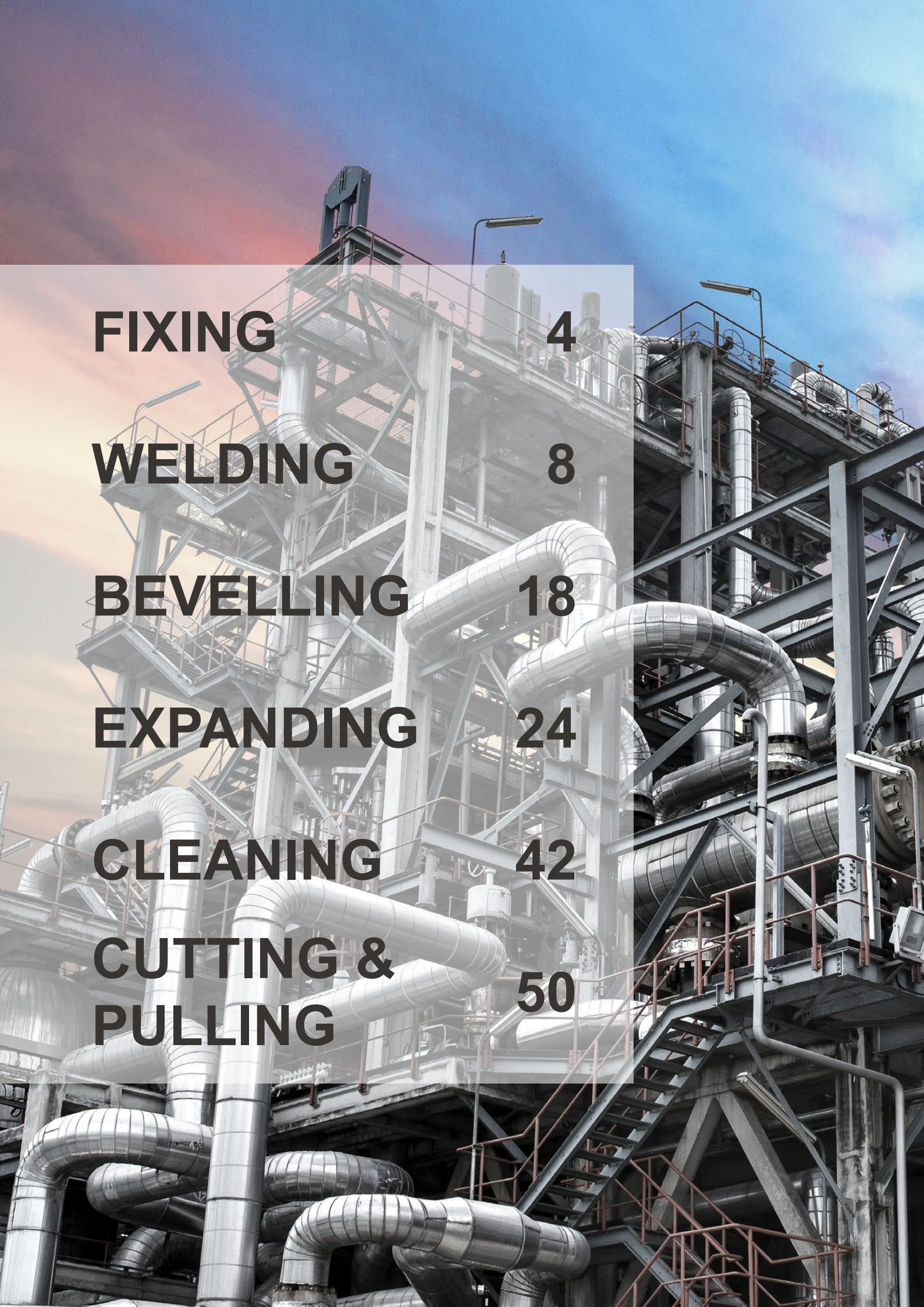
ALL FROM ONE SOURCE

for the tube to tube sheet joint

WELCOME

to the experts for tube to tube sheet joints

TECHNODATA is Germany's leading manufacturer of machines and tools for the processing of tube to tube sheet joints. True to our motto „all from one source", we offer advice, machines and tools for all steps in the life cycle of tube to tube sheet joints - from fixing the tubes in the borehole, welding, bevelling and expanding to cleaning and pulling the tubes. With the know-how from more than 30 years of experience, we offer custom-fit technologies for standard applications as well as for special applications. Particularly in the field of special solutions TECHNODATA holds a leading position worldwide. Whether tube expanders with special dimensions or welding heads for special applications, together with our customers we find precisely fitting solutions for every requirement. Highest quality „Made in Germany", customised customer advice and intensive after-sales service are our promises.



FIXING

professional welding preparation
tube fixing machine | tools

Professional welding preparation is the first step towards reliable and reproducible welding results without welding defects such as pore formation or binding defects. The basis for this is the gap-free positioning, i.e. the centred and ring-shaped fixing of the tubes at the tube position to be welded.

TUBE FIXING MACHINE

MECHANICAL-HYDRAULIC TUBE FIXING MACHINE TES 97

DESCRIPTION

The mechnical-hydraulic tube fixing machine TES 97 is the key to professional welding preparation. It consists of a transportable hydraulic unit and a hydraulic cylinder with spreading tool. The tubes are fixed centrically and gap-free in the bore at the tube position to be welded. This avoids welding errors and therefore represents a significant advantage compared to tacking the tubes.

HIGHLIGHTS

» perfect centring of the tubes in the bore - regardless of tube protrusion, tube recess or flush tube position

» optimal degassing during the welding process

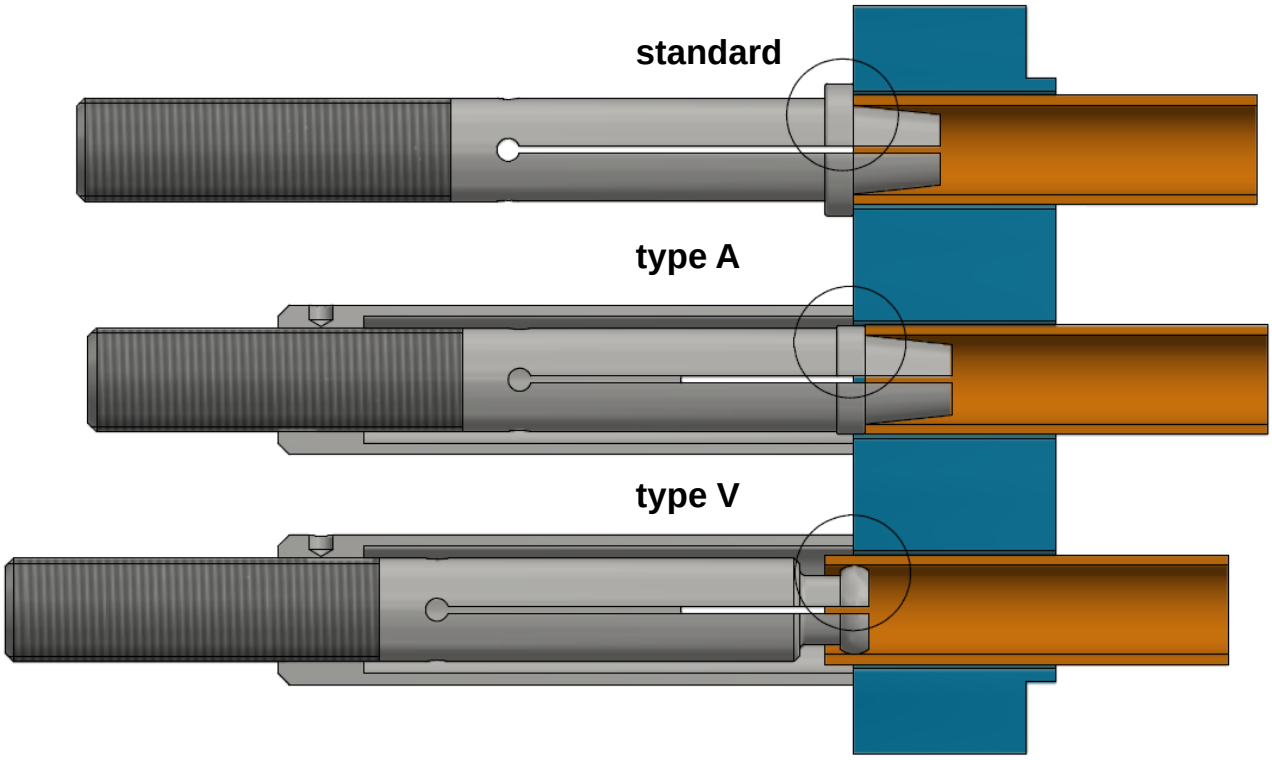
» increased service life of the centring cartridges

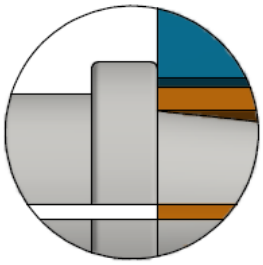
TECHNICAL DATA

	hydraulic unit
engine	400 V / 3~ / 50 Hz / 2.2 kW
pump capacity	1.5 l/min
working pressure	max. 500 bar
tank capacity	20 l
hydraulic hose	6 m
dimensions [L / W / H]	60 / 35 / 70 cm
weight incl. hoses	62 kg
	hydraulic cylinder size 1
tube OD	8.0 - 26.0 mm
tube wall thickness	1.0 - 3.0 mm
stroke expanding mandrel	40 mm
dimension (without tools)	L = 219 mm
weight	4.7 kg
	hydraulic cylinder size 2
tube OD	8.0 - 70.0 mm
tube wall thickness	1.0 - 5.0 mm
stroke expanding mandrel	60 mm
dimension (without tools)	L = 290 mm
weight	8 kg

technical data are subject to change

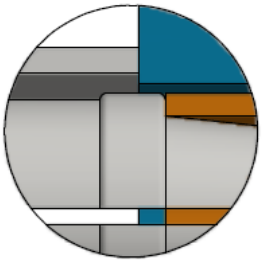
visit www.tda-gmbh.de

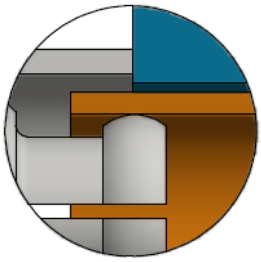




type standard - flush tube position
The tube is flush with the tube sheet. Use of an expansion sleeve with collar. The tube end is fixed conically to the tube sheet.

type A - tube recess
The tube is recessed in the tube sheet. Use of an expansion sleeve with collar of design-A, which is not larger than the outer tube diameter. A distance sleeve is used.





type V - tube protrusion
With a tube protrusion, the tube is fixed in the area of the tube sheet edge. The tube protrusion remains cylindrical, the tube division is not reduced. A distance sleeve is used.

