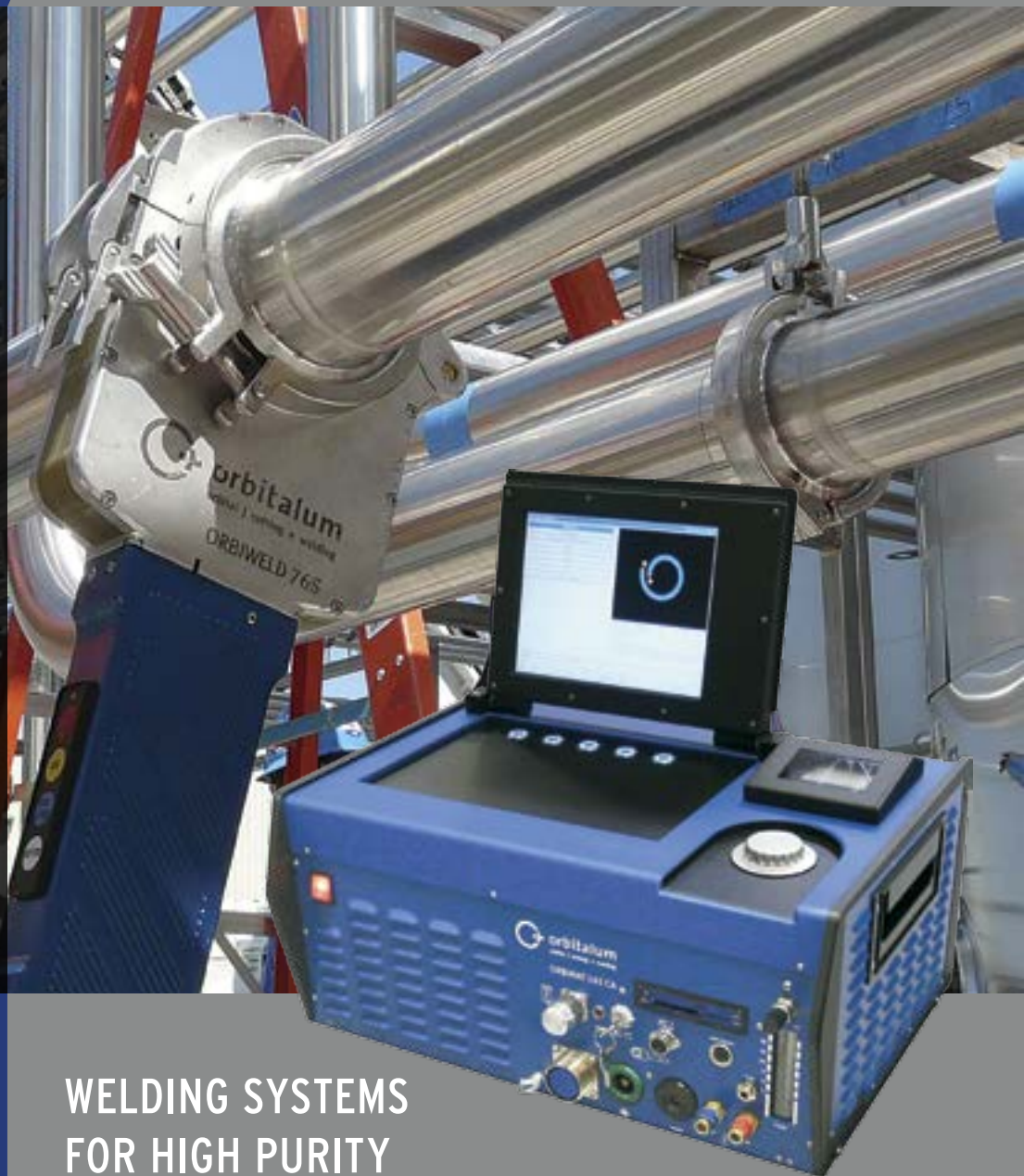


orbitalum

ORBITAL WELDING SYSTEMS



WELDING SYSTEMS
FOR HIGH PURITY
PROCESS PIPING



Orbital Welding Power Supplies	5
Orbital welding power supplies ORBIMAT CA	6
Orbital Welding Power Supply Accessories	9
Water cooling systems for ORBIMAT power supplies	10
Other accessories for ORBIMAT power supplies	11
Enclosed Orbital Weld Heads	15
Enclosed microweld head ORBIWELD 12	18
Enclosed orbital weld head ORBIWELD 19	20
Enclosed orbital weld heads ORBIWELD 38S, 76S, 115S	22
Enclosed orbital weld heads ORBIWELD 65, 115, 170	23
Clamping shells for enclosed orbital weld heads	23
Other Accessories for enclosed orbital weld heads	29
Open Orbital Weld Heads - TP	32
Open Orbital Weld Heads - OP	39
Open Orbital Weld Heads - HX 16	42
Tube-to-tubesheet Orbital Weld Heads	44
Tube-to-tubesheet orbital weld heads P16 / P16 AVC	45
Tube-to-tubesheet orbital weld head P20	46
Accessories for tube-to-tubesheet orbital weld heads	47
Accessories for Orbital Welding	51
Tungsten Grinder ESG Plus	52
Other accessories for orbital welding	54
Rental and Training	56

About Orbitalum



Orbitalum Cutting + Welding

Founded in 1960 as a subsidiary of Georg Fischer (+GF+) and renamed Orbitalum in 2006, Orbitalum is the world's premier manufacturer of superior quality, long lasting tube cutting and pipe weld preparation machine tools and orbital welding systems. The Orbitalum cutting & beveling products shown in this catalog are the perfect complement to Orbitalum's orbital welding systems, as a precision weld prep is integral to a successful orbital welding program.

Orbitalum offers a full range of products from pipe and tube cutters, tube facing and squaring tools, pipe end prep machines and sophisticated orbital welding equipment, all engineered and built in Germany to rigorous standards under ISO 9001:2008. They exhibit the excellence that German products are renowned for, including high quality materials, high precision, robust designs, powerful drives, and ease of operation. They have wide applications in many industries:

HIGH PURITY APPLICATIONS	INDUSTRIAL APPLICATIONS
Semiconductor	Power Generation
Food, Dairy, Beverage	Boiler & Heat Exchanger
Biopharmaceutical	Fabrication Shop
Chemical & Petrochemical	Oil, Gas, Petrochemical
Aviation, Aerospace	Water & Gas Distribution

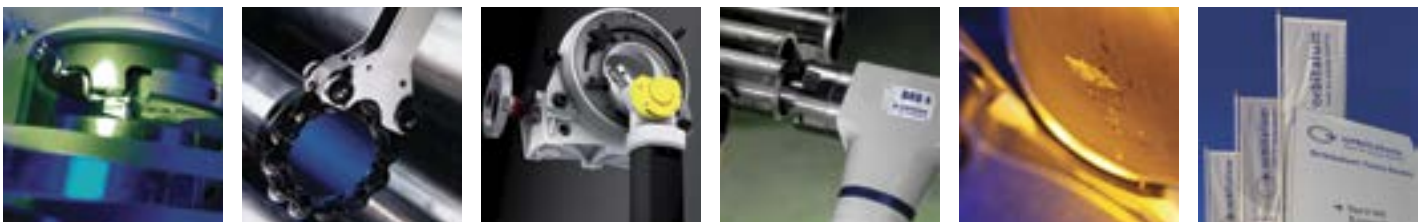
ITW Orbital Cutting & Welding

Orbitalum Tools and E.H. Wachs are organized together as ITW Orbital Cutting & Welding, to provide our global customers one source for the finest in pipe & tube cutting, beveling and orbital welding products. 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.

Orbitalum cutting and welding equipment is sold, serviced and rented in North and South America by E.H. Wachs, headquartered in Lincolnshire, Illinois near Chicago. With a large selection of Orbitalum machines and accessories in stock and ready for immediate shipment, Wachs backs you up with the expert advice and support our customers have relied on for over 130 years. Together we combine to make Orbitalum the industry's best built and supported cutting and facing machines. Visit the Sales, Service and Rental Center nearest you, contact your local Wachs or Orbitalum representative or learn more online at ehwachs.com.

Genuine Parts + Factory Service

E.H. Wachs offers genuine Orbitalum replacement parts and full repair services with factory trained and certified service technicians. Our large inventory of OEM parts and consumables are designed to help keep your Orbitalum product operating at peak efficiency. It's all part of our commitment to supplying our customers with affordably priced parts and service so you can continue to enjoy Orbitalum's unrivaled productivity for years to come.



Orbimat Power Supply



Orbitalum Welding

Smart buyers look for the best combination of power, features, ROI and ease of use in an orbital welding system. With these systems Orbitalum is reducing delivery times, overly expensive parts, and complex operation.

We encourage you to review the wide selection of Orbitalum orbital welding products in this catalog. Contact your local Wachs representative for further information or to arrange a product demonstration. Afterwards you'll agree when it comes to the best orbital welding systems they're built in Germany but made for the Americas

Orbimat Power Supplies

Orbitalum's power supply units are available in two sizes, the compact Orbimat® 165 and the mid size Orbimat® 300. CA models can be equipped with the sophisticated BUP Control® which adjusts internal gas purge pressure to facilitate control of the weld profile.

The Orbimat 300 is also available in two higher end models, the 300 CA AC/DC (Multi-Current) and 300 CA AVC/OSC (Arc Voltage/Oscillation Control). All of these auto-programmable units can be equipped with the affordable, segment leading Orbitwin® switching units that add dual welding head capability to deliver unparalleled productivity. The best built, all Orbimat welding power supplies sold in the Americas include a full 2 Year Limited Warranty.



Orbimat 165

- Versatile Power Supply
- Lightweight and Compact
- Orbitwin® Compatible

Orbitalum's top selling Orbimat® 165 is a versatile supply unit featuring auto input voltage sensing for connection to a wide range of input power, from 85 – 260V 50/60 Hz single phase. Its lightweight and compact design features an integrated water cooling system, while the optional Orbicool® water cooling system can be added for extra heavy duty applications. Its high visibility multi-language 10.5" (2.68cm) color display interfaces to the PSS self diagnostic program, and allows the user to select from up to 5,000 welding procedures and data logging stored in internal memory.

Orbitalum's auto programming is standard and features real time adjustment of all parameters, plus automatic recognition of connected orbital welding heads including Orbitwin®. The Orbimat 165 CA includes a flip-up screen with multifunctional rotary control, and the Force Flow® adjustable arc gas feature to minimize pre-purge times.

Orbimat 300

- Mid Size Power Supply
- Extra Power for Bigger Jobs
- AC/DC & AVC/OSC Models Available

The Orbimat® 300 line offers the power needed to handle bigger jobs. It features a powerful 300 amp control range in a mid size package that splits the difference between small desktop welding systems and large, cumbersome machines. The 300 model offers features similar to the 165 line but exclusively utilize an external Orbicool® cooling system to handle the extra power. The 300 CA AC/DC is a computer controlled multi-current unit that, in addition to the CA model features offers the option of AC welding for aluminum.

The top of line 300 CA AVC/OSC offers arc voltage control that calculates and programs the length of the arc automatically from the voltage characteristics, and oscillation edge holding times that are synchronized with high pulse settings. A scanner for setting the seam centerline is included, with an offset function for asymmetric weld seams.

Orbiweld and Orbitwin



Orbiweld Enclosed Weld Heads

- Easy to Use
- Superior Construction
- Unique Water Cooling Arrangement

Orbitalum offers a full line of Orbiweld® enclosed autogenous weld heads to cover tube and pipe sizes ranging from 1/8" tube to 6" OD pipe (DN6-150). In addition there are heavy duty versions capable of aluminum welding plus the "S" series designed for ultra low clearance.

Every Orbiweld enclosed weld head is constructed of the finest materials and feature a unique water cooling design to cool the rotor at its contact point, allowing for very high duty cycles.

Orbiweld standard collets are permanent tooling and not a "consumable" item like lesser manufacturers. Collets are available in narrow and wide widths for most heads to assure consistently true, square mounting.

Orbitwin Switching Unit

- Segment Leading Feature
- Connect Two Heads to One Supply
- Unique at this Price Point

Orbitalum sets new standards in productivity and user convenience with the segment leading Orbitwin® weld head switching unit. No other manufacturer has anything like it at this price point. It allows the connection and alternate operation of two weld heads from a single power supply to deliver maximum productivity at minimal cost.

With Orbitwin the operator can position a second weld head while the first weld head is in operation, or alternatively connect a closed orbital weld head and open head to the same machine without the need to stop and change over. The Orbitwin conveniently latches underneath the Orbimat® without increasing the machines footprint. There are Orbitwin units available for all 165 and 300 models excluding the 300 CA AVC/OSC.

Tube-to-Tubesheet Weld Heads

- Fast ROI Tubesheet Weld System
- Industry Leading PRAI Weld Heads
- Advanced Weld Head Cooling

Orbitalum Orbimat® welding systems with Orbitwin are unrivaled for fast, economical tube to tubesheet welding. To further strengthen their dominance in the field Orbitalum recently acquired PRAI of Rome, Italy, universally acknowledged as the world's leading manufacturer of tube to tubesheet orbital weld heads.

The pairing of the versatile Orbimat® line of power supply controllers with the world class P20 and P16 tubesheet orbital weld heads creates a powerful, simple, robust and low cost tube to tubesheet welding system. An Orbimat 300CA power supply fitted with a Orbitwin Switching Station and two P20 or P16 heads allows a single operator to set up one weld head while the second is welding, doubling productivity.



Complete Solutions. One Source.



Technology + Orbitalum

Orbitalum has remained the industry leader in high quality tube cutting and facing equipment for over 50 years. Since our beginnings as a division of Georg Fischer we've strived to engineer machines that are as good as we can possibly make them, with robust construction, ergonomic designs and intuitive controls. Orbitalum cutting tools are the perfect complement to Orbitalum's complete line of orbital welding systems, and others as well, as the perfect preps they produce help produce a perfect weld.



Orbital Saws + Blades

Orbitalum manufactures the world's best selling tube and pipe saws, including the GF 4 and GF 6 that utilizes an orbital cutting motion around a stationary workpiece. Now with anthracite colored coating for added anti-corrosion properties, these saws produce a precision cut that is so square it's often considered weld ready. The innovative GFX series of saws incorporate everything we've learned about portable cutting machines in a compact, lightweight design. Our robust RA 8 and RA 12 saws are designed and built to handle larger outside diameters, while the PS portable saws are optimized designs for portability. To keep your saws cutting at peak efficiency, always specify OEM factory replacement blades by Orbitalum.

Tube Facing + Squaring

Orbitalum offers a wide range of top selling RPG series tube squaring machines where the model number indicates the maximum OD in inches. These include the RPG One, RPG 1.5, RPG 2.5 and the larger RPG 4.5, 4.5s, and RPG 8.6. All Orbitalum RPG machines are designed to produce perfectly square, burr free preps that are required for critical, defect free orbital welding applications. All Orbitalum squaring machines are electrically powered, with convenient cordless drive offered on select models.

Boiler Tube + End Prep

For demanding, high production boiler tube work Orbitalum manufactures a complete line of BRB boiler tube bevelers including the revolutionary BRB 2 Full Auto that automates tiring, repetitive motions. The BRB bevelers are offered in a choice of electric, pneumatic or pneumatic/auto clamping drives that, depending on configuration, will clamp a pipe ID of .5" to 4.4" (12.75-112mm).

The powerful electric and pneumatic driven REB 6 and REB 14 end preparation machines feature an integrated stand and the QTC® Quick Tool Change System, and are highly productive in continuous, high volume production settings such as fabrication shop applications.

Orbital Welding

Of all the major manufacturers, only Orbitalum designs and builds a complete line of cutting and weld prep machine tools plus a complete line of orbital welding systems. It makes us uniquely qualified to understand the entire welding process, and the needs of our users worldwide so we can deliver Complete Solutions. One Source.



Orbital Welding Power Supplies



ORBIMAT CA - compact orbital welding power supply

Orbital Welding Power Supplies



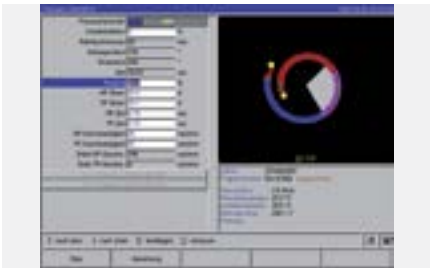
Simple and convenient operation thanks to multifunctional rotary actuator



Clearly laid-out 10.5" flip-up monitor



Integrated job printer allows actual values to be printed out



Automatic programming and multilingual menu navigation via color display



*PSS Pro-Service System:
Simple functional test with no need to open the unit*

Orbital welding power supplies ORBIMAT CA

The ORBIMAT CAAdvanced series of orbital welding power supplies are equipped with a new and unique operating concept.

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 have the exclusive new development FLOW FORCE to reduce the pre-flow gas time when the weld heads are closed in the standard model and BUP control function with controllable, position-dependent tube internal pressure control as an optional extra.

The basic model of the ORBIMAT CA series includes the following functions and equipment:

- Simple and convenient operation thanks to multifunctional rotary actuator.
- Control option for cold wire feed.
- DC welding.
- Optimal visibility and operating conditions thanks to clearly laid-out 10.5" flip-up monitor.
- Graphically-supported operating interface and multilingual menu navigation via color display.
- 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.
- A multcard reader enables data to be transferred easily to an external PC.
- It is possible to extend memory and data exchange using CompactFlash card (CF), SD, MMC, Sony memory stick.
- (Optional) PC-offline software with the capability to convert data protocols to PDF.
- Extremely easy to service thanks to PSS (Pro Service System):
 - Simple functional test with no need to open the unit.
 - Easy to service and components can be replaced quickly thanks to systematic component structure.
- Power and motor slope adjustment between the individual sectors.
- Coolant water and welding gas are monitored.
- Option to program up to 99 sectors.
- Possibility of connecting a monitor or printer (through VGA).
- Integrated printer.
- Metric and imperial units.

