

system 3R

TOOLING | AUTOMATION | SOFTWARE

Tooling for Parts production



Design and
quality by
System 3R

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**DIMENSIONS AND WEIGHTS STATED IN THE PRODUCT BOXES ARE NOT
NORMATIVE UNLESS THIS IS EXPRESSLY STATED.**



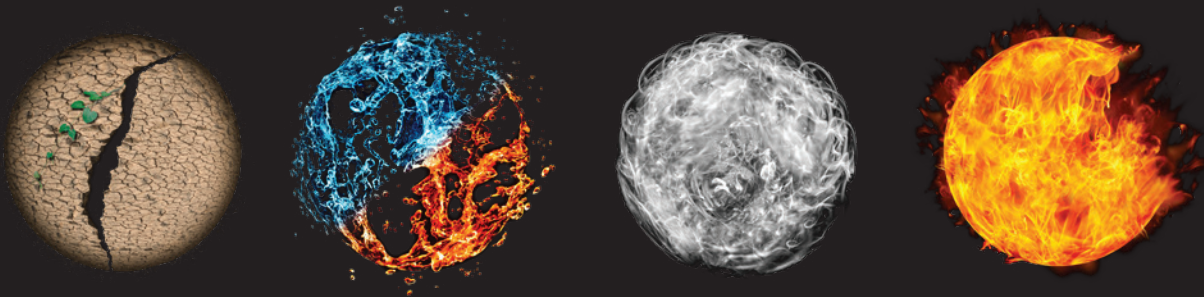
Manufactured to meet System 3R's quality requirements, but partly or completely made in a production plant that is not covered by System 3R's ISO9001 certificate.



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.

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.

One minute set-up

Experience has consistently shown that reducing a machine's downtime is significantly more worthwhile than chasing seconds in the actual machining process.

A stable and exact reference system is the way to achieve this. It lets you preset away from the machine and then get it running with minimum downtime. Quickly and precisely!

A REFERENCE SYSTEM MINIMISES SET-UP 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.

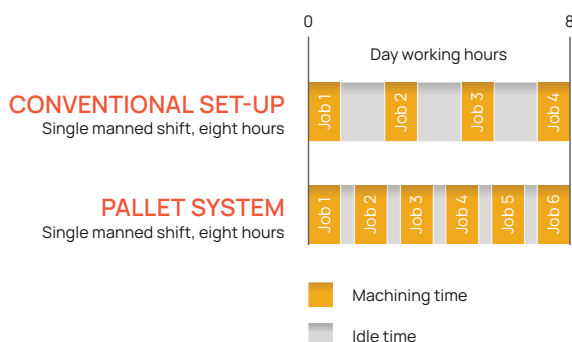
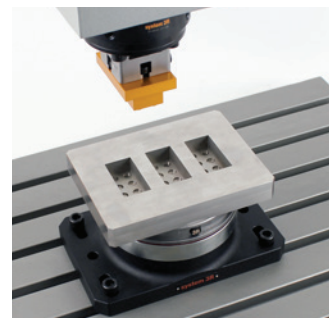
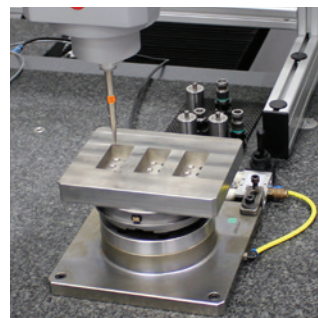
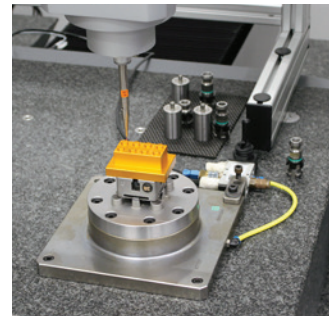
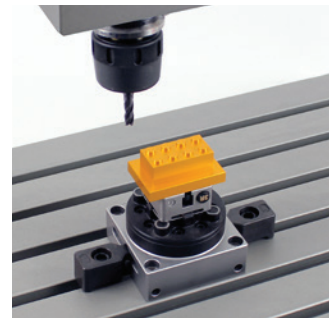
FITTING THE MACHINES WITH THE SAME REFERENCE SYSTEM means that electrodes and workpieces can be moved between the machines without subsequent alignment and checking

– One Minute Set-up.

BIG EARNINGS ARE WITHIN YOUR REACH

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

Work smarter, not harder.



HIGHER PRODUCTIVITY (CALCULATION)

	Conventional set-up	Pallet system
Working hours per day	8	8
Set-up hours per day	- 4	- 0.5
Spindle hours per day	= 4	= 7.5
Working days per week	x 5	x 5
Spindle hours per week	= 20	= 37.5

FASTER PAYBACK (CALCULATION)

	Conventional set-up	Pallet system
Hourly invoicing (€)	50	50
Spindle hours per week	x 20	x 37.5
Revenue per week (€)	= 1,000	= 1,875
Capital cost, machine (€)	150,000	150,000
Capital cost, pallet system (€)	0	+ 10,000
Total capital outlay (€)	= 150,000	= 160,000
Payback time (weeks)	150	85

Introduction – Rough guidance to tooling

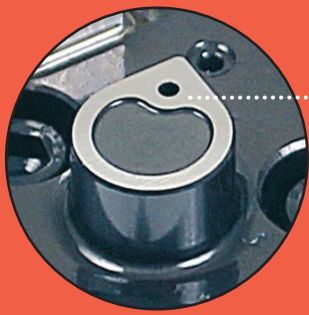
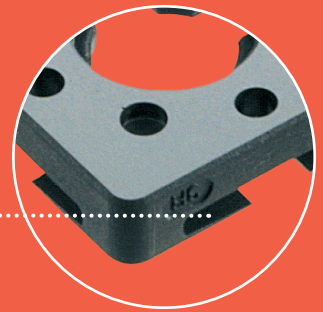
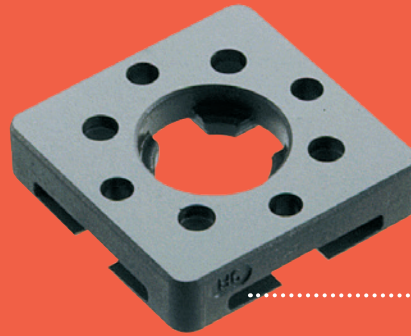
REFERENCE SYSTEM / MAXIMUM WORKPIECE WEIGHT (KG)

								
Pallet size (mm)	Macro	Macro-Magnum	Matrix	GPS 70	GPS 120	GPS 240 Square	GPS 240 Round	Dynafix
Ø 52-54	5 kg	5 kg						
Ø 54-Ø 75	10 kg	10 kg						
Ø 70				10 kg	10 kg			
Ø 110-116	50 kg	50 kg	50 kg					
Ø 120					20 kg			
Ø 142-185	50 kg	100 kg	100 kg					
Ø 220-260			200 kg					
Ø 256							150 kg	
Ø 240-300						150 kg		
Ø 280-400								250 kg

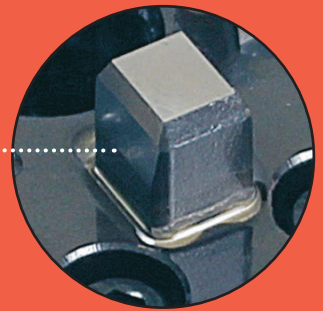
The above details are a rough guide only. Slight differences in details are possible. Please check with a local 3R representative for more exact details.

Macro in detail

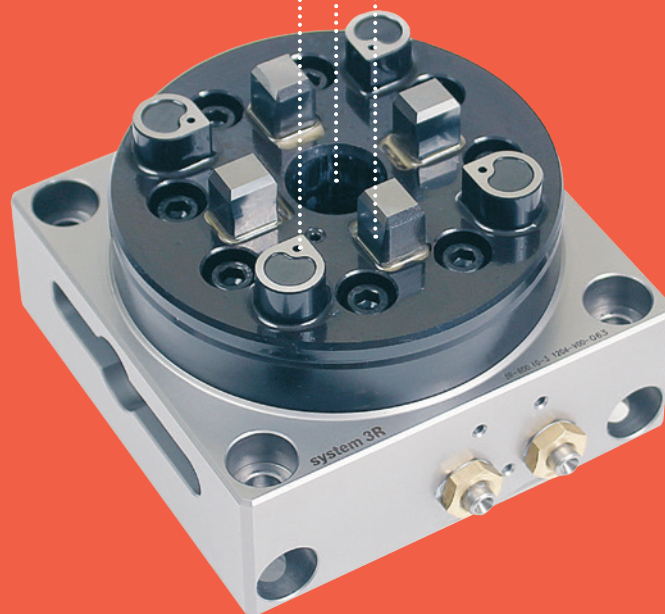
The pallet's references are on a single plane and are an integral part of the pallet. There are no loose parts to be installed and adjusted by the user.

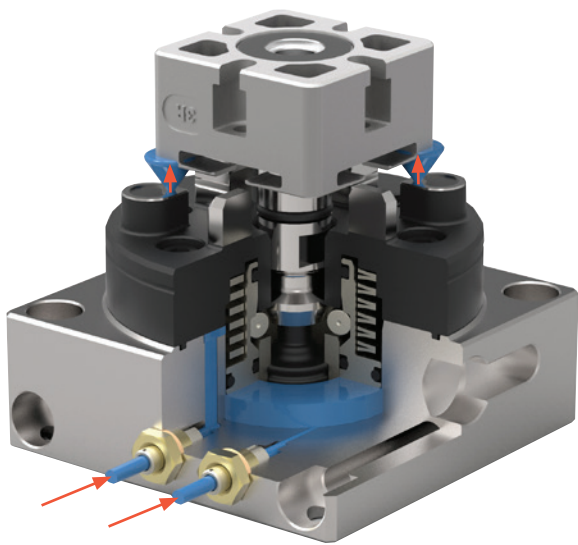


To ensure maximum stability, the chuck's Z-references have generous surfaces.

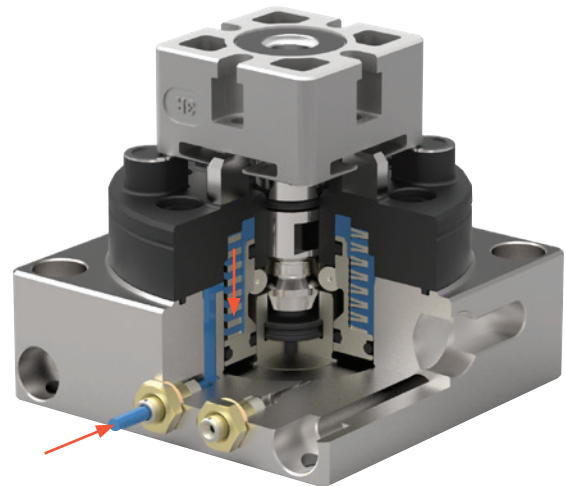


The chuck's X and Y references are made of cemented carbide.

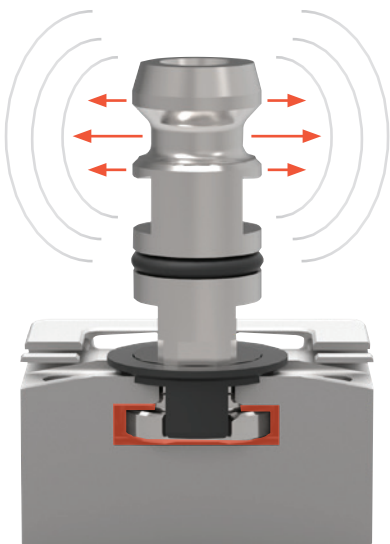




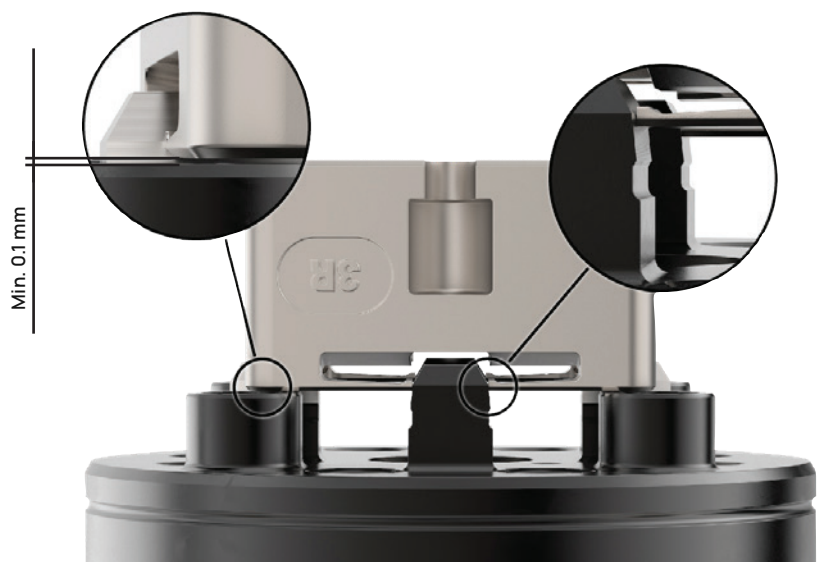
Z-references are cleaned automatically by air blasted through the chuck's Z-reference nozzles.



Turbo locking. Extra locking force is provided by diverting the air blast for cleaning to the locking piston when the Z-references seal against each other.



Drawbar with floating bayonet fitting. No traction forces, ultimate accuracy.



The pallet's lip is angled to match the angle of the boss. This maximises contact between the parts and gives accurate alignment, minimal wear and lasting precision.

VDP[®] (Vibration-Damped Palletisation)

↓ 25%

Reduces cutting forces by up to 25%. Lower cutting forces mean reduced power consumption and less tool wear.

↑ 30%

- Lengthens tool life by up to 30%, thereby lowering tool costs.
- Lengthens the life of machine spindles. VDP also reduces machine spindle vibration, thereby extending spindle life by at least 30%.
- Reduces lead times. VDP enables machining with higher cutting data. This puts 30% better utilisation of existing machine capacity within your reach.

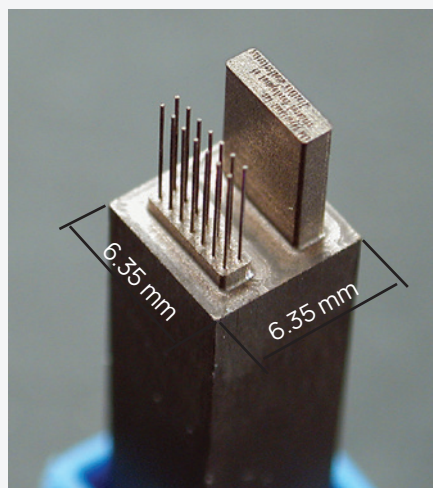


With conventional chucks, the dynamic forces arising from rotation and the action of the cutting tool cause workpiece vibration. Hence, to prevent instability and achieve the necessary surface quality, rotation speed and cutting-tool feed rate have to be restricted.

ADVANTAGES OF A DAMPED CHUCK

After intensely researching chuck-system dynamics, System 3R developed and patented a chuck for vibration-damped palletisation (VDP). By reducing workpiece vibration, VDP improves the dynamics of the entire metal cutting process. Reduced workpiece vibration is passed on to the cutting tools themselves. This means that machine tools can be operated at higher speeds and with greater accuracy and less wear. To strict dimensional tolerances and with a surface quality in the micrometre range (a millionth of a metre), workpieces can usually be processed in a single operation.

- Higher material removal rates improves productivity
- Better surface finishes reduce the need for extra processing.
- Less tool wear extends cutting-tool life.
- Less vibration in the machine spindle
- Better dimensional accuracy means fewer rejects.
- Greater scope for machining difficult materials and complex shapes
- Shorter lead times thanks to the higher material removal rates.
- Lower machining noise.



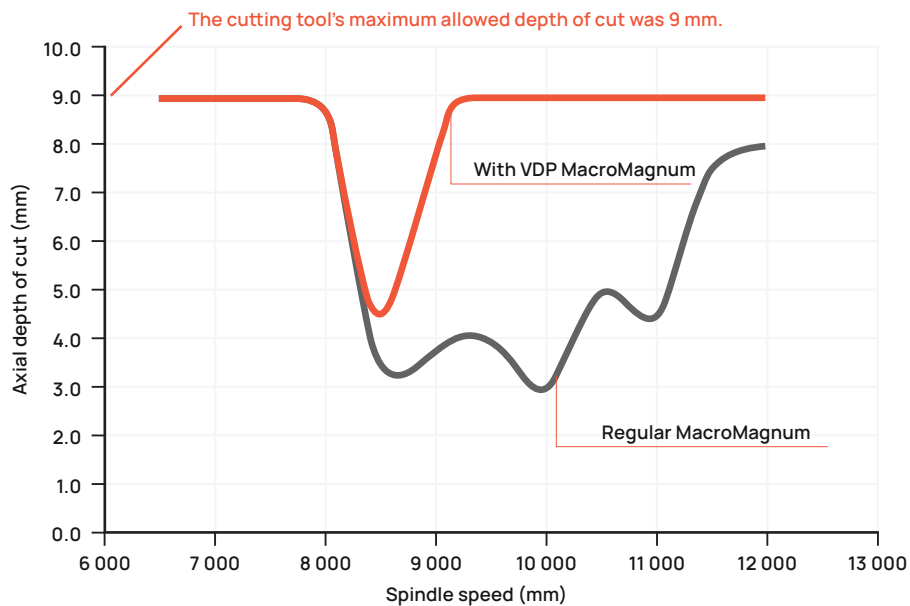
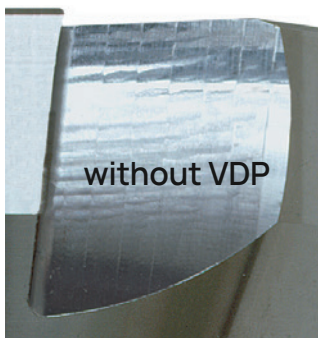
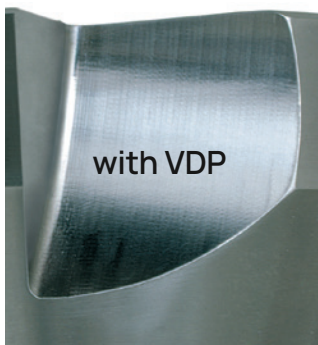
MICRO MILLING EXAMPLE

The electrode aspect ratio (L/\varnothing) was doubled with VDP. Dimensions: $\varnothing = 0.134$ mm, length = 4.8 mm.

Vibration-damped palletisation (VDP)

INCREASE YOUR CAPACITY BY

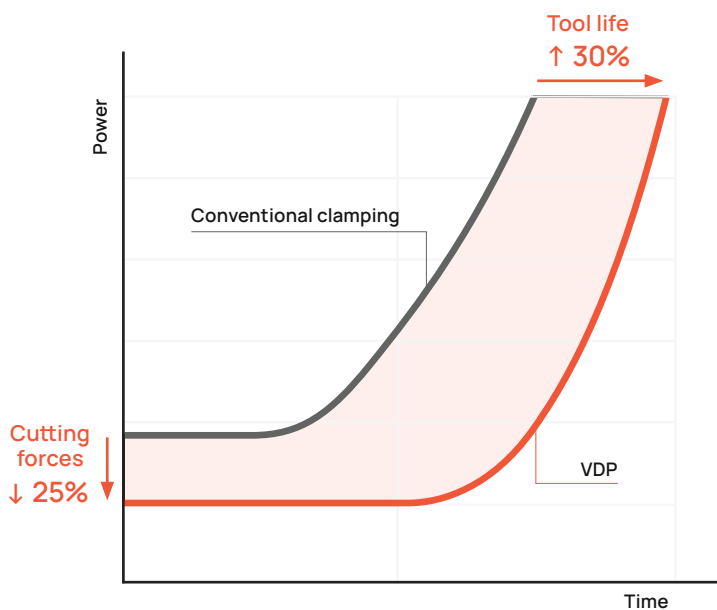
↑ 30%



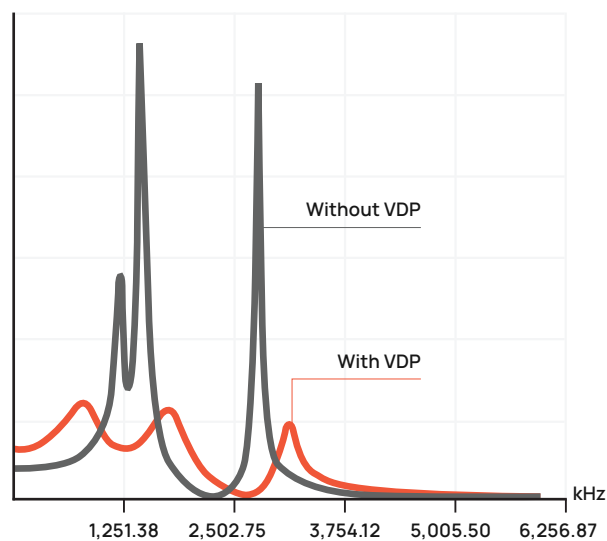
Process stability analysis (Swiss machine tool manufacturer)

Cutting speed (mm)	Axial depth of cut (mm)		Increase in removal rate due to VDP (%)
	Magnum Std	Magnum VDP	
8 500	3.5	4.5	28.6
9 000	4.0	9.0*	125
10 000	3.0	9.0*	200

* Cut depth limited by the cutting tool for the test and not by VDP.



Reduced tool wear extends tool life
= INCREASED REVENUE



Graph showing oscillation amplitudes when machining with the workpiece clamped conventionally (without VDP) and in a damped chuck (with VDP).

MacroStd & MacroHP

To compete in the global manufacturing industry, every aspect of efficiency has to be studied. You have to extract the highest possible number of spindle hours from each machine, every day of the week. Here, the importance of a high-class reference system can never be over-estimated. A reference system that reduces set-up times to a few minutes.

Macro is such a reference system. A system that minimises 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.

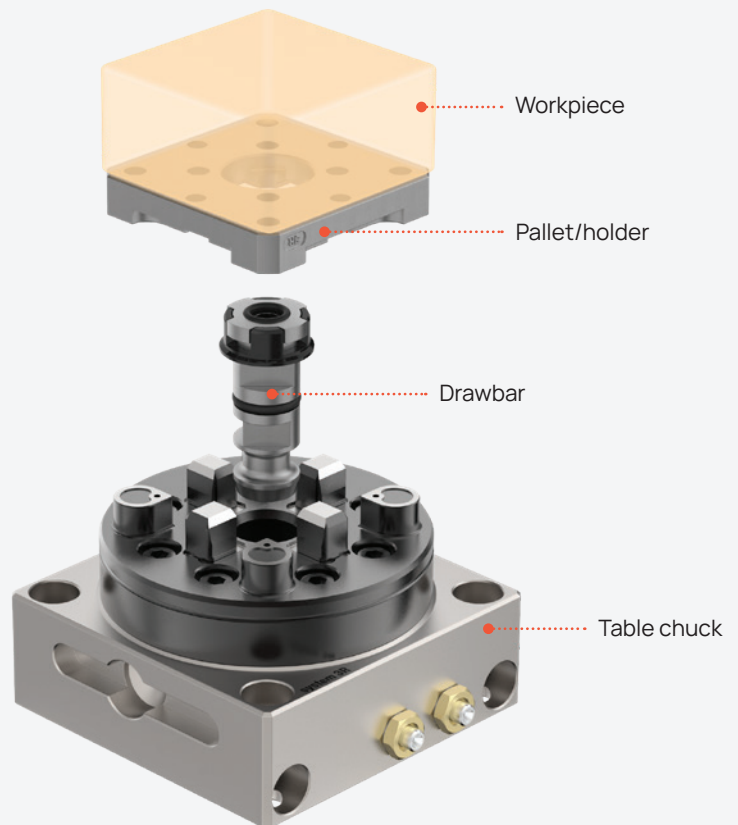
Among users worldwide, the Macro system is a byword for precision. Rightly so, every single Macro product is thoroughly checked before it is dispatched.

But precision can be graded too. Consequently, while maintaining full compatibility, Macro products are “classified” and given names reflecting their accuracy, material and service life (i.e. Standard, High Performance and Nano). Nonetheless, it is worth remembering that the accuracy of any system is determined by the element that has the lowest classification.

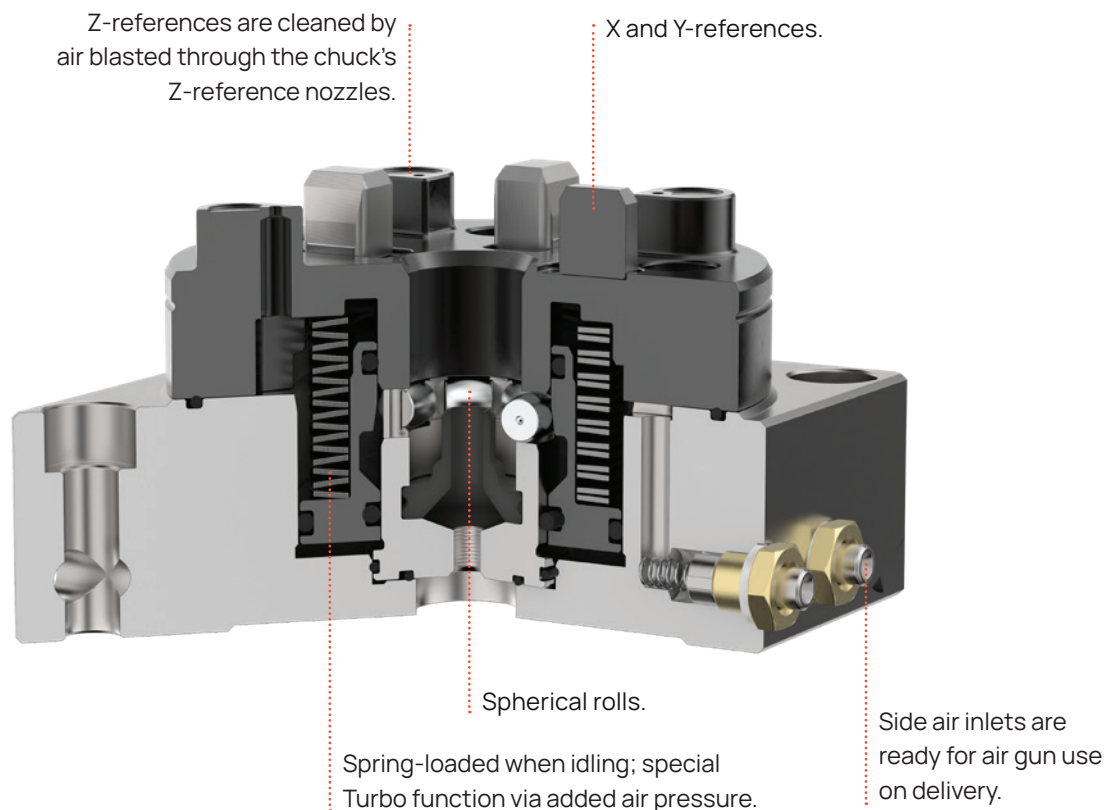
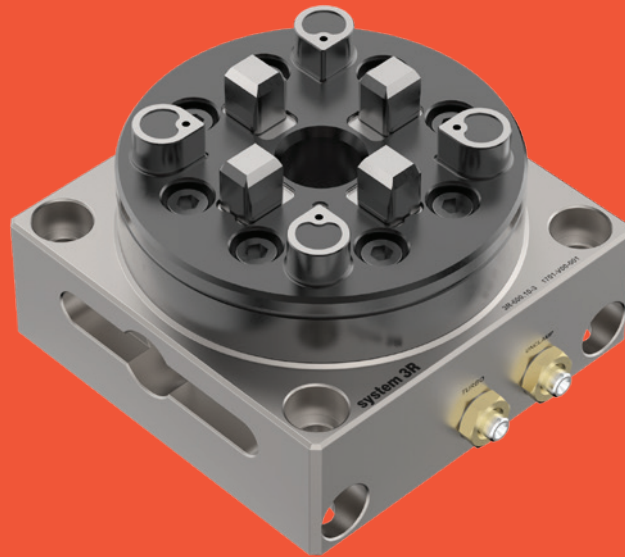
- Repetition accuracy:
 - MacroNano within 0.001 mm
 - Macro (Std and HP) within 0.002 mm
- Locking force 6.000 N
- Fixed index positions 4x90°
- Required air pressure, pneumatic chuck 6 bars (± 1)
- Recommended tightening torque, manual chuck 6 Nm
- Recommended max workpiece weight 50 kg.

ADVANTAGES

- Reduces set-up times.
- Ensures precision and quality.
- Has automatic air-blast cleaning of the references in the pneumatic chucks.
- Has higher locking force in the pneumatic chucks – turbo locking.
- Has references of cemented carbide or hardened ground steel.
- Is suitable for automatic changing with System 3R's automation program.
- Air blast cleaning of Z-references.



Macro in detail



Macro – Chucks

Lathe chucks	Article number	Drawbar	Feature
Manual Std	3R-600.22	3R-605.2	mounting flange
Manual HP	3R-600.20	3R-605.1 / 3R-605.4	carbide references, 4 Nm
Pneumatic Std	3R-600.1-30	3R-605.1 / 3R-605.4	

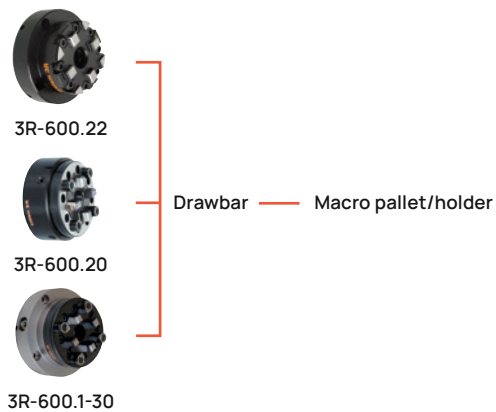
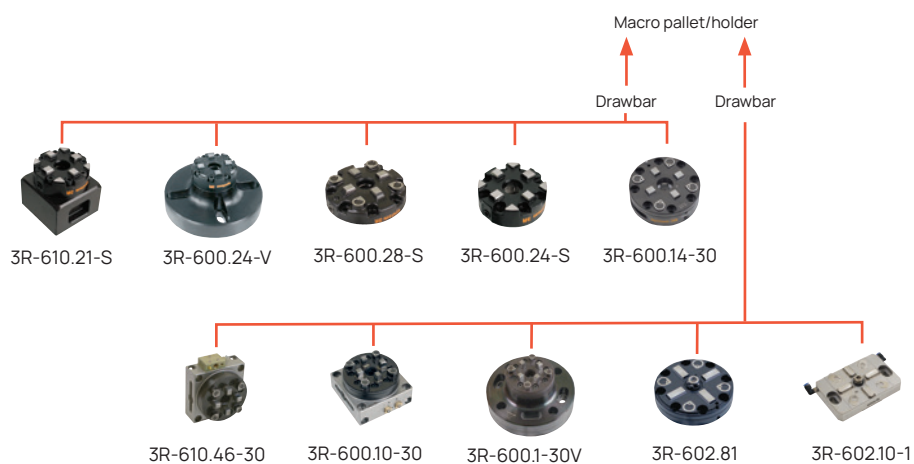


Table chucks	Article number	Drawbar	Feature
Manual Std	3R-600.21-S	3R-605.2	horizontal and vertical, 6 Nm
Manual VDP	3R-600.24-V	3R-605.2	vibration-damped, 6 Nm, Ø75 mm
Manual Std	3R-600.28-S	3R-605.2	low profile, 6 Nm, Ø100 mm
Manual Std	3R-600.24-S	3R-605.2	6 Nm, Ø75 mm
Pneumatic Std	3R-610.46-30	3R-605.1 / 3R-605.4	horizontal and vertical
Pneumatic Std	3R-600.10-30	3R-605.1 / 3R-605.4	
Pneumatic Std	3R-600.14-30	3R-605.2	low profile
Pneumatic VDP	3R-601-30V	3R-605.1 / 3R-605.4	vibration-damped
Pneumatic Std	3R-602.81	3R-605.10	low profile
Pneumatic HP	3R-602.10-1	3R-605.10	rust resistant

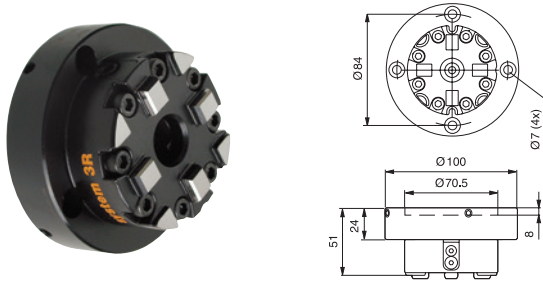


Macro – Chucks

Manual chuck, MacroStd, 3R-600.22

Manual lathe chuck with setting screws for centring.

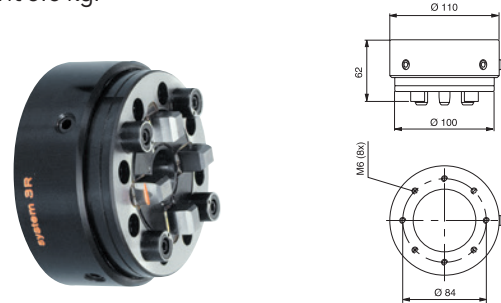
- Tightening torque 6 Nm.
- Required drawbar 3R-605.2
- Fixed index positions 4x90°
- Weight 2.1 kg.



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.

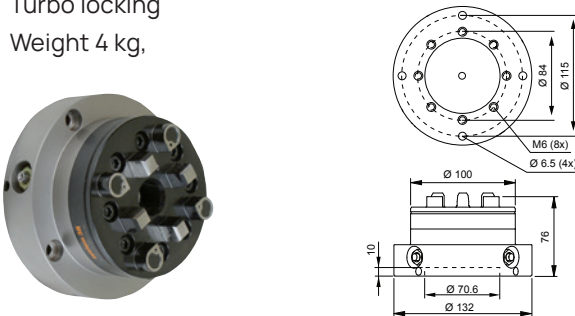
- Required drawbar 3R-605.1 or 3R-605.4
- Carbide XY-references
- Fixed index positions 4x90°
- Tightening torque 4 Nm
- Weight 3.6 kg.



Pneumatic chuck, MacroStd, 3R-600.1-30

Pneumatic chuck for permanent mounting on the machine spindle, onto the machine table or as a lathe chuck.

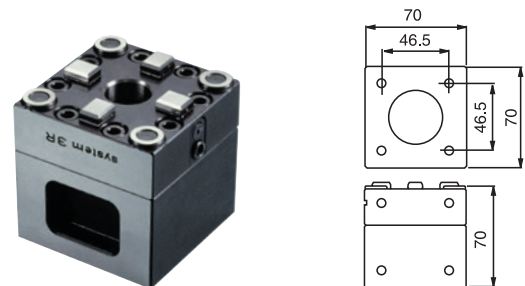
- Required drawbar 3R-605.1 or 3R-605.4
- Fixed index positions 4x90°
- Required air pressure 6 bars (± 1)
- Turbo locking
- Weight 4 kg,



Manual chuck, MacroStd, 3R-610.21

Three ground faces for vertical or horizontal mounting on the machine table.

- Tightening torque 6 Nm.
- Required drawbar 3R-605.2
- Fixed index positions 4x90°
- Flushing duct
- Weight 2.2 kg.

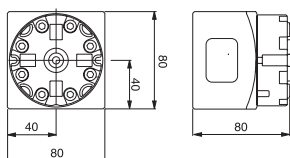


Manual chuck, MacroStd, 3R-610.21-S

Two ground faces for vertical or horizontal mounting on the machine table.

- Tightening torque 6 Nm.
- Required drawbar 3R-605.2
- Fixed index positions 4x90°
- Flushing duct
- Weight 3.5 kg.

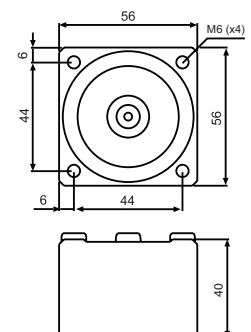
90842, Required drawbar 3R-605.1, otherwise as 3R-610.21-S.



Pneumatic chuck, MacroHP, 3R-600.15-3

Rust resistant pneumatic chuck for permanent mounting on the machine table.

- Drawbar 3R-605.2RS included
- Required air pressure 6 bars (± 1)
- Fixed index positions 4x90°
- Rust resistant
- Weight 0.8 kg.

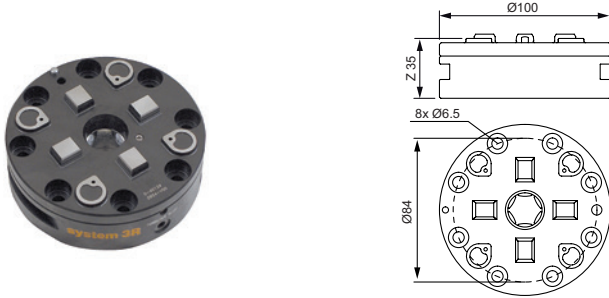


Macro – Chucks

Pneumatic chuck, MacroStd, 3R-600.14-30

Pneumatic low profile chuck for permanent mounting on the machine table.

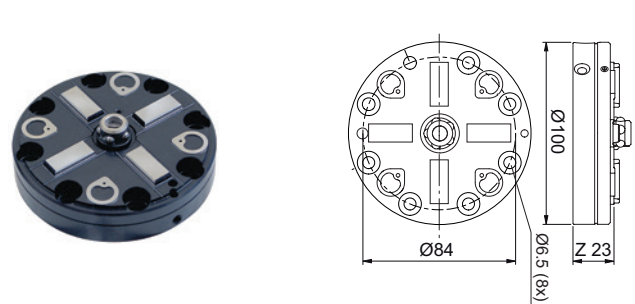
- Required drawbar 3R-605.2
- Locking force 6.500 N
- Required air pressure 6 bars (± 1)
- Fixed index positions 4x90°
- Weight 2 kg.



Pneumatic chuck, MacroStd, 3R-602.81

Pneumatic low profile chuck for permanent mounting on the machine table.

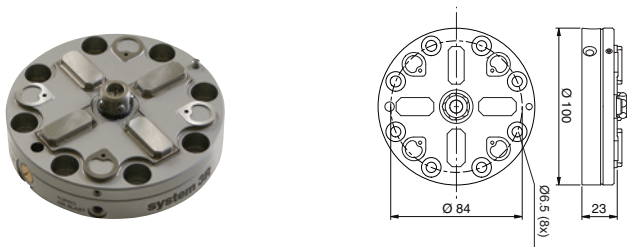
- Required drawbar 3R-605.10
- Locking force 6.700 N
- Required air pressure 6 bars (± 1)
- Fixed index positions 4x90°
- Weight 1 kg.



Pneumatic chuck, MacroHP, 3R-602.81RS

Rust resistant pneumatic low profile chuck for permanent mounting on the machine table.

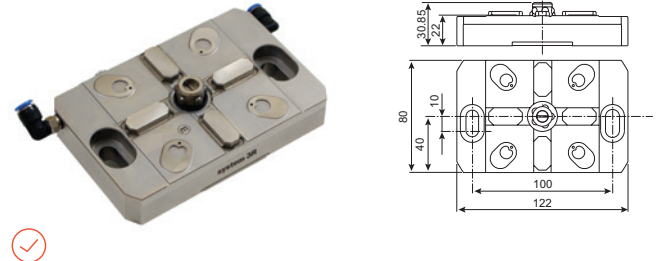
- Required drawbar 3R-605.10
- Locking force 6.700 N
- Fixed index positions 4x90°
- Air-blast cleaning of Z-references
- Rust resistant
- Weight 1 kg.



