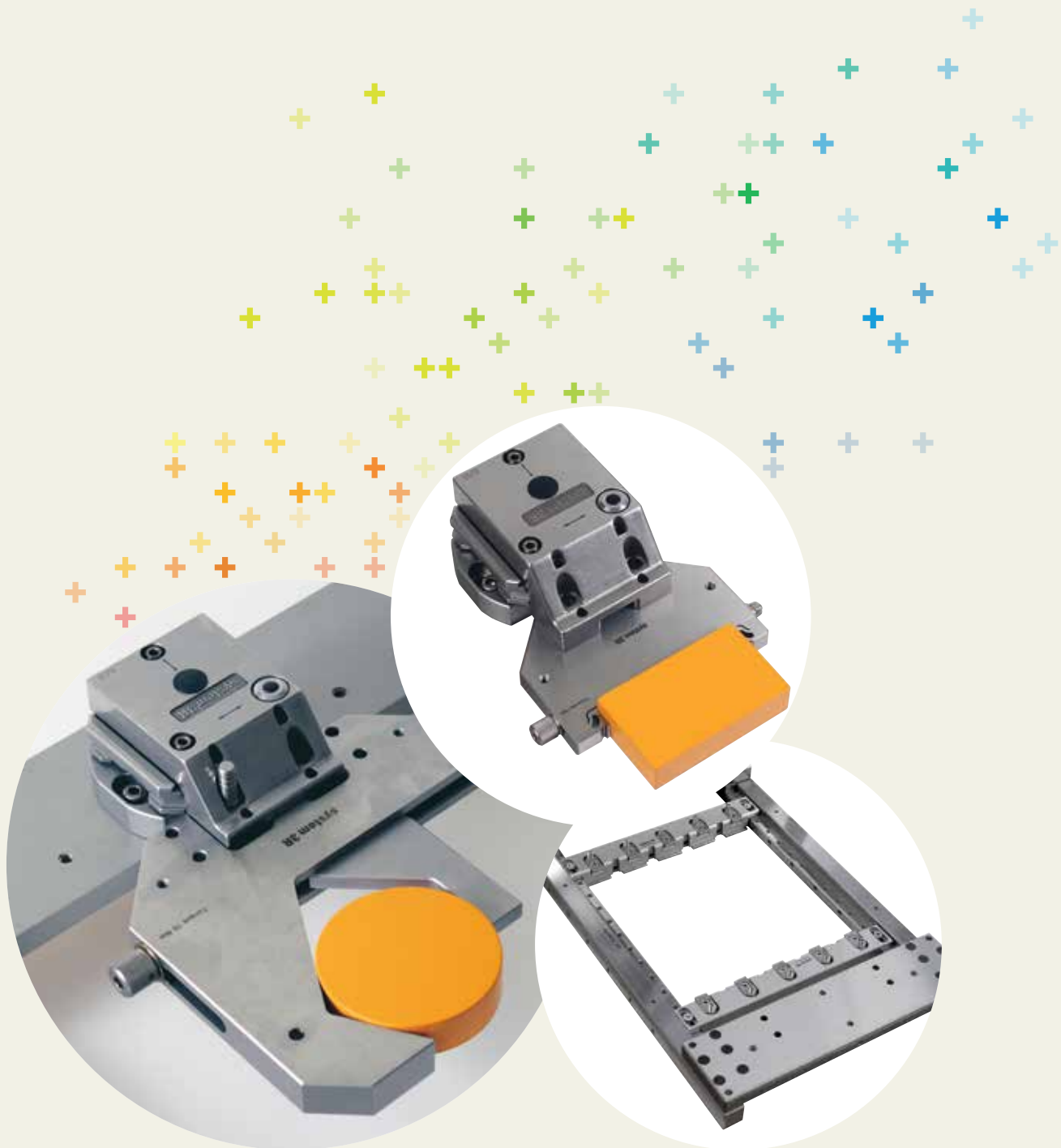


System 3R

# Tooling

for wire EDMing



### **GF Machining Solutions: all about you**



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 world-class electrical discharge machines (EDM), Laser texturing and Additive Manufacturing through to first-class Milling and Spindles, Tooling, Automation and software systems — all backed by unrivalled customer service and support — we, through our AgieCharmilles, Microlution, Mikron Mill, Liechti, Step-Tec and System 3R technologies, help you raise your game and increase your competitive edge.

# Design and quality by System 3R

# Contents

Basic equipment, WEDM .....	page 6
Basic equipment, Macro .....	page 8
B-axis, Rotating spindles & Rotary table .....	page 14
Mounting heads .....	page 17
Holders and vices for mounting in mounting heads .....	page 22
Chuck adapters .....	page 29
Holders for mounting in chuck adapters .....	page 34
Adapter elements .....	page 38
3Ruler ruler system .....	page 40
EconoRuler System .....	page 46
3P Three-point system .....	page 50
Presetting and inspection .....	page 51
System Matrix for wire EDMing .....	page 54
Frames .....	page 55
Accessories .....	page 56
Automation .....	page 58
Index .....	page 61

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 ISO9000 certificate.
-  Indicates that the product will normally be 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 of all, the workpiece needs to be positioned and secured in the working area of the machine, preferably on the zero line, and with the risk of collision with the machine's wire guides reduced to a minimum. And so firmly that it can handle the high flushing pressures of modern machines.

## 2. Reference system

Once the problem of effective mounting of the workpiece in the machine has been solved, the next step is to minimise downtimes when retooling the machine.

Technical developments of the machines in recent years have resulted in significantly higher material removal rates. But you won't benefit from this potential if the machine is idle for lengthy, troublesome retooling. So the aim must be to minimise retooling times with the machine idle.

With a reference system you can prepare and preset the workpiece away from the machine, then lift it in and secure it in the machine – quickly and precisely – with minimised downtime and consequent 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 maximised machine utilisation – automation.

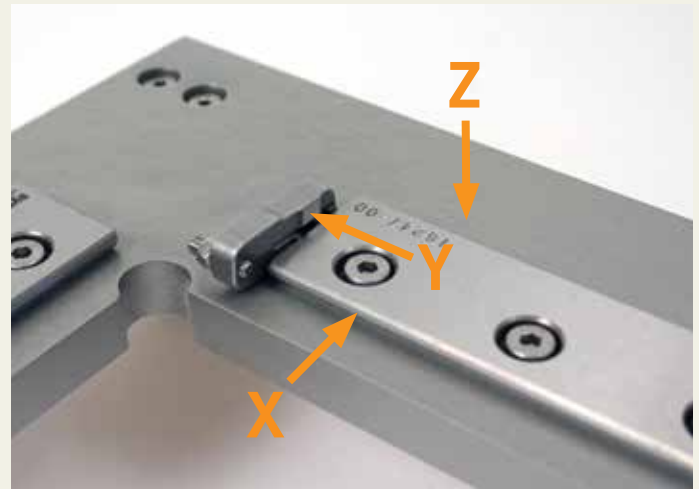
Add a pallet changer to your machine and you have created an automated production cell. A cell that can generate revenue 24 hours a day, weekdays and weekends, all year round!

# Basic equipment – WEDM

WEDM positions the workpiece within the working area of the machine and on the machine's zero line. 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.

Without doubt, System 3R offers the most comprehensive product range on the market. What's more, it also leads in terms of number of installations – world wide.

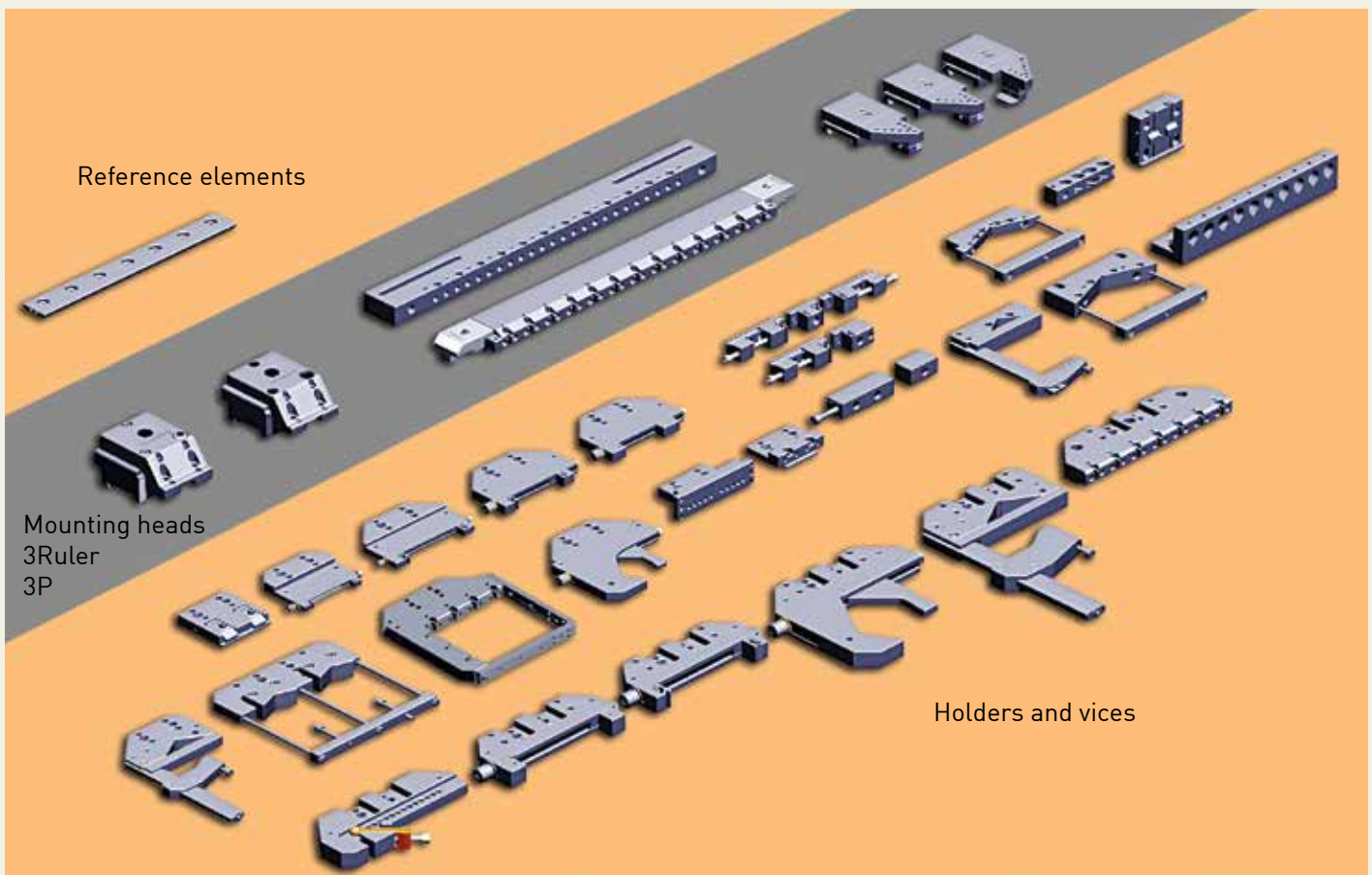
- + Exceptional flexibility
- + Accurately ground-in references
- + Repeatable accuracy
- + Double-sided parallel references
- + Fits all machine tables with 25 or 50 mm pitch.



Machine table with reference elements.

## Overview of the WEDM system

Basic equipment on the machine table.



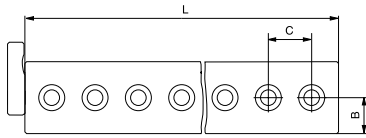
## Basic equipment – WEDM

### 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 mark and type.

- Supplied with end stops.



See also the reference element guides for your machine on – [www.system3R.com](http://www.system3R.com)

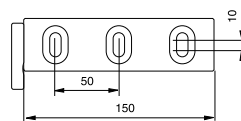
### Reference element WEDM, 3R-200.1J-U

Universal 150 mm reference element, with oval holes, for all machines that have M8 holes in the machine table, 30 to 40 mm from the edge of the table.

- Weight 0.4 kg.

3R-272HP

3R-200.XJ-X



### Reference stop, 3R-225

Can be moved infinitely along the entire reference element.

- Weight 0.4 kg.

3R-292.3



# Basic equipment – Macro

With a Macro chuck as basic equipment on the machine table, you can interconnect all your machines to create a single system. Move the workpiece from the wire EDM machine to the grinding machine or the die-sinking machine without subsequent alignment – quickly and precisely.

If you choose a pneumatic Macro chuck, you can operate round-the-clock production 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 – enhanced clamping force.

**Note:** The pneumatic chucks require an air pressure of  $6\pm 1$  bar.



## Recommendations for loading in Macro chucks

Table chucks with horizontal mounting of the workpiece

Article number	Max torque	Capacity (X=150 mm)
3R-600.24RS	6 Nm	4 kg
3R-600.24-4RS	8 Nm	5 kg
3R-602.10	22.5 Nm	15 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

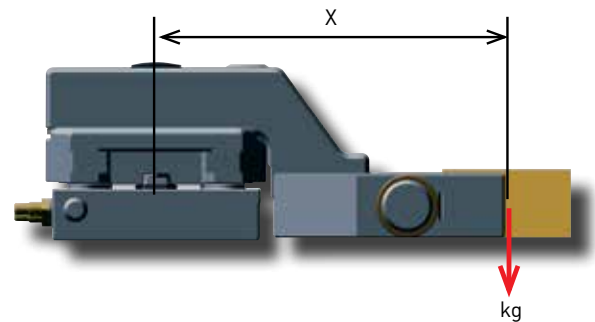
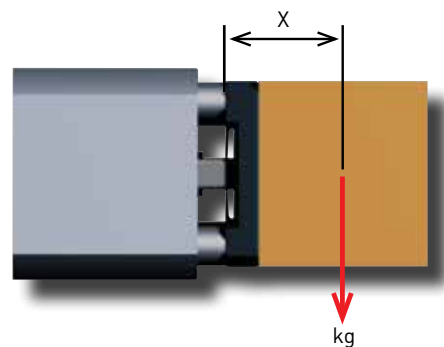


Table chucks with vertical mounting of the workpiece

Article number	Max torque	Capacity (X=100 mm)
3R-600.24RS	6 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

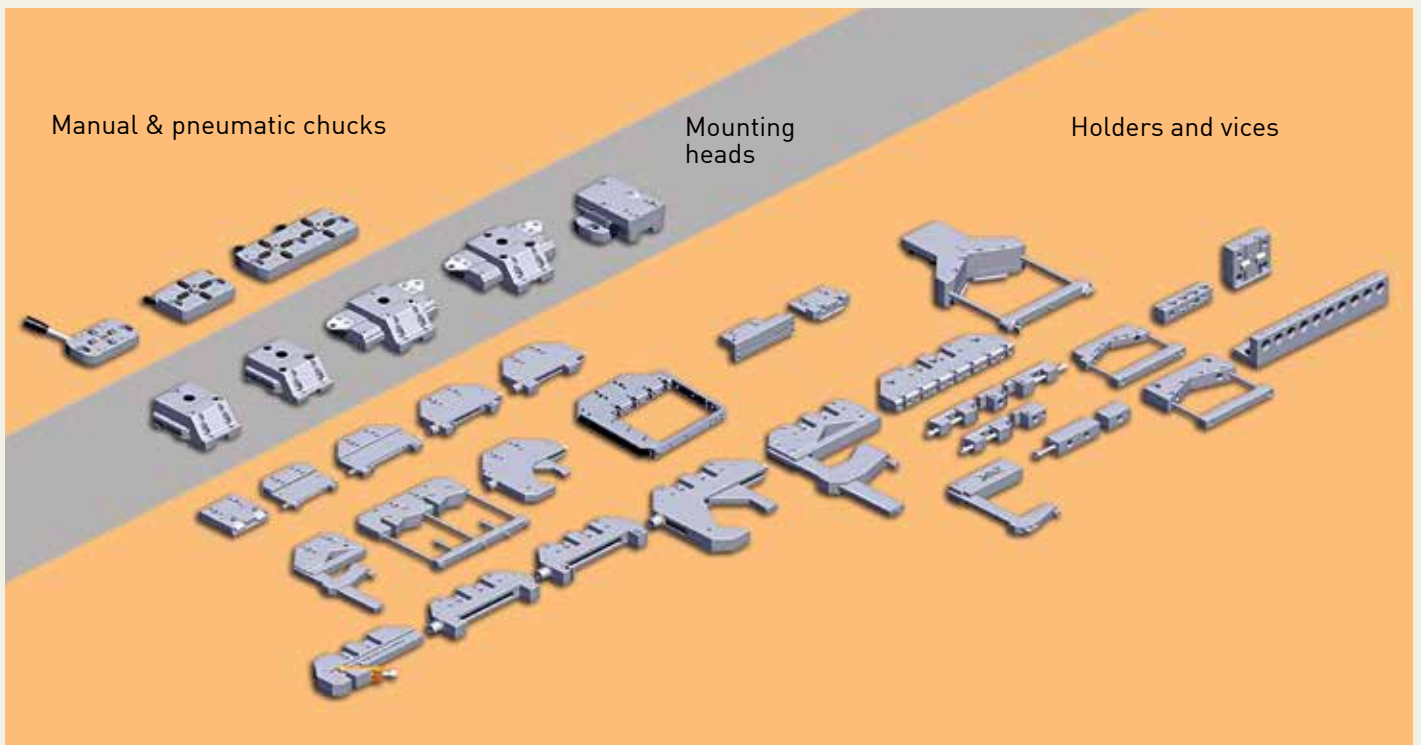




## Basic equipment – Macro

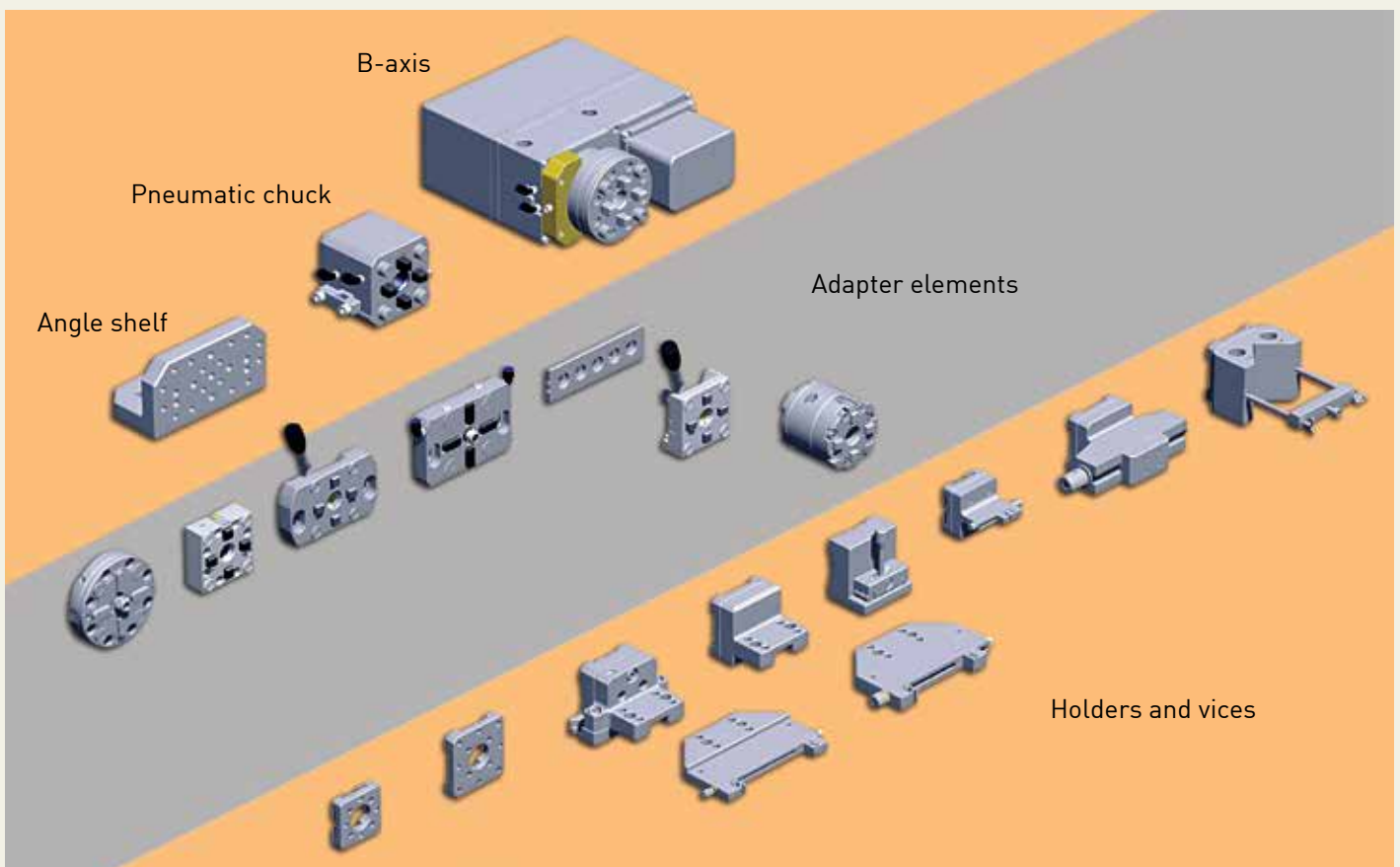
### Overview of the Macro system with horizontal mounting

Basic equipment on the machine table



### Overview of the Macro system with vertical mounting

Basic equipment on the machine table

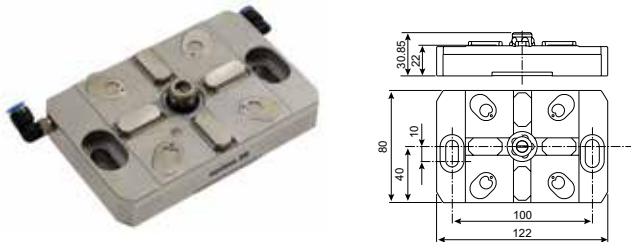


# Basic equipment – Macro

## Pneumatic chuck, Macro, 3R-602.10-1

Pneumatic chuck for Macro holders.

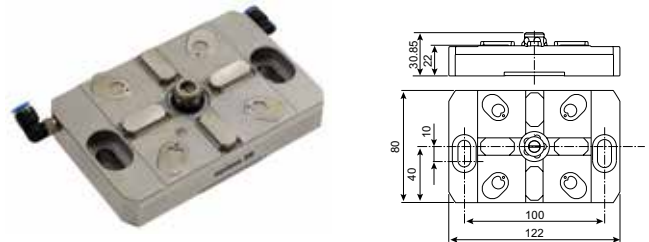
- Clamping force 6.7 kN
- Fixed index positions 4x90°
- Supplied with drawbar 3R-605.10
- Air-blast cleaning of Z-references
- Protective cover.
- Weight 1.0 kg.



## 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 1.0 kg.

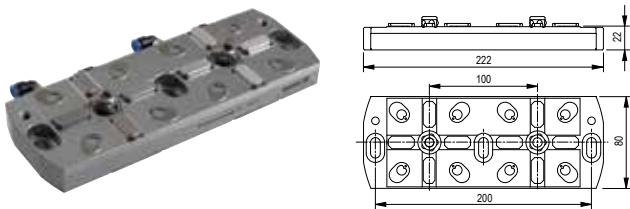


## Pneumatic chuck, MacroTwin, 3R-602.12-1

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

Note: On automatic changing with WorkPal – MacroTwin holders only.

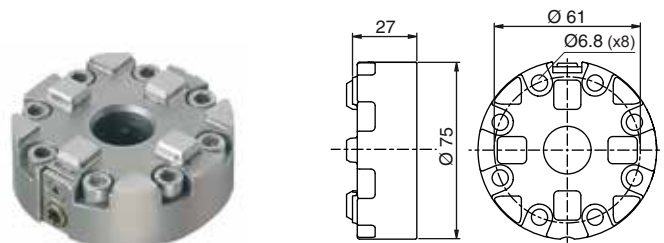
- Clamping force 2x6.7 kN
- Fixed index positions 4x90°
- Supplied with drawbars 3R-605.10
- Air-blast cleaning of the Z-references
- Protective covers
- Weight 1.5 kg.



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

Manual chuck for Macro holder. Designed for permanent mounting.

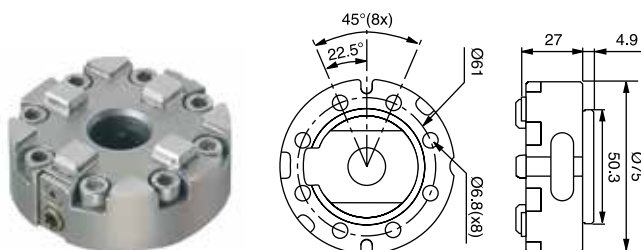
- Clamping force 6 kN
- Fixed index positions 4x90°
- Required drawbar 3R-605.2RS
- Tightening torque 6 Nm
- Weight 0.7 kg.



