System 3R

Tooling for wire EDMing
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.

Overview of the WEDM system

Basic equipment on the machine table.

Reference elements

Mounting heads

3Ruler

3P

3R-272HP

3R-292.3

3R-200.XJ-X

Reference stop, 3R-225

Can be moved infinitely along the entire reference element.

• Weight 0.4 kg.

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.

Basic equipment – WEDM

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.

See also the reference element guides for your machine on – www.system3R.com
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±1 bar.

Recommendations for loading in Macro chucks

Table chucks with horizontal mounting of the workpiece

<table>
<thead>
<tr>
<th>Article number</th>
<th>Max torque</th>
<th>Capacity (X=150 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3R-600.24RS</td>
<td>6 Nm</td>
<td>4 kg</td>
</tr>
<tr>
<td>3R-600.24-4RS</td>
<td>8 Nm</td>
<td>5 kg</td>
</tr>
<tr>
<td>3R-602.10</td>
<td>22.5 Nm</td>
<td>15 kg</td>
</tr>
<tr>
<td>3R-602.10-1</td>
<td>30 Nm</td>
<td>20 kg</td>
</tr>
<tr>
<td>3R-602.12-1</td>
<td>45 Nm</td>
<td>30 kg</td>
</tr>
<tr>
<td>3R-602.26</td>
<td>30 Nm</td>
<td>20 kg</td>
</tr>
<tr>
<td>3R-602.27</td>
<td>30 Nm</td>
<td>20 kg</td>
</tr>
<tr>
<td>3R-602.27-1</td>
<td>18 Nm</td>
<td>12 kg</td>
</tr>
<tr>
<td>3R-602.81RS</td>
<td>30 Nm</td>
<td>20 kg</td>
</tr>
</tbody>
</table>

Table chucks with vertical mounting of the workpiece

<table>
<thead>
<tr>
<th>Article number</th>
<th>Max torque</th>
<th>Capacity (X=100 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3R-600.24RS</td>
<td>6 Nm</td>
<td>6 kg</td>
</tr>
<tr>
<td>3R-600.24-4RS</td>
<td>8 Nm</td>
<td>7-8 kg</td>
</tr>
<tr>
<td>3R-602.4.1</td>
<td>8 Nm</td>
<td>7-8 kg</td>
</tr>
<tr>
<td>3R-602.27-1</td>
<td>8 Nm</td>
<td>7-8 kg</td>
</tr>
<tr>
<td>3R-602.360-X</td>
<td>8 Nm</td>
<td>7-8 kg</td>
</tr>
</tbody>
</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 26.7 kN
- Fixed index positions 4x90°
- Supplied with drawbars 3R-605.10
- Air-blast cleaning of the Z-references
- Protective cover
- Weight 1.5 kg.

Manual chuck, Macro, 3R-600.24RS
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.

Pneumatic chuck, Macro, 3R-602.24-4RS
Pneumatic chuck for Macro holder.
Mounts on a suitable fixture.
- Clamping force 6 kN
- Fixed index positions 4x90°
- Required drawbar 3R-605.2RS
- Air-blast cleaning of the Z-references
- Ground front edge
- Weight 1 kg.

Manual chuck, Macro, 3R-600.23RS
Manual chuck for Macro holder.
Designed for permanent mounting.
- Clamping force 6 kN
- Fixed index positions 4x90°
- Required drawbar 3R-605.2RS
- Protective covers
- Weight 1.5 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
- Weight 1.1 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.

Pneumatic chuck, Macro, 3R-602.81RS
Pneumatic chuck, low-profile, for Macro holder.
- Clamping force 6 kN
- Fixed index positions 4x90°
- Supplied with drawbar 3R-605.28RS
- 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-605.10
- Carbide XY-References
- Weight 4.4 kg.
Basic equipment – Macro

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

**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.

**Pneumatic chuck (low profile), Macro, 90965.01**
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.

**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 turbot-locking/air-blast cleaning.
- Required drawbar 3R-605.1RS
- Indexing accuracy ±0.003° 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°
- Submergible
- Clamps 3R-A239 included.
- Suitable control unit D-30206-01 (not included)
- Weight 14 kg.

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 40-1500 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 200 kg
- Submersible, IP68
- Weight 77 kg.