Scope of delivery ORBIMAT CA power supplies:

- 1 orbital welding power supply of the ORBIMAT CA series
- 1 connection hose set ORBIMAT
- 1 blind plug
- 1 welding connector adapter 165A/300A
- 1 external keyboard
- 1 liter antifreeze
- 1 filling funnel
- 2 keys for key switch
- 1 operation manual

Orbital Welding Power Supplies

ORBIMAT 165 CA

Computer-controlled 165 A compact power supply for orbital welding
 – ideal for mobile use on building sites.

Additional functions and equipment:

- Integrated water cooling system for cooling the connected weld heads.
- WIDE RANGE input voltages for safe operation of power sets or voltage networks with extreme fluctuations in voltage.

Technical Data	ORBIMAT 165 CA
Connection voltage (WIDE-RANGE)	90 - 260 V, 50/60 Hz, single-phase
Control range	2 - 165 A for a connection voltage > 160 V 2 - 110 A for a connection voltage < 160 V
Power-on time	30% at 165 A 100% at 120 A
Weight	26 kg
Dimensions	510 x 360 x 220 mm

Item	Code	kg
ORBIMAT 165 CA	871 000 001	26.000



ORBIMAT 165 CA

ORBIMAT 300 CA

Computer-controlled 300 A power supply for orbital welding.

Please note that the ORBIMAT 300 CA may only be operated in conjunction with a water cooling system that must be ordered separately.

Technical Data	ORBIMAT 300 CA
Connection voltage	400 V +/- 15%, 50/60 Hz, 3 phase
Control range	5 - 300 A
Power-on time	40% at 300 A 60% at 260 A 100% at 220 A
Weight	33 kg
Dimensions	530 x 400 x 400 mm

Item	Code	kg
ORBIMAT 300 CA	872 000 001	33.000



ORBIMAT 300 CA

Orbital Welding Power Supplies



ORBIMAT 300 CA AC/DC

ORBIMAT 300 CA AC/DC

Computer-controlled 300 A power supply for orbital welding, also for aluminum materials.

Additional functions and equipment:

- Alongside the benefits of the ORBIMAT 300 CA power supply, this device also offers the option of AC welding.
- Option to set a positive and negative half-cycle in the ratio 20 - 80%.
- Frequency setting 50 - 200 Hz.
- Detection of actual values for the welding reports in the DC regime.

Please note that the ORBIMAT 300 CA AC/DC may only be operated in conjunction with a water cooling system that must be ordered separately.

Technical Data	ORBIMAT 300 CA AC/DC
Connection voltage	400 V +/- 15%, 50/60 Hz, 3 phase
Control range	5 - 300 A
DC and AC currently (switch selectable)	40% at 300 A 60% at 260 A 100% at 220 A
Power-on time	
Weight	41.4 kg
Dimensions	530 x 400 x 400 mm

Item	Code	kg
ORBIMAT 300 CA AC/DC	877 000 001	41.400

ORBIMAT 300 CA AVC/OSC

Computer-controlled 300 A power supply for orbital welding with arc voltage control (AVC) and oscillation (OSC).

Additional functions and equipment:

- The new arc voltage control calculates and programs the length of the arc automatically in „mm“ from the current voltage characteristics. This avoids the usual time spent calculating the necessary arc voltage each time the weld power changes to maintain the arc at a consistent length in the individual sectors.
- During oscillation each of the edge holding times can be synchronized with the high-pulse settings.
- 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. For asymmetric weld seam configurations this is compensated by an OFFSET function.
- Including remote control (cable length: 7.5 m) *Code 875 050 001*.
- There is the option of an HF-free touch start ignition.

Please note that the ORBIMAT 300 CA AVC/OSC may only be operated in conjunction with a water cooling system that must be ordered separately.

Technical Data	ORBIMAT 300 CA AVC/OSC
Connection voltage	400 V +/- 15%, 50/60 Hz, 3 phase
Control range	5 - 300 A
Power-on time	40% at 300 A 60% at 260 A 100% at 220 A
Weight	37.3 kg
Dimensions	530 x 400 x 400 mm

Item	Code	kg
ORBIMAT 300 CA AVC/OSC	872 000 002	37.300



ORBIMAT 300 CA AVC/OSC
incl. remote control

Orbital Welding Power Supply Accessories



Accessories for enhanced productivity

Orbital Welding Power Supply Accessories

Water cooling systems for ORBIMAT power supplies



*ORBICAR W trolley
with integrated water coolant*

ORBICAR W trolley with integrated water coolant

The ORBICAR W trolley is the perfect accessory for the Orbitalum 300 A power supplies due to the integrated water cooling. In addition to the water cooling the trolley has a gas bottle holder.

Item	Suitable for ORBIMAT	Code	kg
ORBICAR W trolley with integrated water coolant	300 CB, 300 CA, 300 CA AC/DC	884 000 002	58.200
ORBICAR W trolley with integrated water coolant*	165 CA, 165 CB	884 000 004	58.200



ORBICOOL Active

ORBICOOL Active

Very efficient compressor cooling device with constant and adjustable water temperature. Including water flow sensor. Significantly increases cooling performance for the weld heads. Particularly suitable for welding units in series production.

Suitable for all* ORBIMAT orbital welding power supplies.

Technical Data	ORBICOOL Active
Coolant capacity	814 W
Connected load	0.58 kW
Maximum power consumption	6.2 A
Mains voltage	230 V, 50 Hz
Water tank capacity	6 l
Coolant type	air-cooled
Dimensions (lxwxh)	565 x 440 x 335 mm

Item	Code	kg
ORBICOOL Active for OM 165 CA/CB*	889 000 001	40.000
ORBICOOL Active for OM 300 CA/CB	889 000 002	40.000

*The power supply ORBIMAT 165A series has to be modified in our plant.

Orbital Welding Power Supply Accessories

ORBITWIN switching device

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

Item	Suitable for ORBIMAT	Code	kg
ORBIMAT 165 CA switching device	165 CA	861 000 001	8.800
ORBITWIN 300 switching device*	all ORBIMAT 300	876 000 001	8.800

*not compatible with AVC/OSC machines.



ORBITWIN 300 switching device

ORBICAR S trolley

The ORBICAR S is a practical trolley with storage shelf and an option of securing a gas cylinder. The ORBICAR S trolley can be combined with all power supplies of the ORBIMAT series. This trolley is most commonly used an orbital welding power supply of the ORBIMAT 165 A series.

Item	Code	kg
ORBICAR S trolley	884 000 001	19.100



ORBICAR S trolley

Durable carrying case

Protects the power supply during transport and during on-site storage. Can be supplied for ORBIMAT 165 CB/CA and ORBIMAT 300 CB/CA (incl. ORBICOOL Compact).

Item	Suitable for ORBIMAT	Code	kg
Carrying case	165 CB, 165 CA	OT-871-001	17.500
Carrying case	300 CB, 300 CA, 300 CA AC/DC	874 050 001	20.800



Durable carrying case

Orbital Welding Power Supply Accessories



ORBmax Digital Oxygen Analyzer

ORBmax

Orbitalum presents the revolutionary ORBmax, a 100% digital oxygen analyzer that measures and monitors oxygen particle count faster and with higher accuracy than ever thought possible. It eliminates uncontrolled, unmonitored purging and presumption of acceptable oxygen levels required for exacting weld standards. With its maintenance free optical sensor, the ORBmax measures oxygen PPM with high precision to ensure highly repeatable, oxidation free welds.

Requiring no warm up time, the ORBmax displays a large numerical oxygen particle count in PPM on a user friendly touch screen. The display doubles as an input device, and changes color from red to green to indicate when the preset oxygen value has been reached. The unit also features an alarm mode with an audible warning should the oxygen content rise above the preset PPM level.

The ORBmax interfaces with Orbitalum's Orbimat® series of orbital welding power supplies to prevent the start of a welding program until the user defined oxygen value has been reached. These measured values can be digitally logged and saved via a user selectable save interval to an SD card for purge documentation.

The ORBmax features a compact, rugged water and dust resistant enclosure with a built in air pump allowing for active and passive oxygen content measurement. The unit comes with a protective cover that doubles as a solid table stand for easier viewing of the display. The ORBmax is a "must have" for the highly controlled, high purity welding requirements commonly found in the semiconductor, pharmaceutical and aerospace industries.

ORBmax Features

- Measures oxygen levels down to .0001% (1 PPM)
- Highly accurate readout +/- .00005% (.5 PPM)
- Recordable/Traceable with SD card
- Compact design with touch screen
- Water and dust resistant, built to IP32
- Self contained air pump for active oxygen measuring
- Maintenance free optical oxygen sensor
- Quick response, no warm up time required
- Large digital readout with color change
- Alarm mode with audible beeper
- User selectable alarm value and saving interval
- Built in cover transforms into stand
- Multi-range power supply
- Connects directly to Orbimat® power supply (cable required)

Item	Code
ORBmax digital oxygen analyzer	882 000 002

Orbital Welding Power Supply Accessories

ORBIPURGE forming set

Complete with Teflon gas hose and quick release couplings.

The ORBIPURGE forming set for tube internal diameter 12 - 110 mm (0.472 - 4.331 inch) includes all accessories for fast and efficient internal forming during orbital welding.



ORBIPURGE forming set

BUP Control Box

The power supplies of the ORBIMAT CA-series offer the option in conjunction with the BUP control attachment to adjust the forming gas pressure in the inner tube via a pressure sensor, which compensates almost entirely for the often otherwise annoying entry of the seam weld into the sump position. At the same time, the gas pressure is modified automatically during welding by the system between a programmable minimum and maximum value depending on the position of the electrodes.

Including ORBIPURGE forming set for tube internal diameter 12 - 110 mm (0.472 - 4.331 inch). Complete with (3) Teflon gas hoses and rapid-action couplings.



BUP Control Box
incl. ORBIPURGE forming set

Item	Suitable for ORBIMAT	Code	kg
BUP Control Box	165 CA, 300 CA	886 000 001	2.700

Compact Flash Card

For storing weld data protocols or for extending the program memory (one is already included in the soft/hardware package). Capacity to store over 5,000 welding programs.



Compact Flash Card

Item	Code	kg
CompactFlash Card	875 012 056	0.010

Software/Hardware package

Suitable for all ORBIMAT orbital welding power supplies.

For external programming and data documentation, consisting of:

- 1 CompactFlash card 32 MB for transferring data between the machine and PC.
- 1 USB card reader for exporting the CompactFlash card on the PC (no further device required).
- ORBIPROG_CA software allows programs and protocols to be stored on the PC. All data can further be converted into PDF format, enabling this data to be read with practically any standard PC. 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.



Soft-/Hardware package

Item	Code	kg
Soft-/Hardware package	875 050 003	0.200

Orbital Welding Power Supply Accessories



Remote control with cable



Paper roll for integrated printer



Ribbon cartridge for integrated printer



Antifreeze 1 liter



Hose connection set ORBIMAT

Remote control with cable

Suitable for all ORBIMAT orbital welding power supplies (the and ORBIMAT 300 CA AVC/OSC already include the remote control).
Is required when connecting closed orbital weld heads.

Item	Cable length [m]	Cable length [ft]	Code	kg
Remote control with cable	7.5	24.6	875 050 001	1.350

Paper roll for integrated printer

Paper roll for integrated printer.
Suitable for all ORBIMAT orbital welding power supplies.

Item	Code	kg
Paper roll for integrated printer (contains 3 paper rolls)	875 050 017	0.150

Ribbon cartridge for integrated printer

Ribbon cartridge for integrated printer.

Item	Code	kg
Ribbon cartridge for integrated printer CA*	875 030 004	0.010
Ribbon cartridge for integrated printer CB*	875 030 002	0.020

* Item is part of scope of delivery of all ORBIMAT power supplies.

Anti freeze

Anti freeze for avoiding freezing of the cooling water.
Protects undiluted up to -60° degree.
Suitable for ORBICOOL Active, ORBIMAT 165 CB and ORBIMAT 165 CA.

Item	Code	kg
Anti freeze 1 Liter*	875 030 011	1.350

* Item is part of scope of delivery of all ORBIMAT power supplies.

Hose connection set ORBIMAT

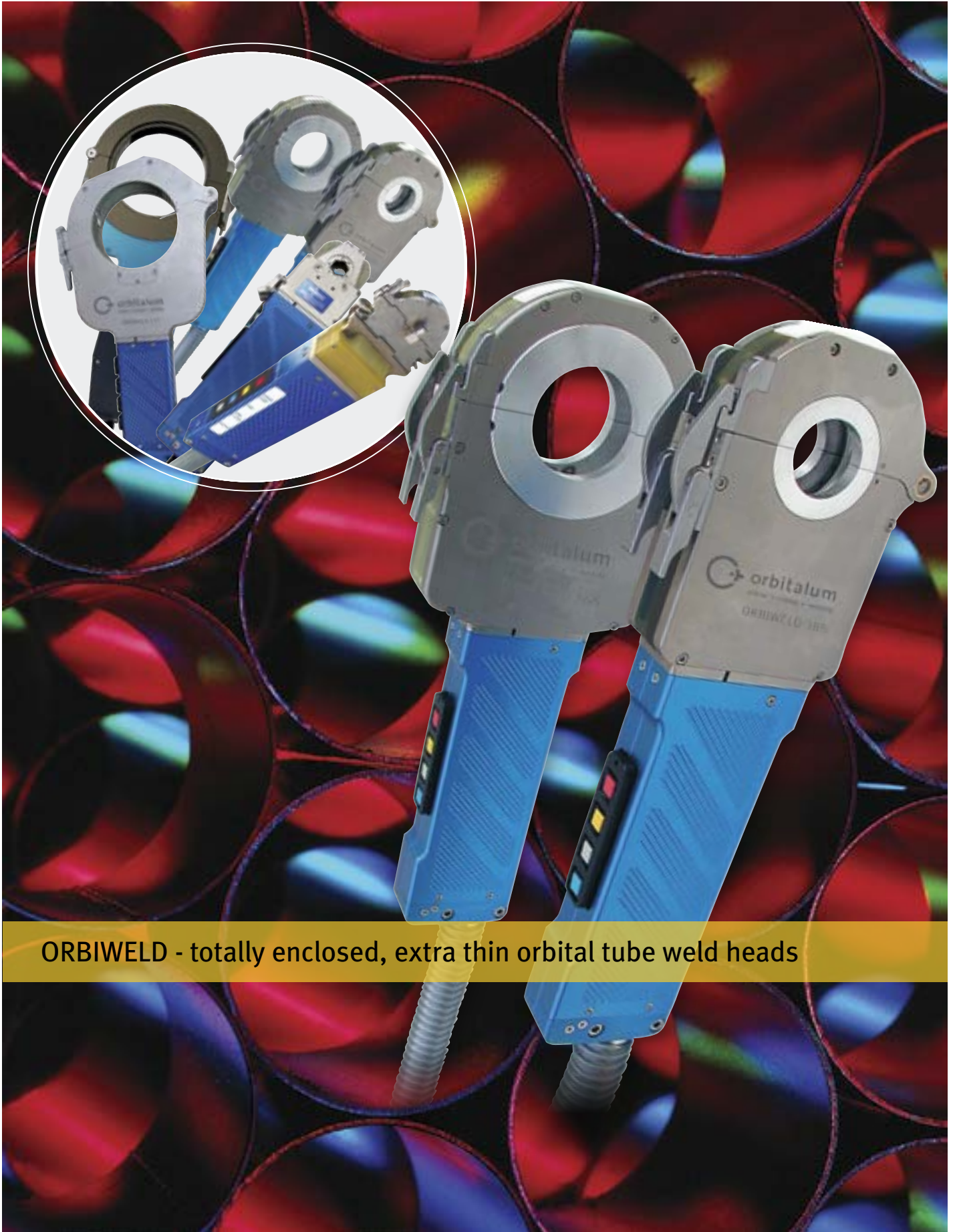
Consists of:

- Teflon gas hose
- Ear clamps with insert
- Hose clips 3/8"
- Water hose for tank
- Gas input connector
- Swivel nuts 3/8"
- Hose clips 1/4"
- Swivel nuts 1/4"

Item	Code	kg
Hose connection set ORBIMAT*	875 030 018	0.404

* Item is part of scope of delivery of all ORBIMAT power supplies.

