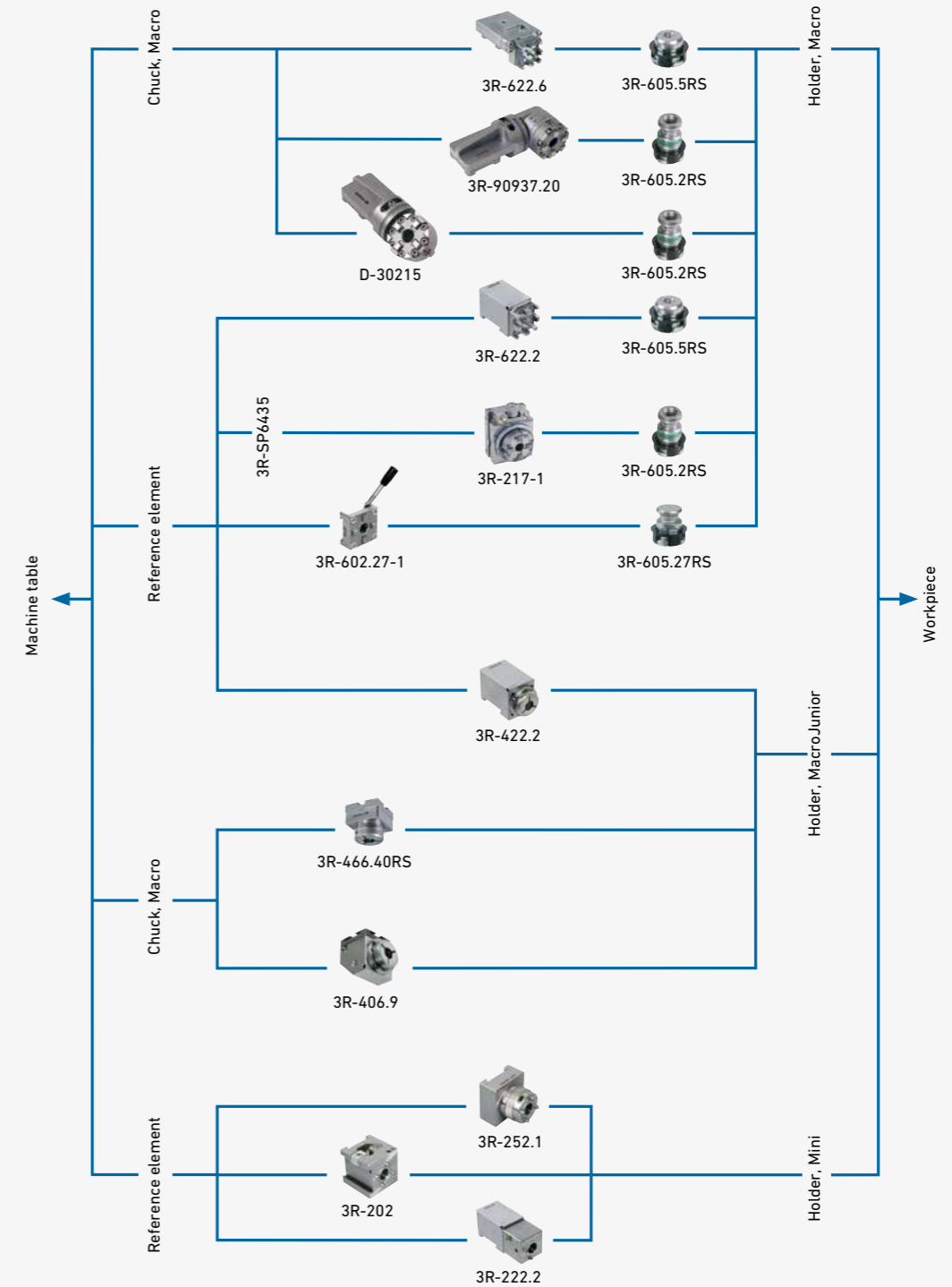
- Recommended maximum load 15 kg
- Adjustable in three axes when clamped in the machine
- Weight 4.3 kg



Chuck adapters

A wide range of chuck adapters for clamping workpieces on pallets in our Macro, MacroJunior and Mini systems. An ever-growing field of application is the manufacture of precision parts for the medical industry. Another is the manufacture of electrodes for die-sinking EDM.

Our chuck adapters can interconnect all your machines to form a single system.



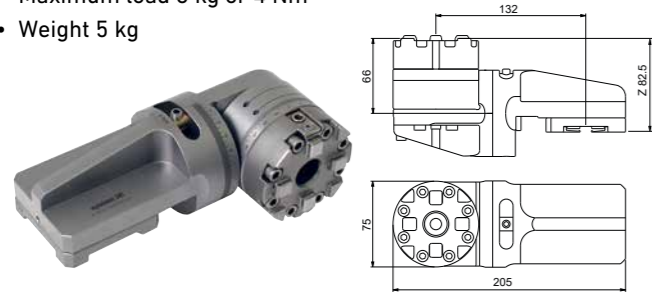
Chuck adapters

Angle swivel tool, Macro, 90937.20

Dual-axis angle swivel tool, Macro with vernier scale -90° to 0 to +90° together with swivel in the front.

NOTE: Macro chuck is required on the machine table for clamping.

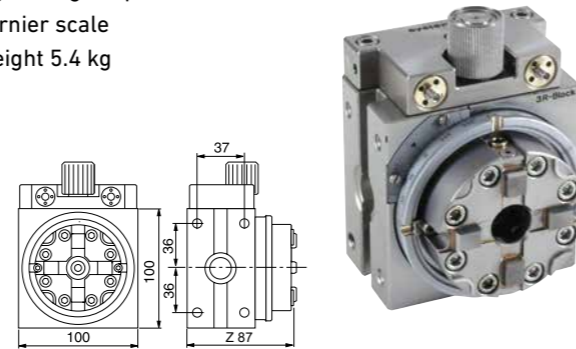
- Clamping force 6 kN
- Required drawbar 3R-605.2RS
- Tightening torque 6 Nm
- Maximum load 6 kg or 4 Nm
- Weight 5 kg



3R-block, Macro, 3R-217-1

For vertical or horizontal mounting on the machine table or, with the aid of 3R-SP6435, in the WEDM system.

- Clamping force 6 kN
- Fixed index positions 24x15°
- Required drawbar 3R-605.2RS
- Tightening torque 6 Nm
- Vernier scale
- Weight 5.4 kg



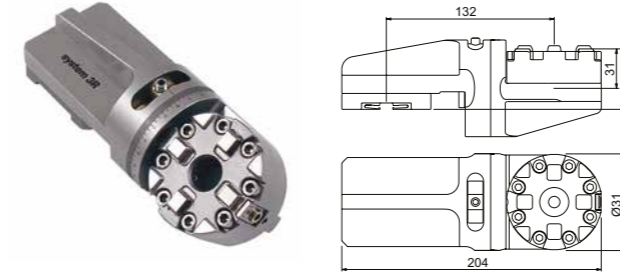
Chuck adapters

Angle tool, Macro, D-30215

Angle tool, Macro with vernier scale -90° to 0 to +90°.

NOTE: Macro chuck is required on the machine table for clamping.

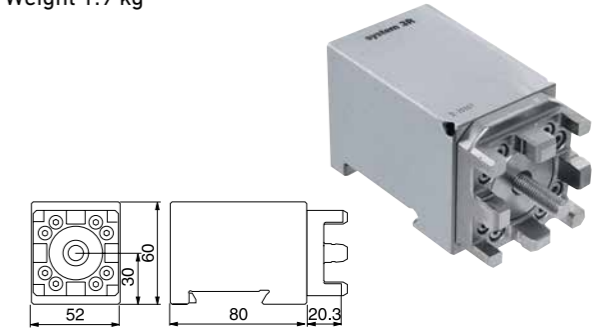
- Clamping force 6 kN
- Required drawbar 3R-605.2RS
- Tightening torque 6 Nm
- Weight 3.5 kg



Manual chuck, Macro, 3R-622.2

Chuck adapter for Macro holders in the WEDM system.

- Tightening torque 7 Nm
- Clamping force 6 kN
- Fixed index positions 4x90°
- Supplied with drawbar 3R-605.5RS
- Weight 1.9 kg



Manual chuck, Macro, 3R-602.27-1

Chuck adapter with lever for Macro holder in the WEDM system.

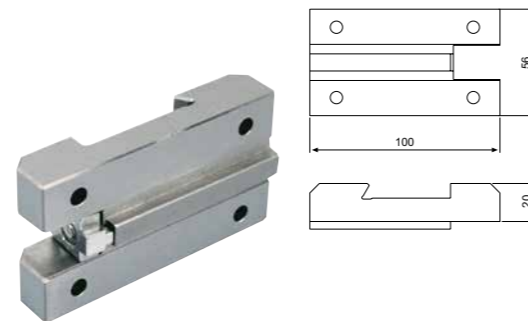
NOTE: When mounted on the reference element, the two clamping jaws must be tightened to the same torque, 4 Nm.

- Clamping force 6 kN
- Fixed index positions 4x90°
- Supplied with drawbar 3R-605.27RS
- Weight 0.8 kg



Adapter, 3R-SP6435

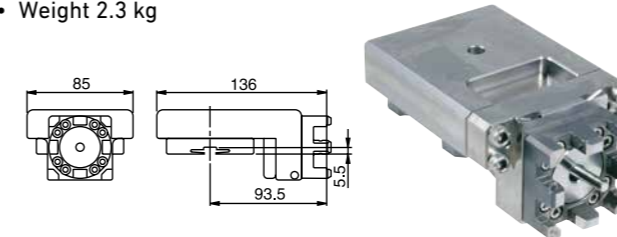
Adapter element for mounting 3R-217-1 in the WEDM system.



Manual chuck, Macro, 3R-622.6

Chuck adapter for mounting Macro holders 90° in the Macro system.

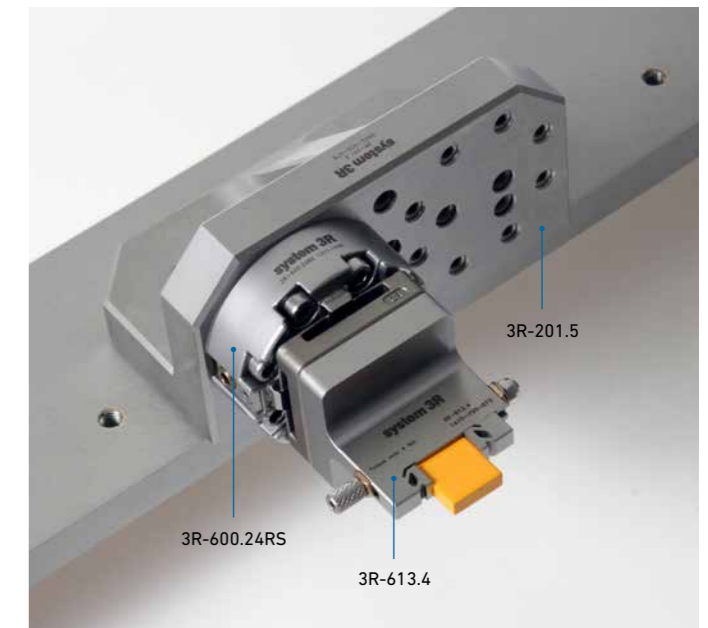
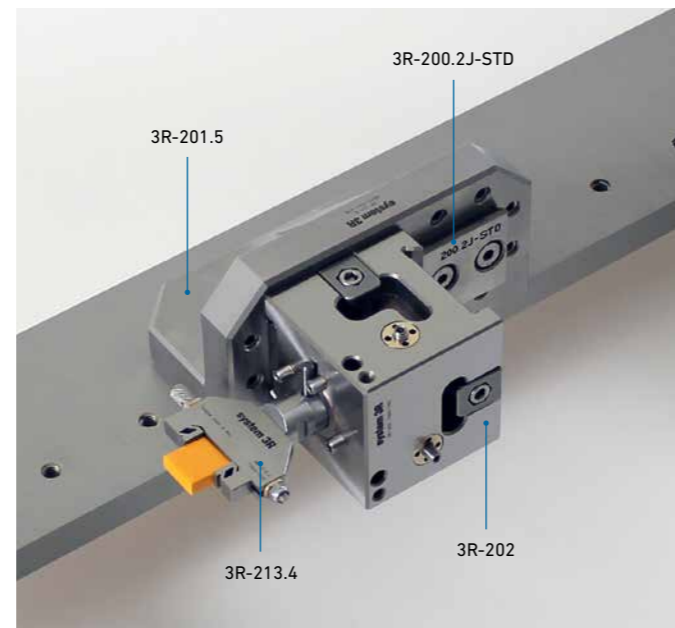
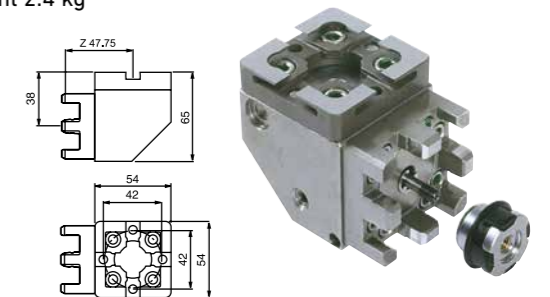
- Tightening torque 5 Nm
- Clamping force 6 kN
- Fixed index positions 4x90°
- Supplied with drawbar 3R-605.5RS
- Ready for code carrier holder 3R-U30638
- Can be adapted for automatic changing with 3R-WP1
- Weight 2.3 kg



Manual chuck adapter 90°, Macro-Macro, 3R-652.9

For horizontal mounting of Macro holders.

