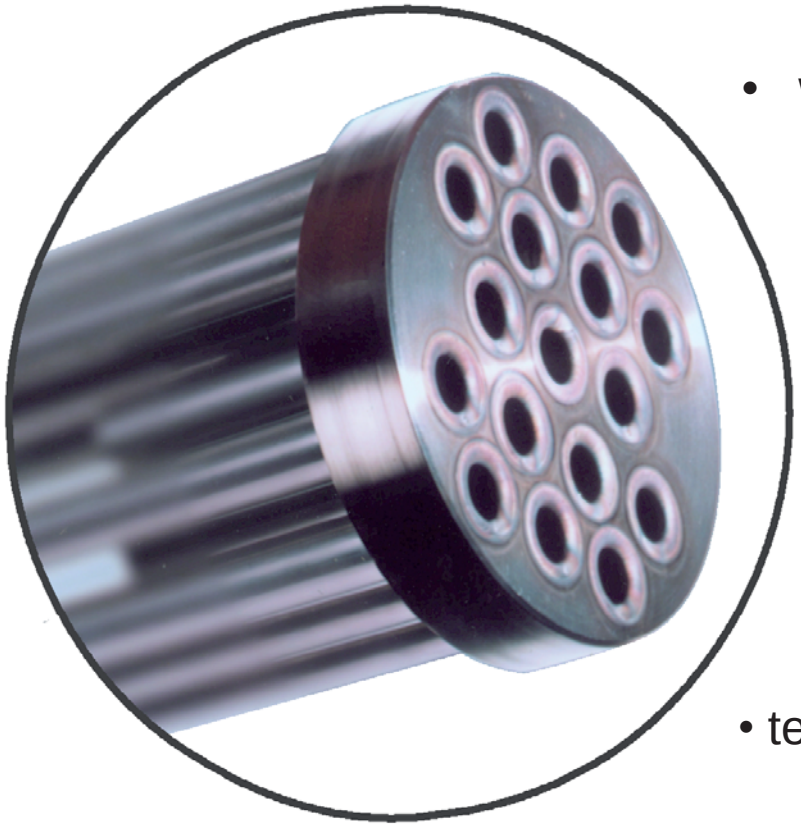
Everything from one hand...



- welding
- expanding
- cutting
- pulling
- cleaning
- testing

· Sale · Rental · Service ·

· Special applications ·

· Consultation · Production · Selling ·

TUBE WELDING and TUBE EXPANDING
for HEAT EXCHANGER- and BOILER MANUFACTURES

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HISTORY of TECHNODATA

The TECHNODATA limited liability company (TDA) is a manufacturer of machines and tools for tube welding and tube expanding technology for heat exchanger, apparatus and boiler engineering, located in Remscheid.

Our product range encompasses tube cutting technology, tube expanding machines, orbital welding technology, tube fixing machines and tube pulling machines; so that we can offer you the entire product portfolio for manufacturing and processing of tube-tube end connections and tube-tube connections. Our product range is complemented by a comprehensive range of services, which comprises, apart from expert advice by our experienced staff and implementation of manufacturing orders in the tube machining areas described, tube cleaning, tube maintenance and tube repairs for heat exchangers, condensers and similar industrial plants. Please consider of our entire production, sales and consulting program.

Due to in-house development and many years of experience, we are able to gear all machines and tools of our product line to your needs. We are able to customize all machines and tools of our product line. Particularly our consulting and production of special solutions sets us apart from our competitors.

Founded in 1986, TDA started its commercial activities in 1991, after acquiring the insolvent „Kotthaus + Busch Maschinenfabrik GmbH & Co. KG (K+B)“. As many long-time employees and thereby expert know-how changed to TDA in the course of the acquisition, we are still able to offer tools equivalent to the „K+B“ line.

Please consider that we do not only sell our products worldwide, but also offer a rental service and carry out subcontracts by factory order with our technology.

Whether manufacturer of air coolers/radiators that produce welding or rolling-connections from tubes tube plate in locked or open vestibules or belong to manufacturer from special devices with hollow tube welds to the circle of customers from TDA. Special appliances for the production of so called Inbore - welds with or without addition of cold wire appertain in the same way to our delivering-spectrum.

On the fields of the orbital-tube welding and tube expanding the TECHNODATA with support of partner companies offers the realization from wage tasks in the work task. Furthermore a wide palette of rental-equipments offers the possibility to cover for example production tops or to gain own experiences in the case of new purchases in the rent park of our custom.

Mechanical-hydraulic tube contact expanding unit type TES 97

The mechanical-hydraulic tube contact expanding device TECHNODATA type TES 97 is a device for conical expanding of tube ends for welding preparation before welding tubes to tube sheets.The unit consists of a portable hydraulic aggregate and a double acting hydraulic cylinder with interchangeable expanding tools.
The expanding tools are adapted to the demands. The tool is inserted into the tube to be expanded. By means of a distance sleeve the axial position of the tube is located. When the mandrel is pushed by the hydraulic cylinder, the
conical tool expands the tube end and occurs a line contact. The tube is centered and fixed in the tube sheet and in an ideal position for automatic welding, tack welding can be avoided, and the centering mandrel is preserved when inserting for automatic tube to tube sheet welding.

Technical Data:

hydraulic aggregate:

pump:	400 V / 3~ / 50/60 Hz / 1,1 kW
conveying capacity:	1,0 l/min / 500 bar
	(motor rating 1,1 KW)
tank volume:	appr. 10 l
weight:	appr. 45 kgs
hose length:	6 m

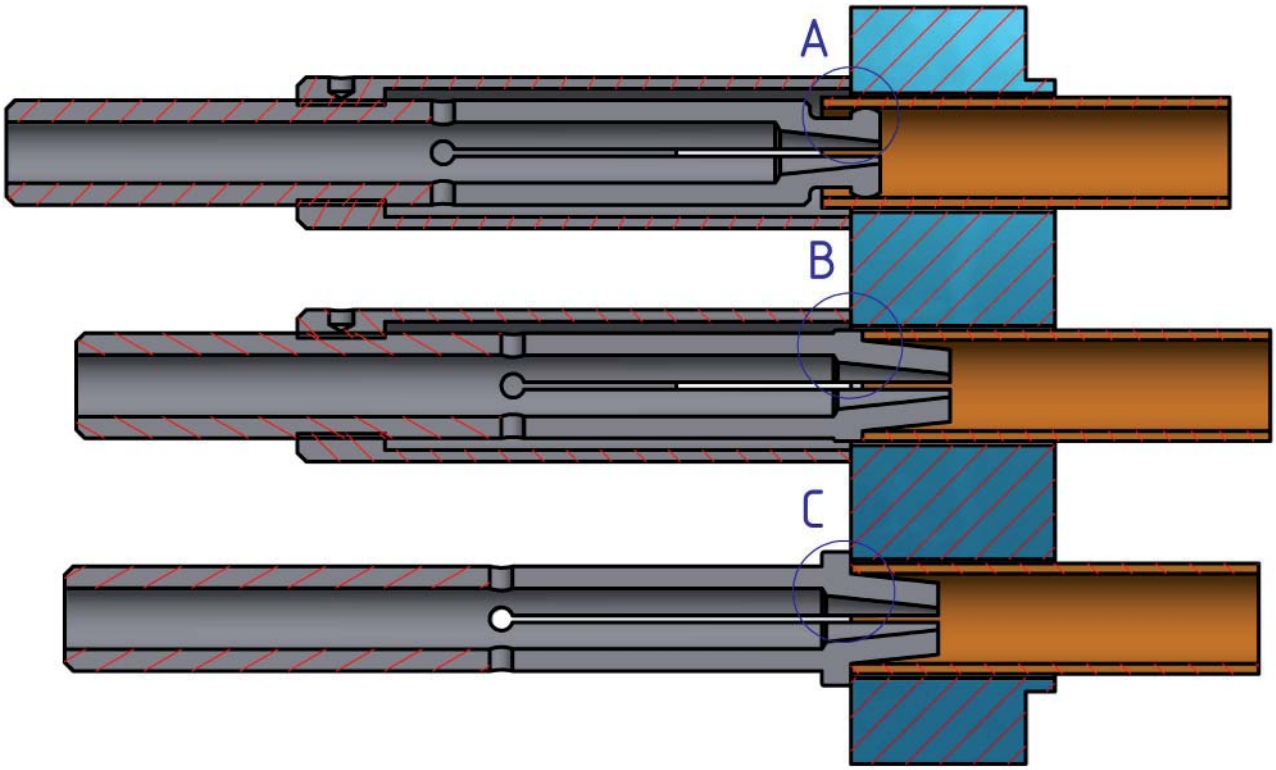
hydraulic cylinder:		**size 1**	**size 2**
	piston stroke:	40 mms	60 mms
	size without tools:	L=230 mms	L=290 mms
	weight without tools:	appr. 3 kgs	appr. 6 kgs
range:	tube o. d.:	12 to 30 mms	12 to 50 mms
	wall thickness:	0.5 to 2.5 mms	0.5 to 3.5 mms

further tube diameters on request !

fig.: Hydraulic cylinder size 1 for mechanical-hydraulic tube contact expanding unit type **TES 97**

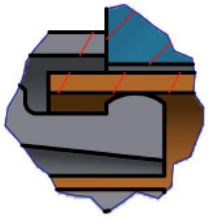
Tools for mechanical-hydraulic tube contact expanding Type TES 97

There are different applications for tube preparation before welding, with the following sketch we explain 3 different possible applications.



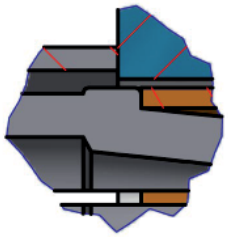
A TUBE-PROTRUSION
the tube stick out a few millimeter of tube sheet
work with collet type „-V“, crowened tool, and distance sleeve.

A (1,5 : 1)



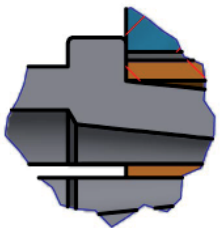
B TUBE-RECESS
the tube is approx. 1-2 mm inside the tube sheet.
work with collet type „-A“, collar of tool is not bigger than the tube outside diameter, and distance sleeve.

B (1,5 : 1)



C TUBE-FLUSH
the tube is flush-mounted with tube sheet.
work with collet standard type with collar.

C (1,5 : 1)



Conical tube expander type BR H04/H06

for conical expanding of tube ends.
Range of tubes from 9,6 up to 59,0 mm ID.
Available drive squares
9,0 / 12,0 / 14,0 / 16,0 / 18,0 mms.

fig.: conical tube expander type BR H04

SIZE	complete tool with flush collar Ref.-No..	complete tool with holding device Ref.-No..	mandrel Ref.-No..	rolls Ref.-No..	cage Ref.-No..	range in mm tube ID	range in mm mandrel square
9,6	W00496000	W00696000	W14596000	W20596000	W30596000	**9,6 - 12,0**	**9**
10,6	W00497000	W00697000	W14597000	W20597000	W30597000	**10,6 - 13,0**	**9**
11,6	W00498000	W00698000	W14598000	W20598000	W30598000	**11,6 - 15,5**	**9**
12,6	W00499000	W00699000	W14599000	W20599000	W30599000	**12,6 - 15,7**	**9**
13,6	W00401000	W00601000	W14501000	W20501000	W30501000	**13,6 - 16,7**	**9**
14,6	W00402000	W00602000	W14502000	W20502000	W30502000	**14,6 - 18,2**	**9**
15,5	W00403000	W00603000	W14503000	W20503000	W30503000	**15,5 - 19,6**	**9**
16,4	W00404000	W00604000	W14504000	W20504000	W30504000	**16,4 - 21,4**	**9**
17,4	W00405000	W00605000	W14505000	W20505000	W30505000	**17,4 - 22,4**	**9**
18,4	W00406000	W00606000	W14506000	W20506000	W30506000	**18,4 - 23,9**	**9**
19,0	W00407000	W00607000	W14507000	W20507000	W30507000	**19,0 - 24,5**	**9**
20,0	W00408000	W00608000	W14508000	W20508000	W30508000	**20,0 - 25,5**	**9**
21,0	W00409000	W00609000	W14509000	W20509000	W30509000	**21,0 - 26,5**	**9**
22,0	W00410000	W00610000	W14510000	W20510000	W30510000	**22,0 - 27,5**	**12**
23,0	W00411000	W00611000	W14511000	W20511000	W30511000	**23,0 - 29,0**	**12**
24,0	W00412000	W00612000	W14512000	W20512000	W30512000	**24,0 - 30,0**	**12**
25,0	W00490000	W00690000	W14590000	W20590000	W30590000	**25,0 - 31,0**	**12**
26,0	W00413000	W00613000	W14513000	W20513000	W30513000	**26,0 - 32,0**	**12**
27,0	W00491000	W00691000	W14591000	W20591000	W30591000	**27,0 - 33,0**	**12**
28,0	W00414000	W00614000	W14514000	W20514000	W30514000	**28,0 - 34,0**	**12**
29,0	W00492000	W00692000	W14592000	W20592000	W30592000	**29,0 - 35,0**	**12**
30,0	W00415000	W00615000	W14515000	W20515000	W30515000	**30,0 - 36,0**	**14**
32,0	W00416000	W00616000	W14516000	W20516000	W30516000	**32,0 - 38,0**	**14**
34,0	W00417000	W00617000	W14517000	W20517000	W30517000	**34,0 - 40,0**	**14**
36,0	W00418000	W00618000	W14518000	W20518000	W30518000	**36,0 - 42,0**	**14**
38,0	W00419000	W00619000	W14519000	W20519000	W30519000	**38,0 - 44,0**	**16**
40,0	W00420000	W00620000	W14520000	W20520000	W30520000	**40,0 - 47,0**	**16**
42,0	W00421000	W00621000	W14521000	W20521000	W30521000	**42,0 - 50,0**	**16**
44,0	W00422000	W00622000	W14522000	W20522000	W30522000	**44,0 - 53,0**	**18**
46,0	W00423000	W00623000	W14523000	W20523000	W30523000	**46,0 - 55,0**	**18**
48,0	W00424000	W00624000	W14524000	W20524000	W30524000	**48,0 - 57,0**	**18**
50,0	W00425000	W00625000	W14525000	W20525000	W30525000	**50,0 - 59,0**	**18**

Orbital-tube welding systems Inverter power sources

The TECHNODATA *orbital* welding systems are the result of many years experience in the field of tube to tube and tube to tube-sheet TIG welding. High quality welds and high repeatability are reached by using ultra modern technical components and special software. The input of all parameters is very easy and logical by means of the control panel with 8-line display.

Technical Data :

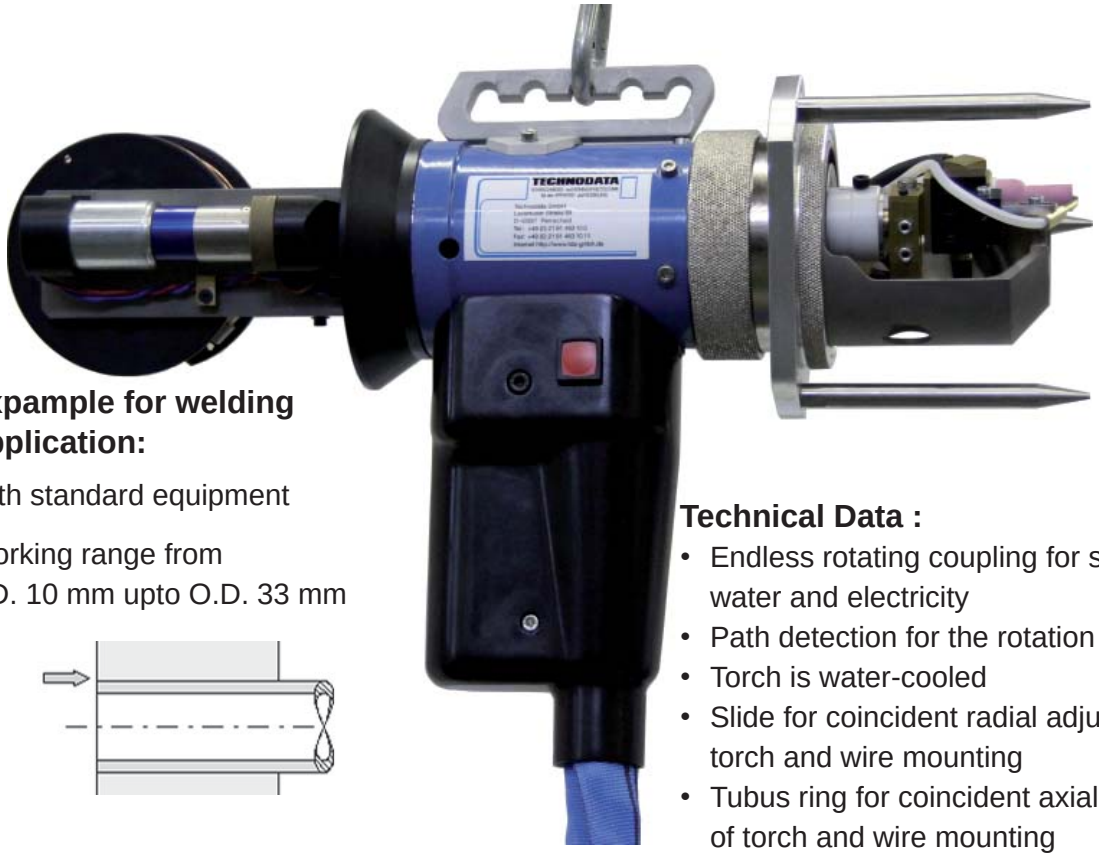
- integrated control unit for TECHNODATA *orbital* welding heads
- integrated sector control
- integrated store
- remote control.

• current range:	5 A - 300 A
• max current 60% d.c.:	300 A
• max current 100% d.c.:	250 A
• no load voltage:	93 V
• welding voltage:	10 V - 30 V
• mains voltage:	3 x 400 V
• tolerance:	+ 20 % / - 25 %
• frequency:	50 / 60 Hz
• max. connected load:	14.3 kVA
• surrounding temperature:	- 10°C / 40 °C
• cooling:	fan
• torch-cooling:	water
• tank capacity:	12 l
• ground cable:	35 mm²
• size (L / W / H):	1100 x 455 x 950 mms
• weight:	appr. 124 kgs
• tested:	VDE 0544 + EN 60974-1 S

INVERTER-POWERSOURCE TYPE	IM-99	IM-2013	IM-2015
welding current 5A to 300 A	yes	yes	yes
time span starting 100% at 270 A	yes	yes	yes
no-load voltage 98V	yes	yes	yes
cooling with cooling liquid for connected welding heads	yes	yes	yes
connection tube to tube welding head type TDA	no	yes	yes
connection tube to tube sheet welding head type TDA	T-250 + T-250 ECO	T-250 + T-250 ECO + T-230	T-250 + T-250 ECO + T-230 + T-230MC
halving of angular steps according to connected welding head	no	no	yes
connection pneumatic clamping device	no	no	yes
automatic distance control electrode-tubesheet	no	no	yes
multilayer welding with automatic distance control	no	no	yes
real-time measurement of welding parameters	no	no	yes
controllable via Remote Access Viewer	no	no	yes
LAN Connection	no	no	yes
USB-Connection	no	yes	yes
connection printer	no	yes	yes
direct printing on PC via Hyper Terminal	no	yes	yes
entering of parameters is password protected	no	yes	yes
store programmes internally and externally	no	yes	yes
synchronisation rotation wire	no	yes	yes
separate down slope speed	no	yes	yes
monitoring rotation and wire	no	yes	yes
automatic wire backdrawing during down slope	yes	yes	yes
store programmes internally 2MB capacity	yes	yes	yes
alarm message in case of a battery error	yes	yes	yes
monitoring of gas and coolant flow	yes	yes	yes
two-ply welding without automatic distance control	yes	yes	yes
menu lead control via HMI with 8 mm hose package	yes	yes	yes
connection titan chamber	yes	yes	yes
record of operating hours and welding cycles	yes	yes	yes
multi-language display	yes	yes	yes
modification of all parameters during the welding process possible	yes	yes	yes
cooling Power Source Ventilator	yes	yes	yes
10 sectors for rotation, wire, and max current	yes	no	no
10 sectors for rotation, wire, max current, min current, min pulsation, max pulsation	no	yes	no
18 sectors for rotation, wire, max current, min current, min pulsation, max pulsation	no	no	yes
dimensions L/W/H 1110x455x950 mm	yes	yes	yes
weight 124 kgs	yes	yes	yes

Orbital-welding head type T-250 ECO

The orbital welding head type T-250 ECO is used for tube-to-tube sheet weldings – with or without filler wire – according to the TIG welding procedure. It distinguishes by its easy handling, high adaptability to different welding tasks and accurate torch guidance. The welding head consists of a central body with centering bell, a torch unit as well as a flange-mounted and turning filler wire feeding unit. The water-cooled torch, which can be adjusted radially, axially and angularly, rotates around its main axle. The media electricity, shielding gas and water are transferred via endless rotating couplings. The welding head is centered in the tube by a centering cartridge mounted onto a centering mandrel and positioned by support legs that can be precisely adjusted to the hole pattern. Stable holdings provide a reliable feed of the filler wire. Infinitely adjustable driving motors for the rotation and filler wire feed as well as an accurate path detection allow the individual adjustment of automatic single-ply or multilayer weldings. Summarized, the orbital welding head type T-250 allows reliable and reproducible tube-to-tube sheet weldings while its handling is simplest.

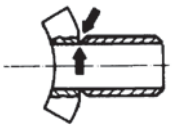


expample for welding application:

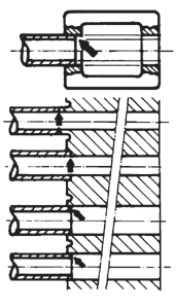
with standard equipment

working range from
I.D. 10 mm upto O.D. 33 mm

with optional equipment:



special torches with or without wire feed, centering device adapted to the special requirements



more applications on request

Technical Data :

- Endless rotating coupling for shielding gas, water and electricity
- Path detection for the rotation
- Torch is water-cooled
- Slide for coincident radial adjustment of torch and wire mounting
- Tubus ring for coincident axial adjustment of torch and wire mounting
- Filler wire unit that rotates with the torch, removable
  (spool: D 100 / d= 0,8 mm / approx. 1 kg)
- Speed of rotation: 0,2 - 5 min^{-1}
- Feed of filler wire: 0 - 1,5 m / min
- Diameter of the electrode: 1,6 - 2,4 mm
- max. ampacity: 200 A
- Weight (without spool): 5,3 kg
- Diameter (without centering): L= 450 mm
  D= 120 mm

Options: double gas shield chamber, pneumatic clamping system, special torch, support ring

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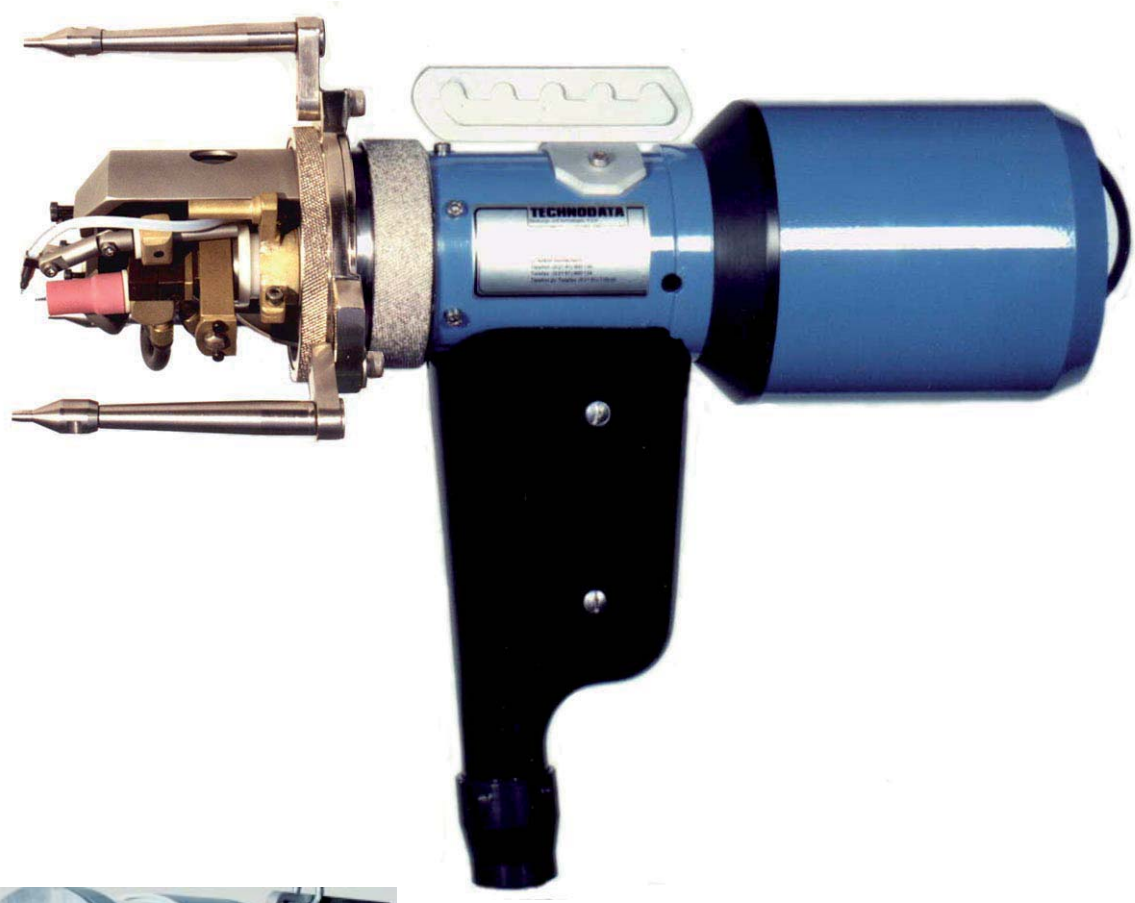
Orbital-welding head T-250

The TECHNODATA welding head is used for TIG tube to tube-sheet weldings with and without filler wire. The main features are easy handling, high adaptability to the specific welds and precise torch guiding.
The welding head T-250 consist of the central body with centering bell and torch unit, and the mounted rotating filler wire device. The rotating torch is water cooled and can be adjusted radial, axial, and angular. The rotating movement is endless, current, shield gas and coolant are passed over by a rotation coupling.
The welding head T-250 is centered in the tube to be welded by means of a interchangeable centering cartridge mounted on a centering mandrel. The distance and the right angle position are secured by adjustable precise supporting legs. Exact filler wire guiding is guaranteed by a rigid guide system. Stepless adjustable driving motors for rotation and wire feeding together with the way control system are responsible for the automatic single- or multi-pass welding cycle.