Enclosed Orbital Weld Heads



ORBIWELD - totally enclosed, extra thin orbital tube weld heads

Enclosed Orbital Weld Heads

Overview enclosed weld heads

Enclosed weld heads ORBIWELD / ORBIWELD S

Model		OW 12	OW 19	OW 38S	OW 65	OW 76S	OW 115	OW 115S	OW 170
Code		821 000 001	822 000 001	826 000 001	823 000 001	827 000 001	824 000 001	828 000 001	825 000 001
Tube Ø	[mm]	3 - 12.7	3 - 19.05	3 - 39	6 - 70	6 - 77	20 - 115	20 - 115	50 - 170
	[inch]	1/8 - 5	1/8 - 7.5	1/8 - 1.5	1/4 - 2.5	1/4 - 3	3/4 - 4.5	3/4 - 4.5	2 - 6
Rotor Ø	[mm]	40	58	82	129	122	183	191	252
	[inch]	15.75	22.83	32.28	50.79	48.03	72.05	75.2	99.21

ORBIWELD Replacement Tungsten Electrode Chart

Tube OD Size	Part Number
OW 12 Tungsten Chart	
.125"	TC 04-0500-010
.250"	TC 04-0450-010
.375"	TC 04-0400-010
.500"	TC 04-0350-010

Tube OD Size	Part Number
OW 19 Tungsten Chart	
.125"	TC 06-0900-020
.250"	TC 06-0800-020
.375"	TC 06-0750-020
.500"	TC 06-0700-020
.625"	TC 06-0650-020
.750"	TC 06-0550-020

Tube OD Size	Part Number
OW 38S Tungsten Chart	
.125"	TC 06-1350-020
.250"	TC 06-1300-020
.375"	TC 06-1200-020
.500"	TC 06-1150-020
.625"	TC 06-1100-020
.750"	TC 06-1050-020
1.0"	TC 06-0900-020
1.5"	TC 06-0650-020

Tube OD Size	Part Number
OW 65 Tungsten Chart	
.250"	TC 06-2200-020
.375"	TC 06-2150-020
.500"	TC 06-2100-020
.625"	TC 06-2000-020
.750"	TC 06-1950-020
1.0"	TC 06-1850-020
1.5"	TC 06-1600-020
2.0"	TC 06-1350-020
2.5"	TC 06-1100-020

Tube OD Size	Part Number
OW 76S Tungsten Chart	
.250"	TC 06-2050-020
.375"	TC 06-2000-020
.500"	TC 06-1950-020
.625"	TC 06-1900-020
.750"	TC 06-1800-020
1.0"	TC 06-1700-020
1.5"	TC 06-1450-020
2.0"	TC 06-1200-020
2.5"	TC 06-0950-020
3.0"	TC 06-0700-020

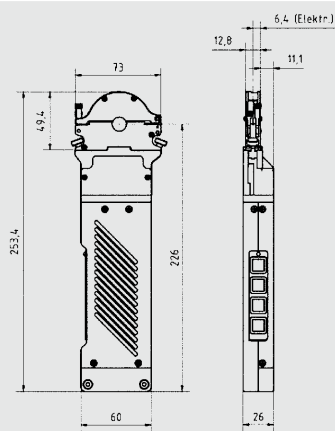
Tube OD Size	Part Number
OW 115S Tungsten Chart	
1.0"	TC 06-3050-020
1.5"	TC 06-2800-020
2.0"	TC 06-2550-020
2.5"	TC 06-2300-020
3.0"	TC 06-2050-020
4.0"	TC 06-1550-020
4.5"	TC 06-1300-020

Tube OD Size	Part Number
OW 170 Tungsten Chart	
2.0"	TC 06-3750-020
2.5"	TC 06-3500-020
3.0"	TC 06-3250-020
4.0"	TC 06-2750-020
4.5"	TC 06-2500-020
6.0"	TC 06-1750-020
6.625"	TC 06-1450-020

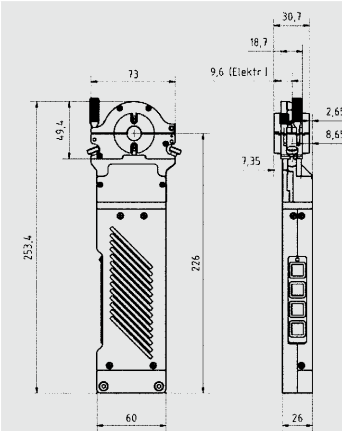
Enclosed Orbital Weld Heads

Dimensions (mm) Enclosed Orbital Weld Heads

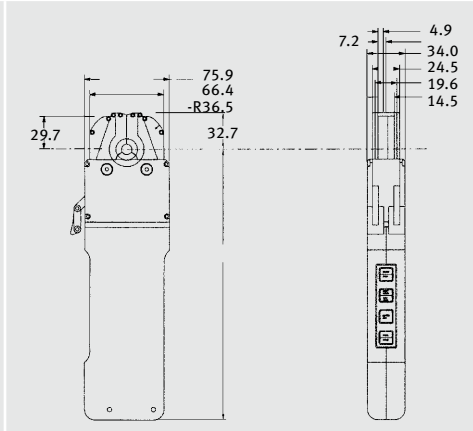
OW 12 Version A (narrow)



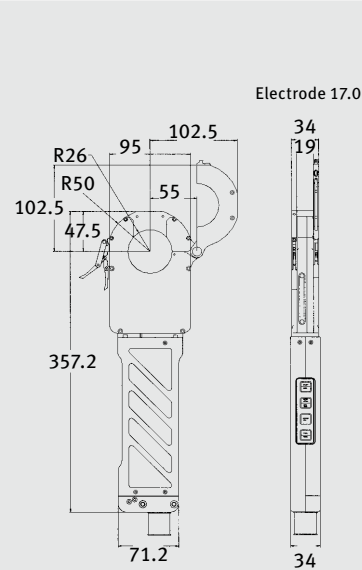
OW 12 Version B (wide)



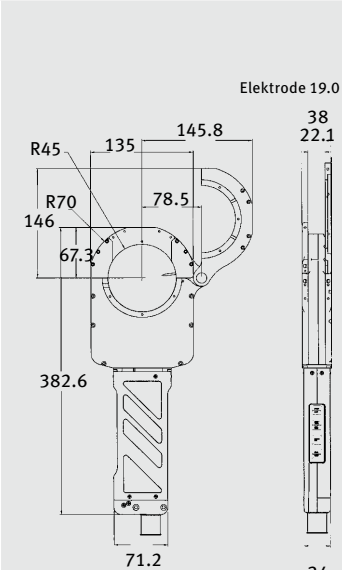
ORBIWELD 19



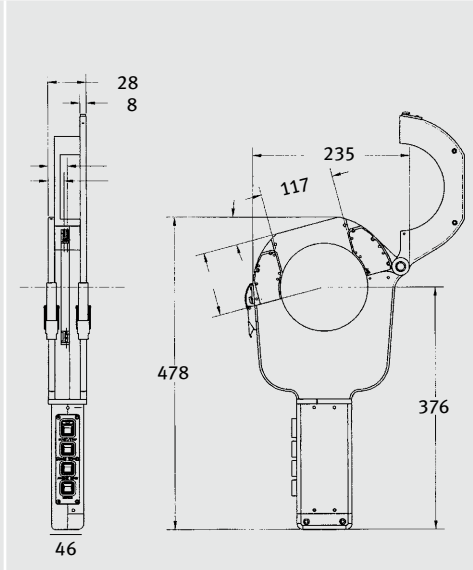
ORBIWELD 38S



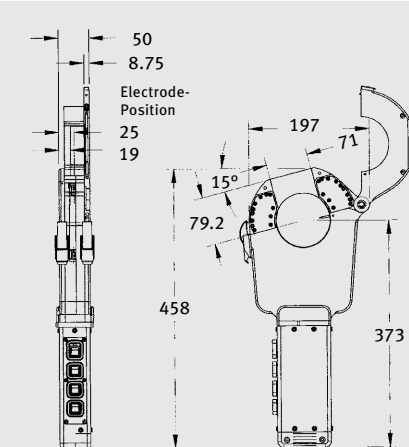
ORBIWELD 76S



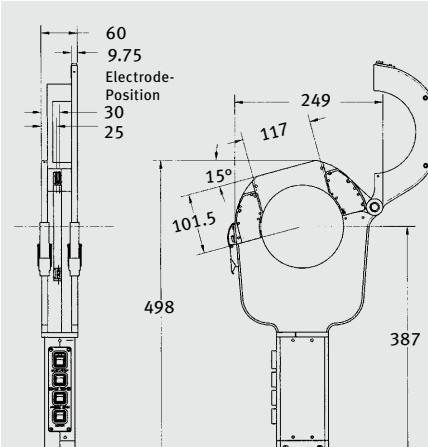
ORBIWELD 115S



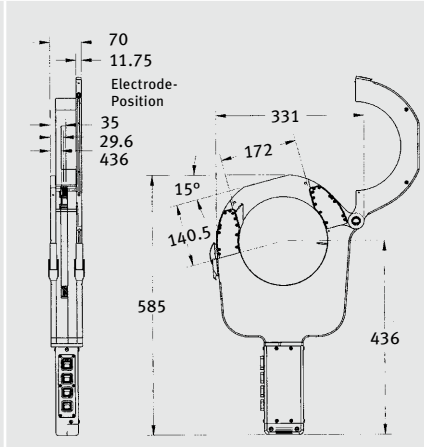
ORBIWELD 65



ORBIWELD 115



ORBIWELD 170



Enclosed Orbital Weld Heads

Enclosed orbital weld heads ORBIWELD

Microweld head ORBIWELD 12

The ideal solution for welds in the semiconductor industry and in all applications where space is very limited. Also particularly suitable for welding all common microfittings.

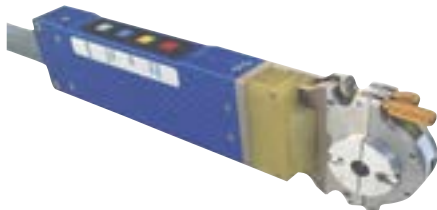
With its extremely compact design and different clamping cartridges, the ORBIWELD 12 microweld head offers a uniquely versatile functionality and a high power-on time previously unknown for weld heads of this size thanks to the water coolant system. With an ORBIMAT series power supply you now have a highly accurate welding system that is yet simple to handle.

- Quick change system for clamping shells.
- Remote control built into the handle.
- Extremely narrow clamping cartridges (Version A).
- Wide clamping cartridge (Version B) with exchangeable clamping shells for standard applications.
- The removable clamping cartridge enables accurate alignment with the parts to be welded, even where there is very little space.

Including 7.5 m (24.6 ft) hose package and tool set.

Cable assembly extensions available.

The clamping cartridges and clamping shell shells should be ordered separately (see below).



OW 12 with wide clamping cartridge (version B) and exchangeable clamping shells



OW 12 with narrow clamping cartridge (version A) especially for welding microfittings.



Clamping cartridge for OW 12 Version A (small)

Item	Tube OD [mm]	Tube OD [inch]	Code	Weight weld head [kg]	Shipping weight [kg]
Microweld head OW 12	3.00 - 12.70	0.118 - 0.500	821 000 001	5.700	11.000

Exchangeable clamping cartridges for OW 12 version A (narrow)

Clamping cartridges with a total width of only 12.7 mm (0.5 inch) can be supplied (version A, see below) for welding microfittings and other applications with very limited chuck lengths. For version A a separate clamping cartridge is required for every tube diameter.

Tube OD [mm]	Tube OD [inch]	Code	Tube OD [mm]	Tube OD [inch]	Code
3.00	0.118	821 050 101	9.53	0.375	821 050 113
3.17	0.125	821 050 102	10.00	0.394	821 050 114
4.00	0.157	821 050 103	10.10	0.398	821 050 115
4.76	0.187	821 050 104	10.20	0.402	821 050 116
4.78	0.188	821 050 105	10.30	0.406	821 050 117
5.00	0.197	821 050 106	10.50	0.413	821 050 118
6.00	0.236	821 050 107	11.00	0.433	821 050 119
6.35	0.250	821 050 108	11.90	0.469	821 050 120
7.00	0.276	821 050 109	12.20	0.480	821 050 123
7.94	0.313	821 050 110	12.50	0.492	821 050 124
8.00	0.315	821 050 111	12.70	0.500	821 050 125
9.00	0.354	821 050 112			

Enclosed Orbital Weld Heads

Exchangeable clamping cartridge for OW 12 Version B (wide)

When using the exchangeable clamping cartridge version B a set of clamping shells is required in addition for each tube OD (see below).

Item	Code	kg
Exchangeable clamping cartridge for OW 12 version B wide	821 050 002	0.095



Exchangeable clamping cartridges for OW 12 version B wide

Clamping shells sets for OW 12 Version B wide (4 pcs.)

When using the exchangeable clamping cartridge version B a set of clamping shells is required in addition for each tube OD.

Tube OD [mm]	Tube OD [inch]	Code	Tube OD [mm]	Tube OD [inch]	Code
3.00	0.118	821 002 220	8.00	0.315	821 002 233
3.17	0.125	821 002 221	9.00	0.354	821 002 234
3.18	0.125	821 002 222	9.53	0.375	821 002 235
3.95	0.156	821 002 223	9.95	0.392	821 002 236
4.00	0.157	821 002 224	10.00	0.394	821 002 237
4.76	0.187	821 002 225	10.10	0.398	821 002 238
4.78	0.188	821 002 226	10.20	0.402	821 002 239
5.95	0.234	821 002 227	11.00	0.433	821 002 240
6.00	0.236	821 002 228	11.11	0.437	821 002 241
6.35	0.250	821 002 229	11.95	0.470	821 002 242
7.00	0.276	821 002 230	12.00	0.472	821 002 243
7.50	0.295	821 002 231	12.10	0.476	821 002 244
7.94	0.313	821 002 232	12.70	0.500	821 002 245



Clamping shells set OW 12 version B wide (4pcs.)

Clamping cartridge for OW 12 for microfittings

Clamping cartridge especially designed for microfittings applications. A separate clamping cartridge is required for each tube OD.

Possible welding applications:

- Microfitting to microfitting
- Microfitting to tube
- Tube to tube

Tube OD [mm]	Tube OD [inch]	Code	Tube OD [mm]	Tube OD [inch]	Code
3.17	0.125	821 050 029	9.53	0.375	821 050 050
6.00	0.236	821 050 040	10.00	0.394	821 050 042
6.35	0.250	821 050 030	12.00	0.472	821 050 055
8.00	0.315	821 050 041	12.70	0.500	821 050 060



Clamping cartridge microfitting for ORBIWELD 12

Enclosed Orbital Weld Heads



Orbital weld head OW 19

Orbital weld head OW 19

Enclosed orbital weld heads for tubes and microfittings.

Extremely narrow design and yet highly durable thanks to intensive water cooling system. The small dimensions of the OW 19 weld head make it ideal for applications where space is very limited, as is often the case in the semiconductor, air and aerospace, pharmaceutical and ultra pure water supply sectors.

- 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.
- Using the keypad built into the handle, it is possible to specify all the necessary commands to the power supply without an additional remote control.

Including 7.5 m (24.6 ft) hose package and tool set.
The clamping shell should be ordered separately.

Item	Tube OD [mm]	Tube OD [inch]	Code	Weight weld head [kg]	Shipping weight [kg]
Orbital weld head OW 19	3.00 - 19.05	0.118 - 0.750	822 000 001	7.500	14.800

Clamping shells set for OW 19 (wide)

One set of clamping shells consists of 6 shells.

There are 2 version of clamping shells:

Version „W“ (wide) for standard applications.



Clamping shells set W OW 19 wide
(6 pcs.)

Tube OD [mm]	Tube OD [inch]	Code	Tube OD [mm]	Tube OD [inch]	Code
3.00	0.118	822 002 120	12.10	0.476	822 002 144
3.17	0.125	822 002 121	12.70	0.500	822 002 145
3.18	0.125	822 002 122	13.00	0.512	822 002 146
3.95	0.156	822 002 123	13.20	0.520	822 002 147
4.00	0.157	822 002 124	13.50	0.531	822 002 148
4.76	0.187	822 002 125	13.70	0.539	822 002 149
4.78	0.188	822 002 126	14.00	0.551	822 002 150
5.95	0.234	822 002 127	14.30	0.563	822 002 151
6.00	0.236	822 002 128	14.70	0.579	822 002 152
6.35	0.250	822 002 129	15.00	0.591	822 002 153
7.00	0.276	822 002 130	15.30	0.602	822 002 154
7.50	0.295	822 002 131	15.60	0.614	822 002 155
7.94	0.313	822 002 132	15.70	0.618	822 002 156
8.00	0.315	822 002 133	15.88	0.625	822 002 157
9.00	0.354	822 002 134	16.00	0.630	822 002 158
9.53	0.375	822 002 135	16.70	0.657	822 002 159
9.95	0.392	822 002 136	17.00	0.669	822 002 160
10.00	0.394	822 002 137	17.08	0.672	822 002 161
10.10	0.398	822 002 138	17.20	0.677	822 002 162
10.20	0.402	822 002 139	17.30	0.681	822 002 163
11.00	0.433	822 002 140	18.00	0.709	822 002 164
11.11	0.437	822 002 141	19.00	0.748	822 002 165
11.95	0.470	822 002 142	19.05	0.750	822 002 166
12.00	0.472	822 002 143			

Enclosed Orbital Weld Heads

Clamping shells set for OW 19 (narrow)

One set of clamping shells consists of 6 shells.

There are 2 version of clamping shells:

Version „S“ (narrow) for applications in extremely conditions with low clearances.

Tube OD [mm]	Tube OD [inch]	Code
3.00	0.118	822 002 320
3.17	0.125	822 002 321
3.18	0.156	822 002 322
3.95	0.157	822 002 323
4.00	0.187	822 002 324
4.76	0.188	822 002 325
4.78	0.234	822 002 326
5.95	0.236	822 002 327
6.00	0.250	822 002 328
6.35	0.276	822 002 329
7.00	0.295	822 002 330
7.50	0.313	822 002 331
7.94	0.315	822 002 332
8.00	0.354	822 002 333
9.00	0.375	822 002 334
9.53	0.392	822 002 335
9.95	0.394	822 002 336
10.00	0.398	822 002 337
10.10	0.402	822 002 338
10.20	0.433	822 002 339
11.00	0.437	822 002 340
11.11	0.470	822 002 341
11.95	0.472	822 002 342
12.00	0.476	822 002 343

Tube OD [mm]	Tube OD [inch]	Code
12.10	0.500	822 002 344
12.70	0.512	822 002 345
13.00	0.520	822 002 346
13.20	0.531	822 002 347
13.50	0.539	822 002 348
13.70	0.539	822 002 349
14.00	0.551	822 002 350
14.30	0.563	822 002 351
14.70	0.579	822 002 352
15.00	0.591	822 002 353
15.30	0.602	822 002 354
15.60	0.614	822 002 355
15.70	0.618	822 002 356
15.88	0.625	822 002 357
16.00	0.630	822 002 358
16.70	0.657	822 002 359
17.00	0.669	822 002 360
17.08	0.672	822 002 361
17.20	0.677	822 002 362
17.30	0.681	822 002 363
18.00	0.709	822 002 364
19.00	0.748	822 002 365
19.05	0.750	822 002 366



Clamping shells set S OW 19 S narrow
(6 pcs.)