- Tightening torque 6 Nm
- Clamping force 6 kN
- Fixed index positions 4x90°
- Supplied with drawbar 3R-605.5RS
- Weight 2.4 kg

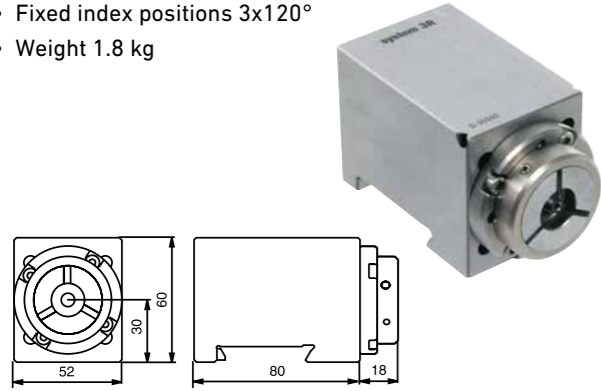


Chuck adapters and accessories

Manual chuck, MacroJunior, 3R-422.2

Chuck adapter with axial locking screw for MacroJunior holders in the WEDM system.

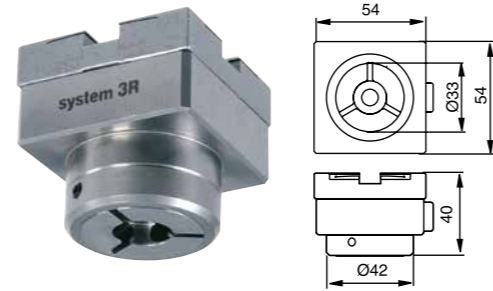
- Tightening torque 7 Nm
- Clamping force 6 kN
- Fixed index positions 3x120°
- Weight 1.8 kg



Manual chuck adapter, MacroJunior, 3R-466.40RS

Stainless steel chuck adapter for MacroJunior holders in the Macro system. Axial locking screw.

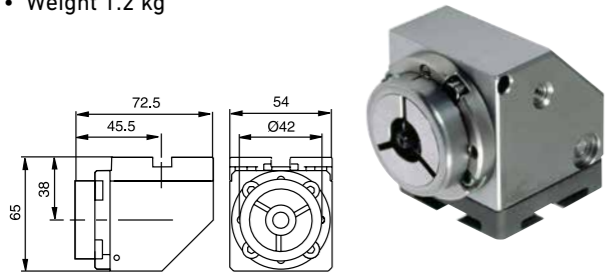
- Tightening torque 6 Nm
- Clamping force 6 kN
- Fixed index positions 3x120° and 4x90°
- Weight 0.4 kg



Manual chuck adapter, MacroJunior, 3R-406.9

For horizontal mounting of MacroJunior holders in the Macro system. Axial locking screw.

- Tightening torque 6 Nm
- Clamping force 6 kN
- Fixed index positions 3x120°
- Adapted for automatic changing
- Weight 1.2 kg



Locking ring key, 3R-605-GE

To lift the drawbar locking ring.

- Supplied in sets of 2



Drawbars

3R-605.2RS

- Drawbar Ø20x36.9 mm with flushing hole Ø7 mm.



3R-605.5RS

- Drawbar Ø20x19 mm



3R-605.27RS

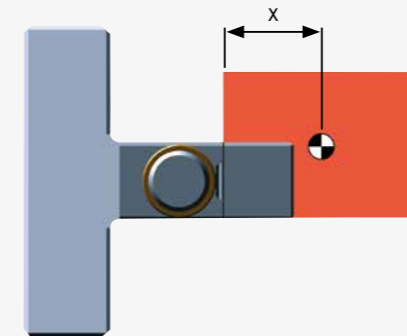
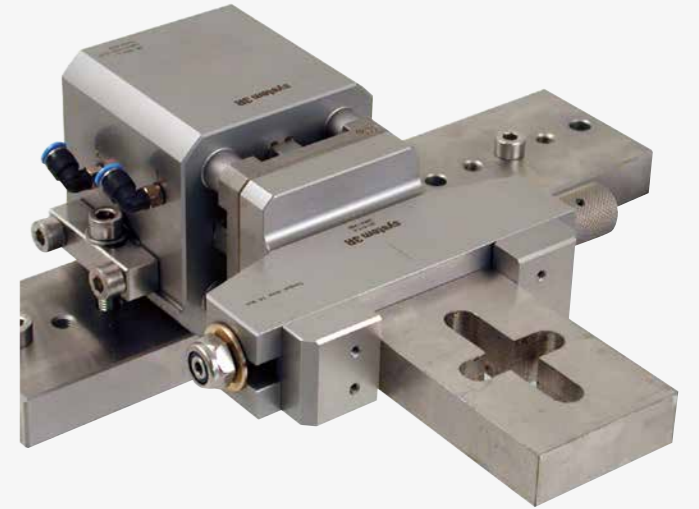
- Drawbar Ø20x27 mm



HOLDERS for mounting in chuck adapters

These holders have been adapted for modern machines with high flushing pressures. They are primarily designed for clamping small to medium-sized workpieces on the machine's zero line.

One example of their use is the manufacture of die-sinking EDM electrodes. Each electrode is manufactured on its holder in the wire EDM machine. Without intervening mounting operations and adjustments, the electrode on its holder is then ready for immediate use in the die-sinking EDM machine operations and adjustments.



Article number	Recommended maximum torque	Maximum Workpiece weight X*=50mm	Maximum Workpiece weight X*=100mm
3R-613.4	3 Nm	6 kg	3 kg
3R-232.8	12.5 Nm	25 kg	12.5 kg
3R-613.6	12.5 Nm	25 kg	12.5 kg
3R-213.4	3 Nm	6 kg	3 kg

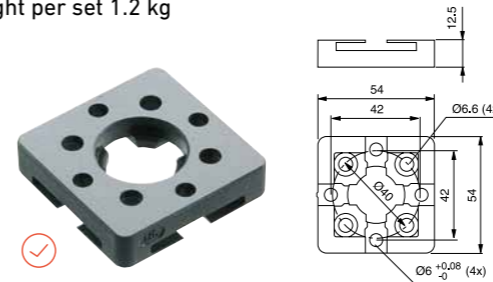
*Centre of gravity of the workpiece with X mm overhang.

Reference element 54x54 mm, Macro, 3R-651.7E-P

Hardened and precision-cast; has clearance holes for four fixing screws.

NOTE: Must be mounted on the workpiece/fixture before it is locked in a chuck.

- Parallel-ground top and bottom faces
- Fixed index positions 4x90°
- Supplied in sets of 8
- Weight per set 1.2 kg

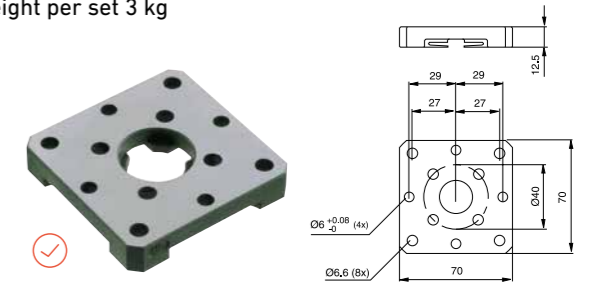


Reference element 70x70 mm, Macro, 3R-601.7E-P

Hardened and precision-cast, with clearance holes for eight fixing screws.

NOTE: Must be mounted on the workpiece/fixture before it is locked in a chuck.

- Parallel-ground top and bottom faces
- Fixed index positions 4x90°
- Supplied in sets of 5
- Weight per set 3 kg



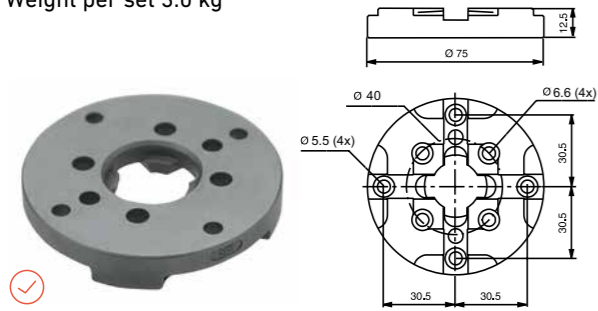
Holders for mounting in chuck adapters

Reference element Ø75 mm, Macro, 3R-651.75E-P

Hardened X, Y and Z-references. Clearance holes for fixing screws.

NOTE: Must be mounted on the workpiece/fixture before it is locked in a chuck.

- Parallel-ground top and bottom faces
- Fixed index positions 4x90°
- Supplied in sets of 10
- Weight per set 3.0 kg

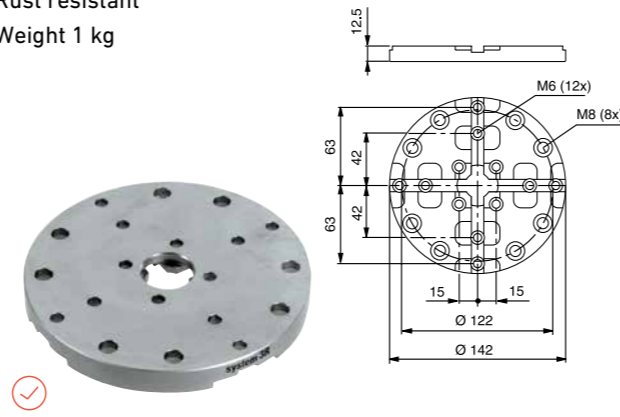


Reference element Ø142 mm, Macro, 3R-681.71

Hardened pallet with clearance holes for fixing screws.

NOTE: Must be mounted on the workpiece/fixture before it is locked in a chuck.

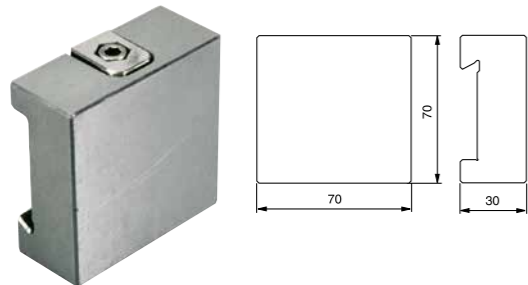
- Rust resistant
- Weight 1 kg



Pallet WEDM, 3R-205.2

Unhardened holder for mounting in the WEDM system.

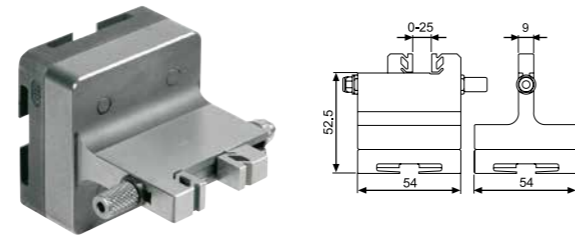
- Recommended maximum workpiece weight 7 kg
- Weight 1 kg



SuperVice, Macro, 3R-613.4

Vice for mounting rectangular workpieces 0-25 mm in the Macro system.

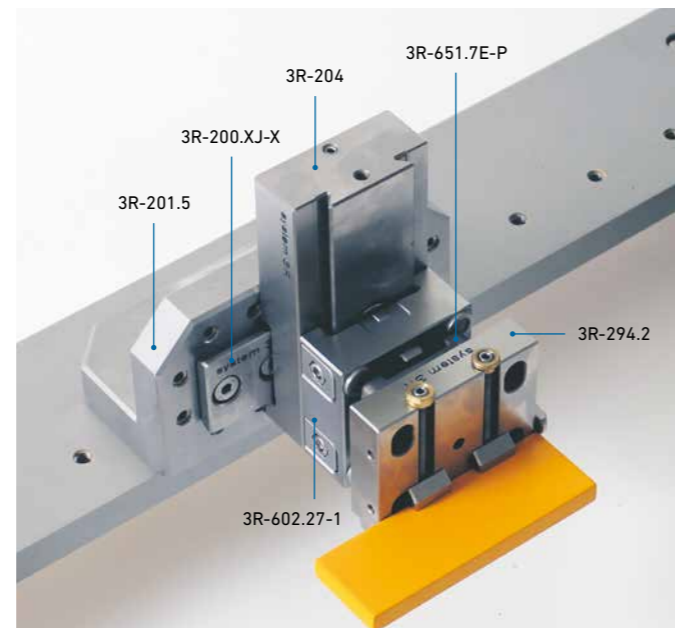
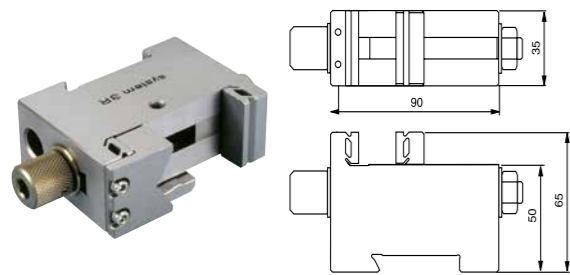
- Tightening torque 3 Nm
- Weight 0.6 kg



SuperVice WEDM, 3R-232.8

Vice for mounting rectangular (<60 mm) and round (8-45 mm) workpieces in the WEDM system.

- Tightening torque 15 Nm
- Weight 1.5 kg

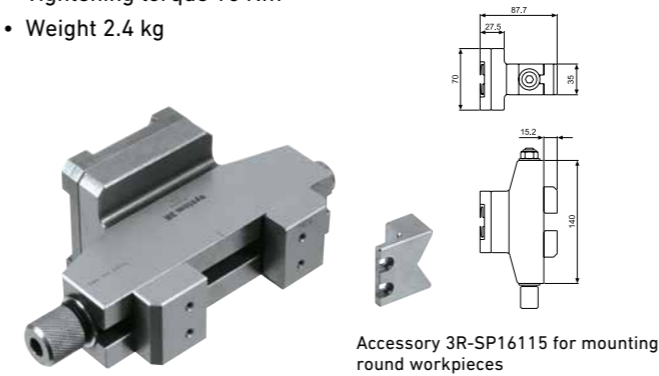


Holders for mounting in chuck adapters

Vice, Macro, 3R-613.6

Vice for mounting rectangular workpieces 0-80 mm in the Macro system. Movable jaws for centred mounting. Can be supplemented with insert 16115-00 for mounting round workpieces 15-55 mm.