## Manual chuck, Macro, 3R-600.23RS

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

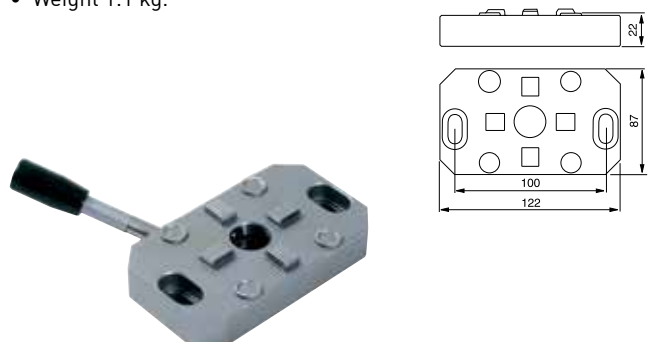
- Clamping force 6 kN
- Fixed index positions 4x90°
- Required drawbar 3R-605.2RS
- Tightening torque 6 Nm
- Weight 0.7 kg.



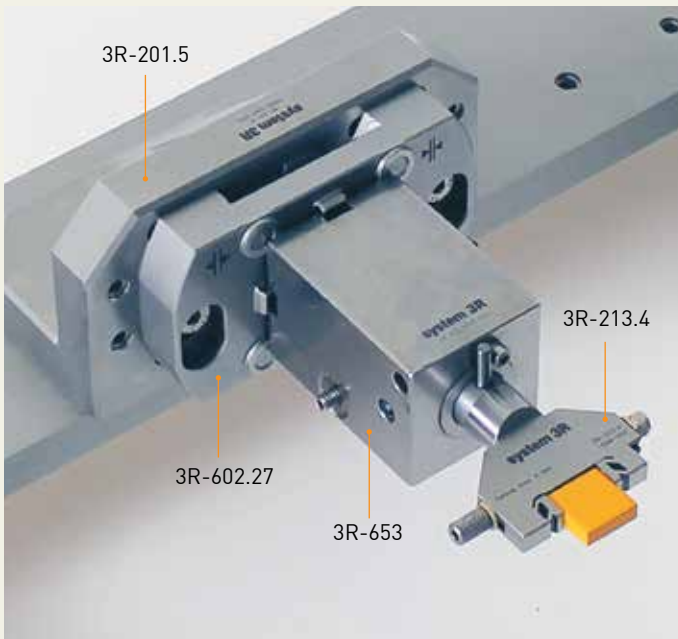
## Manual chuck, Macro, 3R-602.27

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.



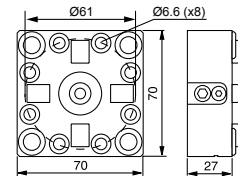
## Basic equipment – Macro



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

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

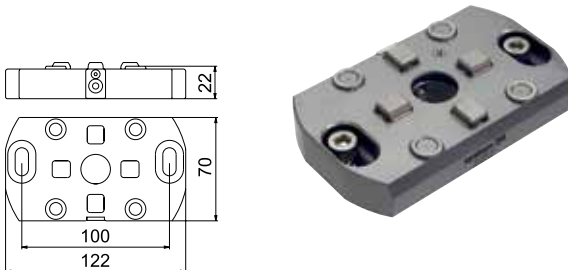
- Clamping force 6 kN
- Fixed index positions 4x90°
- Required drawbar 3R-605.2RS
- Tightening torque 6 Nm
- Ground front edge
- Weight 1 kg.



### Manual chuck, Macro, 3R-602.26

Manual chuck for Macro holder.

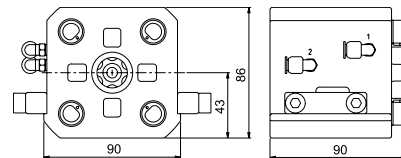
- Clamping force 6 kN
- Fixed index positions 4x90°
- Supplied with drawbar 3R-605.26.
- Tightening torque 6 Nm
- Weight 1.1 kg.



### Pneumatic chuck, Macro, 3R-602.4.1

Pneumatic chuck for Macro holder.

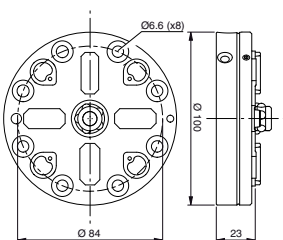
- Clamping force 6 kN
- Fixed index positions 4x90°
- Required drawbar 3R-605.1RS
- Air-blast cleaning of Z-references
- Weight 4.1 kg.



### Pneumatic chuck, Macro, 3R-602.81RS

Pneumatic chuck, low-profile, for Macro holder.

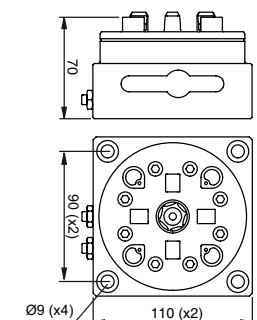
- Clamping force 6 kN
- Fixed index positions 4x90°
- Required drawbar 3R-605.10
- Air-blast cleaning of Z-references
- Weight 4.1 kg.



### 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.

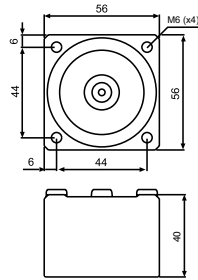


# Basic equipment – Macro

## Pneumatic chuck, Macro, 3R-600.15-3

Pneumatic chuck for permanent mounting on the machine table.

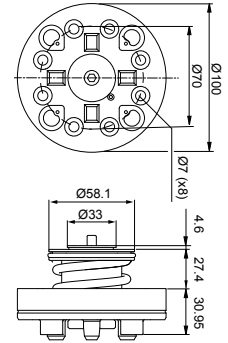
- Clamping force 4.5 kN
- Fixed index positions 4x90°
- Supplied with drawbar 3R-605.2RS
- Weight 0.8 kg.



## Pneumatic built-in 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.

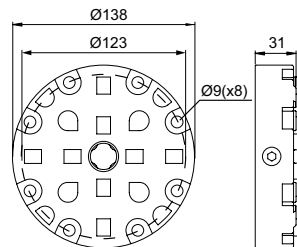


## Manual chuck (low profile), MacroMagnum, 90809.02

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.

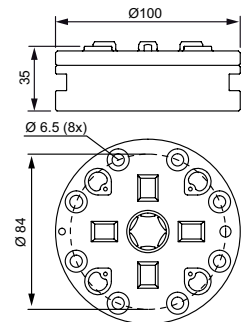
- Clamping force – Macro at 5 kN; 6 kN, MacroMagnum at 12 kN; 16 kN
- Fixed index positions 4x90°
- Required drawbar 3R-605.2RS
- Tightening torque Macro 4 Nm, MacroMagnum 10 Nm
- Weight 5 kg.



## Pneumatic chuck (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.

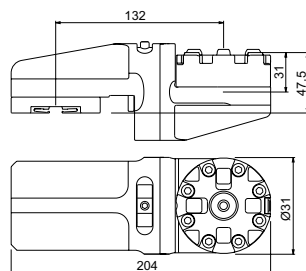


## Angle Tool, Macro, D-30215

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.

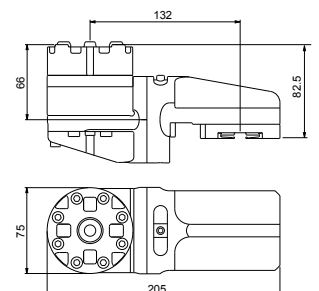


## Angle Swivel Tool, Macro, 90937.20

2-axes 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.

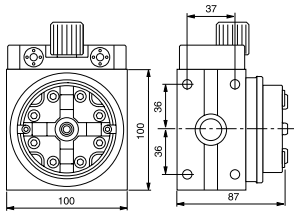


# Basic equipment – Macro

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

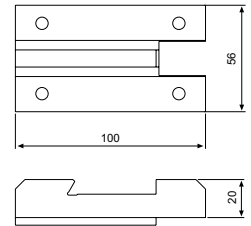
Manual Macro chuck. For vertical or horizontal mounting on the machine table, or alternatively the WEDM system with the aid of 3R-SP6435.

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



## Adapter, 3R-SP6435

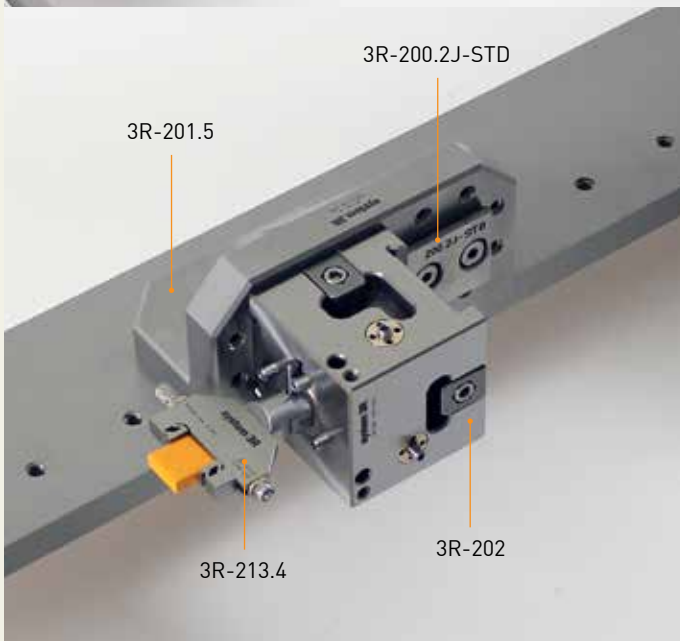
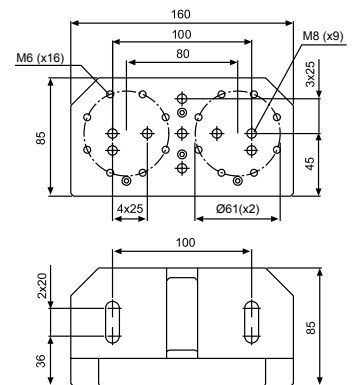
Adapter element for mounting 3R-217-1 in the WEDM system.



## 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.

- Weight 4.2 kg.

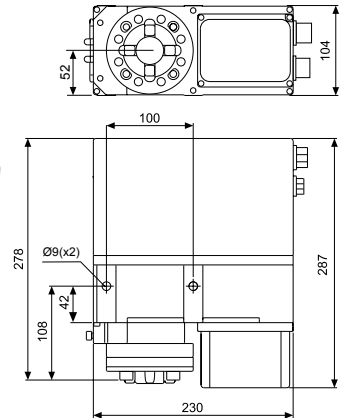


# B-axis, Rotating spindles & Rotary table

## 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  $\pm 0.003^\circ$  without correction
- Speed range 0-10 rev/min
- 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

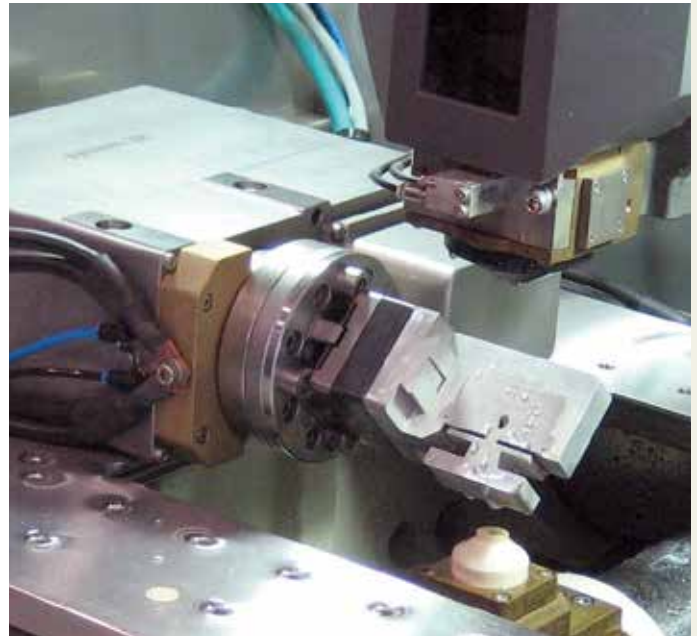
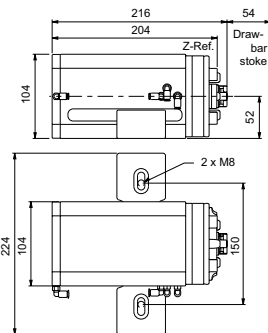
Supplied with a separate control unit.

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

## Automatic indexing chuck, Macro, D-30206

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

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



## B-axis, Rotating spindles & 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.

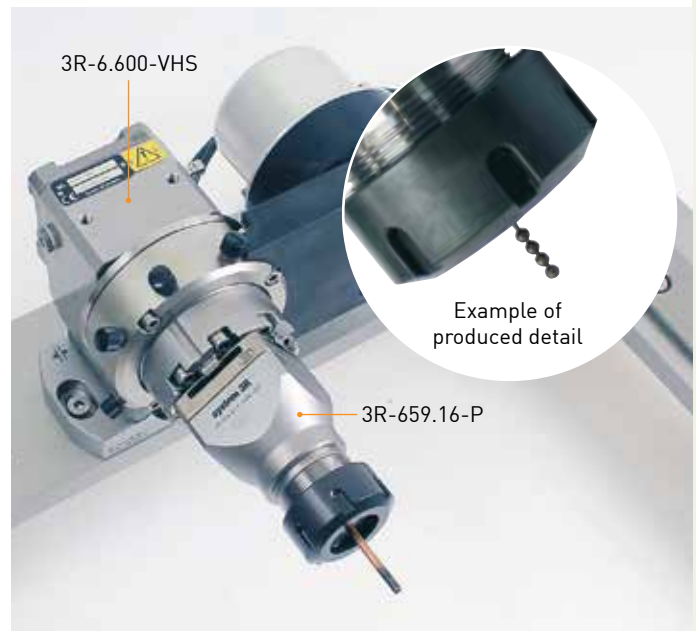
- Control unit included
- Required drawbar 3R-605.2RS
- Immersible
- Speed range 60-1500 rev/min
- Maximum workpiece weight 2 kg
- Maximum flushing pressure through the chuck 15 bar
- Maximum external flushing pressure 40 bar
- Weight 9.5 kg.



### Rotating spindle, 3R-6.300-EHS16

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

- Control unit included
- Drawbar depends on chosen chuck
- Immersible
- Speed range 60-2000 rev/min
- Maximum flushing pressure through the chuck 15 bar
- Maximum external flushing pressure 80 bar
- Weight 10 kg.

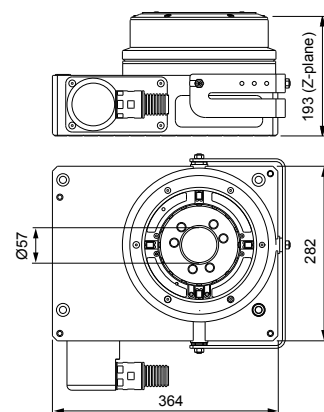


### Rotary table, Matrix 185, D-30229-3

Rotation 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.



## Basic equipment – Macro 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).



### Locking ring key, 3R-605-GE

To lift the drawbar locking ring.

- Supplied in sets of 2.

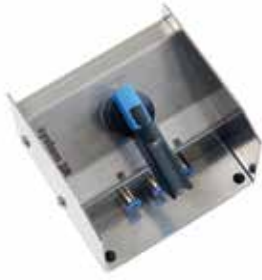


There are several spare part kits available, please ask.



### 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/closed with four seconds delay for air-blast cleaning.



## Drawbars

### 3R-605.1RS

- Drawbar  $\varnothing 20 \times 57.1$  mm with flushing hole  $\varnothing 7$  mm



### 3R-605.27RS

- Drawbar  $\varnothing 20 \times 27$  mm



### 3R-605.10

- Drawbar  $\varnothing 20 \times 13$  mm



### 3R-605.10E

- Drawbar  $\varnothing 20 \times 13$  mm
- Supplied in sets of 10.

### 3R-605.10EE

- Drawbar  $\varnothing 20 \times 13$  mm
- Supplied in sets of 20.

### 3R-605.2RS

- Drawbar  $\varnothing 20 \times 36.9$  mm with flushing hole  $\varnothing 7$  mm



### 3R-605.26

- Drawbar  $\varnothing 20 \times 32$  mm

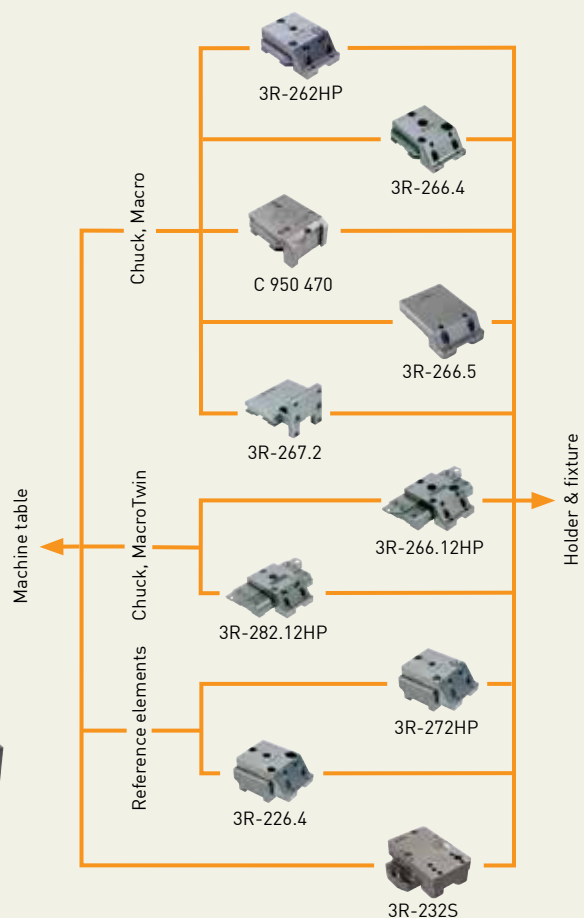
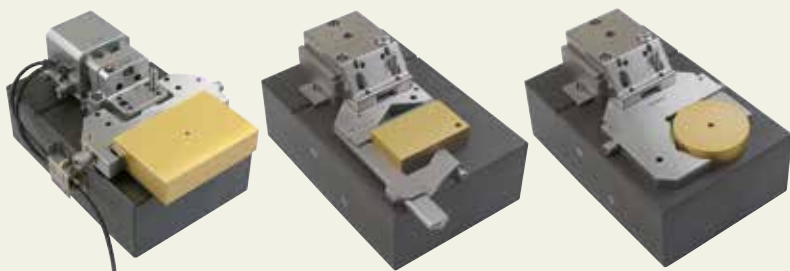




# Mounting heads

Rapid setup is essential if you want to benefit from the material removal capacity and the accuracy offered by modern machines. However, faster machines with increased flushing pressure cause resonance and vibration. So in order to fully utilise the capability of the machines it is necessary to have stable tools and workpiece mountings.

- + Setup done in seconds
- + Gives maximum workpiece precision
- + Utilises the machine capacity
- + More stable than any other system
- + Minimal vibration
- + Minimises resonance



# Pre-set in three axes



Pre-set 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 presetting can be done on an ordinary surface plate, using one of System 3R's presetting stones.

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

Simple, quick and precise.

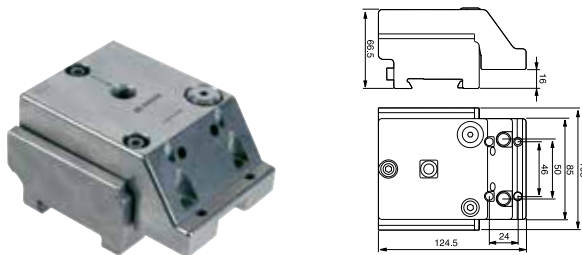
# Mounting heads

## 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.

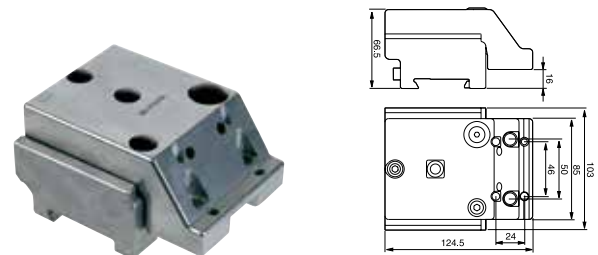


## Fixed mounting head, WEDM, 3R-226.4

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.

- Recommended maximum load 15 kg
- Weight 3.1 kg.

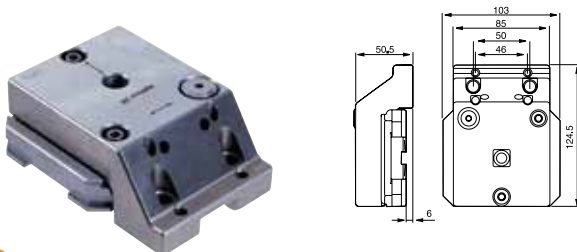


## Levelling adapter, Macro , 3R-262HP

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 3.1 kg.

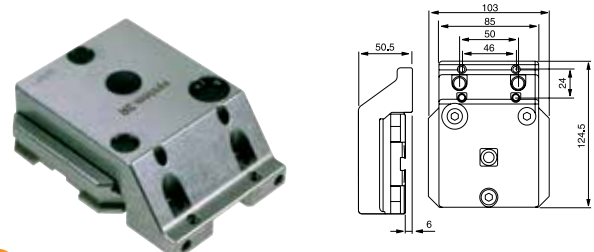


## Fixed mounting head, Macro, 3R-266.4

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 3.1 kg.

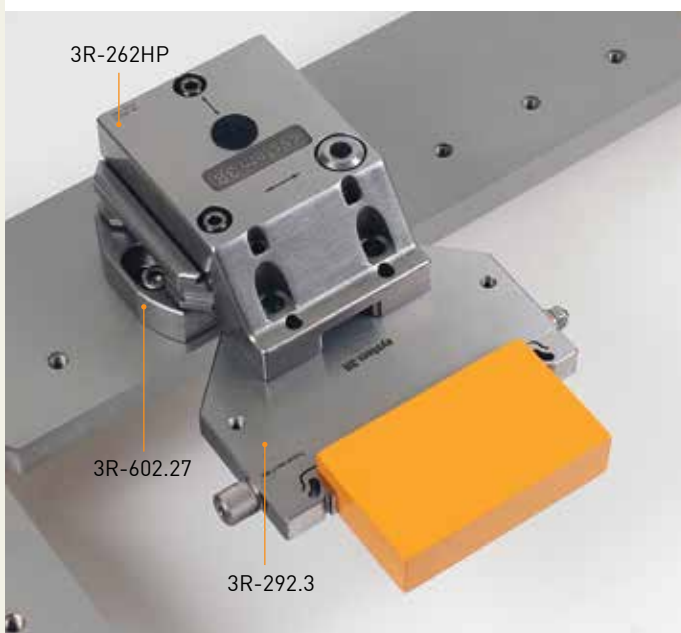
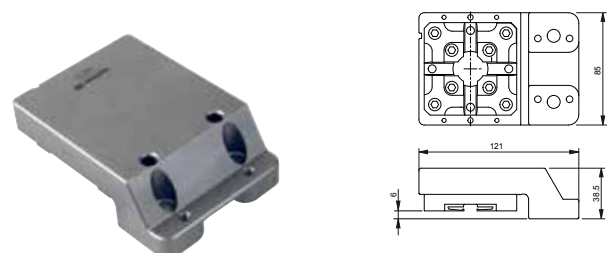


## Fixed mounting head, Macro, 3R-266.5

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 kg.



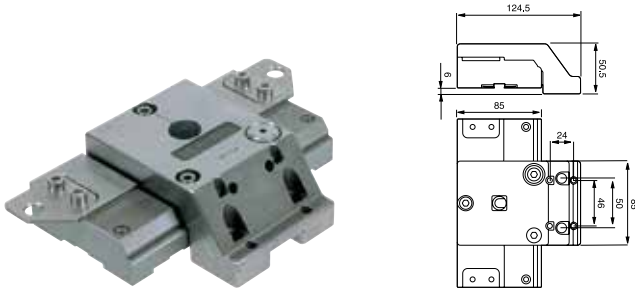
# Mounting heads & adapters

## Levelling adapter, Magnum MacroTwin, 3R-282.12HP

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 drawbars 3R-605.10 x2
- Adapted to automatic changing with 3R-W12-S
- Ready for code carrier
- Weight 4.2 kg.

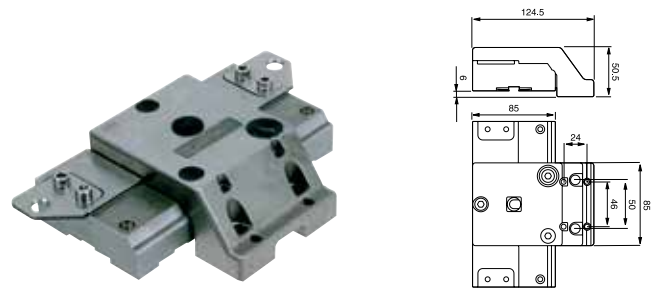


## Fixed mounting head, Magnum MacroTwin, 3R-266.12HP

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 to automatic changing with 3R-W12-S
- Ready for code carrier
- Weight 4.2 kg.

