If you want to compete in the global manufacturing industry, you need to study every aspect of efficiency. It’s a matter of extracting the highest possible number of spindle-hours from each machine, every day of the week. And here, the importance of a high-class reference system can never be over-estimated. A reference system which reduces setup times to a few minutes.

Macro is such a reference system. A system that minimises the throughput time, and which, thanks to its accuracy, practically eliminates rejects. A system that increases flexibility and profitability. A system that increases competitiveness and ensures the success of its users.

Among users world wide, the Macro system is a byword for precision. And with good reason, since very single Macro product is thoroughly checked before it is dispatched.

But precision can be graded too. The Macro products are therefore “classified” in terms of accuracy, material and life – but always with full compatibility – as Standard, High Performance and Nano. Even so, it’s worth remembering that the accuracy of a system is determined by the product with the lowest classification.

+ Repetition accuracy:
  MacroNano – within 0.001 mm
  MacroHighPerformance – within 0.0015 mm
  MacroStandard – within 0.002 mm
+ Locking force – 6000 N
+ Fixed index positions – 4x90°
+ Required air pressure, pneumatic chuck – 6±1 bar
+ Recommended tightening torque, manual chuck – 6 Nm
+ Recommended max workpiece weight – 50 kg.
Macro – Chucks

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<th>Feature</th>
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<tr>
<td>Manual Std</td>
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<td>3R-605.2</td>
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<tr>
<td>Pneumatic HP</td>
<td>3R-600.15-3</td>
<td>3R-605.2</td>
<td>Rust resistant, Ø 56 mm</td>
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<tr>
<td>Manual HP</td>
<td>3R-600.24-4RS</td>
<td>3R-605.2</td>
<td>Rust resistant, Ø 70 mm</td>
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<td>3R-605.1 / 3R-605.4</td>
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<tr>
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<td>3R-605.1 / 3R-605.4</td>
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<tr>
<td>Pneumatic HP</td>
<td>90412.2X</td>
<td>3R-605.1 / 3R-605.4</td>
<td>with swivel, low speed</td>
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<td>Pneumatic Std</td>
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<tr>
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<td>3R-605.1 / 3R-605.4</td>
<td>rust-resistant</td>
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Macro pallet/holder

Drawbar

Chucks

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<tbody>
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<tr>
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<td>3R-600.84-30</td>
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</table>

Macro pallet/holder

Drawbar

Macro pallet/holder
Macro – Chucks

Manual chuck, MacroStd, 3R-600.23-S
Cast chuck with mounting flange for mounting on the machine spindle or in a fixture.
- Required drawbar 3R-605.2
- Tightening torque 6 Nm
- Fixed index positions 4x90°
- Flushing connection
- Weight 0.7 kg.

Manual chuck, MacroStd, 3R-600.22-S
Cast chuck with ground back face for mounting on the machine spindle with 3R-A11489 or in a fixture on the machine table.
- Required drawbar 3R-605.2
- Tightening torque 6 Nm
- Fixed index positions 4x90°
- Flushed connection
- Weight 0.7 kg.

Manual chuck, MacroStd, 3R-SP15055
Cast chuck with ground flange for installation in fixture/plate.
- Required drawbar 3R-605.2
- Tightening torque 6 Nm
- Fixed index positions 4x90°
- Flushing connection
- Weight 0.7 kg.

Manual chuck, MacroStd, 3R-600.24-S
Cast chuck with ground back face for mounting on the machine spindle. Also suitable in a fixture on the machine table or with adapter plate 3R-A26488.
- Required drawbar 3R-605.2
- Tightening torque 6 Nm
- Fixed index positions 4x90°
- Flushed connection
- Weight 1.1 kg.

Manual chuck, MacroStd, 3R-600.24-4RS
Rust resistant chuck for Macro holder. Mounts on a suitable fixture.
- Required drawbar 3R-605.2RS
- Tightening torque 6 Nm
- Fixed index positions 4x90°
- Grinded front edge
- Rust resistant
- Weight 1 kg.

Manual chuck, MacroStd, 3R-600.24RS
Rust resistant manual chuck designed for permanent mounting.
- Required drawbar 3R-605.2RS
- Tightening torque 6 Nm
- Fixed index positions 4x90°
- Clamping force 6000 N
- Rust resistant
- Weight 0.7 kg.

Manual chuck (low profile), MacroStd, 3R-600.28-S
Cast chuck with ground back face for mounting on the machine spindle. Also suitable in a fixture on the machine table or with adapter plate 3R-A26488.
- Required drawbar 3R-605.2
- Tightening torque 6 Nm
- Fixed index positions 4x90°
- Flushing connection
- Weight 1.1 kg.
**Macro – Chucks**

**Pneumatic chuck, MacroHP, 3R-600.15-3**
Rust resistant pneumatic chuck for permanent mounting on the machine table.
- Drawbar 3R-605.2RS included
- Fixed index positions 4x90°
- Required air pressure 6±1 bar
- Rust resistant
- Weight 0.8 kg.

**Pneumatic chuck, MacroStd, 90412.1X**
Pneumatic added-on chuck with swivel surrounding unit.
- For low RPM
- Machine adapted.

**Pneumatic chuck, MacroStd, 3R-SP24460**
Pneumatic chuck for building-in, for example in a fixture, dividing head or B-axis.
- Required drawbar 3R-605.1 or 3R-605.4
- Fixed index positions 4x90°
- Required air pressure 6±1 bar
- Air-blast cleaning of Z-references
- Turbo locking
- Weight 1.8 kg.

**Pneumatic chuck, MacroStd, 3R-SP26771**
Pneumatic added-on chuck with swivel surrounding unit.
- For low RPM
- Machine adapted.