- Tightening torque 15 Nm
- Weight 2.4 kg

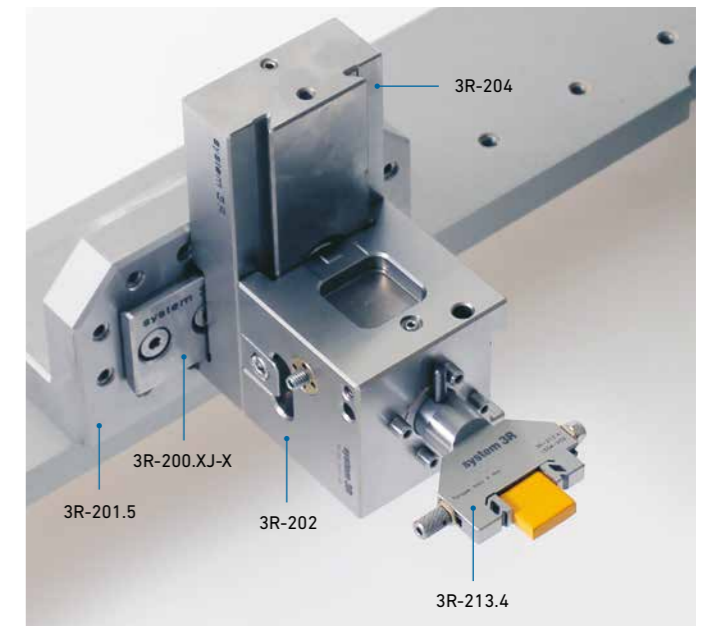
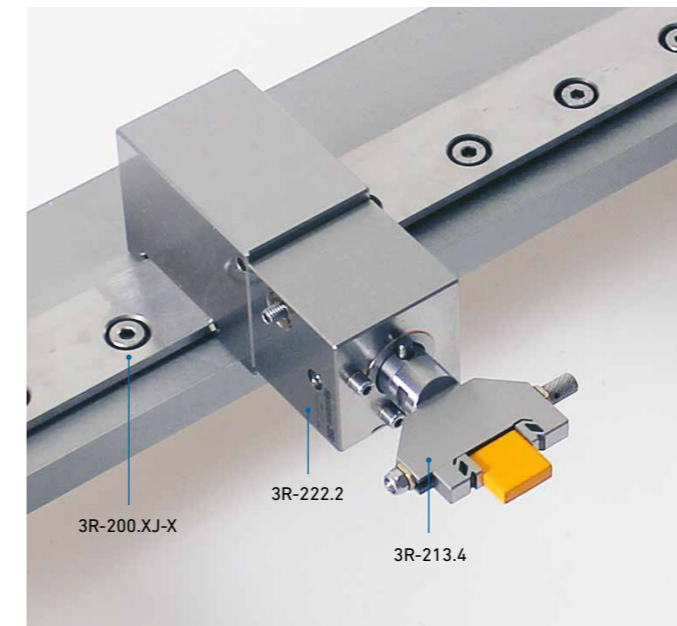
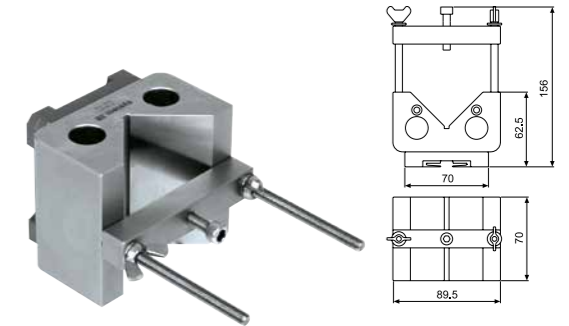


Accessory 3R-SP16115 for mounting round workpieces

V-holder, Macro, 3R-207.6

For clamping round workpieces 8-70 mm, or rectangular workpieces 10-52 mm in the Macro system.

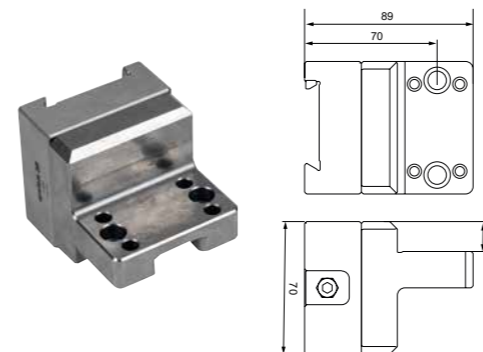
- Recommended maximum workpiece weight 8 kg
- Weight 2 kg



Fixed head, WEDM tooling, D-30263

To align workpiece prior to machining, adjustable in one axis. To enable vertical sliding, can be used with D-30225 or 3R-204.

- Tightening torque 5 Nm
- Weight 2.0 kg



Holders for mounting in chuck adapters

Collet chucks

3R-659.16-P

- For collets ER16
- Workpiece size 0.5-10 mm
- Flushing duct
- Building-in height 62 mm
- Weight 0.8 kg



3R-659.32-P

- For collets ER32
- Workpiece size 2-20 mm
- Flushing duct
- Building-in height 94 mm
- Weight 1.2 kg



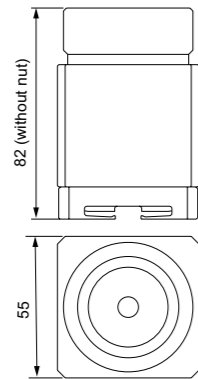
3R-659.20-P

- For collets ER20
- Workpiece size 1-13 mm
- Flushing duct
- Building-in height 69 mm
- Weight 1.2 kg



Collet chuck, 90123.02

- For collets ER40
- Building-in height 96 mm
- Weight 1.5 kg



3Ready-to-Run, 3R-494-XXX

Blanks mounted on MacroJunior holders for the manufacture of electrodes. The stock range is matched to local preferences and ways of working. This applies to electrode materials, different grades of graphite and copper and to dimensions. Contact your local 3R representative for further information.

The Vällingby factory can supply holders with factory-mounted copper blanks in sets of ten (see table).

Article number Dimensions

3R-494-D10x50*	Round blank Ø10x50 mm
3R-494-D12x50*	Round blank Ø12x50 mm
3R-494-D16x50*	Round blank Ø16x50 mm
3R-494-D22x50*	Round blank Ø22x50 mm
3R-494-D26x50*	Round blank Ø26x50 mm
3R-494-D32x50*	Round blank Ø32x50 mm
3R-494-D40x50*	Round blank Ø40x50 mm
3R-494-D50x50*	Round blank Ø50x50 mm
3R-494-S12x50*	Square blank 12x12x50 mm
3R-494-S22x50*	Square blank 22x22x50 mm
3R-494-S26x50*	Square blank 26x26x50 mm
3R-494-S32x50*	Square blank 32x32x50 mm
3R-494-S40x50	Square blank 40x40x50 mm
3R-494-32x22x50	Square blank 32x22x50 mm
3R-494-40x22x50	Square blank 40x22x50 mm

* =



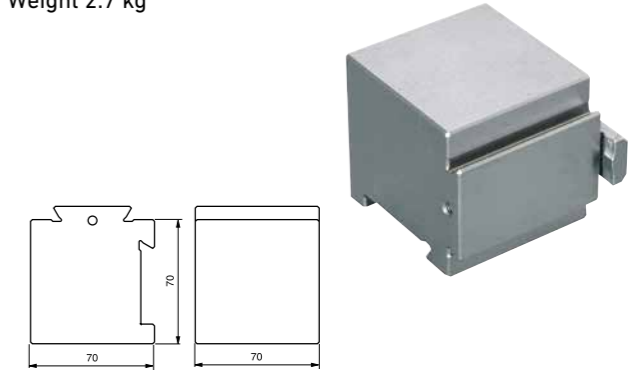
Adapter elements

Adapter elements facilitate machining of complex geometries, even if the machine is not the very latest model. The range includes products for: swivelling or height adjustment; and, plain spacer elements.

Adapter 90°, WEDM, 3R-201J

Basic element for 3D accessories.

- Fits on all System 3R basic elements.
- Tightening torque 7 Nm
- Weight 2.7 kg

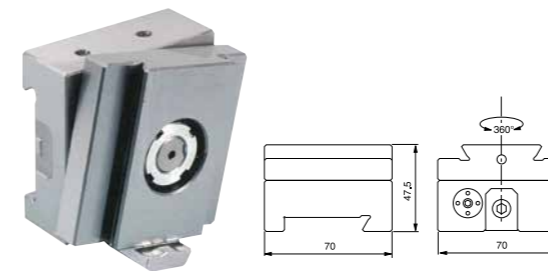


Swivelling element 360°, WEDM, 3R-203

Hydraulic locking of set position.

NOTE: For angle setting, 3R-216 is recommended.

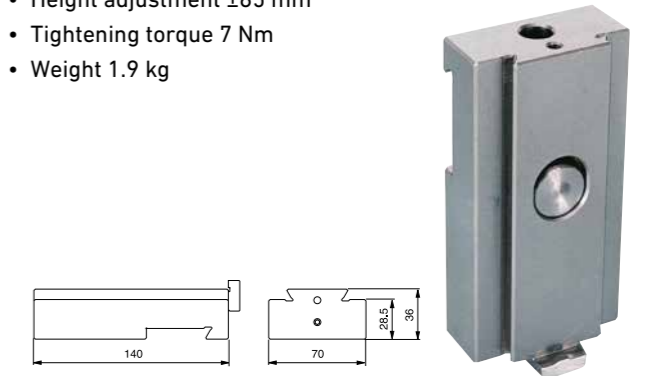
- Can be mounted on 3R-204 or directly on 3R-201J
- Tightening torque 7 Nm
- Weight 1.5 kg



Height adapter, WEDM, 3R-204

Can be turned upwards or downwards when mounting on 3R-201J.

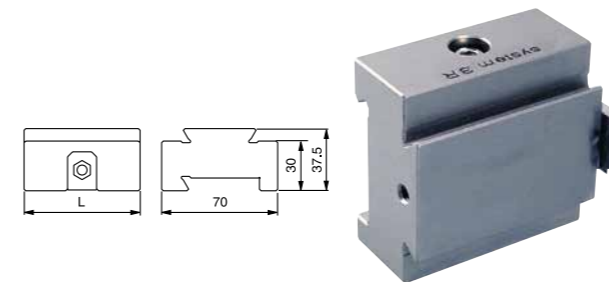
- Height adjustment ±65 mm
- Tightening torque 7 Nm
- Weight 1.9 kg



Spacer element 30 mm, WEDM

Used where vertical or horizontal displacement of workpiece or accessory is necessary.

- Tightening torque 7 Nm



3R-223

- Length 70 mm

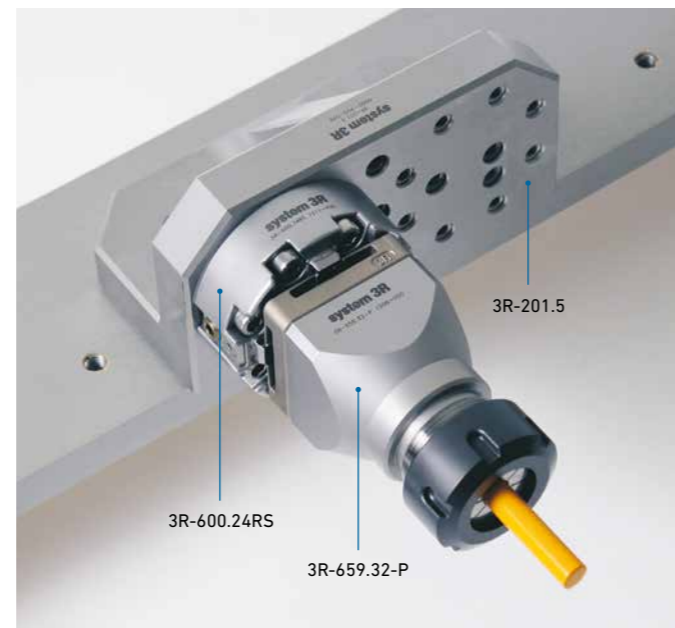
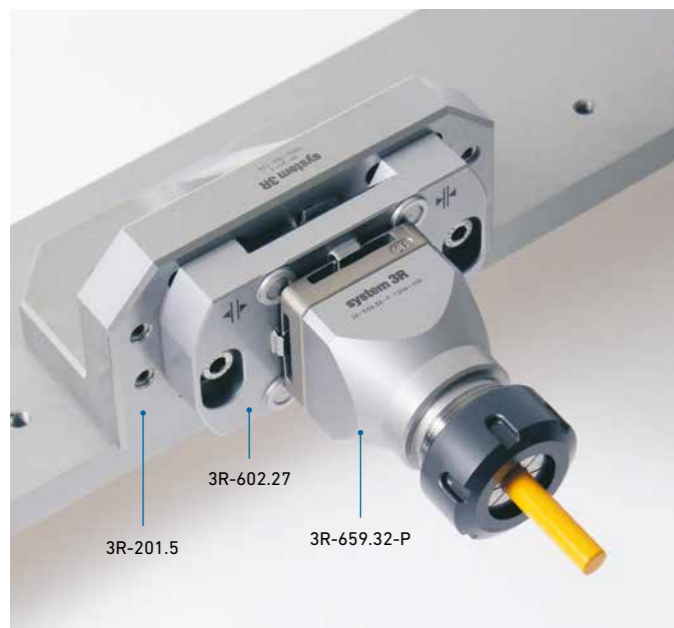
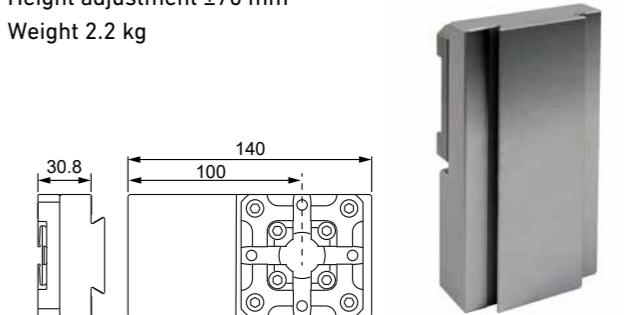
3R-223.3

- Length 140 mm

Height adapter, Macro, D-30225

Can be turned upwards or downwards when mounting on Macro chucks.