EXPANSION SLEEVES

	hydraulic cylinder size 1			hydraulic cylinder size 2		
	flush	recess	protrusion	flush	recess	protrusion
tube ID	type standard art. no.	type A art. no.	type V art. no.	type standard art. no.	type A art. no.	type V art. no.
8.0 mm	597**080**00	597**080**00-A	597**080**00-V	for tube IDs <26.0mm, expansion sleeves of the hydraulic cylinder size 1 can be used with an adapter		
	...	...	...			
bis	597**XXX**00	597**XXX**00-A	597**XXX**00-V			
26.0 mm	...	...	...			
	597**260**00	597**260**00-A	597**260**00-V			
				597**260**02	597**260**02-A	597**260**02-V
				...	...	...
				597**XXX**02	597**XXX**02-A	597**XXX**02-V
26.0 mm				...	...	...
bis				597**430**03	597**430**03-A	597**430**03-V
57.0 mm				...	...	...
				597**XXX**03	597**XXX**03-A	597**XXX**03-V
				...	...	...
				597**570**03	597**570**03-V	597**570**03-V

EXPANSION MANDREL

	hydraulic cylinder size 1		hydraulic cylinder size 2	
tube ID	description	art. no.	description	art. no.
8.0 - 28.0 mm	expansion mandrel for expansions sleeves of all types	59708010		
8.0 - 26.0 mm			expansion mandrel for expansions sleeves of all types	59708011
27.0 - 43.0 mm			expansion mandrel for expansions sleeves of all types	59735012
> 43.0 mm			expansion mandrel for expansions sleeves of all types	59735013

WELDING

orbital welding heads | power sources tools | special solutions

TECHNODATA tube welding systems are the result of many years of experience in the field of TIG orbital welding. Excellent quality of the tube welds and safe reproducibility of the results are guaranteed by high-quality technical components as well as by software optimally adapted to the respective application. The special focus on highest ergonomics and ease of operation allow the simultaneous operation of several orbital welding systems by only one operator.

ORBITAL WELDING HEAD T-250

» tube OD: 10 - 78 mm
» manual axial and radial adjustment of the burner

ORBITAL WELDING HEAD T-230-MC

» tube OD: 10 - 32 mm
» motorised axial and manual radial adjustment of the burner
» perfect for air cooler and inbore welding

POWER SOURCE IM-2020

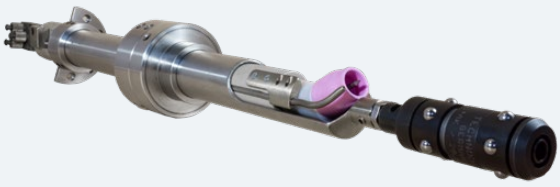
» welding current: 5 - 300 A
» 10-sector control

POWER SOURCE IM-2020-MC

» welding current: 5 - 300 A
» automatic distance detection between electrode and tube sheet
» 18-sector control

CENTERING TOOLS

» centering cartridges for tube ID 10 - 78 mm
» special solutions on request



SPECIAL TORCHES

» air cooler torches
» inbore torches

GOOD TO KNOW GOOD TO KNOW

TECHNODATA welding technology is also available for rent

ORBITAL WELDING HEADS

ORBITAL WELDING HEAD TYPE T-250

DESCRIPTION

The orbital tube welding head type T-250 is the all-rounder among the TECHNODATA tube welding heads. It is characterised by easy handling, high adaptability to welding tasks and proven durability. The coolant-cooled torch can be adjusted axially, radially and in angle. In combination with infinitely adjustable drive motors for rotation and wire feed as well as an exact path detection, individual settings for automatic single and multiple layer welding are made possible. The orbital welding head T-250 enables safe, reproducible tube to tube sheet welds with the simplest handling.

HIGHLIGHTS

» allrounder: wide range of applications and a large number of optional add-ons

» stepless drive motor with exact path detection

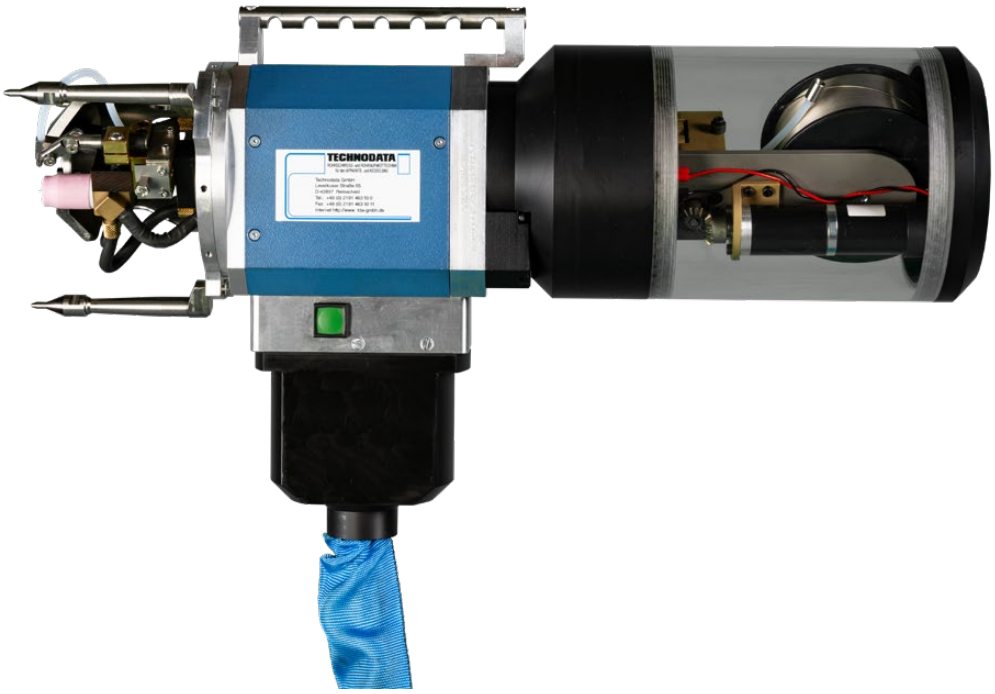
» infinitely adjustable drive motors for rotation and wire feed

TECHNICAL DATA

tube OD	10.0 - 78.0 mm
rotation speed	0.2 - 5.0 UpM
electrode diameter	1.6 - 3.2 mm
wire feed	0 - 1.5 m/min
max. ampacity	200 A
torch cooling	coolant
dimensions [length / diameter]	455 mm / 182 mm
weight	approx. 7.5 kg
manual axial / radial adjustment of the torch	
control for rotation	
endless coupling for inert gas, coolant and current	
rotating, removable cold wire unit	
optional add-ons:	
conversion kit for fillet welds	
special torch for air cooler welding	
special torch for inbore welding	
more special torches with or without wire	
pneumatic clamping system	
magnetic support feed	
additional gas chamber	
balancer	

technical data are subject to change

ORBITAL WELDING HEADS



ORBITAL WELDING HEAD TYPE T-230-MC

DESCRIPTION

The orbital tube welding head type T-230-MC is the technological advancement of the tube welding head type T-250. It is characterised by a coolant-cooled torch with motorised axial adjustment as well as highest ergonomics. The programmed distance between the electrode and the workpiece is guaranteed via a path control. This makes the T-230-MC the ideal orbital welding head for two-layer welding as well as challenging welding tasks such as air cooler welding. Two freely assignable buttons for functions such as torch positioning, rotation or wire feed also enable adaptation to the operator's work processes and thus lead to increased efficiency.

HIGHLIGHTS

» motorised-adjustable torch unit with path control for constant distance between electrode and workpiece

» stepless drive motor with exact path detection

» two freely assignable buttons for maximum working efficiency

TECHNISCHE DATEN

tube OD	10.0 - 32.0 mm
rotation speed	0.2 - 5.0 UpM
electrode diameter	1.6 - 2.4 mm
wire feed	0 - 1.5 m/min
max. ampacity	200 A
torch cooling	coolant
dimensions [length / diameter]	480 mm / 145 mm
weight	approx. 6 kg
motorised axial adjustment of the torch	
control for rotation	
endless coupling for inert gas, coolant and current	
rotating, removable cold wire unit	
optional add-ons:	
conversion kit for tube OD 24.0 - 51.0 mm	
conversion kit for fillet welds	
special torch for air cooler welding	
special torch for inbore welding	
more special torches with or without wire	
pneumatic clamping system	
magnetic support feed	
additional gas chamber	
balancer	

technical data are subject to change

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POWER SOURCES

INVERTER POWER SOURCE TYPE IM-2020

DESCRIPTION

The power source type IM-2020 is characterised by high-quality and reproducible welding results, simple operation and high documentation security. The rotation, wire feed, current and pulse can be defined individually for up to 10 sectors via the remote control with touch-screen panel. Adjustments to the parameters during the welding process are possible via the remote control and optionally available potentiometers. The welding parameters used are recorded in a documentation-safe manner and can be read out via USB interface.

HIGHLIGHTS

- remote control with touchscreen panel for menu-guided parameter input
- sector control for rotation, wire feed, min./max. current and min./max. pulse (10 sectors)
- reliable documentation of the welding parameters used

TECHNICAL DATA

welding current	5 A - 300 A
welding current 100%	400 A
power rating	13.5 kVA
welding voltage	10 V - 26 V
open-circuit voltage	79 V
mains voltage	3 x 400 V
cos φ	0.99
frequency	50 / 60 Hz
ambient temperature	-25 °C bis 40 °C
unit cooling	air
torch cooling	coolant
coolant tank	12 l
earth cable	50 mm^2
dimensions (L / W / H)	1100 / 455 / 950 mm
weight	approx. 130 kg
welding head compatibility	T-250
menu languages	DE / EN / CS / FA / KO / RU / ZH
connections	USB / add. gas / compressed air
internal memory for up to 100 parameter sets	
programme import and export via USB interface	
incl. remote control with 8m connection cable	
optionally available with potentiometers	

technical data are subject to change

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POWER SOURCES

INVERTER POWER SOURCE TYPE IM-2020-MC

DESCRIPTION

The power source type IM-2020-MC is the key for excellent welding results in demanding applications. Equipped with automatic distance detection between electrode and tube sheet, an 18-sector control for rotation, wire feed, current and pulse as well as the possibility of halving the pulse distances (angle steps), the IM-2020-MC offers the highest flexibility and setting accuracy for every welding task.

