



nuova**simat**
near to you.

2024



GENERAL CATALOG



nuovasimat
near to you.



Sales and Rental

We supply a wide range of dedicated torque bolting, portable machine tools and portable heating systems for sale or rent. Being the first users of this equipment, we can suggest the best solutions of these units.



On-Site Service.

Very often, it is not possible to transport a damaged component to a workshop; therefore, you may need a team of experienced professionals to carry out mechanical machining on-site, whether in a petrochemical plant, or an amusement park. During our 30 years of experience, we have often travelled to construction sites around the world to perform turning, boring, milling, and even equipped ourselves with the latest technological developments such as portable CNC machines and laser measuring equipment.



Research and Development

When the market is unable to respond to customers' needs, we develop a customised technical solution that meets the technical requirements, even going so far as to design and build dedicated machines. Each customised solution is the result of experience, careful design and accurate research of materials. Our R&D is always ready to find the solution to every problem.



EVO

EVO is a brand conceived by **Nuova Simat**.

Over the past **30 years** Nuova Simat has been dealing with Industry-related Site Operations, setting the standard for site machining and industrial assembly. For such reasons, **EVO** was born.

EVO represents the evolution of construction work, through **highly technological** and **customised** solutions, **designed** and **manufactured** by **Nuova Simat**.

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The background is a dark blue, semi-transparent overlay on a photograph of industrial machinery. On the left, a large gear is visible. In the foreground, a red safety tag is attached, featuring a circular hole and the words "LOCK" and "FIRMLY" in raised, red capital letters. On the right, a vertical metal beam and a blurred rectangular component are visible.

BOLTING TOOLS

SQUARE DRIVE HYDRAULIC TORQUE WRENCHES



Availability
Sales | Rental | Service

Overview
Torcup Tu-series hydraulic torque wrenches are equipped with a square drive on which any type of socket can be applied. This bolting tool ensures an accuracy of $\pm 3\%$.

Square Drive
3/4" - 2 1/2"

Torque range
172 - 78625 Nm

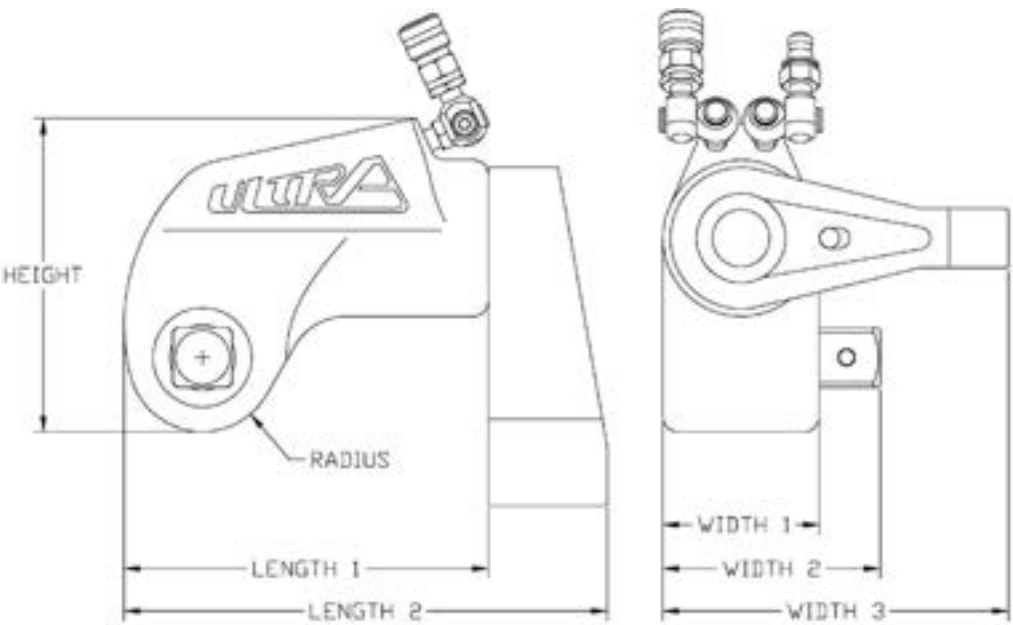
Power supply
Hydraulic pumps

Calibration service
Available

DATA SHEET

MODEL	Square Drive	Min. torque [Nm]	Max. torque [Nm]	Weight [Kg]
TU-2	3/4"	172	1722	2.5
TU-3	1"	447	4514	4.9
TU-5	1 1/2"	745	7457	8.2
TU-7	1 1/2"	1003	10031	8.6
TU-11	1 1/2"	1491	14925	13.1
TU-20	2 1/2"	2630	27964	27.6
TU-27	2 1/2"	3687	36872	31.7
TU-60	2 1/2"	7862	78625	59.8

DIMENSIONS



MODEL	Height [mm]	Length 1 [mm]	Length 2 [mm]	Radius [mm]	Width 1 [mm]	Width 2 [mm]	Width 3 [mm]
TU-2	106.7	122.4	161.0	24.9	50.8	70.9	112.3
TU-3	135.3	162.5	214.1	33.2	66.8	93.5	147.6
TU-5	162.6	200.9	270.7	39.8	79.2	117.8	117.8
TU-7	182.1	224.5	294.1	44.9	91.7	128.5	202.7
TU-11	198.1	248.6	324.8	51.5	100.3	137.9	221.5
TU-20	234.3	239.7	408.9	58.7	123.6	181.7	276.4
TU-27	258.8	312.9	414.8	62.5	133.6	192.3	295.4
TU-60	292.1	390.7	518.2	78.7	167.1	225.8	363.0

ACCESSORIES



LOW PROFILE HYDRAULIC TORQUE WRENCHES



Availability

Sales | Rental | Service

Overview

The Torcup TX series hydraulic torque wrench can fit into even the tightest spaces. When it comes to operating in these conditions, the TX is the right tool, guaranteeing an accuracy of +/- 3%.

Hexagon Size

1/2" (13mm) – 7 7/8" (200mm)

Torque range

61 – 64239 Nm

Power supply

Hydraulic pumps

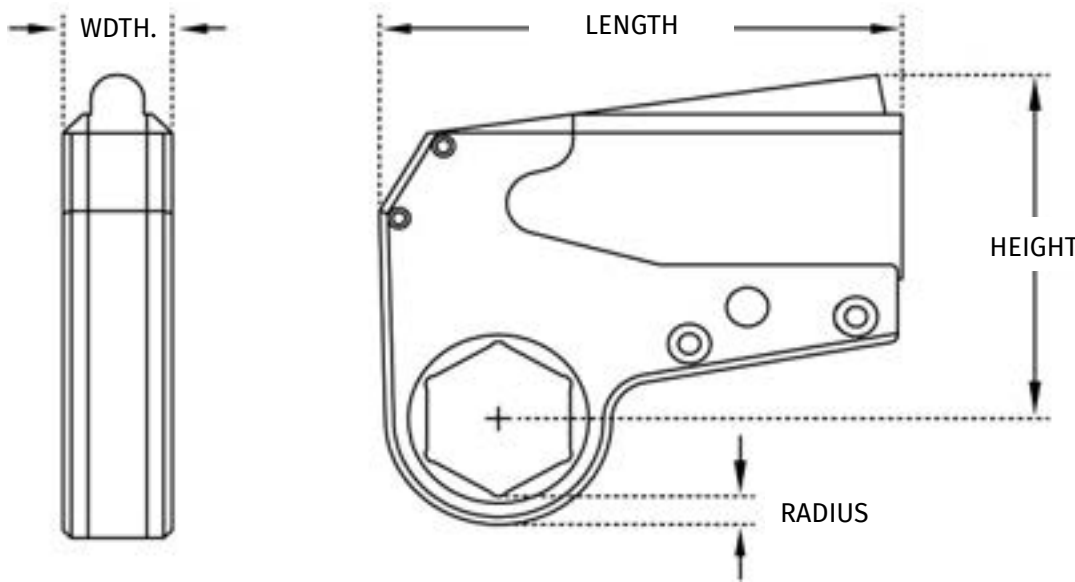
Calibration service

Available

DATA SHEET

MODEL	Min. torque [Nm]	Max. torque [Nm]	Cylinder Weight [Kg]	Link Weight [Kg]	Min. Hexagon A/F	Max. Hexagon A/F
TX-1	61	759	0.5	0.45	1/2" / 13mm	2" / 50mm
TX-2	260	2614	1.6	1.0-1.5	3/4" / 19mm	2 9/16" / 65mm
TX-4	535	5355	2.7	2.4-3.4	1" / 27mm	3 1/8" / 80mm
TX-8	1125	11699	5.0	5.5-6.5	1 7/8" / 49mm	4 5/8" / 120mm
TX-16	2155	22503	7.3	9.5-13.0	2 3/16" / 55mm	5 5/16" / 135mm
TX-32	4365	48327	11.5	13.0-17.9	3 1/8" / 80mm	7 7/8" / 200mm
TX-45	6575	64239	13.0	13.0-17.9	3 1/8" / 80mm	7 7/8" / 200mm

DIMENSIONS



MODEL	Length [mm]	Width [mm]	Min Radius [mm]	Max radius [mm]	Height [mm]
TX-1	111.0	19.8	6.2	11.4	82.6
TX-2	163.8	31.8	9.6	15.0	101.6
TX-4	199.9	41.4	10.5	18.7	142.2
TX-8	258.6	52.1	14.2	21.0	177.8
TX-16	328.4	63.5	17.1	25.9	192.5
TX-32	401.3	82.3	24.3	44.2	241.3
TX-45	425.5	124.0	24.3	44.2	261.1

ACCESSORIES



HYDRAULIC TENSIONERS

DATA SHEET



Availability
Sales | Rental | Service

Overview
Standard tensioners are designed for versatility, covering bolt sizes from 3/4" to 4-1/2" (M20 to M115). Different diameter nuts can be tightened with a single hydraulic cell, simply by changing the adapter kit consisting of threaded puller, bridge and nut-driver. They are operated at a maximum pressure of 1500 bar and are made of high-strength alloy steel parts for long-lasting performance.

Power supply
Hydraulic pumps and manual pumps

Customisation
Available

LOAD CELL	ADAPTER KIT (Imperial)	ADAPTER KIT (Metric)	LOAD [kN]	HYDRAULIC AREA [mm²]	WEIGHT [Kg]
SRT0	3/4" 7/8"	M20 M22	160	1067	1.4
SRT1	1" - 1-1/8"	M24 M27 -	450	1867	2.7
SRT2	1" - 1-1/8" 1-1/4" 1-3/8"	M24 M27 M30 M33 M36	450	3001	4.1
SRT3	1-1/4" 1-3/8" 1-1/2" 1-5/8"	M33 M36 M39 M42	660	4401	5.4
SRT4	1-1/2" 1-5/8" 1-3/4" 1-7/8" 2"	M39 M42 M45 M48 M48	1000	6668	8.4
SRT5	2" 2-1/4" 2-1/4" 2-1/2" 2-1/2" 2-1/2" 2-3/4"	M52 M56 M60 M64 M68 M70 M70	1500	10003	13.8
SRT6	2-3/4" 3" 3-1/4" 3-1/2"	M72 M76 M80 M85 M90	2500	16671	23
SRT7	3-1/2" 3-3/4" 4"	M90 M95 M100	3200	21339	32
SRT8	4" 4-1/4" 4-1/2"	M105 M110 M115	4100	27340	45

HYDRAULIC TORQUE WRENCH PUMPS

Availability

Sales | Rental | Service

Overview

These hydraulic torque wrench pumps are equipped with remote control and a 10 litre tank. Automatic motor shut-off in case of non-use. The adjustable pressure line up to 700 bar and the oil pressure reading on the dual scale pressure gauge allow easy, accurate operation. In addition, the convenient protective frame with support surface allows the pump unit to be protected from accidental impact.

