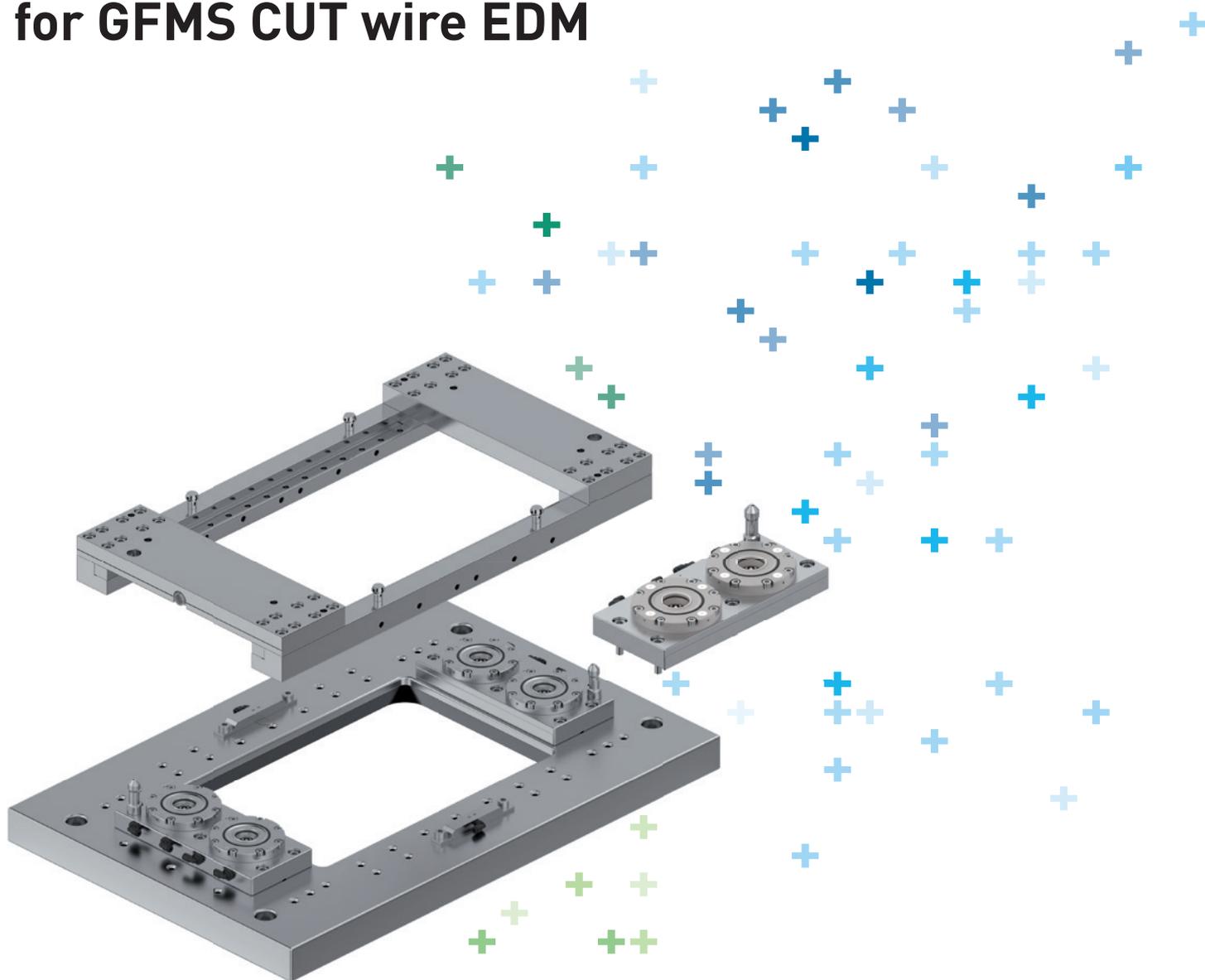


System 3R – Tooling

DelphinShort and Frames

for GFMS CUT wire EDM



Becoming better every day – since 1802

GF Machining Solutions

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 unmatched Electrical Discharge Machining (EDM), Laser texturing, Laser micromachining, Additive Manufacturing and first-class Milling and Spindles to Tooling and Automation, all of our solutions are backed by unrivaled Customer Services and expert GF Machining Solutions training. Our AgieCharmilles, Microlution, Mikron Mill, Liechti, Step-Tec and System 3R technologies help you raise your game – and our digital business solutions for intelligent manufacturing, offering embedded expertise and optimized production processes across all industries, increase your competitive edge.



+ We are System 3R.
+ We are GF Machining Solutions.

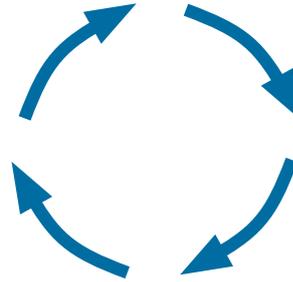
Contents

4	Why Delphin?
5	DelphinShort Chuck
8	DelphinShort – for automation and manual application
9	Delphin Drawbars
11	Delphin Accessories
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Why Delphin?

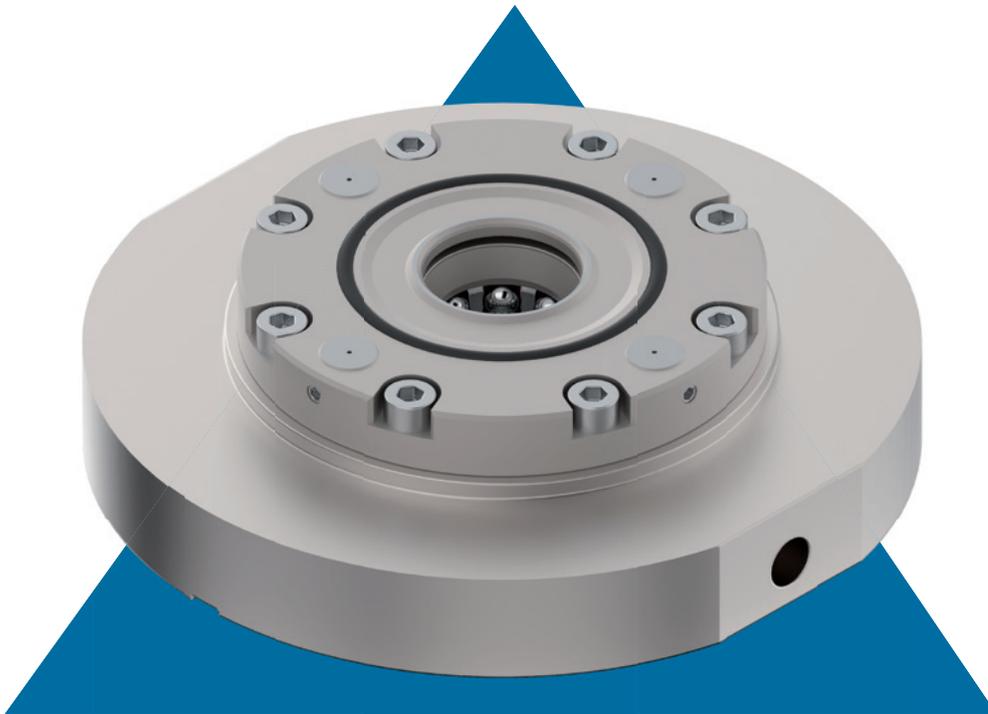


- Highest repeatability.

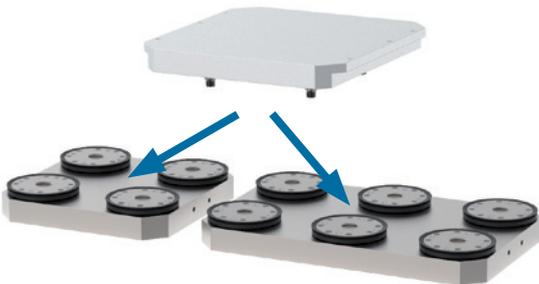


- Highest process reliability.

Quality



Flexibility



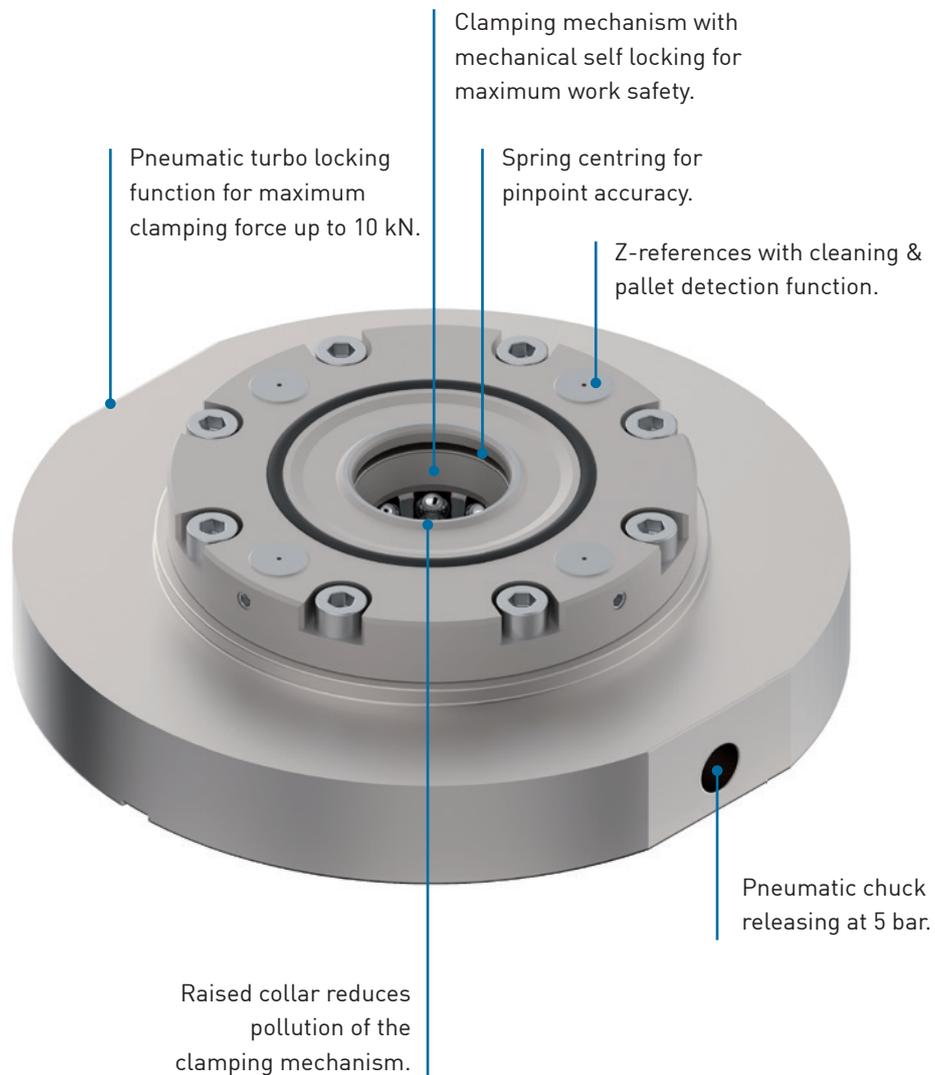
- The Delphin clamping system is modular and adapts to your machine
- Standardized interface for all machines.

Productivity



- Fastest possible pallet, device and workpiece change
- Less set-up time
- Unmanned work with Delphin automation.