**Pneumatic chuck, MacroHP, 3R-SP26771-RS**
Rust resistant pneumatic chuck for building-in, for example in a fixture, dividing head or B-axis.
- Required drawbar 3R-605.1RS
- Fixed index positions 4x90°
- Required air pressure 6±1 bar
- Carbide XY-references
- Air-blast cleaning of Z-references
- Turbo locking
- Rust resistant
- Weight 1.8 kg.
Pneumatic chuck, MacroHP, 3R-600.84-3
Pneumatic chuck for permanent mounting in the machine spindle.
- Required drawbar 3R-605.1
- Fixed index positions 4x90°
- Required air pressure 6±1 bar
- Four M6 clearance holes, Ø 45 mm
- Air-blast cleaning of Z-references
- Flushing connection
- Turbo locking
- Carbide XY-References
- Weight 2.4 kg.

Pneumatic chuck, MacroStd, 3R-600.84-30
Pneumatic chuck for permanent mounting in the machine spindle.
Note: X/Y/Z references of hardened and ground steel, larger Z-references. Note: When ordering state machine make and type.
- Required drawbar 3R-605.1
- Required air pressure 6±1 bar
- Fixed index positions 4x90°
- Four M6 clearance holes, Ø 45 mm
- Air-blast cleaning of the Z-references
- Flushing connection
- Turbo locking
- Carbide XY-References
- Weight 2.4 kg.
Macro – Chucks

**Pneumatic chuck, MacroHP, 90412.2X**

Pneumatic built-in chuck with swivel in the back.
- For high RPM
- Machine adapted.

**Pneumatic chuck, MacroHP, 3R-600.86-3**

Pneumatic chuck for permanent mounting in the machine spindle.
- Required drawbar 3R-605.1
- Required air pressure 6±1 bar.
- Fixed index positions 4x90°.
- Air-blast cleaning of Z-references.
- Turbo locking.
- Carbide XY-References
- Weight 1.8 kg.

**Pneumatic chuck, MacroStd, 3R-600.86-30**

Pneumatic chuck for permanent mounting in the machine spindle.
Note: When ordering state machine make and type. Note: X/Y/Z references of hardened and ground steel, larger Z-references.
- Required drawbar 3R-605.1
- Required air pressure 6±1 bar
- Fixed index positions 4x90°
- Four M6 clearance holes, 67x20 mm and four M5 clearance holes, 63x26 mm
- Air-blast cleaning of the Z-references
- Flushing connection
- Turbo locking
- Weight 1.8 kg.
### Macro - Chucks

#### Lathe chucks

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<tr>
<td>Manual HP 3R-600.20</td>
<td>3R-605.1 / 3R-605.4 Carbide references, 4 Nm</td>
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<tr>
<td>Pneumatic Std 3R-600.1-30</td>
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<td>3R-605.1 horizontal and vertical, 6 Nm</td>
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<td>3R-605.2 low profile, 6 Nm, Ø100 mm</td>
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<td>3R-605.2 6 Nm, Ø75 mm</td>
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<tr>
<td>Pneumatic Std 3R-610.46-30</td>
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<td>3R-605.2RS rust resistant</td>
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<tr>
<td>Pneumatic Std 3R-600.14-30</td>
<td>3R-605.2 low profile</td>
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<tr>
<td>Pneumatic HP 3R-610.19</td>
<td>3R-605.1 / 3R-605.4 horizontal and vertical. 3Refix Ø20</td>
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<tr>
<td>Pneumatic VDP 3R-600.1-30V</td>
<td>3R-605.1 / 3R-605.4 vibration-damped</td>
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<tr>
<td>Pneumatic Std 3R-602.81</td>
<td>3R-605.10 low profile</td>
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<td>Pneumatic HP 3R-602.81RS</td>
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<td>Pneumatic Std 3R-610.4</td>
<td>3R-605.2 horizontal and vertical, vernier scale</td>
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<td>Pneumatic VDP 3R-602.10-V</td>
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<td>Pneumatic Std 3R-640.14-30</td>
<td>3R-605.2 4 Macro chucks</td>
</tr>
</tbody>
</table>
Macro – Chucks

Manual lathe chuck, MacroStd, 3R-600.22
With setting screws for centring.
- Required drawbar 3R-605.2
- Tightening torque 6 Nm
- Fixed index positions 4x90°
- Weight 2.1 kg.

Pneumatic chuck, MacroStd, 3R-600.1-30
Pneumatic chuck for permanent mounting on the machine spindle or onto the machine table.
- Required drawbar 3R-605.1
- Fixed index positions 4x90°
- Turbo locking
- Weight 4 kg.

Manual chuck, MacroStd, 3R-610.21-S
Two ground faces for vertical or horizontal mounting on the machine table.
- Required drawbar 3R-605.1
- Fixed index positions 4x90°
- Weight 3.5 kg

90842
- Required drawbar 3R-605.1, otherwise as 3R-610.21-S.

Manual chuck, MacroHP, 3R-600.20
For mounting on the machine spindle with 3R-A3620 or on a lathe taper with centring ring 3R-612.6.
- Required drawbar 3R-605.1 or 3R-605.4
- Tightening torque 4 Nm
- Fixed index positions 4x90°
- Carbide XY references
- Weight 3.6 kg.

Manual lathe chuck, MacroHP, 3R-600.22
With setting screws for centring.
- Required drawbar 3R-605.1
- Fixed index positions 4x90°
- Fixed index positions 4x90°
- Weight 2.1 kg.

Pneumatic chuck, MacroStd, 3R-600.1-30
Pneumatic chuck for permanent mounting on the machine spindle or onto the machine table.
- Required drawbar 3R-605.1
- Fixed index positions 4x90°
- Turbo locking
- Weight 4 kg.

Manual chuck, MacroStd, 3R-610.21-S
Two ground faces for vertical or horizontal mounting on the machine table.
- Required drawbar 3R-605.1
- Fixed index positions 4x90°
- Weight 3.5 kg

90842
- Required drawbar 3R-605.1, otherwise as 3R-610.21-S.

