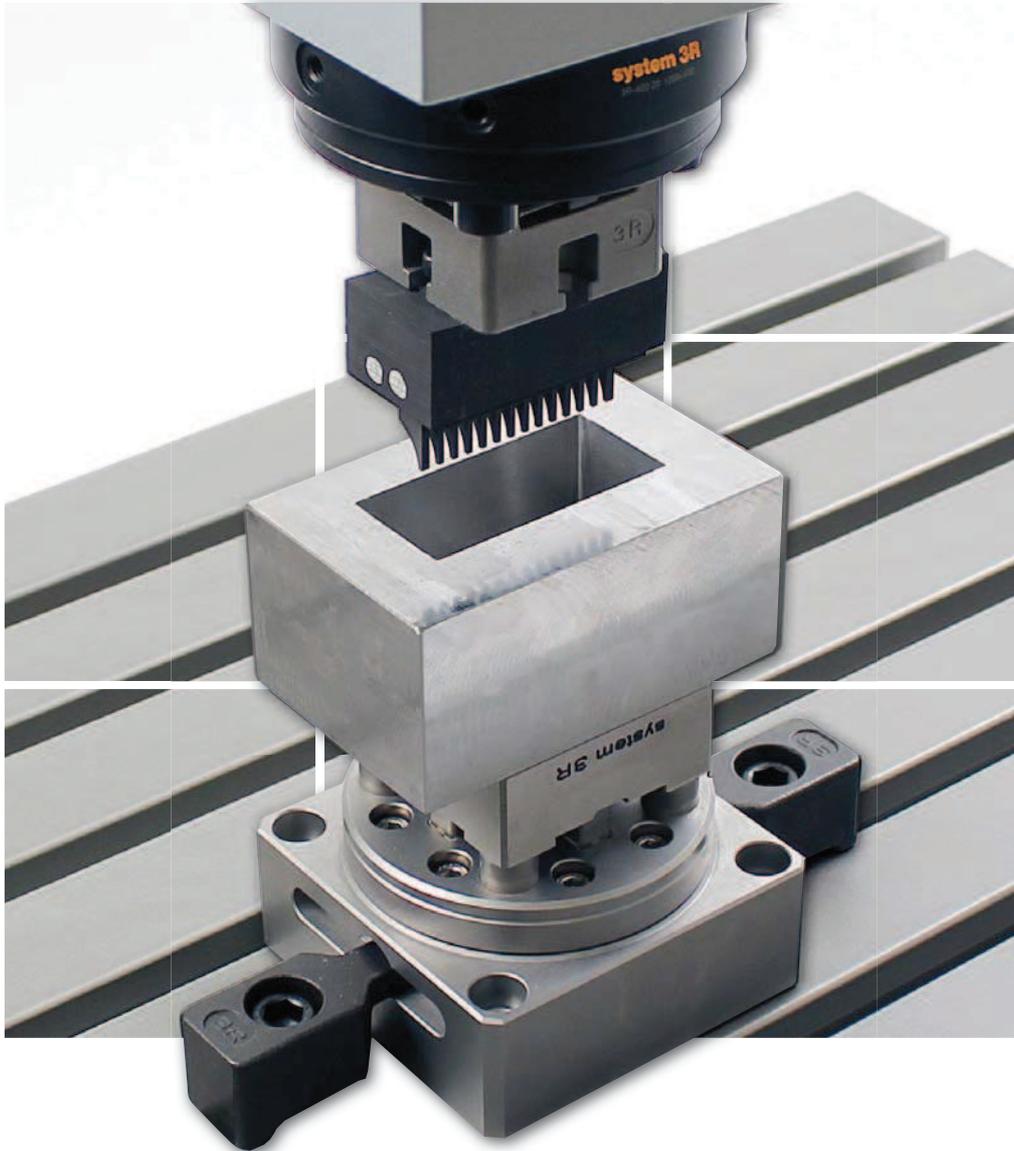
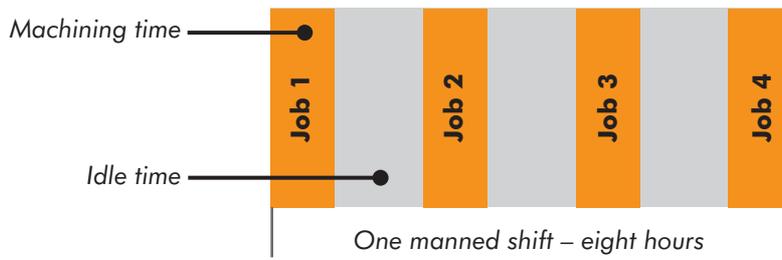


