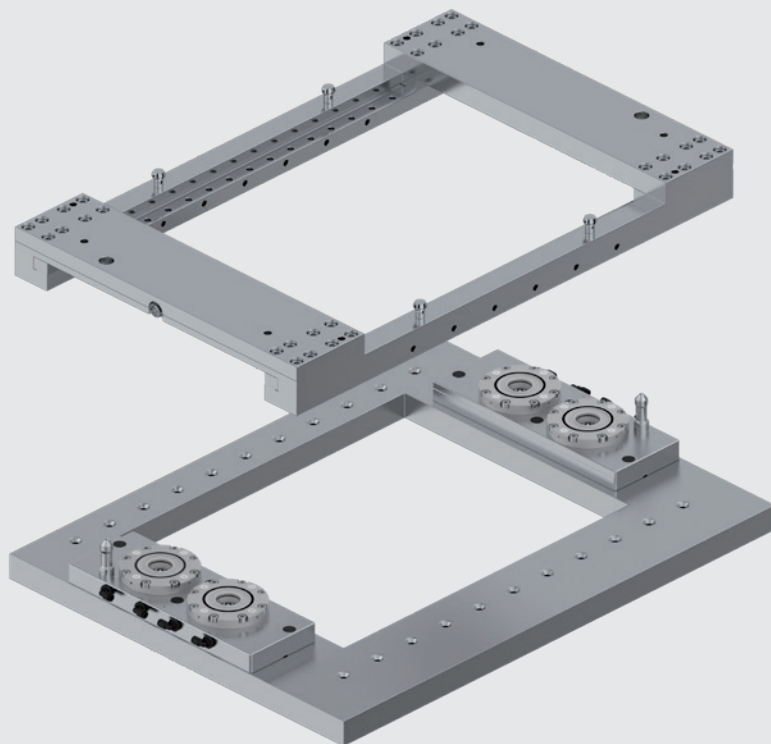


DelphinShort frames for CUT series

P 350 Pro / P 550 Pro /
X 350 / X 500



Design and
quality by
System 3R

Contents

4	Frame components
8	Frame tooling for CUT P 350 Pro
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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.

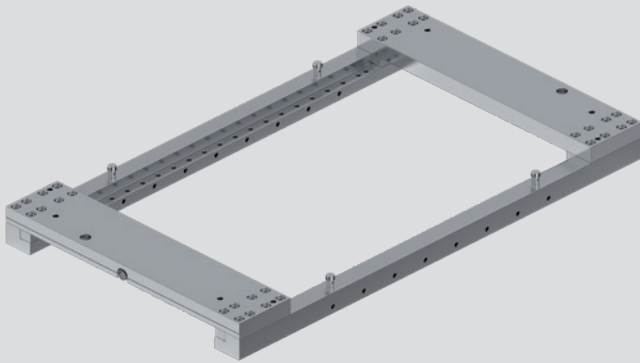
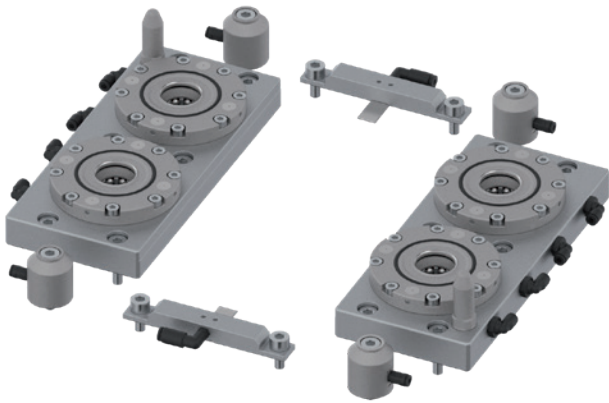
FRAMES FOR MAKINO WEDM

MACHINE EQUIPMENT

The machine equipment consist of two identical DelphinShort Twin Baseplates and where from the size of the machine table frame reasonable and feasible corner and 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 table 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.



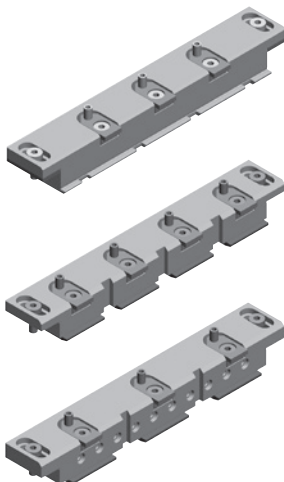
FRAME

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.

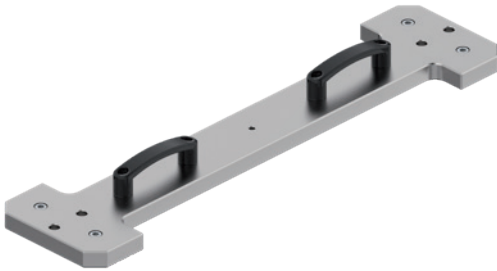
CLAMPING BARS

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 MAKINO WEDM



DELPHINSHORT 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.

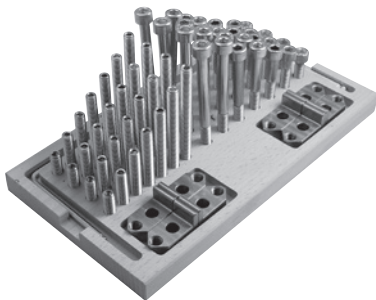


PNEUMATIC CONTROL SYSTEM

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.

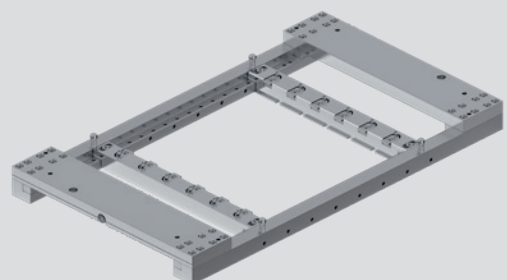
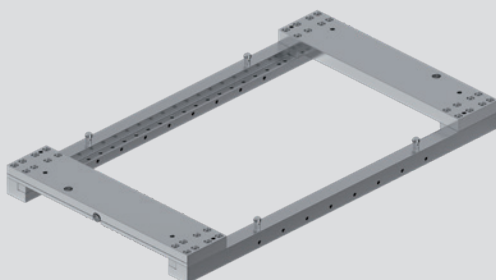
For non automated operation we have a specific manual 3-way pneumatic valve in the portfolio.

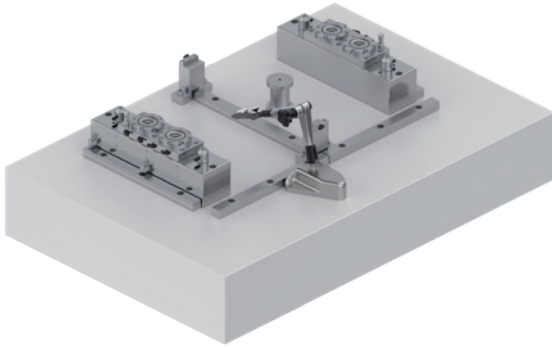


SET OF CLAMPING SCREWS / BRACKETS

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 work-pieces to be measured while clamped in the frame.



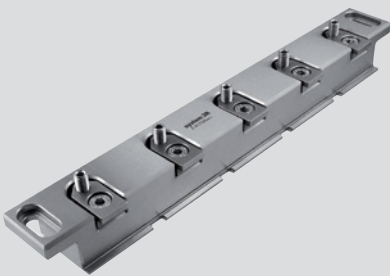
GRIPPER

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.

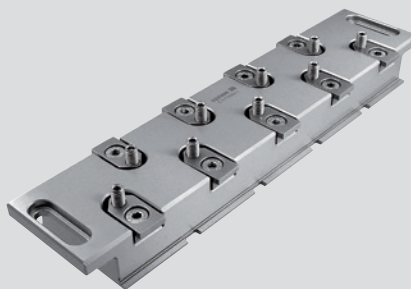


MANUAL HANDLING

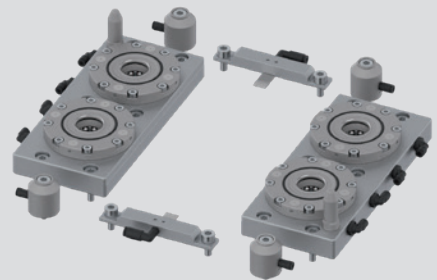
We recommend using a lifting device with an adjustment for the lifting interface on the frame when manual handling the frame.