Example of produced detail
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 Ø20x57.1 mm with flushing hole Ø7 mm

3R-605.27RS
• Drawbar Ø20x27 mm

3R-605.10RS
• Drawbar Ø20x13 mm

3R-605.10E
• Drawbar Ø20x13 mm
• Supplied in sets of 20.

3R-605.10EE
• Drawbar Ø20x13 mm
• Supplied in sets of 10.

3R-605.26RS
• Drawbar Ø20x32 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.

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, 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.
- Adjustable in three axes
- Recommended maximum load 15 kg
- 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.

Levelling adapter, WEDM, 3R-272HP
For manual mounting of SuperVice, a holder or a fixture in the WEDM system.
Note: All holders including HP can be mounted. Also fits the ICS system if the clamping jaw (17850-00) is changed.
- Adjustable in three axes
- Recommended maximum load 15 kg
- Weight 3.1 kg.

Levelling 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.

Levelling adapter, 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
- Adjusted in three axes when clamped in the machine.
- Weight 4.3 kg.

Levelling adapter, 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 for automatic changing with 3R-WP1
- Ready for code carrier
- Weight 2 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
- Adjusted in three axes
- 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
- Can be adapted to automatic changing with 3R-W12-S
- Ready for code carrier
- Weight 4.2 kg.

Levelling adapter, Macro, 3R-262HP
For mounting SuperVice, a holder or a fixture in the Macro system.
Note: All holders including HP can be mounted.
- Adjustable in three axes
- Recommended maximum load 15 kg
- Weight 3.1 kg.

Levelling adapter, 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.

Levelling adapter, 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.

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.
- ICS A
- ICS B
- ICS C
- ICS D
- ICS E
- ICS F
- ICS G
- ICS H
- ICS I
- ICS J
- ICS K
- ICS L
- ICS M
- ICS N
- ICS O
- ICS P
- ICS Q
- ICS R
- ICS S
- ICS T
- ICS U
- ICS V
- ICS W
- ICS X
- ICS Y
- ICS Z
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 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

**Mounting heads, adapters & User kits**

**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-292.6S SuperVice Magnum 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-293.3 SuperVice Ø8-90 mm 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-293.3 SuperVice Ø8-90 mm 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

**User kit, 3R-242S-1**
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
Supervise 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. Supervise 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.

### Holders and vices for mounting in mounting heads

<table>
<thead>
<tr>
<th>Article number</th>
<th>Recommended maximum torque</th>
<th>Maximum workpiece weight X1* = 50 mm</th>
<th>Maximum workpiece weight X1* = 100 mm</th>
<th>Torque generated in chuck coupling X2</th>
</tr>
</thead>
<tbody>
<tr>
<td>3R-292.1</td>
<td>3.0 Nm</td>
<td>6 kg</td>
<td>3.0 kg</td>
<td>10.8 Nm</td>
</tr>
<tr>
<td>3R-292.2</td>
<td>3.5 Nm</td>
<td>7 kg</td>
<td>3.5 kg</td>
<td>12.4 Nm</td>
</tr>
<tr>
<td>3R-292.3</td>
<td>8.0 Nm</td>
<td>16 kg</td>
<td>8.0 kg</td>
<td>28.6 Nm</td>
</tr>
<tr>
<td>3R-292.3D</td>
<td>8.0 Nm</td>
<td>16 kg</td>
<td>8.0 kg</td>
<td>28.6 Nm</td>
</tr>
<tr>
<td>3R-292.3P</td>
<td>8.0 Nm</td>
<td>17 kg</td>
<td>8.0 kg</td>
<td>28.6 Nm</td>
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<tr>
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<td>6.0 Nm</td>
<td>12 kg</td>
<td>6.0 kg</td>
<td>20.4 Nm</td>
</tr>
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</table>

*Centre of gravity of the workpiece with X mm overhang

---

**Supervise, 3R-292.1**

- For clamping rectangular workpieces up to 77 mm.
- Tightening torque 3 Nm
- Weight 0.6 kg.

**Supervise, 3R-292.2**

- For clamping rectangular workpieces up to 100 mm.
- Tightening torque 3 Nm
- Weight 0.9 kg.

**Supervise, 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 Ø 3-15 mm respectively). Total clamping range, 60 mm (to be split between two workpieces).

- Tightening torque 7 Nm
- Weight 1.2 kg.