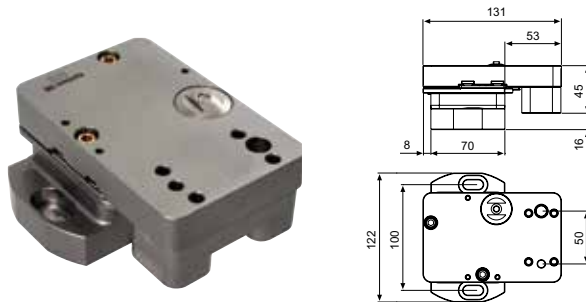


## Levelling adapter, 3R-232S

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

Note: All holders including HP can be mounted.

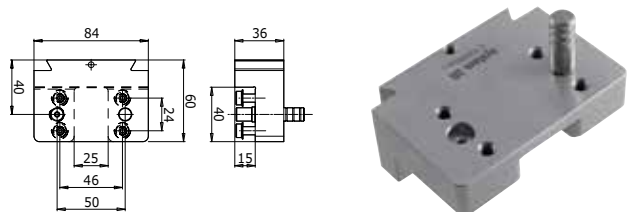
- Recommended maximum load 15 kg
- Adjustable in three axes when clamped in the machine.
- Weight 4.3 kg.



## Unimatic Adapter SuperVice/Macro WEDM, C 950 480

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

- Functional height Unimatic: 40 mm / SuperVice/Macro: 15 / 25 mm
- Adaptation to Unimatic system C 950 150 or C 950 170 SuperVice/Macro to all clamping elements with functional height 15 / 25 mm
- Weight 1.3 kg.



## Adapters

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

### C 457 940

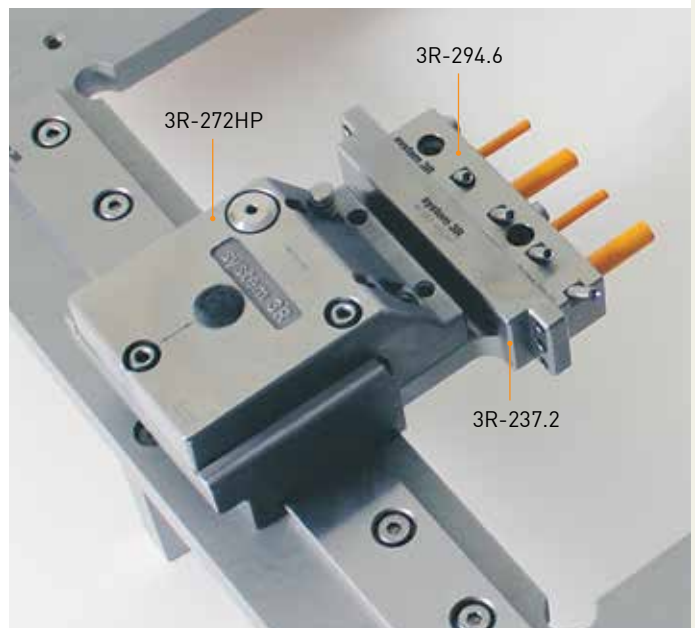
- ICS A

### C 457 960

- ICS B

### C 457 980

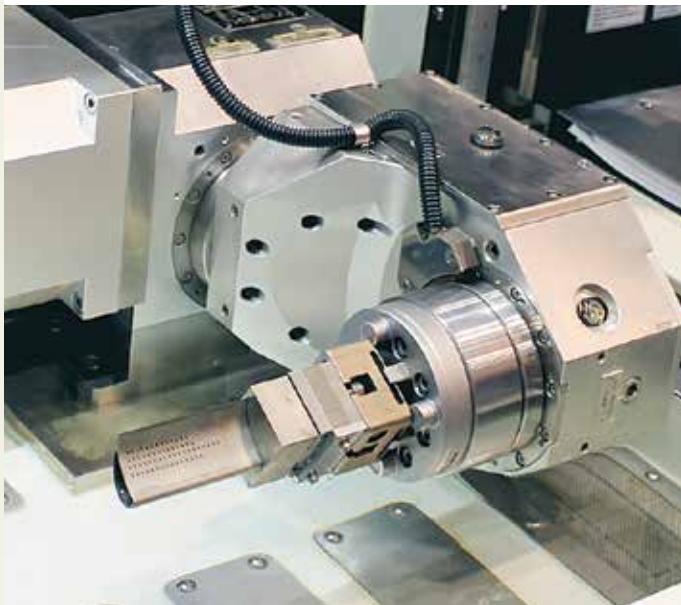
- ICS C



# Mounting heads, adapters & User kits

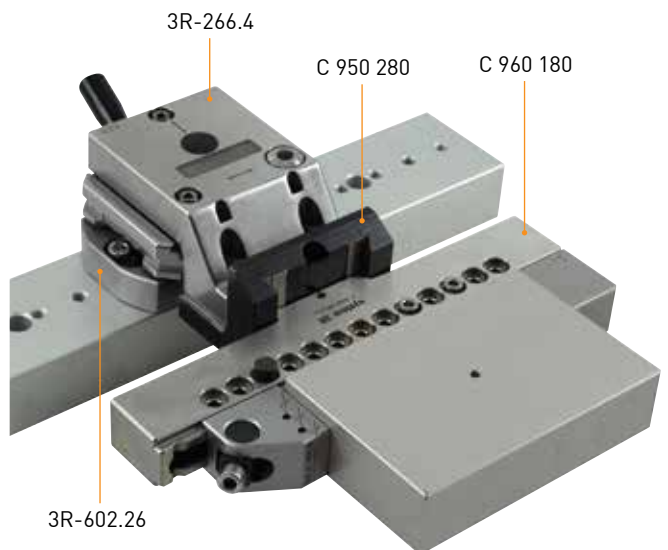
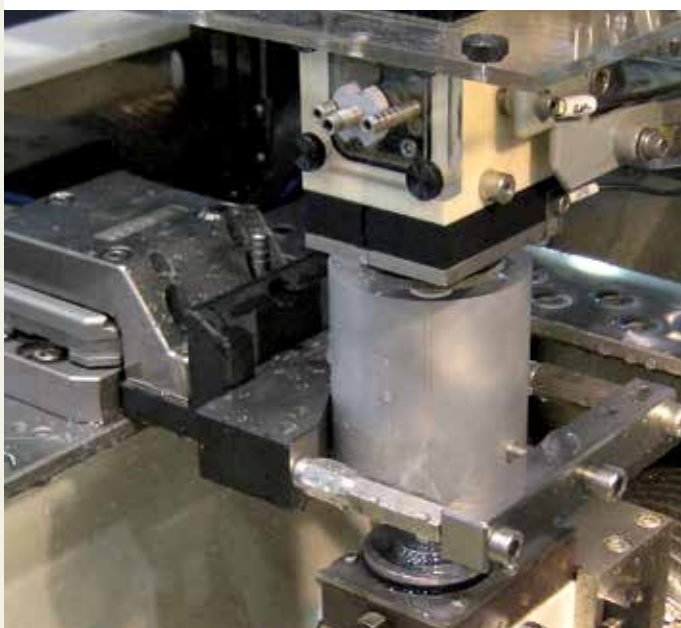
## Adapter, C 950 280

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



## User kit, 3R-243.2-1

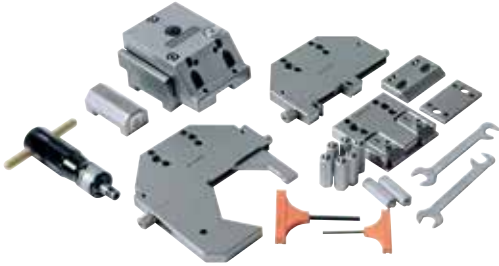
3R-201J	Adapter 90°	x1
3R-204	Height adapter	x1
3R-602.27-1	Manual chuck for Macro	x1
3R-605.27RS	Drawbar	x1
3R-333-05	Allen key, 5 mm	x1



# 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



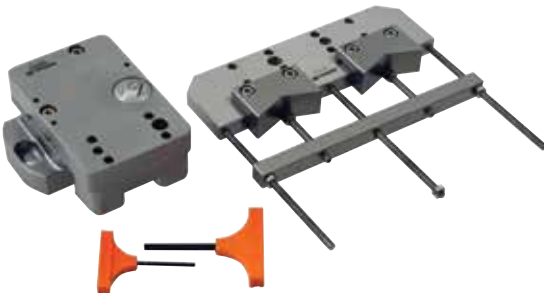
## User kit, 3R-242.82HP

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

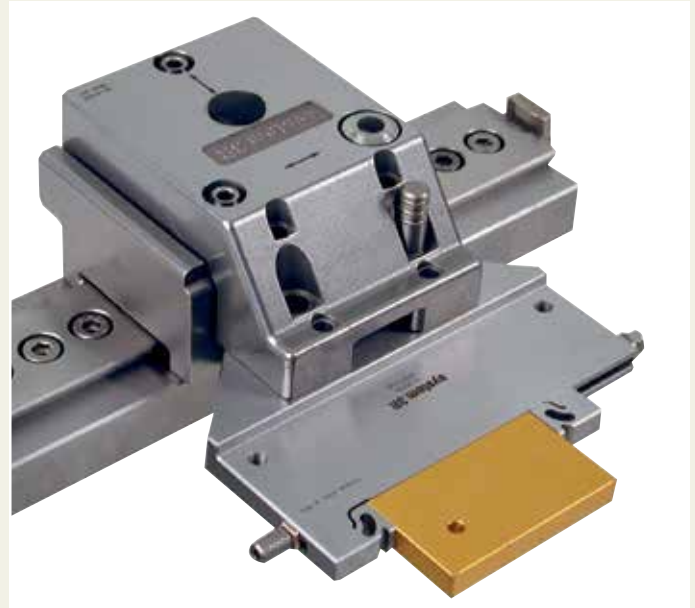


# Holders and vices for mounting in mounting heads

Supervice solves setting-up problems for the most frequently occurring sizes of workpiece – small to medium-sized.

The high repetition accuracy not only allows presetting and fast setup; it also provides a solid foundation for rational series production. The springback is minimal and resonance damping is significant. Add 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.

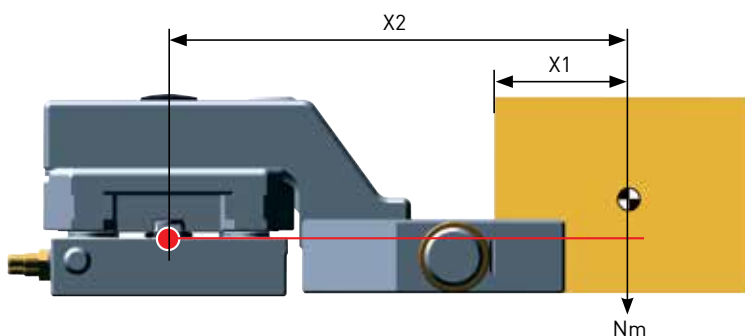


The unique, patented asymmetric design of the locking jaws gives extremely high locking force and enhances the contact between the workpiece and the reference surface at the same time.

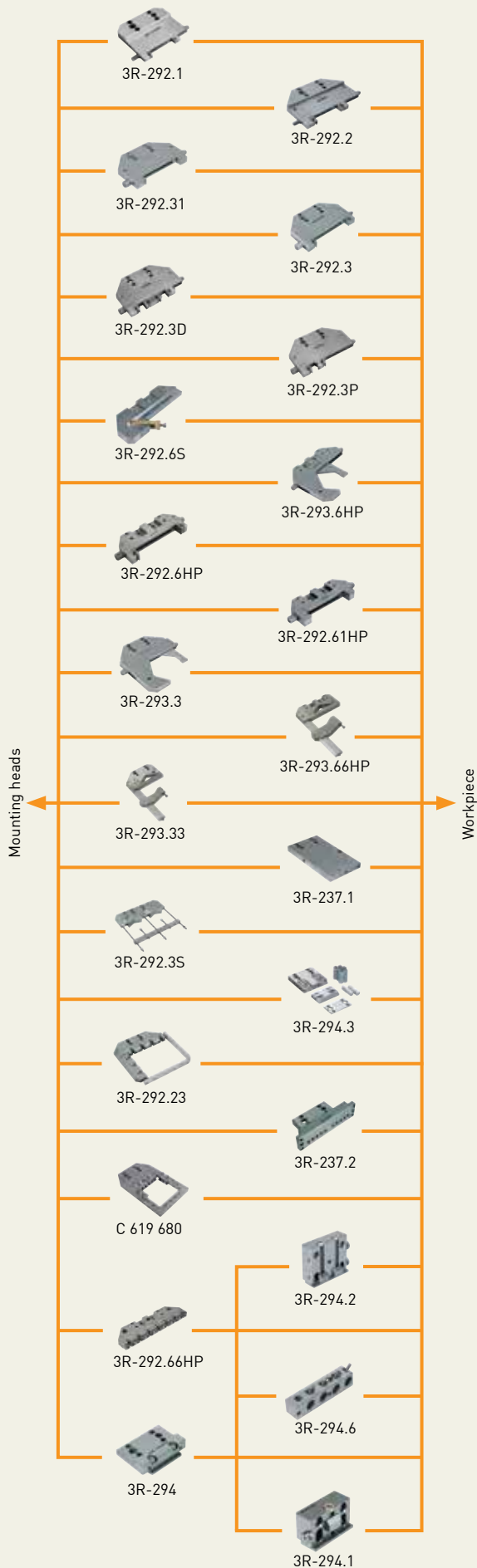


Article number	X1 Recommended maximum torque	Maximum workpiece weight X1* = 50 mm	Maximum workpiece weight X1* = 100 mm	X2 Torque generated in chuck coupling
3R-292.1	3.0 Nm	6 kg	3.0 kg	10.8 Nm
3R-292.2	3.5 Nm	7 kg	3.5 kg	12.4 Nm
3R-292.3	8.0 Nm	16 kg	8.0 kg	28.6 Nm
3R-292.3D	8.0 Nm	16 kg	8.0 kg	28.6 Nm
3R-292.3P	8.0 Nm	16 kg	8.0 kg	28.6 Nm
3R-292.31	5.5 Nm	11 kg	5.5 kg	20.0 Nm
3R-292.6HP	20.0 Nm	40 kg	20.0 kg	63.0 Nm
3R-292.61HP	13.0 Nm	26 kg	13.0 kg	39.6 Nm
3R-292.6S	9.0 Nm	18 kg	9.0 kg	30.4 Nm
3R-294.1	2.5 Nm	5 kg	2.5 kg	9.3 Nm
3R-294.2	5.0 Nm	10 kg	5.0 kg	18.8 Nm
3R-294.3	6.0 Nm	12 kg	6.0 kg	20.4 Nm

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



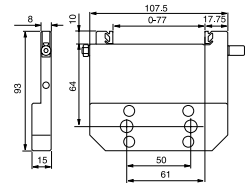
# Holders and vices for mounting in mounting heads



## SuperVice, 3R-292.1

For clamping rectangular workpieces up to 77 mm.

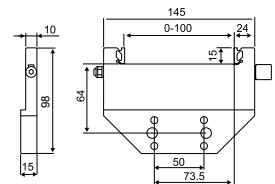
- Tightening torque 3 Nm
- Weight 0.6 kg.



## SuperVice, 3R-292.2

For clamping rectangular workpieces up to 100 mm.

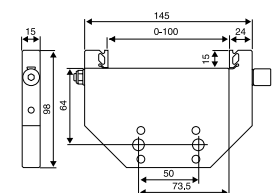
- Tightening torque 3 Nm
- Weight 0.9 kg.



## SuperVice, 3R-292.3

For clamping rectangular workpieces up to 100 mm.

- Tightening torque 7 Nm
- Weight 1.1 kg.

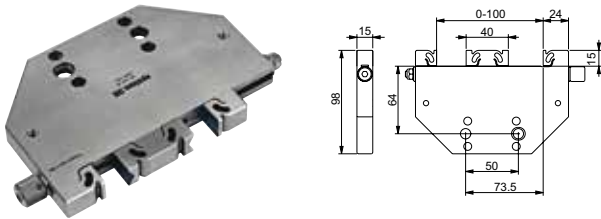


# Holders and vices for mounting in mounting heads

## SuperVice, Double, 3R-292.3D

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

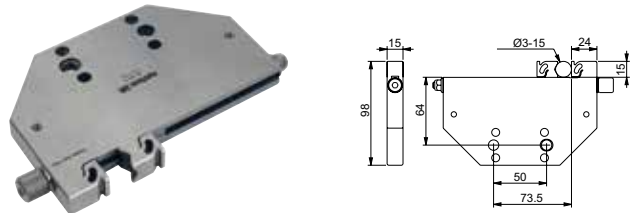
- Tightening torque 7 Nm
- Weight 1.2 kg.



## SuperVice, Prism, 3R-292.3P

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

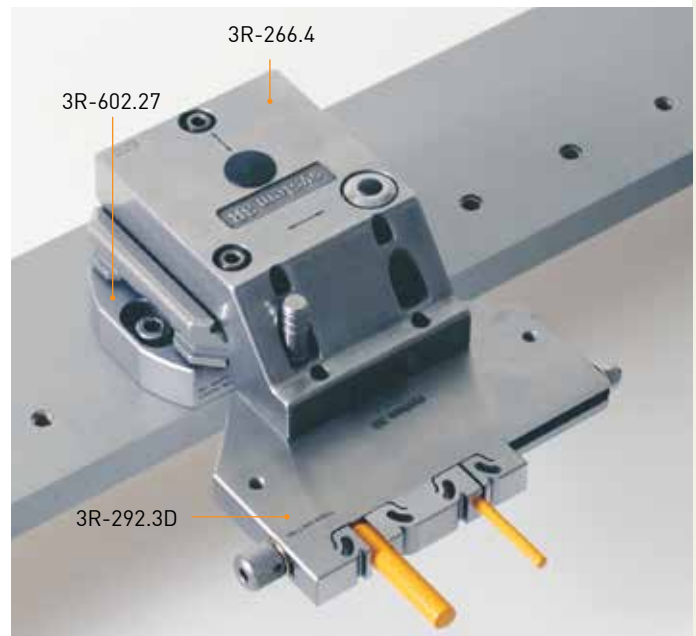
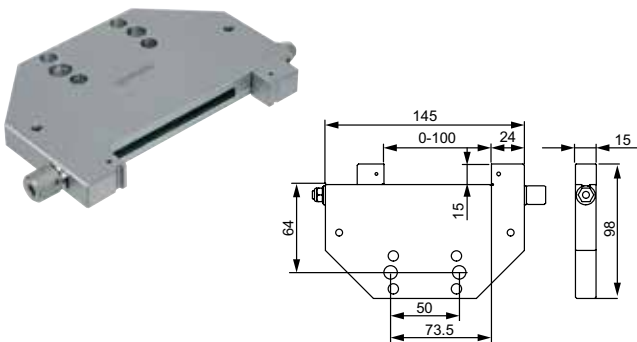
- Tightening torque 7 Nm
- Weight 1.1 kg.



## SuperVice, 3R-292.31

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

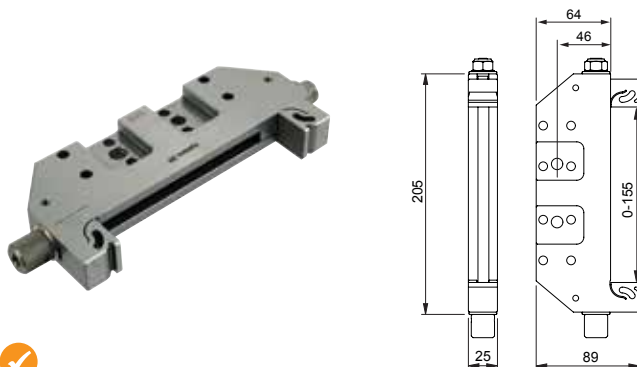
- Tightening torque 8 Nm
- Weight 1.1 kg.



## 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.

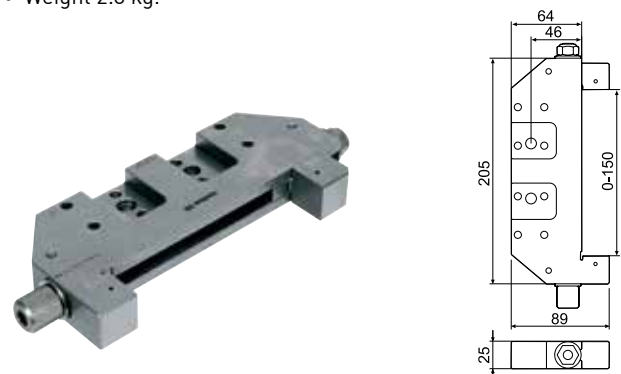


## SuperVice, Magnum, 3R-292.61HP

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.



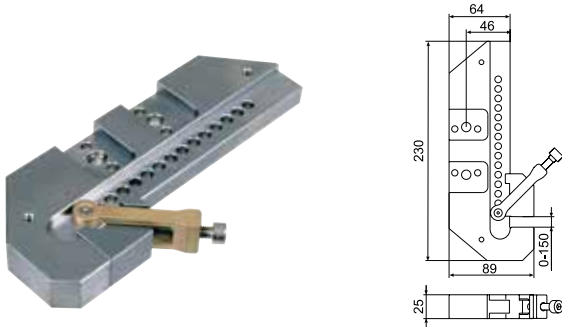


# Holders and vices for mounting in mounting heads

## SuperVice, Magnum, 3R-292.6S

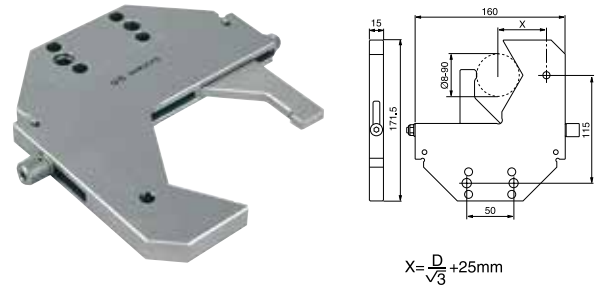
Vice for clamping rectangular workpieces up to 150 mm.  
 Note: Mounts on HP, Magnum or MacroTwin levelling adapter.

- Tightening torque 10 Nm
- Weight 2.7 kg.



## SuperVice, 3R-293.3

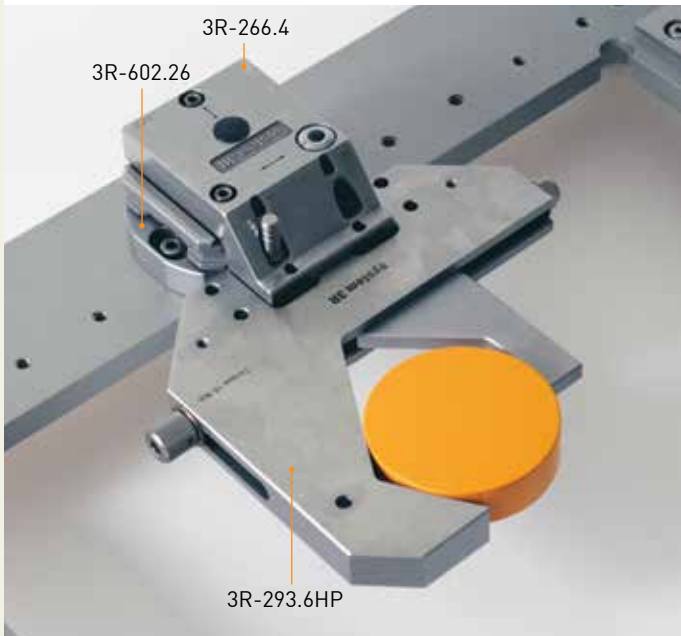
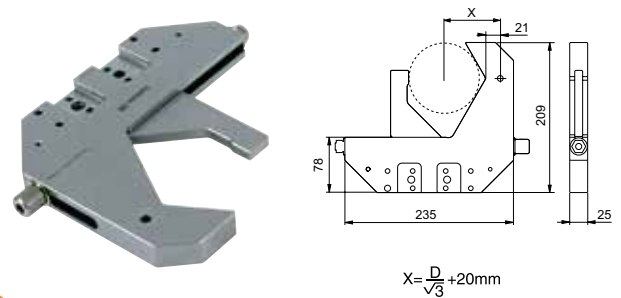
Vice for clamping round workpieces 8-90 mm.  
 • Tightening torque 8 Nm  
 • Recommended maximum workpiece weight 7 kg  
 • Weight 1.7 kg.



