CATALOGUE OW // EN // Code 890 700 012 // Rev. 0320

ORBITAL **WELDING**

Orbital welding systems and accessories for high-purity process piping

orbitalum
orbital | cutting + welding

A brand of
ITW Orbital Cutting & Welding

New products

ORBIMAT 180 SW | Orbital welding power supply

More quality, safety and flexibility in orbital welding by Industry 4.0 technology: This intelligent power supply connects the orbital welding process with state-of-the-art information and communication technology, and makes for the best welding results, high efficiency and sustainable quality management.

- Future-oriented connectivity by IoT/Industry 4.0 technology
- Sustainable quality management through web-based productivity monitoring
- 100% data recording – data available anywhere at anytime
- Cost saving by precise and digital "PERMANENT GAS" control
- Short welding cycles through unique gas "FLOW FORCE" function
- Increased safety and extended product lifetime through rotor torque control
- Intuitive and simple operation via 12.4" color touch display or rotary actuator
- Automatic programming by entering the tube diameter, wall thickness, material and welding gas
- Integrated liquid cooling system for constant low weld head temperatures

...more on page 7

HX 25P | Enclosed orbital weld head

Using HX-series orbital weld heads from Orbitalum, you can join pipe elbows to small stainless-steel pipes (for example in heat exchanger construction) with a high level of efficiency and reliability. We are now expanding this series to include the HX 25P, which is specially designed for very compact fin heat exchangers using pipe diameters from 18.0 to 25.4 mm (0.708" - 1.000").

- Drastically shortened welding times – approx. 60 seconds per pipe
- Up to 250 welds per head and layer
- Compared to manual work, the preparation time is reduced by around 50%
- Pipe spacing's of less than 60 mm (2.362") are possible
- Highly durable thanks to liquid-cooled rotor housing
- Horizontal, vertical and tilted welding positions are possible
- Very robust and ergonomic design
- Top-quality welding results, even with semiskilled personnel

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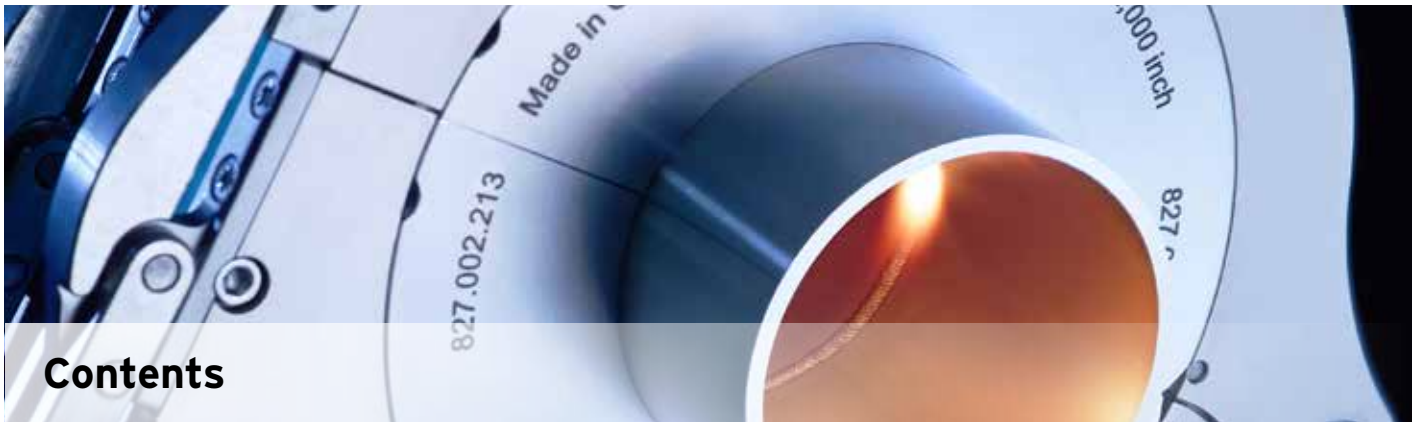
ORBITALUM TOOLS GMBH Josef-Schuettler-Str. 17 78224 Singen Germany Tel. +49 (0) 77 31 792 - 0 Fax +49 (0) 77 31 792 - 524 tools@orbitalum.com



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Markets and Applications

Orbitalum manufactures the world's most complete line of portable, powered tube and pipe cutting, facing and beveling weld preparation machine tools. In addition we build a complete line of advanced orbital welding systems used in high purity, process piping and specialized heat exchanger applications. Orbitalum products are widely used in the following industries:

APPLICATIONS	E.G.	PRODUCTS
Heat Exchanger	• Shell & tube • Box header • HVAC • Seal weld (autogenous) • Strength weld (wire) • Gas cabinets • Component manufacturing	• RPG Tube squaring machines • BRB Boiler pipe preparation machines • ORBIMAT Orbital welding power supplies • ORBIWELD Orbital weld heads • P16, P20 Tube-to-tube-sheet orbital weld heads • HX Orbital weld heads • TX Orbital weld heads • ORBmax Residual oxygen meter
Pharmacy and Chemistry	• UHP water lines • Process lines • Mixing valves • CIP clean in place lines	• GF, PS, RA & GFX Pipe cutting & beveling machines • RPG Tube squaring machines • ORBIMAT Orbital welding power supplies • ORBIWELD Orbital weld heads • ORBmax Residual oxygen meter
Semicon	• UHP water lines • Vacuum lines • Wafer processing lines • CFOS lines • Jacketed product • Gas cabinets • Component manufacturing	• RPG Tube squaring machines • ORBIMAT Orbital welding power supplies • ORBIWELD Orbital weld heads • ORBmax Residual oxygen meter
Aerospace	• Airframe hydraulic lines • Engine fuel lines • Engine specific components • Onboard HVAC	• GF, PS, RA & GFX Pipe cutting & beveling machines • RPG Tube squaring machines • ORBIMAT Orbital welding power supplies • ORBIWELD Orbital weld heads • ORBmax Residual oxygen meter
Food & Dairy	• Product water lines • Jacketed product • Mixing valves • CIP clean in place lines	• GF, PS, RA & GFX Pipe cutting & beveling machines • RPG Tube squaring machines • ORBIMAT Orbital welding power supplies • ORBIWELD Orbital weld heads • ORBmax Residual oxygen meter

ORBITALUM TOOLS GMBH Josef-Schuettler-Str. 17 78224 Singen Germany Tel. +49 (0) 77 31 792 - 0 Fax +49 (0) 77 31 792 - 524 tools@orbitalum.com

Orbital welding power supplies & accessories

Compatibility matrix for power sources and weld heads

The following overview shows the different combination possibilities of our orbital power sources and weld heads to help you to configure the correct orbital welding system.
Would you like a personal consultation? Then simply contact us by phone +49 (0) 77 31 792-0 or by e-mail to tools@orbitalum.com. Our team will gladly help you finding the suitable solution for your individual application.

	ORBIMAT 180 SW 850 000 001	**ORBIMAT 300 CA** 872 000 010	**ORBIMAT 300 CA AC/DC** 877 000 001	**ORBIMAT 300 CA AVC/OSC** 872 000 020	**ORBITWIN SW** 853 000 001
ORBIWELD 12 821 000 010	●	●	◐*	●	●
ORBIWELD 19 822 000 010	●	●	◐*	●	●
ORBIWELD 38S 826 000 001	●	●	◐*	●	●
ORBIWELD 76S 827 000 001	●	●	◐*	●	●
ORBIWELD 115S 828 000 001	●	●	●	●	●
ORBIWELD 170 825 000 001	●	●	●	●	●
HX 12P 847 000 010	●	●	◐*	●	○
HX 16P 848 000 010	●	●	◐*	●	○
HX 25P 845 000 010	●	●	◐*	●	○
TP 250 (KD) 811 000 001 811 000 005	●	●	●	●	●
TP 400 (KD) 812 000 011	●	●	●	●	●
TP 600 (KD) 813 000 001 813 000 005	●	●	●	●	●
TP 1000 (KD) 814 000 001 814 000 005	●	●	●	●	●
TP 400 AVC/OSC 812 000 012	○	○	○	●	○
TP 600 AVC/OSC 813 000 002	○	○	○	●	○
TP 1000 AVC/OSC 814 000 002	○	○	○	●	○
TX 38P 830 000 005	●	●	●	●	●
P16 (KD) 831 000 001 831 000 003	●	●	●	●	●
P16 AVC 831 000 002	○	○	○	●	○
P20 (KD) 832 000 002 832 000 001	●	●	●	●	●
DVR Welding turntables	●	●	●	●	●
Manual torch 890 013 010	●	●	●	●	●

● = compatible ○ = not compatible ◐ = partly compatible * = DC welding only KD = Cold wire feed

ORBIMAT 180 SW

Orbital welding power supply

World premiere:
Intelligent welding power supply

More quality, safety and flexibility in orbital welding by Industry 4.0 technology: This intelligent power supply connects the orbital welding process with state-of-the-art information and communication technology, and makes for the best welding results, high efficiency and sustainable quality management.

The ORBIMAT 180 SW (shown here with the ORBIWELD 76S weld head) – an innovative welding power supply which sets new standards in welding results, operability and communication

- **Future-oriented connectivity** by IoT/Industry 4.0 technology (Connectivity IoT/4.0 Package 1 required)
- Longer-term **welding data documentation** thanks to centralized data storage
- **100% data recording –** data available anywhere at anytime
- **Cost saving** by precise and digital "PERMANENT GAS" control
- **Short welding cycles** through unique gas "FLOW FORCE" function
- **Increased safety** and extended product lifetime through rotor torque control
- **Intuitive and simple operation** via 12.4" color touch display or rotary actuator
- **Automatic programming** by entering the tube diameter, wall thickness, material and welding gas
- **Integrated liquid cooling system** for constant low weld head temperatures

This new generation of orbital welding power supplies combines the well-known and successful characteristics of the predecessors with the latest technical innovations:

Centralized access to projects and parameters

Thanks to the integrated LAN interface, the ORBIMAT 180 SW can be integrated into the customer's network: All welding data and programs for each individual welding process can be called up and documented in full, analyzed, used and optimized for future welding processes. This way, production sequences can be planned better and are also safer and less time-consuming.

Intuitive operation and a multilingual menu interface

The ORBIMAT 180 SW is operated using the 12.4" color touch display screen, or alternatively with the multifunctional control dial, as is familiar from premium automobiles and the ORBIMAT CA series. The multilingual menu interface with graphic support makes operation and parametrization of the welding power supply simple and intuitive. Soft keys provide direct access to important commands.

More quality and safety

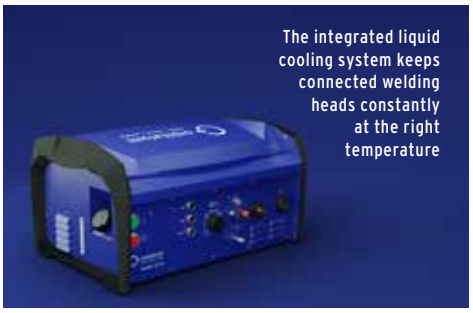
The ORBIMAT 180 SW achieves more quality thanks to digital and precise welding gas control "PERMANENT GAS". It makes it possible to perform welding processes with the highest level of purity and a low gas requirement, reducing the costs for each welding process. The gas quantity values saved with the welding program therefore make easily reproducible welding results.

The automatic rotor stop function provides improved safety. The ORBIMAT 180 SW also features motor torque control: If the welding head rotor is prevented from rotating by sluggishness or an obstruction during automatic rotation, the power supply stops the rotor movement of the welding head immediately. Man and machine are provided with better protection, and costly production downtimes, caused by rejected goods and repairs, are prevented. At the same time, the service life of the welding head is extended.

Shorter welding cycles and more productivity

In order to minimize the gas pre-flow and post-flow times, ORBITALUM has incorporated the unique Flow-Force function. It shortens the welding process considerably when using closed welding heads: The digital gas control supplies inert gas at a very high volumetric flow rate directly from the pressure regulator to the welding head – the unwanted residual oxygen is flushed out abruptly in the process. The resultant reduced pre-flow and post-flow times make for much shorter processing times and thus a higher level of productivity and an increased duty cycle. The high volumetric flow rate in the post-flow time and the optionally activatable cooling circuit delay reduce the temperature of

Elegant and practical housing (IP23) with carrier handles integrated at the side


The integrated liquid cooling system keeps connected welding heads constantly at the right temperature

The hinged lid with display screen, when closed, protects the operating controls, the system printer and the control dial

FEATURES	ORBIMAT 180 SW
Simple and convenient operation thanks to multifunctional rotary actuator	●
Touchscreen operation	●
DC welding possible	●
WIDE RANGE input voltages for safe operation of power sets or voltage networks with extreme fluctuations in voltage	●
"Flow Force" function to reduce the gas pre-flow and post-flow time	●
"Permanent gas" function	●
Digital controlled welding gas	●
Coolant liquid and welding gas are monitored	●
Control option for cold wire feed	●
Possibility of connecting an external remote control	●
Constant or pulsend wire feed motion and rotation	●
Optimal visibility and operating conditions thanks to clearly laid-out 12.4" swivel monitor	●
Graphically-supported operating interface and multilingual menu navigation via color display	●
Metric and imperial units	●
Process-oriented, stable and real-time operating system without power-down sequence	●
Automatic weld head recognition and resulting parameter adaptation	●
Motor current monitoring	●
Capacity to store over 5.000 welding programs, providing systematic and clear program management thanks to the creation of folder structures	●
Welding data logging and printout of actual values	●
Integrated system printer	●
Possibility of connecting a monitor or printer (through HDMI/USB/LAN)	●
Integrated carrying grips	●
Option to program up to 99 sectors	●
Power and motor slope adjustment between the individual sectors	●
Integrated liquid cooling system for cooling the connected weld heads	●
Can be used in combination with separately available liquid cooling system	◐

● = feature included ◐ = feature limited included

TECHNICAL DATA	
ORBIMAT 180 SW	Code 850 000 001
Connectivity IOT/4.0 Package 1	Code 850 080 001
Connection voltage	110 - 230 V, 50/60 Hz, 1 phase
Control range (Connection voltage > 160 V)	5 - 180 A
Power-on time	60% at 180 A 100% at 160 A
Dimensions	600 x 400 x 310 mm 23.6" x 15.7" x 12.2"
SCOPE OF DELIVERY	
Orbital welding power supply ORBIMAT 180 SW	1 Pc.
Hose connection set ORBIMAT (Code 875 030 018)	1 Pc.
Dummy plug for remote control socket (Code 850 050 004)	1 Pc.
OCL-30 coolant, 3.5 liters (Code 850 030 010)	1 can
Operating instructions with calibration certificate	1 Set
QuickStart guide	1 Pc.

SUITABLE ACCESSORIES

- ORBICAR W trolley with integrated liquid cooling
- ORBICOOL Active compressor cooling device
- ORBICAR S trolley
- Storage and shipping case
- ORBITWIN SW switching device
- Remote control with cable
- Bar code/QR code scanner SW
- ORBmax residual oxygen meter
- Pressure regulator
- TIG manual welding torch for ORBIMAT

The technical data are not binding. They are not warranted characteristics and are subject to change.

the welding head – ideal for a high duty cycle. The benefits include a longer service life for the welding electrode. The optionally activatable permanent gas function prevents the penetration of oxygen in the welding head, even during secondary processing times. As a result, the ORBIMAT system achieves almost completely oxidation-free seams with simultaneously short processing times.

Elegant housing for good handling

The ORBIMAT 180 SW features an elegant and practical housing with carrier handles integrated at the side. The ports on the front of the device are set back for protection from mechanical damage. The hinged lid with display screen, when closed, protects the operating controls, the system printer and the control dial if the device is offline or is being transported.

The ORBIMAT 180 SW operates with a wide input voltage range of 110 V to 230 V AC 50/60 Hz, and offsets mains fluctuations of 90 V to 260 V AC. At 180 A, the output welding current is suitable for most applications. The ORBIMAT power supply automatically detects and includes the connected system components. The integrated liquid cooling system keeps connected welding heads constantly at the right temperature.

Expandable with "Connectivity Package"

The optionally available "Connectivity Package 1" allows the saving and calling up of welding programs via a central network location. To increase the process control of the documentation all log files can be stored centrally.
Detailed information on "Connectivity Package 1" starting on page 9.

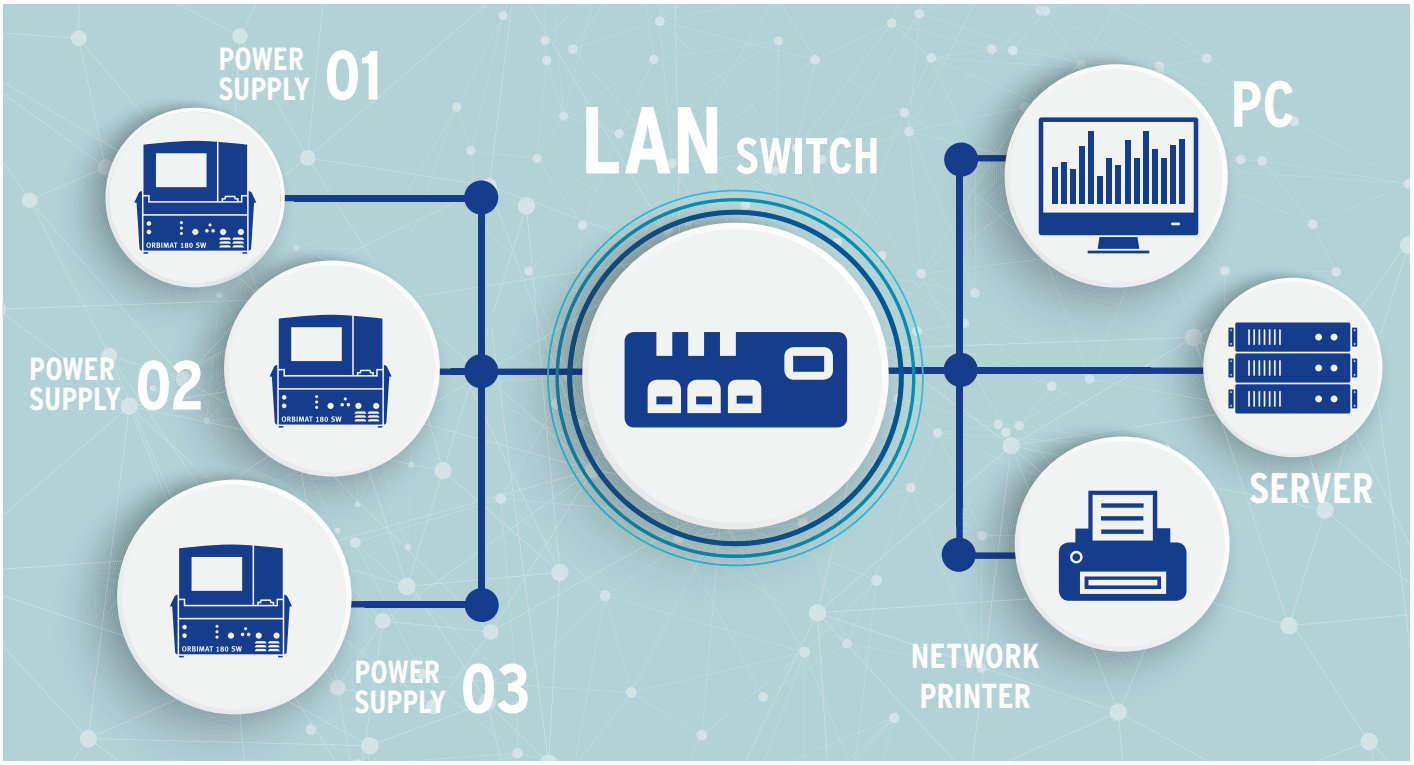
ORBITALUM TOOLS GMBH Josef-Schuettler-Str. 17 78224 Singen Germany Tel. +49 (0) 77 31 792 - 0 Fax +49 (0) 77 31 792 - 524 tools@orbitalum.com

Connectivity package

for ORBIMAT 180 SW power supplies

Backing up and further processing welding parameters in local network environments

The optionally available "Connectivity Package 1" enables integration of the ORBIMAT 180 SW into a local network environment (LAN). Welding programs can thus be saved to centralized network storage locations and managed & backed up for the long term there. Power supplies integrated into the network can access the centrally saved programs and their folder structure at the same time. This ensures that all power supplies always have access to the latest version of the data, even if subsequent adjustments are made to programs.



The ORBIMAT 180 SW features an extensive, user-supporting documentation solution for digitally recording documentation parameters ahead of the welding process, e.g. the material and gas batch number, isometric number, weld seam position and the welder ID.

The documentation parameters to be entered are queried before the respective start of the welding process. Whether a parameter value can or must be entered once or for each weld can be individually defined.

This entry can be made either using the virtual keyboard, an external USB keyboard or efficiently using the separately available bar code/QR code scanner.

The option of documentation of the general conditions applicable for the welding programs, e.g. forming and welding gas types and volumes, electrode geometries, weld head alignment and operator comments round out the documentation process.

All recorded parameters can be recorded together with the generated welding data in a welding data log and saved digitally. These welding data logs can then be saved at the network storage location automatically, backed up for the long term and edited from there.
This makes it possible to considerably reduce and simplify the documentation effort for users.

In addition to network storage locations, other network resources like network printers can also be accessed. In this way, welding logs and programs can be directly output locally via a printer over the network upon request.

Using the Industry 4.0/IoT data protocol "MQTT", the ORBIMAT 180 SW can be integrated into industrial environments 4.0 and "Machine-to-Machine" (M2M) communication can be established between devices and controllers. In this way, subscribers can exchange various different telemetry data, measurement values and parameters with one another and receive control commands for automation solutions.

The connectivity package is activated using a license key which can be entered directly into the power supply software. In this way, all relevant functions and interfaces can be immediately activated.

Orbital welding power supplies

ORBIMAT 180 SW

ORBIMAT 180 SW (SmartWelder)

Features, application range, technical data and scope of delivery, see from page 7.

ARTICLE	VERSION	CODE		WEIGHT OF MACHINE KG	DISPATCH WEIGHT KG
ORBIMAT 180 SW	110 - 230 V, 50/60 Hz, 1 phase	**850 000 001**		24.600	27.000
Connectivity IoT/4.0 Package 1		**850 080 001**		0.002	

Suitable accessories (available option):

- ORBICAR W trolley with integrated liquid cooling, see page 14
- ORBICOOL Active compressor cooling device, see page 14
- ORBICAR S trolley, see page 15
- Storage and shipping case, see page 15
- ORBITWIN SW switching device, see page 15
- Remote control with cable, see page 16
- Bar code/QR code scanner SW, see page 16
- ORBmax residual oxygen meter, see page 79
- TIG manual welding torch, see page 84
- Pressure regulator, see page 83

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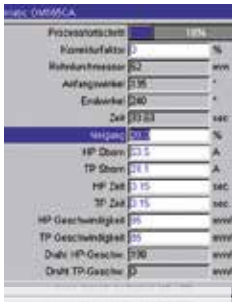
ORBIMAT CA

Orbital welding power supplies

Compact power supplies for mechanized TIG orbital welding with a currently unique operating concept and a whole series of other special technical features.
In connection with an ORBITALUM orbital weld head, the user is being offered an extremely innovative and economical welding system.

Simple and convenient operation thanks to multifunctional rotary actuator

10.5" swivel monitor and integrated system printer



Automatic programming and multilingual menu navigation via color display

In addition to the reliable automatic programming which generates welding parameters by entering the tube diameter, wall thickness, material and welding gas all ORBIMAT CA models also include a FLOW FORCE function to reduce the pre-flow gas time when the weld heads are closed in the standard model.

The operating concept for the power supply is quite different from the standard operating variants available on the market: The operator guidance with a display and single-knob operation originates from the automotive manufacturing sector and has become tried and tested worldwide in the "information entertainment systems" in modern luxury vehicles. The main advantage of this is that the gaze of the operator remains focused on the screen.

Other technical refinements of the ORBIMAT CA include softkeys for essential, high-level and quick-action commands such as "Start/Stop". Compared to WINDOWS systems, the operating system in use – RTOS (Real Time Operating System) – has the advantage that not even a direct, abrupt shutdown of the system will lead to any problems. This is particularly important for the operation of susceptible power supplies, such as on building sites. Compare to Windows – where the graphic presentation of the current screen window is important – RTOS always focuses on the steering and control of the welding process, which is ultimately crucial for the quality of the welding result.

Moreover, the Flow Force function, which decisively shortens the work process through the use of closed weld heads, is also unique on the market. Before the start of the welding process, inert gas is fed from the pressure reducer through a second duct for inert gas into the chamber of the weld head – and the undesired oxygen is rinsed out abruptly; the ORBIMAT power supply automatically detects and takes into account for the course of the process any connected system components, from the sealed or open weld head with automatic control of the arc clearance* (AVC = Arc Voltage Control) and/or the integrated oscillation of the torch* (OSC = Oscillation) through to the oxygen analysis unit. In contrast to conventional orbital welding power controllers, the setting and controlling of the torch clearance with regard to the weld seam is carried out directly via the arc clearance.

* ORBIMAT 300 AVC/OSC only

FEATURES ORBIMAT ORBITAL WELDING POWER SUPPLIES:	300 CA	300 CA AC/DC	300 CA AVC/OSC
Simple and convenient operation thanks to multifunctional rotary actuator	●	●	●
DC welding possible	●	●	●
AC power source for welding of aluminum materials	○	●	○
"Flow Force" function to reduce the gas pre-flow and post-flow time	●	●	●
"Permanent gas" function	●	●	●
Coolant liquid and welding gas are monitored	●	●	●
Control option for cold wire feed	●	●	●
Possibility of connecting an external remote control	●	●	●
Constant or pulsend wire feed motion and rotation	●	●	●
Optimal visibility and operating conditions thanks to clearly laid-out 10.5" swivel monitor	●	●	●
Graphically-supported operating interface and multilingual menu navigation via color display	●	●	●
Metric and imperial units	●	●	●
Process-oriented, stable and real-time operating system without power-down sequence	●	●	●
Automatic weld head recognition and resulting parameter adaptation	●	●	●
Capacity to store over 5.000 welding programs, providing systematic and clear program management thanks to the creation of folder structures	●	●	●
Welding data logging and printout of actual values	●	◐*	●
Integrated system printer	●	●	●
Possibility of connecting a monitor or printer (through VGA/LPT)	●	●	●
Built-in multi-in-one card reader to transfer log files and welding programs via CompactFlash Card (CF), SD, MMC, SM, Sony Memory Stick	●	●	●
Optional PC software (OrbiProg CA) for welding program management and logging	●	●	●
Integrated, folding carrying grips	●	●	●
PSS (Pro Service System) for external function check of the device as well as for easy maintenance and quick exchange of the components by systematical modular design	●	●	●
Option to program up to 99 sectors	●	●	●
Power and motor slope adjustment between the individual sectors	●	●	●
Can only be used in combination with separately available liquid cooling system	●	●	●
AC option to set a positive and negative half-cycle in the ratio 20 - 80%	○	●	○
AC frequency setting 50 - 200 Hz	○	●	○
AVC arc voltage control: Calculates and programs the length of the arc automatically in "mm" or in "V"; With the OSC (oscillation) function, the center of the seam can be accessed manually and be determined using an automatic scanner. The electrode accesses each of side of the seam and then calculates the center of the path automatically.	○	○	●

SCOPE OF DELIVERY		300 CA	300 CA AC/DC	300 CA AVC/OSC
Orbital welding power supply of the ORBIMAT CA series	Pc.	1	1	1
Hose connection set ORBIMAT (Code 875 030 018)	Pc.	1	1	1
Dummy plug for remote control socket (Code 875 050 006)	Pc.	1	1	1
Power connector adapter	Pc.	1	1	1
External keyboard (Code 875 012 057)	Pc.	1	1	1
External remote control (Code 875 050 001)	Pc.	–	–	1
Key for the key switch (for reordering 1 key: Code 875 012 058)	Pc.	2	2	2
Operating instructions with calibration certificate	Set	1	1	1
QuickStart guide	Pc.	1	1	1

● = feature included ○ = feature not included ◐ = feature limited included * = DC welding only

SUITABLE ACCESSORIES (available option):

- ORBICAR W trolley with integrated liquid cooling
- ORBICOOL Active compressor cooling device
- ORBICAR S trolley
- Storage and shipping case
- ORBITWIN SW switching device
- Remote control with cable
- Soft-/Hardware package "CA"
- ORBmax residual oxygen meter
- Pressure regulator
- TIG manual welding torch for ORBIMAT

TECHNICAL DATA	300 CA	300 CA AC/DC	300 CA AVC/OSC
Code	872 000 010	877 000 001	872 000 020
Connection voltage	400 - 480 V +/- 10%, 50/60 Hz, 3 phase	400 V +/- 15%, 50/60 Hz, 3 phase	400 - 480 V +/- 10%, 50/60 Hz, 3 phase
Control range (Connection voltage > 160 V)	5 - 300 A	5 - 300 A	5 - 300 A
Power-on time	40% at 300 A 60% at 260 A 100% at 220 A	40% at 300 A 60% at 260 A 100% at 220 A	40% at 300 A 60% at 260 A 100% at 220 A
Dimensions	540 x 420 x 440 mm 21.3" x 16.5" x 17.3"	540 x 420 x 440 mm 21.3" x 16.5" x 17.3"	540 x 420 x 440 mm 21.3" x 16.5" x 17.3"

The technical data are not binding. They are not warranted characteristics and are subject to change.

Orbital welding power supplies

ORBIMAT CA

Features, application range, technical data and scope of delivery, see from page 11.