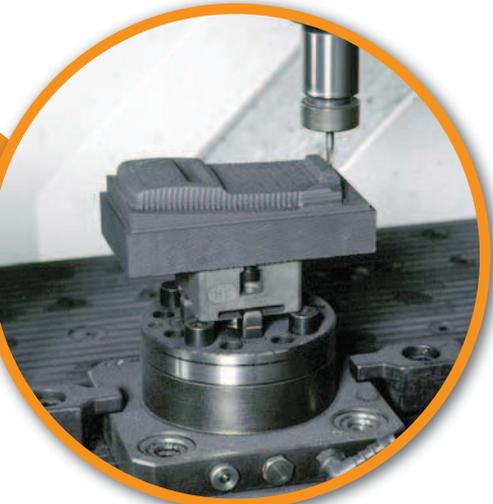
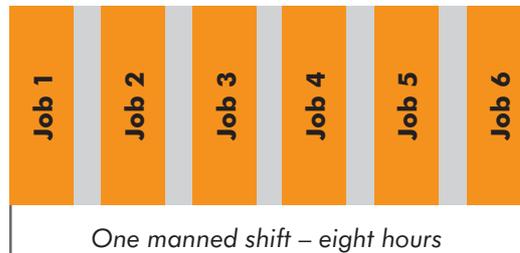
## Reference systems for electrode manufacturing & EDMing



## Conventional setting-up



## Pallet system



### Higher productivity, calculation example:

	Conventional setting-up	Pallet system
Working time per day	8	8
Setting-up time per day (hours)	-4	-0.5
Spindle time per day	=4	=7.5
Working days per week	x5	x5
Spindle time per week	= 20	=37.5

### Faster payback, calculation example:

	Conventional setting-up	Pallet system
Hourly invoicing (€)	50	50
Spindle time / week (hours)	x20	x37.5
Revenue / week (€)	=1 000	=1 875
Capital cost of machine (€)	150 000	150 000
Capital cost pallet system (€)	0	+10 000
Total capital outlay (€)	=150 000	=160 000
Paybacktime (weeks)	150	85



### A reference system minimises setup times

Every minute that can be converted from internal to external setting time increases the spindle time of the machine and with it the productivity of the business.

### Big earnings are within your reach

The machine generates revenue when its spindle is turning – and only then.

**Work smarter, not harder.**

## From small to large

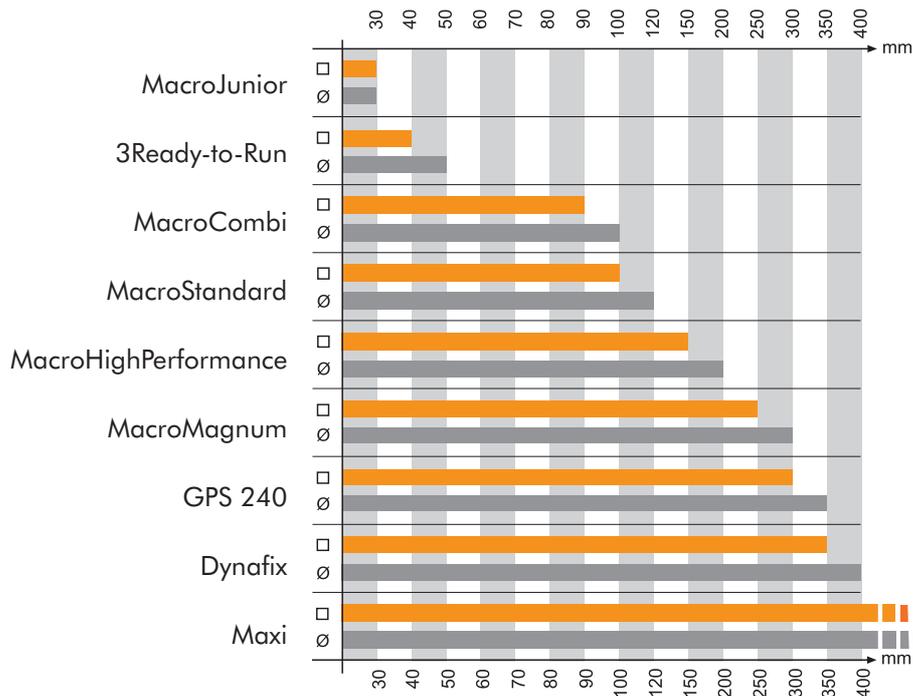
The engineering industry is complex. Every company is unique in terms of type of production, machinery, capacity etc.