Enclosed Orbital Weld Heads



ORBIWELD 38S and ORBIWELD 76S



ORBIWELD 115S



ORBIWELD 115

ORBIWELD 38S, 76S, 115S

Enclosed orbital weld heads with extremely narrow design and therefore highly durable thanks to the intensive water cooling system. The small dimensions of the ORBIWELD S-weld head series make it ideal for applications where space is very limited, as is often the case in pharmaceutical and similar application sectors.

- Quick change system for clamping shells. The clamping shells are simply clipped in and out without any additional tools.
- Completely water cooled
- Extremely narrow design allows welding of parts with short straight welding lengths
- Durable clamping shells for all tube dimensions guarantee secure, aligned part welding
- Power supply control panel built into the robust and durable aluminum handle, so that no additional remote control is required.

Including 7.5 m (24.6 ft) hose package and tool set.

Cable assembly extensions available.

The clamping shells should be ordered separately.

Item	Tube OD [mm]	Tube OD [inch]	Code	Weight weld head [kg]	Shipping weight [kg]
Orbital weld head OW 38S	3.00 - 38.10	1/8" - 1.5"	826 000 001	9.000	16.500
Orbital weld head OW 76S	6.00 - 77.00	1/4" - 3.0"	827 000 001	9.400	16.900
Orbital weld head OW 115S	20.00 - 115.00	3/4" - 4.5"	828 000 001	13.000	18.600

ORBIWELD - 65, 115, 170

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

Coolant channels running through the entire weld head body have provided for excellent heat dissipation that enable the ORBIWELD weld heads to work continuously even at high welding currents and intensive load. The closed design of the ORBIWELD series and the gas management system of the head ensure a permanent infiltration of the weld seam with during welding with insert gas, guaranteeing seams that are very low in welding colors.

- Quick change system for clamping shells. The clamping shells are simply clipped in and out without any additional tooling.
- Completely water cooled.
- Stable clamp connections in conjunction with clamping shells available for all tube dimensions guarantee secure clamping and centering of the parts to be welded 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.

Including 7.5 m (24.6 ft) hose package and tool set. Cable assembly extensions available.

The clamping shells should be ordered separately.

Item	Tube OD [mm]	Tube OD [inch]	Code	Weight weld head [kg]	Shipping weight [kg]
Orbital weld head OW 65	6.00 - 70.00	1/4" - 2.5"	823 000 001	13.100	20.600
Orbital weld head OW 115	20.00 - 115.00	3/4" - 4.5"	824 000 001	15.100	22.600
Orbital weld head OW 170	50.00 - 170.00	2.0" - 6.0"	825 000 001	20.700	36.200

Enclosed Orbital Weld Heads

Accessories for ORBIWELD S and ORBIWELD

NOTE NEW CLAMPING SYSTEM

1 clamping shell pair contains 2 clamping shells for a single side. For each tube OD 2 pairs of clamping shells are required.

Available in wide „W“ and narrow „S“ clamping shells for orbital weld heads ORBIWELD 115, 115S and 170, which can be combined as needed.

Pairs of clamping shells for ORBIWELD 38S (2 pcs.)

Tube OD [mm]	Tube OD [inch]	Code	Tube OD [mm]	Tube OD [inch]	Code
3.00	0.118	826 002 120	17.08	0.672	826 002 161
3.17	0.125	826 002 121	17.20	0.677	826 002 162
3.18	0.125	826 002 122	17.30	0.681	826 002 163
3.95	0.156	826 002 123	18.00	0.709	826 002 164
4.00	0.157	826 002 124	19.00	0.748	826 002 165
4.76	0.187	826 002 125	19.05	0.750	826 002 166
4.78	0.188	826 002 126	19.50	0.768	826 002 167
5.95	0.234	826 002 127	20.00	0.787	826 002 168
6.00	0.236	826 002 128	21.00	0.827	826 002 169
6.35	0.250	826 002 129	21.30	0.839	826 002 170
7.00	0.276	826 002 130	21.70	0.854	826 002 171
7.50	0.295	826 002 131	22.00	0.866	826 002 172
7.94	0.313	826 002 132	22.22	0.875	826 002 173
8.00	0.315	826 002 133	22.23	0.875	826 002 174
9.00	0.354	826 002 134	22.55	0.888	826 002 175
9.53	0.375	826 002 135	23.00	0.906	826 002 176
9.95	0.392	826 002 136	24.00	0.945	826 002 177
10.00	0.394	826 002 137	24.13	0.950	826 002 178
10.10	0.398	826 002 138	25.00	0.984	826 002 179
10.20	0.402	826 002 139	25.25	0.994	826 002 180
11.00	0.433	826 002 140	25.40	1.000	826 002 181
11.11	0.437	826 002 141	26.00	1.024	826 002 182
11.95	0.470	826 002 142	26.70	1.051	826 002 183
12.00	0.472	826 002 143	26.90	1.059	826 002 184
12.10	0.476	826 002 144	27.00	1.063	826 002 185
12.70	0.500	826 002 145	27.20	1.071	826 002 186
13.00	0.512	826 002 146	28.00	1.102	826 002 187
13.20	0.520	826 002 147	29.00	1.142	826 002 188
13.50	0.531	826 002 148	30.00	1.181	826 002 189
13.70	0.539	826 002 149	30.53	1.202	826 002 190
14.00	0.551	826 002 150	31.75	1.250	826 002 191
14.30	0.563	826 002 151	31.80	1.252	826 002 192
14.70	0.579	826 002 152	32.00	1.260	826 002 193
15.00	0.591	826 002 153	33.00	1.299	826 002 194
15.30	0.602	826 002 154	33.40	1.315	826 002 195
15.60	0.614	826 002 155	33.70	1.327	826 002 196
15.70	0.618	826 002 156	34.00	1.339	826 002 197
15.88	0.625	826 002 157	35.00	1.378	826 002 198
16.00	0.630	826 002 158	36.00	1.417	826 002 199
16.70	0.657	826 002 159	38.00	1.496	826 002 200
17.00	0.669	826 002 160	38.10	1.500	826 002 201



*Pair of clamping shells OW 38S (2pcs.)
for one clamping side*

Enclosed Orbital Weld Heads

Pairs of clamping shells for ORBIWELD 76S (2 pcs.)



Pair of clamping shells OW 76S (2pcs.)
for one clamping side

Tube OD [mm]	Tube OD [inch]	Code	Tube OD [mm]	Tube OD [inch]	Code
6.00	0.236	827 002 120	28.00	1.102	827 002 179
6.35	0.250	827 002 121	29.00	1.142	827 002 180
7.00	0.276	827 002 122	30.00	1.181	827 002 181
7.50	0.295	827 002 123	30.53	1.202	827 002 182
7.94	0.313	827 002 124	31.75	1.250	827 002 183
8.00	0.315	827 002 125	31.80	1.252	827 002 184
9.00	0.354	827 002 126	32.00	1.260	827 002 185
9.53	0.375	827 002 127	33.00	1.299	827 002 186
9.95	0.392	827 002 128	33.40	1.315	827 002 187
10.00	0.394	827 002 129	33.70	1.327	827 002 188
10.10	0.398	827 002 130	34.00	1.339	827 002 189
10.20	0.402	827 002 131	35.00	1.378	827 002 190
11.00	0.433	827 002 132	36.00	1.417	827 002 191
11.11	0.437	827 002 133	38.00	1.496	827 002 192
11.95	0.470	827 002 134	38.10	1.500	827 002 193
12.00	0.472	827 002 135	40.00	1.575	827 002 194
12.10	0.476	827 002 136	41.00	1.614	827 002 195
12.70	0.500	827 002 137	42.00	1.654	827 002 196
13.00	0.512	827 002 138	42.16	1.660	827 002 197
13.20	0.520	827 002 139	42.30	1.665	827 002 198
13.50	0.531	827 002 140	42.40	1.669	827 002 199
13.70	0.539	827 002 141	42.70	1.681	827 002 200
14.00	0.551	827 002 142	43.00	1.693	827 002 201
14.30	0.563	827 002 143	43.20	1.701	827 002 202
14.70	0.579	827 002 144	44.00	1.732	827 002 203
15.00	0.591	827 002 145	44.45	1.750	827 002 204
15.30	0.602	827 002 146	44.50	1.752	827 002 205
15.60	0.614	827 002 147	45.00	1.772	827 002 206
15.70	0.618	827 002 148	45.80	1.803	827 002 207
15.88	0.625	827 002 149	48.00	1.890	827 002 208
16.00	0.630	827 002 150	48.26	1.900	827 002 209
16.70	0.657	827 002 151	48.30	1.902	827 002 210
17.00	0.669	827 002 152	48.60	1.913	827 002 211
17.08	0.672	827 002 153	50.00	1.969	827 002 212
17.20	0.677	827 002 154	50.80	2.000	827 002 213
17.30	0.681	827 002 155	51.00	2.008	827 002 214
18.00	0.709	827 002 156	52.00	2.047	827 002 215
19.00	0.748	827 002 157	53.00	2.087	827 002 216
19.05	0.750	827 002 158	54.00	2.126	827 002 217
19.50	0.768	827 002 159	57.00	2.244	827 002 218
20.00	0.787	827 002 160	60.00	2.363	827 002 219
21.00	0.827	827 002 161	60.10	2.366	827 002 220
21.30	0.839	827 002 162	60.30	2.374	827 002 221
21.70	0.854	827 002 163	60.45	2.380	827 002 222
22.00	0.866	827 002 164	60.50	2.382	827 002 223
22.22	0.875	827 002 165	63.00	2.480	827 002 224
22.23	0.875	827 002 166	63.20	2.488	827 002 225
22.55	0.888	827 002 167	63.50	2.500	827 002 226
23.00	0.906	827 002 168	65.00	2.559	827 002 227
24.00	0.945	827 002 169	70.00	2.756	827 002 228
24.13	0.950	827 002 170	70.20	2.764	827 002 229
25.00	0.984	827 002 171	73.00	2.874	827 002 230
25.25	0.994	827 002 172	73.03	2.875	827 002 231
25.40	1.000	827 002 173	73.15	2.880	827 002 232
26.00	1.024	827 002 174	75.00	2.953	827 002 233
26.70	1.051	827 002 175	76.00	2.992	827 002 234
26.90	1.059	827 002 176	76.10	2.996	827 002 235
27.00	1.063	827 002 177	76.20	3.000	827 002 236
27.20	1.071	827 002 178	76.30	3.004	827 002 237

Enclosed Orbital Weld Heads

Pairs of clamping shells for ORBIWELD 65 (2 pcs.)

Tube OD [mm]	Tube OD [inch]	Code
6.00	0.236	823 002 120
6.35	0.250	823 002 121
7.00	0.276	823 002 122
7.50	0.295	823 002 123
7.94	0.313	823 002 124
8.00	0.315	823 002 125
9.00	0.354	823 002 126
9.53	0.375	823 002 127
9.95	0.392	823 002 128
10.00	0.394	823 002 129
10.10	0.398	823 002 130
10.20	0.402	823 002 131
11.00	0.433	823 002 132
11.11	0.437	823 002 133
11.95	0.470	823 002 134
12.00	0.472	823 002 135
12.10	0.476	823 002 136
12.70	0.500	823 002 137
13.00	0.512	823 002 138
13.20	0.520	823 002 139
13.50	0.531	823 002 140
13.70	0.539	823 002 141
14.00	0.551	823 002 142
14.30	0.563	823 002 143
14.70	0.579	823 002 144
15.00	0.591	823 002 145
15.30	0.602	823 002 146
15.60	0.614	823 002 147
15.70	0.618	823 002 148
15.88	0.625	823 002 149
16.00	0.630	823 002 150
16.70	0.657	823 002 151
17.00	0.669	823 002 152
17.08	0.672	823 002 153
17.20	0.677	823 002 154
17.30	0.681	823 002 155
18.00	0.709	823 002 156
19.00	0.748	823 002 157
19.05	0.750	823 002 158
19.50	0.768	823 002 159
20.00	0.787	823 002 160
21.00	0.827	823 002 161
21.30	0.839	823 002 162
21.70	0.854	823 002 163
22.00	0.866	823 002 164
22.22	0.875	823 002 165
22.23	0.875	823 002 166
22.55	0.888	823 002 167
23.00	0.906	823 002 168
24.00	0.945	823 002 169
24.13	0.950	823 002 170
25.00	0.984	823 002 171
25.25	0.994	823 002 172
25.40	1.000	823 002 173
26.00	1.024	823 002 174

Tube OD [mm]	Tube OD [inch]	Code
26.70	1.051	823 002 175
26.90	1.059	823 002 176
27.00	1.063	823 002 177
27.20	1.071	823 002 178
28.00	1.102	823 002 179
29.00	1.142	823 002 180
30.00	1.181	823 002 181
30.53	1.202	823 002 182
31.75	1.250	823 002 183
31.80	1.252	823 002 184
32.00	1.260	823 002 185
33.00	1.299	823 002 186
33.40	1.315	823 002 187
33.70	1.327	823 002 188
34.00	1.339	823 002 189
35.00	1.378	823 002 190
36.00	1.417	823 002 191
38.00	1.496	823 002 192
38.10	1.500	823 002 193
40.00	1.575	823 002 194
41.00	1.614	823 002 195
42.00	1.654	823 002 196
42.16	1.660	823 002 197
42.30	1.665	823 002 198
42.40	1.669	823 002 199
42.70	1.681	823 002 200
43.00	1.693	823 002 201
43.20	1.701	823 002 202
44.00	1.732	823 002 203
44.45	1.750	823 002 204
44.50	1.752	823 002 205
45.00	1.772	823 002 206
45.80	1.803	823 002 207
48.00	1.890	823 002 208
48.26	1.900	823 002 209
48.30	1.902	823 002 210
48.60	1.913	823 002 211
50.00	1.969	823 002 212
50.80	2.000	823 002 213
51.00	2.008	823 002 214
52.00	2.047	823 002 215
53.00	2.087	823 002 216
54.00	2.126	823 002 217
57.00	2.244	823 002 218
60.00	2.363	823 002 219
60.10	2.366	823 002 220
60.30	2.374	823 002 221
60.45	2.380	823 002 222
60.50	2.382	823 002 223
63.00	2.480	823 002 224
63.20	2.488	823 002 225
63.50	2.500	823 002 226
65.00	2.559	823 002 227
70.00	2.756	823 002 228
70.20	2.764	823 002 229



*Pair of clamping shells OW 65 (2pcs.)
for one clamping side*

Enclosed Orbital Weld Heads

Pairs of clamping shells for ORBIWELD 115/115S Narrow (2pcs)



Pair of clamping shells S OW 115 / 115S narrow (2pcs.) for one clamping side

Tube OD [mm]	Tube OD [inch]	Code	Tube OD [mm]	Tube OD [inch]	Code
20.00	0.787	824 002 120	48.26	1.900	824 002 169
21.00	0.827	824 002 121	48.30	1.902	824 002 170
21.30	0.839	824 002 122	48.60	1.913	824 002 171
21.70	0.854	824 002 123	50.00	1.969	824 002 172
22.00	0.866	824 002 124	50.80	2.000	824 002 173
22.22	0.875	824 002 125	51.00	2.008	824 002 174
22.23	0.875	824 002 126	52.00	2.047	824 002 175
22.55	0.888	824 002 127	53.00	2.087	824 002 176
23.00	0.906	824 002 128	54.00	2.126	824 002 177
24.00	0.945	824 002 129	57.00	2.244	824 002 178
24.13	0.950	824 002 130	60.00	2.363	824 002 179
25.00	0.984	824 002 131	60.10	2.366	824 002 180
25.25	0.994	824 002 132	60.30	2.374	824 002 181
25.40	1.000	824 002 133	60.45	2.380	824 002 182
26.00	1.024	824 002 134	60.50	2.382	824 002 183
26.70	1.051	824 002 135	63.00	2.480	824 002 184
26.90	1.059	824 002 136	63.20	2.488	824 002 185
27.00	1.063	824 002 137	63.50	2.500	824 002 186
27.20	1.071	824 002 138	65.00	2.559	824 002 187
28.00	1.102	824 002 139	70.00	2.756	824 002 188
29.00	1.142	824 002 140	70.20	2.764	824 002 189
30.00	1.181	824 002 141	73.00	2.874	824 002 190
30.53	1.202	824 002 142	73.03	2.875	824 002 191
31.75	1.250	824 002 143	73.15	2.880	824 002 192
31.80	1.252	824 002 144	75.00	2.953	824 002 193
32.00	1.260	824 002 145	76.00	2.992	824 002 194
33.00	1.299	824 002 146	76.10	2.996	824 002 195
33.40	1.315	824 002 147	76.20	3.000	824 002 196
33.70	1.327	824 002 148	76.30	3.004	824 002 197
34.00	1.339	824 002 149	80.00	3.150	824 002 198
35.00	1.378	824 002 150	82.00	3.228	824 002 199
36.00	1.417	824 002 151	82.30	3.240	824 002 200
38.00	1.496	824 002 152	85.00	3.346	824 002 201
38.10	1.500	824 002 153	85.90	3.382	824 002 202
40.00	1.575	824 002 154	88.90	3.500	824 002 203
41.00	1.614	824 002 155	89.00	3.504	824 002 204
42.00	1.654	824 002 156	89.10	3.508	824 002 205
42.16	1.660	824 002 157	90.00	3.543	824 002 206
42.30	1.665	824 002 158	93.00	3.661	824 002 207
42.40	1.669	824 002 159	95.00	3.740	824 002 208
42.70	1.681	824 002 160	100.00	3.937	824 002 209
43.00	1.693	824 002 161	101.60	4.000	824 002 210
43.20	1.701	824 002 162	104.00	4.094	824 002 211
44.00	1.732	824 002 163	108.00	4.252	824 002 212
44.45	1.750	824 002 164	110.00	4.331	824 002 213
44.50	1.752	824 002 165	113.50	4.468	824 002 214
45.00	1.772	824 002 166	114.00	4.488	824 002 215
45.80	1.803	824 002 167	114.30	4.500	824 002 216
48.00	1.890	824 002 168	115.00	4.528	824 002 217