## SuperVice, Magnum, 3R-293.6HP

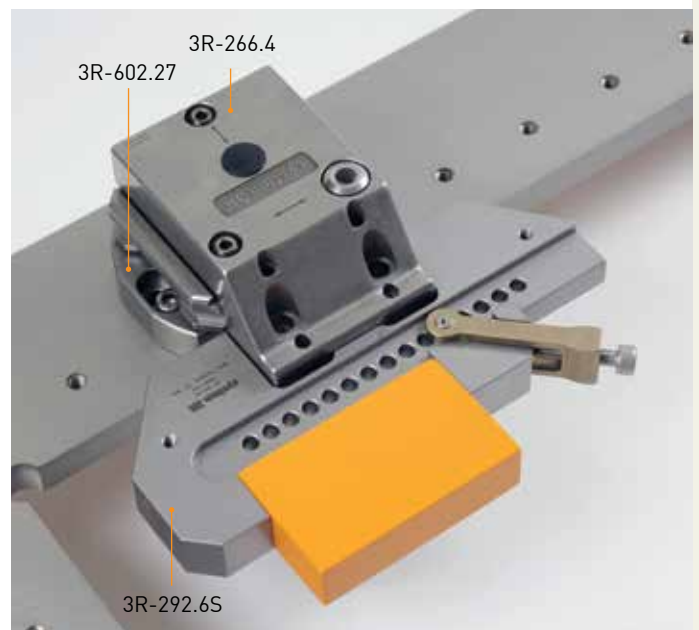
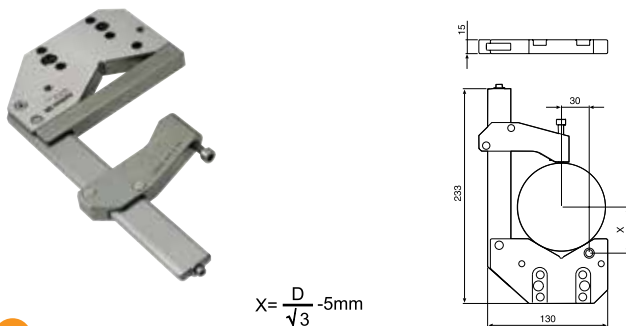
Vice for clamping round workpieces 15-155 mm.  
 Note: Mounts on HP, Magnum or MacroTwin levelling adapter.

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



## 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.



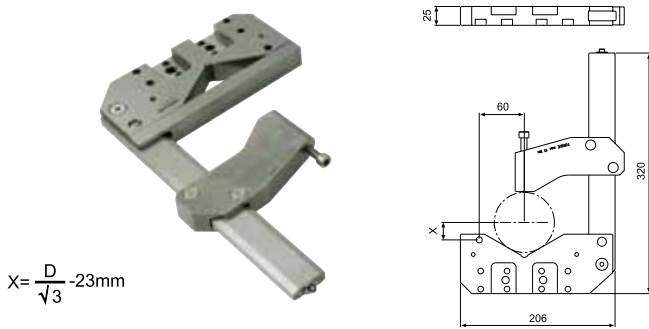
# Holders and vices for mounting in mounting heads

## 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.

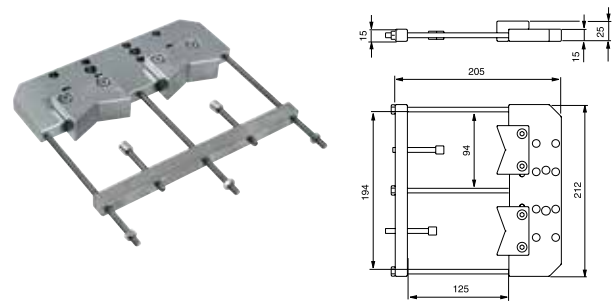
- Tightening torque 6 Nm
- Recommended maximum workpiece weight 12 kg.
- Weight 4.2 kg.



## Universal holder, 3R-292.3S

Holder for round workpieces up to 90 mm, or rectangular workpieces 100x90 mm.

- Tightening torque 4 Nm
- Recommended maximum workpiece weight 7 kg.
- Weight 2.3 kg.

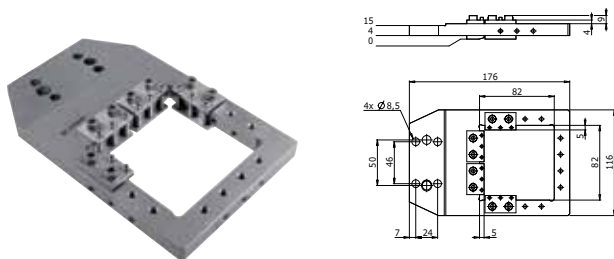


## Clamping frame, C 619 680

Carrier for flat round or cubic workpieces up to 80x80 mm.

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

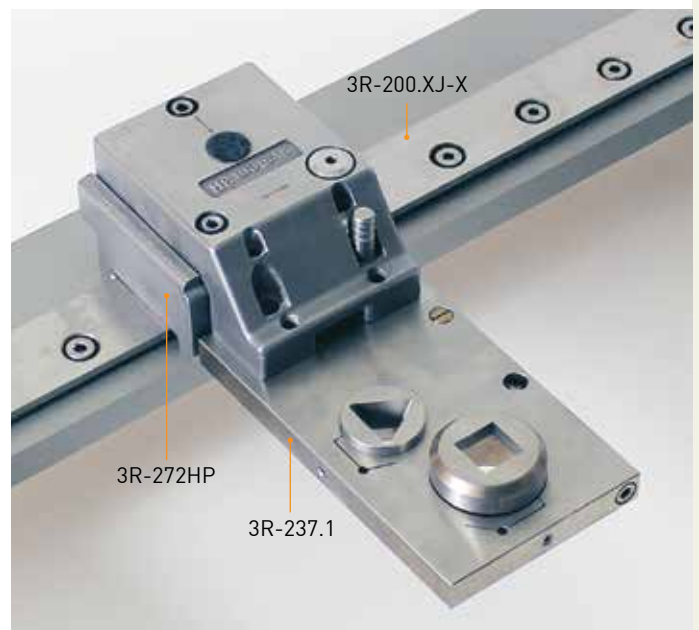
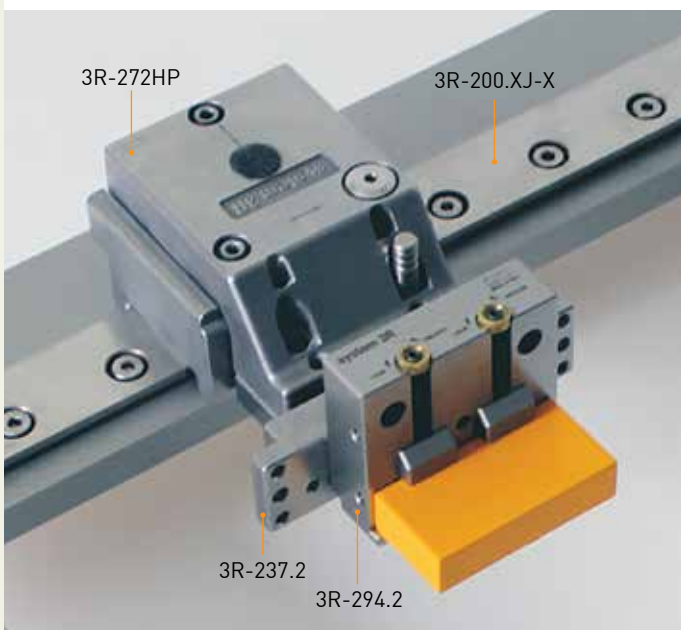
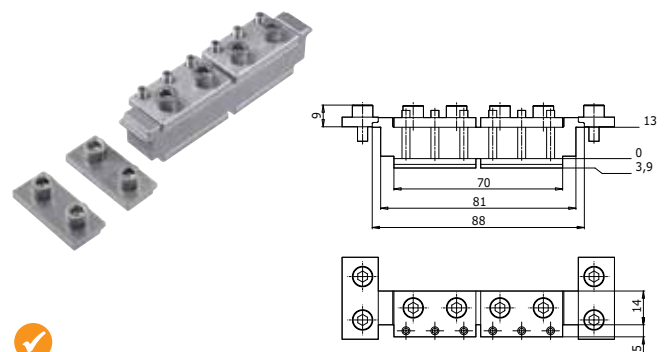
- Functional height 13 mm
- Clamping range round or cubic up to 80 mm / maximum workpiece height 12 mm
- Maximum workpiece weight 1.5 kg
- Maximum workpiece dimensions  $\varnothing$  80 mm or 80x80 mm
- Weight 0.9 kg.



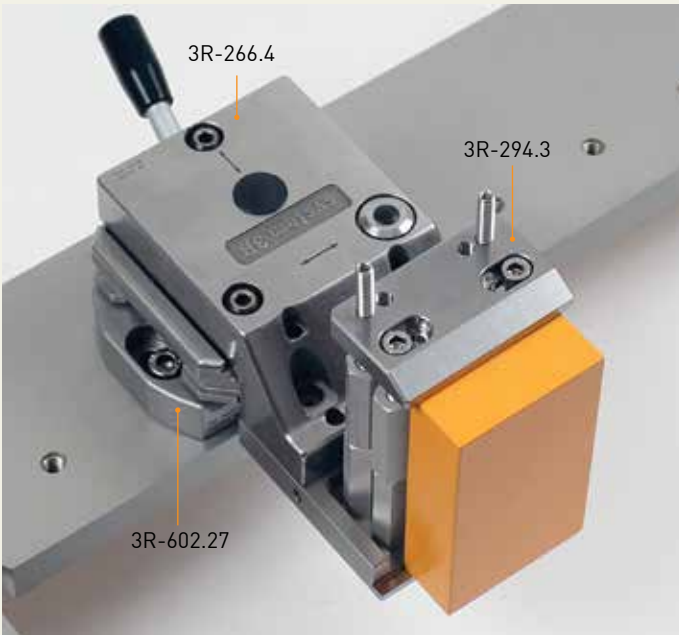
## Clamping bar to clamping frame, C 619 670

Clamping bar to use with ICS clamping frame C 619 680.

- Dimensions 88 x 20 x 26 mm
- Overall height 26 mm (incl. support lips and clamping lips)
- Weight 0.25 kg.



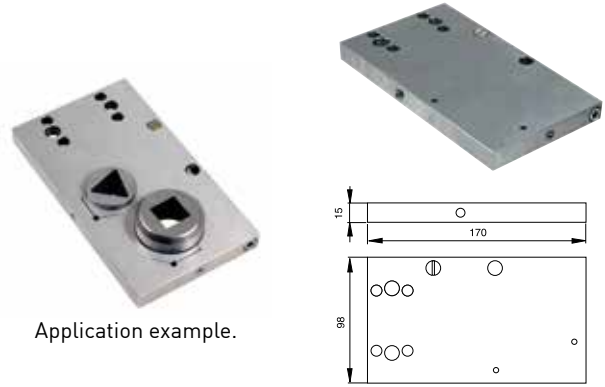
# Holders and vices for mounting in mounting heads



## 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.

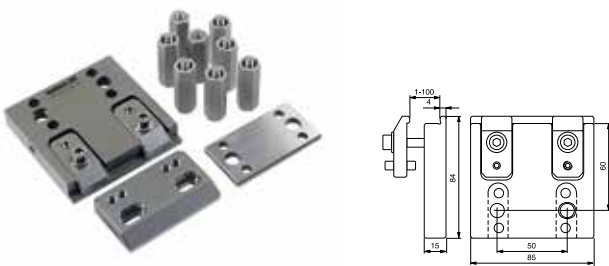


Application example.

## Vice, 3R-294.3

For clamping workpieces up to 100 mm.

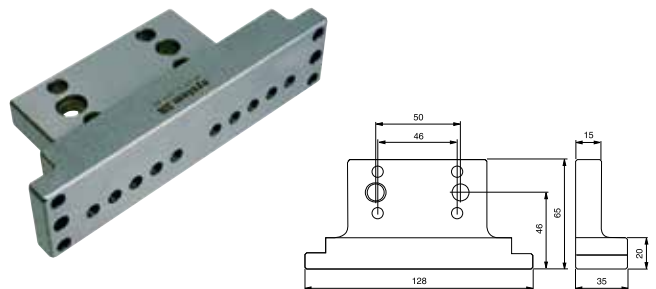
- Tightening torque 7 Nm
- Weight 0.7 kg.



## 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.

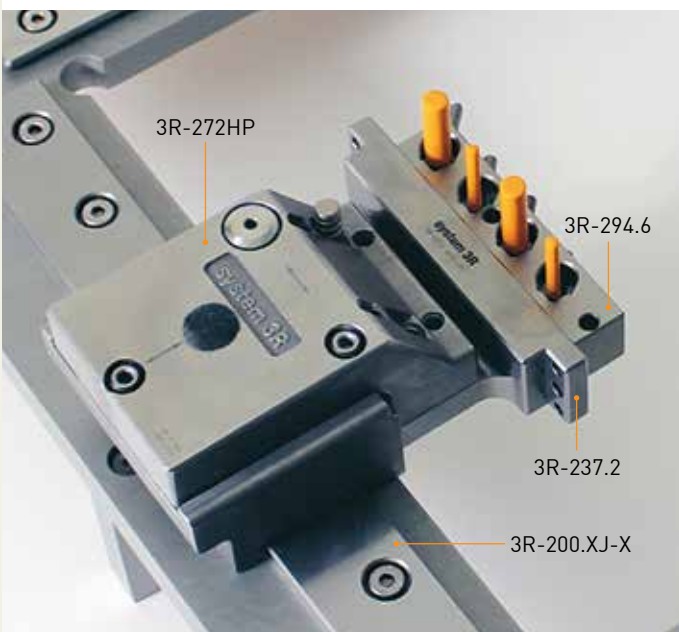
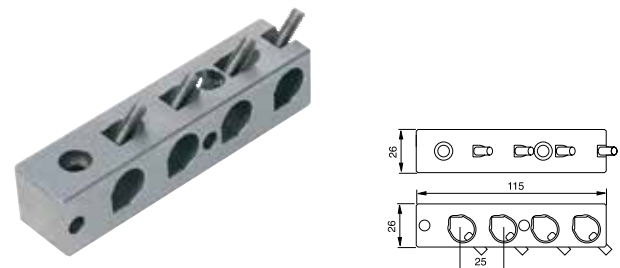
- Weight 0.6 kg.



## 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 a ruler in the 3Ruler system.

- Tightening torque 3 Nm
- Weight 0.6 kg.



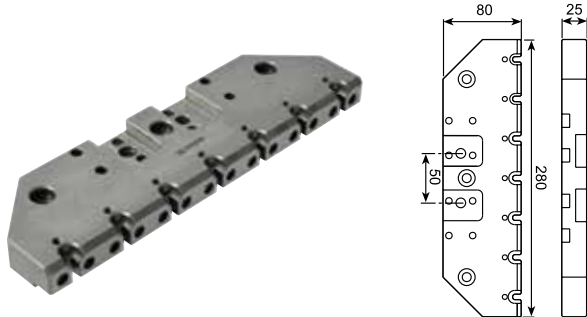
# Holders and vices for mounting in mounting heads

## Holder, Magnum, 3R-292.66HP

Can be supplemented with 3Ruler accessories.

Note: Mounts on an HP mounting head.

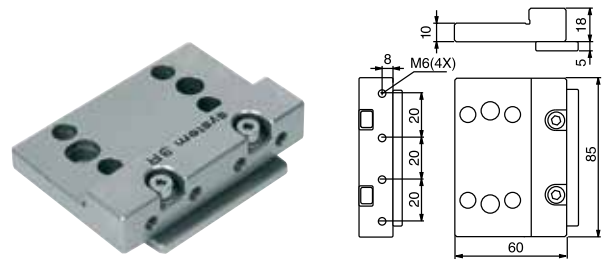
- Weight 3 kg.



## Adapter, 3R-294

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

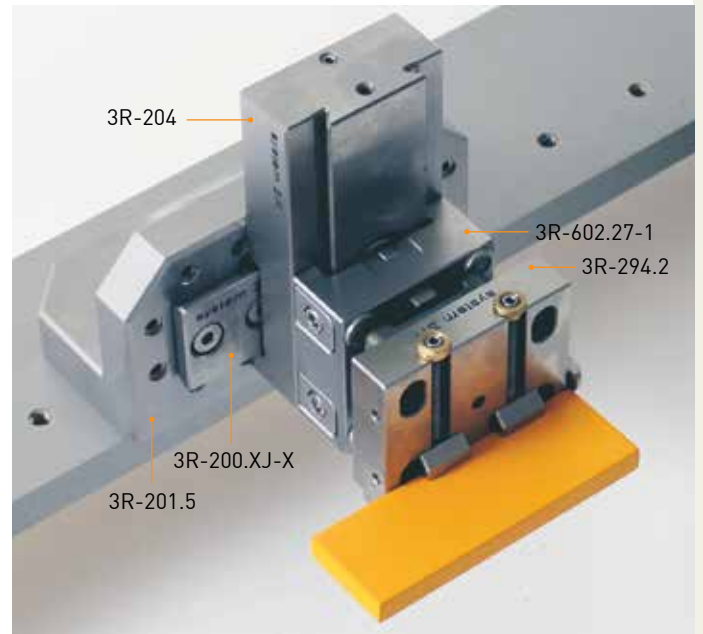
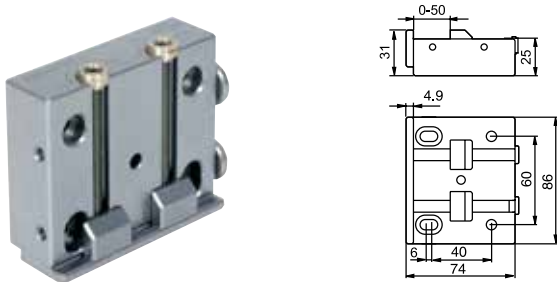
- Weight 0.6 kg.



## 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.

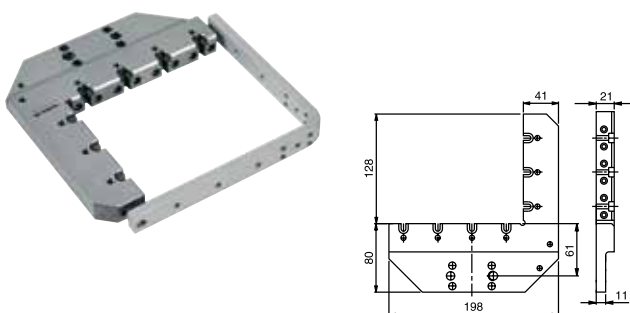
- Tightening torque 3 Nm
- Weight 1.2 kg.



## Angled holder, 3R-292.23

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

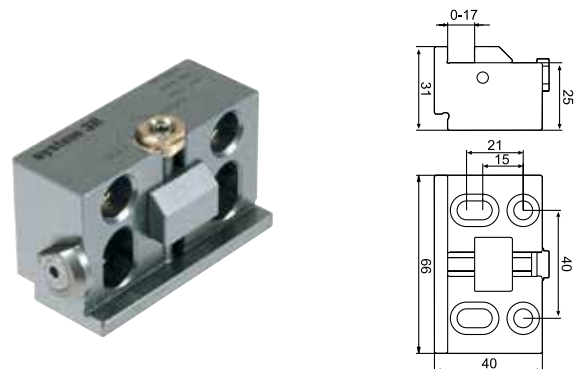
- Weight 3 kg.



## 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.

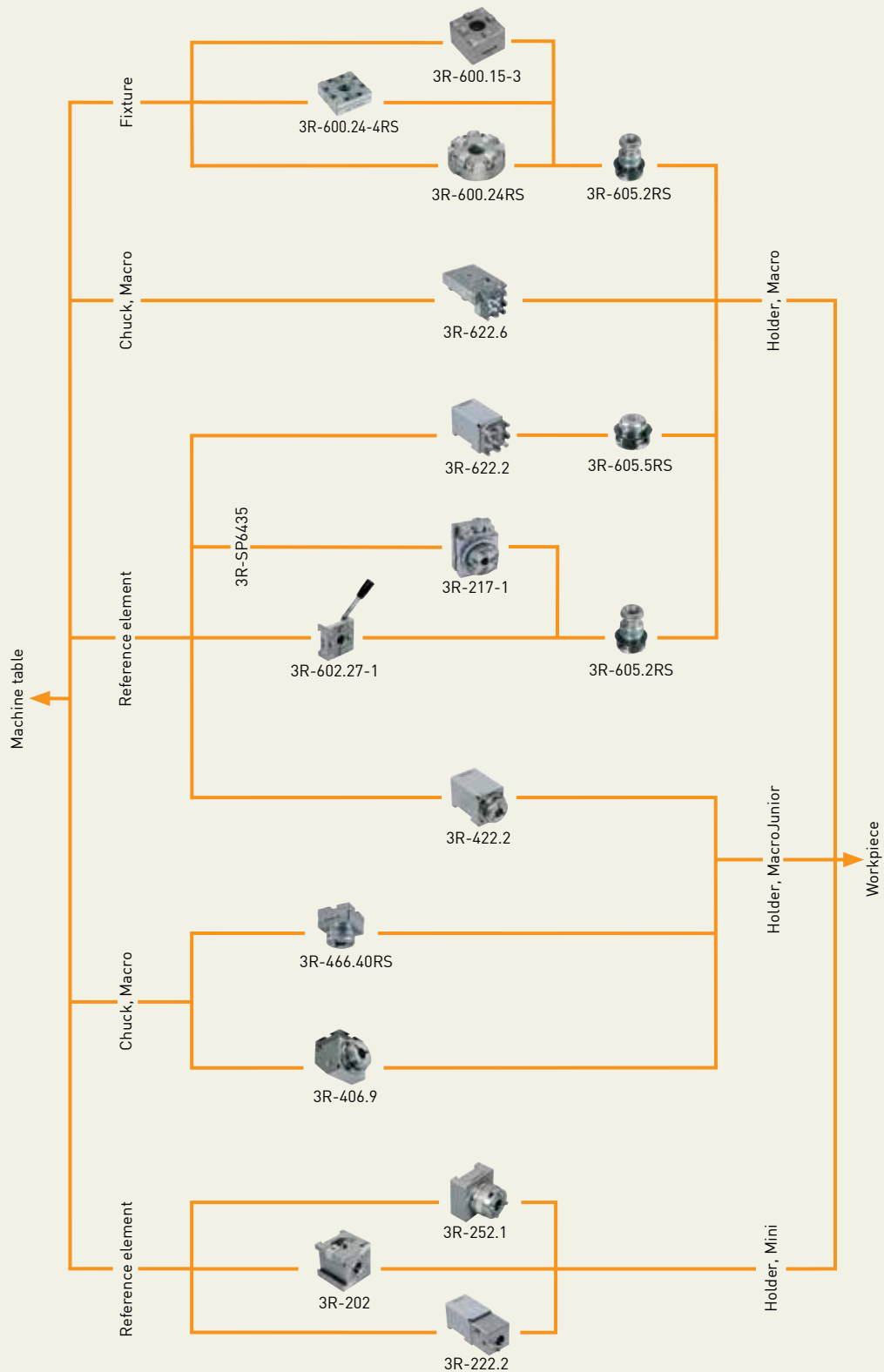
- Tightening torque 3 Nm
- Weight 0.5 kg.



# Chuck adapters

A wide range of chuck adapters for clamping workpieces on pallets in the 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.

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

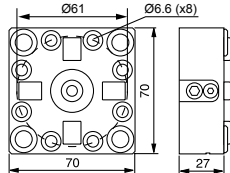


# Chuck adapters

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

Chuck for Macro holder. Mounts on a suitable fixture.

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

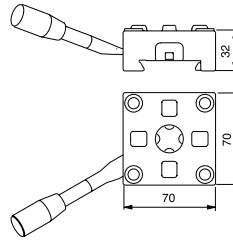


## Manual chuck, Macro, 3R-602.27-1

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 with the same torque, 4 Nm.

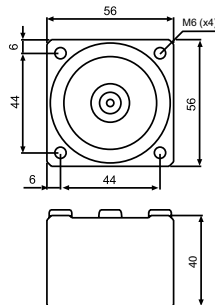
- Clamping force 6 kN
- Fixed index positions 4x90°
- Supplied with drawbar 3R-605.27RS
- Weight 1.1 kg.



## Pneumatic chuck, Macro, 3R-600.15-3

Pneumatic chuck for permanent mounting on the machine table.

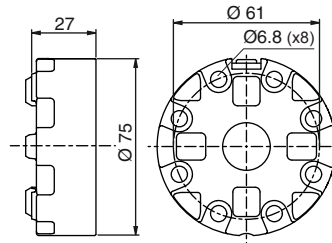
- Clamping force 4.5 kN
- Fixed index positions 4x90°
- Supplied with drawbar 3R-605.2RS
- Weight 0.8 kg.



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

Manual chuck for Macro holder. Designed for permanent mounting.