To satisfy all these different requirements, System 3R has developed reference systems of exceptional flexibility.

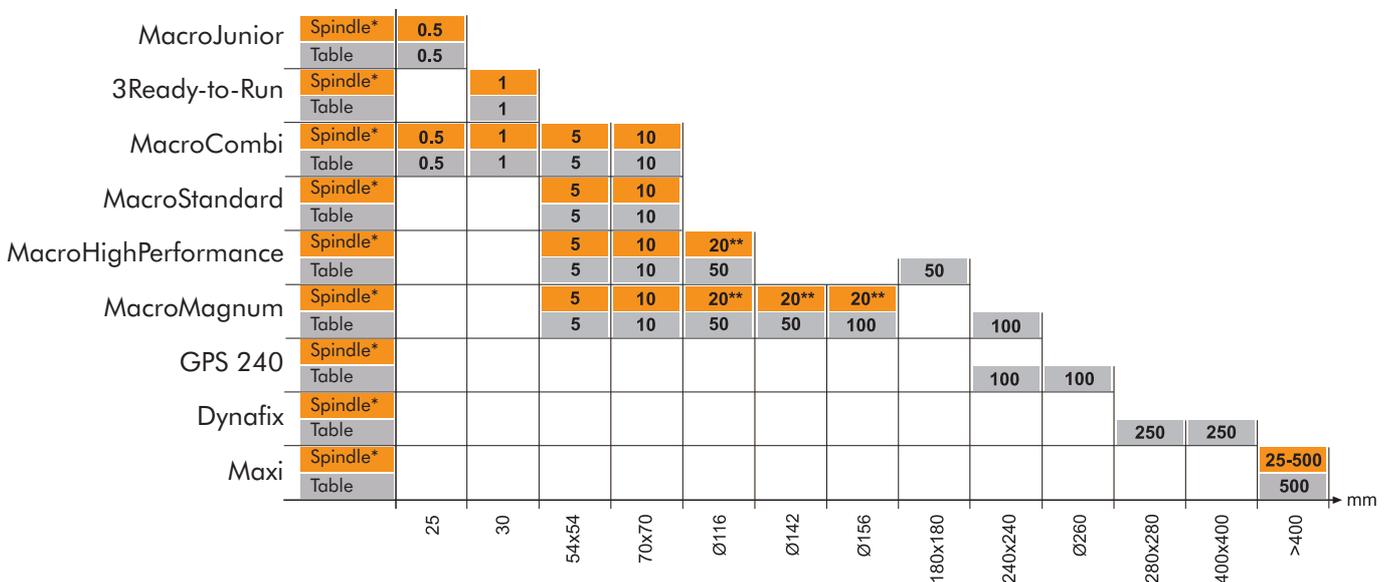
For every size of pallet there is a "recommended"

maximum workpiece size. However, this should only be regarded as a guide, since the size of the workpiece relative to the pallet depends above all on the material and the type of machining.