Enclosed Orbital Weld Heads

Pairs of clamping shells for ORBIWELD 115/115S Wide (2pcs)

Tube OD [mm]	Tube OD [inch]	Code
20.00	0.787	824 002 320
21.00	0.827	824 002 321
21.30	0.839	824 002 322
21.70	0.854	824 002 323
22.00	0.866	824 002 324
22.22	0.875	824 002 325
22.23	0.875	824 002 326
22.55	0.888	824 002 327
23.00	0.906	824 002 328
24.00	0.945	824 002 329
24.13	0.950	824 002 330
25.00	0.984	824 002 331
25.25	0.994	824 002 332
25.40	1.000	824 002 333
26.00	1.024	824 002 334
26.70	1.051	824 002 335
26.90	1.059	824 002 336
27.00	1.063	824 002 337
27.20	1.071	824 002 338
28.00	1.102	824 002 339
29.00	1.142	824 002 340
30.00	1.181	824 002 341
30.53	1.202	824 002 342
31.75	1.250	824 002 343
31.80	1.252	824 002 344
32.00	1.260	824 002 345
33.00	1.299	824 002 346
33.40	1.315	824 002 347
33.70	1.327	824 002 348
34.00	1.339	824 002 349
35.00	1.378	824 002 350
36.00	1.417	824 002 351
38.00	1.496	824 002 352
38.10	1.500	824 002 353
40.00	1.575	824 002 354
41.00	1.614	824 002 355
42.00	1.654	824 002 356
42.16	1.660	824 002 357
42.30	1.665	824 002 358
42.40	1.669	824 002 359
42.70	1.681	824 002 360
43.00	1.693	824 002 361
43.20	1.701	824 002 362
44.00	1.732	824 002 363
44.45	1.750	824 002 364
44.50	1.752	824 002 365
45.00	1.772	824 002 366
45.80	1.803	824 002 367
48.00	1.890	824 002 368

Tube OD [mm]	Tube OD [inch]	Code
48.26	1.900	824 002 369
48.30	1.902	824 002 370
48.60	1.913	824 002 371
50.00	1.969	824 002 372
50.80	2.000	824 002 373
51.00	2.008	824 002 374
52.00	2.047	824 002 375
53.00	2.087	824 002 376
54.00	2.126	824 002 377
57.00	2.244	824 002 378
60.00	2.363	824 002 379
60.10	2.366	824 002 380
60.30	2.374	824 002 381
60.45	2.380	824 002 382
60.50	2.382	824 002 383
63.00	2.480	824 002 384
63.20	2.488	824 002 385
63.50	2.500	824 002 386
65.00	2.559	824 002 387
70.00	2.756	824 002 388
70.20	2.764	824 002 389
73.00	2.874	824 002 390
73.03	2.875	824 002 391
73.15	2.880	824 002 392
75.00	2.953	824 002 393
76.00	2.992	824 002 394
76.10	2.996	824 002 395
76.20	3.000	824 002 396
76.30	3.004	824 002 397
80.00	3.150	824 002 398
82.00	3.228	824 002 399
82.30	3.240	824 002 400
85.00	3.346	824 002 401
85.90	3.382	824 002 402
88.90	3.500	824 002 403
89.00	3.504	824 002 404
89.10	3.508	824 002 405
90.00	3.543	824 002 406
93.00	3.661	824 002 407
95.00	3.740	824 002 408
100.00	3.937	824 002 409
101.60	4.000	824 002 410
104.00	4.094	824 002 411
108.00	4.252	824 002 412
110.00	4.331	824 002 413
113.50	4.468	824 002 414
114.00	4.488	824 002 415
114.30	4.500	824 002 416
115.00	4.528	824 002 417



Pair of clamping shells W OW 115/115S wide (2pcs.) for one clamping side

Enclosed Orbital Weld Heads

Pairs of clamping shells for ORBIWELD 170 Narrow (2pcs)



Pair of clamping shells S OW 170 narrow (2pcs.) for one clamping side

Tube OD [mm]	Tube OD [inch]	Code
50.00	1.969	825 002 120
50.80	2.000	825 002 121
51.00	2.008	825 002 122
52.00	2.047	825 002 123
53.00	2.087	825 002 124
54.00	2.126	825 002 125
57.00	2.244	825 002 126
60.00	2.363	825 002 127
60.10	2.366	825 002 128
60.30	2.374	825 002 129
60.45	2.380	825 002 130
60.50	2.382	825 002 131
63.00	2.480	825 002 132
63.20	2.488	825 002 133
63.50	2.500	825 002 134
65.00	2.559	825 002 135
70.00	2.756	825 002 136
70.20	2.764	825 002 137
73.00	2.874	825 002 138
73.03	2.875	825 002 139
73.15	2.880	825 002 140
75.00	2.953	825 002 141
76.00	2.992	825 002 142
76.10	2.996	825 002 143
76.20	3.000	825 002 144
76.30	3.004	825 002 145
80.00	3.150	825 002 146
82.00	3.228	825 002 147
82.30	3.240	825 002 148
85.00	3.346	825 002 149

Tube OD [mm]	Tube OD [inch]	Code
85.90	3.382	825 002 150
88.90	3.500	825 002 151
89.00	3.504	825 002 152
89.10	3.508	825 002 153
90.00	3.543	825 002 154
93.00	3.661	825 002 155
95.00	3.740	825 002 156
100.00	3.937	825 002 157
101.60	4.000	825 002 158
104.00	4.094	825 002 159
108.00	4.252	825 002 160
110.00	4.331	825 002 161
113.50	4.468	825 002 162
114.00	4.488	825 002 163
114.30	4.500	825 002 164
115.00	4.528	825 002 165
125.00	4.921	825 002 166
127.00	5.000	825 002 167
127.05	5.002	825 002 168
129.00	5.079	825 002 169
133.00	5.236	825 002 170
139.70	5.500	825 002 171
141.30	5.563	825 002 172
152.40	6.000	825 002 173
154.00	6.063	825 002 174
159.00	6.260	825 002 175
165.10	6.500	825 002 176
165.20	6.504	825 002 177
168.30	6.626	825 002 178
170.00	6.693	825 002 179

Pairs of clamping shells for ORBIWELD 170 Wide (2pcs)



Pair of clamping shells W OW 170 wide (2pcs.) for one clamping side

Tube OD [mm]	Tube OD [inch]	Code
50.00	1.969	825 002 320
50.80	2.000	825 002 321
51.00	2.008	825 002 322
52.00	2.047	825 002 323
53.00	2.087	825 002 324
54.00	2.126	825 002 325
57.00	2.244	825 002 326
60.00	2.363	825 002 327
60.10	2.366	825 002 328
60.30	2.374	825 002 329
60.45	2.380	825 002 330
60.50	2.382	825 002 331
63.00	2.480	825 002 332
63.20	2.488	825 002 333
63.50	2.500	825 002 334
65.00	2.559	825 002 335
70.00	2.756	825 002 336
70.20	2.764	825 002 337
73.00	2.874	825 002 338
73.03	2.875	825 002 339
73.15	2.880	825 002 340
75.00	2.953	825 002 341
76.00	2.992	825 002 342
76.10	2.996	825 002 343
76.20	3.000	825 002 344
76.30	3.004	825 002 345
80.00	3.150	825 002 346
82.00	3.228	825 002 347
82.30	3.240	825 002 348
85.00	3.346	825 002 349

Tube OD [mm]	Tube OD [inch]	Code
85.90	3.382	825 002 350
88.90	3.500	825 002 351
89.00	3.504	825 002 352
89.10	3.508	825 002 353
90.00	3.543	825 002 354
93.00	3.661	825 002 355
95.00	3.740	825 002 356
100.00	3.937	825 002 357
101.60	4.000	825 002 358
104.00	4.094	825 002 359
108.00	4.252	825 002 360
110.00	4.331	825 002 361
113.50	4.468	825 002 362
114.00	4.488	825 002 363
114.30	4.500	825 002 364
115.00	4.528	825 002 365
125.00	4.921	825 002 366
127.00	5.000	825 002 367
127.05	5.002	825 002 368
129.00	5.079	825 002 369
133.00	5.236	825 002 370
139.70	5.500	825 002 371
141.30	5.563	825 002 372
152.40	6.000	825 002 373
154.00	6.063	825 002 374
159.00	6.260	825 002 375
165.10	6.500	825 002 376
165.20	6.504	825 002 377
168.30	6.626	825 002 378
170.00	6.693	825 002 379

Enclosed Orbital Weld Heads

Plastic case for clamping shells

With separate compartments to take up to 10 sets of standard shells.
Without clamping shells.

Item	Code		kg
Plastic case for clamping shells for OW 38S	826 020 001		0.350
Plastic case for clamping shells for OW 65 and OW 76S	827 020 006		1.388
Plastic case for OW 115 and 115S	824 020 002		1.443

Cavity shell for moldings (2 shells)

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

Item	Code		kg
Cavity shell for moldings OW 38S	826 050 010		0.146
Cavity shell for moldings for OW 76S	827 050 007		0.266
Cavity shell for moldings for OW 65	823 050 010		0.612
Cavity shell for moldings for OW 115/OW 115S	824 050 003		0.660
Cavity shell for moldings for OW 170	825 050 002		0.852

Special clamping shells for orbital weld heads

T-Piece clamping shells

Clamping shell with the ability to take the hollowed tube and the tube to be welded.
A complete set is required for each task and dimension.

Inner centering with simultaneous forming system consisting of:

- Mandrel
- Milled nut
- Welded part retainer
- Hollowed tube piece retainer

Item	Tube OD max. [mm]	Tube OD max. [inch]	Code		kg
T-piece clamping shells for OW 38S	-	-	826 050 038		-
T-piece clamping shells for OW 76S	48.30	1.902	827 050 005		0.800
Inner centering for OW 76S	48.30	1.902	827 050 006		1.200
Inner centering for OW 115/115S	85.00	3.346	824 050 005		2.000
T-piece clamping shells for OW 115/115S	85.00	3.346	824 050 004		1.300
T-piece clamping shells for OW 170	154.00	6.063	825 050 003		3.700
Inner centering for OW 170	154.00	6.063	825 050 004		4.200



Plastic case for clamping shells (optional accessory)



Cavity shell for moldings



T-piece clamping shells

Inner centering

Enclosed Orbital Weld Heads



Shell for arc welding
(retainer/cover)

Shells for arc welding

For welding standard elbows without straight side attachment (elbow-to-elbow welding without straight side is not possible). When using this shell 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.

Shell consisting of:

- Two basic retainers independent of the tube diameter.
- Two covers independent of the tube diameter.

Please submit a drawing of the elbow or a sample part when placing the order

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 welding held. The tube to be welded on the other side of the welding held must be straight and be clamped with shells from the particular standard clamping shell (standard shells not included).

Clamping shell for OW 38S

With the weld head OW 38S the covers are made to customer specification (2 halves) without retainers are placed directly into the head. A retainer is therefore not required. Please indicate the required pipe OD and inside radius of the elbow, in case an additional electrode adapter in needed.

Item	Code		kg
Elbow shell for OW 38S complete*	826 050 031		0.018
Retainer for elbow shell for OW 76S	827 002 018		0.089
Cover for elbow shell for OW 76S	827 050 021		0.029
Retainer for elbow shell for OW 65	823 050 029		0.089
Cover for elbow shell for OW 65*	823 050 030		0.028
Retainer for elbow shell for OW 115 and OW 115S	824 050 006		0.149
Cover for elbow shell for OW 115S*	828 050 016		0.035
Cover for elbow shell for OW 115*	824 050 020		0.035
Retainer for elbow shell for OW 170	825 050 005		0.260
Cover for elbow shell for OW 170*	825 050 020		0.043

* Please submit a drawing of the elbow or a sample part when placing the order.



Extension cable assembly

Extension cable assembly

Extension cable assembly suitable for all Orbitalum orbital weld heads, beside the AVC/OSC versions of the ORBIWELD TP heads. Further lengths on request.

Item	Length (meter)	Code		kg
Extension cable assembly 5M	5	871 050 011		7.600
Extension cable assembly 10M	10	871 050 012		-
Extension cable assembly 15M	15	871 050 013		-

Enclosed Orbital Weld Heads

Electrode adapters

Robust brass adapter for transverse alignment of the tungsten electrode.

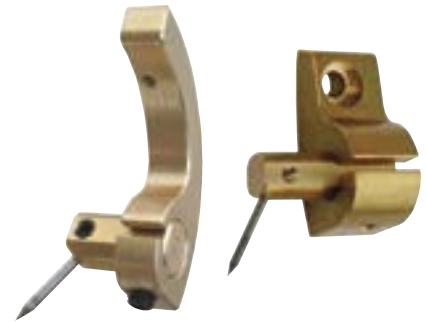
In the set or can be ordered individually. Please note that the maximum tube diameter that can be welded is reduced by using an electrode adapter.

Complete sets consisting of:

- Basic part for extension arms.
- For each extension arm 15°, 30° and 45°

Complete sets:	Code	kg
Electrode adapter for OW 38S, complete set	826 050 034	0.015
Electrode adapter for OW 76S, complete set	827 050 027	0.015
Electrode adapter for OW 65, complete set	823 050 028	0.045
Electrode adapter for OW 115 and OW 115S, complete set	824 050 021	0.064
Electrode adapter for OW 170, complete set	825 050 022	0.094
Individual parts for OW 38S:		
Base part to electrode adapter OW 38S	826 004 003	0.024
10 mm 15° extension arm for electrode adapter OW 38S	823 004 008	0.003
10 mm 30° extension arm for electrode adapter OW 38S	823 004 009	0.003
10 mm 45° extension arm for electrode adapter OW 38S	823 004 010	0.003
Individual parts for OW 76S:		
Base part to electrode adapter OW 76S	827 004 003	0.024
15 mm 15°/90° extension arm for electrode adapter OW 76S	823 004 002	0.003
15 mm 30°/90° extension arm for electrode adapter OW 76S	823 004 003	0.003
15 mm 45°/90° extension arm for electrode adapter OW 76S	823 004 004	0.003
Individual parts for OW 65	Code	kg
Base part to electrode adapter OW 65	823 004 011	0.018
15 mm 15°/90° extension arm for electrode adapter OW 65	823 004 002	0.003
15 mm 30°/90° extension arm for electrode adapter OW 65	823 004 003	0.003
15 mm 45°/90° extension arm for electrode adapter OW 65	823 004 004	0.003
Individual parts for OW 115 und OW 115S	Code	kg
Base part to electrode adapter OW 115 and OW 115S	824 004 004	0.037
25 mm 15°/90° extension arm for electrode adapter OW 115/115S	823 004 006	0.009
25 mm 30°/90° extension arm for electrode adapter OW 115/115S	823 004 005	0.009
25 mm 45°/90° extension arm for electrode adapter OW 115/115S	823 004 007	0.009
Individual parts for OW 170	Code	kg
Base part to electrode adapter OW 170	825 004 001	0.067
25 mm 15°/90° extension arm for electrode adapter OW 170	823 004 006	0.009
25 mm 30°/90° extension arm for electrode adapter OW 170	823 004 005	0.009
25 mm 45°/90° extension arm for electrode adapter OW 170	823 004 007	0.009
Electrode adapter for I-seam weld*	Code	kg
Electrode adapter for OW 38S i-seam weld, set	826 050 036	-
Electrode adapter for OW 76S i-seam weld, set	827 050 038	-
Electrode adapter for OW 65 i-seam weld, set	823 050 034	-
Electrode adapter for OW 115 i-seam weld, set	824 050 022	-
Electrode adapter for internal weld seam*	Code	kg
Electrode adapter for OW 38S internal weld seam, set	826 050 037	-
Electrode adapter for OW 76S internal weld seam, set	827 050 039	-
Electrode adapter for OW 115 internal weld seam, set	824 050 023	-

* Further electrode adapter for other weld heads on request.



Electrode adapter for OW 38S, OW 76S Electrode adapter for OW 170



Electrode adapter for internal weld seam (without rotor)



Example of internal seam weld.



Example for i-seam weld.