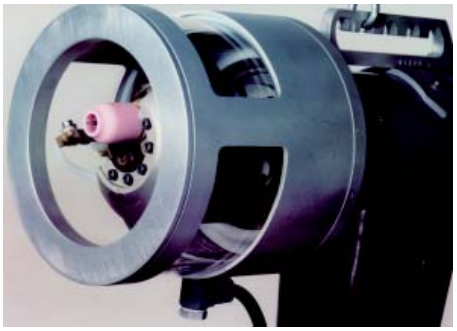
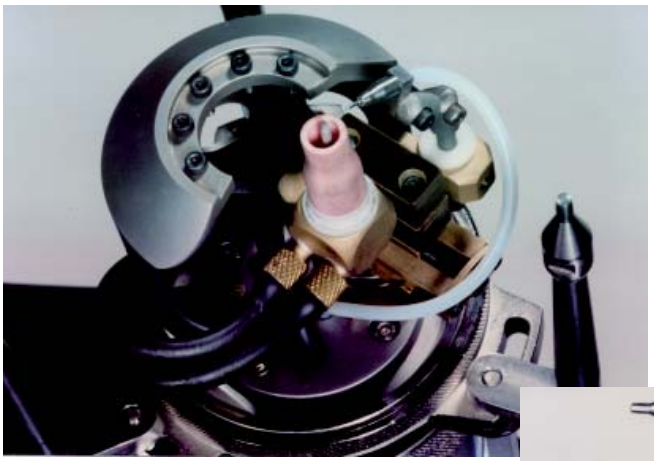
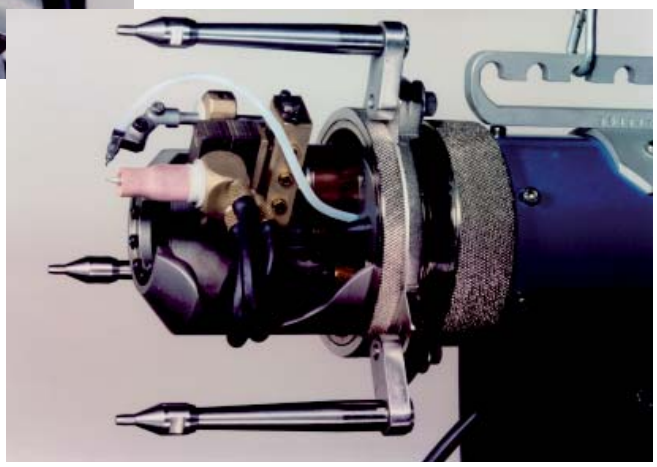


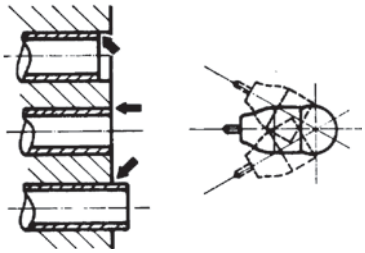
fig.: Orbital-welding head T-250, with double gas shield chamber to weld titanium tubes





Examples for welding geometries:

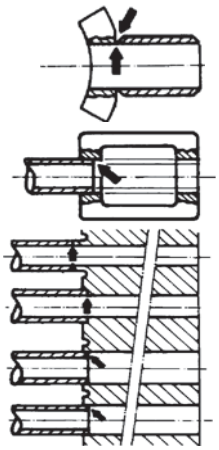
with standard equipment:



D = 12 - 82 mms

$D_{30°}$ = 12 - 40 mms

with optional equipment:



i.e:
special torches with or without wire feed, centering device adapted to the special requirements

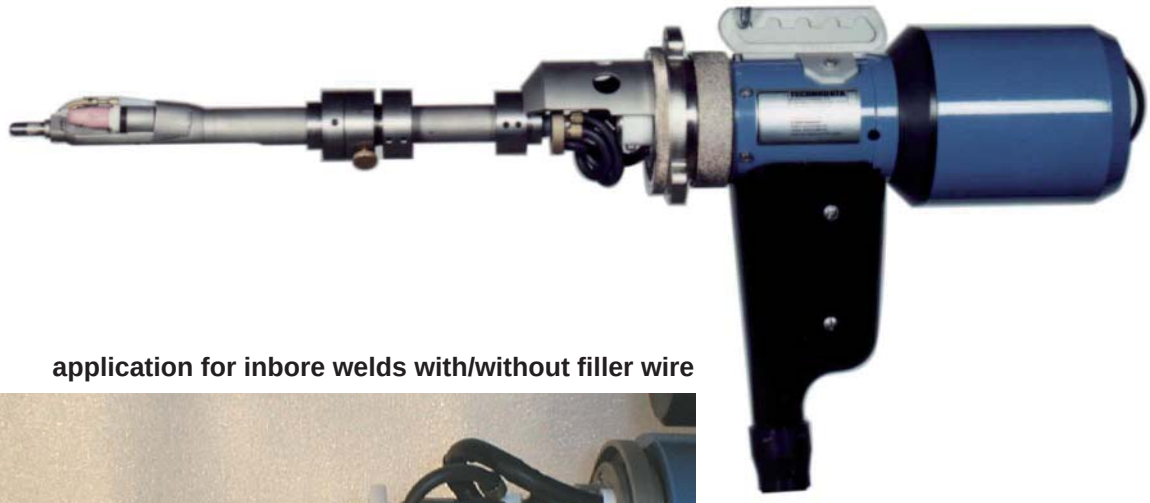
more applications on request

Technical Data :

- endless rotating coupling for current, shield gas and coolant
- way control for rotation
- torch water cooled, swivelling
- slide for torch and wire adjustment
- axial adjustment by screw ring
- rotating wire feeding device (dismountable) (spool D 100;wire dia. 0,6 - 1,2 mms; 1 kgs)
- rotating speed: 0,2 - 5 rpm
- wire speed: 0 - 1,5 m / min
- tungsten dia.: 1,6 - 3,2 mms
- max. current: 200 A
- net weight: 7,5 kgs
- size (without centering): L= 450 mms D= 120 mms

Accessories:
double gas shield chamber
pneumatic clamping device
motorized torch adjustment
support ring; balancer etc.

Orbital-welding head Typ T-250 special solutions for aircooler weld



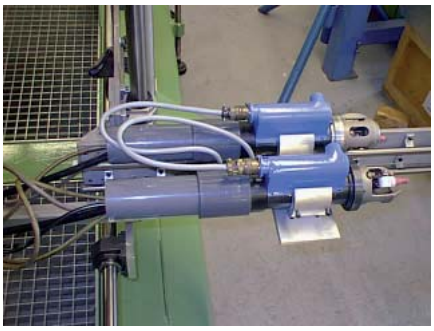
application for inbore welds with/without filler wire

Orbital-welding / Standard und special applications

simultaneous working of 7 welding head

special torch for recessed weld

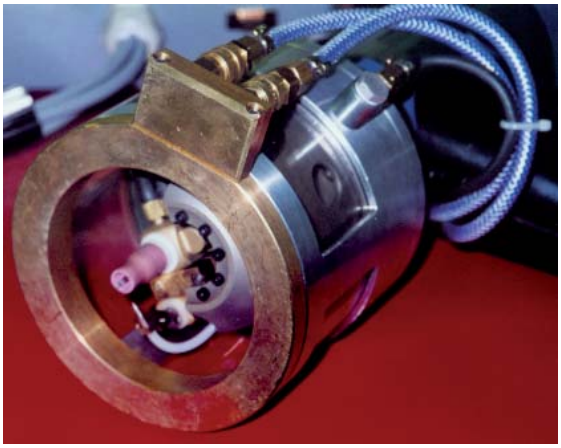
special torch for header drum stud welding



Frame for double welding system

aircooler torch for fillet welds

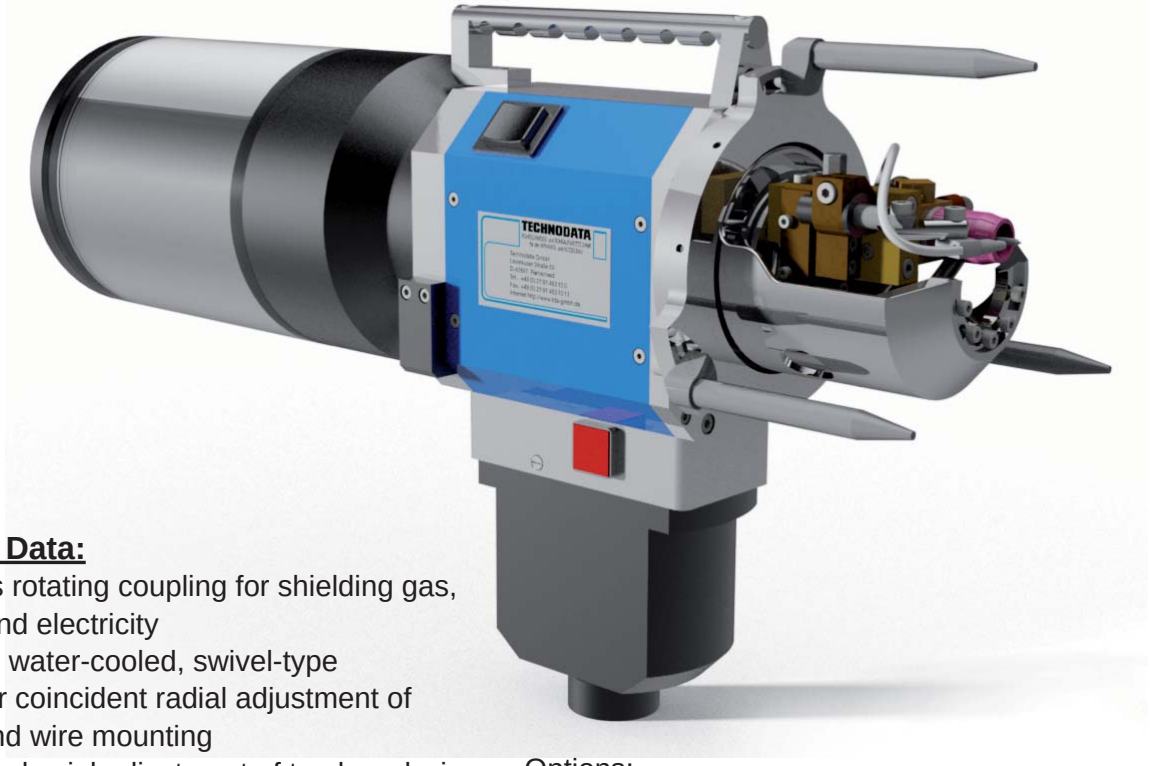
T-250 with standard double gas shield chamber



double gas shield chamber, liquid cooled

Orbital-welding head Type T-230

The welding head type T-230 may be used for single- and two-ply tube-to-tube sheet weldings – with or without filler wire – according to the TIG welding procedure. It distinguishes by its easy handling, high adaptability to different welding tasks and accurate torch guidance. The welding head consists of a central body with centering bell, a motorized torch unit as well as a flange-mounted and turning filler wire feeding unit. The water-cooled torch, which can be adjusted radially by hand and axially by motor, rotates around its main axle. The media electricity, shielding gas and water are transferred via endless rotating couplings. The welding head is centered in the tube by a centering cartridge mounted onto a centering mandrel and positioned by support legs that can be precisely adjusted to the hole pattern. Stable holdings provide a reliable feed of the filler wire. Infinitely adjustable driving motors for the rotation and filler wire feed as well as an accurate path detection allow the individual adjustment of automatic single- or two-ply weldings. The operating range can be increased by an optional extension of the support legs. Additionally, when fillet welds shall be produced, the desired torch angle is ensured by exchanging the torch holder (optional). Summarized, the orbital welding head type T-230 allows reliable and reproducible tube-to-tube sheet weldings while its handling is simplest



Technical Data:

- Endless rotating coupling for shielding gas, water and electricity
- Torch is water-cooled, swivel-type
- Slide for coincident radial adjustment of torch and wire mounting
- Motorized axial adjustment of torch and wire mounting during manual operation
- Filler wire feeding unit that rotates with the torch, removable (spool: D 100 / d= 0.8 – 1.0 mm / approx. 1 kg)
- Speed of rotation: 0.2 – 5 min $^{-1}$
- Feed of filler wire: 0 – 1.5 m/min
- Diameter of the electrode: 1.6 – 2.4 mm
- Max. ampacity: 200 A
- Tube range:(standard)10.0 – 32.0 mm (AD)

Options:

- Double gas shield chamber
- pneumatic clamping system
- special torch
- support ring
- balancer
- centerings adjusted to the welding task
- conversion kit for tube O.D. 10-51 mm
- conversion kit for fillet weld
- Selectable angle position of the torch

More cases of application upon request.

Orbital-welding head Type T-230 MC

The welding head type T-230 MC may be used for multiply tube-to-tube sheet weldings – with or without filler wire – according to the TIG welding procedure. It distinguishes by its easy handling, high adaptability to different welding tasks and accurate torch guidance. The welding head consists of a central body with centering bell, a motorized torch unit as well as a flange-mounted and turning filler wire feeding unit. The water-cooled torch, which can be adjusted radially by hand and axially by motor, rotates around its main axle. The media electricity, shielding gas and water are transferred via endless rotating couplings. The welding head is centered in the tube by a centering cartridge mounted onto a centering mandrel and positioned by support legs that can be precisely adjusted to the hole pattern. Stable holdings provide a reliable feed of the filler wire. Infinitely adjustable driving motors for the rotation and filler wire feed as well as an accurate path detection allow the individual adjustment of automatic single-ply or multilayer weldings. Next to the START/STOP button, the welding head has two additional button which can be individually programmed with functions like torch positioning, filler wire feed, gas test or similar. The operating range can be increased by an optional extension of the support legs. Additionally, when fillet welds shall be produced, the desired torch angle is ensured by exchanging the torch holder (optional). Summarized, the orbital welding head type T-230 MC allows reliable and reproducible tube-to-tube sheet weldings while its handling is simplest.

The welding head type T-230 MC can be operated with different control units. By using a TDA-control which is designed for two-ply weldings (cf. TDA power source Type IM-2015), the axial distance between the electrode and the work piece is ensured by a path control. The result is a multiply welding of high quality by which a consistent heat input into the weld pool has happened. By using a control which is designed for AVC welding, the axial distance between the electrode and the work piece is adjusted permanently. The result is a multiply welding of high quality.

Technical Data:

- Endless rotating coupling for shielding gas, water and electricity
- Path detection for the rotation
- Torch is water-cooled, swivel-type
- Slide for coincident radial adjustment of torch and wire mounting
- Motorized axial adjustment of torch and wire mounting during manual operation
- Filler wire feeding unit that rotates with the torch, removable (spool: D 100 / d= 0.8 – 1.0 mm / approx. 1 kg)
- Position detection for AVC-controls
- Speed of rotation: 0.2 – 5 min $^{-1}$
- Feed of filler wire: 0 – 1.5 m/min
- Diameter of the electrode: 1.6 – 2.4 mm
- Max. ampacity: 200 A
- Tube range:(standard)10.0 – 32.0 mm (AD)

Options:

- Double gas shield chamber
- pneumatic clamping system
- special torch
- support ring
- balancer
- centerings adjusted to the welding task
- conversion kit for tube O.D. 10-51 mm
- conversion kit for fillet weld
- Selectable angle position of the torch.

More cases of application upon request.

centering cartridges and mandrels for orbital welding heads

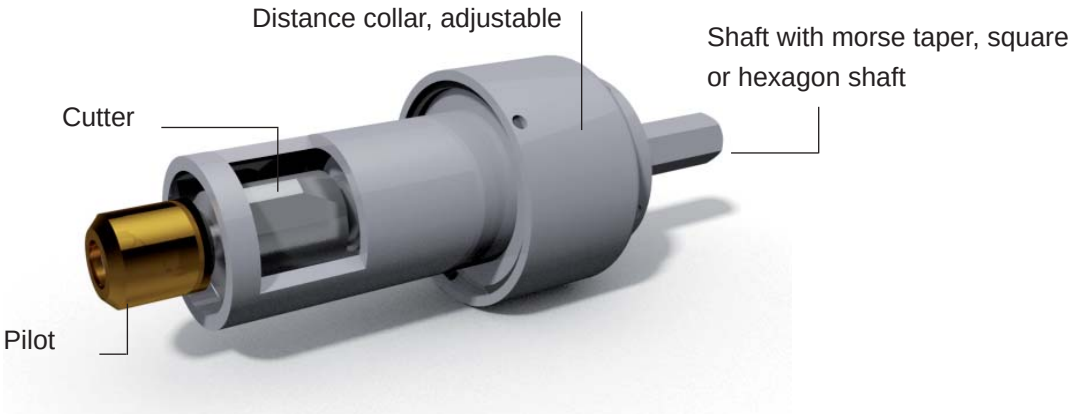
Art.-No.	denomination	tube ID	
179200101	**centering mandrel size 1 - for**	centering cartridges **size 101 - 106**	
179209805	centering cartridges for tube ID:	**9,8 - 10,3 mm**	size 101
179210305	centering cartridges for tube ID:	**10,3 - 10,8 mm**	size 102
179210805	centering cartridges for tube ID:	**10,8 - 11,3 mm**	size 103
179211305	centering cartridges for tube ID:	**11,3 - 11,8 mm**	size 104
179211805	centering cartridges for tube ID:	**11,8 - 12,3 mm**	size 105
179212305	centering cartridges for tube ID:	**12,3 - 13,0 mm**	size 106
179200111	**centering mandrel size 2 - for**	centering cartridges **size 107 - 114**	
179212812	centering cartridges for tube ID:	**12,8 - 14,0 mm**	size 107
179213312	centering cartridges for tube ID:	**13,3 - 14,5 mm**	size 107 A
179213812	centering cartridges for tube ID:	**13,8 - 15,0 mm**	size 108
179214812	centering cartridges for tube ID:	**14,8 - 16,0 mm**	size 109
179215312	centering cartridges for tube ID:	**15,3 - 16,5 mm**	size 109 A
179215812	centering cartridges for tube ID:	**15,8 - 17,0 mm**	size 110
179216812	centering cartridges for tube ID:	**16,8 - 18,0 mm**	size 111
179217312	centering cartridges for tube ID:	**17,3 - 18,5 mm**	size 111 A
179217812	centering cartridges for tube ID:	**17,8 - 19,0 mm**	size 112
179218812	centering cartridges for tube ID:	**18,8 - 20,0 mm**	size 113
179219312	centering cartridges for tube ID:	**19,3 - 21,5 mm**	size 113 A
179219827	centering cartridges for tube ID:	**19,8 - 22,5 mm**	size 114
179220827	centering cartridges for tube ID:	**20,8 - 23,5 mm**	size 114 A
179200121	**centering mandrel size 3 - for**	centering cartridges **size 115 - 125**	
179222327	centering cartridges for tube ID:	**22,3 - 24,8 mm**	size 115
179224525	centering cartridges for tube ID:	**24,5 - 27,0 mm**	size 116
179226525	centering cartridges for tube ID:	**26,5 - 29,0 mm**	size 117
179228525	centering cartridges for tube ID:	**28,5 - 31,0 mm**	size 118
179230525	centering cartridges for tube ID:	**30,5 - 33,0 mm**	size 119
179232535	centering cartridges for tube ID:	**32,5 - 36,0 mm**	size 120
179235535	centering cartridges for tube ID:	**35,5 - 39,0 mm**	size 121
179238535	centering cartridges for tube ID:	**38,5 - 42,0 mm**	size 122
179241535	centering cartridges for tube ID:	**41,5 - 45,0 mm**	size 123
179244535	centering cartridges for tube ID:	**44,5 - 48,0 mm**	size 124
179247535	centering cartridges for tube ID:	**47,5 - 51,0 mm**	size 125
179200131	**centering mandrel size 4 - for**	centering cartridges **size 126 - 132**	
179250535	centering cartridges for tube ID:	**50,5 - 54,0 mm**	size 126
179253545	centering cartridges for tube ID:	**53,5 - 58,0 mm**	size 127
179257545	centering cartridges for tube ID:	**57,5 - 62,0 mm**	size 128
179261545	centering cartridges for tube ID:	**61,5 - 66,0 mm**	size 129
179265545	centering cartridges for tube ID:	**65,5 - 70,0 mm**	size 130
179269545	centering cartridges for tube ID:	**69,5 - 74,0 mm**	size 131
179273545	centering cartridges for tube ID:	**73,5 - 78,0 mm**	size 132

A:
adapter plate
to use TDA centering system,
with non-TDA welding heads

special sizes and ranges available, please contact customer service !