ARTICLE	VERSION	CODE		WEIGHT OF MACHINE KG	DISPATCH WEIGHT KG
ORBIMAT 300 CA	400 - 480 V +/- 10%, 50/60 Hz, 3 phase	**872 000 010**		33.000	48.000
ORBIMAT 300 CA AC/DC	400 V +/- 15%, 50/60 Hz, 3 phase	**877 000 001**		41.400	57.000
ORBIMAT 300 CA AVC/OSC	400 - 480 V +/- 10%, 50/60 Hz, 3 phase	**872 000 020**		37.300	53.000

ORBIMAT 300 CA

ORBIMAT 300 CA AC/DC

ORBIMAT 300 CA AVC/OSC

Suitable accessories (available option):

- ORBICAR W trolley with integrated liquid cooling, see page 14
- ORBICOOL Active compressor cooling device, see page 14
- ORBICAR S trolley, see page 15
- Storage and shipping case, see page 15
- ORBITWIN SW switching device, see page 15
- Remote control with cable, see page 16
- Soft-/Hardware package "CA", see page 16
- ORBmax residual oxygen meter, see page 79
- TIG manual welding torch, see page 84
- Pressure regulator, see page 83
- Power connector adapter set, see page 83

ORBITALUM TOOLS GMBH Josef-Schuettler-Str. 17 78224 Singen Germany Tel. +49 (0) 77 31 792 - 0 Fax +49 (0) 77 31 792 - 524 tools@orbitalum.com

Cooling systems for ORBIMAT

ORBICAR W trolley with integrated liquid cooling

ORBICAR W trolley with integrated liquid cooling

The ORBICAR W trolley is the perfect accessory for the Orbitalum power supplies* due to the integrated liquid cooling. Beside the liquid coolant, the trolley is equipped with a practical holder for gas bottles.

The tank already contains 8 liters (2.11 gal) of the OCL-30 coolant at delivery (see page 17).

TECHNICAL DATA	ORBICAR W TROLLEY
Input voltage	400 V, 50 Hz, 3 phase
Rated power	450 VA
Cooling type	Convection cooling
Liquid tank contents	8 l / 2.11 gal
Water pressure max.	3.1 bar / 45 PSI
Dimensions (lxwxh)	96 x 54 x 113 cm / 37.8" x 21.3" x 44.5"
Dimensions working top (lxwxh)	65 x 38 x 65 cm / 26.6" x 15" x 26.6"

ARTICLE	SUITABLE FOR ORBIMAT	CODE		KG
ORBICAR W 300 trolley	300 CA, 300 CA AC/DC, 300 CB, 300 CA AVC/OSC	**884 000 002**		58.200
ORBICAR W 165 trolley*	165 CA*, 165 CB*	**884 000 004**		58.200
ORBICAR W 180 trolley	180 SW	**884 000 005**		58.200

* ORBIMAT 165 power sources must be retrofitted at the factory

ORBICOOL Active

ORBICOOL Active (front view)

Very efficient compressor cooling device. Particularly suitable for welding units in series production.

Including:
- Stainless steel housing
- Adjustable digital thermostat with temperature hysteresis
- Low-noise
- Metal filter cell
- Water level indicator
- Pump protection
- Flow rate monitoring in combination with ORBIMAT current sources

The device includes 2 cans, each with 3.5 liters (0.92 gal) of the OCL-30 coolant (see page 17). Suitable for all* ORBIMAT orbital welding power supplies).
Not suitable for use in combination with the ORBICAR S trolley.

ORBICOOL Active (rear view)

TECHNICAL DATA	ORBICOOL ACTIVE
Coolant capacity (at ambient temp. +32 °C / water +20 °C)	1.025 kW / 1.37 hp
Setting range inlet temperature	18 - 25 °C
Input voltage	230 V, 50 Hz
Connected load (at ambient temp. +42 °C / water +20 °C)	900 W / 1.21 hp
Maximum power consumption (depending on the version)	4.6 A
Tank contents	6 l / 1.59 gal
Water pressure max.	2.2 bar
Pump output	2.3 l/min
Air output	800 m³/h
Sound pressure	65 dB(A)
Cooling type	Compressor cooling
Dimensions (lxwxh)	560 x 475 x 355 mm / 22.0" x 18.7" x 14.0"

ARTICLE	VERSION	CODE		KG
ORBICOOL Active for ORBIMAT 165 CA*	230 V, 50 Hz	**889 000 011**		42.000
ORBICOOL Active for ORBIMAT 300 CA	230 V, 50 Hz	**889 000 012**		42.000
ORBICOOL Active for ORBIMAT 180 SW	230 V, 50 Hz	**889 000 015**		42.000

* ORBIMAT 165 power sources must be retrofitted at the factory

Other accessories for ORBIMAT

Power connector adapter set

See page 83.

Power connector adapter set

ORBITWIN SW switching device

To increase productivity, the switching unit ORBITWIN is available which allows the alternately operation with 2 weld heads on the ORBIMAT.
The previously assigned program is recalled automatically when the start key of the weld head is actuated. The weld head that is not being used is locked and can be prepared for the next welding operation.

Including all connecting cables and hoses.

ORBITWIN SW switching device

ARTICLE	SUITABLE FOR ORBIMAT	CODE		KG
ORBITWIN SW switching device	180 SW, 165 CA*, 300 CA*, 300 CA AC/DC*	**853 000 001**		
Connector set ORBITWIN SW to ORBIMAT CA	165 CA, 300 CA, 300 CA AC/DC	**853 050 010**		
Connection extension set 1.1 m (3.6 ft)	180 SW	**853 050 011**		

* ORBITWIN SW only applicable with ORBIMAT 165 CA, 300 CA and 300 CA AC/DC in combination with the "Connector set ORBITWIN SW to ORBIMAT CA" (sold separately, see table above).

ORBICAR S trolley

The ORBICAR S is a practical trolley with storage shelf and an option of securing a gas cylinder and is the perfect addition to the Orbitalum 165 A and 180 SW orbital welding power sources.

Not suitable for use in combination with the compressor cooling device ORBICOOL Active.

ORBICAR S trolley

TECHNICAL DATA	ORBICAR S TROLLEY
Dimensions (lxwxh)	96 x 54 x 113 cm / 37.8" x 21.3" x 44.5"
Dimensions working top (lxwxh)	65 x 38 x 65 cm / 26.6" x 15" x 26.6"

ARTICLE	CODE		KG
ORBICAR S trolley	**884 000 001**		19.100

Storage and shipping case

With castors. Protects the power supply during transport.
Perfect for the use on construction sites.

Storage and shipping case 165/300

Storage and shipping case 180 SW

ARTICLE	SUITABLE FOR ORBIMAT	CODE		KG
Storage and shipping case 165	165 CA, 165 CB	**875 050 002**		17.500
Storage and shipping case 300	300 CA, 300 CA AC/DC, 300 CB	**874 050 001**		20.800
Storage and shipping case 180 SW	180 SW	**850 030 020**		18.700

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Soft-/Hardware package "CA"

Soft-/Hardware package "CA"

Suitable for all ORBIMAT CA orbital welding power supplies.
For external programming and data documentation, consisting of:

- 1 CompactFlash card for transferring data between the machine and PC. For storing weld data protocols or for extending the program memory. Capacity to store over 5.000 welding programs.
- 1 USB card reader for exporting the CompactFlash card on the PC.
- Software ORBIPROG CA. ORBIPROG_CA software allows programs and protocols to be stored on the PC. The parameters of the CA programs can be edited using the software and can be transferred back to CA models and used there after processing. Additionally, programs from C-series machines (e.g. OM 160 C) can be converted to CA format with the help of software. The parameters of the CA programs can be edited using the software and can be transferred back to CA models and used there after processing.

ARTICLE	CODE		KG
Soft-/Hardware package "CA"	**875 050 003**		0.488

CompactFlash Card ORBIMAT CA/CB

Storage media

For storing weld data protocols or for extending the program memory.
Capacity to store over 5.000 welding programs.

When the software/hardware package "CA" is purchased, **1 CompactFlash Card ORBIMAT CA/CB** is already included in the scope of delivery.

ARTICLE	CODE		KG
CompactFlash Card ORBIMAT CA/CB	**875 012 056**		0.010
USB stick ORBIMAT SW	**850 030 001**		

Remote control with cable

Remote control with cable

Suitable for all ORBIMAT orbital welding power supplies. 1 remote control with cable is already included in the scope of delivery of the ORBIMAT 300 CA AVC/OSC.
The remote control is not required when working with enclosed orbital weld heads.

Remote control including "**Remote control adapter OM CA/CB to OM 180 SW**" (code 850 040 030). This adapter can be retrofitted at any time and allows the connection of older remote control units to the new power supply generation ORBIMAT 180 SW.

ARTICLE	CABLE LENGTH [M]	CABLE LENGTH [INCH]	CODE		KG
Remote control with cable	7.5	24.6	**875 050 001**		1.350
Remote control adapter OM CA/CB to OM 180 SW (retrofitting)	-	-	**850 040 030**		0.118

Bar code/QR code scanner SW

Bar code/QR code scanner SW

Compatible with the ORBIMAT 180 SW.
For welding data documentation or recording.
Rapid scanning in of the parameters stored in the bar code/QR code (e.g. weld seam number, isometry number, welder ID, etc.) into the power supply.

ARTICLE	CODE		KG
Bar code/QR code scanner SW	**850 030 005**		0.250

Consumables for ORBIMAT

Paper rolls and ribbon cartridges

For integrated system printer. Suitable for all ORBIMAT orbital welding power supplies.

1 paper roll and 1 ribbon cartridge are already included in the scope of delivery of the ORBIMAT orbital welding power supplies.

ARTICLE	CODE		KG
Paper rolls for integrated printer, pack of 3	**875 050 017**		0.150
Ribbon cartridge for integrated printer CA/SW	**875 030 004**		0.010
Ribbon cartridge for integrated printer CB	**875 030 002**		0.020

Paper rolls and ribbon cartridges for integrated printer

OCL-30 coolant

Anti-freeze pre-mix for ORBIMAT power supplies and cooling units to avoid freezing of the cooling liquid. Applicable up to –30 °C (-22 F) outside temperature. Increased service life of components of the cooling system through very high corrosion protection and high pH-value. For even better ignition characteristics due to low conductivity. Clear coolant liquid.

Applicable with ORBICAR W, ORBICOOL Active, ORBIMAT 165 CB, 165 CA and 180 SW.

1 can is already included in the scope of delivery of the ORBIMAT 165 CA and 180 SW orbital welding power supply.

ARTICLE	VERSION	CODE		KG
OCL-30 coolant	Canister with 3.5 l (0.92 fl oz)	**850 030 010**		3.715

OCL-30 coolant

Hose connection set ORBIMAT

1 hose connection set is already included in the scope of delivery of the ORBIMAT orbital welding power supplies.

Set, consisting of:
- Teflon gas hose
- Ear clamps with insert
- Hose clips 3/8"
- Liquid hose for tank ventilation
- Gas input connector
- Swivel nuts 3/8"
- Hose clips 1/4"
- Swivel nuts 1/4"
- Funnel

ARTICLE	CODE		KG
Hose connection set ORBIMAT	**875 030 018**		0.445

Hose connection set ORBIMAT

Other accessories for orbital welding

- ESG tungsten grinders, see page 75
- ORBmax residual oxygen meter, see page 79
- ORBIPURGE forming set, see page 82
- Pressure regulator, see page 83
- WS2 tungsten electrodes, see page 83
- TIG manual welding torch for ORBIMAT, see page 84
- Power connector adapter set, see page 83

Comprehensive service and maintenance offer

We care not only about your concerns prior to purchase. Even after the sale has been made you can fully rely on us.

Our products are extremely robust and reliable.
In order to maintain their performance in the long term, you should have the servicing and maintenance work carried out regularly at the recommended intervals.

All servicing and maintenance work is carried out by qualified and motivated employees with the utmost care. They analyze the situation in order to find the optimal solution for the long term.

Competent service is provided through our subsidiaries as well as our worldwide network of authorized partners. These have been selected with great care and trained at regular intervals by our experts so that they always remain up-to-date with regard to our products and technologies.

Why maintenance?

"Prevention is better than cure"

Don't wait until your machine breaks down sooner or later due to a lack of servicing or maintenance work!

Small causes can often engender large effects - and downtimes or malfunctions could have been avoided through timely checking and maintenance.

When did you last have your machinery maintained?
Arrange an appointment with us straight away:

+49 (0) 77 31 792-786

customerservice@itw-ocw.com

Don't forget to fill out the Service Form which can be downloaded at: www.orbitalum.de/en/service.html

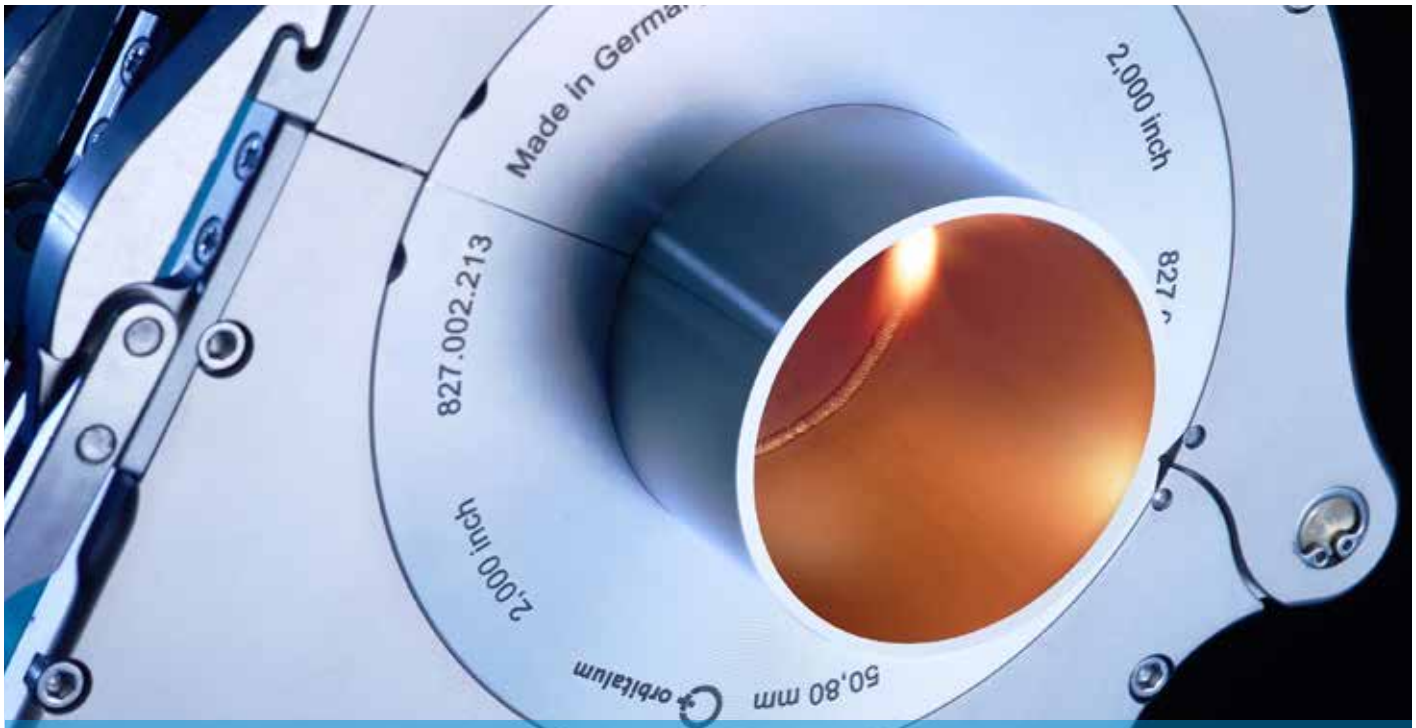
Our services:

- Repairs, replacements
- Cost estimates
- Proactive maintenance
- Service training for customers
- Rental machines for bridging repair periods at special terms
- Collection service for machines
- Visual and functional inspection
- Determination and measuring of technical parameters
- Information to customer about maintenance result
- Functional test of the system components
- Cleaning and care work
- Replacement of defined wear parts as well as of defective components
- Implementation of modifications in as far as these serve to technically improve the equipment
- Required adjustment and setting work including calibration and re-acceptance

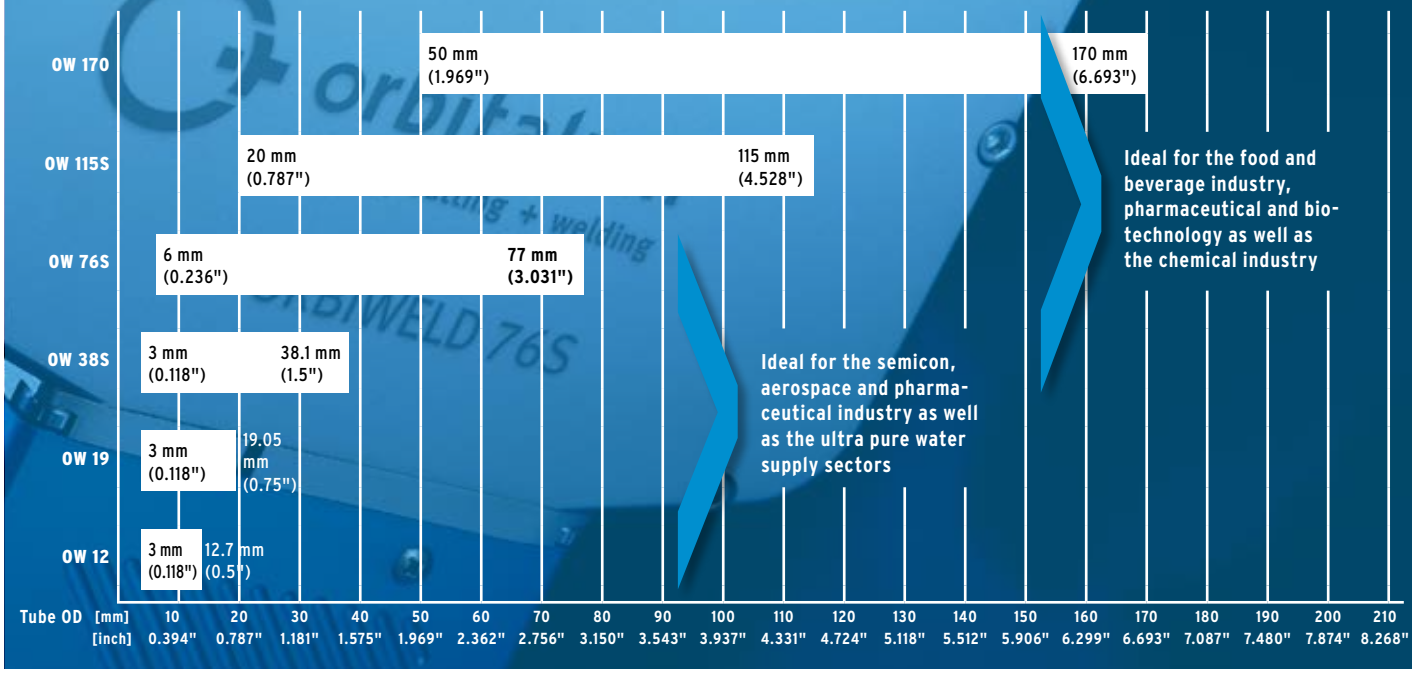
Your advantages:

- Service directly from the manufacturer or authorized partner
- Reduction of downtimes
- Long-term functioning of your machinery and plants
- Ensuring the availability
- Early recognition of wear avoids unnecessary and costly repairs
- Reduction of the susceptibility to failure
- Value retention of your machinery and plants
- Regular maintenance work ensures reliable and safe machine operation – even after many years
- Higher availability of own service employees

Enclosed orbital weld heads



Overview enclosed orbital weld heads



Electrode lengths/diameter for enclosed weld heads

WELD HEAD ▶		OW 12		OW 19		OW 38S		OW 76S		OW 115S		OW 170	
ROTOR Ø ▶		40.0 MM / 1.575"		55.0 MM / 2.165"		79.0 MM / 3.110"		116.4 MM / 4.583"		180.2 MM / 7.094"		245.6 MM / 9.669"	
TUBE Ø ▼		[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]
[mm]	[inch]												
3.17	0.125	13.90	0.547	21.40	0.843	33.40	1.315						
6.00	0.236	12.50	0.492	20.00	0.787	32.00	1.260	50.70	1.996				
6.35	0.250	12.30	0.484	19.80	0.780	31.80	1.252	50.50	1.988				
8.00	0.315	11.50	0.453	19.00	0.748	31.00	1.220	49.70	1.957				
9.53	0.375	10.70	0.421	18.20	0.717	30.20	1.189	48.90	1.925				
10.00	0.394	10.50	0.413	18.00	0.709	30.00	1.181	48.70	1.917				
10.20	0.402	10.40	0.409	17.90	0.705	29.90	1.177	48.60	1.913				
12.00	0.472	9.50	0.374	17.00	0.669	29.00	1.142	47.70	1.878				
12.70	0.500	9.20	0.362	16.70	0.657	28.60	1.126	47.30	1.862				
13.00	0.512			16.50	0.650	28.50	1.122	47.20	1.858				
13.50	0.531			16.30	0.642	28.20	1.110	46.90	1.846				
15.88	0.625			15.10	0.594	27.00	1.063	45.70	1.799				
16.00	0.630			15.00	0.591	27.00	1.063	45.70	1.799				
17.20	0.677			14.40	0.567	26.40	1.039	45.10	1.776				
18.00	0.709			14.00	0.551	26.00	1.024	44.70	1.760				
19.00	0.748			13.50	0.531	25.50	1.004	44.20	1.740				
19.05	0.750			13.50	0.531	25.40	1.000	44.20	1.740				
20.00	0.787					25.00	0.984	43.70	1.720	75.60	2.976		
21.30	0.839					24.30	0.957	43.00	1.693	75.00	2.953		
22.00	0.866					24.00	0.945	42.70	1.681	74.60	2.937		
23.00	0.906					23.50	0.925	42.20	1.661	74.10	2.917		
25.40	1.000					22.30	0.878	41.00	1.614	72.90	2.870		
26.90	1.059					21.50	0.846	40.20	1.583	72.20	2.843		
28.00	1.102					21.00	0.827	39.70	1.563	71.60	2.819		
29.00	1.142					20.50	0.807	39.20	1.543	71.10	2.799		
30.00	1.181					20.00	0.787	38.70	1.524	70.60	2.780		
31.75	1.250					19.10	0.752	37.80	1.488	69.70	2.744		
33.70	1.327					18.10	0.713	36.80	1.449	68.80	2.709		
35.00	1.378					17.50	0.689	36.20	1.425	68.10	2.681		
38.10	1.500					15.90	0.626	34.60	1.362	66.60	2.622		
40.00	1.575							33.70	1.327	65.60	2.583		
41.00	1.614							33.20	1.307	65.10	2.563		
42.40	1.669							32.50	1.280	64.40	2.535		
44.50	1.752							31.40	1.236	63.40	2.496		
48.30	1.902							29.50	1.161	61.50	2.421		
50.80	2.000							28.30	1.114	60.20	2.370	92.90	3.657
51.00	2.008							28.20	1.110	60.10	2.366	92.80	3.654
52.00	2.047							27.70	1.091	59.60	2.346	92.30	3.634
53.00	2.087							27.20	1.071	59.10	2.327	91.80	3.614
54.00	2.126							26.70	1.051	58.60	2.307	91.30	3.594
60.30	2.374							23.50	0.925	55.50	2.185	88.20	3.472
63.50	2.500							21.90	0.862	53.90	2.122	86.60	3.409
70.00	2.756							18.70	0.736	50.60	1.992	83.30	3.280
76.10	2.996							15.60	0.614	47.60	1.874	80.30	3.161
76.20	3.000							15.60	0.614	47.50	1.870	80.20	3.157
85.00	3.346									43.10	1.697	75.80	2.984
88.90	3.500									41.20	1.622	73.90	2.909
101.60	4.000									34.80	1.370	67.50	2.657
104.00	4.094									33.60	1.323	66.30	2.610
108.00	4.252									31.60	1.244	64.30	2.531
114.30	4.500									28.50	1.122	61.20	2.409
127.00	5.000											54.80	2.157
129.00	5.079											53.80	2.118
139.70	5.500											48.50	1.909
152.40	6.000											42.10	1.657
154.00	6.063											41.30	1.626
163.00	6.417											36.80	1.449
165.10	6.500											35.80	1.409
168.30	6.626											34.20	1.346

FORMULA:

$$\text{Electrode length} = \frac{\text{Rotor Ø} - \text{Tube Ø}}{2} - \text{Electrode interval (generally 1.5 mm)} - 3$$

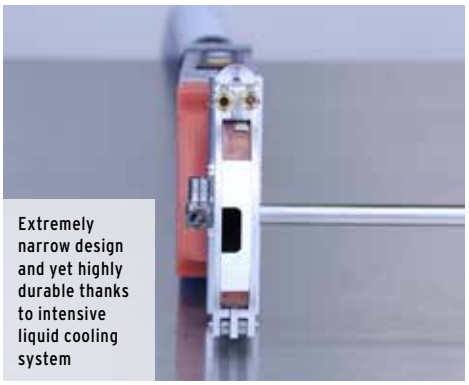
ORBIWELD 12

Compact TIG weld head – ideal for tight spaces

Micro weld head

It doesn't get any smaller or more effective than this: Thanks to its extremely narrow construction the OW 12 offers a unique diversity of functions as well as a high duty cycle previously unknown in weld heads of this size through its liquid cooling. This micro weld head is a compact space-saving marvel and guarantees continually reproducible, high-quality weld seams, even with high currents. Particularly suitable for welding all common microfittings!

Small-sized modules – base machine, clamping cartridges and clamping inserts – specially for applications in very tight spaces



Extremely narrow design and yet highly durable thanks to intensive liquid cooling system

Removable clamping cartridges for exact aligning of the parts to be welded

The OW 12 with its small-sized modules – basic machine, clamping cartridges and clamping inserts – is the ideal tool for work under tight spaces such as the semiconductor industry, aerospace, pharmaceutical industry as well as the ultra pure water supply sectors.

All the important commands for welding can be transmitted to the power supply via a control panel built into the robust and durable aluminum handle, so that no additional remote control is required.

The removable clamping cartridge enables accurate alignment with the parts to be welded, even where there is very little space.

ADDITIONAL FEATURES:

- Toolless quick change system for clamping cartridges and clamping inserts
- Wide clamping cartridge (Type "B") with exchangeable clamping shells for standard applications
- Extremely narrow clamping cartridges (Type "A") for welding microfittings and for other applications with very limited clamping lengths
- The head is 5.7 kg (12.6 lbs) light. All connections for electricity, gas and cooling water are firmly integrated in the OW 12
- To increase productivity, the optional ORBITWIN switching unit allows working with up to two heads in an alternating fashion, thus reducing conversion times and downtimes considerably
- Including highly flexible hose package (length: 7.5 m/24.6 ft) with strain relief to the power source – optionally extendable to up to 20.0 m (64 ft)

The success model OW 12 has been optimized even further!

The result: A well-engineered weld head with unequaled robustness, high ease of use and even higher performance, for example through:

- ✓ Higher temperature stability
- ✓ Improved ignition characteristics
- ✓ Optimized rotor guidance
- ✓ Optimized weld gas control
- ✓ Liquid-cooled
- ✓ Integrated control panel
- ✓ 7.5 m (24.6 ft) hose package

Robust and stable aluminum handle with integrated control panel

Quick change system for clamping shells

Particularly suitable for welding all common microfittings

Diameter-specific clamping cartridges – available separately

Aluminum clamping inserts for OW 12, type "B" (wide) – available separately

Comprehensive range of accessories, e.g. ORBmax residual oxygen meter

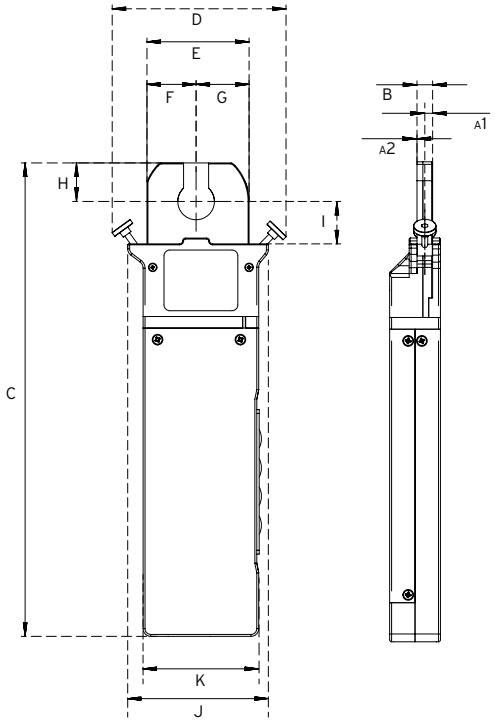
POSSIBLE APPLICATIONS OW 12:	MICROFITTING-TO-MICROFITTING	MICROFITTING-TO-TUBE	TUBE-TO-TUBE	ADVANTAGES
Clamping cartridges, type "A" (narrow)	x	x	x	High flexibility thanks to narrow design
Clamping cartridges, type "B" (wide)			x	Low cost due to exchangeable clamping inserts

APPLICATION RANGE	ORBIWELD 12
Code	**821 000 010**
Tube OD, min. - max.	3.0 - 12.7 mm 0.118" - 0.500"
Electrode Ø	1.0 mm 0.039"
Machine weight including hose package	4.8 kg 10.6 lbs
Hose package length	7.5 m 24.6 ft
SCOPE OF DELIVERY	
Including:	• 1 Micro weld head ORBIWELD 12 • 1 Durable storage and shipping case • 1 Tool set • 1 Power connector adapter • 1 Feeler gauge • 1 Operating instructions and spare parts list
Suitable accessories (available option):	• Clamping cartridges for OW 12, type "A" (narrow) • Clamping cartridge for OW 12, type "B" (wide) • Clamping inserts for OW 12, type "B" (wide) • ESG tungsten grinders • ORBmax residual oxygen meter • ORBIPURGE forming set • Hose package extensions • WS2 tungsten electrodes

DIMENSIONS			ELECTRODE INTERVAL			
ORBIWELD 12	DIMENSION		CARTRIDGE TYPE "A"		CARTRIDGE TYPE "B"	
	[MM]	[INCH]	[MM]	[INCH]	[MM]	[INCH]
Dimension "**A1**"	4.25	0.167	6.35	0.250	15.60	0.614
Dimension "**A2**"	3.75	0.148	5.85	0.230	15.10	0.594
Dimension "**B**"	8.00	0.315	12.20	0.480	30.70	1.209
Dimension "**C**"	245.70	9.673				
Dimension "**D**"	90.00	3.543				
Dimension "**E**"	53.00	2.087				
Dimension "**F**"	25.50	1.004				
Dimension "**G**"	27.50	1.083				
Dimension "**H**"	20.00	0.787				
Dimension "**I**"	22.00	0.866				
Dimension "**J**"	73.00	2.874				
Dimension "**K**"	60.00	2.362				

ORBIWELD 12
with narrow clamping cartridge
(type "A")

ORBIWELD 12
with wide clamping cartridge
(type "B")



The technical data are not binding. They are not warranted characteristics and are subject to change.