Single-sided clamping bar



Double-sided clamping bar



Machine equipment DelphinShort

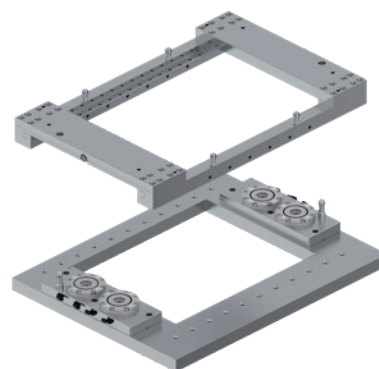
GF AgieCharmilles CUT P 350 Pro

Frames, accessories and layouts



CUT P 350 Pro – Basic WEDM frame tooling

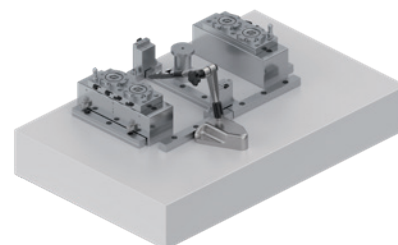
Description	Art. number
Machine equipment	C952000
Frame	C952240
PN valve for manual operations	C254960
Clamping bar 230, lips fixed, single	C917380
Clamping bar 230, lips fixed, double	C917390
Clamping bar 230, lips screwed, single	C917080
Clamping bar 230, lips screwed, double	C917090
Combi clamping 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

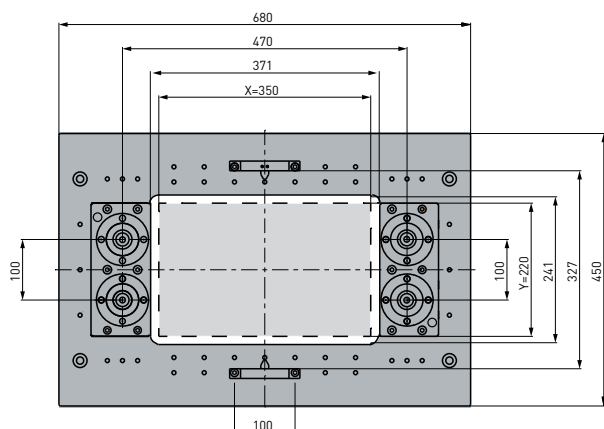
Description	Art. number
Frame presetting station	C952080
Stand for presetting station 1200/800	V000018
Reference ruler for Frames	C952050
Set of clamping screws / brackets	C860200



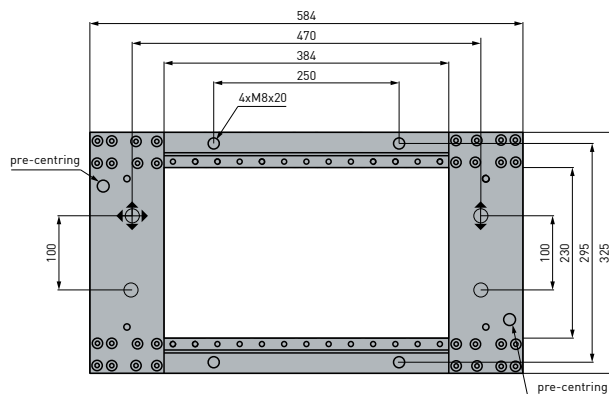
CUT P 350 Pro – Frame presetting station.

CUT P 350 Pro – WEDM Frame tooling

Machine equipment C952000

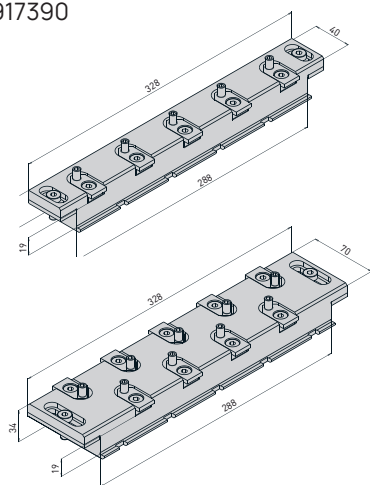


Frame C952040



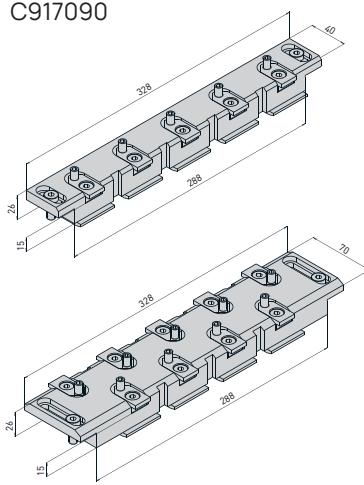
Clamping bar 230

Lips fixed
C917380
C917390



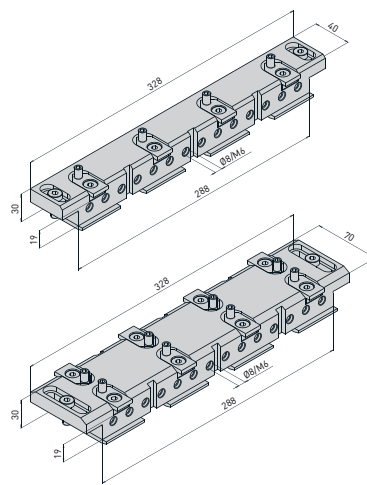
Clamping bar 230

Lips screwed
C917080
C917090



Combi clamping bar 230

C917480
C917490



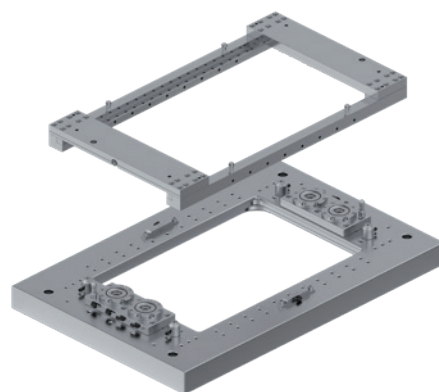
GF AgieCharmilles CUT P 550 Pro

Frames, accessories and layouts



CUT P 550 Pro – Basic WEDM frame tooling

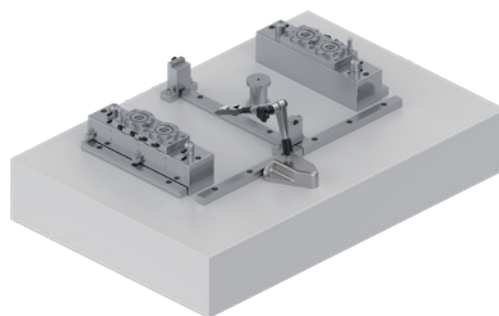
Description	Art. number
Machine equipment	C952100
Frame	C952140
PN valve for manual operations	C254960
Clamping bar 360, lips fixed, single	C917330
Clamping bar 360, lips fixed, double	C917360
Clamping bar 360, lips screwed, single	C917030
Clamping bar 360, lips screwed, double	C917060
Combi clamping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

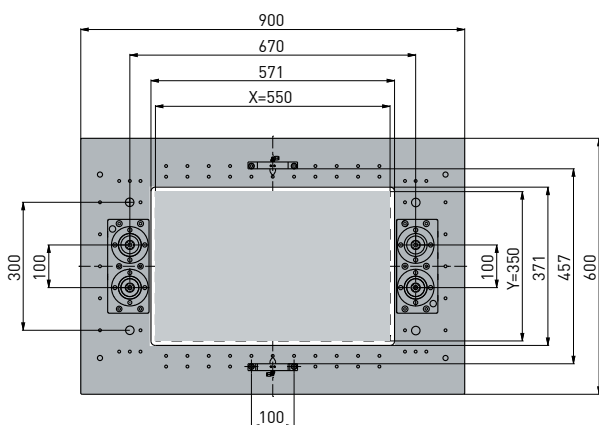
Description	Art. number
Frame presetting station	C952180
Stand for presetting station 1200/800	V000019
Reference ruler for Frames	C952150
Set of clamping screws / brackets	C860200



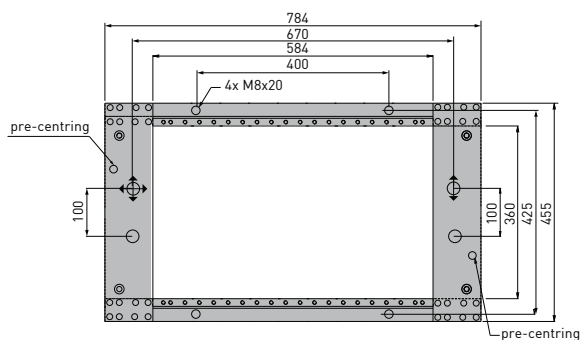
CUT P 550 Pro – Frame presetting station.