Max operating pressure

700 bar

Power supply

Pneumatic or electric



HYDRAULIC TENSIONERS PUMPS

Availability

Sales | Rental | Service

Overview

These hydraulic tensioners pumps and manual pumps are designed to reach very high pressures. Constructed with the best materials, they guarantee high precision during operation and greater control over bolting with tensioners. Equipped with various tank sizes to cover all application needs.

Max operating pressure

1500 bar

Power supply

Manual, pneumatic or electric



PNEUMATIC TORQUE MULTIPLIERS



Availability

Sales | Rental | Service

Overview

Reliable solution for tightening/loosening bolts and nuts for special applications in various sectors where speed, power, precision and safety are required. Tool for applying large torque values continuously. Each application achieves a repeatable torque with an accuracy of +/- 5%.

Square Drive

3/4" - 1 1/2"

Power supply

Pneumatic

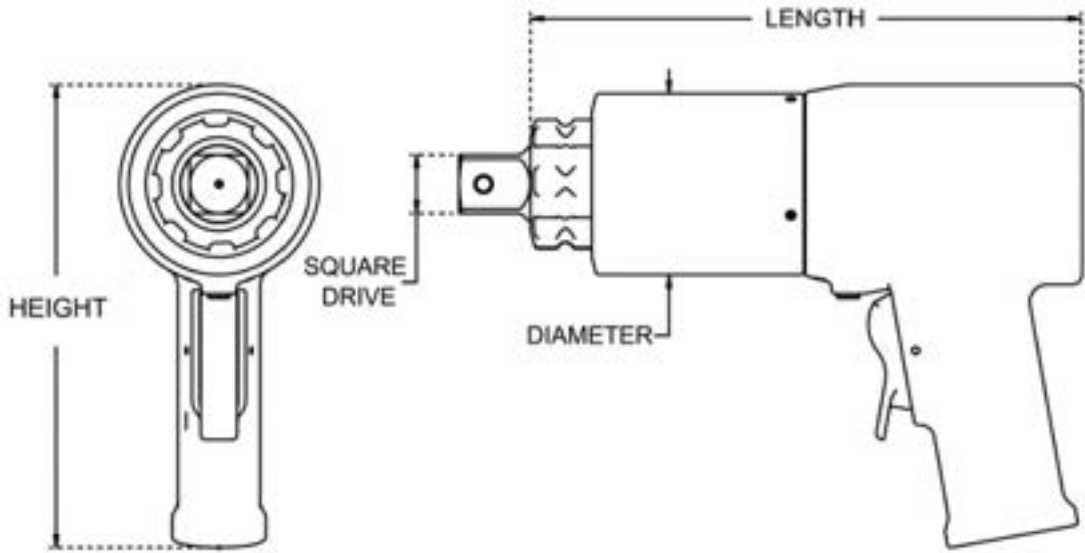
Calibration service

Available

DATA SHEET

MODEL	Square Drive	Max. torque [Nm]	Max. torque [Nm]	Weight [Kg]	RPM @ 10psi
RP 500	3/4"	106	719	4.1	16.5
RP 1000	1"	201	1396	5.4	7
RP 2000	1"	313	2732	7.3	3.5
RP 3000	1"	656	4162	9.1	1.75
RP 6000	1 1/2"	968	8121	16.3	1.25

DIMENSIONS



MODEL	Height [mm]	Square Drive [in]	Length [mm]	Diameter [mm]
RP 500	200.4	3/4"	172.7	65
RP 1000	200.4	1"	225.3	72.4
RP 2000	200.4	1"	238.8	78.5
RP 3000	204.7	1"	295.2	95.3
RP 6000	220.7	1-1/2"	312.9	127.0

ACCESSORIES



BATTERY-POWERED TORQUE MULTIPLIERS



Availability

Sales | Rental | Service

Overview

The VOLTA series is designed to master any application effortlessly. Fully charged in a short period of time, the VOLTA's lithium battery provides enough energy to support hundreds of bolting operations without tubes or cables limiting its range.

Square Drive

3/4" - 1 1/2"

Power supply

Battery

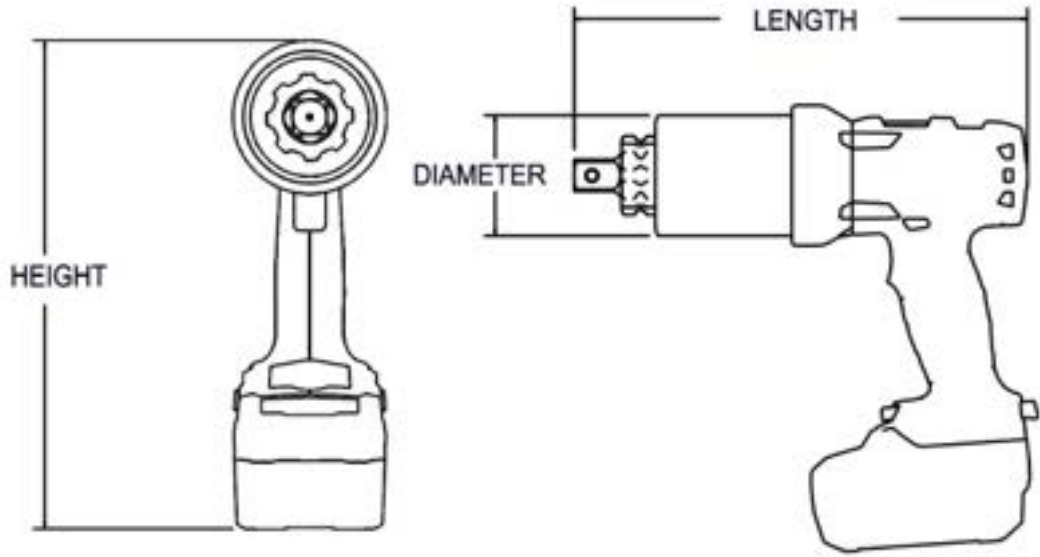
Calibration service

Available

DATA SHEET

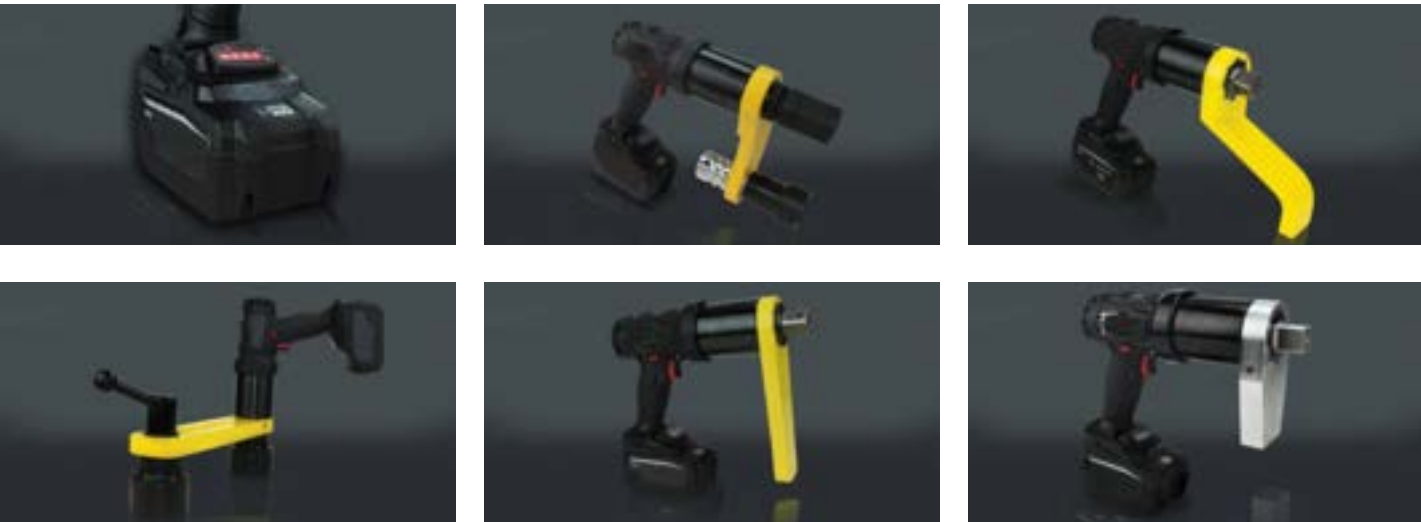
MODEL	Square drive	Min. torque [Nm]	Max. torque [Nm]	Weight [Kg]	Weight with arm & battery [Kg]	RPM @ min. torque	RPM @ max. torque
VTR 250	3/4"	60	250	2.97	4.92	25.75	39
VT 500	3/4"	160	670	3.8	4.7	12	20
VT 1000	1"	330	1350	5.2	6.6	2	8
VT 2000	1"	680	2710	5.9	7.2	1	5
VT 3000	1"	1020	4030	8.9	10.2	0.5	2
VT 6000	1" 1/2	1630	8100	12.5	14.5	0.5	1,5

DIMENSIONS



MODEL	Length [mm]	Height [mm]	Diameter [mm]
VTR 250	235.4	255	63.5
VT 500	225.0	264.2	65.0
VT 1000	278.6	264.2	72.4
VT 2000	290.8	264.2	78.5
VT 3000	354.1	264.2	95.3
VT 6000	377	264.2	126

ACCESSORIES



ELECTRONIC

TORQUE-CONTROLLED MULTIPLIERS



Availability
Sales | Rental | Service

Overview
Latest-generation battery-operated electronic multipliers that make tightening and flange management tasks extremely simple and safe. Thanks to their Industry 4.0 design, they can keep track of all tightening activities performed and can set programmable and customisable work cycles. Equipped with WiFi, Bluetooth, USB and GPS connection, they can be managed directly online through software, smartphone apps and a dedicated control unit capable of managing up to 8 screwdrivers simultaneously. Equipped with an on-board torque transducer, they can verify angle and torque live to completely eliminate the risk of non-compliant tightening.

TYPE: ANGLE TOOL

MODEL	TORQUE RANGE [Nm]	RPM	Weight [kg]	Length [mm]	Diameter [mm]	Square drive [in]
QXX5A45T0180PS12	16-180	110	4.25	264	76.2	3/4"
QXX5A45T0270PS12	54-270	77	4.25	264	76.2	3/4"
QXX2A52T0396PS12	79-395	21	3.54	216	76.2	3/4"
QXX2A52T0594PS12	119-594	14	4.06	216	76.2	3/4"
QXX5A52T0880PS12	1180-880	23	4.60	264	76.2	3/4"
QXX5A72T1080PS16	216-1080	19	5.97	264	76.2	1"
QXX5A72T1620PS16	324-1620	13	5.97	264	76.2	1"

TYPE: PISTOL TOOL

MODEL	TORQUE RANGE [Nm]	RPM	Weight [kg]	Length [mm]	Diameter [mm]	Square drive [in]
QXX5P45T0180PS12	40-200	83	7	390	52	3/4"
QXX5P45T0270PS12	100-500	27	7	393	52	3/4"
QXX2P52T0396PS12	200-1000	15	9.8	422	72	3/4"
QXX2P52T0594PS12	270-1350	11	9.8	423	72	1"
QXX2P52T0880PS12	400-2000	6,8	10.2	457	72	1"
QXX2P72T1080PS16	540-2700	5,5	10.2	430	80	1"
QXX2P72T1620PS16	800-4000	3,3	13.2	480	92	1"

COMPLEMENTARY EQUIPMENT



Manual Torque Multiplier



Manual Torque Wrenches



Pneumatic Impact Tool



Hydraulic Impact Tool

SOCKETS AND ACCESSORIES





PORTABLE HEATING SYSTEMS

HELIOS 35+







Availability
Sales | Rental | Service

Overview
Helios 35+ is a portable magnetic induction heating system designed to perform bolting and shrink fitting operations saving up to the 80% of time with respect to traditional methods (such as electrical resistances, open flames etc.) operating in total safety! Available in 4.0 version as well!