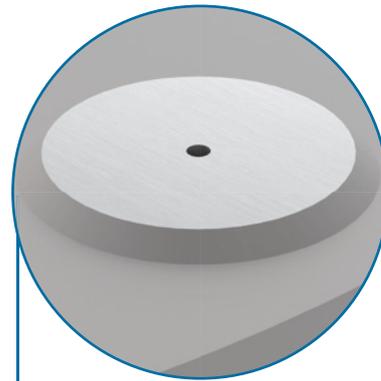
DelphinShort chuck



Key Facts

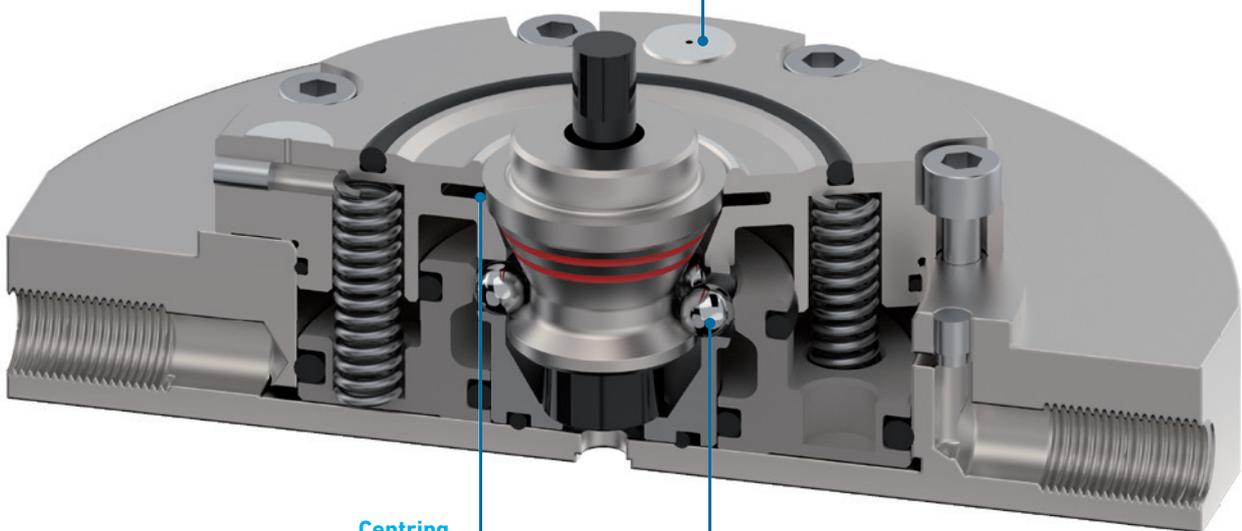
- Very compact design: outer diameter 86 mm, low height
- Stainless steel - mainly to be used in WEDM or in EDM, turning, grinding and milling with limited space
- High clamping force (up to 10 kN with turbo locking)
- Pneumatic opening at 5 bar
- A special designed DelphinShort drawbar is needed. The DelphinShort drawbars are not compatible with the standard Delphin drawbars.

DelphinShort chuck



Cleaning of Z-support

Perfectly balanced Z-support surface for the best possible cleanliness against dirt and for detection.



Centring

Conical spring centring for absolutely zero play between drawbar and chuck. It results the highest repeatability, excellent rigidity and less vibration.



Dirt insensitive

Floating ball cage allows a larger angular deviation between pallet and chuck during loading and unloading. In addition the design is dirt insensitive.



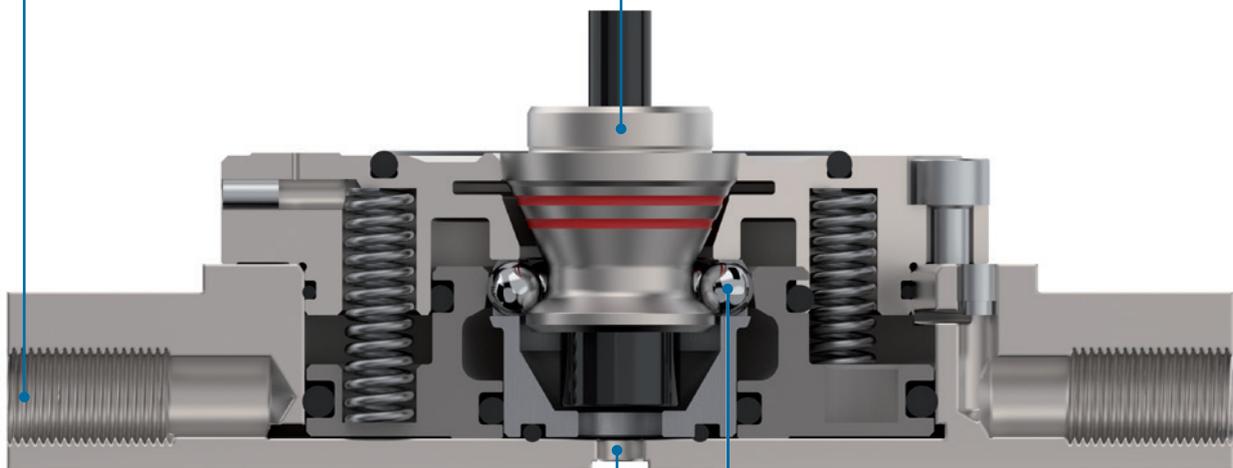
DelphinShort chuck

Required air pressure

Many clamping systems need compressed air with minimum 6 bar. The DelphinShort chuck requires only 5 bar air pressure to open the chuck and release the drawbar. This saves money and increases the process security.

Holding force

The holding force indicates the maximum permissible pull out force. This force determines the safety until a pallet is pulled out of the chuck. DelphinShort chucks have a minimum holding force of 20 kN.

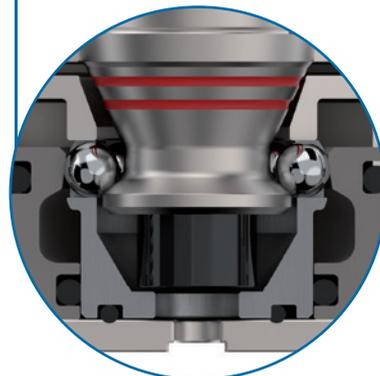
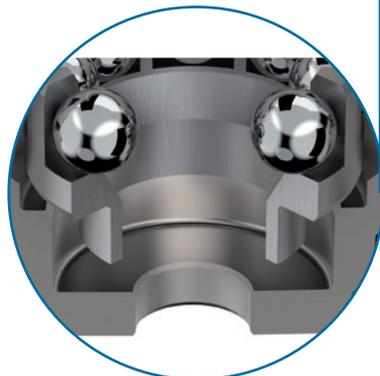


Drain hole

When unloading a pallet, it can happen that dirt and water pass into the clamping system. The DelphinShort system has a drain hole. Therefore, dirt and water flush out and the chuck keeps the functionality.

Clamping force / pull in force

The "clamping force" or "pull in force" indicates how much the drawbar is pulled into the system. Together with other features like the centring, it is responsible for the stability and rigidity of a system.



DelphinShort – for automation and manual applications

Technical data

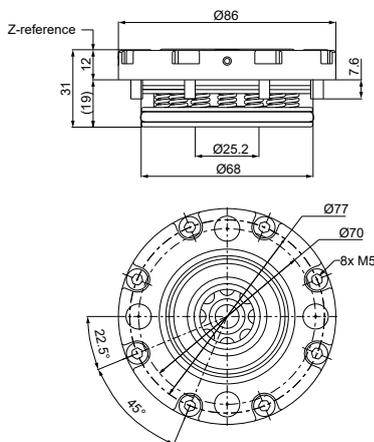
- Clamping force with Turbo 6 bar: 10 kN
- Clamping force without Turbo : 5 kN
- Holding forces:
 Drawbar screw M8 A4-80: 20 kN
 Drawbar screw M8 12.9: 35 kN
- Air pressure open: 5–10 bar
- Repeatability: within 0.003 mm
- Material: hardened stainless steel.

Suitable for:



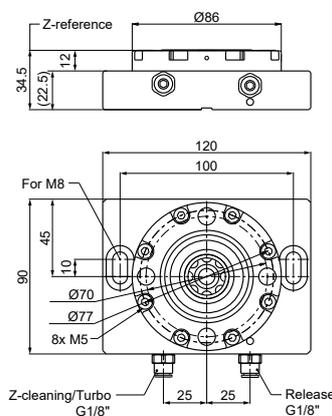
Built-in chuck, DelphinShort, C225000

For simple installation in the machine table or in a baseplate.



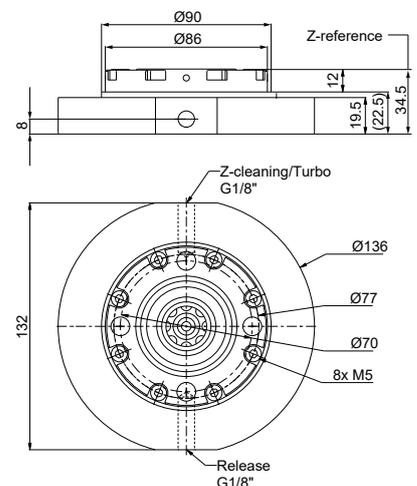
Built-up chuck, DelphinShort, WEDM flange, C225300

For simple installation on WEDM machine tableframe.



Built-up chuck, DelphinShort, C225310

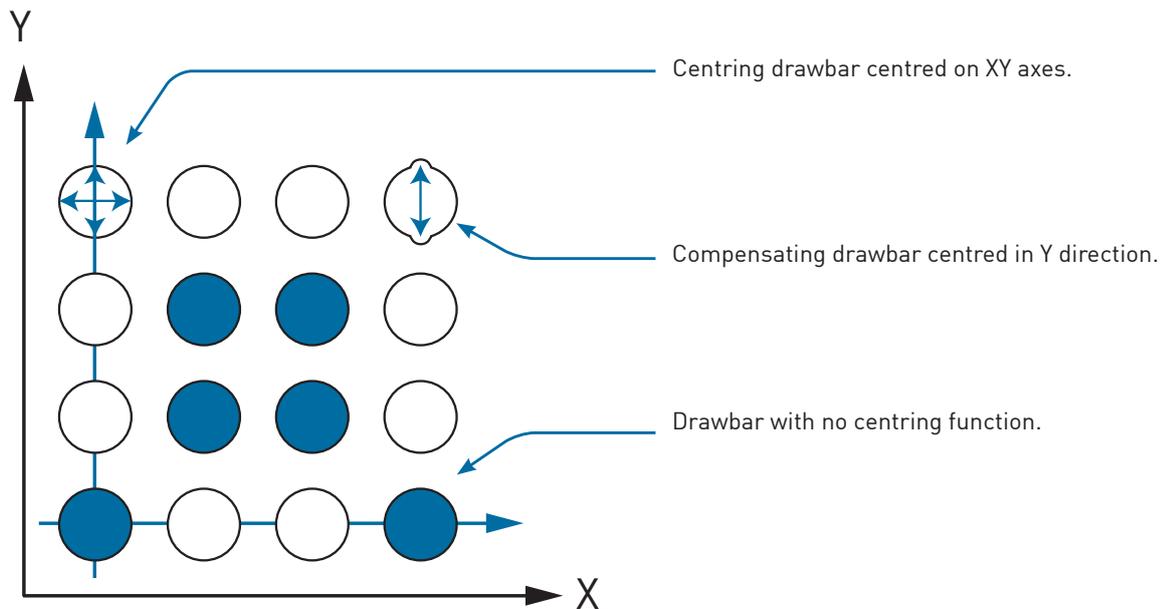
For direct installation on a machine table. Mounting holes to be drilled at installation.



