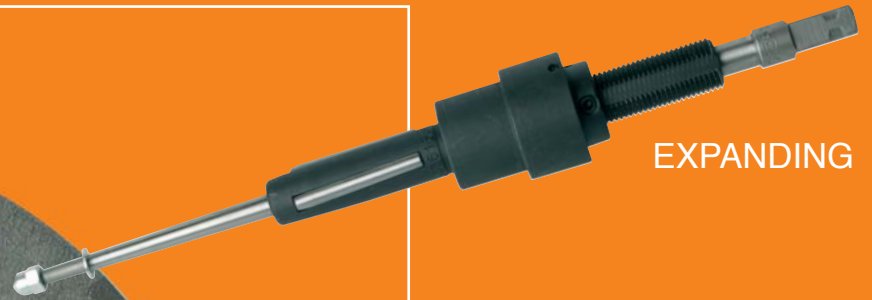


Special tools for heat exchangers and boilers

PRODUCTS



EXPANDING



CUTTING



EXTRACTING



ROLLING



OVER 40 YEARS OF COMPETENCE IN HEAT EXCHANGERS AND BOILERS

HISTORY OF THE COMPANY

A.O. Rohrwerkzeug GmbH is a manufacturer of special tools for heat exchangers and boilers, based in Münnerstadt in Lower Franconia, Germany. The company was founded in 1951 as **Albert Otto KG** by the company founder of the same name, Mr Albert Otto from Berlin. In the late 1970s he joined the Remscheid-based company **Kotthaus + Busch**. The company has been independent again since 1991 under the name **A.O. Rohrwerkzeuge GmbH**. In order that the founder should not be forgotten, his initials (Albert Otto) still adorn the company's name to the present day.

In the late 1990s the company was taken over by Dipl.-Ing. **Harald Frank**, who also owns the company **Frank Rohr- und Walztechnik (FRW)** in Lauta in Saxony. The cornerstone for the complete **machining and fixing of tubes** was hence laid, and manufacture, sales and service from one source was realised.

The A.O. Rohrwerkzeug GmbH team has **over 40 years** of experience in the construction of special tools for heat exchangers and boilers.

PRODUCT RANGE

TUBE EXPANDER

The main production extends to the manufacture of **tools for expanding of tubes** in heat exchanger and boiler plants, and also in multipurpose industrial plants as **special tools**. Tube expanding is a method of plastic cold forming of tubes with the aid of these special tools.

FURTHER TOOLS

The further production encompasses everything needed to machine **tubes in boiler and heat exchanger construction**. Starting with tools for cutting off the tubes behind the tube sheet and tools for the extraction of tubes through to tools for rolling tubes before welding, tools after welding up to 4000 bar and tools for the orbital welding technique.

- **Self-feeding tube expanding tools**
in various standard versions and as special tools
- **Automatic tube expanding tools with integrated torque control**
as a standard tool and in special versions
- **Hydraulic tube rolling process** up to 4000 bar and associated tools
- **Tools for machining tube ends and tube sheets**
- **Orbital tube welding technique and hydraulic tube fixing appliances**
- **Pressure sensor seals** (self-sealing and self-inhibiting)
- **Industrial burners for all combustible gases in all forms**
- **Tube cleaning tools and systems**
- **Smoothing tools and groove plunge-cutting tools**

ON-SITE SERVICE


Thanks to very close cooperation with FRW Lauta, it is possible to solve problems on site at the customer's premises fast and unproblematically, regardless of whether its about expanding, cutting, extracting or hydraulic rolling up to 4000 bar.

- **Expanding work up to thick-walled tubes**
- **Removal of welding seams** for disassembly in heat exchangers and boilers
- **Assembly services**

RENTAL SYSTEMS FOR:

- **Tube extraction**
- **Tube expanding**
- **Tube facing**

OVERVIEW OF COMPANY DATA:

 ROHRWERKZEUG GMBH MÜNNERSTADT/UFR.	
Company form	GmbH
Founded	1951 A.O. Rohrwerkzeug GmbH since 1991
Company founders	Susanne & Albert Otto
Company location	97702 Münnerstadt, Germany
Company management	Dipl.-Ing. Harald Frank (since 1/1/1998)
Products	Special tools for heat exchangers and boilers
Webpage	www.albert-otto.de

 Frank Rohr- und Walztechnik	
Company form	Proprietorship
Founded	1997
Company founder	Dipl.-Ing. Harald Frank
Company location	02991 Lauta, Germany
Company management	Dipl.-Ing. Harald Frank
Products	Assembly services for heat exchangers and boilers
Webpage	www.walztechnik.de



**Our consulting team for you: technical advice on all questions
of tube installation, deinstallation and fixing**

Over 40 years of experience are at the customer's disposal
during A.O. Rohrwerkzeug GmbH's office hours.