Tube end facer type TF 50

The tube end facer TECHNODATA type TF 50 is a special tool for manual cutting of tube protrusions from the tube sheet. It is fitted to a driving motor with suitable speed range by means of a morse taper, square or hexagon-shaft. The cutter is equipped with an interchangeable pilot for centering during the cutting procedure, according to the tube inside diameter. An adjustable distance collar touches the tube sheet face when the required tube end position is reached and guaranties a repeatable cutting of tubes. A selection of pilots, cutters and distance collars makes the tool adaptable for each tube size between 10 mms - 38 mms outside diameter.



code no.	pc.	DENOMINATION			
010....10	1	size 0	**O.D. 10,0 - 14,0 mm**		*hexagon shank 10 mm*
010....20	1	size 0	**O.D. 10,0 - 14,0 mm**		*square shank 9,5 mm (3/8“)*
010....30	1	size 0	**O.D. 10,0 - 14,0 mm**		*morse taper shank MT 2*
010....11	1	size 1	**O.D. 14,1 - 25,0 mm**		*hexagon shank 10 mm*
010....21	1	size 1	**O.D. 14,1 - 25,0 mm**		*square shank 9,5 mm (3/8“)*
010....31	1	size 1	**O.D. 14,1 - 25,0 mm**		*morse taper shank MT 2*
010....12	1	size 2	**O.D. 25,1 - 38,0 mm**		*hexagon shank 12 mm*
010....22	1	size 2	**O.D. 25,1 - 38,0 mm**		*square shank 12,0 mm (3/8“)*
010....32	1	size 2	**O.D. 25,1 - 38,0 mm**		*morse taper shank MT 2*
			spot facer		
110....00	1	spot facer, size 0, diam. **10,5 - 12,5 mm**			
110....00	1	spot facer, size 0, diam. **13,0 - 16,5 mm**			
110....01	1	spot facer, size 1, diam. **14,0 - 19,5 mm**			
110....01	1	spot facer, size 1, diam. **20,0 - 23,5 mm**			
110....01	1	spot facer, size 1, diam. **24,0 - 27,5 mm**			
110....02	1	spot facer, size 2, diam. **24.0 - 27.5 mm**			
110....02	1	spot facer, size 2, diam. **28.0 - 32.0 mm**			
110....02	1	spot facer, size 2, diam. **32.0 - 40.0 mm**			
			pilot		
210....00	1	pilot for **size 0 diameter upto 11 mm**			
210....01	1	pilot for **size 1 diameter upto 18 mm**			
210....02	1	pilot for **size 2 diameter upto 35 mm**			

Bevelling machines type MINI-TDA

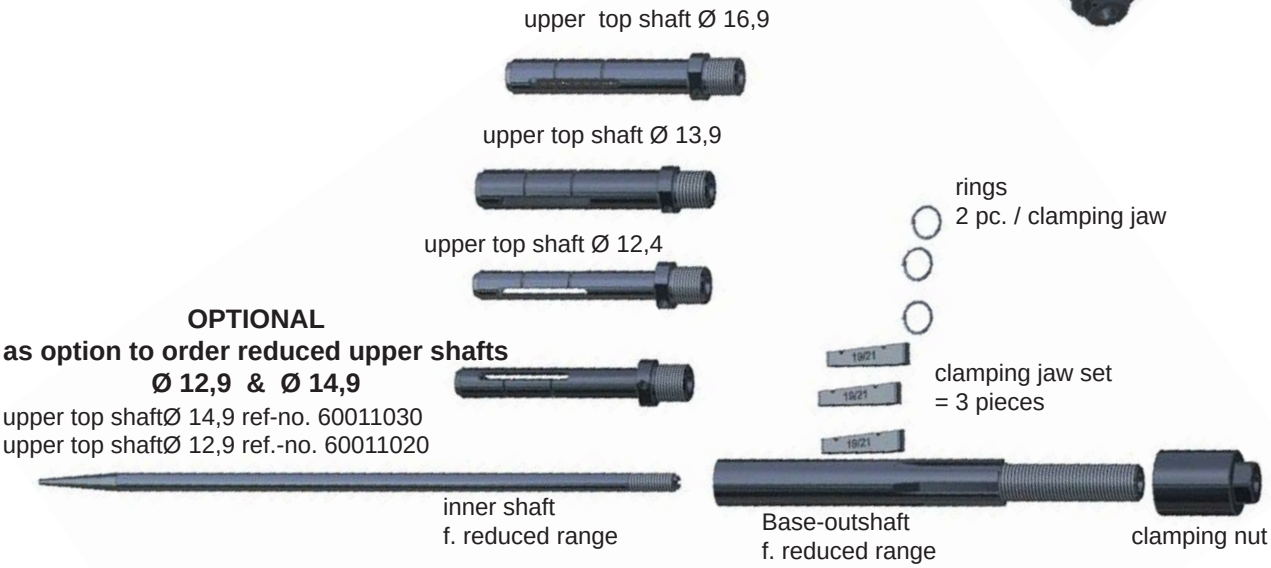
For different reasons tube ends of most different tube dimensions - and materials must be machined.
This should be obtained quickly, economically and precise, because the machining result is often determining the efficiency of the following operations, p.e. welding.
For the entire field TECHNODATA offers a range of bevelling machines with internal or external locking.
The bevelling machine **MINI TDA** is designed for precise and economical bevelling and shortening of tube ends. Locking is internal. By mounting three different cutters, three different faces at the tube end can be obtained in one operation. The standard model is pneumatic driven and equipped with manual locking and manual feeding, for tube I. D. range 20 to 42 mms (.78“ to 1.65“), optional 12 to 21 mms (.49“ to .83“), and is delivered in a durable metal case. Electric drive, pneumatic locking, pneumatic feeding and models with more capacity as well as special grippers p.e. for elbow bevelling are available.

• idle speed:	180	rpm
• power:	0,28	hp
• torque:	21	N.m
• feeding range:	23 (37)	mms
• air consumption:	350 - 400	l/min
• air pressure:	6	bar
• weight:	4,5	kgs
• sizes:	67 x 300	mms

Accessories bevelling machine MINI-C / MINI-K

clamping jaws		base shaft	inner shaft
range mm	Ref.-Nr.	Ref.-Nr.	Ref.-Nr.
20,0 - 24,0	60013090	Ø 20,0 mm 60021000	60022000
23,0 - 27,0	60013100		
26,0 - 30,0	60013110		
29,0 - 33,0	60013120		
32,0 - 36,0	60013130		
35,0 - 39,0	60013140		
38,0 - 42,0	60013150		

f. reduced tube range 12,5 - 21,0 mm



upper shafts		clamping jaws		rings	base shaft	inner shaft
Ø mm	Ref.-Nr.	range mm	Ref.-Nr.	Ref.-Nr.	Ref.-Nr.	Ref.-Nr.
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		
		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			

Bevelling machine Typ BOILER

For different reasons tube ends of most different tube dimensions - and materials must be machined.
This should be obtained quickly, economically and precise, because the machining result is often determining the efficiency of the following operations, p.e. welding.
For the entire field TECHNODATA offers a range of bevelling machines with internal or external locking.

The bevelling machine type **BOILER** is designed for preparation of tubeends range 28 - 76 mms inside Ø. With special clamping set you can prepare tube ends from inside Ø 20,0 mm.

• idle speed:	110	rpm
• power:	0,55	hp
• torque:	83	N.m
• feeding range:	40	mms
• air consumption:	950	l/min
• air pressure:	6	bar
• weight:	8,3	kgs
• sizes:	80 x 300	mms

fig.: Bevelling machine type **BOILER**

Cutter bits

OUTSIDE WORKING

INSIDE WORKING

STRAIGHT WORKING

for further bits and special tools contact your customer service !

for further bits and special tools for bevelling machines contact your customer service !

Orbital-Cutting Type CC

- Large diameter range: 11 models from Ø 5 to Ø 1100 mm.
- Big capacity of clamping for each model.
- 1 concentric clamping multi-contacts : Clamping system without tube deformation (Ideal for thin wall stainless tubes).
- Stainless steel jaws in standard: Save corrosion of stainless tube when it‘s in contact.
- Distance Clamping-saw: from 2 to 15 mm, to ensure a precise cut without deformation of the tube.
- Weight : lighter and easier to move on worksite and workshop.
- A standard drive wheel (except ECO et CC80): The motor turns around the tube with gear reduction avoids wasted efforts and difficult working positions, ensures an even advance of the tool (which increases blade lifetime and improves the quality of the cut).
- Cutting precision: good surface condition (limited burring) and perpendicular < 0,25 mm, ideal for orbital welding.
- Productivity : interchangeable motors for cutting hard steel material to adapt a beveling motor or a welding torch to amortize faster the investment.

TYPE	QTY clamping jaw	Ø range mm	tubewall thickness mm	weight kgs	faster motorization	slower motorization	pneumatic motorization	frame size L x W X H mm
CC80	3	**5>78**	**0,5>7**	15	M21 : 220V / M11 : 110V	x	x	262x250x115
CC121 ECO	4	**5>121**	**0,5>7**	36	M21 : 220V / M11 : 110V	x	x	432X520X297
CC121	4	**5>121**	**0,7>15**	37	FS29 : 220V / FS19 : 110V	FS25 : 220V / FS15 : 110V	MOPD	432X520X297
CC171	4	**16>171**	**0,7>15**	44	FS29 : 220V / FS19 : 110V	FS25 : 220V / FS15 : 110V	MOPD	474X545X297
CC221	6	**59>225**	**1>15**	51	FS29 : 220V / FS19 : 110V	FS25 : 220V / FS15 : 110V	MOPD	515X544X320
CC321	6	**140>330**	**1,5>15**	73	FS29 : 220V / FS19 : 110V	FS25 : 220V / FS15 : 110V	MOPD	674X636X320
CC420	6	**215>420**	**1,5>15**	148	FS29 : 220V / FS19 : 110V	FS25 : 220V / FS15 : 110V	MOPD	791x690x260
CC520	6	**315>520**	**1,5>15**	250	FS29 : 220V / FS19 : 110V	FS25 : 220V / FS15 : 110V	MOPD	901x790x281
CC620 L	8	*	**1,5>15**	400	FS29 : 220V / FS19 : 110V	FS25 : 220V / FS15 : 110V	MOPD	1085x1050x488
CC720 L	8	**	**1,5>15**	450	FS29 : 220V / FS19 : 110V	FS25 : 220V / FS15 : 110V	MOPD	1095x1117x488
CC1100	Bitte anfragen							

Orbital-Bevelling Type GA

- Unique: unique machine using this innovative carbide technology.
- Productivity: the bevelling with carbide tips offers speed 10 times higher than that possible with an HSS tool. Example: Ø 88,9 x 6 mm, material 316L: only 45 sec for the bevel.
- LARGE DIAMETER RANGE.
- Bevel: in V-shape, for the manual welding (30°, 37,5° and 45°) or in J-shape for the automatic welding.
- Quality: the tracking system included in the standard milling head offsets the roundness of the tubes.
- Simplicity: The operation, the settings with the assistance of the cutting wheel and the bevelling are simple and fast.
- Cost: in a Ø88.9 x 6 mm in stainless steel 316L = 300 bevels without lubrication.
- Flexibility: can be used also with hard material as, steel, stainless steel, duplex, super duplex.
- Possibility to use too for cutting, welding and with an automatic rotation.

TYPE	QTY clamping jaws	Ø range mm	tubewall thickness mm	bevel type	bevel type	motorization	weight kg	frame size L x W X H mm
GA121	4	15>121	2->8	J 10°	V30°-37,5°-45°	110 V oder 220 V	37	432x520x297
GA171	4	33>170	2->8	J 10°	V30°-37,5°-45°	110 V oder 220 V	44	474x545x297
GA221	6	59>225	2->8	J 10°	V30°-37,5°-45°	110 V oder 220 V	51	515x544x320
GA321	6	153>330	2->8	J 10°	V30°-37,5°-45°	110 V oder 220 V	73	674x636x320
andere Durchmesser auf Anfrage								

Orbital-welding machine type TDA-160

The TDA-160 is a direct current (DC) welder generator for the welding of stainless steel and any other material that can be welded using the TIG process. Using inverter technology, it can be used for TIG welding with arc-striking by RF. This welder is a TIG orbital welder intended for use in the automatic orbital welding of tubes for the food-processing, pharmaceutical and chemical industries etc. in particular.
Combined with our welding heads, it offers a compact and powerful range of welding applications, for high quality, repetitive welding activities

Technical data:

• Voltage		230V AC
• Frequency		50 / 60 Hz
• electr. charge permitted	20 %	165 A
	60 %	120 A
	100 %	110 A
• protection class		IP 23
• operating temperature		0 to 40°C
• transport temperature		-25 to +55°C
• cooling system/power		800 W
• cooling system max. pressure		0,5 Mpa

Orbital-welding head type SZ-SATO

Orbital-welding head type SZ-40

Orbital-power source type TDA-160

Electronic tube expanding controller type NFAB-S and NFAB-S/1

The electronic tube expanding controller is used for exact and repeatable power control of electric driving motors for tube expanding work.
The controller is designed for connection of three phase A.C. motors of different types and power ranges.
The electronic measurement and control of electric power secures the precise breaking torque and guaranties the repeatability of the expanding rate.
A control system adapted to the expanding procedure assures optimal economy. The handling is very easy.
The expanding cycle will be started by foot-pedal switch.

Technical Data :

- mains connection: 400 V / 3~ / 50 Hz
- output voltage: 42 V / 3~ / 50 Hz

(safety voltage)

alternativ: 400 V / 3~ / 50 Hz

- output power: max. 1,9 kVA

(more power on request)

- main switch with overload release (adjustable)
- stand by indicator
- power adjustment by 10-fold potentiometer
- adjustable reverse time appr. 0 - 30 sec
- adjustable delay time appr. 0 - 30 sec
- automatic cycle restart (disengageable)
- zero setting to compensate different no-load power of driving motors
- phase sequence switch

- foot-pedal switch with 3 buttons
- size (L/W/H): 400 x 520 x 315 mms
- weight: (42 V type) appr. 48 kgs
  (400 V type) appr. 20 kgs

Options:

- trolley for driving motor support
- hand-switch

NFAB-S/1 with 400 V / 3~ / 50 Hz

NFAB-S with 42 V / 3~ / 50 Hz

fig. right
backside with connections
NFAB-S/1(top) and
NFAB-S (down)

Electronic tube expanding controller type NFAB D/2

The electronic tube expanding controller is used for exact and repeatable power control of electric driving motors for tube expanding work.
The controller is designed for connection of single phase motors of different types and power ranges. With the single phase driving motors the power weight of the driving motor is very low.
The electronic measurement and control of the electric power secures the precise breaking torque and guarantees repeatability of the expanding rate. A control system adapted to the expanding procedure assures optimal economy. The handling is very easy.
All parameters will be adjusted by the control panel with the 2-line multiple language digital display. It is possible to store the expanding processes by integrated storage device. Further it is possible to connect the TDA printer LQ 300 for documentation.The expanding cycle will be started by foot-pedal switch.

Technical Data :

- main connection: 230 V / 1~ / 50 (60) Hz
- output voltage: 230 V / 1~ / 50 (60) Hz
- output power: max. 1,9 kVA
- main switch with overload release (adjustable)
- stand by indicator
- adjustment by digital display
- adjustable reverse time appr. 0 - 30 sec
- adjustable delay time appr. 0 - 30 sec
- automatic cycle restart (disengageable)
- zero setting to compensate different no-load power of driving motors
- phase sequence switch
- plug for printer
- foot-pedal switch with 3 buttons
- size (L/W/H): 360 x 520 x 170 mms
- weight: appr. 14 kgs

Electronic tube expanding controller type NFAB-D and NFAB-D/1

The electronic tube expanding controller is used for exact and repeatable power control of electric driving motors for tube expanding work.The controller is designed for connection of three phase A.C. motors of different types and power ranges. The electronic measurement and control of electric power secures the precise breaking torque and guarantees the repeatability of the expanding rate. A control system adapted to the expanding procedure assures optimal economy. The handling is very easy. All parameters will be adjusted by the control panel with the 2-line multiple language digital display. It is possible to store the expanding processes by integrated storage device. Further it is possible to connect the TDA IBM compatible printer type LQ-300 with appropriate interface for the documentation.An optional PC-interface make a Up- and Download from stored data possible. The expanding cycle is started by foot-pedal switch.

Technical Data :

- mains connection: 400 V / 3~ / 50 Hz
- output voltage: 42 V / 3~ / 50 Hz

(safety voltage)

alternativ: 400 V / 3~ / 50 Hz

- output power: max. 1,9 kVA

(more power on request)

- main switch with overload release (adjustable)
- stand by indicator
- adjustment by digital display
- adjustable reverse time appr. 0 - 30 sec
- adjustable delay time appr. 0 - 30 sec
- automatic cycle restart (disengageable)
- zero setting to compensate different no-load power of driving motors
- phase sequence switch
- plug for power recorder/printer
- foot-pedal switch with 3 buttons
- size (L/W/H): 400 x 520 x 315 mms
- weight: (42 V type) appr. 48 kgs

(400 V type) appr. 20 kgs

Options:

- printer type CBM 910
- trolley for driving motor support
- hand-switch

fig. up
NFAB-D/1 mit 400 V / 3~ / 50 Hz

fig. down
NFAB-D mit 42 V / 3~ / 50 Hz

fig.
backside with connections NFAB-D/1 und NFAB-D
(top down)

Working trolley for tube expanding control units

The working trolley in combination with our tube expanding controllers series NFAD-S and NFAB-D allow a „mobile expanding unit. The trolley consists of a high adjustable horizontal bar with a swivelling gallow for flexible expanding of tubes. the driving motor type D-532 or DSL 550 will mounted by the cardanical suspension brackets at the working trolley. The telescopic shaft is connect by a balancer with the swivelling gallow and guarants a high flexible working for the operator.
The lockable tool box, with 2 levels, store tube expanders, measuring instruments or the printer for documentation.Further it will be possible to store the tube expanding controller with telescopic shaft and foot switch after succesful working in the tool chest.

fig.: Expanding controller type **NFAB-D** inside of the tool chest.

Driving motors for expanding

42 V / 3~ / 50/60 Hz (safety voltage) or 400 V / 3~ / 50/60 Hz available

4-speed driving motor type D-532 with gimbal suspension

power:	1250 W
speed:	120, 195, 360, 680 rpm
tool connection:	internal morse taper MT 3
weight:	appr. 15 kgs

5-speed driving motor type DSL 550 with gimbal suspension

power:	1500 W
speed:	20, 40, 80, 160, 700 rpm
tool connection:	internal morse taper MT 4
weight:	appr. 31 kgs

Driving motor with feeding device and gear box (compact design)

for mechanical-hydraulic tube expanding equipment type NFAB-H, p.e. for special working areas.
Technical data due to driving motor.

Single-Phase driving motors for expanding work (230 V or 110 V / 1~ / 50 Hz)

2-speed driving motor for manual operation type D 13

power:	850 W / 650 W
speed:	0-450 / 0-1550 rpm
tool connection:	drill chuck M18 x 2.5
weight:	appr. 2.0 kgs

4-speed driving motor for manual operation type D 38

power:	2000 W / 1500 W
speed:	120, 210, 380, 650 rpm
tool connection:	internal morse taper MT 3
weight:	appr. 11 kgs

Telescopic shaft type TS 72

The ball guiding telescopic shaft with knurled grip range and changeable square insert makes a larger working range by cardanic suspension of the driving motor possible.

Size	Morsetaper	min. length mm	max. length mm	weight kg	max. load Nm	square insert mm / inch
size 2	MT 2	990	1490	7,0	160	9,0 - 12,0 & 14,0 3/8" - 1/2"
size 2	MT 3	990	1490	7,0	160	
size 3	MT 3	1060	1560	12,0	290	
size 3	MT 4	1060	1560	12,0	290	16,0 - 18,0 & 22,0 3/4"

fig.: telescopic shaft type **TS 72**

fig.:
square insert
for telescopic shaft TS 72

fig.:
square insert
with quick action chuck
for telescopic shaft TS 72

Art.-Nr.	denomination	
27220090	quick change chuck for telescopic shaft	size 2 - 9 mm inner square
27220110	quick change chuck for telescopic shaft	size 2 - 12 mm inner square
27220140	quick change chuck for telescopic shaft	size 2 - 1/4'' inner square
27220120	Squick change chuck for telescopic shaft	size 2 - 1/2" inner square
27220380	quick change chuck for telescopic shaft	size 2 - 3/8'' inner square

Art.-Nr.	denomination	
27230140	quick change chuck for telescopic shaft	size 3 - 14 mm inner square
27230160	quick change chuck for telescopic shaft	size 3 - 16 mm inner square
27230180	quick change chuck for telescopic shaft	size 3 - 18 mm inner square
27230200	quick change chuck for telescopic shaft	size 3 - 20 mm inner square
27230220	quick change chuck for telescopic shaft	size 3 - 22 mm inner square
27230190	quick change chuck for telescopic shaft	size 3 - 3/4'' inner square
27230250	quick change chuck for telescopic shaft	size 3 - 1'' inner square

Pneumatic torque controlled driving motor D-720

The driving motor type D-720 serves to the expanding and expansion of tubes with small Ø 6,3 mm - 12,7 mm, dependent of wall thicknessand material, into heater radiators, condensers, coolers, etc.. Upon reaching the stopped torque the D-720 goes automatically into the counterclockwise rotation. The attitude of the correct torque is achieved above an interior spring load-covered clutch. The small weight, as well as the ergonomic fitting of the machine onto the given operating conditions, facilitate a fast workflow. For a trouble-free course, a corresponding maintenance entity must be pre-connected, this is available as a further option.

TECHNICAL FEATURES

MODEL	D-720-550	D-720-1800	D-720-2500
TUBE OD	1/2" / 12.7 mm*	3/8" / 9.5 mm*	1/4“ / 6.3 mm*
SPEED	550 U/min.	1800 U/min	2500 U/min.
TORQUE	0,226 Nm - 8,47 Nm	0,226 Nm -3,05 Nm	0,226 Nm - 0,9 Nm
AIR CONSUMPTION	all types: 4.80 l/min air flow @ min. 6.2 bar		
WEIGHT:	1,20 kg	1,10 kg	1,10 kg
DIMENSION	310 x 80 x 150 mm (L x D x H), without any parts		
TOOL CONNECTION	1/4“ quick change chuck Standard / Optional 3/8“ quick change chuck		

* depends on tube material, wall thickness, expanding length.

All kind of modells have a pneumatic torque control and will be shipped with exhaust muffler**,** pressure hose with couplings, optional quick action chuck, operating manual and plastic box

Pneumatic torque controlled driving motor D-50

The drive motor type D 50 is designed to expand and roll tubes in heat exchanger, condensers, coolers ,etc. When the adjusted torque is applied the motor shut off automaticly. The adjustment of the correct torque value will be settled by a spring adjusted clutch an secured by a set-srew. The low weight and the flexible handling allows a wide range of technical applications. For reproducable processes it is essential to have as follows points fixed,
air consumption permanent 1.700 l/min., permanent high pressure 6.2 bars, maintenance unit (oiler filter pressure valve) applied.

TYPE	D 50 - 1250	D 50 - 600	D 50 - 400
TUBE Ø:	3/4“ / 19.0 mm*	1" / 25.4 mm*	1-1/4“ / 31.7 mm*
SPEED:	1250 U/min.	600 U/min	400 U/min.
TORQUE:	1,58 Nm - 12,2 Nm	2,49 Nm - 21,81 Nm	5,00 Nm - 36,00 Nm
AIR CONSUMPTION:	1.700 l/min rate of air flow @ 6.2 bar		
WEIGHT:	4,76 kg / 10,5 lbs		
DIMENSION:	310 x 80 x 150 mm (L x B x H), without tools & accessories		
SQUARE SIZE:	3/8“ qucik action chuck / or 1/2“ quick action chuck		

* dependend on tube material, tube thickness, expand and roller length.

All kind of modells have a pneumatic torque control and will be shipped with exhaust muffler**,** pressure hose with couplings, optional quick action chuck, operating manual and plastic box

HP-AIR DRIVEN TORQUE CONTROLLED RIGHT ANGEL ROLLING MOTORS

Our HP-air driven torque controlled rolling motors have been designed specifically for the boiler tube industry. The models D-72-90-RT (old K+B ref. no. D-1752R90) and D-73-190-RT are a right angle tools equipped with a roll throttle as standard. A lever throttle is optional. The tools have a unique head design which features a fully enclosed bearing design for long and trouble free life. With industry input, our tools have been specifically engineered to precisely and consistantly expand tubes in steam / mud drums, fire tube and related boilers and equipment .The stall type motors can be use for industrial valve opening and closing. Our angle heads are manufactured of hardened alloy tool steel. The bevel gear is designed to ensure long tool life, whilst working under high torque loading. The gears are manufactured of high alloy tool steel.