- Height adjustment ±70 mm
- Weight 2.2 kg



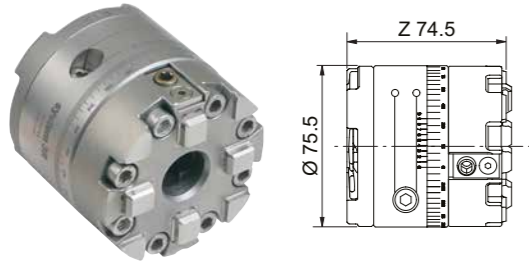
Adapter elements

Swivelling element 360°, Macro, 3R-203.66

Swivelling element with manual Macro chuck for mounting on Macro chucks. Mechanical locking of the set position. Vernier scale for quick setting in 0.1-degree steps.

NOTE: For angle setting, sine ruler 3R-216.6 and gauge block are recommended.

- Maximal hanging torque 8 Nm
- Required drawbar 3R-605.2RS
- Weight 2 kg



Swivelling element 360°, Macro, 90937

Swivelling element with manual Macro chuck for mounting on leveling heads. Mechanical locking of the set position. Vernier scale for quick setting in 0.1-degree steps.

NOTE: For angle setting sine, ruler 3R-216.6 and gauge block are recommended.

- Maximal hanging torque 8 Nm
- Required drawbar 3R-605.2RS
- Weight 3.1 kg



Swivelling element 360° with encoder, D-30232

Swivelling element with manual Macro chuck. Display included.

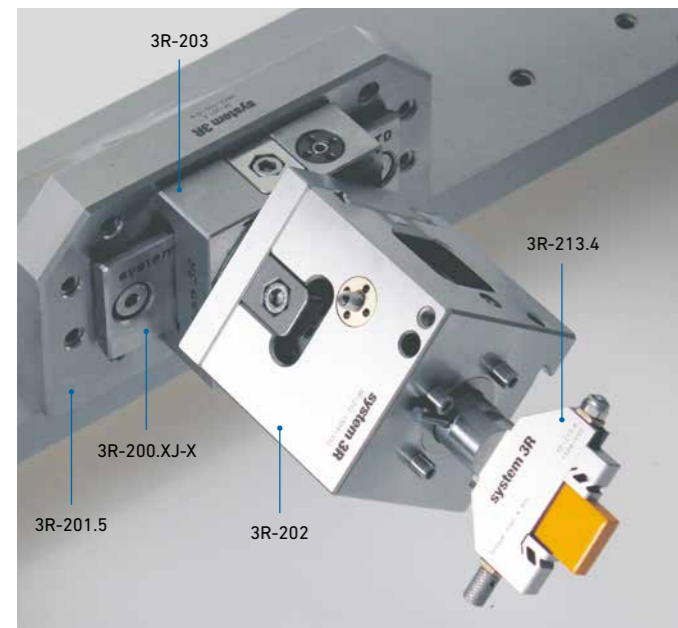
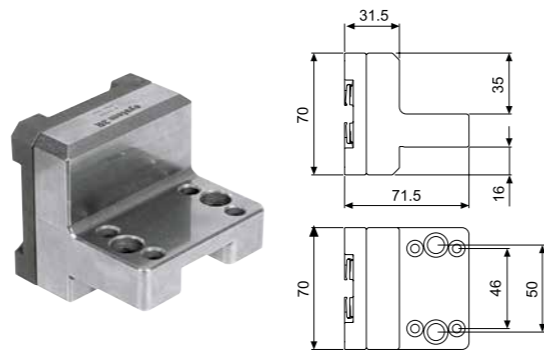
- Maximal hanging torque 8 Nm
- Locking of chuck 6 Nm
- Locking of swivel 6 Nm
- Required drawbar 3R-605.2RS
- Weight 2.2 kg



Vertical fixed adapter, Macro, 3R-226.6

For clamping SuperVice and holders horizontally in vertical Macro chucks.

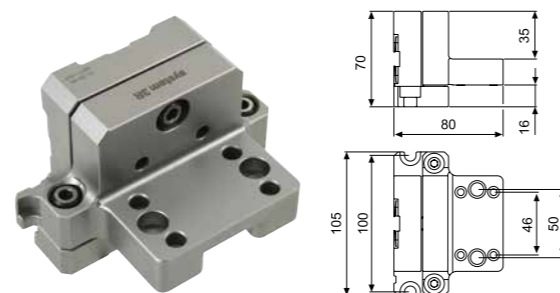
- Weight 1.4 kg



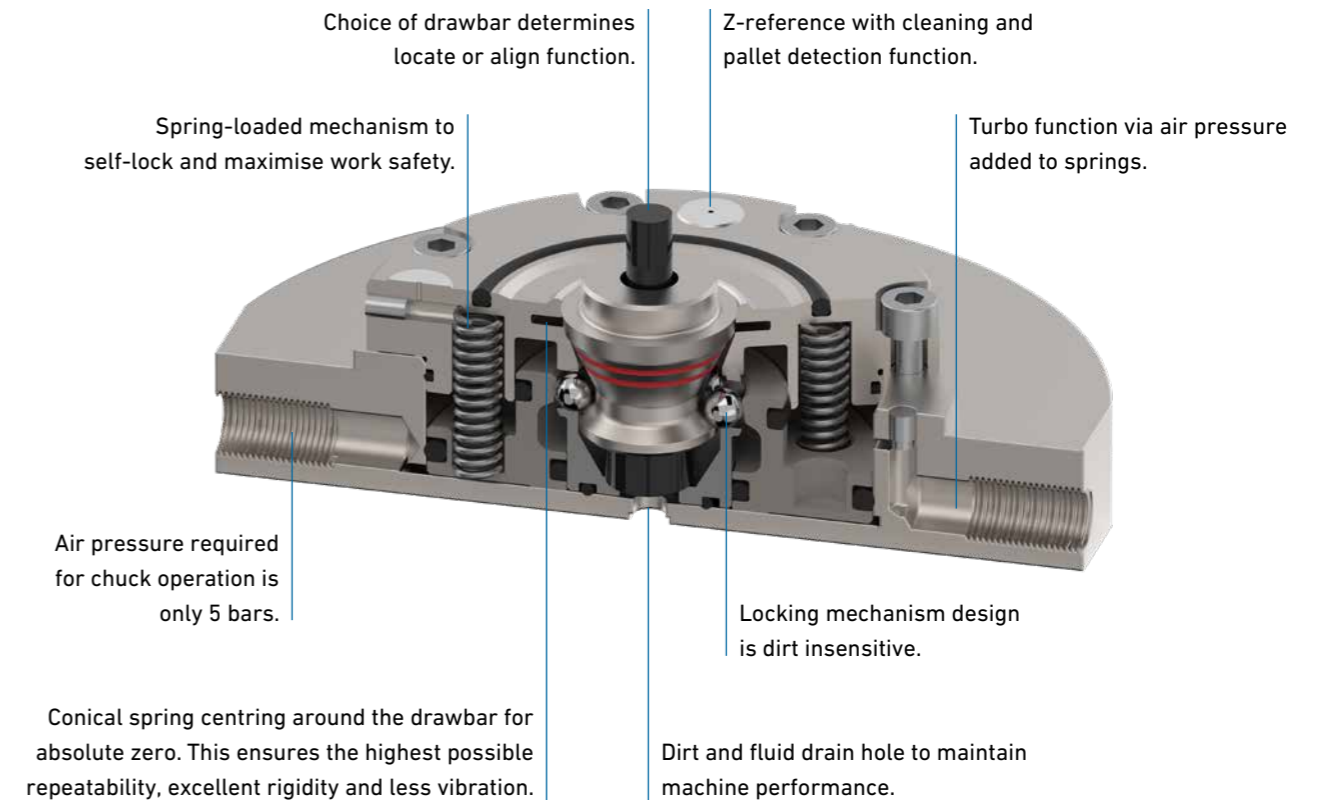
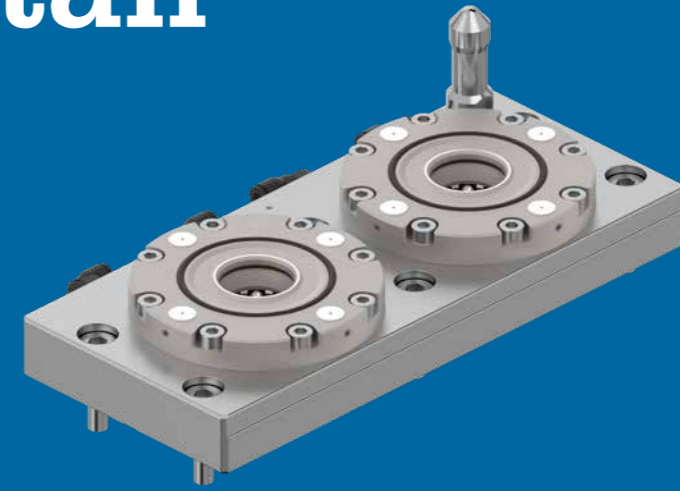
Vertical levelling adapter, Macro, 3R-262.6

For clamping SuperVice and holders horizontally in vertical Macro chucks.

- Adjustable in three axes
- Weight 1.5 kg



DelphinShort Twin in detail



DelphinShort Twin

Strong and sturdy tooling system for heavier workpieces. With dedicated drawbars, this system also provides a locating function. The DelphinShort system is mainly for WEDM.

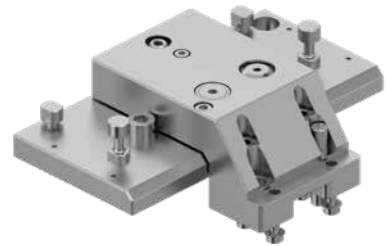
Twin chuck, DelphinShort, C952010

The hole pattern enables fitting to most WEDM machines.



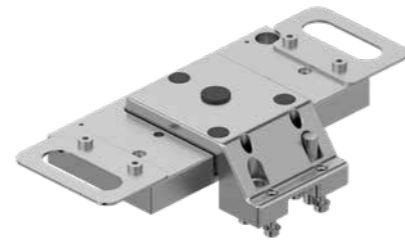
Levelling head, DelphinShort, C952900

To align workpiece prior to machining, adjustable in three axes. Prepared for automation.



Fixed head, DelphinShort, C952910

Prepared for automation.



Drawbars, DelphinShort

Drawbar, centering in 2 Axis C226000

Drawbar, centering in 1 Axis C226100

Drawbar, without centering C226200



Two grooves

For centring in 2 axes
= zero point



One groove

For centring in 1 axis
= angle definition



No groove

No centring
= only clamping



C226000



C226100



C226200

DelphinShort Twin

Twin reference pallet, DelphinShort, C952060

- Enables quick, easy and highly accurate assembly and alignment of the DelphinShort Twin chucks on WEDM machine tables.
- Checking and readjustment of machine equipment on WEDM machine tables



Reference mandrel, DelphinShort, C226310

Our reference mandrel is used for aligning DelphinShort chucks during installation.



Protective drawbar, DelphinShort, C226300

Our DelphinShort protective drawbar seals and protects chuck centre bores from chips and liquid. Chuck z supports remain usable.



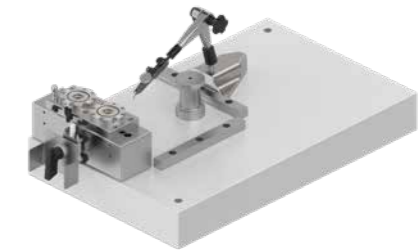
Air unit, DelphinShort, C254960

DelphinShort baseplates and DelphinShort WEDM frames (manual operation)



Preset station, DelphinShort, C952980

Full-function presetting station for the DelphinShort Twin WEDM tooling system.



Protective pallet, DelphinShort, C226330

Chip, liquid and air pressure (turbo-locking) protection for DelphinShort Twin chucks. Matches with sealing ring C226390.



Presetting and inspection

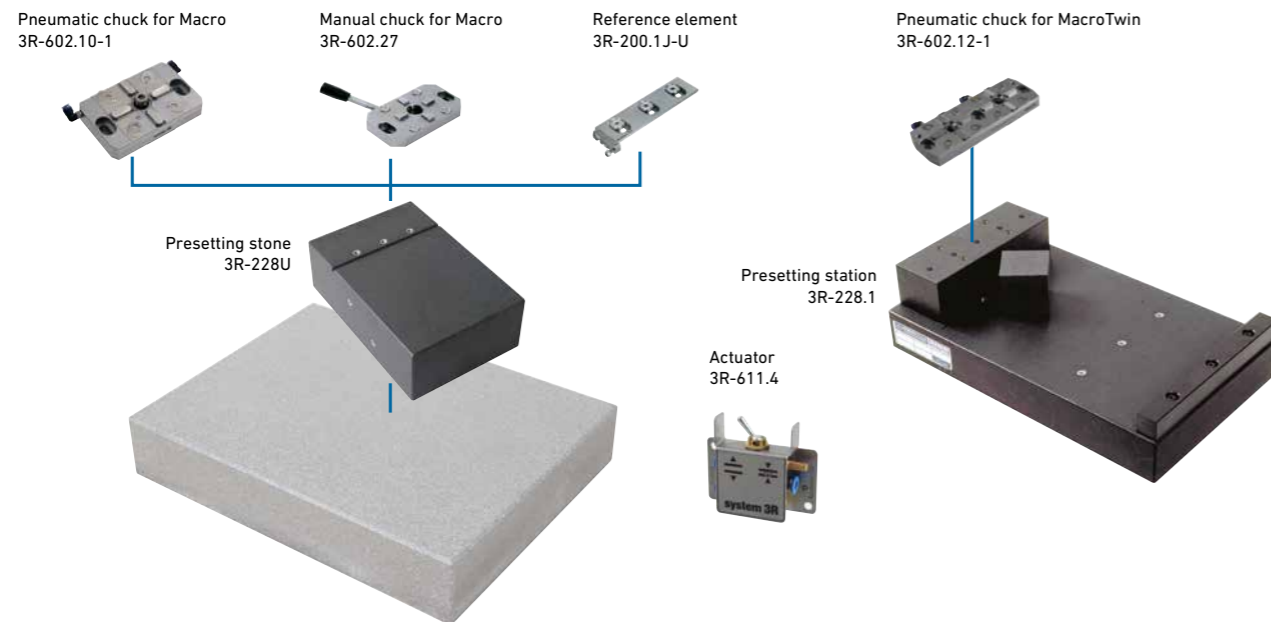
Make efficient use of machine time

Which is better, using a machine to produce or to set-up equipment?