Micro weld head OW

ORBIWELD 12

Features, application range, technical data and scope of delivery, see page 21.

Clamping cartridges and clamping inserts are not included in the scope of delivery (see from page 23).

ORBIWELD 12 with narrow clamping cartridge (type "A")

ORBIWELD 12 with wide clamping cartridge (type "B")

ARTICLE	CODE		WEIGHT OF MACHINE KG*	DISPATCH WEIGHT KG
Micro weld head OW 12	**821 000 010**		4.800	11.000

* Machine weight including hose package

Suitable accessories (available option):

- Clamping cartridges for OW 12, type "A" (narrow), see page 23
- Clamping cartridge for OW 12, type "B" (wide), see page 23
- Clamping inserts for OW 12, type "B" (wide), see page 24
- Power connector adapter set, see page 83

Clamping cartridges for OW 12, type "A" (narrow)

Made from stainless steel with flip-up weld head cover "FlipCover" which enables to test and/or to readjust the electrode position before the welding procedure. Clamping cartridges with a total width of only 12.2 mm (0.48") can be supplied for welding of microfittings and other applications with very limited clamping lengths (Type "A").

For type "A" a separate clamping cartridge is required for each tube diameter.

Clamping cartridges for OW 12, type "A" (narrow)

ARTICLE	TUBE OD [MM]	TUBE OD [INCH]	CODE		KG
Clamping cartridge VA for OW 12, Type "A" (narrow), V3	2.00	0.079	**821 050 200**		0.100
Clamping cartridge VA for OW 12, Type "A" (narrow), V3	3.00	0.118	**821 050 201**		0.100
Clamping cartridge VA for OW 12, Type "A" (narrow), V3	3.18	0.125	**821 050 202**		0.100
Clamping cartridge VA for OW 12, Type "A" (narrow), V3	6.00	0.236	**821 050 203**		0.100
Clamping cartridge VA for OW 12, Type "A" (narrow), V3	6.35	0.250	**821 050 204**		0.100
Clamping cartridge VA for OW 12, Type "A" (narrow), V3	8.00	0.315	**821 050 205**		0.100
Clamping cartridge VA for OW 12, Type "A" (narrow), V3	9.53	0.375	**821 050 206**		0.100
Clamping cartridge VA for OW 12, Type "A" (narrow), V3	10.00	0.394	**821 050 207**		0.100
Clamping cartridge VA for OW 12, Type "A" (narrow), V3	12.00	0.472	**821 050 208**		0.100
Clamping cartridge VA for OW 12, Type "A" (narrow), V3	12.70	0.500	**821 050 209**		0.100

Clamping cartridge for OW 12, type "B" (wide)

When using the clamping cartridges, type "B", one set of clamping inserts is required in addition for each tube diameter.

Clamping cartridge for OW 12, type "B" (wide)

ARTICLE	CODE		KG
Clamping cartridge for OW 12, type "B" (wide)	**821 050 002**		0.095

Clamping inserts for OW 12, type "B" (wide), 4 pcs.

Clamping inserts for OW 12, type "B" (wide)

Made of aluminum.
Can only be used in connection with the clamping cartridges, type "B".

One set of clamping inserts consists of 4 individual parts (2 inserts each side).

ARTICLE	TUBE OD [MM]	TUBE OD [INCH]	CODE		KG
Clamping insert for OW 12, type "B" (wide), 4 pcs.	3.00	0.118	**821 002 220**		0.050
Clamping insert for OW 12, type "B" (wide), 4 pcs.	3.18	0.125	**821 002 222**		0.050
Clamping insert for OW 12, type "B" (wide), 4 pcs.	4.00	0.157	**821 002 224**		0.050
Clamping insert for OW 12, type "B" (wide), 4 pcs.	6.00	0.236	**821 002 228**		0.050
Clamping insert for OW 12, type "B" (wide), 4 pcs.	6.35	0.250	**821 002 229**		0.050
Clamping insert for OW 12, type "B" (wide), 4 pcs.	7.00	0.276	**821 002 230**		0.050
Clamping insert for OW 12, type "B" (wide), 4 pcs.	7.94	0.313	**821 002 232**		0.050
Clamping insert for OW 12, type "B" (wide), 4 pcs.	8.00	0.315	**821 002 233**		0.050
Clamping insert for OW 12, type "B" (wide), 4 pcs.	9.00	0.354	**821 002 234**		0.050
Clamping insert for OW 12, type "B" (wide), 4 pcs.	9.53	0.375	**821 002 235**		0.050
Clamping insert for OW 12, type "B" (wide), 4 pcs.	10.00	0.394	**821 002 237**		0.050
Clamping insert for OW 12, type "B" (wide), 4 pcs.	12.00	0.472	**821 002 243**		0.050
Clamping insert for OW 12, type "B" (wide), 4 pcs.	12.70	0.500	**821 002 245**		0.050

Other accessories for orbital welding

- ESG tungsten grinders, see page 75
- ORBmax residual oxygen meter, see page 79
- ORBIPURGE forming set, see page 82
- Hose package extensions, see page 82
- WS2 tungsten electrodes, see page 83
- Power connector adapter set, see page 83

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ORBIWELD 19

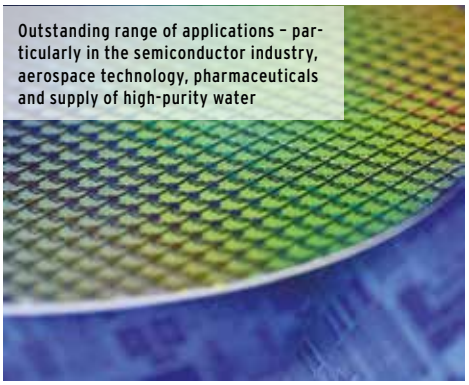
Micro weld head with additional advantages

Micro weld head

Small, robust and efficient: The OW 19 is the perfect tool when the task involves connections of ultra-high-purity tubes and high-performance tubes, such as are used for example in the semiconductor industry or applications in branches in which high purity and maximum performance are imperative. Even under extremely difficult conditions and in tight spaces the OW 19 produces excellent and reliable quality!

Can be used in all positions, irrespective of whether the tubes to be connected are positioned horizontally, vertically or inclined

Three-part clamping mechanism – no parts project beyond the head outline even in the opened position



Outstanding range of applications – particularly in the semiconductor industry, aerospace technology, pharmaceuticals and supply of high-purity water

Its extremely high endurance thanks to the intensive liquid cooling as well as its high-quality robust construction are characteristics which distinguish this micro weld head.

The 3-part clamping mechanism ensures that the head can be clamped in the most confined spaces, as even when open no parts protrude beyond the contour of the head. Equally, an exact alignment, with no misalignment is guaranteed with the parts to be welded.

All the important commands for welding can be transmitted to the power supply via a control panel built into the robust and durable aluminum handle, so that no additional remote control is required.

All orbital welding power sources from Orbitalum automatically detect the head and its properties so that the operator only has to call up his or her specified jointing program and start the joining process before beginning to weld.

The matching clamping inserts are available in narrow and broad versions and can be inserted into the weld head with just a few simple steps.

The head is 7.5 kg (16.5 lbs) light. All connections for electricity, gas, cooling water are firmly integrated in the OW 19.

To increase productivity, the optional ORBITWIN switching unit allows working with up to two heads in an alternating fashion, thus reducing conversion times and downtimes considerably.

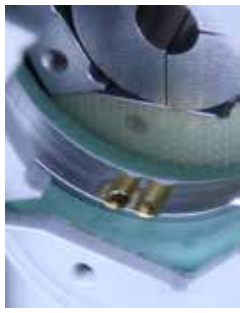
Including highly flexible hose package (length: 7.5 m/24.6 ft) with strain relief to the power source – optionally extendable to up to 20.0 m (64 ft).

The OW 19 – with many additional advantages:

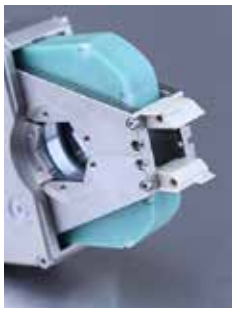
- ✓ Optimized scissors clamping system
- ✓ Flip-up weld head cover "FlipCover"
- ✓ Optimized weld gas control
- ✓ One-hand operation
- ✓ Completely liquid-cooled
- ✓ Integrated control panel
- ✓ 7.5 m (24.6 ft) hose package

Robust and stable aluminum handle with integrated control panel

Practical clamping locks allowing single-hand operation



Simpler inserting of the electrodes by markings for Ø 1.0/1.6 mm (0.039"/0.063")

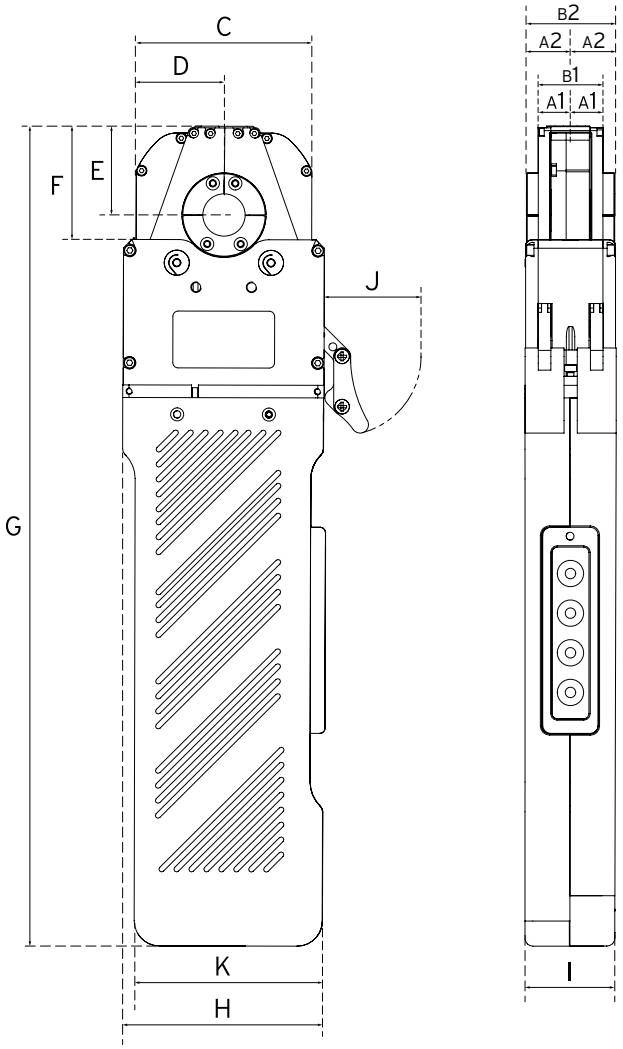


Flip-up weld head cover "FlipCover"

Diameter-specific clamping inserts (each 6-parts, wide and narrow) available separately

Comprehensive range of accessories, e.g. ORBIPURGE forming set

APPLICATION RANGE	ORBIWELD 19
Code	**822 000 010**
Tube OD, min. - max.	3.0 - 19.05 mm 0.118" - 0.750"
Electrode Ø	1.0 / 1.6 mm 0.039" / 0.063"
Machine weight including hose package	6.5 kg 14.3 lbs
Hose package length	7.5 m 24.6 ft
SCOPE OF DELIVERY	
Including:	• 1 Micro weld head ORBIWELD 19 • 1 Durable storage and shipping case • 1 Tool set • 1 Power connector adapter • 1 Feeler gauge • 1 Operating instructions and spare parts list
Suitable accessories (available option):	• Clamping inserts for OW 19 • ESG tungsten grinders • ORBmax residual oxygen meter • ORBIPURGE forming set • Hose package extensions • WS2 tungsten electrodes



DIMENSIONS			ELECTRODE INTERVAL			
ORBIWELD 19	DIMENSION		CLAMPING INSERT TYPE "S"		CLAMPING INSERT TYPE "W"	
	[MM]	[INCH]	[MM]	[INCH]	[MM]	[INCH]
Dimension "**A1**"	12.00	0.472	12.00	0.472		
Dimension "**A2**"	17.00	0.669			17.00	0.669
Dimension "**B1**"	24.00	0.945	24.00	0.945		
Dimension "**B2**"	34.00	1.339			34.00	1.339
Dimension "**C**"	66.50	2.618				
Dimension "**D**"	33.25	1.309				
Dimension "**E**"	35.20	1.386				
Dimension "**F**"	44.50	1.752				
Dimension "**G**"	313.50	12.343				
Dimension "**H**"	76.00	2.992				
Dimension "**I**"	34.00	1.339				
Dimension "**J**"	35.00	1.378				
Dimension "**K**"	71.00	2.795				

The technical data are not binding. They are not warranted characteristics and are subject to change.

Micro weld head OW

ORBIWELD 19

Features, application range, technical data and scope of delivery, see page 25.

Clamping cartridges and clamping inserts are not included in the scope of delivery (see from page 23).

ORBIWELD 19

ARTICLE	CODE		WEIGHT OF MACHINE KG*	DISPATCH WEIGHT KG
Micro weld head OW 19	**822 000 010**		6.500	14.800

* Machine weight including hose package

Suitable accessories (available option):

- Clamping inserts for OW 19, see page 28
- Power connector adapter set, see page 83

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Clamping insert for OW 19 "W" (wide) 6 pcs.

Clamping insert for OW 19 "S" (small) 6 pcs.

Clamping inserts for OW 19

One set of clamping inserts consists of 6 individual parts (3 inserts each side).

Type "W" (wide) for standard applications.
Type "S" (small) for applications in extremely conditions with low clearances.

ARTICLE	TUBE OD [MM]	TUBE OD [INCH]	TYPE "W" (WIDE)			TYPE "S" (SMALL)		
			CODE		KG	CODE		KG
Clamping insert for OW 19, 6 pcs.	3.00	0.118	**822 002 120**		0.100	**822 002 320**		0.044
Clamping insert for OW 19, 6 pcs.	3.18	0.125	**822 002 122**		0.100	**822 002 322**		0.044
Clamping insert for OW 19, 6 pcs.	3.95	0.156	**822 002 123**		0.099	**822 002 323**		0.044
Clamping insert for OW 19, 6 pcs.	4.00	0.157	**822 002 124**		0.099	**822 002 324**		0.044
Clamping insert for OW 19, 6 pcs.	4.78	0.188	**822 002 126**		0.099	**822 002 326**		0.043
Clamping insert for OW 19, 6 pcs.	5.95	0.234	**822 002 127**		0.097	**-**		-
Clamping insert for OW 19, 6 pcs.	6.00	0.236	**822 002 128**		0.097	**822 002 328**		0.043
Clamping insert for OW 19, 6 pcs.	6.35	0.250	**822 002 129**		0.097	**822 002 329**		0.043
Clamping insert for OW 19, 6 pcs.	7.00	0.276	**822 002 130**		0.096	**-**		-
Clamping insert for OW 19, 6 pcs.	7.94	0.313	**822 002 132**		0.094	**-**		-
Clamping insert for OW 19, 6 pcs.	8.00	0.315	**822 002 133**		0.094	**822 002 333**		0.042
Clamping insert for OW 19, 6 pcs.	9.00	0.354	**822 002 134**		0.092	**822 002 334**		0.041
Clamping insert for OW 19, 6 pcs.	9.53	0.375	**822 002 135**		0.091	**822 002 335**		0.040
Clamping insert for OW 19, 6 pcs.	9.95	0.392	**822 002 136**		0.090	**822 002 336**		0.040
Clamping insert for OW 19, 6 pcs.	10.00	0.394	**822 002 137**		0.090	**822 002 337**		0.040
Clamping insert for OW 19, 6 pcs.	12.00	0.472	**822 002 143**		0.083	**822 002 343**		0.038
Clamping insert for OW 19, 6 pcs.	12.10	0.476	**-**		-	**822 002 344**		0.038
Clamping insert for OW 19, 6 pcs.	12.70	0.500	**822 002 145**		0.081	**822 002 345**		0.037
Clamping insert for OW 19, 6 pcs.	13.00	0.512	**822 002 146**		0.080	**-**		-
Clamping insert for OW 19, 6 pcs.	13.50	0.531	**822 002 148**		0.078	**822 002 348**		0.036
Clamping insert for OW 19, 6 pcs.	14.00	0.551	**822 002 150**		0.076	**822 002 350**		0.035
Clamping insert for OW 19, 6 pcs.	15.00	0.591	**822 002 153**		0.071	**822 002 353**		0.034
Clamping insert for OW 19, 6 pcs.	15.30	0.602	**-**		-	**822 002 354**		0.033
Clamping insert for OW 19, 6 pcs.	15.88	0.625	**822 002 157**		0.066	**822 002 357**		0.032
Clamping insert for OW 19, 6 pcs.	16.00	0.630	**822 002 158**		0.066	**822 002 358**		0.032
Clamping insert for OW 19, 6 pcs.	17.20	0.677	**822 002 162**		0.058	**-**		-
Clamping insert for OW 19, 6 pcs.	17.30	0.681	**822 002 163**		0.058	**822 002 363**		0.030
Clamping insert for OW 19, 6 pcs.	18.00	0.709	**822 002 164**		0.053	**822 002 364**		0.029
Clamping insert for OW 19, 6 pcs.	19.00	0.748	**822 002 165**		0.044	**822 002 365**		0.027
Clamping insert for OW 19, 6 pcs.	19.05	0.750	**822 002 166**		0.044	**822 002 366**		0.027

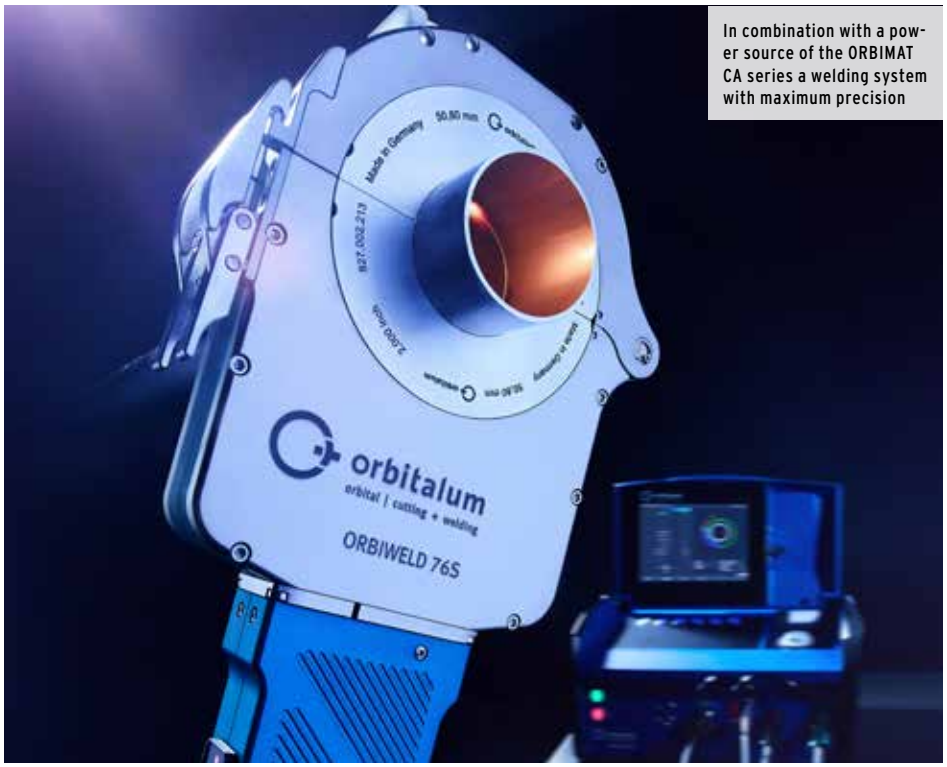
Other accessories for orbital welding

- ESG tungsten grinders, see page 75
- ORBmax residual oxygen meter, see page 79
- ORBIPURGE forming set, see page 82
- Hose package extensions, see page 82
- WS2 tungsten electrodes, see page 83
- Power connector adapter set, see page 83

ORBIWELD 38S, 76S, 115S

Enclosed orbital weld heads

Easier to handle, more economical, more effective – enclosed TIG orbital welding heads with outstanding characteristics: The ORBIWELD "S" series from Orbitalum convinces by its extremely narrow design and high durability by its efficient integrated liquid cooling system.



In combination with a power source of the ORBIMAT CA series a welding system with maximum precision

Extremely narrow design

Securely clamping of the parts to be welded without misalignment

The small dimensions of the ORBIWELD "S" series make it ideal for applications where space is very restricted, such as the pharmaceutical and chemical industry, the semiconductor, food and beverage industry as well as aerospace.

All enclosed orbital weld heads of the ORBIWELD series are made from strong, durable materials of the finest quality and are characterised by their unique liquid cooling system.

The appropriate high-grade, functional and long-lasting clamping inserts are lasting longer than the inserts of many competitors.
The inserts are available in small and wide design and easily and quickly insertable into the weld heads.

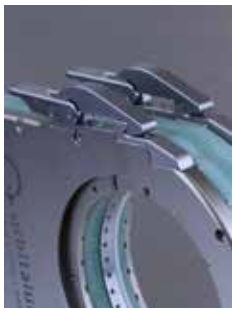
ADDITIONAL FEATURES:

- Thanks to the extremely narrow design, parts with short straight welding lengths can also be processed
- High-quality, rugged housing and handle parts
- High durability due to completely liquid-cooled weld head housing
- Highly flexible hose package (Length: 7.5 m/ 24.6 ft) with strain relief to the power supply
- All the important commands for welding can be transmitted to the power supply via a control panel built into the robust and durable aluminum handle, so that no additional remote control is required
- Quick change system for clamping inserts that engages and relelases smoothly without any tools
- Cost-effective clamping inserts
- Durable clamping connections in combination with clamping inserts available for all tube dimensions guarantee that the parts to be welded are clamped securely without misalignment
- Comprehensive and customer-specific range of accessories
- A folding cover at the weld head enables to test and/or to readjust the electrode position before the welding procedure

Robust and stable aluminum handle with integrated control panel

Simpler inserting of the electrodes by markings for Ø 1.6/2.4 mm (0.063"/0.094")

Flip-up weld head cover "FlipCover"



Durable clamping connections

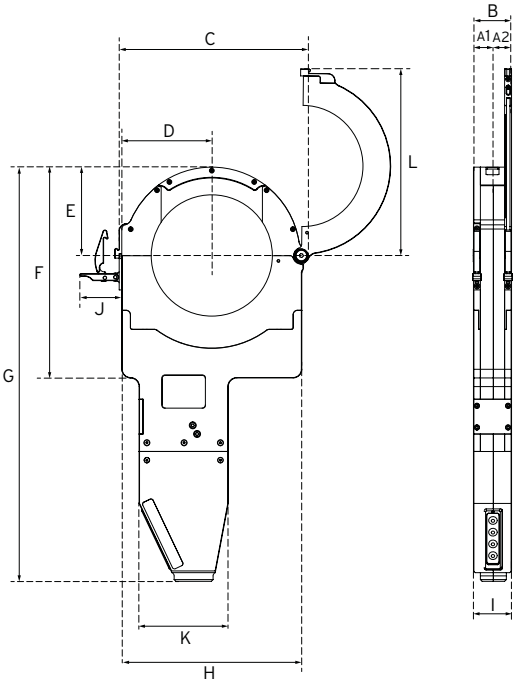
Diameter-specific clamping inserts (each of 2 half-shells) aluminum available separately

Comprehensive range of accessories, e.g. table mounts

DIMENSIONS	ORBIWELD 38S				ORBIWELD 76S				ORBIWELD 115S					
	DIMENSION		ELECTRODE INTERVAL CLAMPING INSERT*		DIMENSION		ELECTRODE INTERVAL CLAMPING INSERT*		DIMENSION		ELECTRODE INTERVAL			
											CLAMPING INSERT* TYPE "S"		CLAMPING INSERT* TYPE "W"	
	[MM]	[INCH]	[MM]	[INCH]	[MM]	[INCH]	[MM]	[INCH]	[MM]	[INCH]	[MM]	[INCH]	[MM]	[INCH]
Dimension "**A1**"	17.00	0.669	17.50	0.689	19.00	0.748	19.00	0.748	22.75	0.896	25.00	0.984	45.75	1.801
Dimension "**A2**"	17.00	0.669	17.50	0.689	19.00	0.748	19.00	0.748	21.25	0.837	25.00	0.984	44.25	1.742
Dimension "**B**"	34.00	1.339	35.00	1.378	38.00	1.496	38.00	1.496	44.00	1.732	50.00	1.969	90.00	3.543
Dimension "**C**"	112.00	4.409			159.00	6.260			220.00	8.661				
Dimension "**D**"	47.50	1.870			67.50	2.657			104.00	4.094				
Dimension "**E**"	47.00	1.850			66.00	2.598			102.00	4.016				
Dimension "**F**"	144.00	5.669			187.00	7.362			244.00	9.606				
Dimension "**G**"	357.00	14.055			400.00	15.748			480.00	18.898				
Dimension "**H**"	95.00	3.740			135.00	5.315			208.00	8.189				
Dimension "**I**"	34.00	1.339			34.00	1.339			44.00	1.732				
Dimension "**J**"	55.00	2.165			55.00	2.165			55.00	2.165				
Dimension "**K**"	71.00	2.795			71.00	2.795			102.00	4.016				
Dimension "**L**"	110.00	4.331			153.00	6.024			216.00	8.504				

* 2 pairs

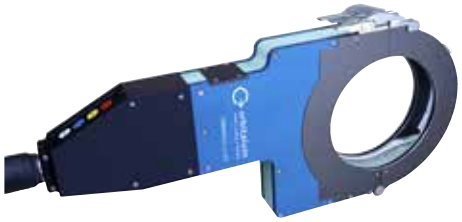
APPLICATION RANGE	ORBIWELD 38S	ORBIWELD 76S	ORBIWELD 115S
Code	826 000 001	827 000 001	828 000 001
Tube OD, min. - max.	3 - 38.1 mm 1/8" - 1.5"	6 - 77 mm 1/4" - 3.0"	20 - 115 mm 3/4" - 4.5"
Electrode Ø	1.6/2.4 mm .063"/.094"	1.6/2.4 mm .063"/.094"	1.6/2.4 mm .063"/.094"
Machine weight including hose package	6.9 kg 15.2 lbs	7.5 kg 16.5 lbs	9.7 kg 21.4 lbs
Hose package length	7.5 m / 24.6 ft	7.5 m / 24.6 ft	7.5 m / 24.6 ft
SCOPE OF DELIVERY			
Including:	• 1 Enclosed orbital weld head OW 38S, OW 76S or OW 115S • 1 Durable storage and shipping case • 1 Tool set • 1 Power connector adapter • 1 Feeler gauge • 1 Operating instructions and spare parts list		
Suitable accessories (available option):	• Clamping inserts, small and wide • Cavity inserts for moldings • Inserts for elbow welding • T-piece clamping inserts • Electrode adapters • Table mounts • ESG tungsten grinders • ORBmax residual oxygen meter • ORBIPURGE forming set • Hose package extensions • WS2 tungsten electrodes		



The technical data are not binding. They are not warranted characteristics and are subject to change.

ORBIWELD 38S

ORBIWELD 76S



ORBIWELD 115S

Enclosed orbital weld heads OW S

ORBIWELD 38S, ORBIWELD 76S, ORBIWELD 115S

Features, application range, technical data and scope of delivery, see page 29.

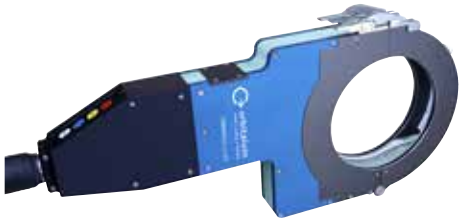
Clamping inserts are not included in the scope of delivery (see from page 36).

ARTICLE	CODE		WEIGHT OF MACHINE KG*	DISPATCH WEIGHT KG
Enclosed orbital weld head OW 38S	**826 000 001**		6.900	16.500
Enclosed orbital weld head OW 76S	**827 000 001**		7.500	16.900
Enclosed orbital weld head OW 115S	**828 000 001**		9.700	18.600

* Machine weight including hose package

ORBIWELD 38S

ORBIWELD 76S



ORBIWELD 115S

Suitable accessories (available option):

- Clamping inserts for ORBIWELD S and ORBIWELD, see page 36
- Cavity inserts for moldings, see page 39
- Inserts for elbow welding, see page 40
- T-piece clamping inserts, see page 40
- Electrode adapters, see page 41
- Table mounts, see page 42
- Power connector adapter set, see page 83

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ORBIWELD 170

Enclosed orbital weld head

The ORBIWELD 170 is characterized by very high thermal resistance. It is therefore particularly suitable for applications in the chemical, pharmaceutical, food and beverage industry, where ever greater demands are made on the closed weld heads by ever greater tube diameters and wall thicknesses.