### Maximum size of workpiece or electrode, square or round / mm



### Maximum weight of workpiece or electrode, spindle chuck or table chuck / kg



\* Die-sinking EDM spindle

\*\* With automatic changing

# Dynafix

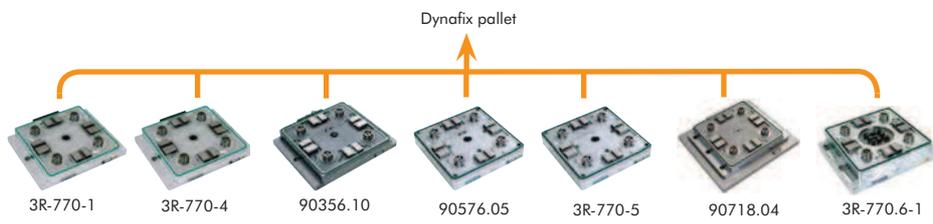
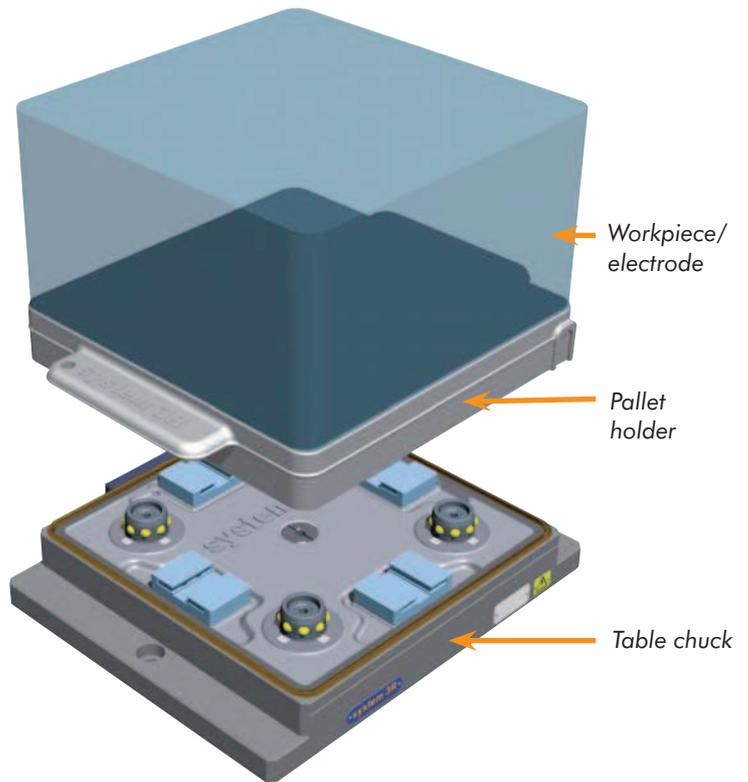
- ... allows machining with optimal cutting data
- ... reduces setting-up times
- ... ensures precision and quality
- ... gives access to System 3R's entire product range
- ... is suitable for automatic changing with System 3R's automation program.

Dynafix permits machining with optimal cutting data, without sacrificing accuracy and quality. The easy-to-handle aluminium pallets have reference elements of high-alloy steel with directly measurable Z-references.

Locking mechanism with built-in soft-landing function protects the references and simplifies handling in applications involving heavy workpieces. In addition, automatic air-blast cleaning of the Z-references and peripheral sealing make Dynafix a practical and user-friendly reference system which minimises setting-up times, increases machine capacity and provides a basis for automated production.

Dynafix as the basic means of fixing to the machine table gives unsurpassed flexibility in terms of workpiece size. Using chuck adapters provides access to practically every reference system in System 3R's extensive product range. Rapid, precise pallet changing in sizes from Ø25 mm to 400 x 400 mm in the same basic mounting – manually or automatically.

- Repetition accuracy – within 0.002 mm
- Locking force – 60 000 N
- Fixed index positions 4x90°
- Required air pressure, pneumatic chuck – 6±1 bar



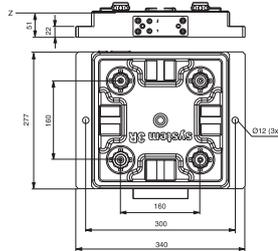
Chucks	Article number	Feature
Pneumatic	3R-770-1	
Pneumatic	3R-770-4	alignment reference
Pneumatic	90356.10	for chuck adapters, with mounting flange
Pneumatic	90576.05	for chuck adapters, without mounting flange
Pneumatic	3R-770-5	for five-axis machines
Pneumatic	90718.04	vibration-damped
Pneumatic	3R-770.6-1	built-in pneumatic Macro chuck

## Dynafix – Chucks

### Pneumatic chuck 3R-770-1

Pneumatic table chuck.

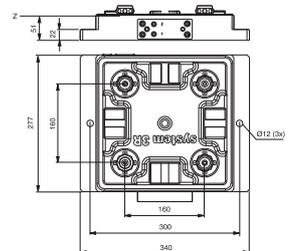
- Required air pressure  $6 \pm 1$  bar
- Fixed index positions  $4 \times 90^\circ$
- Recommended actuator 3R-611.4 or 3R-611.2.
- Air-blast cleaning of the Z-references
- Weight 24.5 kg



### Pneumatic chuck 3R-770-4

Pneumatic table chuck with ground-in reference for alignment.