Pneumatic chuck, MacroHP, 3R-602.10-1

Rust resistant pneumatic low profile chuck for Macro holders. Supplied with drawbar 3R-605.10 and protective cover.

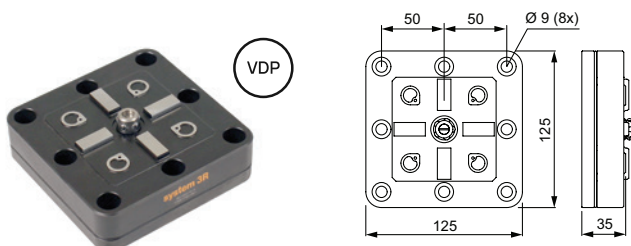
- Fixed index positions 4x90°
- Locking force 6.700 N
- Air-blast cleaning of Z-references
- Rust resistant
- Weight 1.4 kg.



Pneumatic chuck, VDP, 3R-602.10-V

Pneumatic vibration-damped chuck, low-profile version.

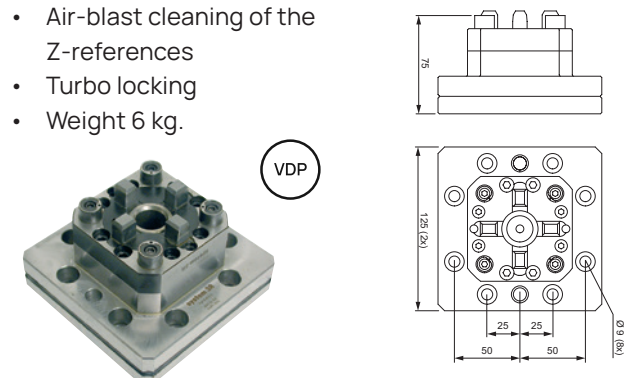
- Required drawbar 3R-605.10
- Required air pressure 6 bars (± 1)
- Fixed index positions 4x90°
- Air-blast cleaning of the Z-references
- Turbo locking
- Weight 5 kg.



Pneumatic chuck, VDP, 90716.09

Pneumatic vibration-damped chuck.

- Required drawbar 3R-605.1 or 3R-605.4
- Required air pressure 6 bars (± 1)
- Fixed index positions 4x90°
- Carbide XY-references
- Air-blast cleaning of the Z-references
- Turbo locking
- Weight 6 kg.

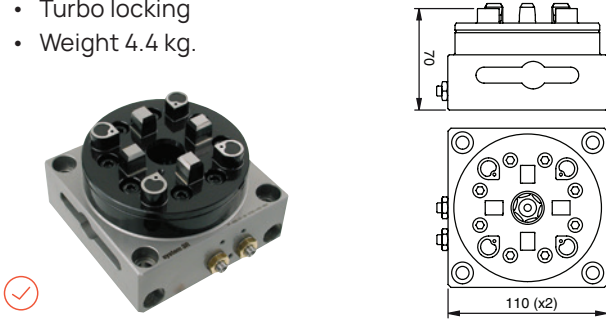


Macro – Chucks

Pneumatic chuck, MacroStd, 3R-600.10-30

Pneumatic table chuck locked/opened with air gun.

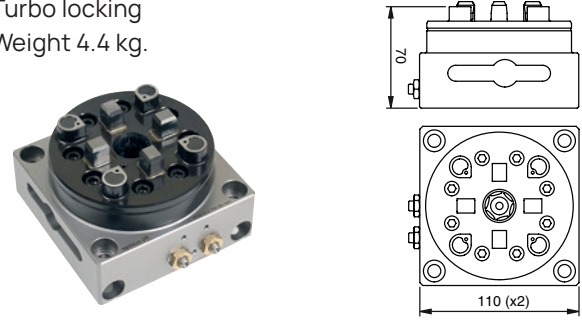
- Required drawbar 3R-605.1 or 3R-605.4
- All references of hardened and ground steel
- Required air pressure 6 bars (± 1)
- Fixed index positions 4x90°
- Air-blast cleaning of the Z-references
- Turbo locking
- Weight 4.4 kg.



Pneumatic chuck, MacroHP, 3R-600.10-3

Pneumatic table chuck locked/opened with air gun.

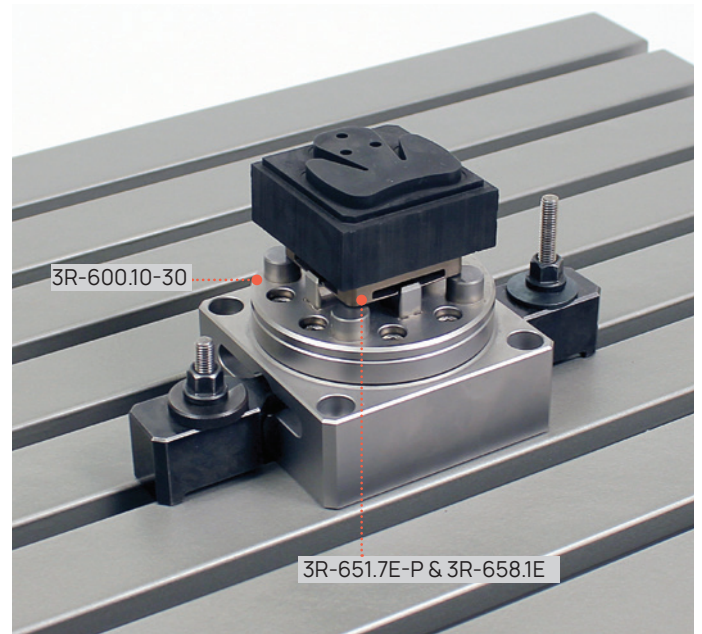
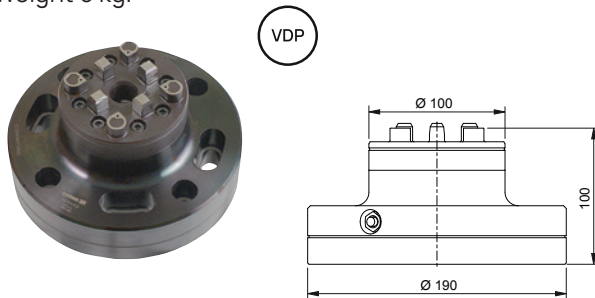
- Required drawbar 3R-605.1 or 3R-605.4
- Required air pressure 6 bars (± 1)
- Fixed index positions 4x90°
- Air-blast cleaning of the Z-references
- Carbide XY-References
- Turbo locking
- Weight 4.4 kg.



Pneumatic chuck, VDP, 3R-600.1-30V

Pneumatic vibration-damped table chuck.

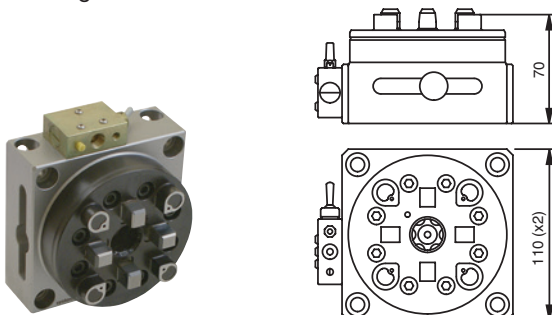
- Required drawbar 3R-605.1 or 3R-605.4
- Required air pressure 6 bars (± 1)
- Fixed index positions 4x90°
- Air-blast cleaning of the Z-references
- Turbo locking
- Weight 6 kg.



Pneumatic chuck, MacroStd, 3R-610.46-30

Pneumatic chuck for horizontal or vertical use.

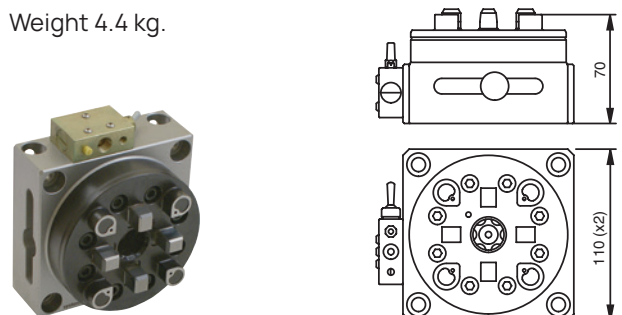
- Required drawbar 3R-605.1 or 3R-605.4
- Required air pressure 6 bars (± 1)
- Fixed index positions 4x90°
- Air unit included
- Weight 4.4 kg.



Pneumatic chuck, MacroHP, 3R-610.46-3

Pneumatic chuck for horizontal or vertical use.

- Required drawbar 3R-605.1 or 3R-605.4
- Required air pressure 6 bars (± 1)
- Fixed index positions 4x90°
- Air unit included
- Carbide XY-references
- Weight 4.4 kg.

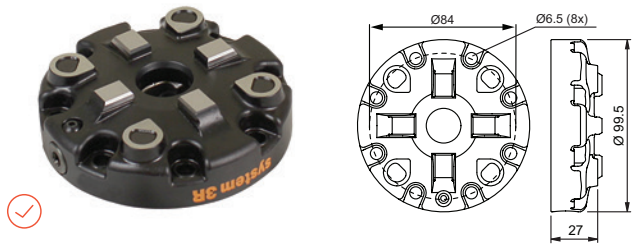


Macro – Chucks

Manual chuck, MacroStd, 3R-600.28-S

Cast chuck low profile with ground back face for mounting on the machine spindle. Also suitable in a fixture on the machine table or with adapterplate 3R-A26488.

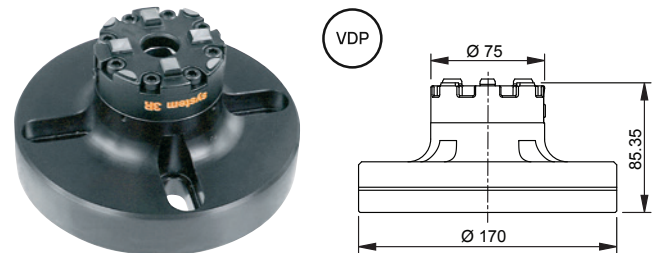
- Tightening torque 6 Nm
- Required drawbar 3R-605.2
- Fixed index positions 4x90°
- Flushing connection
- Weight 1.1 kg.



Manual chuck, VDP, 3R-600.24-V

Manual vibration-damped table chuck, Ø170 mm.

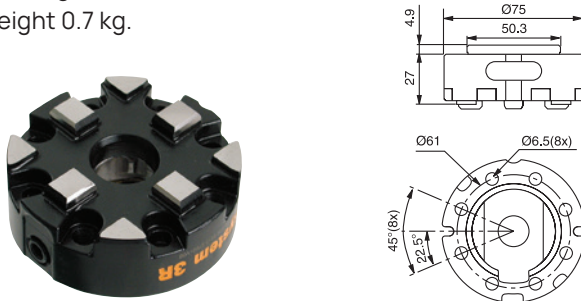
- Tightening torque 6 Nm.
- Required drawbar 3R-605.2
- Building-in height 85 mm.
- Centre spacing 63 to 100 mm
- Weight 6 kg.



Manual chuck, MacroStd, 3R-600.23-S

Cast chuck with mounting flange for mounting on the machine spindle or in a fixture, alternatively 3R-A19724, on the machine table.

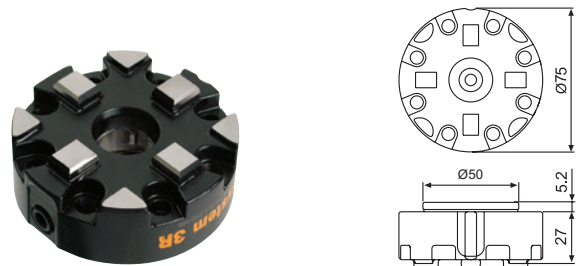
- Tightening torque 6 Nm.
- Required drawbar 3R-605.2
- Fixed index positions 4x90°
- Flushing connection
- Weight 0.7 kg.



Manual chuck, MacroStd, 3R-SP15055

Cast chuck with ground flange for installation in fixture/plate.

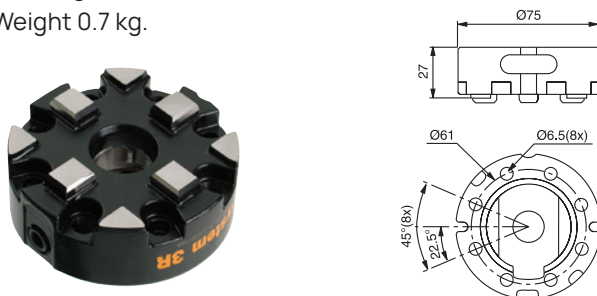
- Required drawbar 3R-605.2
- Tightening torque 6 Nm
- Fixed index positions 4x90°
- Flushing connection
- Weight 0.7 kg.



Manual chuck, MacroStd, 3R-600.24-S

Cast chuck with ground back face for mounting on the machine spindle with 3R-A11489 or in a fixture on the machine table.

- Tightening torque 6 Nm.
- Required drawbar 3R-605.2
- Fixed index positions 4x90°
- Flushing connection
- Weight 0.7 kg.

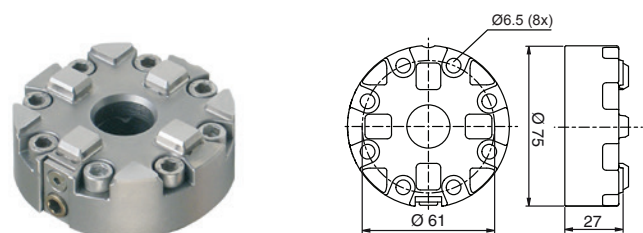


Manual chuck, MacroHP, 3R-600.24RS

Rust resistant manual chuck for Macro holder.

Designed for permanent mounting.

- Tightening torque 6 Nm
- Required drawbar 3R-605.2RS
- Rust-resistant
- Fixed index positions 4x90°
- Weight 0.7 kg.



Macro – Chucks

Pneumatic chuck, MacroStd, 90412.1X

Pneumatic chuck with built-on surface-mounted swivel. Intended for B-axes and similar. Air connection from the side. For further information contact System 3R.

- Required drawbar 3R-605.1 or 3R-605.4
- Required air pressure 6 bars (± 1)
- Fixed index positions 4x90°
- Turbo locking.



Pneumatic chuck, MacroHP, 90412.2X

Pneumatic chuck with integral swivel at the rear. Intended for B-axes and similar. Air connection from the rear. For further information contact System 3R.

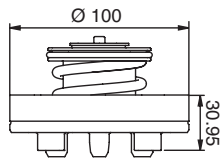
- Required drawbar 3R-605.1 or 3R-605.4
- Required air pressure 6 bars (± 1)
- Fixed index positions 4x90°
- Turbo locking.



Pneumatic chuck, MacroStd, 3R-SP24460

Pneumatic chuck for building-in, for example in a fixture, dividing head or B-axis.

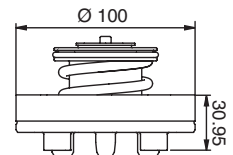
- Required drawbar 3R-605.1 or 3R-605.4
- Required air pressure 6 bars (± 1)
- Fixed index positions 4x90°
- Air-blast cleaning of Z-references
- Turbo locking
- Weight 1.8 kg.



Pneumatic built-in chuck, MacroHP, 3R-SP26771-RS

Rust resistant chuck for Macro holder. For permanent mounting on the machine spindle or fixture.

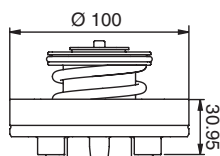
- Required drawbar 3R-605.1RS
- Clamping force 6.000 N
- Required air pressure 6 bars (± 1)
- Carbide XY-References
- Rust resistant
- Fixed index positions 4x90°
- Weight 1.8 kg.



Pneumatic chuck, MacroHP, 3R-SP26771

Pneumatic chuck for building-in, for example in a fixture, dividing head or B-axis.

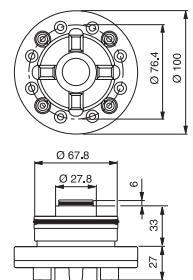
- Required drawbar 3R-605.1 or 3R-605.4
- Required air pressure 6 bars (± 1)
- Carbide XY-References
- Fixed index positions 4x90°
- Air-blast cleaning of Z-references
- Turbo locking
- Weight 1.8 kg.



Pneumatic chuck, MacroHP, 3R-SP7359

Pneumatic chuck for building-in, for example in a fixture, dividing head or B-axis.

- Required drawbar 3R-605.1 or 3R-605.4
- Required air pressure 6 bars (± 1)
- Carbide XY-References
- Fixed index positions 4x90°
- Air-blast cleaning of Z-references
- Turbo locking
- Weight 1.8 kg.



3R-SP7359-RS

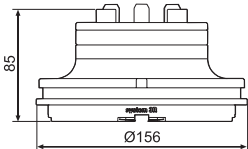
- Rust resistant version, otherwise as 3R-SP7359.
- Required drawbar 3R-605.1RS.

Macro – Chuck adaptes & adapters

Pneumatic chuck adapter, MacroMagnum-Macro, 3R-682.600-A

MacroMagnum chuck adapter with built-in pneumatic Macro chuck for mounting in 3R-686.10-2A.

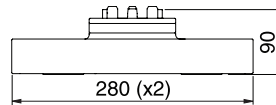
- Required drawbar 3R-605.1 or 3R-605.4
- Required air pressure 6 bars (± 1)
- Fixed index positions 4x90°
- Turbo locking
- Weight 4.5 kg.



Pneumatic chuck adapter, Dynafix-Macro, 3R-772-600A

Dynafix chuck adapter with built-in pneumatic Macro chuck for mounting in 3R-770-1A or 3R-770-5A.

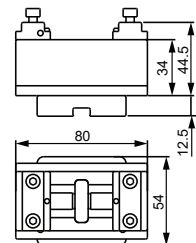
- Required drawbar 3R-605.1 or 3R-605.4
- Required air pressure 6 bars (± 1)
- Carbide XY-References
- Turbo locking
- Weight 11 kg.



Centering vice, Macro, 3R-658-CV

Centering vice on Macro reference element. Choose between different jaws (not included).

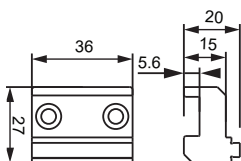
- Vice length 80 mm
- Jaws width 36 mm
- Clamping length 30/78 mm
- Clamping force 16.000 N
- Weight 0.9 kg.



Pair of clamping jaws, Macro, 3R-658-J2

Clamping jaws 36 mm. Fits on Centering vice, Macro, 3R-658-CV.

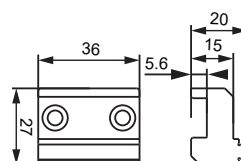
- Weight 0.2 kg.



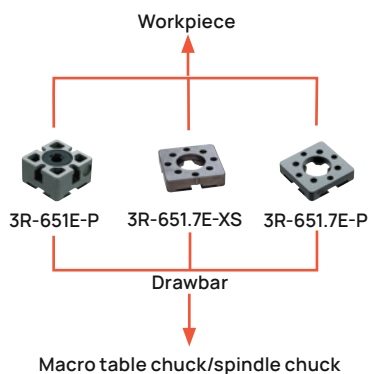
Pair of grip jaws, Macro, 3R-658-J1

Grip jaws 36 mm. Fits on Centering vice, Macro, 3R-658-CV.

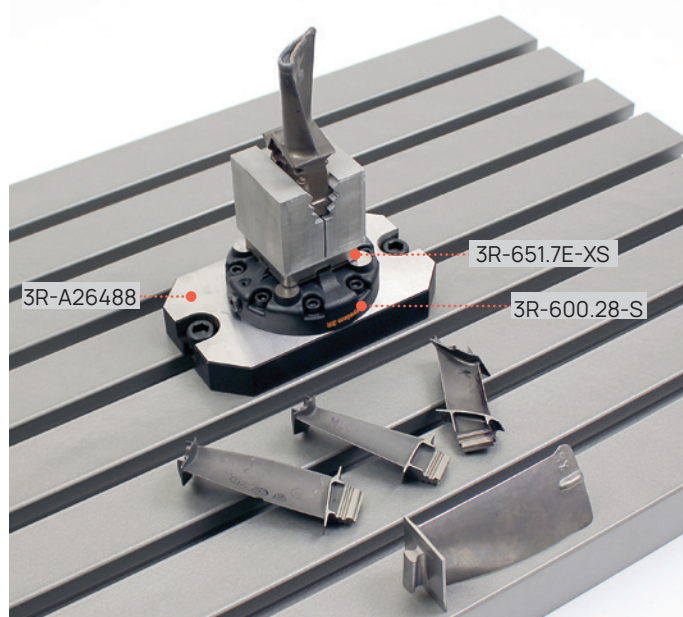
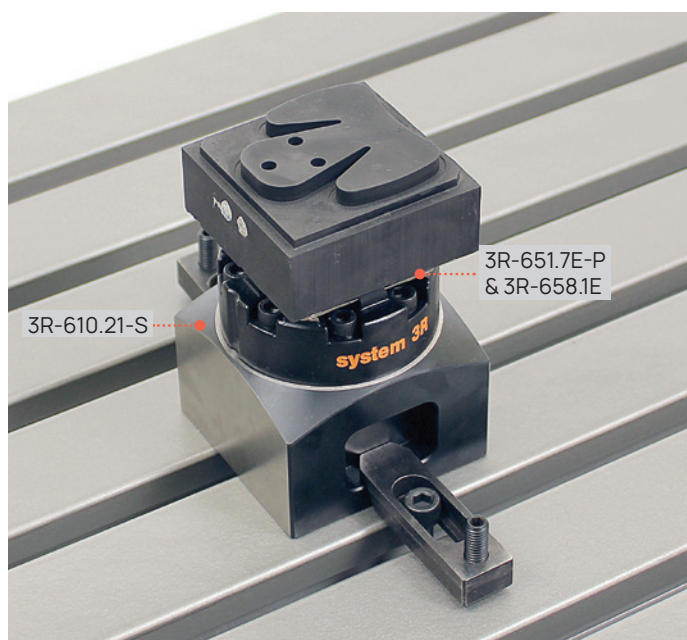
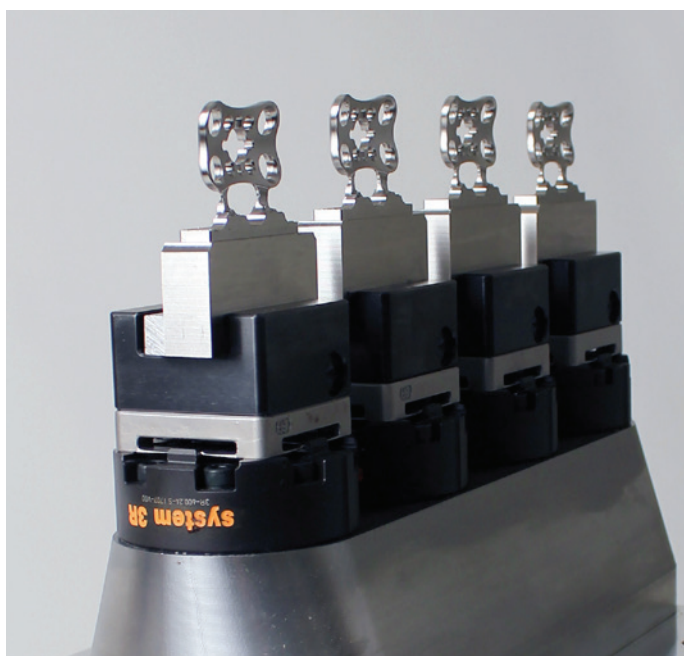
- Weight 0.2 kg.



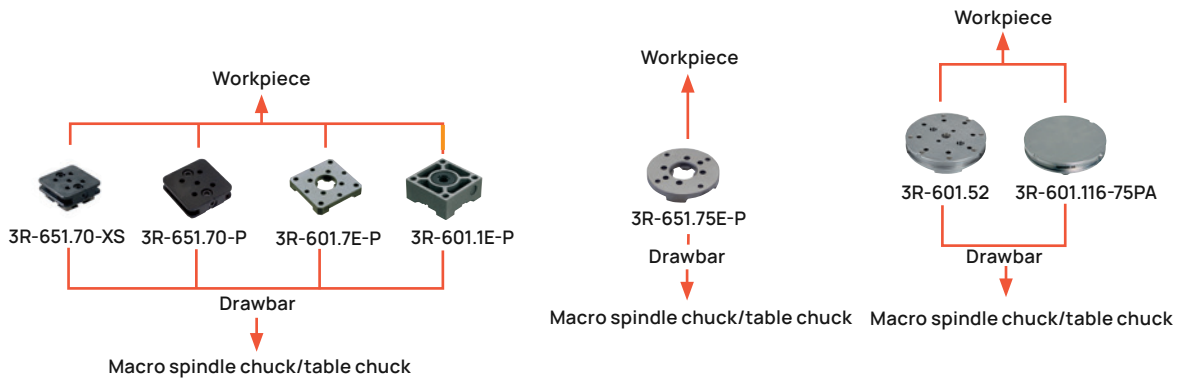
Macro – Pallets & reference elements



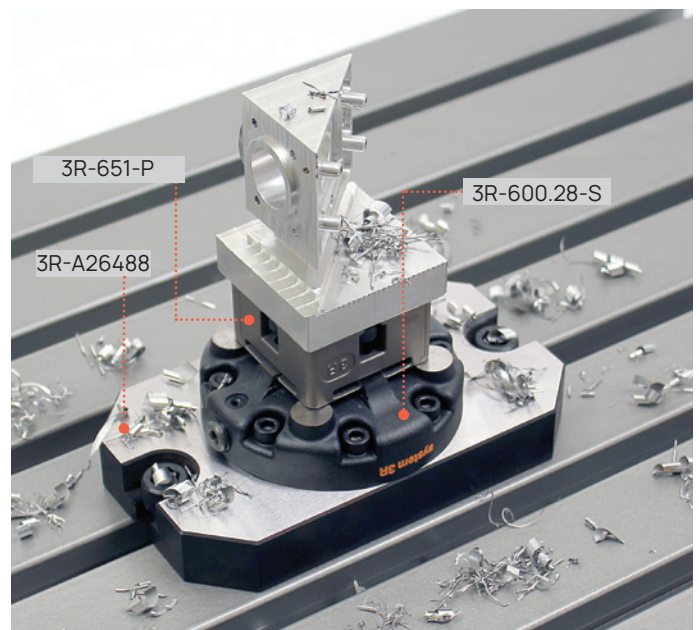
Pallets and ref. elements, 54x54 mm	Article number	Feature
Hardened reference element 12.5 mm, HP	3R-651.7E-P	rust resistant
Hardened reference element 12.5 mm, Std	3R-651.7E-XS	
Hardened pallet 30 mm, HP	3R-651E-P	rust resistant



Macro – Pallets & reference elements



Pallets and ref. elements, 70x70 mm	Article number	Feature
Hardened reference element 12.5 mm, HP	3R-601.7E-P	rust resistant
Hardened pallet 30 mm, HP	3R-601.1E-P	rust resistant
Unhardened pallet, HP	3R-651.70-P	reference element 54x54 mm
Unhardened pallet, Std	3R-651.70-XS	reference element 54x54 mm
Ref.element, Ø75 mm		
Hardened reference element 12.5 mm standard and HP	3R-651.75E-P	rust resistant
Pallets, Ø116 mm		
Hardened pallet, HP	3R-601.52	3Refix Ø10 mm, rust resistant
Unhardened pallet, HP	3R-601.116-75PA	With reference element Ø75 mm



Macro – Pallets & reference elements

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
- Ready for automation.



Accessories:

Sealing ring, High, 3R-612.116-A

Suitable for some Macro chucks with drawbar 3R-605.1*.

NOTE: Only suitable for Ø116 mm pallets.

Sealing ring, Low, 3R-612.116-S

Suitable for some Macro chucks with drawbar 3R-605.2*.

NOTE: Only suitable for Ø116 mm pallets.



*For more info please ask System 3R.

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.



PT = Process Tooling Application example.

Accessories:

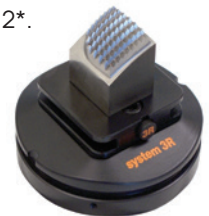
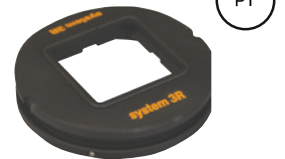
PT Sealing ring, High, 3R-612.54-A

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.

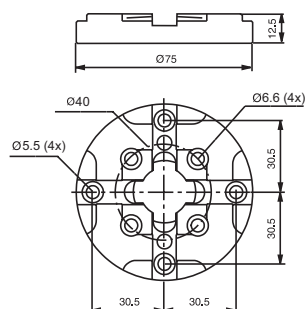


Reference element Ø75 mm, 3R-651.75E-P

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.
- Weight per set 2.7 kg.

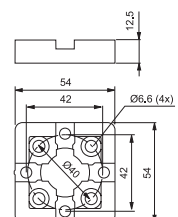


Reference element 54x54 mm, MacroHP, 3R-651.7E-P

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.



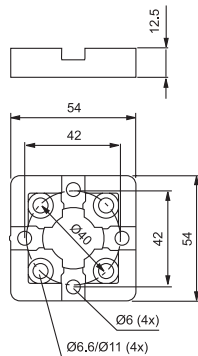
Macro – Pallets & reference elements

Reference element 54x54 mm, MacroStd, 3R-651.7E-XS

Hardened pallet for copper electrodes and workpieces.

NOTE: Must be mounted on the workpiece before it is locked in a chuck. For graphite electrodes spacer plate 3R-658.1E is required.

- Untreated side faces
- Supplied in sets of 8
- Weight per set 1.3 kg.

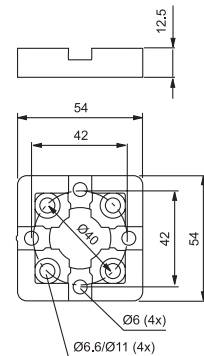


Reference element 54x54 mm, MacroStd, 3R-651.7E-S

Pallet for copper electrodes and workpieces.

NOTE: Must be mounted on the workpiece before it is locked in a chuck. For graphite electrodes spacer plate 3R-658.1E is required.

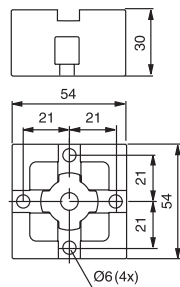
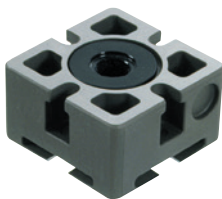
- Nickel plated coating
- Untreated side faces
- Supplied in sets of 8
- Weight per set 1.3 kg.



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.

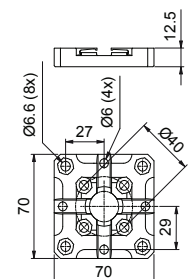
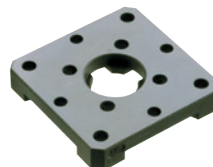


Reference element 70x70 mm, MacroHP, 3R-601.7E-P

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.

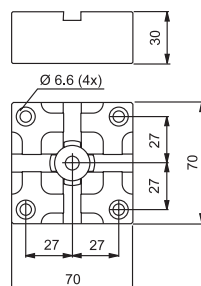
- Parallel-ground top and bottom faces
- Fixed index positions 4x90°
- Rust resistant
- Supplied in sets of 5
- Weight per set 3 kg.



Pallet 70x70 mm, MacroHP, 3R-601.1E-P

Hardened, with clearance holes for four fixing screws.

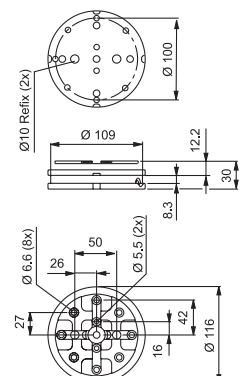
- Ready for code carrier
- Fixed index positions 4x90°
- Rust resistant
- Flushing duct
- Supplied in sets of 5
- Weight per set 3.2 kg.



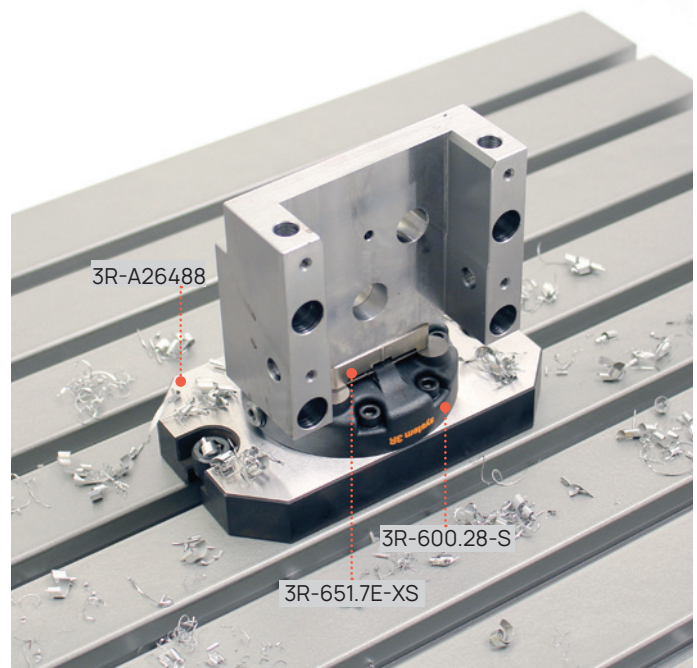
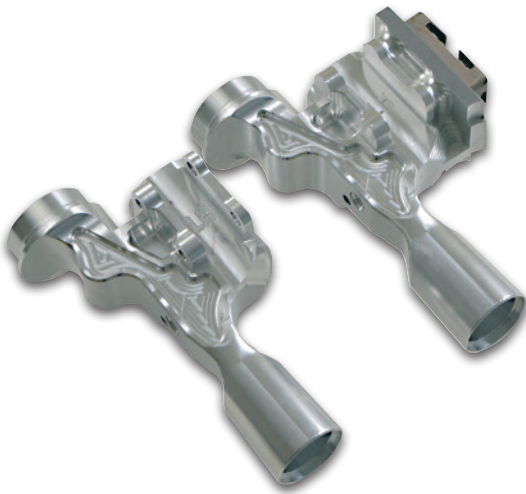
Pallet Ø116 mm, MacroHP, 3R-601.52

Hardened, with 3Refix holes and clearance holes for ten fixing screws.

- 3Refix Ø10 mm
- Ready for code carrier
- Parallel-ground top and bottom faces
- Fixed index positions 4x90°
- Rust resistant
- Weight 1.9 kg.



Macro – Accessories



Drawbars

3R-605.1E

- Ø20x57.1 mm with flushing holes Ø7 mm
- Supplied in sets of 10.



3R-605.1EE

- Supplied in sets of 40.



3R-605.2

- Ø20x36.9 mm with Ø7 mm flushing hole.



3R-605.2E

- Supplied in sets of 5.



3R-605.2EE

- Supplied in sets of 20.



3R-605.4E

For round pallets adapted for automatic changing.

- Ø20x57.1 without flushing hole
- Supplied in sets of 10.

3R-605.4EE

- Supplied in sets of 40.



3R-605.10

- Ø20x13 mm
- Rust resistant.



3R-605.10E

- Supplied in sets of 10.



3R-605.10EE

- Supplied in sets of 20.



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.

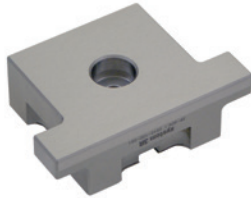
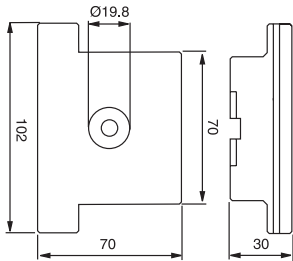


Macro – Accessories

Control ruler, 3R-606.1

For setting angular positions and for centring Macro chucks.

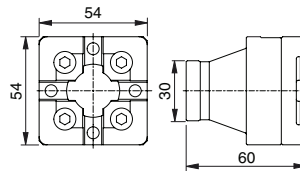
- Ground hole for centring.
- Measuring length 100 mm
- Weight 1.4 kg.



Control ruler, 3R-656.1

For setting angular positions. Ground outside diameter for centring.

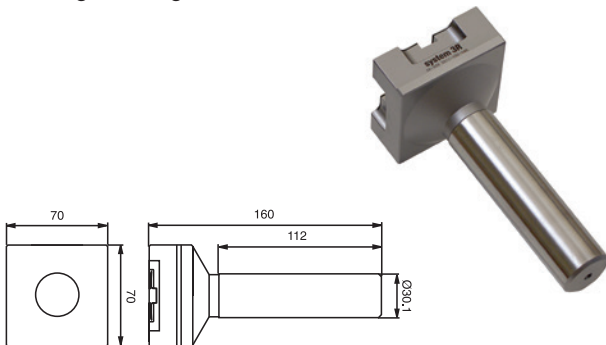
- Measuring length 50 mm
- Weight 0.8 kg.



Control rod, 3R-606

Control rod with ground C-reference for setting Macro chucks.

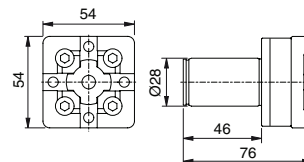
- Measuring length 110 mm
- Weight 2.3 kg.



Control rod, 3R-656

Check mandrel with ground C-reference for setting Macro chucks.

- Measuring length 38 mm
- Weight 1 kg.



Converter kit, 90842.01

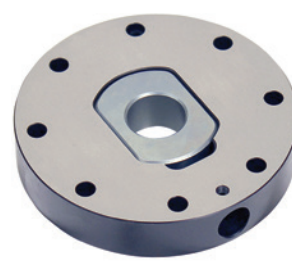
To convert 3R-600.24-S to enable long drawbar 3R-605.1.



Converter kit, 3R-A27634

To convert 3R-600.28-S to enable long drawbar 3R-605.1.

- Extra height 18.5 mm.



Macro – Accessories

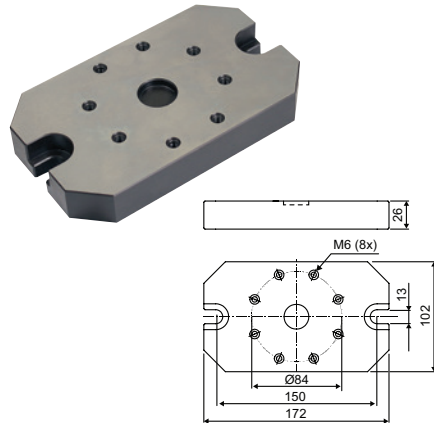
Centring ring, 3R-612.6

For centring 3R-600.20.



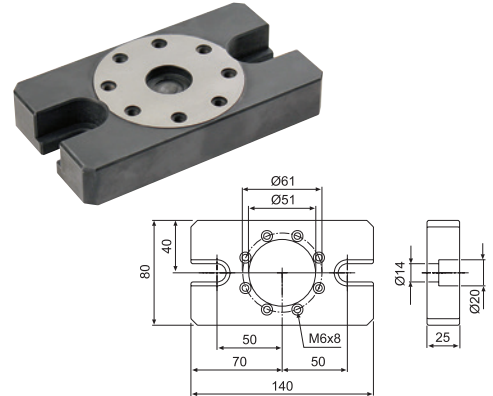
Adapter plate, 3R-A26488

For mounting 3R-600.28-S.



Adapter plate, 3R-A19724

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



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.



Torque wrenches, 3R-614-04

Mainly for MacroCombi and Ø10 3Refix mandrels.

- 4 Nm.

3R-614-06

For Macro chucks.

- 6 Nm.

