



P16, P20 - Weld heads for tube-to-tube-sheet orbital welding!

## Tube-to-Tube-Sheet Orbital Weld Heads

# Tube-to-tube-sheet orbital weld heads

## Tube-to-tube-sheet 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 mechanism 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). For extension cables see on page 40.



Tube-to-tube-sheet weld head P16

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

Article	from tube ID of tube OD [mm]	from tube ID of tube OD [inch]	Code	Weight machine [kg]	Dispatch weight [kg]
P16 tube-to-tube-sheet orbital weld head with cold wire	10 - 78*	0.394 - 3.071	831 000 001	17,500	26,500
P16 tube-to-tube-sheet 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 (see pages 59 and 61).**

## Tube-to-tube-sheet orbital weld heads

### Tube-to-tube-sheet 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 (see page 10). Including cold wire unit.



*Tube-to-tube-sheet weld head P16 AVC*

Technical data					P16 AVC	
Cold wire unit					1 kg Midget spool, D 100 mm	
Article	from tube ID of tube OD [mm]	from tube ID of tube OD [inch]	Code		Weight machine [kg]	Dispatch weight [kg]
P16 AVC tube-to-tube-sheet 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 (see pages 59 and 61).**

## Tube-to-Tube-Sheet Orbital Weld Heads

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# Tube-to-tube-sheet orbital weld heads

## Tube-to-tube-sheet orbital weld heads P20

With this TIG weld head, welding tubes to tube sheets 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). For extension cables see on page 40



Tube-to-tube-sheet weld head P20 with cold wire

Technical data	P20
Cold wire unit	1 kg Midget spool, D 100 mm

Article	from tube ID to tube OD [mm]	from tube ID to tube OD [inch]	Code	Weight machine [kg]	Dispatch weight [kg]
P20 tube-to-tube-sheet orbital weld head with cold wire	10 - 70*	0.394 - 2.756	832 000 002	12,750	20,400
P20 tube-to-tube-sheet 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 (see pages 59 and 61).**



# Accessories for tube-to-tube-sheet orbital weld heads

## Special Torches

individual torches for following welding position available on request:

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

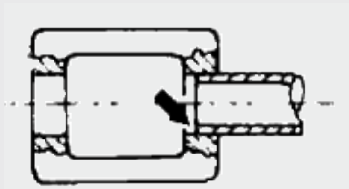


Internal bore welding (I.B.W.)

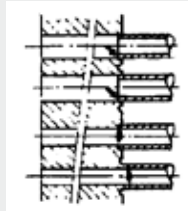


Box Header torch

Box Header



Hinterboden



## Cold wire unit

For the retrofitting of tube-to-tube-sheet 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 CB or CA 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-Tube-Sheet 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-tube-sheet 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	-

## Centering tools and retaining arbors for

### tube-to-tube-sheet weld heads

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

Article	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	-

\*smaller diameters on request.



Centering tools



Mandrels

# Tube-to-Tube-Sheet Orbital Weld Heads

## Consumables for tube-to-tube-sheet orbital weld heads

### Clamp sleeve for P16 / P20



Clamp sleeves

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

### Torch isolator for P16 / P20



Torch isolators and torch seals

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

### Wire cores for P16 / P20

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

### HF spiral for P16 / P20



HF spiral

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



Wire cores