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

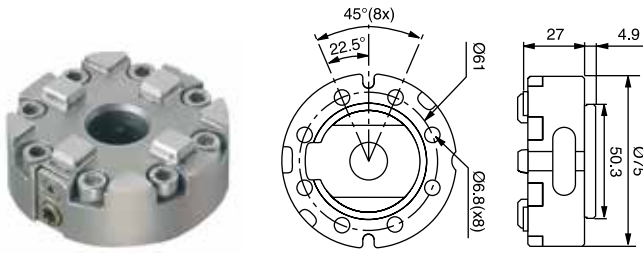


# Chuck adapters

## Manual chuck, Macro, 3R-600.23RS

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

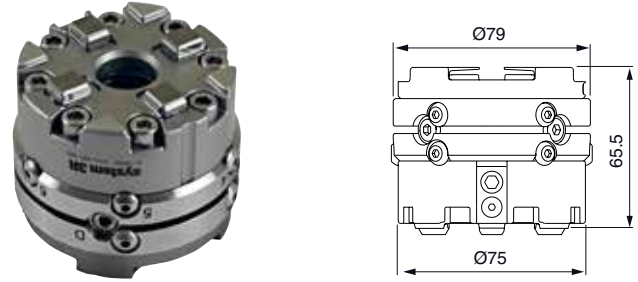
- Clamping force 6 kN
- Fixed index positions 4x90°
- Required drawbar 3R-605.2RS
- Tightening torque 6 Nm
- Weight 0.7 kg.



## Manual chuck, Macro, D-30205

Levelling head with both vertical and horizontal adjustment.

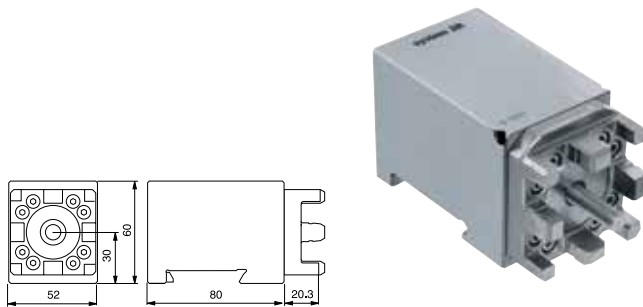
- Clamping force 6 kN
- Maximum workpiece load 6 Nm.
- Required drawbar 3R-605.2RS
- Tightening torque 6 Nm
- Maximum rpm 200.
- Weight 1.8 kg.



## Manual chuck, Macro, 3R-622.2

Chuck adapter for Macro holders in the WEDM system.

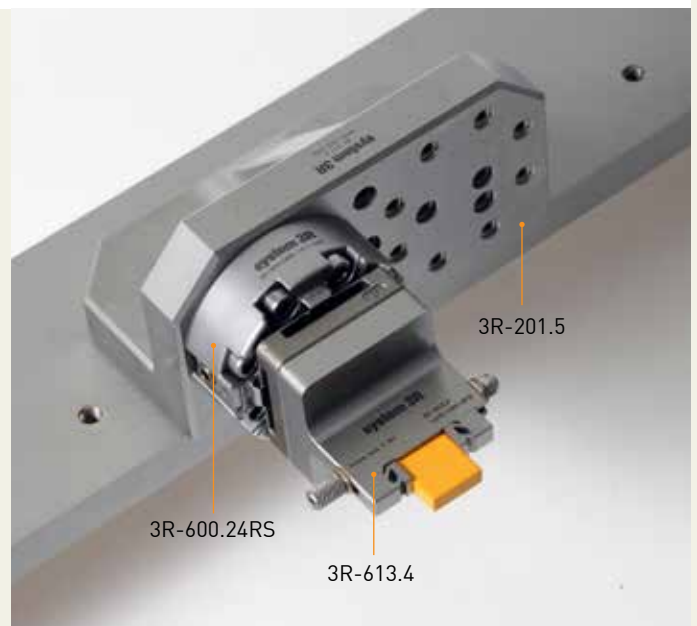
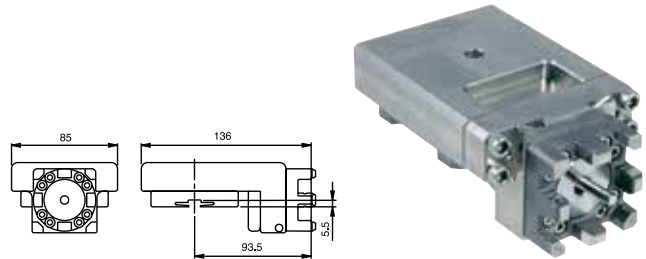
- Tightening torque 7 Nm
- Clamping force 6 kN
- Fixed index positions 4x90°
- Supplied with drawbar 3R-605.5RS
- Weight 1.9 kg.



## Manual chuck, Macro, 3R-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 to automatic changing with 3R-WP1
- Weight 2.3 kg.

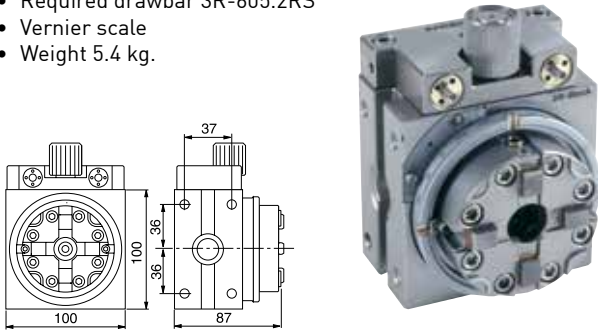


# Chuck adapters

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

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

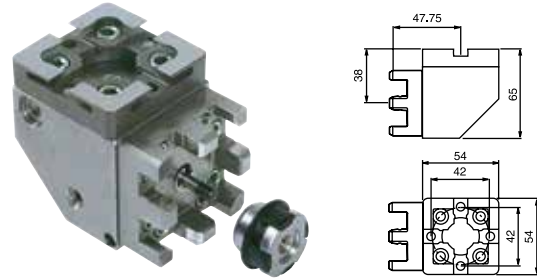
- Tightening torque 6 Nm
- Clamping force 6 kN
- Fixed index positions 24x15°
- Required drawbar 3R-605.2RS
- Vernier scale
- Weight 5.4 kg.



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

For horizontal mounting of Macro holders.

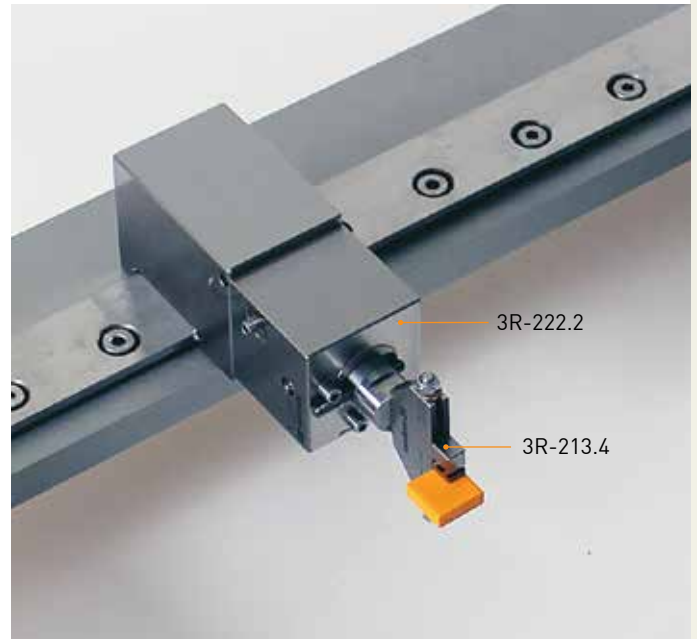
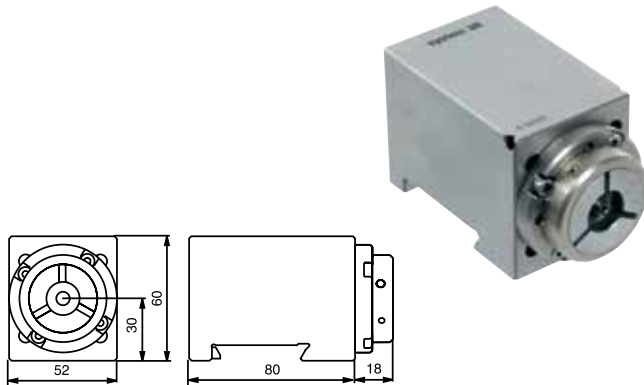
- Tightening torque 6 Nm
- Clamping force 6 kN
- Fixed index positions 4x90°
- Supplied with drawbar 3R-605.5RS
- Weight 2.4 kg.



## Manual chuck, MacroJunior, 3R-422.2

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

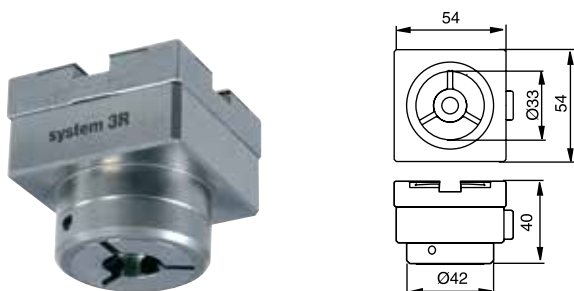
- Tightening torque 7 Nm
- Clamping force 6 kN
- Fixed index positions 3x120°
- Weight 1.8 kg.



## Manual chuck adapter, MacroJunior, 3R-466.40RS

Chuck adapter, stainless steel, for MacroJunior holders in the Macro system. Axial locking screw.

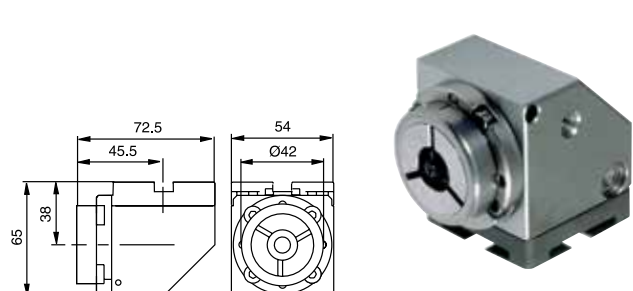
- Tightening torque 6 Nm
- Clamping force 6 kN
- Fixed index positions 3x120° and 4x90°
- Weight 0.4 kg.



## Manual chuck adapter, MacroJunior, 3R-406.9

For horizontal mounting of MacroJunior holder 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.



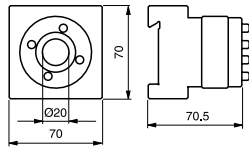


# Chuck adapters

## Manual chuck adapter, Mini, 3R-252.1

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

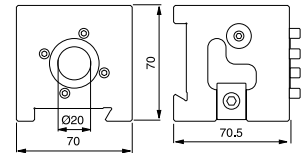
- Fixed index positions 4x90°
- Weight 1.6 kg.



## MiniBlock, 3R-202

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

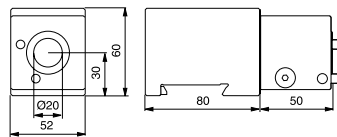
- Fixed index positions 4x90°
- Weight 1.9 kg.



## 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.



## Locking ring key, 3R-605-GE

To lift the drawbar locking ring.

- Supplied in sets of 2.



## Drawbars

### 3R-405.21RS

- Drawbar  $\varnothing 15 \times 24$  mm.



### 3R-605.5RS

- Drawbar  $\varnothing 20 \times 19$  mm.



### 3R-605.2RS

- Drawbar  $\varnothing 20 \times 36.9$  mm with flushing hole  $\varnothing 7$  mm.



### 3R-605.27RS

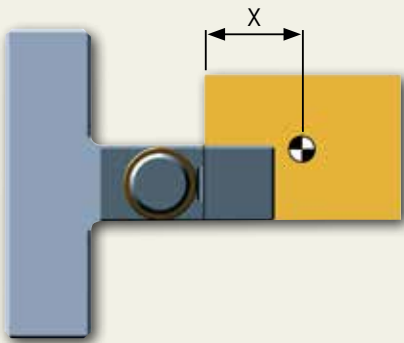
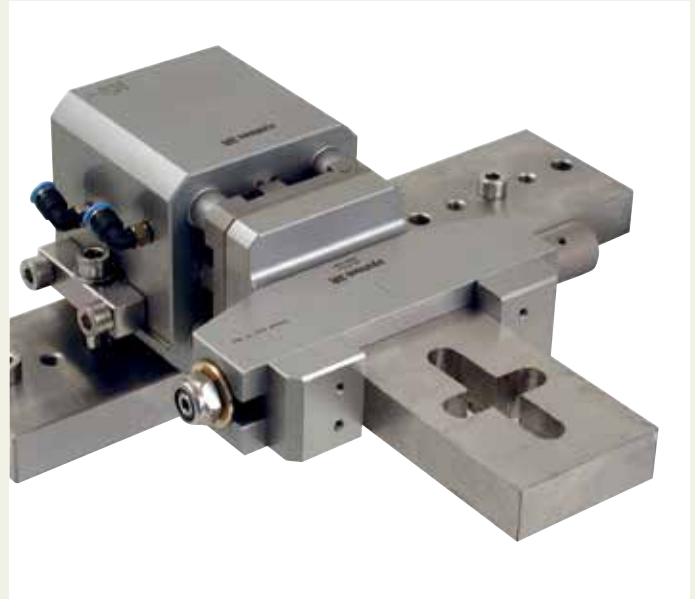
- Drawbar  $\varnothing 20 \times 27$  mm.



# Holders for mounting in chuck adapters

The holders have been adapted for modern machines with high flushing pressure. These holders are mainly intended for clamping small to medium-sized workpieces on the zero line of the machine.

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



Article number	Recommended maximum torque	Maximum workpiece weight X* = 50 mm	Maximum workpiece weight X* = 100 mm
3R-613.4	3.0 Nm	6 kg	3.0 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	3.0 Nm	6 kg	3.0 kg

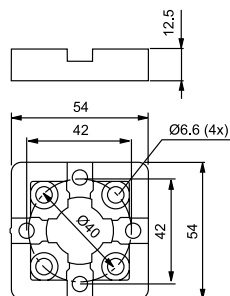
\*Centre of gravity of the workpiece with X mm overhang.

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

Hardened and precision-cast, with 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.

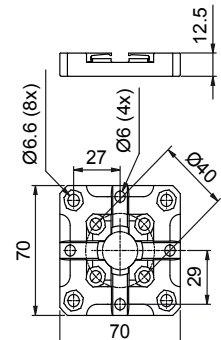
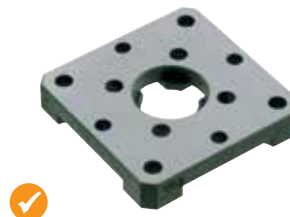


## Reference element 70x70 mm, Macro, 3R-601.7E-P

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.



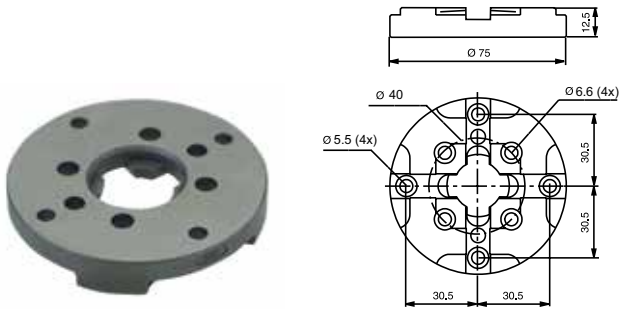
# Holders for mounting in chuck adapters

## Reference element Ø 75 mm, Macro, 3R-651.75E-P

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

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

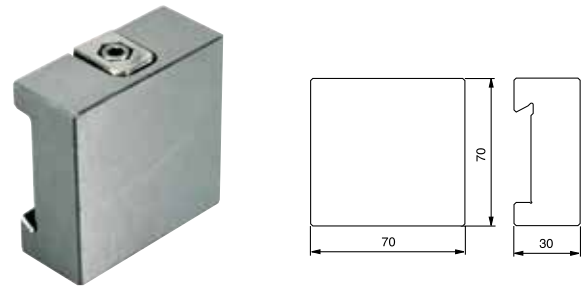
- Parallel-ground top and bottom faces
- Fixed index positions 4x90°
- Supplied in sets of 10
- Weight per set 3.0 kg.



## Pallet WEDM, 3R-205.2

Unhardened holder for mounting in the WEDM system.

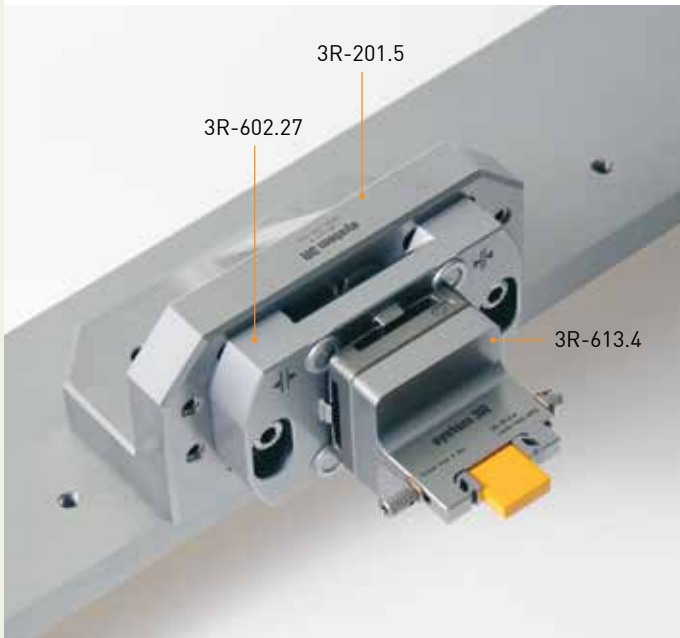
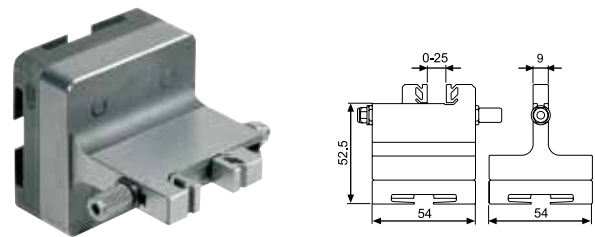
- Recommended maximum workpiece weight 7 kg
- Weight 1 kg.



## SuperVice, Macro, 3R-613.4

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

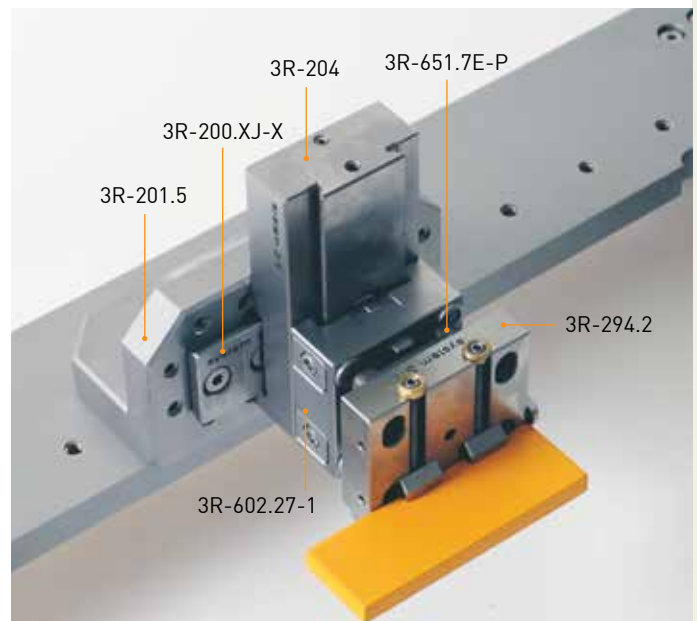
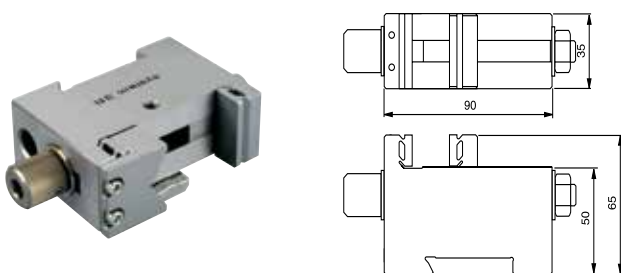
- Tightening torque 3 Nm
- Weight 0.6 kg.



## 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.

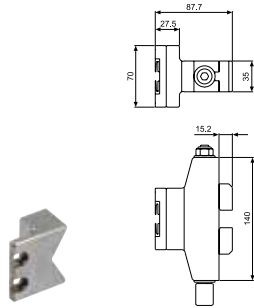


# Holders for mounting in chuck adapters

## 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.

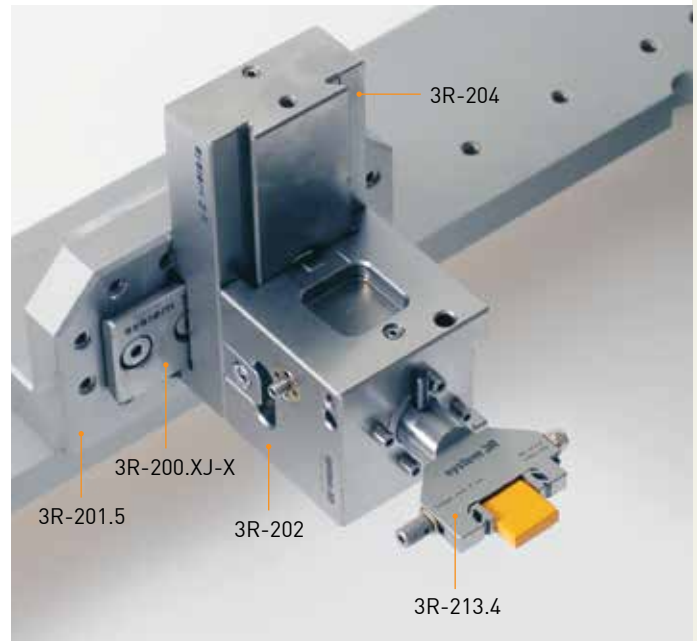
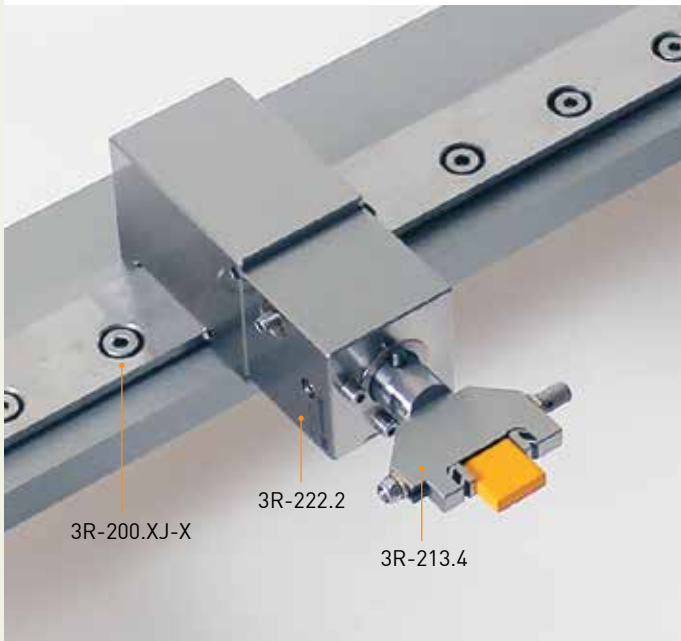
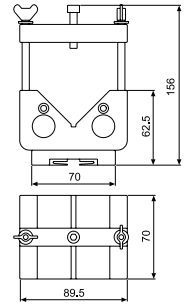
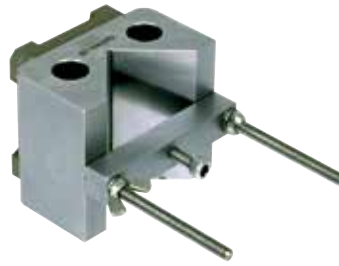


Accessory 16115-00 to mount round workpiece.

## V-holder, Macro, 3R-207.6

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

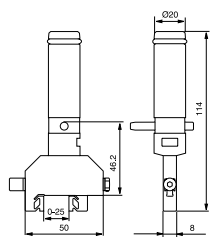
- Recommended maximum workpiece weight 8 kg
- Weight 2 kg.



## 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.

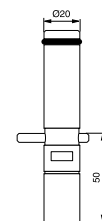


## Holder, Mini, 3R-322/50E

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.



# Holders for mounting in chuck adapters

## Collet chucks

### 3R-659.16-P

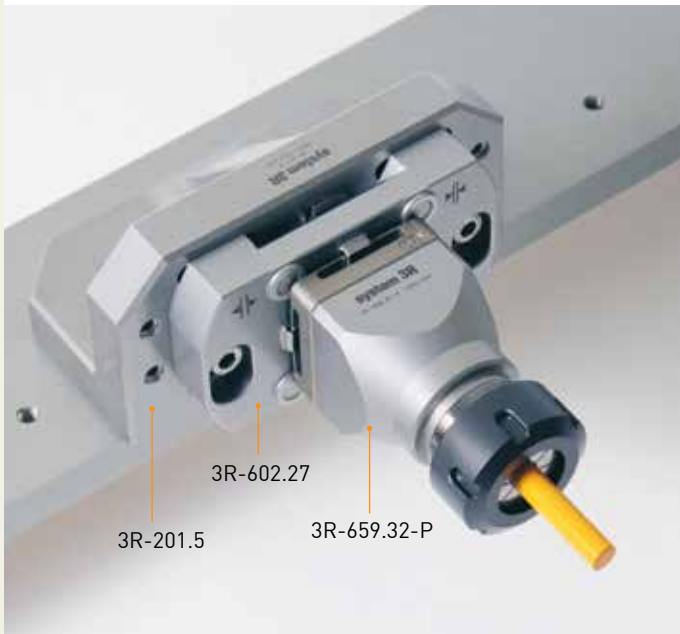
- For collets ER16
- Workpiece size 0.5-10 mm
- Flushing duct
- Building-in height 62 mm
- Weight 0.8 kg.