SuperVice, Prism, 3R-292.3P
For vertical or horizontal collision-free clamping of round workpieces (Ø 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. Alternatively, dismount the double jaw and use as a regular 3R-292.3 vice for rectangular workpieces (0-100 mm).

- 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. Alternatively, dismount the double jaw and use as a regular 3R-292.3 vice for rectangular workpieces (0-100 mm).

- Tightening torque 15 Nm
- Weight 2.8 kg.

SuperVice, 3R-292.3
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-292.6S
Vice for clamping rectangular workpieces up to 150 mm. Alternatively, mount on HP, Magnum or MacroTwin levelling adapter.

- Tightening torque 10 Nm
- Weight 2.7 kg.

SuperVice, 3R-292.6
Vice for clamping rectangular workpieces up to 150 mm. Alternatively, rotate the movable jaw and use as a regular 3R-292.3 vice for rectangular workpieces (0-100 mm).

- Tightening torque 15 Nm
- Weight 2.8 kg.

SuperVice, Magnum, 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-293.3HP
Vice for clamping round workpieces 15-155 mm. Alternatively, rotate the movable jaw and use as a regular 3R-292.3 vice for rectangular workpieces (0-100 mm).

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

SuperVice, Magnum, 3R-292.6HP
Vice for clamping round workpieces 15-155 mm.

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

SuperVice, Magnum, 3R-292.65
Vice for clamping rectangular workpieces up to 150 mm. Alternatively, mount on HP, Magnum or MacroTwin levelling adapter.

- Tightening torque 15 Nm
- Weight 2.8 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.
System 3R tooling for wire EDMing

**Holders and vices for mounting in mounting heads**

**Universal holder, Magnum, 3R-293.6HP**
For round workpieces 15-130 mm diameter, or rectangular workpieces up to 150 mm.
- 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-292.35**
Holder for round workpieces up to 90 mm, or rectangular workpieces 100x90 mm.
- Tightening torque 6 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.
- 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 Ø 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 86 x 20 x 26 mm
- Overall height 26 mm (incl. support lips and clamping lips)
- Weight 0.25 kg.

**Vice, 3R-294.3**
For clamping workpieces up to 100 mm.
- Tightening torque 7 Nm
- Weight 0.7 kg.

**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.

**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 Ø5-13 mm at the same time. Mounts on 3R-237.2, 3R-294.2 or 3R-292.66HP or a ruler in the 3Ruler system.
- Tightening torque 3 Nm
- Weight 0.6 kg.

**Application example.**

**Multiple holder, 3R-294.6**
For mounting four workpieces Ø5-13 mm at the same time. Mounts on 3R-237.2, 3R-294.2 or 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°
- Supplied with drawbar 3R-602.27RS
- 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 drawer bar 3R-602.27RS
- 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-602.27RS
- Weight 0.8 kg.

Manual chuck, Macro, 3R-600.24RS
Manual chuck for Macro holder.
- Clamping force 6 kN
- Fixed index positions 4x90°
- Supplied with drawbar 3R-602.27RS
- Weight 0.7 kg.

Manual chuck, Macro, 3R-600.23RS
Manual chuck with mounting flange for Macro holder.
- Clamping force 6 kN
- Fixed index positions 4x90°
- Supplied with drawbar 3R-602.27RS
- 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-602.27RS
- Tightening torque 6 Nm
- Maximum rpm 200.
- Weight 1.8 kg.

Manual chuck, Macro, 3R-600.24-4RS
Manual chuck for Macro holder.
- Clamping force 6 kN
- Fixed index positions 4x90°
- Required drawbar 3R-602.27RS
- Weight 1.1 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 drawer bar 3R-602.27RS
- Weight 1.1 kg.

Manual 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-602.27RS
- Weight 0.8 kg.

Manual chuck, Macro, 3R-600.24RS
Manual chuck for Macro holder.
- Clamping force 6 kN
- Fixed index positions 4x90°
- Required drawbar 3R-602.27RS
- Weight 0.7 kg.

Manual chuck, Macro, 3R-600.23RS
Manual chuck with mounting flange for Macro holder.
- Clamping force 6 kN
- Fixed index positions 4x90°
- Supplied with drawbar 3R-602.27RS
- 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-602.27RS
- Tightening torque 6 Nm
- Maximum rpm 200.
- Weight 1.8 kg.

Chuck adapters
### 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-SP4635.
- 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, 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 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.