DATA SHEET

POWER	30 KVA
FREQUENCY RANGE	5 - 35 KHz
POWER SUPPLY	380-440V AC-3PH-50Hz/60Hz
ELECTRICAL PLUG	32A 3P+E
WEIGHT	205 Kg
DIMENSIONS	1000 x 830 x H 1000mm
COOLING SYSTEM	 Integrated
FEATURES	 4.3" colour display
	 Power regulation
	 Diagnostics (fault detection system)
CERTIFICATIONS	CE Compliance, 2006/42 EC Machinery Directive, 2014/30 EU Electromagnetic Compatibility

BOLTING STRAIGHT INDUCTORS

For large size bolts / studs removal and installation on gas turbines casings, steam turbines, and other static vessel applications such as heat exchangers. Suitable for hole sizes starting from Ø 9mm up to more than 32mm, and lengths up to more than 1500mm.

SHRINK FITTING RING-SHAPED INDUCTORS

Our induction heater Helios35+, when equipped with ring-shaped inductors, can heat up any cylindrical surface for on-site assembly and disassembly operations. Suitable for diameters up to 600mm and more.



**OPERATION TIME
REDUCED BY 80%**



**NO RISK
OF BURNS INJUIRES**

FAST



SAFE



PATENTED

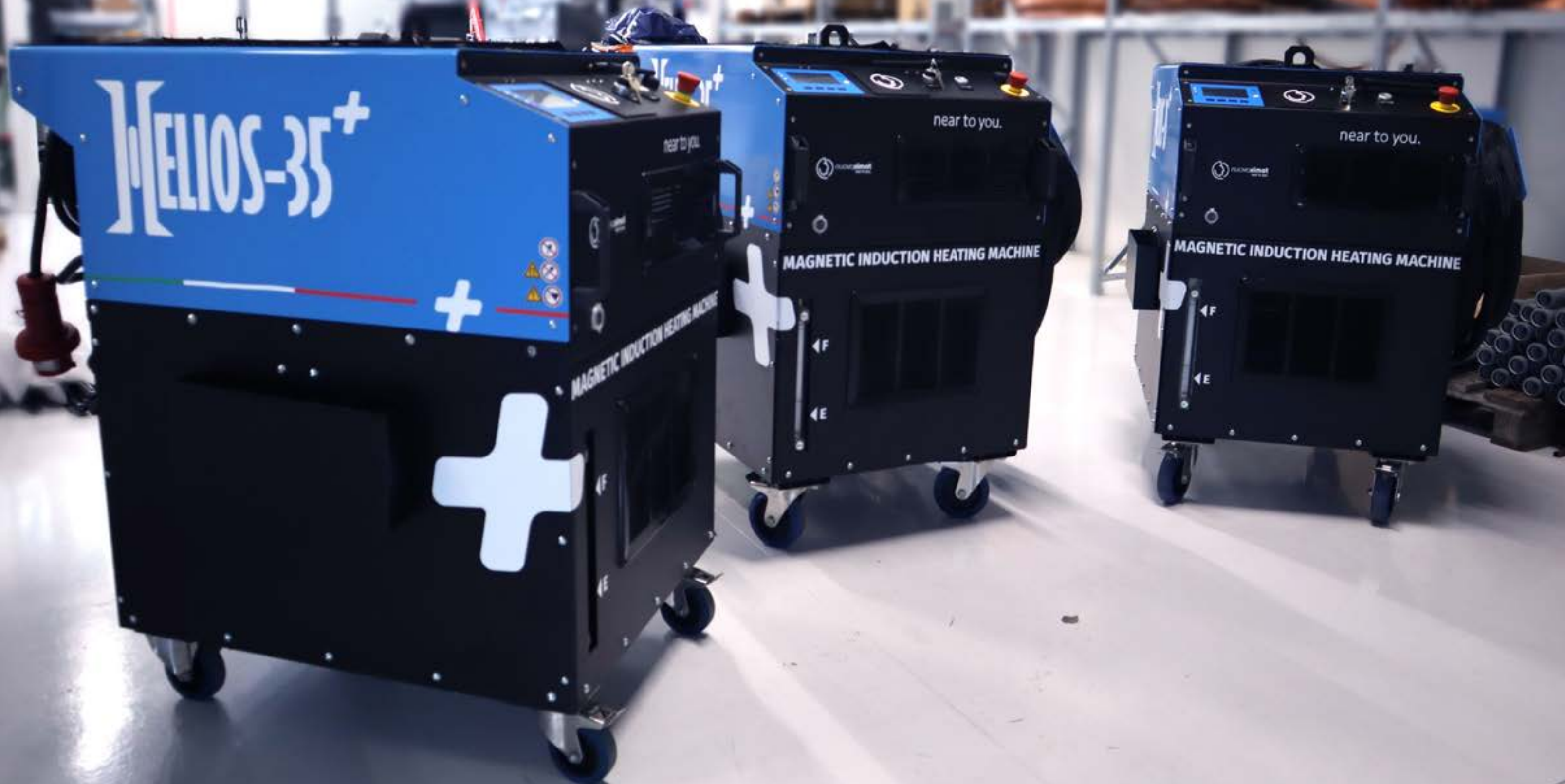


ALL IN ONE



INDUSTRY 4.0





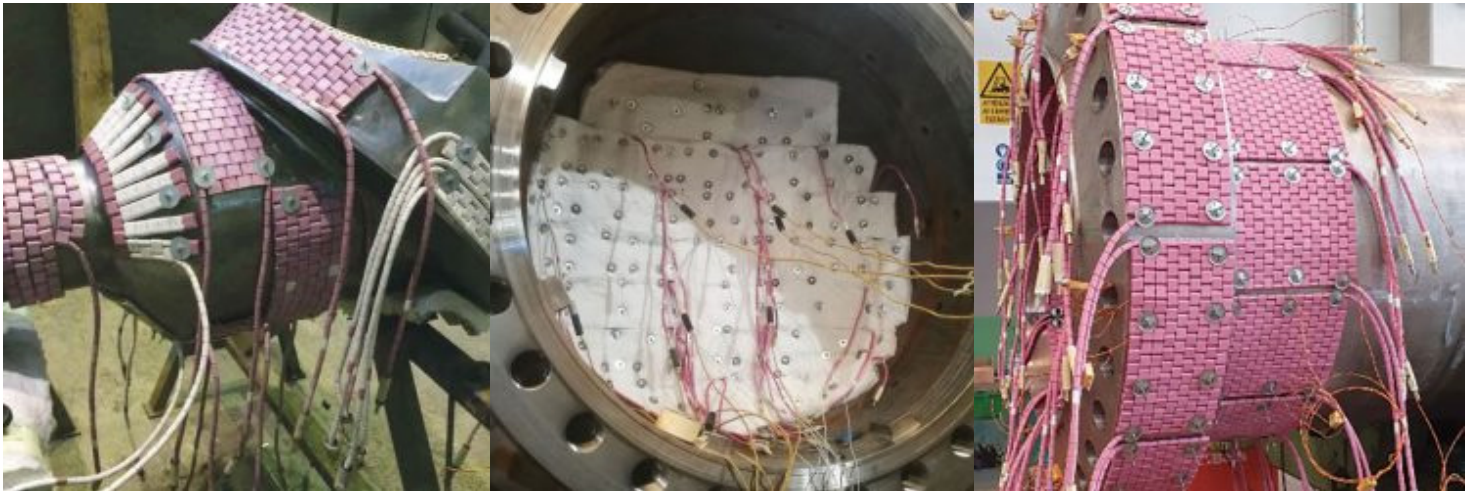
NS-COMPACT



Availability
Sales | Rental | Service

Overview
Our low tension **NS-Compact** heat treatment machines offer a wide range of different powers between 27 and 110KVA and a quantity of independent outputs variable between n° 3, 6 or 12.
The system includes power cables, heating elements, thermocouples, digital recorder and programmer for setting up any kind of heat treatment cycle.

CERAMIC HEATING ELEMENTS



INFRARED PANELS

DATA SHEET

	NS-COMPACT 27/6	NS-COMPACT 55/3-6-12	NS-COMPACT 70/6	NS-COMPACT 80/6	NS-COMPACT 110/6-12
Power [KVA]	27	55	70	80	110
Input current [A]	40	80	100	116	160
Fixed tension [V]	45-90	45-90	32-65	45-90	45-90
Variable tension [V]	0-90	0-90	0-65	0-90	0-90

NS-IHI



Availability

Sales | Rental | Service

Overview

For light-duty applications (removal of rusted or jammed nuts, straightening, pre-heating, brazing, hardening, rail, automotive, car repair, etc.) on a smaller scale, we can offer portable units with reduced power from 1 kW.



PORTABLE HEATING SYSTEMS

INDUCTION BOLTING
SHRINK FITTING
HEAT TREATMENTS





PORTABLE MACHINE TOOLS

FLANGE FACERS



Availability
Sales | Rental | Service

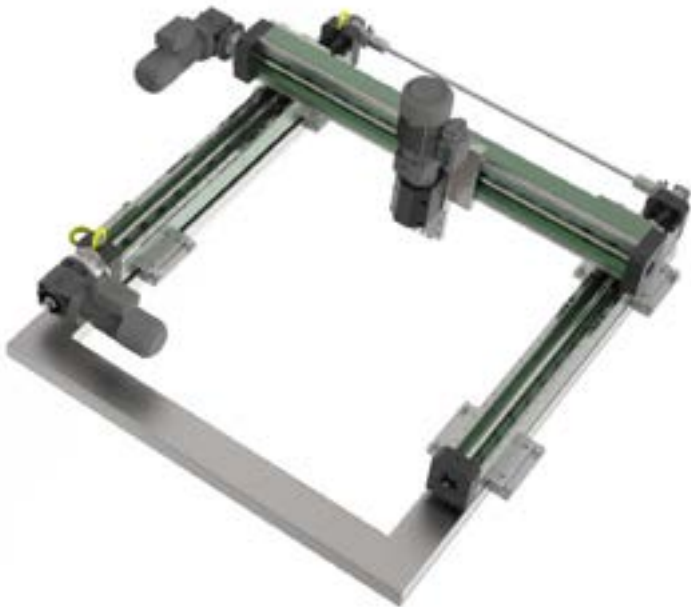
Overview
The Alpha series consists of robust machines that allow flange turning operations. By means of a convenient internal flange mounting, these machines perform numerous machining operations according to the ASME standard and beyond (RTJ, phonographic rifling, etc.).