Manual chuck, MacroHP, 3R-600.22
With setting screws for centring.
- Required drawbar 3R-605.1
- Fixed index positions 4x90°
- Fixed index positions 4x90°
- Weight 2.1 kg.

Pneumatic chuck, MacroStd, 3R-600.1-30
Pneumatic chuck for permanent mounting on the machine spindle or onto the machine table.
- Required drawbar 3R-605.1
- Fixed index positions 4x90°
- Turbo locking
- Weight 4 kg.

Manual chuck, MacroStd, 3R-610.21-S
Two ground faces for vertical or horizontal mounting on the machine table.
- Required drawbar 3R-605.1
- Fixed index positions 4x90°
- Weight 3.5 kg

90842
- Required drawbar 3R-605.1, otherwise as 3R-610.21-S.

Manual chuck, MacroHP, 3R-600.22
With setting screws for centring.
- Required drawbar 3R-605.1
- Fixed index positions 4x90°
- Weight 2.1 kg.

Pneumatic chuck, MacroStd, 3R-600.1-30
Pneumatic chuck for permanent mounting on the machine spindle or onto the machine table.
- Required drawbar 3R-605.1
- Fixed index positions 4x90°
- Turbo locking
- Weight 4 kg.

Manual chuck, MacroStd, 3R-610.21-S
Two ground faces for vertical or horizontal mounting on the machine table.
- Required drawbar 3R-605.1
- Fixed index positions 4x90°
- Weight 3.5 kg

90842
- Required drawbar 3R-605.1, otherwise as 3R-610.21-S.
Macro – Chucks

Pneumatic chuck (low profile), MacroStd, 3R-602.81
Pneumatic chuck for permanent mounting on the machine table.
- Required drawbar 3R-605.10
- Required air pressure 6±1 bar
- Fixed index positions 4x90°
- Weight 1 kg.

Pneumatic chuck (low profile), MacroHP, 3R-602.81RS
Pneumatic chuck for permanent mounting on the machine table.
- Required drawbar 3R-605.10
- Clamping force 6000 N
- Fixed index positions 4x90°
- Air-blast cleaning of Z-references
- Rust resistant
- Weight 1 kg.

Pneumatic chuck (low profile), MacroStd, 3R-600.14-30
Pneumatic chuck for permanent mounting on the machine table.
- Required drawbar 3R-605.2
- Required air pressure 6±1 bar
- Fixed index positions 4x90°
- Weight 2 kg.

Manual 3R block, MacroStd, 3R-610.4
For vertical or horizontal mounting on the machine table.
- Required drawbar 3R-605.2
- Fixed index positions 24x15°
- Vernier scale
- Weight 5.5 kg.

Pneumatic chuck, VDP, 3R-602.10-V
Pneumatic vibration-damped chuck, low-profile version for permanent mounting on the machine table.
- Required drawbar 3R-605.10
- Required air pressure 6 ±1 bar
- Fixed index positions 4x90°
- Air-blast cleaning of the Z-references
- Turbo locking.

Pneumatic chuck, VDP, 90716.09
Pneumatic vibration-damped chuck for permanent mounting on the machine table.
- Required drawbar 3R-605.1 or 3R-605.4
- Required air pressure 6 ±1 bar
- Fixed index positions 4x90°
- Air-blast cleaning of the Z-references
- Turbo locking
- Weight 6 kg.
Macro – Chucks

Pneumatic chuck, MacroHP, 3R-600.10-3
Pneumatic chuck locked/opened with air gun.
• Required drawbar 3R-605.1 or 3R-605.4
• Required air pressure 6±1 bar
• Fixed index positions 4x90°
• Air-blast cleaning of the Z-references
• Carbide XY-References
• Turbo locking
• Weight 4.4 kg.

Pneumatic chuck, MacroHP, 3R-600.10-3RS
Pneumatic chuck locked/opened with air gun.
• Required drawbar 3R-605.1RS
• Required air pressure 6±1 bar
• Fixed index positions 4x90°
• Air-blast cleaning of the Z-references
• Carbide XY-References
• Turbo locking
• Rust resistant
• Weight 4.4 kg.

Pneumatic chuck, MacroStd, 3R-600.10-30
Pneumatic chuck locked/opened with air gun.
• Required drawbar 3R-605.1 or 3R-605.4
• All references of hardened and ground steel
• Required air pressure 6±1 bar
• Fixed index positions 4x90°
• Air-blast cleaning of the Z-references
• Turbo locking
• Weight 4.4 kg.

Pneumatic chuck, MacroStd, 3R-610.46-30
Pneumatic chuck for horizontal or vertical use.
• Required drawbar 3R-605.1 or 3R-605.4
• Required air pressure 6±1 bar
• Fixed index positions 4x90°
• Air unit included
• Weight 4.4 kg.

Pneumatic chuck, VDP, 3R-600.1-30V
Pneumatic vibration-damped chuck.
• Required drawbar 3R-605.1 or 3R-605.4
• Required air pressure 6±1 bar
• Fixed index positions 4x90°
• Air-blast cleaning of the Z-references
• Turbo locking
• Weight 6 kg.

Manual chuck, VDP, 3R-600.24-V
Manual vibration-damped chuck, Ø170 mm.
• Required drawbar 3R-605.2
• Tightening torque 6 Nm
• Building-in height 85 mm.
• Centre spacing 63 to 100 mm
• Weight 6 kg.
Macro – Chucks

Pneumatic chuck, Macro Quad, 3R-640.14-30
For permanent mounting on the machine table. All connections from the side or back of the chuck.