#### Drawbars
- **3R-405.21RS**
  - Drawbar Ø15x24 mm.
- **3R-605.5RS**
  - Drawbar Ø20x19 mm.
- **3R-605.2RS**
  - Drawbar Ø20x36.9 mm with flushing hole Ø7 mm.
- **3R-605.27RS**
  - Drawbar Ø20x27 mm.

#### 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.

#### 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.

#### Drawbars
- **3R-405.21RS**
  - Drawbar Ø15x24 mm.
- **3R-605.5RS**
  - Drawbar Ø20x19 mm.
- **3R-605.2RS**
  - Drawbar Ø20x36.9 mm with flushing hole Ø7 mm.
- **3R-605.27RS**
  - Drawbar Ø20x27 mm.

#### 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.

#### Locking ring key, 3R-605-GE
To lift the drawbar locking ring.
- Supplied in sets of 2.
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.

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/fixtures 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/fixtures 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 3.0 kg.

Reference element Ø75 mm, Macro, 3R-651.75E-P
Hardened X, Y & Z-references. Clearance holes for fixing screws.
Note: Must be mounted on the workpiece/fixtures 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.

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.

Pallet WEDM, 3R-205.2
Unhardened holder for mounting in the WEDM system.
• Recommended maximum workpiece weight 7 kg
• Weight 1 kg.

Reference element Ø40, Macro, 3R-613.4
Vice for mounting rectangular workpieces 0-25 mm in the Macro system.
• Tightening torque 3 Nm
• Weight 0.6 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/fixtures 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 3.0 kg.

Reference element Ø6.6 (8x), Macro, 3R-201.5
Hardened and precision-cast, with clearance holes for fixing screws.
Note: Must be mounted on the workpiece/fixtures 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 Ø6 (4x), Macro, 3R-203.8
Hardened and precision-cast, with clearance holes for fixing screws.
Note: Must be mounted on the workpiece/fixtures before it is locked in a chuck.
• Parallel-ground top and bottom faces
• Fixed index positions 4x90°
• Supplied in sets of 4
• Weight per set 0.8 kg.

Reference element Ø6 (8x), Macro, 3R-203.8
Hardened and precision-cast, with clearance holes for fixing screws.
Note: Must be mounted on the workpiece/fixtures 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 1.6 kg.

Reference element Ø6 (12x), Macro, 3R-203.8
Hardened and precision-cast, with clearance holes for fixing screws.
Note: Must be mounted on the workpiece/fixtures before it is locked in a chuck.
• Parallel-ground top and bottom faces
• Fixed index positions 4x90°
• Supplied in sets of 12
• Weight per set 2.4 kg.
 holders for mounting in chuck adapters

**Vice, Macro, 3R-613.6**
Vice for mounting rectangular workpieces 6-80 mm in the Macro system. Moveable 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.

**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.

**Collet chucks**

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<thead>
<tr>
<th>Article number</th>
<th>Dimensions</th>
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<tr>
<td>3R-659.14-P</td>
<td>For collets ER16</td>
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<td>Workpiece size 0.5-10 mm</td>
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<td>Flushing duct</td>
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<td>Building-in height 62 mm</td>
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<td>Weight 0.8 kg</td>
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<table>
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<td>3R-659.20-P</td>
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**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.

**Collet chucks**

<table>
<thead>
<tr>
<th>Article number</th>
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<td>Building-in height 69 mm</td>
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<td>Weight 1.2 kg</td>
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<td>Building-in height 94 mm</td>
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<td>Weight 1.2 kg</td>
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</table>

**Holders for mounting in chuck adapters**

**3R-494-D10x50**
Round blank Ø10x50 mm

**3R-494-D12x50**
Round blank Ø12x50 mm

**3R-494-D16x50**
Round blank Ø16x50 mm

**3R-494-D22x50**
Round blank Ø22x50 mm

**3R-494-D26x50**
Round blank Ø26x50 mm

**3R-494-D32x50**
Round blank Ø32x50 mm

**3R-494-D40x50**
Round blank Ø40x50 mm

**3R-494-S12x50**
Square blank 12x12x50 mm

**3R-494-S22x50**
Square blank 22x22x50 mm

**3R-494-S26x50**
Square blank 26x26x50 mm

**3R-494-S32x50**
Square blank 32x32x50 mm

**3R-494-S40x50**
Square blank 40x40x50 mm

**3R-494-32x22x50**
Square blank 32x22x50 mm

**3R-494-40x22x50**
Square blank 40x22x50 mm

**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.

**Holders for mounting in chuck adapters**

**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 ER20
- Workpiece size 1-13 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 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 ±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.