CUT P 550 Pro – WEDM Frame tooling

Machine equipment C952100

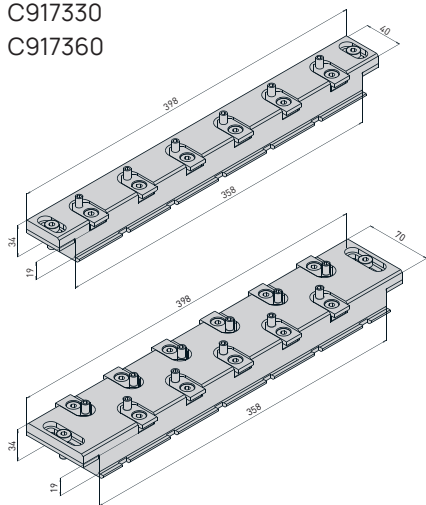


Frame C952140



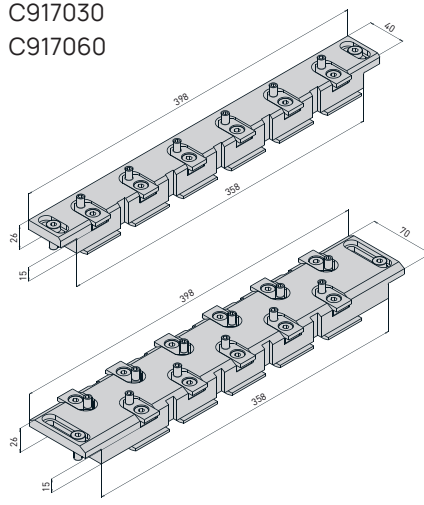
Clamping bar 360

Lips fixed
C917330
C917360



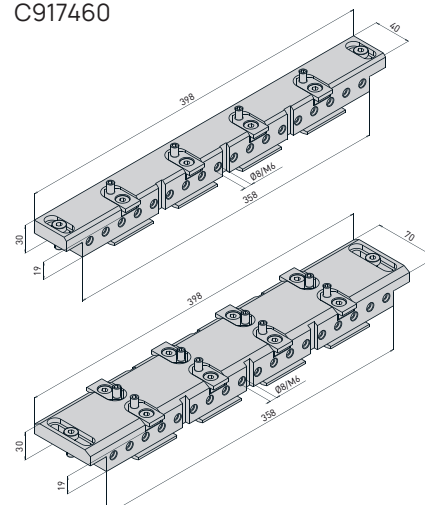
Clamping bar 360

Lips screwed
C917030
C917060



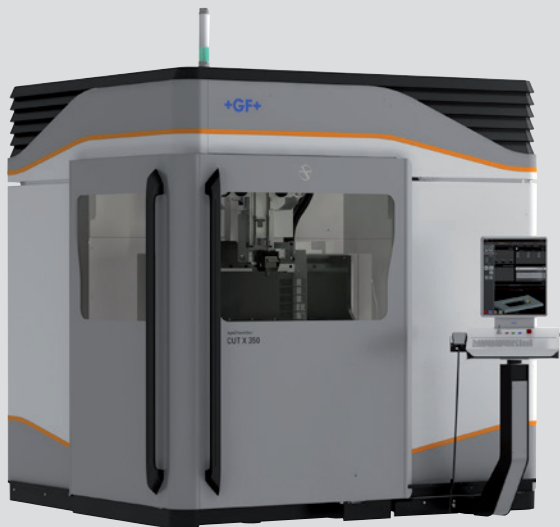
Combi clamping bar 360

C917430
C917460



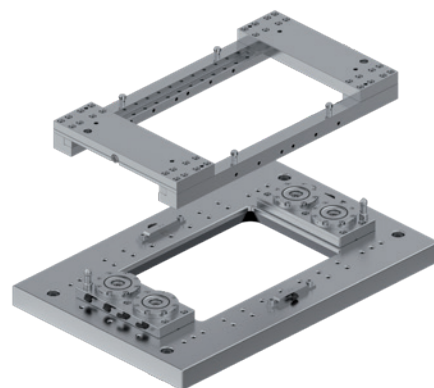
GF AgieCharmilles CUT X 350 & CUT 2000

Frames, accessories and layouts



CUT X 350 – Basic WEDM frame tooling

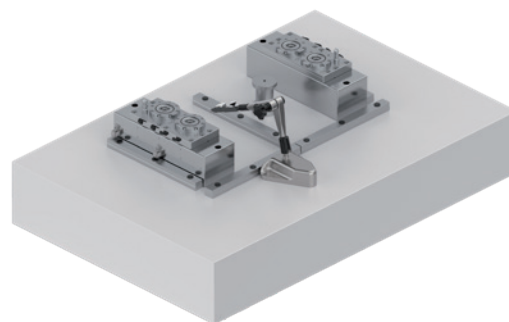
Description	Art. number
Machine equipment	C952200
Frame	C952240
PN valve for manual operations	C254960
Clamping bar 290, lips fixed, single	C917320
Clamping bar 290, lips fixed, double	C917350
Clamping bar 290, lips screwed, single	C917020
Clamping bar 290, lips screwed, double	C917050
Combi clamping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



CUT X 350 – WEDM Frame tooling.

CUT X 350 – WEDM frame tooling accessories

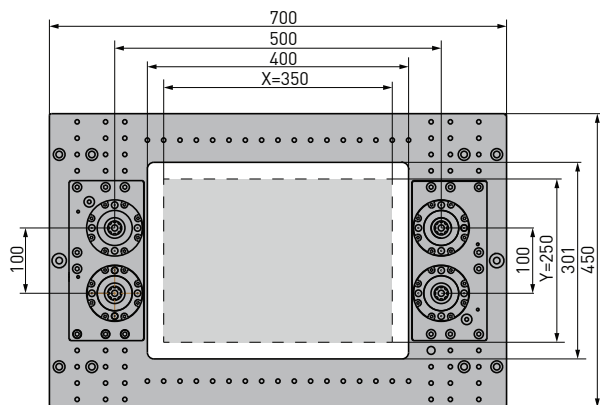
Description	Art. number
Frame presetting station	C952280
Stand for presetting station 1200/800	V000019
Reference ruler for Frames	C952250
Set of clamping screws / brackets	C860200



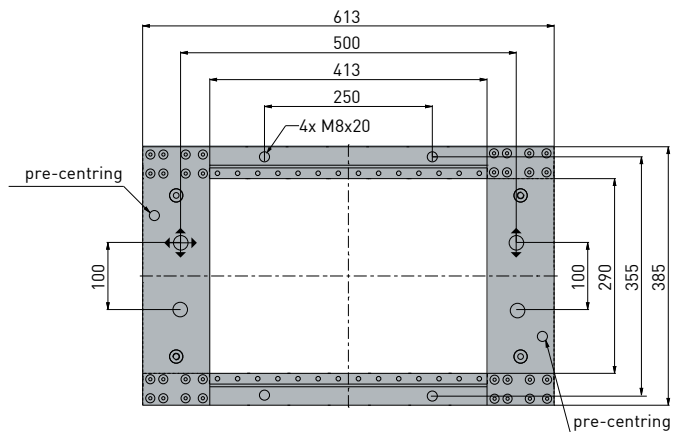
CUT X 350 – Frame presetting station.

