

# MacroJunior & MacroCombi

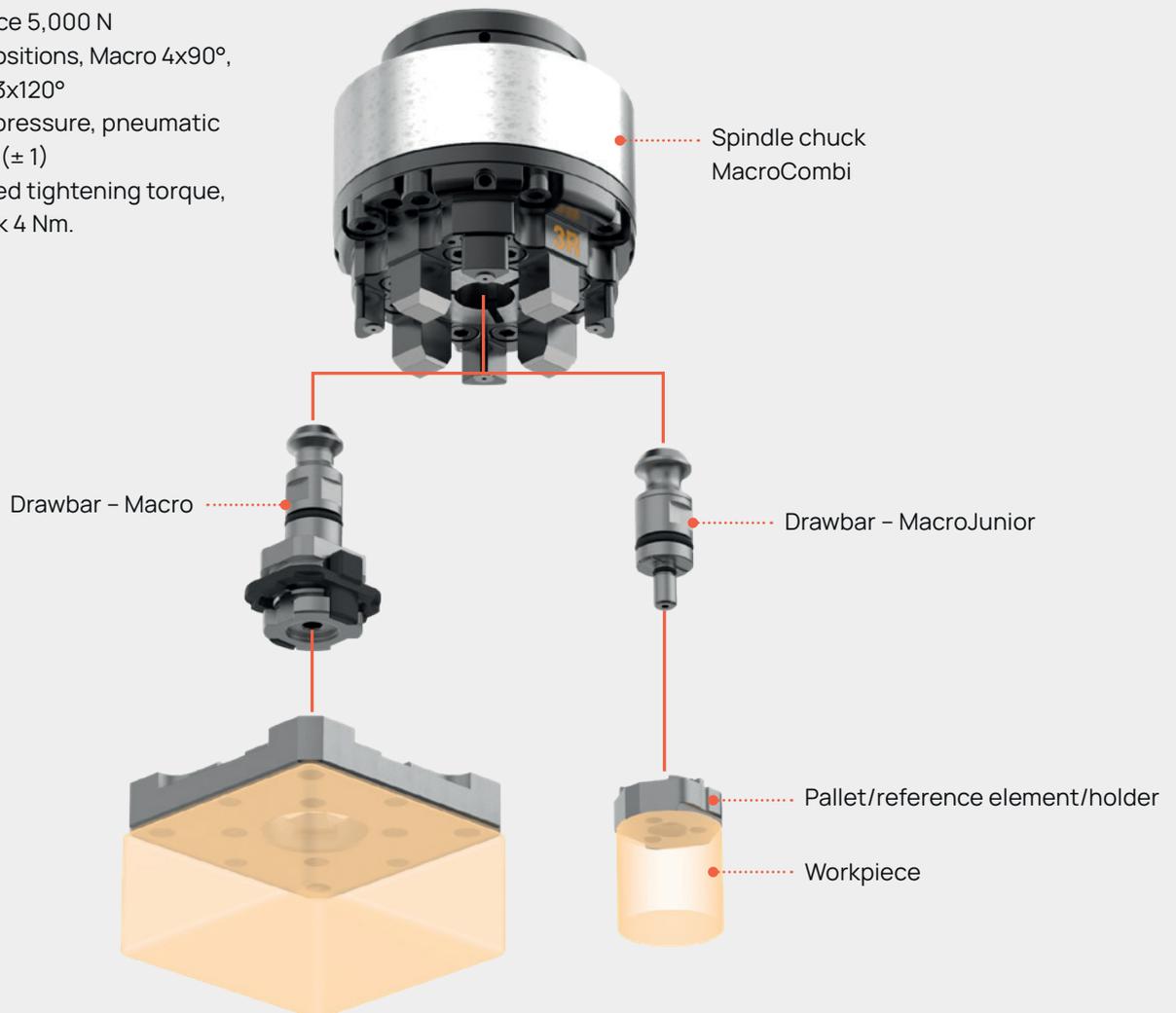
Profitability in tool manufacturing is determined largely by the extent to which machine downtime can be minimised. A reference system that enables presetting away from the machine followed by super-rapid tooling-up in the machine is a highly efficient way of working. MacroCombi is such a reference system.

The MacroCombi system offers extreme flexibility in both electrode production and die-sinking EDM. Small and large electrodes in the same chuck - without adapter elements. The MacroCombi chucks accept two completely different types of electrode holder. These are Macro, with its immovable stability and precision, and MacroJunior, with its highly economical holders. The limitations are few, the possibilities many.