To optimise capacity, why not preset in a presetting station? This means you can keep your machines producing.

Simply lift the preset "package" (e.g. levelling adapter, holder and workpiece) out of the station, secure it in the machine (a few easy manual operations are all that is required), hit the button and continue producing. We call this One Minute set-up.

System 3R's presetting stations are constructed on a modular basis. The customer chooses a suitable set of prepared "measuring stones", and the necessary chuck/reference elements that match, for example, the installation on the wire EDM machine table. If required, a pneumatic control unit can also be chosen.



1.



2.



3.



Presetting and inspection

Presetting stone, 3R-228J

Stone with three ground faces, a reference element and a clearance stone. Together with a surface plate and a dial indicator, 3R-228J is an excellent, inexpensive presetting tool.

- Dimensions 150x110x80 mm
- Weight 5.4 kg



Presetting stone, 3R-228U

Mounting stone with bushings and holes for mounting chuck/reference elements. Use together with existing measuring machine or surface plate and a dial indicator.

- Dimensions 300x200x100 mm



Presetting station, 3R-228.1

Surface plate with reference stops and a mounting stone. This stone has: bushings and holes for mounting a chuck/reference element; through holes for mounting on the surface plate; and, a check stone. A dial indicator is required.

- Dimensions 500x300 mm



Presetting kit, Econo, 3R-228E and 3R-228EI

Mounting stone with bushings and holes for mounting chuck/reference elements. Use together with existing measuring machine or surface plate.

NOTE: 3R-228EI comes with a dial indicator that has inch measurements.

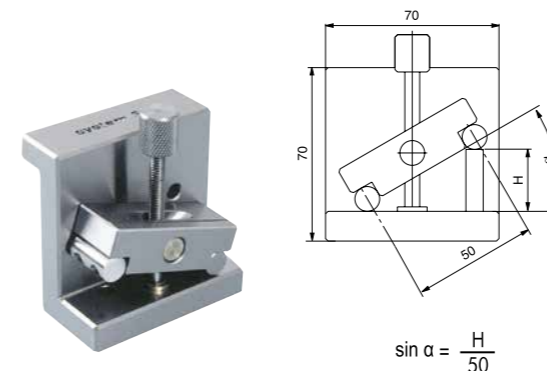
- Dimensions 300x200x100 mm
- Presetting stone
- Measuring stand
- Dial indicator (mm measurements)



Sine ruler, 3R-216

With magnetic attachments for setting angles on swivelling elements. Angles are set with gauge blocks.

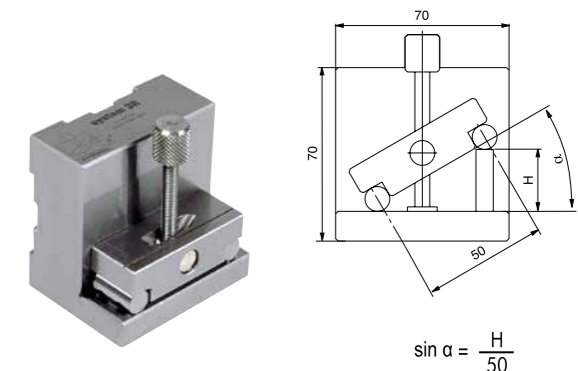
- Measuring length 50 mm
- Weight 1.2 kg



Sine ruler, Macro, 3R-216.6

For setting angles on swivelling elements. Angles are set with gauge blocks.

- Measuring length 50 mm
- Weight 1.4 kg

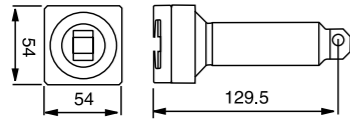


Presetting and inspection

Master, 3R-606.2

Master for determining the position of vertical Macro chucks. Cylinder ground to the Macro references. Supplied with engraved dimensions in the X, Y and Z-directions.

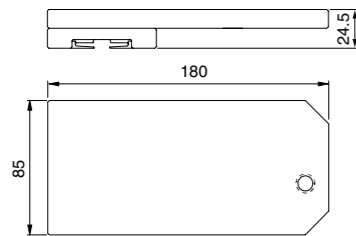
- Drawbar not included



Master, 3R-206.10

Master for horizontal Macro chucks. One long side ground to the Macro references. Supplied with engraved dimensions in the X, Y and Z-directions.

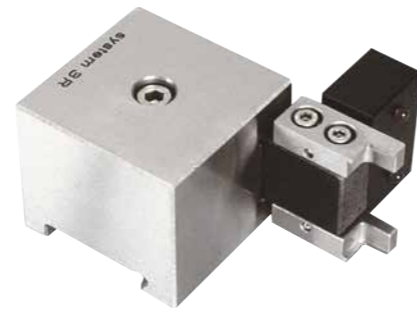
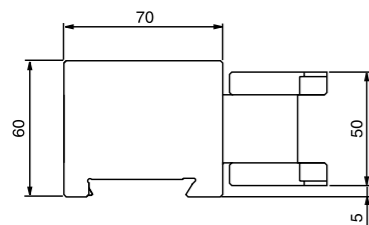
- Drawbar not included
- For automatic changing, 3R-WP1 must be added



Wire alignment unit, 3R-220.3

Unit with double-insulated reference contacts for wire alignment.

- Tightening torque 7 Nm
- For Mitsubishi machines with Tajimi connector
- Four wires in the cable
- Weight 2.2 kg

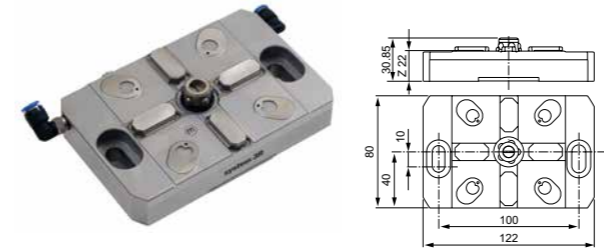


Do-it-yourself fixtures

Pneumatic chuck, Macro, 3R-602.10-1

Pneumatic chuck for Macro holders.

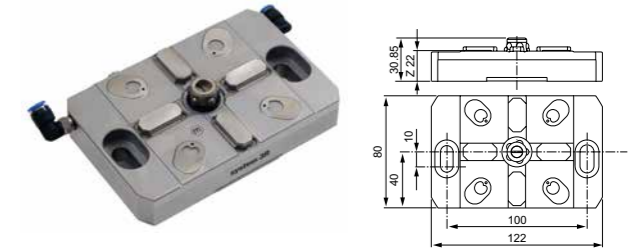
- Clamping force 6.7 kN
- Fixed index positions 4x90°
- Supplied with drawbar 3R-605.10
- Air-blast cleaning of Z-references
- Protective cover
- Weight 1.4 kg



Pneumatic chuck, MacroNano, 3R-602.10-1N

Pneumatic chuck for Macro holders.

- Clamping force 6.7 kN
- Fixed index positions 4x90°
- Supplied with drawbar 3R-605.10
- Air-blast cleaning of Z-references
- Protective cover
- Weight 1.4 kg

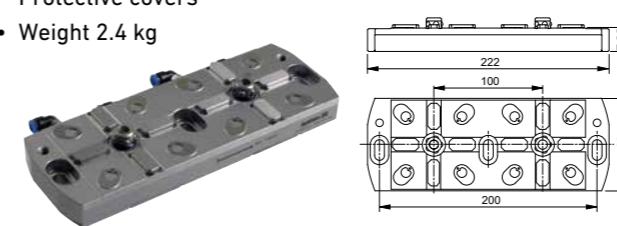


Pneumatic chuck, MacroTwin, 3R-602.12-1

Pneumatic chuck for Macro or MacroTwin. Horizontal mounting on the machine table.

NOTE: With automatic changing via WorkPal, MacroTwin holders only.

- Clamping force 2x6.7 kN
- Fixed index positions 4x90°
- Supplied with drawbars 3R-605.10
- Air-blast cleaning of the Z-references
- Protective covers
- Weight 2.4 kg



Drawbar, Macro, 3R-605.10

Short drawbar suitable for 3R-602.10-1, 3R-602.10-1N or 3R-602.12-1.

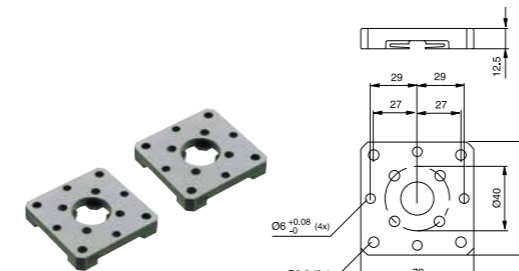
- Drawbar Ø20x13 mm



Reference element set, Macro, 3R-601.7F-X

Set of two units for two single or one MacroTwin chuck. One element for XYZ and one for XZ.

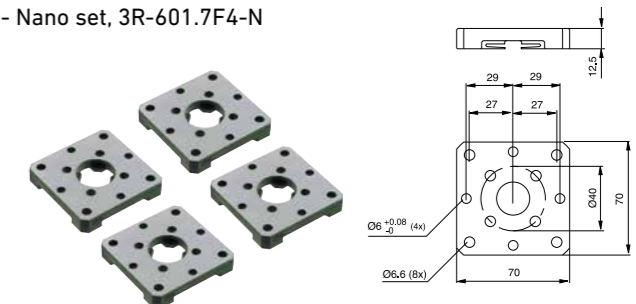
- Max. load fixture and workpiece 50 kg
- Available in two versions:
- Standard set, 3R-601.7F2
 - Nano set, 3R-601.7F2-N



Reference element set, Macro, 3R-601.7F4-X

Set of four units for four single Macro chucks or two MacroTwin chucks.

- One element for XYZ, one for XZ and two for Z.
- Max. load fixture and workpiece 100 kg
- Available in two versions:
- Standard set, 3R-601.7F4
 - Nano set, 3R-601.7F4-N



Do-it-yourself fixtures

Air unit, foot-operated, 3R-611.2
To be used with MacroWEDM.



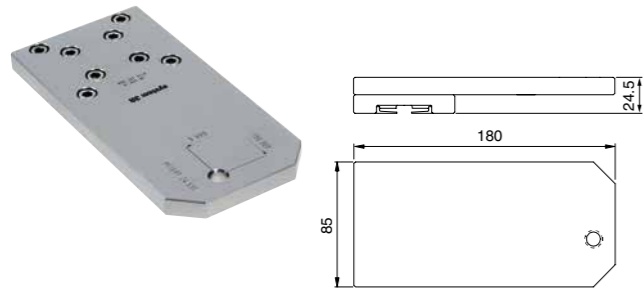
Air unit, hand-operated, 3R-611.4
To be used with MacroWEDM.



Master, 3R-206.10

Master for horizontal Macro chucks. One long side ground to the Macro references. Supplied with engraved dimensions in the X-, Y- and Z-directions.

- Drawbar not included
- For automatic changing, 3R-WP1 must be added



Extra pneumatic support, 3R-261PN

Designed to provide extra support and ensure exact location in automated applications.



Protective cover, Macro, 3R-SP37513

Suitable for manual or automatic applications (if gripped on drawbar). Gripper interface is related to choice of drawbar.

- Requires drawbar 3R-605.xx or similar
- Equipped with rubber pads for sealing
- Weight 0.6 kg



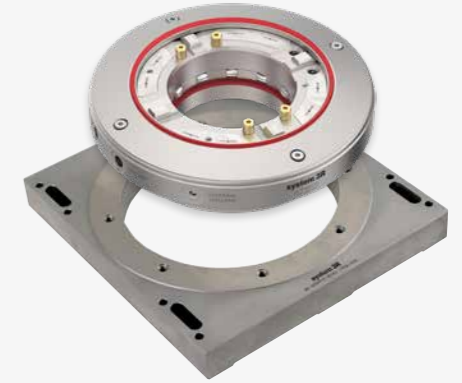
Matrix for wire EDM

Providing extreme accuracy, Matrix features include: low construction height; ultra-precise indexing; and, a drawbar with a large through hole. The through hole allows high/long workpieces to be sunk into the chuck for stable/rigid fixation.

Four sizes available in rust-resistant material:

- Matrix 110
- Matrix 142
- Matrix 185
- Matrix 220

For further details, contact your local System 3R dealer.



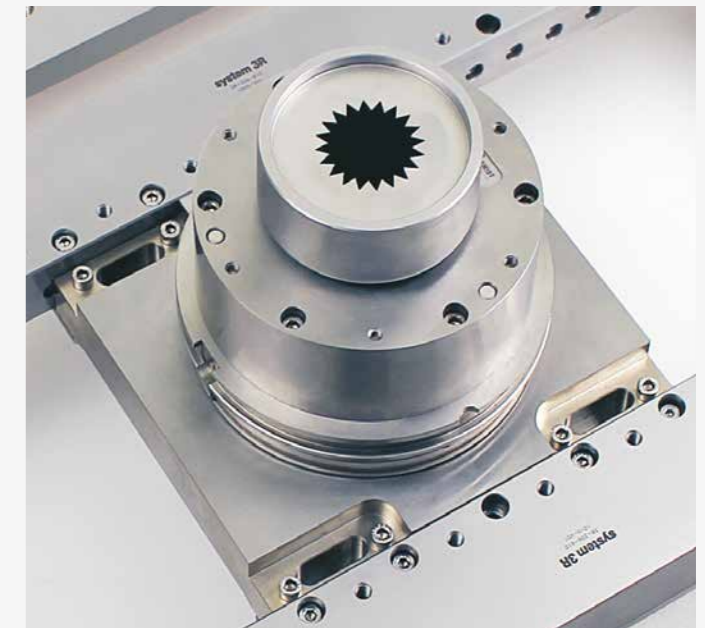
Configuration example.