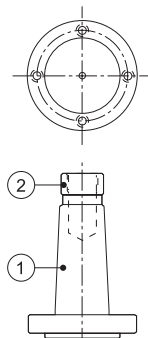


Lathe taper, 3R-TXXXX

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.



Allen key, 3R-333-03

- 3 mm
- Supplied in 10.



Allen key, 3R-333-05

- 5 mm
- Supplied in 10.

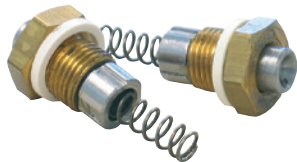


Macro – Accessories

Connection for air gun, 90815

For manual operation of pneumatic chucks with air gun.

- Supplied in sets of 2.



Locking ring key, 3R-605-GE

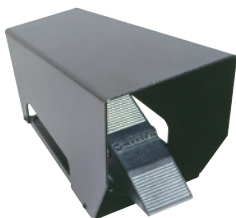
To lift the locking ring of the drawbars.

- Supplied in sets of 2.



Control unit, 3R-611.2

Foot operation of pneumatic chucks.



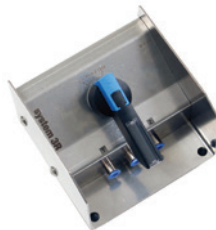
Control unit, 3R-611.4

Unit for operation of pneumatic chucks. Two functions, opened/ closed.



Control unit, 3R-611.46

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



Code carriers, 3R-863.01-10

With pre-programmed unique identity, designed for pallet use.

- Supplied in sets of 10.



3Refix mandrel

When positioning with 3Refix mandrels –always tighten the expanding mandrel in the R0 hole first.

3R-901-10E-TX

- 3Refix Ø10 mm
- Recommended tightening torque 4 Nm
- Supplied in sets of 10
- Weight per set 0.2 kg.

3R-901-20E

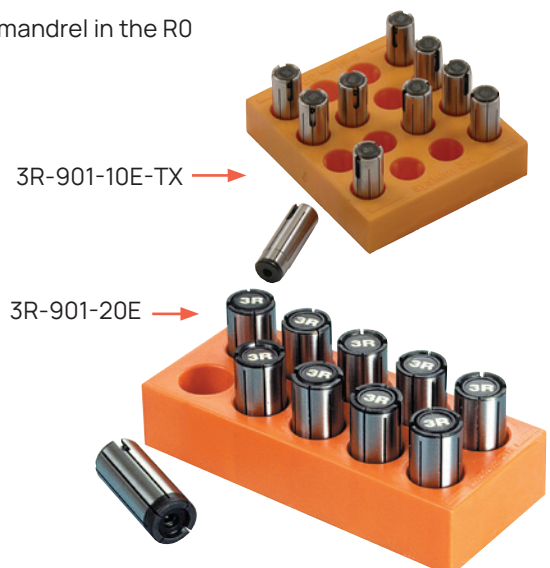
- 3Refix Ø20 mm
- Recommended tightening torque 10 Nm
- Supplied in sets of 10
- Weight per set 1 kg.

3R-901-10RS

- 3Refix Ø10 mm
- Rust-resistant
- Recommended tightening torque 4 Nm
- Weight per set 0.5 kg.

3R-901-20RS

- 3Refix Ø20 mm
- Rust-resistant
- Recommended tightening torque 10 Nm
- Weight per set 0.1 kg.



MacroNano

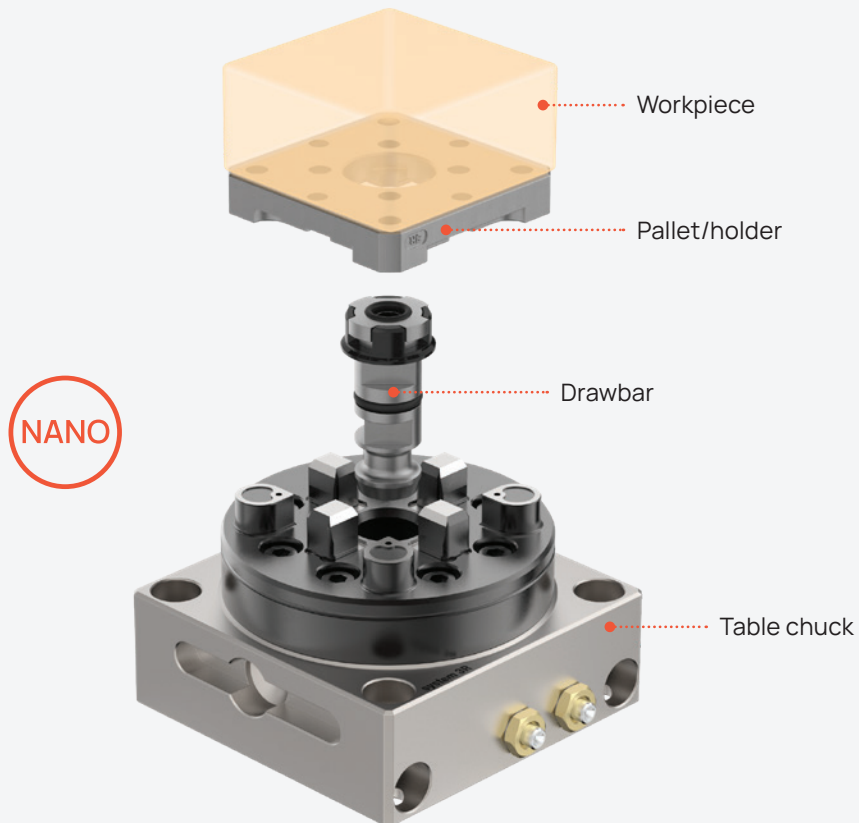
Nano-precision machining requires nano-precision referencing of workpieces and tools. Even with state-of-the-art solutions, this is a real challenge. It becomes even more challenging when references have to be determined in the shortest possible time.

Our MacroNano system is best described in two words – precise and quick! Via ultra-precise coupling of both workpiece and tool clamping, the system ensures linking throughout the entire production chain.

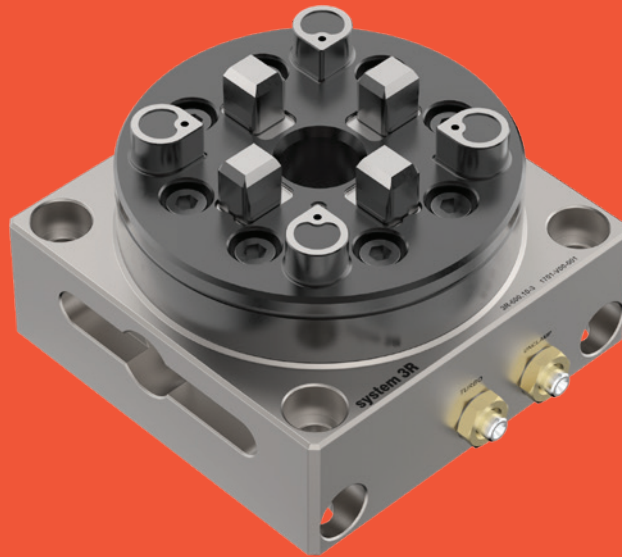
- Repetition accuracy within 0.001 mm
- Locking force 6.000 N
- Fixed index positions 4x90°
- Required air pressure, pneumatic chuck 6 bars (± 1)
- Recommended max. workpiece weight 50 kg.

ADVANTAGES

- extremely high accuracy.
- without detracting from the extreme accuracy, high-precision machines can be linked in the production chain.
- feedback to the machine for supplementary machining after inspection is possible. Such feedback is only meaningful if the pallet system is at least as accurate as the measuring machine.

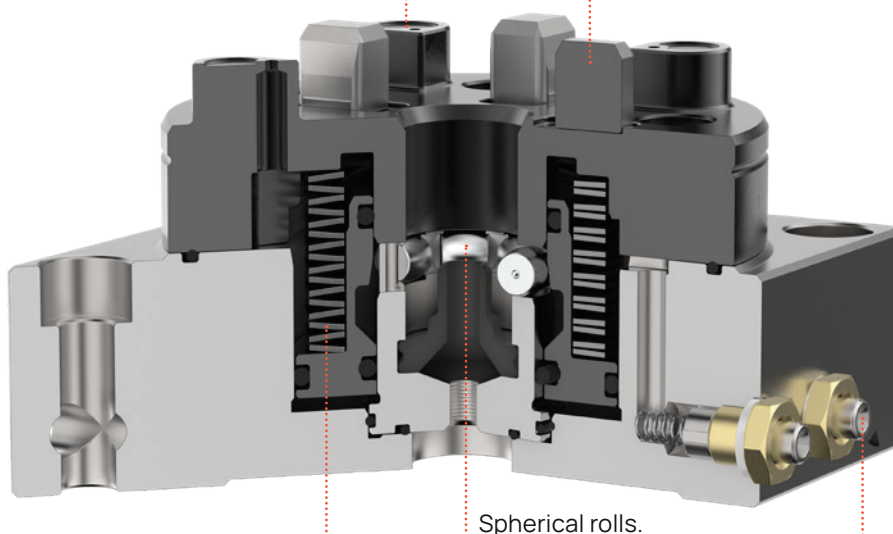


MacroNano in detail



Z-references are cleaned by air blasted through the chuck's Z-reference nozzles.

X and Y-references.



Spherical rolls.

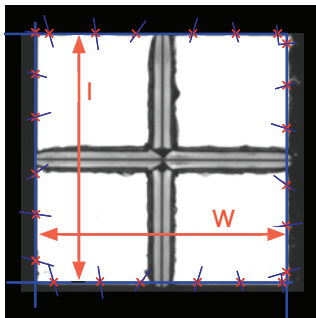
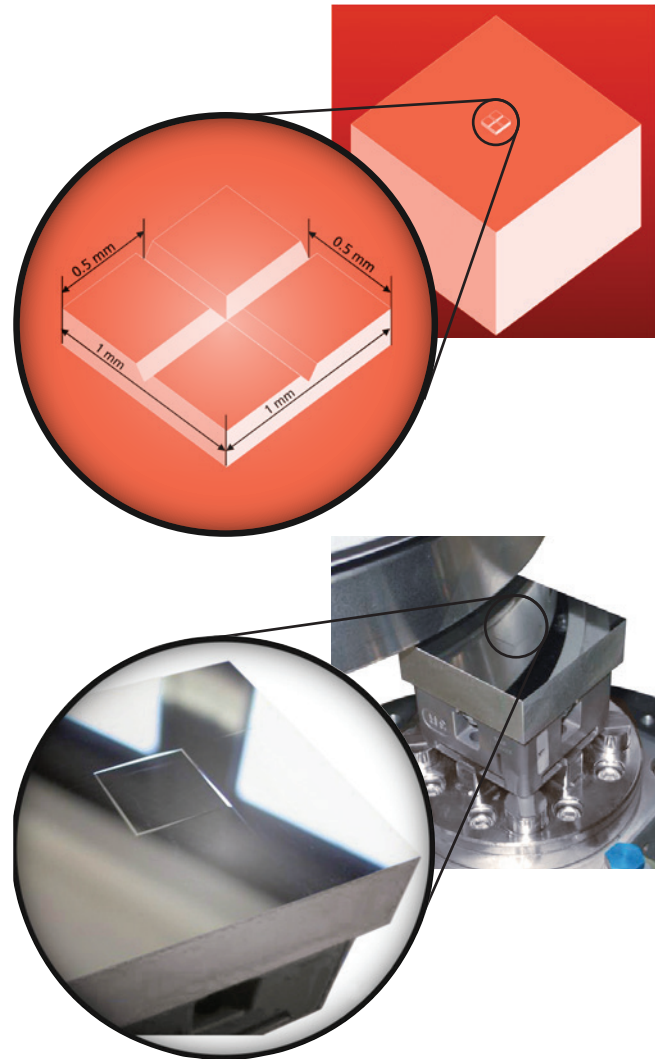
Spring-loaded when idling; special Turbo function via added air pressure.

Side air inlets are ready for air gun use on delivery.

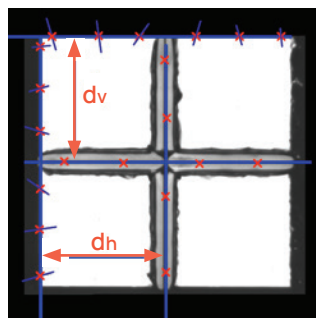
Application example: Microstructuring with diamond Machining

Micro features produced to nano precision.

This microstructure was produced using two different diamond flycutting machines. Each was equipped with a MacroNano chuck and use was made of the MacroNano system's indexing feature. The square in the middle of the workpiece (picture on the right) was produced by plane milling on the 1st machine. To produce the microgrooves, the pallet carrying the workpiece was then transferred to the 2nd machine's chuck. The zero reference was determined only once on the 1st machine. Thanks to the MacroNano system's precision (indexing included therein), it was then carried throughout the entire process chain. Overall structure deviation was less than 0.5 microns.



Cube dimension measurement



Groove position measurement

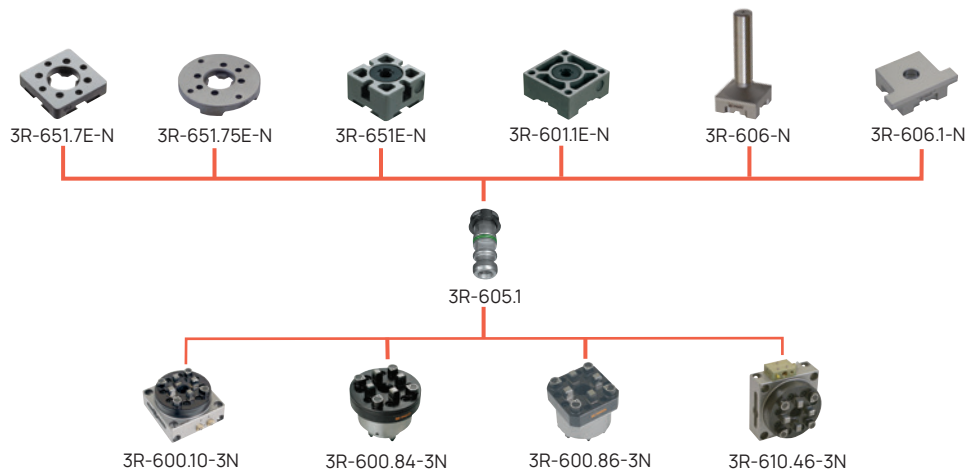


Width (mm)		Length (mm)		Vertical dist. (mm)		Horizontal dist. (mm)	
W ₁	0.9996	l ₁	0.9999	dv ₁	0.4988	dh ₁	0.5013
W ₂	0.9996	l ₂	0.9999	dv ₂	0.4993	dh ₂	0.4995
W ₃	0.9996	l ₃	0.9999	dv ₃	0.4996	dh ₃	0.5001
W ₄	0.9997	l ₄	0.9999	dv ₄	0.4991	dh ₄	0.4995
W ₅	0.9996	l ₅	0.9998	dv ₅	0.5010	dh ₅	0.5001
W ₆	0.9996	l ₆	0.9998	dv ₆	0.5007	dh ₆	0.5002
W ₇	0.9997	l ₇	0.9999	dv ₇	0.4996	dh ₇	0.5012
W ₈	0.9996	l ₈	0.9999	dv ₈	0.4992	dh ₈	0.5009
W ₉	0.9997	l ₉	0.9999	dv ₉	0.4996	dh ₉	0.5009
W ₁₀	0.9996	l ₁₀	0.9998	dv ₁₀	0.4998	dh ₁₀	0.5008
W	0.9996	l	0.9999	dv	0.4997	dh	0.5004

Mean values

Overall structure deviation < 0.5 μ m

MacroNano – Chucks, pallets, reference elements & accessories



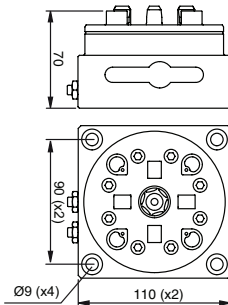
Pneumatic chuck, MacroNano, 3R-600.10-3N

Chuck for mounting on the machine table.

- Fixed index positions 4x90°
- Required air pressure, pneumatic chuck 6 bars (± 1)
- References of cemented carbide
- Required drawbar 3R-605.1
- Air-blast cleaning of Z-references
- Turbo locking
- Weight 4.4 kg.



NANO



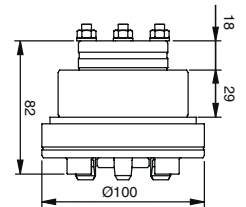
Pneumatic chuck, MacroNano, 3R-600.84-3N

Chuck for building-in, for example in a fixture, dividing head or B-axis.

- Fixed index positions 4x90°
- Required air pressure, pneumatic chuck 6 bars (± 1)
- References of cemented carbide
- Required drawbar 3R-605.1
- Air-blast cleaning of Z-references
- Turbo locking
- Weight 2.4 kg.



NANO



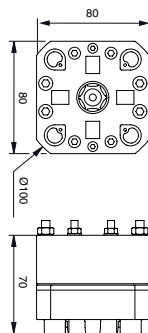
Pneumatic chuck, MacroNano, 3R-600.86-3N

Chuck for building-in, for example in a fixture.

- Fixed index positions 4x90°
- Required air pressure, pneumatic chuck 6 bars (± 1)
- References of cemented carbide
- Required drawbar 3R-605.1
- Air-blast cleaning of Z-references
- Turbo locking
- Weight 1.8 kg.



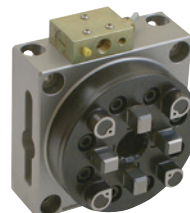
NANO



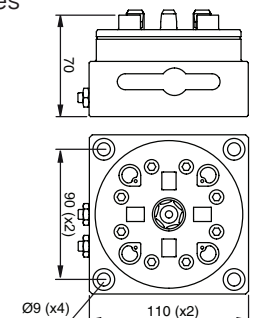
Pneumatic chuck, MacroNano, 3R-610.46-3N

Chuck for mounting on the machine table with integral air unit. For horizontal and vertical use.

- Fixed index positions 4x90°
- Required air pressure, pneumatic chuck 6 bars (± 1)
- References of cemented carbide
- Required drawbar 3R-605.1
- Air-blast cleaning of Z-references
- Turbo locking
- Weight 4.4 kg.



NANO



MacroNano – Pallets, reference elements & accessories

Reference element 54x54 mm, MacroNano, 3R-651.7E-N

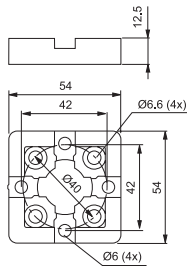
Hardened and precision-cast, with clearance holes for four fixing screws.

NOTE: Must be mounted on the workpiece/fixture before it is locked in a chuck.

- Fixed index positions 4x90°
- Parallel-ground top and bottom face
- Rust resistant
- Supplied in sets of 8
- Weight per set 1.2 kg.



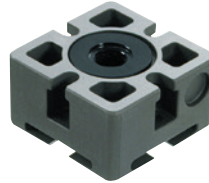
NANO



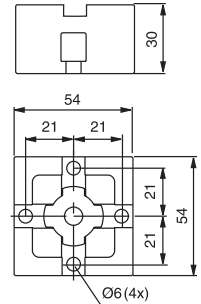
Pallet 54x54 mm, MacroNano, 3R-651E-N

Hardened with clearance holes for four fixing screws.

- Fixed index positions 4x90°
- Ready for code carrier
- Rust resistant
- Supplied in sets of 8
- Weight per set 3.4 kg.



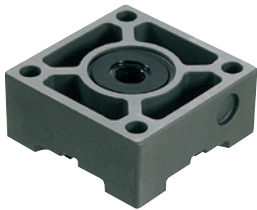
NANO



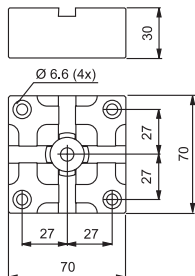
Pallet 70x70 mm, MacroNano, 3R-601.1E-N

Hardened with clearance holes for four fixing screws.

- Fixed index positions 4x90°
- Ready for code carrier
- Rust resistant
- Supplied in sets of 5
- Weight per set 3.6 kg.



NANO



Reference element Ø 75 mm, MacroNano, 3R-651.75E-N

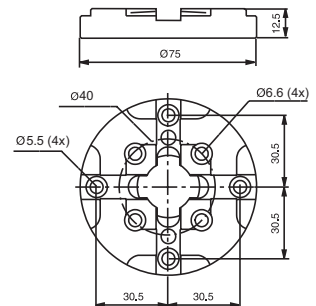
Hardened and milled with clearance holes for eight fixing screws.

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
- Weight per set 2.7 kg.



NANO

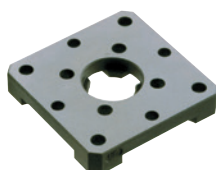


Reference element 70x70 mm, MacroNano, 3R-601.7-N

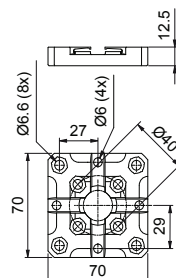
Hardened and precision-cast, with clearance holes for four fixing screws.

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.



NANO



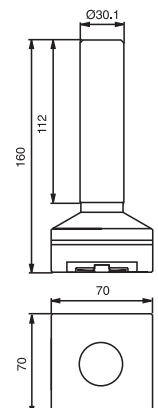
Control rod, MacroNano, 3R-606-N

Control rod with ground C-reference for setting Macro chucks.

- Measuring length 110 mm.
- Weight 2.3 kg.



NANO

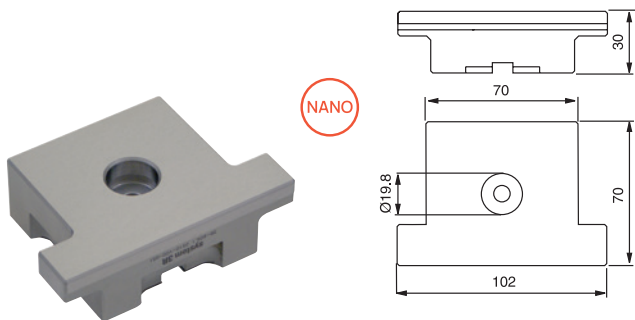


MacroNano – Accessories

Control ruler, MacroNano, 3R-606.1-N

For setting angular positions and for centring Macro chucks.

- Measuring length 100 mm.
- Weight 1.4 kg.



Drawbar, 3R-605.1E

- Ø20x57.1 mm with flushing holes Ø7 mm.
- Supplied in sets of 10.



Locking ring key, 3R-605-GE

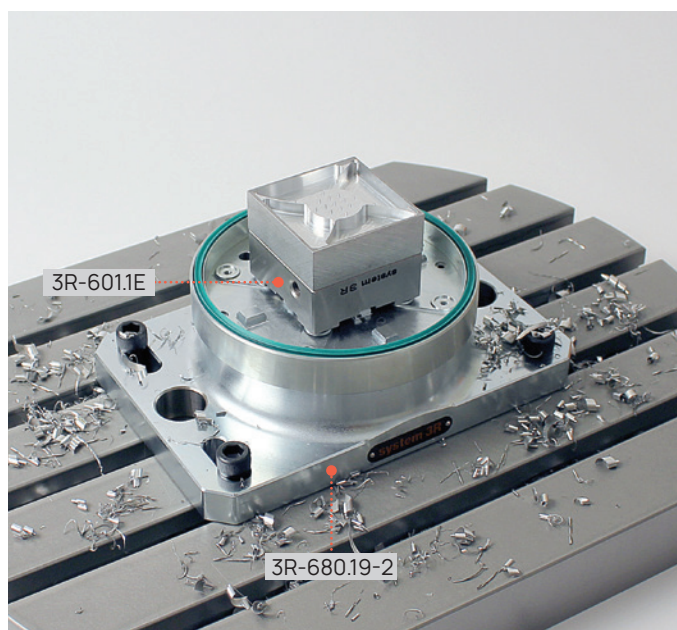
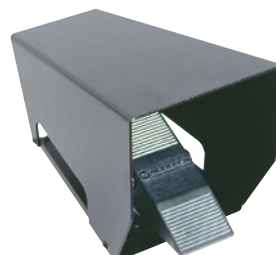
To lift the locking ring of the drawbars.

- Supplied in sets of 2.



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.



MacroMagnum

MacroMagnum is a larger variant of our patented Macro system. Its high clamping force and the position of the reference surfaces far away from the chuck centre mean that MacroMagnum can provide "Macro class" stability and accuracy, even in applications with high machining forces. The double references of the chucks mean that, in addition to the MacroMagnum pallets, the extensive range of Macro pallets can also be fixed to MacroMagnum.

THE DIFFERENCE BETWEEN A PALLET AND A REFERENCE ELEMENT

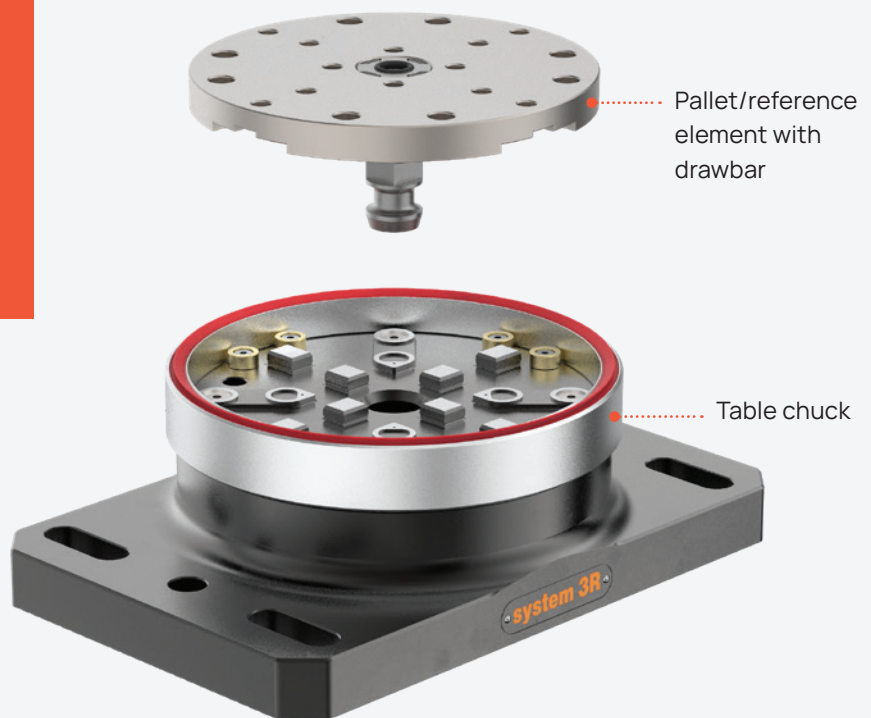
Usually an electrode blank is mounted directly on a pallet. Throughout the manufacturing process, this then carries the blank from machine to machine without subsequent re-alignment.

ADVANTAGES

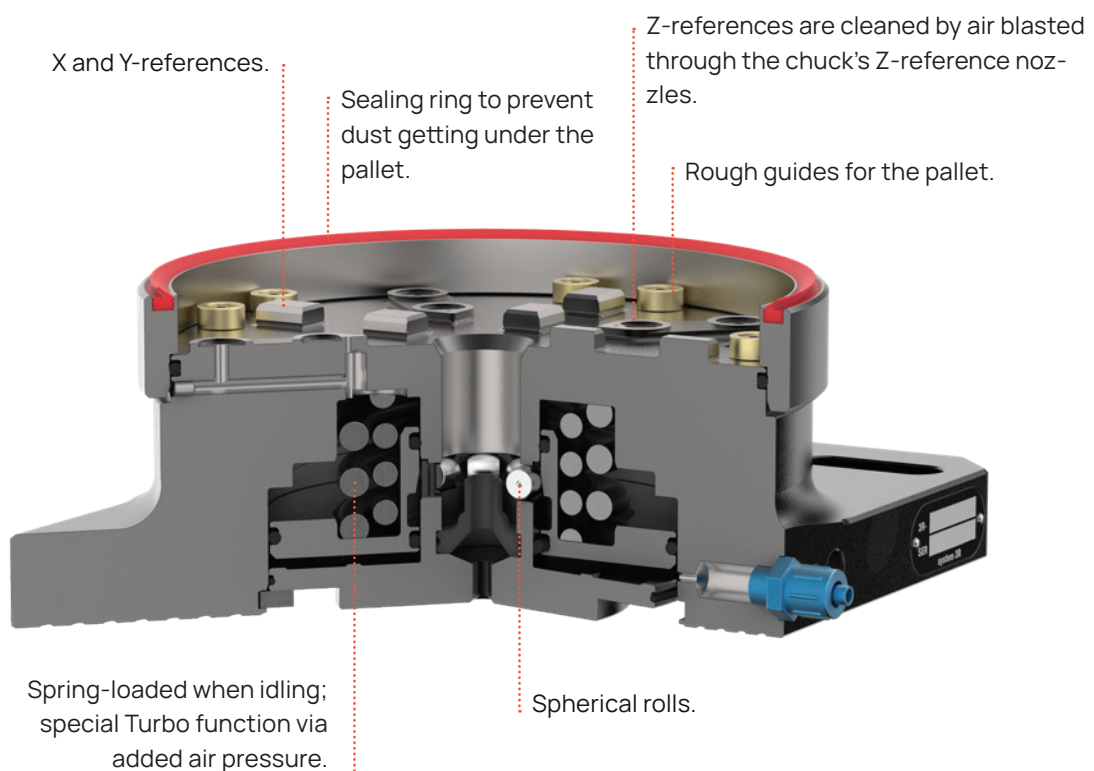
- enables mounting of both MacroMagnum and Macro pallets.
- Reduces set-up times.
- Ensures precision and quality.
- Can handle high machining forces.
- Is suitable for automatic changing with System 3R's automation program.

Reference elements are primarily intended for mounting on fixtures or vices in which a workpiece is to be clamped. They are significantly thinner and thus have height advantages.

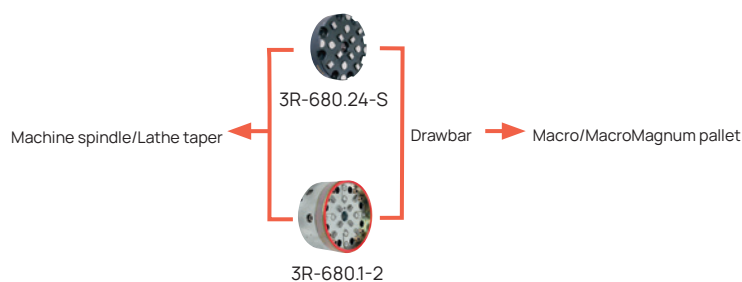
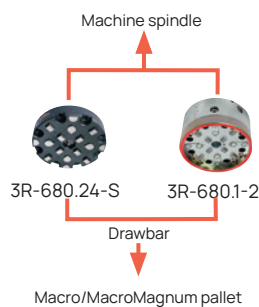
- Repetition accuracy within 0.002 mm
- Clamping force 16.000 N
- Fixed index positions 4x90°
- Required air pressure, pneumatic chuck 6 bars (± 1)
- Recommended tightening torque manual chuck Macro-pallet 4 Nm
- Recommended tightening torque manual chuck MacroMagnum-pallet 10 Nm.
- Max. workpiece weight (manual loading) 100 kg.



MacroMagnum in detail



MacroMagnum – Chucks



Spindle chucks	Article number	Drawbar	Feature
Manual	3R-680.24-S	3R-605.2	low profile
Pneumatic	3R-680.1-2	3R-605.1 / 3R-605.4	
Lathe chucks			
Manual	3R-680.24-S	3R-605.2	low profile, fits 90809.01-10
Pneumatic	3R-680.1-2	3R-605.1 / 3R-605.4	

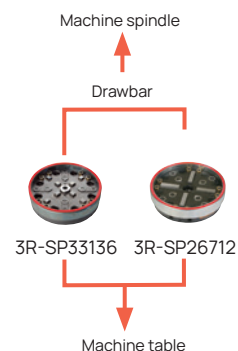
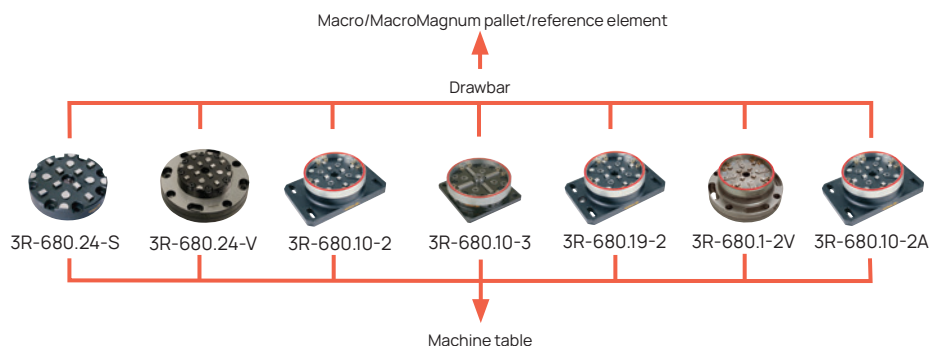
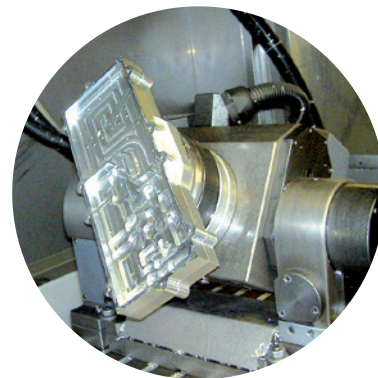
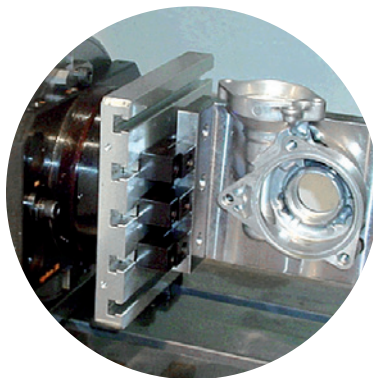


Table chucks	Article number	Drawbar	Feature
Manual	3R-680.24-S	3R-605.2	low profile
Manual	3R-680.24-V	3R-605.2	vibration-damped
Pneumatic	3R-680.10-2	3R-605.1 / 3R-605.4	
Pneumatic	3R-680.10-3	3R-605.2	low profile
Pneumatic	3R-680.19-2	3R-605.1 / 3R-605.4	3Refix Ø20 mm
Pneumatic	3R-680.1-2V	3R-605.1 / 3R-605.4	vibration-damped
Pneumatic	3R-680.10-2A	3R-605.1 / 3R-605.4	for chuck adapter
Build-in chucks			
Pneumatic	3R-SP33136	3R-605.2	low profile
Pneumatic	3R-SP26712	3R-605.2	low profile

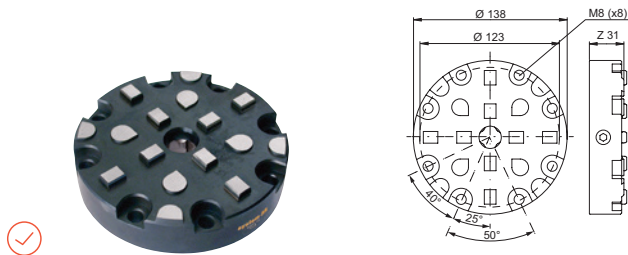


MacroMagnum – Chucks

Manual chuck, 3R-680.24-S

Low profile chuck for permanent mounting on the machine spindle or table.

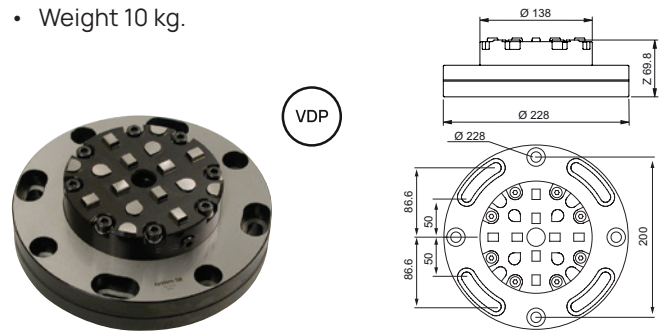
- Required drawbar 3R-605.2.
- Recommended tightening torque:
Macro pallet 4 Nm
MacroMagnum pallet 10 Nm
- Fixed index positions 4x90°
- Weight 5 kg.



Manual chuck, VDP, 3R-680.24-V

Manual vibration-damped table chuck.

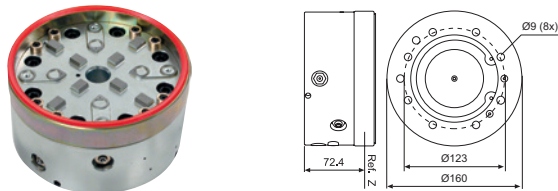
- Required drawbar 3R-605.2
- Recommended tightening torque:
Macro pallet 4 Nm
MacroMagnum pallet 10 Nm
- Fixed index positions 4x90°
- Weight 10 kg.



Pneumatic chuck, 3R-680.1-2

Pneumatic chuck for machine spindles and lathes. Opened/locked by an air gun against a valve on the side, or alternatively on the back, of the chuck.

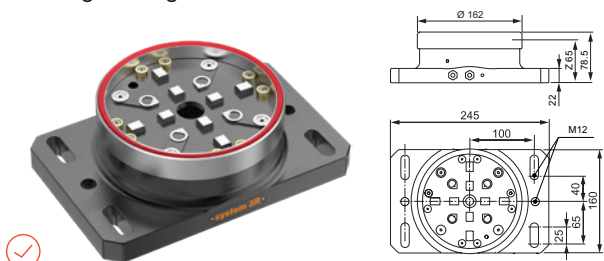
- Required drawbar 3R-605.1 or 3R-605.4
- Required air pressure 6 bars (± 1)
- Fixed index positions 4x90°
- Sealing ring
- Turbo-locking of MacroMagnum pallets
- Weight 9 kg.



Pneumatic chuck, 3R-680.10-2

Pneumatic table chuck.

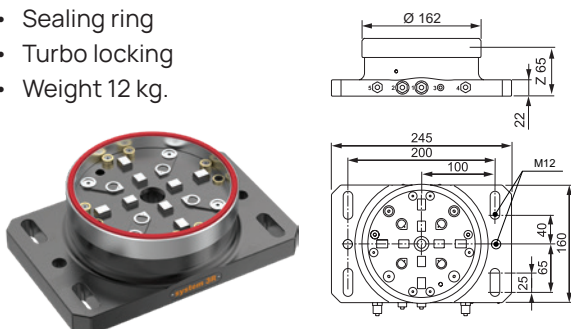
- Required drawbar 3R-605.1 or 3R-605.4
- Required air pressure 6 bars (± 1)
- Fixed index positions 4x90°
- Air-blast cleaning of the Z-references
- Sealing ring
- Turbo-locking of MacroMagnum pallets
- Weight 12 kg.



Pneumatic chuck, 3R-680.10-2A

Pneumatic table chuck for chuck adapter.

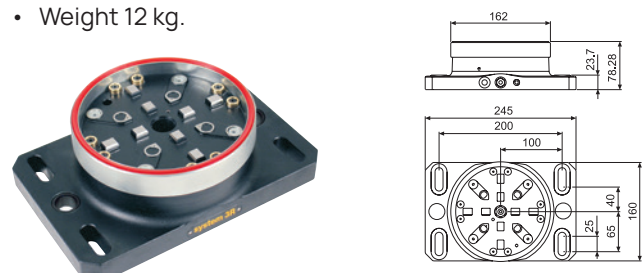
- Required drawbar 3R-605.1 or 3R-605.4
- Required air pressure 6 bars (± 1)
- Fixed index positions 4x90°
- Air-blast cleaning of Z-references on chuck and chuck adapter
- Sealing ring
- Turbo locking
- Weight 12 kg.