Dipl.-Ing. Harald Frank
Managing Director

Phone: + 49 (0) 9733 / 81 81 0
E-Mail: harald.frank@walztechnik.de

Franz Bien
Technical service

Phone: + 49 (0) 9733 / 81 81 82
E-Mail: franz.bien@walztechnik.de

Manfred Halbig
Technical service

Phone: + 49 (0) 9733 / 81 81 82
E-Mail: manfred.halbig@walztechnik.de

Martin Frank
Commercial area

Phone: + 49 (0) 9733 / 81 81 0
E-Mail: martin.frank@walztechnik.de

Goldgrundweg 4 · D-97702 Münnerstadt
Phone: + 49 (0) 9733 / 81 81 - 0 · Fax: + 49 (0) 9733 / 81 81 - 81
E-Mail: albertotto@walztechnik.de

www.albert-otto.de

LIST OF SERIES

SERIES	DESCRIPTION
03	Cap roller expander DIN 443
04 - 06	Cone rolling tube expanders H
10 - 15	Fast step tube expanders
20	Cone tube expander without stop
22	Cooling adaptor
26 - 28	Tube expanders for mechanical / hydraulic expansion procedure
32	Valve seat expanders
36 - 38	Self-feeding tube expanders BV
44 - 46	Self-feeding tube expanders T
50	Tube end facer TF
51	Internal tube cutter TC 51
54	Centering cartridges and spring sleeves
55	Tube extraction system TPS
64 - 67	Tube expanders for boilers, series KA
72	Telescopic spindles and spare parts
76 - 77	Fast step expanders for mechanical / hydraulic expansion procedure
79	Tube extraction system TP for thin-walled tubes
80	Tube extraction system TP for thick-walled tubes
81	Automatic tube expanders AUTOMA / ULTRA
97	Tube rolling system TES

**Further tools can be found at:
www.albert-otto.de**

SIMPLEX ROLLER EXPANDER ACCORDING TO DIN 443



Core seals in motor housings, cylinder heads and other cast parts are sealed using the widest variety of working methods. However, the most economical method is expansion or rolling in using the 'Simplex' roller expander.

Due to the **gentle feeding** during the rolling of the feed cap and the **absolutely secure limitation of expansion**, uneven material stresses in the housing are avoided as far as possible. Without additional aids – without sealing products or adhesives – there is a full guarantee of a **perfect permanent seal**.

The drive is usually performed by hand using a **tap wrench** – or a **ratchet** in places where access is difficult. No qualified skilled workers are required to operate the tool once setup has been performed. The roller expander is guided into the correctly seated sealing cap and turned to the right using a tap wrench applied to the square end of the spindle. The tool stops automatically when the final rolling set by the stop is reached. The tool is sold from nominal diameter 32 according to **DIN 443**.

TECHNICAL DATA – SEALING CAP ROLLING TOOL ACCORDING TO DIN 443

Order no.	Description
00332000	Roller expander for NW 32
10332000	Spare mandrel for the above
20332000	Spare rolls for the above
30332000	Spare body for the above
00342000	Roller expander for NW 42
10342000	Spare mandrel for the above
20342000	Spare rolls for the above
30342000	Spare body for the above
00354000	Roller expander for NW 54
10354000	Spare mandrel for the above
20354000	Spare rolls for the above
30354000	Spare body for the above
00364000	Roller expander for NW 64
10364000	Spare mandrel for the above
20364000	Spare rolls for the above
30364000	Spare body for the above
00381000	Roller expander for NW 81
10381000	Spare mandrel for the above
20381000	Spare rolls for the above
30381000	Spare body for the above
00381000	Roller expander for NW 96
10396000	Spare mandrel for the above
20396000	Spare rolls for the above
30396000	Spare body for the above

Other dimensions and custom versions on enquiry

Technical amendments and price changes
are possible without prior notice

CONICAL TUBE EXPANDER SERIES H 04 / H 05 / H 06



.For the conical widening of the mouth of the tube
with stop bell in various versions