### 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.



## 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, as shown in the table.

### Article number

3R-494-D10x50  
 3R-494-D12x50  
 3R-494-D16x50  
 3R-494-D22x50  
 3R-494-D26x50  
 3R-494-D32x50  
 3R-494-D40x50  
 3R-494-D50x50  
 3R-494-S12x50  
 3R-494-S22x50  
 3R-494-S26x50  
 3R-494-S32x50  
 3R-494-S40x50  
 3R-494-32x22x50  
 3R-494-40x22x50

### Dimensions

Round blank  $\varnothing$ 10x50 mm  
 Round blank  $\varnothing$ 12x50 mm  
 Round blank  $\varnothing$ 16x50 mm  
 Round blank  $\varnothing$ 22x50 mm  
 Round blank  $\varnothing$ 26x50 mm  
 Round blank  $\varnothing$ 32x50 mm  
 Round blank  $\varnothing$ 40x50 mm  
 Round blank  $\varnothing$ 50x50 mm  
 Square blank 12x12x50 mm  
 Square blank 22x22x50 mm  
 Square blank 26x26x50 mm  
 Square blank 32x32x50 mm  
 Square blank 40x40x50 mm  
 Square blank 32x22x50 mm  
 Square blank 40x22x50 mm



## Collet chucks

Intended for rotating applications.

### D-30220-01

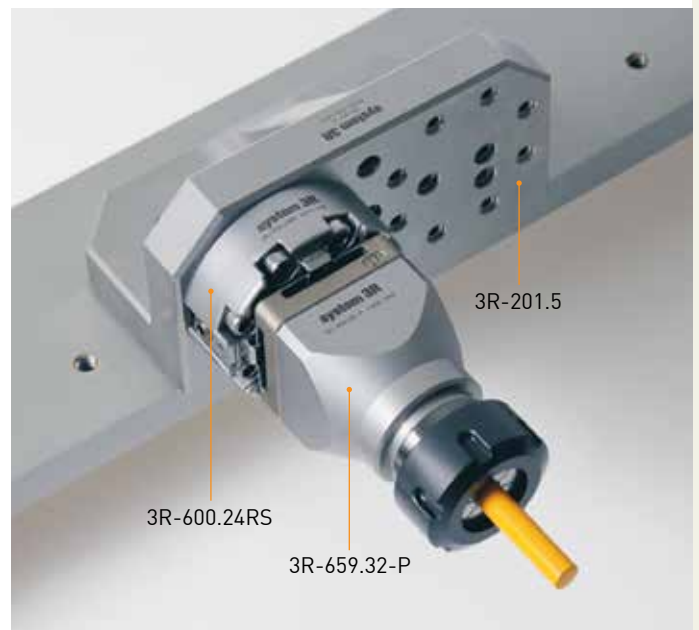
- For collets ER16
- Workpiece size 0.5-10 mm
- Flushing duct
- Building-in height 57 mm
- Weight 1 kg.

### D-30220-02

- For collets ER32
- Workpiece size 2-20 mm
- Flushing duct
- Building-in height 82 mm
- Weight 1.4 kg.

### D-30220

- For collets ER20
- Workpiece size 1-13 mm
- Flushing duct
- Building-in height 62 mm
- Weight 1.4 kg.



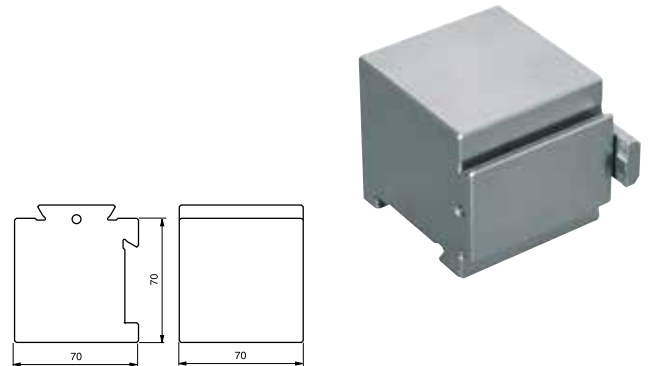
# Adapter elements

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

## Adapter 90°, WEDM, 3R-201J

Basic element for 3D accessories.

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

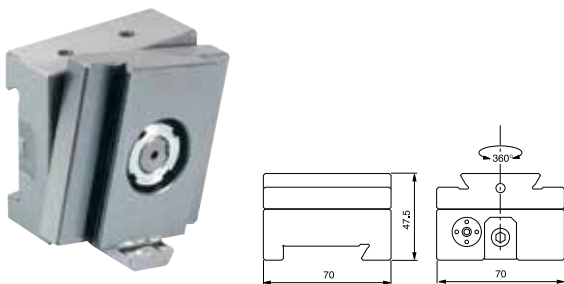


## Swivelling element 360°, WEDM, 3R-203

Hydraulic locking of set position.

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

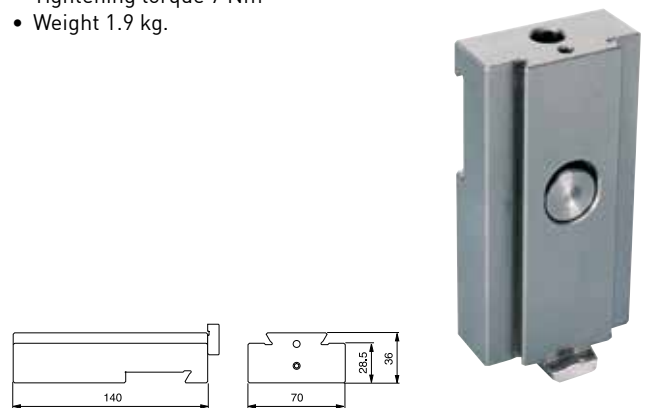
- Can be mounted on 3R-204 or directly on 3R-201J
- Tightening torque 7 Nm
- Weight 1.5 kg.



## Height adapter, WEDM, 3R-204

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

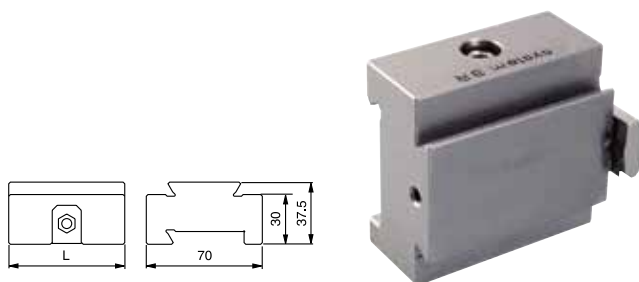
- Height adjustment  $\pm 65$  mm
- Tightening torque 7 Nm
- Weight 1.9 kg.



## Spacer element 30 mm, WEDM

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

- Tightening torque 7 Nm.

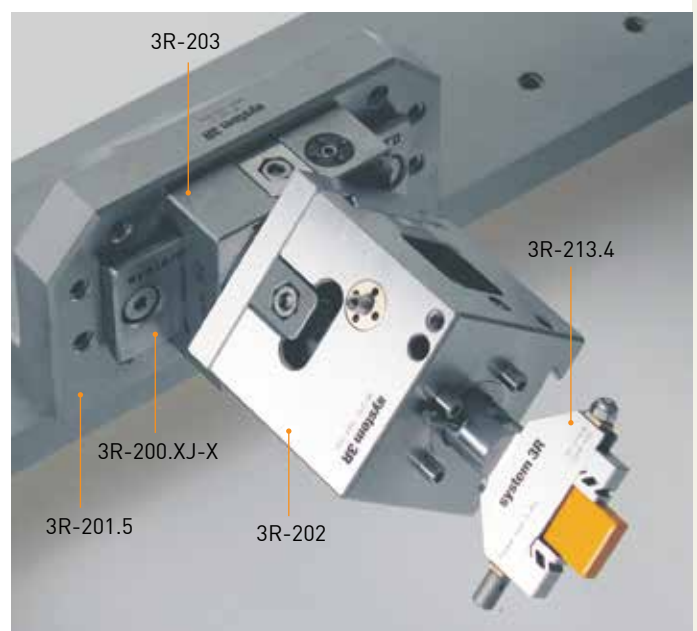


### 3R-223

- Length 70 mm.

### 3R-223.3

- Length 140 mm.



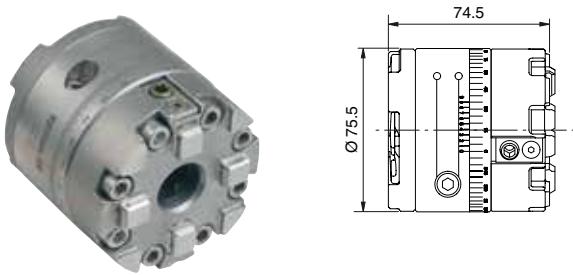
# Adapter elements

## Swivelling element 360°, Macro, 3R-203.66

Swivelling element with manual Macro chuck to be mounted onto a Macro chuck. 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 to be mounted onto 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.

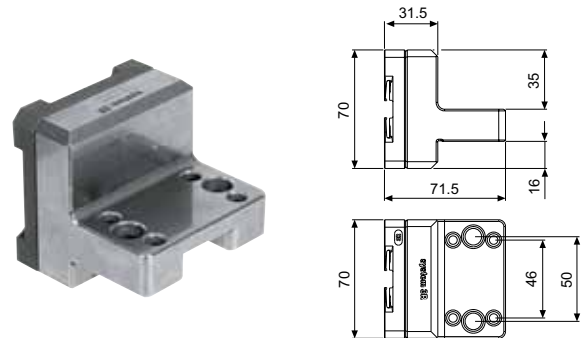
- Maximal hanging torque 8 Nm
- Locking of chuck 6 Nm
- Locking of swivel 6 Nm
- Required drawbar 3R-605.2RS
- Weight 2.2 kg.



## Vertical fixed adapter, Macro, 3R-226.6

For horizontal clamping SuperVice and holders in vertical Macro chucks.

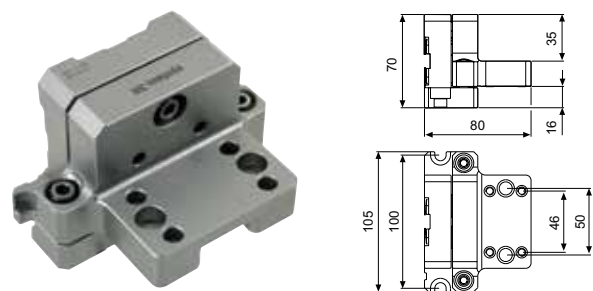
- Weight 1.4 kg.



## Vertical levelling adapter, Macro, 3R-262.6

For horizontal mounting of SuperVice and holders in vertical Macro chucks.

- Adjustable in three axes
- Weight 1.5 kg.

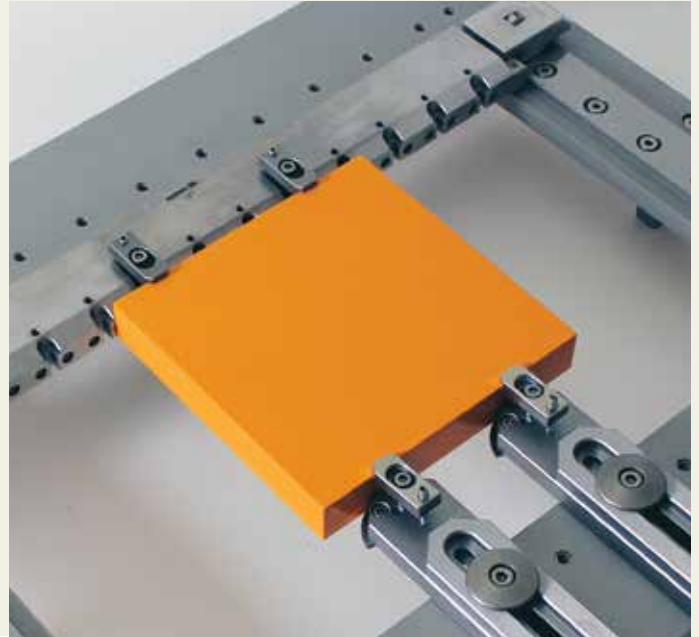


# The 3Ruler ruler system

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

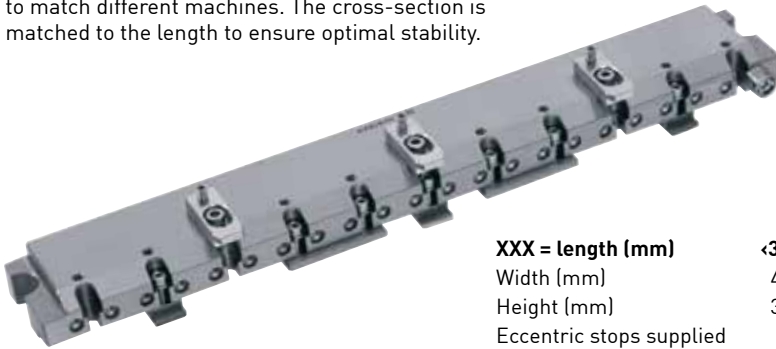
With the aid of 3Ruler, rectangular or round workpieces, lightweight or heavy, large or small, are located on the machine zero line, without risk of collision. A comprehensive range of accessories gives an unsurpassed range of applications.

- + 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. The cross-section is matched to the length to ensure optimal stability.



Note: Upon request – Ruler length up to 1600 mm can be produced

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. See also the 3Ruler guides for your machine on – [www.system3R.com](http://www.system3R.com)

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

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



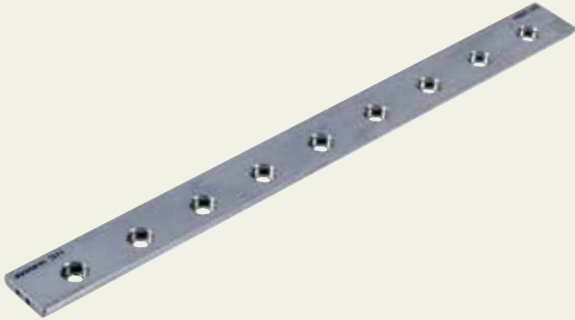
XXX = length (mm)	< 370	371-595	596-950	> 951
Width (mm)	45	60	86	86
Height (mm)	30	30	36	56
Eccentric stops supplied	2	2	2	2
Quick fasteners supplied	2	2	2	2
Zero line tabs supplied	4	4	6	10
5 mm tabs supplied	4	4	4	6
Clamps supplied	4	4	6	10



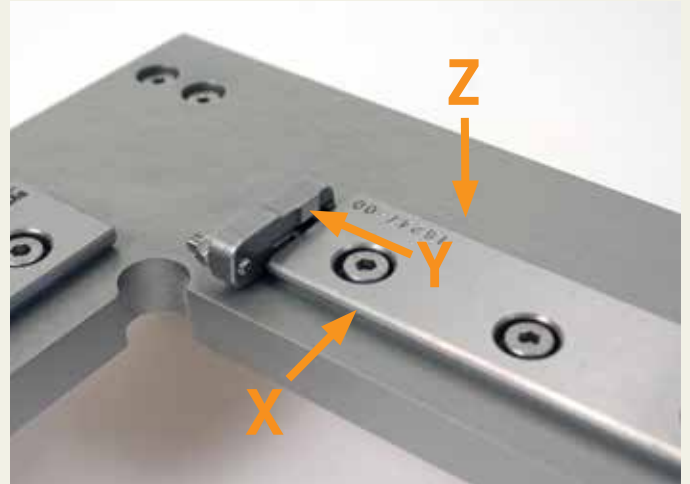
# System 3R Basic equipment: for rigid, stable & accurate clamping of work pieces

## Reference element WEDM

By fitting the machine table with a reference element, you can obtain fixed references in all three directions  
– One Minute set-up.



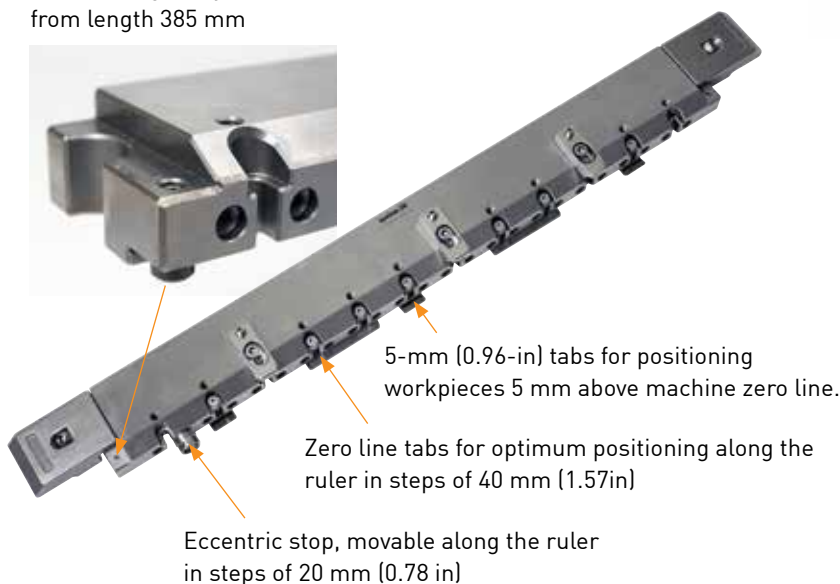
- + Exceptional flexibility
- + Accurately ground-in references
- + Repeatable accuracy
- + Double-sided parallel references
- + Fits all machine tables with 25 or 50 mm pitch.



## 3Ruler

Permits everything from small to large, heavy workpieces to be located on the machine zero line without any risk of collision.

Built-in height adjustment on Rulers  
from length 385 mm

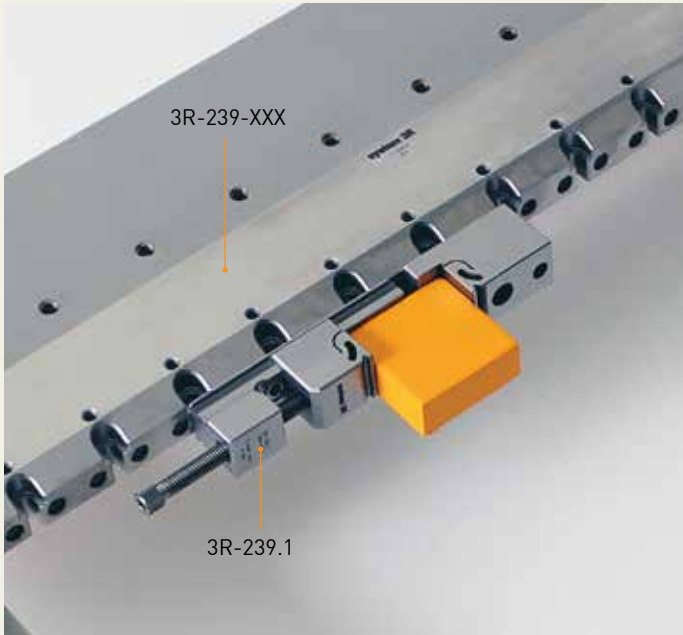


Quick-fasteners permits simple fitting/removal of ruler.



Clearance for wire between workpiece and ruler.

# The 3Ruler ruler system



## Ruler vice, 3R-239.1

Movable jaws of SuperVice design 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.

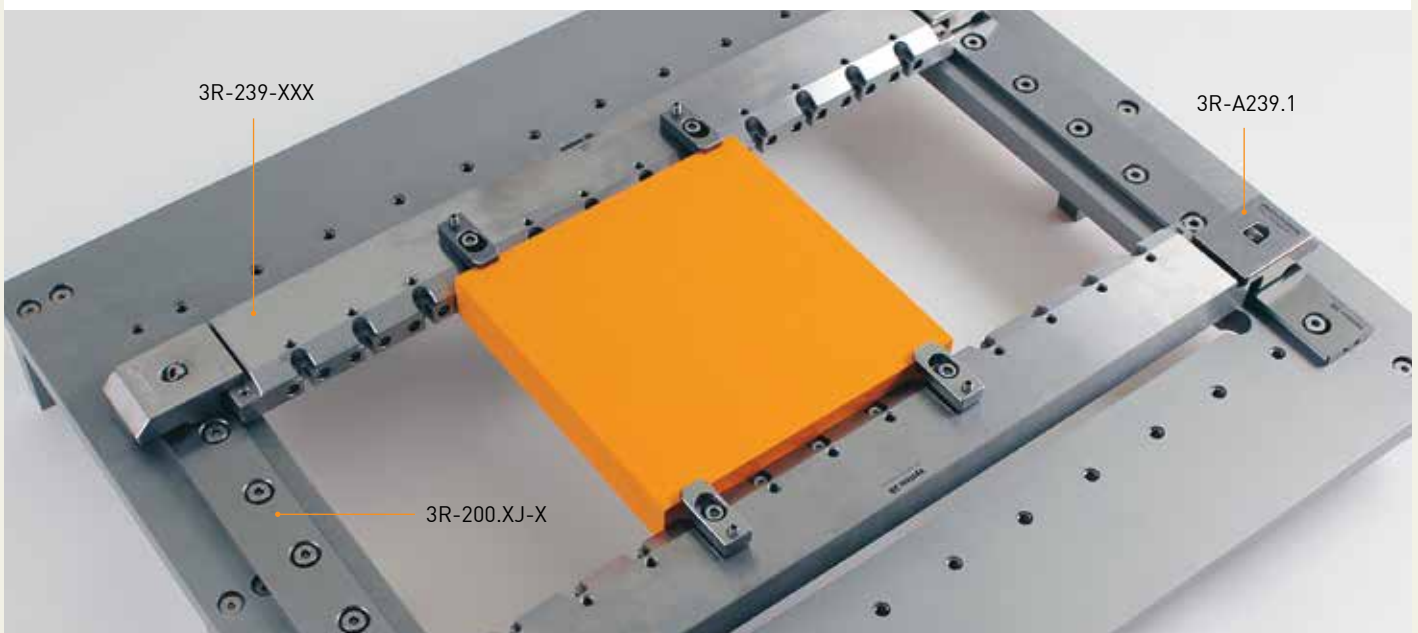
- Clamping range 0-27 mm
- Supplied in sets of 4
- Weight per set 0.6 kg.



## Vee 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.

- Clamping range  $\varnothing$ 25-300 mm
- Weight 0.9 kg.



# The 3Ruler ruler system

## 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.

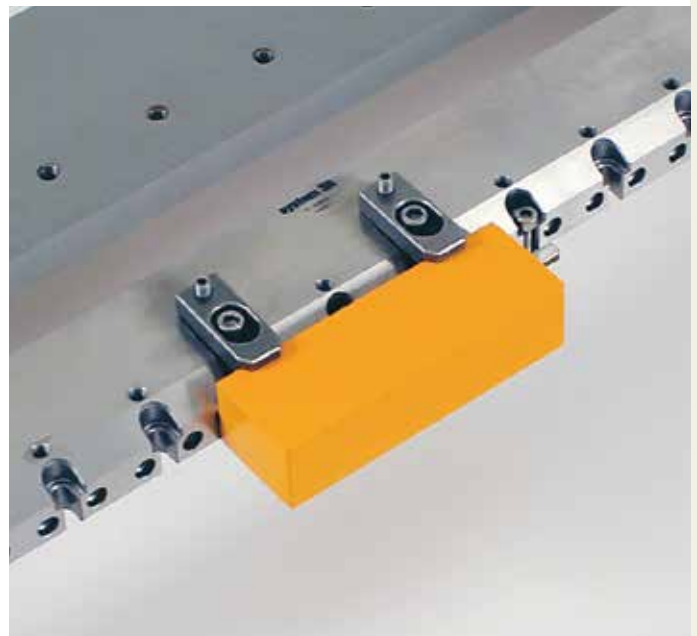
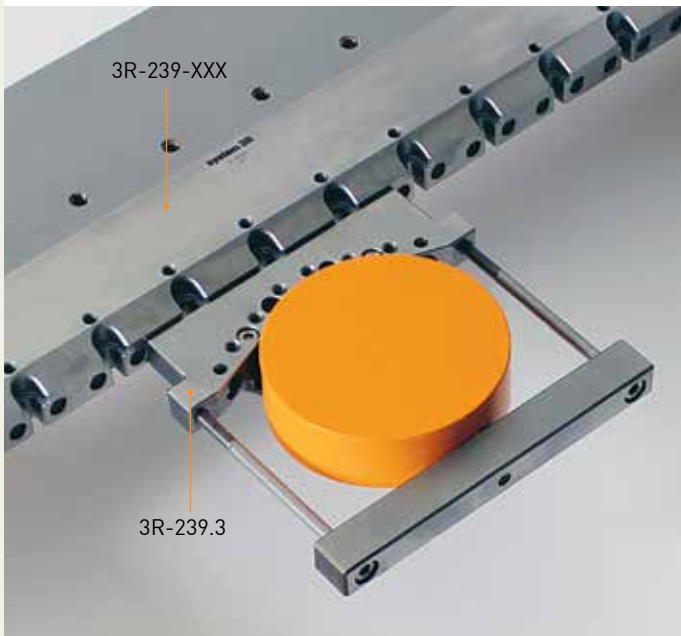
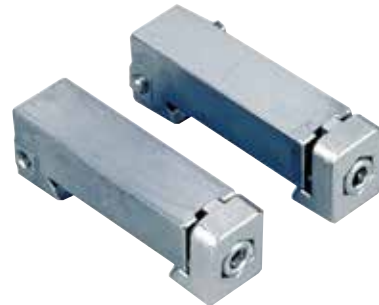
- Recommended maximum workpiece weight 7 kg
- Tightening torque 8 Nm
- Weight 1 kg.



