

System 3R

Tooling

for Additive Manufacturing



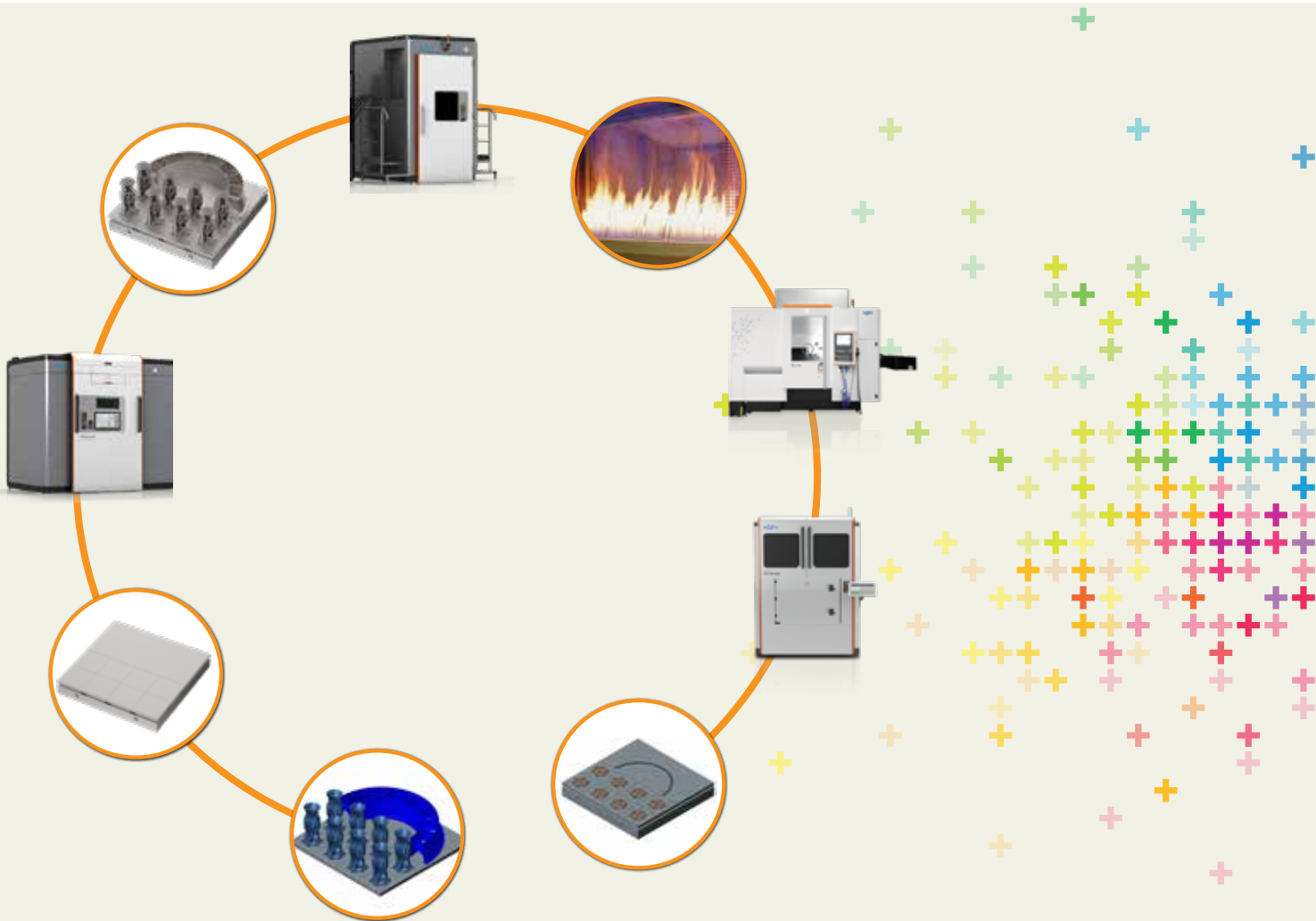
GF Machining Solutions: all about you

When all you need is everything, it's good to know that there is one company that you can count on to deliver complete solutions and services. From world-class electrical discharge machines (EDM), Laser texturing and Additive Manufacturing through to first-class Milling and Spindles, Tooling, Automation and software systems – all backed by unrivalled customer service and support – we, through our AgieCharmilles, Microlution, Mikron Mill, Liechti, Step-Tec and System 3R technologies, help you raise your game and increase your competitive edge.