Series H 04 = with full bell

Series H 05 = with clamping bell

Series H 06 = with lever bell

TECHNICAL DATA – CONICAL TUBE EXPANDER

Expansion range	Tube expander H 04 with full bell	Tube expander H 05 with clamping bell	Tube expander H 06 with lever bell	Spare mandrel	Spare roll	Spare body
Size from to	Order no.	Order no.	Order no.	Order no.	Order no.	Order no.
00 0.378 0.472	004 960 00	005 960 00	006 960 00	155 960 00	205 960 00	305 960 00
01 0.417 0.512	004 970 00	005 970 00	006 970 00	155 970 00	205 970 00	305 970 00
02 0.457 0.571	004 980 00	005 980 00	006 980 00	155 980 00	205 980 00	305 980 00
03 0.496 0.622	004 990 00	005 990 00	006 990 00	155 990 00	205 990 00	305 990 00
1 0.535 0.661	004 010 00	005 010 00	006 010 00	155 010 00	205 010 00	305 010 00
2 0.575 0.720	004 020 00	005 020 00	006 020 00	155 020 00	205 020 00	305 020 00
3 0.610 0.776	004 030 00	005 030 00	006 030 00	155 030 00	205 030 00	305 030 00
4 0.646 0.843	004 040 00	005 040 00	006 040 00	155 040 00	205 040 00	305 040 00
5 0.685 0.886	004 050 00	005 050 00	006 050 00	155 050 00	205 050 00	305 050 00
6 0.724 0.945	004 060 00	005 060 00	006 060 00	155 060 00	205 060 00	305 060 00
7 0.748 0.969	004 070 00	005 070 00	006 070 00	155 070 00	205 070 00	305 070 00
8 0.787 1.008	004 080 00	005 080 00	006 080 00	155 080 00	205 080 00	305 080 00
9 0.827 1.047	004 090 00	005 090 00	006 090 00	155 090 00	205 090 00	305 090 00
10 0.866 1.087	004 100 00	005 100 00	006 100 00	155 100 00	205 100 00	305 100 00
11 0.906 1.142	004 110 00	005 110 00	006 110 00	155 110 00	205 110 00	305 110 00
12 0.945 1.181	004 120 00	005 120 00	006 120 00	155 120 00	205 120 00	305 120 00
90 0.984 1.220	004 900 00	005 900 00	006 900 00	155 900 00	205 900 00	305 900 00
13 1.024 1.260	004 130 00	005 130 00	006 130 00	155 130 00	205 130 00	305 130 00
91 1.063 1.299	004 910 00	005 910 00	006 910 00	155 910 00	205 910 00	305 910 00
14 1.102 1.339	004 140 00	005 140 00	006 140 00	155 140 00	205 140 00	305 140 00
92 1.142 1.378	004 920 00	005 920 00	006 920 00	155 920 00	205 920 00	305 920 00
15 1.181 1.417	004 150 00	005 150 00	006 150 00	155 150 00	205 150 00	305 150 00
16 1.260 1.496	004 160 00	005 160 00	006 160 00	155 160 00	205 160 00	305 160 00
17 1.339 1.575	004 170 00	005 170 00	006 170 00	155 170 00	205 170 00	305 170 00
18 1.417 1.654	004 180 00	005 180 00	006 180 00	155 180 00	205 180 00	305 180 00
19 1.496 1.732	004 190 00	005 190 00	006 190 00	155 190 00	205 190 00	305 190 00
20 1.575 1.850	004 200 00	005 200 00	006 200 00	155 200 00	205 200 00	305 200 00
21 1.654 1.969	004 210 00	005 210 00	006 210 00	155 210 00	205 210 00	305 210 00
22 1.732 2.087	004 220 00	005 220 00	006 220 00	155 220 00	205 220 00	305 220 00
23 1.811 2.165	004 230 00	005 230 00	006 230 00	155 230 00	205 230 00	305 230 00
24 1.890 2.244	004 240 00	005 240 00	006 240 00	155 240 00	205 240 00	305 240 00
25 1.969 2.323	004 250 00	005 250 00	006 250 00	155 250 00	205 250 00	305 250 00

AUTOMATIC FAST STEP TUBE EXPANDER



With **quick closure** (quick adjustment option forward and backward). With built-in **return spring** for the expanding mandrel, hence quick release. Equipped with a mandrel catch, hence mandrel nut and washer are dispensed with. Rolls with **double-sided parabola**.