- Required drawbar 3R-605.2 or similar
- Required air pressure 6 ± 1 bar
- Fixed index positions 4 x 90°
- Permissible torque 135 mm
- Air-blast cleaning of the Z-references
- Solid X & Y-references
- Turbo locking
- Weight 10 kg.

Macro – Chuck adapters

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<th>Feature</th>
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<tr>
<td>Manual 3R-652.9</td>
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<td>90°. Locking screw with M6 drawpin</td>
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<td>Manual 3R-653</td>
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<td>Macro ▶ Mini, rust resistant</td>
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<td>Manual 3R-653-5</td>
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<td>3R-605.2</td>
<td>MacroMagneum ▶ Macro</td>
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Macro – Chuck adapters

**Manual chuck adapter, Macro-Macro, 3R-652.2**
Distance adapter to extend the mache spindle. Mechanical clamping from the side.
- Required drawbar 3R-605.2
- Solid X & Y-references
- Height 100 mm
- Adapted for automatic changing
- Flushing duct
- Recommended clamping torque 6 Nm
- Permissible torque: 135 Nm
- Weight 4.5 kg.

**Manual chuck adapter, Macro-Macro, 90476.01**
Distance adapter to extend the mache spindle. Mechanical clamping from the side.
- Required drawbar 3R-605.2
- Solid X & Y-references
- Height 200 mm
- Adapted for automatic changing
- Flushing duct
- Recommended clamping torque 6 Nm
- Permissible torque: 135 Nm
- Weight 8 kg.

**Manual chuck adapter, Macro-Macro, 90476.02**
Distance adapter to extend the mache spindle. Mechanical clamping from the side.
- Required drawbar 3R-605.2
- Solid X & Y-references
- Height 250 mm
- Adapted for automatic changing
- Flushing duct
- Recommended clamping torque 6 Nm
- Permissible torque: 135 Nm
- Weight 9 kg.

**Manual chuck adapter 90°, Macro-Macro, 3R-652.9**
For horizontal mounting of Macro holders. Supplied with drawbar for screw locking.
- Rust resistant
- Weight 2.4 kg.

**Manual chuck adapter 90°, Macro-Mini, 3R-603.9**
For horizontal mounting of Mini holders in the Macro system.
- Rust resistant
- Flushing connection
- Weight 1.9 kg.
Macro – Chuck adapters

Manual chuck adapter, Macro-Mini, 3R-653-S
For mounting Mini holders in the Macro system.
- MacroStandard coupling
- Can be changed automatically
- Weight 1.3 kg.

Manual chuck adapter, Macro-Mini, 3R-653
For mounting Mini holders in the Macro system.
- MacroHP coupling
- Can be changed automatically
- Rust-resistant
- Weight 1.3 kg.

Manual chuck adapter, MacroMagnum-Macro, 90964
From MacroMagnum into Macro system. Chuck adapter with built-in Macro chuck.
- Requires drawbar 3R-605.2 or similar.
- Solid X & Y-References
- Recommended clamping torque 6 Nm
- Permissable torque 135 Nm
- Clamping force 6000 N
- Max load 50 kg to acquire accuracy 0.002 mm
- Weight 4.3 kg.

Pneumatic chuck adapter, MacroMagnum-Macro, 3R-682.600-A
Chuck adapter with built-in pneumatic Macro chuck for mounting in 3R-680.10-2A.
- Weight 4.5 kg.

Manual adapter, Macro-Capto C6, 3R-SP29742
Access to clamping from underneath. Torque wrench for optimal performance.
- Suitable for automatic changer.
- Recommended clamping torque 30 Nm
- Rust-resistant
- Weight 1.5 kg.

Manual adapter, Macro-HSK-63A, 3R-SP29745
Access to clamping from underneath. Torque wrench for optimal performance.
- Suitable for automatic changer.
- Recommended clamping torque 30 Nm
- Rust-resistant
- Weight 1.5 kg.
Macro – Chuck adapters

**Manual chuck adapter 90°, Macro-MacroJunior, 3R-406.9**
For horizontal mounting of Macro-Junior holders in the Macro system. Screw locking.
- Adapted for automatic changing
- Rust-resistant
- Fixed index positions 3x120°
- Weight 2.4 kg.

---

**Manual chuck adapter, Macro-MacroJunior, 3R-446.11**
For mounting in the Macro system. Side locking of the Macro-Junior holder. Duct for flushing through the electrode.
- Required drawbar 3R-405.11
- Precision-cast Macro reference element
- Adapted for automatic changing
- Fixed index positions 3x120°
- Weight 1.3 kg.

---

**Manual chuck adapters, Macro-MacroJunior**
For mounting in the Macro system. Axial locking screw with channel for flushing through the electrode.

**3R-466.4033**
- Precision-cast Macro reference element
- Adapted for automatic changing
- Fixed index positions 3x120°
- Weight 1.1 kg.

**3R-466.4033-S**
- Note: For EDM machining only.
- Adapted for automatic changing
- Fixed index positions 3x120°
- Weight 1 kg.
Macro – Chuck adapters & Rotating spindles

**Manual chuck adapters, Macro-MacroJunior**
For mounting in the Macro system. Axial locking screw with channel for flushing through the electrode.  
Note: For EDM machining only.

**3R-466.10033**
- Fixed index positions 3x120°
- Adapted for automatic changing
- Height 45.5 mm
- Weight 0.8 kg.

**3R-466.15033**
- Fixed index positions 3x120°
- Adapted for automatic changing
- Height 150 mm
- Weight 1.2 kg.

---

**Manual chuck adapter, Macro-GPS 70, C 188 550**  
Adaption of Macro on GPS 70.
- Required drawbar N 901 800
- Built-up height 45.5 mm
- Tightening torque 2.8 Nm
- Weight 1 kg.

**Manual chuck adapter, GPS 70-Macro, C 188 560**  
Adaption of GPS 70 on Macro.
- Required drawbar 3R-605.2
- Built-up height 60 mm
- Weight 1.9 kg.