DATA SHEET*

MODEL	WORKING RANGE [mm]	MOUNTING RANGE [mm]	POWER SUPPLY
MINIFACER ONE	13.5 -350	13.5 -252	Manual
MINIFACER EVO	48 – 466	48 – 610	Manual
ALPHA I-I6	24.5 – 406	25.4 – 406	Pneumatic/Electric
ALPHA 4-28	101 – 773	101 – 726	Pneumatic/Electric
ALPHA 8-40	203 – 1017	203 – 1017	Pneumatic/Electric
ALPHA 15-60	379 – 1514	379 – 1358	Pneumatic/Electric/Hydraulic
ALPHA 30-80	736 – 2139	736 – 2139	Pneumatic/Electric/Hydraulic

* Further working ranges available on request

PORTABLE LINEAR MILLING MACHINES



Availability
Sales | Rental | Service

Overview
The Legacy series machines are incredibly versatile. These precise, robust milling machines are available in 2-axis and 3-axis configurations. CNC models and modular frames are available to extend the working range up to 10m.

Max Stroke
0 – 3000mm

Power supply
Pneumatic, hydraulic, electric

Customisation
Available

DATA SHEET

MODEL	TYPE	MAX STROKE X-axis [mm]	MAX STROKE Y-axis [mm]
Legacy1000	2-axis	1000	nd
Legacy1500	2-axis	1500	nd
Legacy2000	2-axis	2000	nd
Legacy3000	2-axis	3000	nd
Legacy1500y	3-axis	1500	On Request
Legacy2000y	3-axis	2000	On Request
Legacy3000y	3-axis	3000	On Request

PORTABLE LATHES



Availability
Sales | Rental | Service

Overview
The TD series of portable lathes allow precision machining of diameters and sealing surfaces of valves, fittings, cylinders, pumps, turbine housings, etc. They are suitable for use in building sites and workshops, in power plants, for valve maintenance, in the chemical and petrochemical industry, in construction, shipyards, oil fields, etc.

Working range
0-1250mm

Customisation
Available

Power supply
Electrical 230/110 V, 50/60 Hz
Pneumatic 6-7 bar

DATA SHEET

Model	Working Range [mm]	Working depth [mm]	Radial Stroke [mm]	Axial Stroke [mm]	Mounting range [mm]
TD-03	Ø 0 – 150	max. 250	20	100	Ø 80-300
TD-1*	Ø 0 – 400	max. 350	40	120	Ø 330-750
TD-2 *	Ø 0 – 800	max. 600	60	250	Ø 400-1100
TD-3	Ø 400 – 1250	max. 1000	130	600	Ø 780-1780

* Also available in CNC version

BORING MACHINES



Availability
Sales | Rental | Service

Overview
Portable boring machines are multifunctional machine tools: barycentre boring (even on blind holes), internal and external welding, drilling, tapping, orthogonal plane grinding and external cylindrical surface grinding. These units are perfectly suited to the needs of various sectors (earth moving, industrial, naval, etc.), preventing site stoppages. As there is no need to dismantle the part, transport it and machine it in the workshop, there are considerable savings in machining time and costs.

Power supply
Electrical

DATA SHEET

Model	Bar Diameter [mm]	Boring Diameter [mm]	Welding Diameter [mm]	Stroke [mm]	Central Unit Weight [kg]
W Smaller	20	22-70	25-400	Unlimited (Step 80)	12
WS1 Plus	35	22-180	25-250	Unlimited (Step 120)	20
WS2 Compact	40	22-400	25-400	Unlimited (Step 120)	27
WS2	40	22-400	25-400	Unlimited (Step 120)	34
WS2 Plus	50	32-450	25-450	Unlimited (Step 220)	35
WS3	60	42-800	42-800	Unlimited (Step 250)	40
WS5	80	180-1000	100-1000	Unlimited (Step 260)	55
WS7 Plus	100	400-1700	400-1700	Unlimited (Step 260)	105

CLAMSHELL PIPE CUTTERS

DATA SHEET



Availability
Sales | Rental | Service

Overview
The TSFC series is dedicated to cutting and beveling pipes. These portable machines have been designed to perform simultaneous cutting and chamfering, even on significant thicknesses (> 70mm). Applications include all machining dedicated to pipe preparation for welding, such as in the Oil & Gas, Power Generation, Decommissioning, and other sectors.

Power supply
Pneumatic, servo-controlled, or hydraulic

Accessories
Modules for turning, compensators, cutting and chamfering tools, hydraulic power units, etc.

MODEL	Ø MIN-MAX MOUNTING [mm]	Ø MIN-MAX MOUNTING [in]
TSFC6	25-168	1-6"
TSFC8	50-219	2-8"
TSFC12	168-323	6-12"
TSFC16	254-406	10-16"
TSFC18	323-457	12-18"
TSFC20	355-508	14-20"
TSFC24	457-610	18-24"
TSFC30	610-762	24-30"
TSFC36	762-914	30-36"
TSFC42	914-1066	36-42"
TSFC48	1066-1240	42-48"

BEVELING MACHINES



Availability

Sales | Rental | Service

Overview

In manual pipe welding, high-quality beveling and facing are strongly recommended for good results, while in automated welding (orbital welding), such a requirement is technically essential. The compact, optimized design of the machine body ensures extraordinary manoeuvrability for the operator in any situation. This is the solution for optimal preparation for welding pipes and tube sheets for the construction of boilers, furnaces, heat exchangers, piping, and systems.

Range of application

1/2" - 24"

12,5mm - 600mm

Power supply

Pneumatic, electric, hydraulic





VALVE REPAIR AND TESTING EQUIPMENT

VALVA FOR FLAT SEAT VALVES



Availability

Sales | Rental | Service

Overview

Portable machine for grinding and lapping flat sealing surfaces on valves and flanges from DN 8-1600mm (1/4 "-64"). The VALVA series is easy to use, requires only one operator and consists of wear-resistant components, as well as providing excellent performance and high efficiency.

Working range

8-1600mm

Customisation

Available

Power supply

Electrical 230/110 V, 50/60 Hz
Pneumatic 6-7 bar or battery

DATA SHEET

MODEL	Working Range DN [mm]	Standard working depth [mm]	Grinding	Lapping
VALVA-S1	Ø 8-150	250	X	
VALVA-SV1	Ø 20-150	250	X	
VALVA-1	Ø 8-150	250	X	X
VALVA-S15	Ø 80-300	500	X	
VALVA-15	Ø 80-300	500	X	X
VALVA-2	Ø 200-700	800	X	X
VALVA-3	Ø 500-1600	1500	X	X

VSK FOR CONICAL SEAT VALVES



Availability

Sales | Rental | Service

Overview

Portable machine for grinding conical sealing surfaces in all shut-off and control valves from DN 8 to 300mm (1/4 "-12"). Thanks to its low weight it is easy to handle and quick to install (centring cone or 3-jaw chuck).

Working range

For standard sealing angles of 30°, (2x15°), 40° (2x20°), 60° (2x30°), 75° (2x37,5°), 90° (2x45°) (other angles available on request).

Customisation

Available

Power supply

Electrical 230/120 V, 50/60 Hz
Pneumatic 6-7 bar

DATA SHEET

MODEL	Working Range DN [mm]
VSK-1	Ø 8-50
VSK-2	Ø 8-65
VSK-3	Ø 8-100
VSK-4	Ø 80-150
VSK-5	Ø 80-300
VSK-6	Ø 8-150
VSK-7	Ø 8-300

SL FOR GATE VALVES



Availability
Sales | Rental | Service

Overview
Portable machines for grinding and lapping sealing surfaces in gate valves, check valves, wedges from DN 20 to 2000mm, up to a depth of 2200mm. SL units can be equipped with a “swing check” adapter for machining sealing surfaces in non-return valves with a large angle of inclination.

Customisation
Available

Power supply
Electrical 230/110 V, 50/60 Hz
Pneumatic 6-7 bar

HSL FOR HARD MATERIALS



Availability
Sales | Rental | Service

Overview
Portable machine for high-speed grinding of sealing surfaces made of hard materials (hardness $\geq 35\text{HRC}$) in high-pressure gate valves and plugs of various shapes. The HSL series is equipped with planetary wheels with motorised discs coated with CBN cubic boron carbide. Working times reduced by up to 90%! Available as an option for retrofitting on existing SL machines.

Customisation
Available

Power supply
Electrical 230/120 V, 50/60 Hz
Pneumatic 6-7 bar

DATA SHEET

MODEL	Working Range DN [mm]		WORKING DEPTH TT [mm]		
	Standard	Optional up to	Standard	Optional up to	Min. Distance B
SL-05	20-65	80	250	400	15
SL-1	32-150	200	400	600	28
SL-15	40-300	450	600	1200	41
SL-2	200-700	900	1000	1600	69
SL-3	20-65	2000	1200	2200	102

DATA SHEET

MODEL	Working range DN [mm]	Standard working depth [mm]	Optional working depth [MM]	Minimum distance between sealing surfaces [mm]
HSL-15	175-400	800	1200	85
HSL-2	225-600	1000	1600	115

VSA

HIGH-SPEED PRECISION



Availability

Sales | Rental | Service

Overview

High-speed precision grinding machine for machining welds, flat and conical sealing surfaces on in valves, cylinders, pump housings and flanges.

Customisation

Available

Power supply

Pneumatic 6-7 bar

DATA SHEET

MODEL	WORKING RANGE DN [mm]	WORKING DEPTH [mm]
VSA-05	DN 20-150 (¾"-6")	250 (9.8")
VSA-1	DN 50-400 (2"-16")	650 (25.6")
VSA-2	DN 250-800 (10"-32")	1000 (39.4")
VSA-3	DN 500-1500 (20"-59")	1500 (59")

TSV

FOR SAFETY VALVES



Availability

Sales | Rental | Service

Overview

Portable grinding and lapping with eccentric movement superimposed on the main rotation: thanks to this combination, an excellent surface finish in sealing surfaces in safety valves can be achieved. Suitable for use on site and in the workshop.

Customisation

Available

Power supply

Electric 230/120 V, 50/60Hz (TSV-300 only)
Pneumatic 6-7 bar

DATA SHEET

MODEL	RANGE DN [mm]	WORKING DEPTH [mm]	MOUNTING RANGE [mm]
TSV-150	15-150	350	85-450
TSV-300	25-300	350	85-450

MK ADAPTERS



Availability

Sales | Rental

Overview

The MK adapter makes it possible to use the VALVA and SL grinder series tools with stationary benchtop machines (e.g. pillar drills).

Working range

DN max: 1600mm (64")

DATA SHEET

MODEL	WORKING RANGE DN [mm]	WORKING DEPTH [mm]
MK-2	DN 08-300	220
MK-3	DN 40-700	284
MK-5	DN 500-2000	455

VALVE TEST BENCHES



Availability

Sales

Overview

Valve test benches are used when it is necessary to test shut-off and control valves, butterfly valves, gate valves, safety valves, etc. Since valves are often exposed to very high loads in practice, they must not only function perfectly but must also be subjected to high load tests before they can be used in practice. Thus test benches fulfil important functions by checking and ensuring the operational safety and perfect functionality of the various valve types. The valves to be tested are securely fixed to the test bench and are pressurised using liquid or gaseous media.