HIGHLIGHTS

» remote control with touchscreen panel for menu-guided parameter input

» automatic distance detection between electrode and tube sheet

» sector control for rotation, wire feed, min./max. current and min./max. pulse (18 sectors)

» reliable documentation of the welding parameters used

TECHNICAL DATA

welding current	5 A - 300 A
welding current 100%	400 A
power rating	13.5 kVA
welding voltage	10 V - 26 V
open-circuit voltage	79 V
mains voltage	3 x 400 V
cos φ	0.99
frequency	50 / 60 Hz
ambient temperature	-25 °C bis 40 °C
unit cooling	air
torch cooling	coolant
coolant tank	12 l
earth cable	50 mm^2
dimensions (L / W / H)	1100 / 455 / 950 mm
weight	approx. 130 kg
welding head compatibility	T-250 / T-230-MC
menu languages	DE / EN / CS / FA / KO / RU / ZH
connections	USB / LAN / add. gas / compressed air
internal memory for up to 100 parameter sets	
programme import and export via USB interface	
incl. remote control with 8m connection cable	
optionally available with potentiometers	

technical data are subject to change

visit www.tda-gmbh.de

COMPARISON OF POWER SOURCES

	IM-2020-MC	IM-2020
Technical Data		
welding current	5 A - 300 A	5 A - 300 A
welding current 100%	400 A	400 A
power rating	13.5 kVA	13.5 kVA
welding voltage	10 V - 26 V	10 V - 26 V
open-circuit voltage	79 V	79 V
mains voltage	3 x 400 V	3 x 400 V
cos φ	0.99	0.99
frequency	50 / 60 Hz	50 / 60 Hz
ambient temperature	-25 °C bis 40 °C	-25 °C bis 40 °C
unit cooling	air	air
torch cooling	coolant	coolant
coolant tank	12 l	12 l
earth cable	50 mm^2	50 mm^2
dimensions (L / W / H)	1100 / 455 / 950 mm	1100 / 455 / 950 mm
weight	approx. 130 kg	approx. 130 kg
Features		
touch screen remote control with 8m connection cable	yes	yes
computer-based remote control via VNC Viewer	yes	no
sector control for rotation, wire, min./max. current/pulse	18 sectors	10 sectors
possibility to halve the impulse distances (angular steps)	yes	nein
automatic distance detection between electrode and tube sheet	yes	nein
real-time measurement of welding parameters	yes	nein
parameter changes during the welding process	yes	yes
potentiometer as optional add-on	yes	yes
synchronisation of rotation and wire with high current	yes	yes
automatic wire retraction at downslope	yes	yes
function monitoring of rotation and wire motor	yes	yes
gas and coolant flow monitoring	yes	yes
Programming, Documentation and Connections		
internal programme memory for up to 100 parameter sets	yes	yes
programme import and export via USB interface	yes	yes
recording of operating hours and number of welding cycles	yes	yes
pdf output of current welding parameters	yes	yes
menu languages	DE / EN / CS / FA / KO / RU / ZH	
connection for pneumatic clamping device	yes	no
connection for additional gas	yes	yes
LAN connection	yes	no
USB connections	yes	yes
welding head compatibility	T-250 / T-230-MC	T-250

CENTERING TOOLS

CENTERING MANDRELS & CARTRIDGES

art. no.	description	tube ID
179200101	**centering mandrel size 1** for centering cartridges size 101 - 106	
179209805	centering cartridge 101	9.8 - 10.3 mm
179210305	centering cartridge 102	10.3 - 10.8 mm
179210805	centering cartridge 103	10.8 - 11.3 mm
179211305	centering cartridge 104	11.3 - 11.8 mm
179211805	centering cartridge 105	11.8 - 12.3 mm
179212305	centering cartridge 106	12.3 - 13.0 mm
179200111	**centering mandrel size 2** for centering cartridges size 107 - 114 A	
179212812	centering cartridge 107	12.8 - 14.0 mm
179213312	centering cartridge 107 A	13.3 - 14.4 mm
179213812	centering cartridge 108	13.8 - 15.0 mm
179214812	centering cartridge 109	14.8 - 16.0 mm
179215312	centering cartridge 109 A	15.3 - 16.5 mm
179215812	centering cartridge 110	15.8 - 17.0 mm
179216812	centering cartridge 111	16.8 - 18.0 mm
179217312	centering cartridge 111 A	17.3 - 18.5 mm
179217812	centering cartridge 112	17.8 - 19.0 mm
179218012	centering cartridge 112 A	18.3 - 19.5 mm
179218812	centering cartridge 113	18.8 - 20.0 mm
179219312	centering cartridge 113 A	19.3 - 21.5 mm
179219827	centering cartridge 114	19.8 - 22.5 mm
179220827	centering cartridge 114 A	20.8 - 23.5 mm

art. no.	description	tube ID
179200121	**centering mandrel size 3** for centering cartridges size 115 - 125	
179222327	centering cartridge 115	22.3 - 24.8 mm
179223527	centering cartridge 115 A	23.5 - 26.0 mm
179224525	centering cartridge 116	24.5 - 27.0 mm
179226525	centering cartridge 117	26.5 - 29.0 mm
179228525	centering cartridge 118	28.5 - 31.0 mm
179230525	centering cartridge 119	30.5 - 33.0 mm
179232535	centering cartridge 120	32.5 - 36.0 mm
179235535	centering cartridge 121	35.5 - 39.0 mm
179238535	centering cartridge 122	38.5 - 42.0 mm
179241535	centering cartridge 123	41.5 - 45.0 mm
179244535	centering cartridge 124	44.5 - 48,0 mm
179247535	centering cartridge 125	47.5 - 51.0 mm
179200111	**centering mandrel size 4** for centering cartridges size 126 - 132	
179250535	centering cartridge 126	50.5 - 54.0 mm
179253545	centering cartridge 127	53.5 - 58.0 mm
179257545	centering cartridge 128	57.5 - 62.0 mm
179261545	centering cartridge 129	61.5 - 66.0 mm
179265545	centering cartridge 130	65.6 - 70.0 mm
179269545	centering cartridge 131	69.5 - 74.0 mm
179273545	centering cartridge 132	73.5 - 78.0 mm

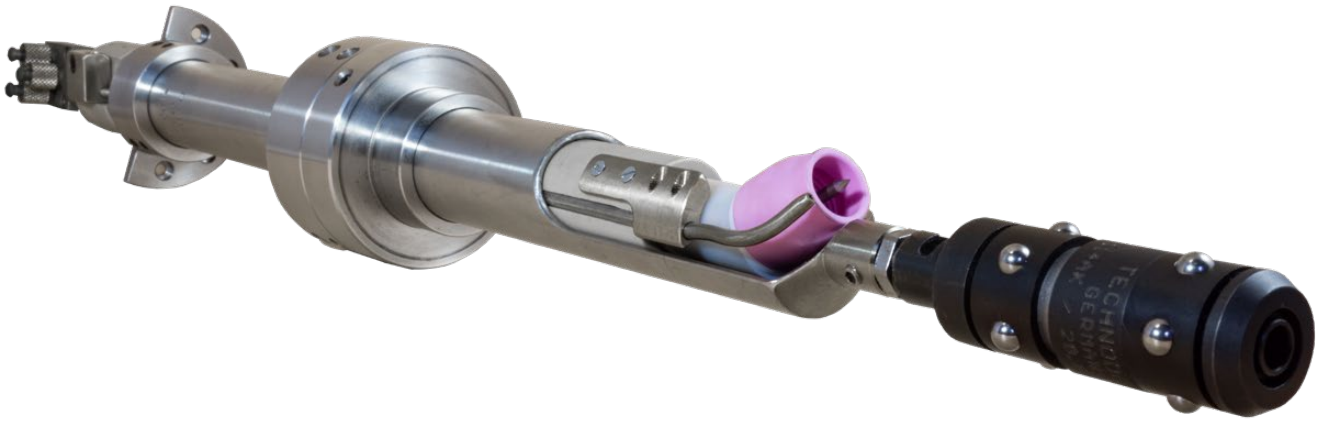
technical data are subject to change

GOOD TO KNOW GOOD TO KNOW

TECHNODATA centering tools are also available in other sizes and designs on request

SPECIAL TORCHES

AIR COOLER TORCHES



DESCRIPTION

The air cooler torches from TECHNODATA are designed for both internal fillet welds and face flat welds. Depending on the design and the tube welding head used, a motorised path control between electrode and workpiece is available.

TECHNICAL DATA

tube OD	25.0 - 38.1 mm
min. distance tube sheet - plug sheet	100 mm
max. distance tube sheet - plug sheet	unbegrenzt
plug boring	≥ 26.5 mm

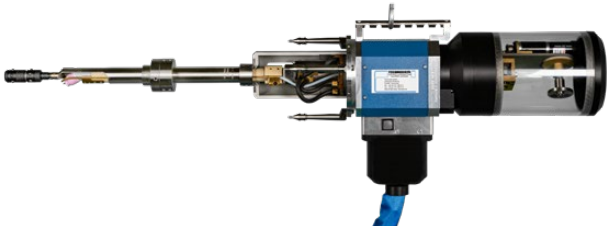
torch angle: 30°
- inner fillet weld
- orbital welding head T-250

torch angle: 90°
- face flat weld
- orbital welding head T-250

torch angle: 30°
- inner fillet weld
- orbital welding head T-230-MC

GOOD TO KNOW

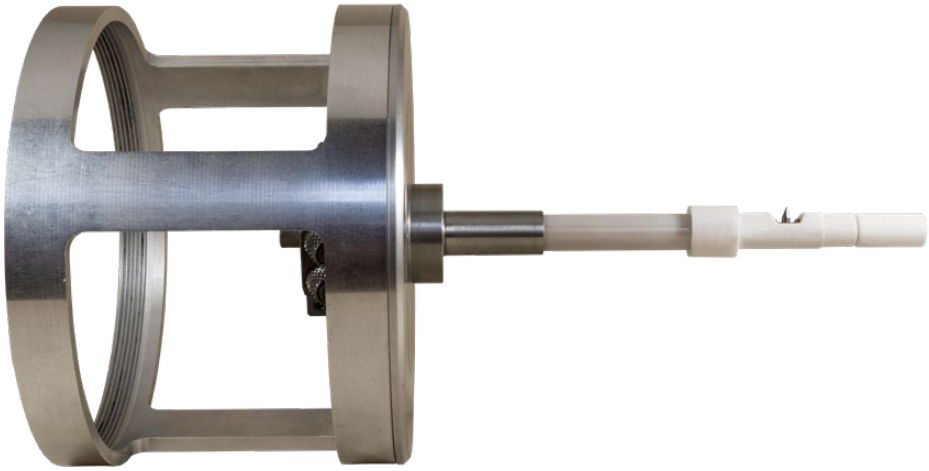
Special torches for build-up welding can be manufactured as a special solution up to a reach of 1,500 mm with a clear width of > 50 mm.



orbital welding head T-230-MC with air cooler torch

SPECIAL TORCHES

INBORE TORCHES

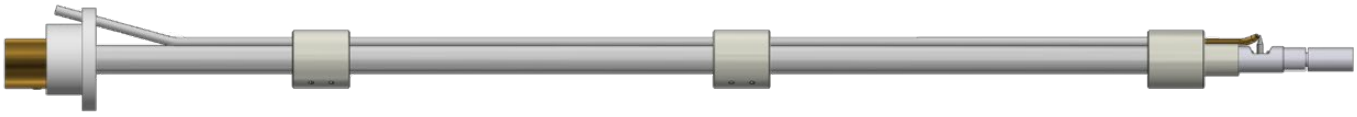


DESCRIPTION

TECHNODATA's inbore torches are suitable for recessed welds with or without cold wire. 45° and 90° torch angles are available, but other required torch angles can be developed on request.

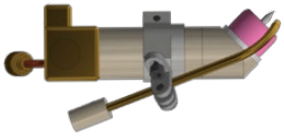
TECHNICAL DATA

	45° inbore torch
tube ID [with/without cold wire]	≥ 30.0 mm
minimum reach	30 mm
	90° inbore torch
tube ID [without cold wire]	≥ 13.0 mm
tube ID [with cold wire]	≥ 25.0 mm
minimum reach	50 mm



◀ torch angle: 90°
- without cold wire

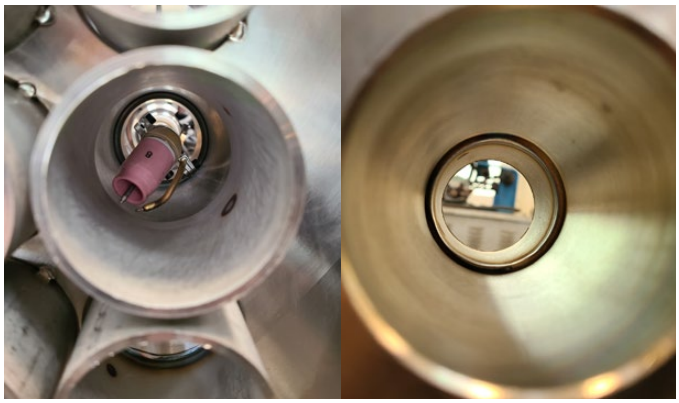
▲ torch angle: 90°
- with cold wire
- reach: 470 mm



torch angle: 45°
- with cold wire
- reach: 30 mm

left image:
positioned 45° inbore torch with 111.00 mm reach

right image:
successful inbore weld



BEVELLING

tube edge bevelling machine | cutting tools | clamping tools | tube cutter

Precisely machined tube ends are decisive for the quality of subsequent operations. Tube edge bevelling technology from TECHNODATA not only meets the highest demands on machining quality, but also with regard to machining speed and economic efficiency.