Delphin Drawbars

Function of the drawbars

Drawbars are mounted directly into a workpiece, pallet or fixture. There are three different types of drawbars. One defines the zero point and centers thus in 2 axes. The second drawbar is centring in one axis. All other drawbars have no centring, only clamping function.



For centring in 2 axes
= zero point.



For centring in 1 axis
= angle definition.



No centring
= only clamping.



DelphinShort Drawbars

Drawbar, DelphinShort, centring in 2 axes, C226000

Fixed in WEDM frame or pallet

- Material: stainless steel, hardened and ground
- Dimensions, screwed in: $\varnothing 26 \times 27.5$ mm.



Drawbar, DelphinShort, centring in 1 axis, C226100

Fixed in WEDM frame or pallet

- Material: stainless steel, hardened and ground
- Dimensions, screwed in: $\varnothing 26 \times 27.5$ mm.



Drawbar, DelphinShort without centring, C226200

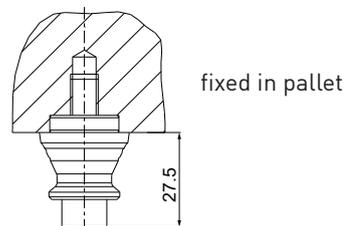
Fixed in WEDM frame or pallet

- Material: stainless steel, hardened and ground
- Dimensions, screwed in: $\varnothing 26 \times 27.5$ mm.



Function of the Delphin drawbars

- centring on 2 axes
- centring on 1 axis
- without centring

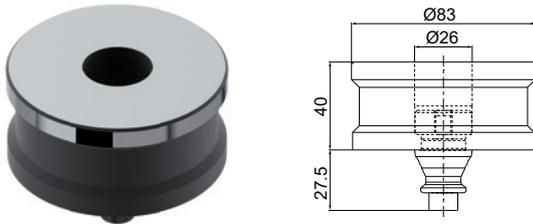


DelphinShort Accessories

DelphinShort Reference mandrel, C226310

Alignment aid for chuck installation.

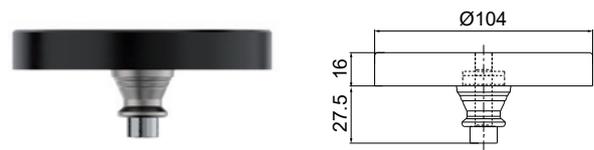
- Material: steel stainless, hardened and ground
- Drawbar C226000 included
- Diameter D = 83 mm.



DelphinShort protective pallet, C226320

Chip and air pressure (turbo locking) protection for DelphinShort chuck.

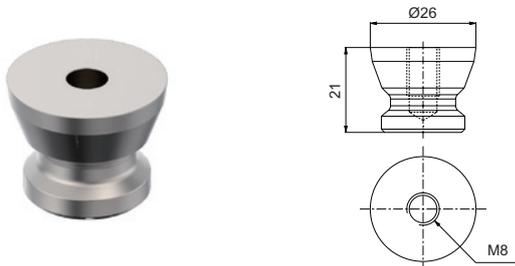
- Fits also for chucks with sealing ring
- Includes drawbar C226000
- Diameter D = 104 mm
- Not to be used for DelphinShort Twin chucks.



DelphinShort protective drawbar, C226300

Chip protection for DelphinShort chucks, seals centre bore, Z-support of chuck remains usable.

- Material: plastic
- Dimensions: Ø26x21 mm
- M8 for dismounting.



DelphinShort chuck sealing ring, C226390

To be used on built-in chucks C225310.

Not recommended on C225300.



Pneumatic control unit, DelphinShort, C254960

Control unit for individual DelphinShort chucks and WEDM frames with manual operation.

- Including 10 m tube Ø6 mm and 3 fittings.

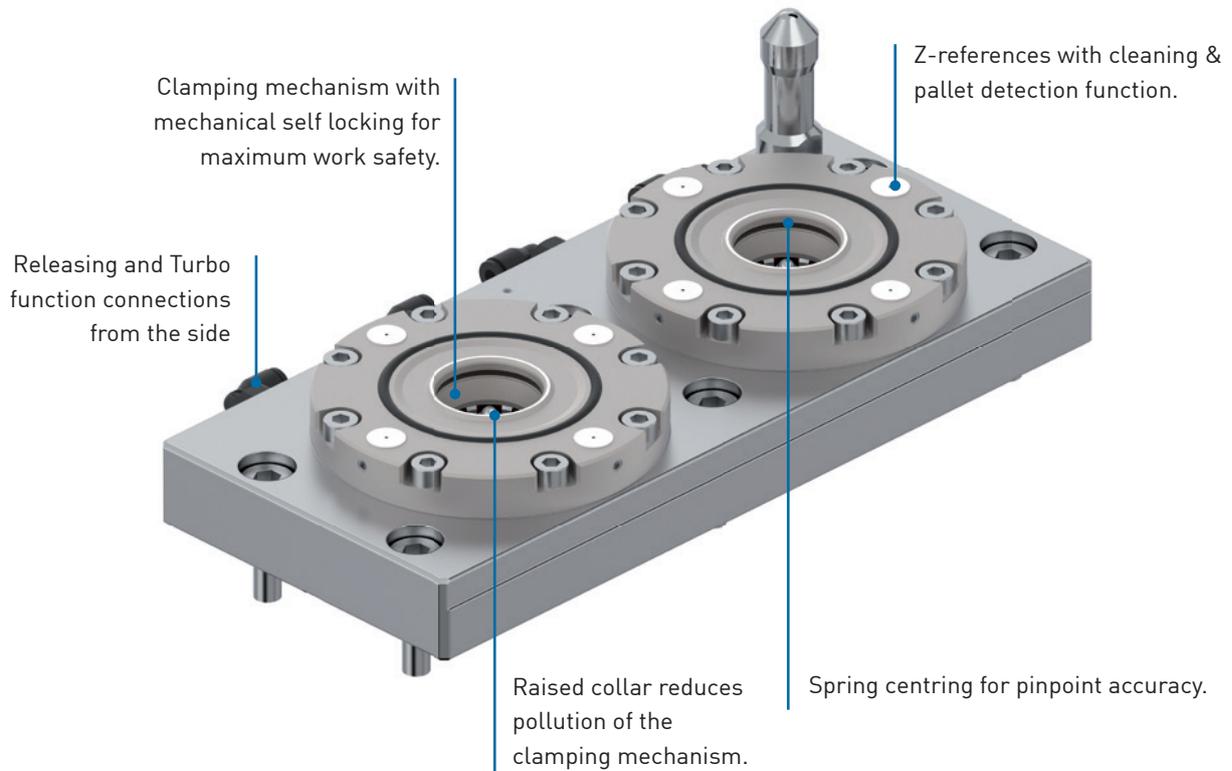


Spare parts, DelphinShort, S225005

For DelphinShort chucks. Includes O-rings, compressions springs, balls, screws and assembly tool.



DelphinShort Twin for WEDM



DelphinShort Twin is an application of the smallest Delphin chuck for use in wire EDM. It is the clamping system that we use as a duo for our large WEDM frames on various WEDM machines.

In addition to the large WEDM frames, our various adapters for palletising individual parts can also be used with all holders and vices from the System 3R WEDM system.

Furthermore, the adapter range also offers a variant for mounting customised clamping devices as well as a small clamping frame with a clamping area of 200x220mm.

All these adapters can be used with the WEDM Frames machine equipment as well as on individual installed DelphinShort Twin chucks in the WEDM machines.

Key Facts

- Very compact and low profile design
- Stainless steel - ideal for use in WEDM processes
- High clamping force, with turbo up to 20 kN
- Use of all holders and vices from the System 3R WEDM system
- High stability and functional reliability even with loads up to 25kg
- Ready for automation, but also suitable for manual operation.

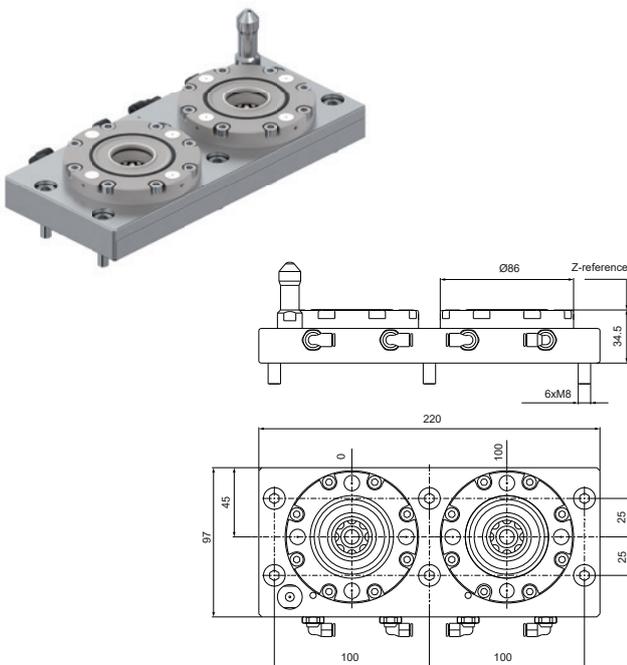
DelphinShort Twin chucks for WEDM

Technical data

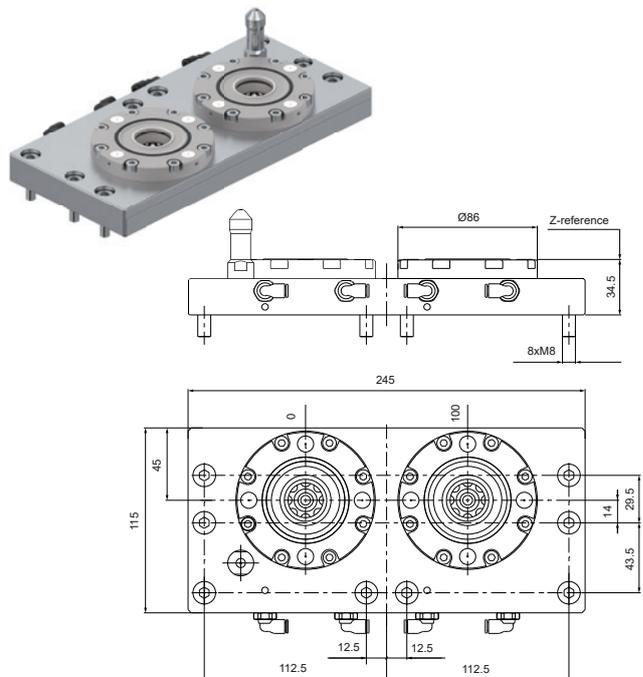
- Clamping force with 6 bar turbo pressure: up to 20kN
Turbo: 6 ± 1 bar
- Holding force:
Clamping spigot screw M8 A4-80 : 40 kN
Clamping spigot screw M8 12.9 : 70 kN
- Air pressure (open): 5-10 bar
- Centre distance chuck CC=100mm
- Repeat accuracy: 0.003 mm
- Material: stainless steel
- Weight: 3.9 kg.

The DelphinShort Twinchuck GFMS CUT P/X is used for direct installation on the machine tableframe for manual or automated applications. Thanks to hardened stainless steel, the clamping unit is designed to be used mainly in WEDM. The fixation holepattern fits on all GFMS WEDM machines of the CUT P/X series. Two separate supply lines are required. One for Z-cleaning, turbo and one for releasing or opening the clamping unit.