## 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.



## 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	Vee 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

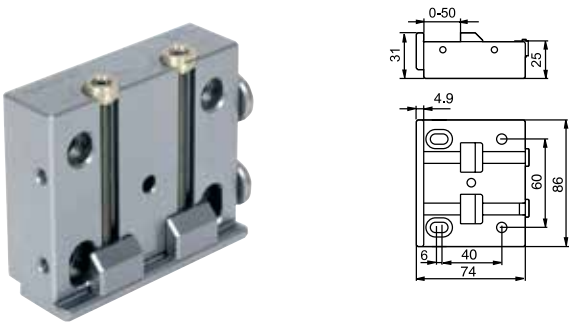


# The 3Ruler ruler system

## Vice, 3R-294.2

Mounts on 3R-237.2, 3R-292.66HP, 3R-294, a ruler in the 3Ruler system or Macropallet 54x54.

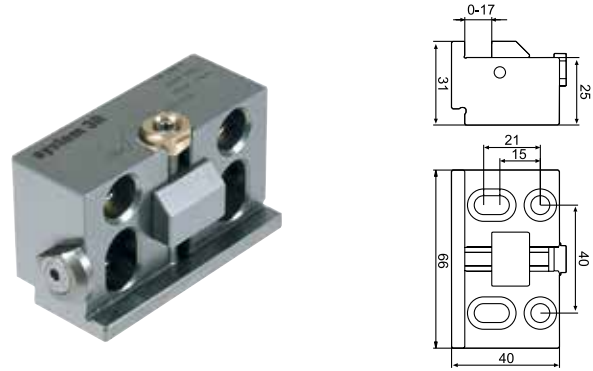
- Clamping range 0-50 mm
- Recommended maximum workpiece weight 5 kg
- Tightening torque 3 Nm
- Weight 1.2 kg.



## Vice, 3R-294.1

Mounts on 3R-237.2, 3R-292.12, 3R-292.66HP, 3R-294 or a ruler in the 3Ruler system.

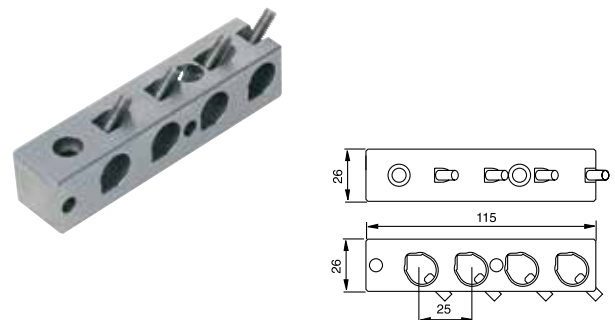
- Clamping range 0-17 mm
- Recommended maximum workpiece weight 2.5 kg
- Tightening torque 3 Nm
- Weight 0.5 kg.



## Multiple holder, 3R-294.6

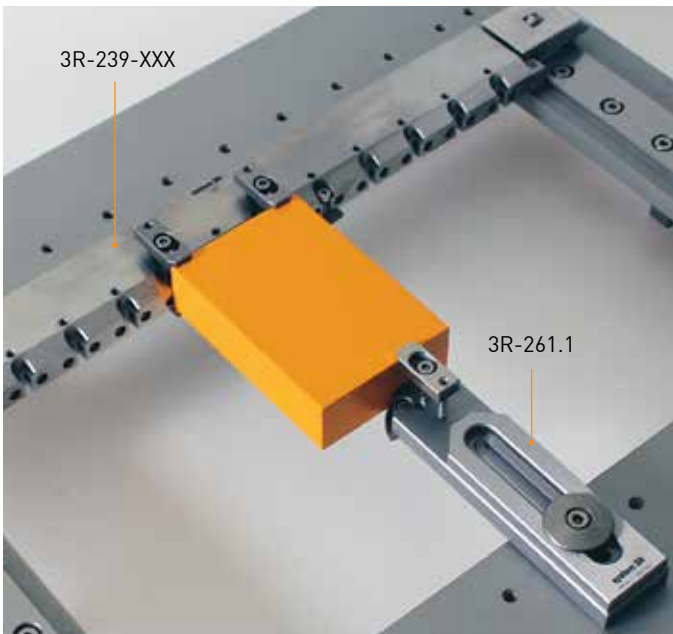
For mounting of four workpieces  $\varnothing$ 5-13 mm at the same time. Mounts on 3R-237.2, 3R-292.66HP, 3R-294 or a ruler in the 3Ruler system.

- Tightening torque 3 Nm
- Weight 0.6 kg.



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

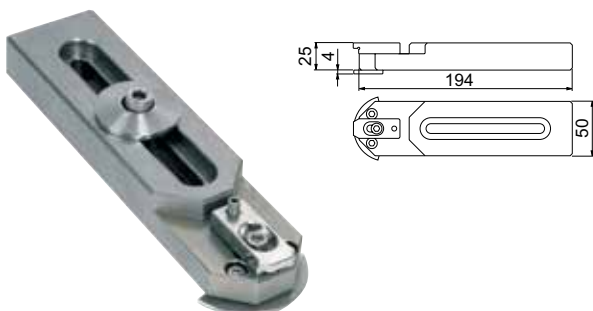
- Recommended maximum workpiece weight per tap 50 kg
- Supplied in sets of 2.



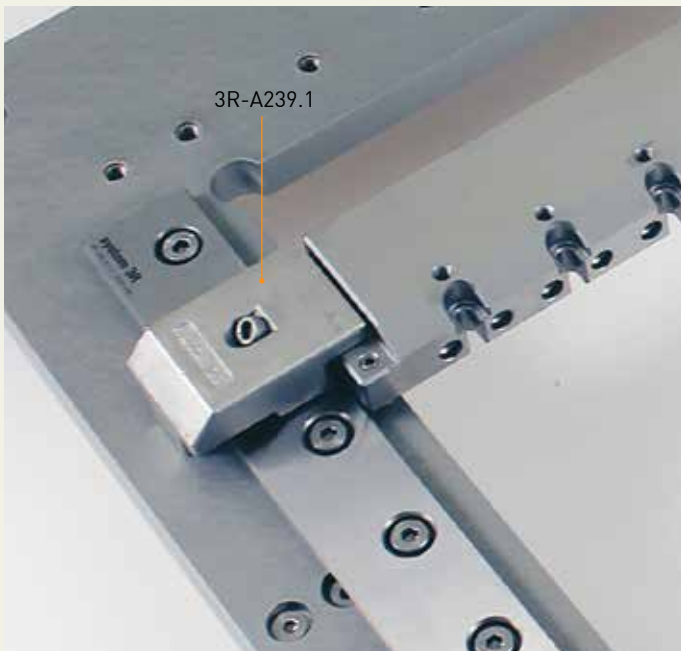
## Support, 3R-261.1

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



# The 3Ruler ruler system



## Clamps, 3R-A239.1

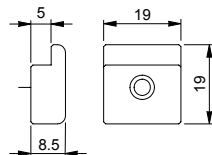
Clamps for clamping rulers on reference elements.

- 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.



## Miniclamps, 3R-239.24

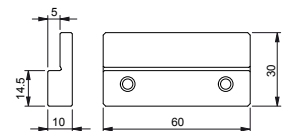
For clamping thin workpieces. To be fitted together with zero-line support tab.

- Recommended maximum workpiece weight per stop 1 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.



## Clamps, 3R-A239

Clamps of aluminium for mounting a ruler directly on the machine table without reference elements.

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

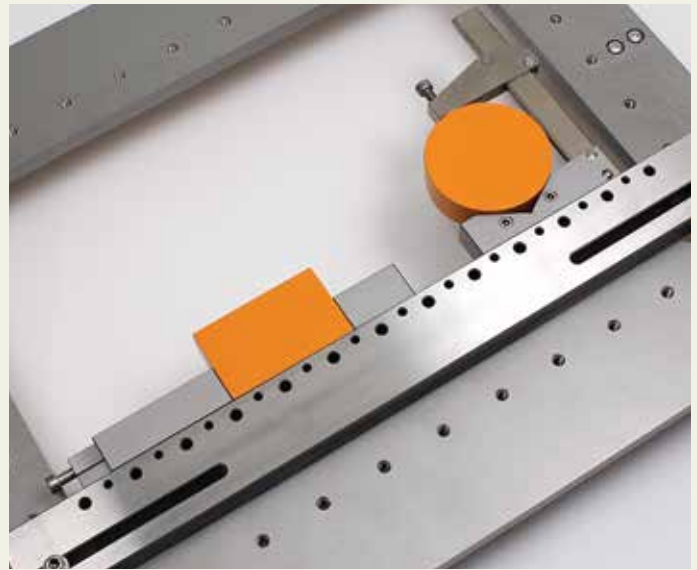


# The EconoRuler system

The EconoRuler have been developed for clamping medium-sized and large work pieces in machines with a parallel or U-shaped machine table, as well as in machines with a frame table.

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

- + Robust design
- + Flexible – use the rulers in pair or alone, depending on your set-up
- + Highest cutting rates – locate the work piece on the machine zero line
- + Collision free set-up – use spacers under the rulers
- + Fitting wide range of machine tables
- + Enables usage of various work piece sizes.

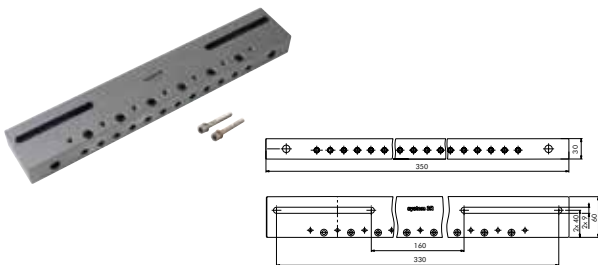


Note: Upon request – Other EconoRuler length can be produced.

## EconoRuler, 3R-209-350

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

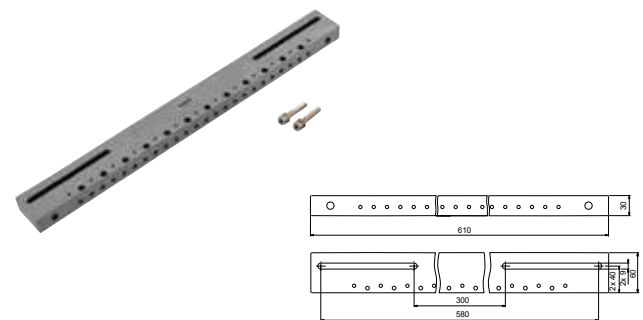
- Dimensions: 350x60x30 mm
- Clamping range: 160-330 mm.



## EconoRuler, 3R-209-610

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

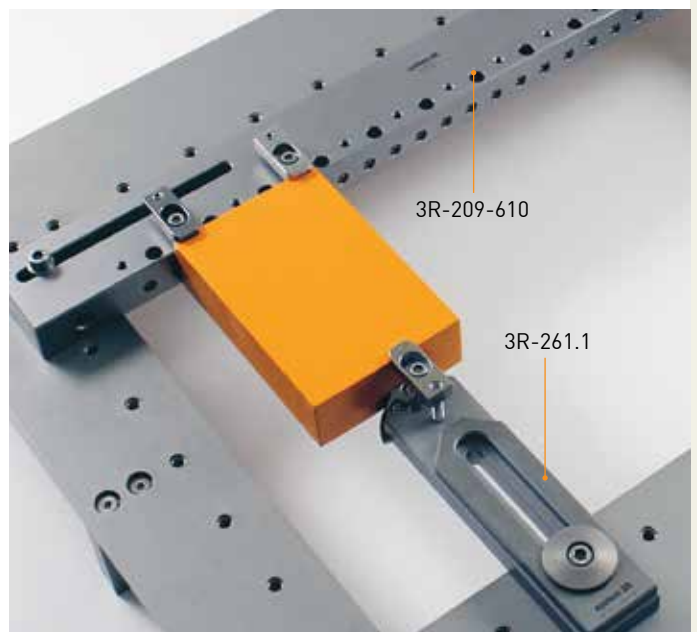
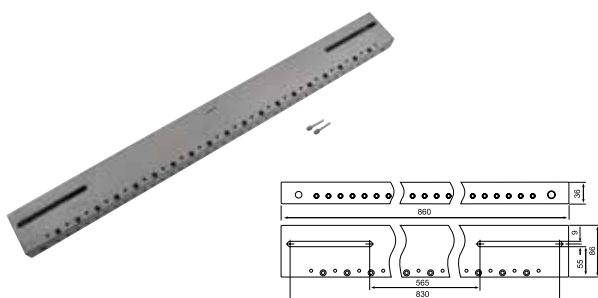
- Dimensions: 610x60x30 mm
- Clamping range: 300-580 mm.



## 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
- Clamping range: 565-830 mm.



# EconoRuler kits

## EconoRuler kit

Kit for clamping rectangular workpieces.



### 3R-209-350.1

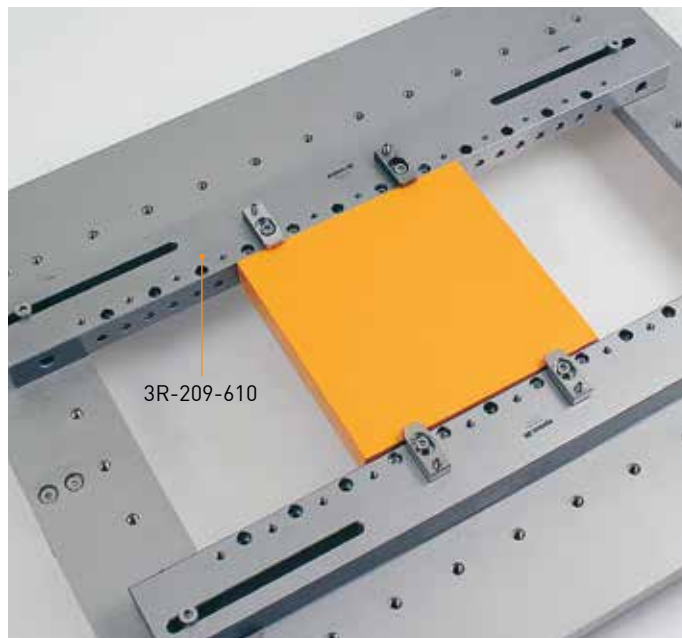
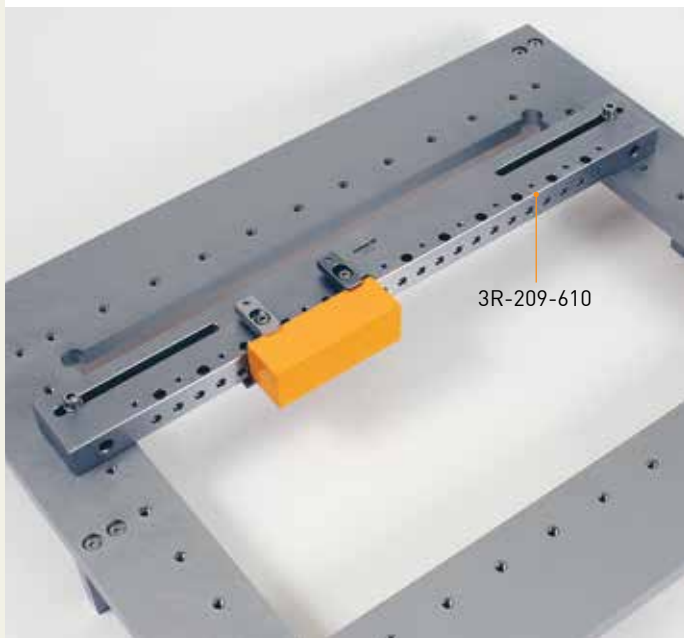
3R-209-350	Ruler, 350 mm	x1
3R-333-03	Allen key, 3 mm	x1
3R-333-05	Allen key, 5 mm	x1
	+ Accessories	

### 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	



## 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	

# EconoRuler kits

## EconoRuler kit

Kit for clamping rectangular workpieces.



### 3R-209-350.3

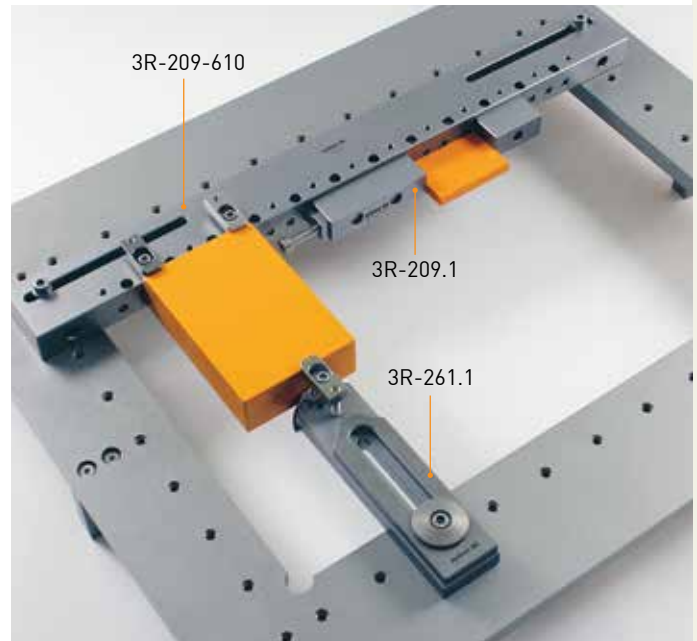
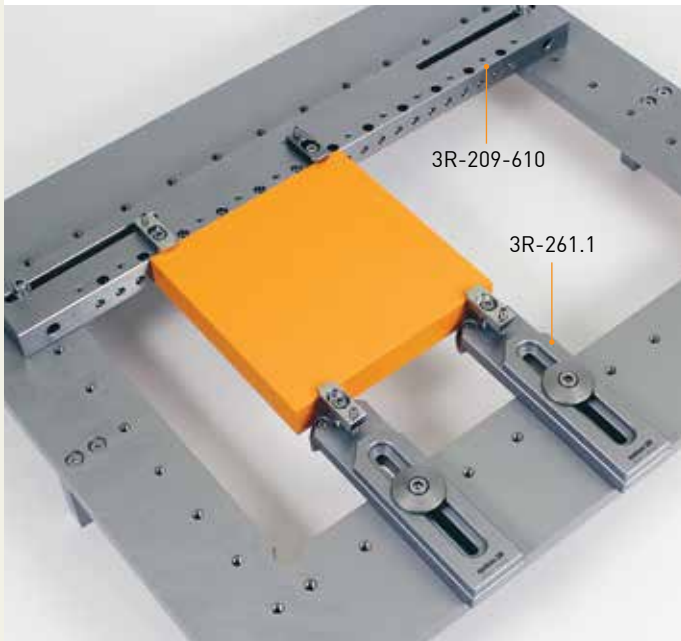
3R-209-350	Ruler, 350 mm	x1
3R-261.1	Support	x2
3R-333-03	Allen key, 3 mm	x1
3R-333-05	Allen key, 5 mm	x1
	+ Accessories	

### 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	



## 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	

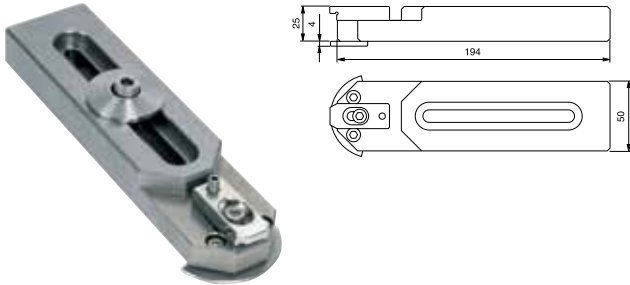


# EconoRuler accessories

## Support, 3R-261.1

For mounting directly on the machine table.

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



## Ruler vice, Econo, 3R-209.1

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

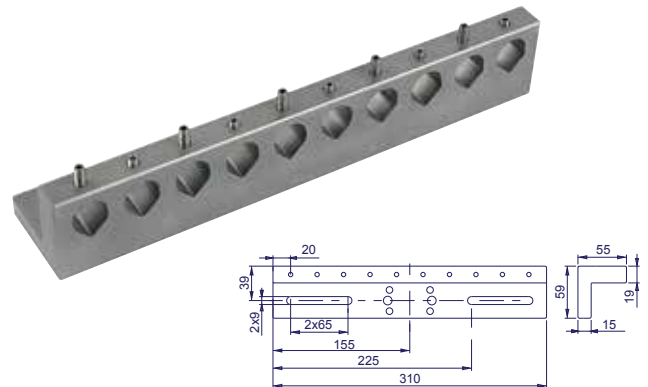
- Recommended maximum workpiece weight with one vice: 15 kg
- Recommended maximum workpiece weight with two vices: 200 kg
- Tightening torque 8 Nm
- Weight 0.7 kg.



## Multiple holder, Econo, D-30214

Multiple holder for ten workpieces  $\varnothing 20$  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.



## Vee holder, Econo, 3R-209.3

For clamping round workpieces. To be mounted on EconoRuler.

- Clamping range:  $\varnothing 25$ -130 mm
- Weight 0.9 kg.



## Clamps, 3R-A209

Clamps of aluminium 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  $\varnothing 15$ -110 mm or 120 x 120 mm
- Weight 1.5 kg.

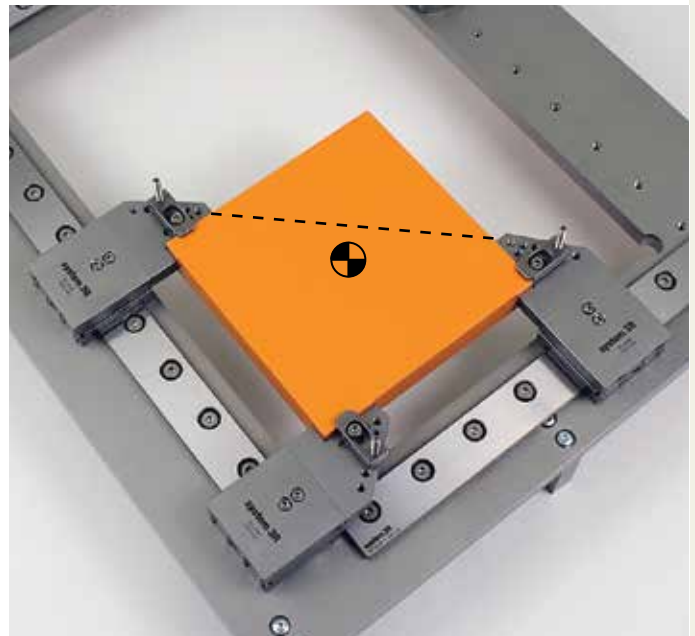
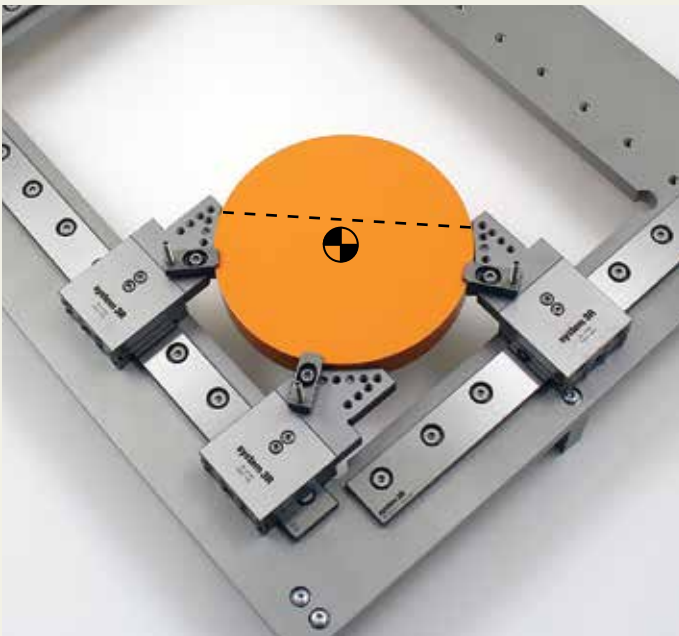
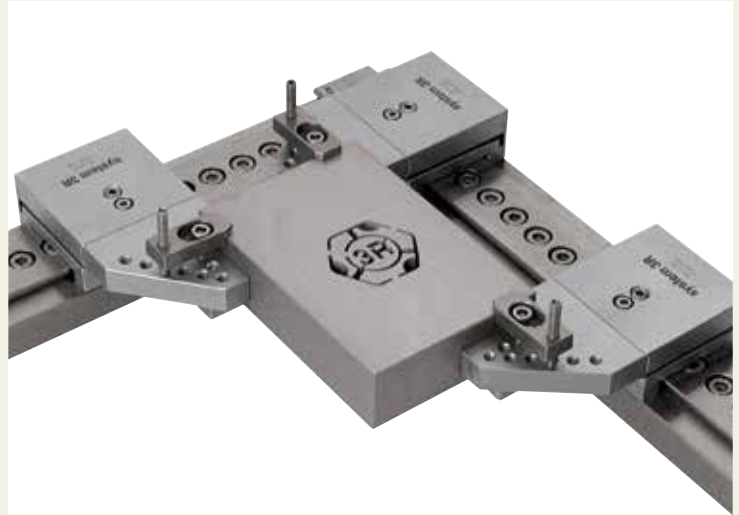


# 3P Three-point system

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 an L-shaped or U-shaped machine table, 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 zero line of the machine.