TUBE EDGE BEVELLING MACHINE TYPE MINI-TDA

» tube ID: 20 - 42 mm
» torque: 56 Nm
» feed lever for highest precision

TUBE EDGE BEVELLING MACHINE TYPE KESSEL

» tube ID: 28 - 76 mm
» torque: 140 Nm
» feed via rotary wheel

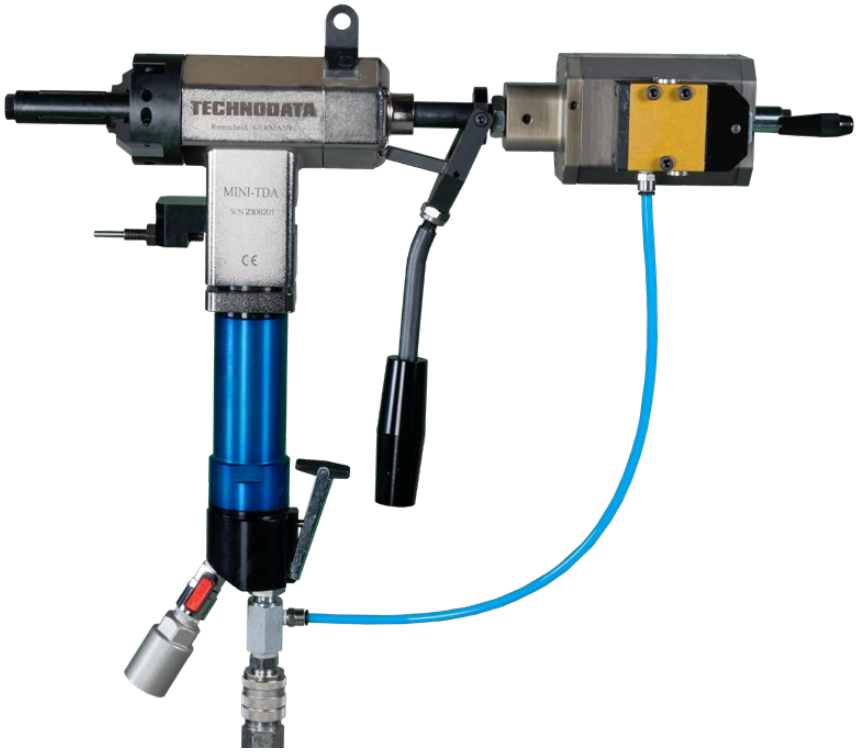
CUTTING TOOLS AND ACCESSORIES

» cutting tools for external / internal machining and facing
» clamping accessories for reduced range of tube ID 12.5 - 21 mm

TUBE CUTTER TYPE TF 50

» tube OD: 10 - 58 mm
» for manual cutting to length of tube protrusions

TUBE EDGE BEVELLING MACHINES



TUBE EDGE BEVELLING MACHINE TYPE MINI-TDA

DESCRIPTION

The pneumatically operated tube edge bevelling machine type Mini-TDA is suitable for machining all types of steel tubes and alloys. A 4-jaw tool holder allows the use of up to four forming tools for weld seam preparation of thin-walled or thick-walled tubes. The bevelling machine allows simultaneous external and internal chamfering as well as facing of tubes. Handling is simple and precise, making it ideal for repetitive work. Due to its high performance and functionality in a small size, the MINI-TDA is particularly suitable for large-volume heat exchanger work, tube machining, weld removal and J-preparation of the tube plate.

TECHNICAL DATA

tube ID	20.0 - 42.0 mm
speed	5 - 215 rpm
torque	56 Nm
feed	max. 24 mm
pneumatic power	0.5 kW
air consumption	800 l/min
air pressure	6.5 bar
air connection	1/2“
dimensions [L / W / H]	40 / 12 / 44 cm
weight	4.8 kg
optional add-ons:	
clamping accessories for tube IDs from 12.5 - 21.0 mm	

technical data are subject to change

HIGHLIGHTS

» high performance with low weight

» feeding of the cutters with an ergonomic lever for highest precision

» pneumatic clamping device

TUBE EDGE BEVELLING MACHINES

TUBE EDGE BEVELLING MACHINE TYPE BOILER

DESCRIPTION

The pneumatically operated tube edge bevelling machine type Boiler is suitable for machining all types of steel tubes and alloys. A 4-jaw tool holder allows the use of up to four forming tools for weld seam preparation of thin-walled or thick-walled tubes. The bevelling machine allows simultaneous external and internal chamfering as well as facing of tubes. Handling is simple and precise, making it ideal for repetitive work. Due to its high performance and functionality in a small size, the "Boiler" is particularly suitable for large-volume heat exchanger work, tube machining, weld removal and J-preparation of the tube plate.

TECHNICAL DATA

tube ID	28.0 - 76.0 mm
speed	5 -120 U/min
torque	140 Nm
feed	40.5 mm
pneumatic power	1 kW
air consumption	1,020 l/min
air pressure	6.5 bar
air connection	1/2"
weight	8.9 kg

technical data are subject to change

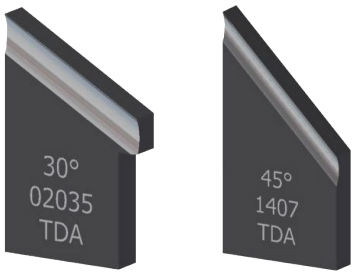
HIGHLIGHTS

» high performance with low weight

» pneumatic clamping device

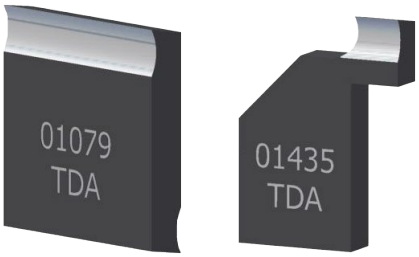
» up to four cutting tools for best cutting results

CUTTERS FOR TUBE EDGE BEVELLING MACHINES



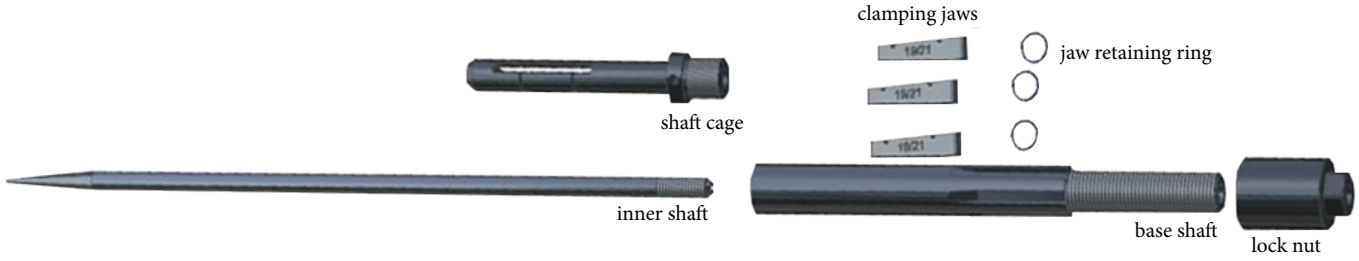
external machining

internal machining



facing

CLAMPING ACCESSORIES FOR THE REDUCED TUBE RANGE (ID 12.5 - 21.0 MM)



shaft cage		clamping jaws		jaw retaining ring	base shaft	inner shaft
Ø mm	art.-no.	range mm	art.-no.	art.-no.	art.-no.	art.-no.
12.4	60011010	12,5 - 14,5	60013010	60013010-F	60011000	60012000
		13,0 - 15,0	60013020			
13.9	60011025	14,0 - 16,0	60013030	60013030-F		
14.9	60011030	15,0 - 17,0	60013040			
		16,0 - 18,0	60013050			
16.9	60011040	17,0 - 19,0	60013060	60013050-F		
		18,0 - 20,0	60013070			
		19,0 - 21,0	60013080			

technical data are subject to change

GOOD TO KNOW

Spare parts for clamping in the standard range of the MINI-TDA and Kessel bevelling machines can be viewed on the TDA website

TUBE CUTTER

TUBE CUTTER TYPE TF 50

The pipe cutter type TF 50 is a tool for manually cutting tube protrusions to length. It is mounted on a drive machine with a suitable speed and sufficient torque. The cutter is centred in the tube during cutting with a guide sleeve adapted to the inner tube diameter. An adjustable stop cap, which is attached to the tube sheet when the set cutting depth is reached, ensures that the tubes are cut to length at the tube sheet with repeatable accuracy. Guide pin, guide sleeve, cutter and stop cap are interchangeable and make the tube cutter type TF 50 a versatile tool.

1) main shaft with stop cap

The main shaft is the support system of the TF 50 tube cutter. It is available in two sizes, which differ in terms of stability. The main shaft is offered in combination with a stop cap, which is used to adjust the bevelling depth. In this way, repeatable cutting to a set tube length is possible. Within one size, all guide sleeves and HSS cutting blades can be combined.

main shaft size 1 (cutter-Ø 10.0 - 38.0 mm)	hexagonal 10 mm square 3/8"	other drives on request
main shaft size 2 (cutter-Ø 16.0 - 58.0 mm)	hexagonal 10 mm square 3/8"	other drives on request

2) guide sleeve

The guide sleeve is used to guide the HSS cutting blade. It is inserted into the tube and remains there while the cutter rotates. This prevents damage to the surface of the bore hole.

guide sleeve in connection with main shaft size 1	Ø 8.5 - 24.0 mm (0.5 mm steps)
guide sleeve in connection with main shaft size 2	Ø 14.0 - 50.0 mm (0.5 mm steps)

3) HSS cutter (piloted counterbore)

HSS cutter in connection with main shaft size 1	Ø 10.0 - 27.5 mm Ø 28,0 - 38,0 mm	(three-bladed) (four-bladed)
HSS cutter in connection with main shaft size 2	Ø 16.0 - 33.0 mm Ø 34.0 - 58.0 mm	(three-bladed) (four-bladed)

EXPANDING

tube expanding controllers | drive machines | tube expanders | special solutions

TECHNODATA expanding technology is the result of many years of development and experience in the field of rolling tubes into tube sheets. Irrespective of whether adhesion or contact expansion, large or small tube diameters, hard or soft material - with our high-quality, versatile and durable expanding technology, friction-locked tube to tube sheet joints are guaranteed. Innovative expanding technologies such as the hydraulic-mechanical expansion machine and customised special solutions ensure that any desired task can be carried out safely with TECHNODATA expansion technology.