---

**Macro – Rotating spindles**

<table>
<thead>
<tr>
<th>Rotating spindles</th>
<th>Article number</th>
<th>Drawbar</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertical standard</td>
<td>3R-6.321-HS</td>
<td>-</td>
<td>collets</td>
</tr>
<tr>
<td>Vertical standard</td>
<td>3R-6.600-VS</td>
<td>3R-605.2</td>
<td>rust resistant</td>
</tr>
<tr>
<td>Vertical and horizontal standard</td>
<td>3R-6.600-VHS</td>
<td>3R-605.2</td>
<td>rust resistant</td>
</tr>
<tr>
<td>Vertical standard</td>
<td>3R-6.300-EHS16</td>
<td>-</td>
<td>collets, ER-16, rust-resistant</td>
</tr>
</tbody>
</table>
Rotating spindles
For mounting in a Macro chuck. Flushing via flushing connection.
• Control unit included
• Required drawbar 3R-605.2, but 3R-605.2RS in wire EDM machines
• Rust-resistant
• Immersible
• Maximum electrode weight 5 kg
• Maximal flushing pressure through the chuck: 40 bar
• Weight 9.5 kg.

3R-6.600-VS
For vertical mounting in EDM machines.
• Speed range 60-2000 rev/min.

3R-6.600-VHS
For vertical mounting in die-sinking EDM machines and horizontal mounting in wire EDM machines.
• Speed range 60-1500 rev/min.

Recommended collet sets
<table>
<thead>
<tr>
<th>Make</th>
<th>Collet set</th>
<th>Size (mm)</th>
<th>Nut M19x1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balzer</td>
<td>EHS16</td>
<td>Ø0.09-3</td>
<td>Integral</td>
</tr>
<tr>
<td>Regofix</td>
<td>ER16, ER16-UP</td>
<td>Ø0.5-10</td>
<td>ERM16, ERMC16, ER16 MS</td>
</tr>
<tr>
<td>Tecnopinz</td>
<td>ETS16</td>
<td>Ø1.25-10</td>
<td>ETS16,2</td>
</tr>
</tbody>
</table>
Macro – Pallets, holders & reference elements

**Holders, pallets and ref. element, 54x54 mm**

<table>
<thead>
<tr>
<th>Article number</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>3R-651.7E-P</td>
<td>Hardened reference element 12.5 mm, HP rust-resistant</td>
</tr>
<tr>
<td>3R-651.7E-XS</td>
<td>Hardened reference element 12.5 mm, Std</td>
</tr>
<tr>
<td>3R-651.7E-S</td>
<td>Hardened reference element 12.5 mm, Std surface-treated</td>
</tr>
<tr>
<td>3R-651E-P</td>
<td>Hardened pallet 30 mm, HP rust-resistant</td>
</tr>
<tr>
<td>3R-651.3</td>
<td>Hardened pallet 30 mm, HP 52x52 mm / 3Refix Ø10, rust resistant</td>
</tr>
<tr>
<td>3R-658.31E</td>
<td>Unhardened pallet 14.4 mm 52x52 mm / 3Refix Ø10</td>
</tr>
<tr>
<td>3R-651.13</td>
<td>Hardened holder, HP &lt;30x30 mm</td>
</tr>
<tr>
<td>3R-658.4E-S</td>
<td>Unhardened holder &lt;30x30 mm</td>
</tr>
<tr>
<td>3R-658.2E-S</td>
<td>Unhardened holder &lt;30 mm</td>
</tr>
<tr>
<td>3R-658.1E-S</td>
<td>Spacer plate, Std and HP</td>
</tr>
<tr>
<td>3R-659.16-P</td>
<td>Collet chuck ER16, HP Ø0,5-10 mm, rust resistant</td>
</tr>
<tr>
<td>3R-659.20-P</td>
<td>Collet chuck ER20, HP Ø1-13 mm, rust resistant</td>
</tr>
<tr>
<td>3R-659.32-P</td>
<td>Collet chuck ER32, HP Ø2-20 mm, rust resistant</td>
</tr>
<tr>
<td>3R-US611.4</td>
<td>Three-jaw chuck 3R-US611.4</td>
</tr>
</tbody>
</table>

System 3R tooling for electrode manufacturing & EDMing
**Macro – Pallets & reference elements**

### Pallets and ref. elements, 70x70 mm

<table>
<thead>
<tr>
<th>Article number</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP 3R-601.7E-P</td>
<td>rust resistant</td>
</tr>
<tr>
<td>HP 3R-601.1E-P</td>
<td>rust resistant</td>
</tr>
<tr>
<td>3R-601.3</td>
<td>rust resistant. 3Refix Ø10</td>
</tr>
<tr>
<td>3R-608.31E</td>
<td>3Refix Ø10</td>
</tr>
<tr>
<td>3R-651.70-P</td>
<td>reference element 54x54 mm</td>
</tr>
<tr>
<td>3R-651.70-XS</td>
<td>reference element 54x54 mm</td>
</tr>
</tbody>
</table>

### Ref.element, Ø75 mm

<table>
<thead>
<tr>
<th>Article number</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>3R-651.75E-P</td>
<td>rust resistant</td>
</tr>
</tbody>
</table>

### Pallets, Ø116 mm

<table>
<thead>
<tr>
<th>Article number</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP 3R-601.52</td>
<td>3Refix Ø10 mm, rust-resistant</td>
</tr>
<tr>
<td>HP 3R-601.116-75PA</td>
<td>With reference element Ø75 mm</td>
</tr>
<tr>
<td>3R-608.51E</td>
<td>3Refix Ø10 mm</td>
</tr>
</tbody>
</table>
Macro – Pallets, reference elements & spacers

Reference element 54x54 mm, MacroStd
Hardened reference element for copper electrodes and workpieces.
Note: Must be mounted on the copper blank/workpiece before it is locked in a chuck.
Note: For graphite electrodes, spacer plate 3R-658.1E-S is required.