The ORBIWELD 170 weld head is working continuously even at high welding currents and intensive loads

Stable clamping locks for secure and offset-free clamping

Robust and stable aluminum handle with integrated control panel

Robust and stable aluminum handle with integrated control panel

Coolant channels running through the entire weld head body ensure an excellent heat dissipation that enable the ORBIWELD weld head to work continuously even at high welding currents and intensive loady.

The closed design of the ORBIWELD 170 and the gas management system of the head ensure a permanent infiltration of the weld seam during welding with inert gas, guaranteeing seams that are very low in welding colors.

FEATURES:

- Quick change system for clamping inserts that engages and relelases smoothly without any tools
- High durability due to completely liquid-cooled weld head housing
- Durable clamping connections in combination with clamping inserts available for all tube dimensions guarantee that the parts to be welded are clamped securely without misalignment
- All the important commands for welding can be transmitted to the power supply via a control panel built into the robust and durable aluminum handle, so that no additional remote control is required
- High-quality, rugged housing and handle parts
- Highly flexible hose package (Length: 7.5 m/ 24.6 ft) with strain relief to the power supply
- Cost-effective clamping inserts
- Comprehensive and customer-specific range of accessories

Comprehensive and customer-specific range of accessories (available option):

Hose package length extensions up to max. of 20 m (64 ft)

Cost-effective clamping inserts

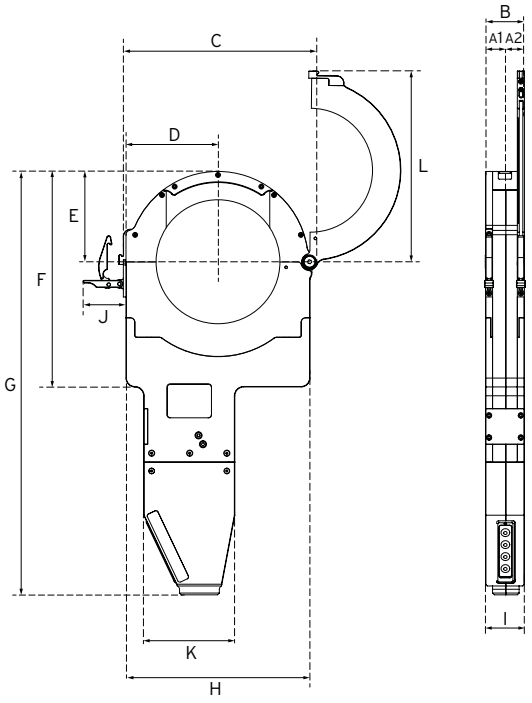
Cavity inserts for moldings for welding of shaped pieces

T-piece clamping inserts with the ability to clamp the hollowed tube and the tube to be welded

Electrode adapters for transverse alignment of the tungsten electrode

Practical and sturdy (anodized) aluminum table mounts

APPLICATION RANGE	ORBIWELD 170
Code	825 000 001
Tube OD, min. - max.	50 - 170 mm 2" - 6"
Electrode Ø	1.6/2.4 mm 0.063"/0.094"
Machine weight including hose package	18.9 kg 41.7 lbs
Hose package length	7.5 m 24.6 ft
SCOPE OF DELIVERY	
Including:	• 1 Enclosed orbital weld head OW 170 • 1 Durable storage and shipping case (Code 821 030 001) • 1 Tool set • 1 Power connector adapter • 1 Feeler gauge • 1 Operating instructions and spare parts list
Suitable accessories (available option):	• Clamping inserts, small and wide • Cavity inserts for moldings • Inserts for elbow welding • T-piece clamping inserts • Electrode adapters • Table mounts • ESG tungsten grinders • ORBmax residual oxygen meter • ORBIPURGE forming set • Hose package extensions • Pressure regulator • WS2 tungsten electrodes



ORBIWELD 170	DIMENSION		ELECTRODE INTERVAL			
			CLAMPING INSERT TYPE "S" [2 PAIRS]		CLAMPING INSERT TYPE "W" [2 PAIRS]	
	[MM]	[INCH]	[MM]	[INCH]	[MM]	[INCH]
Dimension "**A1**"	30.00	1.181	32.00	1.260	50.00	1.969
Dimension "**A2**"	41.00	1.614	43.00	1.693	61.00	2.402
Dimension "**B**"	70.00	2.756	72.00	2.835	110.00	4.331
Dimension "**C**"	345.00	13.583				
Dimension "**D**"	160.00	6.299				
Dimension "**E**"	140.00	5.512				
Dimension "**F**"	365.00	14.370				
Dimension "**G**"	585.00	23.031				
Dimension "**H**"	285.00	11.220				
Dimension "**I**"	50.00	1.969				
Dimension "**J**"	67.00	2.638				
Dimension "**K**"	88.00	3.465				
Dimension "**L**"	332.00	13.071				

The technical data are not binding. They are not warranted characteristics and are subject to change.

ORBIWELD 170

Enclosed orbital weld head OW

ORBIWELD 170

Features, application range, technical data and scope of delivery, see page 33.

Clamping inserts are not included in the scope of delivery (see from page 36).

ARTICLE	CODE		WEIGHT OF MACHINE KG	DISPATCH WEIGHT KG
Enclosed orbital weld head OW 170	**825 000 001**		18.900	36.200

* Machine weight including hose package

ORBIWELD 170

Suitable accessories (available option):

- Clamping inserts for ORBIWELD S and ORBIWELD, see page 36
- Cavity inserts for moldings, see page 39
- Inserts for elbow welding, see page 40
- T-piece clamping inserts, see page 40
- Electrode adapters, see page 41
- Table mounts, see page 42
- Power connector adapter set, see page 83

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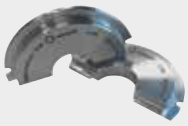
Accessories for ORBIWELD S and ORBIWELD

Clamping inserts

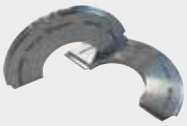
Made of aluminum. 1 set of clamping inserts consists of 2 parts for 1 clamping side.

2 clamping inserts (= 4 parts) are required for each tube dimension.
For the ORBIWELD 115, 115S and 170 you can choose between wide "W" and small "S" clamping inserts which can be combined with one another as desired.

For clamping insert blanks which can be drilled by customer to specific diameters, see page 39.



Clamping insert
for OW 38S, 2 pcs.
for one clamping side



Clamping insert
for OW 76S, 2 pcs.
for one clamping side

Clamping insert "S" (small)
for OW 115/115S, 2 pcs.
for one clamping side

Clamping insert "W" (wide)
for OW 115/115S, 2 pcs.
for one clamping side

Clamping insert "S" (small)
for OW 170, 2 pcs.
for one clamping side

Clamping insert "W" (wide)
for OW 170, 2 pcs.
for one clamping side

TUBE OD		OW 38S	OW 76S	OW 65	OW 115/115S "S" (SMALL)	OW 115/115S "W" (WIDE)	OW 170 "S" (SMALL)	OW 170 "W" (WIDE)
[MM]	[INCH]	CODE	CODE	CODE	CODE	CODE	CODE	CODE
3.00	0.118	826 002 120	-	-	-	-	-	-
3.18	0.125	826 002 122	-	-	-	-	-	-
4.00	0.157	826 002 124	-	-	-	-	-	-
4.76	0.187	826 002 125	-	-	-	-	-	-
4.78	0.188	826 002 126	-	-	-	-	-	-
5.95	0.234	826 002 127	-	-	-	-	-	-
6.00	0.236	826 002 128	827 002 120	823 002 120	-	-	-	-
6.35	0.250	826 002 129	827 002 121	823 002 121	-	-	-	-
7.00	0.276	826 002 130	-	823 002 122	-	-	-	-
7.50	0.295	826 002 131	-	-	-	-	-	-
7.94	0.313	826 002 132	827 002 124	-	-	-	-	-
8.00	0.315	826 002 133	827 002 125	823 002 125	-	-	-	-
9.00	0.354	-	827 002 126	823 002 126	-	-	-	-
9.53	0.375	826 002 135	827 002 127	823 002 127	-	-	-	-
9.95	0.392	826 002 136	-	-	-	-	-	-
10.00	0.394	826 002 137	827 002 129	823 002 129	-	-	-	-
10.10	0.398	826 002 138	827 002 130	823 002 130	-	-	-	-
10.20	0.402	826 002 139	827 002 131	-	-	-	-	-
11.00	0.433	826 002 140	827 002 132	823 002 132	-	-	-	-
11.95	0.470	826 002 142	827 002 134	-	-	-	-	-
12.00	0.472	826 002 143	827 002 135	823 002 135	-	-	-	-
12.10	0.476	826 002 144	827 002 136	-	-	-	-	-
12.70	0.500	826 002 145	827 002 137	823 002 137	-	-	-	-
13.00	0.512	826 002 146	827 002 138	823 002 138	-	-	-	-
13.20	0.520	-	827 002 139	-	-	-	-	-
13.50	0.531	826 002 148	827 002 140	-	-	-	-	-
13.70	0.539	826 002 149	827 002 141	823 002 141	-	-	-	-
14.00	0.551	826 002 150	827 002 142	823 002 142	-	-	-	-
14.30	0.563	826 002 151	-	-	-	-	-	-
14.70	0.579	826 002 152	-	-	-	-	-	-
15.00	0.591	826 002 153	827 002 145	823 002 145	-	-	-	-
15.30	0.602	826 002 154	827 002 146	-	-	-	-	-
15.60	0.614	826 002 155	827 002 147	-	-	-	-	-
15.70	0.618	826 002 156	827 002 148	-	-	-	-	-
15.88	0.625	826 002 157	827 002 149	-	-	-	-	-
16.00	0.630	826 002 158	827 002 150	823 002 150	-	-	-	-
16.70	0.657	826 002 159	-	-	-	-	-	-
17.00	0.669	-	827 002 152	-	-	-	-	-
17.20	0.677	826 002 162	827 002 154	823 002 154	-	-	-	-
17.30	0.681	826 002 163	827 002 155	823 002 155	-	-	-	-
18.00	0.709	826 002 164	827 002 156	823 002 156	-	-	-	-
19.00	0.748	826 002 165	827 002 157	823 002 157	-	-	-	-

TUBE OD		OW 38S	OW 76S	OW 65	OW 115/115S "S" (SMALL)	OW 115/115S "W" (WIDE)	OW 170 "S" (SMALL)	OW 170 "W" (WIDE)
[MM]	[INCH]	CODE	CODE	CODE	CODE	CODE	CODE	CODE
19.05	0.750	826 002 166	827 002 158	823 002 158	-	-	-	-
19.50	0.768	826 002 167	827 002 159	-	-	-	-	-
20.00	0.787	826 002 168	827 002 160	823 002 160	824 002 120	-	-	-
21.00	0.827	-	827 002 161	-	-	-	-	-
21.30	0.839	826 002 170	827 002 162	823 002 162	824 002 122	824 002 322	-	-
21.70	0.854	826 002 171	827 002 163	823 002 163	824 002 123	-	-	-
22.00	0.866	826 002 172	827 002 164	823 002 164	824 002 124	-	-	-
22.22	0.875	826 002 173	827 002 165	-	-	-	-	-
22.23	0.875	826 002 174	827 002 166	-	-	-	-	-
22.55	0.888	826 002 175	-	-	-	-	-	-
23.00	0.906	826 002 176	827 002 168	823 002 168	824 002 128	824 002 328	-	-
24.00	0.945	826 002 177	827 002 169	-	-	-	-	-
25.00	0.984	826 002 179	827 002 171	823 002 171	824 002 131	824 002 331	-	-
25.25	0.994	-	827 002 172	-	-	-	-	-
25.40	1.000	826 002 181	827 002 173	823 002 173	824 002 133	824 002 333	-	-
26.00	1.024	826 002 182	827 002 174	-	-	-	-	-
26.70	1.051	826 002 183	827 002 175	823 002 175	824 002 135	-	-	-
26.90	1.059	826 002 184	827 002 176	823 002 176	824 002 136	824 002 336	-	-
27.00	1.063	826 002 185	827 002 177	-	-	-	-	-
27.20	1.071	826 002 186	827 002 178	823 002 178	824 002 138	-	-	-
28.00	1.102	826 002 187	827 002 179	823 002 179	824 002 139	-	-	-
29.00	1.142	826 002 188	827 002 180	823 002 180	824 002 140	824 002 340	-	-
30.00	1.181	826 002 189	827 002 181	823 002 181	824 002 141	-	-	-
30.53	1.202	826 002 190	-	-	-	-	-	-
31.75	1.250	826 002 191	827 002 183	823 002 183	824 002 143	824 002 343	-	-
31.80	1.252	826 002 192	827 002 184	-	824 002 144	-	-	-
32.00	1.260	826 002 193	827 002 185	823 002 185	824 002 145	824 002 345	-	-
33.00	1.299	-	827 002 186	-	-	-	-	-
33.40	1.315	826 002 195	827 002 187	823 002 187	824 002 147	-	-	-
33.70	1.327	826 002 196	827 002 188	823 002 188	824 002 148	824 002 348	-	-
34.00	1.339	826 002 197	827 002 189	823 002 189	824 002 149	-	-	-
35.00	1.378	826 002 198	827 002 190	823 002 190	824 002 150	824 002 350	-	-
36.00	1.417	826 002 199	-	823 002 191	-	-	-	-
38.00	1.496	826 002 200	827 002 192	823 002 192	824 002 152	824 002 352	-	-
38.10	1.500	826 002 201	827 002 193	823 002 193	824 002 153	824 002 353	-	-
40.00	1.575	-	827 002 194	823 002 194	824 002 154	-	-	-
41.00	1.614	-	827 002 195	823 002 195	824 002 155	824 002 355	-	-
42.00	1.654	-	827 002 196	823 002 196	824 002 156	-	-	-
42.16	1.660	-	827 002 197	-	824 002 157	-	-	-
42.30	1.665	-	827 002 198	-	-	-	-	-
42.40	1.669	-	827 002 199	823 002 199	824 002 159	824 002 359	-	-
42.70	1.681	-	827 002 200	-	824 002 160	-	-	-
43.00	1.693	-	827 002 201	-	824 002 161	824 002 361	-	-
44.00	1.732	-	827 002 203	-	-	-	-	-
44.45	1.750	-	827 002 204	-	824 002 164	824 002 364	-	-
44.50	1.752	-	827 002 205	823 002 205	824 002 165	-	-	-
45.00	1.772	-	827 002 206	823 002 206	-	-	-	-
48.00	1.890	-	827 002 208	823 002 208	-	-	-	-
48.26	1.900	-	827 002 209	-	824 002 169	-	-	-
48.30	1.902	-	827 002 210	823 002 210	824 002 170	824 002 370	-	-
48.60	1.913	-	827 002 211	823 002 211	824 002 171	-	-	-
50.00	1.969	-	827 002 212	823 002 212	824 002 172	824 002 372	825 002 120	-
50.80	2.000	-	827 002 213	823 002 213	824 002 173	824 002 373	825 002 121	825 002 321
51.00	2.008	-	827 002 214	-	824 002 174	824 002 374	-	-
52.00	2.047	-	827 002 215	823 002 215	824 002 175	824 002 375	-	-
53.00	2.087	-	827 002 216	823 002 216	824 002 176	824 002 376	825 002 124	-
54.00	2.126	-	827 002 217	-	824 002 177	824 002 377	-	-
57.00	2.244	-	827 002 218	823 002 218	824 002 178	-	-	-
60.00	2.363	-	827 002 219	823 002 219	824 002 179	-	-	-
60.10	2.366	-	827 002 220	-	-	-	-	-
60.30	2.374	-	827 002 221	823 002 221	824 002 181	824 002 381	825 002 129	825 002 329
60.45	2.380	-	827 002 222	-	824 002 182	-	-	-
60.50	2.382	-	827 002 223	823 002 223	824 002 183	-	-	-
63.00	2.480	-	827 002 224	823 002 224	824 002 184	824 002 384	-	-
63.20	2.488	-	827 002 225	-	-	-	-	-
63.50	2.500	-	827 002 226	823 002 226	824 002 186	824 002 386	825 002 134	825 002 334
65.00	2.559	-	827 002 227	823 002 227	-	-	-	-

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TUBE OD		OW 38S	OW 76S	OW 65	OW 115/115S "S" (SMALL)	OW 115/115S "W" (WIDE)	OW 170 "S" (SMALL)	OW 170 "W" (WIDE)
[MM]	[INCH]	CODE	CODE	CODE	CODE	CODE	CODE	CODE
70.00	2.756	-	827 002 228	823 002 228	824 002 188	824 002 388	825 002 136	825 002 336
70.20	2.764	-	-	-	824 002 189	824 002 389	-	-
73.00	2.874	-	827 002 230	-	824 002 190	-	-	-
73.03	2.875	-	827 002 231	-	824 002 191	-	-	-
75.00	2.953	-	827 002 233	-	824 002 193	-	-	-
76.00	2.992	-	827 002 234	-	824 002 194	-	-	-
76.10	2.996	-	827 002 235	-	824 002 195	824 002 395	825 002 143	825 002 343
76.20	3.000	-	827 002 236	-	824 002 196	824 002 396	825 002 144	825 002 344
76.30	3.004	-	827 002 237	-	824 002 197	824 002 397	-	-
80.00	3.150	-	-	-	824 002 198	824 002 398	-	825 002 346
82.00	3.228	-	-	-	824 002 199	-	-	-
82.30	3.240	-	-	-	824 002 200	-	-	-
85.00	3.346	-	-	-	824 002 201	824 002 401	-	825 002 349
88.90	3.500	-	-	-	824 002 203	824 002 403	825 002 151	825 002 351
89.00	3.504	-	-	-	824 002 204	-	-	-
89.10	3.508	-	-	-	824 002 205	824 002 405	-	-
90.00	3.543	-	-	-	824 002 206	-	-	-
100.00	3.937	-	-	-	824 002 209	-	-	-
101.60	4.000	-	-	-	824 002 210	824 002 410	825 002 158	825 002 358
104.00	4.094	-	-	-	824 002 211	824 002 411	825 002 159	825 002 359
108.00	4.252	-	-	-	824 002 212	-	825 002 160	-
110.00	4.331	-	-	-	824 002 213	-	-	-
114.00	4.488	-	-	-	824 002 215	-	-	-
114.30	4.500	-	-	-	824 002 216	824 002 416	825 002 164	825 002 364
115.00	4.528	-	-	-	824 002 217	824 002 417	825 002 165	-
127.00	5.000	-	-	-	-	-	825 002 167	825 002 367
127.05	5.002	-	-	-	-	-	-	-
129.00	5.079	-	-	-	-	-	825 002 169	825 002 369
133.00	5.236	-	-	-	-	-	825 002 170	-
139.70	5.500	-	-	-	-	-	825 002 171	825 002 371
152.40	6.000	-	-	-	-	-	825 002 173	825 002 373
154.00	5.063	-	-	-	-	-	825 002 174	825 002 374
159.00	6.260	-	-	-	-	-	825 002 175	-
165.20	6.504	-	-	-	-	-	825 002 177	-
168.30	6.626	-	-	-	-	-	825 002 178	825 002 378
170.00	6.693	-	-	-	-	-	825 002 179	825 002 379

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Clamping insert blanks

Ideal for special applications.
Completely enclosed clamping inserts which can be drilled by customer to specific diameters.

Clamping insert blanks

ARTICLE	CODE		KG
Clamping insert blank for OW 38S, 2 pcs.	**826 002 210**		1.000
Clamping insert blank for OW 76S, 2 pcs.	**827 002 241**		0.280
Clamping insert blank for OW 115/115S "S" (small), 2 pcs.	**824 002 220**		0.590
Clamping insert blank for OW 115/115S "W" (wide), 2 pcs.	**824 002 420**		1.445
Clamping insert blank for OW 65, 2 pcs.	**823 002 230**		0.256
Clamping insert blank for OW 170 "S" (small), 2 pcs.	**825 002 185**		1.010
Clamping insert blank for OW 170 "W" (wide), 2 pcs.	**825 002 385**		1.000

Plastic covers for clamping inserts

All clamping inserts are delivered in pairs only in a plastic cover.
In the event of loss of the original packaging it can be reordered.

Plastic covers for clamping inserts

ARTICLE	CODE		KG
Plastic cover for clamping inserts OW 38S	**826 002 010**		0.019
Plastic cover for clamping inserts OW 76S/OW 65	**827 002 010**		0.065
Plastic cover for clamping inserts OW 115 "S" (small)	**824 002 010**		0.101
Plastic cover for clamping inserts OW 115 "W" (wide)	**824 002 011**		0.129

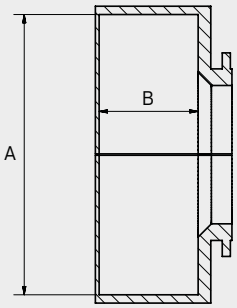
Cavity inserts for moldings

Clamping inserts for welding of shaped pieces (e.g. flanges, flanged wheels and screw fittings in the food industry).

1 cavity insert consists of 2 half shells.

Dimensions of the different cavity inserts:

ORBIWELD		DIMENSION "A"(Ø)	DIMENSION "B"
38S	[mm]	85.0	30.0
	[inch]	3.346	1.181
65	[mm]	125.0	30.0
	[inch]	4.921	1.181
76S	[mm]	130.0	35.0
	[inch]	5.118	1.378
115/115S	[mm]	179.0	39.0
	[inch]	7.047	1.535
170	[mm]	214.0	44.0
	[inch]	8.425	1.732



Cavity insert for moldings

ARTICLE	CODE		KG
Cavity insert for moldings for OW 38S	**826 050 010**		0.146
Cavity insert for moldings for OW 76S	**827 050 007**		0.266
Cavity insert for moldings for OW 65	**823 050 010**		0.612
Cavity insert for moldings for OW 115 and OW 115S	**824 050 003**		0.660
Cavity insert for moldings for OW 170	**825 050 002**		0.852

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T-piece clamping inserts

T-piece clamping inserts

Clamping inserts with the ability to clamp the hollowed tube and the tube to be welded.

For each task and dimension, 1 complete T-piece clamping insert set, 1 electrode adapter set (page 41) as well as 1 standard clamping insert set (from page 36) is required (to be ordered separately).

When ordering, please request from us the respective questionnaire and then submit the completed form together with a drawing.

Special clamping inserts for other orbital weld heads are available on request. **Inner centering with simultaneous forming system** are available on request.

ARTICLE	TUBE OD MAX. [MM]	TUBE OD MAX. [INCH]	CODE		KG
T-piece clamping inserts for OW 38S	25.0	0.984	**826 050 038**		
T-piece clamping inserts for OW 76S	48.0	1.890	**827 050 005**		0.720
T-piece clamping inserts for OW 115/115S	85.0	3.346	**824 050 004**		1.825
T-piece clamping inserts for OW 170	144.0	5.669	**825 050 003**		3.700

Inserts for elbow welding (Basic retainer/Cover)

Inserts for elbow welding

For welding of standard elbows to tubes without straight side attachment. When using this inserts on a weld head side (left or right) only the gas protection around the elbow is guaranteed; there is no clamping so that the elbow has to be tacked in place before welding.

Inserts, consisting of:
- 2 basic retainers, independent of the tube diameter
- 2 covers, depending on the tube diameter*

Retainer/Cover
The covers are placed into the retainer and can be turned so that the side of the elbow can exit at any angle from the weld head. The tube to be welded on the other side of the weld head must be straight and be clamped with inserts from the particular standard clamping insert set (standard clamping inserts are not included in the scope of delivery).

Elbow cover plate for OW 38S
For the OW 38S the covers (2 halves) are made to customer specifications* and have to be placed without retainers directly into the head. A basic retainer is therefore not required.

When ordering, please indicate and/or submit:
- The required tube OD and the inside radius of the elbow.
- **Drawing of the elbow or sample part – an appropriate drawing template is available in advance on request.** We will then check whether or not an additional electrode adapter is required.

ARTICLE	CODE		KG
Elbow cover plate OW 38S complete*	**826 050 031**		0.017
Basic retainer for elbow insert for OW 76S	**827 002 018**		0.150
Cover for elbow insert for OW 76S	**827 050 021**		0.030
Basic retainer for elbow insert for OW 65	**823 050 029**		0.089
Cover for elbow insert for OW 65*	**823 050 030**		0.028
Basic retainer for elbow insert for OW 115 and OW 115S	**824 050 006**		0.150
Cover for elbow insert for OW 115S*	**828 050 016**		0.054
Cover for elbow insert for OW 115*	**824 050 020**		0.050
Basic retainer for elbow insert for OW 170	**825 050 005**		0.250
Cover for elbow insert for OW 170*	**825 050 020**		0.045

* When ordering, please submit a drawing of the elbow or the sample part.

ENCLOSED ORBITAL WELD HEADS

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Electrode adapters

Robust brass adapter for transverse alignment of the tungsten electrode.
Can be ordered as a set or individually.

Please note that the maximum tube diameter that can be welded is reduced by using an electrode adapter.

The complete electrode adapter set consists of:

- Base part for extension arms
- Extension arms 15°, 30°, 45° and 90°

ELECTRODE ADAPTERS ARE APPLICABLE UP TO MAX. TUBE DIAMETER	[MM]	[INCH]
OW 38S	25.0	0.984
OW 76S	48.0	1.890
OW 65	43.5	1.713
OW 115 / OW 115S	85.0	3.346
OW 170	144.0	5.669

ELECTRODE ADAPTER SETS	CODE		KG
Electrode adapter set OW 38S, Standard	**826 050 034**		0.033
Electrode adapter set OW 76S, Standard	**827 050 027**		0.089
Electrode adapter set OW 65, Standard	**823 050 028**		0.045
Electrode adapter set OW 115 Standard	**824 050 025**		0.064
Electrode adapter set OW 115S, Standard	**828 050 022**		0.064
Electrode adapter set OW 170, Standard	**825 050 022**		0.094
INDIVIDUAL PARTS FOR OW 38S			
Base part extension arms OW 38S	**826 004 003**		0.013
10 mm/0.394", 15° extension arm for electrode adapters OW 38S	**823 004 008**		0.003
10 mm/0.394", 30° extension arm for electrode adapters OW 38S	**823 004 009**		0.003
10 mm/0.394", 45° extension arm for electrode adapters OW 38S	**823 004 010**		0.003
INDIVIDUAL PARTS FOR OW 76S			
Base part extension arms OW 76S	**827 004 003**		0.024
15 mm/0.591", 15°/90° extension arm for electrode adapters OW 76S	**823 004 002**		0.005
15 mm/0.591", 30°/90° extension arm for electrode adapters OW 76S	**823 004 003**		0.005
15 mm/0.591", 45°/90° extension arm for electrode adapters OW 76S	**823 004 004**		0.005
INDIVIDUAL PARTS FOR OW 65			
Base part extension arms OW 65	**823 004 011**		0.018
15 mm/0.591", 15°/90° extension arm for electrode adapters OW 65	**823 004 002**		0.005
15 mm/0.591", 30°/90° extension arm for electrode adapters OW 65	**823 004 003**		0.005
15 mm/0.591", 45°/90° extension arm for electrode adapters OW 65	**823 004 004**		0.005
INDIVIDUAL PARTS FOR OW 115 AND OW 115S			
Base part extension arms OW 115	**824 004 002**		0.037
Base part extension arms OW 115S	**828 004 004**		0.037
25 mm/0.984", 15°/90° extension arm for electrode adapters OW 115/115S	**823 004 006**		0.009
25 mm/0.984", 30°/90° extension arm for electrode adapters OW 115/115S	**823 004 005**		0.009
25 mm/0.984", 45°/90° extension arm for electrode adapters OW 115/115S	**823 004 007**		0.009
INDIVIDUAL PARTS FOR OW 170			
Base part extension arms OW 170	**825 004 001**		0.067
25 mm/0.984", 15°/90° extension arm for electrode adapters OW 170	**823 004 006**		0.009
25 mm/0.984", 30°/90° extension arm for electrode adapters OW 170	**823 004 005**		0.009
25 mm/0.984", 45°/90° extension arm for electrode adapters OW 170	**823 004 007**		0.009
ELECTRODE ADAPTERS FOR HEAD SEAM WELDING*			
Electrode adapter set OW 38S head seam welding	**826 050 036**		0.045
Electrode adapter set OW 76S head seam welding	**827 050 038**		0.045
Electrode adapter set OW 65 head seam welding	**823 050 034**		0.045
Electrode adapter set OW 115 head seam welding	**824 050 026**		0.070
Electrode adapter set OW 115 S head seam welding	**828 050 023**		0.070
ELECTRODE ADAPTER FOR INSIDE WELDING*			
Electrode adapter set OW 38S inside welding	**826 050 037**		0.071
Electrode adapter set OW 76S inside welding	**827 050 039**		0.071
Electrode adapter set OW 115 inside welding	**824 050 027**		0.193
Electrode adapter set OW 115 S inside welding	**828 050 024**		0.193
Electrode adapter set OW 170 inside welding	**825 050 026**		

* Further electrode apdapers for other weld heads upon request.

Electrode adapters for OW 38S, OW 76S

Electrode adapter for OW 170

Head seam adapter (without rotor)

Adapter for inside welding (without rotor)

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Table mounts

Table mounts

Practical and sturdy (anodized) aluminum table mounts.
For comfortable and secure storage of the ORBIWELD weld heads.

The mount is quickly and easily clamped to the table top using the integrated screw clamp. Thus, the weld head is firmly fixed in the holder for stationary applications – also ideal for storage or temporary placement of the weld head between individual welding jobs.