**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-242.6**
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.

<table>
<thead>
<tr>
<th>XXX = length (mm)</th>
<th>&lt;370</th>
<th>371-595</th>
<th>596-950</th>
<th>&gt;951</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width (mm)</td>
<td>45</td>
<td>60</td>
<td>60 or 84*</td>
<td>86</td>
</tr>
<tr>
<td>Height (mm)</td>
<td>30</td>
<td>30</td>
<td>36</td>
<td>50</td>
</tr>
<tr>
<td>Eccentric stops supplied</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Quick fasteners supplied</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Zero line tabs supplied</td>
<td>2</td>
<td>2</td>
<td>2 or 3*</td>
<td>3</td>
</tr>
<tr>
<td>5 mm tabs supplied</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>3*</td>
</tr>
<tr>
<td>Clamps supplied</td>
<td>2</td>
<td>2</td>
<td>2 or 3*</td>
<td>3</td>
</tr>
</tbody>
</table>

**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.

<table>
<thead>
<tr>
<th>XXX = length (mm)</th>
<th>&lt;370</th>
<th>371-595</th>
<th>596-950</th>
<th>&gt;951</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width (mm)</td>
<td>45</td>
<td>60</td>
<td>86</td>
<td>86</td>
</tr>
<tr>
<td>Height (mm)</td>
<td>30</td>
<td>30</td>
<td>36</td>
<td>56</td>
</tr>
<tr>
<td>Eccentric stops supplied</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Quick fasteners supplied</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Zero line tabs supplied</td>
<td>4</td>
<td>4</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>5 mm tabs supplied</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Clamps supplied</td>
<td>4</td>
<td>4</td>
<td>6</td>
<td>10</td>
</tr>
</tbody>
</table>

**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

*Always ask. See also the 3Ruler guides for your machine on – www.system3R.com

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.

- 5-mm (0.96-in) tabs for positioning workpieces 5 mm above machine zero line.
- Clearance for wire between workpiece and ruler.
- Built-in height adjustment on Rulers from length 385 mm
- Zero line tabs for optimum positioning along the ruler in steps of 40 mm (1.57in)
- Eccentric stop, movable along the ruler in steps of 20 mm (0.78 in)
- Quick-fasteners permits simple fitting/removal of ruler.

Note: Upon request – Ruler length up to 1600 mm can be produced
System 3R tooling for wire EDMing

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 Ø25-300 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-P14-10L 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 rater in the 3Ruler system or Macropallet 54x54.
- Clamping range 0-50 mm
- Recommended maximum workpiece weight 5 kg
- Weight 1.2 kg.

**Vice, 3R-294.1**
Mounts on 3R-237.2, 3R-292.12, 3R-292.66HP, 3R-294 or a rater 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 Ø5-13 mm at the same time. Mounts on 3R-237.2, 3R-292.66HP, 3R-294 or a rater in the 3Ruler system.
- Tightening torque 3 Nm
- Weight 0.6 kg.

**Support, 3R-261.1**
For mounting directly on the machine table.
- Adjustable length 35-135 mm
- Includes 5 mm spacer for collision free set-up
- Recommended maximum workpiece weight 50 kg
- Weight 1.5 kg

**Zero-line support tab 5 mm, 3R-239.25**
- Recommended maximum workpiece weight per tap 50 kg
- 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.

**Clamps, 3R-A239.1**
Clamps for clamping rulers on reference elements.
- 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 EconoRulers 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.