TUBE EXPANDING CONTROLLER NFAB-D/2

» for 1~ driving motors
» 230 V / 1~ / 50 Hz

TUBE EXPANDING CONTROLLER NFAB-D1-3.0

» for 3~ driving motors
» 400 V / 3~ / 87 Hz

TUBE EXPANDING CONTROLLER NFAB-D

» for 3~ driving motors
» 42 V / 3~ / 87 Hz
» protective extra-low voltage

DRIVE MACHINE D 13

» 230 V / 1~ / 50 Hz
» 2-speed gearbox
» torque: 45 Nm

DRIVE MACHINE D 38

» 230 V / 1~ / 50 Hz
» 4-speed gearbox
» torque: 250 Nm

DRIVE MACHINE D-732

» 400 V / 3~ / 87 Hz
» torque: 200 Nm
» stepless gearbox

DRIVE MACHINE D-732-42

» 42 V / 3~ / 87 Hz
» torque: 200 Nm
» stepless gearbox

DRIVE MACHINE D-720

» pneumatic
» torque: 0,23 - 8,47 Nm
» 3 versions available

DRIVE MACHINE D-50

» pneumatic
» torque: 1,58 - 36,0 Nm
» 3 versions available

ANGLE DRIVE MACHINE

» pneumatic
» torque: 40 - 400 Nm
» 4 versions available

MECHANICAL-HYDRAULIC EXPANDING MACHINE

» for high-quality and thin-walled materials
» 42 V / 3~ / 87 Hz

TUBE EXPANDERS

» tube ID: 4.2 - 80.0 mm
» various versions
» special solutions

TUBE EXPANDING CONTROLLER

ELECTRONIC TUBE EXPANDING CONTROLLER TYPE NFAB-D/2

DESCRIPTION

The electronic expanding controller type NFAB-D/2 enables the control of driving motors for the repeatable rolling of tubes into tube sheets. It is designed for the connection of 1-phase drive machines. The electronic measurement and control of the power consumption enables the exact preselection of the cut-off torque of the driving motor and thus ensures compliance with the set adhesion expansion during rolling-in.

HIGHLIGHTS

» repeatedly accurate rolling of tubes into tube sheets

» precise preselection of the cut-off torque of the driving motor

» time optimisation of the expansion process through a control system adapted to the expansion process

TECHNICAL DATA

input voltage	230 V / 1~ / 50 (60) Hz
output voltage	230 V / 1~ / 50 (60) Hz
display	5“ TFT Touchscreen
connections	USB / LAN
dimensions [L / W / H]	360 / 520 / 170 mm
weight	approx. 14 kg
drive machine compatibility	type D13 / D38
incl. hand or foot switch	
taring function	
adjustable hold time (0 - 30 sec.)	
adjustable left run time (0 - 30 sec.)	
automatic restart of the drive unit	
internal memory for recipes	
up- and download of recipes	
optional assembly trolley	

technical data are subject to change

ELECTRONIC DRIVE MACHINES

2-GEAR DRIVE MACHINE TYPE D 13

TECHNICAL DATA

input voltage	230 V / 1~ / 50 Hz
power	650 W
speed (1st gear)	0 - 450 rpm
speed (2nd gear)	0 - 1.550 rpm
torque 1st gear	45 Nm
drive	1/2" - 20 UNF
dimensions (L / W / H) w/o handle	305 / 70 / 180 mm
weight	1.9 kg
compatibility expanding controller	NFAB-D/2

technical data are subject to change

HIGHLIGHTS

» high torque

» tripple stepped-down 2-speed gearbox

» infinitely variable speed in each gear at the adjusting wheel

» left/right rotation switch

visit www.tda-gmbh.de

4-GEAR DRIVE MACHINE TYPE D 38

TECHNICAL DATA

input voltage	230 V / 1~ / 50 Hz
power	2,000 W
speed (1st gear)	0 - 120 rpm
speed (2nd gear)	0 - 210 rpm
speed (3rd gear)	0 - 380 rpm
speed (4th gear)	0 - 650 rpm
torque 1st gear	>250 Nm
drive	innermorse taper 3
dimensions (L / W / H)	280 / 40 / 48 mm
weight	8.6 kg
compatibility expanding controller	NFAB-D/2

technical data are subject to change

HIGHLIGHTS

» maintenance-free 4-speed gearbox with permanent lubrication

» infinitely variable speed in each gear

» left/right rotation switch

» connection for telescopic shafts

visit www.tda-gmbh.de

EXPANDING MACHINE

TUBE EXPANDING CONTROLLER

ELECTRONIC TUBE EXPANDING CONTROLLER TYPE NFAB-D1-3.0

DESCRIPTION

The electronic tube expanding controller type NFAB-D1-3.0 enables the control of 3-phase drive machines from TECHNODATA for the repetitively accurate expanding of tubes into tube sheets. The electronic measurement and control of the power consumption enables the exact preselection of the cut-off torque of the drive machine and thus ensures compliance with the set expansion during rolling-in.

HIGHLIGHTS

» wide expansion range

» repeatable expansion of tubes into tube sheets

» exact preselection of the cut-off torque of the drive machine

» time optimisation of the expanding process through a control system adapted to the expansion process

TECHNICAL DATA

input voltage	400 V / 3~ / 50 (60) Hz
output voltage	400 V / 3~ / 87 Hz
display	5“ TFT touchscreen
connections	USB / LAN
dimensions [L / W / H]	535 / 517 / 152 mm
weight	approx. 17 kg
drive machine compatibility	type D-732
incl. hand or foot switch	
taring function	
adjustable hold time (0 - 30 sec.)	
adjustable left run time (0 - 30 sec.)	
automatic restart of the drive unit	
internal memory for recipes	
up- and download of recipes	
optional assembly trolley	

technical data are subject to change

TUBE EXPANDING CONTROLLER

ELECTRONIC TUBE EXPANDING CONTROLLER TYPE NFAB-D1-3.0

DESCRIPTION

The electronic tube expanding controller type NFAB-D1-3.0 enables the control of 3-phase drive machines from TECHNODATA for the repetitively accurate expanding of tubes into tube sheets. The electronic measurement and control of the power consumption enables the exact preselection of the cut-off torque of the drive machine and thus ensures compliance with the set expansion during rolling-in.

HIGHLIGHTS

- protective low voltage for use in containers
- wide expansion range
- repeatable expansion of tubes into tube sheets
- exact preselection of the cut-off torque of the drive machine
- time optimisation of the expanding process through a control system adapted to the expansion process

TECHNICAL DATA

input voltage	400 V / 3~ / 50 (60) Hz
output voltage	42 V / 3~ / 87 Hz
display	7“ TFT Touchscreen
connections	USB / LAN
dimensions [L / W / H]	550 / 500 / 720 mm
weight	approx. 82 kg
drive machine compatibility	Typ D-732-42
incl. hand or foot switch	
taring function	
adjustable hold time (0 - 30 sec.)	
adjustable left run time (0 - 30 sec.)	
automatic restart of the drive unit	
internal memory for recipes	
up- and download of recipes	
optional assembly trolley	

technical data are subject to change

THREE-PHASE DRIVE MACHINES

DRIVE MACHINE TYPE D-732

TECHNICAL DATA

input voltage	400 V / 3~ / 87 Hz
power	2,600 W
speed	120 - 800 rpm
torque 800 rpm	28.6 Nm
torque 680 rpm	33.7 Nm
torque 374 rpm	64.0 Nm
torque 120 rpm	200 Nm
drive	inner morse taper 3
dimensions (L / W / H)	60 / 17 / 40 cm
weight	36 kg
compatibility expanding controller	NFAB-D1-3.0

technical data are subject to change

HIGHLIGHTS

» highest flexibility: can be used for almost all expansion tasks

» infinitely variable speed

» left/right rotation changeover

» detection of the cut-off torque even with thin-walled, soft tube materials

» gimbal suspension for improved ergonomics

visit www.tda-gmbh.de

DRIVE MACHINE TYPE D-732-42

TECHNICAL DATA

input voltage	42 V / 3~ / 87 Hz
power	2,600 W
speed	120 - 800 rpm
torque 800 rpm	28.6 Nm
torque 680 rpm	33.7 Nm
torque 374 rpm	64.0 Nm
torque 120 rpm	200 Nm
drive	inner morse taper 3
dimensions (L / W / H)	60 / 17 / 40 cm
weight	36 kg
compatibility expanding controller	NFAB-D-3.0

technical data are subject to change

HIGHLIGHTS

» 42 V protective low voltage for safe working in pre-chambers and containers

» highest flexibility: can be used for almost all expansion tasks

» infinitely variable speed

» left/right rotation changeover

» detection of the cut-off torque even with thin-walled, soft tube materials

» gimbal suspension for improved ergonomics

visit www.tda-gmbh.de

ACCESSORIES FOR THREE-PHASE DRIVE MACHINES

TELESCOPIC SHAFT TYPE TS 72

DESCRIPTION

The extendable telescopic shaft is the connection between the drive unit and the tube expander. It equalises the switching torque of the drive unit from clockwise to anti-clockwise rotation. In the case of a cardanically suspended drive unit, it increases the radius of action during tube expanding. To achieve the highest ergonomics and safety, it is ball-guided and equipped with a corded handle. Interchangeable square inserts and quick-change chucks result in a high degree of flexibility.

TECHNICAL DATA

	size 2	size 3
min. length	926 mm	975 mm
max. length	1,305 mm	1,352 mm
max. torque load	80 Nm	207 Nm
weight	8.0 kg	11.5 kg
drive machine compatibility	D-732 / D-732-42	
morse taper 3		

technical data are subject to change

art. no.	quick change chuck	
27220090	size 2 -	9 mm inner square
27220110	size 2 -	12 mm inner square
27220140	size 2 -	1/4“ inner square
27220120	size 2 -	1/2“ inner square
27220380	size 2 -	3/8“ inner square

art. no.	quick change chuck	
27230140	size 3 -	14 mm inner square
27230160	size 3 -	16 mm inner square
27230180	size 3 -	18 mm inner square
27230200	size 3 -	20 mm inner square
27230220	size 3 -	22 mm inner square
27230190	size 3 -	3/4“ inner square
27230250	size 3 -	1“ inner square

ASSEMBLY TROLLEY

DESCRIPTION

The assembly trolley transforms the tube expanding controller, drive machine and telescopic shaft into a "mobile expanding system". It is equipped with a height-adjustable crossbeam and a swivelling gallows. The drive machine is attached to the assembly trolley with cardanic suspension. In combination with the telescopic shaft, which is suspended from the gallows by means of a balancer, the user thus achieves the maximum working radius. The lockable tool cabinet offers sufficient space for tube expanders, measuring tools and the tube expanding controller.

PNEUMATIC DRIVE MACHINE

PNEUMATIC TORQUE CONTROLLED DRIVE MACHINE D-720

DESCRIPTION

The drive machine type D-720 is used for expanding tubes with small inner tube diameters. It is characterised by a low weight and high adaptability to prevailing working conditions. The torque is adjusted via an internal spring-loaded clutch. After reaching the desired torque, the D-720 automatically switches to counterclockwise rotation.