TECHNICAL FEATURES

		D-72-90-RT	D-72-90-LT	D-73-190-RT	D-73-190-RT	D-73-280-RT	D-73-280-LT	D-73-375-RT	D-73-375-LT	D-72-ST-90-LT	D-73-ST-190-LT
FREE SPEED	RPM	90	90	190	190	280	280	375	375	90	190
TORQUE CONTROLED		YES	YES	YES	YES	YES	YES	YES	YES	STALL TYPE	STALL TYPE
MAXIMUM TORQUE	NM	410	410	200	200	140	140	110	110	440	210
	FT.LBS	305	305	140	140	104	104	82	82	325	155
MINIMUM TORQUE	NM	200	200	95	95	60	60	40	40	STALL TYPE	STALL TYPE
	FT.LBS	150	150	70	70	44	44	30	30		
WEIGHT	KG	6,7	6,7	5,8	5,8	5,8	5,8	5,8	5,8	6	5,4
	LBS	14,75	14,75	13	13	13	13	13	13	13,2	11,8
OVERALL LENGTH	MM	550	550	530	530	530	530	530	530	485	465
	INCH	21,7	21,7	20,1	20,1	20,1	20,1	20,1	20,1	19	18,5
WITHOUT SQUARE	MM	70	70	65	65	65	65	65	65	70	65
	INCH	2,75	2,75	2,6	2,6	2,6	2,6	2,6	2,6	2,75	2,6
SIDE TO CENTER	MM	37	37	28	28	28	28	28	28	37	28
	INCH	1,5	1,5	1,1	1,1	1,1	1,1	1,1	1,1	1,5	1,1
SQUARE DRIVE	MM	3/4"	3/4"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	3/4"	5/8"
	INCH	19	19	15,8	15,8	15,8	15,8	15,8	15,8	19	15,8
THROTTLE TYPE	TYPE	ROLL	LEVER	ROLL	LEVER	ROLL	LEVER	ROLL	LEVER	LEVER	LEVER
TUBE CAPACITY	MM	101,6	101,6	63,5	63,5	57,1	57,1	50,8	50,8	101,6	63,5
	INCH	4"	4"	2,5"	2,5"	2,25"	2,25"	2"	2"	4"	2,5"
CHUCK SIZE	MM	25,4 & 19	25,4 & 19	19	19	19	19	19	19	25,4 & 19	19
	INCH	1" & 3/4"	1" & 3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	1" & 3/4"	1" & 3/4"
CHUCK SIZE OPTIONAL	MM			12,7 QCC	12,7 QCC	12,7 QCC	12,7 QCC	12,7 QCC	12,7 QCC		12,7 QCC
	INCH			1/2" QCC	1/2" QCC	1/2" QCC	1/2" QCC	1/2" QCC	1/2" QCC		1/2" QCC

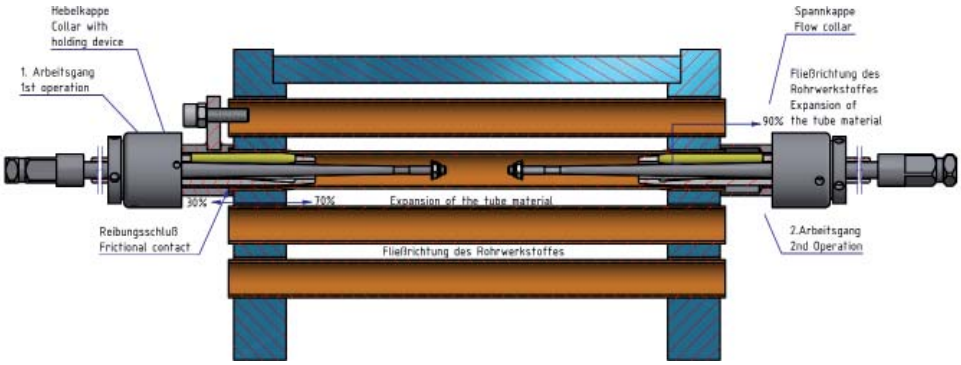
D-72-ST-90-LT

D-72-90-RT

D-73-190-RT

Expanding of tubes in tube sheets

A tight and resistant joint between tube and tube sheet will be obtained when deforming the tube by tube rolling (expanding) process plastically and the tube sheet elastically.
During the expansion process the tube enlarges, until it has contact with the tube sheet bore (this is called metal-to-metal contact).
In order to obtain a tight and resistant joint, the expansion process has to be continued. As the tube sheet bore is a restraining barrier, further expansion deforms the tube metal and forces it into more intimate contact with the tube sheet metal. During this process the tube wall is constantly thinning (this is called tube wall reduction). The tube sheet bore slightly enlarges as well. But it has to be guaranteed, that it shrinks back when the expansion process is finished. The final result of the tube rolling operation is a joint condition similar to a shrink-fitted joint.



The amount of expansion has to be selected, ensuring that the shrinking effect of the tube sheet bore is still guaranteed. Otherwise the tube wall reduction has to be effected as far as necessary in order to obtain a leak-proof and resistant joint.

A lot of experiences have shown, that for an optimal result the yield strength of the tube material should be about 20% less than the yield strength of the tube sheet material.
If the tube sheet material deforms plastically as a result of over-rolling the tube end, a tight and resistant fit of the tube end can not be guaranteed any more.
If the difference in yield-strength of tube and tube sheet material is substancial, over-rolling may cause destroying the tube material. Flakes may occur. Over-rolling in many cases causes corrosion and crevecis.

There are many methods to calculate the tube wall reduction.
Please call or write to us if you want further information.

Calculation of the expansion rate

Use tube wall reduction listed in the "tube expansion" column plus clearance between tube O.D. and tube sheet hole, added to the tube I.D. before expansion, giving the final tube I.D. after expansion. Measured tube I.D. after expansion may vary plus or minus .001" or 0.025 mm from calculated finished I.D.+

Below is listed an example of how to calculate the tube expansion with a given percentage of tube wall reduction as well as the method of calculating the expansion value of ONE wall of measured tube I.D. (Remark = TWO wall).

The double percent reduction of the tube wall thickness caused through the tube expansion is called optimum expansion strength.

$$o.e.s. = \frac{2\ (S1 - S2)}{S1} \text{ x } 100\ (\%)$$

o.e.s.	=	optimum expansion strength
S1	=	tube wall thickness before expanding
S2	=	tube wall thickness after expanding

This calculation will be explained with an example:

actual measured tube dimension:	19,05 x 1,65 mm
actual tube sheet bore:	19,25 mm

Up to the metal-to-metal contact the following calculation results:

d1	=	B - 2 x S1
	=	19,25 mm - 2 x 1,65 mm = 15,95 mm
B	=	diameter of the bore
d1	=	theoretical inside diameter at metal-to-metal contact

The tube wall reduction resulting from the expansion should be approx. 0,08 mm.

The inside diameter enlarges up to:

d2	=	d1 + 2 x 0,08 mm
	=	15,95 mm + 0,16 mm = 16,11 mm
d2	=	inside diameter after the expansion

The optimum expansion strength will therefore be:

$$o.e.s. = \frac{2\ (1{,}65\ -\ 1{,}57)}{1{,}65} \text{ x } 100\ (\%)$$

= 9,7 % = rounded off to 10 %.

If an expansion limit of o.e.s. = 10% has to be reached, the dimension of the inside diameter after the expansion will be calculated as follows:

$$d2 = d1 + o.e.s.\ \text{x}\ S1$$

$$d2 = 19{,}25\ \text{mm} - (2 \text{ x } 1{,}65\ \text{mm}) + \frac{10 \text{ x } 1{,}65}{100}$$

$$= 19{,}25\ \text{mm} - 3{,}3\ \text{mm} + 0{,}165 = 16{,}115\ \text{mm}$$

With an inside diameter after the expansion of 16,115 an expansion limit of 10% reached.

self-feeding tube expanders type BR 30

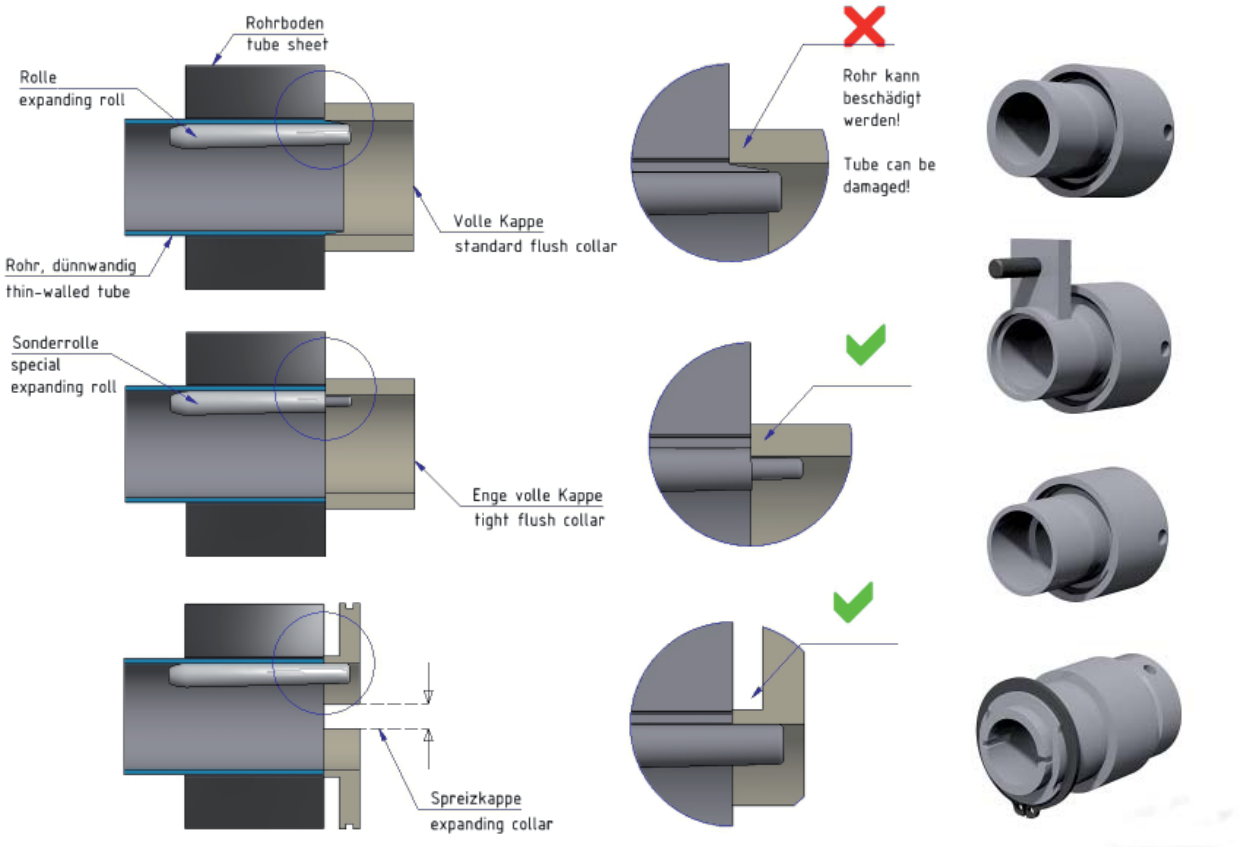
our tube expanders type BR 30 and BR 40 are similar with tube expanders series K+B 80-86 (BR 30), and series T54 & T56 a+b (BR 40).
the series 30 are equipped with standards in roll length from 40 / 50 / 60 mm with adjustable effective exp. roll length, also reach of 50 / 70 / 100 / 150 / 200 mms.
for this kind of tube expander you can choose between 4 different types of collars

flush collar
blocking the accretion of the tube length during the expanding process, thereby flush position of the tube after expanding process, also light expanding after welding.

collar with holding device
blocking of the turning tube with stop of the lever in the beside tube, flush position of the tube after expanding process. To hold the loose tubes at the beginning of the expanding process at the first tube sheet side.

flow collar
collar with recess to intake the accretion of the tube length of the tube material, 2nd tube sheet.

expanding collar
Inside collar is lying on the expanding rolls, that implies that there is no accretion of the tube length and no damage of thinwall tubes (<= 1,0 mm)



COMPARISON SHEET

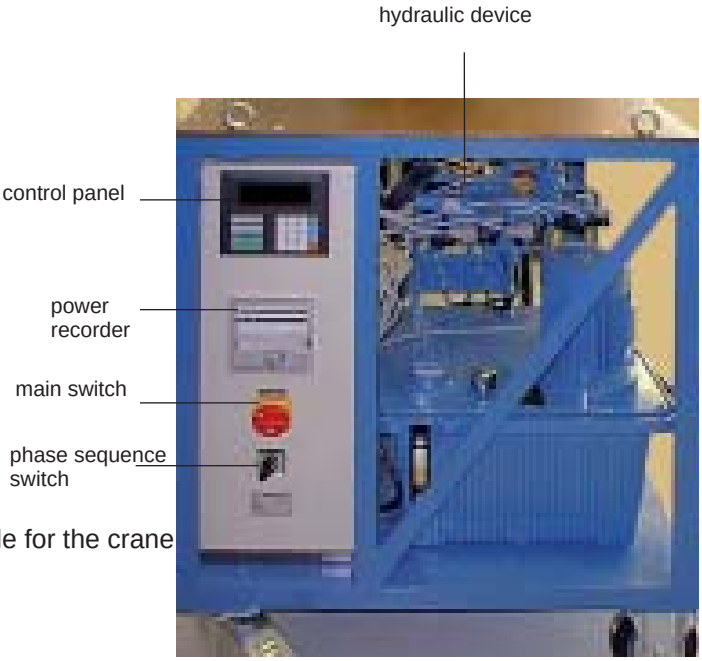
Tube expanding with Self feeding tube expanders	Tube expanding with mechanical-hydraulic tube expanders BR 20
Tube expander with inclined rolls. No cylindrical tube expansion possible.	Tube expander with „inline“ rolls. Cylindrical tube expansion possible. Extremely important when expanding **thin walled** tubes.
Only „point-contact“ between mandrel and rolls Point-contact causes higher wear of rolls and mandrels.	„Line - contact“ between mandrel and rolls. Line contact of rolls and mandrel causes less wear.
Expanding area must end 3-5 mms before back tube sheet face. Creates always a gap at back side of tube-tube sheet joint (crevice !)	Due to „inline“ rolls the rolls have line contact with the mandrel. Therefore the rolls cannot„swivel“. Tube expansion can be executed **completely up to the back side of tube sheet**. No gap at this point.
Mandrel feed not controlled, self-feeding procedure because of inclined rolls.	Mandrel feed is **contolled** by hydraulic mandrel feeding system.
Kind and variing quantity of greasing creates **different slippage** during expanding process.	**No slippage effect** due to controlled mechanical hydraulic mandrel feeding.
Mandrel feed rate given by geometry of the tube expander -- Mandrel / Roll taper -- Mandrel / Roll diameter ratio -- roll inclination degree and other conditions	**Mandrel feed rate** controlled by speed of hydraulic mandrel feeding system (adjustable) Enables controllable tube deformation speed during expanding process
Material deforming speed only controlled by speed of driving motor.	**Material deforming speed** controlled by effective mandrel feed rate and motor **speed** Better for the material / Less time is required
No „ironing out“- process when reaching predetermined tube expansion.	Time-adjustable **„ironing out“ process** after reaching predetermined tube expansion.
No round expansion possible.	**Round expansion** possible. Extremely **important** when expanding **thin-walled** tubes.
Requires **greater wall reduction** with the effect of negative tube treatment and greater potential for ligament movement during expansion process. Higher risk of metal flaking.	Requires l**ower wall reduction** avoiding all the disadvantages of the self-feeding tube expansion process.
High tendency of **twisting stress.**	Low tendency of **twisting stress**
Remarkable **tube lengthening** because of higher expansion rate and inclined rolls.	Lower expansion rate and „inline“ rolls cause far **less tube lengthening**.
	Summary of effects on metallurgy: - Lower strain hardening rates. - Reduced potential for stress corrosion cracking in the transition areas. - Grain structure change is greatly reduced. - Effective tube expansion length to the end of tube sheet thus avoiding crevice- and corrosion potential. - Reduced failure potential of tube by expanding within deformation rate of material. - greater care of material.

Mechanical-hydraulic tube expanding unit type NFAB-H

The mechanical-hydraulic tube expanding unit is used for exact and repeatable power control of driving motors for tube expanding work, connected with a hydraulic device for precise mandrel pushing.
The electronic measurement and control of the electric power enables for precise breaking torque and guaranties repeatability of the expanding rate.
Mandrel feed is independ and controlled by the hydraulic feeding device using tube expanders with straight rollers. Therefore the tube expanding procedure is much more adaptable to the expanding requirements than by using self feeding tube expanders.The expansions are cylindrical and absolutely round. A cooling and lubricating system is integrated and creates lower tooling costs.

Technical Data :

- mains connection: 400 V / 3 - phase / 50/60 Hz other types on request
- output: 42 V / 3 - phase / 50/60 Hz
- output power: max. 1,9 KVA
- hydraulic device with independent pressure and volume control by means of electronic proportional valves (max: 200 bar/ 3 liters/min)
- pulse controlled cooling and lubricating system (lubricant and air independently adjustable) (air pressure max. 6 bar / lubricant reservoir appr. 3 liters)
- integrated power recorder
- phase sequence switch
- hand-switch
- integrated control panel with display and function keys for preselection of following parameters:
- automatic zero setting to compensate different no - load power of driving motors
- breaking power input
- adjustable reverse time (1 - 99 sec)
- adjustable delay time (1 - 99 sec)
- automatic restart of the expanding cycle
- mandrel speed adjustable
- operating pressure adjustable (max. 200 bar)
- pressure delay time for rounding out
- mandrel reverse pressure adjustable
- recording frequency for power recorder adjustable



Options:

trolley extension:
- frame with height adjustable cross bar for supporting the driving motor
- supporting legs to increase the stability
- swivelling support arm for supporting the feeding device

- all parts of the unit are mounted on a trolley, suitable for the crane
- size (L/W/H): 900 x 900 x 1200 mms
- weight: appr. 190 kgs

Driving motor with feeding device
and gear box
(compact design)

Mechanical-hydraulical tube expanding system type NFAB-H
complete with driving motor type D-532
telescopic shaft TS 72 size 2 - MT3 and
mandrel feeding device with tool holder

Accessories for mech.-hydr. tube expanding unit type NFAB-H

TOOL HOLDER

tool holder size 2
for feeding device cylinder size 2
to accomodate tube expanders type BR 20

tool holder size 3
for feeding device cylinder size 3
or cylinder size 2 with enforced cooling system,
to accomodate tube expanders type BR 20

Art.-Nr.	tool holder	for CAGE Ø	Art.-Nr.	tool holder	for CAGE Ø	Art.-Nr.	tool holder	for CAGE Ø
12610008	size 1	10,0 mm	22610008	size 2	10,0 mm	32620517	size 3	20,5 - 22,0 mm
12610608	size 1	10,6 - 11,4 mm	22610608	size 2	10,6 - 11,4 mm	32623020	size 3	23,0 - 24,0 mm
12612010	size 1	12,0 mm	22612010	size 2	12,0 mm	32625022	size 3	25,0 - 26,0 mm
12612610	size 1	12,6 - 13,8 mm	22612610	size 2	12,6 - 13,8 mm	32627024	size 3	27,0 - 29,0 mm
12614512	size 1	14,5 - 15,5 mm	22614512	size 2	14,5 - 15,5 mm	32631028	size 3	31,0 - 32,0 mm
			22616014	size 2	16,0 - 17,5 mm	32634528	size 3	33,0 - 34,0 mm
			22618416	size 2	18,4 - 19,5 mm	32635028	size 3	34,5 mm
			22620017	size 2	20,0 mm	32636028	size 3	36,0 - 42,0 mm
			22620517	size 2	20,5 - 22,0 mm	32644028	size 3	44,0 - 46,0 mm

mandrel feeding device cylinder with enforced cooling system,
to accomodate tool holder

usable with telescopic shafts or compact unit

BOILER TUBE EXPANDERS

Type KA 64 / KB 65 / KC 66 / KD 67

with stop type **KA 64** or with ball beared stop type **KB 65** are available in standard effective roller length 25 mms, 32 mms, 38 mms, 45 mms, 50 mms, 56 mms and 62 mms.Boiler expanders type **KD 67** are designed for expanding and flaring in one operation, with adjustable ball - bearing stop (bell expanding of tube extraction), flaring 18° or 20° both sides of tube axis; to get a basic flaring and no edges of the tube at the flaring seat.

Boiler expanders type **KC 66** like type **KD 67**, but without stop.

All types of boiler expanders are available with or without roll retainer.

TYPE KA 64
expanding with stop and sliding washer for manual operation

TYPE KB 65
expanding with ball - bearing stop for manual or mechanical operation

TYPE KC 66
expanding and flaring
(flare angel 15°)
in one operation for manual operation

TYPE KD 67
expanding and flaring
(flare angel 15°)
in one operation, with adjustable ball bearing stop for manual or mechanical operation

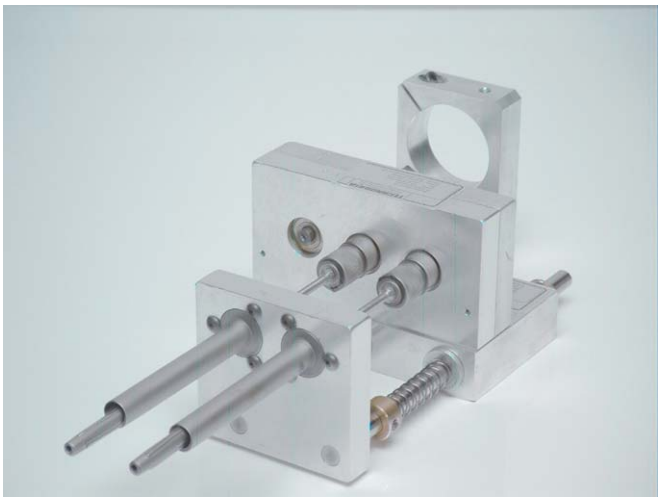
For detailed technical information please contact your customer service !

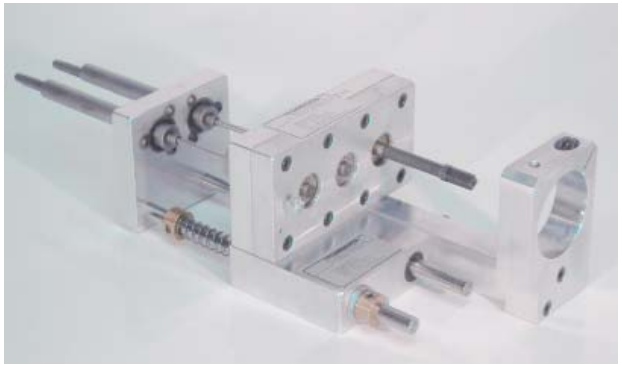
Automatic Tube Expanders „ULTRA“

with built- in compression spring and with preset torque for the expanding of tubes. Beginning of expansion with clutch pins engaged Automatic disengagement. Clutch pins finally are disconnected.

Double spindle device

The adaption of the double spindle device with TDA driving motors allows the rolling of two tube with the selected torque value at the same time. CW and CCW turning tube expanders will be use





TUBE EXPANDERS Series 800

Tube expanders series 800 3-roller type

TUBE ID Ø	mm	inch
min.	8,48	0,334
max.	26,90	1,027

TUBE OD Ø	mm	inch
min.	12,7	1/2
max.	28,5	1-1/8

effect. Roller length min. 12,7 mm / 1/2"
max. 57,1 mm / 2-1/4"

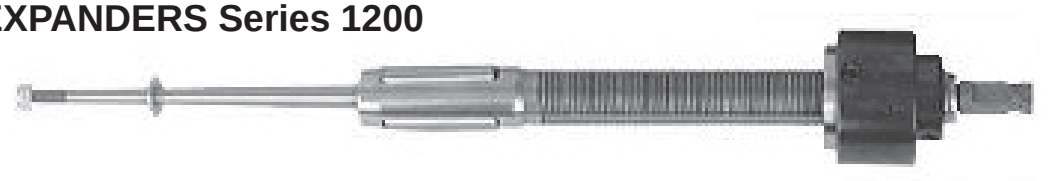
Tube expanders series 800-5 5-roller type

TUBE ID Ø	mm	inch
min.	12,98	0,509
max.	36,68	1,44

TUBE OD Ø	mm	inch
min.	15,8	5/8
max.	38,1	1-1/2

effect. Roller length min. 12,7 mm / 1/2"
max. 57,1 mm / 2-1/4"

TUBE EXPANDERS Series 1200



Tube expanders series 1200 **3-roller type**

TUBE ID Ø	mm	inch
min.	8,48	0,334
max.	36,32	1,430

TUBE AD Ø	mm	inch
min.	12,7	1/2
max.	38,1	1-1/2

effect. Roller length min. 38,1 mm / 1-1/2"
max. 171,4 mm / 6-3/4"

REACH; tube expanders with roller length 38,1 mm (1-1/2")

STANDARD	12,7 mm	bis	152,4 mm	*1/2" bis 5-1/4"*
Typ "A"	12,7 mm	bis	203,1 mm	*1/2" bis 7-1/4"*
Typ "C"	12,7 mm	bis	304,6 mm	*1/2" bis 11-1/4"*

Tube expanders series 1200-5 **5-roller type**

TUBE ID Ø	mm	inch
min.	14,83	0,584
max.	36,32	1,430

TUBE AD Ø	mm	inch
min.	19,0	3/4
max.	38,1	1-1/2

effect. Roller length min. 38,1 mm / 1-1/2"
max. 171,4 mm / 6-3/4"

REACH; tube expanders with roller length 57,1 mm (2-1/4")

STANDARD	31,7 mm	bis	171,4 mm	*1-1/4" bis 6"*
Typ "A"	31,7 mm	bis	222,1 mm	*1-1/4" bis 8"*
Typ "C"	31,7 mm	bis	323,6 mm	*1-1/4" bis 12"*

SPECIAL SIZES or solutions on request, contact customer service !