Design and quality by System 3R

Contents

Additive Manufacturing Process	4
AMTooling and Post process Tooling	6
AM Process – AMCarrier	8
AM Process – BuildPal	9
AM Process – TableTop Chuck.....	10
Post Process – DelphinCopact Baseplates	11
Post Process – Chucks and adapters	12
Post Process – Drawbars and Pins.....	13
Cell Manager Light.....	14
A wide range of Tooling and Automation products from a.....	
single source	15
GF Machining Solutions – A complete solution provider	15



Index

C 253 4XX.....	11	S 361 040.....	9	S 371 500.....	12
C 282 040.....	13	S 361 100.....	9	S 371 510.....	12
C 282 140.....	13	S 361 110.....	9	S 371 900.....	13
C 282 240.....	13	S 361 120.....	9	S 812 340.....	13
C 371 000.....	11	S 361 140.....	9	3R-600.10-30	12
C 371 100.....	8	S 361 200.....	9	3R-600.24-RS.....	12
C 371 110.....	8	S 361 210.....	9	3R-600.24-S	12
S 361 000.....	9	S 361 220.....	9	3R-605.1E.....	12
S 361 010.....	9	S 361 240.....	9	3R-605.2E.....	12
S 361 020.....	9	S 371 300.....	10	3R-605.2E-RS	12

Additive Manufacturing Process

Experience always shows that measures to reduce the idle times of your machines are significantly more worthwhile than chasing seconds in the actual machining process. The solution is a stable and exact reference system. This lets you preset away from the machine and then set up the machine with minimum idle time.

Quickly and precisely!



3D Design

Job preparation and transfer of the job to the AM-machine.



Prepare BuildPal and AMCarrier

Prepare the AMCarrier and BuildPal outside of the machine. Mount the right size and number of BuildPal onto a AMCarrier or use a BuildPlate.



Load the AM machine

Load the AM tooling into the AM-machine.



3D Print on BuildPal

The desired parts are printed inside the AM machine on the BuildPal or BuildPlate.



Clean

Remove the powder from all printed parts and the AMCarrier.



Heat Treatment

Heat treatment of the workpiece inclusive BuildPal or BuildPlate for stress release and optional hardening.



Machining Processing

The workpiece is post processed by a milling, EDM or laser texturing in order to improve surface finish and precision.



Cutting process

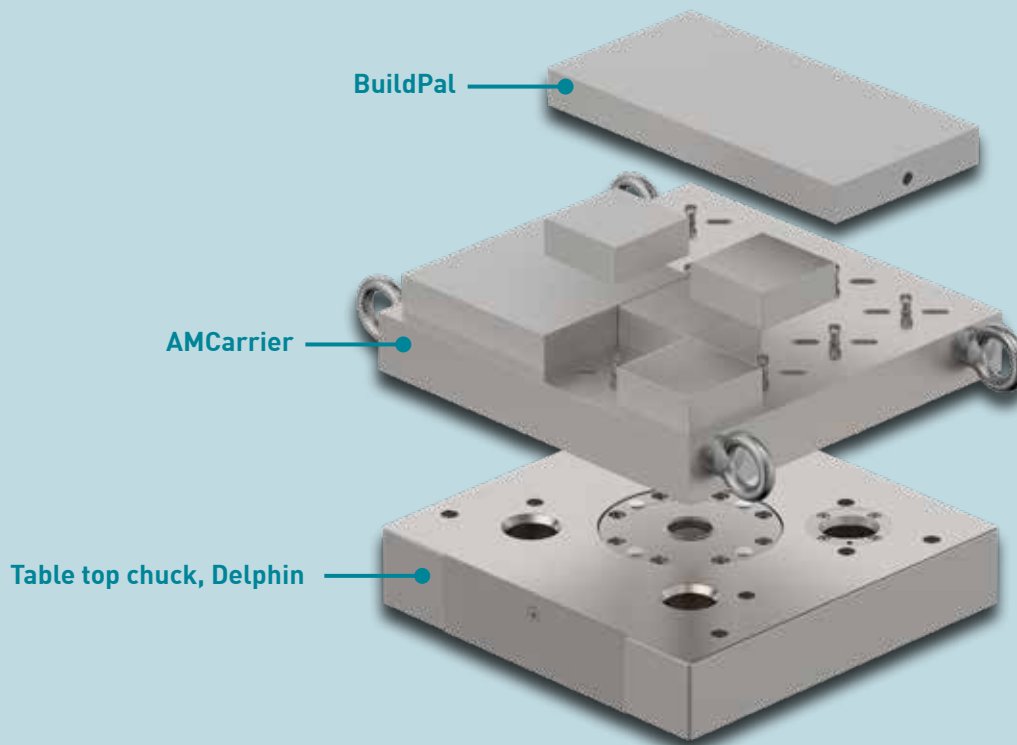
Separation of the 3D part from the BuildPal with a WEDM machine or saw.



Refurbishing BuildPal's

Prepare the BuildPal for the next job.