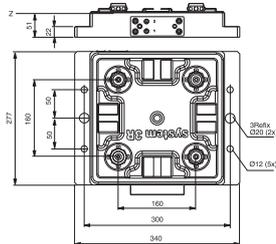
- Required air pressure  $6 \pm 1$  bar
- Fixed index positions  $4 \times 90^\circ$
- Recommended actuator 3R-611.4 or 3R-611.2
- Air-blast cleaning of the Z-references
- Weight 24.5 kg



### Pneumatic chuck 3R-770.19-1

Pneumatic table chuck with 3Refix-holes.

- 3Refix  $\varnothing 20$  mm
- Required air pressure  $6 \pm 1$  bar
- Fixed index positions  $4 \times 90^\circ$
- Recommended actuator 3R-611.4 or 3R-611.2
- Air-blast cleaning of the Z-references
- Weight 24.5 kg



### Pneumatic chuck

Pneumatic chucks with extra connections for automatic chuck adapters.

*Note: Requires two control units.*

- Required air pressure  $6 \pm 1$  bar
- Fixed index positions  $4 \times 90^\circ$
- Air-blast cleaning of the Z-references

#### 90356.10

With fixing lugs.

- Weight 24.5 kg

#### 90576.05

Without fixing lugs.

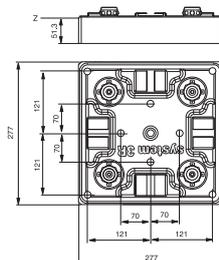
- Weight 23.5 kg



### Pneumatic chuck 3R-770-5

Pneumatic table chuck for applications in five-axis machines. Air connection from below.

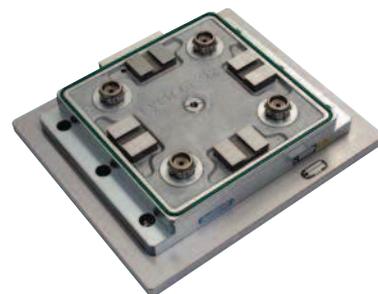
- Required air pressure  $6 \pm 1$  bar
- Fixed index positions  $4 \times 90^\circ$
- Air-blast cleaning of the Z-references
- Weight 23.5 kg



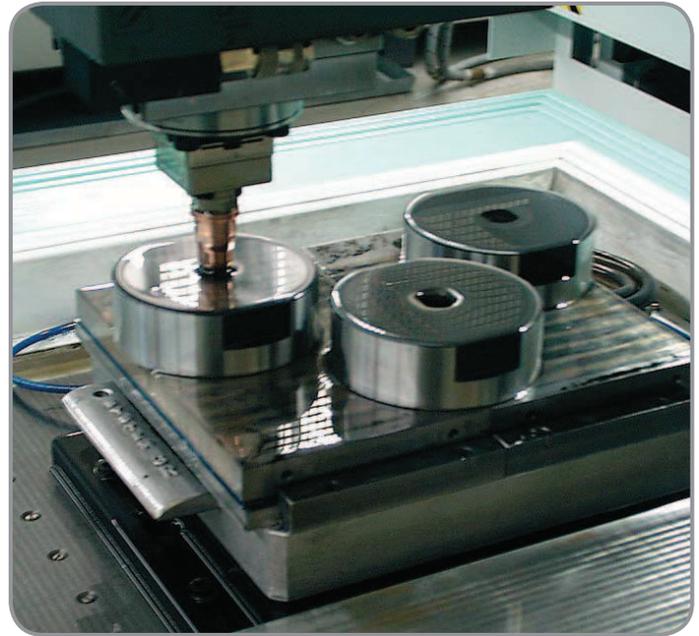
### Pneumatic chuck, VDP 90718.04

Pneumatic vibration-damped chuck.

- Required air pressure  $6 \pm 1$  bar
- Fixed index positions  $4 \times 90^\circ$
- Air-blast cleaning of the Z-references



## Dynafix – Chucks



### Pneumatic chuck D-20130

Pneumatic chuck with through holes  $\text{\O}110$  mm.