CUT X 350 – WEDM Frame tooling

Machine equipment C952200

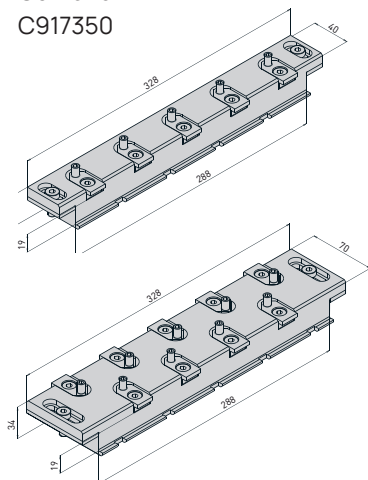


Frame C952240



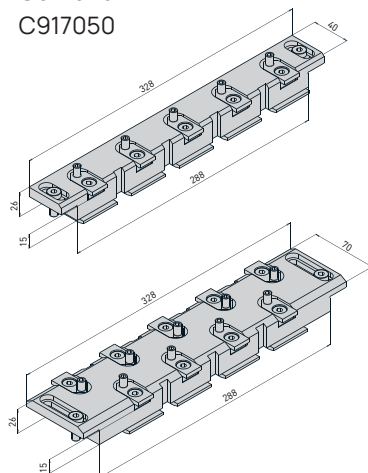
Clamping bar 290

Lips fixed
C917320
C917350



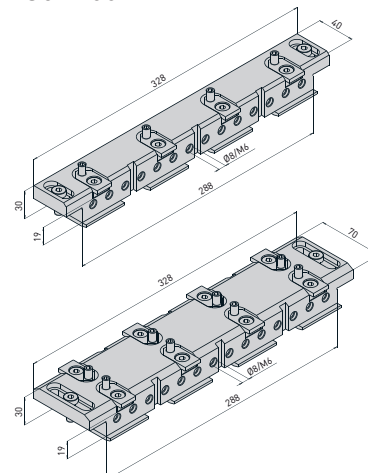
Clamping bar 290

Lips screwed
C917020
C917050



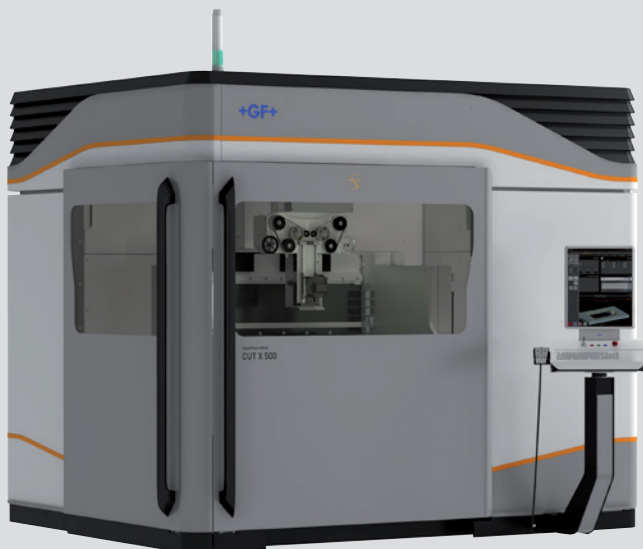
Combi clamping bar 290

C917420
C917450



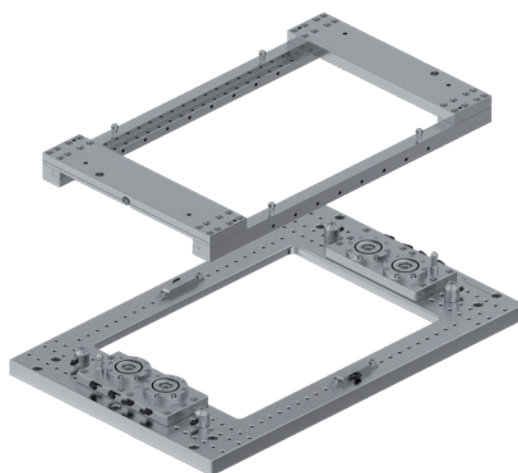
GF AgieCharmilles CUT X 500 & CUT 3000

Frames, accessories and layouts



CUT X 500 – Basic WEDM frame tooling

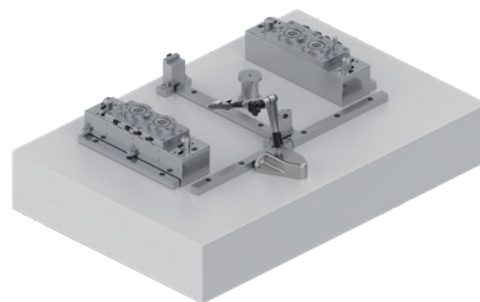
Description	Art. number
Machine equipment	C952300
Frame	C952340
PN valve for manual operations	C254960
Clamping bar 360, lips fixed, single	C917330
Clamping bar 360, lips fixed, double	C917360
Clamping bar 360, lips screwed, single	C917030
Clamping bar 360, lips screwed, double	C917060
Combi clamping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



CUT X 500 – WEDM Frame tooling.

CUT X 500 – WEDM frame tooling accessories

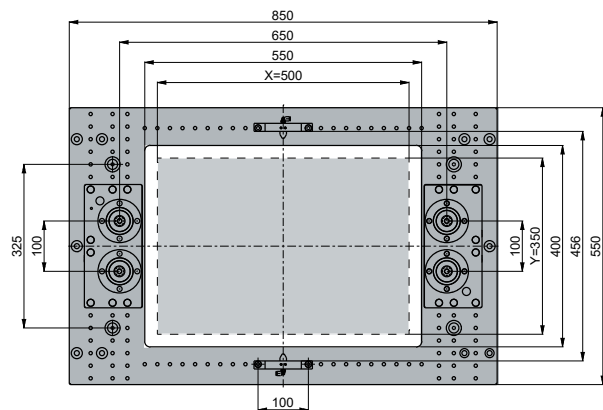
Description	Art. number
Frame presetting station	C952380
Stand for presetting station 1200/800	V000019
Reference ruler for Frames	C952350
Set of clamping screws / brackets	C860200



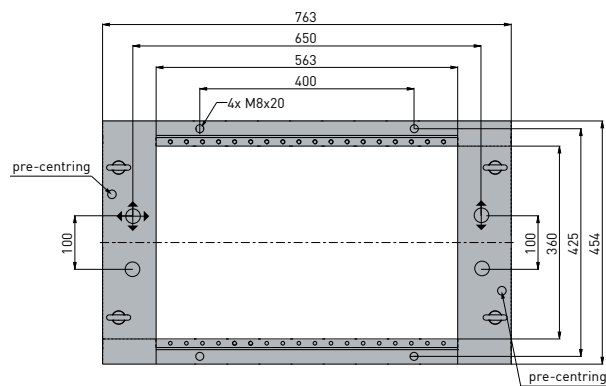
CUT X 500 – Frame presetting station.

CUT X 500 – WEDM frame tooling

Machine equipment C952300

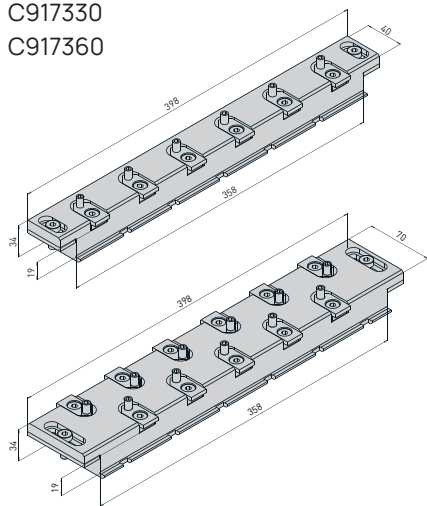


Frame C952340



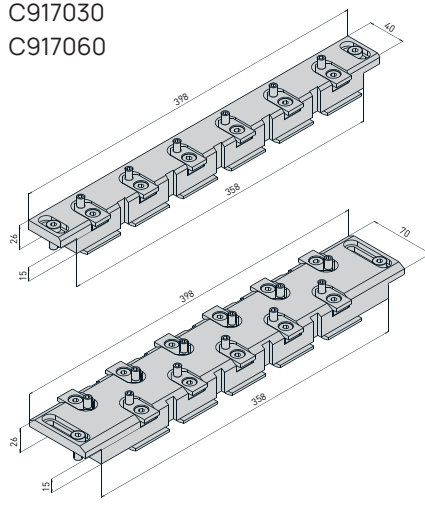
Clamping bar 360

Lips fixed
C917330
C917360



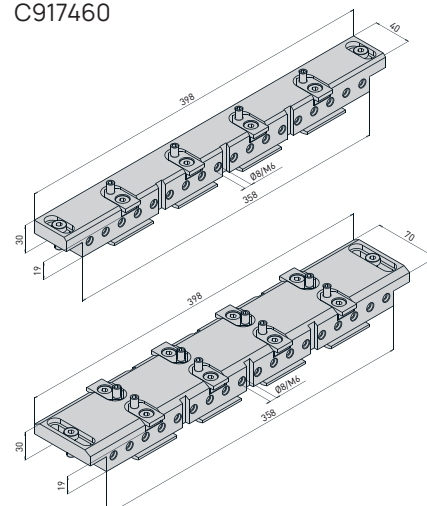
Clamping bar 360

Lips screwed
C917030
C917060



Combi clamping bar 360

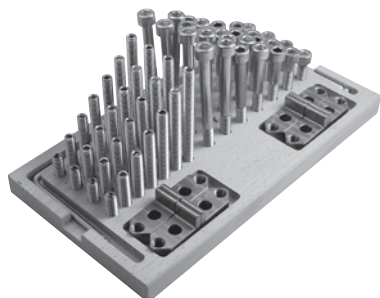
C917430
C917460



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.