Chuck for CUT P Serie, DelphinShort Twin, C952010



Chuck for CUT X Serie, DelphinShort Twin, C952210



Pneumatic connection material for 1 or 2 Twin chucks, C952130

To control 1 or 2 Twin chucks to automation control or manual control.

- Connection bloc
- Fittings
- Tubes.

Pneumatic control unit, DelphinShort, C254960

Control unit for individual DelphinShort chucks and WEDM frames with manual operation.

- Including 10 m tube $\varnothing 6$ mm and 3 fittings.

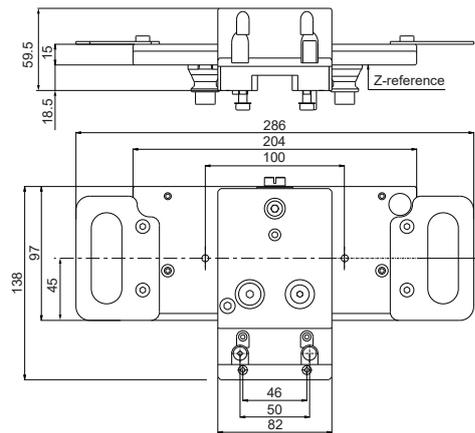


DelphinShort Twin adapters

Levelling adapter, DelphinShort, with mounting head WEDM, C952900

This DelphinShort Twin levelling adapter for DelphinShort Twin chuck (cc 100mm) has the identical fixation interface as any Macro fixation/levelling head and allows to mount all holders and vices from the WEDM System.

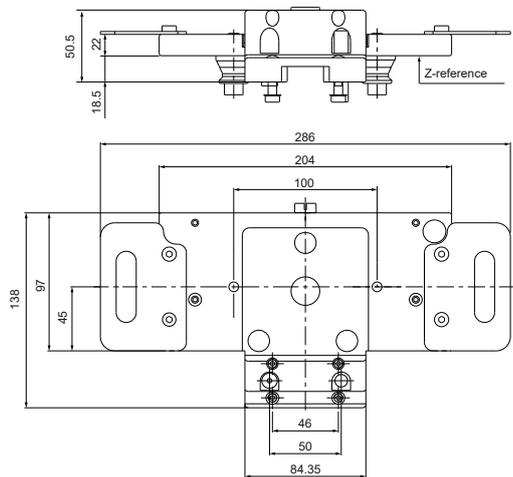
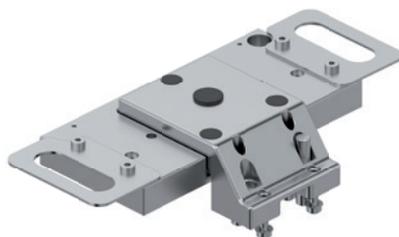
- Recommended max load: 20 kg
- Adjustable in three axes
- Prepared for automatic changing
- Prepared for Gripper 26937-00, Gripper pin set S952905 (not included)
- Example of suitable chucks: C952010, C952210
- Weight: 4.6 kg.



Fix adapter, DelphinShort, with mounting head WEDM, C952910

This DelphinShort Twin fixed adapter for DelphinShort Twin chuck (cc 100mm) has the identical fixation interface as any Macro fixation/levelling head and allows to mount all holders and vices from the WEDM System.

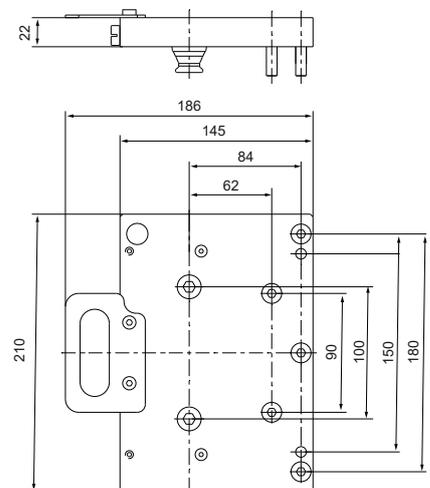
- Recommended max load: 20 kg
- Prepared for automatic changing
- Prepared for Gripper 26937-00, Gripper pin set S952905 (not included)
- Example of suitable chucks: C952010, C952210
- Weight: 3.5 kg.



Universal adapter, DelphinShort, C952920

This DelphinShort universal fixed adapter has a very rugged and stable fixation interface to mount customer specific holders and parts fixation units. Spacer in between universal adapter and customer fixation can be offered on request.

- Recommended max load: 25 kg
- Prepared for automatic changing
- Prepared for Gripper 26937-00, Gripper pin set S952905 (not included)
- Example of suitable chucks: C952010, C952210
- Weight: 5.2 kg.



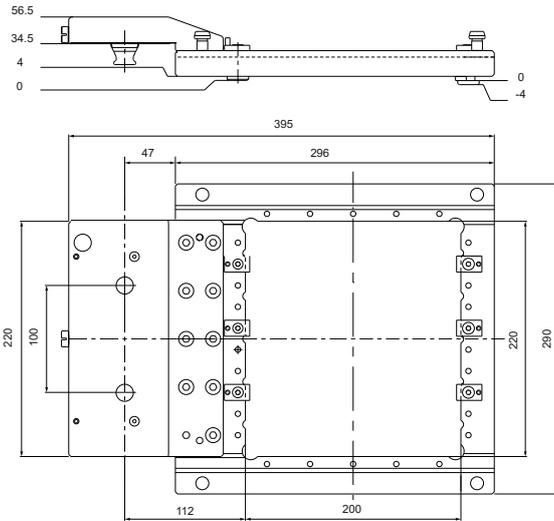
DelphinShort Twin frame – presetting

DelphinShort, TwinFrame, 200x220, C954000

The Twin Frame 200x220 can be used on the two Twinchucks (cc 100 mm) of the Frame machine equipment or also on individual DelphinShort Twin chucks (cc 100 mm) in WEDM machines.

The clamping range of 200x220 mm allows flat cubic parts up to a size of 200x220 mm to be clamped collisionfree on +4mm or on the zero line +0. With the use of the two clamping bars C950610 and/or C950620, the clamping area can be individually adapted to the workpiece sizes.

- Material: INOX
- ID-Chip holder included in scope of delivery
- Prepared for automatic changing
- 4x Keyhole Pins for gripper in scope of delivery
- Weight 13.3 kg.

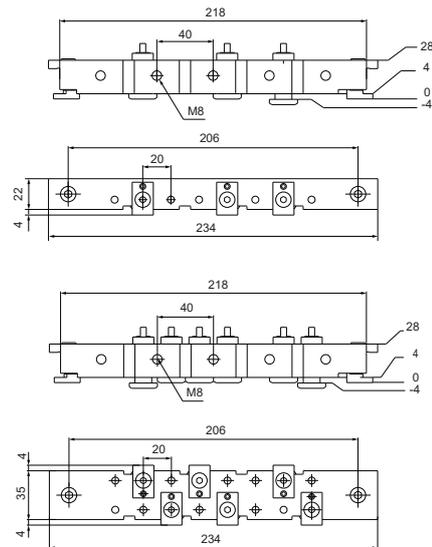


To be completed with Gripper pin set, S952905, when using the gripper 26937-00

Clamping bar single sided, C950610

Clamping bar double sided, C950620

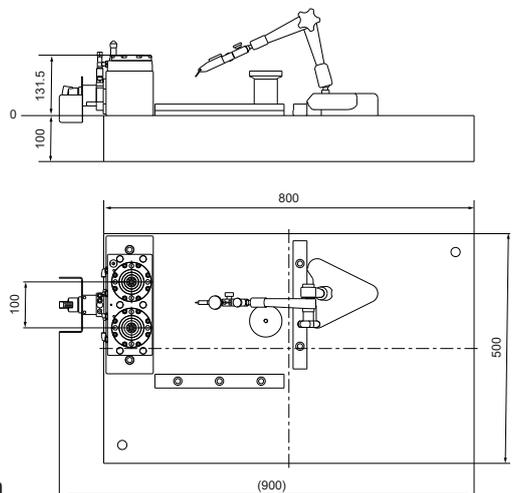
- support Lips screwed
- support Lips „0“ for workpiece clamping on Zero
- support „+4“ for collisionfree workpiece clamping on +4 mm.



Presetting station, DelphinShort Twin, C952980

The 97mm high base beam is fixed onto the 500 x 800mm stoneplate and carries the DelphinShort Twin chuck. A 97 mm support leg is to check clearance underneath workpiece in order to ensure free from collision.

- Stone plate 800x500x100
- DelphinShort Twin chuck cc 100 mm
- Pneumatic control C254960
- Air pressure open : 5 – 10 bar
- Reference rails in X- & Y-axis
- Measuring stand with dial indicator
- Weight 160 kg.

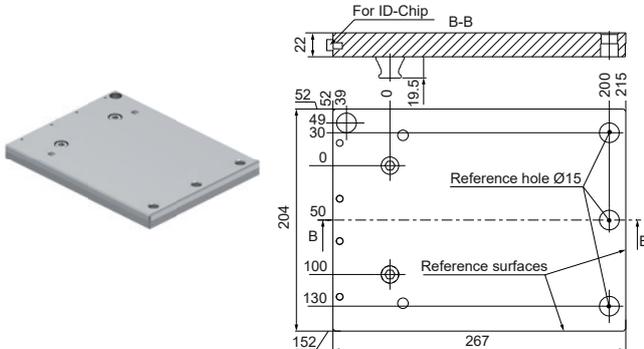


To be completed if needed with with Stand for Presetting Station, V000020

DelphinShort Twin accessories

Master pallet, DelphinShort Twin, C952060

Enables quick, easy and highly accurate assembly and alignment of the DelphinShort Twin chucks on the table of the WEDM machine. Checking and readjustment of the machine equipment on the table of the WEDM machine.



DelphinShort protective pallet for DelphinShort Twin chucks, C226330

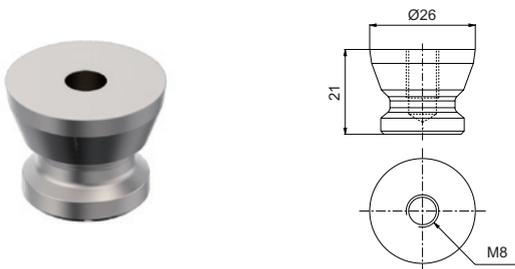
Chip, liquid and air pressure (turbo locking) protection for DelphinShort Twin chucks.



Protective drawbar, DelphinShort, C226300

Chip protection for DelphinShort chucks, seals centre bore, Z-support of chuck remains usable. Material: plastic

- Dimensions: Ø26x21 mm
- M8 for dismounting.



Clamping force meter, C288200

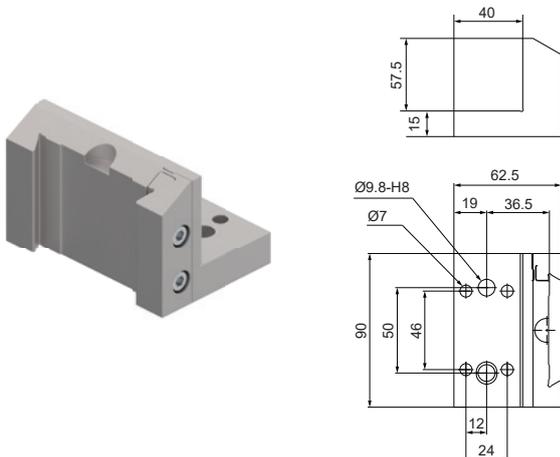
Is used to measure the clamping force of a chuck. For any DelphinShort chuck, use the Clamping force meter with Adapter C288250.