- Clamping force 5,000 N
- Fixed index positions, Macro 4x90°, MacroJunior 3x120°
- Required air pressure, pneumatic chuck 6 bars ( $\pm 1$ )
- Recommended tightening torque, manual chuck 4 Nm.

## ADVANTAGES

- gives extreme flexibility
- is one chuck, two systems
- reduces set-up times
- ensures precision and quality
- is suitable for automatic changing with System 3R's automation program



## MacroJunior & MacroCombi – Chucks



Spindle chucks	Article number	Drawbar	Feature
Manual	3R-400.34	3R-405.11	
Pneumatic	3R-460.83-2	3R-405.16 / 3R-405.11	machine adapted
Pneumatic	3R-460.86-2	3R-405.16 / 3R-405.11	machine adapted
Manual	3R-400.24-11	3R-405.11	



Drawbar → Macro pallet/holder/reference element

3R-460.32

Lathe chucks	Article number	Drawbar	Feature
Manual	3R-460.32	3R-405.16 / 3R-405.11	

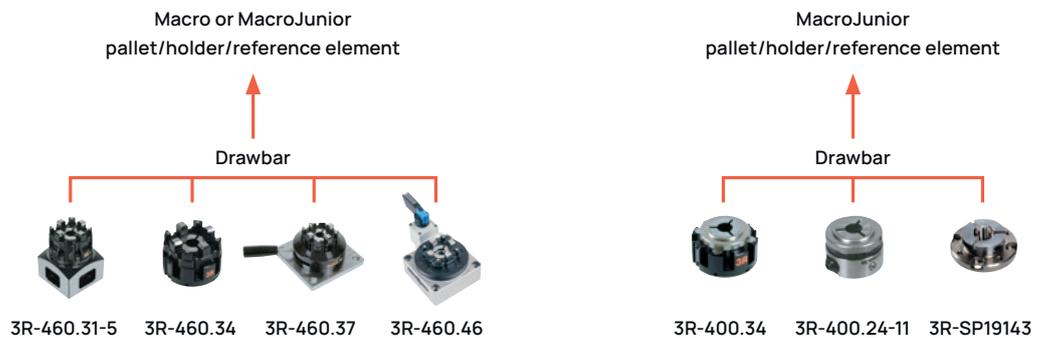


Table chucks	Article number	Drawbar	Feature
Manual	3R-460.31-5	3R-405.16 / 3R-405.11	horizontal and vertical
Manual	3R-460.34	3R-405.16 / 3R-405.11	
Manual	3R-460.37	3R-405.16 / 3R-405.11	
Pneumatic	3R-460.46	3R-405.16 / 3R-405.11	
Manual	3R-400.34	3R-405.11	

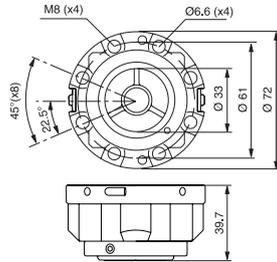
In-built chucks	Article number	Drawbar	Feature
Manual	3R-400.24-11	3R-405.11	
Manual	3R-400.34	3R-405.11	
Manual	3R-460.34	3R-405.16 / 3R-405.11	
Manual	3R-SP19143		

## MacroJunior – Chucks

### Manual chuck, MacroJunior, 3R-400.34

For mounting on machine spindle (with 3R-A11489), on machine table (with 3R-A19724 or 3R-A21944) or in fixture.

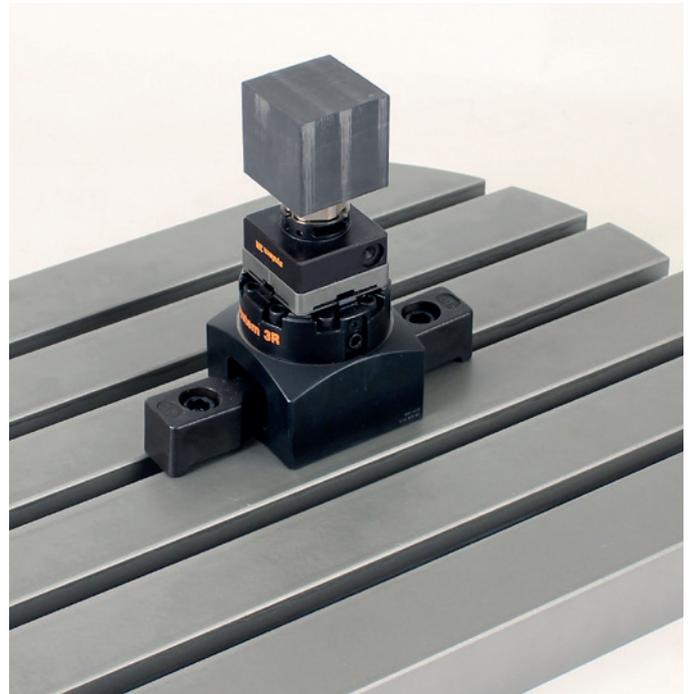
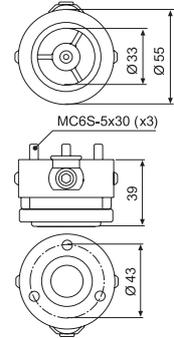
- Required drawbar 3R-405.11
- Fixed index positions 3x120°
- Weight 1.6 kg.