Pneumatic chuck, 3R-680.19-2

Pneumatic table chuck with 3Refix-holes.

- 3Refix Ø20 mm
- Required drawbar 3R-605.1 or 3R-605.4
- Required air pressure 6 bars (± 1)
- Fixed index positions 4x90°
- Air-blast cleaning of the Z-references
- Sealing ring
- Turbo-locking of MacroMagnum pallets
- Weight 12 kg.

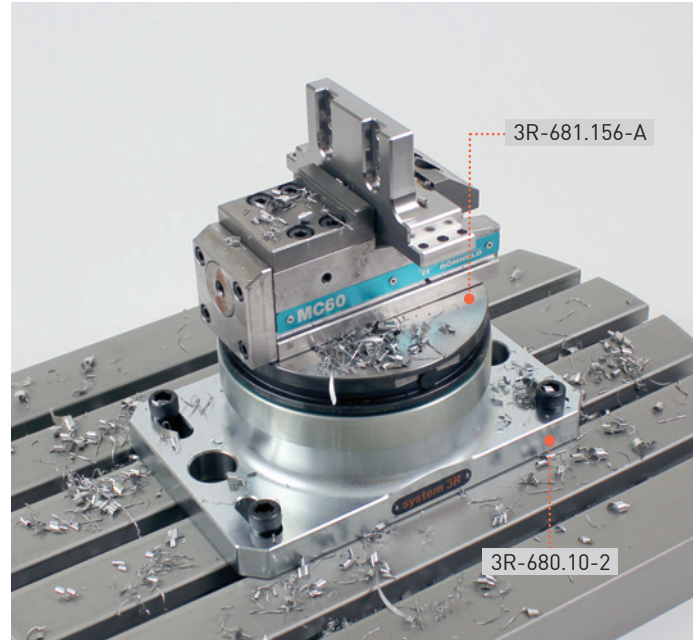
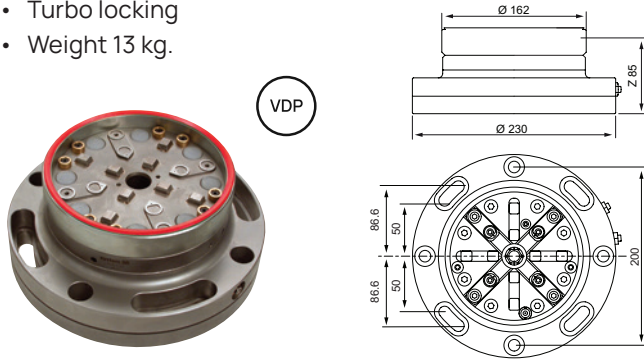


MacroMagnum – Chucks

Pneumatic chuck, VDP, 3R-680.1-2V

Pneumatic vibration-damped table chuck.

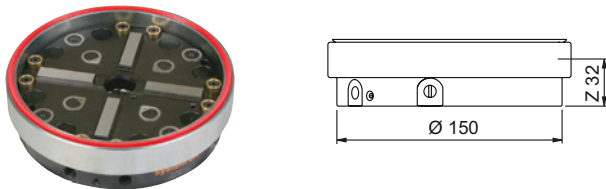
- Required drawbar 3R-605.1 or 3R-605.4
- Required air pressure 6 bars (± 1)
- Fixed index positions 4x90°
- Air-blast cleaning of the Z-references
- Turbo locking
- Weight 13 kg.



Pneumatic chuck, 3R-SP26712

For permanent mounting on the machine table.

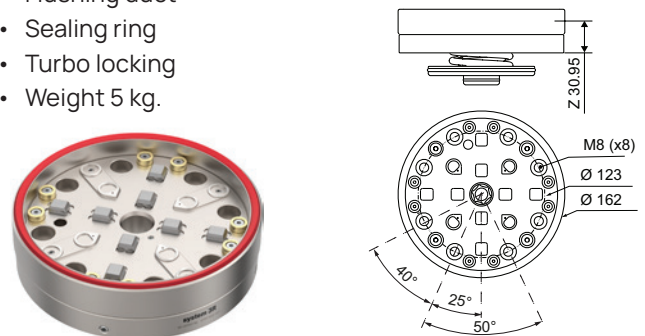
- Supplied with drawbar 3R-605.2
- Required air pressure 6 bars (± 1)
- Fixed index positions 4x90°
- Flushing duct
- Air-blast cleaning of the Z-references
- Sealing ring
- Turbo locking
- Weight 5 kg.



Pneumatic chuck, 3R-SP33136

Pneumatic chuck intended for permanent building-in.

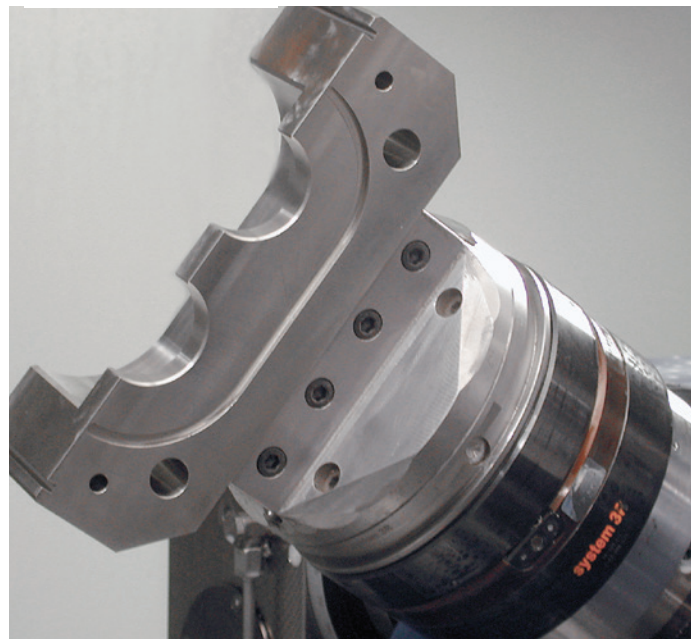
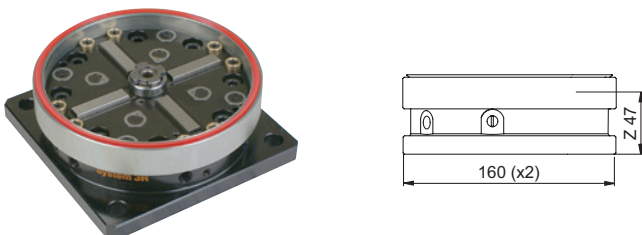
- Required drawbar 3R-605.1 or 3R-605.4
- Required air pressure 6 bars (± 1)
- Fixed index positions 4x90°
- Air-blast cleaning of the Z-references
- Flushing duct
- Sealing ring
- Turbo locking
- Weight 5 kg.



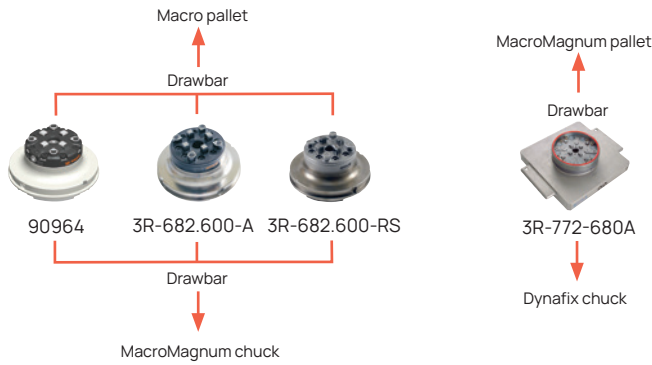
Pneumatic chuck, 3R-680.10-3

For permanent mounting on the machine table.

- Supplied with drawbar 3R-605.2
- Required air pressure 6 bars (± 1)
- Fixed index positions 4x90°
- Flushing duct
- Air-blast cleaning of the Z-references
- Sealing ring
- Turbo locking
- Weight 7.5 kg.



MacroMagnum – Chuck adapters

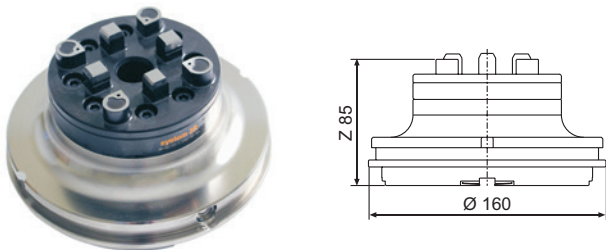


Chuck adapters	Article number	Drawbar	Feature
Pneumatic	90964	3R-605.2	MacroMagnum ► Macro
Pneumatic	3R-682.600-A	3R-605.1	MacroMagnum ► Macro
Pneumatic	3R-682.600-RS	3R-605.1RS	MacroMagnum ► Macro
Pneumatic	3R-772-680A	3R-605.1	Dynafix ► MacroMagnum

Pneumatic chuck adapter, MacroMagnum-Macro, 3R-682.600-A

Chuck adapter with built-in pneumatic Macro chuck for mounting in 3R-680.10-2A.

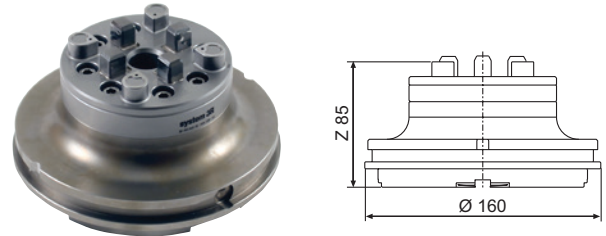
- Requires drawbar 3R-605.1
- Carbide X & Y-References
- Turbo locking
- Max load 50 kg to acquire accuracy 0.002 mm
- Weight 4.5 kg.



Pneumatic chuck adapter, MacroMagnum-Macro, 3R-682.600-RS

Chuck adapter with built-in Pneumatic Macro chuck.

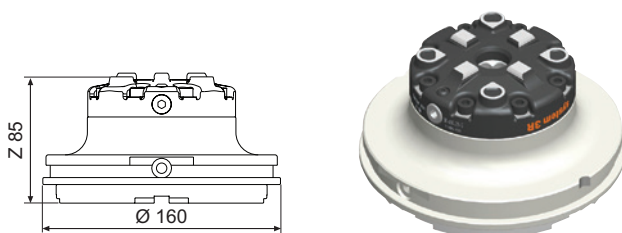
- Requires drawbar 3R-605.1RS
- Carbide X & Y-References
- Rust resistant
- Turbo locking
- Max load 50 kg to acquire accuracy 0.002 mm
- Weight 4.8 kg.



Manual chuck adapter, MacroMagnum-Macro, 90964

From MacroMagnum into Macro system. Chuck adapter with built-in Macro chuck.

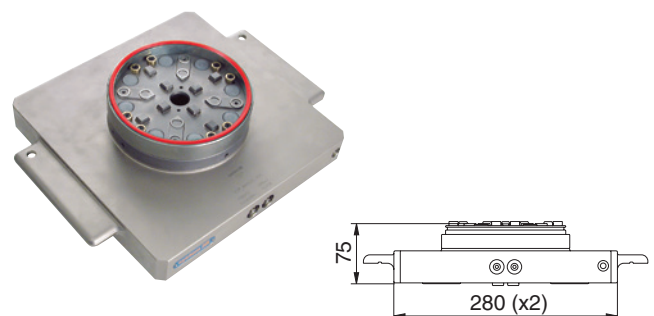
- Requires drawbar 3R-605.2
- Solid X & Y-References
- Recommended clamping torque 6 Nm
- Permissible torque 135 Nm
- Max load 50 kg to acquire accuracy 0.002 mm
- Weight 4.3 kg.



Pneumatic chuck adapter, Dynafix-MacroMagnum, 3R-772-680A

Chuck adapter with built-in pneumatic MacroMagnum chuck for mounting in 3R-770-1A or 3R-770-5A.

- Requires drawbar 3R-605.1
- Weight 13.5 kg.



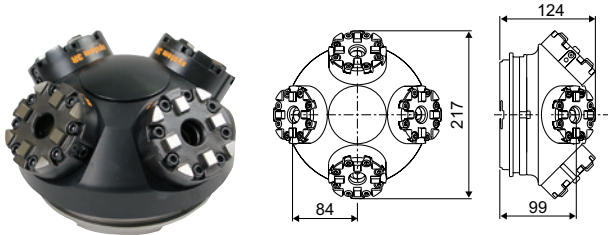
MacroMagnum – Chuck adapters

Manual Multi Station, MacroMagnum-Macro, 3R-682.600-244

Multi holder with 4 Macro chucks (prepared for 5 chucks in total). Angling clears the path for machine tools.

NOTE: Also available with 5 Macro chucks, ask for 3R-682.600-245.

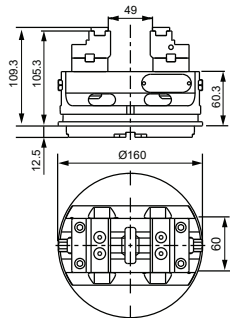
- Requires drawbar 3R-605.2 (x4)
- Optimal for 5-axis machines
- Macro chucks 3R-600.24-S included (x4)
- Mounted onto a MacroMagnum pallet
- Weight 10 kg.



Centering vice, MacroMagnum, 3R-688-CV

Centering vice on MacroMagnum reference element. Choose between different inserts (not included).

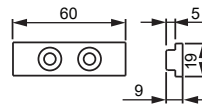
- Vice length 160 mm
- Jaws width 60 mm
- Clamping length 49/93 mm
- Clamping force 30.000 N
- Weight 6.8 kg.



Pair of clamping inserts, MacroMagnum, 3R-688-J4

Clamping inserts 60 mm. Rough carbide coating. Fits on Centering vice, MacroMagnum, 3R-688-CV.

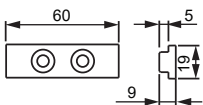
- Weight 0.1 kg.



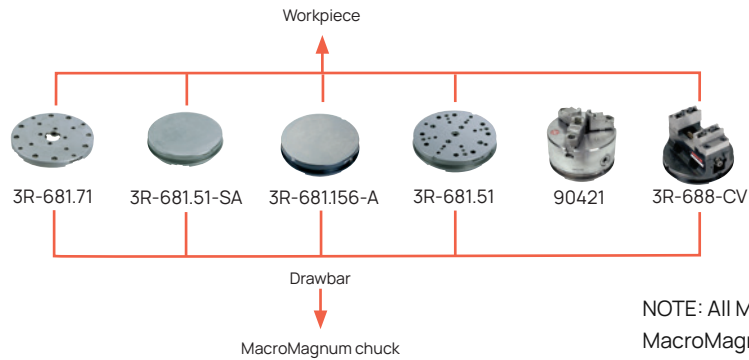
Pair of grip inserts, MacroMagnum, 3R-688-J3

Grip inserts 60 mm. Fits on Centering vice, MacroMagnum, 3R-688-CV.

- Weight 0.1 kg.



MacroMagnum – Pallets & reference element



NOTE: All Macro pallets can be used in the MacroMagnum chucks.

Reference elements Ø142 mm	Article number	Feature
Hardened reference element 12.5 mm	3R-681.71	rust-resistant
Pallets Ø156 mm	Article number	Feature
Unhardened pallet 35 mm	3R-681.51-SA	
Unhardened pallet 35 mm	3R-681.156-A	reference element Ø142 mm
Hardened pallet 35 mm	3R-681.51	3Refix Ø10 mm
Three-jaw chuck	90421	
Centering vice	Article number	Feature
Centering vice on reference element	3R-688-CV	compatible with different inserts



Reference element Ø142 mm, 3R-681.71

Hardened pallet with clearance holes for fixing screws.

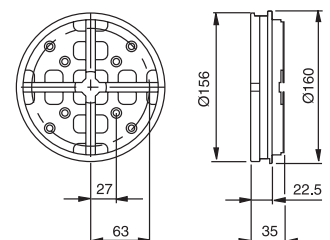
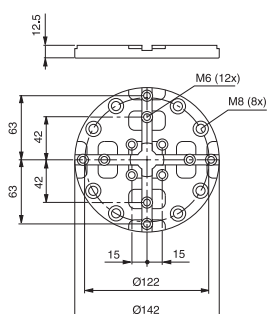
NOTE: Must be mounted on the workpiece/fixture before it is locked in a chuck.

- Rust-resistant
- Weight 1 kg.

Pallet Ø156 mm, 3R-681.51-SA

Unhardened pallet with hardened references and hole markings for eight clearance holes.

- Adapted for automatic changing
- Ready for code carrier
- Weight 4.5 kg.

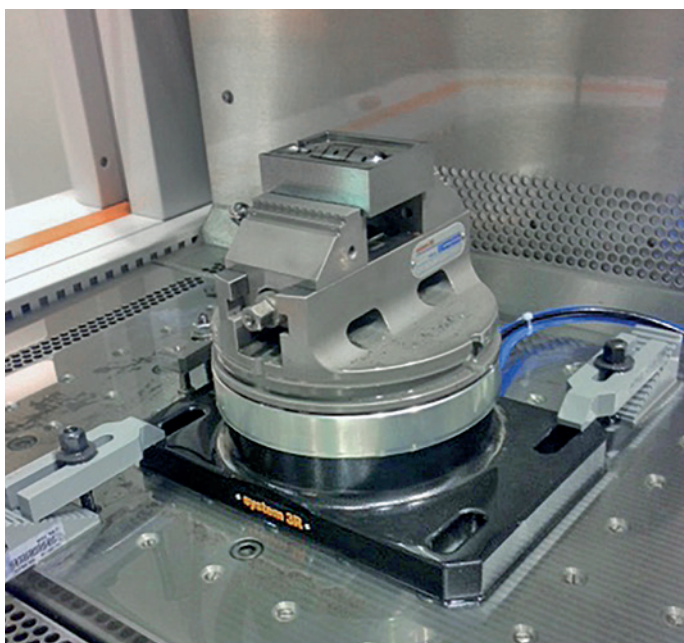
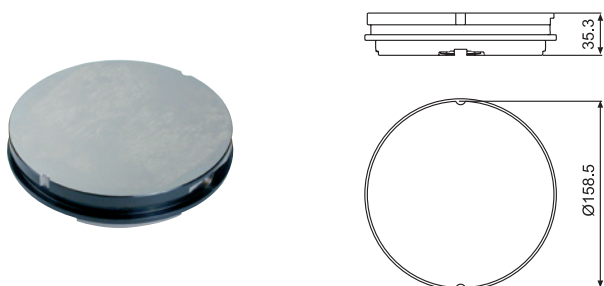


MacroMagnum – Pallets & accessories

Pallet Ø156 mm, 3R-681.156-A

Unhardened pallet with hardened reference element type 3R-681.71.

- Adapted for automatic changing
- Ready for code carrier
- Weight 4.5 kg.



3R-605.2

Ø20x36.9 mm with Ø7 mm flushing hole



3R-605.2E

- Supplied in sets of 5.



3R-605.2EE

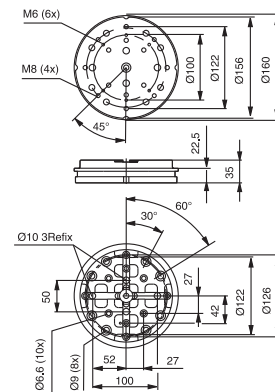
- Supplied in sets of 20.



Pallet Ø156 mm, 3R-681.51

Hardened pallet with threads and clearance holes for eight and ten fixing screws.

- 3Refix Ø10 mm
- Adapted for automatic changing
- Ready for code carrier
- Rust-resistant
- Flushing connection
- Weight 5 kg.



Drawbars

3R-605.1E

- Ø20x57.1 mm with flushing holes Ø7 mm
- Supplied in sets of 10.



3R-605.1EE

- Supplied in sets of 40.



3R-605.4E

For round pallets adapted for automatic changing.

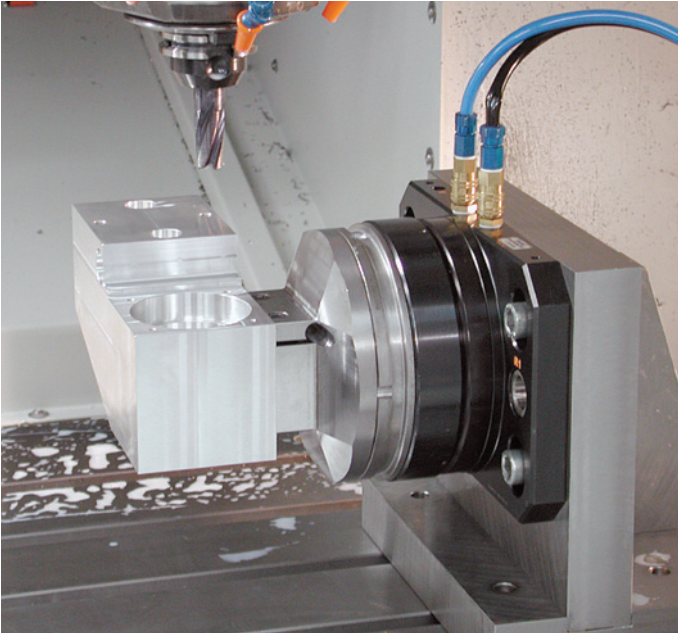
- Ø20x57.1 without flushing hole
- Supplied in sets of 10.

3R-605.4EE

- Supplied in sets of 40.



MacroMagnum – User kit & Accessories



Three-jaw chuck, 90421

Three-jaw chuck mounted on pallet 3R-681.51-SA.

- Adapted for automatic changing
- Ready for code carrier
- Total height 127 mm
- Weight 16 kg.



Control ruler, 3R-686.1-HD

Control ruler for setting flatness and angular positions. Ground hole for centring.

- Adapted for automatic changing
- Ready for code carrier
- Measuring length 130 mm
- Weight 6 kg.



Splash guard, 90027.03

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



User kit, 3R-688.24-S

3R-680.24-S, MacroMagnum chuck, Manual, Low profile, 1 pc.

3R-681.51-SA, MacroMagnum Pallet Ø156 mm, 4 pcs.

3R-605.2, Drawbar, 2 pcs.



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.

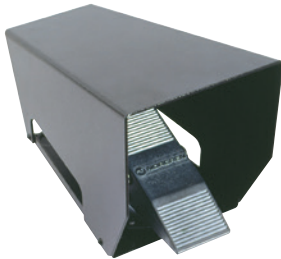
NOTE: When positioning with 3Refix mandrels – always tighten the expanding mandrel in the R0 hole first.



MacroMagnum – Accessories

Control unit, 3R-611.2

Foot operation of pneumatic chucks.



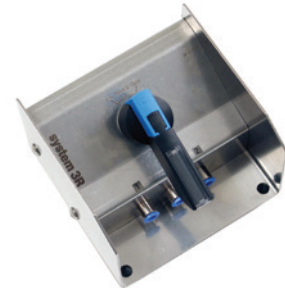
Control unit, 3R-611.4

Unit for operation of pneumatic chucks. Two functions, opened/closed.



Control unit, 3R-611.46

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



Torque wrench, 3R-614-04

For Ø10 mm 3Refix mandrels and manual MacroMagnum chucks.

- 4 Nm.



Code carriers, 3R-863.01-10

With pre-programmed unique identity, designed for pallet use.

- Supplied in sets of 10.



Connection for air gun, 90815

For manual operation of pneumatic chucks with air gun.

- Supplied in sets of 2.



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.

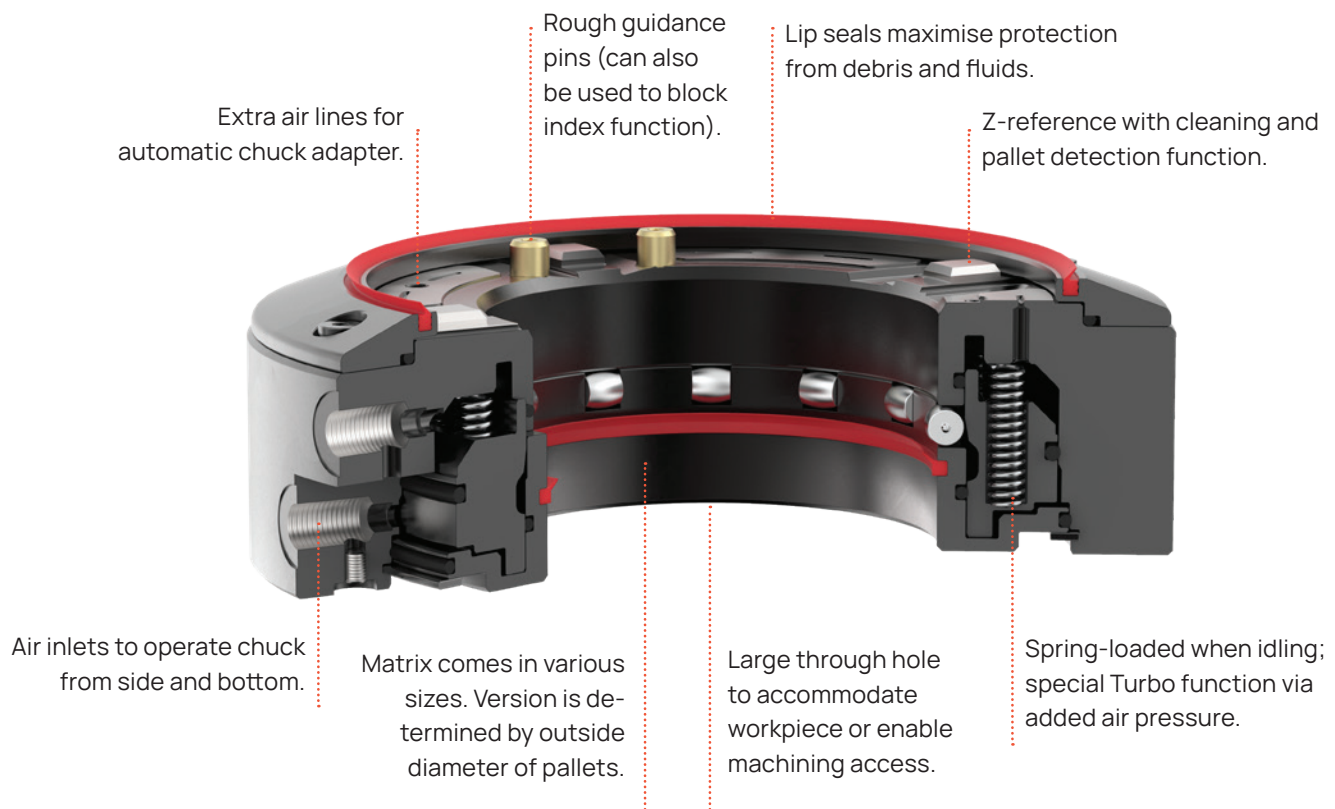


Add-on kit, 3R-SSP115-Macro

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



Matrix in detail



Matrix

Measures to reduce the downtime of your machines are significantly more worthwhile than chasing seconds in the actual machining process. What matters is keeping machines running. This is when you need an interface that enables rapid set-up..

The Matrix system is just such an interface. While machines are working on one job, upcoming jobs are set up in parallel away from them. The set-up for each new job is then installed in the stationary machine in a matter of seconds. Important for long runs, but crucial for the profitability of short runs or one-off production.

System design has been optimised for metal-cutting machining and is ideal for work involving high machining forces. The drawbar's generous diameter means short distances between references and applied locking force. This gives maximum stability and accuracy. The inherent advantages of the Matrix system truly come into their own in tough machining applications.

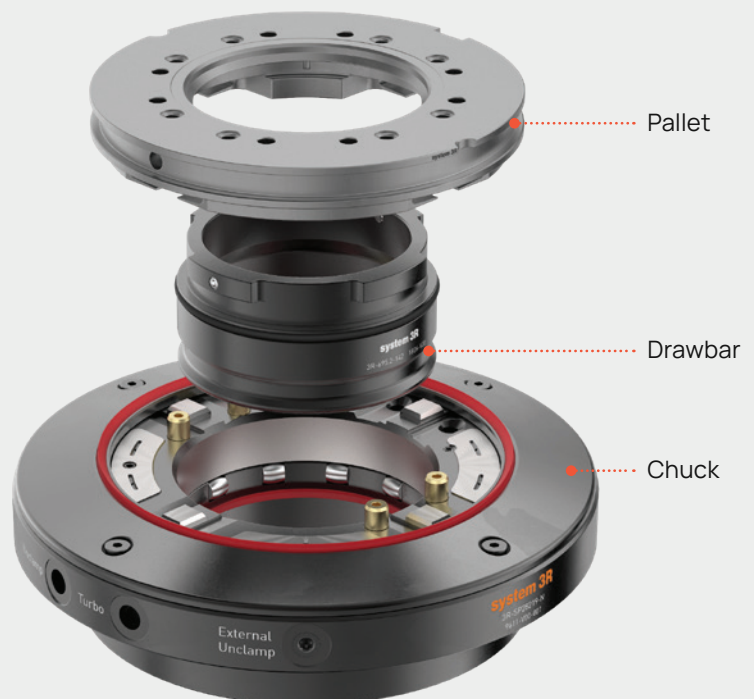
ADVANTAGES

- Reduces set-up times.
- Ensures precision and quality.
- Has automatic air-blast cleaning of the references.
- Is sealed against dirt and swarf; withstands harsh work environments.
- Has enhanced clamping force (turbo locking).
- Is suitable for automatic changing with System 3R's automation program.

As well as extreme accuracy, Matrix features low construction height, ultra-precise indexing and a drawbar with a through hole. The through hole allows high/long workpieces to be sunk into the chuck for stable/rigid mounting.

Repetition accuracy:

- Matrix 110 and Matrix 142 within 0.002 mm
Matrix 185, Matrix 220 and Matrix 260 within 0.003 mm.
- Fixed index positions 4x90°
- Required air pressure, pneumatic chuck 6 bars (± 1).
- Clamping force:
 - Matrix 110, 9.000 N
 - Matrix 142, 15.000 N
 - Matrix 185, 20.000 N
 - Matrix 220, 23.000 N
 - Matrix 260, 28.000 N
- Max. workpiece weight (manual loading):
 - Matrix 110, 50 kg.
 - Matrix 142, 100 kg.
 - Matrix 185, 100 kg.
 - Matrix 220, 200 kg.
 - Matrix 260, 200 kg.

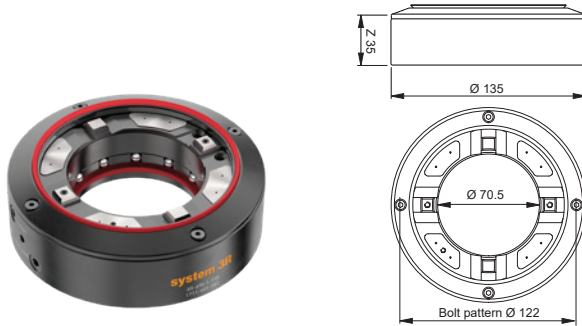


Matrix 110

Pneumatic chuck, Matrix 110, 3R-690.1-110

Chuck for permanent mounting on machine table.

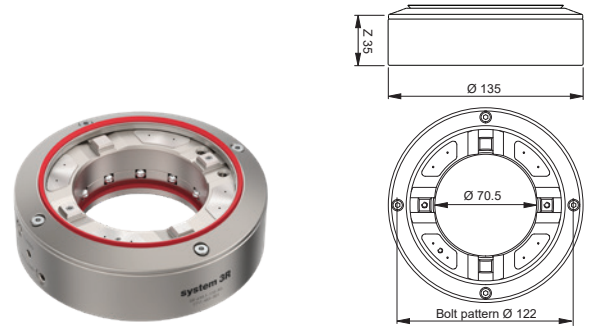
- Fixed index positions 4x90°
- Clamping force 9.000 N
- Permissible torque 100 Nm
- Required drawbar 3R-695.2-110
- Required air pressure 6 bars (± 1)
- Weight 2.5 kg.



Pneumatic chuck, Matrix 110, 3R-690.1-110-RS

Chuck for permanent mounting on machine table.

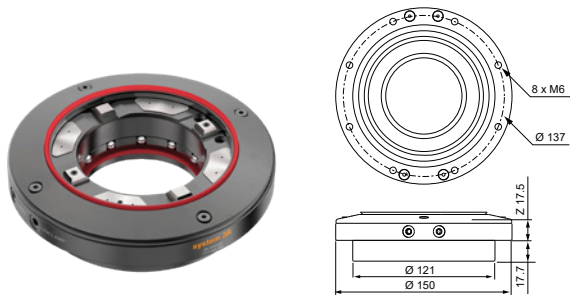
- Fixed index positions 4x90°
- Rust resistant
- Clamping force 9.000 N
- Required drawbar 3R-695.2-110RS
- Required air pressure 6 bars (± 1)
- Weight 2.5 kg.



Pneumatic build-in chuck, Matrix 110, 3R-SP28395

Chuck for permanent mounting in machine table.

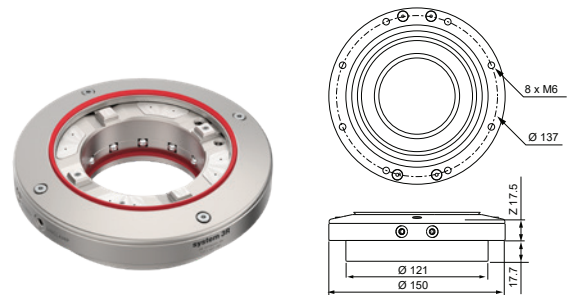
- Fixed index positions 4x90°
- Clamping force 9.000 N
- Permissible torque 100 Nm
- Required drawbar 3R-695.2-110
- Required air pressure 6 bars (± 1)
- Weight 2.7 kg.



Pneumatic build-in chuck, Matrix 110, 3R-SP28395-RS

Chuck for permanent mounting in machine table.

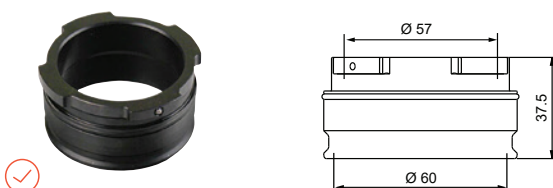
- Fixed index positions 4x90°
- Rust resistant
- Clamping force 9.000 N
- Required drawbar 3R-695.2-110RS
- Required air pressure 6 bars (± 1)
- Weight 2.7 kg.



Drawbar, Matrix 110, 3R-695.2-110

- Weight 0.3 kg.

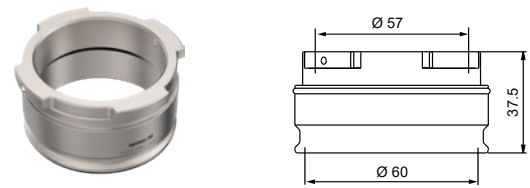
NOTE: In automated applications, the gripper has to grip the pallet and not the drawbar.



Drawbar, Matrix 110, 3R-695.2-110RS

- Rust resistant
- Weight 0.3 kg.

NOTE: In automated applications, the gripper has to grip the pallet and not the drawbar.

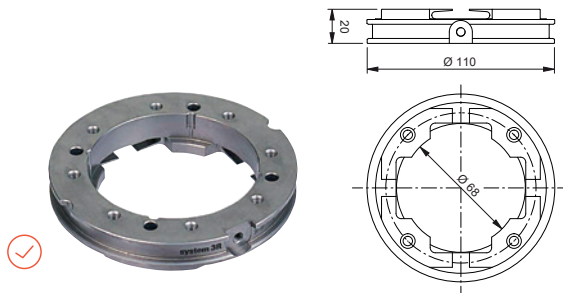


Matrix 110

Pallet, Matrix 110, 3R-691.1-110

- Fixed index positions 4x90°
- Permissible torque 100 Nm
- Required drawbar 3R-695.2-110 or similar
- Adapted for automatic changing
- Weight 0.5 kg.

NOTE: Not self carrying, requires extra support.



Check ruler, Matrix 110, 3R-696.1-110

For setting flatness and angular positions.

- Ground hole for centring.
- Ready for code carrier
- Measuring length 80 mm.
- Adapted for automatic changing
- Weight 1.6 kg.



Collet chuck ER20, Matrix 110, 3R-699.20-110D

Pallet can be flipped over to gain access from rear.

- Range for collets Ø 1-13 mm
- Recommended drawbar 3R-695.2-110
- Adapted for automatic changing
- Weight 1.3 kg.



Adapter, Matrix 110-Ø20, 3R-SP31380-RS

Intended to fit Ø 20 mm cutting tools. Also adapted to fit Ø 20 mm System 3R Mini electrode holders.

- Rust resistant
- Weight 2.9 kg.



Air gun interface, Matrix 110, 3R-SP29185

Dedicated attachment enabling use of air gun for 3R-690.1-110 and 3R-690.1-110-RS.

- Weight 0.5 kg.



Index blocker-pin, Matrix 110, 3R-SP29196

Blocks index functionality (by replacing two rough guidance pins).

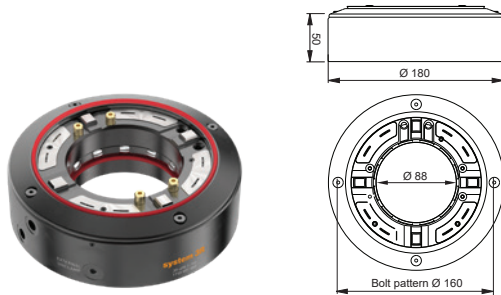


Matrix 142

Pneumatic chuck, Matrix 142, 3R-690.1-142

Chuck for permanent mounting on machine table.

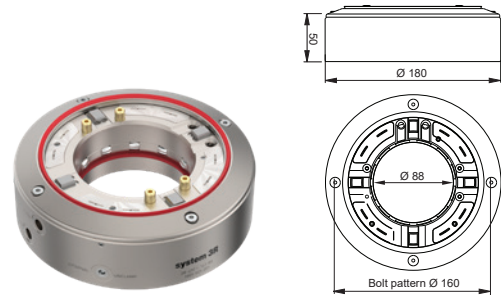
- Fixed index positions 4x90°
- Clamping force 15.000 N
- Permissible torque 300 Nm
- Required drawbar 3R-695.2-142
- Required air pressure 6 bars (± 1)
- Weight 7 kg.



Pneumatic chuck, Matrix 142, 3R-690.1-142-RS

Rust resistant chuck for permanent mounting on machine table.

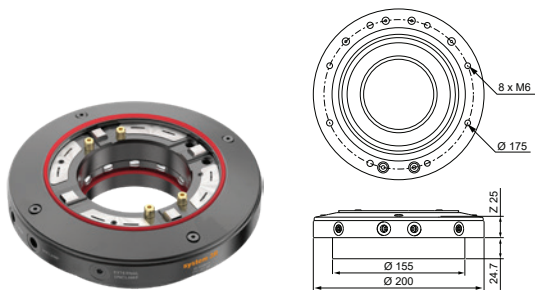
- Fixed index positions 4x90°
- Clamping force 15.000 N
- Required drawbar 3R-695.2-142RS
- Required air pressure 6 bars (± 1)
- Weight 7 kg.



Pneumatic build-in chuck, Matrix 142, 3R-SP28219

Chuck for permanent mounting in machine table.