AMTooling

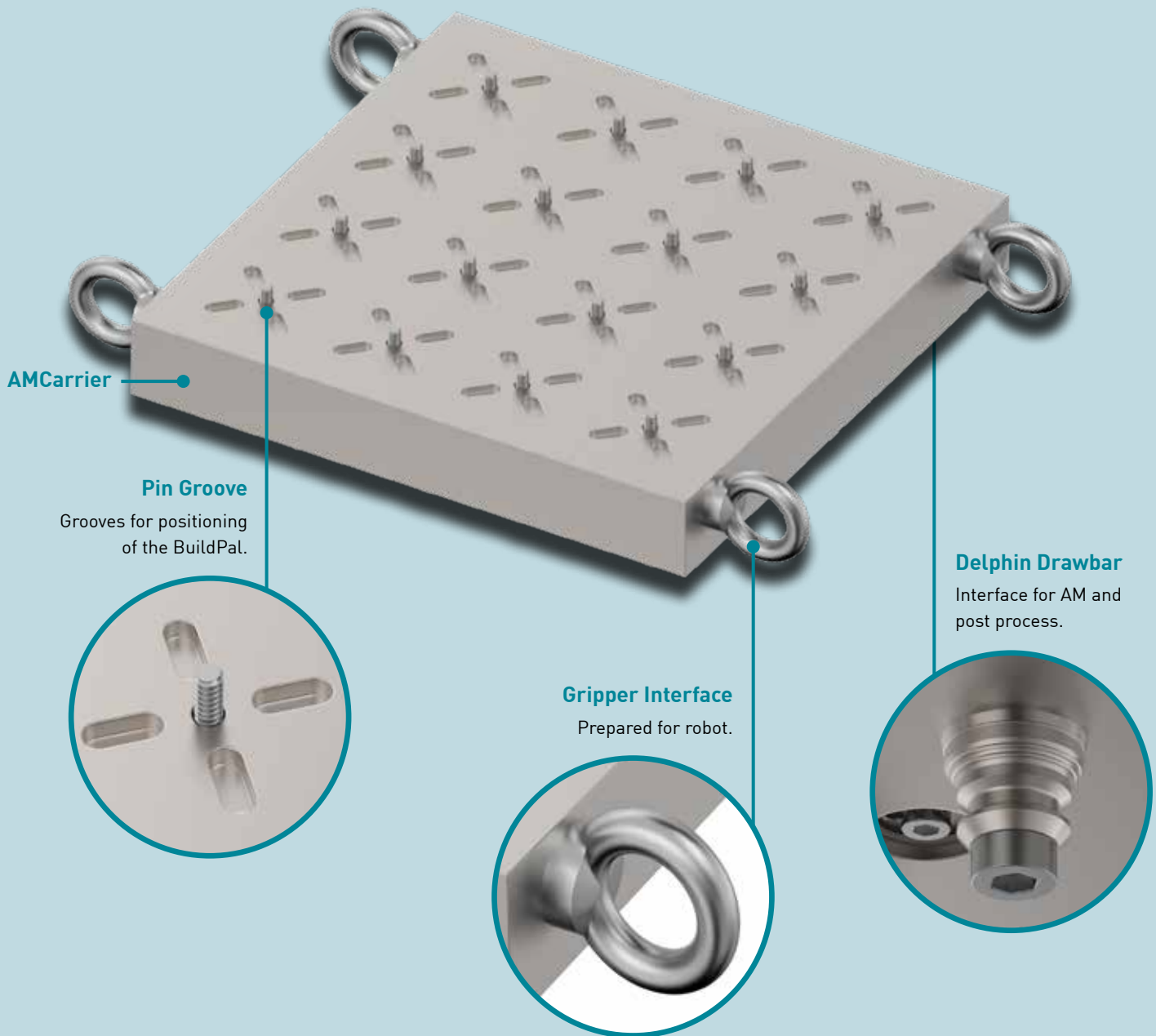


Post Process Tooling

Mill, form, cut or laser



AMCarrier



Key Facts

- + Different BuildPal sizes possible
- + Loading of hybrid parts possible
- + The BuildPal is fixed to the AMCarrier by a unique elastic solution (patent pending). This allows the compensation of the deformations caused by the AM-process.

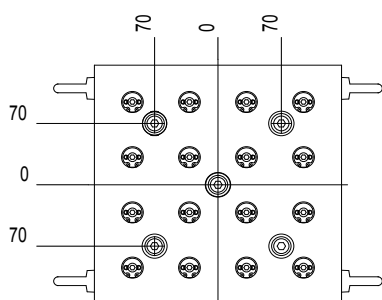
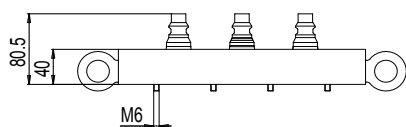
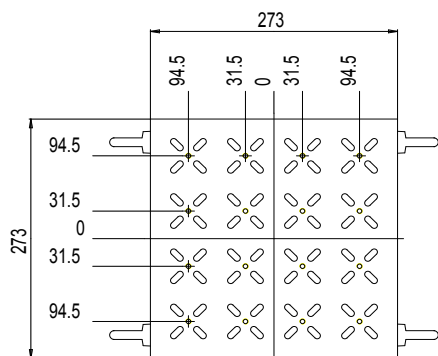
AMCarrier

AMCarrier DMP 3.0, C 371 100

- Stainless steel
- Including 16 x M6 screws
- Including 4 x M10 eye screws for handling
- Including 5 Delphin Drawbars.