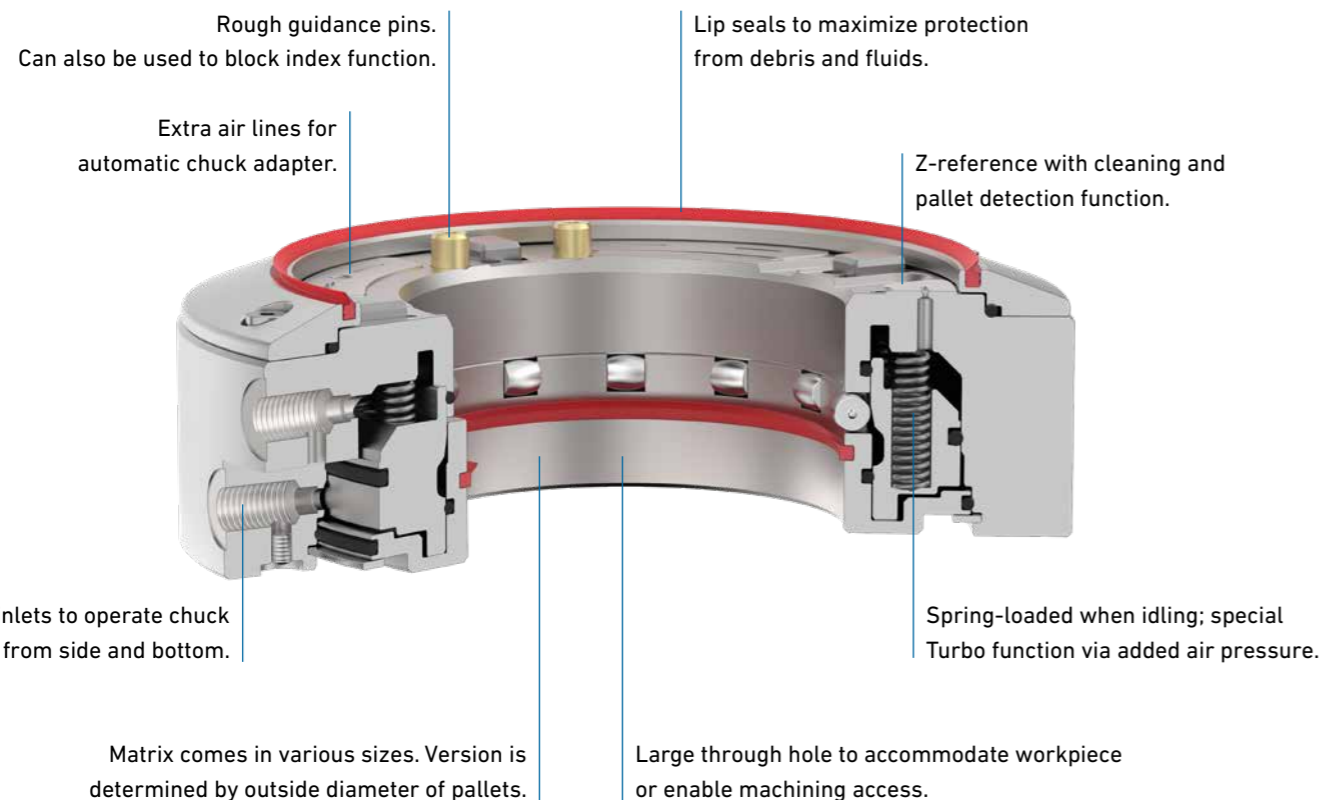
Example of produced detail.



Example of produced detail.



Matrix in detail

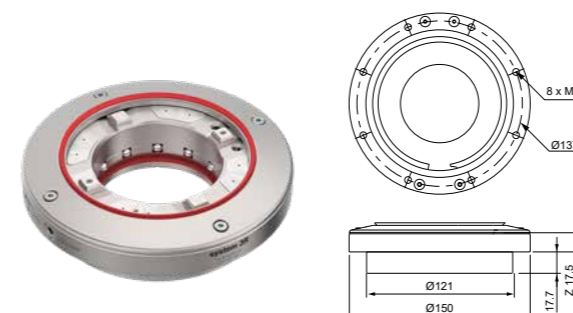


Matrix for wire EDM

Pneumatic in-built chuck, Matrix 110, 3R-SP28395-RS

Chuck for Matrix holders. For permanent mounting on the machine spindle or fixture.

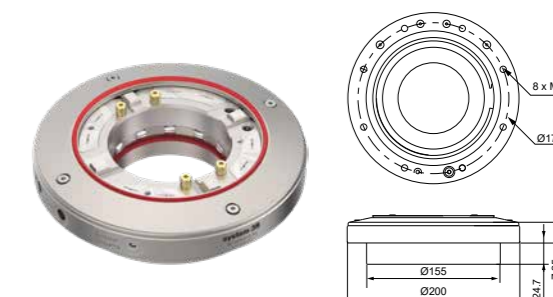
- Clamping force 9 kN
- Fixed index positions 4x90°
- Required drawbar 3R-695.2-110RS
- Weight 2.7 kg



Pneumatic in-built chuck, Matrix 142, 3R-SP28219-RS

Chuck for Matrix holders. For permanent mounting on the machine spindle or fixture.

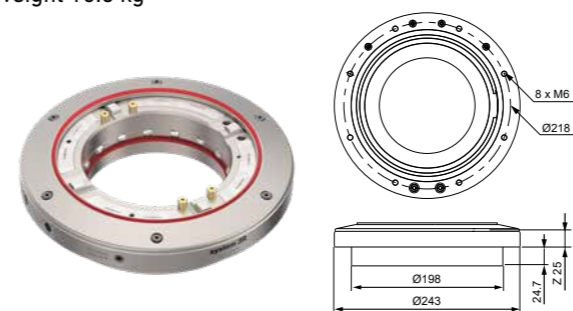
- Clamping force 15 kN
- Fixed index positions 4x90°
- Required drawbar 3R-695.2-142RS
- Weight 7 kg



Pneumatic in-built chuck, Matrix 185, 3R-SP28268-RS

Chuck for Matrix holders. For permanent mounting on the machine spindle or fixture.

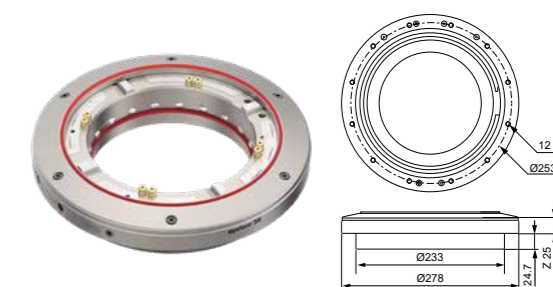
- Clamping force 20 kN
- Fixed index positions 4x90°
- Required drawbar 3R-695.2-185RS
- Weight 10.6 kg



Pneumatic in-built chuck, Matrix 220, 3R-SP28340-RS

Chuck for Matrix holders. For permanent mounting on the machine spindle or fixture.

- Clamping force 23 kN
- Fixed index positions 4x90°
- Required drawbar 3R-695.2-220RS
- Weight 11 kg



Drawbar, Matrix 110, 3R-695.2-110RS

- Weight 0.3 kg

NOTE: In automatic applications, the gripper has to grip the pallet and not the drawbar.



Drawbar, Matrix 142, 3R-695.2-142RS

- Weight 0.5 kg

NOTE: In automatic applications, the gripper has to grip the pallet and not the drawbar.



Matrix for wire EDM

Drawbar, Matrix 185, 3R-695.2-185RS

- Weight 0.8 kg

NOTE: In automatic applications, the gripper has to grip the pallet and not the drawbar..



Drawbar, Matrix 220, 3R-695.2-220RS

- Weight 1.3 kg

NOTE: In automatic applications, the gripper has to grip the pallet and not the drawbar.



Adapter plate, Matrix 110, 3R-A34312-M110

Suitable chuck, 3R-SP28395-RS. Requires support (either 3Ruler or EconoRuler)

- Weight 2.7 kg



Adapter plate, Matrix 142, 3R-A34312-M142

Suitable chuck, 3R-SP28219-RS. Requires support (either 3Ruler or EconoRuler)

- Weight 5.7 kg



Adapter plate, Matrix 185, 3R-A34312-M185

Suitable chuck, 3R-SP28268-RS. Requires support (either 3Ruler or EconoRuler)

- Weight 8.1 kg



Adapter plate, Matrix 220, 3R-A34312-M220

Suitable chuck, 3R-SP28340-RS. Requires support (either 3Ruler or EconoRuler)

- Weight 9.2 kg



Matrix for wire EDM

Pallet, Matrix 110, 3R-691.1-110

- Fixed index positions 4x90°
- Permissible press load 25 tonnes
- Permissible torque 100 Nm
- Required drawbar 3R-695.2-110 or similar
- Adapted for automatic changing
- Weight 0.5 kg

NOTE: Not self carrying, requires extra support.



Pallet, Matrix 142, 3R-691.1-142

- Fixed index positions 4x90°
- Permissible press load 75 tonnes
- Permissible torque 300 Nm
- Required drawbar 3R-695.2-142 or similar
- Adapted for automatic changing
- Weight 1.2 kg

NOTE: Not self carrying, requires extra support.



Pallet, Matrix 185 3R-691.1-185

- Fixed index positions 4x90°
- Permissible press load 100 tonnes
- Permissible torque 600 Nm
- Required drawbar 3R-695.2-185 or similar
- Adapted for automatic changing
- Weight 1.7 kg

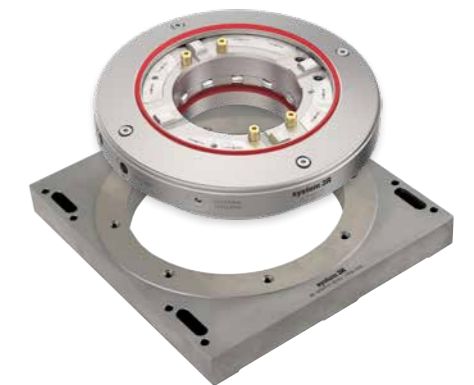
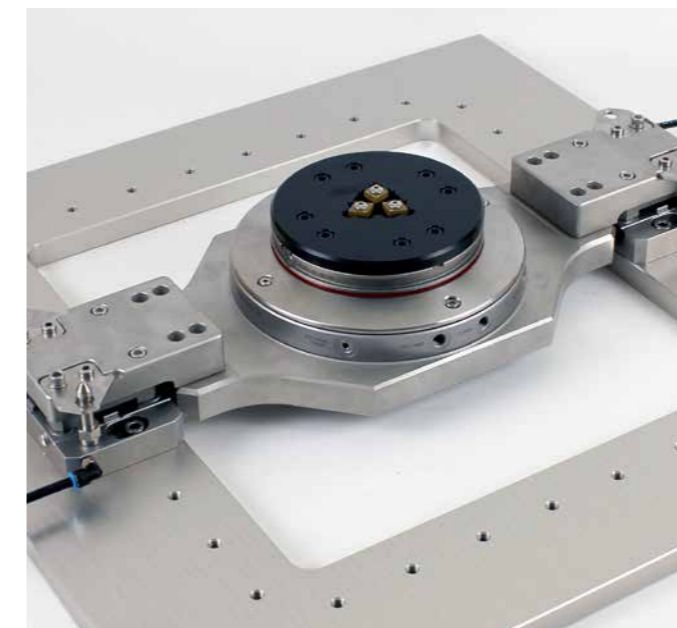
NOTE: Not self carrying, requires extra support.



Pallet, Matrix 220, 3R-691.1-220

- Fixed index positions 4x90°
- Permissible press load 150 tonnes
- Permissible torque 600 Nm
- Required drawbar 3R-695.2-220 or similar
- Adapted for automatic changing
- Weight 2.6 kg

NOTE: Not self carrying, requires extra support.



Configuration example.

Matrix for wire EDM

Check ruler, Matrix 110, 3R-696.1-110

For setting flatness and angular positions.

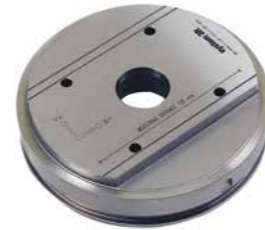
- Ground hole for centring
- Ready for code carrier
- Measuring length 80 mm
- Adapted for automatic changing
- Weight 1.6 kg



Check ruler, Matrix 142, 3R-696.1-142

For setting flatness and angular positions.

- Ground hole for centring
- Ready for code carrier
- Measuring length 100 mm
- Adapted for automatic changing
- Weight 3.4 kg



Check ruler, Matrix 185, 3R-696.1-185

For setting flatness and angular positions.

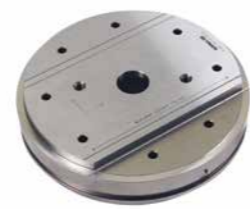
- Ground hole for centring
- Ready for code carrier
- Measuring length 125 mm
- Adapted for automatic changing
- Weight 5.7 kg



Check ruler, Matrix 220, 3R-696.1-220

For setting flatness and angular positions.

- Ground hole for centring
- Ready for code carrier
- Measuring length 150 mm
- Adapted for automatic changing
- Weight 7.5 kg



Frames

Frames are large palletising systems adapted to WEDM machine table dimensions.