The speed of this tube expander can be significantly further increased by the use of our **expansion controller** with automatic clockwise and anticlockwise rotation.

The overlapping of the individual rolling steps takes place automatically, hence complete rolling of each tube over the entire tube sheet thickness, independent of the number of consecutive rolling steps. Correction of the rolling length is possible by means of an additional built-in **fine adjuster**.

Considerable shortening of non-productive times between individual rolling steps. All individual parts are easily replaceable. **Time savings of over 50 % are possible.**

TECHNICAL DATA – AUTOMATIC FAST STEP TUBE EXPANDER

ROLL LENGTH 1.575 INCH

Usable depth	Size	Tube expander BR 10 with full bell	Spare mandrel BR 10 - 12	Spare roll BR 10 - 12	Spare body BR 10 - 12	Manual closure with full bell
		Order no.	Order no.	Order no.	Order no.	Order no.
4.13 inch	0.354	001009014	011009014	021009014	031009014	041009014
	0.61	001015514	011015514	021015514	031015514	041015514
	0.63	001016014	011016014	021016014	031016014	041016014
	0.866	001022014	011022014	021022014	031022014	041022014
	0.906	001022014	011022014	021022014	031022014	041022014
	1.181	001030014	011030014	021030014	031030014	041030014
	1.220	001031014	011031014	021031014	031031014	041031014
	1.378	001035014	011035014	021035014	031035014	041035014
6.10 inch	0.354	001009024	011009024	021009024	031009024	041009024
	0.61	001015524	011015524	021015524	031015524	041015524
	0.63	001016024	011016024	021016024	031016024	041016024
	0.866	001022024	011022024	021022024	031022024	041022024
5.75 inch	0.906	001022024	011022024	021022024	031022024	041022024
	1.181	001030024	011030024	021030024	031030024	041030024
	1.22	001031024	011031024	021031024	031031024	041031024
	1.378	001035024	011035024	021035024	031035024	041035024
8.07 inch	0.354	001009034	011009034	021009034	031009034	041009034
	0.61	001015534	001015534	001015534	001015534	001015534
	0.63	001016034	011016034	021016034	031016034	041016034
	0.866	001022034	011022034	021022034	031022034	041022034
	0.906	001022034	011022034	021022034	031022034	041022034
	1.181	001030034	011030034	021030034	031030034	041030034
	1.22	001031034	011031034	021031034	031031034	041031034
	1.378	001035034	011035034	021035034	031035034	041035034
10.04 inch	0.354	001009044	011009044	021009044	031009044	041009044
	0.61	001015544	011015544	021015544	031015544	041015544
	0.63	001016044	011016044	021016044	031016044	041016044
	0.866	001022044	011022044	021022044	031022044	041022044
9.69 inch	0.906	001022044	011022044	021022044	031022044	041022044
	1.181	001030044	011030044	021030044	031030044	041030044
	1.220	001031044	011031044	021031044	031031044	041031044
	1.378	001035044	011035044	021035044	031035044	041035044
12.01 inch	0.354	001009054	011009054	021009054	031009054	041009054
	0.61	001015554	011015554	021015554	031015554	041015554
	0.63	001016054	011016054	021016054	031016054	041016054
	0.866	001022054	011022054	021022054	031022054	041022054
	0.906	001022054	011022054	021022054	031022054	041022054
	1.181	001030054	011030054	021030054	031030054	041030054
	1.220	001031054	011031054	021031054	031031054	041031054
	1.378	001035054	011035054	021035054	031035054	041035054

The tube expanders are also available with lever and clamping bells.