Max. testing pressure

Water up to 1380bar
Air/nitrogen up to 400bar
Higher pressures on request

Customisation

Available

Standard range

N 3/8" - 40"

The background is a dark blue, blurred image of a hydraulic cylinder, showing its curved surface and some internal components.

HYDRAULIC CYLINDERS

HYDRAULIC CYLINDERS

AND ACCESSORIES

ACCESSORIES



Availability

Sales | Rental

Overview

Hydraulic cylinders and accessories to create any type of hydraulic system ensuring safety and efficiency

Models

Single-acting - Double-acting - Hollow plunger - With ring nut - Pull - Pancake - High tonnage - Telescopic

Operating pressure

700 bar

Power supply

Manual pumps or hydraulic pumps



ON-SITE SERVICE

STANDARD ACTIVITIES

LASER TRACKING MEASUREMENTS

Laser trackers are **high-tech measuring systems** developed to check dimensions and tolerances. The system is equipped with **CAD software**, connected in **real time**, to perform any kind of geometric control. Instruments is composed of powered **central laser unit** and **spherical probe** with **calibrated mirrors** which allow to measure a surface by probe touching and, in a very short time, viewing details on CAD system connected. Its high precision allows **check of dimension and tolerances in a wide range of mechanical applications**, or to support the assembly and setup stage of portable machine tools.

WORKING RANGE

- Up to 80 metres from the laser emitter (precision related to distance).

SPECIAL ADD-ONS & CUSTOMISATION

- **Comparison** between nominal **3D drawing** and actual measurement.
- Procedure to **check alignment** of turbomachinery casings and rotating parts.
- Possibility of **assisting portable machine tools during set-up** and **verification of machining results**.
- Available for several type of probe and anchoring system to suit the Customer's project requirements.



MEASURING BY CMM ARM AND LASER SCANNING

Measuring arms with touch probes are **high-tech portable measuring systems (CMM, Coordinate Measuring Machine)** developed to **check dimensions and tolerances in 3D**. The system is equipped with **CAD software** connected in **real time** with instrument to perform any kind of geometric control.

Laser scanning head, included in the features of instrument, allows to check parts with complex shape and save a wide **cloud of points** to model the part in 3D drawings.

Its high precision allows check of dimension and tolerances in a wide range of mechanical applications, or to support the assembly and setup stage of portable machine tools.

WORKING RANGE

- 2,5 metre radius work volume around the base of the arm, extendable via a **station change procedure**.

SPECIAL ADD-ONS & CUSTOMISATION

- **Scanner head** for laser scanning measurements of **complex surfaces and/or suitable for REVERSE ENGINEERING** tasks.
- **3D comparison** between nominal drawing and actual measurement.
- Procedure to **check alignment** of turbomachinery casings and rotating parts.
- Possibility of **assisting portable machine tools during set-up** and **verification of machining results**.
- Available **anchoring system** adapted to the Customer's project requirements.
- Available for **several type of probe and anchoring system** to suit the Customer's project requirements.



BORING

On-site boring is performed by a cutting bit rotating around the part to be machined.

The boring units are **available in different types** (cantilever boring bar, or line boring bar supported by bearings on both sides), to be applied according to the technical details of the part to be machined and the required result.

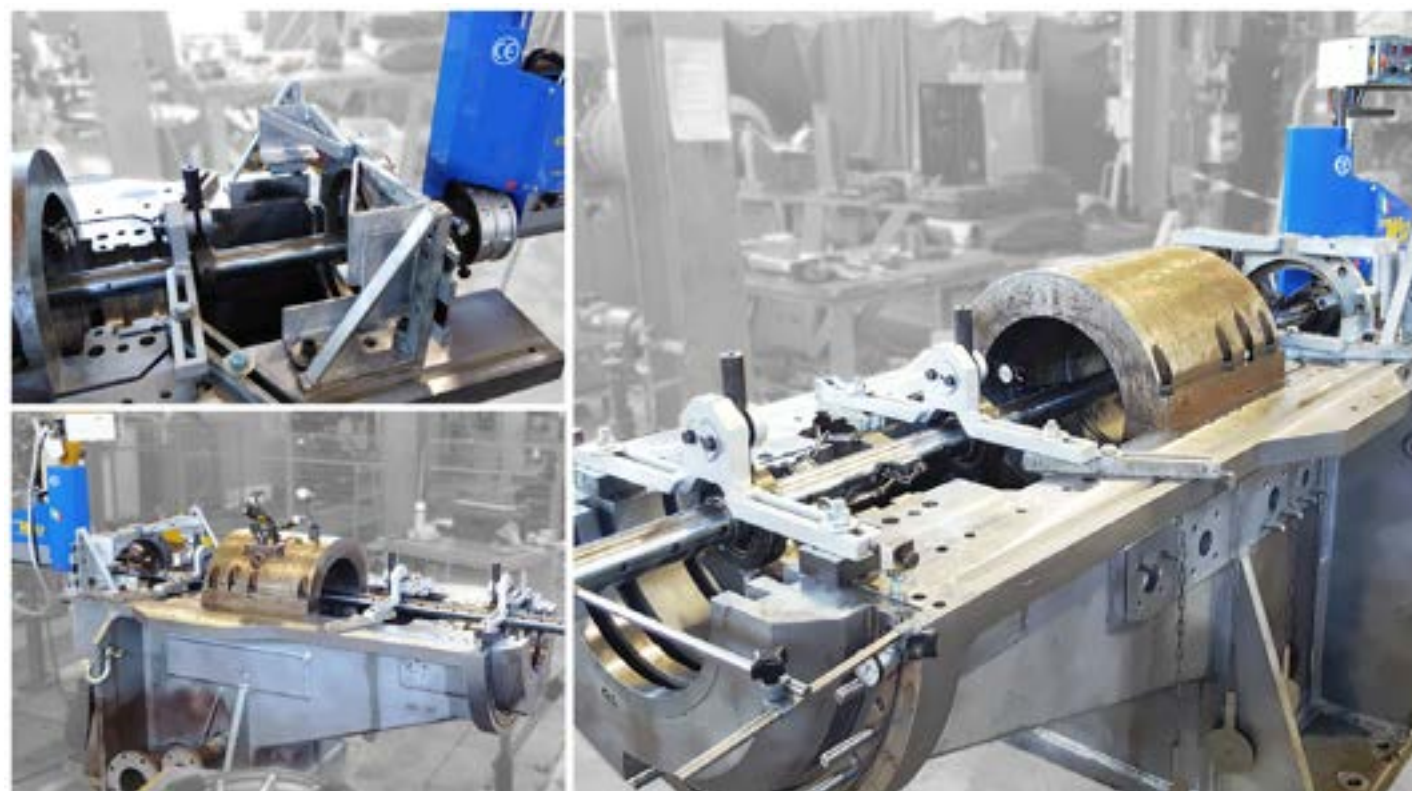
One of purpose of line boring is to **perform more machining processes in the same machine positioning**, resulting in perfectly aligned surfaces (bearing seats, other surfaces in general).

WORKING RANGE

- **up to Ø1800** with in-line boring units; extendable lengths via connectable bars (over 10 metres);
- **up to Ø800** with cantilever boring units.

SPECIAL ADD-ONS & CUSTOMISATION

- **CNC boring unit available** to generate complex profiles (toroidal and conical shapes, any type of thread, RTJ grooves, etc.) and G-code programmable.
- Possibility of carrying out semi-automatic cylindrical welding overlay by “twin unit” swappable on same centring setup.
- Possibility to assist portable machine tools by applying of suitable high tech measuring system, for check of initial surfaces condition, machine set-up and verification of results.



MILLING

We are user of a wide range of portable milling machines to restore different types of flat surfaces or groove surfaces (and similar ones).

2 types of milling can be performed:

- **Linear:** by means of milling rails
- **Orbital:** by means of a facing unit equipped with a milling head drive.

Surface finishing result will comply with the requirements of the technical drawing of the component and can be improved by the use of a grinding head.

WORKING RANGE

- **Linear milling:** up to 6000mm in continuous milling
- **Orbital:** up to Ø3000 (120 inches)

SPECIAL ADD-ONS & CUSTOMISATION

- If required, it is **possible to apply a high tech measurement system** to check dimension or tolerances preliminarily, during and after the milling process.
- **Gantry configuration** (cartesian portal) available for wide surfaces milling and grinding head to achieve low values of surface roughness.
- Available **customized anchoring systems** adapted to the Customer's project requirements.
- Any application covering **greater distances or special profiles**, or other special conditions can be **analysed by our R&D Department** for feasibility.



DRILLING AND TAPPING

We perform **drilling** and **tapping** of new holes and existing ones that need to be repaired, or other technical changes. Holes can be machined by conventional drilling and tapping units, or by boring units, depending on size, work conditions and type of result to be achieved.

Drilling and **tapping** units can work in any position, including **overhead**, and on **any kind of surface, flat or curved**.

WORKING RANGE

- **Drilling: up to Ø150 (6 inches)** by standard drilling machines; oversize by boring unit (combined to std. drilling ones)
- **Tapping: up to Ø185 (7.1¼ inches)** by standard drilling and tapping units; over size by NC boring unit

SPECIAL ADD-ONS & CUSTOMISATION

- Available **any type of thread shape** by NC portable boring unit.
- Another peculiarity of drilling is the possibility to perform it in **any position and orientation**, with reference to the surfaces or axis defined by the design drawing.
- If required, **we apply a high tech measurement system** to check the position of hole center and carry out its relevant marking, with reference to surface/axis as per drawing quotation.
- **Customized drilling templates** to localize and realize machining in correct position.
- **Customized solutions available** to face long distances between the machine and the surface, oversizing of holes, particular position of hole center, etc.



FLANGE FACING

The most common types of flanges are **RF (Raised face)** type with **phonographic groove**, **RTJ (Ring Type Joint)** with trapezoidal section **circular groove**, **FF (Flat Face)** type with several surfaces finishes, flanges with **groove for O-Ring seal** and so on. In each type mentioned above, a particular machining for levelling and profiling of the sealing area is required to assure performance of the proper gasket.