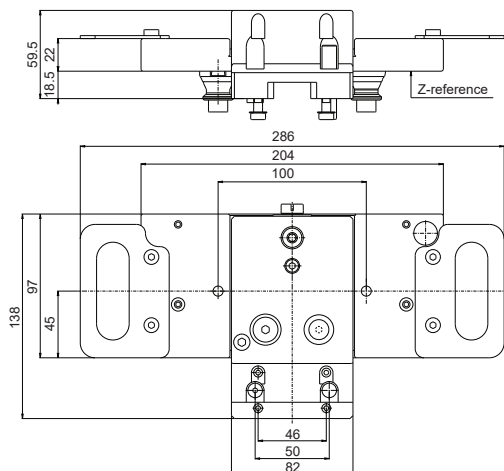
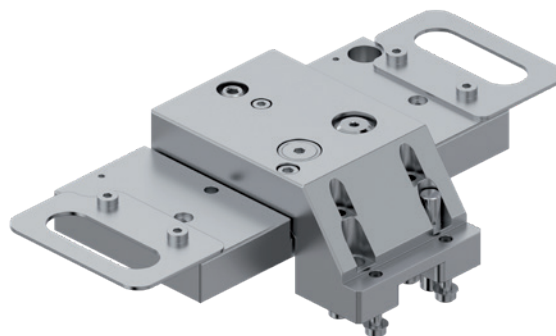
- Including 10 m tube Ø6 mm and 3 fittings.



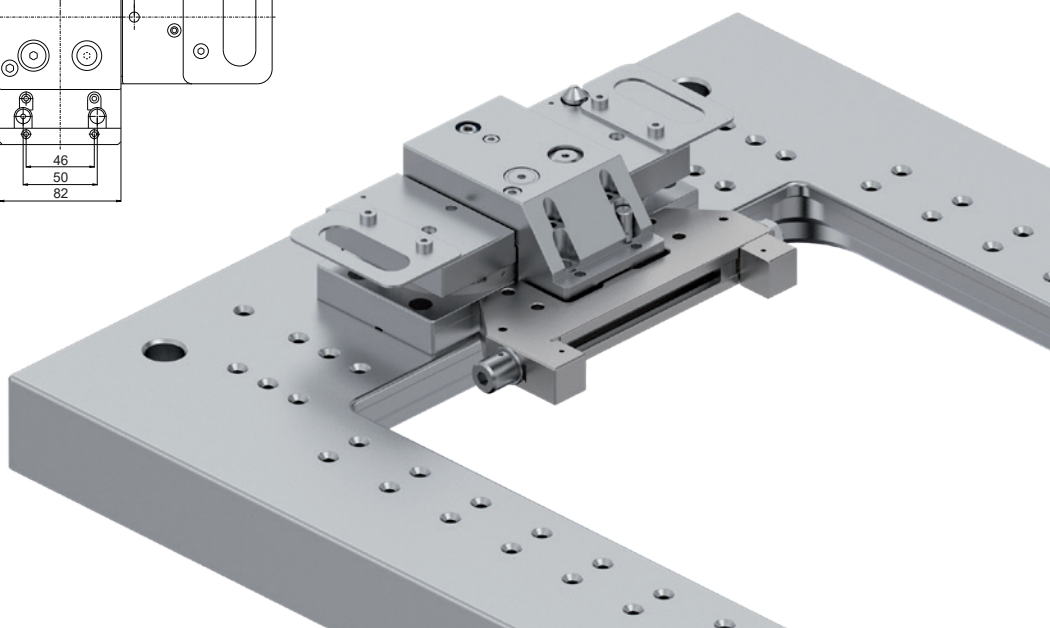
DelphinShort Twin levelling adapter, C952900

For mounting SuperVice, a holder or a fixture in the DelphinShort WEDM Frames machine equipment.

- Adjustable in three axes
- Adapted for automatic changing
- Prepared for Gripper 26937-00
- Code carrier fixture included
- Recommended maximum load 15 kg.



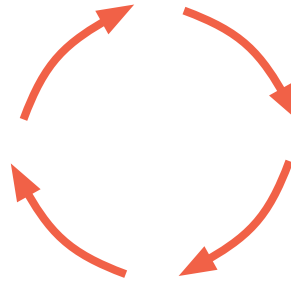
NOTE: All holders including HP can be mounted.



Why Delphin?

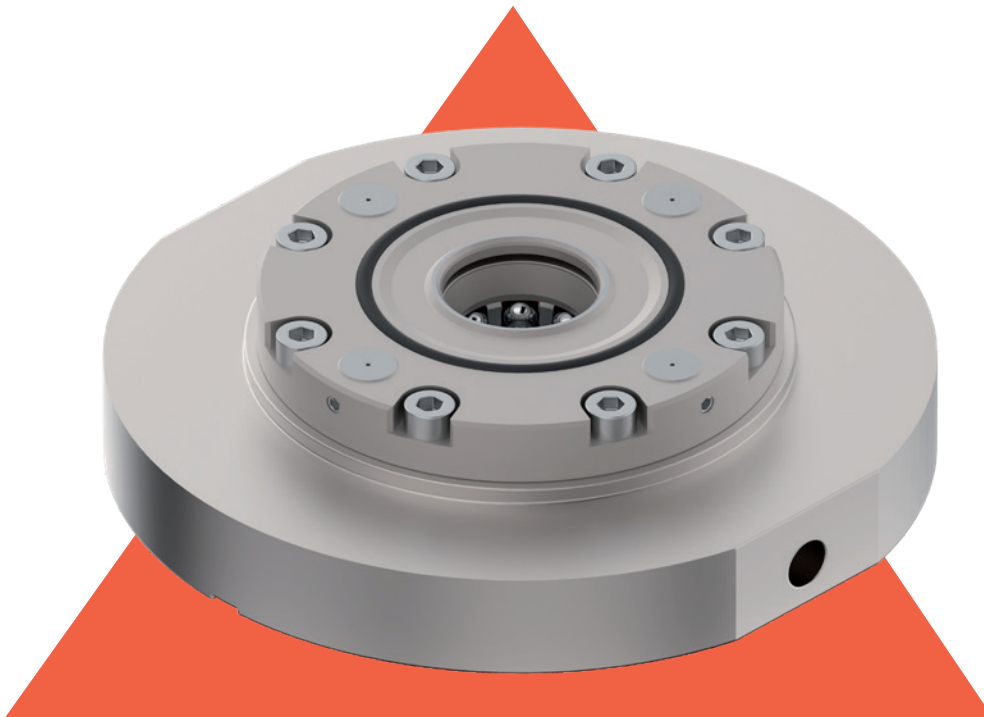


Highest repeatability.

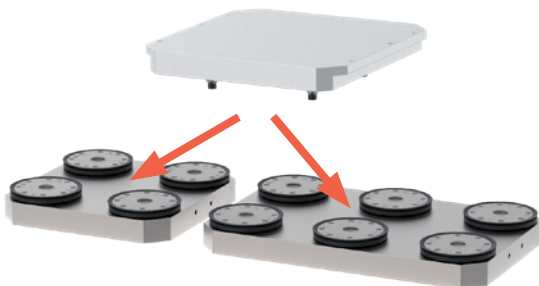


Highest process reliability.