3R-651.7E-S
- Nickel-plated side faces
- Supplied in sets of 8
- Weight per set 1.3 kg

3R-651.7E-XS
- Untreated side faces
- Supplied in sets of 8
- Weight per set 1.3 kg.

Reference element 54x54 mm, MacroHP, 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°
- Rust resistant
- Supplied in sets of 8
- Weight per set 1.3 kg.

Spacer plate, 54x54 mm, 3R-658.1E-S
For graphite electrodes or copper electrodes/workpieces with a rough mounting surface. To be mounted on 3R-651.7E-S, 3R-651.7E-XS or 3R-651.7E-P.
- Ready for code carrier
- Supplied in sets of 8
- Weight per set 2.5 kg.

Pallet, 54x54 mm, MacroHP, 3R-651E-P
Hardened, with clearance holes for four fixing screws.
- Ready for code carrier
- Fixed index positions 4x90°
- Rust resistant
- Flushing duct
- Supplied in sets of 8
- Weight per set 3.4 kg.

Pallet, 52x52 mm, MacroHP, 3R-651.3
Hardened, with 3Refix holes, flushing connection and clearance holes for two fixing screws.
- 3Refix Ø10 mm
- Ready for code carrier
- Parallel-ground top and bottom faces
- Fixed index positions 4x90°
- Rust resistant
- Flushing duct
- Weight 0.5 kg.
**Pallet, 52x52 mm, 3R-658.31E**
Unhardened with 3Refix holes and two M5 threads. Designed to be mounted on 3R-651.3.
- 3Refix Ø10 mm
- Building-in height 14.4 mm
- Supplied in sets of 10
- Weight per set 2.2 kg.

**Holder, 54x54 mm, 3R-658.2E-S**
Unhardened holder for flat electrodes with maximum width 30 mm. To be mounted on 3R-651.7E-S or 3R-651.7E-XS.
- Ready for code carrier
- Flushing duct
- Supplied in sets of 8
- Weight per set 3.5 kg.

**Holder, 54x54 mm, 3R-658.4E-S**
Unhardened holder for square or round electrodes, max 30 mm. To be mounted on 3R-651.7E-S, 3R-651.7E-XS or 3R-651.7E-P.
- Ready for code carrier
- Flushing duct
- Supplied in sets of 8
- Weight per set 5.5 kg.

**Holder, MacroHP, 3R-651.13**
Hardened holder for square electrodes max 30 mm.
- Max. workpiece 32x28 mm
- Ready for code carrier
- Parallel-ground top and bottom faces
- Fixed index positions 4x90°
- Flushing connection
- Weight 1.2 kg.

**Three-jaw chuck, 3R-US611.4**
For 0-3 mm electrodes.
- Weight 0.8 kg.
Macro – Pallets & reference elements

Pallet, 70x70 mm, 3R-608.31E
Unhardened with 3Refix holes and four M6 threads. Designed to be mounted on 3R-601.3 or 3R-601.52.
- 3Refix Ø10 mm
- Building-in height 14.2 mm
- Supplied in sets of 10
- Weight per set 3.4 kg.

Reference element, 70x70 mm, MacroHP, 3R-601.7E-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°
- Rust resistant
- Supplied in sets of 5
- Weight per set 3 kg.

Pallet, 70x70 mm, MacroHP, 3R-601.1E-P
Hardened, with clearance holes for four fixing screws.
- Ready for code carrier
- Fixed index positions 4x90°
- Rust resistant
- Flushing duct
- Supplied in sets of 5
- Weight per set 3.2 kg.

Pallet, 70x70 mm, MacroHP, 3R-601.3
Hardened with 3Refix holes, flushing connection and clearance holes for six fixing screws.
- 3Refix Ø10 mm
- Ready for code carrier
- Parallel-ground top and bottom faces
- Fixed index positions 4x90°
- Rust resistant
- Flushing duct
- Weight 1 kg.
Macro – Pallets, reference elements & accessories

PT Pallet, 70x70 mm, 3R-651.70-P
Unhardened pallet with reference element 3R-651.7-P.
- Ready for code carrier
- Ready for automation
- Gripp outside the pallet
- Sealing ring between pallet and chuck
- Weight 1 kg.

PT Pallet, 70x70 mm, 3R-651.70-XS
Unhardened pallet with reference element 3R-651.7-XS.
- X, Y & Z-references hardened
- Ready for code carrier
- Ready for automation
- Gripp outside the pallet
- Sealing ring between pallet and chuck
- Weight 1 kg.

Accessories:
- PT Sealing ring, High, 3R-612.54-A
  Suitable for some Macro chucks with drawbar 3R-605.1*.
- PT Sealing ring, Low, 3R-612.54-S
  Suitable for some Macro chucks with drawbar 3R-605.2*.

*For more info please ask System 3R.

Reference element, Ø75 mm, 3R-651.75E-P
Hardened and milled with clearance holes for eight fixing screws.
Note: Must be mounted on the workpiece/fixture before it is locked in a chuck.
- Fixed index positions 4x90°
- Parallel-ground top and bottom faces
- Rust resistant
- Supplied in sets of 10 pcs.
- Weight per set 2.7 kg.

Collet chucks, MacroHP

3R-659.16-P
- For collets ER16
- Electrode size 0.5-10 mm
- Flushing duct
- Building-in height 62 mm
- Weight 0.8 kg.

3R-659.32-P
- For collets ER32
- Electrode size 2-20 mm
- Flushing duct
- Building-in height 94 mm
- Weight 1.2 kg.