TECHNICAL DATA	TABLE MOUNTS
Dimensions (lxwxh)	180 x 140 x 185 mm 7.1" x 5.5" x 7.3"
Clamping range (bottom surface of table to maximum extended screw clamp)	max. 65 mm / 2.56"

ARTICLE	CODE		KG
Table mount for OW 38S, OW 76S	**826 030 006**		1.250
Table mount for OW 65, OW 115, OW 115S, OW 170	**823 030 006**		1.070

Other accessories for orbital welding

- ESG tungsten grinders, see page 75
- ORBmax residual oxygen meter, see page 79
- ORBIPURGE forming set, see page 82
- Hose package extensions, see page 82
- WS2 tungsten electrodes, see page 83
- Power connector adapter set, see page 83

HX 12P, HX 25P

NEW

Enclosed orbital weld heads

Welding stainless-steel pipes economically and with high quality using the TIG welding procedure: Unique in the entire world, HX orbital weld heads are the best solution for efficient, high-quality production thanks to their automated welding technology. Pre-mounted pipe elbows (for example in heat exchanger construction), even those in tight pipe bundles, can be joined to to small stainless-steel pipes reliably, quickly and safely.

- **Drastically shortened welding times** – under 30 seconds per pipe ✓
- **Up to 250 welds** per head and layer ✓
- Compared to manual work, the **preparation time is reduced by around 50%** ✓
- **Pipe spacings:**
  HX 12P: under 40 mm (1.57")
  HX 25P: under 60 mm (2.36") ✓
- **For pipe diameters:**
  HX 12P: 9.5 ... 13.3 mm (0.37" ... 0.52")
  HX 25P: 18.0 ... 25.4 (0.71" ... 1.00") ✓
- **Highly durable** thanks to liquid-cooled rotor housing ✓
- **Horizontal, vertical and tilted welding positions are possible** ✓
- **Very robust and ergonomic design** ✓
- **Top-quality welding results,** even with semiskilled personnel ✓

In addition to the HX 12P and HX 25P, this series also includes the HX 16P.

When done by hand, the welding of pipe elbows for heat exchanger construction is an exhausting task. In addition, consistently high quality (and thus the proper sealing of all pipe elbows) on a continual basis by the welder can't be guaranteed. This results in expensive correction work and lots of waste.
While conventional heads and tongs require lots of space between the pipes for positioning, slim HX heads make it possible to build very compact heat exchangers with a high pipe density and thus a high degree of efficiency. Pipe spacings under 40 mm (1.57") are possible with the HX 12P and under 60 mm (2.36") with the HX 25P.

Handling is easy, too. HX heads are opened up, placed around a pipe and clamp themselves pneumatically at the push of a button. A stop with coarse and fine adjustment aids secure positioning on the pipe. Following the startup procedure, the water-cooled head floods with argon gas and welding is carried out automatically with consistently high quality. The Orbitalum system ensures clean weld penetration with no recesses, gaps or burrs in the pipe whatsoever. Clamping and starting are activated by pressing buttons on the weld head.

Top-quality welding results, even with semi-skilled personnel

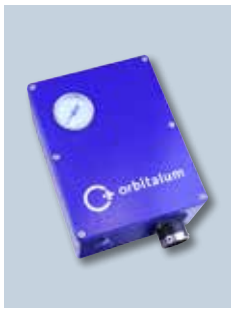
Orbitalum welding power supplies automatically detect the connected HX head and its specified parameters in such a way that the operator need only call up the corresponding welding procedure and initiate the process prior to the start of welding. Working with the Orbitalum system is so easy and reliable that even semi-skilled operators can achieve optimum welding results.

Practice has shown that waste can be reduced from 4% to under 0.7% with the Orbitalum system. Another advantage of the system is that an operator can work with multiple weld heads at the same time, which increases production efficiency considerably. The closed welding chamber and consistent process also prevent annealing coloration from occurring, so expensive reworking such as pickling and passivation can usually be dispensed with.

Compact design makes handling easy

In contrast to open welding tongs, all connections for power, gas and cooling water are integrated into the HX head. To facilitate handling, Orbitalum heads are connected to the welding power source with a flexible 7.5 m hose. The HX 12P and HX 25P also scores with its straight design, which enables easy turning of the head at the heat exchanger. The entire unit can be suspended from a balancer to take the strain off the operator.

Extremely narrow design – ideal for the welding of pre-mounted elbows in tight pipe bundles



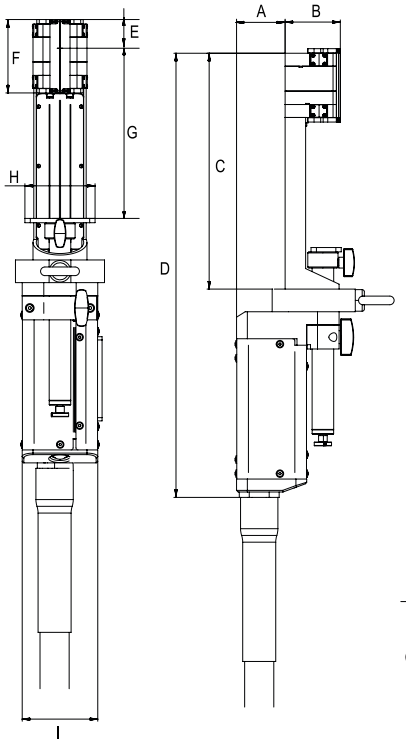
Pneumatic box included in the scope of delivery

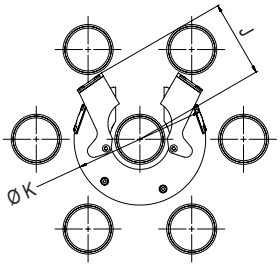
Available option: Diameter-specific clamping inserts

Available option: Earth cable

Available option: Adjustable bar pressure regulator for Argon

The perfect complement: Orbital welding power supplies ORBIMAT





APPLICATION RANGE		HX 12P		HX 25P	
Code		847 000 010		845 000 010	
Tube OD, min. - max.*		9.5 - 13.3 mm / 0.374" - 0.524"		18.0 - 25.4 mm / 0.708" - 1.000"	
Wall thickness, min. - max.		0.5 - 0.8 mm / 0.02" - 0.03"		0.5 - 1.0 mm / 0.016" - 0.039"	
TECHNICAL DATA		**HX 12P**		**HX 25P**	
Electrode Ø		1.6 mm / 0.063"		1.6 mm / 0.063"	
Machine weight including hose package		6.4 kg / 14.1 lbs		18.5 kg / 40.8 lbs	
Hose package length		7.5 m / 24.6 ft		7.5 m / 24.6 ft	
TECHNICAL DATA		**PNEUMATIC BOX**		**PNEUMATIC BOX**	
Input		Argon		Argon	
Recommended input pressure		6 bar / 87 PSI		6 bar / 87 PSI	
DIMENSIONS		**HX 12P**		**HX 25P**	
		[mm]	**[inch]**	**[mm]**	**[inch]**
Dimension "**A**"		45.0	1.772	62.0	2.441
Dimension "**B**"		52.0	2.047	68.0	2.677
Dimension "**C**"		219.0	8.622	278.0	10.945
Dimension "**D**"		412.0	16.220	496.0	19.528
Dimension "**E**" (Electrode), min.		30.0	1.181	35.0	1.378
Dimension "**F**"		70.0	2.756	80.0	3.150
Dimension "**G**" up to max.		155.0	7.283	210.0	8.268
Dimension "**H**"		65.0	2.559	80.0	3.150
Dimension "**I**"		70.0	2.756	100.0	3.937
Dimension "**J**" (Ø)		33.0	1.299	43.0	1.693
Dimension "**K**"		50.0	1.969	72.0	2.835
SCOPE OF DELIVERY		**HX 12P**		**HX 25P**	
Enclosed orbital weld head of the HX series	Pc.	1		1	
Durable storage and shipping case	Pc.	1		1	
Pneumatic box	Pc.	1		1	
Supply hose (2 m/6.56 ft) for pneumatic box	Pc.	1		1	
Pivoting arm	Pair	1		1	
Elbow stop	Pc.	1		1	
Tool set	Set	1		1	
Power connector adapter	Pc.	1		1	
Operating instructions and spare parts list	Set	1		1	
SUITABLE ACCESSORIES					
Available option:		• Clamping inserts • Bar pressure regulator Argon • Earth cable • WS2 tungsten electrodes • ESG tungsten grinders			

The technical data are not binding. They are not warranted characteristics and are subject to change.

* Other dimensions on request

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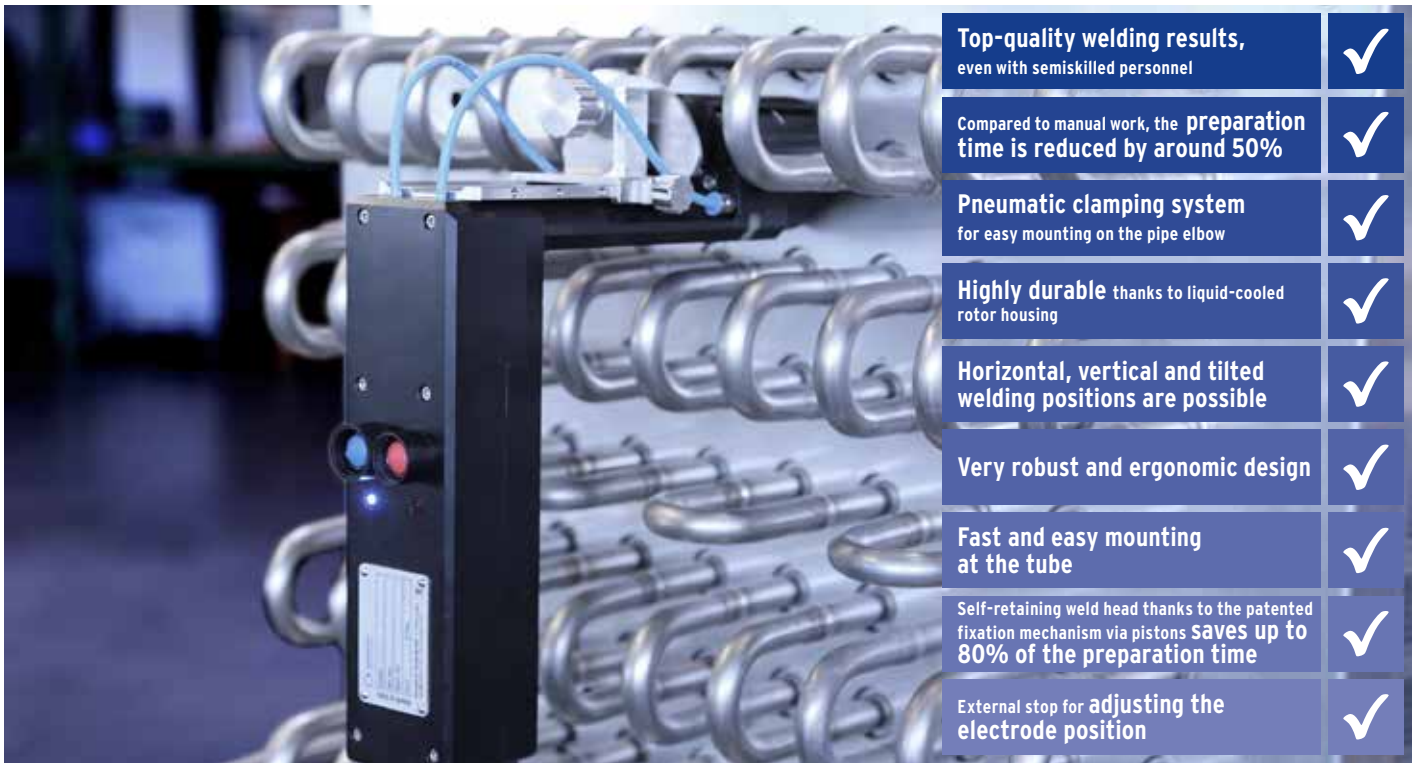
HX 16P

Enclosed orbital weld head

The orbital weld heads HX for compact cooling systems are setting new standards!
"HX" stands for "heat exchanger" and for the welding of pre-mounted elbows in tight pipe bundles of heat exchangers into a pipe coil.
There is no other solution as effective as this one in the world!



Due to their compact size, all fully closed or open orbital weld heads commonly available on the market are not suitable for being positioned between the individual pipes of finned heat exchangers.

The HX series scores points in the areas of economy and efficiency when compared to conventional weld heads: The pipe ends of a heat exchanger can be fully fitted with elbows before joining and then welded in any order. For conventional orbital weld heads, the principle of fit elbow, weld, fit elbow, weld etc. applies, always starting from the center of the pipe sheet and working outward. If quality testing reveals a faulty weld later on, all elbows must be disconnected and new ones must be welded on in the worst case scenario (fault in the middle of the bundle) due to the accessibility factor. With the HX head, only the affected elbow would have to be replaced.

This design-based advantage also makes the Orbitalum system the ideal tool for unbeatably cost-effective repairs.

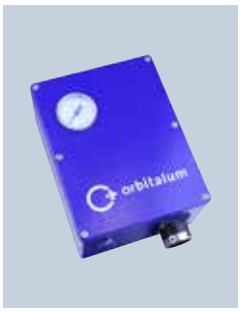
In contrast to open weld heads with a cumbersome hose assembly, all connections for power, gas and cooling liquid are permanently integrated in the HX.

All orbital welding power sources from Orbitalum automatically detect the head and its properties so that the operator only has to call up his or her specified jointing program and start the joining process before beginning to weld.

Traditionally, complex heat exchangers for cooling systems were made of copper and soldered with the pipe elbows. The high price of copper prompted manufacturers to switch over to stainless steel for production. Stainless steel can only be joined economically, reliably and in high quality with tungsten inert gas (TIG) welding in conjunction with mechanized orbital welding.

Extremely narrow design – ideal for the welding of pre-mounted elbows in tight pipe bundles

All connections for electricity, gas and cooling water are firmly integrated



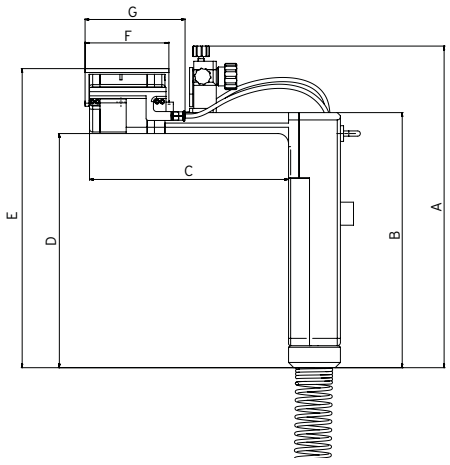
Pneumatic box included in the scope of delivery

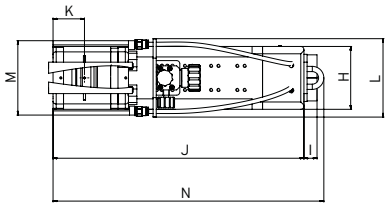
Available option: Diameter-specific clamping inserts and earth cable

Available option: Adjustable bar pressure regulator for Argon

The perfect complement: Orbital welding power supplies ORBIMAT

HX 16P





APPLICATION RANGE		HX 16P
Code		848 000 010
Tube OD, min. - max.*	[mm]	15.0 - 16.8
	[inch]	0.591 - 0.661
TECHNICAL DATA		**HX 16P**
Electrode Ø	[mm]	1.6
	[inch]	0.063
Machine weight including hose package	[kg]	5.9
	[lbs]	13.0
Hose package length	[m]	7.5
	[ft]	24.6
TECHNICAL DATA		**PNEUMATIC BOX**
Input		Argon
Recommended input pressure	[bar]	8
	[PSI]	116

DIMENSIONS	HX 16P	
	[mm]	[inch]
Dimension "**A**"	307.00	12.087
Dimension "**B**"	243.50	9.587
Dimension "**C**"	190.00	7.480
Dimension "**D**"	223.50	8.799
Dimension "**E**"	285.50	11.240
Dimension "**F**"	80.00	3.150
Dimension "**G**"	95.45	3.758
Dimension "**H**"	60.00	2.362
Dimension "**I**"	12.50	0.492
Dimension "**J**"	239.50	9.429
Dimension "**K**" (Electrode)	30.00	1.181
Dimension "**L**"	74.85	2.947
Dimension "**M**"	71.00	2.795
Dimension "**N**"	258.50	10.177

SCOPE OF DELIVERY		HX 16P
Enclosed orbital weld head of the HX series	Pc.	1
Durable storage and shipping case	Pc.	1
Pneumatic box	Pc.	1
Supply hose (2 m/6.56 ft) for pneumatic box	Pc.	1
Pivoting arm	Pair	1
Elbow stop	Pc.	1
Sheet stop alignment kit	Pc.	1
Tool set	Set	1
Power connector adapter	Pc.	1
Operating instructions and spare parts list	Set	1

SUITABLE ACCESSORIES	
Available option:	• Clamping inserts • Bar pressure regulator Argon • Earth cable • WS2 tungsten electrodes • ESG tungsten grinders

* Other dimensions on request

The technical data are not binding. They are not warranted characteristics and are subject to change.

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Enclosed orbital weld heads

HX 12P, HX 16P, HX 25P

Features, application range, technical data and scope of delivery, see page 43 and page 45.

The following accessories are essentially required for operating the HX enclosed orbital weld heads and must be ordered separately:

- Clamping inserts, see page 48
- Earth cable, see page 82
- Bar pressure regulator "Argon", see page 48.

ARTICLE	CODE		WEIGHT OF MACHINE KG*	DISPATCH WEIGHT KG
Enclosed orbital weld head HX 12P	**847 000 010**		6.400	14.100
Enclosed orbital weld head HX 16P	**848 000 010**		5.900	16.600
Enclosed orbital weld head HX 25P	**845 000 010**		18,500	40.800

* Machine weight including hose package

HX 12P / HX 25P

HX 16P

Suitable accessories (available option):

- Clamping inserts, see page 48
- Bar pressure regulator "Argon", see page 48.
- Earth cable, see page 82
- WS2 tungsten electrodes, see page 83
- ESG tungsten grinders, see page 75
- Power connector adapter set, see page 83

Pneumatic box
(included in the scope of delivery of the HX heads)

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Accessories for HX

Clamping inserts

Clamping inserts

Made of stainless steel.
2 clamping inserts for each dimension are required.
Further dimensions available on request.

ARTICLE	PIPE OD		FOR HX 12P			FOR HX 16P			FOR HX 25P		
	[MM]	[INCH]	CODE		KG	CODE		KG	CODE		KG
Clamping insert	9.50	0.374	**847 002 020**		0.018	**-**		-	**-**		-
Clamping insert	11.00	0.433	**847 002 027**		0.003	**-**		-	**-**		-
Clamping insert	12.00	0.472	**847 002 021**		0.018	**-**		-	**-**		-
Clamping insert	12.40	0.488	**847 002 026**		0.002	**-**		-	**-**		-
Clamping insert	12.43	0.489	**847 002 024**		-	**-**		-	**-**		-
Clamping insert	12.70	0.500	**847 002 023**		0.018	**848 002 301**		0.006	**-**		-
Clamping insert	13.30	0.524	**847 002 025**		0.002	**848 002 302**		0.006	**-**		-
Clamping insert	15.00	0.591	**-**		-	**848 002 303**		0.005	**-**		-
Clamping insert	15.75	0.620	**-**		-	**848 002 305**		0.004	**-**		-
Clamping insert	15.88	0.625	**-**		-	**848 002 306**		0.002	**-**		-
Clamping insert	16.00	0.630	**-**		-	**848 002 307**		0.002	**-**		-
Clamping insert	16.20	0.638	**-**		-	**848 002 308**		0.002	**-**		-
Clamping insert	16.30	0.642	**-**		-	**848 002 309**		0.002	**-**		-
Clamping insert	16.50	0.650	**-**		-	**848 002 310**		0.002	**-**		-
Clamping insert	16.60	0.654	**-**		-	**848 002 311**		0.002	**-**		-
Clamping insert	18.00	0.709	**-**		-	**-**		-	**-**		-
Clamping insert	19.05	0.750	**-**		-	**-**		-	**-**		-
Clamping insert	20.00	0.787	**-**		-	**-**		-	**845 002 210**		-
Clamping insert	22.00	0.866	**-**		-	**-**		-	**845 002 208**		-
Clamping insert	22.22	0.875	**-**		-	**-**		-	**-**		-
Clamping insert	23.00	0.906	**-**		-	**-**		-	**845 002 211**		-
Clamping insert	25.00	0.984	**-**		-	**-**		-	**845 002 209**		-
Clamping insert	25.40	1.000	**-**		-	**-**		-	**845 002 212**		-

Bar pressure regulator "Argon"

Bar pressure regulator "Argon"

Adjustable bar pressure regulator for Argon for pneumatic clamping of the HX.

TECHNICAL DATA	BAR PRESSURE REGULATOR "ARGON"
Inlet pressure (max.)	230 bar
Outlet pressure	0 - 10 bar
Gas cylinder connection	W21.8x1/14"
Hose connection	G 1/4"

ARTICLE	CODE		KG
Bar pressure regulator "Argon"	**888 000 006**		1.428

Other accessories for orbital welding

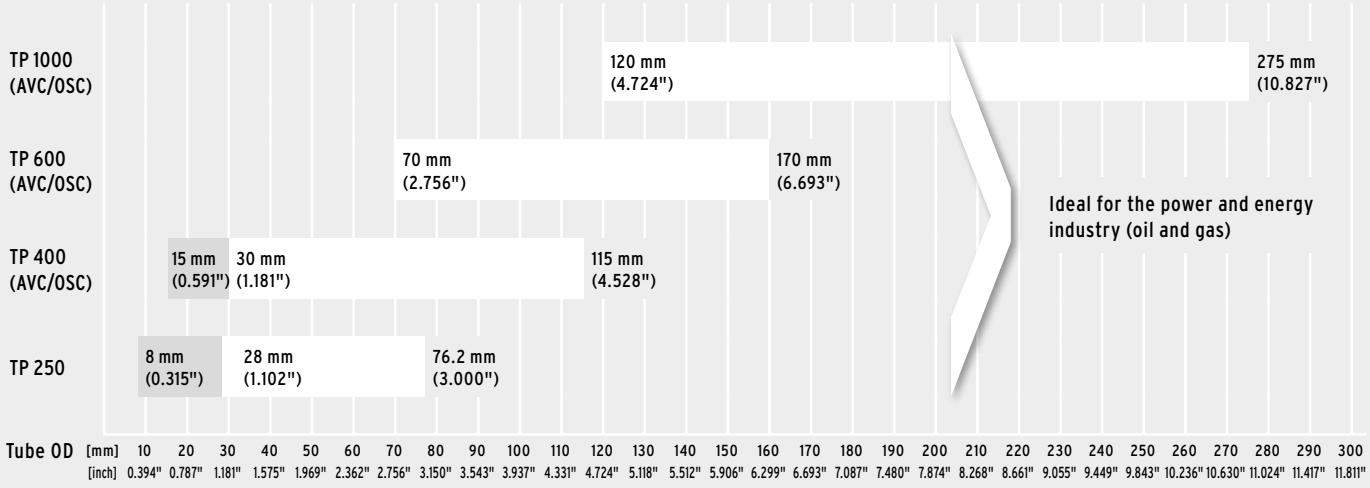
- ESG tungsten grinders, see page 75
- ORBmax residual oxygen meter, see page 79
- WS2 tungsten electrodes, see page 83
- Power connector adapter set, see page 83

Open orbital weld heads

Overview open orbital weld heads

MODEL		TP 250	TP 250	TP 400	TP 400	TP 400	TP 600	TP 600	TP 600	TP 1000	TP 1000	TP 1000
WITH COLD WIRE UNIT (KD):			KD4		KD3-100	KD3-100		KD3-100	KD3-100		KD3-100	KD3-100
WITH ARC VOLTAGE CONTROL (AVC) AND OSCILLATION (OSC):						AVC/OSC			AVC/OSC			AVC/OSC
CODE		811 000 001	811 000 005	812 000 010	812 000 011	812 000 012	813 000 001	813 000 005	813 000 002	814 000 001	814 000 005	814 000 002
APPLICATION RANGE	[mm]	8 - 28 28 - 76.2		(15)** 30 - 115			70 - 170			120 - 275		
	[inch]	0.315 - 1.102 1.102 - 3.000		(0.591)** 1.181 - 4.528			2.756 - 6.693			4.724 - 10.827		
ELECTRODE LENGTHS	[mm]	18 - 32		30 - 55			30 - 55			30 - 55		
	[inch]	0.709 - 1.260		1.181 - 2.165			1.181 - 2.165			1.181 - 2.165		
WIRE DIAMETER*	[mm]	0.8*		0.8*			0.8*			0.8*		
	[inch]	0.031*		0.031*			0.031*			0.031*		

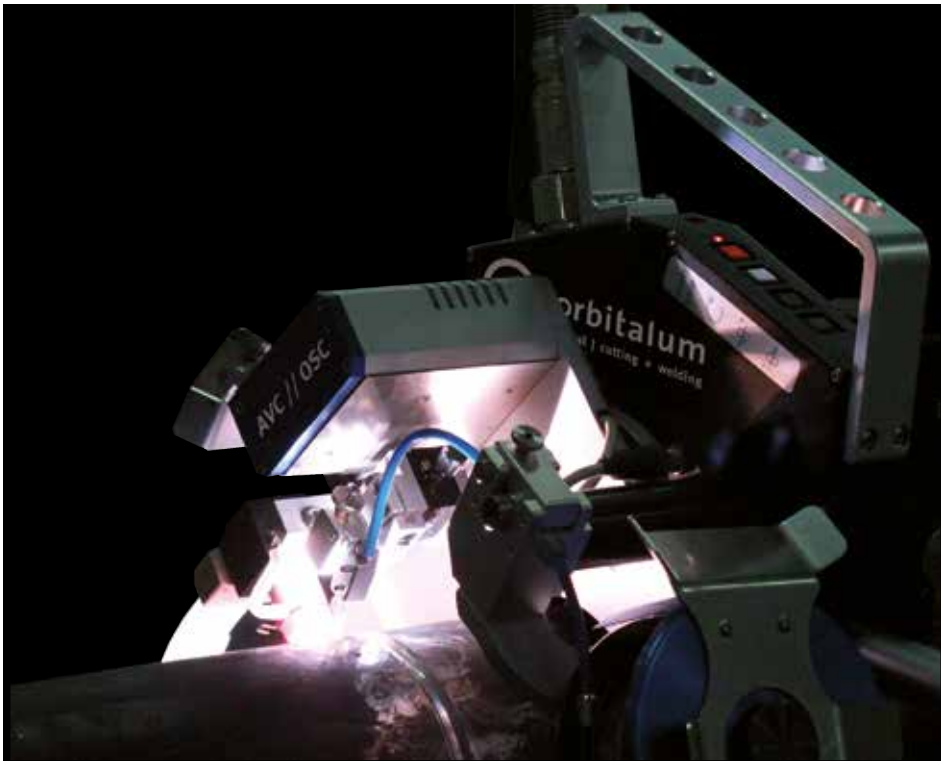
* Wire diameter 1.0 mm (0.039") is separately available.

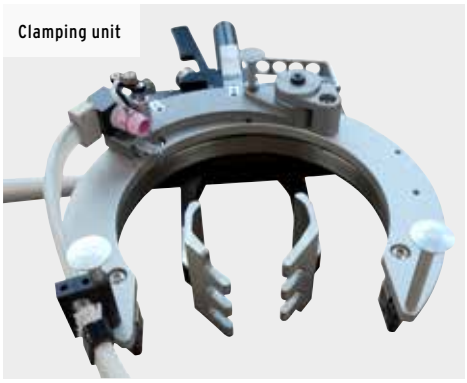


ORBIWELD TP

Open orbital weld heads

The ORBIWELD TP series offers outstanding features in terms of design and functionality: An extremely compact design has been achieved thanks to the drive motor that is fully integrated into the housing. The drive concept has made the well-known large and costly drives associated with conventional weld heads unnecessary. For field applications the compact wire feeder on the weld head is more comfortable than a separate, heavy wire feeder.