### Manual chuck, MacroJunior, 3R-400.24-11

For mounting on machine spindle.

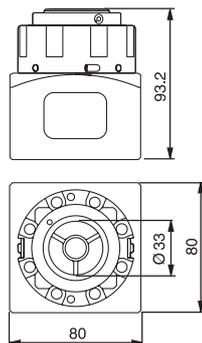
- Required drawbar 3R-405.11
- Fixed index positions 3x120°
- Weight 0.8 kg.



### Manual chuck, MacroJunior, 3R-410.31-5

Chuck in High Performance version. Five ground surfaces for vertical or horizontal mounting on machine table.

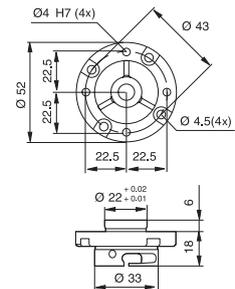
- Required drawbar 3R-405.11
- Fixed index positions 3x120°
- Weight 3.5 kg.



### Manual chuck, MacroJunior, 3R-SP19143

Stainless steel chuck with ground flange (Ø 22x6 mm) for mounting in a fixture or the WEDM system. Axial locking screw with channel for flushing through the electrode.

- Fixed index positions 3x120°
- Weight 0.8 kg.

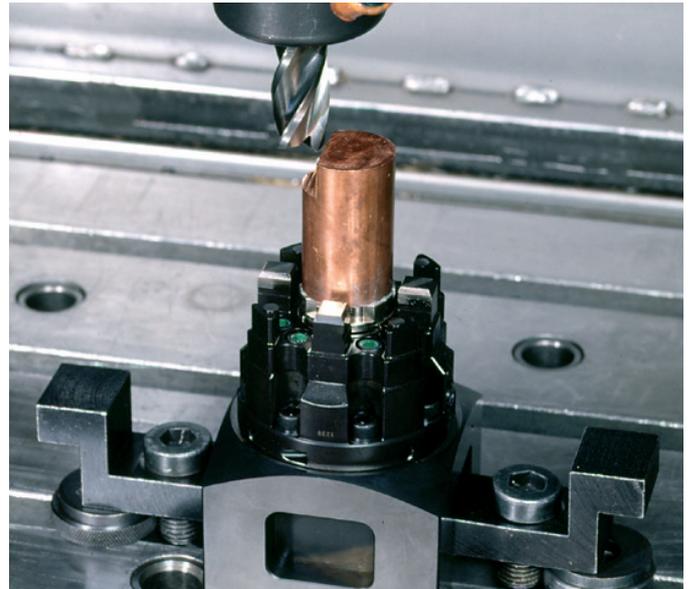
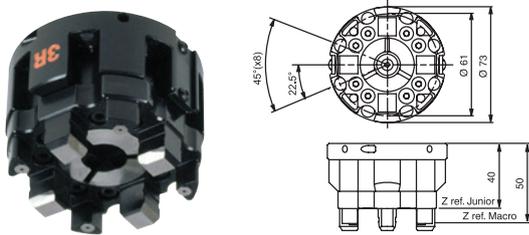


## MacroCombi – Chucks

### Manual chuck, MacroCombi, 3R-460.34

For mounting on machine spindle (with 3R-A11489), on machine table (with 3R-A19724 or 3R-A21944) or in fixture.

- Required drawbar for Macro holder, 3R-405.16
- Required drawbar for MacroJunior holder, 3R-405.11
- Weight 1.8 kg.