HIGHLIGHTS

- high ergonomics due to low weight
- torque adjustment directly on the gun head
- automatic counterclockwise rotation after reaching the set torque

TECHNICAL DATA

type	D-720-2500	D-720-1800	D-720-550
tube OD	6.3 mm (1/4“)*	9.5 mm (3/8“)*	12.7 mm (1/2“)*
speed	2,500 rpm	1,800 rpm	550 rpm
torque	0.226 - 0.9 Nm	0.226 - 3.05 Nm	0.226 - 8.47 Nm
air consumption	480 l/min with minimum 6.2 bar		
diameter (L / W / H) w/o attachments	205 / 80 / 150 mm		
weight	1.1 kg	1.1 kg	1.2 kg
accessories included	3/8" quick-change chuck, silencer, air hose with couplings, transport box		
optional accessories	1/2" quick-change chuck, maintenance unit		

technical data are subject to change

PNEUMATIC DRIVE MACHINE

PNEUMATIC TORQUE CONTROLLED DRIVE MACHINE D-50

DESCRIPTION

The drive machine type D-50 is used for expanding tubes in heat exchangers, condensers, coolers, etc. It is characterised by a low weight, flexible suspension possibilities as well as a lateral handle and thus has a high adaptability to prevailing working conditions. The torque is adjusted via an internal spring-loaded clutch. After reaching the desired torque, the D-50 automatically switches to counterclockwise rotation.

HIGHLIGHTS

- high ergonomics due to low weight, side handle and the possibility of suspension
- torque adjustment directly at the gun head
- automatic counterclockwise rotation after reaching the set torque

TECHNICAL DATA

type	D-50-1250	D-50-600	D-50-400
tube OD	19 mm (3/4“)	25.4 mm (1“)	31.7 mm (1 1/4“)
speed	1,250 rpm	485 rpm	400 rpm
torque	1.58 - 12.20 Nm	2.49 - 21.81 Nm	5.00 - 36.00 Nm
air consumption	1,700 l/min with minimum 6.2 bar		
diameter (L / W / H) w/o attachments	311 / 80 / 150 mm		
weight	4.76 kg		
accessories included	3/8" quick-change chuck, silencer, air hose with couplings, transport box		
optional accessories	1/2" quick-change chuck, maintenance unit		

technical data are subject to change

PNEUMATIC ANGLE DRIVE MACHINE

PNEUMATIC ANGLE DRIVE MACHINE

DESCRIPTION

The pneumatic angle drive machines of the D-72 and D-73 series have been specially developed for expanding tubes in boiler construction as well as for work in confined spaces and EX-protected areas. The unique design with fully integrated gearbox ensures a high durability of the machine even under extreme conditions.

HIGHLIGHTS

» angle head for working in confined spaces

» high durability due to a closed machine design

» machine start via rotary handle or lever

TECHNICAL DATA

type	D-73-375	D-73-280	D-73-190	D72-90
tube OD	51.0 mm	57.0 mm	63.0 mm	100.0 mm
speed	375 rpm	280 rpm	190 rpm	90 rpm
torque	40 - 110 Nm	60 - 140 Nm	70 - 200 Nm	200 - 400 Nm
machine start	rotary handle	rotary handle	rotary handle	rotary handle
drive	3/4“	3/4“	3/4“	3/4“
square	3/4“	3/4“	3/4“	1“ / 3/4“
dimensions (L / W / H)	530 / 56 / 65 mm	530 / 56 / 65 mm	530 / 56 / 65 mm	550 / 74 / 70 mm
weight	5.8 kg	5.8 kg	5.8 kg	6.7 kg
optional accessories	lever for machine start, 1/2“-square			

technical data are subject to change

GOOD TO KNOW

Further angle drive machines for tube OD up to 200 mm available on request

visit www.tda-gmbh.de

MECHNICAL-HYDRAULIC TUBE EXPANDING MACHINE

MECHANICAL-HYDRAULIC TUBE EXPANDING MACHINE TYPE NFAB-H

DESCRIPTION

The mechanical-hydraulic tube expanding machine consists of an electronic tube expanding controller, drive machine and hydraulic unit as well as components such as tool holders, telescopic shafts or deflection gear. The combination of a separately controlled powerful three-phase drive machine and a hydraulic feed unit makes it possible to optimally influence the expansion process. Using tube expanders type BR 20 with axially parallel rollers, once the required expansion has been reached, the tube is 100% rounded out by rolling in the opposite direction. Particularly with high-quality, thin-walled materials, such as titanium, the mechanical-hydraulic tube rolling process ensures the required quality.

HIGHLIGHTS

- best expanding results with high-quality and thin-walled tube and tube sheet materials
- cylindrical expansion through the use of tube expanders with axially parallel rollers
- optimal use for gap-closing expanding after tube to tube sheet welding

TECHNICAL DATA

hydraulic unit	
engine	400 V / 3~ / 50 Hz / 1.1 kW
pump capacity	3 l/min
working pressure	200 bar
tank capacity	40 l
tube expanding controller NFAB-H	
input voltage	400 V / 3~ / 50 Hz
output voltage	400 V / 3~ / 87 Hz
display (remote control)	7“ TFT Touchscreen
connections	USB / LAN
drive machine D-732	
input voltage	400 V / 3~ / 87 Hz
power	2,600 W
speed	120 - 800 rpm
torque (800 - 120 rpm)	28.6 - 200 Nm
incl. craneable chassis	
hydraulic unit with separate pressure and flow control	
optionally expandable with integrated cooling and lubrication system	
optional extension of the chassis:	
height-adjustable crossbar to accommodate the drive unit	
swivelling boom for suspension of the feed unit	
swivelling support legs	

technical data are subject to change

visit www.tda-gmbh.de

MECHNICAL-HYDRAULIC TUBE EXPANDING MACHINE

The basic elements of the mechanical-hydraulic tube expanding machine are the hydraulic unit, the NFAB-H tube expanding controller with a touchscreen remote control and the chassis or assembly trolley. The drive can be selected as "compact unit" or "telescopic shaft" version. In the "compact unit" version, the mandrel feed unit is connected to the D-732 drive machine via a reversing gear, in the "telescopic shaft" version via a TS 72 telescopic shaft.

BASIC ELEMENTS OF THE MECHANICAL-HYDRAULIC TUBE EXPANDING MACHINE

+

VERSION "COMPACT UNIT"

drive machine D-732 with mandrel feed unit, tool holder and
5-roller tube expander connected by a deflection gearbox

or

VERSION "TELESCOPIC SHAFT"

drive machine D-732 with telescopic shaft TS 72, mandrel feed unit and tool holder

MECHNICAL-HYDRAULIC TUBE EXPANDING MACHINE

TOOL HOLDER FOR HYDRAULIC MANDREL FEED UNIT

art. no.	cylinder size	cage Ø
22610008	size 2	10.0 mm
22610608	size 2	10.6 - 11.4 mm
22612010	size 2	12.0 mm
22612610	size 2	12.6 - 13.8 mm
22614512	size 2	14.5 - 15.6 mm
22616014	size 2	16.0 - 17.5 mm
22618416	size 2	18.4 - 19.5 mm
22620017	size 2	20.0 mm
22620517	size 2	20.5 - 22.0 mm

art. no.	cylinder size	cage Ø
32620517	size 3	20.5 - 22.0 mm
32623020	size 3	23.0 - 24.0 mm
32625022	size 3	25.0 - 26.0 mm
32627024	size 3	27.0 - 29.0 mm
32631028	size 3	31.0 - 32.0 mm
32634528	size 3	33.0 - 34.0 mm
32635028	size 3	34.5 mm
32636028	size 3	36.0 - 42.0 mm
32644028	size 3	44.0 - 46.0 mm

available with or without lubrication

TUBE EXPANDERS

TUBE EXPANDERS TYPE BR 30

DESCRIPTION

Tube expanders type BR 30 are characterised by their wide range of applications with regard to tube dimensions, tube materials and tube conditions. The tube expanders are particularly suitable for use with harder materials due to their long service lives. Customer-specific special solutions can be realised thanks to flexible manufacturing options. This makes tube expanders type BR 30 the most widely used tube expanders.

TUBE DIAMETERS IN THE STANDARD VERSION

tube ID

7.5 mm - 70.0 mm

special solutions for deviating tube dimensions are available on request

REACH

The reach of a tube expander describes the deepest tube area that can be expanded with the tube expander, measured from the stop of the cap. Standard reachs are 50 mm, 100 mm, 150 mm and 200 mm. Reachs below or in between can be adjusted by thread. Reachs above 200 mm are available on request.

EFFECTIVE ROLL LENGTH

The effective roll length of a tube expander defines the width of the tube area that can be expanded in one expanding operation. It correlates with the length of the rolls used, i.e. it corresponds to the roll length minus the length of the parabolas of the rolls. In the standard version, the roll lengths 40 mm, 50 mm and 60 mm are available.

COLLAR

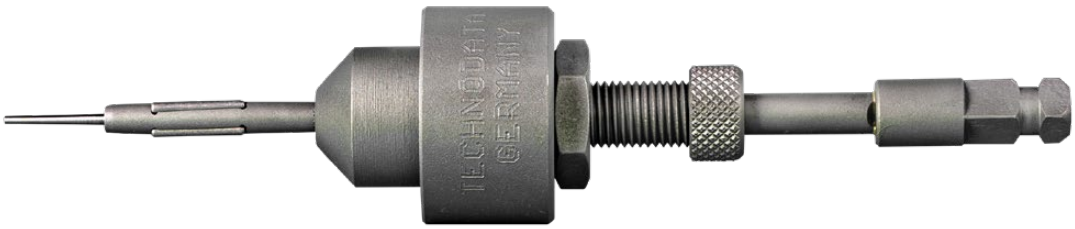
The collar of a tube expander forms the stop on the tube sheet. Depending on the circumstances and the position of the tube (flush / tube protrusion), different collars are available. Details on the individual collar types at www.tda-gmbh.de

GOOD TO KNOW

Tube expanders in special sizes and for customer-specific applications are our core competence.

visit www.tda-gmbh.de

TUBE EXPANDERS



TUBE EXPANDERS TYPE BR 40

DESCRIPTION

Tube expanders type BR 40 are characterised by their particular suitability for softer materials such as copper or brass. The expanding process can be carried out at high speeds due to the designed pitch of the mandrel. In the standard version of type BR 40, tube expanders are available for tube inside diameters from 4.8 mm to 33.0 mm. Tube dimensions deviating from this are offered as a special solution on request.

MECHANICAL-HYDRAULIC TUBE EXPANDERS TYPE BR 20

DESCRIPTION

Tube expanders type BR 20 are specially designed for use with the mechanical-hydraulic tube expanding machine NFAB-H. They have axially parallel rollers so that full linear contact is established between tube, rollers and mandrel. This enables cylindrical and round expansions, which in turn means extremely tight tube to tube sheet joints. The tube expanders type BR 20 are thus particularly suitable for chemical and petrochemical apparatus construction, where thin-walled tubes made of high-quality materials are frequently used. By using the highest possible number of rollers and a guide sleeve (as shown above), the tube is optimally expanded and the surface of the inner tube surface is protected. In the standard version, the roll lengths 40 mm, 50 mm and 60 mm are available.

GOOD TO KNOW GOOD TO KNOW

Tube expanders in special sizes and for customer-specific applications are our core competence.