FEATURES OF THE TP SERIES:

- Compact design without any protrusions that would be disturbing in practice
- Applicable with and without cold wire unit
- Cold wire unit retrofittable for all TP weld heads
- With the KD3 versions, the reel for holding the additional wire during TIG cold wire welding is also mounted on the weld head housing. This prevents an irritating twisting of the wire during the joining process
- The cold wire feed nozzle can be adjusted exactly in both a vertical and horizontal direction
- Open arc system
- Infinitely variable clamping mechanism
- Liquid-cooled, continuously adjustable TIG torch head allows fillet welds or short hollowed out tubes to be welded
- The TIG torch head is secured to a slide unit that allows the position of the electrodes to be finely adjusted with great accuracy even during welding
- Simple adjustment of the clamping unit to the pipe diameter without the need for any tools
- The standard equipment of the TP 1000 heads include clamping plates made from tool steel which ensures optimum retention to the pipe surface. The ORBIWELD TP 250, TP 400 and TP 600 are equipped with clamping jaws made of stainless steel (1.4305). Besides increased clamping force, this new clamping system offers improved handling and easier and more precise alignment of the weld head on the pipe. Clamping jaws to extend the clamping range (TP 400) are optionally availabe. The new clamping unit can be upgraded for older TP 250, TP 400 and TP 600 models.
- TP weld heads are easily centered to the tube and clamped in place with the help of a clamping lever
- No additional remote control is required thanks to the keys integrated directly into the weld head housing

ADDITIONAL FEATURES OF THE TP AVC/OSC:

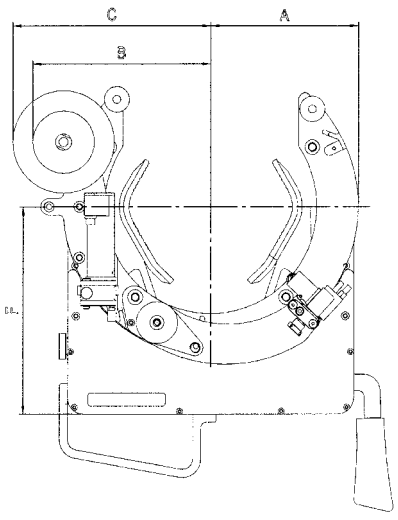
- With oscillation (OSC) and arc voltage control (AVC) – only applicable in combination with the orbital welding power supply ORBIMAT 300 CA AVC/OSC
- The arc length is kept at a constant gap mechanically; with AVC/OSC versions the constant gap is kept automatically
- Can be used for thick wall pipes (multiple layer welds)
- Including a motorized travel option for the TIG torch across the nominal diameter, so that no additional mechanical basic presetting is required for any change in the tube diameter
- Max. oscillation of the torch: 20 mm (0.787")
- Directly on the weld head mounted cold wire feed unit with retainer for Ø 100 mm/1 kg (3.937"/2.2 lbs) wire coil

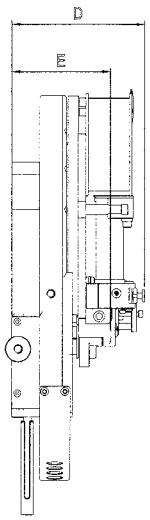
MODEL		TP 250	TP 250	TP 400	TP 400	TP 400	TP 600	TP 600	TP 600	TP 1000	TP 1000	TP 1000
With cold wire unit (KD):			KD4		KD3-100	KD3-100		KD3-100	KD3-100		KD3-100	KD3-100
With arc voltage control (AVC) and oscillation (OSC):						AVC/OSC			AVC/OSC			AVC/OSC
Code		811 000 001	811 000 005	812 000 010	812 000 011	812 000 012	813 000 001	813 000 005	813 000 002	814 000 001	814 000 005	814 000 002
Application range	[mm]	8 - 28 28 - 76.2	8 - 28 28 - 76.2	(15)*/30 - 115	(15)*/30 - 115	(15)*/30 - 115	70 - 170	70 - 170	70 - 170	120 - 275	120 - 275	120 - 275
	[inch]	0.315 - 1.102 1.102 - 3.000	0.315 - 1.102 1.102 - 3.000	(0.591)*/ 1.181 - 4.528	(0.591)*/ 1.181 - 4.528	(0.591)*/ 1.181 - 4.528	2.756 - 6.693	2.756 - 6.693	2.756 - 6.693	4.724 - 10.827	4.724 - 10.827	4.724 - 10.827
Electrode lengths	[mm]	18 - 32	18 - 32	30 - 55	30 - 55	30 - 55	30 - 55	30 - 55	30 - 55	30 - 55	30 - 55	30 - 55
	[inch]	0.709 - 1.260	0.709 - 1.260	1.181 - 2.165	1.181 - 2.165	1.181 - 2.165	1.181 - 2.165	1.181 - 2.165	1.181 - 2.165	1.181 - 2.165	1.181 - 2.165	1.181 - 2.165
Wire diameter*	[mm]	0.8/ 1.0**	0.8/ 1.0**	0.8/ 1.0**	0.8/ 1.0**	0.8/ 1.0**	0.8/ 1.0**	0.8/ 1.0**	0.8/ 1.0**	0.8/ 1.0**	0.8/ 1.0**	0.8/ 1.0**
	[inch]	0.031/ 0.039**	0.031/ 0.039**	0.031/ 0.039**	0.031/ 0.039**	0.031/ 0.039**	0.031/ 0.039**	0.031/ 0.039**	0.031/ 0.039**	0.031/ 0.039**	0.031/ 0.039**	0.031/ 0.039**
Weight of machine with hose package	[kg]	7.0	8.9	11.0	12.5	15.2	13.7	15.2	18.9	22.5	24.0	28.7
	[lbs]	15.4	19.6	24.3	27.6	33.5	30.2	33.5	41.7	49.6	52.9	63.3
Hose package length	[m]	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
	[ft]	24.6	24.6	24.6	24.6	24.6	24.6	24.6	24.6	24.6	24.6	24.6
Dimension "A":	[mm]	86.00	86.00	108.00	108.00	150.00	147.00	147.00	185.00	215.00	215.00	245.00
	[inch]	3.386	3.386	4.252	4.252	5.906	5.787	5.787	7.283	8.465	8.465	9.646
Dimension "B" without cold wire unit KD:	[mm]	86.00	86.00	108.00	-	-	147.00	-	-	215.00	-	-
	[inch]	3.386	3.386	4.252	-	-	5.787	-	-	8.465	-	-
Dimension "C" with cold wire unit KD:	[mm]	-	-	-	180.00	175.00	-	196.00	215.00	-	237.00	274.00
	[inch]	-	-	-	7.087	6.890	-	7.717	8.465	-	9.331	10.787
Dimension "D":	[mm]	85.00	85.00	120.00	182.00	182.00	140.00	140.00	186.00	170.00	170.00	206.00
	[inch]	3.346	3.346	4.724	7.165	7.165	5.512	5.512	7.323	6.693	6.693	8.110
Dimension "E":	[mm]	74.00	74.00	90.00	165.00	165.00	97.00	97.00	172.00	146.00	146.00	191.00
	[inch]	2.913	2.913	3.543	6.496	6.496	3.819	3.819	6.772	5.748	5.748	7.520
Dimension "F":	[mm]	125.00	125.00	200.00	200.00	200.00	202.00	202.00	202.00	270.00	270.00	270.00
	[inch]	4.921	4.921	7.874	7.874	7.874	7.953	7.953	7.953	10.630	10.630	10.630
Integrated remote control		●	●	●	●	●	●	●	●	●	●	●
Liquid-cooled torch body		●	●	●	●	●	●	●	●	●	●	●
Pivoting torch body		●	●	●	●	●	●	●	●	●	●	●
Precise adjustment of the electrode position		●	●	●	●	●	●	●	●	●	●	●
Coupling for manual rotation of the rotor		●	●	●	●	●	●	●	●	●	●	●
Infinitely variable clamping mechanism		●	●	●	●	●	●	●	●	●	●	●
Optional extension of the clamping range		●	●	●	●	●	○	○	○	○	○	○
Integrated cold wire feed		○	○	◐	●	●	◐	●	●	◐	●	●
External cold wire feed		◐	●	○	○	○	○	○	○	○	○	○
Fine adjustment of the wire position		◐	●	◐	●	●	◐	●	●	◐	●	●
AVC arc voltage control***		○	○	○	○	●	○	○	●	○	○	●
OSC oscillation***		○	○	○	○	●	○	○	●	○	○	●

The technical data are not binding. They are not warranted characteristics and are subject to change.

● = feature included ○ = feature not included ◐ = feature limited included (retrofittable) * with accessories ** KD retrofit kits optionally available (page 54) *** only applicable in combination with the orbital welding power supply ORBIMAT 300 CA AVC/OSC

DIMENSIONS (VALUES, SEE TABLE):





SCOPE OF DELIVERY	
Including:	• 1 Open orbital weld head ORBIWELD TP • 1 Durable storage and shipping case • 1 Handle (TP 1000: 2 handles) • 1 Expansion jaw set of size 8 - 28 mm/0.315" - 1.102" (TP 250 only) • 1 Tool set • 1 Power connector adapter • 1 Operating instructions and spare parts list
Suitable accessories (available option):	• Clamping units "V2" (retrofit kits) • Cold wire feed units "KD" (retrofit kits) • Extension kits for for TP 400 • Control cable • Remote control • ESG tungsten grinders • ORBmax residual oxygen meter • ORBIPURGE forming set • Earth cable • Hose package extensions • WS2 tungsten electrodes

Open orbital weld heads OW TP

ORBIWELD TP 250
ORBIWELD TP 400 (AVC/OSC)
ORBIWELD TP 600 (AVC/OSC)
ORBIWELD TP 1000 (AVC/OSC)

Features, application range, technical data and scope of delivery, see page 51.

The following accessories are essentially required for operating the TP open orbital weld heads and must be ordered separately:

- Control cable, see page 55
- Earth cable, see page 82

ARTICLE	WITH COLD WIRE UNIT (KD)	CODE		WEIGHT OF MACHINE KG**	DISPATCH WEIGHT KG
Open orbital weld head TP 250	-	**811 000 001**		7.000	15.600
Open orbital weld head TP 250	KD4	**811 000 005**		8.900	20.000
Open orbital weld head TP 400	-	**812 000 010**		11.000	20.000
Open orbital weld head TP 400	KD3-100	**812 000 011**		12.500	20.000
Open orbital weld head TP 400 AVC/OSC*	KD3-100	**812 000 012**		15.200	24.800
Open orbital weld head TP 600	-	**813 000 001**		13.700	23.600
Open orbital weld head TP 600	KD3-100	**813 000 005**		15.200	30.000
Open orbital weld head TP 600 AVC/OSC*	KD3-100	**813 000 002**		18.900	33.300
Open orbital weld head TP 1000	-	**814 000 001**		22.500	38.000
Open orbital weld head TP 1000	KD3-100	**814 000 005**		24.000	40.900
Open orbital weld head TP 1000 AVC/OSC*	KD3-100	**814 000 002**		28.700	45.300

* Only applicable in combination with the orbital welding power supply ORBIMAT 300 CA AVC/OSC (see from page 11).
* Machine weight including hose package.

Suitable accessories (available option):

- Clamping units "V2" (retrofit kits), see page 54
- Cold wire feed units "KD" (retrofit kits), see page 54
- Extension kits for clamping jaws for TP 400, see page 55
- Earth cable, see page 82
- Control cable, see page 55
- Remote control, see page 16

ORBIWELD TP 250

ORBIWELD TP 400 KD3-100

ORBIWELD TP 400 AVC/OSC

ORBIWELD TP 600

ORBIWELD TP 1000

ORBITALUM TOOLS GMBH Josef-Schuettler-Str. 17 78224 Singen Germany Tel. +49 (0) 77 31 792 - 0 Fax +49 (0) 77 31 792 - 524 tools@orbitalum.com

Accessories for ORBIWELD TP

KD4 with open lift-off lid

KD3-100 with Ø 100 standard reel

KD retrofit kit

Clamping unit TP 400 complete

Cold wire feed units "KD" (retrofit kits)

Scope of delivery:

- 1 Feed motor for wire Ø 0.8 mm (0.031")
- 1 Wire adjusting unit
- 1 Wire nozzle with wire core (for wire Ø 0.8 mm (0.031"))
- 1 Wire reel retainer for Ø 100 mm/1 kg (3.937"/2.2 lbs) standard wire reels
  1 External cold wire box (KD4 only)

ARTICLE	APPLICABLE WITH	CODE		KG
Cold wire feed KD4	TP 250	**811 050 001**		2.110
Cold wire feed KD3-100*	TP 400*	**812 050 061**		0.680
Cold wire feed KD3-100	TP 600	**813 050 001**		0.680
Cold wire feed KD3-100	TP 1000	**814 050 008**		0.720

* For retrofitting the orbital weld head must be sent to the Orbitalum service department.

KD retrofit kits

For retrofitting the cold wire feed unit to wire Ø 1.0 mm (0.039").

ARTICLE	APPLICABLE WITH	CODE		KG
KD retrofit kit to wire Ø 1.0 mm (0.039")	TP 250	**811 050 046**		0.115
KD retrofit kit to wire Ø 1.0 mm (0.039") V2*	TP 400/600/1000 incl. AVC/OSC	**812 050 076**		0.115

* Please consider the serial numbers, see above.

Clamping units "V2" (retrofit kits)

Since 11/2013 (ORBIWELD TP 400 and TP 600 (AVC/OSC)) and since 09/2017 (ORBIWELD TP 250) our orbital weld heads are delivered with a new clamping unit. For older models we offer the possibility to retrofit this new clamping unit quickly and easily.

Please submit the respective machine number with the order (see the type plate). The new clamping unit is supplied including a new type plate.

Advantages of the new clamping unit:

- Improved handling, easier and more precise alignment of the weld head
- Increased clamping power
- Includes clamping jaws made of stainless steel (1.4305); clamping jaws for other applications also available (see from page 55)

Scope of delivery:

- 1 Clamping unit with clamping jaws
- 4 Fastening screws M4x20

ARTICLE	CODE		KG
Clamping unit "V2" for TP 250 complete	**811 050 050**		
Clamping unit "V2" for TP 400 complete	**812 050 044**		3.785
Clamping unit "V2" for TP 600 complete	**813 050 024**		4.750

Extension kits for clamping jaws

The extension kits for stainless steel clamping jaws are only available for TP 400 for expanding the clamping range to a pipe OD min. 15.00 mm (0.591").

ARTICLE	VERSION	PIPE OD [MM]	PIPE OD [INCH]	CODE		KG
Extension kit for clamping jaws for TP 400	Stainless steel	15.00 - 30.00	0.591 - 1.181	**812 002 005**		0.520

Extension kit for clamping jaws for TP 400

Control cable

Suitable for all ORBIWELD TP open orbital weld heads

ARTICLE	LENGTH [M]	LENGTH [INCH]	CODE		KG
Control cable for ORBIWELD TP	7.5	24.6	**811 050 003**		1.202

Control cable

Other accessories for orbital welding

- ESG tungsten grinders, see page 75
- ORBmax residual oxygen meter, see page 79
- ORBIPURGE forming set, see page 82
- Hose package extensions, see page 82
- WS2 tungsten electrodes, see page 83
- Torch and cold wire consumables, see page 85
- Earth cable, see page 82

ORBITALUM TOOLS GMBH Josef-Schuettler-Str. 17 78224 Singen Germany Tel. +49 (0) 77 31 792 - 0 Fax +49 (0) 77 31 792 - 524 tools@orbitalum.com

Standard-compliant, precise and reproducible weld seam preparation

For more than 40 years construction companies rely on the standard set by Orbitalum in the industrial prefabrication of pipeline systems: With our pipe saws for precise cutting and beveling in just seconds.

Please ask for our separate catalogue to learn more about this and other products for the orbital weld seam preparation:

>> Catalogue **"Orbital cutting & beveling machines for high-purity process piping"**

ORBITALUM TOOLS GMBH Josef-Schuettler-Str. 17 78224 Singen Germany Tel. +49 (0) 77 31 792 - 0 Fax +49 (0) 77 31 792 - 524 tools@orbitalum.com

Tube-to-tube-sheet orbital weld heads

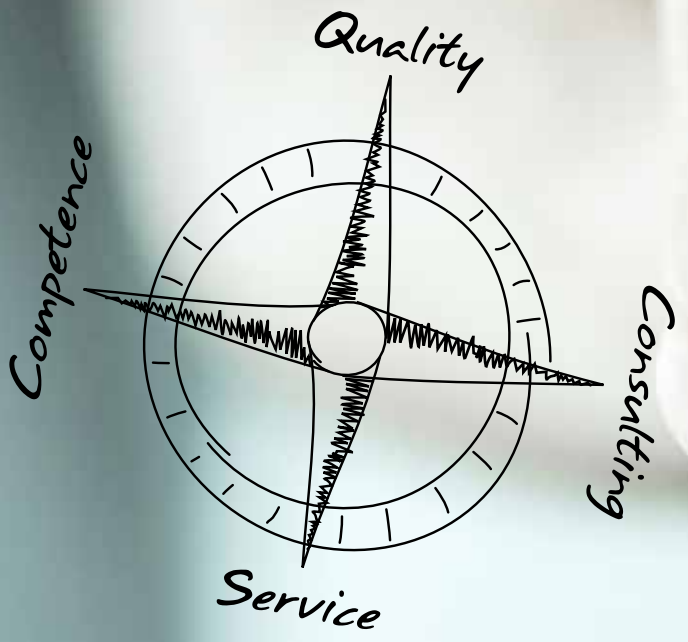
Quality products from Orbitalum Tools – always a good decision!

Quality made in Germany

For our products we choose only the best materials and suitable manufacturing methods and attach great importance during the development phase to ensure a high level of product quality and durability.

Our machines and tools are assembled, configured, tested and packed by hand, with the highest care by our qualified and motivated employees in Singen (Germany).

Our staff are standing for this aim with their expertise and experience.



TX 38P

Orbital TIG weld head for pipe-to-pipe-sheet connections

Tube-to-tube-sheet orbital weld head

The orbital TIG weld head from Orbitalum for manufacturing pipe-to-pipe-sheet connections guarantees extremely short production times of industrial heat exchanges at constantly high reproducible quality. Also excellently suitable for repair, maintenance and servicing work.

Applicable for flush tubes, slightly recessed tubes and protruding tubes

Ideal for repairing and maintaining of large-scaled heat exchanger plants

Precise centering of the weld head in the tube via dimensionally stable clamping mandrels which are available for tube inner diameters 13.8 - 37 mm (0.543" - 1.457")

Welding heat exchanger tubes particular effectively and easily: With our TX 38P for automated TIG orbital welding you can now accurately and precisely weld tube sheets with heat exchanger tubes, such as thousands of welded joints on cooling tubes.

In connection with an ORBITALUM orbital welding power supply, the user is being offered an extremely innovative and economical welding system: All ORBITALUM orbital welding power sources automatically detect the head and its properties so that the operator only has to call up his or her specified joining program and start the joining process before beginning to weld.

To increase productivity, the operator can work with the optionally available switching unit ORBITWIN with up to two weld heads on one machine in an alternating fashion, which reduces welding times and downtimes considerably.

THE ADVANTAGES AT A GLANCE:

- Lightweight, hand-held TIG orbital weld head designed for welding of tubes to tube-sheets
- Precise working in any position to achieve high-quality results on horizontal or vertical tube sheets
- Applicable for flush tubes, slightly recessed tubes and protruding tubes
- Compatible with AMI clamping mandrels, model 96
- Service friendly design of the clamping and drive system within the housing
- Self-supporting weld head at the tube sheet via stabile clamping mandrels (eyelet for spring balancer available)
- Limit switch for the electrode position; thus, the start position is freely selectable
- Integrated rapid adustment of the electrode position to the tube diameter
- Constant or pulsating rotor movement possible (CONT-STEP-Mode)
- Sturdy, speed-regulated 24-volt driving motor with a reduction gear
- Liquid-cooled slide contact for transmission of welding current prevents rotary transmission and leakages
- Including highly flexible hose package (length: 7.5 m/24.6 ft) with strain relief to the power source – optionally extendable to up to 20.0 m (64 ft)

These are the highlights of the TX 38P:

- ✓ Pneumatic clamping and centering
- ✓ Liquid-cooled welding head housing
- ✓ One-hand operation
- ✓ Quick change system for arbors
- ✓ Integrated control panel
- ✓ Chambered shielding gas cover

Simple and precise setting of the electrode position

One-hand operation through integrated remote control and pneumatic control via handle

High-quality results at horizontal or vertical pipe sheets

Rapid changing of clamping elements

Optionally available: Ground cable, spring sleeves and diverse clamping segment sizes

The perfect complement: Orbital welding power supplies of the ORBIMAT series

APPLICATION RANGE		TX 38P
Code		830 000 005
Tube ID, min. - max.	[mm]	10 - 40
	[inch]	0.394" - 1.575"
TECHNICAL DATA		
Welding current, max.,	[Amp DC]	150
Rotation speed, max.	[U/min]	10
Drive motor with tachometer	[VDC]	24
Electrode Ø	[mm]	1.6 (available option: 2.4)
	[inch]	0.063 (available option: 0.094)
Gas flow	[l/min]	5 - 20
Gas type		Argon/Argon-Helium/Argon-Hydrogen
Water pressure, max.	[bar]	2,5
Air pressure	[bar]	5 - 7
Hose package length	[m]	7,5
	[ft]	25
Machine weight including hose package	[kg]	7.5
	[lbs]	16.5
Type of connection		Fully compatible with all Orbitalum power supplies

DIMENSIONS				
Dimension "**A**"	[mm]	65.0	[inch]	2.559
Dimension "**B**"	[mm]	241.0	[inch]	9.488
Dimension "**C**"	[mm]	207.0	[inch]	8.150
Dimension "**D**"	[mm]	36.0	[inch]	1.417
Dimension "**E**"	[mm]	68.0	[inch]	2.677
Dimension "**F**"	[mm]	185.0	[inch]	7.283
Dimension "**G**"	[mm]	110.0	[inch]	4.331

The technical data are not binding. They are not warranted characteristics and are subject to change.

SCOPE OF DELIVERY

Including:
- 1 Tube-to-tube-sheet orbital weld head TX 38P
- 1 Hose package, length 7.5 m (25 ft)
- 1 Integrated remote control
- 1 Durable storage and shipping case
- 1 Tool set
- 1 Power connector adapter
- 1 Operating instructions and spare parts list

The following accessories are essentially required for operating the TX38P:

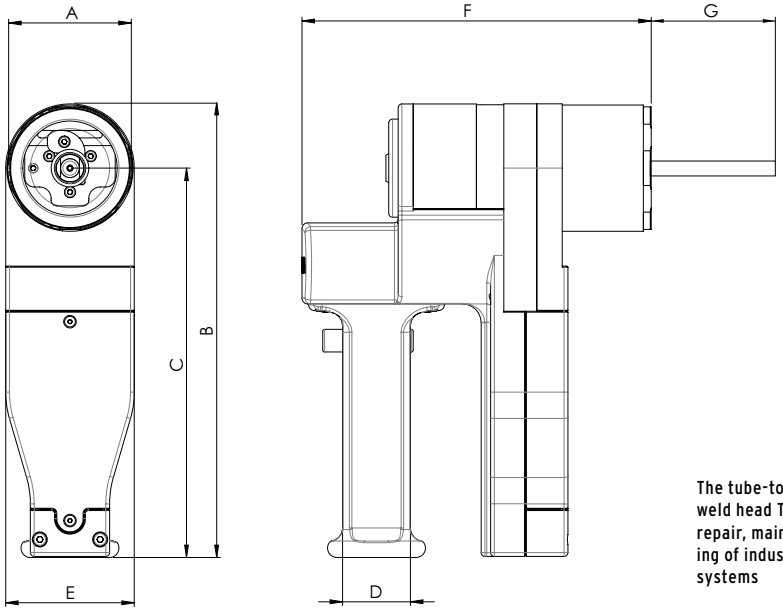
To be ordered separately:
- Arbors
- Spring sleeves
- Clamping segments
- Tungsten support

FURTHER ACCESSORIES

Available option:
- Spring balancers
- ESG Tungsten Grinders
- Earth cable
- Hose package extensions 5 m / 10 m / 15 m
- Pressure regulator
- WS2 tungsten electrodes

EQUIPMENT

Integrated remote control, with control keys:
- START/STOP welding process
- ON/OFF gas
- Motor (rotor movement)
- Approaching the end position (home position)
- Activating the clamping mandrel pneumatic



The tube-to-tube-sheet orbital weld head TX 38P: Ideal for the repair, maintenance and servicing of industrial heat exchanging systems

Tube-to-tube-sheet orbital weld head

TX 38P

TX 38P

Features, application range, technical data and scope of delivery, see page 59.

The following accessories are essentially required for operating the tube-to-tube-sheet orbital weld head and must be ordered separately:

- Arbors, see page 62
- Spring sleeves, see page 62
- Clamping segments, see page 62
- Earth cable, see page 82

ARTICLE	CODE		WEIGHT OF MACHINE KG*	DISPATCH WEIGHT KG
Tube-to-tube-sheet orbital weld head TX 38P	**830 000 005**		7.500	15.600

* Machine weight including hose package

Suitable accessories (available option):

- Arbors, see page 62
- Spring sleeves, see page 62
- Clamping segments, see page 62
- Tungsten support, see page 62
- Earth cable, see page 82
- Spring balancers, see page 82
- Hose package extensions, see page 82
- Power connector adapter set, see page 83

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Accessories for TX 38P

Arbor TX 38P

Arbors

Base mandrel including insulation sleeve and clamping cone.

ARTICLE	SUITABLE FOR	CODE		KG
Arbor TX 38P, type A	Spring sleeves, type A	**830 020 020**		0.130
Arbor TX 38P, type B	Clamping segments, type B	**830 020 021**		0.130

Spring sleeve

Spring sleeves

Suitable for arbor, type A.

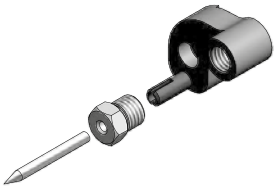
ARTICLE	PIPE ID [MM]	PIPE ID [INCH]	CODE		KG
Spring sleeve TX 38P, type A1	10.0 - 11.3	0.394 - 0.445	**830 020 022**		0.030
Spring sleeve TX 38P, type A2	11.0 - 12.7	0.433 - 0.500	**830 020 019**		0.030
Spring sleeve TX 38P, type A3	12.5 - 14.0	0.492 - 0.551	**830 020 023**		0.030

Clamping segments

Clamping segments

Suitable for arbor, type B.
Each set includes a pair of clamping segments.
Differing dimensions on request.

ARTICLE	PIPE ID [MM]	PIPE ID [INCH]	CODE		KG
Clamping segments TX 38P, type B1	13.8 - 16.8	0.543 - 0.661	**830 020 024**		0.025
Clamping segments TX 38P, type B2	16.6 - 19.6	0.654 - 0.772	**830 020 025**		0.045
Clamping segments TX 38P, type B3	19.4 - 22.4	0.764 - 0.882	**830 020 026**		0.065
Clamping segments TX 38P, type B4	22.2 - 25.2	0.874 - 0.992	**830 020 027**		0.085
Clamping segments TX 38P, type B5	25.0 - 28.0	0.984 - 1.102	**830 020 028**		0.105
Clamping segments TX 38P, type B6	28.0 - 31.0	1.102 - 1.220	**830 020 029**		0.130
Clamping segments TX 38P, type B7	31.0 - 34.0	1.220 - 1.339	**830 020 030**		0.160
Clamping segments TX 38P, type B8	34.0 - 37.0	1.339 - 1.457	**830 020 031**		0.200
Clamping segments TX 38P, type B9	37.0 - 40.0	1.457 - 1.575	**830 020 032**		0.200



Tungsten support

Tungsten support

ARTICLE	CODE		KG
Tungsten support TX 38P cpl., 2.4 mm (0.094")	**830 013 010**		

Other accessories for orbital welding

- Earth cable, see page 82
- Pressure regulator, see page 83
- ESG tungsten grinders, see page 75
- WS2 tungsten electrodes, see page 83
- Torch and cold wire consumables, see page 85
- Power connector adapter set, see page 83

P16, P16 AVC, P20

Tube-to-tube-sheet orbital weld heads

Our P series is characterized by special design features intended to ensure easy handling combined with a high level of economy and functionality.
With extreme precision, these tube-to-tube-sheet orbital weld heads will produce several thousand weld seams at constant quality.

Tube-to-tube-welding on large-scale heat exchanger with highest precision and efficiency

Easy handling and a maximum of functionality

Liquid-cooled weld head up to 30° freely pivotable

With this TIG weld heads, it is no longer a problem to weld tubes to tubesheets with the highest of accuracy and consistent quality

Its liquid cooling is fed right to the TIG burner head, which ensures more precise working and consistent quality of the welding process, as well as extending the power-on time. The burner head can be pivoted freely by up to 30° – this function is valuable, for instance, on tubes that are entering tubesheets at an angle or in restricted spaces.

ADDITIONAL FEATURES:

- Completely liquid-cooled weld head housing (P16/P16 AVC only)
- Burner head can be pivoted freely by up to 30° (reduced diameter range)
- Weld seam geometries: Recessed, flush and protruded tubes
- Current transmission via multi-plate clutch
- Gas/liquid transmission via rotating coupling
- Three-point mounting made of stainless steel
- Manually electrode positioning
  Stroke +/- 5 mm
- Special burner heads adaptable, e.g. for box-header welding (P16, P16 AVC only) or for IBW/ internal bore welding (with/without cold wire)
- Positioning on the tube to be welded is by means of a centering tool that is placed on a retaining arbor (available option)
- The weld heads with integrated cold wire unit additionally include a retaining mechanism for Ø 100 mm/1 kg (3.937"/2.2 lbs) standard wire reels
- Revolving wire feed on the rotational axis of the TIG burner prevents the additional wire from twisting when it exits the wire nozzle (only P16/P16 AVC)
- Three-point mounting included
- 7.5 m (24.6 ft) hose package and tool set included

ADDITIONAL FEATURES P16 AVC:

- Equipped with an electric arc voltage control (AVC) – only applicable in combination with the orbital welding power supply ORBIMAT 300 CA AVC/OSC

P16

P16 AVC

P20

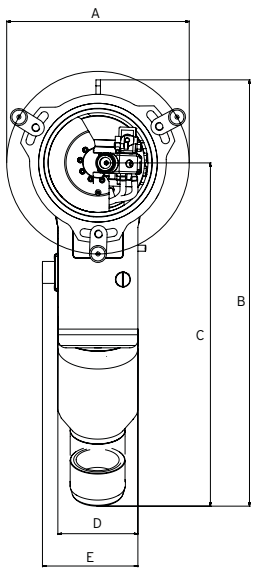
APPLICATION RANGE		P16	P16 AVC	P20
Code	with cold wire unit	831 000 001	831 000 002	832 000 002
	without cold wire unit	831 000 003	-	832 000 001
From tube ID to tube OD		10 - 78 mm* 0.394" - 3.071"*	12 - 100 mm* 0.470" - 3.937"*	10 - 70 mm* 0.394" - 2.756"*

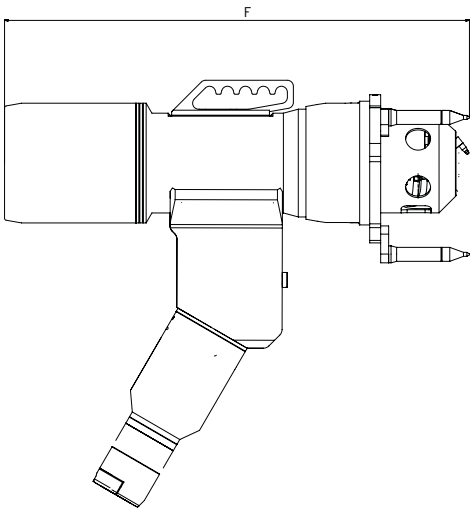
TECHNICAL DATA		P16	P16 AVC	P20
Weight of machine with hose package	with cold wire unit	17.5 kg 38.6 lbs	18.3 kg 40.3 lbs	12.75 kg 28.1 lbs
	without cold wire unit	16.2 kg 35.7 lbs	-	11.5 kg 25.4 lbs
Weight of cold wire unit		1.0 kg 2.2 lbs	1.0 kg 2.2 lbs	1.0 kg 2.2 lbs
Cold wire unit Ø		1.0 kg 2.2 lbs	1.0 kg 2.2 lbs	100 mm 3.937"
Hose package length		7.5 m 24.6 ft	7.5 m 24.6 ft	7.5 m 24.6 ft

SCOPE OF DELIVERY	
Including:	• 1 Tube-to-tube-sheet orbital weld head P16, P16 AVC or P20 • 1 Three-point mount • 1 Durable storage and shipping case • 1 Tool set • 1 Power connector adapter • 1 Operating instructions and spare parts list
Suitable accessories (available option):	• Centering tools and retaining arbors • Special torches (e.g. for boxheader or internal bore welding (IBW)) • Quick-change adapter torch equipment • Cold wire feed units (retrofit kits) • Spring balancers • Closed gas covers • Front cages • ESG tungsten grinders • Earth cable • Hose package extensions • Pressure regulator • WS2 tungsten electrodes

DIMENSIONS	P16	P16 AVC	P20
Dimension "**A**"	182.97 mm 7.204"	187.05 mm 7.364"	175.00 mm 6.890"
Dimension "**B**"	427.25 mm 16.821"	427.25 mm 16.821"	400.00 mm 15.748"
Dimension "**C**"	344.00 mm 13.543"	344.00 mm 13.543"	331.40 mm 13.047"
Dimension "**D**"	80.00 mm 3.150"	80.00 mm 3.150"	72.00 mm 2.835"
Dimension "**E**"	95.50 mm 3.760"	95.50 mm 3.760"	87.50 mm 3.445"
Dimension "**F**"	466.00 mm 18.346"	582.00 mm 22.913"	461.16 mm 18.156"

* Smaller and larger dimensions on request.