Suitable for:

- DMP Factory 350
- DMP Flex 350
- CUT AM 500

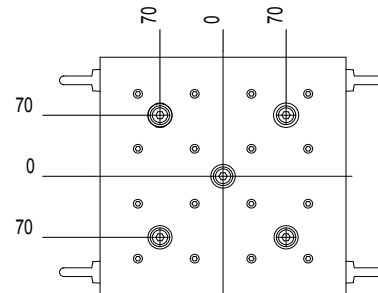
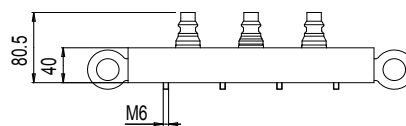
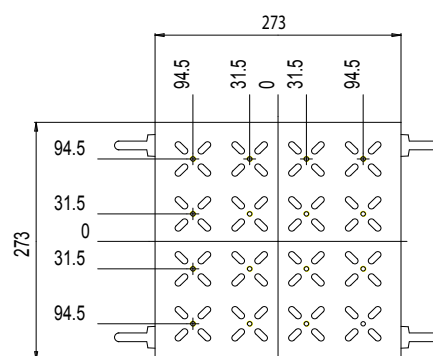
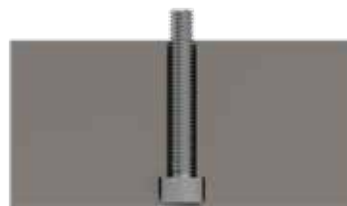


AMCarrier ECO DMP 3.0, C 371 110

- Stainless steel
- Including 16 x M6 screws
- Including 4 x M10 eye screws for handling
- Including 5 Delphin Drawbars.

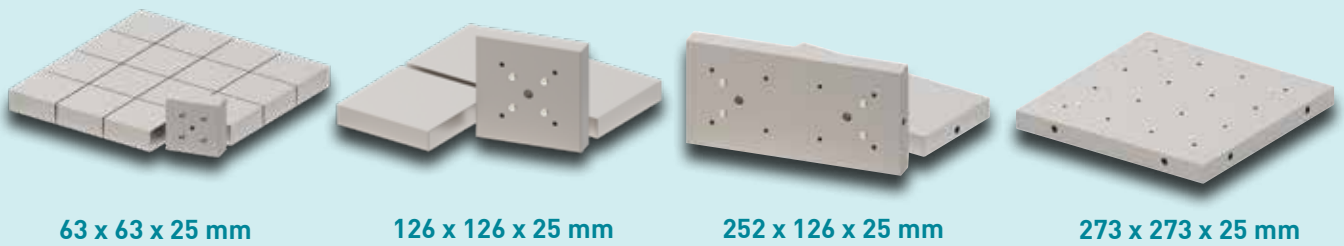
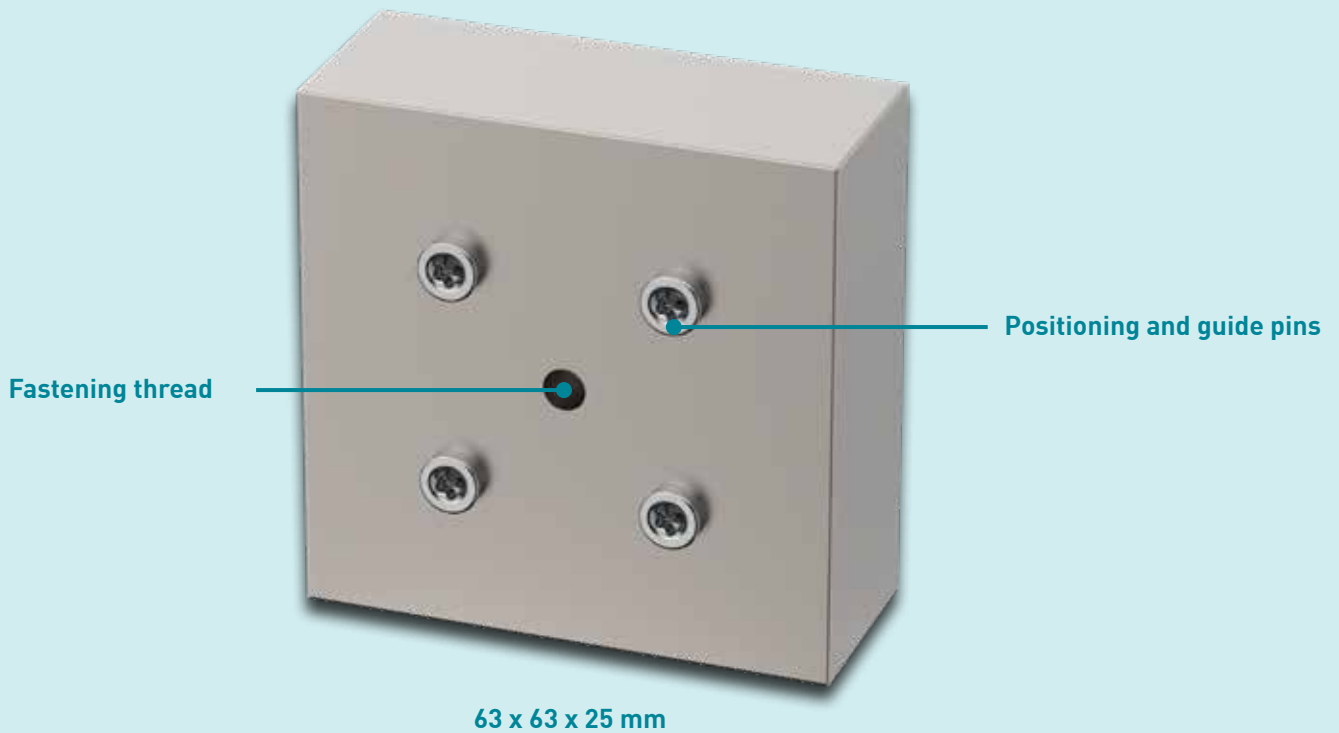
Suitable for:

- DMP Factory 350
- DMP Flex 350
- CUT AM 500



BuildPal

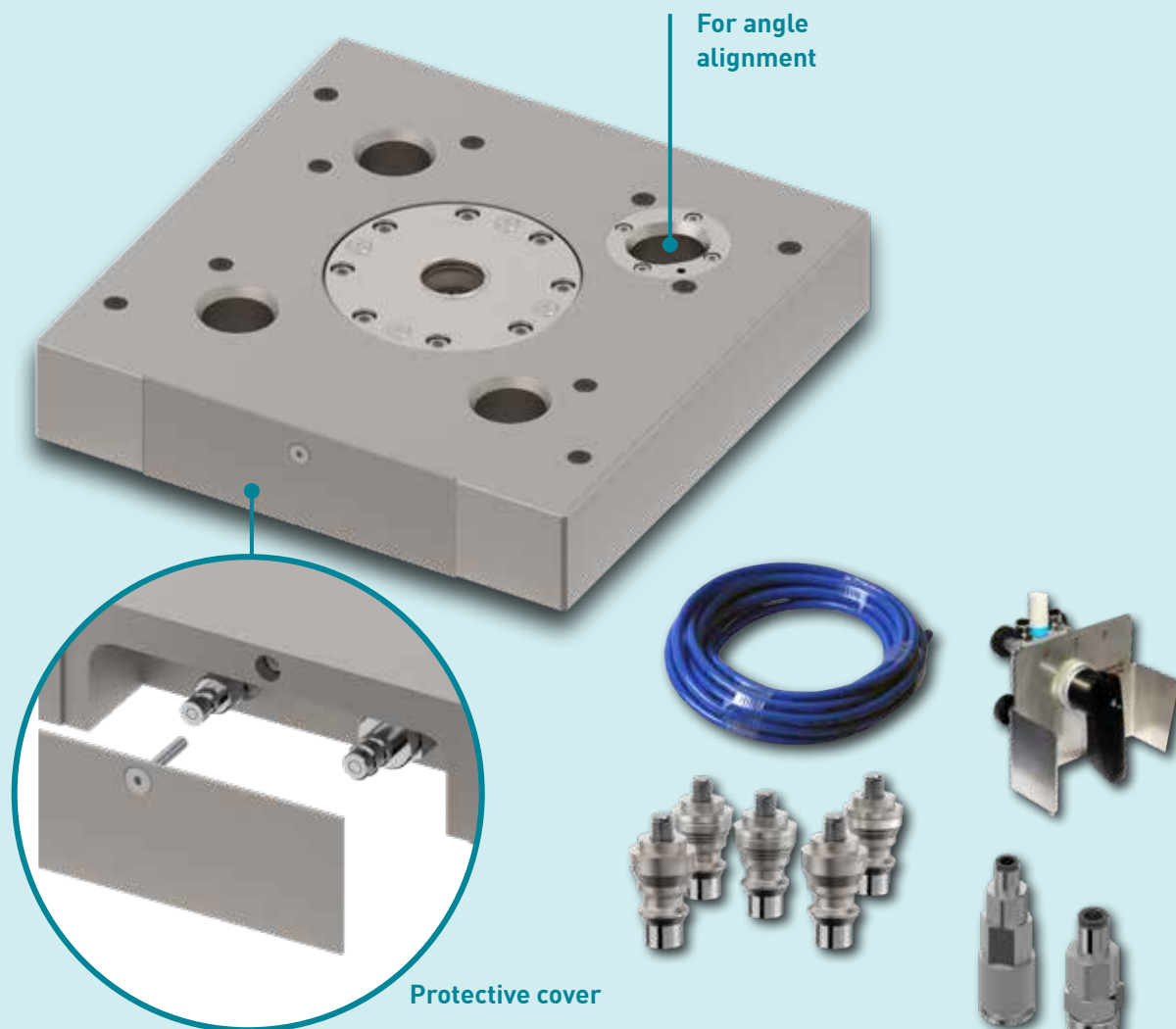
The BuildPal represents the base on which the workpiece will be printed on.