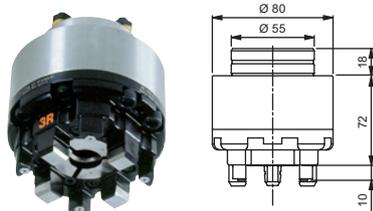


### Pneumatic chuck, MacroCombi, 3R-460.83-2

Pneumatic chuck for mounting directly on machine spindle. All X, Y and Z references in hardened and ground steel.

**NOTE:** When ordering, state machine make and type.

- Four M6 clearance holes  $\text{Ø} 45$  mm
- Required drawbar for Macro holder, 3R-405.16
- Required drawbar for MacroJunior holder, 3R-405.11
- Required air pressure 6 bars ( $\pm 1$ )
- Air-blast cleaning of the Z-references
- Flushing connection
- Weight 2.1 kg.

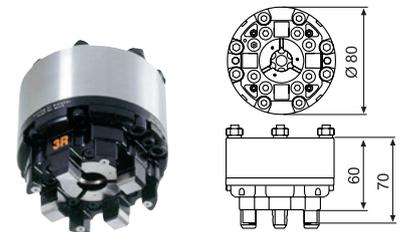


### Pneumatic chuck, MacroCombi, 3R-460.86-2

Pneumatic chuck for mounting directly on machine spindle. All X, Y and Z references in hardened and ground steel.

**NOTE:** When ordering, state machine make and type.

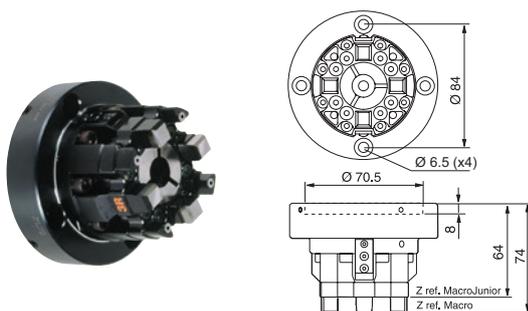
- Four M6 clearance holes 67x20 mm and four M5 clearance holes 63x26 mm
- Required drawbar for Macro holder, 3R-405.16
- Required drawbar for MacroJunior holder, 3R-405.11
- Required air pressure 6 bars ( $\pm 1$ )
- Air-blast cleaning of the Z-references
- Flushing connection
- Weight 1.9 kg.



### Manual lathe chuck, MacroCombi, 3R-460.32

For mounting on a lathe taper.

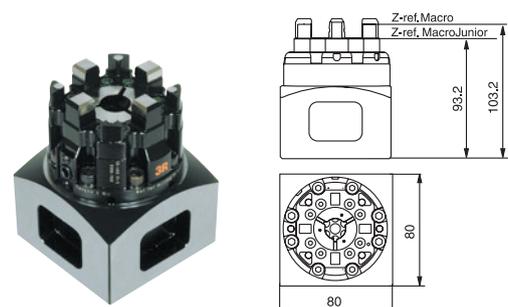
- Required drawbar for Macro holder, 3R-405.16
- Required drawbar for MacroJunior holder, 3R-405.11
- Weight 2.0 kg.



### Manual chuck, MacroCombi, 3R-460.31-5

Chuck in HighPerformance version. Five ground surfaces for vertical or horizontal mounting on machine table.

- Required drawbar for Macro holder, 3R-405.16
- Required drawbar for MacroJunior holder, 3R-405.11
- Weight 3.5 kg.

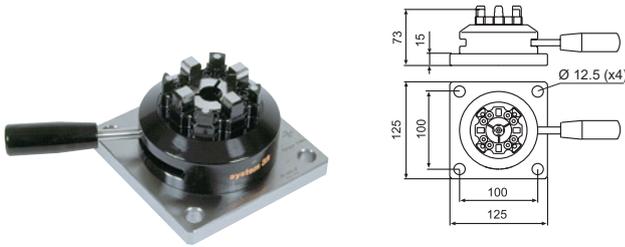


## MacroJunior – Chucks

### Manual chuck, MacroCombi, 3R-460.37

The locking mechanism is operated by a removable handle.

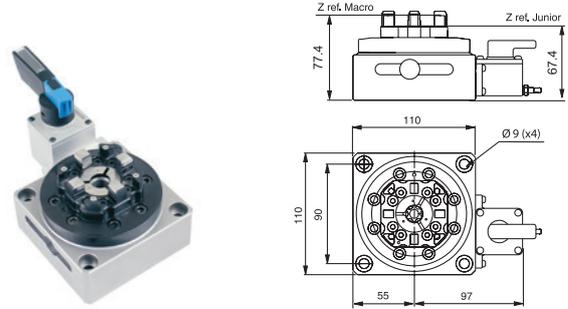
- Required drawbar for Macro holder, 3R-405.16
- Required drawbar for MacroJunior holder, 3R-405.11
- Weight 4.5 kg.