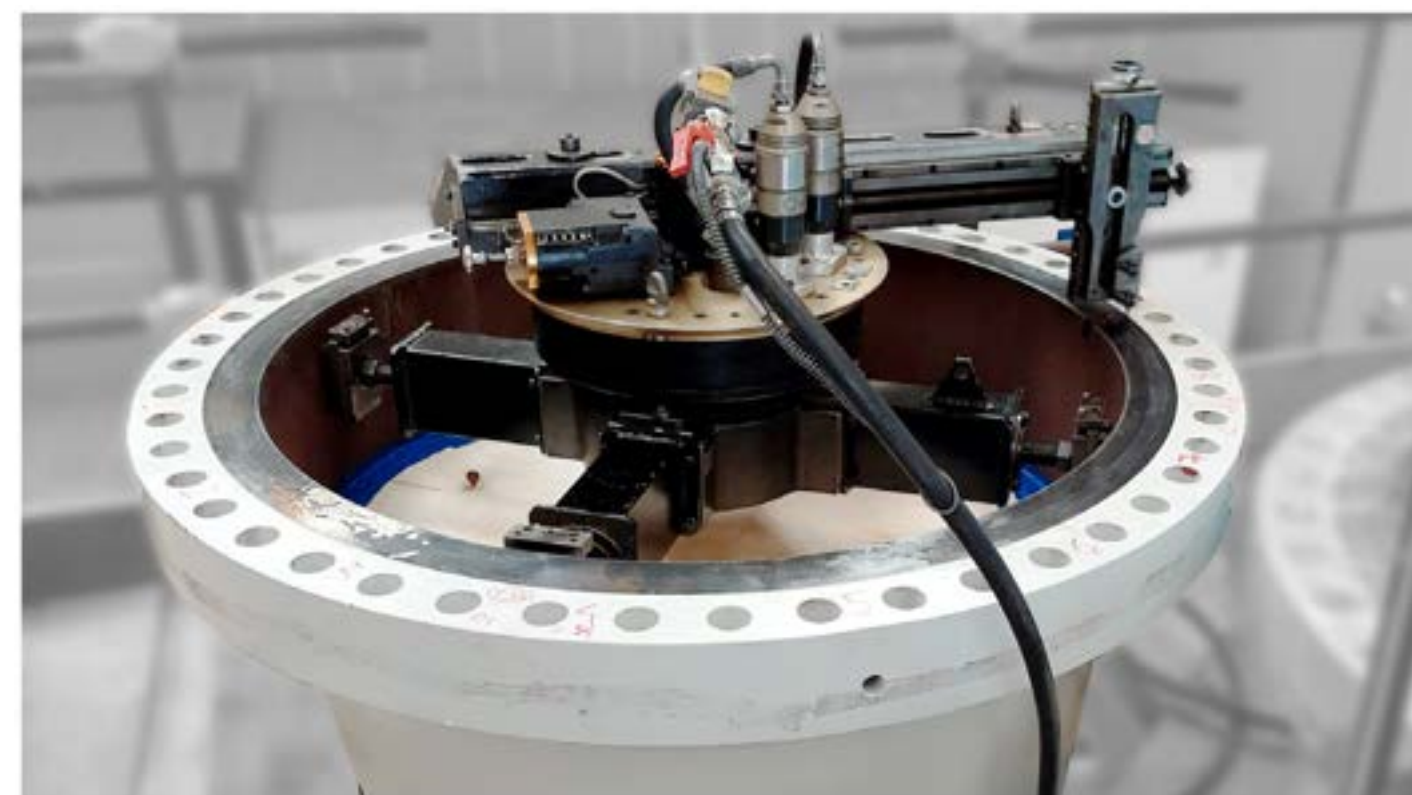
Flange facing machines are designed to **achieve the best result in terms of quality of surfaces and time savings** for repairing damaged flanges connected to its pipe, vessel, shell, etc.

WORKING RANGE

- **Up to Ø3000 (120 inches)** in facing mode
- **Any kind of phonographic groove** available according ASME Standards.

SPECIAL ADD-ONS & CUSTOMISATION

- **Available external clamping machine** to work on flange with central hole not accessible and **back face clamping machine** to work on flange in overhead position
- Possibility of **orbital milling** for flanges with smooth surfaces and various profiles required.
- Machines equipped by boring tool post for axial machining.
- **Available customisation** for anchoring/machining by dedicated tooling for over range or special conditions.



GRINDING AND LAPPING

Machining performed to achieve **smooth, accurate surfaces** for different applications on mechanical parts such as **ROTATING DRUMS, brushes slip rings on generator rotors (and similar applications), valve seats** (flat, conical, etc.), gaskets seats, flat and cylindrical surfaces, or in general, surfaces which require very low roughness in term of Ra (or AARH).

WORKING RANGE

- Different for any kind of application and to be defined matching dimension and roughness.
- **No limit of diameter** on rotating drums and similar.

SPECIAL ADD-ONS & CUSTOMISATION

- **Available engineering of dedicated solution** for anchoring and machining, according to project technical requirement.
- Internal cylindrical grinding.
- Special application for **repair of control valve seats on steam turbines**, by using of **CNC technology**.



PIPE CUTTING AND BEVELLING

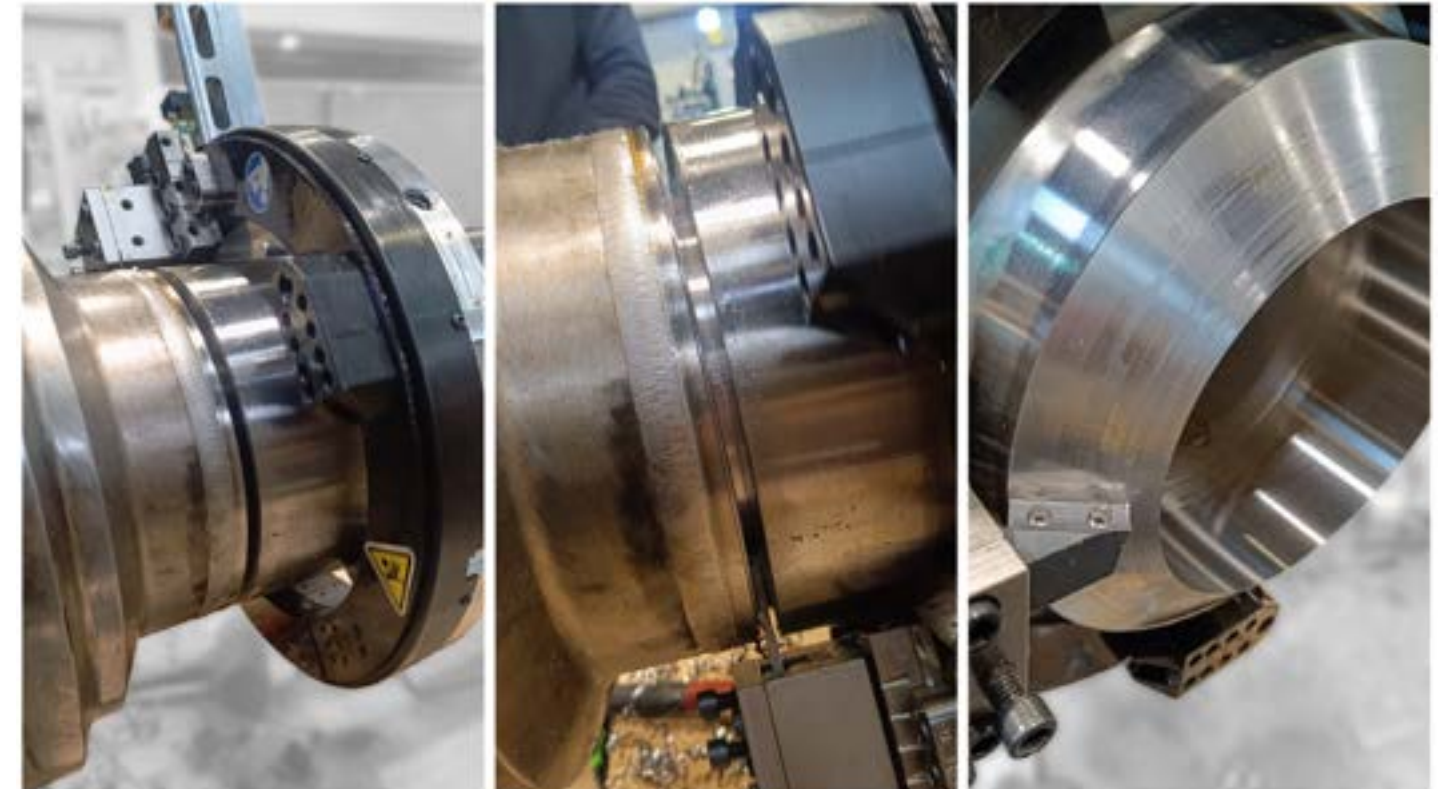
Wide range of portable **pipe cutting** and **beveling machines**, suitable for **working on different types of pipes**. Possibility of **anchoring the machine on the inner side of the pipe end or on the outer surface**, useful, in particular, on continuous pipes without free ends, by means of a **splittable clamshell ring type**.

WORKING RANGE

- **Up to 3000 mm (120 inches)**

SPECIAL ADD-ONS & CUSTOMISATION

- In order to achieve several results in terms of profiles and/or work conditions, add-ons features can be applied to face **large thicknesses, hard materials, special beveling profiles** and so on.
- **Available special tool** for local boring on the pipe end.



The background of the image is a dark, blue-tinted photograph. On the left side, there is a close-up of a metal plate with a circular hole and a bolt. On the right side, there is a pile of metal shavings or chips. The overall image has a dark, industrial feel.

ON-SITE SERVICE

SERVICE PACK

SEIZED STUD BOLTS REMOVAL BY SPARK EROSION (EDM)

The typical problem of any kind of mechanical junctions with seized stud bolts can be solved only by destroying the stud, without any damage to threaded hole.

Destruction can be carried out by **Spark Erosion (EDM, Electric Discharge Machining)** instead of mechanical progressive drilling which takes at least five times longer.

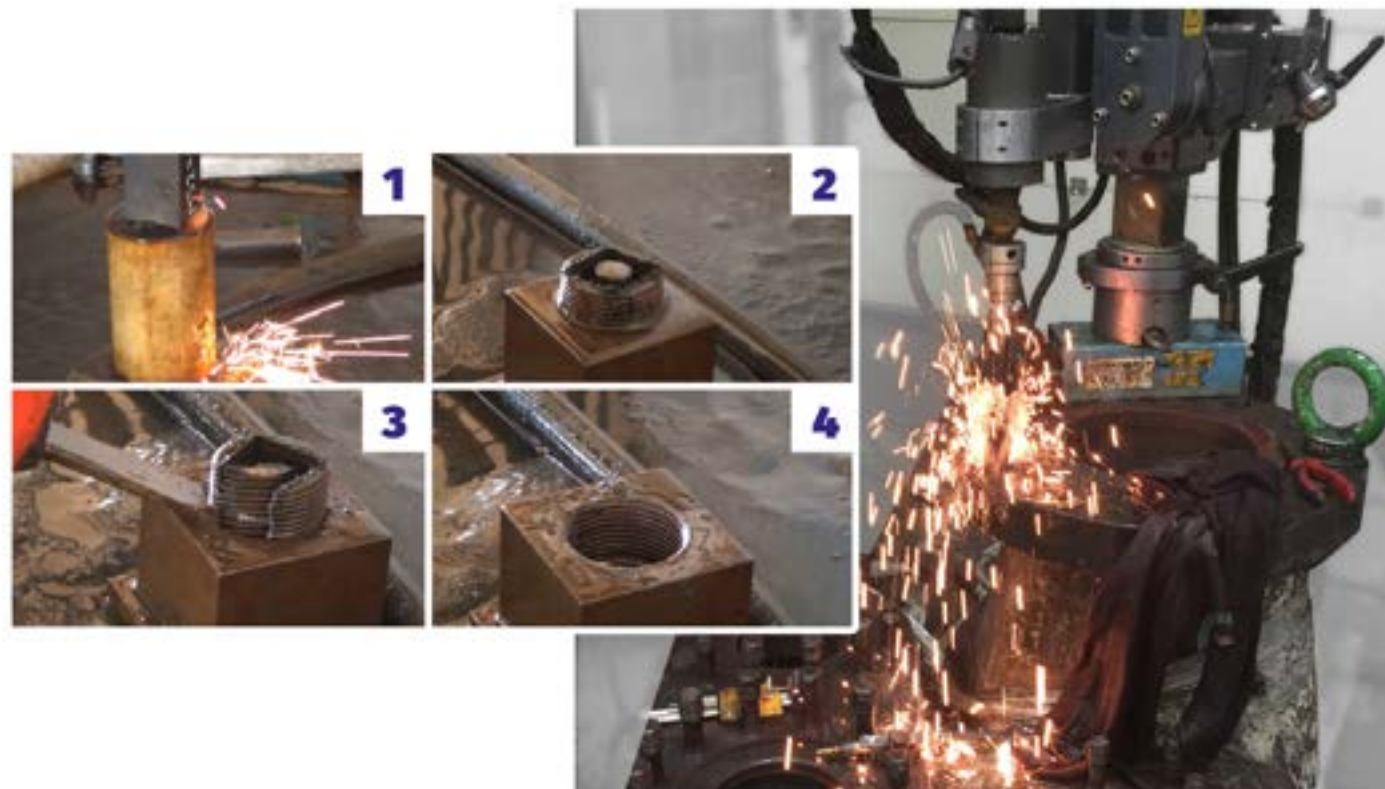
The activity is available to work on any kind of part seized inside its housing, such as keys, pins, dowels, etc. Typical applications of EDM are on steam turbine casings, valve bodies, power couplings, presses, etc.

