Mini

The ancestor of the reference systems! The introduction of the Mini system in the early 1970s created the basis for efficient electrode production and spark-erosion machining. Electrodes could now be produced mounted on inexpensive holders. Subsequent alignment of the electrodes in the spark-erosion machine was eliminated. The Mini system introduced the precision and flexibility that had until then been absent from spark erosion technology.

The Mini system provides rapid and exact mounting of the electrode holders in hydraulic quick-change chucks. This high change accuracy is achieved thanks to the two chambers of the hydraulic system, which expand uniformly and provide symmetrical locking against the fixed Z reference with angular location.

The Mini system is a “Reverse Reference System”, in which the chuck adapts itself to the electrode holder, which is why all electrode holders must be exactly alike – in diameter, roundness, straightness and hardness – to meet the accuracy requirements.

Even today, the Mini system is probably the most widespread reference system in the world.

+ Clamping force – 4000 N.

Upgrade options:

Midi-Mini

Conversion – Macro/Mini

Adapter – Macro/Mini

What distinguishes the original from a pirate copy:

Right size of eccentric pin

Right diameter and shape

Right hardness

Right quality and size of O-ring

All original handles are engraved “3R”

Note: Warranty undertakings only apply if genuine System 3R parts have been used.
**Mini – Chucks**

<table>
<thead>
<tr>
<th>Spindle chucks</th>
<th>Article number</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manual</td>
<td>3R-321.5</td>
<td>Midi ▶ Mini</td>
</tr>
<tr>
<td>Manual</td>
<td>3R-321.2-4x90°</td>
<td></td>
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<tr>
<td>Manual</td>
<td>3R-321-4x90°</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Lathe chuck</th>
<th>Article number</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manual</td>
<td>3R-321-4x90°</td>
<td></td>
</tr>
</tbody>
</table>

**Manual chuck, 3R-321.5**
Hydraulic chuck for mounting on machine spindle with 3R-A3620.
- Fixed index positions 4x90°
- Flushing connection
- Weight 1.8 kg.

**Manual lathe chuck, 3R-321.2-4x90°**
Hydraulic chuck with set screws, for mounting on a lathe taper.
- Fixed index positions 4x90°
- Weight 1.3 kg.

**Manual chuck adapter, Midi-Mini, 3R-321-4x90°**
Hydraulic chuck for mounting on machine spindle with Midi system.
- Fixed index positions 4x90°
- Flushing connection
- Weight 1.3 kg.
System 3R tooling for electrode manufacturing & EDMing

Table 1: Table chucks

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Manual wire EDM 3R-222.2</td>
<td>3R-222.2</td>
<td>stainless steel</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Chuck adapters

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Manual MacroJunior 50 mm</td>
<td>3R-463/5033</td>
<td>Mini</td>
<td>Macro</td>
<td>Macro</td>
<td>Mini</td>
</tr>
<tr>
<td>Manual Macro Junior 90º, rust resistant</td>
<td>3R-603.9</td>
<td>Macro</td>
<td>Macro</td>
<td>Macro</td>
<td>Mini</td>
</tr>
<tr>
<td>Manual Macro</td>
<td>3R-653</td>
<td>Macro</td>
<td>Macro</td>
<td>Macro</td>
<td>Mini</td>
</tr>
<tr>
<td>Manual Macro</td>
<td>3R-653-S</td>
<td>Macro</td>
<td>Macro</td>
<td>Macro</td>
<td>Mini</td>
</tr>
</tbody>
</table>

Table 3: Rotating spindle

<table>
<thead>
<tr>
<th>Feature</th>
<th>Article number</th>
<th>Manual 3R-1.321-HS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manual tubular electrodes</td>
<td>3R-1.321-HS</td>
<td>Collets</td>
</tr>
</tbody>
</table>

Diagram:
- Mini – Table chucks, chuck adapters & rotating spindle
- Diagram of mini, macro, and mini/handle spindle connections.
Mini – Table chucks, chuck adapters & rotating spindle

MiniBlock, 3R-321.46
Manual hydraulic chuck for vertical or horizontal mounting on the machine table.
- Fixed index positions 4x90°
- Weight 2.3 kg.

Rotating spindle, 3R-1.321-HS
Electric spindle for tubular electrodes in collets ER16.
- Supplied with collet set 3R-ER16E
- Electrode sizes Ø0.5 – 10 mm.
- Speed range 200 – 2000 rev/min.
- Recommended maximum flushing pressure 40 bar.
- Weight 1.4 kg.