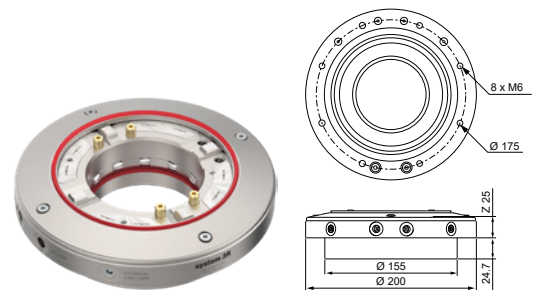
- Fixed index positions 4x90°
- Clamping force 15.000 N
- Permissible torque 300 Nm
- Required drawbar 3R-695.2-142
- Required air pressure 6 bars (± 1)
- Weight 7 kg.



Pneumatic build-in chuck, Matrix 142, 3R-SP28219-RS

Rust resistant chuck for permanent mounting in machine table.

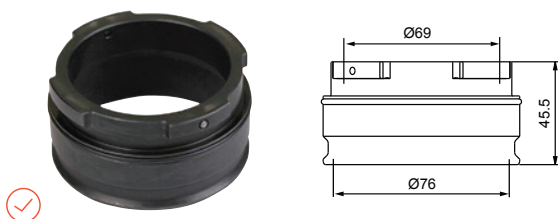
- Fixed index positions 4x90°
- Clamping force 15.000 N
- Permissible torque 300 Nm
- Required drawbar 3R-695.2-142RS
- Required air pressure 6 bars (± 1)
- Weight 7 kg.



Drawbar, Matrix 142, 3R-695.2-142

- Weight 0.5 kg.

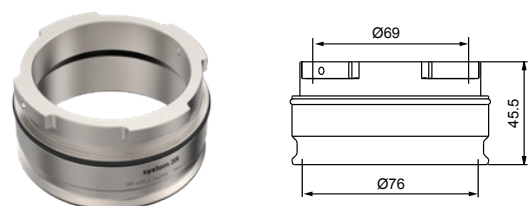
NOTE: In automated applications, the gripper has to grip the pallet and not the drawbar.



Drawbar, Matrix 142, 3R-695.2-142RS

- Rust resistant
- Weight 0.5 kg.

NOTE: In automated applications, the gripper has to grip the pallet and not the drawbar.

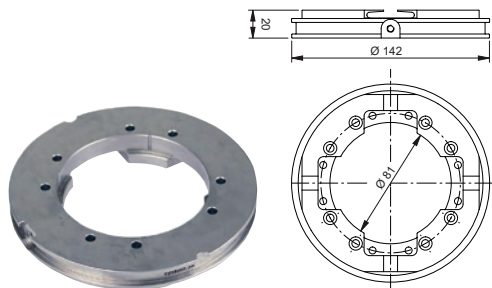


Matrix 142

Pallet, Matrix 142, 3R-691.1-142

- Fixed index positions 4x90°
- Permissible torque 300 Nm
- Required drawbar 3R-695.2-142 or similar
- Adapted for automatic changing
- Weight 1.2 kg.

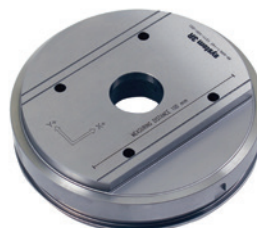
NOTE: Not self carrying, requires extra support.



Check ruler, Matrix 142, 3R-696.1-142

For setting flatness and angular positions.

- Ground hole for centering.
- Ready for code carrier
- Measuring length 100 mm
- Adapted for automatic changing
- Weight 3.4 kg.



Collet chuck ER20, Matrix 142, 3R-699.20-142D

Pallet can be flipped over to gain access from rear.

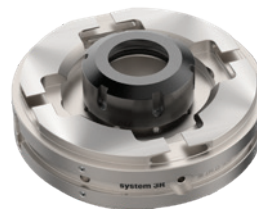
- Range for collets Ø 1-13 mm
- Recommended drawbar 3R-695.2-142
- Adapted for automatic changing
- Weight 3.1 kg.



Collet chuck ER40, Matrix 142, 3R-699.40-142D

Pallet can be flipped over to gain access from rear.

- Range for collets Ø 3-30 mm
- Recommended drawbar 3R-695.2-142
- Adapted for automatic changing
- Weight 3.4 kg.



Adapter, Matrix 142-Capto C6, 3R-SP30752

From Matrix 142 to Capto C6 system.

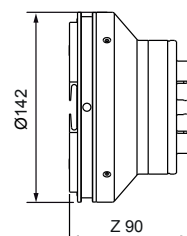
- Rust resistant
- Recommended clamping torque 30 Nm
- Adapted for automatic changing
- Weight 3.9 kg.



Adapter, Matrix 142-Macro, 3R-SP30997

From Matrix 142 to Macro system.

- Required drawbar 3R-605.1
- Fixed index positions 4x90°
- Adapted for automatic changing
- Clamping force 6.000 N
- Permissible torque 300 Nm
- Required air pressure 6 bars (± 1)
- Weight 7 kg.



Matrix 142

Handle device, Matrix 142, 3R-692.7-142

A holding device for lifting pallets.

- Weight 0.9 kg.



Lifting aid, Matrix 142, 3R-692.8-142

Cradle to support 3R-692.7-110 and 3R-692.7-142 for lifting by crane.

- Weight 1.5 kg.



Index blocker-pin, Matrix 142, 3R-SP29533E

Blocks index functionality (by replacing two rough guidance pins).



Matrix application:

Pallet with special fixture for protruding workpiece, in this case a "hip joint".

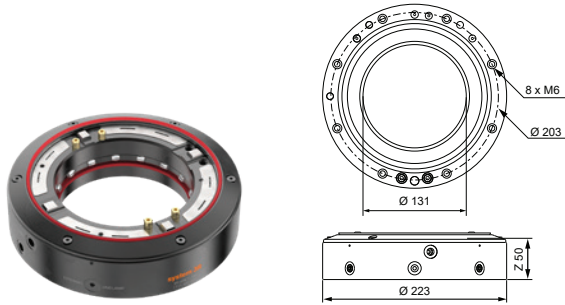


Matrix 185

Pneumatic chuck, Matrix 185, 3R-690.1-185

Chuck for permanent mounting on machine table.

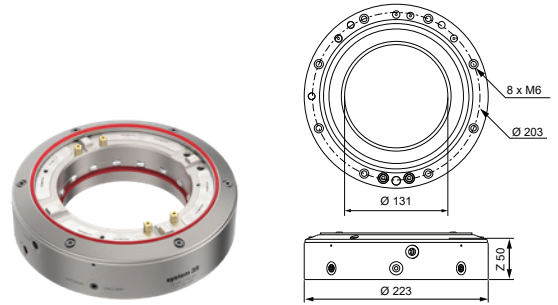
- Fixed index positions 4x90°
- Clamping force 20.000 N
- Permissible torque 600 Nm
- Required drawbar 3R-695.2-185
- Required air pressure 6 bars (± 1)
- Weight 9 kg.



Pneumatic chuck, Matrix 185, 3R-690.1-185-RS

Rust resistant chuck for permanent mounting on machine table.

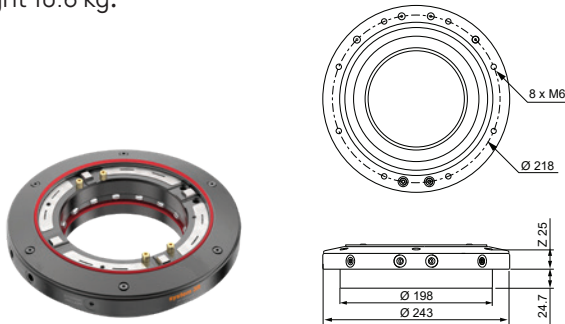
- Fixed index positions 4x90°
- Clamping force 20.000 N
- Permissible torque 600 Nm
- Required drawbar 3R-695.2-185RS
- Required air pressure 6 bars (± 1)
- Weight 9 kg.



Pneumatic build-in chuck, Matrix 185, 3R-SP28268

Chuck for permanent mounting in machine table.

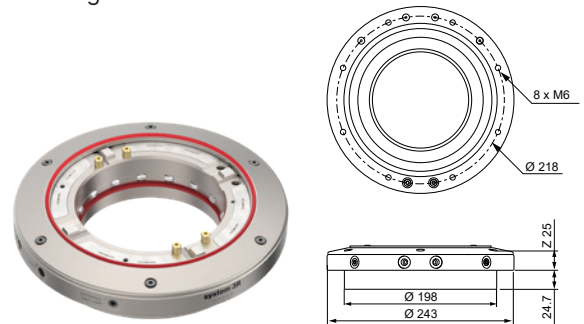
- Fixed index positions 4x90°
- Clamping force 20.000 N
- Permissible torque 600 Nm
- Required drawbar 3R-695.2-185
- Required air pressure 6 bars (± 1)
- Weight 10.6 kg.



Pneumatic build-in chuck, Matrix 185, 3R-SP28268-RS

Rust resistant chuck for permanent mounting in machine table.

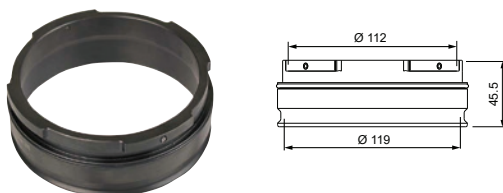
- Fixed index positions 4x90°
- Clamping force 20.000 N
- Required drawbar 3R-695.2-185RS
- Required air pressure 6 bars (± 1)
- Weight 10.6 kg.



Drawbar, Matrix 185, 3R-695.2-185

- Weight 0.8 kg.

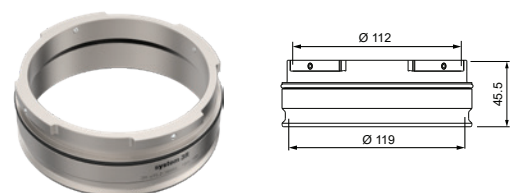
NOTE: In automated applications, the gripper has to grip the pallet and not the drawbar.



Drawbar, Matrix 185, 3R-695.2-185RS

- Rust resistant
- weight 0.8 kg.

NOTE: In automated applications, the gripper has to grip the pallet and not the drawbar.

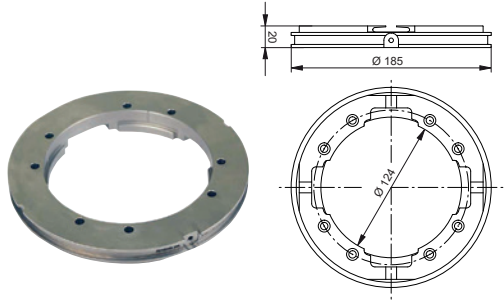


Matrix 185

Pallet, Matrix 185, 3R-691.1-185

- Fixed index positions 4x90°
- Permissible torque 600 Nm
- Required drawbar 3R-695.2-185 or similar
- Adapted for automatic changing
- Weight 1.7 kg.

NOTE: Not self carrying, requires extra support.



Check ruler, Matrix 185, 3R-696.1-185

For setting flatness and angular positions.

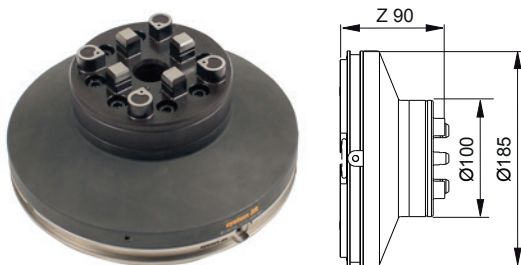
- Ground hole for centring.
- Ready for code carrier
- Measuring length 125 mm
- Adapted for automatic changing
- Weight 5.7 kg.



Chuck adapter, Matrix 185-Macro, 3R-SP29998

From Matrix 185 into Macro system. Chuck adapter with built-in Macro chuck.

- Required drawbar 3R-605.1
- Built in height 90 mm
- Hardened references
- Weight 8 kg.



Handle device, Matrix 185, 3R-692.7-185

A holding device for lifting pallets.

- Weight 1.8 kg.



Lifting aid, Matrix 185, 3R-692.8-220

Cradle to support 3R-682.7-156, 3R-692.7-185 and 3R-692.7-220 for lifting by crane.

- Weight 2.5 kg.



Index blocker-pin, Matrix 185, 3R-SP29533E

Blocks index functionality (by replacing two rough guidance pins).



Matrix 220

Pneumatic chuck, Matrix 220, 3R-690.1-220

Chuck for permanent mounting on machine table.

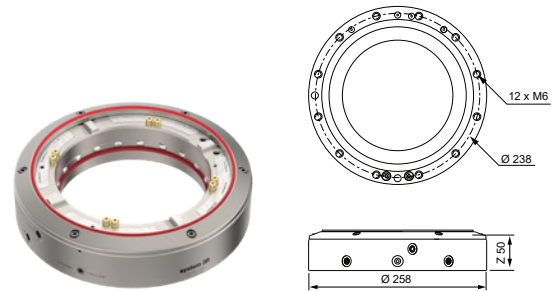
- Fixed index positions 4x90°
- Clamping force 23.000 N
- Permissible torque 600 Nm
- Required drawbar 3R-695.2-220
- Required air pressure 6 bars (± 1)
- Weight 11 kg.



Pneumatic chuck, Matrix 220, 3R-690.1-220-RS

Rust resistant chuck for permanent mounting on machine table.

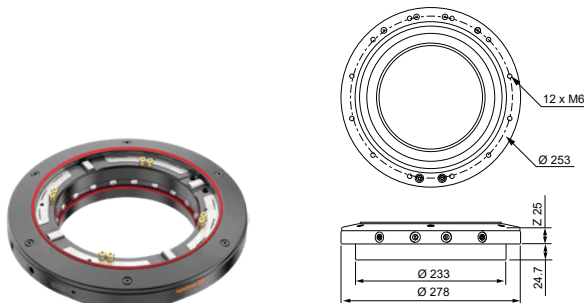
- Fixed index positions 4x90°
- Clamping force 23.000 N
- Permissible torque 600 Nm
- Required drawbar 3R-695.2-220RS
- Required air pressure 6 bars (± 1)
- Weight 11 kg.



Pneumatic built-in chuck, Matrix 220, 3R-SP28340

Chuck for permanent mounting in machine table.

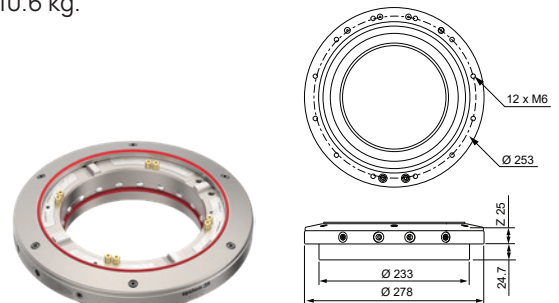
- Fixed index positions 4x90°
- Clamping force 23.000 N
- Permissible torque 600 Nm
- Required drawbar 3R-695.2-220
- Required air pressure 6 bars (± 1)
- Weight 10.6 kg.



Pneumatic built-in chuck, Matrix 220, 3R-SP28340-RS

Rust resistant chuck for permanent mounting in machine table.

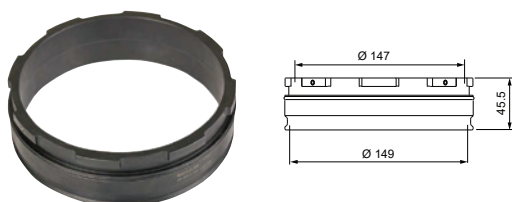
- Fixed index positions 4x90°
- Clamping force 23.000 N
- Permissible torque 600 Nm
- Required drawbar 3R-695.2-220RS
- Required air pressure 6 bars (± 1)
- Weight 10.6 kg.



Drawbar, Matrix 220, 3R-695.2-220

- Weight 1.3 kg.

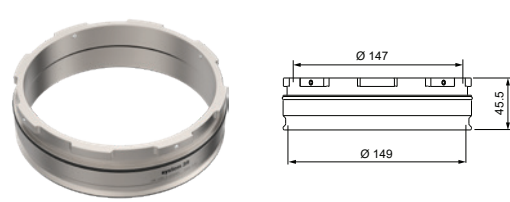
NOTE: In automated applications, the gripper has to grip the pallet and not the drawbar.



Drawbar, Matrix 220, 3R-695.2-220RS

- Rust resistant
- Weight 1.3 kg.

NOTE: In automated applications, the gripper has to grip the pallet and not the drawbar.

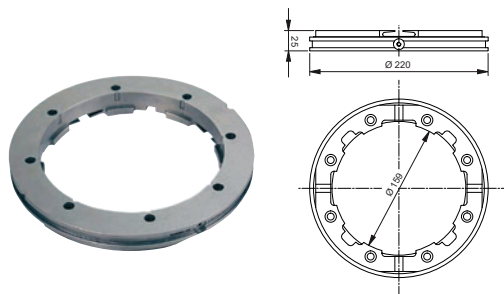


Matrix 220

Pallet, Matrix 220, 3R-691.1-220

- Fixed index positions 4x90°
- Permissible torque 600 Nm
- Required drawbar 3R-695.2-220 or similar
- Adapted for automatic changing
- Weight 2.6 kg.

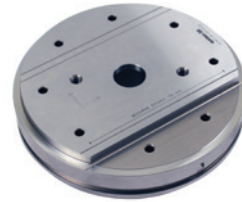
NOTE: Not self carrying, requires extra support.



Check ruler, Matrix 220, 3R-696.1-220

For setting flatness and angular positions.

- Ground hole for centering.
- Ready for code carrier
- Measuring length 150 mm
- Adapted for automatic changing
- Weight 7.5 kg.

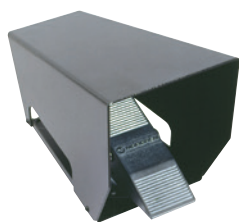


Matrix application:

To machine both sides of a workpiece, the pallet can be turned.

Air unit, 3R-611.2

Foot operation of pneumatic chucks.



Air unit, 3R-611.4

Unit for operation of pneumatic chucks. Two functions, open/close.



Code carriers, 3R-863.01-10

With pre-programmed unique identity, designed for use on pallets.

- Supplied in sets of 10.



Matrix 220 & accessories

Handle device, Matrix 220, 3R-692.7-220

A holding device for lifting pallet.

- Weight 1.5 kg.



Lifting aid, Matrix 220, 3R-692.8-220

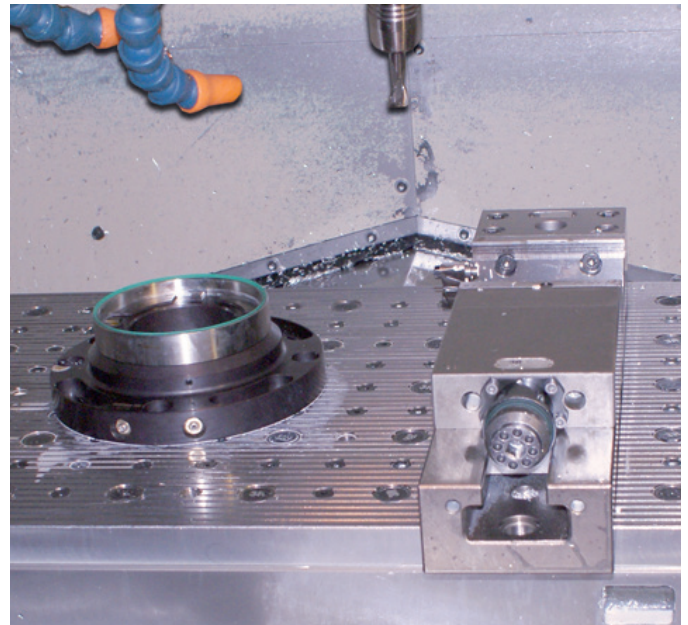
Cradle to support 3R-682.7-156, 3R-692.7-185 and 3R-692.7-220 for lifting by crane.

- Weight 2.5 kg.



Index blocker-pin, Matrix 220, 3R-SP29559E

Blocks index functionality (by replacing four rough guidance pins).

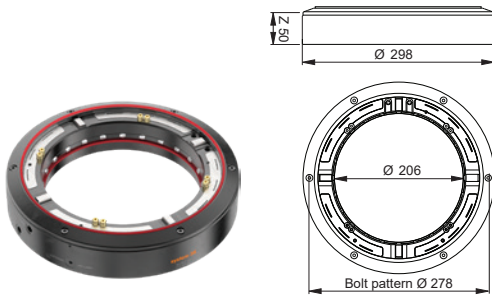


Matrix 260

Pneumatic chuck, Matrix 260, 3R-690.1-260

Chuck for permanent mounting on the machine table.

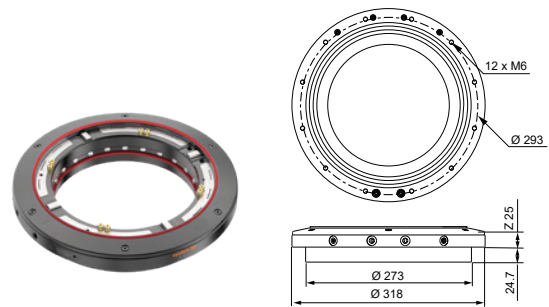
- Fixed index positions 4x90°
- Clamping force 28.000 N
- Permissible torque 600 Nm
- Required drawbar 3R-695.2-260
- Required air pressure 6 bars (± 1)
- Weight 13 kg.



Pneumatic built-in chuck, Matrix 260, 3R-SP28345

Chuck for permanent mounting in the machine table.

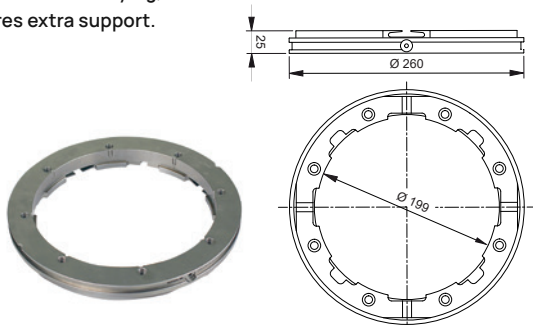
- Fixed index positions 4x90°
- Clamping force 28.000 N
- Permissible torque 600 Nm
- Required drawbar 3R-695.2-260
- Required air pressure 6 bars (± 1)
- Weight 12.6 kg.



Pallet, Matrix 260, 3R-691.1-260

- Fixed index positions 4x90°
- Permissible torque 600 Nm
- Required drawbar 3R-695.2-260 or similar
- Adapted for automatic changing
- Weight 3.2 kg.

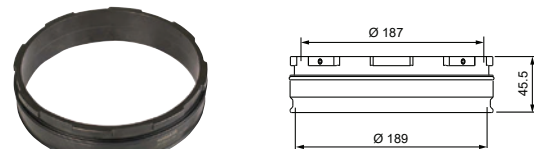
NOTE: Not self carrying, requires extra support.



Drawbar, Matrix 260, 3R-695.2-260

- Weight 1.5 kg.

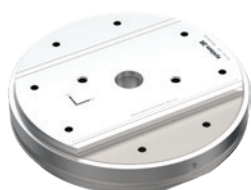
NOTE: In automated applications, the gripper has to grip the pallet and not the drawbar.



Check ruler, Matrix 260, 3R-696.1-260

For setting flatness and angular positions.

- Ground hole for centring.
- Ready for code carrier
- Measuring length 200 mm
- Adapted for automatic changing
- Weight 10 kg.



Index blocker-pin, Matrix 260, 3R-SP29559E

Blocks index functionality (by replacing four rough guidance pins).



MatrixNano

Measures to reduce the downtime of your machines are significantly more worthwhile than chasing seconds in the actual machining process. What matters is keeping machines running. This is when you need an interface that enables rapid set-up.

The Matrix system is just such an interface. While machines are working on one job, upcoming jobs are set up in parallel away from them. The set-up for each new job is then installed in the stationary machine in a matter of seconds. Important for long runs, but crucial for the profitability of short runs or one-off production.

System design has been optimised for metal-cutting machining and is ideal for work involving high machining forces. The drawbar's generous diameter means short distances between references and applied locking force. This gives maximum stability and accuracy. The inherent advantages of the Matrix system truly come into their own in tough machining applications.

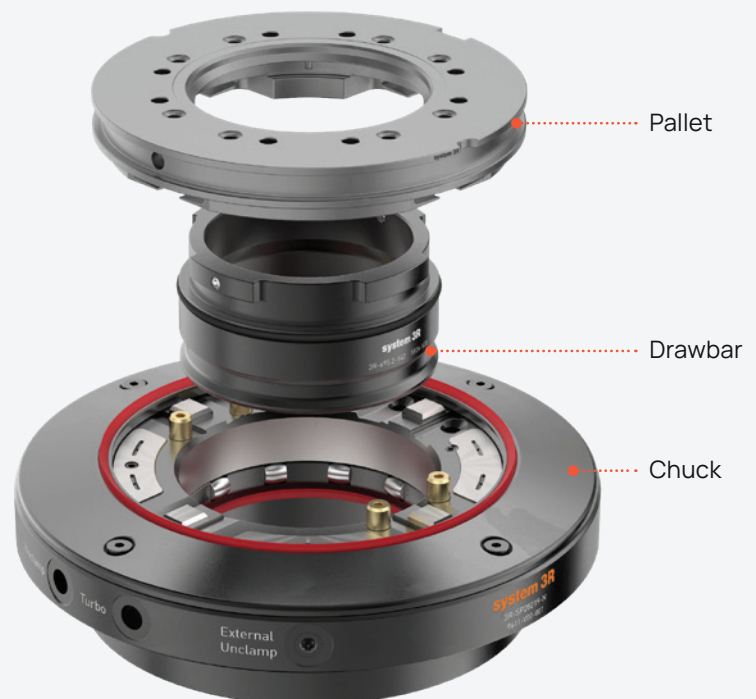
As well as extreme accuracy, Matrix features low construction height, ultra-precise indexing and a drawbar with through hole. The through hole allows high/long workpieces to be sunk into the chuck for stable/rigid mounting.

Repetition accuracy:

- Matrix 110 Nano and Matrix 142 Nano within 0.001 mm.
- Fixed index positions 4x90°.
- Required air pressure, pneumatic chuck: 6±1 bar
- Clamping force:
 - Matrix 110, 9.000 N
 - Matrix 142, 15.000 N
- Max workpiece weight (manual loading):
 - Matrix 110, 50 kg
 - Matrix 142, 100 kg

ADVANTAGES

- Reduces set-up times.
- Ensures precision and quality.
- Has automatic air-blast cleaning of the references.
- Is sealed against dirt and swarf; withstands harsh work environments.
- Has enhanced clamping force (turbo locking).
- Is suitable for automatic changing with System 3R's automation program.



Matrix 110 Nano

Pneumatic chuck, Matrix 110 Nano, 3R-690.1-110-N

Chuck for permanent mounting on machine table.

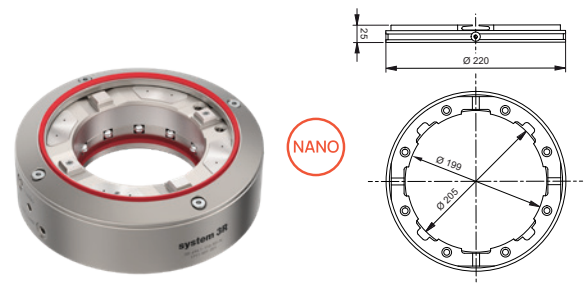
- Fixed index positions 4x90°
- Clamping force 9,000 N
- Permissible torque 100 Nm
- Required drawbar 3R-695.2-110
- Required air pressure 6 bars (± 1)
- Weight 2.5 kg.



Pneumatic chuck, Matrix 110 Nano, 3R-690.1-110-RS-N

Chuck for permanent mounting on machine table.

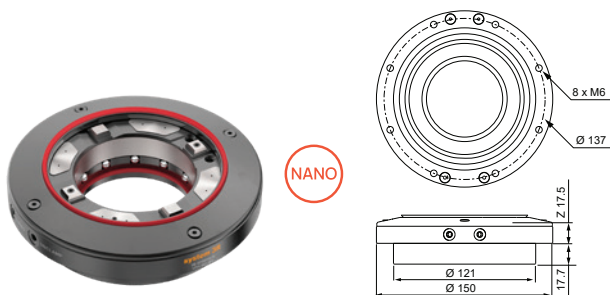
- Fixed index positions 4x90°
- Rust resistant
- Clamping force 9,000 N
- Required drawbar 3R-695.2-110RS
- Required air pressure 6 bars (± 1)
- Weight 2.5 kg.



Pneumatic build-in chuck, Matrix 110 Nano, 3R-SP28395-N

Chuck for permanent mounting in machine table.

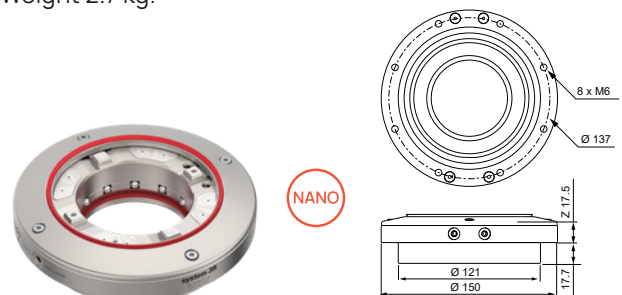
- Fixed index positions 4x90°
- Clamping force 9,000 N
- Permissible torque 100 Nm
- Required drawbar 3R-695.2-110
- Required air pressure 6 bars (± 1)
- Weight 2.7 kg.



Pneumatic build-in chuck, Matrix 110 Nano, 3R-SP28395-RS-N

Chuck for permanent mounting in machine table.

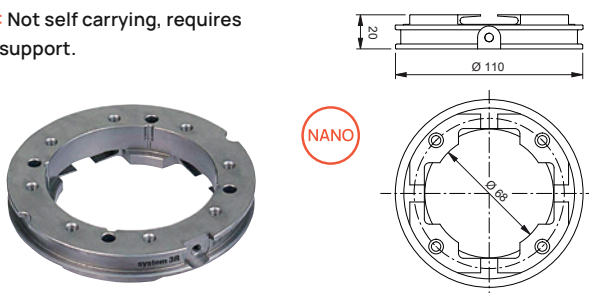
- Fixed index positions 4x90°
- Clamping force 9,000 N
- Permissible torque 100 Nm
- Required drawbar 3R-695.2-110
- Required air pressure 6 bars (± 1)
- Weight 2.7 kg.



Pallet, Matrix 110 Nano, 3R-691.1-110-N

- Fixed index positions 4x90°
- Permissible torque 100 Nm
- Required drawbar 3R-695.2-110 or similar
- Adapted for automatic changing
- Weight 0.5 kg.

NOTE: Not self carrying, requires extra support.



Check ruler, Matrix 110 Nano, 3R-696.1-110-N

For setting flatness and angular positions.

- Ground hole for centring.
- Ready for code carrier
- Measuring length 80 mm
- Adapted for automatic changing
- Weight 1.6 kg.

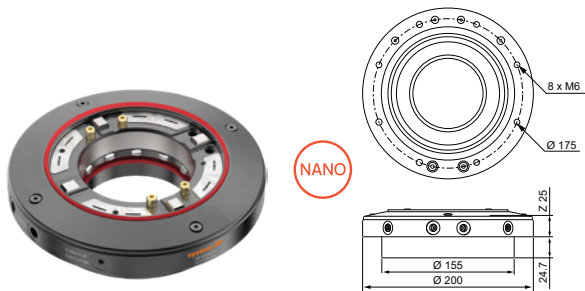


Matrix 142 Nano

Pneumatic build-in chuck, Matrix 142 Nano, 3R-SP28219-N

Chuck for permanent mounting in machine table.

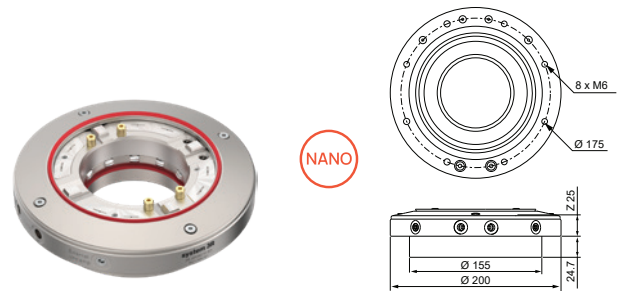
- Fixed index positions 4x90°
- Clamping force 15.000 N
- Permissible torque 300 Nm
- Required drawbar 3R-695.2-142
- Required air pressure 6 bars (± 1)
- Weight 7 kg.



Pneumatic build-in chuck, Matrix 142 Nano, 3R-SP28219-RS-N

Rust-resistant chuck for permanent mounting in machine table.

- Fixed index positions 4x90°
- Clamping force 15.000 N
- Permissible torque 300 Nm
- Required drawbar 3R-695.2-142RS
- Required air pressure 6 bars (± 1)
- Weight 7 kg.



Pneumatic chuck, Matrix 142 Nano, 3R-690.1-142-N

Chuck for permanent mounting on machine table.

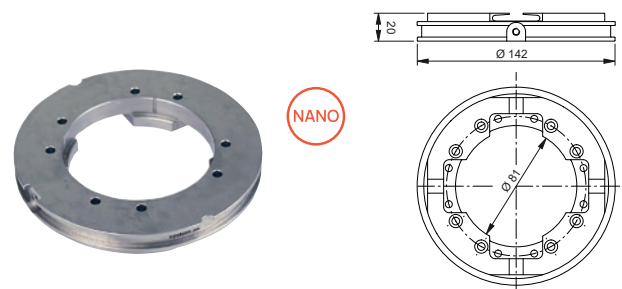
- Fixed index positions 4x90°
- Clamping force 15.000 N
- Permissible torque 300 Nm
- Required drawbar 3R-695.2-142
- Required air pressure 6 bars (± 1)
- Weight 7 kg.



Pallet, Matrix 142 Nano, 3R-691.1-142-N

- Fixed index positions 4x90°
- Permissible torque 300 Nm
- Required drawbar 3R-695.2-142 or similar
- Adapted for automatic changing
- Weight 1.2 kg.

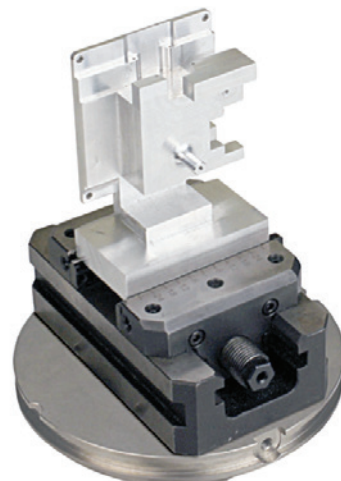
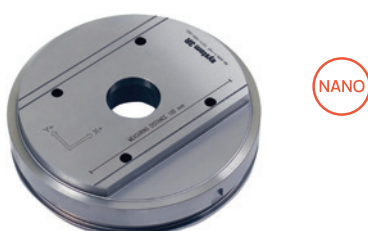
NOTE: Not self carrying, requires extra support.



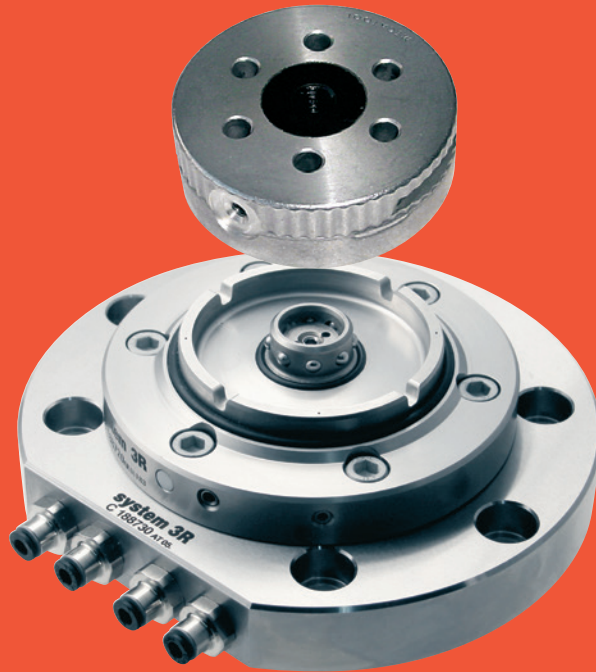
Check ruler, Matrix 142 Nano, 3R-696.1-142-N

For setting flatness and angular positions.

- Ground hole for centring.
- Ready for code carrier
- Measuring length 100 mm
- Adapted for automatic changing
- Weight 3.4 kg.



GPS 70 & GPS 120 in detail

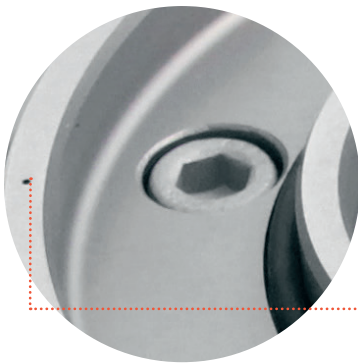


GPS 70 & GPS 120

Die-cast aluminium & steel pallets with standardised hole pattern. Minimum height in automation magazines by clamping without drawbar.



Pallet handling contour for automated pallet change by robot.



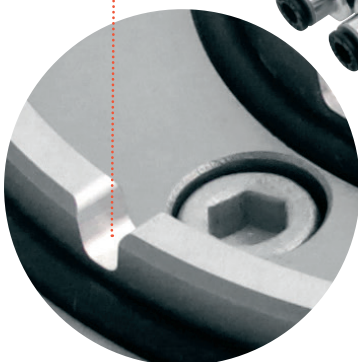
The Z-references are air blast cleaned, through nozzles in the Z-references of the chuck.

Spring loaded clamping mechanism. Releasing by air.



GPS 120 ring with references.

GPS 70 ring with references.



Hardened chuck body with prisms for X/Y centring made out of one piece for maximum stability. Indexing 4x90°.

Sealing rings for completely sealed chuck-pallet interface against dirt and swarf.

GPS 70 & GPS 120

The machining zero point is defined by the centre of the chuck in the GPS 70 and GPS 120 system. The chucks can be mounted on the machine table of any machine tool. The standardised hole pattern of the pallet allows the fixation of workpieces, fixtures and accessories such as vices and three-jaw chucks from below. This gives collision-free mounting, even with five-sided machining.

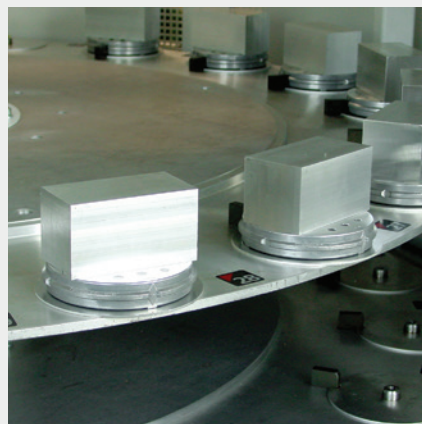
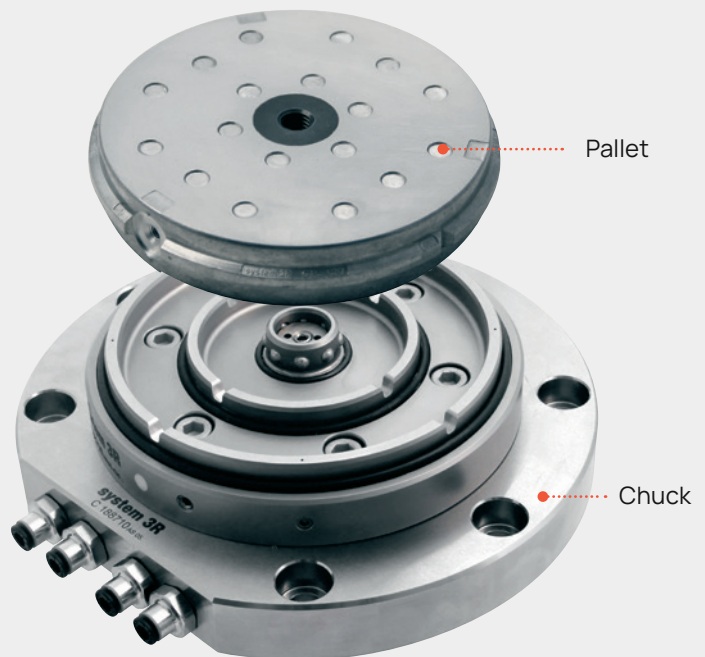
The economical, pressure-die-cast aluminium pallets are very light, making them also suitable for manual handling. Naturally GPS 70 and GPS 120 are also suitable for automatic changing.