BuildPal for AMCarrier DMP 3.0

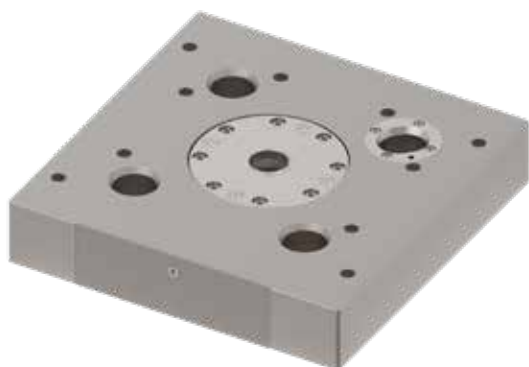
Size (mm)	Set size (pcs.)	Stainless steel 1.4404 (SUS 316L)	Aluminium 3.3547 (EN AW-5083)	Titanium 3.7035 (Ti2)
63 x 63 x 25	16	S 361 000	S 361 100	S 361 200
126 x 126 x 25	16	S 361 010	S 361 110	S 361 210
252 x 126 x 25	8	S 361 020	S 361 120	S 361 220
273 x 273 x 25	4	S 361 040	S 361 140	S 361 240

TableTop Chuck



Set of TableTop Chuck and Accessories, S 371 300

The Set of TableTop Chuck and Accessories can be used for direct installation onto a machine table of the DMP Flex 350, DMP Factory 350 and DMP 320.



DelphinCompact HT Spare Parts, S 250 020

For DelphinCompact HT chucks. Includes O-rings, compression springs, balls, screws and assembly tool.

Suitable for:

- S 371 300



DelphinCompact Baseplates

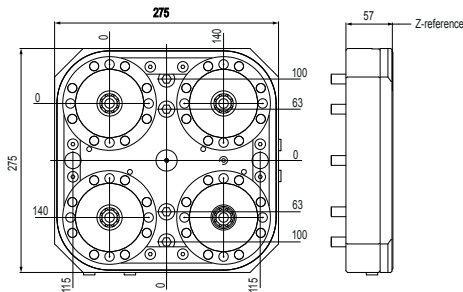
4-fold Baseplate, DelphinCompact, with sealing frame, cc 140 mm, C 371 000

(without AirDisc; with 2 fittings for side connection)

- Required drawbars C 282 040, C 282 140, 2 x C 282 240
- Required air pressure 6 ± 1 bar
- Air-blast cleaning of the Z-references.
- Turbo locking.
- Stainless steel.
- Weight 25 kg.

Suitable for:

- AMCarrier DMP 3.0, C 371 100
- AMCarrier ECO DMP 3.0, C 371 110



AirDisc, C 253 4XX

Machine specific interface disk from machine table to DelphinCompact baseplate.

Suitable for:

- C 371 000.



Chucks and adapters

Manual chuck, MacroStd, 3R-600.24-S Manual chuck, rust-resistant, MacroHP, 3R-600.24RS

Chuck for mounting on the machine table.

- Tightening torque 6 Nm.
- Required drawbar 3R-605.2E-RS
- Fixed index positions 4 x 90°
- Weight 0,7 kg.

Accessories

3R-A19724, Adapter plate for T-slot table.
3R-614-06, Torque wrench, 6 Nm.



Drawbar Macro, 3R-605.2E Drawbar Macro, rust-resistant, 3R-605.2E-RS

Drawbar for WEDMing (only RS), EDMing, milling and grinding.

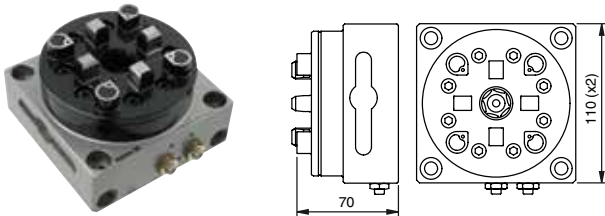
- Ø20 x 36.9 mm
- Supplied in sets of 5 pcs.



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±1 bar
- Fixed index positions 4 x 90°
- Air-blast cleaning of the Z-references
- Turbo locking
- Weight 4.4 kg.



Drawbar Macro, 3R-605.1E

Drawbar for WEDMing, EDMing, milling and grinding.

- Ø20 x 57.1 mm
- Supplied in sets of 10 pcs.



Adapter Macro-BuildPal63, S 371 500

The Adapter Macro-BuildPal63 will be used to clamp BuildPal63 on a Macro chuck in EDM, WEDM, Laser and similar applications.