Order no. 0011 ... = tool with lever bell · Order no. 0012 ... = tool with clamping bell

Order no. 0411 ... = quick closure with lever bell · Order no. 0412 ... = quick closure with clamping bell

Smaller and larger dimensions on enquiry

ROLL LENGTH 2.362 INCH

Usable depth	Size	Tube expander BR 13 with full bell	Spare mandrel BR 13 - 15	Spare roll BR 13 - 15	Spare body BR 13 - 15	Manual closure with full bell
	inch	Order no.	Order no.	Order no.	Order no.	Order no.
3.74 inch	0.417	001010616	011010616	021010616	031010616	041010616
	471.05	001015516	011015516	021015516	031015516	041015516
	0.630	001016016	011016016	021016016	031016016	041016016
	0.866	001022016	011022016	021022016	031022016	041022016
3.39 inch	0.906	001022016	011022016	021022016	031022016	041022016
	1.181	001030016	011030016	021030016	031030016	041030016
	1.220	001031016	011031016	021031016	031031016	041031016
	1.378	001035016	011035016	021035016	031035016	041035016
5.51 inch	0.417	001010626	011010626	021010626	031010626	041010626
	0.610	001015526	011015526	021015526	031015526	041015526
	0.630	001016026	011016026	021016026	031016026	041016026
	0.866	001022026	011022026	021022026	031022026	041022026
4.96 inch	0.906	001022026	011022026	021022026	031022026	041022026
	1.181	001030026	011030026	021030026	031030026	041030026
	1.220	001031026	011031026	021031026	031031026	041031026
	1.378	001035026	011035026	021035026	031035026	041035026
7.28 inch	0.417	001010636	011010636	021010636	031010636	041010636
	0.610	001015536	001015536	001015536	001015536	001015536
	0.630	001016036	011016036	021016036	031016036	041016036
	0.866	001022036	011022036	021022036	031022036	041022036
6.54 inch	0.906	001022036	011022036	021022036	031022036	041022036
	1.181	001030036	011030036	021030036	031030036	041030036
	1.220	001031036	011031036	021031036	031031036	041031036
	1.378	001035036	011035036	021035036	031035036	041035036
9.06 inch	0.417	001010646	011010646	021010646	031010646	041010646
	0.610	001015546	011015546	021015546	031015546	041015546
	0.630	001016046	011016046	021016046	031016046	041016046
	0.866	001022046	011022046	021022046	031022046	041022046
9.69 inch	0.906	001022046	011022046	021022046	031022046	041022046
	1.181	001030046	011030046	021030046	031030046	041030046
	1.220	001031046	011031046	021031046	031031046	041031046
	1.378	001035046	011035046	021035046	031035046	041035046
10.83 inch	0.417	001010656	011010656	021010656	031010656	041010656
	0.610	001015556	011015556	021015556	031015556	041015556
	0.630	001016056	011016056	021016056	031016056	041016056
	0.866	001022056	011022056	021022056	031022056	041022056
11.26 inch	0.906	001022056	011022056	021022056	031022056	041022056
	1.181	001030056	011030056	021030056	031030056	041030056
	1.220	001031056	011031056	021031056	031031056	041031056
	1.378	001035056	011035056	021035056	031035056	041035056

The tube expanders are also available with lever and clamping bells.

Order no. 0011 ... = tool with lever bell · Order no. 0012 ... = tool with clamping bell

Order no. 0411 ... = quick closure with lever bell · Order no. 0412 ... = quick closure with clamping bell

Smaller and larger dimensions on enquiry

CONE TUBE EXPANDER WITHOUT STOP



For conical widening of the mouth of the tube.
Please state the exact tube dimensions when ordering.

TECHNICAL DATA CONE TUBE EXPANDER WITHOUT STOP

Cone expander	Spare mandrel	Spare rolls	Spare body	Dimensions	Expansion range up to Ø
Order no.	Order no.	Order no.	Order no.	inch	inch
0200090	1200090	2200090	3200090	0.354	0.433
0200095	1200095	2200095	3200095	0.374	0.453
0200100	1200100	2200100	3200100	0.394	0.472
0200105	1200105	2200105	3200105	0.413	0.492
0200110	1200110	2200110	3200110	0.433	0.512
0200115	1200115	2200115	3200115	0.453	0.531
0200120	1200120	2200220	3200320	0.472	0.591
0200125	1200125	2200225	3200325	0.492	0.610
0200130	1200130	2200130	3200130	0.512	0.630
0200135	1200135	2200135	3200135	0.531	0.650
0200140	1200140	2200140	3200140	0.551	0.669
0200145	1200145	2200145	3200145	0.571	0.689
0200150	1200150	2200150	3200150	0.591	0.709
0200155	1200155	2200155	3200155	0.610	0.728
0200160	1200160	2200160	3200160	0.630	0.768
0200165	1200165	2200165	3200165	0.650	0.787
0200170	1200170	2200170	3200170	0.669	0.807
0200175	1200175	2200175	3200175	0.689	0.827
0200180	1200180	2200180	3200180	0.709	0.846
0200185	1200185	2200185	3200185	0.728	0.866
0200190	1200190	2200190	3200190	0.748	0.886