### 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: 140-330 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 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 kits

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

### 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**
- Ruler, 350 mm x1
- Support x2
- Allen key, 3 mm x1
- Allen key, 5 mm x1
- + Accessories

**3R-209-610.3**
- Ruler, 610 mm x1
- Support x2
- Allen key, 3 mm x1
- Allen key, 5 mm x1
- + Accessories

**3R-209-860.3**
- Ruler, 860 mm x1
- Support x1
- Allen key, 3 mm x1
- Allen key, 5 mm x1
- + Accessories

#### EconoRuler kit

**Kit for clamping rectangular workpieces.**

**3R-209-350.4**
- Ruler, 350 mm x1
- Support x1
- Ruler vice, Econo x1
- Allen key, 3 mm x1
- Allen key, 5 mm x1
- + Accessories

**3R-209-610.4**
- Ruler, 610 mm x1
- Support x1
- Ruler vice, Econo x1
- Allen key, 3 mm x1
- Allen key, 5 mm x1
- + Accessories

**3R-209-860.4**
- Ruler, 860 mm x1
- Support x1
- Ruler vice, Econo x1
- Allen key, 3 mm x1
- 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.

#### Vee holder, Econo, 3R-209.3

For clamping round workpieces. To be mounted on EconoRuler.
- Clamping range: Ø25-130 mm
- Weight 0.9 kg.

#### Multiple holder, Econo, D-30214

Multiple holder for ten workpieces Ø2-20 mm at the same time. Mount direct on table or with a levelling head.
- C-C = 30 mm
- Squareness 0.1 mm/100 mm
- Weight 3.1 kg.

#### 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 Ø 15-110 mm or 120 x 120 mm
- Weight 1.5 kg.

---

**EconoRuler accessories**

**Universal holder, Econo, 3R-209.33**

Multiple holder for ten workpieces Ø2-20 mm at the same time. Mount direct on table or with a levelling head.
- C-C = 30 mm
- Squareness 0.1 mm/100 mm
- Weight 3.1 kg.

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- Adjustable length 35-135 mm
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- 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.

---

**EconoRuler accessories**

**Universal holder, Econo, 3R-209.33**

Multiple holder for ten workpieces Ø2-20 mm at the same time. Mount direct on table or with a levelling head.
- C-C = 30 mm
- Squareness 0.1 mm/100 mm
- Weight 3.1 kg.

**Vee holder, Econo, 3R-209.3**

For clamping round workpieces. To be mounted on EconoRuler.
- Clamping range: Ø25-130 mm
- Weight 0.9 kg.

**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.
### 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/referene elements in order to match the installation on the wire EDM machine table, as well as a pneumatic control unit if required.
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/referenece 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 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).

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.

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Mounting stone with bushings and holes for mounting chuck/referenece 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 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).

Presetting & inspection

Master, 3R-604.2
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.

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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.

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

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Example of produced detail

Example of produced detail

Frames for CUT serie
For details, Please ask for a brochure on your own.
**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.

**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 848 000**
  - medium (Ø20)
- **C 848 100**
  - strong (Ø28).

**Support, 3R-261.1**
For mounting directly on the machine table.
- Adjustable length 35-135 mm
- Includes 5 mm spacer for collision free set-up
- Recommended maximum workpiece weight 20 kg.
- Weight 1.5 kg.

**Adjustable support WEDM, 3R-261**
- Adjustable length 38-138 mm
- Adjustable height 0-0.2 mm
- Recommended maximum workpiece weight 20 kg.

**Air unit, 3R-611.4**
Unit for operation of pneumatic chucks.
- Two positions – open/closed.

**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-611.46**
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.

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

**Code carrier, fixture, C 960 740**

For automatic changing of 3R-206.10, 3R-225.2, 3R-226.4 and customer-made fixtures.

The code carrier can be clicked into position.

**Code carrier, 3R-W12-S**

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

With a pre-programmed unique identity.

- Supplied in sets of 10.

**Code carrier, D-40106**

For mounting code carrier 3R-B63.01-10M on pallets.

- Supplied in sets of 10.

**Code carrier 2 mm, 3R-B63.01-10M**

With a pre-programmed unique identity.

- Supplied in sets of 10.

See separate publications for further information about WorkPal Compact Servo, WorkPartner 1+, Transformer and 3R-266.12, 3R-266.12HP, 3R-282.12, 3R-282.12HP.