Frames

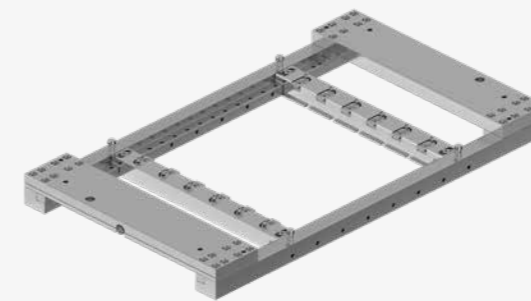
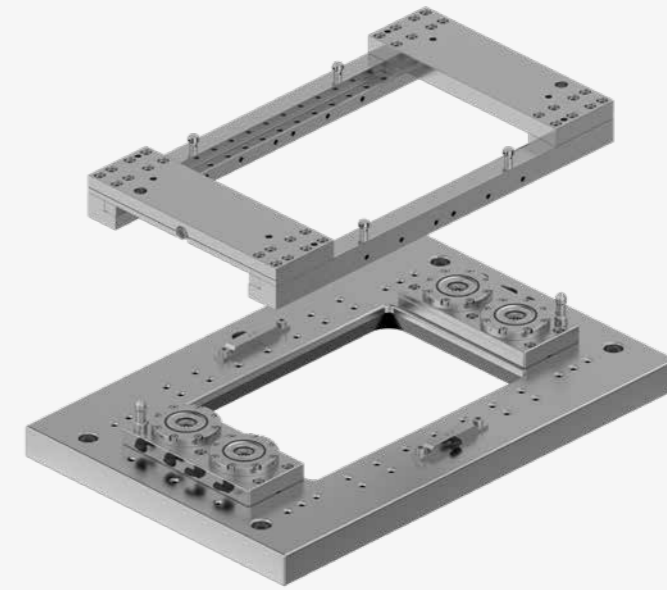
Our rugged design enables large workpieces to be clamped and changed with repeatable accuracy in WEDM machines.

Adjusting/designing the clamping bars to the specific workpieces significantly reduces clamping and alignment effort.

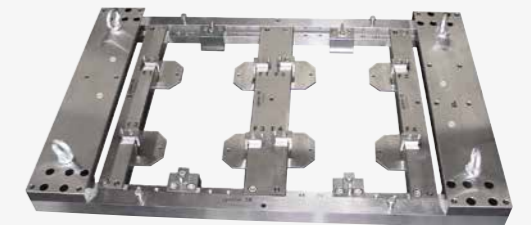
Components

The basic frame equipment comprises the following components listed below.:

- Machine equipment
- Pneumatic control
- Frame
- Clamping bars



Modular and flexible clamping bars.



Ask for machine related flyer for recommended configuration.

Frames – Tooling configuration

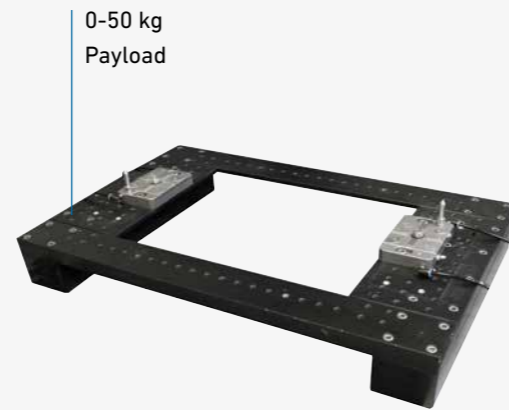
Choose between different configurations

In requests for information, please give the details listed below.

- Machine model
- Total weight of workpieces
- automation is intended
- If levelling heads are also going to be used

Optional tooling systems for frames

- Macro WEDM
- MacroTwin
- DelphinShort Twin



MacroWEDM for frames
3R-602.10-1, 2 pcs

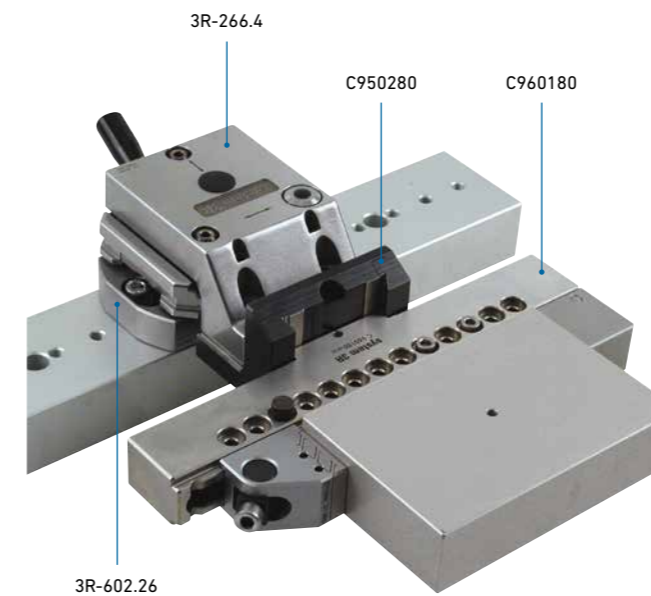


MacroTwin for frames
3R-602.12-1, 2 pcs



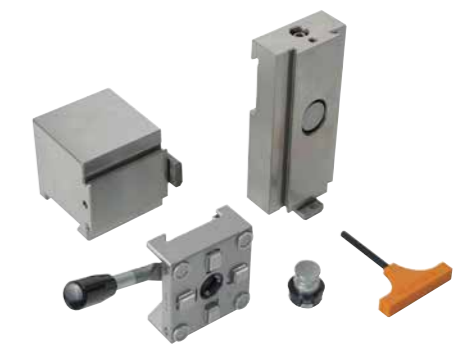
DelphinShort for frames
C952010, 2 pcs

User kits



User kit, 3R-243.2-1

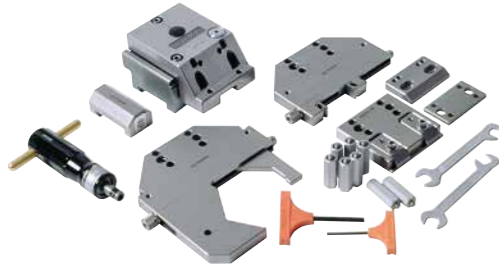
3R-201J	Adapter 90°	x1
3R-204	Height adapter	x1
3R-602.27-1	Manual chuck for Macro	x1
3R-605.27RS	Drawbar	x1
3R-333-05	Allen key, 5 mm	x1



User kits

User kit, 3R-242HP

3R-225	Reference stop	x1
3R-272HP	Levelling adapter HP	x1
3R-292.3	SuperVice <100 mm	x1
3R-293.3	SuperVice Ø8-90 mm	x1
3R-294.3	Vice <100 mm	x1
3R-914.07	Torque wrench, 7Nm	x1
3R-333-03	Allen key, 3 mm	x1
3R-333-05	Allen key, 5 mm	x1



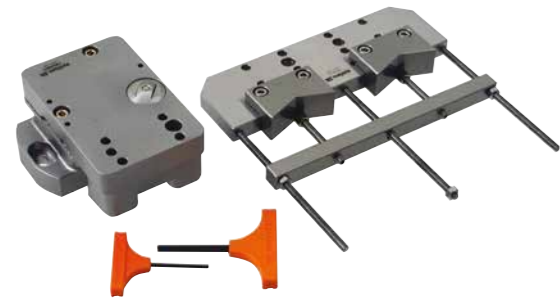
User kit, 3R-242.82HP

3R-239.1	Ruler vice	x1
3R-272HP	Levelling adapter HP	x1
3R-292.66HP	Magnum Holder HP	x1



User kit, 3R-242S-1

3R-232S	Levelling adapter	x1
3R-292.3S	Universal holder	x1
3R-333-03	Allen key, 3 mm	x1
3R-333-05	Allen key, 5 mm	x1



User kit, 3R-242S-2

3R-232S	Levelling adapter	x1
3R-292.6S	SuperVice Magnum	x1
3R-333-03	Allen key, 3 mm	x1
3R-333-05	Allen key, 5 mm	x1



User kit, 3R-242S-3

3R-232S	Levelling adapter	x1
3R-293.33	Universal holder	x1
3R-333-03	Allen key, 3 mm	x1
3R-333-05	Allen key, 5 mm	x1



User kit, 3R-242S-4

3R-602.26	Manual chuck	x1
3R-262HP	Levelling adapter Macro	x1
3R-292.6S	SuperVice Magnum	x1
3R-605.26	Drawbar	x1
3R-333-05	Allen key, 5 mm	x1
45600-N03	Allen key, 3 mm	x1
45600-N041	Allen key, 6 mm	x1

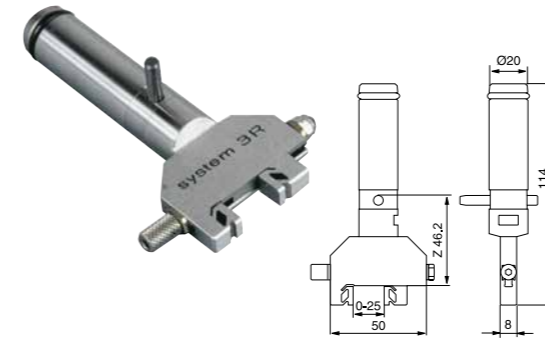


Mini

SuperVice, Mini, 3R-213.4

Vice for mounting rectangular workpieces up to 25 mm in the Mini system.

- Tightening torque 3 Nm
- Weight 0.4 kg



Holder, Mini, 3R-322/50E

Electrode holder for the Mini system with 50 mm long unhardened electrode mounting part.

NOTE: Not stainless.

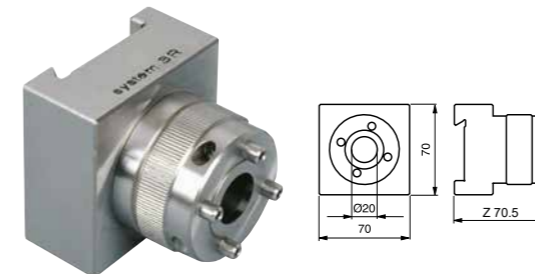
- Adapted for automatic changing
- Hardened reference part
- Flushing duct
- Supplied in sets of 30
- Weight per set 7.7 kg



Manual chuck adapter, Mini, 3R-252.1

Chuck adapter with dual hydraulic chambers for Mini holders in the WEDM system.

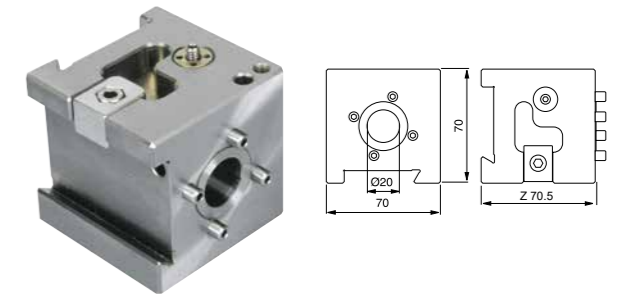
- Fixed index positions 4x90°
- Weight 1.6 kg



MiniBlock, Mini, 3R-202

Manual chuck with dual hydraulic chambers for Mini holders. Vertical or horizontal mounting in the WEDM system.

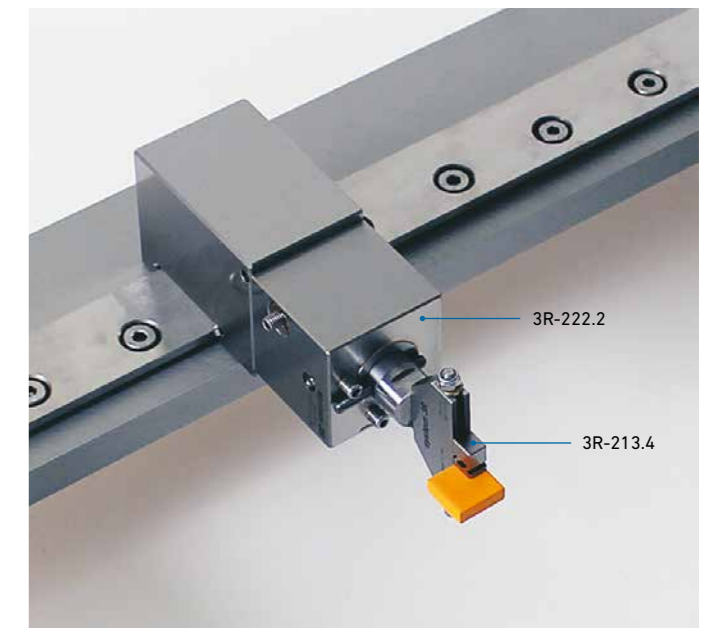
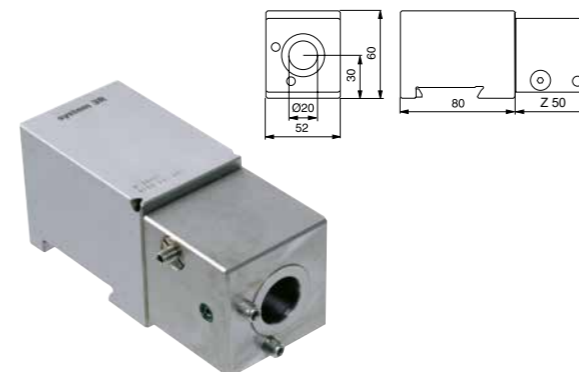
- Fixed index positions 4x90°
- Weight 1.9 kg



Manual chuck adapter, Mini, 3R-222.2

Chuck adapter with dual hydraulic chambers for Mini holders in the WEDM system.

- Fixed index positions 2x90°
- Weight 2.5 kg



Accessories

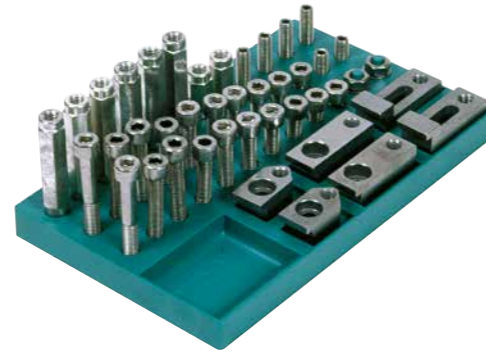
Clamp kit M6, 3R-230.1

For clamping workpieces on rulers, etc.