Adapter, C288250

Adapter, C950280

For mounting Unimatic holders in WEDM, Macro and MacroTwin mounting heads.



Adapters ICS

For mounting ICS holders in WEDM onto Macro or MacroTwin mounting heads.

Adapter ICS A, C457940

Adapter ICS B, C457960

Adapter ICS C, C457980



DelphinShort Twin accessories

Code carrier 4 mm, 3R-863.01-10

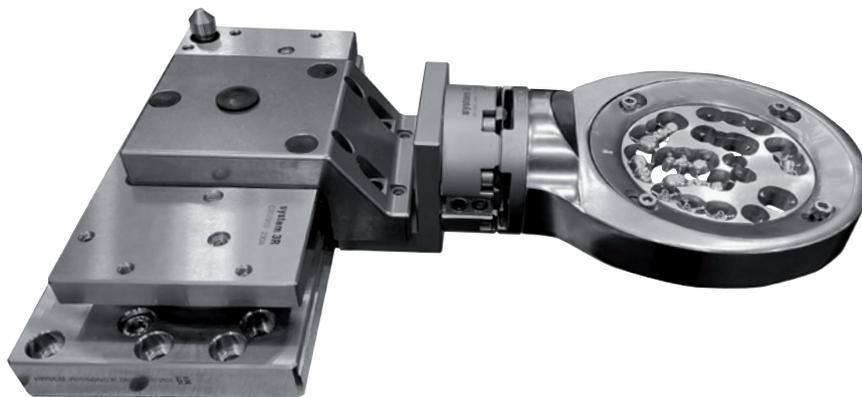
With a pre-programmed unique identity.

- Supplied in sets of 10.



Spare parts, DelphinShort, S225005

For DelphinShort chucks. Includes O-rings, compressions springs, balls, screws and assembly tool.



Dental application example:

DelphinShort Levelling Adapter with mounting head Macro and a vertical adapter,

Frames for the CUT series

Large palletising systems adapted to the WEDM machine table dimensions



Frames

The rugged design enables large workpieces to be clamped and changed in the WEDM machine with repeatable accuracy. Adjusting/designing the clamping bars to the specific workpieces significantly reduces the clamping and alignment effort.

Components

The basic frame equipment comprises the following components:

- Machine equipment
- Pneumatic control
- Frame
- Clamping bars

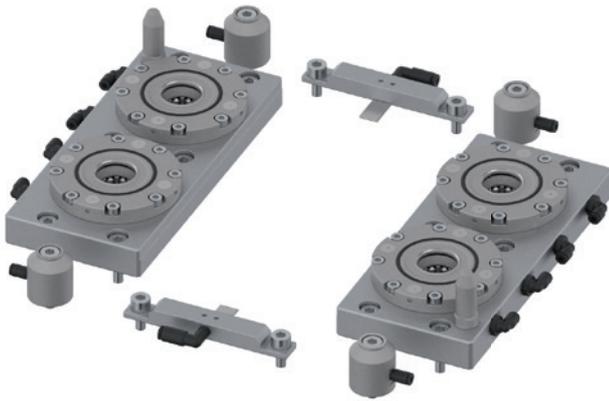


Options

The frame equipment can be complemented with the following components if desired:

- Gripper (to robot or lifting device)
- Presetting station
- Machine equipment to measuring machine

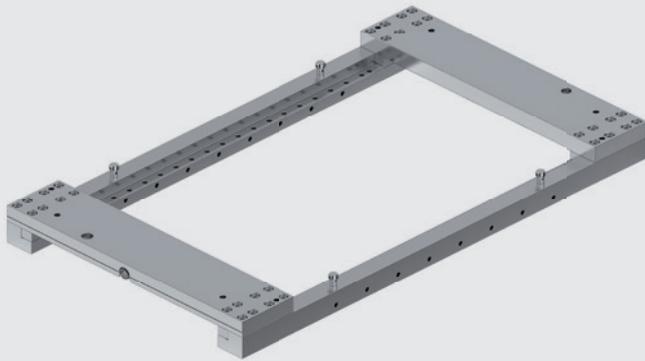
Frames for the CUT series



Machine equipment

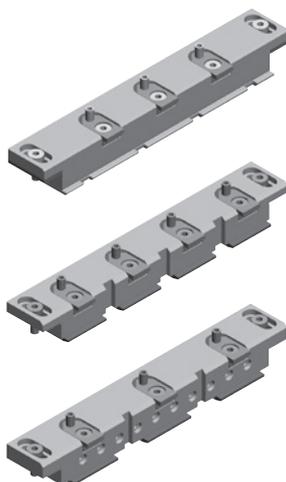
The machine equipment consist of two identical DelphinShort Twin chucks. On the larger machines we have in addition 4 corner Z-supports and 2 middle Z-supports. The two DelphinShort Twin Baseplates build the reference clamping system for the DelphinShort Frame on the WEDM machine. They guarantee best possible repetition accuracy and strong fixation of the DelphinShort Frame on the WEDM machine.

The corner Z-supports are used on the CUT P 550 & the CUT X 500 to give more stability to the on the machine clamped frame. The middle Z-supports help to reduce the deflection of a heavy loaded DelphinShort Frame.



Frame

This is the „pallet“ in a frame equipment. It includes the reference elements which define the position of the frame on the WEDM machine table along with the chucks. It is also the carrier element for the different clamping bars.



Clamping bars

Mounted into the frame, these provide the actual workpiece clamping, either singly or normally as a pair. System 3R provides three types of clamping bars as standard, each as single or double-sided versions.

- Clamping bar with fixed support lips:
workpiece can be clamped at „0“ or collision-free at „+4“ using spacer plates (included)
- Clamping bar with screwed support lips:
depending on the type of support lips, workpiece can be clamped at „0“ or collision-free at „+4“
- Combi clamping bar with screwed support lips:
workpiece is clamped at „0“ or collision-free at „+4“
Combi clamping bars are prepared for using the 3R-239 ruler accessory.

Frames for the CUT series



DelphinShort alignment and reference ruler

This reference element for the machine equipment is used for the following:

- Enables quick, simple and top-precision mounting and alignment of both DelphinShort Twin Baseplates on the WEDM machine table.
- Checking and readjustment of the machine equipment on the WEDM machine table
- To determine X, Y and C of the clamping system of the 2 DelphinShort Twin chucks.



Pneumatic control system

This system is required for controlling the two DelphinShort Twin Baseplates on the machine equipment in order to clamp or release the frame on the machine. It also supplies the Z-supports with cleaning air.

All tubings and air distribution blocs are included in the machine equipment and ready to be connected to the controls of the automation.

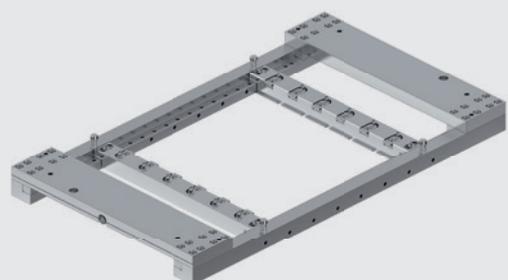
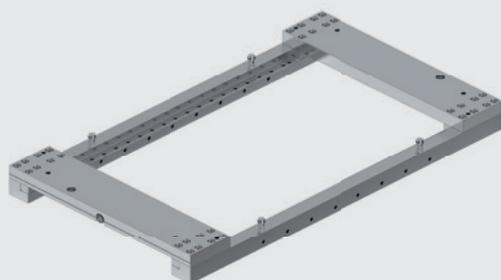
For non automated operation we have a specific manual 3-way pneumatic valve in the portfolio.

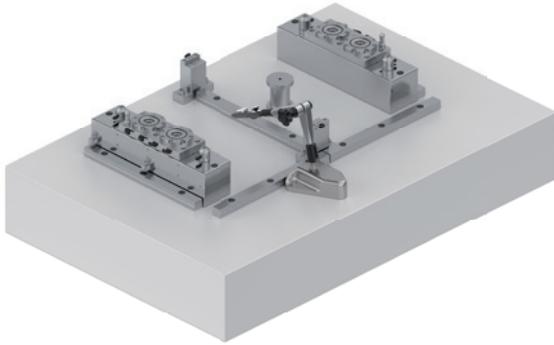


Set of clamping screws / brackets

The clamping bars are all fitted with brackets which allow plates and workpieces of 15 – 30 mm thickness to be clamped. For clamping thinner or thicker plates and parts the set of clamping screws / brackets provides the required screws, set screws and brackets in stainless steel.

Frames





Presetting station

The presetting station enables the frame to be loaded and unloaded with work-pieces outside the WEDM machine. However, the main use of the presetting station is to align the workpieces very precisely level and plane-parallel to the stone plate in the frame.

The entire set-up on the stone plate can also be mounted directly on a 3D measuring machine. This enables the workpieces to be measured while clamped in the frame.



Gripper

A gripper fitted to the size of the frame is required for handling the frame with a robot or a handling device (automatic or manual). These grippers are purely mechanical fork or trapezoid grippers which operate without any external power.

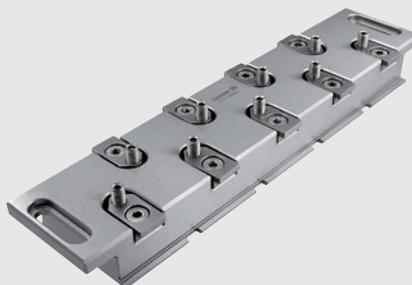


Manual Handling

We recommend using a lifting device with an adjustment for the lifting interface on the frame when manual handling the frame.



Single-sided clamping bar.



Double-sided clamping bar.



Machine equipment DelphinShort.

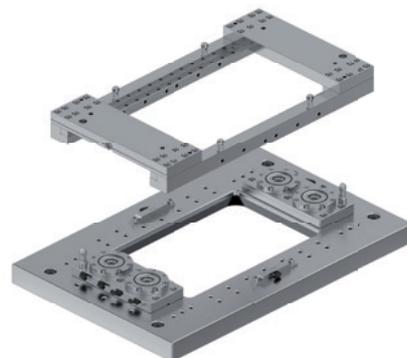
GF AgieCharmilles CUT P 350 Pro

Frames, accessories and layouts



CUT P 350 Pro – Basic WEDM frame tooling

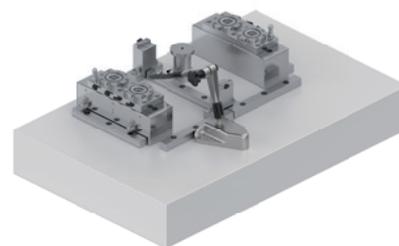
Description	Art. number
Machine equipment CUT P 350 Pro	C952000
Frame CUT P 350 Pro	C952040
PN valve for manual operations	C254960
Clamping bar 230, lips fixed, single	C917380
Clamping bar 230, lips fixed, double	C917390
Clamping bar 230, lips screwed, single	C917080
Clamping bar 230, lips screwed, double	C917090
Combi clamping bar 230, single	C917480
Combi clamping bar 230, double	C917490



CUT P 350 Pro – WEDM Frame tooling.