3R-659.20-P
- For collets ER20
- Electrode size 1-13 mm
- Flushing duct
- Building-in height 69 mm
- Weight 1.2 kg.

Gate chuck, 3R-US90-601
Fixed index positions at 0, 30, 45, 60 and 90 degrees.
Other angles are set with a sine rule.
- Weight 1.1 kg.
Macro – Pallets & user kits

Pallet, Ø116 mm, 3R-601.116-75PA
Unhardened pallet with reference element 3R-651.75-P.
- X, Y & Z-references hardened
- Ready for code carrier
- Adapted for automatic changing.

Pallet, Ø116 mm, 3R-608.51E
Unhardened with 3Refix holes and four M6 threads. Designed to be mounted on 3R-601.3 or 3R-601.52.
- 3Refix Ø10 mm
- Supplied in sets of 10
- Weight per set 10 kg.

Pallet, Ø116 mm, MacroHP, 3R-601.52
Hardened, with 3Refix holes and clearance holes for ten fixing screws.
- 3Refix Ø10 mm
- Adapted for automatic changing
- Ready for code carrier
- Parallel-ground top and bottom faces
- Fixed index positions 4x90°
- Rust resistant
- Weight 1.9 kg.

Sealing ring, High, 3R-612.116-A
Suitable for some Macro chucks with drawbar 3R-605.1*.
Note: Only suitable for Ø116 mm pallets.

User kit, 3R-628.31-S

3R-605.1  Drawbar, long  x4
3R-605.2  Drawbar, short  x2
3R-610.21-S  Manual table chuck  x1
3R-651.7-S  Ref. element, 54x54 mm  x12
3R-656.1  Check ruler  x1
3R-658.1-S  Spacer plate 54x54 mm  x2
3R-658.4-S  Holder 54x54 mm  x4
3R-658.2-S  Holder 54x54 mm  x4

*For more info please ask System 3R.
## Macro – User kits & accessories

### User kit, 3R-628.41-S

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>3R-465.1-A</td>
<td>Holder with MacroJunior taper</td>
<td>x4</td>
</tr>
<tr>
<td>3R-461.1-6A</td>
<td>Holder with MacroJunior journal</td>
<td>x2</td>
</tr>
<tr>
<td>3R-466.4033</td>
<td>Chuck adapter Macro/MacroJunior</td>
<td>x1</td>
</tr>
<tr>
<td>3R-466.10033</td>
<td>Chuck adapter Macro/MacroJunior</td>
<td>x1</td>
</tr>
<tr>
<td>3R-491</td>
<td>Pallet 25 mm MacroJunior</td>
<td>x10</td>
</tr>
<tr>
<td>3R-605.1</td>
<td>Drawbar, long</td>
<td>x4</td>
</tr>
<tr>
<td>3R-605.2</td>
<td>Drawbar, short</td>
<td>x2</td>
</tr>
<tr>
<td>3R-610.21-S</td>
<td>Manual table chuck</td>
<td>x1</td>
</tr>
<tr>
<td>3R-651.7-S</td>
<td>Reference element, 54x54 mm</td>
<td>x8</td>
</tr>
<tr>
<td>3R-656.1</td>
<td>Check ruler</td>
<td>x1</td>
</tr>
<tr>
<td>3R-658.1-S</td>
<td>Spacer plate 54x54 mm</td>
<td>x2</td>
</tr>
<tr>
<td>3R-658.2-S</td>
<td>Holder 54x54 mm</td>
<td>x2</td>
</tr>
<tr>
<td>3R-658.4-S</td>
<td>Holder 54x54 mm</td>
<td>x2</td>
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<tr>
<td></td>
<td>Screw MTF4x12</td>
<td>x90</td>
</tr>
<tr>
<td></td>
<td>Screw wrench</td>
<td>x1</td>
</tr>
<tr>
<td>3R-605.14E</td>
<td>Ø20x57 mm with flushing holes Ø7 mm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intended for MacroCombi automatic electrode changers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Supplied in sets of 10 pcs.</td>
<td></td>
</tr>
<tr>
<td>3R-605.1EE</td>
<td>Ø20x57 mm without flushing hole</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Supplied in sets of 10 pcs.</td>
<td></td>
</tr>
<tr>
<td>3R-605.10</td>
<td>Ø20x13 mm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rust resistant</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Supplied 1 pc.</td>
<td></td>
</tr>
<tr>
<td>3R-605.10E</td>
<td>Supplied in sets of 10 pcs.</td>
<td></td>
</tr>
<tr>
<td>3R-605.10EE</td>
<td>Supplied in sets of 20 pcs.</td>
<td></td>
</tr>
<tr>
<td>3R-605.2E</td>
<td>Ø20x36.9 mm with Ø7 mm flushing hole</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rust resistant</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Supplied in sets of 5 pcs.</td>
<td></td>
</tr>
<tr>
<td>3R-605.2EE</td>
<td>Supplied in sets of 20 pcs.</td>
<td></td>
</tr>
<tr>
<td>3R-605.4E</td>
<td>For round pallets adapted for automatic changing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ø20x57.1 without flushing hole</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Supplied in sets of 10 pcs.</td>
<td></td>
</tr>
<tr>
<td>3R-605.4EE</td>
<td>Supplied in sets of 40 pcs.</td>
<td></td>
</tr>
</tbody>
</table>

### Drawbars

**3R-605.1E**
- Ø20x57.1 mm with flushing holes Ø7 mm
- Supplied in sets of 10 pcs.

**3R-605.1EE**
- Supplied in sets of 40 pcs.

**3R-605.2E**
- Ø20x36.9 mm with Ø7 mm flushing hole
- Supplied in sets of 5 pcs.

**3R-605.2EE**
- Supplied in sets of 20 pcs.

**3R-605.10**
- Ø20x13 mm
- Rust resistant
- Supplied 1 pc.

**3R-605.10E**
- Supplied in sets of 10 pcs.

**3R-605.10EE**
- Supplied in sets of 20 pcs.

**3R-605.4E**
- For round pallets adapted for automatic changing
- Ø20x57.1 without flushing hole
- Supplied in sets of 10 pcs.