Open Orbital Weld Heads - TP



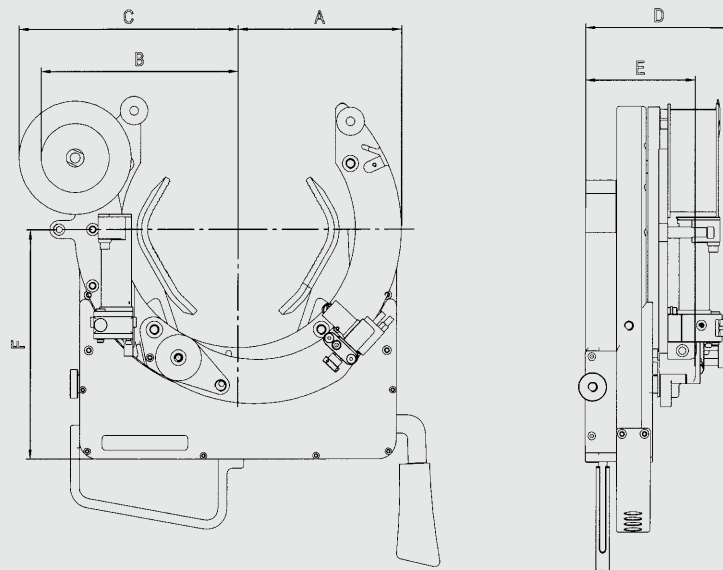
ORBIWELD TP - unique design and functionality

Open Orbital Weld Heads - TP

Overview of open orbital weld heads ORBIWELD TP

Open orbital weld heads ORBIWELD TP / ORBIWELD TP AVC/OSC

Model		TP 250	TP 400	TP 400 KD3-100	TP 600	TP 600 AVC/OSC	TP 1000	TP 1000 AVC/OSC
Code		811 000 001	812 000 001	812 000 003	813 000 001	813 000 002	814 000 001	814 000 002
Application range	[mm]	20 - 77	30 - 115	30 - 115	70 - 170	70 - 170	120 - 275	120 - 275
	[inch]	1/2 - 3	1 1/2 - 4 1/2	1 1/2 - 4 1/2	3 - 6	3 - 6	5 - 10	5 - 10
Dimension „A“: excluding cold wire	[mm]	86.0	108.0	108.0	146.0	–	216.0	–
	[inch]	3.386	4.252	4.252	5.748	–	8.504	–
Dimension „B“: with cold wire KD 3-62	[mm]	x	155.0	180.0	176.0	–	216.0	–
	[inch]	x	6.102	7.087	6.929	–	8.504	–
Dimension „C“: with cold wire KD 3-100	[mm]	x	x	177.0	196.0	215.0	237.0	274.0
	[inch]	x	x	6.969	7.717	8.465	9.331	10.787
Dimension "D"	[mm]	85.0	120.0	182.0	140.0	186.0	170.0	206.0
	[inch]	3.346	4.724	7.165	4.724	7.323	6.299	8.110
Dimension "E": electrode	[mm]	74.0	90.0	162.0	97.0	172.0	146.0	191.0
	[inch]	2.913	3.543	6.378	3.819	6.772	5.748	7.520
Dimension "F"	[mm]	125.0	200.0	200.0	202.0	202.0	270.0	270.0
	[inch]	4.921	7.874	7.874	7.953	7.953	10.630	10.630
Weight excluding cold wire feed and hose package	[kg]	2.1	5.4	-	8.0	–	16.9	–
	[lbs]	4.630	11.905	-	17.637	–	37.258	–
Weight including cold wire feed and excluding hose package	[kg]	–	–	-	–	10.4	–	22.0
	[lbs]	–	–	-	–	22.928	–	48.500



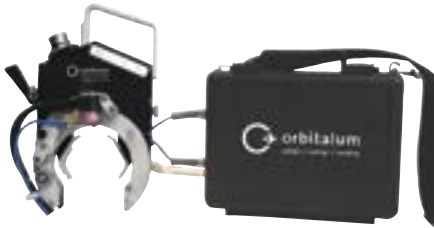
Electrode lengths for TP weld heads

Model		TP 250	TP 400	TP 400 AVC/OSC	TP 600	TP 600 AVC/OSC	TP 1000	TP 1000 AVC/OSC
Code		811 000 001	812 000 001	812 000 002	813 000 001	813 000 001	814 000 001	814 000 002
Length	[mm]	18 - 32	30 - 55	30 - 55	30 - 55	30 - 55	30 - 55	30 - 55
	[inch]	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

Open Orbital Weld Heads - TP



ORBIWELD TP 600
with KD 3-100 cold wire feed



ORBIWELD TP 250
with external cold wire feed KD 4



ORBIWELD TP 400
with KD 3-62 cold wire feed



ORBIWELD TP 400
with KD 3-100 cold wire feed

Open orbital weld heads ORBIWELD TP

Open orbital weld heads ORBIWELD TP 250-1000

The ORBIWELD TP series has a unique design and functionality. An extremely compact design has been achieved thanks to the drive motor that is fully integrated into the housing. The completely new drive concept has made the well-known large and costly drives associated with conventional weld heads unnecessary.

Features:

- Can be used with and without cold wire attachment, as the cold wire feed nozzle can be adjusted exactly in both a vertical and horizontal direction via an adjustment unit.
- Open arc system.
- The arc length is kept at a constant gap mechanically.
- Infinitely variable clamping mechanism.
- The water-cooled TIG Torch head can be swiveled in any direction and allows fillet welds or short hollowed out tubes to be welded. In the models TP 400, 600, and 1000 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.
- With a simple to operate control knob, it is possible to adjust the clamping area across the weld head's entire nominal range.
- The ORBIWELD TP weld heads with clamping shells made from tool steel ensures optimum retention to the tube's surface (very good grip properties).
- The weld heads are easily centered to the tube and are clamped in place with the help of a tension lever. No additional remote control is required thanks to the keys integrated directly into the weld head housing.
- The standard hose package length is 7.5 m (24.6 ft). Extensions are possible.

Please note that the weld head needs for operation an earth cable as well as a control cable that must be ordered separately.

ORBIWELD TP 250 - 100 without cold wire unit

Item	Tube OD [mm]	Tube OD [inch]	Code	Weight weld head [kg]	Shipping weight [kg]
Open weld head TP 250*	22.00 - 77.00	1/2 - 3	811 000 001	10.500	18.000
Open weld head TP 400*	30.00 - 115.00	1 1/2 - 4 1/2	812 000 001	12.500	20.000
Open weld head TP 600*	70.00 - 170.00	3 - 6	813 000 001	13.800	21.350
Open weld head TP 1000*	120.00 - 275.00	5 - 10	814 000 001	19.000	36.500

* Without cold wire unit (for retrofit see following page).

ORBIWELD TP 250 - 1000 with cold wire unit

Item	Tube OD [mm]	Tube OD [inch]	Code	Weight weld head [kg]	Shipping Weight [kg]
Open weld head TP 250 with KD 4	22.00 - 77.00	1/2 - 3	811 000 005	12.500	20.000
Open weld head TP 400 with KD 3-62	30.00 - 115.00	1 1/2 - 4 1/2	812 000 005	-	-
Open weld head TP 400 with KD 3-100	30.00 - 115.00	1 1/2 - 4 1/2	812 000 006	-	-
Open weld head TP 600 with KD 3-100	70.00 - 170.00	3 - 6	813 000 005	-	-
Open weld head TP 1000 with KD 3-100	120.00 - 275.00	5 - 10	814 000 005	-	-

Open Orbital Weld Heads - TP

Cold wire feeds for TP heads for retrofit

Cold wire feed KD 4 for ORBIWELD TP 250

Cannot be used for ORBIWELD TP 400/600/1000.

Consisting of:

- Axis drive motor.
- Adjustable wire feed tips.
- Wire reel retainer for D 100 mm/1kg (3.937 inch) standard reels.
- External cold wire box.

Item	Code	kg
Cold wire feed KD 4 for ORBIWELD TP 250	811 050 001	2.000

Cold wire feed KD 3-62 and KD 3-100 for ORBIWELD TP 400

Can be assembled directly on the weld head, also making pulse synchronous wire feed possible.

Consisting of:

- Axis drive motor.
- Adjustable wire feed tip.
- Wire reel retainer with D 62 mm/1 kg (2.440 inch) special wire reel (empty reel) with D 100 mm/1 kg (3.937 inch) standard reel

Item	Code	kg
Cold wire feed KD 3-62 for ORBIWELD TP 400 including empty reel	812 050 001	5.500
Additional empty reel for KD 3-62	812 018 019	0.038
Cold wire feed KD 3-100 for ORBIWELD TP 400*	812 050 061	-

*For the retrofit the weld head has to be sent to the Orbitalum service department.

Cold wire feed KD 3-100 for ORBIWELD TP 600

Can be assembled directly on the weld head, also making pulse synchronous wire feed possible.

Consisting of:

- Axis drive motor.
- Adjustable wire feed tip.
- Wire reel retainer for D 100/1kg (3.937 inch) standard wire reels.

Item	Code	kg
Cold wire feed KD 3-100 for ORBIWELD TP 600	813 050 001	0.680

Cold wire feed KD 3-100 for ORBIWELD TP 1000

Can be assembled directly on the weld head, also making pulse synchronous wire feed possible.

Consisting of:

- Axis drive motor.
- Adjustable wire feed tip.
- Wire reel retainer for D 100 mm/1kg (3.937 inch) standard wire reels.

Item	Code	kg
Cold wire feed KD 3-100 for ORBIWELD TP 1000	814 050 008	0.720



KD 4 with open lift-off lid



KD 3-100 with D 100 standard wire reels

Open Orbital Weld Heads - TP



ORBIWELD TP 400 AVC/OSC

Open orbital weld heads ORBIWELD TP AVC/OSC

Open orbital weld heads ORBIWELD TP AVC/OSC with oscillation OSC and arc voltage control AVC

Can be used for thick wall tubes (multiple layer welds).
As ORBIWELD TP (see p. 43). The weld heads of the ORBIWELD TP AVC/OSC series are also provided with 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.

Additional properties of the tube-to-tube weld heads ORBIWELD TP AVC/OSC with oscillation OSC and arc voltage control AVC:

- The oscillation width is 20 mm (0.787 inch).
- Cold feed wire feed unit with mount for D 100/1kg (3.937 Inch) wire reels fitted directly on the weld head.
- With a simple to operate control knob, it is possible to adjust the clamping area across the weld head's entire nominal range.
- **Please note that the weld head needs for operation an earth cable as well as a control cable that must be ordered separately.**

Item	Tube OD [mm]	Tube OD [inch]	Code	Weight weld head [kg]	Shipping weight [kg]
Open weld head TP 400 AVC/OSC*	30.00 - 115.00	1 ½ - 4 ½	812 000 002	12.700	24.800
Open weld head TP 600 AVC/OSC*	70.00 - 170.00	3 - 6	813 000 002	15.500	33.300
Open weld head TP 1000 AVC/OSC*	120.00 - 275.00	5 - 10	814 000 002	27.500	45.300

* Only usable with an ORBIMAT CA AVC/OSC orbital welding power supply.

Open Orbital Weld Heads - TP

Expansion clamping shell set for ORBIWELD TP 250

To extend the clamping area up to a minimum diameter of \varnothing 12 mm (0.472 inch).

Item	Version	Tube OD [mm]	Tube OD [inch]	Code	kg
Expansion clamping shell set for TP 250 (4pcs.)	Stainless steel	12.00 - 45.00	0.472 - 1.772	811 050 002	0.096
Expansion clamping shell set for TP 250 (4pcs.)	Hardened steel	12.00 - 45.00	0.472 - 1.772	811 050 009	0.023
Clamping shell set for TP 250* (2pcs.)	-	12.00 - 22.00	0.472 - 0.866	811 002 001	0.030

* Please indicate requested tube OD when ordering.

Additional stainless steel clamping sheet set for ORBIWELD TP

The TP series are made from hardened tool steel as standard. For applications in stainless steel we recommend the following additional clamping shell sets made from stainless steel:

Item	Code	kg
Additional clamping shell set for TP 250 (4pcs.)	811 050 006	0.069
Additional clamping shell set for TP 400 (4pcs.)	812 050 002	0.100
Additional clamping shell set for TP 600 (4pcs.)	813 050 002	0.150
Additional clamping shell set for TP 1000 (4pcs.)	814 050 001	0.071

Control cable

Suitable for all ORBIWELD TP heads.

Item	Length [m]	Length [ft]	Code	kg
Control cable for all ORBIWELD TP heads	7.5	24.6	811 050 003	1.202

Earth cable

Item	Length [m]	Length [ft]	Code	kg
Earth cable for power supplies with 165 ampere	5.0	16.4	811 050 004	2.351
Earth cable for power supplies with 300 ampere	5.0	16.4	811 050 005	2.400
Earth cable for 300 AVC/OSC power supplies	5.0	16.4	812 050 046	2.850



Expansion clamping shell set for ORBIWELD TP 250



Clamping shell set for ORBIWELD TP 250



Additional clamping stainless steel shell sets for ORBIWELD TP



Control cable



Earth cable

Open Orbital Weld Heads - TP



Clamp sleeves



Plunger for clamp sleeve



isolator seals and torch seals



HF spiral



Wire cores

Consumables for ORBIWELD TP heads

Clamp sleeves for ORBIWELD TP

Item	Code		kg
Clamp sleeve TP 250	811 020 018		-
Clamp sleeve TP 400/600/1000	812 020 024		-

Plunger for clamp sleeves for ORBIWELD TP

Item	Code		kg
Plunger for clamp sleeve TP	812 005 002		-

Torch isolators for ORBIWELD TP

Item	Code		kg
Torch isolator TP 250	811 013 001		-
Torch isolator TP 400/600/1000	812 005 001		-

Wire cores for ORBIWELD TP

Item	Code		kg
Wire core TP 250 L3.5m d0.8mm	811 020 030		-
Wire core TP 400/600/1000 L1m d0.8mm	812 020 041		-

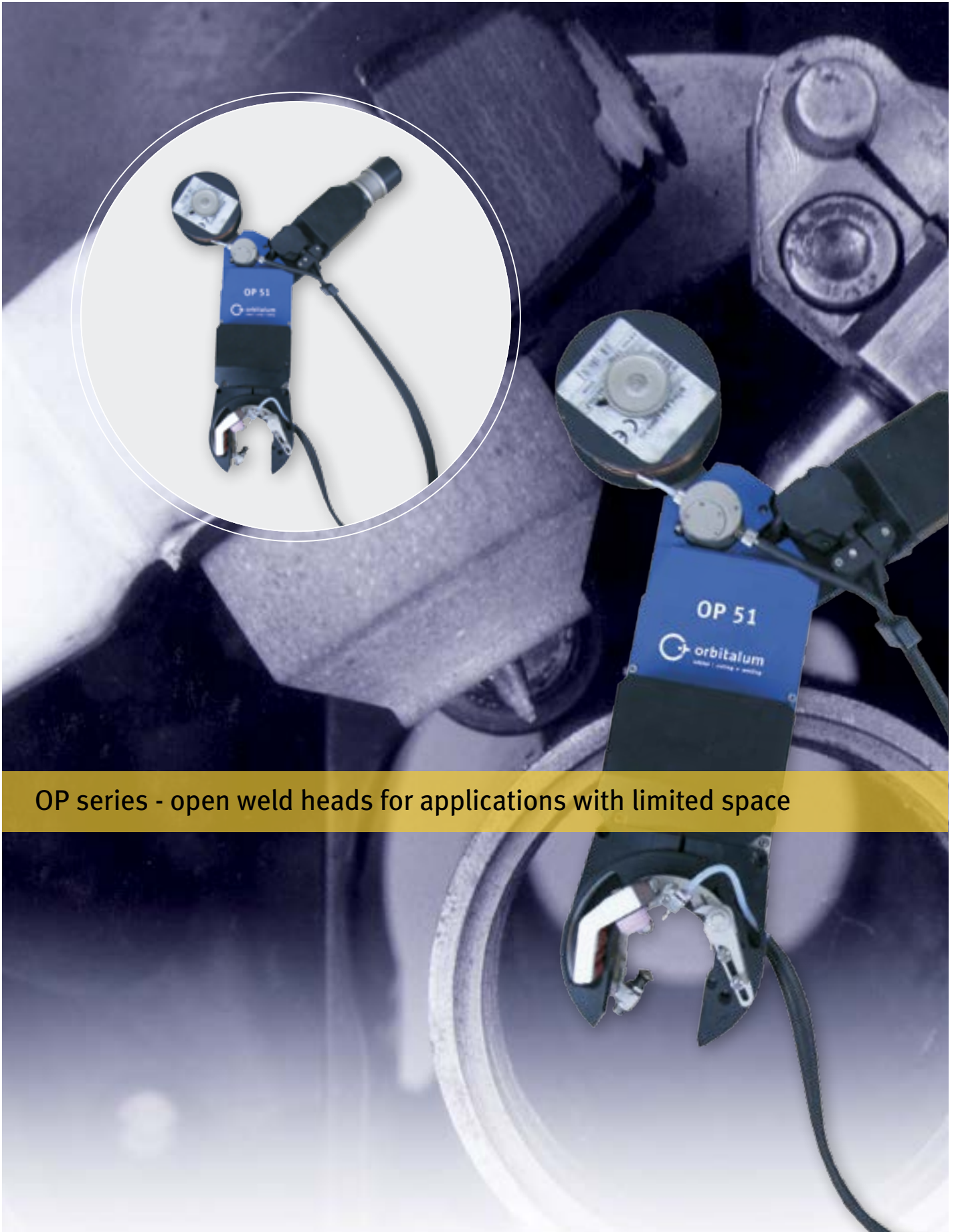
HF spiral for ORBIWELD TP

Item	Code		kg
HF spiral TP	831 001 027		-

Torch seals for ORBIWELD TP 250

Item	Code		kg
Torch seal TP 250	811 005 020		-

Open Orbital Weld Heads - OP



OP series - open weld heads for applications with limited space

Open Orbital Weld Heads - OP

OP 46, OP 51, OP 102 (AVC/OSC)

The low profile OP series is ideal for applications with limited clearance.

Benefits:

- Can be used with or without additional wire.
- Smallest space requirement thanks to compact design.
- OP 51 and OP 102 weld heads with arc voltage control (AVC) and oscillation (OSC) available
- The water-cooled torch head, machine body and clamping jaws assure highest resistance, even on preheated tubes.
- Horizontal, vertical and tilted welding positions are possible.
- Very robust and ergonomic design.
- Gas, water and electricity supply through a multiple hose made of viton enables safe and user-friendly working.
- Simple and fast assembly of the weld heads on the tube.