WORKING RANGE

- This process can be performed in **any position** (included overhead), **without limits on size by progressive erosions**.

SPECIAL ADD-ONS & CUSTOMISATION

- **Several shapes of electrodes available for any kind of destruction** (shape of cut, dimension, etc.), to be carried out in the shortest amount of time.
- **Automatic feeding** applied to reach **high precision** and **low execution time**.
- Solutions available for anchoring/positioning system to match machinery part configuration which requires erosion.



GAS TURBINE CASING ALIGNMENT AND DOWELLING

A critical activity during maintenance of GT (specially in case of casings change) is the checking of the alignment of lower casings, from inlet to exhaust, to evaluate the movement of elements to the correct position and, if needed, re-doweling with new dowels (by boring to diameter greater than original, or the creation of new holes in a different position).

Activity is carried out by mean of **Laser Tracker unit, connected CAD workstation and specific procedure of alignment**, which it's realized in collaboration with Customer.

The **Nuova Simat Engineering Team** provides **supervision of all operations staff** and draw up technical report of each verification step.

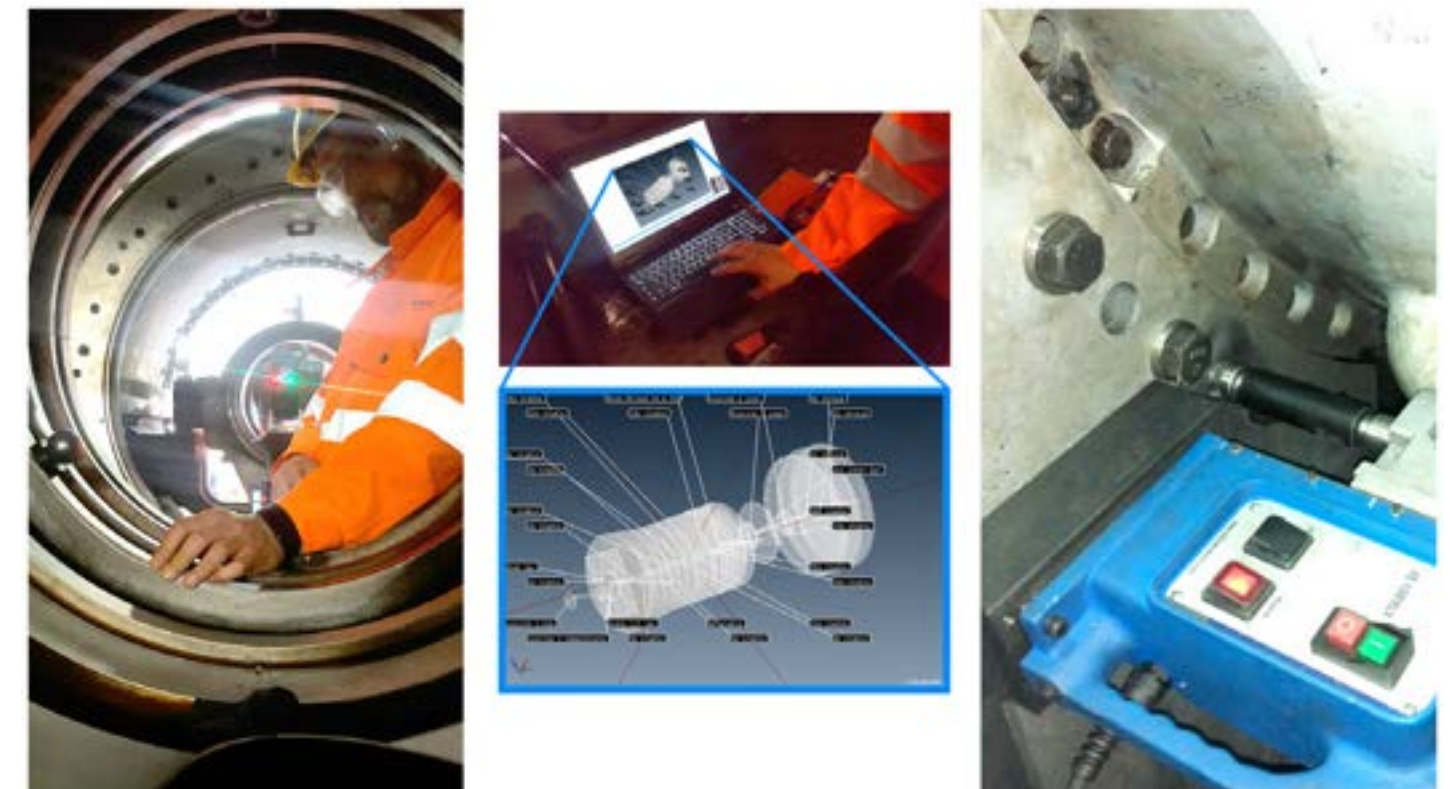
Measurement results are also available in **real time** to provide details of required movements of casing to achieve alignment. The main effect of this feature is great time savings in terms of alignment compared to old/traditional methods (harmonic wires, comparator gauges, boring bars, etc.).

WORKING RANGE

- **No limit**, activity possible on any model of GT or other similar machines which requires alignment between any part for the correct working.

SPECIAL ADD-ONS & CUSTOMISATION

- **Any alignment** check requires **high customisation** of support tools for instrument assembly and technical procedure (released by Customer Engineering Dpt. and agreed with Operation Team).



STEAM TURBINES CONTROL VALVES SEAT REPAIR

This service pack is intended for any End User, Overhaul Service Provider, or OEM of steam turbines needing to **repair control valves with toroidal seat included in valve body** (therefore not removable).

The activities are carried out using an **advanced NC boring unit** and an orbital welding machine ("twin set" solution to facilitate swapping between the two machines without losing center referred to valve axis). The repair procedure, in full version, includes the following steps:

- **Stripping:** Removal of the damaged overlay material (sometimes including the entire overlaid ring and HAZ, Heat Affected Zone).
- **Welding:** Welding of new base material and/or overlay material (hard materials such as Inconel, Stellite, etc.).
- **Shaping:** Machining of the welded overlay to reach the nominal profile. If necessary, the highest level of finishing can be achieved by lapping (usually NC boring unit ensures 100% contact by "blue check").

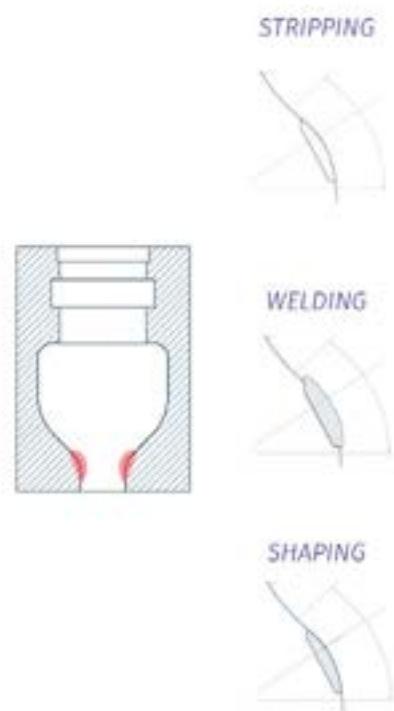
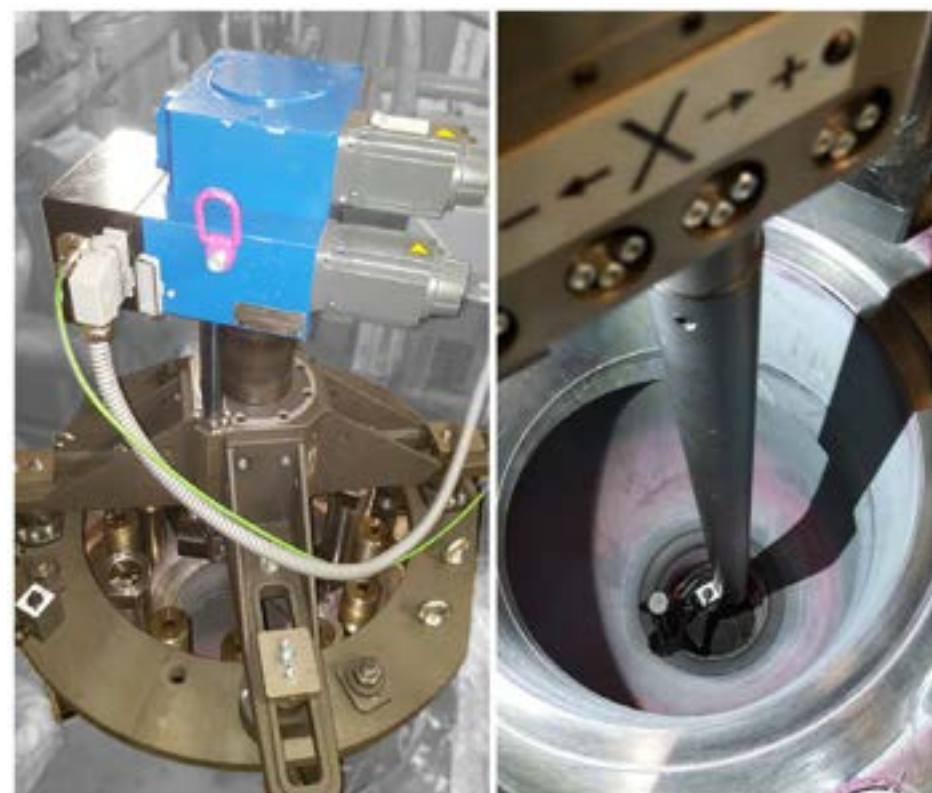
In case of minimal damage on the seat surface, a short repair procedure can be applied by re-profiling down the surface by removal of minimum material allowance.

WORKING RANGE

- Up to Ø335 x Depth 945mm from valve body flange. Oversize available on request.

SPECIAL ADD-ONS & CUSTOMISATION

- Operations always engineered and customized based on valve type and size and Customer technical requirements.



STEAM TURBINES CONTROL VALVES POCKETS REPAIR

This service pack is intended for any End User, Overhaul Service Provider, or OEM of steam turbines needing to repair control valves inside the steam chest on the upper casing.

Pack provides various main operations, including:

- Old valve seat removal, using liquid nitrogen and hydraulic pushing
- Pocket re-machining for polishing or re-profiling
- Assembly of New valve seats, using liquid nitrogen, and plugs
- Any kind of modification required by the Turbine Engineering Dpt.