QUALITY



FLEXIBILITY



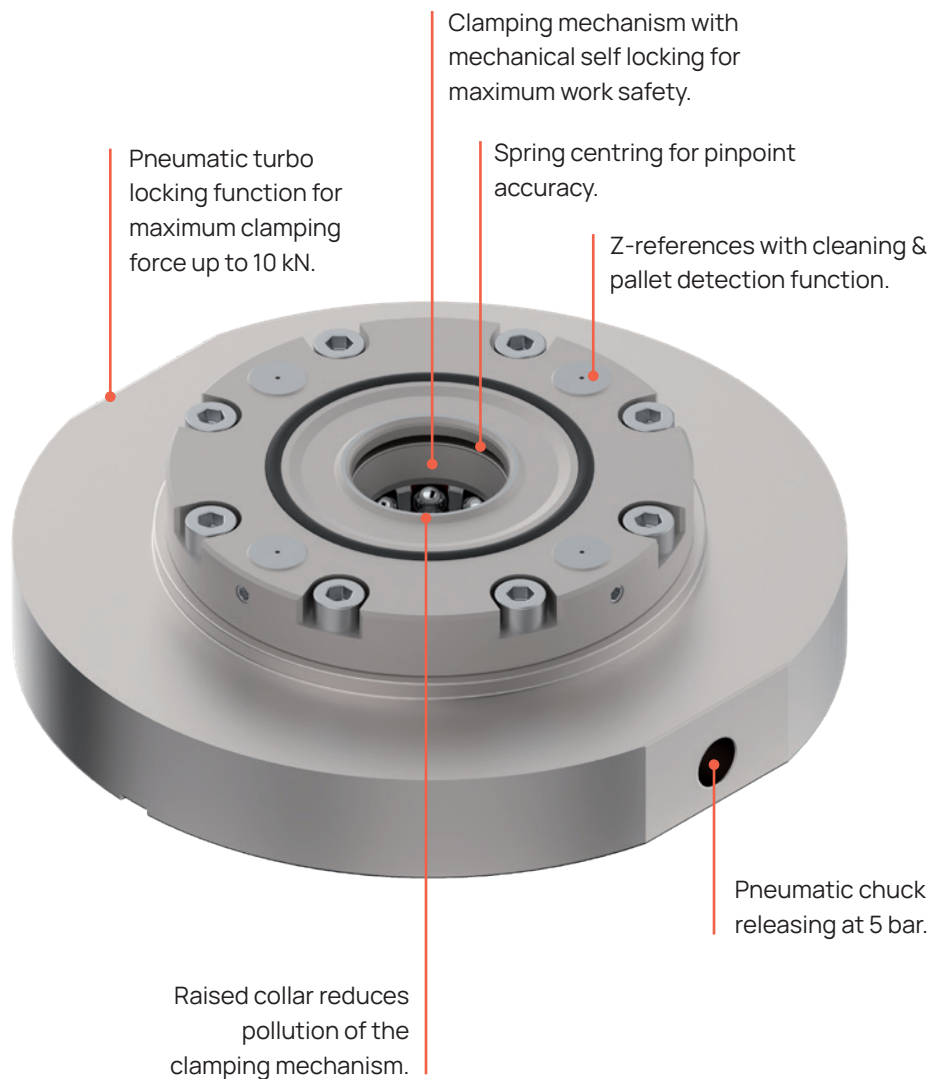
The Delphin clamping system is modular and adapts to your machine
Standardized interface for all machines.

PRODUCTIVITY



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

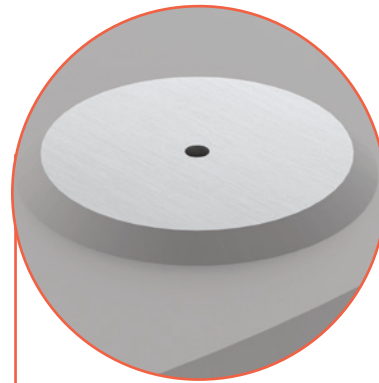
DelphinShort chuck



ADVANTAGES

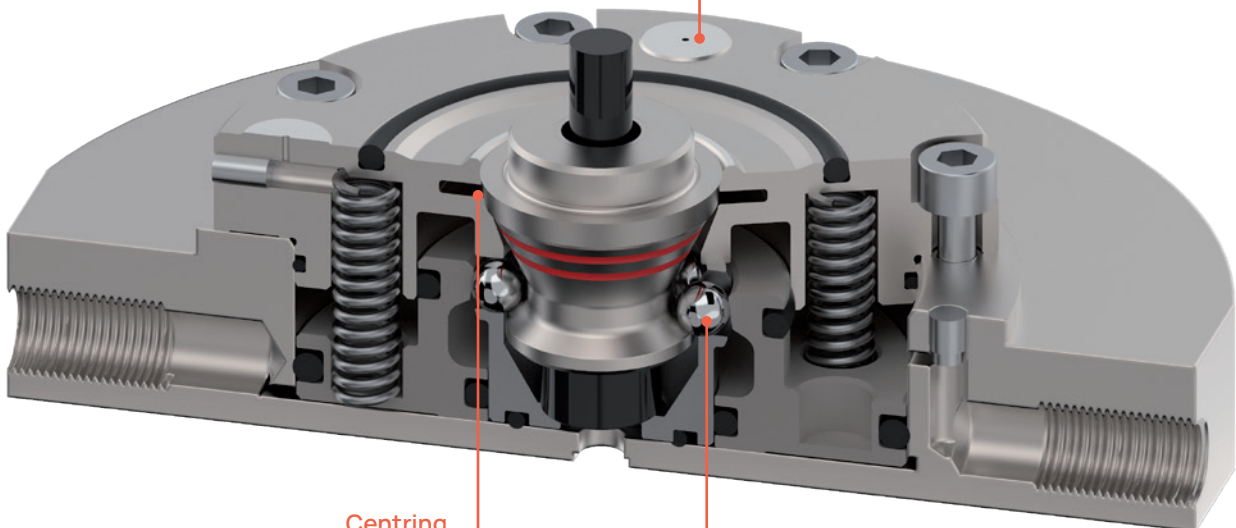
- Very compact design: outer diameter 86 mm, low height
- Stainless steel - mainly to be used in WEDM or in EDM, turning, grinding and milling with limited space
- High clamping force (up to 10 kN with turbo locking)
- Pneumatic opening at 5 bar
- A special designed DelphinShort drawbar is needed. The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

DelphinShort chuck



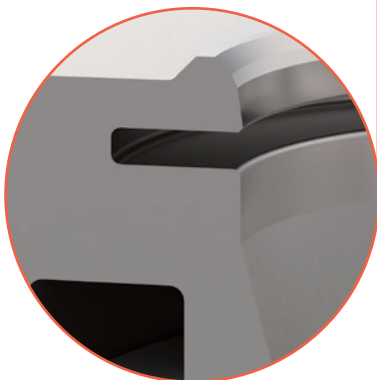
Cleaning of Z-support

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



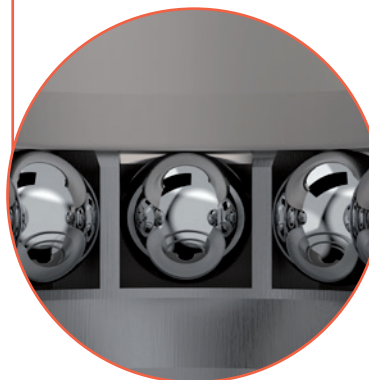
Centring

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.



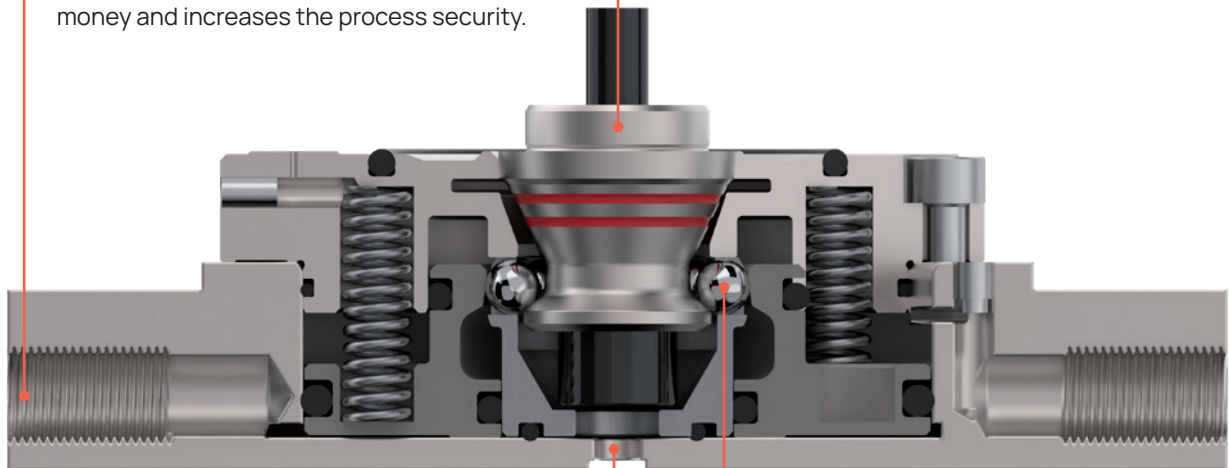
DelphinShort chuck

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.

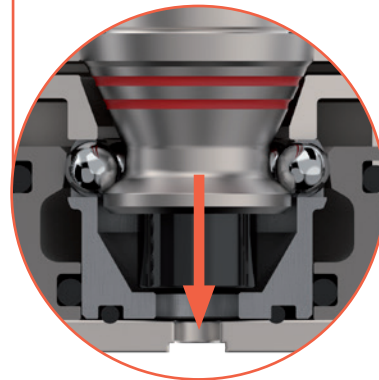
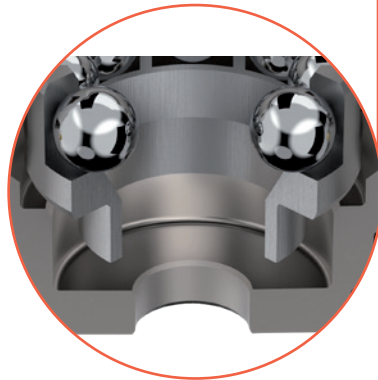


DRAIN HOLE

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.