The chuck seal prevents dirt penetrating between the chuck and the pallet. This simplifies maintenance and lengthens the life of the components.

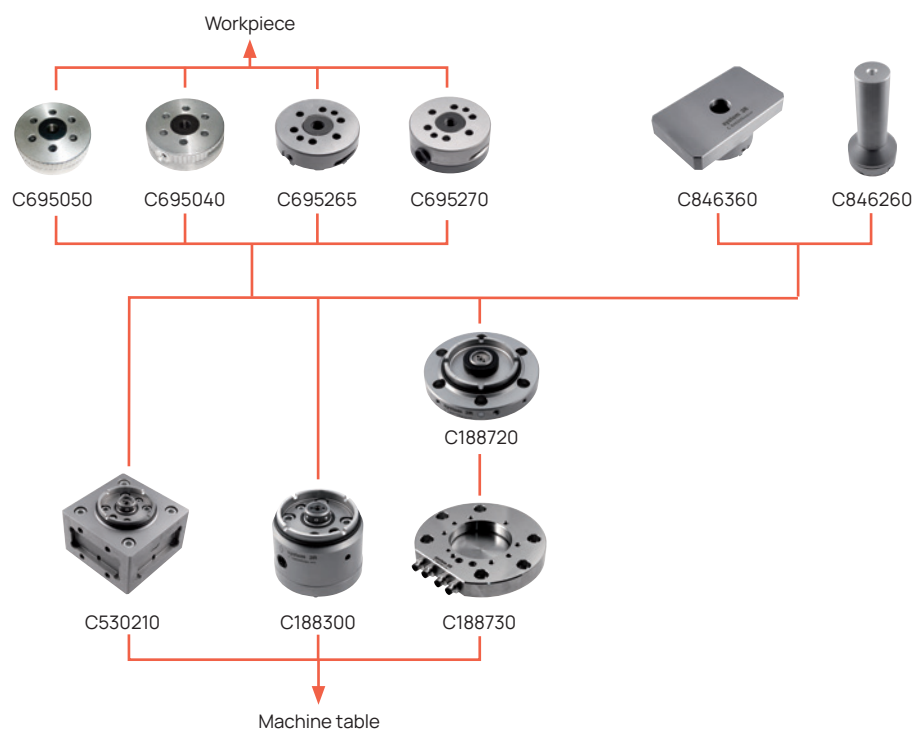
- Repetition accuracy: within 0.002 mm
- Indexing accuracy: within 0.005 mm
- Locking force: 3.000-3.800 N
- Fixed index positions 4x90°
- Required air pressure, pneumatic chuck: 6 bars (± 1)
- Recommended max workpiece weight GPS 70: 10 kg
- Recommended max workpiece weight GPS 120: 20 kg.

ADVANTAGES





- reduces setting-up times.
- ensures precision and quality.
- is sealed against dirt and swarf.
- has pallet clamping without drawbar.
- has lightweight pallets.
- suitable for automatic changing with System 3R's automation program.





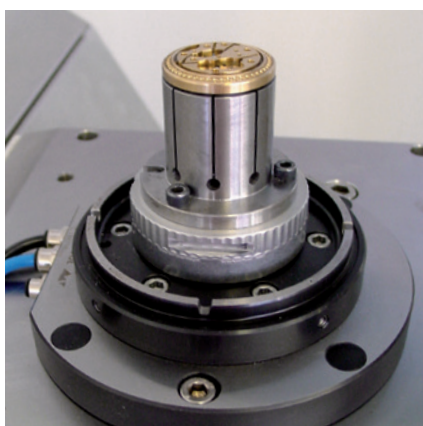
GPS 70 – Chucks & pallets



Chucks	Article number	Feature
Manual, cube	C530210	
Manual, round	C188300	
Pneumatic automatic/manual	C188720	for manual machining operations
Flange	C188730	fits on C188720 & C188700

Pallets	Article number	Feature
Cast aluminium 	C695050	
Cast aluminium 	C695040	
Steel 	C695265	
Steel 	C695270	with pallet protection ring
Pallet protection ring	C695295	fits on C695265

 Pallet with coined cams  Pallet with spring hardened cams

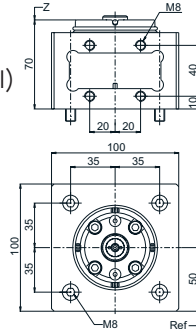


GPS 70 – Chucks

GPS 70 Machining cube, manual, C530210

For milling, grinding, die-sinking EDM, presetting and measuring station. Suitable for the 5-sided machining of electrodes and workpieces. One side is ground square with the base surface.

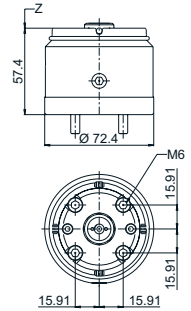
- Mounting (from the top) 70 x 70 mm, 4x M8 screws through holes (horizontal)
- Mounting (from the bottom) on GPS 240 pallet: 80 x 80 mm, 4x M8 screws threaded holes (horizontal), 40 x 40 mm, 4x M8 screws threaded holes (vertical)
- Releasing manual with Allen wrench.



GPS 70 Chuck, manual, C188300

For turning, milling, grinding, die-sinking EDM.

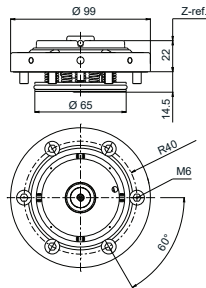
- Mounting 4x M6 screws
- Releasing manual with Allen wrench
- Flushing lateral inlet.



GPS 70 Chuck, pneumatic, C188720

For milling, turning, grinding and die-sinking EDM.

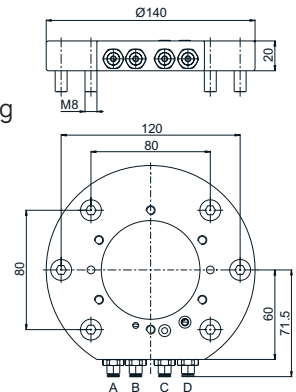
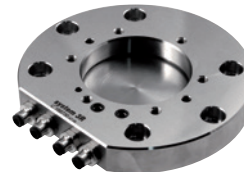
- Mounting 6x M6 screws (fits on flange C188730)
- Releasing pneumatic, 6 bar
- Required air pressure 6 bars (± 1)
- Air-blast cleaning of Z-references.



Flange for GPS 70 chuck, C188730

Fits on C188720 and C188700.

- Material: stainless steel, heat pre-treated
- Mounting 6x M8
- Connections:
 - A = releasing/clamping
 - B = Air-blast cleaning of Z-references
 - C = drain/pallet room venting
 - D = piston room venting.



GPS 70 – Pallets

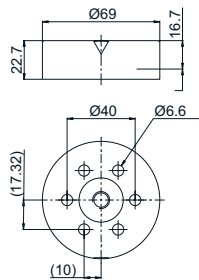
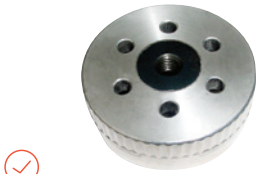
GPS 70 Aluminium pallet, C695050

Cast aluminium pallet.

- Construction height 16.7 ± 0.01 mm
- X/Y-centring with coined cam
- Not prepared for automation.
- Weight 0.2 kg.

Set of pallets, S500010

- C695050 supplied in sets of 9.



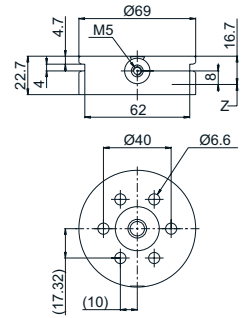
GPS 70 Aluminium pallet, C695040

Cast aluminium pallet.

- Construction height 16.7 ± 0.01 mm
- X/Y-centring with coined cam
- Ready for code carrier fixture C960740
- Prepared for automation.
- Weight 0.2 kg.

Set of pallets, S500011

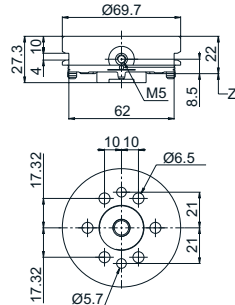
- C695040 supplied in sets of 9.



GPS 70 Steel pallet, C695265

Workpiece and device holder for precision production.

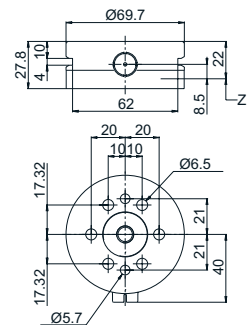
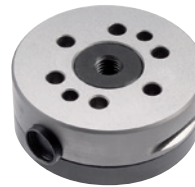
- Construction height 22 ± 0.005 mm
- X/Y-centring with springy cams, hardened, stainless
- Ready for code carrier fixture C960740
- Prepared for automation.
- Weight 0.5 kg.



GPS 70 Steel pallet, C695270

Workpiece and device holder for precision production with pallet protection ring aluminium.

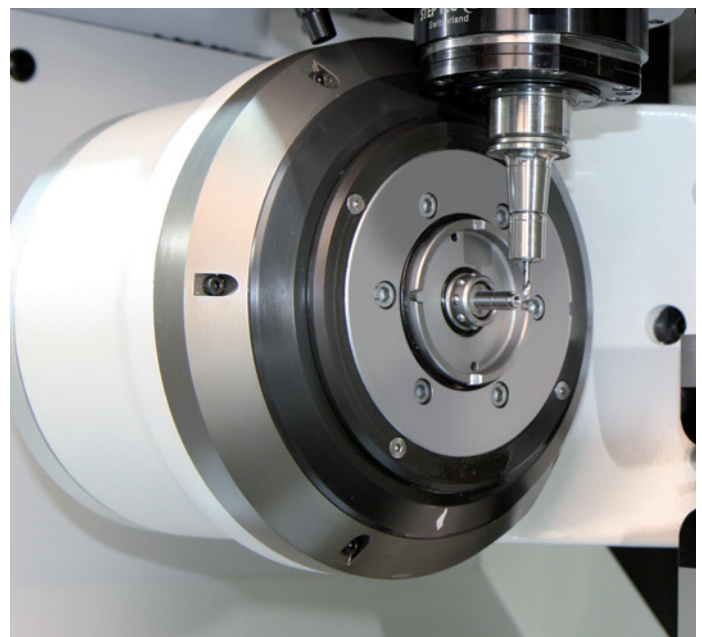
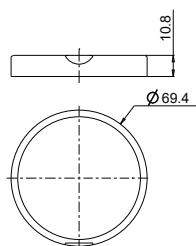
- Construction height 22 ± 0.005 mm
- X/Y-centring with springy cams, hardened, stainless
- Ready for code carrier 3R-863.01
- Prepared for automation.
- Weight 0.5 kg.



GPS 70 Pallet protection ring, C695295

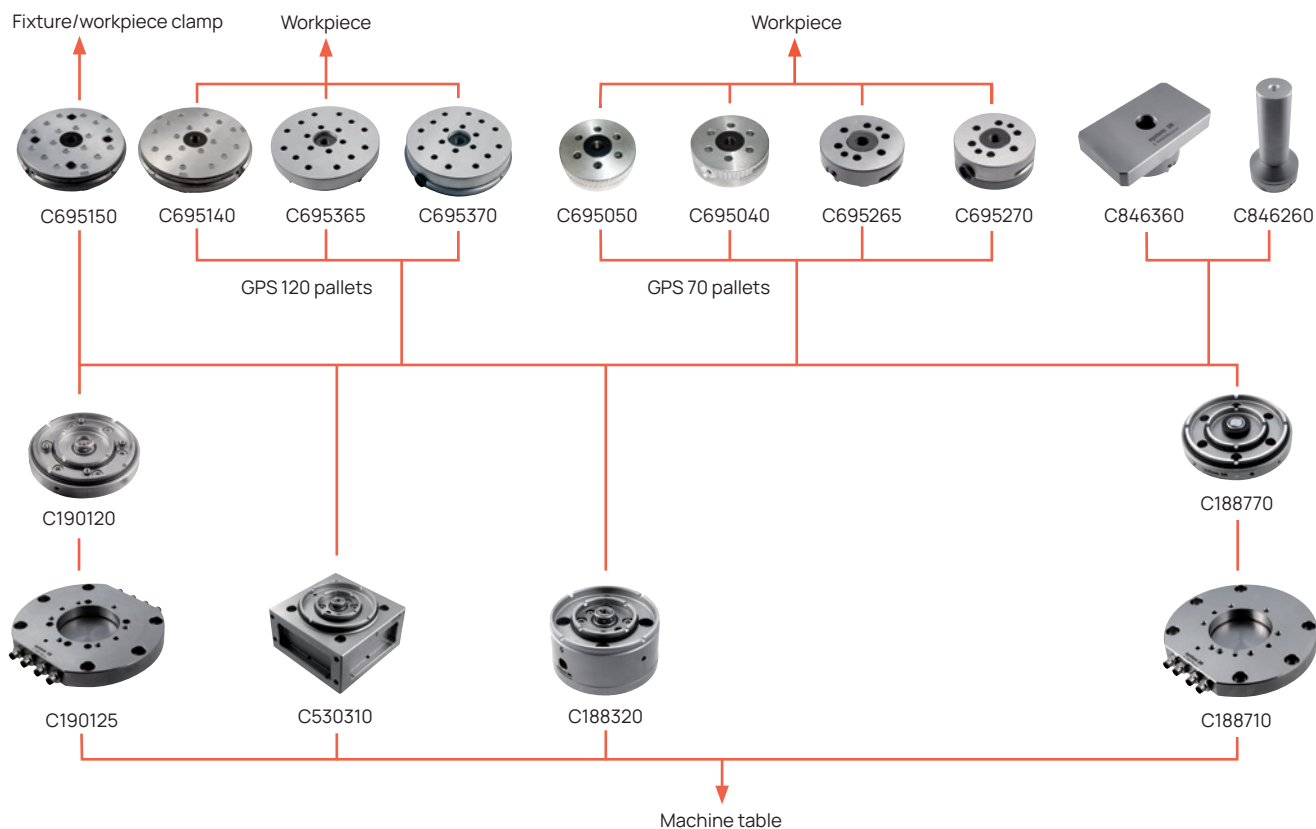
Chip protection between pallet and chuck for GPS 70 steel pallets C695265.

- Material plastic
- Dimensions $\varnothing 69.4 \times 10.8$ mm
- Use with code carrier.







/// Pallet with coined cams / Pallet with springy hardened cams

GPS 120 – Chucks & pallets



Chucks	Article number	Feature
Manual, cube	C530310	
Manual, round	C188320	
Pneumatic automatic/manual	C188770	for manual & automatic machining operations
Pneumatic automatic/manual	C190120	with airdock 4-fold
Flange	C188710	fits on C188700 & C188770
Flange	C190125	fits on C190120

Pallets	Article number	Feature
Cast aluminium 	C695140	
Cast aluminium 	C695150	with airdock 4-fold
Pneumatic manual (automatic) 	C695365	
Pneumatic automatic/manual 	C695370	with pallet protection ring
Pneumatic automatic/manual	C695395	fits on C695365

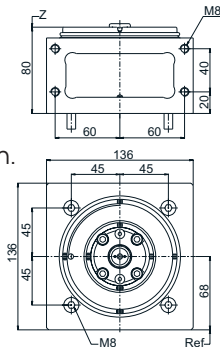
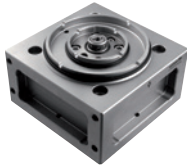
 Pallet with coined cams  Pallet with springy hardened cams

GPS 120 – Chucks

GPS 120 Machining cube, manual, C530310

For milling, grinding, die-sinking EDM, presetting and measuring station. Suitable for the 5-sided machining. One side is ground square with the base surface.

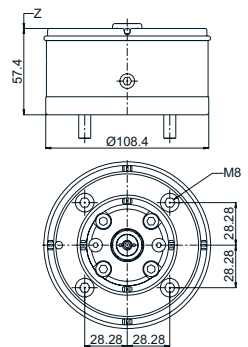
- Mounting (from the top) 12x 120 mm, 4x M8 screws threaded holes (horizontal)
- Mounting (from the bottom): on GPS 240 pallet 90 x 90 mm, 4x M8 screws through holes (horizontal), 120 x 40 mm, 4x M8 screws threaded holes (vertical)
- Releasing manual with Allen wrench.



GPS 120 Chuck, manual, C188320

For turning, milling, grinding, die-sinking EDM.

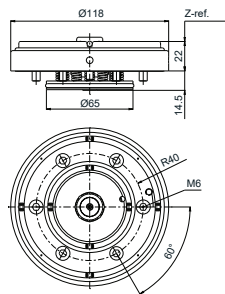
- Mounting 4x M8 screws
- Releasing manual with Allen wrench
- Flushing lateral inlet.



GPS 120 Chuck, pneumatic, C188770

For automation and manual use.

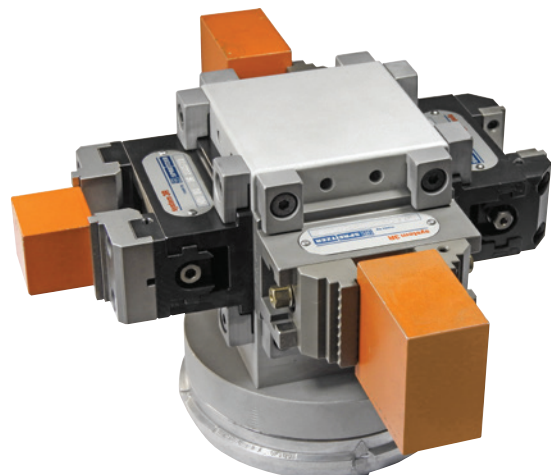
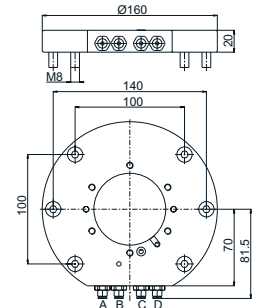
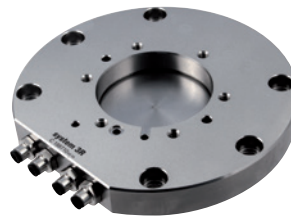
- Mounting 6x M6 screws (on flange C188710)
- Releasing pneumatic, 6 bar
- Required air pressure 6 bars (± 1)
- Air-blast cleaning of Z-references only GPS 120.



Flange for GPS 120 chuck, C188710

Fits on C188770.

- Material stainless steel, heat pre-treated
- Mounting 6x M8
- Connections:
 - A = releasing/clamping
 - B = Air-blast cleaning of Z-references
 - C = drain/pallet room venting
 - D = piston room venting



GPS 120 – Pallets

GPS 120 Aluminium pallet, C695140

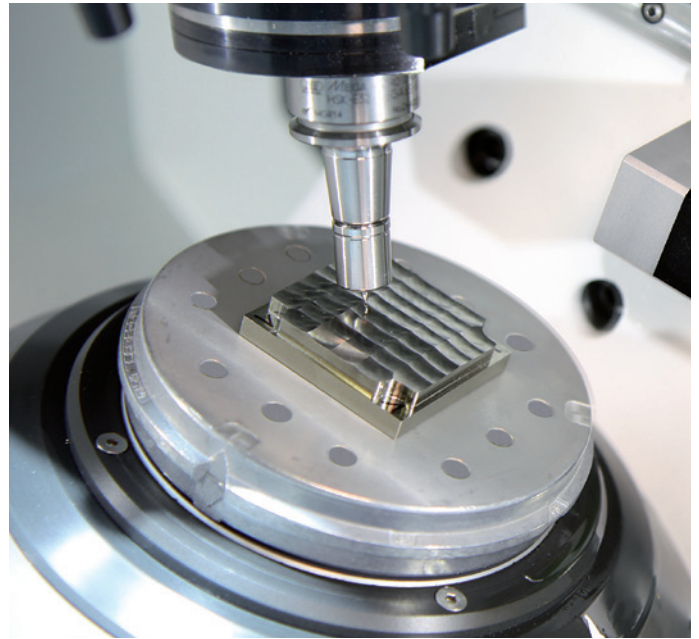
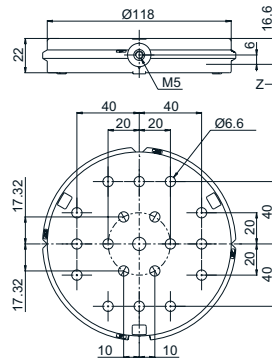
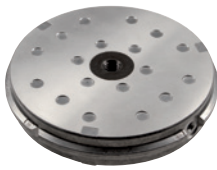
Cast aluminium pallet.

- Construction height 16.6 ± 0.01 mm
- X/Y-centring with coined cam
- Adapted for automatic changing
- Ready for code carrier fixture C960740
- Weight 0.5 kg.



Set of pallets, S500021

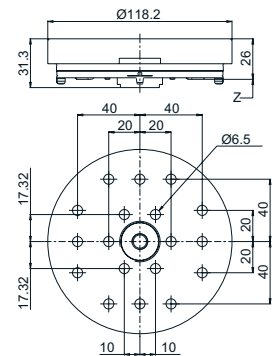
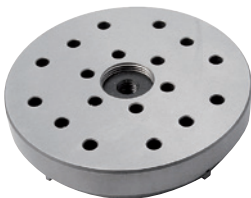
- C695140 supplied in sets of 4.



GPS 120 Steel pallet, C695365

Workpiece and device holder for precision production.

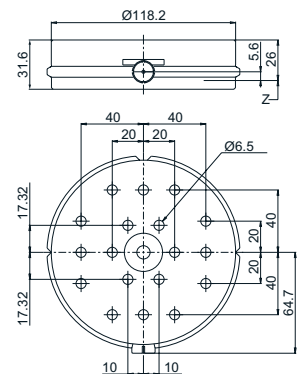
- Construction height 26 ± 0.005 mm
- X/Y-centring with springy cams, hardened, stainless
- Not for automatic changing
- Weight 1.6 kg.



GPS 120 Steel pallet, C695370

Workpiece and device holder for precision production with pallet protection ring aluminium.

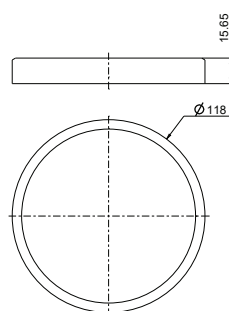
- Construction height 26 ± 0.005 mm
- X/Y-centring with springy cams, hardened, stainless
- Adapted for automatic changing
- Ready for code carrier 3R-863.01
- Weight 1.7 kg.



GPS 120 Pallet protection ring, C695395

Chip protection between pallet and chuck for GPS 120 steel pallets C695365.

- Material plastic
- Dimensions $\text{Ø}118 \times 15.7$ mm
- Not to use with code carrier.



Pallet with coined cams

Pallet with springy hardened cams

GPS 120 with airdock

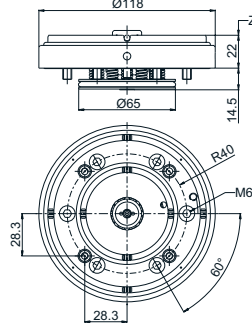
The chuck with airdock is able to transfer the compressed air directly to the pallet via 4 interfaces. Fixtures and clamping elements in the automation system, amongst other things, can be operated pneumatically with the pallet C695150. The GPS 120 standard pallets can also be used on the system.



GPS 120 Chuck, pneumatic, C190120

With airdock 4-fold.

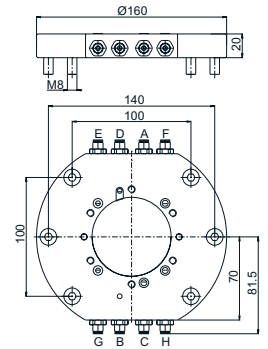
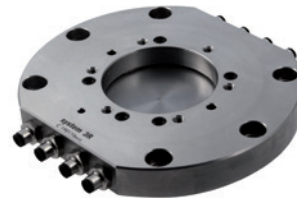
- Stainless steel, hardened
- Mounting 6x M6 screws (on flange C190125)
- Releasing pneumatic, 6 bar
- Required air pressure 6 bar
- Air-blast cleaning of Z-references GPS 120.
- Medium connection fourfold, pneumatic 6 bar.



Flange for GPS 120 chuck, C190125

With airdock 4-fold. Fits on GPS 120 chuck C190120.

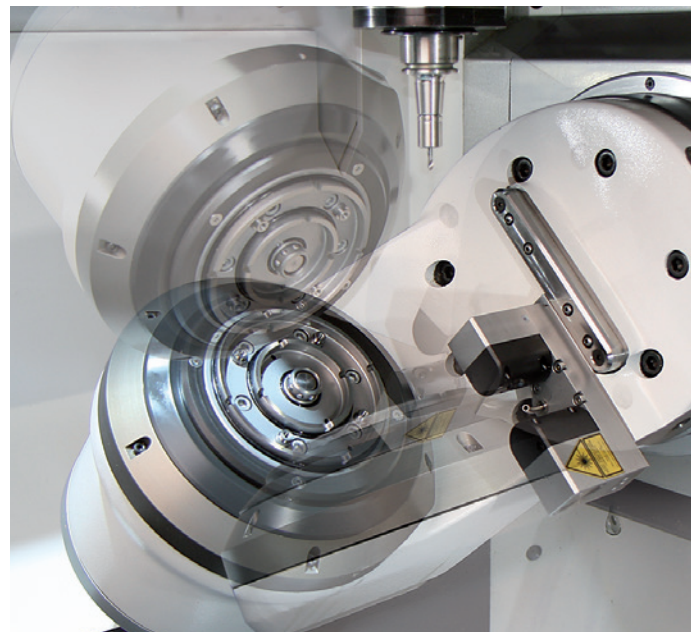
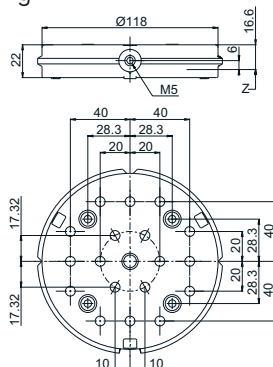
- Stainless steel, heat pre-treated
- Mounting 6x M8
- Connections:
 - A = releasing/clamping
 - B = Air-blast cleaning of Z-references
 - C = drain/pallet room venting
 - D = piston room venting
 - E-G = medium connection.



GPS 120 Aluminium pallet, C695150

With airdock 4-fold. Fits on GPS 120 chuck C190120.

- Airdock compressed air, max. 6 bar
- Construction height 16.6 ± 0.01 mm
- X/Y-centring with coined cam
- Adapted for automatic changing
- Ready for code carrier fixture C960740.



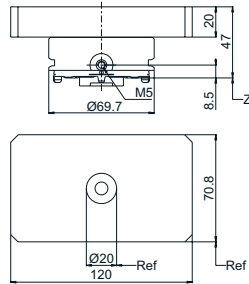
/// Pallet with coined cams

GPS 70 & 120 – Accessories

GPS 70 Reference pallet, C846360

For the axial and concentric XY alignment of the GPS 70/120 chuck.

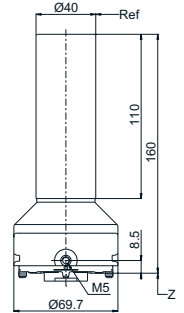
- Material stainless steel, hardened
- Construction: 2-piece, form-fitting design
- Repetition accuracy of the centre bore 0.002 mm/0°
- Parallelism with system axis 0.003 mm/120 mm.
- Adapted for automatic changing
- Ready for code carrier fixture C960740.



GPS 70 Inspection plug, C846260

For the radial alignment of the GPS 70/120 chuck.

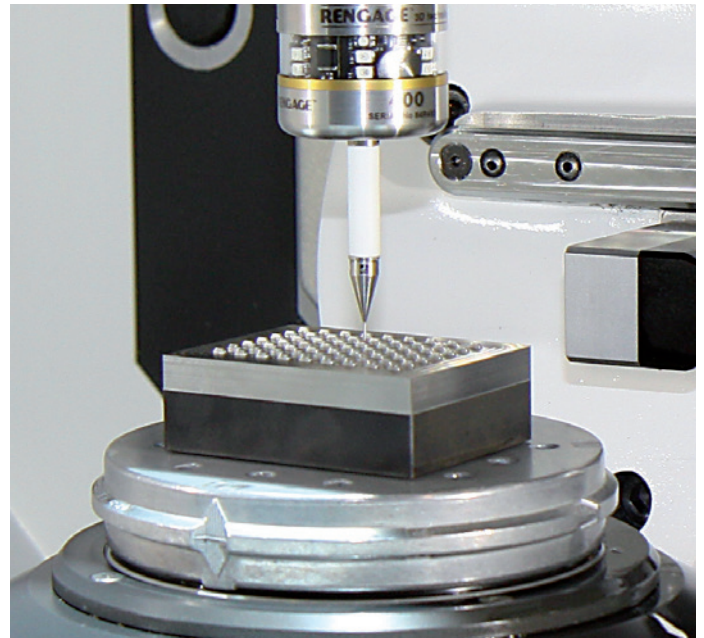
- Material stainless steel, hardened
- Construction 2-piece, form-fitting design
- Concentricity 0.005 mm/150 mm.
- Adapted for automatic changing
- Ready for code carrier fixture C960740.



Clamping force meter with GPS 70/120 insert, C288200 & C288230

The clamping force meter can be combined with different inserts. It will be used to check the different clamping systems, also called chucks. The unit clamped onto a chuck indicates the actual clamping force value. If the measured value is lower than the needed clamping force, a maintenance on the chuck is needed.

- Basic unit, C288200
- Insert for GPS 70/120, C288230



GPS 70 Spare parts set, S230150

For GPS 70 pneumatic chucks C188720 and C198700.

- Contains all the elements for a complete service.

GPS 120 Spare parts set, S230100

For GPS 70/120 pneumatic chucks C188700 and C188 770.

- Contains all the elements for a complete service.



GPS 70 Spare parts set, S660000

For GPS 70 manual chucks C188300 and C530210.

- Contains all the elements for a complete service.

GPS 120 Spare parts set, S230510

For GPS 120 manual chucks C188320 and C530310

- Contains all the elements for a complete service.



GPS 70 & 120 – Accessories

GPS 70/120 Pallet seal, C531000

Sealing of unused bores.

- Material elastomer
- Supplied in sets of 100.



Code carriers, 3R-863.01

With pre-programmed unique identity, designed for GPS 70/120 pallets.

3R-863.01-10

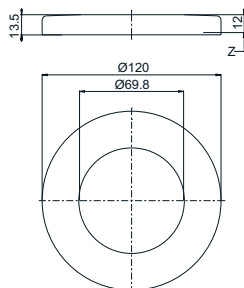
- Supplied in sets of 10.



GPS 120 Chip protection, C695176

Chip protection ring for GPS 120 chucks when used manually with GPS 70 pallets C695050.

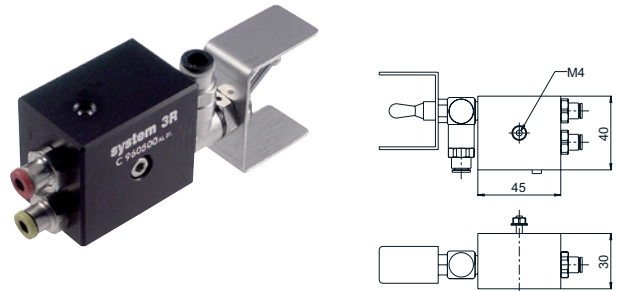
- Material aluminium, anodized
- Dimensions Ø120 x 13.5 mm.



Control unit, C960500

Manual control unit for clamping and releasing pneumatic chucks.

- Connector materials included in delivery
- Connections clamping/releasing, cleaning of Z-supports.



Code carrier, fixture, C960740

Fixture for code carrier 3R-863.01-10.

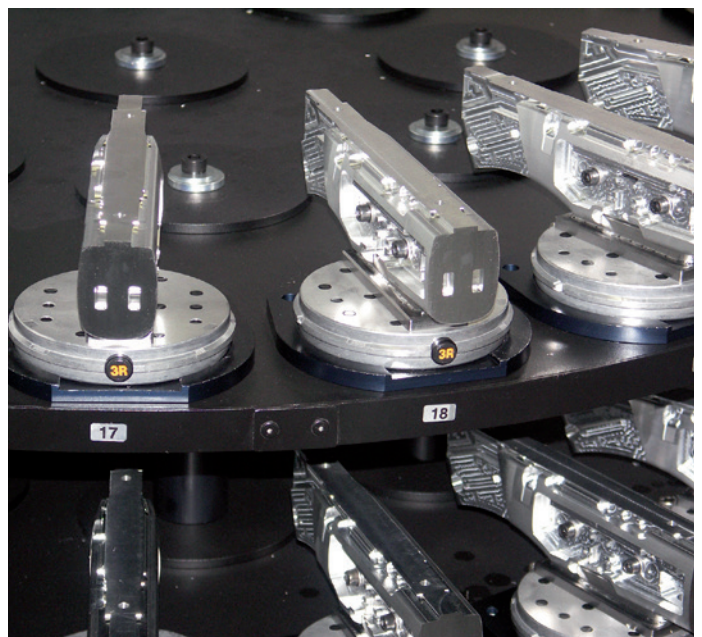
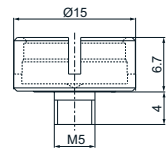
- The code carrier can be clicked into position.
- Includes spacer for code carrier 2-3 mm thickness.

S960740

- Supplied in sets of 10.

S960745

- Supplied in sets of 50.



GPS 240

In the GPS 240 system, the machining zero point is defined by the centre of the chuck. The chuck can be mounted on the machine table of any machine tool.

The pallet's standardised hole pattern enables the mounting (from below) of workpieces, fixtures and accessories such as vices, three-jaw chucks and magnetic tables. This gives collision-free mounting, even with five-sided machining.

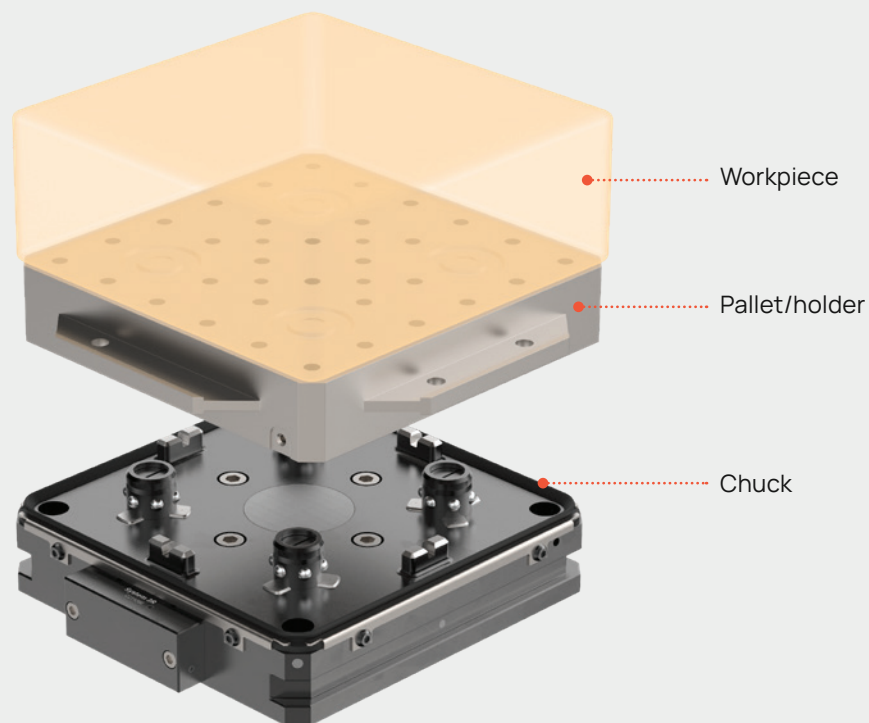
The economical, pressure-die-cast aluminium pallets are very light. Thus, they are also suitable for manual handling. Naturally the GPS 240 is also suitable for automatic changing.

The chuck seal prevents dirt penetrating between the chuck and the pallet. This simplifies maintenance and lengthens the life of the components. When loading heavy workpieces, a lifting mechanism that operates on clamping/releasing protects the references.

- Repetition accuracy within 0.002 mm
- Indexing accuracy within 0.005 mm
- Clamping force 25.000 N (with force boost 50.000 N)
- Fixed index positions 4x90°
- Required air pressure, pneumatic chuck 6 bars (± 1)
- Max workpiece weight (manual loading) 150 kg.

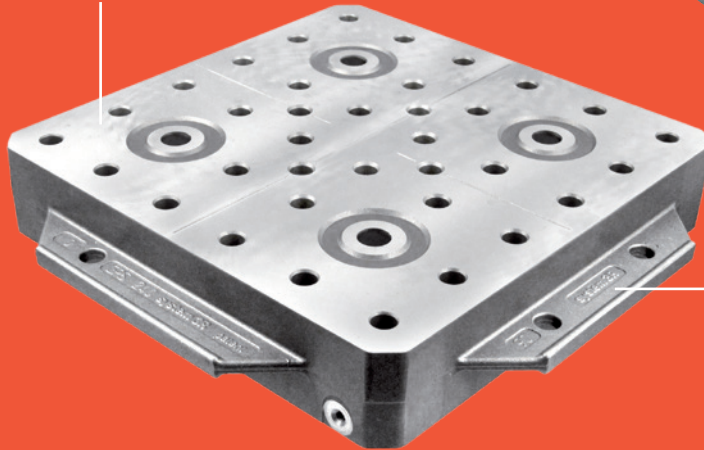
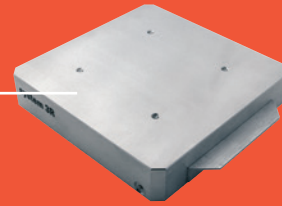
ADVANTAGES

- reduces set-up times.
- ensures precision and quality.
- is sealed against dirt and swarf.
- has lightweight pallets.
- is suitable for automatic changing with System 3R's automation program.



GPS 240 in detail

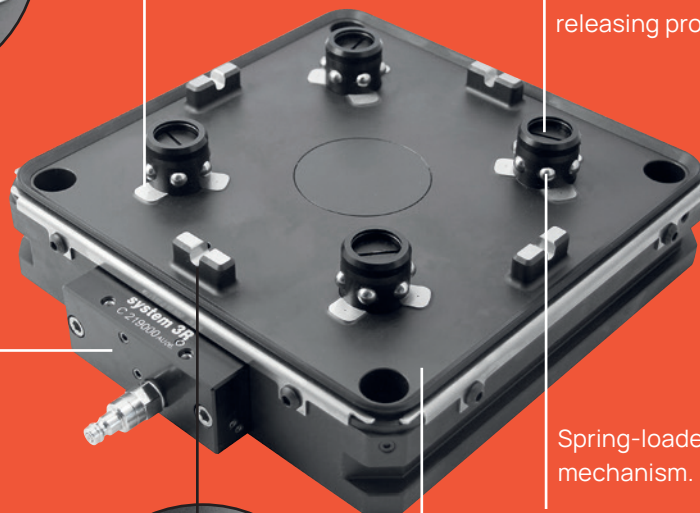
Die-cast aluminium pallets
(standardised hole pattern or
solid).