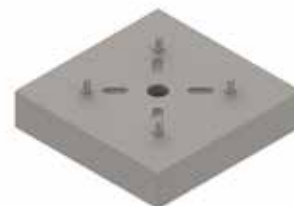
- Fixed index positions 4 x 90°
- Tempered stainless steel
- Weight per adapter: 1.0 kg
- Supplied in a sets of 5 pcs.
- Requires drawbar: 3R-605.2E-RS or 3R-605.1E



Adapter Macro-BuildPal126, S 371 510

The Adapter Macro-BuildPal126 will be used to clamp BuildPal126 on a Macro chuck in EDM, WEDM, Laser and similar applications.

- Fixed index positions 4 x 90°
- Tempered stainless steel
- Weight per adapter: 3.5 kg
- Supplied in a sets of 5 pcs.
- Requires drawbar: 3R-605.2E-RS or 3R-605.1E

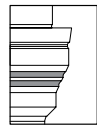


Drawbars and Pins

Drawbar HT, Delphin, Centring on 2 Axes, C 282 040

Drawbar for AMing, WEDMing, EDMing, milling and grinding.
Fixed in pallet

- Temperature resistant up to 230°C
- Ø28 x 55 mm
- Stainless steel
- Screws: M10 x 45 mm; DIN 912, stainless steel A4-80
M10 x 45 mm; DIN 6912, stainless steel A4-70
- Supplied 1 pc.

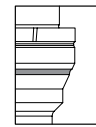


2 notches

Drawbar HT, Delphin, Centring on 1 Axes, C 282 140

Drawbar for AMing, WEDMing, EDMing, milling and grinding.
Fixed in pallet

- Temperature resistant up to 230°C
- Ø28 x 55 mm
- Stainless steel
- Screws: M10 x 45 mm; DIN 912, stainless steel A4-80
M10 x 45 mm; DIN 6912, stainless steel A4-70
- Supplied 1 pc.
- Accurate diameter Ø26.6 mm for an perfect angular positioning

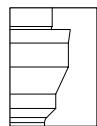


1 notch

Drawbar HT, Delphin, without Centring, C 282 240

Drawbar for AMing, WEDMing, EDMing, milling and grinding.
Fixed in pallet

- Temperature resistant up to 230°C
- Ø28 x 55 mm
- Stainless steel
- Screws: M10 x 45 mm; DIN 912, stainless steel A4-80
M10 x 45 mm; DIN 6912, stainless steel A4-70
- Supplied 1 pc.



without notch

Set of Drawbar HT, Delphin, S 812 340

Drawbar for AMing, WEDMing, EDMing, milling and grinding.
Fixed in pallet

- Temperature resistant up to 230°C
- Ø28 x 55 mm
- Stainless steel
- Screws: M10 x 45 mm; DIN 912, stainless steel A4-80
M10 x 45 mm; DIN 6912, stainless steel A4-70
- Supplied in sets of 5 pcs.



Indexing pins, S 371 900

For customer installation in DelphinCompact Hybridparts,
BuildPal's or BuildPlate.

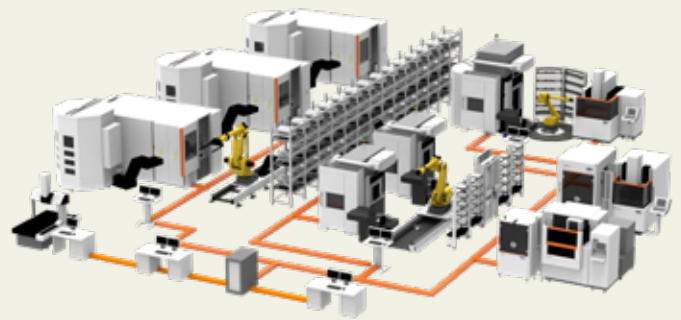
- Tempered stainless steel
- Dimensions: Ø7 x 18 mm
- Supplied in sets of 10.
- Include Torx T30 key