- Weight 1.8 kg



Set ICS Double clamping M8, C860000



Torque wrenches

With audible click feedback

3R-614-04

4 Nm

3R-614-06

6 Nm



Torque wrenches

With audible click feedback

3R-914-07

Torque 7 Nm

3R-914-10L

Torque 7.8 Nm

3R-914-10

Torque 10 Nm

3R-914-15

Torque 15 Nm



3R-914-10L

3R-914-07
3R-914-10

Mecatool WEDM tooling – Adapters and Unimatic

ICS A Adapter SuperVice/Macro WEDM, C642330

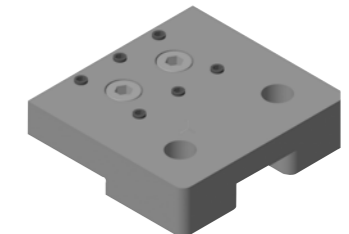
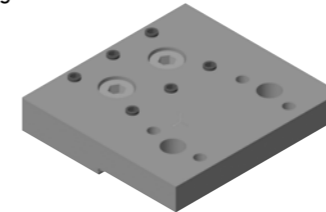
Adapter for System 3R clamping elements with: adaptation height 15 mm; ICS A interface 7 mm.

- Weight 0.6 kg

ICS B Adapter SuperVice/Macro WEDM, C642320

Adapter for System 3R clamping elements with: adaptation height 15/25 mm; ICS B interface 15 mm.

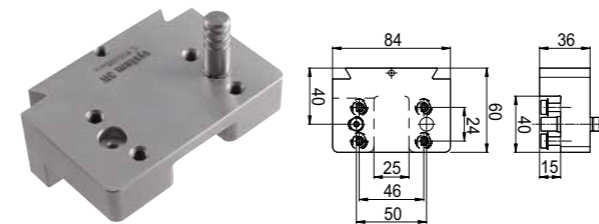
- Weight 0.7 kg



Adapter SuperVice/Macro WEDM, Unimatic, C950480

Adapter for System 3R clamping elements with: adaptation height 15/25 mm; Unimatic dovetail slide.

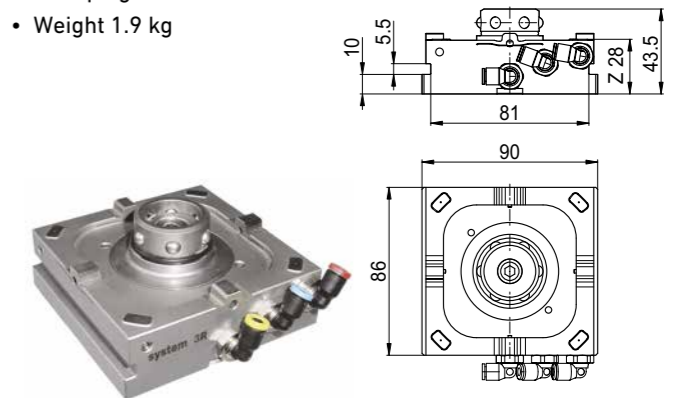
- Functional height Unimatic 40 mm, SuperVice/Macro 15/25 mm
- Adapted for Unimatic system C950150 or C950170 and all SuperVice/Macro clamping elements with functional height 15/25 mm
- Weight 1.3 kg



Chuck, Unimatic, C950000

For clamping workpieces on rulers, etc.

- Functional height 28 mm
- Clamping force 5000 N
- Weight 1.9 kg

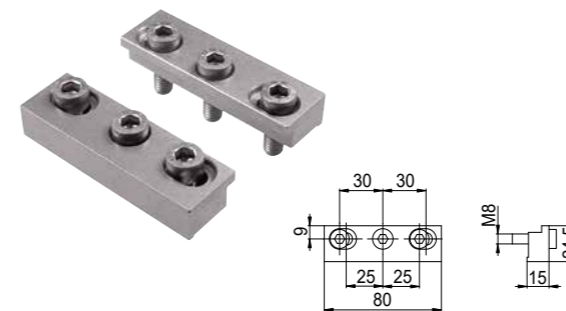


Brackets universal, Unimatic, C950020

Vertex 1, AC2/3 (axis centre staggered for mounting)

FI 240, 440, 640, 6050TW

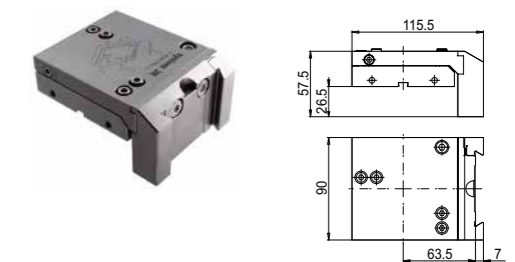
CUT 20, CUT 30



Adjusting pallet, Unimatic, C950170

Adjusting pallet with dovetail guide adaptation.

- Adjustment range ± 0.2 mm for all three axes
- Functional height 59 mm, Unimatic pallet placed onto Unimatic chuck
- Weight 2.5 kg

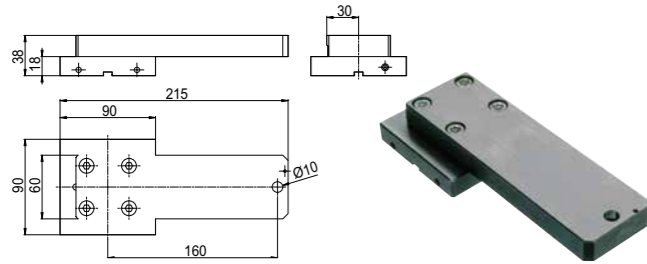


Mecatool WEDM tooling – Adapters and Unimatic

Reference pallet, Unimatic, C960450

Measuring and inspection element.

- Functional height 18 mm
- Indexing 4 x 90°
- Accuracy repetition 0.001 mm / transfer ± 0.002 mm on 160 mm
- Positioning of reference hole 160 ± 0.002 mm to pallet centre
- Weight 2.7 kg



Control unit (1-fold), Unimatic, C960500

Pneumatic control for Unimatic chuck.

- Weight 0.4 kg



Protection pallet, Unimatic, C960710

Protection of ball cage and X/Y-reference elements of the Unimatic chuck.

- Functional height 20 mm
- Weight 0.4 kg



Wear part set, Unimatic, S190900

Wear parts set for Unimatic chucks C950000 and C950070.



Adapters

For mounting ICS holders in WEDM, Macro and MacroTwin mounting heads.

C457940

ICS A

C457960

ICS B

C457980

ICS C



Adapter, C950280

For mounting Unimatic holders in WEDM, Macro and MacroTwin mounting heads.



Automation

Utilise every hour of the day and night!

An automatic production cell can generate revenue round the clock, seven days a week. Why be satisfied with 40 productive machine-hours a week when the same machine can achieve over 100 additional hours a week? Use every hour of the day and night for production!

WorkPal 1, WorkPartner 1+, WorkMaster/Transformer and Fanuc are our four "aces" which boost your productivity and sharpen your competitiveness.

Last, but not least, they ensure faster payback on your investments.



WorkPal 1 – modest demands, major benefits

WorkPal 1 is a simple step into the world of automation. It is an easy-to-use, user-friendly pallet changer for automatic changing of pallets in wire EDM, milling or laser machines.

With glass doors across one full side, our WorkPal 1 gives maximum access to the magazine, this makes it easier to manage pallets. Needing only minimal floor space, WorkPal 1 is an extremely compact unit that is simple to install.



Automation

WorkPartner 1+ – Can serve two machines

WorkPartner 1+ is an extremely compact unit for changing pallets: on machine tables; and, at machine spindles in one or two machines. Its modular construction means that magazine capacity is extremely flexible and can be adapted to your company's needs.

Typical application areas:

- Milling – changing of workpieces.
- Grinding – changing of workpieces.
- Die-sinking EDM – changing of workpieces and electrodes.
- Wire EDM – changing of workpieces



WorkMaster/Transformer – a modular automation concept

WorkMaster/Transformer is a versatile automation concept for a variety of applications in one or more milling machines and/or wire EDM machines, for instance. And changing can be done both in the machine spindle and on the machine table.

The changer unit is completely self-contained and can be adapted to "tailor-made" automation solutions with several types of magazine, as well as a number of options. One, two or three machines in the same production cell.

One clear advantage is the "open architecture" of the system. The customer chooses the machine (or machines) suited to the particular requirements of the business, and a WorkMaster/Transformer is added.

Automation – Six-axis Fanuc industrial robot

In the die, mould and precision production sectors, System 3R offers automation solutions using industrial robots (both stationary and rail).

Fanuc solutions cover applications requiring:

- Transfer weights from 70-700 kg.
- Radial reaches up to 3,400 mm.
- Complex transfer movements.
- Parts handling



Automation – Accessories

Grip, 3R-W12-S

For automatic changing of 3R-266.12, 3R-266.12HP and 3R-282.12HP.



Code carrier 4 mm, 3R-863.01-10

With a pre-programmed unique identity.

- Supplied in sets of 10



Code carrier spacer, D-40106

For mounting code carrier 3R-863.01-10M on pallets.

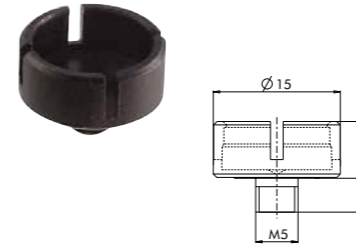
- Supplied in sets of 10



Code carrier, fixture, C960740

Fixture for code carrier 3R-863.01-10.

- The code carrier can be clicked into position



Grip, 3R-WP1

For automatic changing of 3R-206.10, 3R-208.6, 3R-622.5, 3R-622.6 or customer-made fixtures.



See separate publications for further information about WorkPal Compact Servo, WorkPartner 1+, WorkMaster/Transformer, and Automation solution with industrial Fanuc robot and WorkShopManager – System 3R's production control software.

About GF Machining Solutions

Multi-technology solutions provider

Our commitment to you and your specific applications is proven by the value-adding intelligence, productivity and quality delivered by our multi-technology solutions. Your success is our chief motivator. That's why we are continuously advancing our legendary technical expertise. Wherever you are, whatever your market segment and whatever the size of your operation, we have the complete solutions and the customer-centric commitment to accelerate your success—today.

EDM (Electrical Discharge Machining)



Wire-cutting EDM

GF Machining Solutions' wire-cutting EDM is fast, precise and increasingly energy efficient. From ultraprecise machining of miniaturized components down to 0.02 mm to powerful solutions for demanding high-speed machining with respect to surface accuracy, our wire EDM solutions position you for success.

Die-sinking EDM

GF Machining Solutions is revolutionizing die-sinking EDM with features like iGAP technology to dramatically boost machining speed and reduce electrode wear. All of our die-sinking systems offer fast removal and deliver mirror finishes of Ra 0.1 µm (4 µin).

Hole-drilling EDM

GF Machining Solutions' robust hole-drilling EDM solutions enable you to drill holes in electrically conductive materials at a very high speed—and, with a five-axis configuration, at any angle on a workpiece with an inclined surface.

Tooling and Automation



Tooling

Our customers experience complete autonomy while maintaining extreme accuracy, thanks to our highly accurate System 3R reference systems for holding and positioning electrodes and work pieces. All types of machines can easily be linked, which reduces set-up times and enables a seamless transfer of workpieces between different operations.

Automation

Together with System 3R, we also provide scalable and cost-effective Automation solutions for simple, single machine cells or complex, multi-process cells, tailored to your needs.

Milling



Milling

Precision tool and mold manufacturers enjoy a competitive edge with our Mikron MILL S solutions' fast and precise machining. The Mikron MILL P machines achieve above-average productivity thanks to their high performance and Automation. Customers seeking fastest return on investment benefit from the affordable efficiency of our MILL E solutions.

High Performance Airfoil Machining

Our Liechti turnkey solutions enable the highly dynamic manufacturing of precision airfoils. Thanks to the unique performance and our expertise in airfoil machining, you increase productivity by producing at the lowest cost per part.

Spindles

As part of GF Machining Solutions, Step-Tec is engaged in the very first stage of each machining center development project. Compact design combined with excellent thermal and geometric repeatability ensure the perfect integration of this core component into the machine tool.

Software



Digitalization solutions

To drive its digital transformation, GF Machining Solutions acquired symmedia GmbH, a company specialized in software for machine connectivity. Together, we offer a complete range of Industry 4.0 solutions across all industries. The future requires the agility to adapt quickly to continual digital processes. Our intelligent manufacturing offers embedded expertise, optimized production processes, and workshop Automation: solutions for smart and connected machines.

Advanced manufacturing



Laser texturing

Aesthetic and functional texturing is easy and infinitely repeatable with our digitized Laser technology. Even complex 3D geometries, including precision parts, are textured, engraved, microstructured, marked and labeled.

Laser micromachining

GF Machining Solutions offers the industry's most complete line of Laser micromachining platforms optimized for small, high-precision features to meet the increasing need for smaller, smarter parts to support today's leading-edge products.

Laser Additive Manufacturing (AM)

GF Machining Solutions and 3D Systems, a leading global provider of additive manufacturing solutions and the pioneer of 3D printing, have partnered to introduce new metal 3D printing solutions that enable manufacturers to produce complex metal parts more efficiently.

Service + Success



We take you to new heights

Our Success Packs are designed to maximise your return on investment and empower you in your quest for success across all industrial segments. Our subscription packs feature a comprehensive range of services that guarantee the access and support you need to get the most out of your assets today, while preparing for the challenges of tomorrow. Our trusted experts backed by our latest cutting-edge, intelligent Digital Solutions, provide a full range of services.

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Keep your equipment operating at peak precision and performance with our wide range of certified consumables and original wear parts. Our online catalog has it all (ecatalog.gfms.com).

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At a glance

We enable our customers to run their businesses efficiently and effectively by offering innovative Milling, EDM, Laser, Additive Manufacturing, Spindle, Tooling and Automation solutions. A comprehensive package of services completes our proposition.

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