### Pneumatic chuck, MacroCombi, 3R-460.46

Pneumatic chuck with integral air unit.

- Required drawbar for Macro holder, 3R-405.16
- Required drawbar for MacroJunior holder, 3R-405.11
- Required air pressure 6 bars ( $\pm 1$ )
- Air-blast cleaning of Z-references
- Turbo locking
- Weight 4.4 kg.



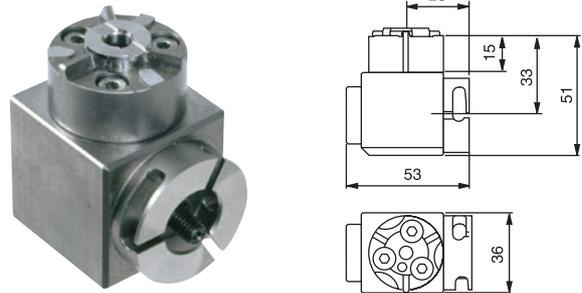
## MacroJunior – Chuck adapter

### Manual chuck adapter 90°, Junior-Junior, 3R-467.9-1

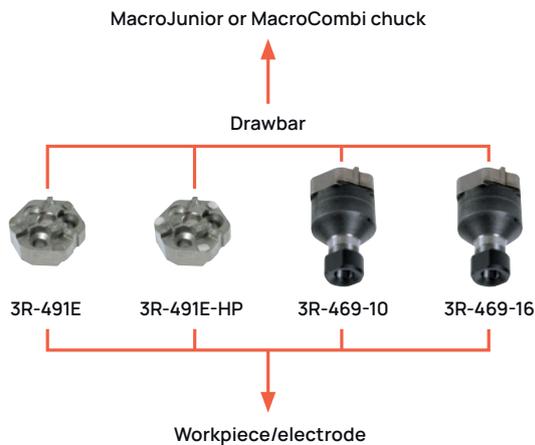
For horizontal mounting of MacroJunior holders.  
Screw locking.

**NOTE:** For EDM machining only.

- Fixed index positions 3x120°
- Weight 0.6 kg.



## MacroJunior – Pallets & holders



Holders	Article number	Feature
Sintered pallet Ø 25 mm MacroJunior	3R-491E	
Sintered pallet Ø 25 mm MacroJunior	3R-491E-HP	parallel ground
Collet chuck ETS10, MacroJunior	3R-469-10	Ø 0.1-10 mm
Collet chuck ER16, MacroJunior	3R-469-16	Ø 0.5-10 mm

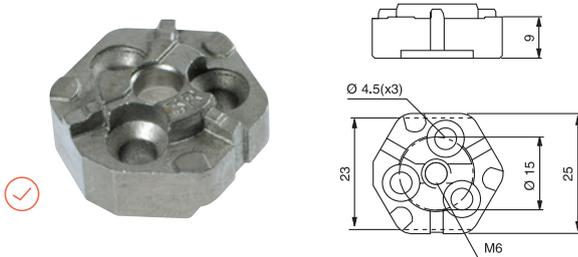
## MacroJunior – Pallets & Holders

### Pallet 25 mm, MacroJunior, 3R-491E

For copper or graphite electrodes.

**NOTE:** Install electrode using screw and adhesive or braze.

- Adapted for automatic changing
- Supplied in sets of 30.