Delivery includes:

- 1 basic machine
- 1 weld head module
- 1 cold wire feed

To be able to operate the weld heads, clamping jaws and a suitable earth cable are required, and are not included in the standard delivery and must be ordered separately.



Open weld head OP 51-1

Minimum spacing between the tubes
$$\text{Formula: } \frac{\text{Weld head diameter} - \text{Tube OD}}{2} + 2$$

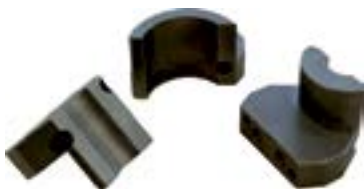
Item	Tube OD [mm]	Weld head module Ø [mm]	Space requirement on tube (total) [mm]	Space requirement on tube (up to electrode) [mm]	Code	kg**
OP 46-1S	12.7 - 27.0	120	80	65	840 000 001	5.500
OP 46-2S	25.0 - 46.0	130	80	65	840 000 002	5.500
OP 46-1	12.7 - 27.0	85	135	120	841 000 001	5.500
OP 46-2	25.0 - 38.0	98	135	120	841 000 002	5.500
OP 46-3	25.0 - 46.0	115	135	120	841 000 003	5.500
OP 51-1	12.7 - 38.0	104	135	120	842 000 001	6.000
OP 51-2	25.0 - 51.0	120	135	120	842 000 002	6.000
OP 102	50.0 - 102.0	190	135	120	843 000 001	7.000
OP 51 AVC/OSC*	31.8 - 51.0	138	170	140	842 000 101	7.000
OP 102 AVC/OSC*	50.0 - 102.0	198	170	140	843 000 101	8.000

* Only usable with an ORBIMATCA AVC/OSC orbital welding power supply. ** Weight without connecting cable

Clamping jaws

The water-cooled clamping jaws are produced for specific customers and can only be used for one specific exterior tube diameter (e.g. Ø 25 mm).

Therefore when you place your order, please specify the code no. of the desired clamping jaw and the exact exterior tube diameter that you would like to weld.



Clamping jaws for OP weld heads

Item	Tube OD [mm]	Tube OD [inch]	Suitable for	Code
clamping jaw	12.7 - 27	-	OP 46-1S, 46-1, 51-1	840 030 003
clamping jaw	25 - 38	-	OP 42-2S, 46-2, 46-3, 51-1, OP 51-2, 51 AVC/OSC	840 030 004
clamping jaw	38 - 46	-	OP 42-2S, 51-2, 51 AVC/OSC	840 030 005
clamping jaw	46 - 51	-	OP 51-2, 51 AVC/OSC	842 030 003
clamping jaw	50 - 65	-	OP 102 (AVC/OSC)	843 030 001
clamping jaw	65 - 80	-	OP 102 (AVC/OSC)	843 030 002
clamping jaw	80 - 90	-	OP 102 (AVC/OSC)	843 030 003
clamping jaw	90 - 120	-	OP 102 (AVC/OSC)	843 030 004

Open Orbital Weld Heads - OP

Consumables for OP series open weld heads

Clamp sleeves for OP weld heads

Item	Code	kg
Clamp sleeve OP 46 / OP 51 / OP 51 AVC/OSC / OP 102 AVC/OSC	841 001 033	-
Clamp sleeve OP 102	843 001 004	-



Clamp sleeves

Plungers for clamp sleeves for OP weld heads

Item	Code	kg
Plunger for clamp sleeve OP	841 001 059	-



Plungers for clamp sleeves

Torch isolators for OP weld heads

Item	Code	kg
Torch isolator OP 46 / OP 51 / OP 51 AVC/OSC / OP 102	840 001 012	-
Torch isolator OP 102 AVC/OSC	843 001 005	-



Torch isolator and torch seals

Wire cores for OP weld heads

Item	Code	kg
Wire core OP 46-1	841 001 045	-
Wire core OP 46-2	841 001 071	-
Wire core OP 46-3 / OP 51	841 001 066	-
Wire core OP 51 AVC/OSC	842 001 009	-
Wire core OP 102	843 001 007	-
Wire core OP 102 AVC/OSC	843 001 008	-



HF spiral

HF spiral for OP weld heads

Item	Code	kg
HF spiral OP	840 001 013	-



Wire cores

Open Orbital Weld Heads - HX 16



HX 16 - Open weld heads especially made for heat exchanger applications

Open Orbital Weld Heads - HX 16

Open orbital weld heads HX 16P, HX 16S

Ideal for applications with the smallest space availability thanks to their compact design.

Benefits:

- Optimum solution for welding pre-mounted elbows.
- Time efficient and easy pneumatic clamping on the tube (only HX 16P).
- Smallest space requirement thanks to compact design.
- Exact stepless adjustment of the tungsten position (only HX 16P).
- Very robust and ergonomic design.
- Simple and fast assembly of the weld heads on the tube.
- Self supporting weld head.

To be able to operate the weld heads, clamping jaws and a suitable earth cable are also necessary, which are not included in the standard delivery and must be ordered separately.



Open weld head HX 16S

Electrode Ø 1.6 [mm]

Minimum spacing between the tubes Formula: $\frac{\text{Holder diameter} - \text{Tube OD}}{2} + 2$

Item	Tube OD [mm]	Holder module Ø [mm]	Code	kg
Open weld head HX 16P	15.0 - 16.0*	-	848 000 001	-
Open weld head HX 16S	12.7 - 16.0*	60	846 000 001	1.500

* Smaller diameters on request.

Clamping jaws for HX 16

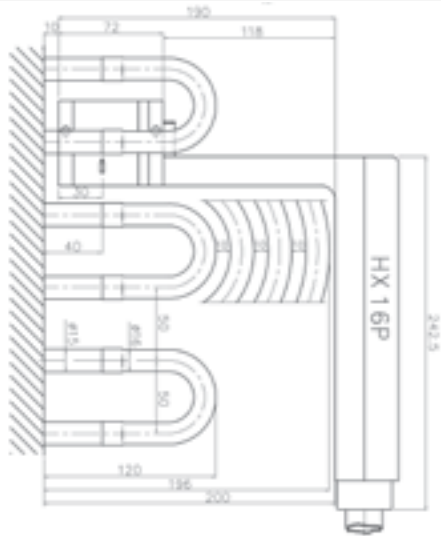
Ideal for applications with the smallest space availability

Item	Tube OD [mm]	Holder module Ø [mm]	Code	kg
Clamping jaws for HX 16	12.7 - 16	60	845 002 001	-

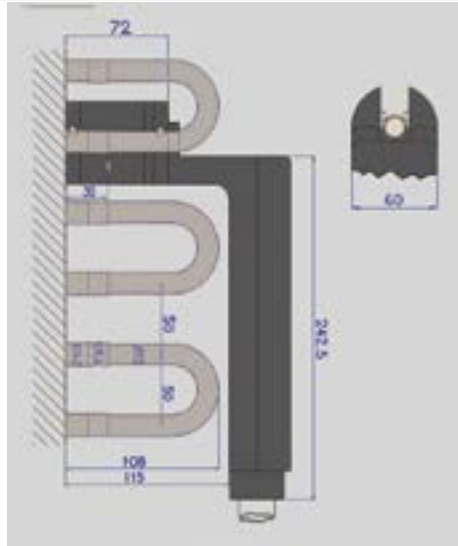


Clamping jaws for HX16

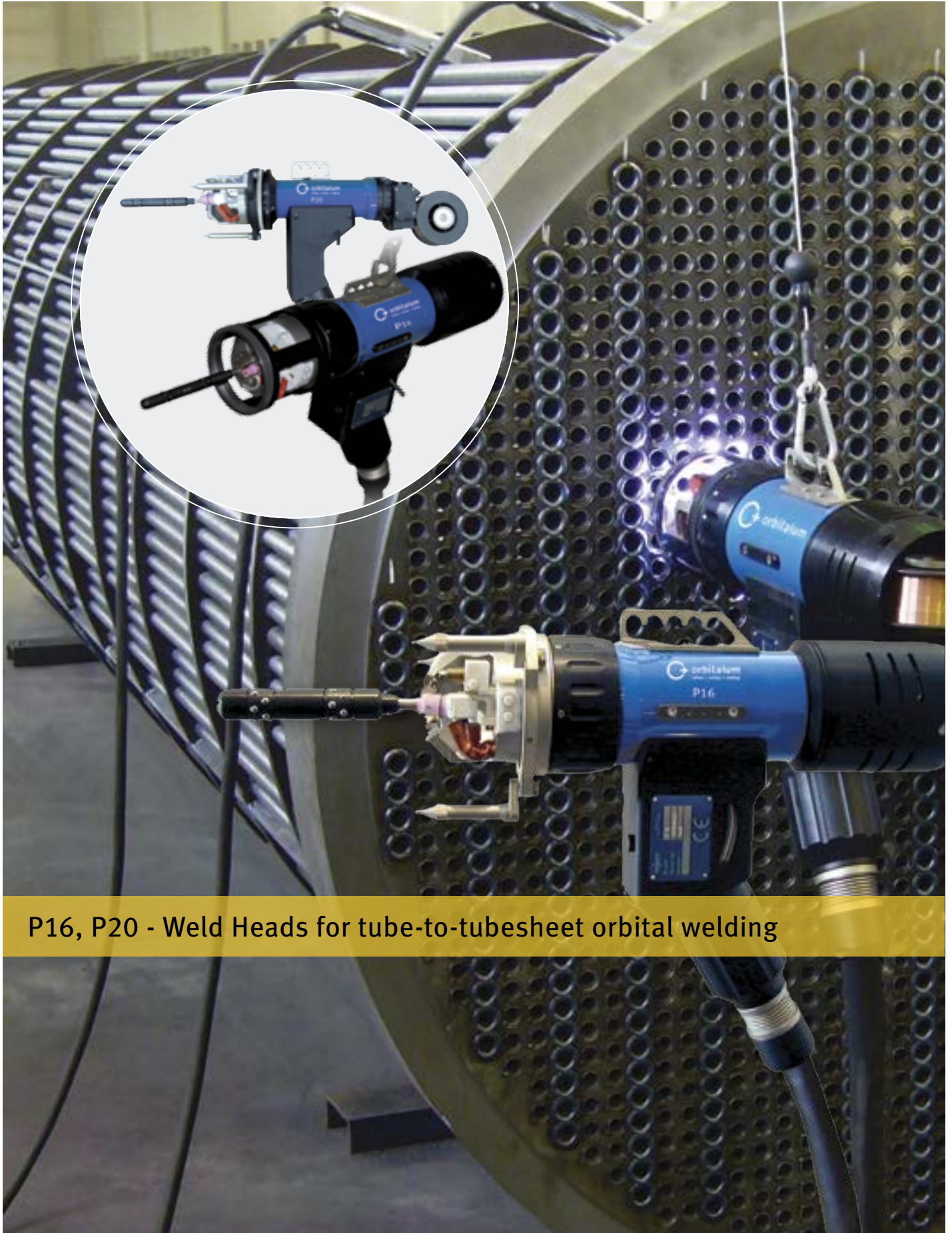
HX 16P



HX 16S



Tube-to-Tubesheet Orbital Weld Heads



P16, P20 - Weld Heads for tube-to-tubesheet orbital welding

Tube-to-Tubesheet Orbital Weld Heads

Tube-to-tubesheet orbital weld heads P16

With this TIG weld head, it easy problem to weld tubes to tubesheets with the highest of accuracy and consistent quality.

Features:

- Completely water-cooled weld head housing.
- Water coolant that extends into the TIG Torch head.
- Simple handling with maximum functionality.
- Burner head up to 30° stepless inclination (reduced diameter range).
- Positioning to the tube to be welded is by means of a centering tool that is placed on a retaining arbor.
- Fitted with a cold wire feed mounted directly on the weld head including a retaining chanism for 100 mm (3.937 inch) standard wire reel.
(Only with P16 with cold wire, 831 000 001)
- Includes and three-point support.
- Revolving wire feed on the rotational axis of the TIG burner prevents the additional wire from twisting as it exits the wire nozzle.
- Wire reel retainer for D100/1kg (3.937 inch) standard reels.
- The hose package length is 7.5 m (24.6 ft). Extensions cables also available.



Tube-to-tubesheet weld head P16

Technical data	P16
Cold wire unit	1 kg Midget spool, D 100 mm

Item	from tube ID ot tube OD [mm]	from tube ID ot tube OD [inch]	Code	Weight machine [kg]	Shipping weight [kg]
P16 tube-to-tubesheet orbital weld head with cold wire	10 - 78*	0.394 - 3.071	831 000 001	17.500	26.500
P16 tube-to-tubesheet orbital weld head excluding cold wire	10 - 78*	0.394 - 3.071	831 000 003	16.200	25.100

***Please note that the centering tools, the retaining arbors and the earth cable must be ordered separately.**

Tube-to-tubesheet orbital weld head P16 AVC

Like the weld head P16, this is also fitted with an electric arc voltage control (AVC).
Can only be used in conjunction with the ORBIMAT welding power supply
OM 300 CA AVC/OSC. Including cold wire unit.



Tube-to-tubesheet weld head P16 AVC

Technical data	P16 AVC
Cold wire unit	1 kg Midget spool, D 100 mm

Item	from tube ID ot tube OD [mm]	from tube ID ot tube OD [inch]	Code	Weight machine [kg]	Shipping weight [kg]
P16 AVC tube-to-tubesheet orbital weld head with cold wire	12 - 100*	0.470 - 3.937	831 000 002	18.300	27.300

***Please note that the centering tools, the retaining arbors and the earth cable must be ordered separately.**

Tube-to-Tubesheet Orbital Weld Heads

Tube-to-tubesheet orbital weld heads P20

With this TIG weld head, welding tubes to tubesheets with the greatest of accuracy and consistent quality is not a problem.

Features:

- Simple handling with maximum functionality.
- Water coolant that extends into the TIG burner head.
- Burner head up to 30° stepless inclination (reduced diameter range).
- Positioning to the tube to be welded is by means of a centering tool that is placed on a retaining arbor.
- Fitted with a cold wire feed mounted directly on the weld head including a retaining mechanism for D100 mm/1kg (3.937 inch) standard wire reel. (Only with P20 with cold wire, 832 000 002)
- Includes three-point support.
- Wire reel retainer for D100/1kg (3.937 inch) standard reels.
- The hose package length is 7.5 m (24.6 ft). Extension cables also available.



*Tube-to-tubesheet weld head
P20 with cold wire*

Technical data P20

Cold wire unit 1 kg Midget spool, D 100 mm

Item	from tube ID to tube OD [mm]	from tube ID to tube OD [inch]	Code	Weight machine [kg]	Shipping weight [kg]
P20 tube-to-tubesheet orbital weld head with cold wire	10 - 70*	0.394 - 2.756	832 000 002	12.750	20.400
P20 tube-to-tubesheet orbital weld head excluding cold wire	10 - 70*	0.394 - 2.756	832 000 001	11.500	20.350

***Please note that the centering tools, the retaining arbors and the earth cable must be ordered separately.**

Tube-to-Tubesheet Orbital Weld Heads

Accessories for tube-to-tubesheet orbital weld heads

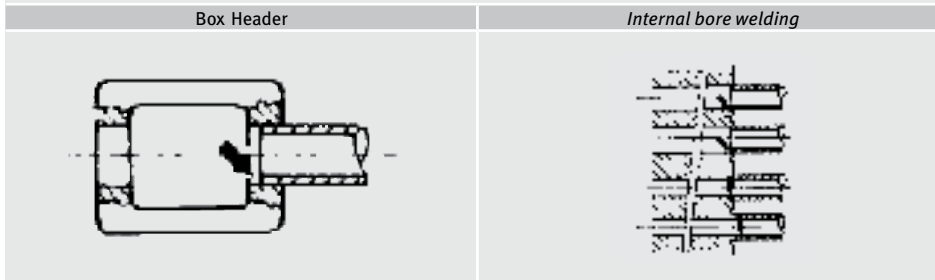
Special Torches

individual torches for following welding position available on request:

- Box header,
- Internal bore welding (I.B.W.).



Internal bore welding (I.B.W.)



Box Header torch

Cold wire unit

For the retrofitting of tube-to-tubesheet weld heads without cold wire unit. Suitable for all weld heads of Orbitalum P series.

- Wire reel retainer for D100/1kg (3.937 inch) standard reels.

Article	Code	kg
Cold wire unit P16	831 001 116	-
Cold wire unit P20	832 001 013	-

Earth cable

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

Article	Length [m]	Length [ft]	Code	kg
Earth cable for power supplies with 165 ampere	5.0	16.4	811 050 004	2.351
Earth cable for power supplies with 300 ampere	5.0	16.4	811 050 005	2.400
Earth cable for 300 AVC/OSC power supplies	5.0	16.4	812 050 046	2.850



Earth cable

Spring balance

For load-free suspension.

Article	Code	kg
Spring balance for P20	832 020 001	2.370
Spring balance for P16	832 030 002	3.800



Spring balance

Tube-to-Tubesheet Orbital Weld Heads



Closed gas cover



Front cage



Pneumatic Centering device

Closed gas cover

For welding titanium tubes under a full gas cover.

Article	Code		kg
Closed gas cover for P20	832 020 002		1.200
Closed gas cover for P16	831 001 101		1.300

Front cage

With bearing ring.

Article	Code		kg
Front cage for P16	831 050 001		0.310
Front cage for P20	832 050 001		0.360

Pneumatic Centering Device

Pneumatic Centering Device for internal clamping of tube-to-tubesheet welding. Centering tools have to be ordered separately.