CUT P 350 Pro – WEDM frame tooling accessories

Description	Art. number
Frame presetting station CUT P 350 Pro	C952080
Stand for presetting station 1000/630	V000018
Reference ruler for frames CUT P 350 Pro	C952050
Set of clamping screws / brackets	C860200

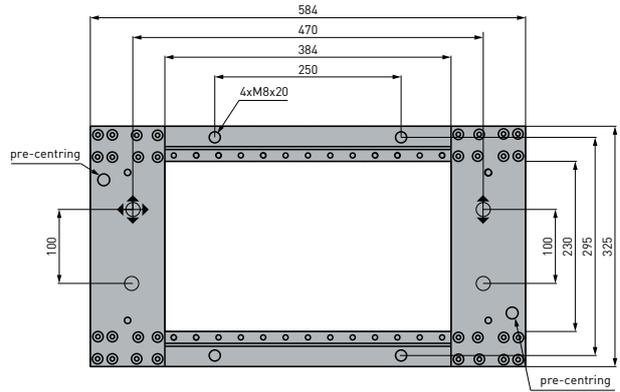
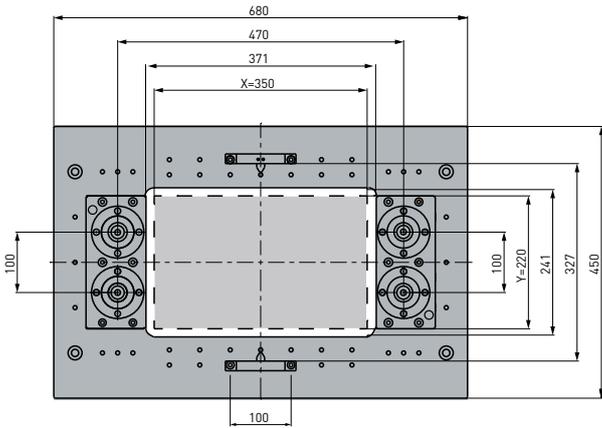


CUT P 350 Pro – Frame presetting station.

CUT P 350 Pro – WEDM Frame tooling

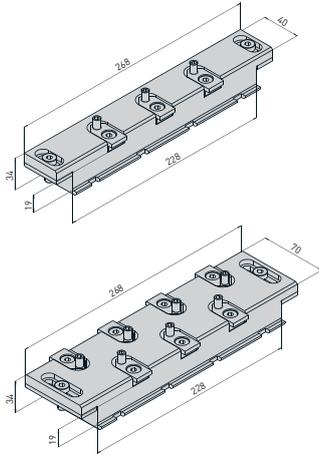
Machine equipment C952000

Frame C952040



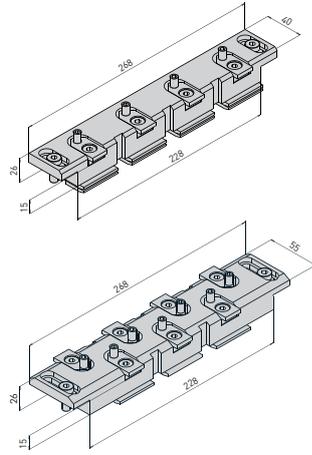
Clamping bar 230

Lips fixed
C917380
C917390



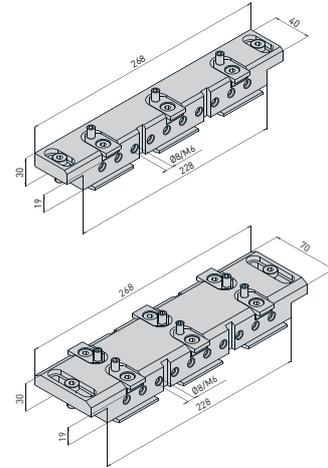
Clamping bar 230

Lips screwed
C917080
C917090



Combi clamping bar 230

C917480
C917490



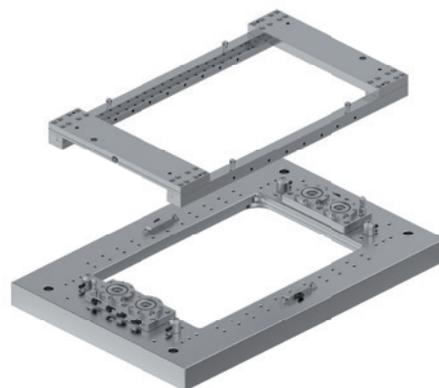
GF AgieCharmilles CUT P 550 Pro

Frames, accessories and layouts



CUT P 550 Pro – Basic WEDM frame tooling

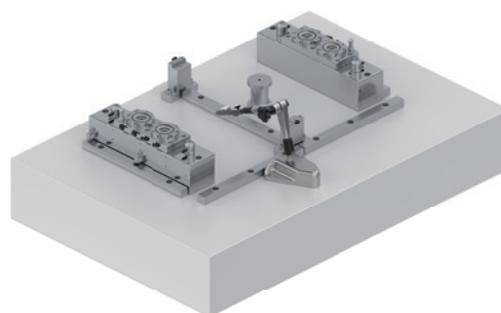
Description	Art. number
Machine equipment CUT P 550 Pro	C952100
Frame CUT P 550 Pro	C952140
PN valve for manual operations	C254960
Clamping bar 360, lips fixed, single	C917330
Clamping bar 360, lips fixed, double	C917360
Clamping bar 360, lips screwed, single	C917030
Clamping bar 360, lips screwed, double	C917060
Combi clamping bar 360, single	C917430
Combi clamping bar 360, double	C917460



CUT P 550 Pro – WEDM Frame tooling.

CUT P 550 Pro – WEDM frame tooling accessories

Description	Art. number
Frame presetting station CUT P 550 Pro	C952180
Stand for presetting station 1200/800	V000019
Reference ruler for frames CUT P 550 Pro	C952150
Set of clamping screws / brackets	C860200

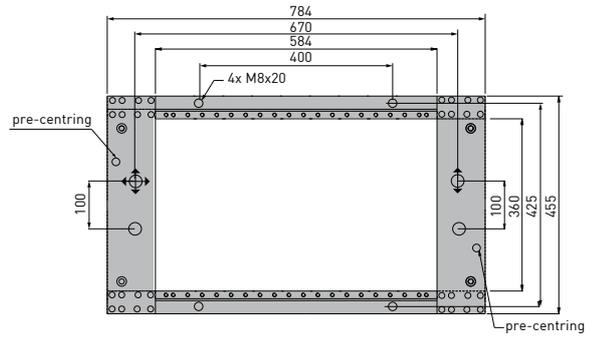
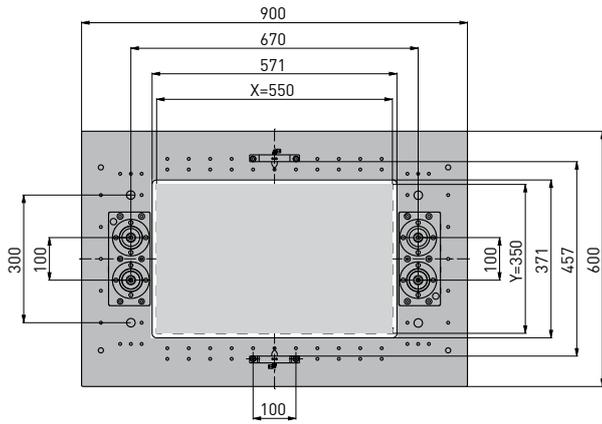


CUT P 550 Pro – Frame presetting station.

CUT P 550 Pro – WEDM Frame tooling

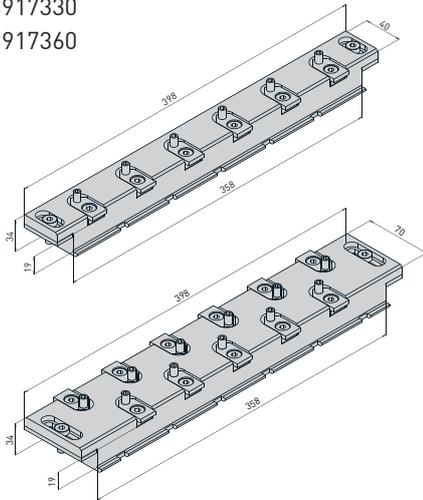
Machine equipment C952100

Frame C952140



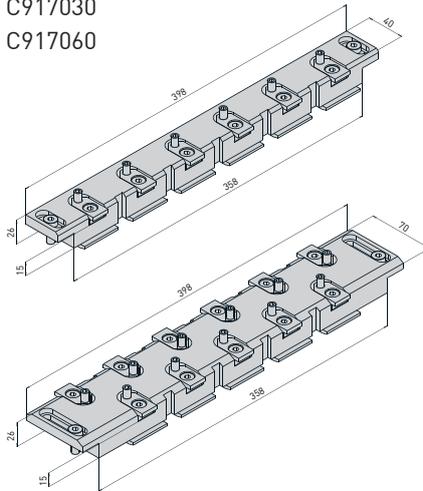
Clamping bar 360

Lips fixed
C917330
C917360



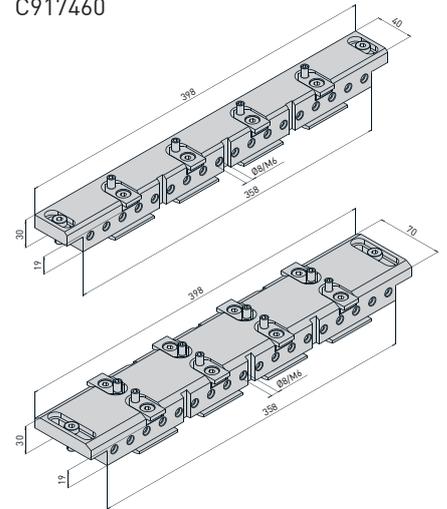
Clamping bar 360

Lips screwed
C917030
C917060



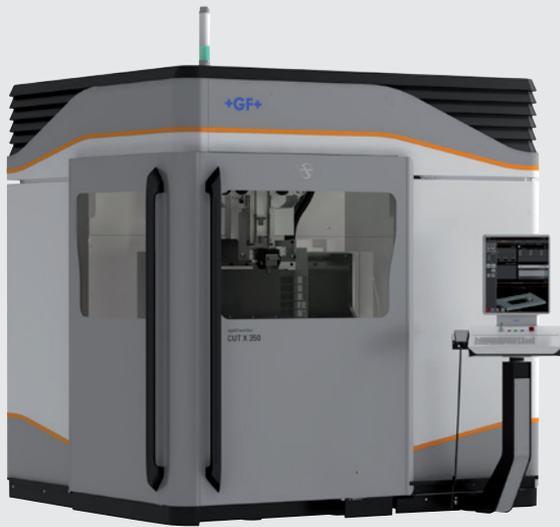
Combi clamping bar 360

C917430
C917460



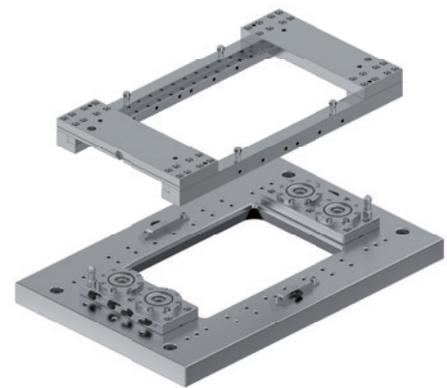
GF AgieCharmilles CUT X 350 & CUT 2000

Frames, accessories and layouts



CUT X 350 – Basic WEDM frame tooling

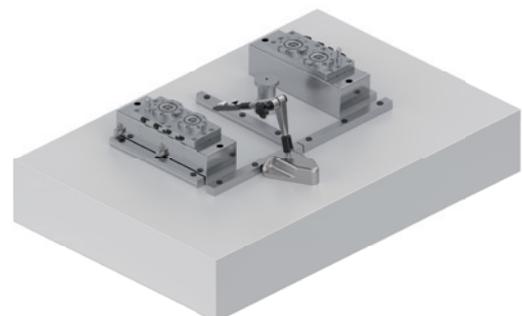
Description	Art. number
Machine equipment CUT X 350	C952200
Frame CUT X 350	C952240
PN valve for manual operations	C254960
Clamping bar 290, lips fixed, single	C917320
Clamping bar 290, lips fixed, double	C917350
Clamping bar 290, lips screwed, single	C917020
Clamping bar 290, lips screwed, double	C917050
Combi clamping bar 290, single	C917420
Combi clamping bar 290, double	C917450



CUT X 350 – WEDM Frame tooling.