Index

- 3R-292.12.......................................19
- 3R-292.61HP................................24
- 3R-292.31 .....................................24
- 3R-292.3P.....................................24
- 3R-292.3D ....................................24
- 3R-292.3 .......................................23
- 3R-292.2 .......................................23
- 3R-292.1 .......................................23
- 3R-292.12HP ................................19
- 3R-292.6HP................................28
- 3R-292.3HP................................25
- 3R-292.3 .......................................25
- 3R-292.2 .......................................25
# Index

<table>
<thead>
<tr>
<th>Code</th>
<th>Page(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3R-611.46</td>
<td>16, 57</td>
</tr>
<tr>
<td>3R-611.60</td>
<td>16</td>
</tr>
<tr>
<td>3R-613.4</td>
<td>35</td>
</tr>
<tr>
<td>3R-613.6</td>
<td>36</td>
</tr>
<tr>
<td>3R-614-04</td>
<td>56</td>
</tr>
<tr>
<td>3R-614-06</td>
<td>56</td>
</tr>
<tr>
<td>3R-622.2</td>
<td>31</td>
</tr>
<tr>
<td>3R-622.6</td>
<td>31</td>
</tr>
<tr>
<td>3R-651.6E-P</td>
<td>34</td>
</tr>
<tr>
<td>3R-651.75E-P</td>
<td>35</td>
</tr>
<tr>
<td>3R-652.9</td>
<td>32</td>
</tr>
<tr>
<td>3R-659.16-P</td>
<td>37</td>
</tr>
<tr>
<td>3R-659.2B-P</td>
<td>37</td>
</tr>
<tr>
<td>3R-659.32-P</td>
<td>37</td>
</tr>
<tr>
<td>3R-863.01-10</td>
<td>60</td>
</tr>
<tr>
<td>3R-863.01-10M</td>
<td>60</td>
</tr>
<tr>
<td>3R-914.07</td>
<td>56</td>
</tr>
<tr>
<td>3R-914.10</td>
<td>56</td>
</tr>
<tr>
<td>3R-914.10L</td>
<td>56</td>
</tr>
<tr>
<td>3R-914.15</td>
<td>56</td>
</tr>
<tr>
<td>3R-A209</td>
<td>49</td>
</tr>
<tr>
<td>3R-A239</td>
<td>45</td>
</tr>
<tr>
<td>3R-A239.1</td>
<td>45</td>
</tr>
<tr>
<td>3R-5P26/771-RS</td>
<td>12</td>
</tr>
<tr>
<td>3R-5P4435</td>
<td>13</td>
</tr>
<tr>
<td>3R-55P012</td>
<td>16</td>
</tr>
<tr>
<td>3R-W12-S</td>
<td>60</td>
</tr>
<tr>
<td>3R-WP1</td>
<td>60</td>
</tr>
<tr>
<td>90049.02</td>
<td>12</td>
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<tr>
<td>90045.01</td>
<td>12</td>
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<tr>
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<td>39</td>
</tr>
<tr>
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<td>12</td>
</tr>
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<td>C-457 940</td>
<td>19</td>
</tr>
<tr>
<td>C-457 960</td>
<td>19</td>
</tr>
<tr>
<td>C-457 980</td>
<td>19</td>
</tr>
<tr>
<td>C-619 670</td>
<td>26</td>
</tr>
<tr>
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<td>26</td>
</tr>
<tr>
<td>C-844 000</td>
<td>56</td>
</tr>
<tr>
<td>C-844 100</td>
<td>56</td>
</tr>
<tr>
<td>C-844 200</td>
<td>56</td>
</tr>
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<td>C-844 300</td>
<td>56</td>
</tr>
<tr>
<td>C-860 000</td>
<td>56</td>
</tr>
<tr>
<td>C-88 100</td>
<td>56</td>
</tr>
<tr>
<td>C-950 280</td>
<td>20</td>
</tr>
<tr>
<td>C-950 480</td>
<td>19</td>
</tr>
<tr>
<td>C-960 740</td>
<td>60</td>
</tr>
<tr>
<td>D-30205</td>
<td>31</td>
</tr>
<tr>
<td>D-30206</td>
<td>14</td>
</tr>
<tr>
<td>D-30214</td>
<td>49</td>
</tr>
<tr>
<td>D-30215</td>
<td>12</td>
</tr>
<tr>
<td>D-30220</td>
<td>37</td>
</tr>
<tr>
<td>D-30220-01</td>
<td>37</td>
</tr>
<tr>
<td>D-30220-02</td>
<td>37</td>
</tr>
<tr>
<td>D-30229-3</td>
<td>15</td>
</tr>
<tr>
<td>D-30232</td>
<td>39</td>
</tr>
<tr>
<td>D-48106</td>
<td>60</td>
</tr>
</tbody>
</table>

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