WATER SOLUBLE OIL & WATER SOLUBLE GREASE

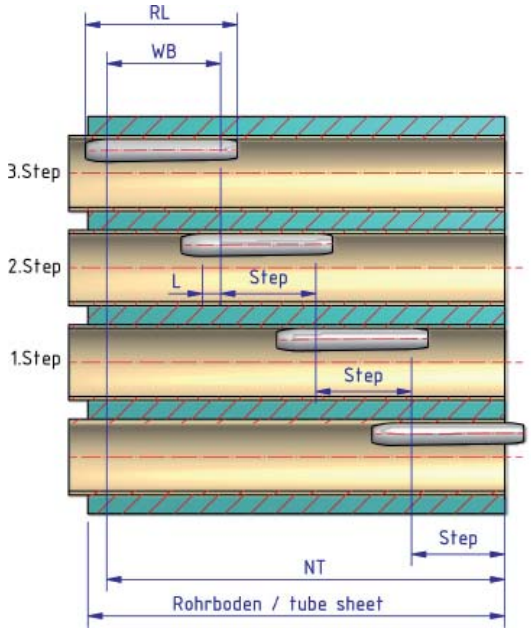
Rolling in corresponds to cold-rolling sheet metal, here developed to prevent for friction and heating up. In order to extend the service life of the tube expanders , as well as a material indulgence to reach is a lubrication/cooling by appropriate oil or grease indispensably. In different quantity sizes available.

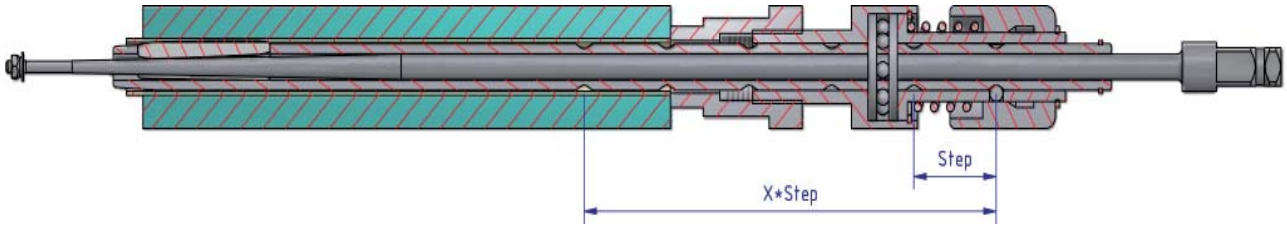
WATER SOLUBLE GREASE
using range -20°C thru +110°C
good-responsible, wear-reducing

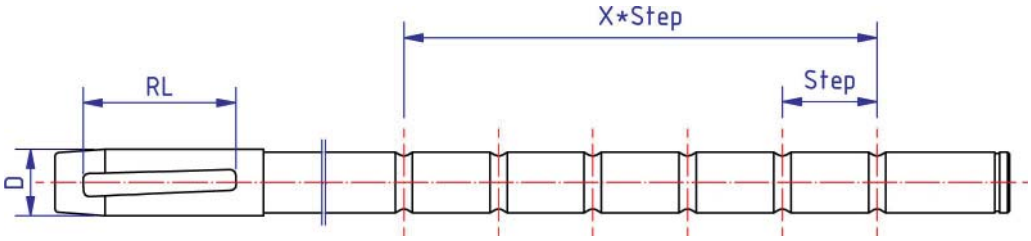
WATER SOLUBLE OIL type HZ-22
rarefiable, high corrosion protection,
for all metals applicable.

TUBE EXPANDERS Series BR 10 Quick step

our quick step tube expanders are suited for tube rolling in thick tube sheets. the cage of the expander has grooves that accept a spring loaded, quick action collar that permits step rolling through the full thickness of the tube sheet.







D	RL	WB	L	Step	X	NT
9,0-22,0	40	30	5	25	3	105
23,0-35,0	40	26	6	20	4	106
9,0-22,0	40	30	5	25	5	155
23,0-35,0	40	26	6	20	6	146
9,0-22,0	40	30	5	25	7	205
23,0-35,0	40	26	6	20	9	206
10,6-22,0	60	50	5	45	2	140
23,0-35,0	60	46	6	40	2	126
10,6-22,0	60	50	5	45	3	185
23,0-35,0	60	46	6	40	3	166
10,6-22,0	60	50	5	45	5	230
23,0-35,0	60	46	6	40	5	246

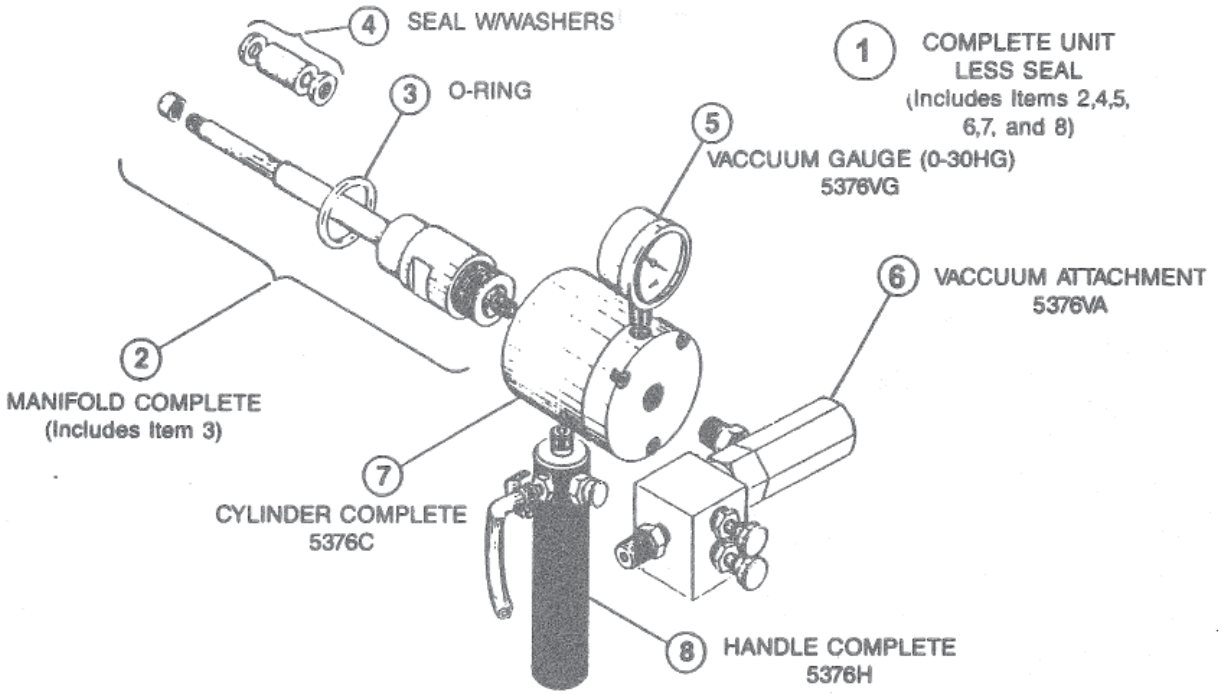
Vacuum tube - tube sheet Joint Tester type 5376 V

TECHNODATA tube - tube sheet joint tester type 5376 V is suitable to detect leaks between expanded tube and tube sheet joints. Specially if testing is required before final pressure test, p.e. if repairing is very difficult after mounting, or it is impossible to determine the leaking tube joint by means of pressure test, the use of the joint tester type 5376 V is highly recommended.

The vacuum tube-tube sheet joint tester type 5376 V consists of the cylinder body, the vacuum attachment, the manifold and the seals. Seal expanding and vacuum obtaining is air activated. The different manifold and sealing sets to suit the different tube sizes and joint types are changeable very easily. So the capability to nearly all testing requirements is warranted.

fig.: Vacuum tube - tube sheet joint tester type **5376 V**

- air pressure: 3 to 8,5 bar
- air consumption: > 140 ltrs / min



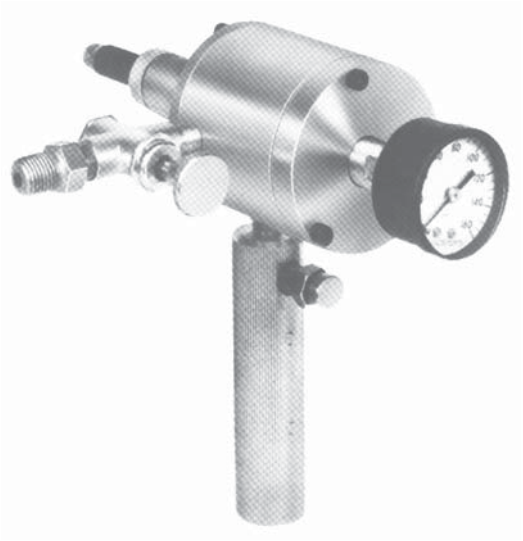
TUBE OD	① compelte unit without seal	② Manifold complete	③ O-Ring
3/8"	RT-5376-6	RT-5377-6	RT-5378-6
1/2"	RT-5376-8	RT-5377-8	RT-5378-8
5/8"	RT-5376-10	RT-5377-10	RT-5378-10
3/4"	RT-5376-12	RT-5377-12	RT-5378-12
7/8"	RT-5376-14	RT-5377-14	RT-5378-14
1"	RT-5376-16	RT-5377-16	RT-5378-16
1-1/4"	RT-5376-20	RT-5377-20	RT-5378-20
1-1/2"	RT-5376-24	RT-5377-24	RT-5378-24
1-3/4"	RT-5376-28	RT-5377-28	RT-5378-28
2"	RT-5376-32	RT-5377-32	RT-5378-32

Tube Tester Type 5373

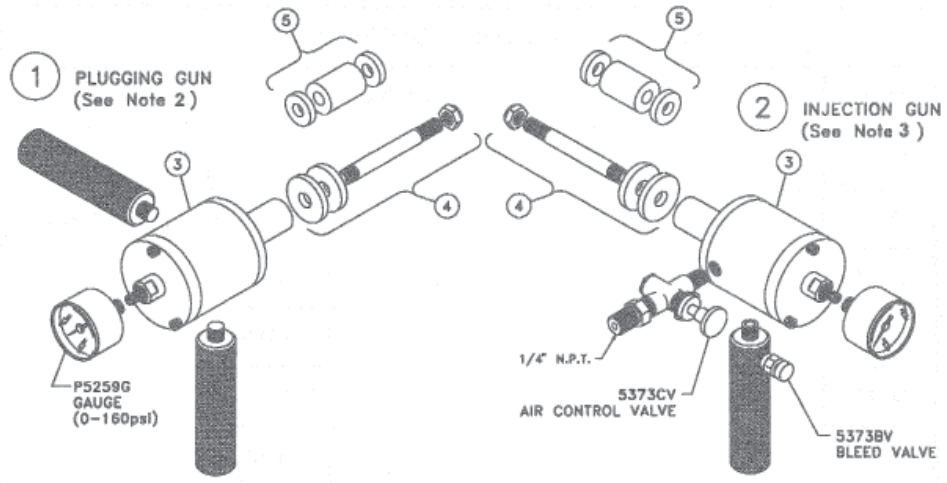
TECHNODATA tube tester type 5373, for tubes 7,1 - 31,3 mm (.28“-1.23“) ID., is suitable to detect leaks or breaks of tubes between tube sheets. The tube tester consists of air injection gun and plugging gun. The plugging gun with support tube and matching set of seals plugs one end of the tube. By means of air injection gun testing pressure is obtained.Leaks are detected by loss of pressure indicated on the air pressure gauge. Seal expanding is air activated.
For tubes with 31,5 - 64,3 mm (1.24“-2.53“) ID use tube tester type 5373 A. Please contact customer service for detailed technical informations.

plugging gun

air injection gun

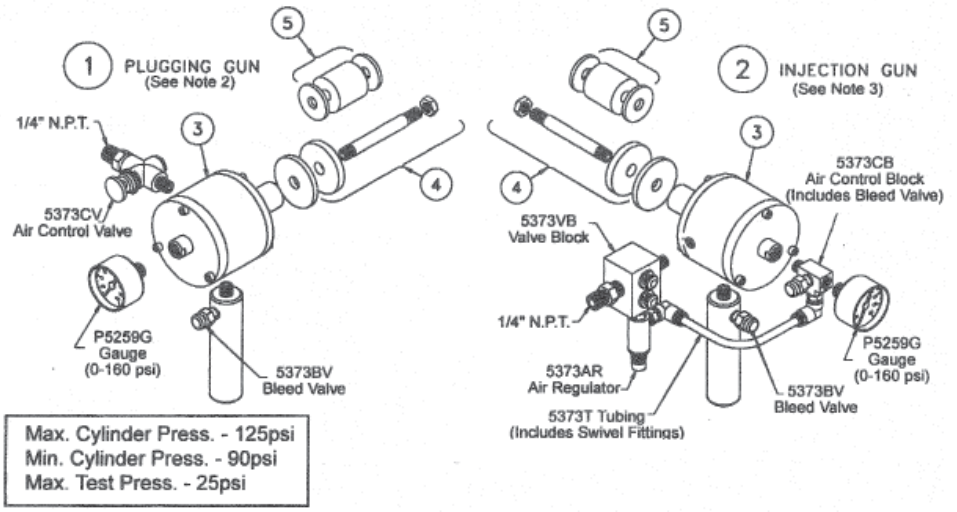


Tube Tester Type 5373



Position	Denomination	Ref.-Nr.
1	plugging gun	**RT-5373-1**
2	air injection gun	**RT-5373-2**
3	cylinderbody with holder	**RT-5373C1**
4	support tube with washer/nut tube ID.	
	.28 - .48" 7.1 - 12.1 mm	**RT-5373ST1**
	.49 - .83" 12.4 - 21.1 mm	**RT-5373ST2**
	.84 - 1.23" 21.3 - 31.3 mm	**RT-5373ST3**
5	seal and washer set look at seal shart	

Tube Tester Type 5373 A



Position	Denomination	Ref.-Nr.
1	plugging gun	**RT-5373-3**
2	air injection gun	**RT-5373-4**
3	cylinderbody with holder	**RT-5373C2**
4	support tube with washer/nut tube ID.	
	1.24 - 1.63" 31.5 - 41.4 mm	**RT-5373ST4**
	1.64 - 2.03" 41.7 - 51.6 mm	**RT-5373ST5**
	2.04 - 2.45" 51.8 - 62.2 mm	**RT-5373ST6**
5	seal and washer set look at seal shart	

SEALS tube tester Type 5373

TUBE OD		BWG	ID - mm	Ref.-No.
1/2"	12,7	8-9	**4.32 - 5.18**	**n/v**
		10-11	**5.89 - 6.60**	**n/v**
		12-13	**7.16-7.87**	**RT-5373-250**
		14-15	**8.48-9.04**	**RT-5373-300**
		16-17	**9.40-9.75**	**RT-5373-340**
		18-19	**10.21-10.57**	**RT-5373-370**
		20-24	**10.92-11.58**	**RT-5373-400**
5/8"	15,8	8-9	**7.49-8.36**	**RT-5373-270**
		10-11	**9.07 - 9.78**	**RT-5373-340**
		12-13	**10.34 - 11.05**	**RT-5373-370**
		14-15	**11.66 - 12.22**	**RT-5373-440**
		16-17	**12.57 - 12.93**	**RT-5373-470**
		18-19	**13.39 - 13.74**	**RT-5373-500**
		20-24	**14.10 - 14.76**	**RT-5373-530**
3/4"	19	8-9	**10.67 - 11.53**	**RT-5373-400**
		10-11	**12.24 - 12.95**	**RT-5373-440**
		12-13	**13.51 - 14.22**	**RT-5373-500**
		14-15	**14.83 - 15-39**	**RT-5373-530**
		16-17	**15.75 - 16.10**	**RT-5373-590**
		18-19	**16.56 - 16.92**	**RT-5373-620**
		20-24	**17.27 - 17.93**	**RT-5373-650**
7/8"	22,2	8-9	**13.84 - 14.71**	**RT-5373-530**
		10-11	**15.42 - 16.13**	**RT-5373-590**
		12-13	**16.69 - 17.40**	**RT-5373-620**
		14-15	**18.01 - 18.57**	**RT-5373-690**
		16-17	**18.92 - 19.28**	**RT-5373-720**
		18-19	**19.74 - 20.09**	**RT-5373-750**
		20-24	**20.45 - 21.11**	**RT-5373-780**
1"	25,4	8-9	**17.02 - 17.88**	**RT-5373-650**
		10-11	**18.59 - 19.30**	**RT-5373-690**
		12-13	**19.86 - 20.57**	**RT-5373-750**
		14-15	**21.18 - 21.74**	**RT-5373-800**
		16-17	**22.10 - 22.45**	**RT-5373-840**
		18-19	**22.91 - 23.27**	**RT-5373-870**
		20-24	**23.62 - 24.28**	**RT-5373-900**

TUBE OD		BWG	ID - mm	Ref.-No.
1-1/8"	28,58	8-9	**20.20 - 21.06**	**RT-5373-780**
		10-11	**21.78 - 22.48**	**RT-5373-840**
		12-13	**23.04 - 23.76**	**RT-5373-870**
		14-15	**24.36 - 24.92**	**RT-5373-940**
		16-17	**25.28 - 25.64**	**RT-5373-970**
		18-19	**26.10 - 26.44**	**RT-5373-1000**
		20-24	**23.80 - 27.46**	**RT-5373-1030**
1-1/4"	31,7	8-9	**23.37 - 24.23**	**RT-5373-900**
		10-11	**24.94 - 25.65**	**RT-5373-940**
		12-13	**26.21 - 26.92**	**RT-5373-1000**
		14-15	**27.53 - 28.09**	**RT-5373-1070**
		16-17	**28.45 - 28.80**	**RT-5373-1090**
		18-19	**29.26 - 29.62**	**RT-5373-1120**
		20-24	**29.97 - 30.73**	**RT-5373-1150**
1-3/8"	34,9	8-9	**26.52 - 27.38**	**RT-5373-1050**
		10-11	**28.10 - 28.8**	**RT-5373-1090**
		12-13	**29.36 - 30.08**	**RT-5373-1120**
		14-15	**30.68 - 31.24**	**RT-5373-1190**
		16-17	**31.60 -31.96**	**n/v**
		18-19	**32.42 - 32.76**	**n/v**
		20-24	**33.12 - 33.78**	**n/v**
1-1/2"	38,1	8-9	**29.72 - 30.58**	**RT-5373-1150**
		10-11	**31.29 - 32.00**	**RT-5373-1190**
		12-13	**32.56 - 33.27**	**n/v**
		14-15	**33.88 - 34.44**	**n/v**
		16-17	**34.80 - 35.15**	**n/v**
		18-19	**35.61 - 35.97**	**n/v**
		20-24	**36.32 - 36.98**	**n/v**

Hydro-Pneumatic test pump Typ L10N / L20N

The technical application of the hydro-pneumatic test pump is testing of tube with water under air pressure. If the pump is connected at the air pressure net, the water flow into the tube by a separate watertank, whereby the tube inlet and outlet must be closed with the testing plugs.

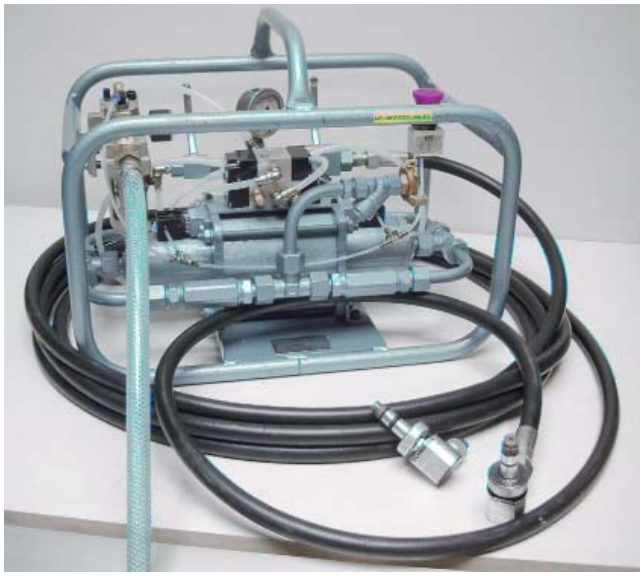
In order to the tube ID the interlock device is variable.The outlet plug will be closed if the complete tube is filled (without an air bubble), after this the high pressure will be applied by the pump.

The valve controlled pumps differentiate from each other by the flow rate and power state. The hydro-pneumatic testing pumps characterized by low weight, easy handling, and design for continuous working.

TECHNICAL DATA:

MODELL L 10 N

connection: air pressure min. 6 bar
operating pressure: max. 60 bar.
flow rate max.: 20L. / Min.
weight: ca. 21 KG
Maße (mm.): 500 x 350 x 250.

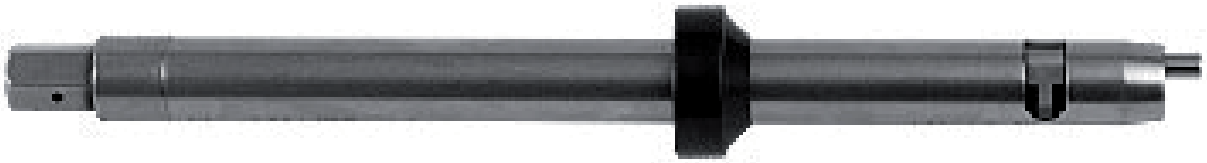


MODELL L 20 N

connection: air pressure min. 7 bar.
operating pressure: max. 120 bar
flow rate max.: 10L. / Min.
weight: ca. 21 KG
dimension(mm.): 500 x 350 x 250

Internal tube cutter type TC-OR

The internal tube cutter TC-OR is designed for inside cutting of steel-/ brass- and copper tubes.in heat exchanger, condenser, air cooler, boiler, etc. The tool is only to be used by a hand or a wrench. By this simple operation you need no mechanical power. The centering of the TC-OR will effected by the conical ring . The standard reach is 25-150 mm, further reaches are available on request.
The tool works on a exentrical principle. Insert the tool into the tube, the cutter bit is inside the body, turn it clockwise, the cutter bit moves out and cut the tube wall by one revolution.