Manual chuck adapter, Mini-MacroJunior, 3R-463/5033
For mounting MacroJunior holders in the Mini system. Axial locking screw with channel for flushing through the electrode.
Note: For EDM machining only.
- Adapted for automatic changing
- Fixed index positions 3x120°
- Weight 0.8 kg.
Mini – Electrode holders

<table>
<thead>
<tr>
<th>Electrode holder</th>
<th>Article number</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrode holder Ø20 mm</td>
<td>3R-322/25E</td>
<td>25 mm</td>
</tr>
<tr>
<td>Electrode holder Ø20 mm</td>
<td>3R-322/50E</td>
<td>50 mm, automatic changing</td>
</tr>
<tr>
<td>Electrode holder Ø20 mm</td>
<td>3R-322/100</td>
<td>100 mm, automatic changing</td>
</tr>
<tr>
<td>Electrode holder</td>
<td>3R-310EE</td>
<td>flange Ø50 mm</td>
</tr>
<tr>
<td>Electrode holder</td>
<td>3R-13.321</td>
<td>square electrodes</td>
</tr>
<tr>
<td>Three-jaw chuck</td>
<td>3R-311.4</td>
<td>Ø0.1 - 3 mm</td>
</tr>
<tr>
<td>Collet chuck</td>
<td>3R-311.2</td>
<td>+Ø13 mm, ER20</td>
</tr>
<tr>
<td>Collet chuck</td>
<td>3R-311.3</td>
<td>+Ø10 mm, ER16</td>
</tr>
</tbody>
</table>

**Electrode holder Ø20 mm**
Holder with hardened reference part and unhardened electrode mounting part.

**3R-322/25S**
- Electrode mounting part 25 mm
- Flushing duct
- Supplied in sets of 30 pcs
- Weight per set 7 kg.

**3R-322/50E**
- Adapted for automatic changing
- Electrode mounting part 50 mm
- Flushing duct
- Supplied in sets of 30 pcs
- Weight per set 7.7 kg.

**3R-322/100**
- Adapted for automatic changing
- Electrode mounting part 100 mm
- Flushing duct
- Supplied in sets of 10 pcs
- Weight per set 3.8 kg.
Mini – Electrode holders & Accessories

**Electrode holder, 3R-310EE**
Holder with hardened reference part Ø20 mm and unhardened flange Ø50 mm.
- Adapted for automatic changing
- Electrode mounting part 39 mm
- Flushing duct
- Supplied in sets of 10 pcs.
- Weight per set 4 kg.

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**Electrode holder, 3R-13.321**
Holder with hardened reference part Ø20 mm for mounting square and flat electrodes.
- Max. workpiece: 32x28 mm
- Adapted for automatic changing
- Flushing duct
- Weight 1 kg.

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**Three-jaw chuck, 3R-311.4**
Chuck Ø20 mm for Ø0.1-3 mm electrodes.
- Adapted for automatic changing
- Weight 0.3 kg.

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**Collet chuck ER20, 3R-311.2**
Chuck Ø20 mm for collets ER20 with electrodes < Ø13 mm.
- Adapted for automatic changing
- Weight 0.2 kg.

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**Collet chuck ER16, 3R-311.3**
Chuck Ø20 mm for collets ER16 with electrodes < Ø10 mm.
- Adapted for automatic changing
- Weight 0.2 kg.

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**Check mandrel, 3R-23**
Ground C-reference.
- Measuring length 100 mm
- Weight 0.6 kg.
Mini – Accessories

Check ruler, 3R-314.2
For setting angular positions.
• Measuring length 96 mm
• Weight 0.4 kg.

Indicating spindle, 3R-3.321-2
For measuring centre holes.
• Dial indicator required
• Weight 0.4 kg

Microscope, 3R-4.321
With transformer [110/220V] for integral lighting.
• Magnification x25
• Centering location
• Field of view Ø6 mm
• Weight 0.6 kg.

Clip, 3R-301
For angular fixing of Mini holders.
• Supplied in sets of 10 pcs.

Soldering kit, 3R-403
For soldering electrode blanks on Mini holders.
• Supplied with flux.

Electrode cassette, 3R-150/5
For Mini holder x30.
• Supplied in sets of 5 pcs.

Adapter plate, 3R-601.6
For mounting (for example) rotating spindles in the Macro system.
• MacroHP coupling
• Rust-resistant.