Pallet with handles for manual
handling or automated pallet
changing by robot.



Z-references are cleaned by air
blasted through the chuck's Z-
reference nozzles.

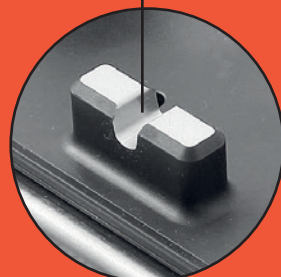


Connection block.

When loading heavy workpieces, a lifting
mechanism that operates on clamping/
releasing protects the references.

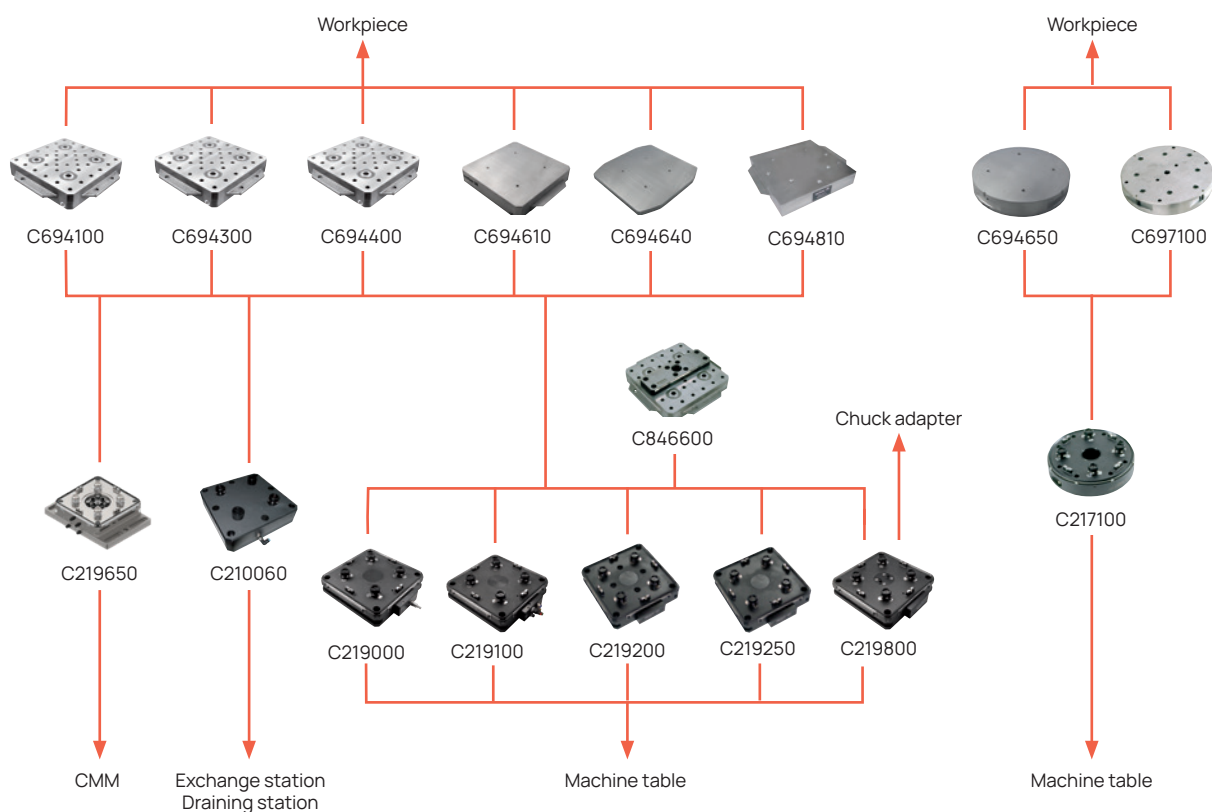
Spring-loaded, air-released clamping
mechanism.

Hardened, one-piece
(for maximum stability) chuck body with
prisms for X and Y
centring. Has 4x90°
indexing.



Chuck-pallet interface com-
pletely sealed against dirt
and swarf penetration.

GPS 240 – Chucks & pallets



Square chucks	Article number	Feature
Pneumatic manual	C219000	for manual machining operations
Pneumatic automatic/manual	C219100	for manual and automatic machining operations
Pneumatic automatic/manual	C219200	connection from below
Pneumatic automatic/manual	C219250	connection from below
Pneumatic automatic/manual	C219650	built-in pneumatic Macro chuck
Pneumatic automatic/manual	C219800	connection from below, air dock 2-fold
Pneumatic automatic/manual	C210060	dummy chuck

Round chucks	Article number	Feature
Pneumatic manual	C217100	through hole Ø54 mm

Square pallets	Article number	Feature	Size (mm)
Cast aluminium	C694100		240x240
Cast aluminium	C694300	ground	240x240
Cast aluminium	C694400		240x240
Solid aluminium	C694610		240x240
Solid aluminium	C694640		300x300
Solid aluminium	C694810	ground	240x240

Round pallets	Article number	Feature	Size (mm)
Cast aluminium	C694650	ground	Ø256
Solid aluminium	C697100	ground	Ø256

/// Pallet with coined cams

⊙ Pallet with spring-loaded pin

⌋ Pallet with springy hardened cams

GPS 240 – Chucks

GPS 240 Chucks

- Built-up height 52 mm
- Required air pressure 6 bar
- Air-blast cleaning of the references
- Weight 17 kg.

C219000

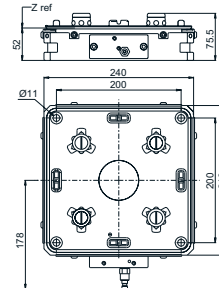
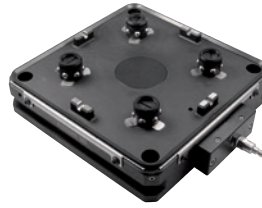
For manual machining operations.

- One air connection
- Clamping force 25.000 N
- Recommended actuator C810820 or C810710.

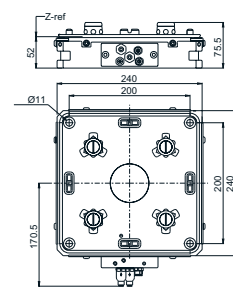
C219100

For manual and automatic machining operations.

- 5 air connections
- Clamping force 25.000 N/50.000 N
- Recommended actuator C810830.



C219000

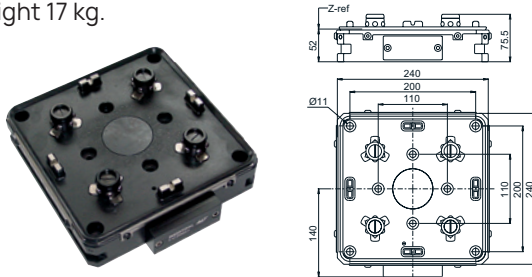


C219100

GPS240 Chuck automatic, C219200

For manual and automatic machining operations.

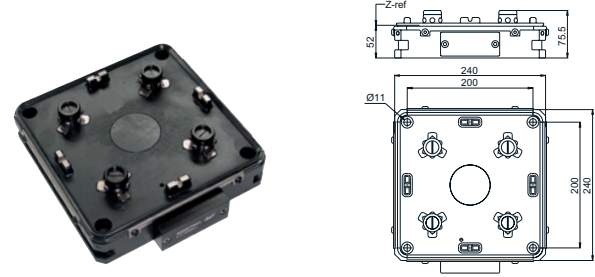
- Built-up height 52 mm
- Fixation holepattern 110x110mm for small rotary tables and 200x200 mm for larger machine tables
- Air connections positioned centrally on the bottom – prism – air-blast cleaning of Z-references – clamping/ releasing – Turbo/ventilation
- Clamping force 25.000 N/50.000 N
- Weight 17 kg.



GPS240 Chuck automatic, C219250

For manual and automatic machining operations.

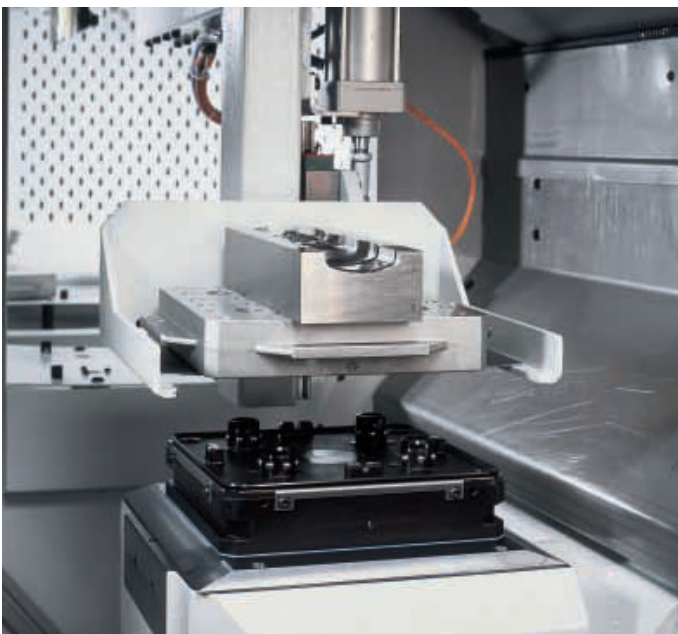
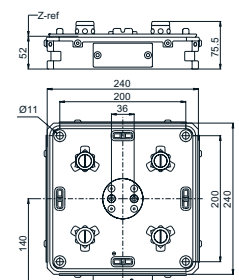
- Built-up height 52 mm
- Fixation holepattern 200x200 mm only
- Air connections positioned centrally on the bottom – prism – air-blast cleaning of Z-references – clamping/ releasing – Turbo/ventilation
- Clamping force 25.000 N/50.000 N
- Weight 17 kg.



GPS 240 Chuck automatic with air dock, C219800

For manual and automatic machining operations.

- Built-up height 52 mm
- Air connections positioned centrally on the underside – prism – air-blast cleaning of Z-references – clamping/ releasing – Turbo/ventilation
- Air dock: 2-fold, pneumatic 6 bar.
- Clamping force 25.000 N/50.000 N
- Weight 17 kg.

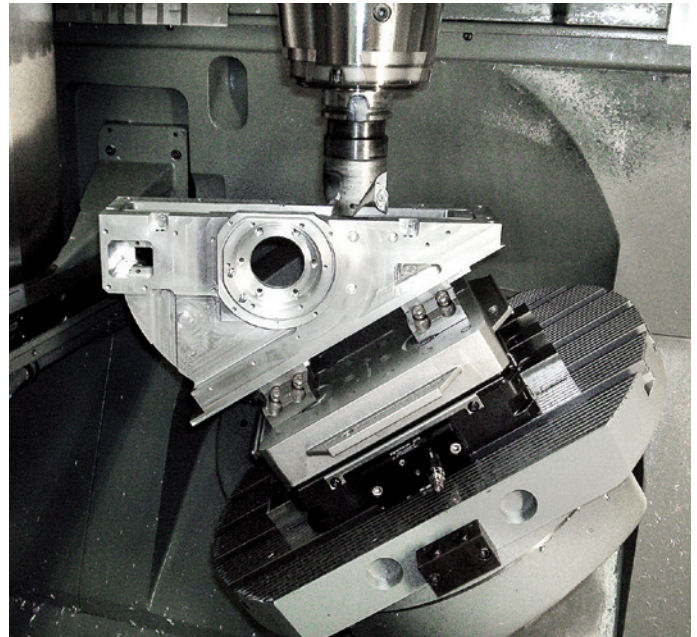
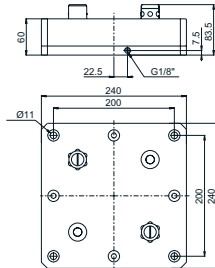


GPS 240 – Chucks

GPS 240 Dummy chuck, C210060

Dummy chuck for clamping a GPS 240 pallet on a exchange or draining station.

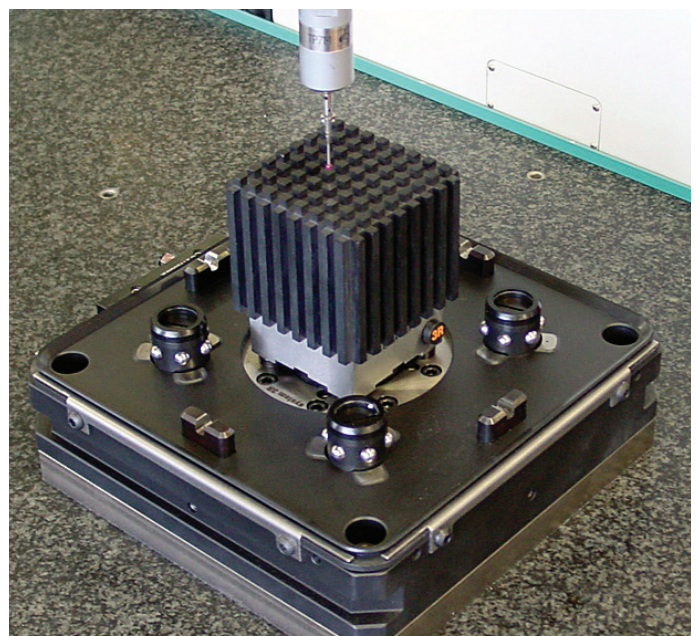
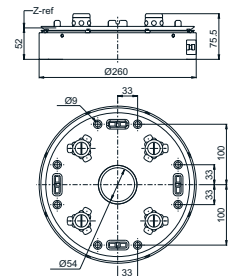
- Required air pressure 6 bars (± 1)
- Weight 9.5 kg.



GPS 240 Chuck manual round with hole Ø54 mm, C217100

Pneumatic chuck for applications in lathes and milling machines.

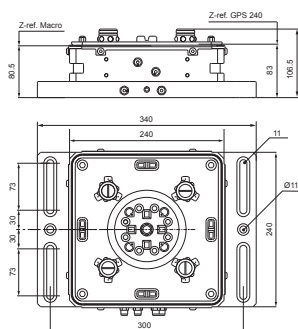
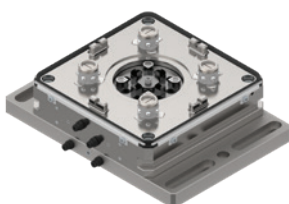
- Built-up height 52 mm
- Required air pressure 6 bars (± 1)
- Air-blast cleaning of Z-references
- Clamping force 25.000 N
- Recommended control unit C810820 or C810710
- Weight 16 kg.



GPS 240 Pneumatic chuck with built-in Macro chuck, C219650

Pneumatic chuck with built-in Macro chuck. Intended mainly for measuring machines. The following pallets can be mounted in GPS 240 by means of C219650 Macro 54x54 mm and Macro 70x70 mm.

- Required air pressure 6 bars (± 1)
- Air-blast cleaning of the references
- Weight 24 kg.

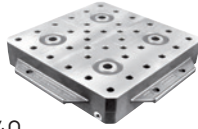


GPS 240 – Pallets

GPS 240 Pallet EDM/Grinding, C694100

Cast aluminium pallet.

- Construction height 48.1 ± 0.01 mm
- X/Y-centring with spring-loaded pin
- Adapted for automatic changing
- Ready for code carrier fixture C960740
- Supplied with C531500 sealing plugs.
- Recommended workpiece weight 150 kg.
- Weight 4.8 kg.

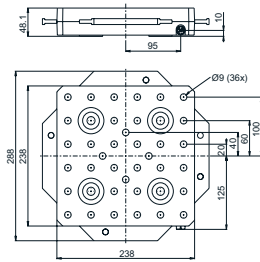


S500090

- C694100 supplied in sets of 4 pcs.

S500100

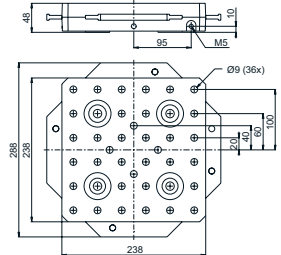
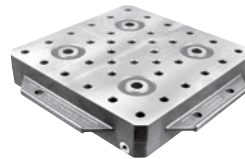
- C694100 supplied in sets of 10 pcs.



GPS 240 Pallet 'Adaption', C694300

Ground cast aluminium pallet. Suitable for fixtures.

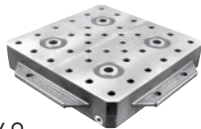
- Construction height 48.0 ± 0.005 mm
- X/Y-centring with spring-loaded pin
- Adapted for automatic changing
- Ready for code carrier fixture C960740
- Supplied with C531500 sealing plugs.
- Recommended workpiece weight 150 kg.
- Weight 4.8 kg.



GPS 240 Pallet 'Production', C694400

Cast aluminium pallet. Suitable for high-speed milling and arduous milling operations.

- Construction height 48.0 ± 0.01 mm
- X/Y-centring with coined cam
- Adapted for automatic changing
- Ready for code carrier fixture C960740
- Recommended workpiece weight 150 kg.
- Supplied with C531500 sealing plugs.
- Weight 4.8 kg.

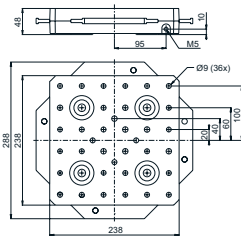


S500160

- C694400 supplied in sets of 4 pcs.

S500170

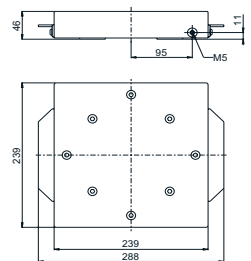
- C694400 supplied in sets of 10 pcs.



GPS 240 Pallet, C694810

Ground solid aluminium pallet. Suitable for fixtures.

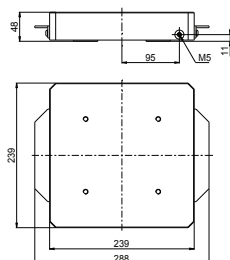
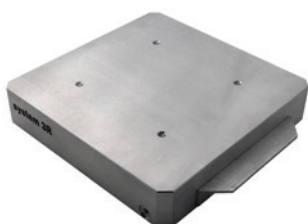
- Construction height 46 ± 0.005 mm
- X/Y-centring with springy cams, hardened, stainless
- Adapted for automatic changing
- Ready for code carrier fixture C960740
- Recommended workpiece weight 150 kg.
- Weight 7.2 kg.



GPS 240 Pallet 240x240 mm, C694610

Solid aluminium pallet. Suitable for fixtures and accessories.

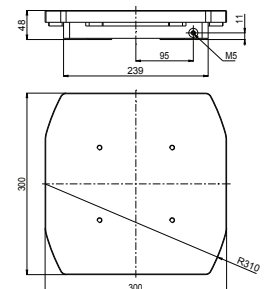
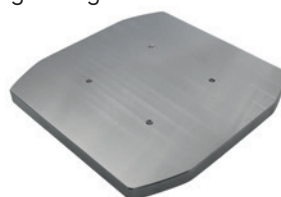
- Construction height 48.0 ± 0.01 mm
- X/Y-centring with coined cam
- Prepared for automation
- Flatness 0.01 mm
- Ready for code carrier fixture C960740
- Recommended workpiece weight 150 kg.
- Weight 7.4 kg.



GPS 240 Pallet 300x300 mm, C694640

Solid aluminium pallet. Suitable for fixtures and accessories.

- Construction height 48.0 ± 0.01 mm
- X/Y-centring with coined cam
- Flatness 0.02 mm
- Prepared for automation
- Ready for code carrier fixture C960740
- Recommended workpiece weight 150 kg.
- Weight 9 kg.



/// Pallet with coined cams.

⊙ Pallet with spring-loaded pin.

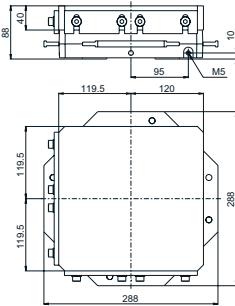
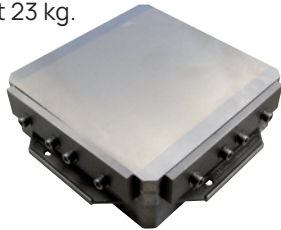
↘ Pallet with springy cams, hardened, stainless.

GPS 240 – Pallets

GPS 240 Magnetic table, C694260

High-precision magnetic plate for grinding work and for erode.

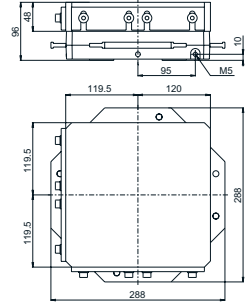
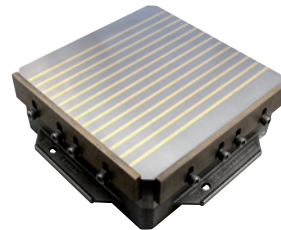
- Magnetic field height 5 mm
- Holding force 100 N/cm²
- Dimensions 240x240x88 mm
- X/Y-centring with spring-loaded pin
- Adapted for automatic changing
- Ready for code carrier fixture C960740
- Weight 23 kg.



GPS 240 Magnetic table, C694270

Strong magnetic plate for milling.

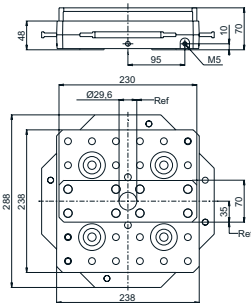
- Magnetic field height 10 mm
- Holding force 150 N/cm²
- Dimensions 240x240x96 mm
- X/Y-centring with spring-loaded pin
- Adapted for automatic changing
- Ready for code carrier fixture C960740
- Weight 27.1 kg.



GPS 240 Master pallet, C846600

The pallet has a ground reference ruler and a ground indication hole for alignment of the references.

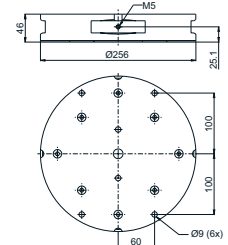
- X/Y-centring: with spring-loaded pin
- Adapted for automatic changing
- Ready for code carrier fixture C960740
- Weight 7.4 kg.



GPS 240 Pallets round, C697100

Ground solid aluminium pallet. Suitable for fixtures.

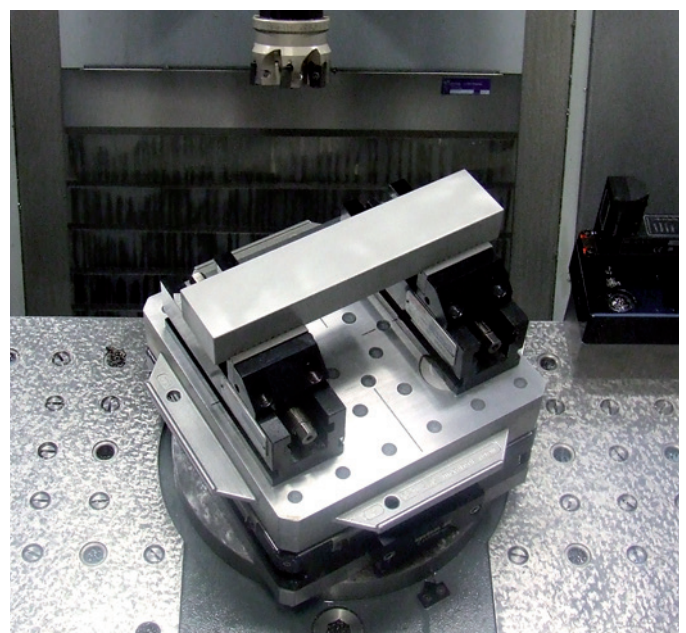
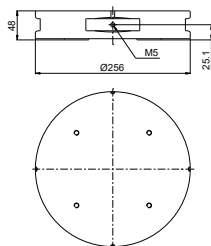
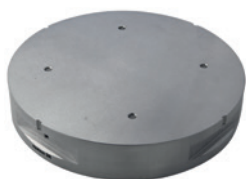
- Construction height 46 ±0.005 mm
- X/Y-centring: with springy cams, hardened, stainless
- Adapted for automatic changing
- Ready for code carrier fixture C960740
- Recommended workpiece weight 150 kg.
- Weight 6.2 kg.



GPS 240 pallet round, C694650

Solid aluminium pallet. Suitable for fixtures.

- Construction height 48.0 ±0.01 mm
- X/Y-centring with coined cam
- Adapted for automatic changing
- Ready for code carrier fixture C960740
- Recommended workpiece weight 150 kg.
- Weight 6.5 kg.



 Pallet with coined cams.

Ⓢ Pallet with spring-loaded pin.

 Pallet with springy cams, hardened, stainless.

GPS 240 – Chuck adapters

Chuck adapter HP, GPS 240-GPS 120, C522800

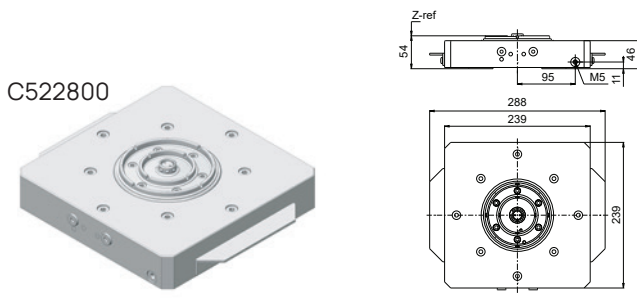
Chuck adapter with built-in pneumatic GPS 120 chuck for mounting in:

- C219800 for automated pallet change GPS 120
- C219000, C219100, C219110, C219200 for manual pallet change GPS 120; Open/Close GPS 120 with air gun.
- Built-up height 54 mm
- X/Y-centering with springy cams, hardened, stainless steel
- Simple retrofit from version „automation“ to version „manual“ by the operator
- Weight 7.9 kg.

Chuck adapter Std, GPS 240-GPS 120, C522850

Chuck adapter with built-in pneumatic GPS 120 chuck.

- Built-up height 54 mm
- X/Y-centering with coined aluminium cams
- Other specifications as C522800.



Chuck adapter HP, GPS 240-GPS 70, C522810

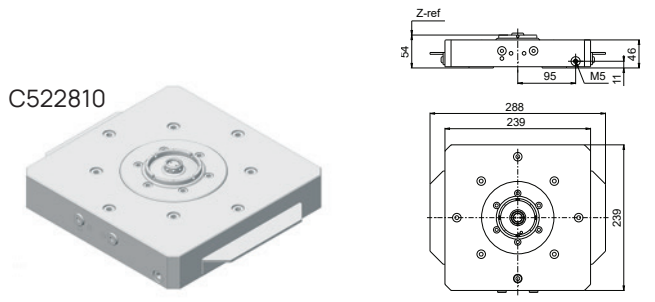
Chuck adapter with built-in pneumatic GPS 70 chuck for mounting in:

- C219800 for automated pallet change GPS 70
- C219000, C219100, C219110, C219200 for manual pallet change GPS 70; Open/Close GPS 70 with air gun.
- Built-up height 54 mm
- X/Y-centering with springy cams, hardened, stainless steel
- Simple retrofit from version „automation“ to version „manual“ by the operator
- Weight 7.9 kg.

Chuck adapter Std, GPS 240-GPS 70, C522860

Chuck adapter with built-in pneumatic GPS 70 chuck.

- Built-up height 54 mm
- X/Y-centering with coined aluminium cams
- Other specifications as C522810.



Chuck adapter HP, GPS 240-GPS 120, C522820

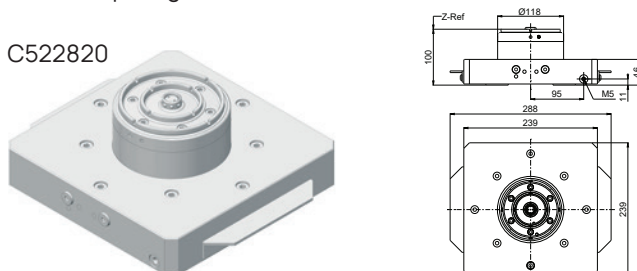
Chuck adapter with built-in pneumatic GPS 120 chuck for mounting in:

- C219800 for automated pallet change GPS 120
- C219000, C219100, C219110, C219200 for manual pallet change GPS 120; Open/Close GPS 120 with air gun.
- Built-up height 100 mm
- X/Y-centering with springy cams, hardened, stainless steel
- Simple retrofit from version „automation“ to version „manual“ by the operator
- Weight 8.9 kg.

Chuck adapter Std, GPS 240-GPS 120, C522870

Chuck adapter with built-in pneumatic GPS 120 chuck.

- X/Y-centering with coined aluminium cams
- Other specifications as C522820.
- Built-up height 100 mm.



Chuck adapter HP, GPS 240-GPS 70, C522830

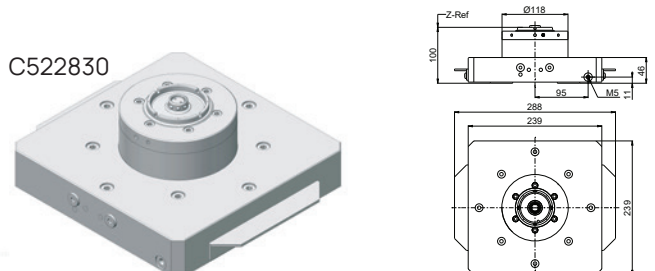
Chuck adapter with built-in pneumatic GPS 70 chuck for mounting in:

- C219800 for automated pallet change GPS 70
- C219000, C219100, C219110, C219200 for manual pallet change GPS 70; Open/Close GPS 70 with air gun.
- Built-up height 100 mm
- X/Y-centering with springy cams, hardened, stainless steel
- Simple retrofit from version „automation“ to version „manual“ by the operator
- Weight 8.9 kg.

Chuck adapter Std, GPS 240-GPS 70, C522880

Chuck adapter with built-in pneumatic GPS 70 chuck.

- X/Y-centering with coined aluminium cams
- Other specifications as C522830.
- Built-up height 100 mm.



GPS 240 – Chuck adapters & accessories

Chuck adapter HP, GPS 240-Macro, C522520

Chuck adapter with built-in pneumatic Macro chuck.
3R-24460 for mounting in:

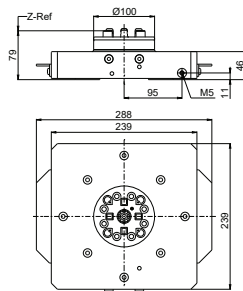
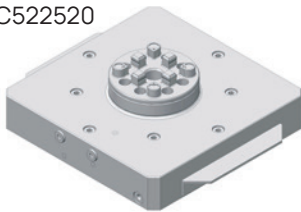
- C219800 for automated pallet change Macro
- C219000, C219100, C219110, C219200 for manual pallet change Macro; Open/Close/Turbo Macro with air gun.
- Built-up height 79 mm
- X/Y-centering with springy cams, hardened, stainless steel
- Drawbar 3R-605.1
- Simple retrofit from version „automation“ to version „manual“ by the operator
- Weight 8.5 kg.

Chuck adapter Std, GPS 240-Macro, C522530

Chuck adapter with built-in pneumatic Macro chuck.

- Built-up height 79 mm
- X/Y-centering with coined aluminium cams
- Other specifications as C522520.

C522520



Chuck adapter HP, GPS 240-MacroMagnum, C522540

Chuck adapter with built-in pneumatic MacroMagnum chuck 3R-90809.03 for mounting in:

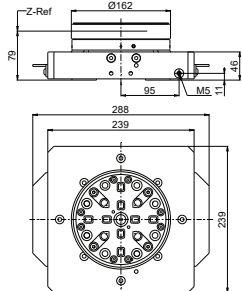
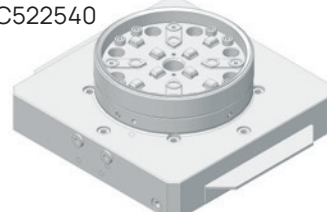
- C219800 for automated pallet change MacroMagnum
- C219000, C219100, C219110, C219200 for manual pallet change MacroMagnum; Open/Close/Turbo MacroMagnum with air gun.
- Built-up height 79 mm
- X/Y-centering with springy cams, hardened, stainless steel
- Drawbar 3R-605.1
- Simple retrofit from version „automation“ to version „manual“ by the operator
- Weight 11.7 kg.

Chuck adapter Std, GPS 240-MacroMagnum, C522550

Chuck adapter with built-in pneumatic MacroMagnum chuck.

- Built-up height 79 mm
- X/Y-centering with coined aluminium cams
- Other specifications as C522540.

C522540



GPS 240 Controllers

C810820

Unit for controlling pneumatic chucks C217100 and C219000.

- 1 connection (clamping/releasing).



C810830

Unit for controlling pneumatic chucks C219100.

- 4 connections - prism - air-blast cleaning of Z-references - clamping/releasing - Turbo/ventilation.



Hand gate valve, C810710

For controlling pneumatic chucks C217100 and C219000.

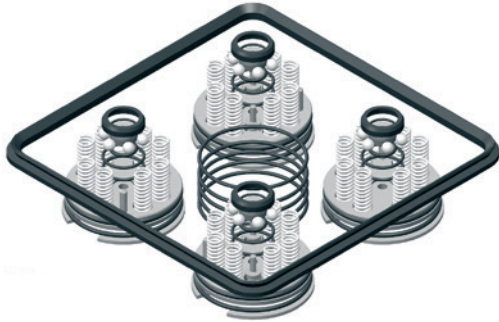


GPS 240 – Accessories

GPS 240 Spare parts set, S220000

Contains all elements for a normal service.

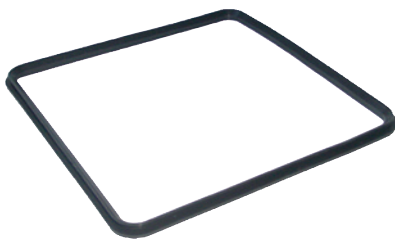
- Suitable for all square chucks, apart from C219400
- Recommendation: every 2 years if used manually and annually if used in the automation system.



Sealing, C219007

The chuck seal is a wear part which should be replaced every three to six months.

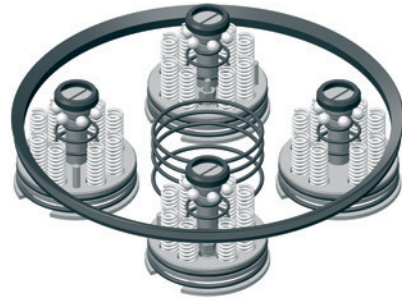
- Material Viton.



GPS 240 Spare parts set, S220400

Contains all elements for a normal service.

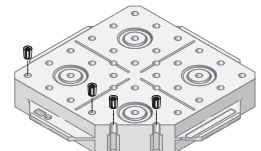
- Suitable for C217100
- Recommendation, every 2 years in manual use.



Sealing plugs, C531500

Plugs for sealing GPS 240 pallets.

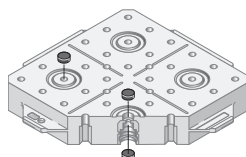
- Supplied in sets of 40.



Seals, C531250

To seal the holes in the four clamping elements of the pallet.

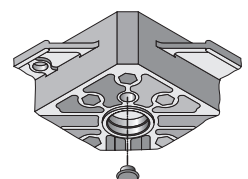
- Material elastomer
- Supplied in sets of 20.



Reference protectors, C531210

To protect the Z-reference of the pallet.

- Supplied in sets of 20.



GPS 240 – Accessories & user kits

Code carriers, 3R-863.01

With pre-programmed unique identity, designed for GPS 240 pallets.

3R-863.01-10

- Supplied in sets of 10.



Code carrier, fixture, C960740

Fixture for code carrier 3R-863.01-10.

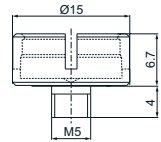
The code carrier can be clicked into position. Includes spacer for code carrier 2-3 mm thickness.

S960740

- Supplied in sets of 10.

S960745

- Supplied in sets of 50.



GPS 240 Clamp strip kit, C810880-XX*

C810881 undrilled clamp strip (x2)

E010144 washer M10 (x4)

E010143 washer M8 (x4)

E000428 Allen screw M10x45 (x4)

E000354 Allen screw M8x45 (x4)

12 E040030 T-slot nut M10x12 (x4)

14 E040031 T-slot nut M10x14 (x4)



Clamping force meter with GPS 240 insert, C288200 & C288220

The clamping force meter can be combined with different inserts. It will be used to check the different clamping systems, also called chucks. The unit clamped onto a chuck indicates the actual clamping force value. If the measured value is lower than the needed clamping force, a maintenance on the chuck is needed.

- Basic unit, C288200
- Insert for GPS 240, C288220

* When ordering, state the required dimension of the T-slot nut.

Dynafix

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

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

ADVANTAGES

- enables machining with optimal cutting data.
- Reduces set-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.

As the basic means of fixing workpieces to machine tables, Dynafix gives unsurpassed flexibility as regards size. Using chuck adapters gives you access to practically every reference system in System 3R's extensive product range. With Dynafix as your basic mounting, you have rapid, precise changing (manual or automatic) of pallets ranging in size from Ø 25 mm to 400 x 400 mm.

- Repetition accuracy within 0.002 mm
- Clamping force 50.000 N
- Fixed index positions 4x90°
- Required air pressure, pneumatic chuck 6 bars (± 1)
- Max workpiece weight (manual loading) 100 kg.

Pallet/holder

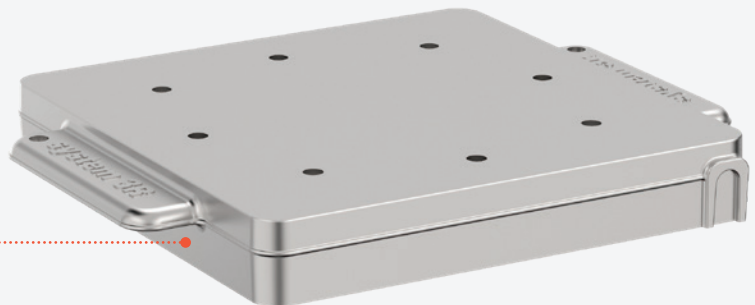


Table chuck



Dynafix in detail

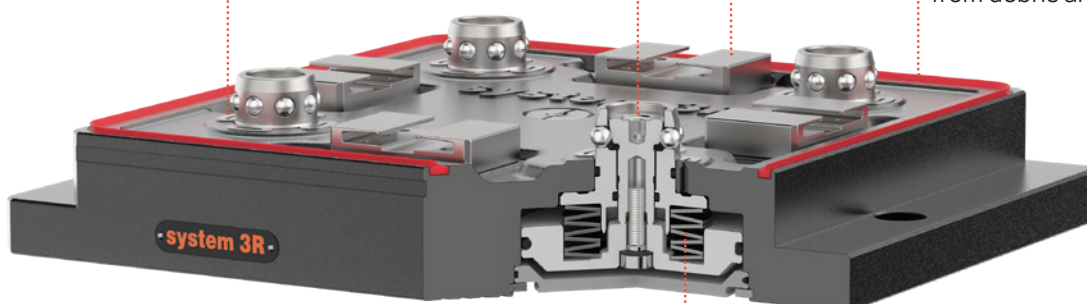


Z-references are cleaned by air blasted through the chuck's Z-reference nozzles.

When loading heavy workpieces, a lifting mechanism that operates on clamping/releasing protects the references.