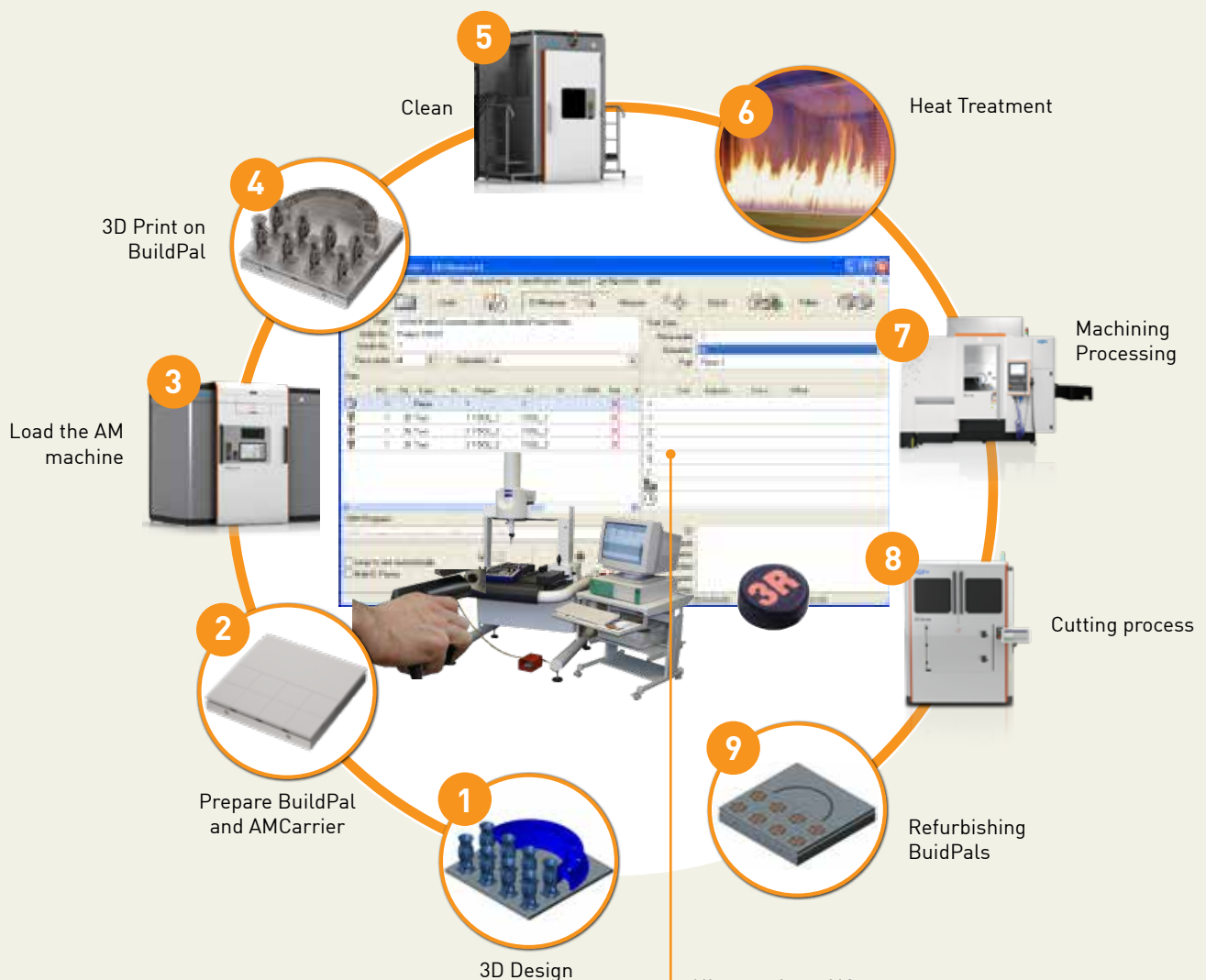
CellManager Light

Use System 3R Tooling when post processing your parts, offering a minimum of set-up time and highest possible accuracy.

Add Cell Manager Light – Optimize, simplify and secure the post processing of your parts after Additive Manufacturing.



CellManager Light is the first step into a seamless integration of automation 24/7.



All operations, NC-programs and offset values used in the post processing are stored in the Database together with the unique ID-chip for traceability.

A wide range of Tooling and Automation products from a single source



Tooling Catalogues

- + Tooling – for electrode manufacturing and EDMing
- + Tooling – for wire EDMing
- + Tooling – for Parts production
- + Tooling, Delphin modular Clamping System



Automation Catalogues

- + WorkPal 1
- + WorkPartner 1+
- + Fanuc, six-axis robot
- + WSM – WorkShopManager

For your own copy please contact your System 3R representative.

GF Machining Solutions – A complete solution provider

GF Machining Solutions is a leading provider to the tool and mold making industry and to manufacturers of precision components.

- + Based in Switzerland, globally active with 50 sites worldwide
- + At your service with more than 3,000 employees
- + We are a premium brand in these core businesses: EDM, Milling and spindles, Laser, Tooling, Automation & Customer Services.



Die-sinking EDM



Spindle



Laser



Hole-drilling EDM



Milling



Wire-cutting EDM



Automation



Customer Services



Tooling

Optimize the uptime of your equipment with our Customer Services

- + Ensuring productivity.
- + Reducing running costs and wasted parts.
- + Maximizing the return on your System 3R investments.
- + Extending the product lifetime of your System 3R equipment while maintaining optimum precision.
- + Ensuring robot cell safety satisfies present machine directives.

System 3R's Customer Services is uniquely positioned to help you maximize the availability, value, precision and productivity of your System 3R equipment. Our cost-effective, customer-centric and expert services put your success at the center, ramp up your productivity and ensure predictable, uninterrupted uptime. System 3R's service engineers are your expert partners for a wide range of success-triggering services.

For more info ask your local System 3R dealer.

For contact details, please refer to:
www.system3r.com.