CUT X 350 – WEDM frame tooling accessories

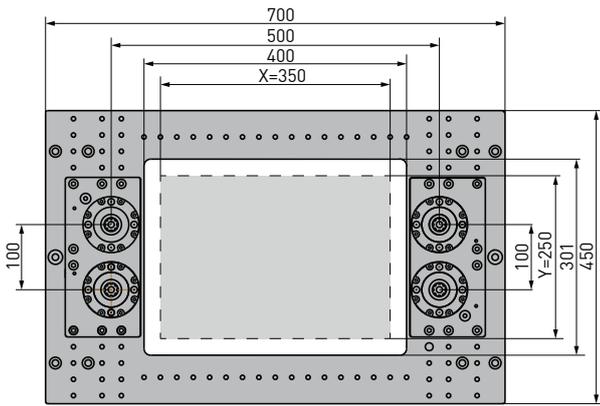
Description	Art. number
Frame presetting station CUT X 350	C952280
Stand for presetting station 1200/800	V000019
Reference ruler for Frames CUT X 350	C952250
Set of clamping screws / brackets	C860200



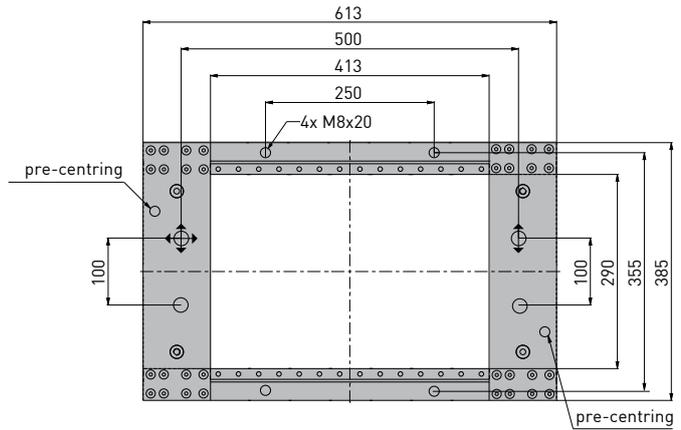
CUT X 350 – Frame presetting station.

CUT X 350 – WEDM Frame tooling

Machine equipment C952200

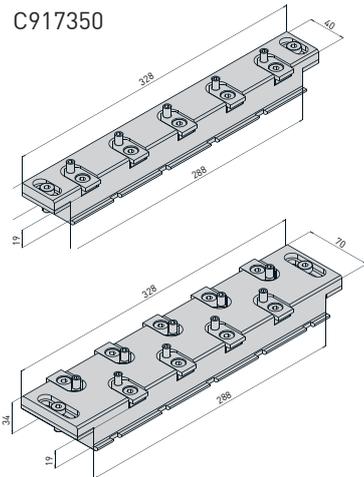


Frame C952240



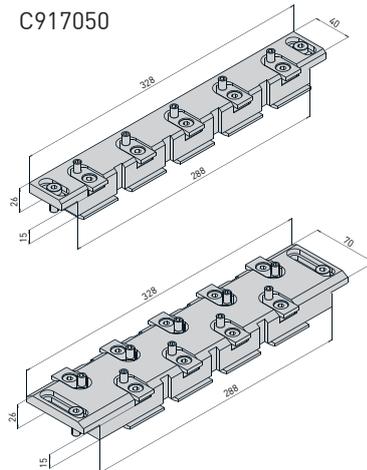
Clamping bar 290

Lips fixed
C917320
C917350



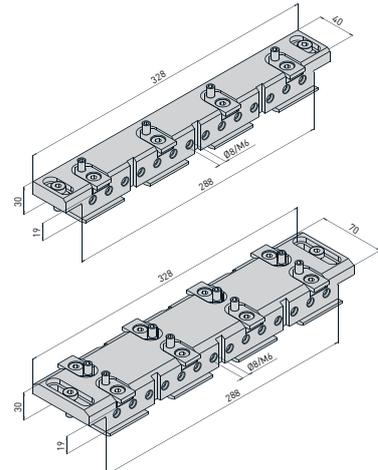
Clamping bar 290

Lips screwed
C917020
C917050



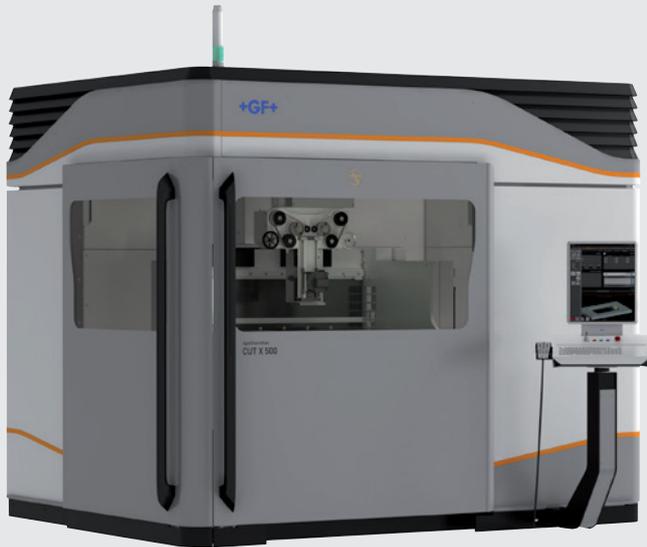
Combi clamping bar 290

C917420
C917450



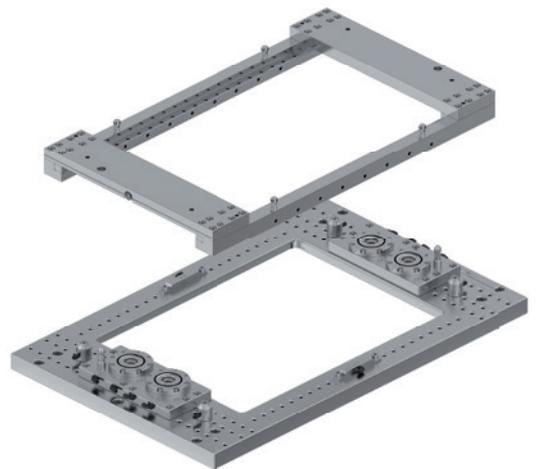
GF AgieCharmilles CUT X 500 & CUT 3000

Frames, accessories and layouts



CUT X 500 – Basic WEDM frame tooling

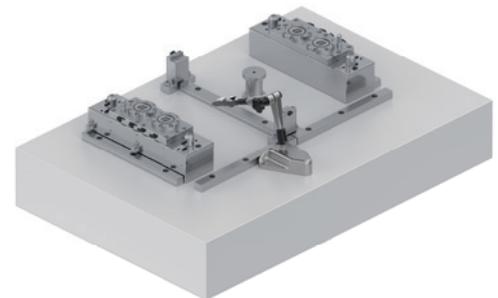
Description	Art. number
Machine equipment CUT X 500	C952300
Frame CUT X 500	C952340
PN valve for manual operations	C254960
Clamping bar 360, lips fixed, single	C917330
Clamping bar 360, lips fixed, double	C917360
Clamping bar 360, lips screwed, single	C917030
Clamping bar 360, lips screwed, double	C917060
Combi clamping bar 360, single	C917430
Combi clamping bar 360, double	C917460



CUT X 500 – WEDM Frame tooling.

CUT X 500 – WEDM frame tooling accessories

Description	Art. number
Frame presetting station CUT X 500	C952380
Stand for presetting station 1200/800	V000019
Reference ruler for Frames CUT X 500	C952350
Set of clamping screws / brackets	C860200

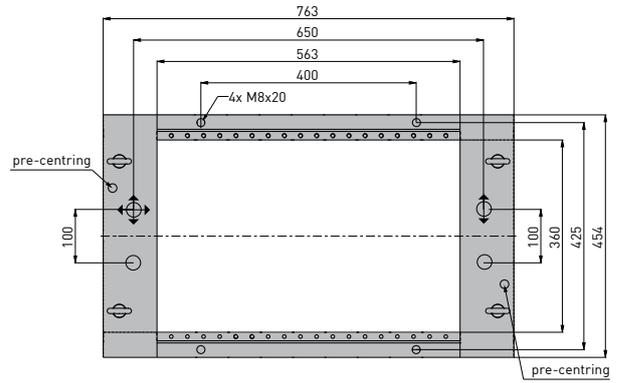
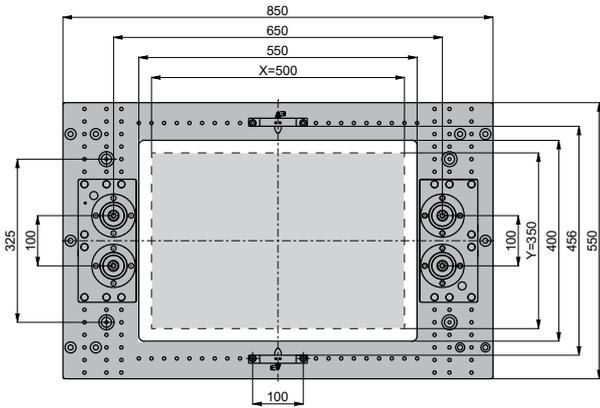


CUT X 500 – Frame presetting station.

CUT X 500 – WEDM frame tooling

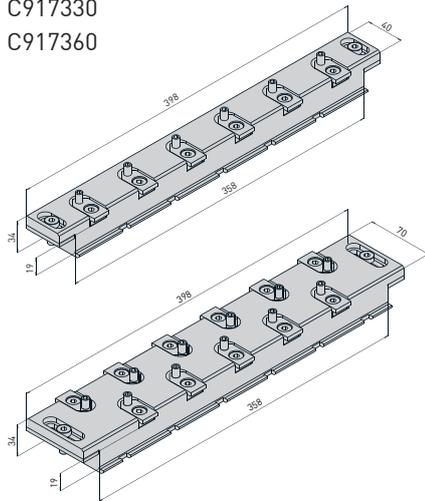
Machine equipment C952300

Frame C952340



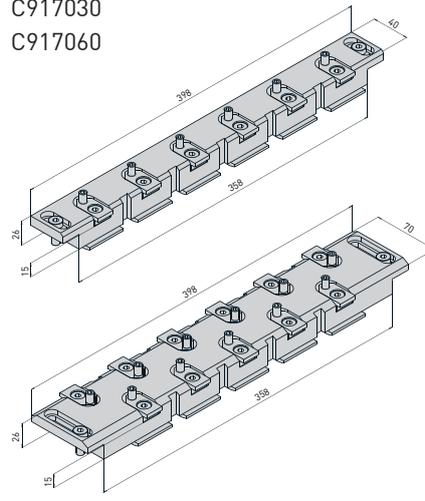
Clamping bar 360

Lips fixed
C917330
C917360



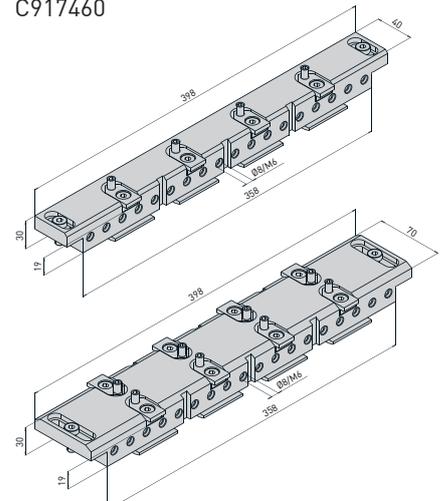
Clamping bar 360

Lips screwed
C917030
C917060



Combi clamping bar 360

C917430
C917460



Frame tooling accessories

Set of clamping screws & brackets, C860200

Set of M8 screws & set screws in various lengths. Brackets to clamping bars for clamping of plates and parts thinner than 15 mm.