## Holder set, 3R-218S

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.



# Presetting & inspection

## Make efficient use of machine time.

Machine can be used either for active machining or for non-productive setting-up operations on an idle machine.

You can optimise machine capacity by presetting away from the machine in a presetting station, while the machine is actively working on another workpiece.

So – preset away from the machine, lift in the preset package, secure it with a few simple manual operations, press the start button and the wire EDM machine is working again – One Minute Set-up.

System 3R's presetting stations are constructed on a modular system, where the customer chooses a suitable packet of prepared "measuring stones", for which the customer chooses the necessary chuck/reference elements in order to match the installation on the wire EDM machine table, as well as a pneumatic control unit if required.



Pneumatic chuck for Macro  
3R-602.10-1

Manual chuck for Macro  
3R-602.27

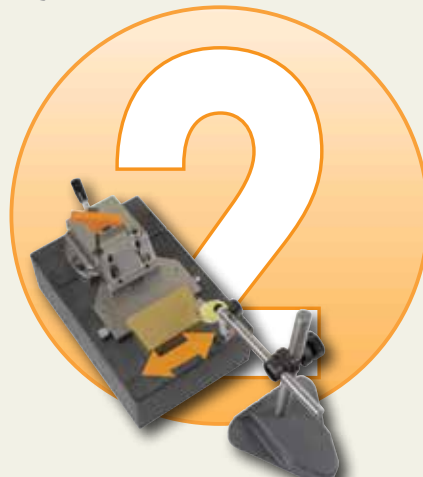
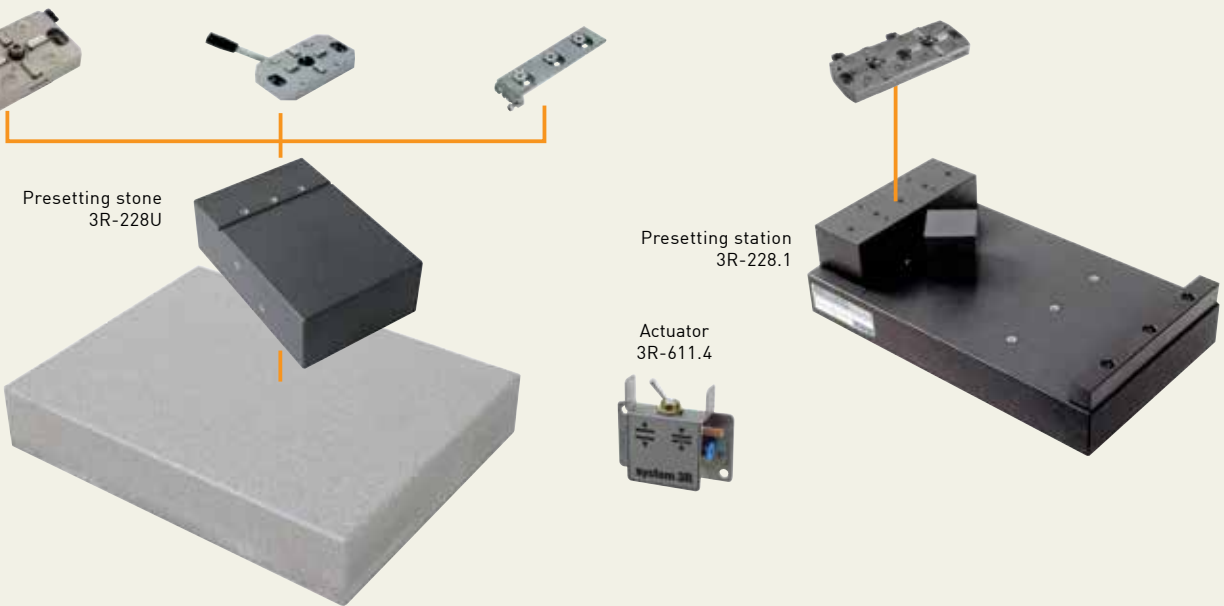
Reference element  
3R-200.1J-U

Pneumatic chuck for MacroTwin  
3R-602.12-1

Presetting stone  
3R-228U

Presetting station  
3R-228.1

Actuator  
3R-611.4



# Presetting & 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 presetting tool for a modest outlay.

- 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, a mounting stone with bushings and holes for mounting a chuck/reference element and 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 & 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 delivers with dial indicator measuring inch.

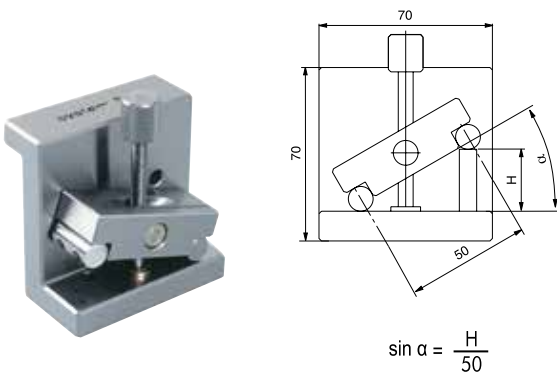
- Dimensions 300x200x100 mm
- Presetting stone
- Measuring stand
- Dial indicator (measures in mm).



## Sine ruler, 3R-216

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

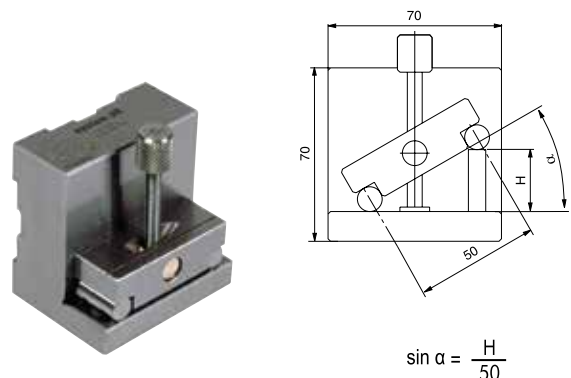
- Measuring length 50 mm
- Weight 1.2 kg.



## 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.

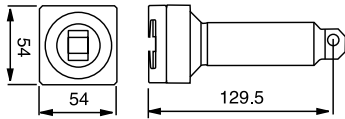


# Presetting & inspection

## 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.

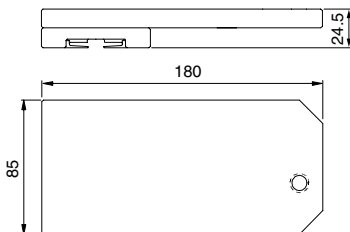


---

## 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.

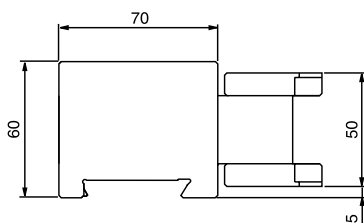


---

## Wire alignment unit, 3R-220.3

Unit with double-insulated reference contacts for wire alignment.

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



# System Matrix for wire EDMing

Extreme accuracy, Matrix features low construction height, ultra-precise indexing, a drawbar with a big through hole. The through hole allows high/long workpieces to be sunk into the chuck stable/rigid fixation.

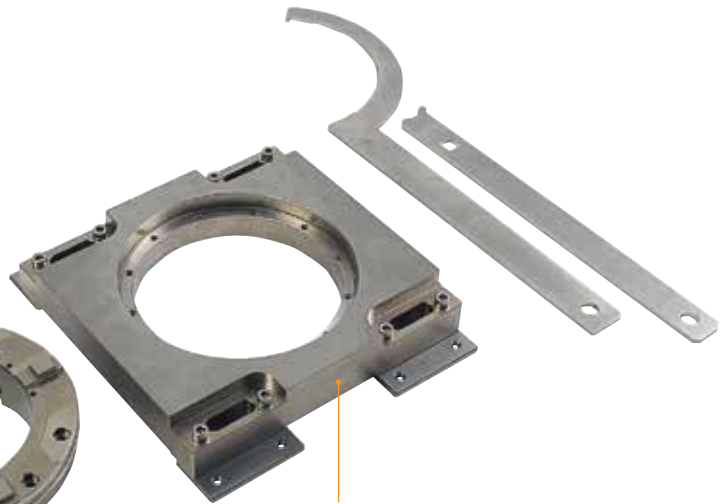
**Four sizes available in rust resistant material:**

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

For more info ask your local System 3R dealer.



D-30212  
Chuck, Matrix 142



D-30212-02  
Adapter, Matrix 142



Example of produced detail



Example of produced detail



# Frames

Frames are large palletising systems adapted to the WEDM machine table dimensions. Frames are available for Macro WEDM.

## Frames

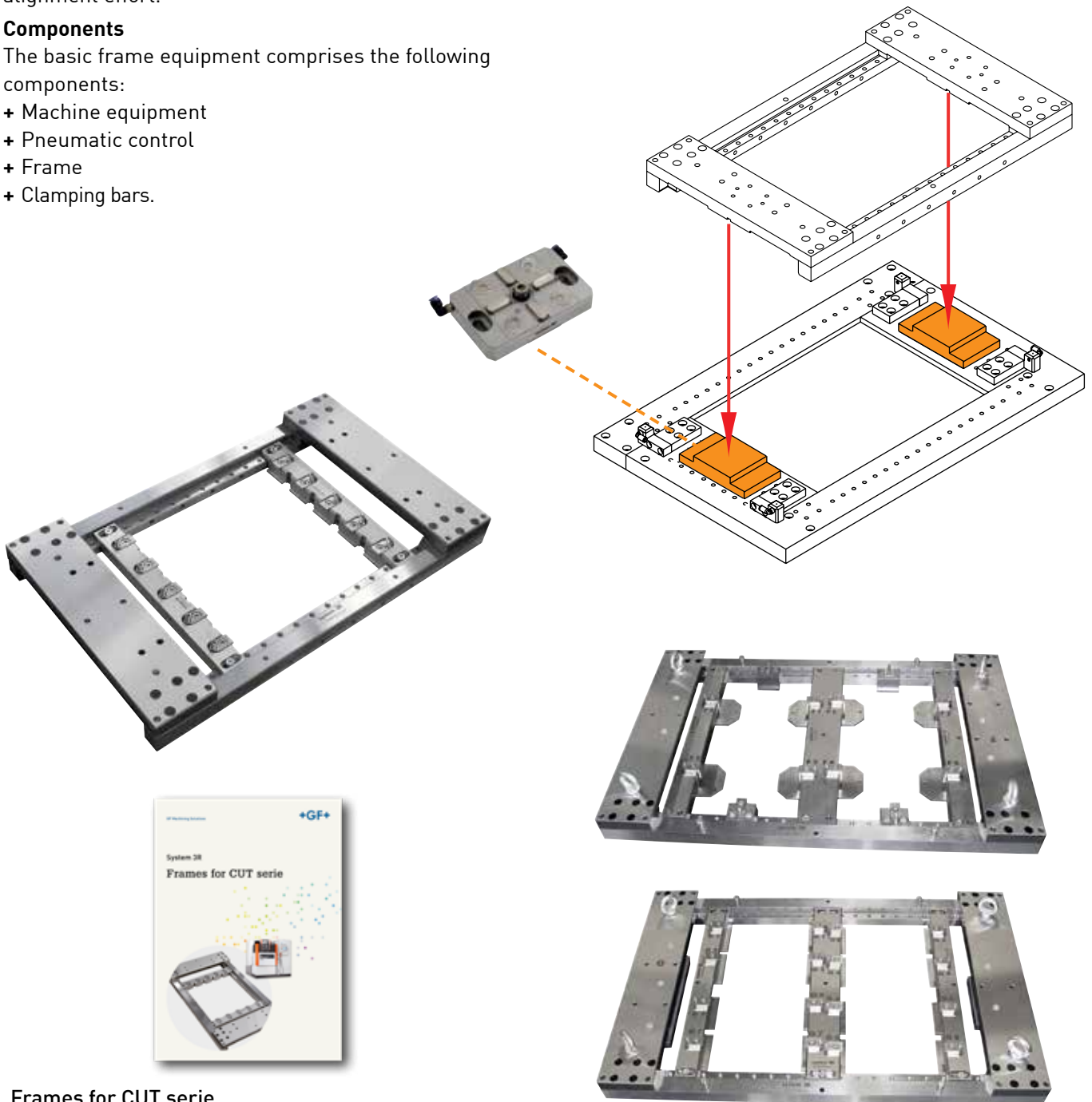
The rugged design enables large workpieces to be clamped and changed in the WEDM machine with repeatable accuracy.

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

## Components

The basic frame equipment comprises the following components:

- + Machine equipment
- + Pneumatic control
- + Frame
- + Clamping bars.



## Frames for CUT serie

For details, Please ask for a brochure on your own.

# Accessories

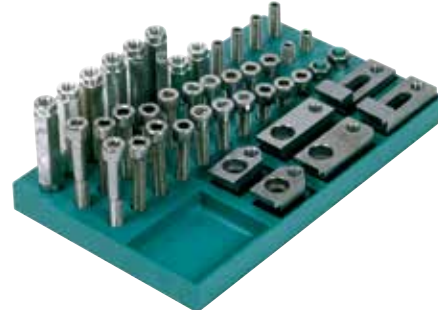
## Clamp kit M6, 3R-230.1

For clamping workpieces on rulers, etc.

- Weight 1.8 kg.



## Set ICS Double clamping M8, C 860 000



## 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



## Bridge magnets, rectangular

### C 844 000

- medium (8x12x55)

### C 844 100

- strong (8x18x55)

### C 844 200

- extra-strong (8x30x55)

### C 844 300

- medium (8x12x30).



## Bridge magnets, round

### C 868 000

- medium (∅20)

### C 868 100

- strong (∅28).

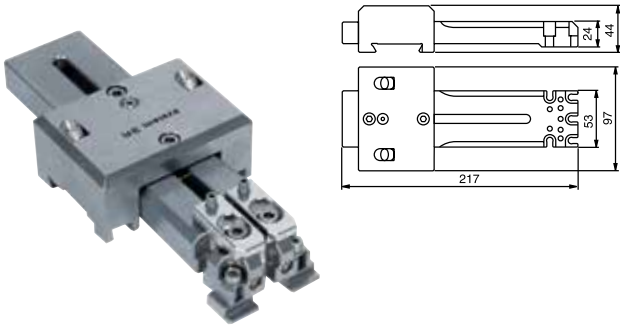




# Accessories

## Adjustable support WEDM, 3R-261

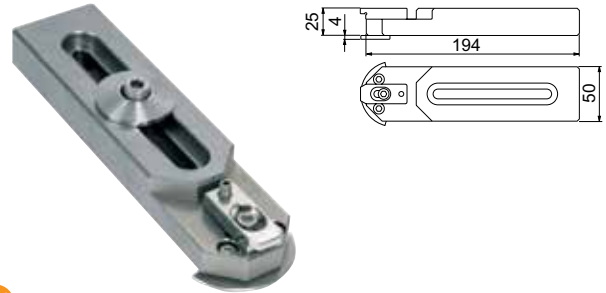
- Adjustable length 38-138 mm
- Adjustable height 0-0.2 mm
- Recommended maximum workpiece weight 20 kg.



## 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.



## Air unit, 3R-611.4

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



## Air unit, 3R-611.46

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



# 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+ & Fanuc - three “aces” which boost your productivity and sharpen your competitiveness.

And not least – they bring faster payback on the investments you made.



## WorkPal 1 – modest demands, major benefits

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

A sliding door gives maximum access to the magazine, making it easier to manage the pallets. The extremely compact unit is simple to install. And what's more, WorkPal 1 only needs minimal floor space.



## 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.



### **Automation – with six-axis Fanuc industrial robot**

System 3R offer automation solutions with industrial robots, both stationary and rail versions within the Die & Mold and Precision Production sector.

Fanuc solutions covers applications in terms of ...

... transfer weight from 70-700 kg

... radial reach, up to 3 400 mm

... complexed transfer movements

... parts handling.

## **WSM – WorkShopManager**

User-friendly Cell Management Software

Master workshop complexity and manage all control processes with our software. For manually controlled and automated processes.

- + Simplify the preparation of jobs
- + Easily execute the jobs in manual or automated machines
- + Monitor the process, change priorities and get utilization statistics
- + ID chip management to ensure highest process security.



## 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 2 mm, 3R-863.01-10M

With a pre-programmed unique identity.

- Supplied in sets of 10.

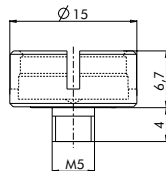


---

### Code carrier, fixture, C 960 740

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-622.5, 3R-622.6 or customer-made fixtures.



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

# Index

3R-6.300-EHS16 .....	15	3R-228.1 .....	52	3R-294.....	28
3R-6.600-VHS.....	15	3R-230.1 .....	56	3R-294.1 .....	28, 44
3R-60.360SA .....	14	3R-232.8.....	35	3R-294.2 .....	28, 44
3R-60.360X.....	14	3R-232S.....	19	3R-294.3.....	27
3R-200.XJ.X.....	7	3R-237.1 .....	27	3R-294.6.....	27, 44
3R-200.1J-U.....	7	3R-237.2.....	27	3R-322/50E .....	36
3R-201.5.....	13	3R-239-XXX.....	40	3R-405.21 .....	33
3R-201J.....	38	3R-239-XXX-D.....	40	3R-406.9.....	32
3R-202.....	33	3R-239.1.....	42	3R-422.2.....	32
3R-203.....	38	3R-239.2.....	42	3R-466.40RS .....	32
3R-203.66 .....	39	3R-239.3.....	42	3R-494-D10x50 .....	37
3R-204.....	38	3R-239.11 .....	43	3R-494-D12x50 .....	37
3R-205.2.....	35	3R-239.20.....	43	3R-494-D16x50 .....	37
3R-206.10 .....	53	3R-239.22.....	45	3R-494-D22x50 .....	37
3R-207.6.....	36	3R-239.24.....	45	3R-494-D26x50 .....	37
3R-209.1.....	49	3R-239.25.....	44	3R-494-D32x50 .....	37
3R-209.3.....	49	3R-239.26.....	45	3R-494-D40x50 .....	37
3R-209.33.....	49	3R-242HP.....	21	3R-494-D50x50 .....	37
3R-209-350 .....	46	3R-242S-1.....	21	3R-494-S12x50.....	37
3R-209-350.1 .....	47	3R-242S-2.....	21	3R-494-S22x50.....	37
3R-209-350.2 .....	47	3R-242S-3.....	21	3R-494-S26x50.....	37
3R-209-350.3 .....	48	3R-242S-4.....	21	3R-494-S32x50.....	37
3R-209-350.4 .....	48	3R-242.82HP.....	21	3R-494-S40x50.....	37
3R-209-610 .....	46	3R-243.2-1 .....	20	3R-494-32x22x50 .....	37
3R-209-610.1 .....	47	3R-252.1.....	33	3R-494-40x22x50 .....	37
3R-209-610.2 .....	47	3R-261.....	57	3R-600.10-3RS.....	11
3R-209-610.3 .....	48	3R-261.1.....	44, 49, 57	3R-600.15-3 .....	12, 30
3R-209-610.4 .....	48	3R-262HP.....	18	3R-600.23RS .....	10, 31
3R-209-860 .....	46	3R-262.6.....	39	3R-600.24RS .....	10, 30
3R-209-860.1 .....	47	3R-266.4.....	18	3R-600.24-4RS.....	11, 30
3R-209-860.2 .....	47	3R-266.5.....	19	3R-601.7E-P.....	34
3R-209-860.3 .....	48	3R-266.12HP.....	19	3R-602.4.1.....	11
3R-209-860.4 .....	48	3R-272HP.....	18	3R-602.10-1 .....	10
3R-213.4.....	36	3R-282.12HP.....	19	3R-602.10-1N.....	10
3R-216.....	52	3R-292.1.....	23	3R-602.12-1 .....	10
3R-216.6.....	52	3R-292.2.....	23	3R-602.26.....	11
3R-217-1 .....	13, 32	3R-292.3.....	23	3R-602.27.....	10
3R-218S.....	50	3R-292.3D.....	24	3R-602.27-1 .....	30
3R-220.3.....	53	3R-292.3P.....	24	3R-602.81RS .....	11
3R-222.2.....	33	3R-292.3S.....	26	3R-605.1RS .....	16
3R-223.....	38	3R-292.6HP.....	24	3R-605.2RS .....	16, 33
3R-223.3.....	38	3R-292.6S.....	25	3R-605.5RS .....	33
3R-225.....	7	3R-292.23.....	28	3R-605.10.....	16
3R-225.2.....	43	3R-292.31.....	24	3R-605.10E.....	16
3R-226.4.....	18	3R-292.61HP.....	24	3R-605.10EE .....	16
3R-226.6.....	39	3R-292.66HP.....	28	3R-605.26.....	16
3R-228E.....	52	3R-293.3.....	25	3R-605.27RS .....	16, 33
3R-228EI.....	52	3R-293.33.....	25	3R-605-GE.....	16, 33
3R-228J.....	52	3R-293.6HP.....	25	3R-606.2.....	53
3R-228U .....	52	3R-293.66HP.....	26	3R-611.4.....	16, 57

# Index

3R-611.46.....	16, 57	D-30220.....	37
3R-611.60.....	16	D-30220-01.....	37
3R-613.4.....	35	D-30220-02.....	37
3R-613.6.....	36	D-30229-3.....	15
3R-614-04.....	56	D-30232.....	39
3R-614-06.....	56	D-40106.....	60
3R-622.2.....	31		
3R-622.6.....	31		
3R-651.7E-P.....	34		
3R-651.75E-P.....	35		
3R-652.9.....	32		
3R-659.16-P.....	37		
3R-659.20-P.....	37		
3R-659.32-P.....	37		
3R-863.01-10.....	60		
3R-863.01-10M.....	60		
3R-914.07.....	56		
3R-914.10.....	56		
3R-914.10L.....	56		
3R-914.15.....	56		
3R-A209.....	49		
3R-A239.....	45		
3R-A239.1.....	45		
3R-SP26771-RS.....	12		
3R-SP6435.....	13		
3R-SSP012.....	16		
3R-W12-S.....	60		
3R-WP1.....	60		
90809.02.....	12		
90945.01.....	12		
90937.....	39		
90937.20.....	12		
C 457 940.....	19		
C 457 960.....	19		
C 457 980.....	19		
C 619 670.....	26		
C 619 680.....	26		
C 844 000.....	56		
C 844 100.....	56		
C 844 200.....	56		
C 844 300.....	56		
C 860 000.....	56		
C 868 100.....	56		
C 950 280.....	20		
C 950 480.....	19		
C 960 740.....	60		
D-30205.....	31		
D-30206.....	14		
D-30214.....	49		
D-30215.....	12		



## Optimize the uptime of your equipment with our Customer Services

- + Ensuring productivity.
- + Reducing running costs and wasted parts.
- + Maximizing the return on your System 3R investments.
- + Extending the product lifetime of your System 3R equipment while maintaining optimum precision.
- + Ensuring robot cell safety satisfies present machine directives.

System 3R's Customer Services is uniquely positioned to help you maximize the availability, value, precision and productivity of your System 3R equipment. Our cost-effective, customer-centric and expert services put your success at the center, ramp up your productivity and ensure predictable, uninterrupted uptime. System 3R's service engineers are your expert partners for a wide range of success-triggering services.

For more info ask your local System 3R dealer.

For contact details, please refer to:  
[www.system3r.com](http://www.system3r.com).