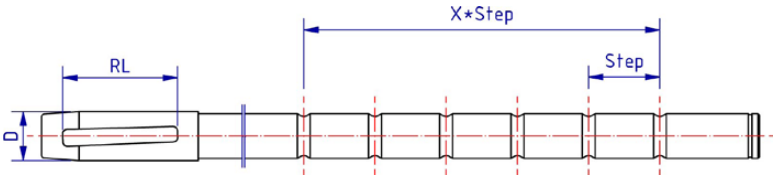
TUBE EXPANDERS

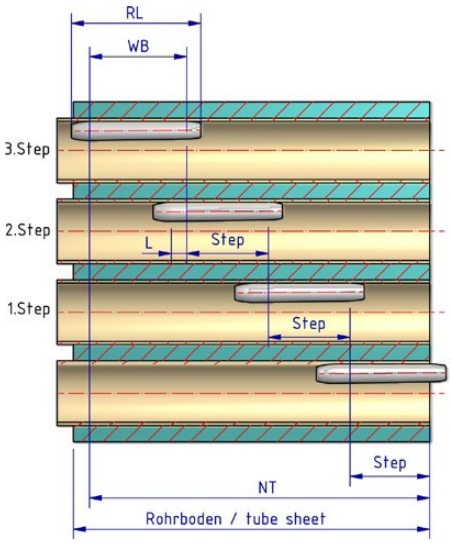
BOILER TUBE EXPANDERS

Boiler tube expanders are available in various designs. The type KA 64 is available with a stop, the type KB 65 with a ball-bearing stop. Both series have different rolling lengths in the standard version. The types KD 67 and KC 66 were developed for simultaneous expanding and flanging (funnel-shaped expansion of the tube projection). In the type KD 67, a stop cap supports the exact production of the flare at the tube end.

FAST-STEP TUBE EXPANDERS TYPE BR 10

Fast-step tube expanders are particularly suitable for expanding tubes into thick tube sheets. The tube expanders type BR 10 have bodies with grooves and a quick-locking cap that locks into them. This enables the entire tube sheet to be expanded quickly. The standard version of the quick-locking tube expanders is available for tube IDs from 9.0 mm to 35.0 mm and for reachs from 150 mm to 246 mm. Other reachs are available on request.





D	RL	WB	L	Step	X	NT
9.0 - 22.0 mm	40	30	5	25	3	105
23.0 - 35.0 mm	40	26	6	20	4	106
9.0 - 22.0 mm	40	30	5	25	5	155
23.0 - 35.0 mm	40	26	6	20	6	146
9.0 - 22.0 mm	40	30	5	25	7	205
23.0 - 35.0 mm	40	26	6	20	9	206
10.6 - 22.0 mm	60	50	5	45	2	140
23.0 - 35.0 mm	60	46	6	40	2	126
10.6 - 22.0 mm	60	50	5	45	3	185
23.0 - 35.0 mm	60	46	6	40	3	166
10.6 - 22.0 mm	60	50	5	45	5	230
23.0 - 35.0 mm	60	46	6	40	5	246

CLEANING

tube cleaning machines and motors | brushes | accessories

Even the smallest deposits in heat exchangers can severely limit the efficiency of the systems. The internally or externally driven tube cleaning systems from TECHNODATA offer effective removal of mineral deposits, algae, sludge, scale and other contamination for a wide range of tube dimensions and shapes.

TUBE CLEANING MACHINE ROTO-JET 0820AR

» tube ID: 8 - 50 mm
» deposit: soft, gummy, organic
» wet and dry cleaning

TUBE CLEANING MOTOR SERIES 35

» tube ID: 73 - 120 mm
» deposit: hart powder, aluminium
» dry cleaning
» pneumatic driven

TUBE CLEANING MOTOR SERIES 600

» tube ID: 13 - 44 mm
» deposit: soft, gummy, organic
» dry cleaning
» pneumatic driven

TUBE CLEANING MOTOR TYPE 5224XL

» tube ID: 8 - 26 mm
» deposit: any kind
» wet and dry cleaning
» pneumatic driven

TUBE CLEANING SYSTEM TCP

» tube ID: 3 - 39 mm
» deposit: soft, oily, organic
» dry cleaning
» pneumatic driven

TUBE CLEANING MACHINES

ELECTRONIC TUBE CLEANING MACHINE ROTO-JET 0820 AR

DESCRIPTION

The Roto-Jet 0820 AR tube cleaning machine is designed to remove both soft and hard deposits. For this purpose, an electrically driven, flexible shaft with adapted brush is inserted into the tube and controlled by foot switch. The Roto-Jet can be used for both wet and dry cleaning. The main areas of application are heat exchangers, cooling units and water tube boilers.

HIGHLIGHTS

- flexible shaft with water flush for removing deposits in bent tubes
- heavy duty shaft for cleaning hard deposits
- low weight and small dimensions for confined working areas

TECHNICAL DATA

tube ID	7.9 - 50.8 mm
tube shape	straight or bent
deposits	soft, gummy, organic
pollution level	light to medium
cleaning type	wet and dry
input voltage	220 V
speed	850 rpm
dimensions [L / W / H]	432 / 267 / 381 mm
weight	29 kg
left and right rotation	

technical data are subject to change

ACCESSORIES AND BRUSHES

FLEXIBLE WET AND DRY SHAFTS WITH BREAKAWAY COUPLING

tube ID	type	shaft length	shaft Ø	drive coupling	break coupling	rigid coupling
7.0 - 10.0 mm	wet	4.5 m | 7.6 m | 10.7 m | 15.2 m	6.0 mm	yes	-	yes
11.0 - 13.0 mm	wet	4.5 m | 7.6 m | 10.7 m | 15.2 m	10.0 mm	yes	yes	
14.0 - 25.0 mm	wet	4.5 m | 7.6 m | 10.7 m | 15.2 m	13.0 mm	yes		
19.0 - 38.0 mm	wet	4.5 m | 7.6 m | 10.7 m | 15.2 m	16.0 mm	yes	-	-
26.0 - 50.0 mm	wet	4.5 m | 7.6 m | 10.7 m | 15.2 m	19.0 mm	yes	-	-
>50.0 mm	wet	4.5 m | 7.6 m | 10.7 m | 15.2 m	25.0 mm	yes	-	-
25.0 - 50.0 mm	dry	4.5 m | 7.6 m | 10.7 m | 15.2 m	-	yes	-	-

technical data are subject to change

BRUSHES

0942 stainless steel	
deposit	soft
tube condition	nicht metallisch, hochwertig
cleaning type	nass
tube ID	4,6 - 38,1 mm

0942B brass	
deposit	soft
tube condition	nicht metallisch, hochwertig
cleaning type	nass
tube ID	4,6 - 38,1 mm

5502 HD nylon	
deposit	medium to hard
tube condition	metallisch, nicht metallisch, hochwertig
cleaning type	nass
tube ID	4,6 - 25,4 mm

0954 Flex Hones	
deposit	soft
tube condition	metallic, high-class
cleaning type	wet
tube ID	9.5 - 19.0 mm, 22.2 mm, 25.4 mm

5508 turbo	
deposit	soft
tube condition	metallic, non-metallic, reinforced
cleaning type	wet
tube ID	12.7 - 27.0 mm

5513 turbo	
deposit	soft to medium
tube condition	metallic, non-metallic, high-class
cleaning type	wet
tube ID	38.1 - 50.8 mm

5510 turbo	
deposit	soft
tube condition	iron, iron-free, high-class
cleaning type	wet
tube ID	11.1 - 12.7 mm, 17.5 - 19.0 mm, 25.4 mm, 28.6 mm, 31.75 mm

0904 steel wire	
deposit	soft (soot)
tube condition	iron, high-class
cleaning type	dry
tube ID	17.5 - 152.4 mm

TUBE CLEANING MOTORS

PNEUMATIC TUBE CLEANING MOTOR SERIES 35

DESCRIPTION

The tube cleaning motor series 35 has been specially developed for cleaning aluminium siphon pipes. The unique combination drill head enables powerful cleaning, reducing cleaning time. Universal coupling options are available for durable performance and longer rotor life. The maintenance-friendly design of the tube cleaning motor reduces costs and maintenance efforts.

TECHNICAL DATA

tube ID	73.0 - 120.7 mm
tube shape	bent
bend radius	711 mm
deposits	hard powder, aluminium
pollution level	high
cleaning type	dry
dimension (motor-Ø)	65 mm

HIGHLIGHTS

» optional stellite impact heads for higher cleaning performance and extended service life

» motor design allows easy replacement of the coupling and drill bit

percussion/drill heads	
OD	**thread**
50.8 mm	5/8"
57.2 mm	5/8"
66.7 mm	3/4"
73.0 mm	3/4"
79.4 mm	3/4"
88.9 mm	1-1/8"

couplings	
AD	**thread**
41.3 mm	5/8" & 3/4"
46.0 mm	5/8" & 3/4" & 7/8"
50.1 mm	7/8" & 1-1/8"

motors	
AD	**thread**
60.3 mm	3/4"
65.1 mm	3/4"
66.7 mm	3/4"
71.4 mm	7/8"
76.2 mm	7/8"
92.1 mm	1-1/8"

technical data are subject to change

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TUBE CLEANING MOTORS

PNEUMATIC TUBE CLEANING MOTOR SERIES 600

DESCRIPTION

The tube cleaning motor series 600 is designed for cleaning straight tubes. The air turbine motor design provides an instant and powerful start to propel the cleaning head through the tube at high speed to remove light to medium deposits of lime, sludge and other residues.

TECHNICAL DATA

tube ID	12.6 - 43.9 mm
tube shape	straight
deposits	soft, gummy, organic
pollution level	light to medium
cleaning type	dry
air pressure	5.5 bar

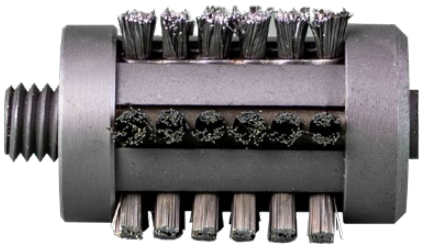
technical data are subject to change

HIGHLIGHTS

» the powerful motor design allows the motor to start immediately

» protected hoses for high stability and heat resistance

» the engine does not require any special tools for repair



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TUBE CLEANING MOTORS

PNEUMATIC TUBE CLEANING MOTOR TYPE 5224XL

DESCRIPTION

The tube cleaning motor type 5224XL is ideal for cleaning heat exchanger tubes with hard deposits. The trigger-operated tube cleaner features an air-powered motor that stays outside the tube and applies a powerful rotary motion to the shaft and cleaning tool. For cleaning applications where water flushing cannot be used, air flush models are available.

TECHNICAL DATA

tube ID	7.8 - 26.2 mm
tube shape	straight
deposits	soft, gummy, organic, hard powder, rock solid
pollution level	light to heavy
cleaning type	wet and dry
air pressure	6.2 bar
water pressure	3.4 bar
speed	1,500 rpm
dimensions [L / W / H]	approx. 230 / 63 / 200 mm
weight	approx. 2.7 kg

technical data are subject to change

HIGHLIGHTS

» Lightweight yet powerful

» high torque for hard and rubbery deposits

» optional extension shafts available for tubes of different lengths

BRUSHES AND DRILLS FOR PNEUMATIC TUBE CLEANING MOTOR TYPE 5224XL

All drills and brushes are available for tube IDs 9.4 - 22.9 mm.