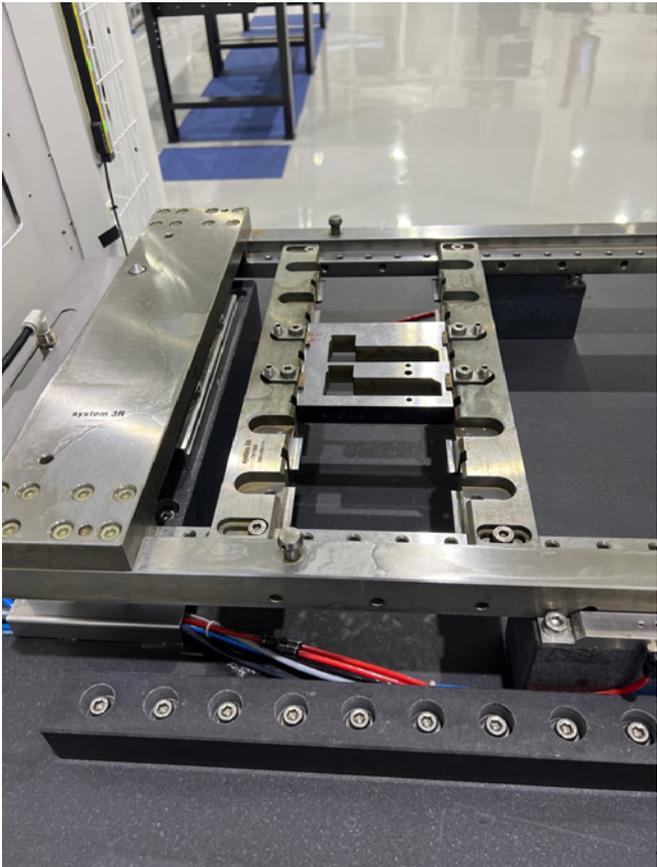
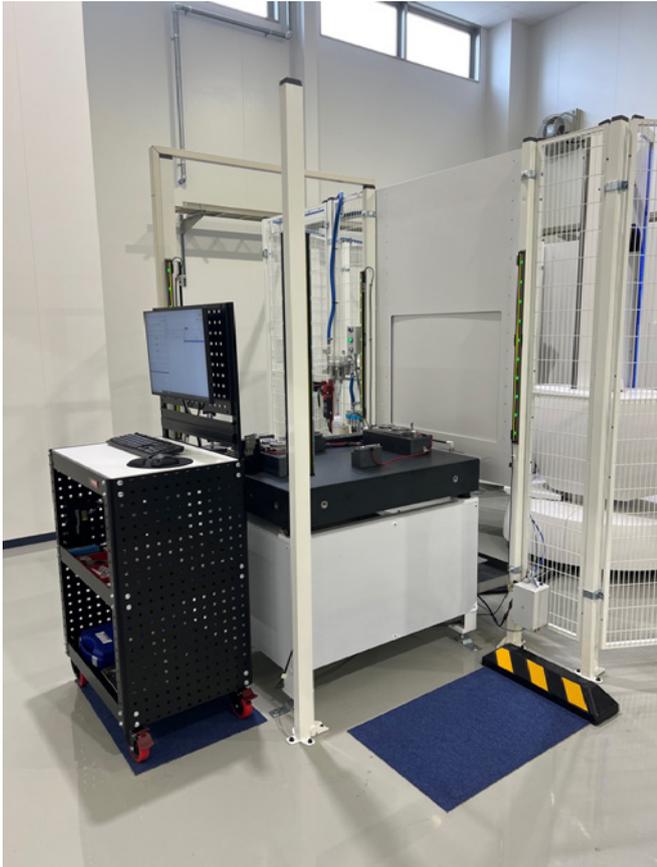
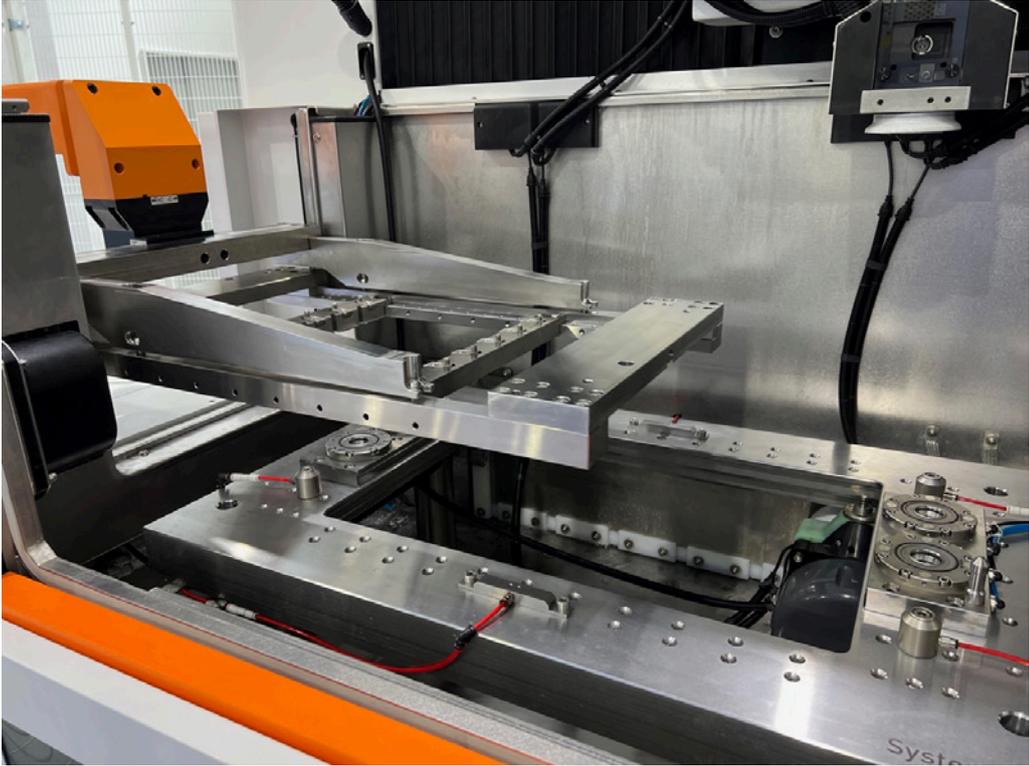
Pneumatic control unit, DelphinShort, C254960

Control unit for individual DelphinShort chucks and WEDM frames with manual operation.

- Including 10 m tube $\varnothing 6$ mm and 3 fittings.



WEDM Frames applications



WEDM Cell with CUT P 550 Pro, stationary Transformer, Rack magazine for the WEDM Frames and CMM outside the cell also used as loading station for the large WEDM frames

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About GF Machining Solutions

Multi-technology solutions provider

Our commitment to you and your specific applications is proven by the value-adding intelligence, productivity and quality delivered by our multi-technology solutions. Your success is our chief motivator. That's why we are continuously advancing our legendary technical expertise. Wherever you are, whatever your market segment and whatever the size of your operation, we have the complete solutions and the customer-centric commitment to accelerate your success—today.

EDM (Electrical Discharge Machining)



Wire-cutting EDM

GF Machining Solutions' wire-cutting EDM is fast, precise and increasingly energy efficient. From ultraprecise machining of miniaturized components down to 0.02 mm to powerful solutions for demanding high-speed machining with respect to surface accuracy, our wire EDM solutions position you for success.

Die-sinking EDM

GF Machining Solutions is revolutionizing die-sinking EDM with features like iGAP technology to dramatically boost machining speed and reduce electrode wear. All of our die-sinking systems offer fast removal and deliver mirror finishes of Ra 0.1 µm (4 µin).

Hole-drilling EDM

GF Machining Solutions' robust hole-drilling EDM solutions enable you to drill holes in electrically conductive materials at a very high speed—and, with a five-axis configuration, at any angle on a workpiece with an inclined surface.

Tooling and Automation



Tooling

Our customers experience complete autonomy while maintaining extreme accuracy, thanks to our highly accurate System 3R reference systems for holding and positioning electrodes and work pieces. All types of machines can easily be linked, which reduces set-up times and enables a seamless transfer of workpieces between different operations.

Automation

Together with System 3R, we also provide scalable and cost-effective Automation solutions for simple, single machine cells or complex, multi-process cells, tailored to your needs.

Milling



Milling

Precision tool and mold manufacturers enjoy a competitive edge with our Mikron MILL S solutions' fast and precise machining. The Mikron MILL P machines achieve above-average productivity thanks to their high performance and Automation. Customers seeking fastest return on investment benefit from the affordable efficiency of our MILL E solutions.

High Performance Airfoil Machining

Our Liechti turnkey solutions enable the highly dynamic manufacturing of precision airfoils. Thanks to the unique performance and our expertise in airfoil machining, you increase productivity by producing at the lowest cost per part.

Spindles

As part of GF Machining Solutions, Step-Tec is engaged in the very first stage of each machining center development project. Compact design combined with excellent thermal and geometric repeatability ensure the perfect integration of this core component into the machine tool.

Software



Digitalization solutions

To drive its digital transformation, GF Machining Solutions acquired symmedia GmbH, a company specialized in software for machine connectivity. Together, we offer a complete range of Industry 4.0 solutions across all industries. The future requires the ability to adapt quickly to continual digital processes. Our intelligent manufacturing offers embedded expertise, optimized production processes, and workshop Automation: solutions for smart and connected machines.

Advanced manufacturing



Laser texturing

Aesthetic and functional texturing is easy and infinitely repeatable with our digitized Laser technology. Even complex 3D geometries, including precision parts, are textured, engraved, microstructured, marked and labeled.

Laser micromachining

GF Machining Solutions offers the industry's most complete line of Laser micromachining platforms optimized for small, high-precision features to meet the increasing need for smaller, smarter parts to support today's leading-edge products.

Laser Additive Manufacturing (AM)

GF Machining Solutions and 3D Systems, a leading global provider of additive manufacturing solutions and the pioneer of 3D printing, have partnered to introduce new metal 3D printing solutions that enable manufacturers to produce complex metal parts more efficiently.

Customer Services



Worldwide for you

Ensuring the best performance throughout the lifetime of our customers' equipment is the goal of our three levels of support. Operations Support offers the complete range of original wear parts and certified consumables. Machine Support includes spare parts, technical support, and a range of preventive services to maximize machine uptime. Business Support offers customer-specific business solutions.



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