- Required air pressure  $6 \pm 1$  bar
- Fixed index positions  $4 \times 90^\circ$
- Air-blast cleaning of the Z-references
- Weight 22 kg



### Pneumatic chuck 3R-770.46-1

Pneumatic chuck with integrated MacroCombi chuck. For CMM machines.

- Required air pressure  $6 \pm 1$  bar
- Fixed index positions  $4 \times 90^\circ$
- Air-blast cleaning of the Z-references
- Weight 32 kg



### Pneumatic chuck 3R-770.6-1

Pneumatic chuck with integrated Macro chuck. For CMM machines.

- Required air pressure  $6 \pm 1$  bar
- Fixed index positions  $4 \times 90^\circ$
- Air-blast cleaning of the Z-references
- Weight 32 kg



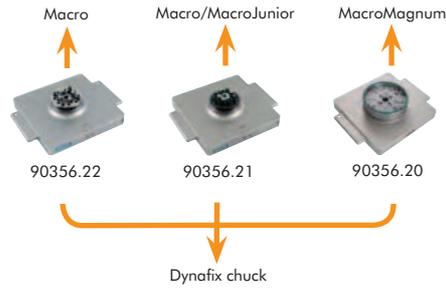
### Pneumatic chuck D-20129

Pneumatic chuck with manual Macro Std chuck in the center.

- Required air pressure  $6 \pm 1$  bar
- Fixed index positions  $4 \times 90^\circ$
- Air-blast cleaning of the Z-references
- Weight 24.5 kg



# Dynafix – Chuck adapters



Chuck adapters	Article number	Feature
Pneumatic	90356.22	Dynafix ► Macro
Pneumatic	90356.21	Dynafix ► MacroCombi
Pneumatic	90356.20	Dynafix ► MacroMagnum

**Pneumatic chuck adapter, Dynafix-Macro 90356.22**

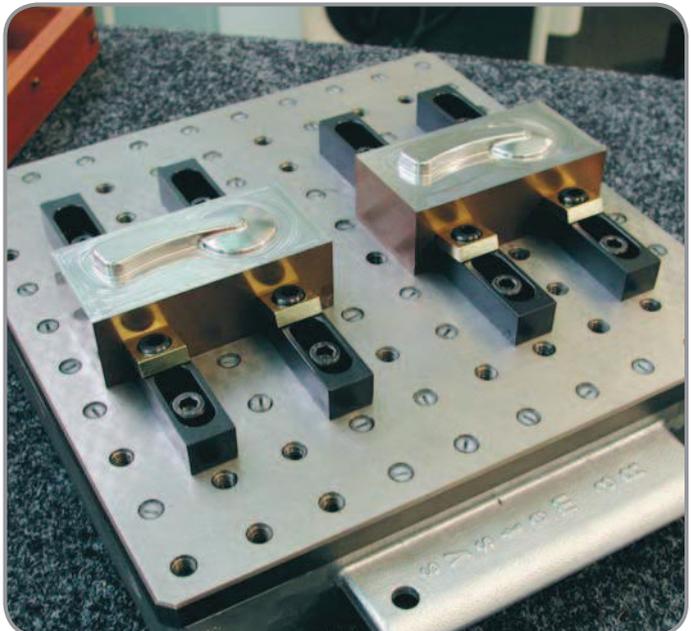
Chuck adapter with built-in pneumatic Macro chuck for mounting in 90356.10 or 90576.05.

**Pneumatic chuck adapter, Dynafix-MacroCombi 90356.21**

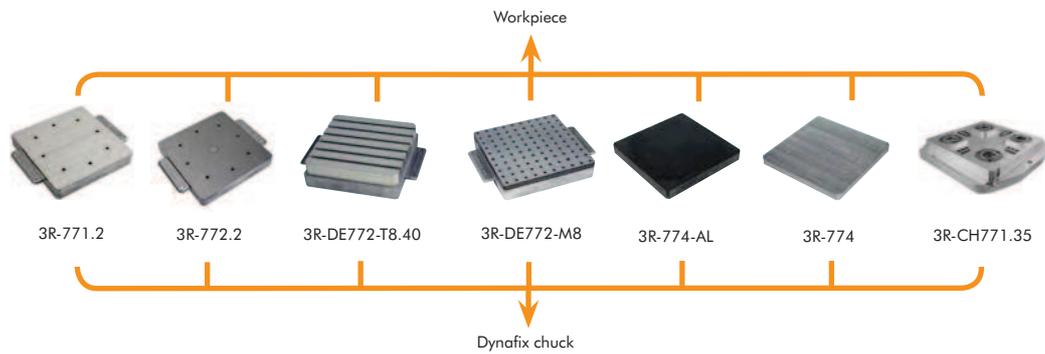
Chuck adapter with built-in pneumatic MacroCombi chuck for mounting in 90356.10 or 90576.05.