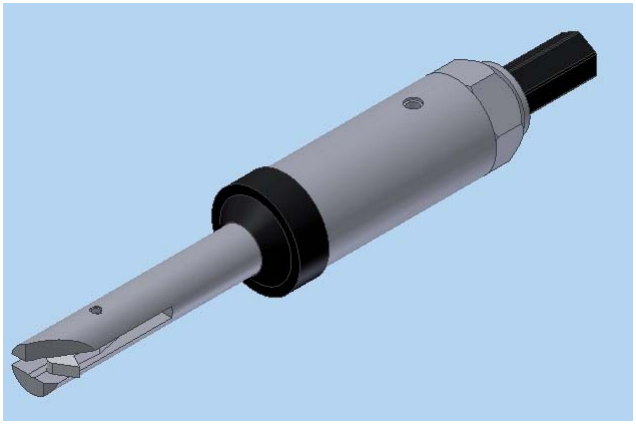
technical features:

ROHR AD. TUBE OD.		BWG	ID - mm	Ø	Ref.-Nr.
1/2"	12,7	18-19	**10,2 - 10,6**	10,0	**TC-OR-100**
		20	**11,0 - 11,3**	10,5	**TC-OR-108**
5/8"	15,8	14	**11,4 - 11,9**	11,2	**TC-OR-113**
		15-16	**12,0 - 12,9**	11,7	**TC-OR-119**
		17-18	**12,7 - 13,5**	12,3	**TC-OR-123**
		19-20	**13,5 - 14,2**	13,1	**TC-OR-131**
		22	**14,0 - 14,7**	13,6	**TC-OR-139**
3/4"	19	14-15	**14,7 - 15,5**	14,3	**TC-OR-145**
		16	**15,2 - 16,5**	14,8	**TC-OR-151**
		17-18	**15,9 - 16,5**	15,3	**TC-OR-153**
		19-20	**16,7 - 17,5**	16,3	**TC-OR-163**
7/8"	22,2	14-15	**17,8 - 18,5**	17,4	**TC-OR-174**
		16-17	**18,8 - 19,5**	18,4	**TC-OR-184**
		18	**19,3 - 20,0**	19,0	**TC-OR-190**
		19-20	**19,8 - 20,6**	19,3	**TC-OR-193**
1"	25,4	12	**19,8 - 20,6**	19,3	**TC-OR-193**
		14	**20,8 - 21,6**	20,5	**TC-OR-205**
		14	**21,3 - 22,1**	21,0	**TC-OR-210**
		16-17	**21,8 - 22,6**	21,5	**TC-OR-215**
		18-20	**22,6 - 23,1**	22,3	**TC-OR-223**
		22	**23,9 - 24,6**	23,2	**TC-OR-232**
1-1/4"	31,7	10	**24,9 - 25,6**	24,5	**TC-OR-245**
		12	**25,9 - 26,7**	25,5	**TC-OR-255**
		13-14	**26,7 - 27,4**	26,4	**TC-OR-264**
		15-16	**27,9 - 28,7**	27,5	**TC-OR-274**
		17-19	**28,7 - 29,6**	28,3	**TC-OR-283**

ROHR AD. TUBE OD.		BWG	ID - mm	Ø	Ref.-Nr.
1-1/2"	38,1	10-11	**31,3 - 32,1**	30,9	**TC-OR-309**
		12-13	**32,5 - 33,3**	32,0	**TC-OR-320**
		14-15	**33,8 - 34,5**	33,3	**TC-OR-333**
		16-17	**34,5 - 35,3**	34,0	**TC-OR-339**
		18-19	**35,3 - 36,1**	34,9	**TC-OR-350**
1-3/4"	44,45	10-11	**37,0 - 38,5**	36,9	**TC-OR-369**
		12,14	**38,8 - 40,3**	38,3	**TC-OR-383**
		15-16	**40,8 - 41,2**	40,3	**TC-OR-403**
		17-18	**41,3 - 42,0**	41	**TC-OR-410**
2"	50,8	10	**44,0**	43,5	**TC-OR-435**
		11	**44,7**	44,2	**TC-OR-442**
		12-13	**45,0 - 46,0**	44,7	**TC-OR-447**
		14-15	**46,2 - 48,2**	45,7	**TC-OR-457**
		16-17	**47,2 - 48,2**	46,8	**TC-OR-468**
		18-19	**48,0 - 49,0**	47,6	**TC-OR-476**
2-1/4"	57,15	10	**50,3**	49,7	**TC-OR-497**
		11	**51,0**	50,5	**TC-OR-505**
		12-13	**51,6 - 52,3**	51,1	**TC-OR-511**
		14-15	**52,9 - 53,5**	52,4	**TC-OR-524**
		16-17	**53,8 - 54,8**	53,3	**TC-OR-533**
		18-19	**54,6 - 55,6**	54,1	**TC-OR-541**
2-1/2"	63,5	10	**56,7**	56,2	**TC-OR-562**
		11	**57,4**	56,9	**TC-OR-569**
		12-13	**57,6 - 58,6**	57,2	**TC-OR-572**
		14-15	**58,9 - 60,0**	58,5	**TC-OR-585**
		16-17	**60,0 - 61,0**	58,6	**TC-OR-586**
		18-19	**60,7 - 61,7**	60,2	**TC-OR-602**

Internal tube cutter type TC-PT

our spring-loaded internal tube cutter type TC-PT is a mechanically driven tube cutter for steel, brass and copper pipes in Heat exchangers, condensers, Chillers, boilers etc.



It enables cutting of pipes with 12 mm to 37 mm inside diameter. It is possible to adjust the cutting depth, our standard reach is 70 mm.Other sizes or/and reaches on request.

The pipe cutter have one high speed steel cutting knife, which at the application of a correct speed long operating life of the tool assures.

TUBE OD		TUBE GAUGE	TUBE ID	BODY	TOOL	CUTTER BIT	DRIVE SHANK
inch	mm	mm	mm	Ø mm	Ref.-No.	Ref.-No.	mm HEX
3/8	9,5	22-24	**8,10 - 8,40**	7,80	**TC-PT-0780**	TC-PT-M01	1/2“
1/2	12,7	14-15	**8,50 - 9,04**	8,20	**TC-PT-0820**	TC-PT-M02	1/2“
		16-17	**9,40 - 9,75**	9,20	**TC-PT-0920**	TC-PT-M03	1/2“
5/8	15,8	12-13	**10,3 - 11,05**	10,00	**TC-PT-1000**	TC-PT-M04	1/2“
		14-15	**11,66 - 12,22**	11,30	**TC-PT-1130**	TC-PT-M04	1/2“
		16-17	**12,57 - 12,93**	12,20	**TC-PT-1220**	TC-PT-M04	1/2“
		18-19	**13,40 - 13,74**	13,10	**TC-PT-1310**	TC-PT-M04	1/2“
		20-22	**14,10 - 14,45**	13,80	**TC-PT-1380**	TC-PT-M04	1/2“
3/4	19,0	14-15	**14,80 - 15,40**	14,50	**TC-PT-1450**	TC-PT-M04	1/2“
		16-17	**15,75 - 16,10**	15,40	**TC-PT-1540**	TC-PT-M04	1/2“
		18-19	**16,56 - 16,90**	16,15	**TC-PT-1615**	TC-PT-M04	1/2“
		20-22	**17,27 - 17,63**	17,00	**TC-PT-1700**	TC-PT-M04	1/2“
7/8	22,2	10-11	**15,42 - 16,13**	15,00	**TC-PT-1500**	TC-PT-M05	1/2“
		12-13	**16,69 - 17,40**	16,20	**TC-PT-1620**	TC-PT-M05	1/2“
		14-15	**18,01 - 18,57**	17,60	**TC-PT-1760**	TC-PT-M05	1/2“
		16-17	**18,92 - 19,28**	18,50	**TC-PT-1850**	TC-PT-M05	1/2“
		18-20	**19,74 - 20,42**	19,40	**TC-PT-1940**	TC-PT-M05	1/2“
1	25,4	8-9	**17,02 - 17,88**	16,60	**TC-PT-1660**	TC-PT-M06	1/2“
		10-11	**18,59 - 19,30**	18,20	**TC-PT-1820**	TC-PT-M06	1/2“
		12-13	**19,86 - 20,57**	19,40	**TC-PT-1940**	TC-PT-M06	1/2“
		14-15	**21,18 - 21,74**	20,80	**TC-PT-2080**	TC-PT-M06	1/2“
		16-17	**22,10 - 22,45**	21,70	**TC-PT-2170**	TC-PT-M06	1/2“
		18-19	**22,91 - 23,27**	22,50	**TC-PT-2250**	TC-PT-M06	1/2“
		20-22	**23,62 - 23,89**	23,20	**TC-PT-2320**	TC-PT-M06	1/2“
1-1/8	28,5	13-14	**23,75 - 24,36**	23,40	**TC-PT-2340**	TC-PT-M06	5/8“
		15-16	**24,92 - 25,27**	24,50	**TC-PT-2450**	TC-PT-M06	5/8“
		17-18	**25,63 - 26,09**	25,10	**TC-PT-2510**	TC-PT-M06	5/8“
1-1/4	31,7	12-13	**26,21 - 26,92**	25,80	**TC-PT-2580**	TC-PT-M07	5/8“
		14-15	**27,53 - 28,09**	27,10	**TC-PT-2710**	TC-PT-M07	5/8“
		16-17	**28,45 - 28,80**	28,00	**TC-PT-2800**	TC-PT-M07	5/8“
		18-20	**29,26 - 29,92**	28,80	**TC-PT-2880**	TC-PT-M07	5/8“
1-1/2	38,1	8-9	**29,72 - 30, 58**	29,30	**TC-PT-2930**	TC-PT-M07	5/8“
		10-11	**31,29 - 32,00**	30,08	**TC-PT-3008**	TC-PT-M07	5/8“
		12-13	**32,56 - 33,27**	32,10	**TC-PT-3210**	TC-PT-M07	5/8“
		14-15	**33,88 - 34,44**	33,40	**TC-PT-3340**	TC-PT-M07	5/8“
		16-17	**34,80 - 35,15**	34,40	**TC-PT-3440**	TC-PT-M07	5/8“
		18-20	**35,51 - 36,32**	35,10	**TC-PT-3510**	TC-PT-M07	5/8“

TC-PT2
special application
with 2 cutters

Hydraulic tube pulling units series TP

The hydraulic tube pulling units TECHNODATA type TP 10, TP 15 and type TP 30 are devices for pulling tubes out of the expanded area of the tube sheet. The unit consists of a portable hydraulic aggregate and a hydraulic pulling device, connected with a hydraulic hose pack.
The pulling devices consist of the combined expanding- and pulling cylinder and has to be completed with the needed pulling tools (expanding sleeve, expanding mandrel and distance sleeve).
The expanding sleeve with the expanding mandrel is inserted into the tube to be pulled.
Controlled by the hydraulic system the expanding sleeve is pressed by the expanding mandrel to the tube wall. After that the expanding piston and the pulling piston are set under pressure and the tube will be pulled out of the expanded area.
The pressure of the expanding sleeve is adjusted manually by preadjustment of the expanding mandrel and by adjusting the hydraulic working pressure.
After the pulling procedure the tools are removed to the start position and the next tube can be pulled.

Technical Data:

hydraulic aggregate:	pump:	400 V / 3~ / 50 Hz / 2,2 kW
	conveying capacity:	4,5 l/min / 50 bar // 1,9 l/min / 700 bar
		(pressure limit preadjusted 450 bar)
	tank volume:	appr. 20 l
	weight:	appr. 70 kgs
	hydraulic hose length:	6 ms

pulling device:	**TP 10**	**TP 15**	**TP 30**
stroke expanding cylinder:	20 mms	20 mms	20 mms
stroke pulling cylinder:	100 mms	150 mms	150 mms
pulling force (approx.):	10 t	15 t	30 t
size (LxWxH):	41 x 37 x 18 cms	46 x 38x 18 cms	42 x 63 x 25 cms
weight without tools:	appr. 11.0 kgs	appr. 16.5 kgs	appr. 27.0 kgs
working range:			
tube i. d.:	10 to 15 mms	15 to 30 mms	20 to 40 mms
wall thickness:	0.5 to 2.0 mms	0.5 to 2.0 mms	2.0 to 3.6 mms
connection hydraulic hoses:	4 pieces	4 pieces	4 pieces

Hydraulic Aggregat TP 79

Hydraulic tube pulling cylinder type TP 10

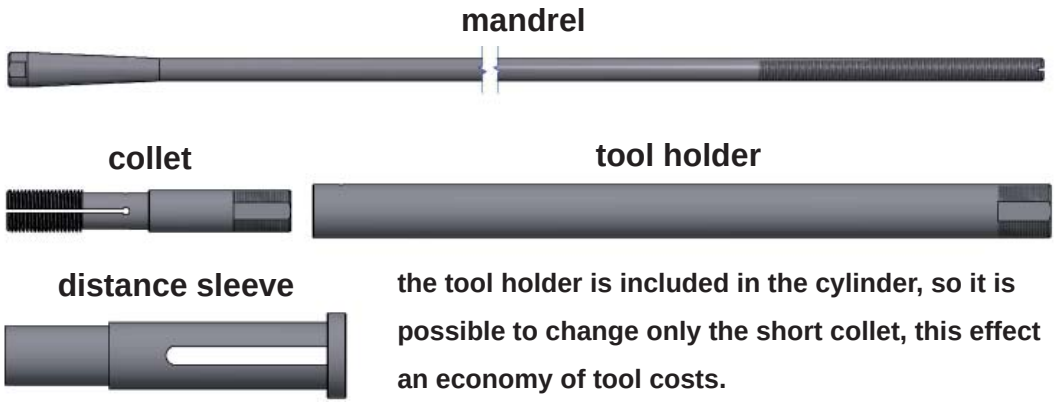
The hydraulic tube pulling cylinder type TP 10 is a device for pulling tubes out of the expanded area of the tube sheet. The unit consists of a portable hydraulic aggregate type TP 79 and the hydraulic pulling cylinder, connected with a hydraulic hose pack.
The pulling devices consist of the combined expanding- and pulling cylinder and has to be completed with different pulling tools (expanding sleeve, expanding mandrel and distance sleeve) for the required application.

working range
- tube inside diameter 10 - 15 mm
- wall thickness of tube 0,5 - 2.0 mm

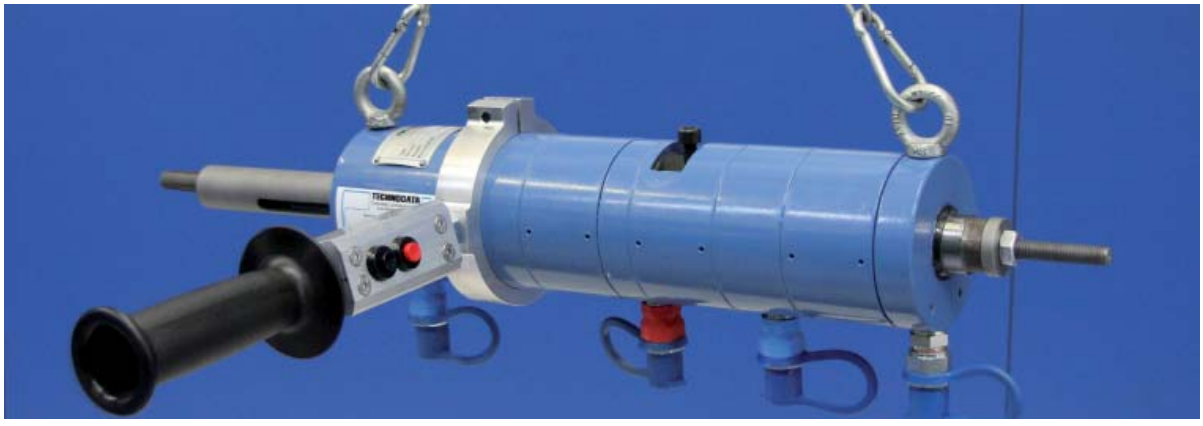
dimension
- L 41 cms x W 37 cms x H 18 cms 11,0 kgs

tool holder	collet	mandrel	distance sleeve
57010001	57010000	57010011	depending on tube outside diameter
	57011000		
	57012000		
	57013000		
	57014000		

special sizes and ranges available, please contact customer service !



the tool holder is included in the cylinder, so it is possible to change only the short collet, this effect an economy of tool costs.



Hydraulic tube pulling cylinder type TP 15

The hydraulic tube pulling cylinder type TP 15 is a device for pulling tubes out of the expanded area of the tube sheet. The unit consists of a portable hydraulic aggregate type TP 79 and the hydraulic pulling cylinder, connected with a hydraulic hose pack.
The pulling devices consist of the combined expanding- and pulling cylinder and has to be completed with different pulling tools (expanding sleeve, expanding mandrel and distance sleeve) for the required application.

working range	• tube inside diameter	15 - 30 mm
	• wall thickness of tube	0,5 - 2.0 mm
dimension	• L 46 cms x W 38 cms x H 18 cms	16.5 kgs

tool holder	collet	mandrel	distance sleeve
58115002.2	58115002	58120012	depending on tube outside diameter
	58116002		
	58117002		
	58118002		
58119002.2	58119002	58130012	
	58120002		
	58121002		
	58122002		
	58123002		
	58124002		
	58125002		
	58126002		
	58127002		
	58128002		
	58129002		
	58130002		

special sizes and ranges available, please contact customer service !

Hydraulic tube pulling cylinder type TP 30

The hydraulic tube pulling cylinder type TP 30 is a device for pulling tubes out of the expanded area of the tube sheet. The unit consists of a portable hydraulic aggregate type TP 79 and the hydraulic pulling cylinder, connected with a hydraulic hose pack.
The pulling devices consist of the combined expanding- and pulling cylinder and has to be completed with different pulling tools (expanding sleeve, expanding mandrel and distance sleeve) for the required application.

working range
- tube inside diameter 20 - 40 mm
- wall thickness of tube 2.0 - 3.6 mm

dimension
- L 42 cms x W 63 cms x H 25 cms 27.0 kgs

tool holder	collet	mandrel	distance sleeve
5793300S.2	5792000S	5792001S2	depending on tube outside diameter
	5792100S		
	5792200S		
	5792300S		
	5792400S		
	5792500S		
	5792600S	5792001S	
	5792700S		
	5792800S		
	5792900S		
	5793000S		
	5793100S		
	5793200S		
	5793300S		
	5793400S		
	5793500S		
	5793600S		
	5793700S		
	5793800S		
	5793900S		
	5794000S		

special sizes and ranges available, please contact customer service !

Hydraulic tube pulling unit type TPS 55

The hydraulic tube pulling unit TECHNODATA type TPS 55 is a device for pulling thick walled tubes out of the expanded area of the tube sheet.
The unit consists of a portable hydraulic aggregate and a hydraulic pulling device, connected with a hydraulic hose pack.
The pulling device consists of the hollow piston pulling cylinder and has to be completed with the needed pulling tools (pulling spindel, distance sleeve and clamping jaws). The tools have to be adapted to the tube size.
The pulling tool is screwed in by means of a torque controlled driving motor, held at the square end. After that the pulling device with the distance sleeve is mounted to the spindle and fixed with the clamping jaws on the spindle thread. Then the spindle is pulled by hydraulic pressure and the tube is removed out of the expanded area.
After the pulling procedure the clamping jaws are dismounted and the cylinder removed. Then the spindel is screwed out by anti clockwise turning.

Technical Data:

hydraulic aggregate:	pump:	400 V / 3~ / 50/60 Hz / 2,2 kW
	conveying capacity:	4,5 l/min / 50 bar // 1,9 l/min / 700 bar
		(pressure limit preadjusted 450 bar)
	tank volume:	appr. 10 l
	weight:	appr. 50 kgs
	hose length:	6 ms
pulling device:	pulling force:	30 t
	stroke pulling cylinder:	150 mms
range:	tube i. d.:	8 to 60 mms
	wall thickness:	> = 2,0 mms

other tube sizes on request !

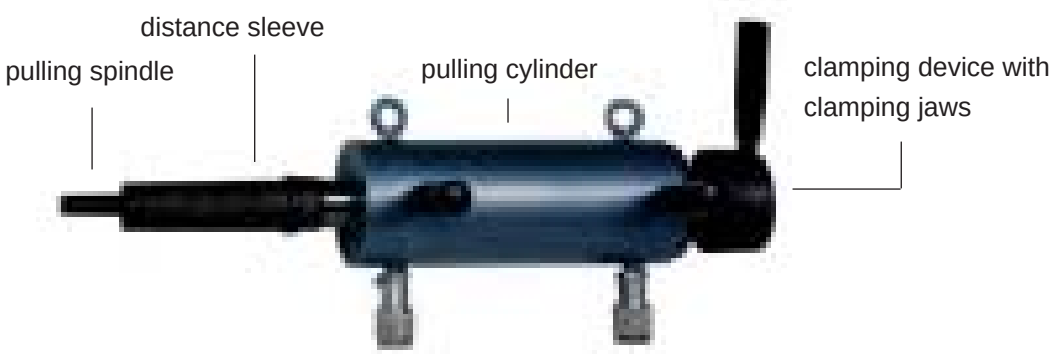


fig.: Hydraulic tube pulling cylinder type **TPS 55**

Grooving tool type TDA-GT

with our GT Grooving tool you can serrate grooves into a tubesheet.
Grooving tools can be used both on portable and stationary multi radial drills.
They also find their application on NC machine tools.

We manufacture GT grooving tools within a broad range of sizing 3/8“ to 4“(9.52 mm to 101.6 mm), both in imperial and metric versions.
As a standard, the tools have an adjustment system for channel cutting reach 22.2 mm to 54.0 mm (as counted from the bottom face to the internal edge of the channel being cut).

Tools of a higher cutting reach are manufactured to special order.
A cutter 3 x 6 x 3 mm belongs to the standard outfit of the grooving tool our offer comprise the whole range of cutters manufactured both in imperial and metric versions.

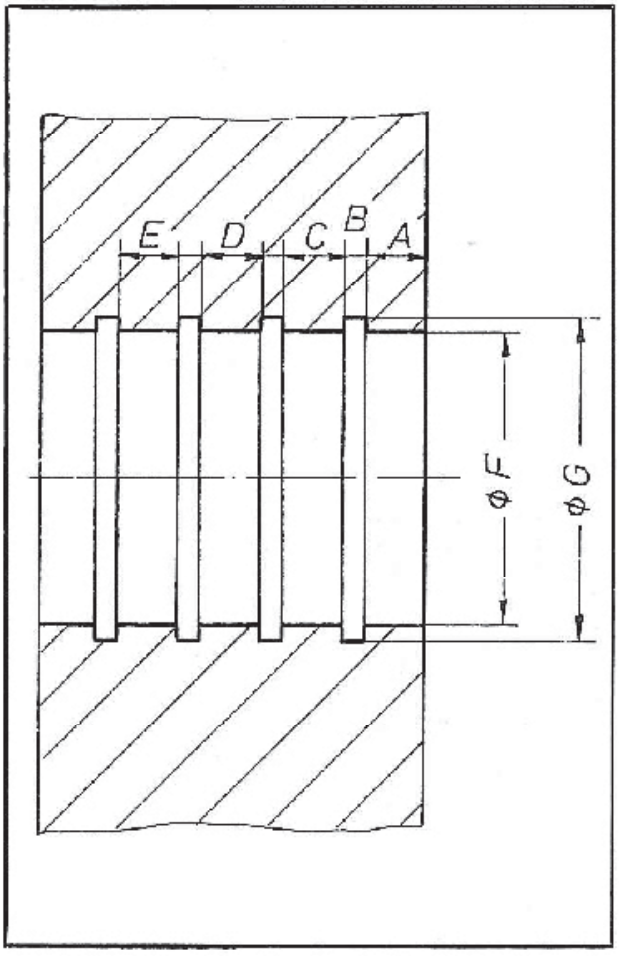
Questionary for grooving tool type TDA-GT

A =	distance top edge - 1.groove	_____	mm
B =	groove width	_____	mm
C =	distance 1. zu 2. groove	_____	mm
D =	distance 2. zu 3. groove	_____	mm
E =	distance 3. zu 4. groove	_____	mm
F =	bore hole diameter Ø	_____	mm
	bore hole tolerance +/-	_____	
G =	diameter with groove	_____	mm
	tolerance	_____	

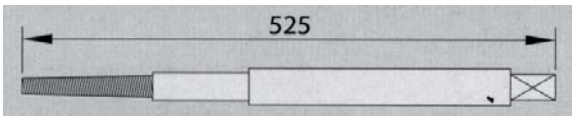
tubesheet material _____

type of processing machine or driving motor?