**3R-605.4EE**
- Supplied in sets of 40 pcs.
Macro – Accessories

Control ruler, 3R-606.1
For setting angular positions and for centring Macro chucks.
- Ground hole for centring.
- Measuring length 100 mm
- Weight 1.4 kg.

Control rod, 3R-606
Check mandrel with ground C-reference for setting Macro chucks.
- Measuring length 110 mm
- Weight 2.3 kg.

Control ruler, 3R-656.1
For setting angular positions. Ground outside diameter for centring.
- Measuring length 50 mm
- Weight 0.8 kg.

Control rod, 3R-656
Check mandrel with ground C-reference for setting Macro chucks.
- Measuring length 38 mm
- Weight 1 kg.

Measuring probes
Measuring probes with Renishaw measuring head for machines with measurement cycle function.
- Max ball deflection:
  - X-Axis ±10°
  - Y-Axis ±10°
  - Z-Axis ±3 mm.

3R-656.31-3P
- Building-in height 112 mm
- Measuring ball Ø3 mm
- Weight 0.6 kg.

3R-656.31-5P
- Building-in height 112 mm
- Measuring ball Ø5 mm
- Weight 0.6 kg.

Measuring probe, 3R-656.21-SP03
Measuring probe with measuring head for machines with measurement cycle function.
- Building-in height 130 mm
- Measuring ball Ø3 mm
- Stiff probe
- Weight 0.8 kg.
Macro – Accessories

**Microscope, 3R-4.650**
With transformer [110/220V] for integral lighting.
- Magnification x25
- Centering location
- Field of view Ø6 mm
- Weight 0.8 kg.

**Indicating spindle, 3R-656.2-P**
For measuring centre holes.
- Dial indicator required
- Weight 0.6 kg.

**Centring ring, 3R-612.6**
For centring 3R-600.20.

**Splash guard, 90027**
Splash guard for Macro chucks with long drawbar. Can also be used as a cover for unused chucks.
Note: Does not work with sealing ring 3R-612.116.

**Splash guard, 90027.01**
Fits MacroStandard chucks with drawbar 3R-605.2.
Macro – Accessories

**Clamping force meter kit, 3R-SSP115-BASE**
For both pneumatic and manual chucks. This stand alone unit in combination with individual drawbars or drawbar kits, able to cover MacroJunior, Macro, MacroMagnum and Dynafix.
Note: Require drawbars with bayonet interface similar to 3R-605.1.
- Add-on kit for use in Macro/MacroMagnum, 3R-SSP115-MACRO
- Operating temp. +10 to +40° C
- Gauge size Ø90x47 mm
- Working range 1-22 kN
- Deviation ± 0.1 kN.
- Weight:
  - Display 0.34 kg
  - Gauge 1.3 kg.

**Add-on kit, 3R-SSP115-Macro**
Add-on kit for 3R-SSP115-BASE

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**Air unit, 3R-611.2**
Foot operation of pneumatic chucks.

**Air unit, 3R-611.4**
Unit for operation of pneumatic chucks. Two functions, opened/closed.

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

**Code carriers, 3R-863.01-10**
With pre-programmed unique identity, designed for pallet use.
- Supplied in sets of 10.

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**Sealing ring, High, 3R-612.70-A**
For reference element 70x70 mm. Suitable for some Macro chucks*.

**Sealing ring, Low, 3R-612.70-S**
For reference element 70x70 mm. Suitable for some Macro chucks*.

**Sealing ring, Low, 3R-612.75-S**
For reference element Ø75 mm. Suitable for some Macro chucks*.

*For more info please ask System 3R.
Macro – Accessories

**Adapter plate, 3R-A11489**
For mounting of 3R-400.34, 3R-460.34 and 3R-600.24-S.
- Supplied with insulation plate and fixing screws
- Flushing connection.

**Adapter plate, 3R-A3620**
Adapter plate with eight adjusting screws for mounting spindle chucks.
- Supplied with fixing screws
- M10 for 90 mm pitch circle
- M6 for 96 mm pitch circle
- M8 for 100 mm pitch circle.

**Lathe taper, 3R-TXXX**
Taper attachment for mounting chucks in taper spindles.
Note: Manufactured on request. State machine type, taper [1], drawbar thread [2] and which 3R chuck is to be mounted.
Use the order form at the end of the catalogue.

**Angle shelf, 3R-A21944**
For vertical or horizontal mounting of 3R-400.34, 3R-460.34 and 3R-600.24-S on the machine table. Intended for milling.
Note: Chuck to be ordered separately.

**Adapter plate, 3R-A19724**
For mounting of 3R-400.34, 3R-460.34 and 3R-600.24-S on machine table.
Note: Chuck to be ordered separately
- Supplied with fixing screws for chuck and table.
Macro – Accessories

Electrode cassette, 3R-650/8x5
For eight electrodes 52x52 and 54x54 mm.
• Supplied in sets of 5.

3Refix mandrel, 3R-901-10E-TX
• 3Refix Ø10 mm
• Recommended tightening torque 4 Nm
• Supplied in sets of 10
• Weight per set 0.2 kg.

Note: When positioning with 3Refix mandrels – always tighten the expanding mandrel in the R° hole first.

Adapter plate, 3R-A26488
For mounting 3R-600.28-S.

Converter kit, 90842.01
To convert 3R-600.24-S to enable long drawbar 3R-605.1.

Torque wrenches, 3R-614-04
Mainly for MacroCombi and Ø10 3Refix mandrels.
• 4 Nm.

3R-614-06
For Macro chucks
• 6 Nm.