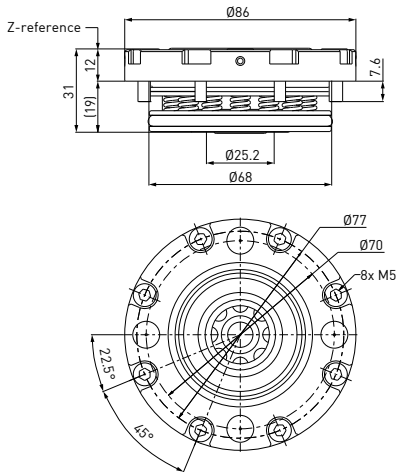
DelphinShort – for automation and manual applications

KEY FACTS

- 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.

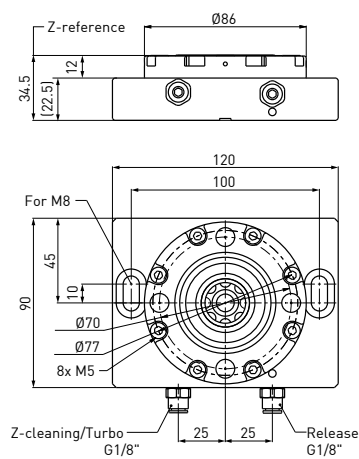
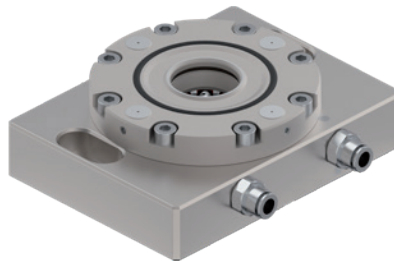
Built-in chuck, DelphinShort,
C225000

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



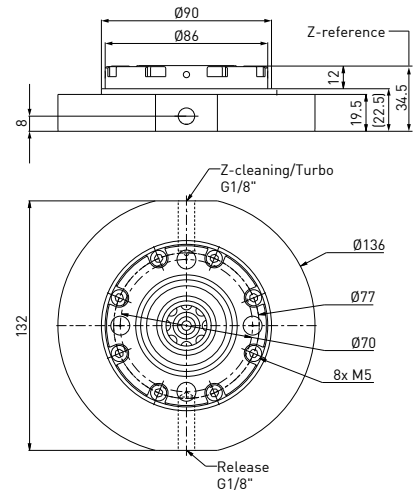
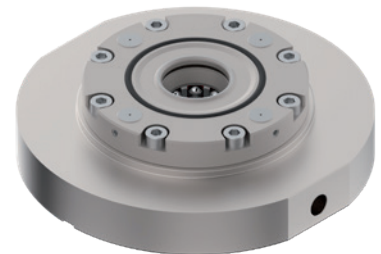
Built-up chuck, DelphinShort,
WEDM flange, C225300

For simple installation on WEDM machine tableframe.



Built-up chuck, DelphinShort,
C225310

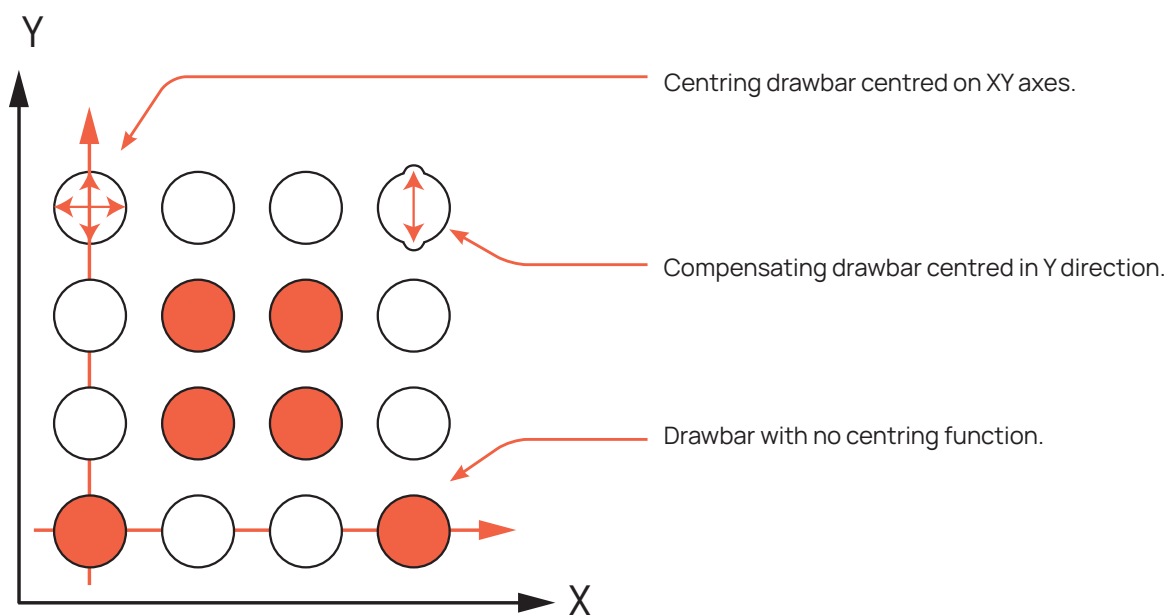
For direct installation on a machine table. Mounting holes to be drilled at installation.



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

DelphinShort Drawbar, centring in 2 axes, C226000

Fixed in WEDM frame or pallet.

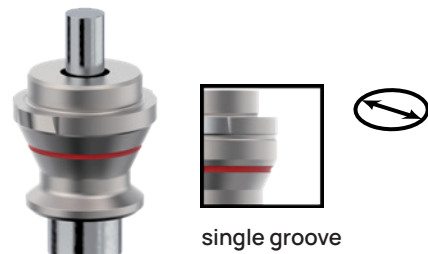
- Material: stainless steel, hardened and ground
- Dimensions, screwed in: $\varnothing 26 \times 27.5$ mm.



DelphinShort Drawbar, 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.



DelphinShort Drawbar – without centring, C226200

Fixed in WEDM frame or pallet.

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

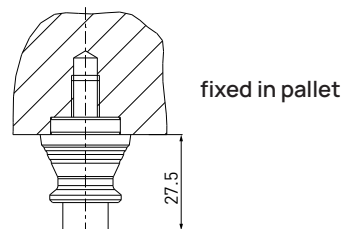
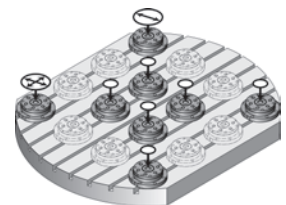


Function of the Delphin drawbars

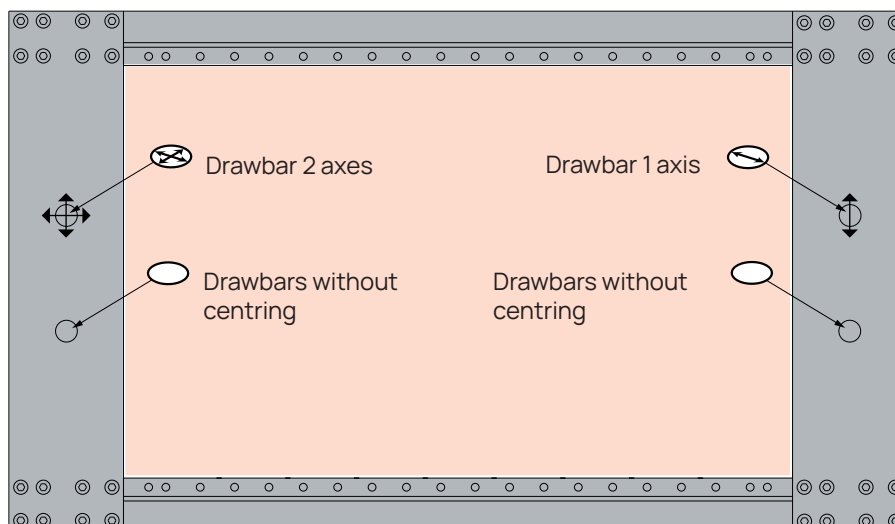
centring on 2 axes

centring on 1 axis

without centring



Drawbar positions in WEDM Frames

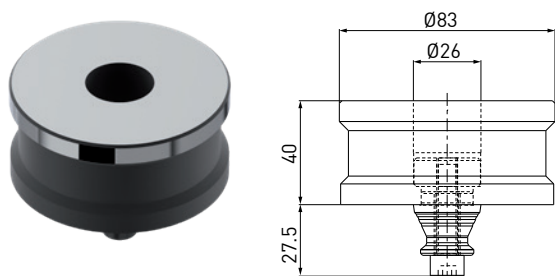


DelphinShort Accessories

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.