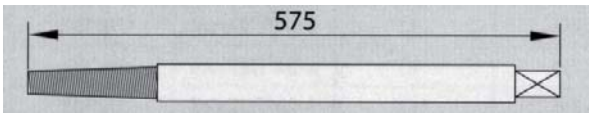
_____



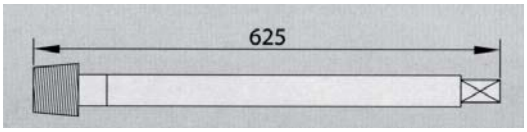
Pulling Spears type RAV



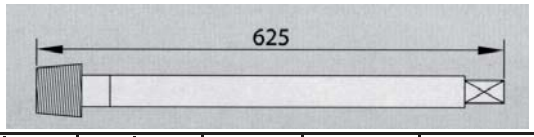
Tube O.D. inch	Tube O.D. mm	mandrel square inch	mandrel square mm	tool no. TPS-	Tube I.D. mm	Tube I.D. inch
5/8	15,87	1/2	12,7	**406-5/8**	5,5-6,5	0,215-0,255
				407-5/8	6,5-7,5	0,255-0,295
				408-5/8	7,5-8,5	0,295-0,335
				409-5/8	8,5-9,5	0,335-0,375
				410-5/8	9,5-10,5	0,375-0,415
				411-5/8	10,5-11,5	0,415-0,455
				412-5/8	11,5-12,5	0,455-0,495
				413-5/8	12,5-13,5	0,495-0,535
				414-5/8	13,5-14,5	0,535-0,570



3/4	19,05	5/8	15,87	**413-3/4**	12,5-13,5	0,495-0,535
				414-3/4	13,5-14,5	0,535-0,570
				415-3/4	14,5-15,5	0,575-0,615
				416-3/4	15,5-16,5	0,615-0,650
				417-3/4	16,5-17,5	0,655-0,695
				418-3/4	17,5-18,5	0,695-0,730
7/8	22,22	3/4	19,05	**415-7/8**	14,5-15,5	0,575-0,615
				416-7/8	15,5-16,5	0,615-0,650
				417-7/8	16,5-17,5	0,655-0,695
				418-7/8	17,5-18,5	0,695-0,730
				419-7/8	18,5-19,5	0,735-0,770
				420-7/8	19,5-20,5	0,775-0,815
				421-7/8	20,5-21,5	0,815-0,850
1	25,4	3/4	19,05	**419-1**	18,5-19,5	0,730-0,770
				420-1	19,5-20,5	0,770-0,810
				421-1	20,5-21,5	0,810-0,845
				422-1	21,5-22,5	0,845-0,885
				423-1	22,5-23,5	0,885-0,925
				424-1	23,5-24,5	0,925-0,965



1	25,4	3/4	19,05	**425-1**	24,5-25,5	0,965-1,005
				426-1	25,5-26,5	1,005-1,045
				427-1	26,5-27,5	1,045-1,085
				428-1	27,5-28,5	1,085-1,125
				429-1	28,5-29,5	1,125-1,160



Tube O.D. inch	Tube O.D. mm	mandrel square inch	mandrel square mm	tool no. TPS-	Tube I.D. mm	Tube I.D. inch
1	25,4	3/4	19,05	**431-1**	30,5-31,5	1,200-1,240
				432-1	31,5-32,5	1,240-1,280
				433-1	32,5-33,5	1,280-1,320
				434-1	33,5-34,5	1,320-1,360
				435-1	34,5-35,5	1,360-1,400
1-1/4	31,75	1	25,4	**436-1**	35,5-36,5	1,400-1,440
				437-1	36,5-37,5	1,440-1,475
				438-1	37,5-38,5	1,475-1,515
				439-1	38,5-39,5	1,515-1,555
				440-1	39,5-40,5	1,555-1,595
				441-1	40,5-41,5	1,595-1,635
				442-1	41,5-42,5	1,635-1,675
				443-1	42,5-43,5	1,675-1,715
				444-1	43,5-44,5	1,715-1,755
				445-1	44,5-45,5	1,755-1,795
				446-1	45,5-46,5	1,795-1,830
				447-1	46,5-47,5	1,830-1,870
				448-1	47,5-48,5	1,870-1,910
				449-1	48,5-49,5	1,910-1,950
				450-1	49,5-50,5	1,950-1,990
				451-1	50,5-51,5	1,990-2,030
				452-1	51,5-52,5	2,030-2,070
				453-1	52,5-53,5	2,070-2,105
				454-1	53,5-54,5	2,105-2,145
				455-1	54,5-55,5	2,145-2,185
				456-1	55,5-56,5	2,185-2,225
				457-1	56,5-57,5	2,225-2,265
				458-1	57,5-58,5	2,265-2,305
				459-1	58,5-59,5	2,305-2,345
				460-1	59,5-60,5	2,345-2,380
				461-1	60,5-61,5	2,380-2,420
				462-1	61,5-62,5	2,420-2,460
				463-1	62,5-63,5	2,460-2,500
				464-1	63,5-64,5	2,500-2,540
				465-1	64,5-65,5	2,540-2,580
				466-1	65,5-66,5	2,580-2,620
				467-1	66,5-67,5	2,620-2,660
				468-1	67,5-68,5	2,660-2,695
				469-1	68,5-69,5	2,695-2,735
				470-1	69,5-70,5	2,735-2,775
				471-1	70,5-71,5	2,775-2,815
				472-1	71,5-72,5	2,815-2,855
				473-1	72,5-73,5	2,855-2,895
				474-1	73,5-74,5	2,895-2,935
				475-1	74,5-75,5	2,935-2,975
				476-1	75,5-76,5	2,975-3,010
				477-1	76,5-77,5	3,010-3,050

Tube cleaners for heat transfer systems

It's fact that tubes lined with even the slightest layer of deposit can rob boilers, chillers, condensers, or other heat transfer systems of their efficiency. TECHNODATA offers a complete line of tube cleaning products to help you clean tubes quickly and easily. So you can restore your heat transfer system to its maximum operating efficiency. With TECHNODATA, you'll find an excellent variety of tube cleaners and accessories for cleaning many types of heat transfer systems.
Four different product groups - Internal-driven, External-driven, Shoot-thru and Rotating flexible shaft - combine to provide the most effective and efficient techniques for tube cleaning success.

Internal-Driven Tube Cleaners deliver powerful cleaning action to make even the toughest job seem easy. Ideal for removing scale and other mineral deposits from dirty boiler tubes, cleaners come with many motor and cleaning tool options to accomodate different tube sizes and requirements.
Designed to accompany the cleaning tool into the tube, the motor provides the rotary necessary to loosen deposits from the tube's inner wall. As the deposits fall, the motor's exhaust flushes the debris toward the opposite end of the tube, safely away from the operator.
Four motor series accommodate a wide variety of standard gage sizes for straight and curved tubes.

600 Series

1100 Series

1300 Series

2000 Series

External-Driven Tube Cleaners provide high-torque action ideal for cleaning hard scale, coke, gummy, oily or rubbery deposits from straight tubes, 3/8" - 2" ID.
Available in two styles, each trigger-operated cleaner features an air-powered motor that remains external to the tube, providing a powerful rotary motion to the shaft and cleaning tool. All models are capable of water flush operation - convenient for washing away loose deposits. Air purge models are also available.

5224 XL

Jiffy Guns make cleaning soft deposits safe, easy and fast. Clean sludge,mud and algae virtually in seconds with guns designed for straight tube sizes 5/8" - 1 - 1/2" ID.
Jiffy Guns utilize both water and air to produce a powerful stream to propel a spiral-wound, nylon brush or molded plastic scubber through the tube, removing deposits along the way.

5371
Jumbo Jiffy Gun

Roto-Jet comes with many outstanding features for the quick and easy one-step cleaning of tubes, 5/16" - 4" ID. Electric or pneumatic powered, **Roto-Jet** delivers high speed cleaning action that's extremely effective in removing a wide range of deposits, from soft to hard. Remove algae, sludge, mud, scale and mineral deposits with ease utilizing tooling options that include brushes, cleaning heads and descaling tools. Roto-Jet's convenient foot-pedal control design allows the operator to iinitiate shaft rotation and water flush simultaneously while manually advancing the cleaning tool. Additional features include a built-in storage compartment for accessories, and durable wheels and sturdy handle for transport.

Roto-Jet

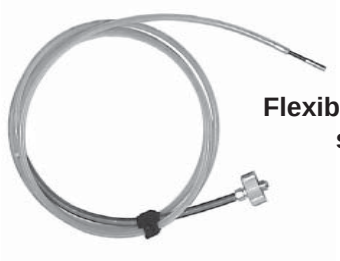
Tube cleaning systems ROTO-JET

TYPE	Voltage	reversible	rpm	dimension				tube range	
				Inch	mm	Lbs	Kg	Inch	mm
0620A	120	No	850	17 X 15 X 10.5	432 X 381 X 267	63	28,6	.250 -3.000	6.35 -76.2
0620AR	120	Yes	850	17 X 15 X 10.5	432 X 381 X 267	63	28,6	.250 -3.000	6.35 -76.2
0820A	220	No	850	17 X 15 X 10.5	432 X 381 X 267	63	28,6	.250 -3.000	6.35 -76.2
0820AR	220	Yes	850	17 X 15 X 10.5	432 X 381 X 267	63	28,6	.250 -3.000	6.35 -76.2
0650	120	No	0-1800	11 X 17 X 9	280 X 432 X 229	35	15,9	.250 -1.000	6.35-25.4
0650R	120	Yes	0-1800	11 X 17 X 9	280 X 432 X 229	35	15,9	.250 -1.000	6.35-25.4
0750	220	No	0-1800	11 X 17 X 9	280 X 432 X 229	35	15,9	.250 -1.000	6.35-25.4
0750R	220	Yes	0-1800	11 X 17 X 9	280 X 432 X 229	35	15,9	.250 -1.000	6.35-25.4
	Air								
0420	120@90PSI	No	0-2500	21.5 X 10.25 X 10.5	546 X 261 X 267	48	21,8	.250 -3.000	6.35 -76.2

Model Typ 0620A

Pneumatic model 0420
is a pneumatic tube cleaner with a powerful 4 HP motor to clean tubes where electricity is not readily available in power utility plants, sugar mills, paper and steel mills, etc.

“WET” - SHAFT specifications:



Flexible “WET” - shaft

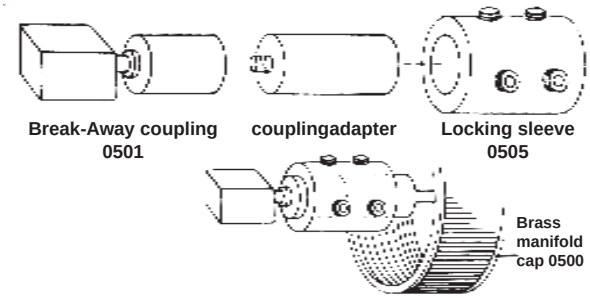
ROHR/TUBE ID		Flexiblewellen / flexible shaft Abmessung / dimension						Wellen / shaft Ø	
		Feet	Meter	Feet	Meter	Feet	Meter		
Inch	mm	15	4,5	25	7,6	35	10,7	Inch	mm
0,375	10	051115		051125		051135		0,250	9,53
.437-.500	11-13	051215		051225		051235		0,375	12,70
.562-1.00	14-25	051315		051325		051335		0,500	15,88
.750-1.50	19-38	0514A15		0514A25		0514A35		0,625	19,05
1.00-2.00	26-50	051415		051425		051435		0,750	25,40
2.00 +	50+	051515		051525		051535		1,000	22,23

Flexible “DRY” - shaft

“DRY” - SHAFT specifications:

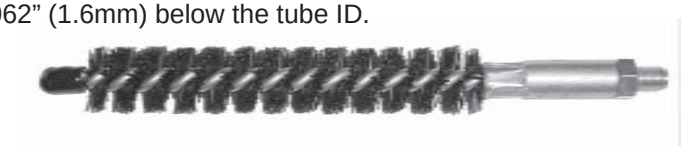
TUBE ID ROHR ID		Flexiblewellen / flexible shaft LANGEN / LENGTH					
		Feet	Meter	Feet	Meter	Feet	Meter
Inch	mm	15	4,5	25	7,6	35	10,7
1.00-2.00	26-50	RJ-53415		RJ-051525		RJ-051535	

Break-Away Coupling
The Break-Away coupling, extends the cleaning shaft’s life. When the torque on the cleaning shaft exceeds the break-away coupling’s shear strength the inexpensive coupling breaks and saves the flexible shaft from premature damage. The break-away feature is only available on the 0512 and 0513 flexible shaft sizes.



Tube cleaning brushes for cleaning system ROTO-JET

SERIES 5502 HEAVY DUTY NYLON for cleaning medium to heavy mud and algae deposits from copper alloy and brass tubes. Size brush equal to or .062” (1.6mm) below the tube ID.



SERIES 0941 NYLON for cleaning light to medium soft deposits from copper alloy and brass tubes. Size brush equal to or .062” (1.6mm) below the tube ID.

SERIES 0942B BRASS for cleaning soft and light scale deposits from nonferrous tubing. Size brush equal to or .062” (1.6mm) below the tube ID.

SERIES 0942 STAINLESS STEEL for cleaning soft and light scale deposits from ferrous tubes. Size brush equal to or .062” (1.6mm) below the tube ID.

SERIES 5510 TURBO BRUSHES for cleaning light and soft scale deposits in ferrous and non ferrous tubes. Silicone carbide is impregnated in the brush’s nylon bristle allowing the brush to polish the tube as it cleans. Refer to the chart below for sizing.

SERIES 5508 TURBO BRUSHES for cleaning light and soft scale deposits in ferrous and non ferrous enhanced tubes. Silicone carbide is impregnated in the brush’s nylon bristle allowing the brush to polish the tube as it cleans. Refer to the chart below for sizing.

Additional brushes for special applications on request, contact customer service !

BRUSHES Ø		THREAD	SHAFT	BRUSHES/ REF. NUMBERS					
Inch	mm	SIZE	TYPE	H.d. NYLON	NYLON	BRASS	STEEL	5510 Turbo	5508 Turbo
0,250	6,35	6-32	RJ-0511	*RJ-5502- 250	RJ-0941250	RJ-0942B250	RJ-0942250	N/A	N/A
0,312	7,92	6-32	RJ-0511	*RJ-5502- 312	RJ-0941312	RJ-0942B312	RJ-0942312	RJ-5510-8 3/8 Brush Dia.	
0,375	9,53	6-32	RJ-0511	*RJ-5502- 375	RJ-0941375	RJ-0942B375	RJ-0942375		
0,437	11,10	1/4-28	RJ-0512	RJ-5502- 437	RJ-0941437	RJ-0942B437	RJ-0942437	RJ-5510-12 3/4 Brush Dia.	RJ-5508-12
0,500	12,70	1/4-28	RJ-0512	RJ-5502- 500	RJ-0941500	RJ-0942B500	RJ-0942500		
0,562	14,27	1/4-28	RJ-0512/RJ-0513	RJ-5502- 562	RJ-0941562	RJ-0942B562	RJ-0942562		
0,625	15,88	1/4-28	RJ-0512/RJ-0513	RJ-5502- 625	RJ-0941625	RJ-0942B625	RJ-0942625	RJ-5510-16 1 Brush Dia.	RJ-5508-16
0,687	17,45	1/4-28	RJ-0513	RJ-5502- 687	RJ-0941687	RJ-0942B687	RJ-0942687		
0,750	19,05	1/4-28	RJ-0513	RJ-5502- 750	RJ-0941750	RJ-0942B750	RJ-0942750		
0,812	20,62	1/4-28	RJ-0513	RJ-5502- 812	RJ-0941812	RJ-0942B812	RJ-0942812	RJ-5510-18 1-1/8 Brush Dia.	RJ-5508-18
0,937	23,80	1/4-28	RJ-0513	RJ-5502- 937	RJ-0941937	RJ-0942B937	RJ-0942937		
1,000	25,40	1/4-28	RJ-0513	RJ-5502- 1000	RJ-09411000	RJ-0942B1000	RJ-09421000		
1,062	26,97	1/4-28	RJ-0513	N/A	RJ-09411062	RJ-0942B1062	RJ-09421062	RJ-5510-20 1-1/4 Brush Dia	N/A
1,125	28,58	1/4-28	RJ-0513		RJ-09411125	RJ-0942B1125	RJ-09421125		
1,187	30,15	1/4-28	RJ-0513		RJ-09411187	RJ-0942B1187	RJ-09421187		
1,250	31,75	1/4-28	RJ-0513		RJ-09411250	RJ-0942B1250	RJ-09421250	N/A	
1,312	33,32	1/4-28	RJ-0513		RJ-09411312	RJ-0942B1312	RJ-09421312		
1,437	36,50	1/4-28	RJ-0513		RJ-09411437	RJ-0942B1437	RJ-09421437		
1,500	38,10	1/4-28	RJ-0513		RJ-09411500	RJ-0942B1500	RJ-09421500		

* 5502 Brushes must use adapter number RJ-5100AC. Sold separately.

Air driven tube cleaning motor type 35-4325 K

tube cleaning motor type 35-4325K

RR-78H13 tube cutter head

RR-L47700A20 Universal coupling

RR-35-4325K Air motor

35-4325PKG Aluminum Siphon Tube Cleaner Package for cleaning by conventional hand use. Accommodates minimum siphon tube ID of 2-7/8" (73mm) with a minimum bend radius of 28" (711mm).

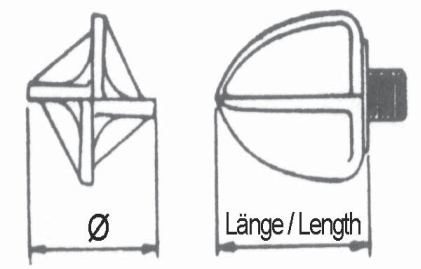
Features:

- Powerful Heavy Duty 2-9/16" (65mm) OD Air Motor.
- Aggressive 78H Siphon Tube Cutter Head
- Limited Throw Universal - Prevents motor stall-out increases rotor life.

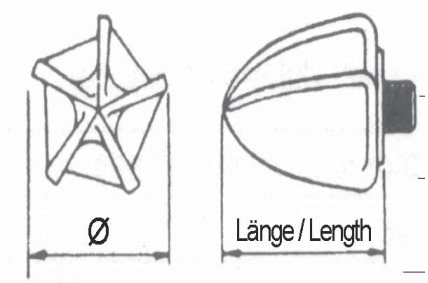
Other aluminum siphon tube cleaners are available, advise siphon tube ID, minimum bend radius and siphon tube length. Contact Customer Service for details.

Drill heads are used with universal couplings to remove heavy and hard coke. Universal couplings are always used with drills or cutter heads in cleaning curved tubes. Rugged construction for hard service. For hard coated stellite drills add "S" to end of the drill number. Universals are sold separately.

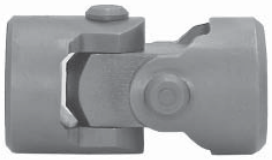
FOURWAY DRILL



FIVEWAY DRILL



Drillhead



Universal coupling

DRILL HEAD dimension				THREAD	DRILL HEAD REF.-Number
Ø	Ø/mm	Length	Length mm		
7/8	22,23	1-1/4	31,75	5/16-18	RR-H1145-312
1-1/ 8	28,58	1-1/2	38,10	7/16-14	RR-H1144-437
1-1/4	31,75	1-3/4	44,45	7/16-14	RR-H1105-437
1-1/2	38,10	2	50,80	7/16-14	RR-H1058-437
1-3/4	44,45	2	50,80	7/16-14	RR-H1059-437
2	50,80	2-1/4	57,15	5/8-11	RR-H1166-625
2-1/4	57,15	2-1/2	63,50	5/8-11	RR-H2356-625
2-5/8	66,68	2-3/4	69,85	3/4-10	RR-H2404-750
2-7/8	73,03	2-7/8	73,03	3/4-10	RR-H2355-750
3-1/8	79,38	3-3/8	85,72	3/4-10	RR-H2347-750
3-1/2	88,90	3-1/2	88,90	1-1/8-12	RR-H2509-1125

Air driven tube cleaning motor

for straight tubes from 12.57 upto 46.23 mm / .495“ upto 1.820“ ID

Standard equipment									
TUBE ID				Motor Ref. No. & Ø Inch/mm	conical cutterhead with thread	adapter	brush	flexible holder	universal coupling	operating hose
Inch		mm								
Min	Max	Min	Max							
.495	.513	12,57	13,03	**RR-D66900-15** .468/11.87mm	RR-16509	RR-8431A	RR-3323-6	RR-420000	nicht verfügbar	RR-833000-25P
.514	.532	13,06	13,51							
.533	.609	13,54	15,47				RR-3323-8			
.610	.687	15,49	17,45	**RR-D67000-18** .562/14.27mm	RR-19768	RR-8431B	RR-3324-8	RR-420000BB	RR-L69100	
.688	.729	17,48	18,52				RR-3324-10			
.730	.778	18,54	19,76	**RR-D67100-22** .688/17.48mm	RR-16526	RR-8434C	RR-350000	RR-420100	RR-L69300	RR-833100-25P
.779	.850	19,79	21,59				RR-350200			
.851	.900	21,62	22,86		RR-17702		RR-350400			
.901	.950	22,89	24,13				RR-350600			
.951	1,000	24,16	25,40	**RR-D67300-28** .875/22.23mm	RR-19062	RR-8436A	RR-350800		RR-L69400	
1,001	1,040	25,43	26,42							
1,041	1,072	26,44	27,23							
1,073	1,138	27,25	28,91		RR-19840	RR-8436C	RR-351000			
1,139	1,206	28,93	30,63	**RR-D67500-34** 1.062/26.97mm	RR-19076		RR-351200	RR-420100BC	RR-L69500	RR-1004-25P
1,207	1,230	30,66	31,24				RR-351400			
1,231	1,260	31,27	32,00							
1,257	1,321	31,93	33,55				RR-351600			
1,322	1,400	33,58	35,56	**RR-D67500-40** 1.250/31.75mm	RR-313500		RR-351800	RR-420200BD	RR-L69600	
1,401	1,450	35,59	36,83				RR-352000			
1,451	1,484	36,86	37,69							
1,485	1,563	37,72	39,70				RR-352200			
1,564	1,635	39,73	41,53	**RR-D67800-46** 1.438/36.53mm	RR-313600		RR-352400	RR-420300DF	RR-L76200A	RR-1009-25P
1,636	1,765	41,55	44,83				RR-352600			
1,676	1,700	42,57	43,18		RR-313600					
1,701	1,730	43,21	43,94				RR-352800			
1,731	1,780	43,97	45,21				RR-352900			
1,781	1,820	45,24	46,23				RR-353000			

NOTE: air hose length is 7.62m / 25', also available in a length of 15.24 m / 50'.

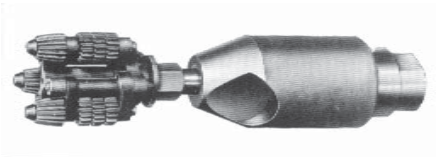
Motor type D673, RR-D67300-28 with flexible holder RR-420100 operating hose RR-833100-25P

Expanding Brush with Universal coupling

„Scraper“ head with flexible holder

Air driven tube cleaning motor

for straight tubes from 44.45 upto 95.25 mm / 1.750“ upto 3.750“ ID



1300 Series motor with swing frame head for straight tubes

TUBE ID Ø		Motor Ref.-Nr.	Standard Equipment			
			Motor Ø		Cutter headf	Expanding brush
Inch	mm		Inch	mm		
1.750	44,45	RR-D7700-1500	1,500	38,10	RR-H63500	RR-352900
2,000	50,80	RR-D44800-1812	1,812	46,02	RR-H63600	RR-353600A
2,250	57,15	RR-137400D2125	2,125	53,98	RR-336000	RR-N700A
2,500	63,50	RR-136400D2375	2,375	60,33	RR-336100	RR-R770
2,750	69,85	RR-134200D2625	2,625	66,68	RR-336100	RR-T770
3,000	76,20	RR-139300D2875	2,875	73,03	RR-336200	RR-T770A
3,250	82,55	RR-132500D3000	3,000	76,20	RR-336300	RR-V770A
3,500	88,90				RR-336400	RR-V770A
3,750	95,25				RR-336400	RR-Y770A

UO head

Expanding Brush

“G” Brush

Air valve

TUBE ID		Motor Ref.-Nr.	OPTIONS / EXTRA EQUIPMENT					
			Universal coupling	Drill head	UO' head	"G" Brush	Air valve	Air hose
Inch	mm							
1.750	44,45	RR-D7700-1500	RR-L76200A	RR-H1058-437	not availabel	RR-3083-8	RR-720500	RR-1006-25P
2,000	50,80	RR-D44800-1812	RR-L27800	RR-H1058-437	RR-302700	RR-3145-4		
2,250	57,15	RR-137400D2125	RR-L57600	RR-H1058-437	RR-302900	RR-3145-8		
2,500	63,50	RR-136400D2375	RR-L52200	RR-H1059-625	RR-303100	RR-3147-4		
2,750	69,85	RR-134200D2625	RR-L28000	RR-H1059-625	RR-303200	RR-3147-8		
3,000	76,20	RR-139300D2875	RR-L28000	RR-H1059-625	RR-303400	RR-3151-4	RR-720600	RR-1007-25P
3,250	82,55	RR-132500D3000	RR-L37300	RR-H2404-750	RR-303600	RR-3196-8		
3,500	88,90		RR-L37300	RR-H2404-750	RR-303600	RR-3196-10		
3,750	95,25		RR-L37300	RR-H2355-750	RR-303800	RR-3196-10		

Additional sizes or special solutions on request, contact customer service !