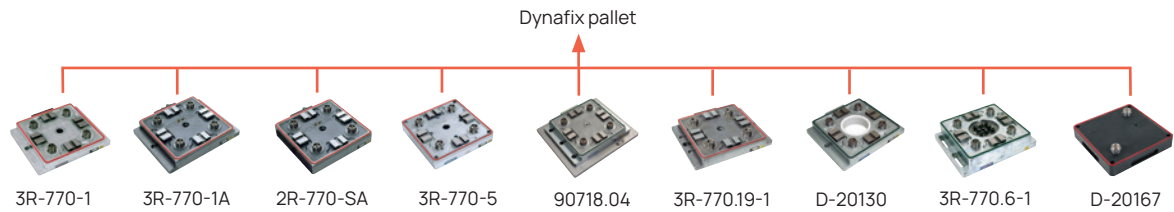
The X and Y-lips ensure that each pallets takes up the right position.

Lip seals maximise protection from debris and fluids.



Spring-loaded when idling; special Turbo function via added air pressure.

Dynafix – Chucks

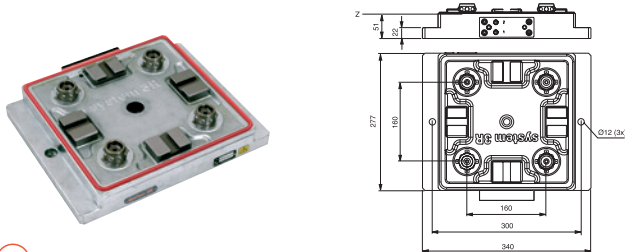


Chucks	Article number	Feature
Pneumatic	3R-770-1	
Pneumatic	3R-770-1A	for chuck adapters, with mounting flange
Pneumatic	3R-770-5A	for five-axis machines
Pneumatic	3R-770-5	for five-axis machines
Pneumatic	90718.04	vibration-damped
Pneumatic	3R-770.19-1	3Refix holes
Pneumatic	3R-770.6-1	built-in pneumatic Macro chuck
Pneumatic	D-20130	through hole Ø110 mm
Pneumatic	D-20167	load station

Pneumatic chuck, 3R-770-1

Pneumatic table chuck.

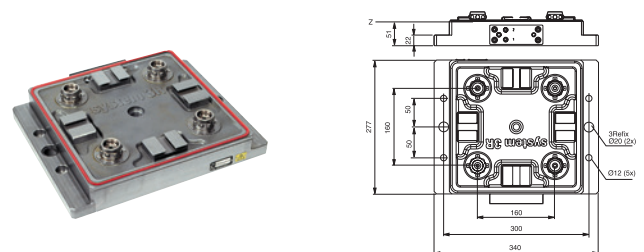
- Required air pressure 6 bars (± 1)
- Fixed index positions 4x90°
- Recommended actuator 3R-611.4 or 3R-611.2.
- Air-blast cleaning of the Z-references
- Weight 24.5 kg.



Pneumatic chuck, 3R-770.19-1

Pneumatic table chuck with 3Refix-holes.

- 3Refix Ø20 mm
- Required air pressure 6 bars (± 1)
- Fixed index positions 4x90°
- 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.

- Air-blast cleaning of the Z-references.
- Required air pressure 6 bars (± 1)
- Fixed index positions 4x90°

3R-770-1A

With fixing lugs.

- Weight 24.5 kg.

3R-770-5A

Without fixing lugs.

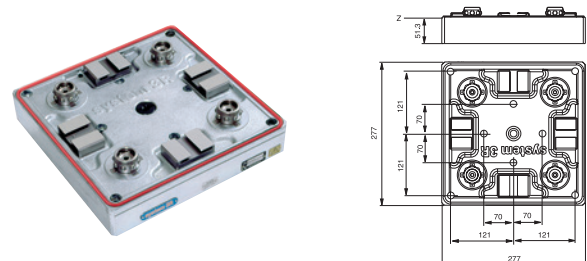
- Weight 23.5 kg.



Pneumatic chuck, 3R-770-5

Pneumatic table chuck for applications in five-axis machines.

- Air connection from below.
- Required air pressure 6 bars (± 1)
- Fixed index positions 4x90°
- Air-blast cleaning of the Z-references
- Weight 23.5 kg.

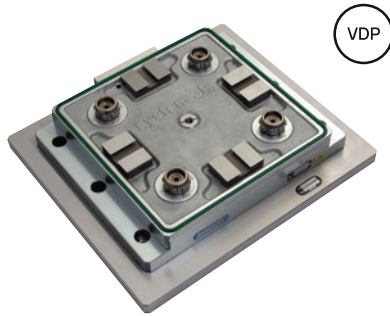


Dynafix – Chucks

Pneumatic chuck, VDP, 90718.04

Pneumatic vibration-damped chuck.

- Required air pressure 6 bars (± 1)
- Fixed index positions 4x90°
- Air-blast cleaning of the Z-references.



Pneumatic chuck, D-20130

Pneumatic chuck with through holes Ø110 mm.

- Required air pressure 6 bars (± 1)
- Fixed index positions 4x90°
- Air-blast cleaning of the Z-references
- Weight 22 kg.



Pneumatic chuck, 3R-770.6-1

Pneumatic chuck with integrated Macro chuck. For CMM machines.

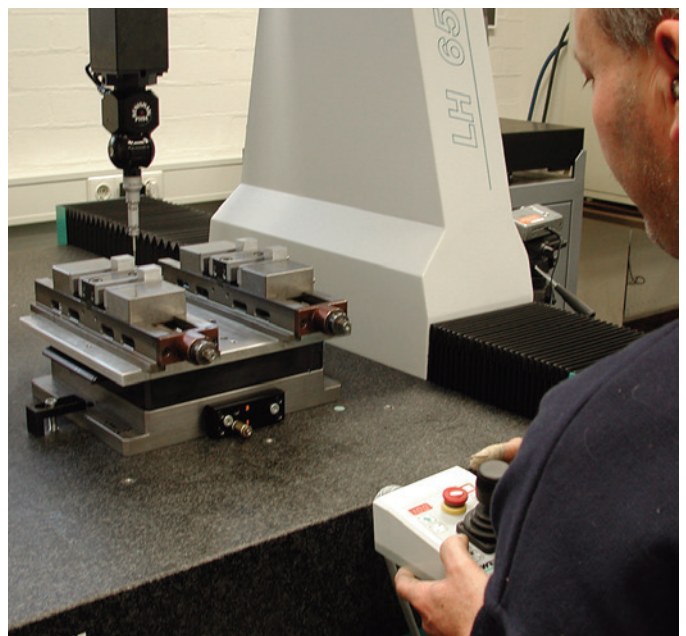
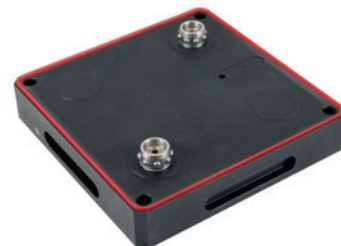
- Required air pressure 6 bars (± 1)
- Fixed index positions 4x90°
- Air-blast cleaning of the Z-references
- Weight 32 kg.



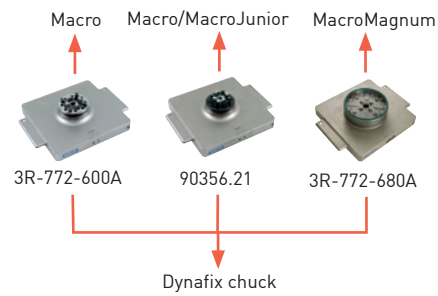
Pneumatic dummy chuck, D-20167

To use as a load station for pallets with workpieces.

- Rust resistant
- Prepared for sensor 05-7041
- Clamping force 5.000 N
- Max load weight 250 kg
- Weight 11 kg.



Dynafix – Chuck adapters

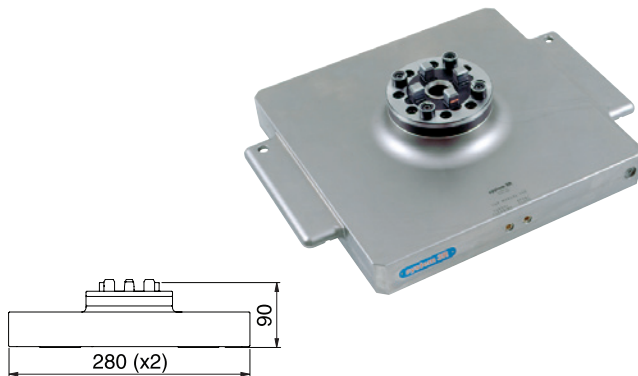


Chuck adapters	Article number	Drawbar	Feature
Pneumatic	3R-772-600A	3R-605.2	Dynafix ► Macro
Pneumatic	90356.21	3R-405.11 and 3R-405.16	Dynafix ► MacroCombi
Pneumatic	3R-772-680A	3R-605.1	Dynafix ► MacroMagnum

Pneumatic chuck adapter, Dynafix-Macro, 3R-772-600A

Chuck adapter with built-in pneumatic Macro chuck for mounting in 3R-770-1A or 3R-770-5A.

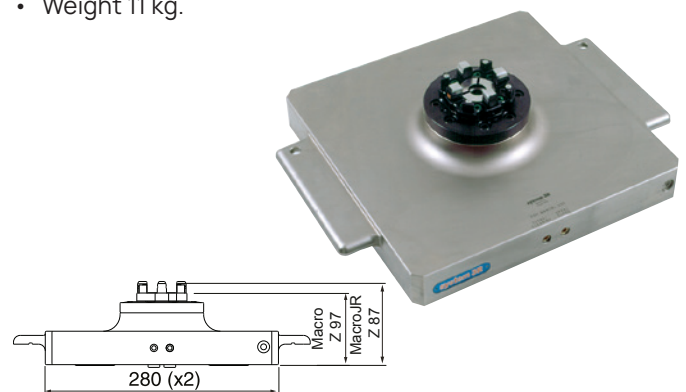
- Requires drawbar 3R-605.1
- Weight 11 kg.



Pneumatic chuck adapter, Dynafix-MacroCombi, 90356.21

Chuck adapter with built-in pneumatic MacroCombi chuck for mounting in 3R-770-1A or 3R-770-5A.

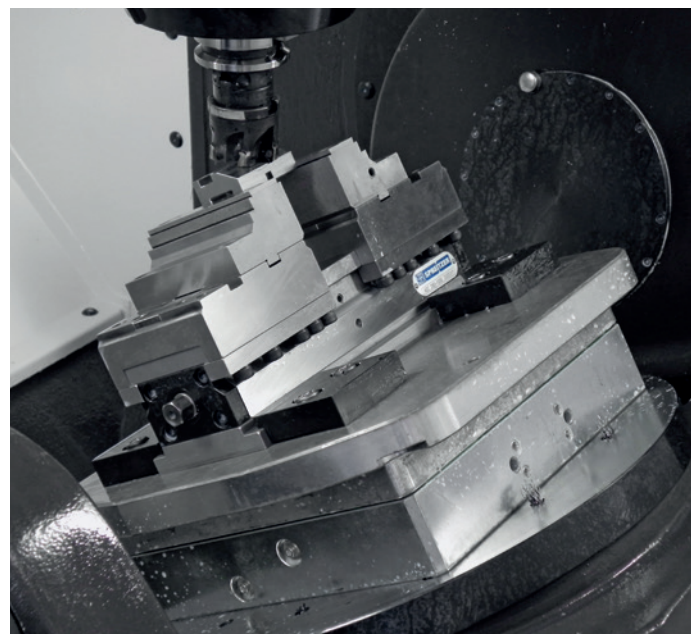
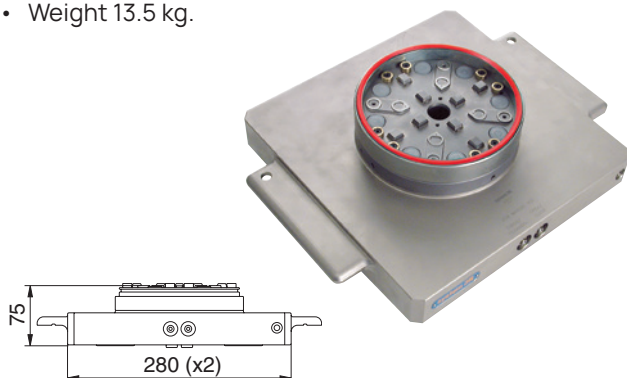
- Requires drawbar 3R-405.11 and 3R-405.16
- Weight 11 kg.



Pneumatic chuck adapter, Dynafix-MacroMagnum, 3R-772-680A

Chuck adapter with built-in pneumatic MacroMagnum chuck for mounting in 3R-770-1A or 3R-770-5A.

- Requires drawbar 3R-605.1
- Weight 13.5 kg.



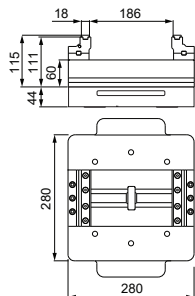
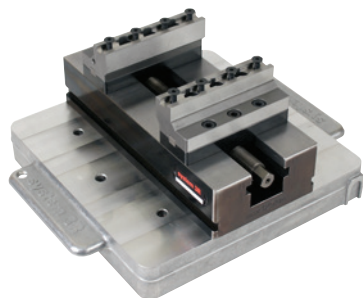
Dynafix – Chuck adapters

Centering vice, Dynafix, 3R-778-CV

Centering vice on Dynafix pallet.

Choose between different inserts (not included).

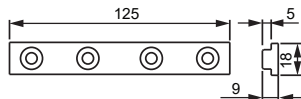
- Vice length 280 mm
- Jaws width 125 mm
- Clamping length 186/246 mm
- Clamping force 50.000 N
- Weight 22.8 kg.



Pair of clamping inserts, Dynafix, 3R-778-J4

Clamping inserts 125 mm. Rough carbide coating. Fits on Centering vice, Dynafix, 3R-778-CV.

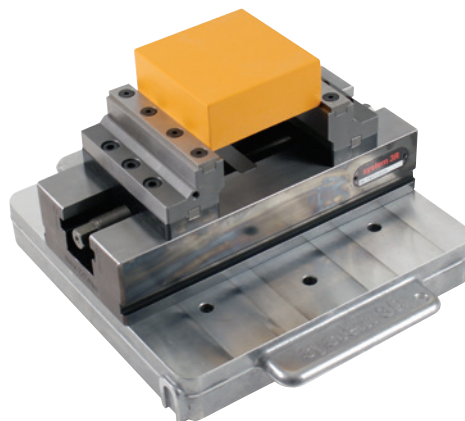
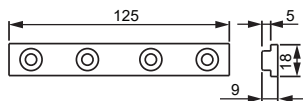
- Weight 0.15 kg.



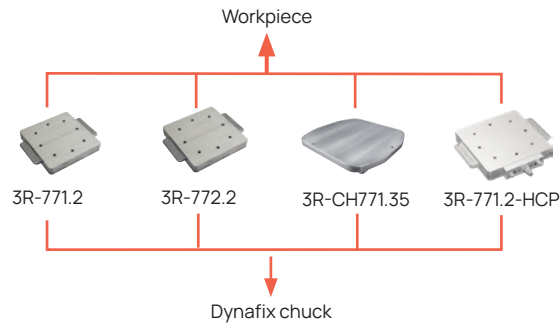
Pair of grip inserts, Dynafix, 3R-778-J3

Grip inserts 125 mm. Fits on Centering vice, Dynafix, 3R-778-CV.

- Weight 0.15 kg.



Dynafix – Pallets

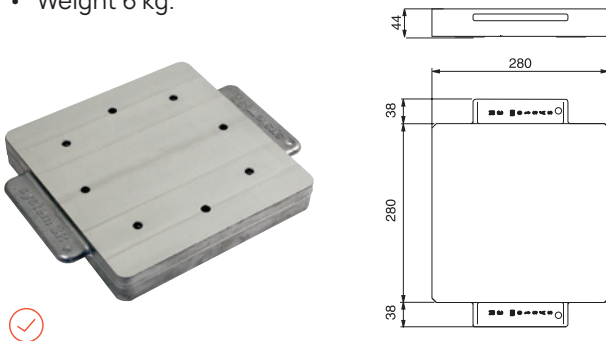


Pallets 280x280 mm	Article number	Feature
Aluminium	3R-771.2	milled
Aluminium	3R-772.2	ground
Aluminium	3R-CH771.35	
Aluminium	3R-771.2-HCP	milled, HCP robot grip

Pallet 280x280 mm, 3R-771.2

Milled aluminium pallet.

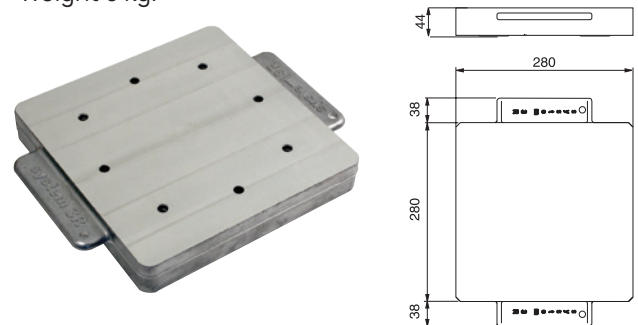
- Adapted for automatic changing
- Ready for code carrier
- Flatness 0.04 mm
- Thickness tolerance +0.05/-0 mm
- Weight 6 kg.



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.



Pallet with HCP robot grip, 3R-771.2-HCP

Milled pallet with HCP robot grip mounted on pallet side.

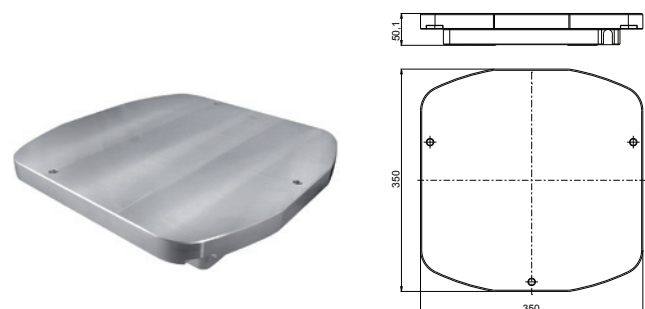
- Prepared for through holes (sealed at delivery)
- Adapted for automatic changing.
- Load weight 150 kg.
- Weight 6.5 kg.



Pallet 350x350 mm, 3R-CH771.35

Aluminium pallet.

- Adapted for automatic changing.
- Ready for code carrier
- Weight 12.1 kg.



Dynafix – Accessories

Reference elements, 3R-771.7

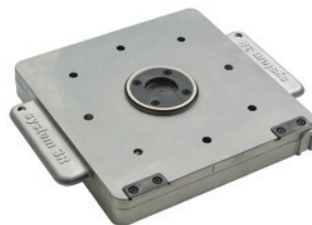
Reference kit for users who want to make their own pallets or fixtures.



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.



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.

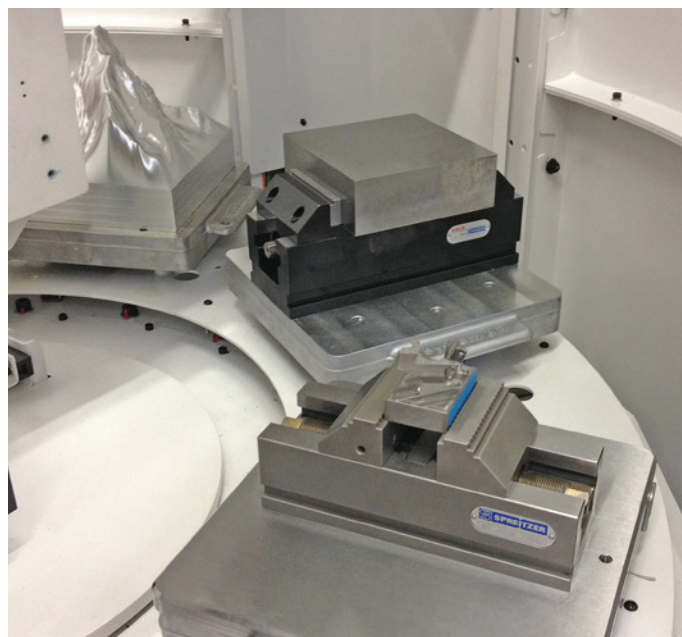
NOTE: Require drawbars with bayonet interface similar to 3R-605.1.

- Add-on kit for use in Dynafix, 3R-SSP115-DYN
- 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-DYN

Add-on kit for 3R-SSP115-BASE



Delphin & Delphin BIG

Clamping of larger dimensions too, with Delphin

The modular design with the Delphin zero point clamping system offers you the greatest possible flexibility. You can arrange the machine equipment as a baseplate or as a built-up solution, precisely in accordance with your requirements. Pallets or workpieces can now be positioned and clamped with great accuracy on the Delphin clamping system.



Advantages of the Delphin clamping system

- Modular design
- Large product portfolio
- Uniform clamping spigots
- Spring centring for pinpoint accuracy

Facts

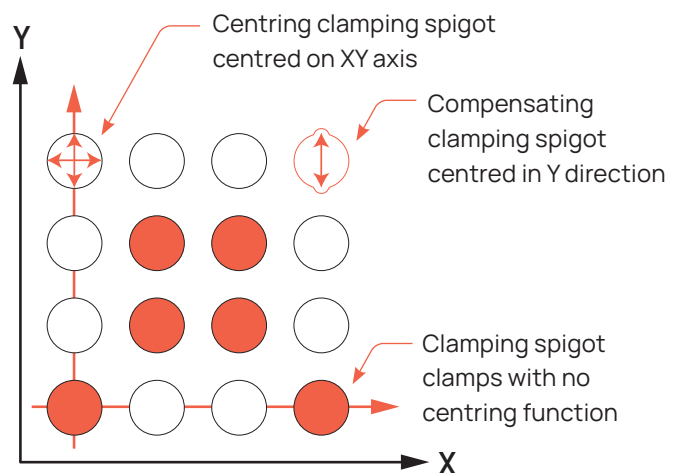
Repetition accuracy: < 0.005 mm

Pneumatic clamping force: 13'000N

Hydraulic clamping force: 15'000N

Function of the Delphin clamping system

One special feature in relation to modular equipping of the machine tables is the option for arrangement and number of chucks. Regardless of the requirements of the application, you determine the quantity and the particular centre distance with which you wish to equip the machine table. Our recommendation: use at least 4 chucks per workpiece or work with pallets. The conical clamping spigots are mounted directly in the device or workpiece. Centring of the conical face of the centring and compensating clamping spigots free of play achieves maximum accuracy.



Delphin & Delphin BIG

Chucks for manual equipping:

Delphin PSP

Pneumatic, clamping force 13.000 N

Delphin HSP

Hydraulic, clamping force 15.000 N

Lift-off function

Chucks for automation:

Delphin PHP

Pneumatic, clamping force 13.000 N

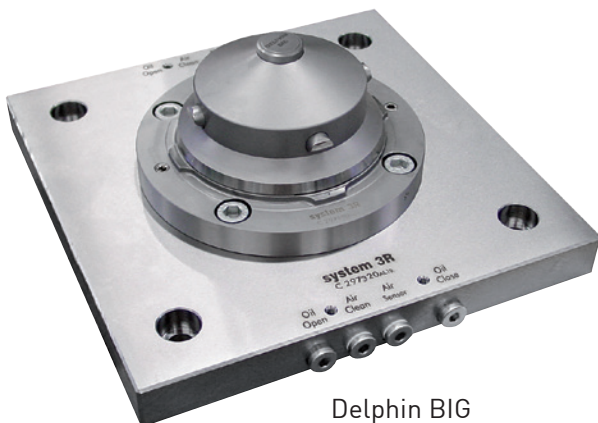
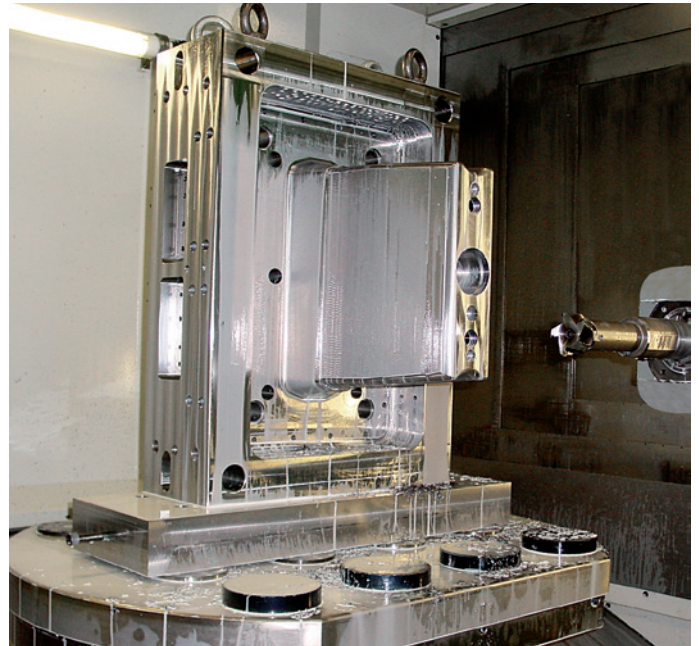
Self-cleaning and presence control

Delphin HHP / Delphin HCP

Hydraulic, clamping force 15.000 N

Self-cleaning and presence control

Lift-off function.



Delphin BIG

Delphin BIG

The newest member of the Delphin family was developed specially for large workpieces.

This opens up entirely new approaches for the production of large workpieces or the manufacture of large moulds.

Because of its optimised shape, the clamping system is highly tolerant during loading of the pallets, by a crane for instance.

Delphin BIG Facts

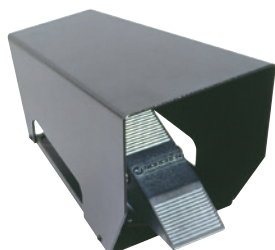
- Clamping force 50.000 N
- Repetition accuracy $\pm 0.005\text{mm}$
- Lift-off function
- Cleaning
- Presence control
- Suitable for automation.



Accessories

Control unit, 3R-611.2

Foot operation of pneumatic chucks.



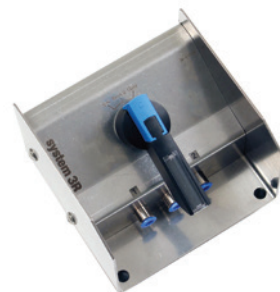
Control unit, 3R-611.4

Unit for operation of pneumatic chucks. Two functions – open/closed.



Control unit, 3R-611.46

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



Allen keys

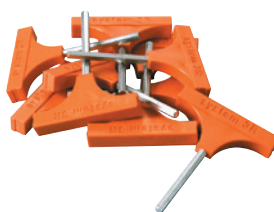
3R-333-03

- 3 mm.
- Supplied in sets of 10.



3R-333-05

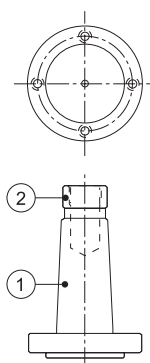
- 5 mm.
- Supplied in sets of 10.



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.



Locking ring key, 3R-605-GE

To lift the locking ring of the drawbars.

- Supplied in sets of two.



Labels, 3R-LL200P

Supplied with marker pen.

- Size 12x25 mm
- Supplied in sets of 200.

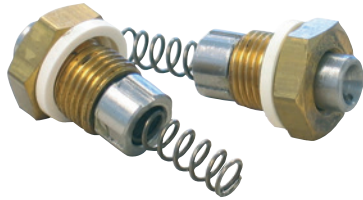


Accessories

Connection for air gun, 90815

Fits automatic chucks 3R-680.10-2, 3R-680.19-2 and 3R-680.1-2.

- Supplied in sets of 2.



Code carriers, 3R-863.01-10

With pre-programmed unique identity, designed for Macro systems and Dynafix.

- Supplied in sets of 10.



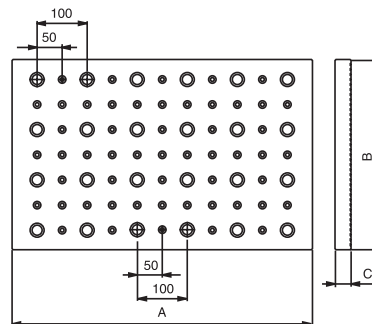
Reference tables

Reference tables of structurally-stable toughened steel (270-320 HB).

Hardened bushes in dead-end holes for 3Refix mandrels Ø20 mm at 100x100 mm modular spacing, as well as M12 tapped mounting holes with 50x50 mm modular spacing.

NOTE: Customised reference tables can be made to order.

NOTE: Hardened reference tables (650-700 HB) can be made to order. Use the order form at the end of the catalogue.



3R-936-60.38

A = 600 mm

B = 380 mm

C = 32 mm

- Weight 55 kg.

3R-936-85.40

A = 850 mm

B = 400 mm

C = 32 mm

- Weight 83 kg.

3Refix mandrel

When positioning with 3Refix mandrels –always tighten the expanding mandrel in the R0 hole first.

3R-901-10E-TX

- 3Refix Ø10 mm
- Recommended tightening torque 4 Nm
- Supplied in sets of 10
- Weight per set 0.2 kg.

3R-901-20E

- 3Refix Ø20 mm
- Recommended tightening torque 10 Nm
- Supplied in sets of 10
- Weight per set 1 kg.

3R-901-10RS

- 3Refix Ø10 mm
- Rust-resistant
- Recommended tightening torque 4 Nm
- Weight 0.02 kg.

3R-901-20RS

- 3Refix Ø20 mm
- Rust-resistant
- Recommended tightening torque 10 Nm
- Weight 0.1 kg.

3R-901-10E-TX →



3R-901-20E →



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!

Boost your productivity and sharpen your competitiveness with our three winners: WorkPal 1, WorkPartner 1+ and Fanuc.

Last, but not least, they ensure faster payback on your investments.



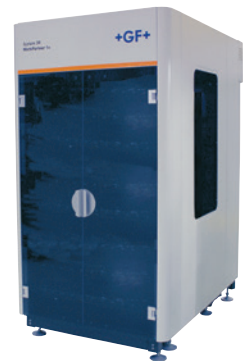
WorkPal 1

Modest demands, major benefits



Automation

With six-axis Fanuc industrial robot



WorkPartner 1+

Can serve two machines

WSM WorkShopManager

User-friendly Cell Management Software

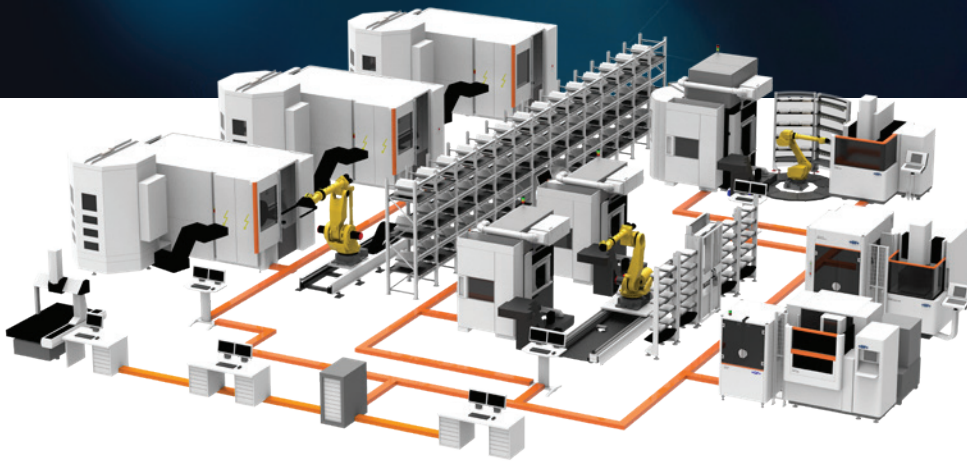
Master workshop complexity and manage all control processes with our software.
For manually controlled and automated processes.

Simplify job preparation

Execute jobs easily in manual or automated machines

Monitor processes, changes priorities and collect utilisation statistics

Use ID chip management to ensure highest process security.



Sustainability declaration

IMPROVED PRODUCTIVITY

You can increase the use of resources by allowing machines to work during unmanned time, e.g. nights and weekends, by using the existing production equipment at its best. Produce in-house 24/7 instead of outsourcing from far away and shipping.

By seamlessly integrating advanced technology, execute repetitive tasks with precision and speed, freeing up human resources for higher-value activities. Machines equipped with our Automation systems work tirelessly, reducing errors, optimizing production schedules, and achieving consistent output.

ADVANCED EASE OF OPERATION

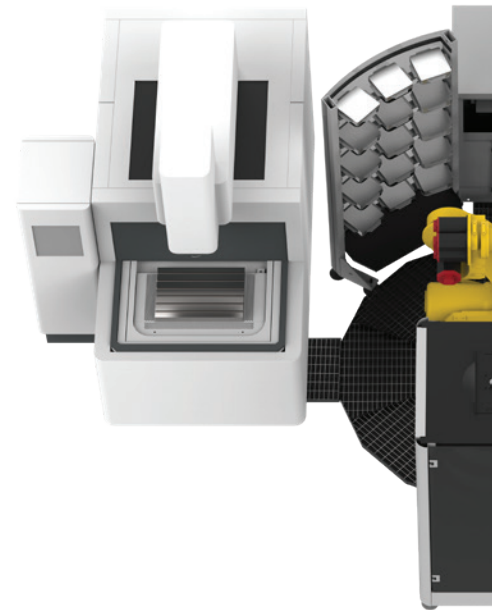
The ease of operation with automated machines in the industry has revolutionized efficiency and productivity. With intuitive interfaces and streamlined processes, workers can quickly adapt and control complex tasks with minimal training. Automated systems eliminate human error and allow for precise execution, resulting in consistent output and reduced downtime.

PRESERVE THE OPERATOR'S HEALTH BY USING A ROBOT IN A SAFE SEPARATED VOLUME

Implementing automated machines in the industry offers a promising avenue for improving operator health. By taking over physically demanding tasks, our machines reduce the risk of musculoskeletal injuries and fatigue-related issues.

Additionally, advanced sensors and AI algorithms can detect hazardous conditions, alerting operators to potential dangers and allowing for prompt intervention. This synergy between automation and human operators enhances workplace safety and promotes a healthier work environment.

In-house 24/7 production



TOOLING + AUTOMATION + SOFTWARE

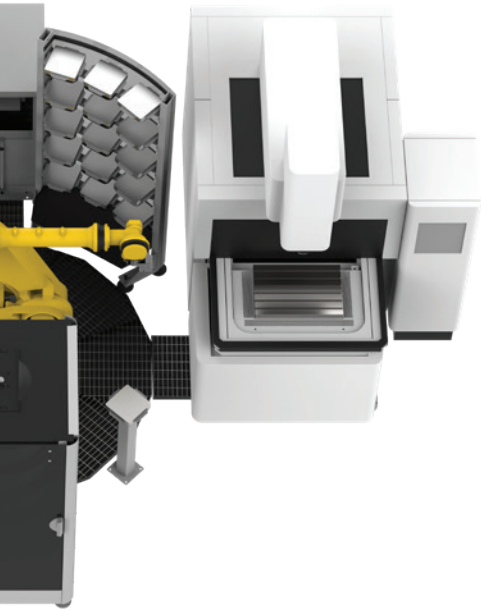
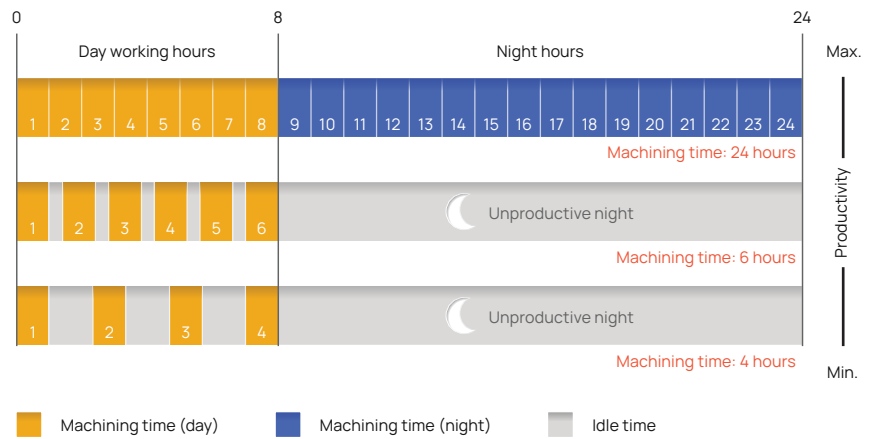
One manned shift – 8 hours
Two more unmanned shifts – 16 hours

TOOLING

One manned shift – 8 hours

CONVENTIONAL SETUP

One manned shift – 8 hours



CARBON-NEUTRAL FROM THE VERY START OF THE MANUFACTURING DOWN TO RECYCLING AFTER USE

- Our Automation solutions are manufactured in a neutral carbon site: our System 3R manufacturing site in Vällingby – Sweden is CO₂ neutral
- With the ability to self-diagnose and adapt, our machines with Automation achieve extended working lives, reducing maintenance costs and optimizing production processes
- During their working time, they can use the electrical power at times outside of daily peak times
- Sustainable afterlife: Automation products can be disposed as metals and regular electronics



Order form

YOUR INFORMATION

Date _____

Company _____

Phone _____

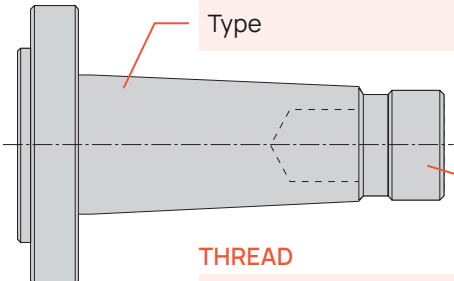
Contact _____

Email _____

Specification of taper attachment

TAPER

Type



THREAD

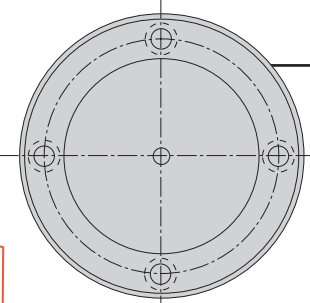
Female thread

Male thread

FLANGE

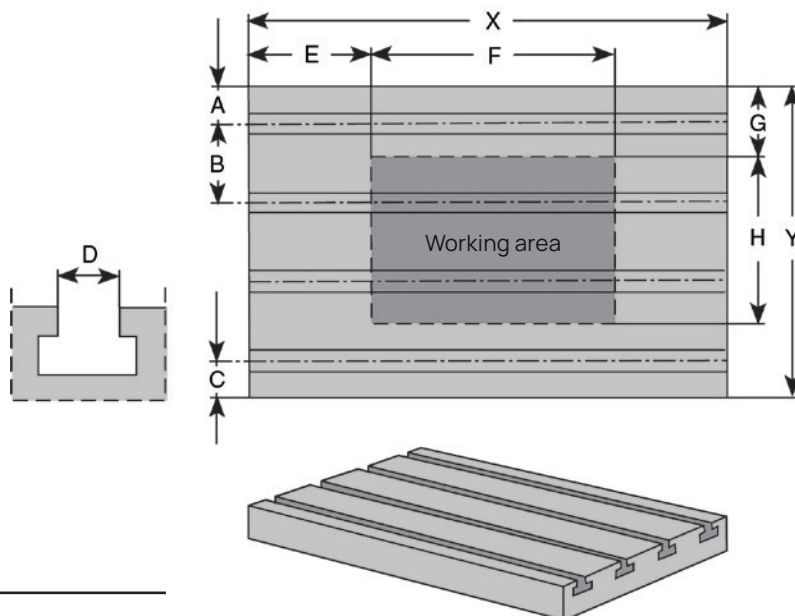
Chuck 3R-

Other, please specify



Specification of 3Refix reference tables

A	mm
B	mm
C	mm
D	mm (T slots)
E	mm
F	mm
G	mm
H	mm
X	mm
Y	mm



N° of slots _____

Make of machine _____

Hardened/unhardened _____

Other information _____

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