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Tube-to-tube-sheet orbital weld heads

P16, P16 AVC, P20

Features, application range, technical data and scope of delivery, see page 63.

The following accessories are essentially required for operating the tube-to-tube-sheet orbital weld heads and must be ordered separately:

- Retaining arbors and centering tools (see from page 68)
- Earth cable (see from page 82)

ARTICLE	CODE		WEIGHT OF MACHINE KG*	DISPATCH WEIGHT KG
Orbital weld head P16 with cold wire unit	**831 000 001**		17.500	26.500
Orbital weld head P16 without cold wire unit	**831 000 003**		16.200	25.100
Orbital weld head P16 AVC with cold wire unit	**831 000 002**		18.300	27.300
Orbital weld head P20 with cold wire unit	**832 000 002**		12.750	20.400
Orbital weld head P20 without cold wire unit	**832 000 001**		11.500	20.350

* Machine weight including hose package

P16

P16 AVC

P20

Suitable accessories (available option):

- Centering tools and retaining arbors, see page 68
- Earth cable, see page 82
- Special torches (e.g. for boxheader or internal bore welding (IBW)), see page 66
- Quick-change adapter torch equipment, see page 66
- Spring balancers, see page 67
- Closed gas covers, see page 67
- Front cages, see page 67
- Torch and cold wire consumables, see page 85
- Remote control, see page 16

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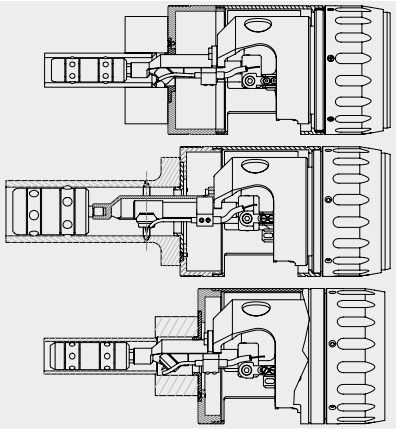
Accessories for P16, P16 AVC, P20

Special torches

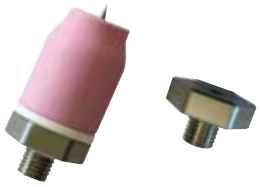
Special torches for the following welding positions are available on request:

Boxheader welding torch

Internal bore welding torch (IBW):
For welding of recessed tubes and back sheet applications



ARTICLE	CODE		KG
Boxheader welding torch	**on request**		
Internal bore welding torch (IBW)	**on request**		



Quick-change adapter torch equipment

Quick-change adapter torch equipment

Through this quick-change adapter the torch equipment of the tube-to-tube-sheet orbital weld heads P16, P16 AVC and P20, can be set up comfortably and exchanged faster, irrespective of the torch.

ARTICLE	CODE		KG
Quick-change adapter torch equipment	**831 050 019**		0.012

Cold wire feed units "KD" (retrofit kits)

For upgrading tube-to-tube-sheet orbital weld heads without cold wire unit.
Including wire reel retainer for Ø 100 mm/1 kg (3.937"/2.2 lbs) standard wire reels.

ARTICLE	CODE		KG
Cold wire feed P16 / P16 AVC	**831 001 116**		1.500
Cold wire feed P20	**832 050 030**		1.500

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Spring balancers

For load-free suspension of tube-to-tube-sheet orbital weld heads.

ARTICLE	TENSILE LOAD MAX. [KG]	CODE		KG
Spring balancer for P16	10 - 14	**832 030 002**		3.800
Spring balancer for P20	6 - 8	**832 020 001**		2.370

Spring balancers

Closed gas covers

For welding titanium tubes under a full gas cover.

ARTICLE	CODE		KG
Closed gas cover for P16	**831 001 101**		1.300
Closed gas cover for P20	**832 020 002**		0.800

Closed gas cover

Front cages

With bearing ring.
Ideal for welding of flush and recessed tubes.

ARTICLE	CODE		KG
Front cage for P16	**831 050 001**		0.360
Front cage for P20	**832 050 001**		0.360

Front cage

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Centering tools

Retaining arbor

Centering tools and retaining arbors

The tube diameter is required to select the correct centering tool.
Smaller and larger dimensions on request.

When ordering, please consider the correct centering tool/retaining arbor combination.

ARTICLE	GROUP	CARTRIDGE SIZE/NO.	PIPE ID* [MM]	PIPE ID* [INCH]	CODE		KG
Retaining arbor for centering tools for group A					**832 020 003**		0.060
Centering tool	A	1	10.0 - 10.5	0.394 - 0.413	**832 020 004**		0.040
Centering tool	A	2	10.5 - 11.0	0.413 - 0.433	**832 020 005**		0.050
Centering tool	A	3	11.0 - 11.5	0.433 - 0.452	**832 020 006**		0.070
Centering tool	A	4	11.5 - 12.0	0.452 - 0.472	**832 020 007**		0.070
Centering tool	A	5	12.0 - 12.5	0.472 - 0.492	**832 020 008**		0.080
Centering tool	A	6	12.5 - 13.0	0.492 - 0.512	**832 020 009**		0.100
Centering tool	A	7	12.8 - 14.0	0.504 - 0.551	**832 020 011**		0.110
Retaining arbor for centering tools for group B					**832 020 010**		0.070
Centering tool	B	8	13.8 - 15.0	0.543 - 0.591	**832 020 012**		0.120
Centering tool	B	9	14.8 - 16.0	0.583 - 0.630	**832 020 013**		0.140
Centering tool	B	10	15.8 - 17.0	0.622 - 0.669	**832 020 014**		0.150
Centering tool	B	11	16.8 - 18.0	0.661 - 0.709	**832 020 015**		0.180
Centering tool	B	12	17.8 - 19.0	0.701 - 0.748	**832 020 016**		0.190
Centering tool	B	13	18.8 - 20.5	0.740 - 0.807	**832 020 017**		0.200
Centering tool	B	14	19.8 - 22.5	0.780 - 0.886	**832 020 018**		0.250
Retaining arbor for centering tools for group C					**832 020 019**		0.115
Centering tool	C	15	22.3 - 25.0	0.878 - 0.984	**832 020 020**		0.340
Centering tool	C	16	24.5 - 27.0	0.965 - 1.063	**832 020 021**		0.350
Centering tool	C	17	26.5 - 29.0	1.043 - 1.142	**832 020 022**		0.360
Centering tool	C	18	28.5 - 31.0	1.122 - 1.220	**832 020 023**		0.400
Centering tool	C	19	30.5 - 33.0	1.201 - 1.299	**832 020 024**		0.500
Centering tool	C	20	32.5 - 36.0	1.280 - 1.417	**832 020 025**		0.510
Centering tool	C	21	35.5 - 39.0	1.397 - 1.535	**832 020 026**		0.530
Centering tool	C	22	38.5 - 42.0	1.516 - 1.654	**832 020 027**		0.550
Centering tool	C	23	41.5 - 45.0	1.634 - 1.772	**832 020 028**		0.560
Centering tool	C	24	44.5 - 48.0	1.752 - 1.890	**832 020 029**		1.000
Centering tool	C	25	47.5 - 51.0	1.870 - 2.008	**832 020 030**		1.200
Retaining arbor for centering tools for group D					**832 020 031**		0.215
Centering tool	D	26	50.5 - 54.0	1.988 - 2.126	**832 020 032**		1.500
Centering tool	D	27	53.5 - 58.0	2.106 - 2.283	**832 020 033**		1.800
Centering tool	D	28	57.5 - 62.0	2.264 - 2.441	**832 020 034**		1.900
Centering tool	D	29	61.5 - 66.0	2.421 - 2.598	**832 020 035**		2.100
Centering tool	D	30	65.5 - 70.0	2.579 - 2.756	**832 020 036**		2.400
Centering tool	D	31	69.5 - 74.0	2.736 - 2.913	**832 020 037**		2.600
Centering tool	D	33	77.5 - 82.0	3.051 - 3.228	**832 020 039**		3.100
Centering tool	D	34	82.0 - 87.0	3.228 - 3.425	**832 020 045**		3.100
Centering tool	D	36	91.0 - 95.0	3.582 - 3.740	**832 020 047**		3.300
Centering tool	D	37	95.0 - 99.0	3.740 - 3.897	**832 020 048**		3.960

* Smaller pipe dimensions on request.

Other accessories for orbital welding

- Earth cable, see page 82
- ESG tungsten grinders, see page 75
- WS2 tungsten electrodes, see page 83
- Torch and cold wire consumables, see page 85

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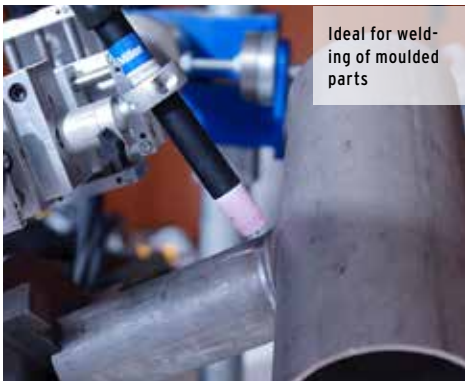
DVR

Turntables for TIG orbital welding

Welding turntables

The turning gears of Orbitalum for the mechanical TIG orbital welding are a reliable and efficient solution for the welding of rotating workpieces, short molded parts and fittings.

Welding turntable DVR 100 with ORBIMAT 165 CA power source


Ideal for welding of moulded parts

Three-jaw chuck for exact positioning and fixating of the workpiece

Welding turntable DVR 50

Compact turntables for industrial manufacturing or for flexible workshop use – in combination with a power source of the ORBIMAT series a welding system of the highest precision and nevertheless extremely simple handling.

All orbital welding power sources from Orbitalum automatically detect the turntables and their properties so that the operator only has to call up his or her specified welding program and start the process before beginning to weld.

The welding turntables are available in different versions and can be equipped with various options as required. Thanks to the stable construction even massive workpieces can be positioned without any problems. In the process the powerful clamping is carried out without any deformation of the workpiece.

While the quality of the weld seam remains at a constantly high level, the physical burden for the operator is reduced significantly.
The result: Maximum safety and productivity.

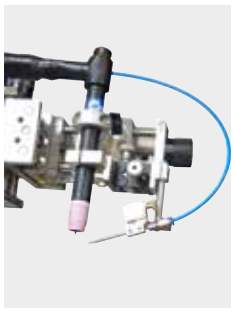
The advantages at a glance:

- Turntable can be tilted steplessly from 0 to 90°
- Centered clamping three-jaw chuck made of hardened and polished steel
- Three-jaw lathe chuck available for different clamping ranges
- Robust steel structure, excellently suited for use even under extreme process conditions
- Stable, swivel torch stand
- Three-coordinate torch support
- Ball-joint holder for TIG machine welding torch
- Liquid-cooled TIG torch head (200 A)
- Remote controls for higher operator comfort (available optionally)
- Cold-wire supply for wire Ø 0.8 mm (0.031") and 1.0 mm (0.039") for welding with cold wire (available optionally)
- Modern functional design
- Arc gap control unit for automatic controlling and holding of the arc gap (AVC = Arc Voltage Control)
- Shorter welding times at constant high quality
- Compatible with all power sources of the ORBIMAT series

The most important advantages of the DVR turntables:

- ✓ Stepless tilting up to 90°
- ✓ High-quality three-jaw chuck
- ✓ 3-axis torch support
- ✓ Modular extendable structure
- ✓ Direction of rotation selection
- ✓ Cold wire retrofitted optionally
- ✓ Wire equipping quick change system
- ✓ Liquid-cooled torch

Robust steel structure, excellently suited for use even under extreme process conditions



Liquid-cooled torch

Three-jaw lathe chuck (available separately)

Control cable and ground cable (available separately)

Remote controls for higher operator comfort (available separately)

Cold-wire supplies DVR (retrofitting kits) for welding with cold wire including feed motor and wire adjusting unit

FEATURES & TECHNICAL DATA		DVR 50	DVR 50 AVC	DVR 100	DVR 100 AVC
Code		855 000 011	855 000 012	855 000 001	855 000 002
WELDING TURNTABLES		**DVR 50**	**DVR 50 AVC**	**DVR 100**	**DVR 100 AVC**
Max. load in horizontal position (workpiece + lathe chuck), max.:		50 kg (110 lbs)	50 kg (110 lbs)	100 kg (220 lbs)	100 kg (220 lbs)
Dimensions:		300 x 300 x 395 mm (11.8" x 11.8" x 15.6")	300 x 300 x 395 mm (11.8" x 11.8" x 15.6")	600 x 570 x 695 mm (23.6" x 22.4" x 27.4")	600 x 570 x 695 mm (23.6" x 22.4" x 27.4")
Distance floor to rotating axis:		279 mm (11")	279 mm (11")	590 mm (23.2")	590 mm (23.2")
Turntable can be tilted steplessly from 0 to 90°		●	●	●	●
Locking via two clamping levers		●	●	●	●
Turning plate-Ø OD:		300 mm (11.81")	300 mm (11.81")	400 mm (15.75")	400 mm (15.75")
Hollow shafts-Ø ID:		30 mm (1.18")	30 mm (1.18")	125 mm (4.9")	125 mm (4.9")
Built-in weld power coupling for mass transfer to turning plate		●	●	●	●
Weld current built-in plug for ground cable connection		●	●	●	●
Limit switch for zero setting and speed calibration		●	●	●	●
Stand console for mounting the stand directly on the turntable		○	○	●	●
Mounting holes for floor fastening		●	●	●	●
Signal distribution box with connecting option for control cable ORBIMAT-DVR, turntable motor, limit switch, cold wire supply and remote control OWH BASIC		●	●	●	●
Tilt lever for selecting the direction of rotation		●	●	●	●
STAND		**DVR 50**	**DVR 50 AVC**	**DVR 100**	**DVR 100 AVC**
Weld torch stand mounted on console		○	○	●	●
Weld torch stand to be fastened separately		●	●	○	○
Base clamp with mounting holes for fastening at point of use		●	●	○	○
Dimensions stand tube OD x L:		50 x 1200 mm (2" x 47.2")	50 x 1200 mm (2" x 47.2")	50 x 1200 mm (2" x 47.2")	50 x 1200 mm (2" x 47.2")
Dimensions extension arm OD x L:		50 x 800 mm (2" x 31.5")	50 x 800 mm (2" x 31.5")	50 x 800 mm (2" x 31.5")	50 x 800 mm (2" x 31.5")
Extension swivel unit with magnetic stop for locking the welding position		●	●	●	●
Rough adjustment possible without tools via clamping lever, incl. cross-clamping unit		●	●	●	●
Three-coordinate support for torch fine adjustment. Linear adjustment path: 50 mm (2") each		●	●	●	●
Torch holder with ball head		●	○	●	○
MACHINE TORCH		**DVR 50**	**DVR 50 AVC**	**DVR 100**	**DVR 100 AVC**
Liquid-cooled machine torch with hose package length 4 m (13.12 ft)		●	●	●	●
Current carrying capacity DC: 250 A, AC: 180 A at 100% ED		●	●	●	●
Incl. standard torch equipment for electrode diameter 2.4 mm (0.09")		●	●	●	●
AVC LINEAR UNIT*		**DVR 50**	**DVR 50 AVC**	**DVR 100**	**DVR 100 AVC**
Arc gap control unit for automatic controlling and holding of the arc gap		○	●	○	●
Linear stroke: 55 mm		○	●	○	●
SCOPE OF DELIVERY		**DVR 50**	**DVR 50 AVC**	**DVR 100**	**DVR 100 AVC**
Welding turntable of the DVR series (without lathe chuck)	Pc.	1	1	1	1
Stand	Pc.	1	1	1	1
Signal distribution box	Pc.	1	1	-	-
Machine torch with equipment	Pc.	1	1	1	1
AVC linear unit	Pc.	-	1	-	1
Power connector adapter	Pc.	1	1	1	1
Operating instructions and spare parts list	Set	1	1	1	1

The technical data are not binding. They are not warranted characteristics and are subject to change.

● = feature included ○ = feature not included ◐ = feature limited included

* only applicable in combination with the orbital welding power supply ORBIMAT 300 CA AVC/OSC as well as the ground cable for 300 CA AVC/OSC power sources

Welding turntables

DVR

Features, application range, technical data and scope of delivery, see from page 69.

The following accessory is essentially required for operating the DVR welding turntables and must be ordered separately:

- Control cable (see page 72)
- Earth cable (see page 72)
- Three-jaw lathe chuck (see page 72)

ARTICLE	CODE		WEIGHT OF MACHINE KG	DISPATCH WEIGHT KG
Welding turntable DVR 50	**855 000 011**		45.000	
Welding turntable DVR 50 AVC*	**855 000 012**		50.000	
Welding turntable DVR 100	**855 000 001**		100.000	
Welding turntable DVR 100 AVC*	**855 000 002**		105.000	

* Only applicable in combination with the orbital welding power supply ORBIMAT 300 CA AVC/OSC (see from page 11).

Welding turntable DVR 50

Welding turntable DVR 100

Suitable accessories (available option):

- Three-jaw lathe chuck, see page 72
- Control cable, see page 72
- Earth cable, see page 72
- Remote control OWH BASIC, see page 73
- Remote control ORBIMAT, see page 16
- Cold wire feed units DVR, see page 73
- Power connector adapter set, see page 83

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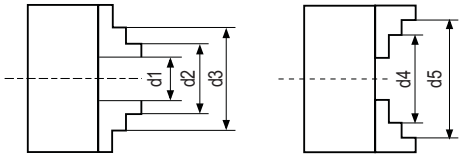
Accessories for DVR

Three-jaw lathe chuck



Clamping range three-jaw lathe chuck

Three-jaw lathe chuck

Centered clamping three-jaw chuck made of hardened and polished steel.
With cylindrical retainer for clamping the pipe.

Scope of delivery:

- 1 Three-jaw lathe chuck
- 1 three-jaw lathe chuck
- 1 adapter plate for the clamping turning plate
- 1 chuck key
- 1 set each of turning and drilling jaws, graded to the inside and outside

CLAMPING RANGE	D1		D2		D3 MAX.		D4 MAX.		D5 MAX.	
	[MM]	[INCH]	[MM]	[INCH]	[MM]	[INCH]	[MM]	[INCH]	[MM]	[INCH]
Three-jaw lathe chuck DVR 50	4-90	0.16-3.54	52-135	2.05-5.31	120-202	4.72-7.95	60-145	2.36-5.71	130-200	5.12-7.87
Three-jaw lathe chuck DVR 100	5-118	0.20-4.65	62-174	2.44-6.85	145-256	5.71-10.18	77-188	3.03-7.40	160-250	6.30-9.84
Three-jaw lathe chuck DVR 100	10-131	0.39-5.16	78-200	3.07-7.87	172-299	6.77-11.77	90-215	3.54-8.46	190-315	7.48-12.40

ARTICLE	OUTER Ø CHUCK		INNER Ø HOLE		CODE		KG
	[MM]	[INCH]	[MM]	[INCH]			
Three-jaw lathe chuck DVR 50	200.0	7.874	55.0	2.475	**890 030 050**		14.500
Three-jaw lathe chuck DVR 100	250.0	9.842	76.0	2.992	**890 030 054**		25.700
Three-jaw lathe chuck DVR 100	315.0	12.402	103.0	4.055	**890 030 051**		44.200

Control cable for welding turntables DVR

Control cable

Required for use with DVR welding turntables.

ARTICLE	LENGTH [M]	LENGTH [FT]	CODE		KG
Control cable for welding turntables DVR	5.0	16.4	**890 030 022**		1.170

Earth cable for welding turntable DVR

Earth cable

Required for use with DVR welding turntables.

ARTICLE	SUITABLE FOR ORBIMAT	LENGTH [M]	LENGTH [FT]	CODE		KG
Earth cable for welding turntable DVR	165/180/300	5.0	16.4	**890 030 015**		2.500
Earth cable for welding turntable DVR	300 AVC	5.0	16.4	**890 030 017**		2.885

Remote control OWH BASIC

Can be used with all DVR turntables without AVC/OSC function.
For advanced functions such as the **AVC/OSC control**, etc. please order our **remote control ORBIMAT**, see page 16.

For even more operator comfort the DVR welding turntables can be controlled with this "OWH BASIC" remote control. The remote control is connected directly to the turntable and disposes of the following standard functions:

- Start/Stop button
- Direction of rotation
- Wire feed
- Wire withdrawal

Remote control OWH BASIC

ARTICLE	CABLE LENGTH [M]	CABLE LENGTH [INCH]	CODE		KG
Remote control OWH BASIC	7.5	24.6	**871 050 035**		0.368

Cold wire feed units DVR

For welding with cold wire. Can be retrofitted to all DVR turntables.
The cold wire unit can be adjusted individually in four axes.
Retooling of the wire diameter is carried out completely without tools.

Scope of delivery:

- 1 Feed motor
- 1 Wire adjusting unit
- 2 Wire nozzles with wire core
- 1 Wire reel retainer
- Fastening material

Cold wire feed unit DVR 100 (with and without cover hood)

TECHNICAL DATA	WIRE FEED QUANTITY MAX.	WIRE Ø		WIRE COIL Ø		WEIGHT WIRE COIL	
	[MM/MIN.]	[MM]	[INCH]	[MM]	[INCH]	[KG]	[LBS]
Cold wire feed unit DVR 50/100	1300	0.8 / 1.0	0.031 / 0.039	100.0	3.937	1.0	2.2
Cold wire feed unit DVR 100	1300	0.8 / 1.0	0.031 / 0.039	300.0	11.811	15.0	33.0

Adjusting unit and feed motor

ARTICLE	APPLICABLE WITH	CODE		KG
Cold wire feed unit DVR 50	DVR 50 (AVC)*	**855 050 008**		
Cold wire feed unit DVR 100	DVR 100 (AVC)	**855 050 005**		

* Can also be used with DVR 100

Other accessories for orbital welding

- ESG tungsten grinders, see page 75
- ORBmax residual oxygen meter, see page 79
- ORBIPURGE forming set, see page 82
- WS2 tungsten electrodes, see page 83
- Torch and cold wire consumables, see page 85
- Power connector adapter set, see page 83

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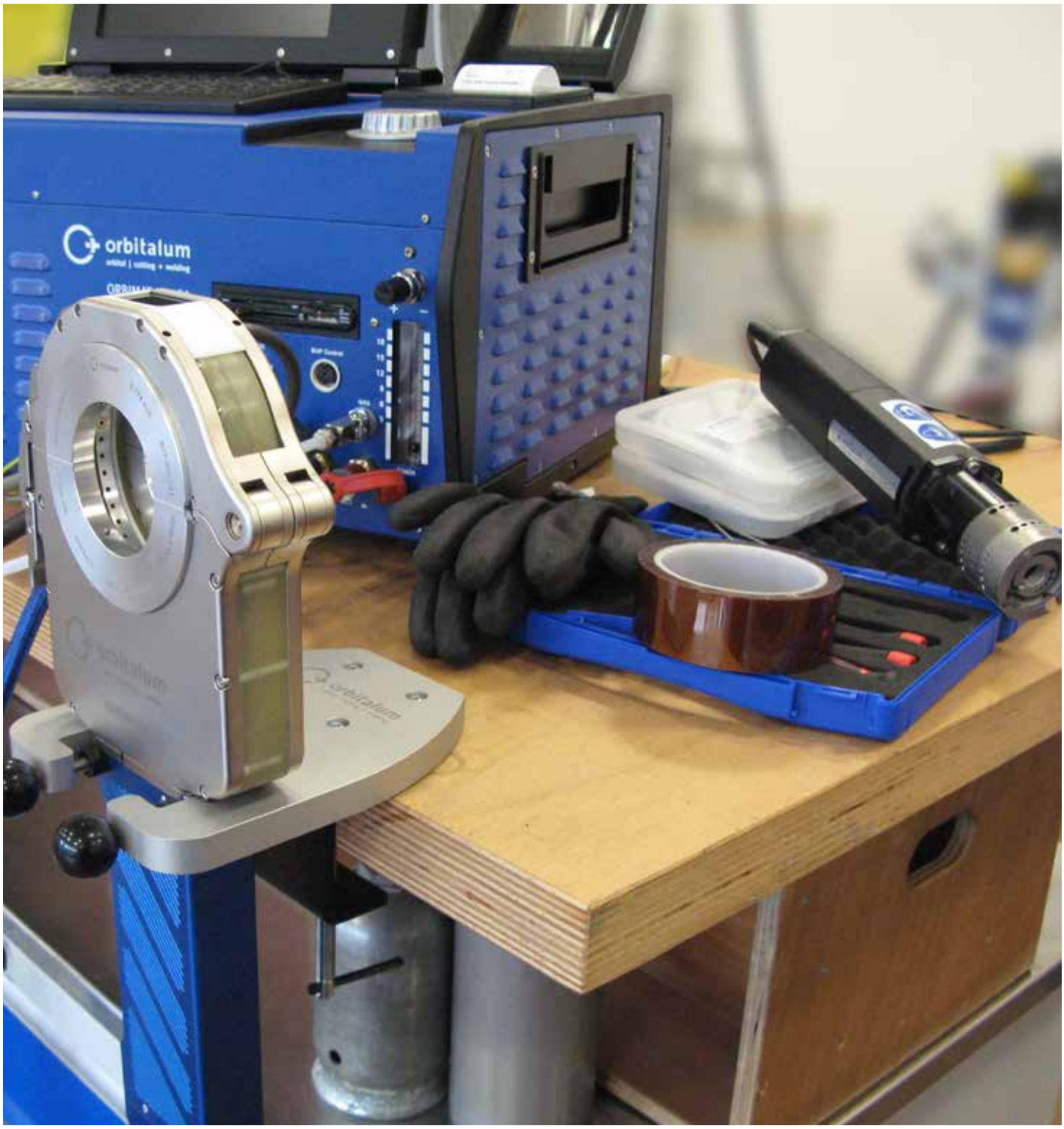
Accessories & consumables for orbital welding



ESG Plus, ESG Plus²

Tungsten Grinders

The best solution for a precise and fast preparation of tungsten electrodes.
The perfect hand-held grinder for cutting, grinding and planing electrodes which are used in WIG/TIG welding machines.

- Repeatable points every time due to preset grinding angles ✓
- Easy and fast to use ✓
- Optimum preparation for orbital and manual welding ✓
- Longitudinal grinding for optimum arc ignition and excellent arc stability ✓
- Guarantees longer tool life and ease of ignition of the tungsten electrode ✓
- Specially designed for one-off jobs on site ✓
- Compact design, optimum resilience and perfect reproducibility ✓
- Functional design ✓
- Precise orbital grinding ✓

The powerful Hand-Tungsten-Grinder for grinding, facing and cutting.

One machine – complete electrode preparation:

- Grinding electrodes:
  - 4 different angles
  - 6 different electrode sizes
- Facing electrodes
- Cutting electrodes

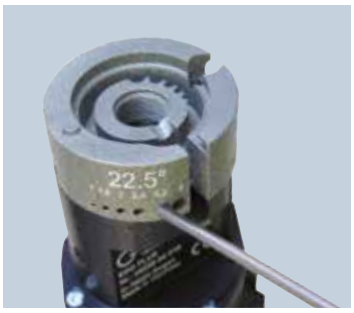
The machines are available with a high-quality and powerful drive with 230 Volt and/or 110 Volt. Machines and accessories are delivered in a durable storage and shipping case.