Air driven tube cleaning motor

for curved tubes from 20.09 upto 52.83mm / 0.791” upto 2.080” ID

TUBE ID Ø				Min. bend Radius		Motor Ref.-Nr. & Ø Inch/mm	cone cutter	Adapter	Exp. Brush	Flexible Holder	Universal coupling	Air hose
Inch		mm										
Min	Max	Min	Max	Inch	mm							
.791	.815	20,09	20,70	6	157	RR-D66100-22 .687"/17.45mm	RR-17702	RR-8434C	RR-350000	RR-420000CC	RR-L69300	*RR-833100-25P
.816	.890	20,73	22,61						RR-350200			
.891	.910	22,63	23,11						RR-350400			
.911	.940	23,14	23,88									
.941	1.040	23,90	26,42			RR-D66200-25 .781"/19.84mm	RR-19062	RR-8436A	RR-350600			
1,041	1.100	26,44	27,94			RR-D66300-28 .875"/22.22	RR-19840	RR-8436C	RR-350800	RR-420100	RR-L69400	
1,101	1.040	27,97	26,42						RR-351000			
1,141	1,180	28,98	29,97			RR-D66300-31 .968"/24.59mm	RR-19076		RR-351200			
1,181	1,242	30,00	31,55						RR-351400			
1,243	1,270	31,57	32,26									
1,271	1,300	32,28	33,02			RR-D66500-34 1.062"/26.55mm	RR-19077	RR-8436E	RR-351600	RR-420100BC	RR-L69500	*RR-1004-25P
1,301	1,360	33,05	34,54									
1,361	1,410	34,57	35,81					RR-8440A	RR-351800	RR-420200BD	RR-L69600	
1,411	1,445	35,84	36,70				RR-19078		RR-352000			
1,446	1,490	36,73	37,85									
1,491	1,525	37,87	38,74			RR-D66500-40 1.250"/31.75mm	RR-198RR-13		RR-352200			
1,526	1,600	38,76	40,64									
1,601	1,640	40,67	41,66				RR-198RR-14		RR-352400			
1,641	1,680	41,68	42,67						RR-352600			
1,681	1,725	42,70	43,82									
1,726	1,772	43,84	45,01			RR-D66800-46 1.437"/36.5mm			RR-362800	RR-420300DD	RR-L45500	
1,773	1,820	45,03	46,23						RR-352900			
1,821	1.910	46,25	48,51						RR-353000			
1,911	2.000	48,54	50,80	10,00	254	RR-D66800C52 1.625"/41.28mm	RR-313800 Single Pin Head		RR-353200A			RR-1009-25P
2,001	2,040	50,83	51,82						RR-353400A			
2,041	2.080	51,84	52,83									

* Operating hose RR-833100-25P recommend air valve RR-720200. Air valve sold separately.
* Operating hose RR-1004-25P recommend air valve RR-720300. Air valve sold separately.
* Operating hose RR-1009-25P recommend air valve RR-720400. Air valve sold separately.

Motor 1364 equipped with Universal coupling and a swing frame cutter head

for curved tubes from 53.98 upto 120.65mm / 2.125” upto 4.750” ID

TUBE ID		Min. bend Radius		Standard equipment						options / accessories			
				Motor	Motor Ø		cutter		Universal	air	air hose	drill head	espanding
Inch	mm	Inch	mm	Ref.-Nr.	Inch	mm	head	"G" brush	coupling	valve			brush
2,125	53,98	12,0	304,8	RR-137000C1750	1,750	44,45	RR-336000	RR-3145-6	RR-L76200A	RR-720400	RR-1009-25P	RR-H1059-437	P770A
2,250	57,15	9,0	228,6										
		12,0	304,8	RR-139500C1875	1,875	47,63		RR-3145-8					N770A
2,375	60,33	9,0	228,6					RR-3146-2					
2,500	63,50	10,0	254									RR-H1166-625	M770
		15,0	381				RR-336100	RR-3146-4	RR-L27600				
2,625	66,68	11,0	279,4	RR-137400D2125	2,125	53,98		RR-3147-4		RR-720500	RR-1006-25P		R770
2,750	69,85	11,0	279,4					RR-3147-6				RR-H2356-625	T770
		14,0	355,6					RR-3147-8	RR-L52200				
2,875	73,03	12,0	304,8	RR-136400D2375	2,375	60,33							
		21,0	533,4				RR-336200	RR-3151-2	RR-L28000				
3,000	76,20	12,0	304,8	RR-134200D2625	2,625	66,68		RR-3151-4	RR-L52200				
		15,0	381	RR-136400D2375	2,375	60,33			RR-L28000				
3,250	82,55	13,0	330,2	RR-134200D2625	2,625	66,68	RR-336300						
		16,0	406,4					RR-3196-8	RR-L28000A			RR-H2404-750	V770A
3,500	88,90	14,0	355,6	RR-139300D2875	2,875	73,03				RR-720600	RR-1007-25P		
		18,0	457,2				RR-336400		RR-L37300				
3,750	95,25	14,0	355,6	RR-132500D3000	3,000	76,20							
4,000	101,60	15,0	381									RR-H2355-750	Y770A
		26,0	660,4				RR-316500	RR-3196-10	RR-L51000				
4,250	107,95	16,0	406,4	RR-139900D3625	3,625	92,08			RR-L37300				
		21,0	533,4	RR-132500D3000	3,000	76,20							
4,500	114,30	16,0	406,4	RR-139900D3625	3,625	92,08			RR-L51000				
4,750	120,65	18,0	457,2										H770A

* air hose as above shown are 25' (7.62m)length .also available in50' (15.24m) length.

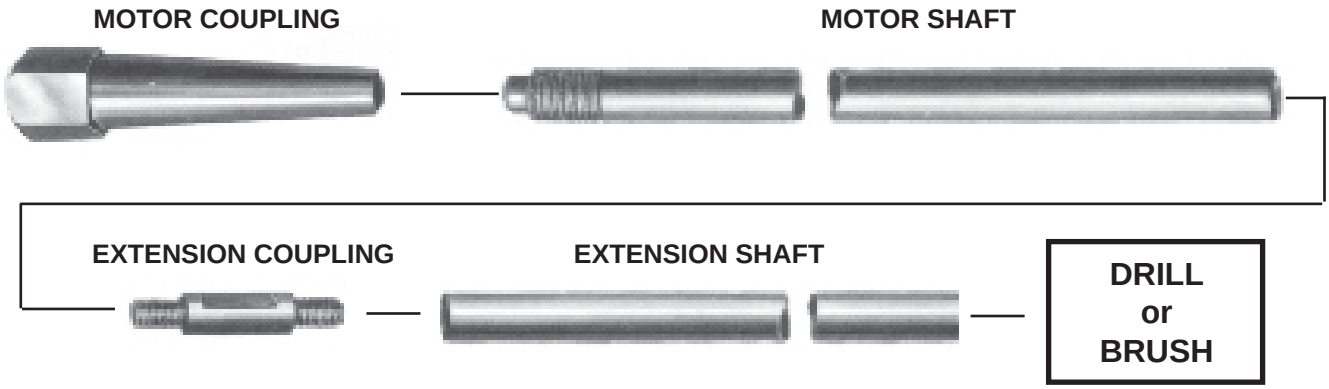
Air driven tube cleaning motor type 522400XL

for straight tubes from 9.5 until 25.4mm / 3/8” until 1” inside diameter

the air driven and water supported motor is equipped with a water and air connection .The 522400XL motor provide high torque for cleaning hard scale, coke, gummy, oily or rubbery deposits from straight tubes, ideal tool for sugar, pulp, paper mills, chemical plants and oil refineries. Equipped with a rigid shaft(quill), the cleaning process will start by the hands-witch at the motor, in this moment water will flow through the shaft and will come out of the cleaning tool in front of the shaft. The water flush operation convenient for washing away loose deposits and cooling of the tools.

- Arbeitsdruck: 6,2 – 8,6 bar
- water pressure: max. 50 psi / 8,6 bar
- RPM: 1500
- Max. torque: 9,5 Nm / 700 RPM.
- appr. dimension: L. 230 mm x W. 63 mm x H. 200 mm weight: ca. 3,1 Kgs*

Accessories for type 522400XL



shaft outside Ø	Motor coupling Ref.Nr.	*Motor shaft Ref.Nr.	ext. Coupling gasket Ref.Nr.	extension coupling Ref.Nr.	extension shaft Ref.Nr.
7,94 mm (5/16")	RR-5213C	RR-5213-(FT)	not available	not available	not available
9,52 mm (3/8")	RR-5214C	RR-5214-(FT)	RR-P5034A	RR-501406	RR-5014-(FT)
11,11 mm (7/16")	RR-5215C	RR-5215-(FT)	RR-P5034A	RR-CS113106	RR-5015-(FT)
12,7 mm (1/2")	RR-5216C	RR-5216-(FT)	RR-P5034B	RR-CS113206	RR-5016-(FT)
15,87 mm (5/8")	RR-5218C	RR-5218-(FT)	RR-P5034C	RR-CS113406	RR-5018-(FT)
19,05 mm (3/4")	RR-5219C	RR-5219-(FT)	RR-P5034D	RR-CS113506	RR-5059-(FT)

*specify shaft length, 1500 mm steps are available. other sizes are available, contact customer service.

*specify shaft length, 1500 mm steps are available. other sizes are available, contact customer service.

condenser and heatexchanger tube cleaning drills and brushes for type 522400XL

CT - drill

El Paso - drill

for soft deposits

drill

for gummy deposits

TD - Bohrer

these drills are carbide tipped
for hard deposits

for powder deposits
and polishing

tube AD	tube	tube ID		*CT drill Ref. Nr.	*drill-adapter	**T-drillr Ref. Nr.	** coupling Ref. Nr.	El Paso - drill	**TD-drill	***brush	cleaning shaft OD
Inch (mm)	BWG	Inch	mm								Inch (mm)
1/2"(12.7mm)	16	.370"	9,4	RR-5029-359	RR-5039K	not available		RR-5005-359	not available	RR-5024A22	5/16" (7.94mm)
	17	.384"	9,75							RR-5024A24	
	18	.402"	10,21	RR-5029-390				RR-5005-390			
5/8" (15.8mm)	12	.407"	10,32	RR-5029-390				RR-5005-390		RR-5024A24	
	13	.435"	11,05	RR-5029-422	RR-5039A	RR-5100-422	RR-5100B	RR-5005-422	RR-5172-426	RR-5024B26	3/8" (9.52mm)
	14	.459"	11,66	RR-5029-446						RR-5024B28	
	15	.481"	12,22		RR-5039B	RR-5100-468	RR-5100C	RR-5005-468	RR-5172-468	RR-5024C28	7/16" (11.1mm)
	16	.495"	12,57	RR-5029-480		RR-5100-480		RR-5005-480	RR-5172-475	RR-5226C30	
	17	.509"	12,93								
	18	.527"	13,39	RR-5029-512	RR-5039C	RR-5100-512		RR-5005-512		RR-5226C32	
3/4" (19.0mm)	12	.532"	13,51	RR-5029-512		RR-5100-512		RR-5005-512	RR-5172-507	RR-5226C32	
	13	.560"	14,22							RR-5226C34	
	14	.584"	14,83	RR-5029-568	RR-5039D	RR-5100-568	RR-5100D	RR-5005-568	RR-5172-564	RR-5226D36	1/2" (12.7mm)
	15	.606"	15,39								
	16	.620"	15,75	RR-5029-604		RR-5100-604		RR-5005-604	RR-5172-600	RR-5226D38	
	17	.634"	16.10								
	18	.652"	16,56	RR-5029-640		RR-5100-640	RR-5100E	RR-5005-640	RR-5172-632	RR-5226D40	
7/8" (22.2mm)	12	.657"	16,69	RR-5029-640		RR-5100-640		RR-5005-640	RR-5172-632	RR-5226D40	
	13	.685"	17,4							RR-5226D42	
	14	.709"	18,01	RR-5029-691		RR-5100-691		RR-5005-691	RR-5172-689	RR-5226D44	5/8" (15.88mm)
	15	.731"	18,57		RR-5039E						
	16	.745"	18,92	RR-5029-727		RR-5100-727	RR-5100F	RR-5005-727	RR-5172-725	RR-5226D46	
	17	.759"	19,28								
	18	.777"	19,74	RR-5029-759		RR-5100-759		RR-5005-759	RR-5172-757	RR-5226D48	
1" (25.4mm)	12	.782"	19,86	RR-5029-759		RR-5100-759		RR-5005-759	RR-5172-757	RR-5226D48	
	13	.810"	20,57							RR-5226D50	
	14	.834"	21,18	RR-5029-812	RR-5039F	RR-5100-812	RR-5100G	RR-5005-812	RR-5172-814	RR-5226E52	3/4" (19.05mm)
	15	.856"	21,74								
	16	.870"	22,09	RR-5029-848		RR-5100-848		RR-5005-848	RR-5172-850	RR-5226E54	
	17	.884"	22,45								
	18	.902"	22,91	RR-5029-880	RR-5039G	RR-5100-880		RR-5005-880	RR-5172-882	RR-5226E564	

***drill studs are required for CT drills**
**** drill coupling are required for drill tips and twist drills**
***** brush standard material is steel, brushes are also available in brass and stainless steel materials**
other size drills and brushes are available, contact customer service for details..

Tube cleaning system TCP

with this system you can internal cleaning tubes, pipes and hoses quick and effective. You can use this equipment in many areas where tubes are involved, heat exchanger, product lines, automotive engineering or final processing of tubes after production, etc.
Cleaning with effectively removes the impurities of the manufacturing process and significantly reduces scavening times at operation startup. The cleaning process is very simple, with an air pressure of 6-8 bar, the cleaining projectile will shot through the tube with the deposits. These flexible projectile expand and press against the wall of the tube. The combination of the air pressure and the excess of the cleaning projectile effected a perfect cleaning result.
The equipment consits of the launcher unit, nozzles and the cleaning projectile. The launcher unit is manufacured with strength aluminium and a robust construction for hard working conditions. the operating range for tubes will be from 6 upto 65 mm outside diameter. For easy handling is a rotary air connector equipped.
To use the equipment you need further the interchangeable shock-proof plastic nozzles. The size of the nozzle depends of the tube ID to be clean.

projectiles

nozzles

launcher unit
with a mounted nozzle

Cleaning Projectile for tube cleaning system TCP

We have a range of cleaning projectiles for different cleaning jobs, the following chart will help to choose the right one.

STANDARD
these projectiles you will choose to remove loose particles from tubes. They are manufactured of composite foam rubber and are availablemulicoloured or white.

PREMIUM
these projectiles are airtight and resilient to solvents as well as mechanical wear and tear, making them particularly
suited for cleaning piping assemblies, pipelines over 60 mm inner diameter and when dealing with greasy
contamination.

FLEX
these projectiles are made of an elastic rubber foam that quickly regains its shape after deformation. Because of their high flexibility, largely oversized projectiles can easily pass through tight cross-section constrictions,
achieving a high degree of decontamination in fi ttings as well as hoses. We recommend these projectiles for the subsequent cleaning of hydraulic systems after assembly.

ABRASIVE
these projectiles have a roughf fibrous material on their front end and efficiently remove stubborn debris and coarse contamination.

CORUNDUM
these projectiles have a corundum coating similar to sandpaper that grinds away extremely persistent deposits such as rust or lime. Subsequent cleaning with a standard cleaning projectile is necessary to remove corundum residue.

Information sheet

for technical requirement of EXPANDING TOOLS and spare parts

tube O.D. ..... d: _____ mms
wall thickness ..... s: _____ mms
tube material: ..... _____
number of tubes: ..... _____ pcs
straight tubes: ..... _____ yes / no
U-tubes: ..... _____ yes / no
expanded joint: ..... _____ yes / no
welded-expanded joint: ..... _____ yes / no
expanded-welded joint: ..... _____ yes / no
expanding rate: ..... : _____ %
calculating method: ..... _____

---

bore size ..... D: _____ mms
tubesheet thickness ..... B: _____ mms
plugsheet thickness ..... B1: _____ mms
plug hole ..... D1: _____ mms
material: ..... _____

shell-side: pressure: _____ bar
temp: _____ °C
medium: _____
tube-side: pressure: _____ bar
temp: _____ °C
medium: _____
test: type: _____
pressure: _____ bar
shell extension ..... T: _____ mms
distance ..... a: _____ mms

---

reach ..... NT: _____ mms
expanding length ..... WB: _____ mms
tube flush: ..... _____ yes / no
tube extraction ..... v: _____ mms
tube recess ..... r: _____ mms
bevelling angle ..... 2e: _____ °
length of front parabola: ..... _____ mms
length of rear parabola: ..... _____ mms
pitch ..... t: _____ mms

---

additional information for grooving tool:
distance front / groove .... C: _____ mms
width of groove ..... E: _____ mms
groove dia. ..... G: _____ mms
distance groove/groove ..... F: _____ mms

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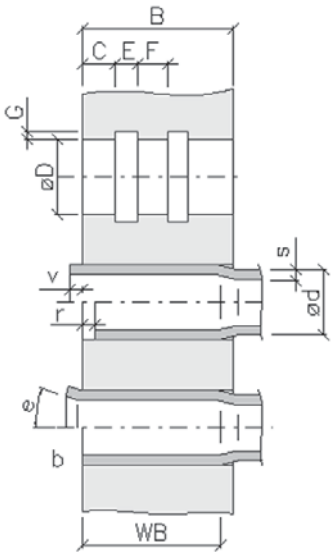
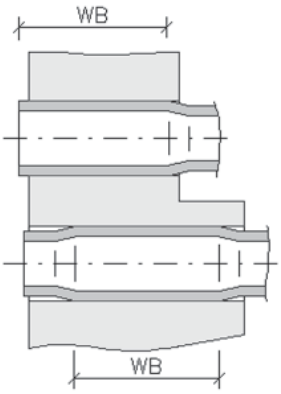
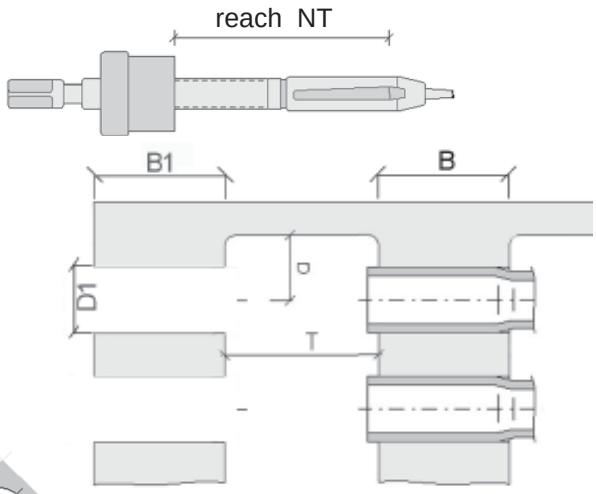
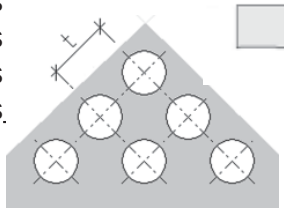
remarks:









Information sheet

for technical requirement of TUBE WELDING application

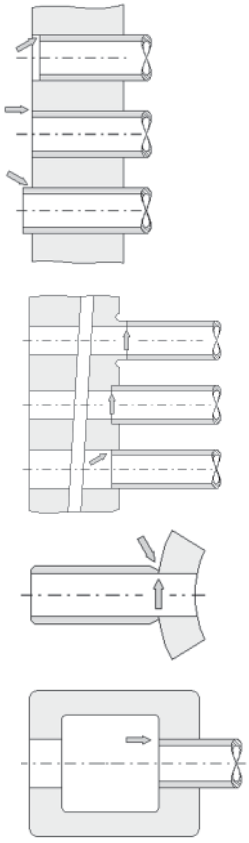
Tube outside diameter ..... d: _____ mms
Tube wall thickness ..... s: _____ mms
Tube inside diameter: ..... _____ mms
Tube protrusion: ..... _____ mms
Tube reset: ..... _____ mms

Hole diameter ..... D: _____ mms
Tubesheet thickness..... B: _____ mms
Cladding thickness: ..... _____ mms

Tube material: ..... _____
Tubesheet material: ..... _____
Cladding material: ..... _____

First pass wire: ..... _ with / without
Second pass wire: ..... _ with / without
First and second pass wire: .with / without

Required wire: material: _____
diameter: _____ mms
Required gas: ..... _____
Geometry of weld: .....



more applications on request !

remarks:

Additional TECHNODATA products and performances:

- Special designed torches for orbital welding units
- Special designed tube expanding tools
- Labour-paid jobs: welding, expanding, cutting and pulling
- Rental units for tube welding and tube expanding jobs
- Service work for our welding equipment as well as for tube expanding equipment
- Tools and equipment for tube welding-, tube expanding- and repair works
- Automatic and semi-automatic handling devices
- Consulting in all questions of the tube assembly, tube disassembly, tube-tube and tube-tubesheet connections (welding, expanding) as well as on the field of material application

Information sheet

for technical requirement of TUBE CLEANING EQUIPMENT and spare parts

tube outside diameter ..... d _____ mm
tube wall thickness ..... s _____ mm
tube length..... _____ mm
tube material:..... _____
tube quantity:..... _____ pc.
straight tubes:..... _____ yes / no
U-tubes:..... _____ yes / no
radius of bending:..... _____ °
expanded joint:..... _____ yes / no
welded joint:..... _____ yes / no
other type of joint:..... _____

---

horizontal tubes:..... _____ yes / no
vertical tubes:..... _____ yes / no
lowest measurable
tube entry zone:..... _____ mm
maximum measurable
tube entry zone:..... _____ mm
tubes complete blocked..... _____ yes / no
length of blockage ..... _____ mm
type of deposit, please specify.
hard - medium - soft - paste-like

.....

Which type of power take-off are available?
power..... yes / no specify _____
water..... yes / no specify _____
air pressure.. yes / no specify _____
water cleaning possible ..... _____ yes / no

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remark:

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.....

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PRODUCTION-, SALES- AND CONSULTING PROGRAM

ORBITAL WELDING - Tube to Tubesheet TIG - Welding Equipment
with / without filler wire feeding device
with / without clamping device
with / without double gas shield chamber
special welding torch systems

- Tube to Tube TIG - Welding Equipment
with / without filler wire feeding device

TUBE EXPANDING - Electronic tube expanding controllers
- Mechanical–hydraulic tube expanding controllers
- Pneumatic torque controlled driving motor
- Conical tube expanders for welding preparation
- Self - feeding tube expanders for heat exchangers, boilers, coolers and other tubular systems.
- Mechanical - hydraulic tube expanders
- Automatic tube expanders
- Water hydraulic tube expanding system / Mandrels for various expansions
- Mechanical - hydraulic tube contact expanding systems
- Tools for conical and cylindrical contact expansions

TUBE BEVELLING/ CUTTING AND FACING - Pneumatic and electronic bevelling machines
- Tube facer, internal tube cutter and grooving tools

TUBE PULLING - Electro-hydraulic tube pulling systems

TUBE CLEANING - Tube cleaning systems and tools for heat exchangers, boilers, coolers and other tubular systems
- Aluminium smelters

TUBE TESTING - Tube sheet joint tester / - Tube tester

RENTAL EQUIPMENTS - TIG - Orbital welding equipments for
tube to tubesheet welding joints / tube to tube welding joints
- Tube expanding equipments for
self - feeding tube expanders / mechanical - hydraulic tube expanders
- Tube pulling systems & Tube bevellings machines & Tube testing equipment
- Mechanical - hydraulic tube contact expanding systems

SERVICE - Service work for all TECHNODATA products
- Labour jobs: welding, expanding, cutting and pulling
- Consulting in all questions of the tube assembly, tube disassembly tube to tube and tube to tubesheet connections.

SPECIAL SOLUTIONS OF EQUIPMENTS AND TOOLS FOR HEAT EXCHANGER-, BOILER- AND OTHER MANUFACTURER OF TUBULAR SYSTEMS

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