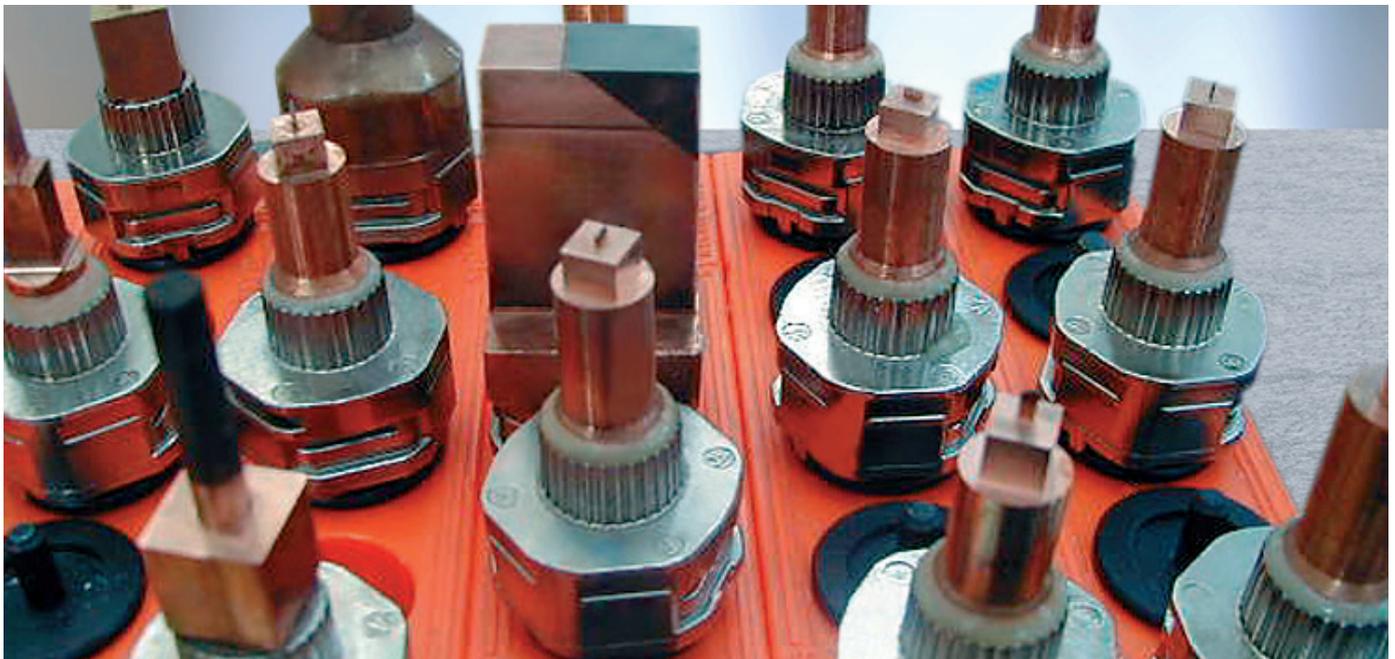
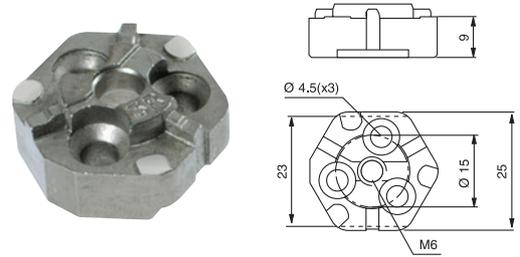


### Ground pallet 25 mm, MacroJunior, 3R-491E-HP

Top and bottom faces parallel-ground to within 0.002 mm.

**NOTE:** Install electrode using screw and adhesive or braze.

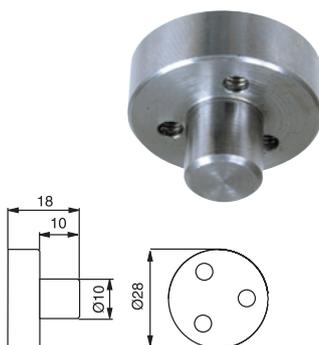
- Adapted for automatic changing
- Supplied in sets of 30.



### Holder with journal, 3R-461.1E-GA

Journal  $\text{\O}10 \times 10$  mm. Intended mainly for graphite electrodes. To be mounted on 3R-491E with three MFT4x12 screws and adhesive.

- Supplied in sets of 30.



### 5.5 mm plate, 3R-SP19270

Used in combination with 3R-491E when electrode blanks are mounted with adhesive and screws\*. Permits mounting in MacroCombi chucks.

- Supplied in sets of 30
- \*Accessory 3R-PI4.5x25E.



### 10 mm plate, 3R-SP19269

Used in combination with 3R-491E when soldering round ( $< 50$  mm) or square ( $< 40$  mm) copper blanks. Permits mounting in MacroCombi chucks.

- Supplied in sets of 30
- Accessory 3R-MFT4x16E.



## MacroJunior – Holders



### Collet chucks, macroJunior 3R-469-10

- For ETS10 collets
- Electrode sizes 0.1-2 mm
- Build-in height 47 mm
- Weight 0.1 kg.



### 3R-469-16

- For ER16 collets
- Electrode sizes 0.5-10 mm
- Build-in height 59.5 mm
- Weight 0.2 kg.