**Pneumatic chuck adapter, Dynafix-MacroMagnum 90356.20**

Chuck adapter with built-in pneumatic MacroMagnum chuck for mounting in 90356.10 or 90576.05.



# Dynafix – Pallets



## Pallets 280x280 mm

	Article number	Feature
Aluminium	3R-771.2	
Aluminium	3R-772.2	ground
Aluminium	3R-DE772-T8.40	T-slots
Aluminium	3R-DE772-M8	M8 threads.
Aluminium	3R-CH771.35	

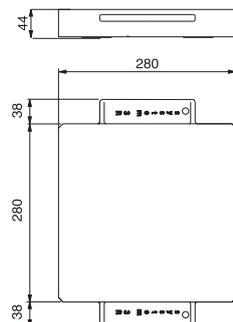
## Pallets 400x400 mm

	Article number	Feature
Aluminium	3R-774-AL	
Steel	3R-774	

### Pallet 280x280 mm 3R-771.2

Milled aluminium pallet

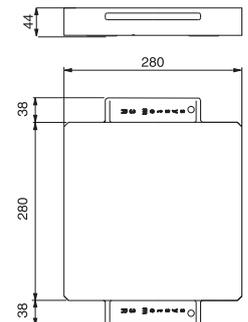
- Adapted for automatic changing
- Ready for code carrier
- Flatness 0.04 mm
- Thickness tolerance +0.5/-0 mm
- Weight 6 kg



### Pallet 280x280 mm 3R-772.2

Ground aluminium pallet

- Adapted for automatic changing
- Ready for code carrier
- Flatness 0.005 mm
- Thickness tolerance -0,1 / -0.14 mm
- Weight 6 kg

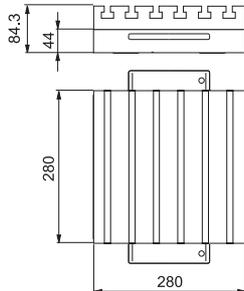


## Dynafix – Pallets & Accessories

### Pallet 280x280 mm 3R-DE772-T8.40

Anodized aluminium pallet with six T-slots for M8 on 40 mm centres.

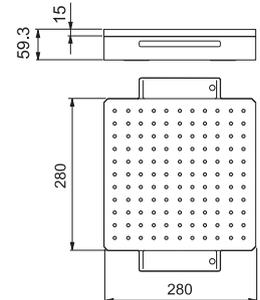
- Adapted for automatic changing
- Ready for code carrier
- Weight 14 kg



### Pallet 280x280 mm 3R-DE772-M8.28

Hardened steel pallet with 139 M8 threads on 20 mm centres.

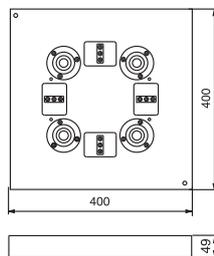
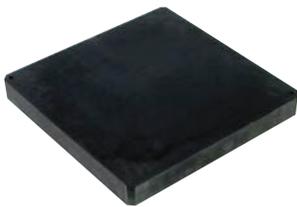
- Adapted for automatic changing
- Ready for code carrier
- Weight 14.5 kg



### Pallet 400x400 mm 3R-774-AL

Aluminium pallet.

- Ready for code carrier
- Weight 20 kg



### Pallet 350x350 mm 3R-CH771.35

Aluminium pallet.

- Building-in height 50.1 mm
- Ready for code carrier
- Weight 12.1 kg



### Reference elements 3R-771.7

Reference kit for users who want to make their own pallets or fixtures.



### Master pallet 3R-776.1-2

For alignment of the Dynafix references. With ground reference rulers, hole and surface.

- Adapted for automatic changing
- Ready for code carrier
- Weight 8 kg