FURTHER ADVANTAGES:

- Facility for easy trimming of the electrodes (optional)
- External dust extractor can be easily adapted
- Short preparation times with high grinding performance
- No adjustment needs to be done before operation

ADDITIONAL FEATURES ESG PLUS²:

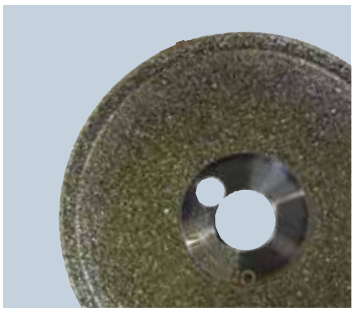
- Portable tungsten grinder with two different grinding wheels. This allows the electrode to be pre-ground with the coarse diamond wheel then finished with the fine diamond wheel.



Grinding electrodes:
4 different angles and 6 different electrode sizes

Facing electrodes

Cutting electrodes



Replaceable grinding wheel diamond-coated on both sides for optimal performance

SCOPE OF DELIVERY / APPLICATION RANGE		ESG PLUS	ESG PLUS²
Code	[230 V]	790 052 485 (15°/18°/22.5°/30°) 790 052 545 (15°/30°/45°/60°)	790 052 585 (15°/18°/22.5°/30°) 790 052 546 (15°/30°/45°/60°)
	[110 V]	790 052 486 (15°/18°/22.5°/30°) 790 052 645 (15°/30°/45°/60°)	790 052 586 (15°/18°/22.5°/30°) 790 052 646 (15°/30°/45°/60°)
Tungsten grinder	Pc.	1	1
Durable storage and shipping case	Pc.	1	1
Grinding head for electrodes Ø 1.0 - 1.6 - 2.0 - 2.4 - 3.2 - 4.0 mm (0.04" - 1/16" - 0.08" - 3/32" - 1/8" - 5/32")	Pc.	1	1
Grinding head for grinding angle 15° - 18° - 22.5° - 30° **or** 15° - 30° - 45° - 60°	Pc.	1	1
Diamond grinding wheel Fine (790 052 487)	Pc.	-	1
Diamond grinding wheel Medium (790 052 488)	Pc.	1	-
Diamond grinding wheel Coarse (790 052 550)	Pc.	-	1
Tool to replace the grinding wheel	Pc.	1	1
Operating instructions and spare parts list	Set	1	1

TECHNICAL DATA		ESG PLUS	ESG PLUS²
Dimensions (including motor)	[mm]	Ø 65 x 350	Ø 65 x 350
	[inch]	Ø 2.56 x 13.78	Ø 2.56 x 13.78
Power	[W]	500	500
Power-on time	[%]	100	100
Speed (Rotary speed)	[rpm]	30.000	30.000
Main supply cable (length)	[m]	3	3
	[inch]	118.1	118.1
Vibration level (EN 28662, part 1)	[m/s²]	< 2.5	< 2.5
Noise level at the workplace (Idle running), approx.	[dB (A)]	83	83

The technical data are not binding. They are not warranted characteristics and are subject to change. Please consult our general conditions of supply.

Tungsten Grinders ESG

ESG Plus, ESG Plus²

Features, application range, technical data and scope of delivery, see from page 75.

ARTICLE	VERSION	GRINDING ANGLES [°]	CODE		WEIGHT OF MACHINE KG	DISPATCH WEIGHT KG
ESG Plus	230 V, 50/60 Hz EU	15 / 18 / 22.5 / 30	**790 052 485**		1.430	3.560
ESG Plus	110 V, 50/60 Hz EU/US	15 / 18 / 22.5 / 30	**790 052 486**		1.430	3.560
ESG Plus	230 V, 50/60 Hz EU	15 / 30 / 45 / 60	**790 052 545**		1.430	3.560
ESG Plus	110 V, 50/60 Hz EU/US	15 / 30 / 45 / 60	**790 052 645**		1.430	3.560
ESG Plus²	230 V, 50/60 Hz EU	15 / 18 / 22.5 / 30	**790 052 585**		1.520	3.825
ESG Plus²	110 V, 50/60 Hz EU/US	15 / 18 / 22.5 / 30	**790 052 586**		1.520	3.825
ESG Plus²	230 V, 50/60 Hz EU	15 / 30 / 45 / 60	**790 052 546**		1.520	3.825
ESG Plus²	110 V, 50/60 Hz EU/US	15 / 30 / 45 / 60	**790 052 646**		1.520	3.825

ESG Plus

ESG Plus²

Diamond grinding wheels

Replaceable grinding wheel diamond-coated on both sides for optimal performance.

For 1.0 and 1.6 mm (0.039"/0.063") electrodes we recommend the standard grinding wheel. For 2.0 and 2.4 mm (0.078"/0.094") electrodes a medium grained grinding wheel and for 3.2 and 4.0 mm (0.126"/0.157") a coarse grained grinding wheel is advisable.

ARTICLE	APPLICABLE WITH	GRAIN	WHEEL Ø		S		CODE		KG
			[MM]	[INCH]	[MM]	[INCH]			
Diamond grinding wheel	ESG 4	Standard	32.00	1.290	1.2	0.047	**790 052 460**		0.005
Diamond grinding wheel	ESG Plus, ESG Plus²	Fine	33.50	1.319	2.2	0.087	**790 052 487**		0.010
Diamond grinding wheel	ESG Plus, ESG Plus²	Medium	33.50	1.319	2.2	0.087	**790 052 488**		0.011
Diamond grinding wheel	ESG Plus, ESG Plus²	Coarse	33.50	1.319	2.2	0.087	**790 052 550**		0.011

Diamond grinding wheels

Cutting device

For simple separating of the electrodes.
Applicable up to an electrode diameter of 2.4 mm (0.094").

ARTICLE	SETTING	CUTTING LENGTHS		CODE		KG
		[MM]	[INCH]			
Cutting device	fixed	12.0 13.0 15.0 17.0	0.472 0.512 0.591 0.669	**790 052 513**		0.030

Cutting device

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Electrode holder with collet

Spare collet

Electrode holder

For machining smaller electrodes.
The electrode holder is supplied including 1 flexible collet.

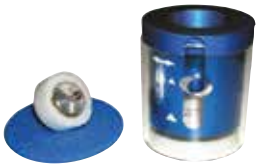
ARTICLE	SETTING	ELECTRODE Ø		CODE		KG
		[MM]	[INCH]			
Electrode holder with collet	continuous	1.0 - 3.2	0.039 - 0.126	**790 052 457**		0.023
Spare collet	continuous	1.0 - 3.2	0.039 - 0.126	**790 052 481**		0.002

Wall-/table-/vice-mounting plate

Wall-/table-/vice-mounting plate

For stationary use of the ESG Plus and ESG Plus².
Simple and rapid mounting to a wall, a table or a vice.

ARTICLE	CODE		KG
Wall-/table-/vice-mounting plate	**790 052 483**		0.102



Protective cover

Protective cover

Easy to adapt on the ESG Plus head.
With integrated retainer for suction units.
For use on electrodes with thorium.
Consider country-specific regulations, standards and guidelines.

ARTICLE	CODE		KG
Protective cover ESG Plus	**790 052 496**		0.170
Protective cover ESG Plus²	**790 052 596**		0.220

Double-Decker Kit

Double-Decker Kit

Easy to mount to the ESG Plus.
This attachment makes it possible to use 2 different grinding wheels at the same time.

Including:
- 1 grinding head
- 1 diamond grinding wheel (Coarse)
- 1 cylinder-head screw with collar (M4x34)
- 1 shaft extension.

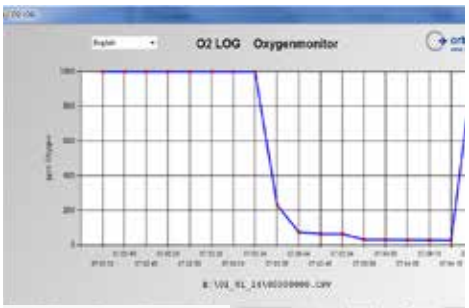
ARTICLE	APPLICABLE WITH	GRINDING ANGLES [°]	CODE		KG
Double-Decker Kit	ESG Plus	15 / 18 / 22.5 / 30	**790 052 490**		0.160
Double-Decker Kit	ESG Plus	15 / 30 / 45 / 60	**790 052 390**		0.100

ORBmax

Residual oxygen meter

This ORBmax residual oxygen meter sets a milestone for fast, exact detection of residual oxygen, and with it complete documentation of these parameters. At the same time, the new measuring method results in greater efficiency and higher quality.

The ORBmax does not require any heating-up time. It recognizes the oxygen percentage reliably, rapidly and precisely during the entire welding process.



Software to evaluate data "O2_log" included

Comprehensive range of accessories, including durable storage and shipping case

The "Optical oxygen measurement via fluorescence extinction" method for welding technology is far superior to the conventional methods, using zirconium sensors: It requires no warm-up time whatsoever; reliably, quickly and precisely detects the oxygen share in the gas; unchecked alleged increasing of the measured value due to the formation of ozone is eliminated; the measurement is possible in all gas mixtures without manual switch-over (even with forming gas with a variable percentage of hydrogen).

The exact, fast detection of the oxygen content reduces the otherwise long flooding time of the forming gas. The operator can start the safe welding process considerably earlier. As a result, precious working time is saved and the gas consumption reduced. In addition, ORBmax requires no maintenance of any kind. Calibration once a year in accordance with the standard ISO 9001 is sufficient.

For welding pipes in plant and equipment construction for the food processing, beverage, cosmetics and pharmaceuticals industries, medical and bio-technology as well as fine chemicals, comprehensive quality assurance is required and a procedure qualification is specified for the welded seams. For quality certification, not only the values from the power source, but also the residual oxygen values can be documented with the ORBmax. When used as a stand-alone solution, ORBmax records a digital log with a time stamp. In conjunction with the ORBIMAT welding power source, the welding process can be monitored in real-time and automatically switched off when increased oxygen content occurs.

- No warm-up time required
- Quick response
- High measurement accuracy
- Measurement of residual oxygen level during the welding process
- No uncontrolled increase of the measurement during the welding process
- Measurement of forming gas with variable hydrogen content without mode change
- Measurement of the residual oxygen value in all gas mixtures
- Measured value recording on SD card
- User-friendly touchscreen
- Liquid-resistant sensor
- Alarm mode with beeper and changing colour of the display (green/red)
- Protection class IP32
- Setable alarm value and saving interval
- Multirange power supply
- Software to evaluate data
- Can be connected with an ORBIMAT Orbital Welding Power Source
- Maintenance-free sensor
- Pleasant and handy design
- Transportation case with IP67 protection

Residual oxygen meter

ORBmax

Practical protective cover included

ORBmax

Features, see page 79.

TECHNICAL DATA	ORBMAX
Dimensions (lxwxh)	215 x 200 x 74 mm 8.46" x 7.87" x 2.91"
Weight, approx.	2 kg 4.4 lbs
Protection class device	IP32
Protection class transport case	IP67
Power connection	AC 100 - 240 V, 50 - 60 Hz
Measuring range	1 - 999 ppm
SCOPE OF DELIVERY	• 1 ORBmax residual oxygen meter • 1 Durable storage and shipping case • 1 power unit supply set 100 - 240 VAC / 12 VDC • 1 measuring hose (with test tip and filter) • 1 SD card including evaluation software "02_log" • 1 interface cable ORBmax/ORBIMAT CA • 1 interface cable ORBmax/ORBIMAT SW • 2 reserve filter inserts • 1 operating instructions

ARTICLE	VERSION	CODE		WEIGHT OF MACHINE KG	DISPATCH WEIGHT KG
ORBmax	100 - 240 V, 50/60 Hz	**882 000 002**		2.000	4.775

Interface cable ORBmax/ORBIMAT SW

For retrofitting older ORBmax devices.
Allows the connection to ORBIMAT 180 SW power supplys.
At newer ORBmax devices this interface cable is already included in the scope of delivery.

ARTICLE	CODE		KG
Interface cable ORBmax - ORBIMAT SW	**850 040 031**		0.065

Measuring hose set (Individual parts)

Consumables for ORBmax

All individual parts are already included in the scope of delivery of the ORBmax.

ARTICLE	CODE		KG
Measuring hose set, including: • 1 hose* • 1 filter housing including filter insert (1 unit) • 1 test tip • 1 hose connector	**882 050 006**		0.081
Hose*	**882 012 010**		0.050
Filter housing including filter insert (1 unit)	**882 020 003**		0.021
Filter inserts (5 pieces per packing unit)	**882 030 002**		0.003
Test tip	**882 012 011**		0.004
Plastic connector test tip - hose	**882 012 012**		0.001

* Please specify the hose length in meters when ordering.

Comprehensive training program.

We as Orbitalum emphasize on the safe operation of our equipment as it has the utmost priority.

We generally recommend a product safety and user training to clearly understand the proper usage of the equipment and in order to avoid any possible dangers and accidents.

We offer:

- Training on daily or weekly basis
- At any location
- Skilled trainers
- Certification after successful participation
- Fully equipped training centre in Singen
- State-of-the-art training equipment

If you would like to learn more about our comprehensive training program or if you need information about our next user trainings then please contact our service team.
Via phone:

+49 (0) 77 31 792-200

Or per e-mail to:

training@itw-ocw.com

Other accessories for orbital welding

ORBIPURGE forming set

ORBIPURGE forming set

Complete with Teflon gas hose and rapid-action couplings.
The ORBIPURGE forming set for tube internal diameters 12 - 110 mm (0.472" - 4.331") includes all accessories for fast and efficient internal forming during orbital welding.

Forming plugs for larger diameters are separately available.

- Suitable for all common materials
- The various stoppers match the internal diameter of the tube exactly and therefore from a continuous sealing
- The complete set is supplied in a durable plastic carrying case
- The scope of delivery includes 2 forming plugs in each size, a Teflon gas hose, and a set of rapid-action couplings
- Particularly suitable where there are very high demands for purity in the forming atmosphere and is an ideal addition to our residual oxygen meter ORBmax (see page 79)
- The included rapid-action couplings allow a simple connection and separation of the gas hose

Inert gas outlets for ORBIPURGE forming plugs:
Suitable for all ORBIPURGE forming plugs.

ARTICLE	CODE		KG
ORBIPURGE forming set	**881 000 001**		3.150
Inert gas outlet for ORBIPURGE 3/8"	**881 020 014**		0.030
Inert gas outlet for ORBIPURGE M5	**881 020 015**		0.005
Forming plugs, set for ID 114 - 130 mm (4.488" - 5.118"), 3/8"	**881 050 030**		0.020
Forming plugs, set for ID 121 - 142 mm (4.764" - 5.591"), 3/8"	**881 050 031**		0.020
Forming plugs, set for ID 148 - 162 mm (5.827" - 6.378"), 3/8"	**881 050 032**		0.020

Inert gas outlets

Earth cable

Earth cable

For use in combination with an orbital welding power supply of the ORBIMAT series.

ARTICLE	LENGTH [M]	LENGTH [FT]	CODE		KG
Earth cable for ORBIMAT 165/180/300 welding power supplies	5.0	16.4	**811 050 005**		2.400
Earth cable for ORBIMAT 300 CA AVC/OSC welding power supplies	5.0	16.4	**812 050 046**		2.850

Hose package extensions

Hose package extensions

Suitable for all Orbitalum orbital weld heads, with the exception of the ORBIWELD TP AVC/OSC heads.

Other lenghts on request.

ARTICLE	LENGTH [M]	LENGTH [FT]	CODE		KG
Hose package extension 5 m (16 ft)	5	16	**871 050 011**		7.600
Hose package extension 10 m (32 ft)	10	32	**871 050 012**		14.600
Hose package extension 15 m (49 ft)	15	49	**871 050 013**		22.000
Hose package extension 20 m (64 ft)	20	64	**871 050 016**		28.700

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Pressure regulator

With 2 adjustable flow displays and option to connect welding and forming gas.

TECHNICAL DATA	ARGON/HYDROGEN	ARGON
Inlet pressure (max.)	200 bar	230 bar
Flow indicator	up to 50 L/min.	up to 30 L/min.
Gas cylinder connection	W21.8x1/14" LH	W21.8x1/14"
Hose connection	G 3/8 LH	G 1/4

ARTICLE	VERSION	CODE		KG
Pressure regulator	Argon	**888 000 001**		1.850
Pressure regulator	Argon/Hydrogen	**888 000 002**		1.870
Spare seals for pressure regulator		**888 000 005**		0.002

Pressure regulator

Bar pressure regulator "Argon"

For HX 16P, see page 48.

Bar pressure regulator "Argon"

WS2 tungsten electrodes

WS electrodes are used for DC and AC welding and are a completely satisfactory replacement for the WT electrodes.

Benefits:

- High ignition safety
- Low combustion
- Long service life
- High arc quality

Content: 10 pieces
Length: 175 mm (6.890")
Composition: WS2 = Rare earths (mixed oxides)
Color code: Turquoise

ARTICLE	ELECTRODE Ø [MM]	ELECTRODE Ø [INCH]	CODE		KG
WS2 tungsten electrodes	1.0	0.039	**826 004 018**		0.006
WS2 tungsten electrodes	1.6	0.063	**826 004 019**		0.010
WS2 tungsten electrodes	2.4	0.094	**826 004 020**		0.018

WS2 tungsten electrodes

Power connector adapter set

Easy to use, safe, robust and durable.
For use with older Orbitalum welding power supplies and weld heads with green "Superior" connectors. Newer models are already equipped with the DINSE compatible connectors.

ARTIKEL	CODE		KG
Power connector adapter set for socket & plug	**850 030 004**		
Power connector adapter for plug	**850 030 002**		
Power connector adapter for socket	**850 030 003**		

Power connector adapter set

TIG manual welding torch for ORBIMAT

TIG manual welding torch for ORBIMAT

The TIG manual welding torch for ORBIMAT orbital welding power supplies is a high productive welding torch for tacking and manual welding. The liquid-cooled hand torch allows an ideal heat conduction and a long operating life. The compact design, the flexible hose package and the integrated operation control results in a high user-friendliness.

A durable storage and shipping case and a consumable spares kit are included.

Features:

- Liquid-cooled DC 250 A, AC 200 A
- Superflex hose package
- Flexible torch body
- Ergonomic handle

Scope of delivery:

- 1 TIG manual welding torch
- 1 Durable storage and shipping case
- Torch consumable spares kit

The following accessory is essentially required for operating the TIG manual welding torch and must be ordered separately:

- Earth cable, see page 82

ARTICLE	HOSE PACKAGE LENGTH [M]	HOSE PACKAGE LENGTH [FT]	CODE		WEIGHT OF MACHINE KG	DISPATCH WEIGHT KG
TIG manual welding torch for ORBIMAT	4.0	13.0	**890 013 010**		2.425	6.405

OTHER ACCESSORIES FOR ORBITAL WELDING

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Torch and cold wire consumables

ACCESSORIES	CLAMP SLEEVES FOR ELECTRODES			CLAMP SLEEVES FOR PLUNGER			TORCH ISOLATORS		
Picture									
APPLICABLE WITH:	**CODE**		**KG**	**CODE**		**KG**	**CODE**		**KG**
TP 250	**811 020 018**		0.001				**811 013 001**		0.001
TP 400 KD4-100	**812 020 024**		0.002						
TP 400 KD3-62 (AVC/OSC)				**812 005 002**		0.003	**812 005 001**		0.002
TP 600 (AVC/OSC)	**812 020 024**		0.002						
TP 1000 (AVC/OSC)									
P16									
P16 AVC	**831 001 058**		0.010	-		-	**831 001 007**		0.005
P20									
TIG manual welding torch	**812 020 024**		0.002	**812 020 059**		0.005	**812 020 060**		0.002
DVR welding turntables (Standard)	**890 020 039**		0.005	**890 020 046**		0.009	**890 020 041**		0.002
DVR welding turntables (Jumbo)	-		-	-		-	**812 020 065**		0.012

ACCESSORIES	WIRE CORES											
Picture												
Version	TP wire cores 0.8 mm (0.031")			TP wire cores 1.0 mm / 1.2 mm (0.039" / 0.047")			Front wire cores (long) 0.8 mm (0.031")			Rear wire cores (short) 0.8 mm (0.031")		
APPLICABLE WITH:	**CODE**		**KG**	**CODE**		**KG**	**CODE**		**KG**	**CODE**		**KG**
TP 250	**811 020 030**		0.074	**811 002 006**								
TP 400 KD4-100												
TP 400 KD3-62 (AVC/OSC)	**812 020 041**		0.009	**811 002 005**		0.009	-		-	-		-
TP 600 (AVC/OSC)												
TP 1000 (AVC/OSC)												
P16												
P16 AVC	-		-	-		-	**831 001 022**		0.005	**831 001 015**		0.005
P20							**832 001 010**		0.005	**832 001 011**		0.010
TIG manual welding torch							-		-	-		-
DVR welding turntables	**890 020 055**		0.020	**890 020 056**		0.020	-		-	-		-

ACCESSORIES	HF SPIRALS			TORCH SEAL			GAS NOZZLES			GAS LENSES		
Picture												
APPLICABLE WITH:	**CODE**		**KG**	**CODE**		**KG**	**CODE**		**KG**	**CODE**		**KG**
TP 250	**831 001 027**		0.003	**811 005 020**		0.003	**811 020 017**		0.004	**811 020 016**		0.004
TP 400 KD4-100	**811 050 011**		0.002									
TP 400 KD3-62 (AVC/OSC)							**812 020 023**		0.010	**812 020 022**		0.010
TP 600 (AVC/OSC)	**831 001 027**		0.003									
TP 1000 (AVC/OSC)				-		-						
P16												
P16 AVC	**811 050 011**		0.002				**831 001 060**		0.020	**831 001 161**		0.009
P20	**831 001 027**		0.003									
TIG manual welding torch	-		-				**812 020 023**		0.010	**812 020 022**		0.010
DVR welding turntables (Standad)	-		-	-		-	**812 020 023**		0.010	**812 020 022**		0.010
DVR welding turntables (Jumbo)	-		-	-		-	**812 020 064**		0.039	**812 020 063**		0.048

ACCESSORIES	WIRE NOZZLES											
Picture												
Version	Wire nozzle for wire Ø 0.8 mm (0.031")			Wire nozzle for wire Ø 1.0 mm (0.039")			Wire nozzle tip for wire Ø 0.8 mm (0.031")			Wire nozzle tip for wire Ø 1.0 mm (0.039")		
APPLICABLE WITH:	**CODE**		**KG**	**CODE**		**KG**	**CODE**		**KG**	**CODE**		**KG**
TP 250	**811 018 010**		0.004	**811 018 011**		-	**-**		-	**-**		-
TP 400 KD4-100 TP 400 KD3-62 (AVC/OSC) TP 600 (AVC/OSC) TP 1000 (AVC/OSC)	**812 018 045**		0.002	**812 018 046**		0.002	**812 018 050**		-	**812 018 051**		-
P16	**831 001 031**		0.020	**831 001 039**		0.005						
P16 AVC	**831 018 051**		0.003				-		-	**-**		-
P20	**832 001 012**		0.020	-		-						
TIG manual welding torch	-		-									
DVR welding turntables	**855 018 003**		-	**855 018 004**		-	**812 018 050**		-	**812 018 051**		-

Notes:

About us

For the finest in pipe & tube cutting, beveling and orbital welding products.

For more than 50 years construction companies rely on the standard in the industrial prefabrication of pipeline systems set by the market leader Orbitalum.

Orbitalum Tools based in Singen, Germany and E.H. Wachs based in Lincolnshire, Illinois, USA are operating jointly as **ITW Orbital Cutting & Welding**, a division of the US industrial group ITW.

Orbitalum Tools is a global leader in providing complete solutions for the industrial prefabrication, installation and maintenance of pipeline systems – for everything from cutting pipes and preparing weld seams to orbital welding for process and plant engineering.

With its high-quality, nearly indestructible, portable and user-friendly pipe processing machines for cutting and beveling, **E.H. Wachs** has established itself in many industries. For example, in the oil and gas industry, the chemical industry and in pipeline and ship construction – in the preproduction, maintenance, repair and dismantling of installations.

ITW (Illinois Tool Works, www.itw.com) is a US Fortune 200 global industrial manufacturer of consumables, specialty equipment and related service businesses headquartered in Glenview, Illinois. ITW Orbital Cutting & Welding is part of the ITW Welding Group, which is world market leader in welding products (e.g. MILLER ELECTRIC, HOBART BROTHERS).

When you partner with us you're not only partnering with the industry leader in portable weld preparation machine tools and orbital welding systems, you're partnering with ITW, the industry leader in advanced welding technologies.

The ITW Orbital Cutting & Welding group stands for the best, most efficient technology for all aspects of orbital cutting and welding around the globe.

As ITW OCW we provide an almost unique product availability, a worldwide customer service and technical support as well as a sales network at local level. A partnership with ITW OCW involves:

- Acclaimed state-of-the-art technology, competent contact partners
- Fast, comprehensive delivery service
- Reliable product support
- Large stocks at local level
- Comprehensive OEM spare parts and consumables
- Strategically ideal located sales locations, service and rental centers
- Excellently factory-trained and certified technicians
- Practical trainings – at our site or at your location
- Certified company

ITW Orbital Cutting & Welding continues the Orbitalum and E.H. WACHS tradition of offering world class products, combined with exceptional service and support, to keep ITW-OCW the supplier of choice for tools used to cut - prep - weld - all from one source.

Waste disposal / environmental protection

Disposal of electrical (electronic) devices

(RL 2012/19/EU)

Electrical (electronic) devices which are marked with the symbol above, may not be disposed of with household waste in accordance to the EU directive 2002/96/EC.
By actively using the offered return and collection systems, you actively contribute to the reuse, recycling and utilisation of electrical (electronic) devices.
Electrical (electronic) used devices contain parts which must be handled selectively according to the EU directive. Separate collection and selective treatment is the basis for environment-friendly disposal and the protection of human health.
Our products that were sold to you after August 13th, 2005 are taken back and treated according to legal standards. These products have to be sent free of charge.
The return of used devices which pose a health or safety risk for human beings due to contamination during use may be refused.
The legally compliant disposal of electrical (electronic) devices that were placed on the market before August 13th, 2005 are in the responsibility of the end-user.

Returning of batteries

Some of our products work with batteries. Batteries which are marked with the symbol above may not be disposed of together with household waste according to the applicable EU directive 2006/66/EU. With batteries containing hazardous substances, the chemical symbol for the heavy metal content is indicated below the waste bin:

Cd = Cadmium
Hg = Mercury
Pb = Lead

The ITW ORBITAL CUTTING & WELDING group provides global customers one source for the finest in pipe & tube cutting, beveling and orbital welding products.

Certified management system according to ISO 9001:2015

Authorized Economic Operator (AEO)

worldwide | sales + service

NORTH AMERICA

USA

E.H. Wachs
600 Knightsbridge Parkway
Lincolnshire, IL 60069
USA
Tel. +1 847 537 8800
Fax +1 847 520 1147
Toll Free 800 323 8185

NORTHEAST
Sales, Service & Rental Center
E.H. Wachs
1001 Lower Landing Road, Suite 208
Blackwood, New Jersey 08012
USA
Tel. +1 856 579 8747
Fax +1 856 579 8748

SOUTHEAST
Sales, Service & Rental Center
E.H. Wachs
171 Johns Road, Unit A
Greer, South Carolina 29650
USA
Tel. +1 864 655 4771
Fax +1 864 655 4772

NORTHWEST
Sales, Service & Rental Center
E.H. Wachs
2079 NE Aloclek Drive, Suite 1010
Hillsboro, Oregon 97124
USA
Tel. +1 503 941 9270
Fax +1 971 727 8936

GULF COAST
Sales, Service & Rental Center
E.H. Wachs
2220 South Philippe Avenue
Gonzales, LA 70737
USA
Tel. +1 225 644 7780
Fax +1 225 644 7785

HOUSTON SOUTH
Sales, Service & Rental Center
E.H. Wachs
3327 Daisy Street
Pasadena, Texas 77505
USA
Tel. +1 713 983 0784
Fax +1 713 983 0703

CANADA

Wachs Canada Ltd
Eastern Canada Sales, Service & Rental Center
1250 Journey's End Circle, Unit 5
Newmarket, Ontario L3Y 0B9
Canada
Tel. +1 905 830 8888
Fax +1 905 830 6050
Toll Free: 888 785 2000

Wachs Canada Ltd
Western Canada Sales, Service & Rental Center
5411 82 Ave NW
Edmonton, Alberta T6B 2J6
Canada
Tel. +1 780 469 6402
Fax +1 780 463 0654
Toll Free 800 661 4235

EUROPE

GERMANY

Orbitalum Tools GmbH
Josef-Schuettler-Str. 17
78224 Singen
Germany
Tel. +49 (0) 77 31 - 792 0
Fax +49 (0) 77 31 - 792 500

UNITED KINGDOM

Wachs UK
UK Sales, Rental & Service Centre
Units 4 & 5 Navigation Park
Road One, Winsford Industrial Estate
Winsford, Cheshire CW7 3 RL
United Kingdom
Tel. +44 (0) 1606 861 423
Fax +44 (0) 1606 556 364

ASIA

CHINA

Orbitalum Tools
New Caohejing International
Business Centre
Room 2801-B, Building B
No 391 Gui Ping Road
Shanghai 200052
China
Mob. +86 (0) 186 2183 5518
Tel. +86 (0) 512 5016 7813
Fax +86 (0) 512 5016 7820

INDIA

ITW India Pvt. Ltd
Sr.no. 234/235 & 245
Plot no. 8, Gala #7
Indialand Global Industrial Park
Hinjawadi-Phase-1
Tal-Mulshi, Pune 411057
India
Tel. +91 (0) 20 32 00 25 39
Mob. +91 (0) 91 00 99 45 78

AFRICA & MIDDLE EAST

UNITED ARAB EMIRATES

Wachs Middle East & Africa Operations
PO Box 262543
Free Zone South FZS 5, AC06
Jebel Ali Free Zone (South-5), Dubai
United Arab Emirates
Tel. +971 4 88 65 211
Fax +971 4 88 65 212

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