WORKING RANGE

- Valves of **any size**.

SPECIAL ADD-ONS & CUSTOMISATION

- Operations **always customised** based on Customer requirements.



POWER COUPLING REPAIR

Power couplings are a critical part, of a train of rotating machines, for power transmission. The flange joint between rotors is often assembled by calibrated stud bolts working only under pure shear stress.

For this reason, it's important to perform machining on each hole and on both flanges together, to achieve a **perfect result in terms of coaxiality, diameter accuracy and surface roughness**.

This process is carried out by special **small size boring machine**, equipped with **feed system on toolpost**, and **finishing by grinding/lapping stones**.

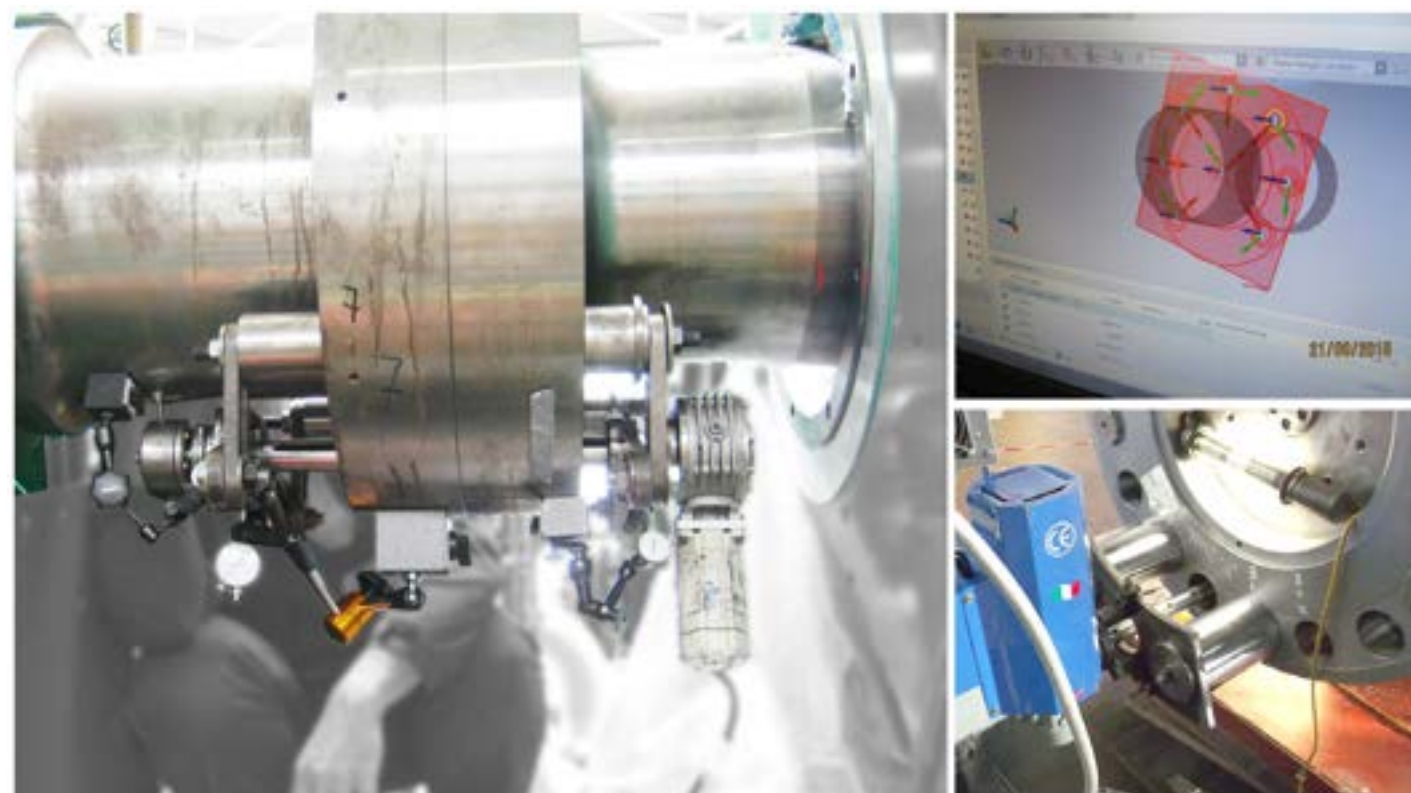
Our small machines (**engineered and build by Nuova Simat R&D Team**) make it possible to work in the very small space between the rear surface of the flange and the body of turbomachinery.

WORKING RANGE

- Available to work on hole diameter **up to Ø200**;
- Larger diameters by customisation of equipment.

SPECIAL ADD-ONS & CUSTOMISATION

- Customisation is always necessary to adapt the machine to the work situation. Also available to work on larger diameters.



SHAFTS AND ROTORS REPAIR (TURNING AND NOT TURNING)

Service pack designed to solve cases of **machining on mid or end shaft positions**.

Machining is performed by rotating of the machine around the shaft/rotor, also installed inside its machine casing (e.g. turbines or other rotating turbomachinery), or by special tool posts and holders applied on lower casing splitting-plane in case of shaft/rotor which can be turned by dedicated system.

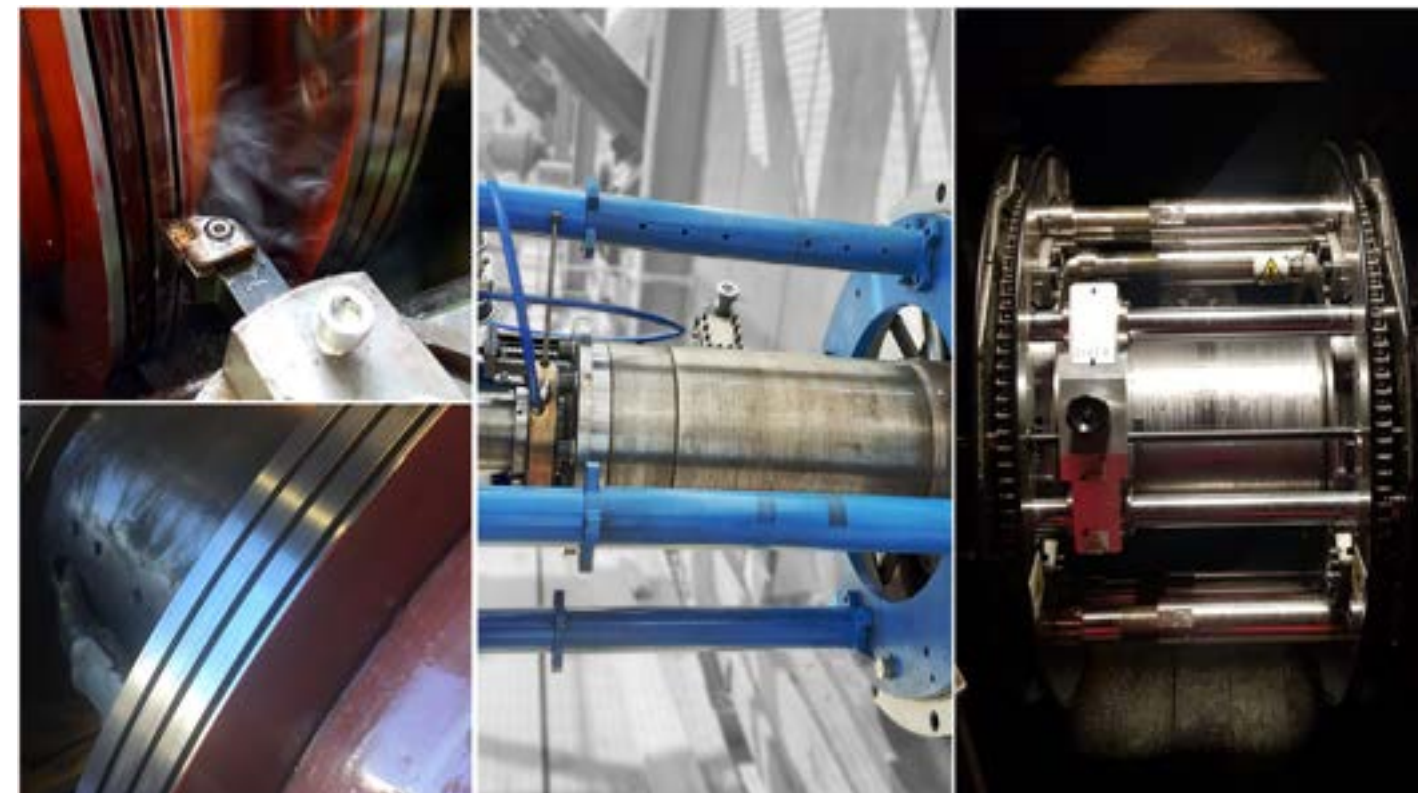
These types of portable machine tool are **designed to achieve high precision in terms of run-out and surface roughness**.

WORKING RANGE

- Available machine sizes **up to Ø800** for not turning shafts; **no limit for turning shafts**.

SPECIAL ADD-ONS & CUSTOMISATION

- Available for working on **larger diameters** and dedicated configuration for each case.
- Grinding head applicable to **achieve very low Ra roughness**.



TORQUE/TENSION, JOULE EFFECT AND INDUCTION BOLTING

In all types of mechanical structures connected by bolts/studs, it is important to **perform tightening while keeping the applied force controlled to the value required by the design**. This ensures the correct mechanical stress within the bolts and thus the mechanical characteristics of the entire structure will be optimal.

When bolts are tightened with high forces, suitable equipment is required to loosen them.

Various devices can be used to achieve correct bolting:

1. Hydraulic torque wrenches (with square drive and socket, or low profile with through hexagon drive)
2. Torque multipliers (pneumatic, electric and battery powered)
3. Hydraulic tensioners
4. Electromagnetic Induction heaters
5. Joule Effect heaters

The first three methods, also called “traditional”, are still widely used in several applications and available in our capabilities. The fourth method is a very innovative technology applicable to **ferromagnetic and drilled stud bolts**, generally used on turbomachinery casings. The last one is applicable to **not drilled** stud bolts; procedure of bolting and final result are similar to induction method.

Electromagnetic Induction heater **Nuova Simat Helios35+®** is a small unit equipped with an internal cooling system which generates a magnetic field via an inductor. The magnetic field generated produces the final heating effect. The heat is necessary to mechanically stretch the stud and apply right manual free rotation on nut, without damaging the sensitive parts involved and permit tightening or loosening of the nut, in full safety and without use of high forces. In particular, the induction unit is an **ALL-IN-ONE** machine and requires only an electrical connection, no water connection/discharge required nor external chiller or other equipment for standard working.

WORKING RANGE

- Toque/Tensioning: **Up to torque 150.000Nm and tension up to 3200kN** (as standard).
- Induction heating: **Any kind of bolt/stud** with central hole $\varnothing 9$ or bigger.

SPECIAL ADD-ONS & CUSTOMISATION

Toque/Tensioning:

- Customisation available to achieve higher tensioning loads and dedicated shapes for each case.
- Wide range of support tools for safety and productivity.

Induction heating:

- Remote connection for diagnostics, USB key slot for system updating
- Customised inductors
- Heating timer and controller
- Possibility to use ring and shaped inductors for shrink fitting or heating for other scopes

Joule Effect heating

- Customized electrode
- Possibility to heat two stud bolts simultaneously





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