## MacroJunior & MacroCombi – Accessories

### 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 (see table).



Article number	Dimensions
3R-494-D10x50*	Round blank Ø 10x50 mm
3R-494-D12x50*	Round blank Ø 12x50 mm
3R-494-D16x50*	Round blank Ø 16x50 mm
3R-494-D22x50*	Round blank Ø 22x50 mm
3R-494-D26x50*	Round blank Ø 26x50 mm
3R-494-D32x50*	Round blank Ø 32x50 mm
3R-494-D40x50*	Round blank Ø 40x50 mm
3R-494-D50x50*	Round blank Ø 50x50 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

\* = 

## MacroJunior – Accessories

### Drawbar, 3R-405.11E

Drawbar Ø 15 mm to mount MacroJunior holders in chucks 3R-400.XX and 3R-460.XX.

- Supplied in sets of 10.



### Check ruler, 3R-406.11

For setting angular positions and for centring.

- Measuring length 60 mm.



### Check mandrel, 3R-406.23

Check mandrel with ground C-reference.

- Measuring length 50 mm
- Weight 0.6 kg.



### Drawbar, 3R-405.16E

Drawbar Ø 15 mm to mount Macro holders in chucks 3R-460-XX.

- Supplied in sets of 10.



### Fixed measuring probes

#### 3R-US400.3

For machines with measurement cycle function.

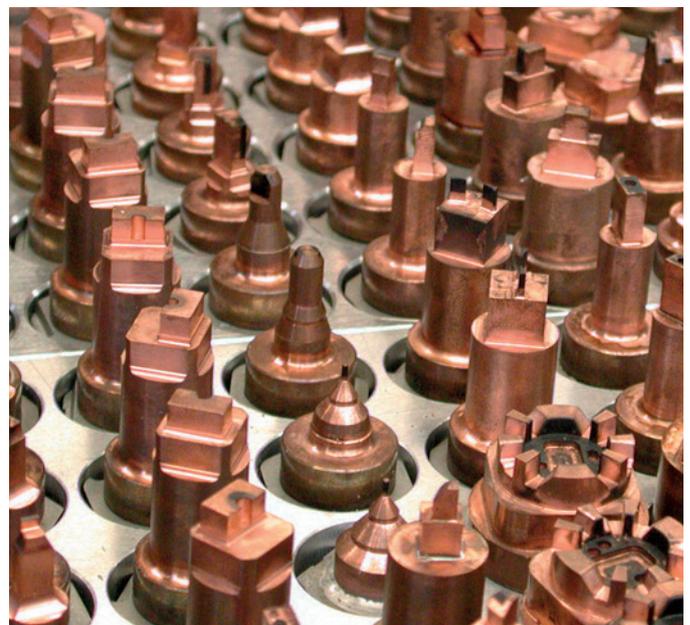
- Measuring ball Ø 3 mm
- Overall length 102 mm
- Weight 0.3 kg.



#### 3R-US400.5

For machines with measurement cycle function.

- Measuring ball Ø 5 mm
- Overall length 103 mm
- Weight 0.3 kg.



## MacroJunior & MacroCombi – Accessories

### TORX screwdriver, 3R-333-T20

For screws 3R-PI4.5x20E and 3R-PI4.5x25E.



### Torque wrench, 3R-614-04

For manual MacroJunior and MacroCombi chucks. Also for 3Refix mandrels Ø 10 mm, 3R-901-10E.

- 4 Nm.



### TORX screws M4, 3R-MFT4x12E

For mounting electrode blanks.

- Length 12 mm
- Supplied in sets of 100 (TORX screwdriver included).



### Self tapping TORX-screws, 3R-PI4.5x20E

For mounting electrode blanks.

- Length 20 mm
- Supplied in sets of 100.



### Self tapping TORX-screws, 3R-PI4.5x25E

For mounting electrode blanks.

- Length 25 mm
- Supplied in sets of 100.



### Cassette insert, 3R-650/8-JR

For storing MacroJunior holders in 3R-650/8x5 and 3R-150/5.

- Supplied in sets of 8.