CT drills
for hard deposits

DT drills
for gummy deposits

F-brushes
for powdery deposits and polishing

El Paso drills
for soft deposits

TD drills with carbide tip
for hard deposits

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PNEUMATIC TUBE CLEANING SYSTEM TYPE TCP

DESCRIPTION

The pneumatic tube cleaning system type TCP is versatile and designed to clean product lines, hoses, but also pipes quickly and effectively. A cleaning projectile is shot through the soiled pipe or hose at 6-8 bar. The cleaning effect is achieved by expanding the projectile against the inner wall. The tube cleaning system consists of a gun, a mouthpiece and a cleaning projectile. The ergonomically shaped gun is made of high-strength aluminium for a long service life even in rough working environments.

HIGHLIGHTS

» gun made of high-strength aluminium

» rotatable compressed air connection for ergonomic handling

TECHNICAL DATA

tube ID	3.0 - 39.0 mm
tube shape	straight and bent
deposits	soft, oily, organic
pollution level	light to heavy
cleaning type	dry
air pressure	800 l/min at 6-8 bar
hose mouthpieces [nominal width]	DN 5 - DN 51
incl. suspension for balancer	
optional foot switch	

technical data are subject to change

CLEANING PROJECTILES FOR TUBE CLEANING SYSTEM TYPE TCP

standard projectile
made from composite foam
- for removing loo se particles from tubes and hoses

premium projectile
made of a homogeneous foam with high density
- good resistance to solvents
- high mechanical load capacity
- for the highest demands on purity

PW projectile
made of a homogeneous foam of medium hardness
- versatile
- cleaning for slight cross-sectional constrictions
- for removing loose particles

flex projectile
made of a foam with good resilience
- for severe cross-sectional constrictions
- recommended for the re-cleaning of already integrated hose lines

corundum projectile
premium projectiles coated with corundum
- for removing harder build-up, such as surface rust
- re-cleaning is absolutely necessary

abrasive projectile
fitted with an abrasive fleece on the front side
- for removing tenacious deposits
- well suited for cleaning tube bundle heat exchangers

acetone projectile
made of solvent-resistant special foam material
- can be used with many solvents, e.g. acetone
- suitable for degreasing or de-oiling tubes without cross-sectional constrictions

CUTTING & PULLING

internal tube cutters | tube puller

The pulling of tubes from heat exchangers is usually done in two working steps. In the first step, the tube to be pulled is cut using an internal tube cutter. Then both the long and the short tube sections are pulled out with a hydraulic tube puller.

INTERNAL TUBE CUTTER TYPE TC-OR

» tube OD: 13 - 63 mm
» tube ID: 10 - 62 mm
» reach: 25 - 150 mm
» manually driven

INTERNAL TUBE CUTTER TYPE TC-PT

» tube OD: 9.5 - 38 mm
» tube ID: 8 - 36 mm
» reach: 70 mm
» mechanically driven

TUBE PULLING MACHINE TYPE TP

» tube ID: 10 - 40 mm
» tube wall thicknes: 0.5 - 3.6 mm
» traction: 10 - 30 t
» available in 3 versions

TUBE PULLING MACHINE TYPE TPS

» tube ID: 5.5 - 78.5 mm
» tube wall thicknes: > 2.0 mm
» traction: 30 t

INTERNAL TUBE CUTTER

INTERNAL TUBE CUTTER TYPE TC-OR

The internal tube cutter type TC-OR enables the cutting as well as the shutting down of steel, brass and copper tubes. The tool is driven manually by ratchet or spanner and is therefore very easy to operate. The tube cutter is centred during the cutting process by the conical ring on the body. When the tool is turned to the right, the blade extends out of the body, breaks through the tube wall and cuts the tube in one go. When the tool is turned to the left, the blade retracts and the tool can be pulled out of the cut tube.

All sizes have a standard reachs of 25.0 - 150.0 mm. Other reachs are available as special versions.

tube OD [mm]	**tube ID** [mm]	**art.-no.** TC-OR-xxx
12.7	10.2 - 10.6	100
	11.0 - 11.3	108
15.8	11.4 - 11.9	113
	12.0 - 12.9	119
	12.7 - 13.5	123
	13.5 - 14.2	131
	14.0 - 14.7	139
19.0	14.7 - 15.5	145
	15.2 - 16.5	151
	15.9 - 16.5	153
	16.7 - 17.5	163
22.2	17.8 - 18.5	174
	18.8 - 19.5	84
	19.3 - 20.0	190
	19.8 - 20.6	193
25.4	19.8 - 20.6	193
	20.8 - 21.6	205
	21.3 - 22.1	210
	21.8 - 22.6	215
	22.6 - 23.1	223
	23.9 - 24.6	232

tube OD [mm]	**tube ID** [mm]	**art.-no.** TC-OR-xxx
31.7	24.9 - 25.6	245
	25.9 - 26.7	255
	26.7 - 27.4	264
	27.9 - 28.7	274
	28.7 - 29.6	283
38.1	31.3 - 32.1	309
	32.5 - 33.3	320
	33.8 - 34.5	333
	34.5 - 35.3	339
	35.3 - 36.1	350
44.5	37.0 - 38.5	369
	38.8 - 40.3	383
	40.8 - 41.2	403
	41.3 - 42.0	410
50.8	44.0	435
	44.7	442
	45.0 - 46.0	447
	46.2 - 48.2	457
	47.2 - 48.2	468
	48.0 - 49.0	476

tube OD [mm]	**tube ID** [mm]	**art.-no.** TC-OR-xxx
57.2	50.3	497
	51.0	505
	51.6 - 52.3	511
	52.9 - 53.5	524
	53.8 - 54.8	533
	54.6 - 55.6	541
63.5	56.7	562
	57.4	569
	57.6 - 58.6	572
	58.9 - 60.0	585
	60.0 - 61.0	586
	60.7 - 61.7	602

technical data are subject to change

INTERNAL TUBE CUTTER

INTERNAL TUBE CUTTER TYPE TC-PT

The internal tube cutter type TC-PT enables the cutting of steel, brass and copper tubes and is mechanically driven. It is centred in the tube via the conical ring on the body. The internal tube cutter TC-PT is equipped with an HSS blade which enables a long service life at the appropriate cutting speed. The cutting depth is adjustable. The internal tube cutter TC-PT is also available with two blades in the functionally identical version TC-PT-2.

All sizes have a standard reach of 70.0 mm. Other depths of use are available as a special version.

tube OD [mm]	**tube ID** [mm]	**art.-no.** TC-PT-xxx
9,5	8,10 - 8,40	0780
12,7	8,50 - 9,04	0820
	9,40 - 9,75	0920
15,8	10,30 - 11,05	1000
	11,66 - 12,22	1130
	12,57 - 12,93	1220
	13,40 - 13,74	1310
	14,10 - 14,45	1380
19,0	14,80 - 15,40	1450
	15,75 - 16,10	1540
	16,56 - 16,90	1615
	17,27 - 17,63	1700

tube OD [mm]	**tube ID** [mm]	**art.-no.** TC-PT-xxx
22,2	15,42 - 16,13	1500
	16,69 - 17,40	1620
	18,01 - 18,57	1760
	18,92 - 19,28	1850
	19,74 - 20,42	1940
25,4	17,02 - 17,88	1660
	18,59 - 19,30	1820
	19,86 - 20,57	1945
	21,18 - 21,74	2080
	22,10 - 22,45	2170
	22,91 - 23,27	2250
	23,63 - 23,89	2320

tube OD [mm]	**tube ID** [mm]	**art.-no.** TC-PT-xxx
28,5	23,75 - 24,36	2340
	24,92 - 25,27	2450
	25,63 - 26,09	2510
31,7	26,21 - 26,92	2580
	27,53 - 28,09	2710
	28,45 - 28,80	2800
	29,26 - 29,92	2880
38,1	29,72 - 30,58	2930
	31,29 - 32,00	3008
	32,56 - 33,27	3210
	33,88 - 34,44	3340
	34,80 - 35,15	3440
	35,51 - 36,32	3510

technical data are subject to change

INTERNAL TUBE CUTTER TYPE TC-PT-2

The internal tube cutter type TC-PT-2 is functionally identical to the internal tube cutter TC-PT, but equipped with two opposing HSS blades. This improves the centring of the internal tube cutter in the tube and also leads to a higher cutting speed.

tube OD [mm]	**tube ID** [mm]	**art.-no.** TC-PT2-xxx
25.4	23.1 - 24.7	2540
31.7	29.6 - 31.0	3175
38.1	34.7 - 37.2	3810
50.8	46.6 - 49.8	5080
63.5	59.3 - 60.7	6350

TUBE PULLER

HYDRAULIC TUBE PULLING MACHINE TYPE TP

DESCRIPTION

The hydraulic tube puller type TP is used to remove tubes from tube sheets. The device consists of a transportable hydraulic unit as well as a combined spreading and pulling cylinder, which is equipped with a spreading tool. After inserting the spreading tool into the tube, it is hydraulically pressed against the tube wall and the tube pulled until it is released and can be pulled out of the tube sheet.

TECHNICAL DATA

	hydraulic unit
engine	400 V / 3~ / 50 Hz / 2.2 kW
pump capacity	4.5 l/min (50 bar) | 1.9 l/min (700 bar)
working pressure	max. 700 bar
tank capacity	approx. 20 l
hydraulic hose	6 m
weight incl. hoses	approx. 70 kg

TECHNICAL DATA

	tube pulling cylinder		
type	**TP 10**	**TP 15**	**TP30**
tube ID	10.0 - 15.0 mm	15.0 - 30.0 mm	20.0 - 40.0 mm
tube wall thickness	0.5 - 2.0 mm	0.5 - 2.0 mm	2.0 - 3.6 mm
traction	10 t	15 t	30 t
stroke spreading cylinder	20 mm	20 mm	20 mm
stroke pulling cylinder	100 mm	150 mm	150 mm
number of hydraulic connections	4 connection	4 connection	4 connection
dimensions (L / W / H)	41 x 37 x 18 cm	46 x 38 x 18 cm	42 x 63 x 25 cm
weight	11.0 kg	16.5 kg	27.0 kg

technical data are subject to change

HIGHLIGHTS

» wide range of applications

» high working speed due to spreading tool

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TUBE PULLER

HYDRAULIC TUBE PULLING MACHINE TYPE TPS 55

DESCRIPTION

The hydraulic tube puller type TPS 55 is used to remove thick-walled tubes from tube sheets. The device consists of a transportable hydraulic unit, a hollow piston pulling cylinder with mechanical quick clamping device as well as an extracting tool consisting of extracting spindle, spacer sleeve and clamping jaws. The extracting spindle is screwed into the end of the tube to be pulled with a driving machine. The pulling cylinder is then placed on the extracting spindle and both are fixed by a quick-action chuck. The pressurised cylinder then pulls the tube out of the tube sheet.

HIGHLIGHTS

» wide range of application: tube ID 5.5 - 78.5 mm

» ideal power transmission by screwing the extraction tool into the tube to be pulled

TECHNICAL DATA

	hydraulic unit
engine	400 V / 3~ / 50 Hz / 2.2 kW
pump capacity	4.5 l/min (50 bar) | 1.9 l/min (700 bar)
working pressure	max. 700 bar
tank capacity	approx. 20 l
hydraulic hose	6 m
weight incl. hoses	approx. 70 kg
	tube pulling cylinder
tube ID	5.5 - 78.5 mm
tube wall thickness	≥ 2,0 mm
traction	30 t
stroke pulling cylinder	150 mm
number of hydraulic connections	2 connections
dimensions (L / W / H)	L = 230 mm
weight	approx. 23 kg

technical data are subject to change

pulling tools are available in the specified tube range in 0.5 mm steps

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