Article	Code		kg
Pneumatische Fixiervorrichtung für P16	831 020 030		-

Pneumatic centering tools

Article	Tube ID [mm]	Tube ID [inch]	Code		kg
Pneumatic centering tool	14.5 - 16.0	0.570 - 0.630	831 020 031		-
Pneumatic centering tool	16.0 - 18.0	0.630 - 0.708	831 020 032		-
Pneumatic centering tool	18.0 - 22.0	0.708 - 0.866	831 020 033		-
Pneumatic centering tool	22.0 - 26.0	0.866 - 1.023	831 020 034		-
Pneumatic centering tool	24.0 - 28.0	0.945 - 1.102	831 020 035		-
Pneumatic centering tool	28.0 - 32.0	1.102 - 1.259	831 020 036		-
Pneumatic centering tool	30.0 - 34.0	1.181 - 1.338	831 020 037		-
Pneumatic centering tool	38.0 - 42.0	1.496 - 1.653	831 020 038		-
Pneumatic centering tool	44.0 - 48.0	1.732 - 1.889	831 020 039		-

Tube-to-Tubesheet Orbital Weld Heads

Centering tools and retaining arbors for tube-to-tubesheet weld heads

The tube diameter is required to select the correct centering tool.

Item	Group	Cartridge size/no.	Tube ID* [mm]	Tube 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	32	73.5 - 78.0	2.894 - 3.071	832 020 038	2.800
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	35	87.0 - 91.0	3.425 - 3.582	832 020 046	-
Centering tool	D	36	91.0 - 95.0	3.582 - 3.740	832 020 047	-
Centering tool	D	37	95.0 - 99.0	3.740 - 3.897	832 020 048	-
Centering tool	D	38	99.0 - 103.0	3.897 - 4.055	832 020 049	-
Centering tool	D	39	103.0 - 107.0	4.055 - 4.212	832 020 050	-
Centering tool	D	40	107.0 - 111.0	4.212 - 4.370	832 020 051	-
Centering tool	D	41	111.0 - 115.0	4.370 - 4.527	832 020 052	-
Centering tool	D	42	115.0 - 120.0	4.527 - 4.724	832 020 053	-



Centering tools



Mandrels

*smaller diameters on request.

Tube-to-Tubesheet Orbital Weld Heads



Clamp sleeves



Torch isolators and torch seals



Wire cores



HF spiral

Consumables for tube-to-tubesheet orbital weld heads

Clamp sleeve for P16 / P20

Item	Code		kg
Clamp sleeve P16/P20	831 001 058		-

Torch isolator for P16 / P20

Item	Code		kg
Torch isolator P16/P20	831 001 007		-

Wire cores for P16 / P20

Item	Code		kg
Wire core P16	831 001 022		-
Wire core P20	832 001 010		-

HF spiral for P16 / P20

Item	Code		kg
HF spiral P16/P20	831 001 027		-

Orbital Welding Accessories



Accessories - for orbital welding

Accessories for orbital welding

Tungsten Grinder ESG Plus



ESG Plus

- No adjustment needs to be done before operation.
- 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.
- Solid, functional design.
- Precise orbital grinding, very well centered.
- Grinding angles 15°; 18°; 22.5°; 30° or 15°, 30°, 45°; 60°.
- Facility for easy trimming of the electrodes (optional).
- External dust extractor can be easily adapted.
- Short preparation times with high grinding performance.

This ESG Plus is the perfect hand-held grinder for cutting, grinding and planing electrodes which are used in WIG/TIG welding machines. Consider country-specific regulations, standards and guidelines when using tungsten electrodes with thorium.

Versions:

ESG Plus²: A sensationThe first 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 wh.

Comes with:

- Tungsten Grinder ESG Plus or ESG Plus²
- 1 Powder-coated steel carrying case
- 1 Diamond grinding wheel (medium, Code 790 052 488)
- 1 Tool to replace the grinding wheel
- 1 Set of operating instructions and spare parts list

Optional for the ESG Plus²

- 1 Diamond grinding wheel (coarse, Code 790 052 550)

Electric drive with single-phase AC motor:

Power: 500 W

Speed drive: 30,000 rpm

100% power-on time



ESG Plus²

Application range	ESG Plus, ESG Plus ²	
Electrode Ø [mm/inch]	1.0 / 1.6 / 2.0 / 2.4 / 3.2 / 4.0	0.040 / 1/16 / 0.080 / 3/32 / 1/8 / 5/32
Grinding angles [°]	15 / 18 / 22.5 / 30 or 15 / 30 / 45 / 60	

Item	Version	Grinding angles [°]	Code	kg
ESG Plus	230 Volt, 50/60 Hz EU	15 / 18 / 22.5 / 30	790 052 485	3.560
ESG Plus	230 Volt, 50/60 Hz EU	15 / 30 / 45 / 60	790 052 545	3.560
ESG Plus ²	230 Volt, 50/60 Hz EU	15 / 18 / 22.5 / 30	790 052 585	3.720
ESG Plus ²	230 Volt, 50/60 Hz EU	15 / 30 / 45 / 60	790 052 546	3.720
ESG Plus	110 V, 50/60 Hz EU/US	15 / 18 / 22.5 / 30	790 052 486	3.560
ESG Plus	110 V, 50/60 Hz EU/US	15 / 30 / 45 / 60	790 052 645	3.560
ESG Plus ²	110 V, 50/60 Hz EU/US	15 / 18 / 22.5 / 30	790 052 586	3.720
ESG Plus ²	110 V, 50/60 Hz EU/US	15 / 30 / 45 / 60	790 052 646	3.720

Orbital Welding Accessories

Diamond grinding wheel

Replaceable grinding wheel diamond-coated on both sides for optimal performance. For 1.0 and 1.6 mm (0.039 and 0.063 inch) electrodes we recommend the standard grinding wheel. For 2.0 mm (0.078 inch) and larger electrodes, a medium to coarse grained grinding wheel is advisable.

Item	Grain	Grinding wheel Ø [mm]	s [mm]	Code	kg
Diamond grinding wheel*	Standard	32.0	1.2	790 052 460	0.005
Diamond grinding wheel**	Fine	33.5	2.2	790 052 487	0.010
Diamond grinding wheel**	Medium	33.5	2.2	790 052 488	0.011
Diamond grinding wheel**	Coarse	33.5	2.2	790 052 550	0.011

* for ESG 4 ** for ESG Plus

Cutting device

To cut tungsten electrodes to length.

Application range	[mm]	[inch]
Electrode Ø	1.0 / 1.6 / 2.0 / 2.4	0.040 / 1/16 / 0.080 / 3/32
Fixed cutting lengths*	12 / 13 / 15 / 17	0.472 / 0.512 / 0.591 / 0.669

* Other cutting lengths possible.

Item	Code	kg
Cutting device for ESG Plus	790 052 513	0.030

Electrode holder

With clamping collet for clamping range 1.0 - 3.2 mm (0.039 - 0.126 inch), Code 790 052 481.

Item	Code	kg
Electrode holder	790 052 457	0.023

Clamping collet

To center the electrode in the holder. For easy grinding of smaller electrodes. Flexible clamping collet for clamping range 1.0 - 3.2 mm (0.039 - 0.126 inch).

Item	Clamping range [mm]	Clamping range [inch]	Code	kg
Clamping collet	1.0 - 3.2	0.039 - 0.126	790 052 481	0.002

Wall and table vice mounting plate

For stationary ESG Plus set-up.

Item	Code	kg
Wall-/table-/vice-mounting plate	790 052 483	0.102

Protective cover

Easy to adapt on the ESG Plus head.

With integrated retainer for suction units. For use on electrodes with thorium.

Item	Code	kg
Protective cover for ESG Plus	790 052 496	0.220
Protective cover for ESG Plus ²	790 052 596	0.220

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. The kit contains a head and a diamond grinding wheel (Code 790 052 550) with an extension shaft.

Item	Grinding angles [°]	Code	kg
Double-Decker Kit	15 / 18 / 22.5 / 30	790 052 490	0.160
Double-Decker Kit	15 / 30 / 45 / 60	790 052 390	0.160



Diamond grinding wheel



Cutting device



Electrode holder



Clamping collet



Wall-/table-/vice-mounting plate



Protective cover



Double-Decker Kit

Orbital Welding Accessories



ORBIPURGE forming set



Inert gas outlets



Dual flow regulator

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 inch) includes all accessories for fast and efficient internal forming during orbital welding.

- The various stoppers match the internal diameter of the tube exactly and therefore form an optimally sealed forming gas chamber.
- 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.
- The forming plugs cater for the complete range of between 12 – 110 mm fully. Forming plugs for greater diameters are available on request.
- The ORBIPURGE forming set is also particularly suitable where there are very high demands for purity in the forming atmosphere and is an ideal addition to our residual oxygen meter ORB 1001.
- The rapid-action couplings allow for simple separation and connection without having to screw the pressure regulator on and off for every operation.

Item	Tube ID [mm]	Tube ID [inch]	Code	kg
ORBIPURGE forming set	12.0 - 110.0	0.472 - 4.331	881 000 001	3.150

Inert gas outlet for ORBIPURGE forming plugs

Suitable for all ORBIPURGE forming plugs.

Item	Code	kg
Inert gas outlet ORBIPURGE 3/8"	881 020 014	-
Inert gas outlet ORBIPURGE M5	881 020 015	-

Flow regulator

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

Technical data	Argon
max. inlet pressure	230 bar / 3.000 psig
flow indicator	up to 30 L/min /60/160 scfg
cylinder connection	W21.8x1/14" /CGA 580
hose connection	9 1/4 / 5/8-18

Item	Version	Code	kg
Dual flow regulator	argon	888 000 001	1.850

Orbital Welding Accessories

Inspection set

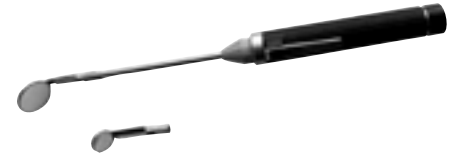
Optimal tool for visually checking the welding seam, including lighting.
Minimum sensor (length: 110 mm) complete with handle and attachable mirrors Ø 16 mm and 20 mm.

Item	Code		kg
Inspections set	875 030 020		0.190

Bulb for inspection set

Replacement bulb for inspection set. Easy to change.

Item	Code		kg
Bulb inspection set	875 030 028		0.002



Inspection set

Tungsten electrodes WS2

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 inch).

Composition: WS2 = Rare earths (mixed oxides).

Color code: turquoise.



Tungsten electrodes WS2

Item	Electrode Ø [mm]	Electrode Ø [inch]	Code		kg
Tungsten electrodes WS2	1.0	0.039	826 004 018		0.180
Tungsten electrodes WS2	1.6	0.063	826 004 019		0.180
Tungsten electrodes WS2	2.4	0.094	826 004 020		0.180

TIG Manual Welding Torch

The TIG Manual Welding Torch from Orbitalum is a high productive welding torch for tacking and manual welding. The water cooled hand torch allows an ideal heat conduction and a long operating life. The compact design, the flexible cable assembly and the integrated operation control results in a high user-friendliness.

Max. 260 A power-on time at 60 %.

Item	Cable assembly (m)	Code		kg
TIG Manual Welding Torch	4.0	890 013 001		2.600
TIG Manual Welding Torch	8.0	890 013 002		-
TIG Manual Welding Torch	12.0	890 013 003		-



TIG Manual Welding Torch

Rental & Training



Factory Rentals + Consumables

E.H. Wachs offers short and long term rentals on a wide selection of Orbitalum Cutting + Welding products, which can be a highly cost effective alternative to purchasing. Call us today and we'll help match the right Orbitalum equipment to your specific project, and often we can ship a machine to you the same day.

Factory rentals are a great option for short term projects, or to support a quick turnaround with additional equipment. Factory rentals eliminate the need for a large capital outlay, and guarantees you'll always be using the latest technology for maximum productivity. Individually inspected and test before shipment, Orbitalum factory rentals arrive configured for your applications.

As part of our commitment to our customers Orbitalum factory rentals are priced competitively with outside parties, and in many cases at rates below the industry norm. Factory rentals and OEM consumables are now available for immediate shipment at many of our Sales, Service, and Rental Centers, for quicker delivery and better support. No matter if it's a Orbimat 165 Power Supply or enclosed weld heads, many of our rental customers find our machines so powerfully productive they choose to purchase one. So Rent with the Best. Rent with Orbitalum.

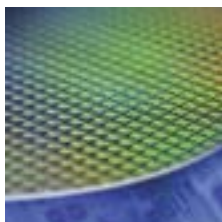
Contact Us for Additional Information
(800) 323-8185 or sales@ehwachs.com

Factory Support + Training

Owning or renting the best equipment is sometimes not enough - if you don't know how to operate them, even the best tools are of limited use. With Orbitalum it's reassuring to know that if you have questions or need technical support with our products, we're here to back you up with factory trained customer service and technical representatives. This support comes included with every machine purchase or rental. Often times a quick phone call to us can get you up and running in just a few minutes.

We also offer, at our location or yours, training on our advanced cutting and orbital welding equipment, tailored to your exact application and your particular skill level. Your instructors are not just academics – all of them have real world experience and have benefitted from advanced instruction in Singen, Germany. Visit us online at ehwachs.com or contact your local Wachs or Orbitalum representative for additional details.

RENTAL BENEFITS	TRAINING BENEFITS
No Large Capital Outlays	Orbitalum Factory-Trained Instructors
No Storage or Repair Expenses	Learn Safe, Proper Operation
Minimizes Down Time	Train at our Location or Yours
Latest Technology Maximizes Productivity	Courses for New Grads or Seasoned Professionals



ITW Partners



Miller Electric Mfg. Co., headquartered in Appleton, Wisconsin is a leading worldwide manufacturer of Miller arc welding machines MillerWelds.com



Hobart Brothers manufactures premium welding filler metals, including stick electrodes and solid and tubular (flux cored and metal cored) wires. HobartBrothers.com



Pipe Welding Technology (PWT) is a manufacturer and supplier of equipment and tools for automatic welding in outdoor applications. pwtsrl.com



ITW Insulation Systems is a leading manufacturer of high-performance mechanical insulation, vapor retarder film and metal jacketing for a wide range of industrial applications. itwinsulation.com



Magnaflux is a global system solution manufacturer of non-destructive testing chemicals, equipment, and accessories. magnaflux.com



Wachs Subsea specializes in Subsea Cutting Solutions with products to support nearshore and offshore maintenance and repair in the oil & gas industry. wachssubsea.com



Our ITW Partners

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.


ITW has a market leading portfolio of best in class brands offering reliable and responsible products for the markets we serve.

When reliability matters... We're there.



Forging the Tools for Excellence



 Corporate Locations
★ Sales Locations

Contact your local ITW Orbital Cutting & Welding representative
for additional information or to request a product demonstration.

UNITED STATES
ITW-OCW US Headquarters
E.H. Wachs
600 Knightsbridge Parkway
Lincolnshire, Illinois 60069 USA
T: +1.847.537.8800
F: +1.847.520.1147
Toll Free: 800.323.8185

East Coast
Sales, Service, & Rental Center
E.H. Wachs
1320 Delsea Drive, Unit F
Deptford, New Jersey 08096 USA
T: +1.856.579.8747
F: +1.847.520.1147

West Coast
Sales, Service, & Rental Center
E.H. Wachs
5130 Fulton Drive Unit J
Fairfield, California 94534 USA
T: +1.707.439.3763
F: +1.707.439.3766

Gulf Coast
Sales, Service, & Rental Center
E.H. Wachs
2220 South Philippe Avenue
Gonzales, Louisiana 70737 USA
T: +1.225.644.7780
F: +1.225.644.7785

Wachs Subsea® LLC
E.H. Wachs
11050 West Little York Building N
Houston, Texas 77041 USA
T: +1.713.983.0784
F: +1.713.983.0703

CANADA
Eastern Canada
Sales, Service, & Rental Center
Wachs Canada Ltd®
1166 Gorham Street, Unit 8
Newmarket, Ontario L3Y 8W4
Canada
T: +1.905.830.8888
F: +1.905.830.6050
Toll Free: 888.785.2000

Western Canada
Sales, Service, & Rental Center
Wachs Canada Ltd®
5411 82nd Avenue
Edmonton, Alberta T6B 2J6
Canada
T: +1.780.469.6402
F: +1.780.463.0654
Toll Free: 800.661.4235

GERMANY
ITW-OCW Europe Headquarters
Orbitalum Tools GmbH®
Josef-Schüttler-Straße 17
78224 Singen
Germany
T: +49 (0) 77 31 - 792 0
F: +49 (0) 77 31 - 792 500

UNITED KINGDOM
UK Sales, Service, & Rental Centre
Wachs UK®
Units 4 & 5 Navigation Park
Road One, Winsford Industrial Estate
Winsford, Cheshire CW7 3RL
United Kingdom
T: +44 (0) 1606 861 423
F: +44 (0) 1606 556 364

UNITED ARAB EMIRATES
Wachs Middle East & Africa Operations®
PO Box 262543
Free Zone South FZS 5, AC06
Jebel Ali, Dubai
UAE
T: +00 971 4 88 65 211
F: +00 971 4 88 65 212

INDIA
ITW Orbital Cutting & Welding
ITW India Limited
4A/19, IDA Phase-1
Patancheru, Medak District - 502 319
Andhra Pradesh,
India
T: +91-40-3048 0819
F: +91-40-3048 0815

SINGAPORE
Wachs Asia Pacific®
E.H. Wachs / ITW Welding Singapore
23 Tagore Lane #04-06/07
Tagore 23 Warehouse
Singapore 787601
Singapore
T: +(65) 9634 5432
F: +1 (847) 484 2692

CHINA
ITW Orbital Cutting & Welding
E.H. Wachs / Orbitalum Sales
New Caohejing International
Business Centre
B-1501 No. 391 Guiping Road
Shanghai, China 200052
T: +86 (21) 52303751
F: +86 (21) 52303758