## MacroJunior & MacroCombi – Kit & accessories

### User kit, 3R-468.31-S

3R-405.11	Drawbar, MacroJunior	x5
3R-405.16	Drawbar, Macro	x5
3R-460.31-5	Manual table chuck, Macro	x1
3R-465-L	Holder, MacroJunior	x2
3R-465-V	Holder, MacroJunior	x2
3R-491	Holder, MacroJunior	x30
3R-651.7-XS	Reference element, 54x54 mm, Macro	x6
3R-656.1	Check ruler, Macro	x1
3R-658.1-S	Intermediate plate, 54x54 mm, Macro	x2
3R-658.2-S	Holder, 54x54 mm, Macro	x2
3R-658.4-S	Holder, 54x54 mm, Macro	x2
3R-333-T20	Screwdriver, TORX	x1
3R-PI4.5x20	TORX screw	x100
3R-614-04	Torque wrench, 4 Nm	x1



### Splash guard, 90027.02

Intended for MacroCombi chucks. Can also be used as a cover for unused chucks.



### Ring with code carrier, 3R-863.25-10

With pre-programmed unique identity, designed for MacroJunior 25 mm, 3R-491E.

- Supplied in sets of 10.



### Clamping force meter kit, 3R-SSP115-Base

For both pneumatic and manual chucks. In combination with individual drawbars or drawbar kits, this stand-alone unit can be used with MacroJunior, Macro, MacroMagnum and Dynafix.

**NOTE:** Requires drawbars with bayonet interface similar to 3R-605.1.

- Add-on kit for use in MacroJunior, 3R-SSP115-JUN
- Operating temp. +10 to +40°C
- Gauge size Ø 90x47 mm
- Working range 1-22 kN
- Deviation ± 0.1 kN
- Weight display 0.34 kg, gauge 1.3 kg.



### Add-on kit, 3R-SSP115-Jun

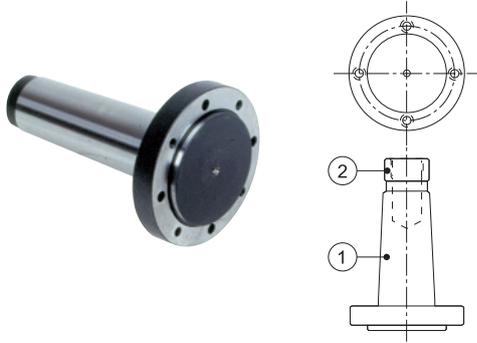
Add-on kit for 3R-SSP115-BASE.



## MacroJunior & MacroCombi – Accessories

### Lathe taper, 3R-TXXXX

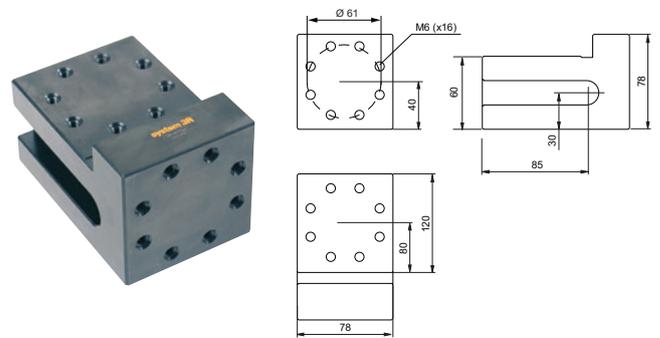
Taper attachment for mounting chucks in taper spindles.  
 Note: Manufactured on request. State machine type, taper (1), drawbar thread (2) and which 3R chuck is to be mounted. Use the order form at the end of the catalogue.



### Angle shelf, 3R-A21944

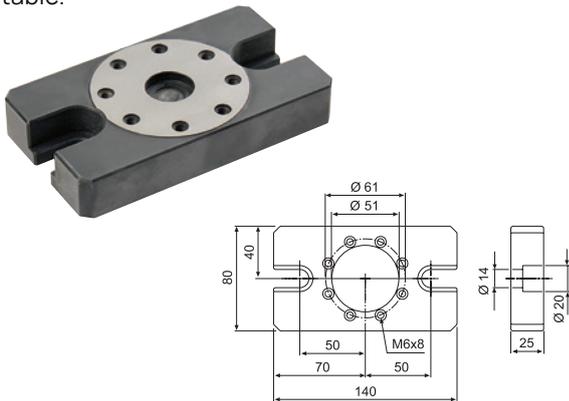
For vertical or horizontal mounting of 3R-400.34, 3R-460.34 and 3R-600.24-S on machine table. Intended for milling

**NOTE:** Chuck to be ordered separately.



### Adapter plate, 3R-A19724

For mounting 3R-400.34, 3R-460.34 and 3R-600.24-S on machine table. Supplied with fixing screws for chuck and table.



### Air unit, 3R-611.46

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