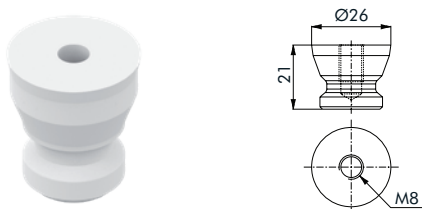
- Fits also for chucks with sealing ring
- Includes drawbar C226000
- Diameter D = 104 mm.



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

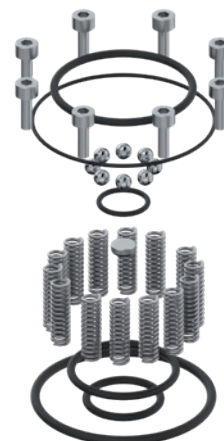
Control unit for individual DelphinShort chucks and WEDM frames with manual operation.

- 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.



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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

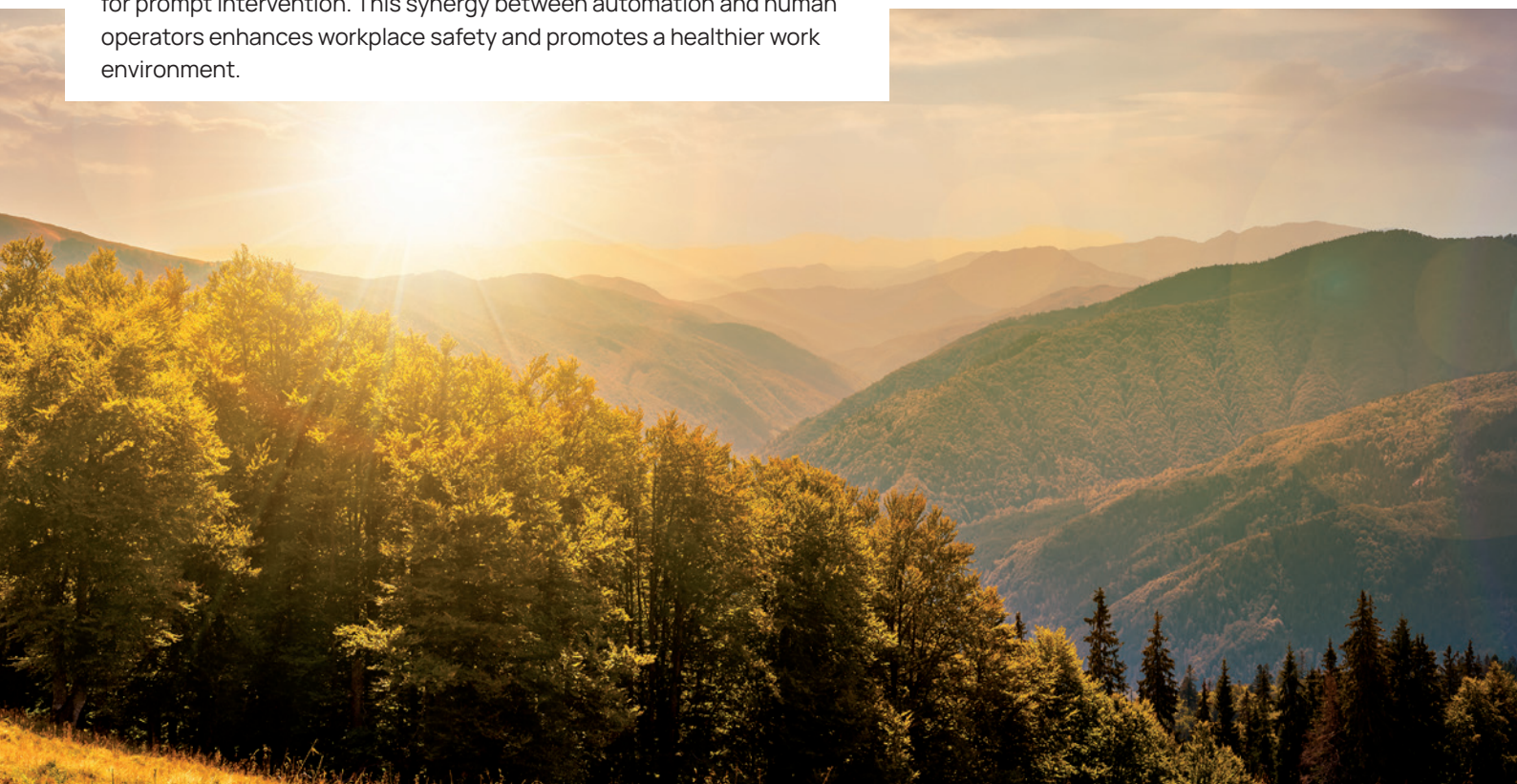
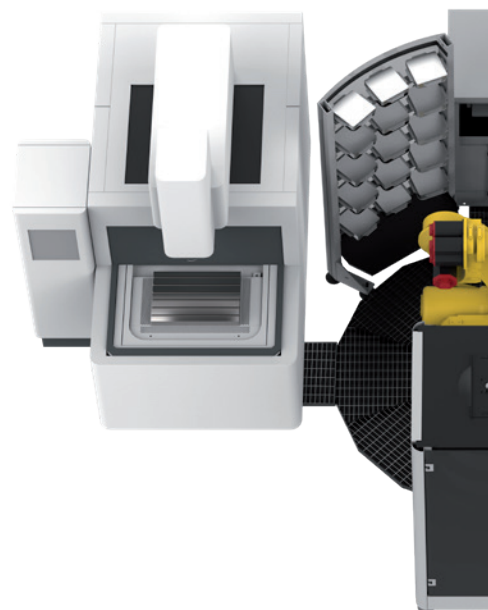
The ease of operation with automated machines in the industry has revolutionized efficiency and productivity. With intuitive interfaces and streamlined processes, workers can quickly adapt and control complex tasks with minimal training. Automated systems eliminate human error and allow for precise execution,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

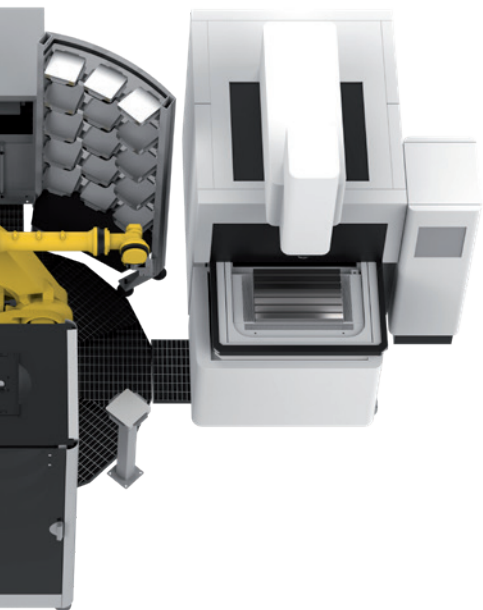
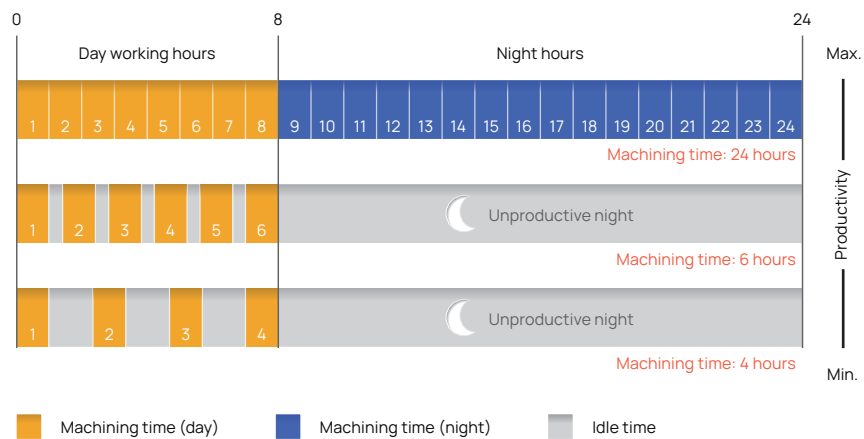
One manned shift – 8 hours
Two more unmanned shifts – 16 hours

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.



Use our Customer Services to optimise your equipment uptime

System 3R's Customer Services department uniquely positioned to help you maximise the availability, value, precision and productivity of your System 3R equipment. Our cost-effective, customer-centric and expert services put your success at the centre, 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 further details, contact your local System 3R dealer.

www.system3r.com