Please turn the page >>

Cone expander	Spare mandrel	Spare rolls	Spare body	Dimensions	Expansion range up to Ø
Order no.	Order no.	Order no.	Order no.	inch	inch
0200195	1200195	2200195	3200195	0.768	0.906
0200200	1200200	2200200	3200200	0.787	0.925
0200205	1200205	2200205	3200205	0.807	1.004
0200210	1200210	2200210	3200210	0.827	1.024
0200215	1200215	2200215	3200215	0.846	1.043
0200220	1200220	2200220	3200220	0.866	1.063
0200230	1200230	2200230	3200230	0.906	1.102
0200240	1200240	2200240	3200240	0.945	1.142
0200250	1200250	2200250	3200250	0.984	1.181
0200260	1200260	2200260	3200260	1.024	1.220
0200270	1200270	2200270	3200270	1.063	1.260
0200280	1200280	2200280	3200280	1.102	1.299
0200290	1200290	2200290	3200290	1.142	1.339
0200300	1200300	2200300	3200300	1.181	1.378
0200310	1200310	2200310	3200310	1.220	1.417
0200320	1200320	2200320	3200320	1.260	1.457
0200330	1200330	2200330	3200330	1.299	1.496
0200340	1200340	2200340	3200340	1.339	1.535
0200350	1200350	2200350	3200350	1.378	1.575
0200360	1200360	2200360	3200360	1.417	1.614
0200370	1200370	2200370	3200370	1.457	1.654
0200380	1200380	2200380	3200380	1.496	1.693
0200390	1200390	2200390	3200390	1.535	1.732
0200400	1200400	2200400	3200400	1.575	1.772
0200410	1200410	2200410	3200410	1.614	1.811
0200420	1200420	2200420	3200420	1.654	1.850
0200430	1200430	2200430	3200430	1.693	1.890
0200440	1200440	2200440	3200440	1.732	1.929
0200450	1200450	2200450	3200450	1.772	1.969
0200460	1200460	2200460	3200460	1.811	2.008
0200470	1200470	2200470	3200470	1.850	2.047
0200480	1200480	2200480	3200480	1.890	2.087
0200490	1200490	2200490	3200490	1.929	2.126
0200500	1200500	2200500	3200500	1.969	2.165

Smaller and larger dimensions on enquiry

COOLING ADAPTOR FOR SELF-FEEDING TUBE EXPANDERS
SERIES H 04 - H 06 / 10 - 15 / BV 36 - 38 / T 44 - 46



TECHNICAL DATA COOLING ADAPTOR FOR SELF-FEEDING TUBE EXPANDERS

Cooling adaptor BR H04 - H06 / BV36 - 38 / T44 - 46

Size	Order no.
00	054596000
01	054597000
02	054598000
03	054599000
1	054501000
2	054502000
3	054503000
4	054504000
5	054505000
6	054506000
7	054507000
8	054508000
9	054509000
10	054510000
11	054511000
12	054512000
90	054590000
13	054514000
91	054591000
14	054516000
92	054592000
15	054518000
16	054519000
17	054520000

Cooling adaptor BR 10 - 15

Size (inch)	Order no.
0.354	044009000
0.378	044009600
0.394	044010000
0.417	044010600
0.449	044011400
0.472	044012000
0.496	044012600
0.512	044013000
0.543	044013800
0.571	044014500
0.591	044015000
0.610	044015500
0.630	004401600
0.650	044016500
0.669	044017000
0.689	044017500
0.724	044018400
0.768	044019500
0.807	044020500
0.846	044021500
0.866	044022000
0.906	044023000
0.945	044024000
0.984	044025000
1.024	044026000
1.063	044027000
1.102	044028000
1.142	044029000
1.181	044030000
1.220	044031000
1.260	044032000
1.299	044033000
1.339	044034000
1.358	044034500

TUBE EXPANDERS FOR MECHANICAL-HYDRAULIC EXPANSION PROCEDURE



with full bell



with lever bell



with clamping bell

TECHNICAL DATA – TUBE EXPANDER FOR MECHANICAL-HYDRAULIC EXPANSION PROCEDURE

USABLE DEPTH 5.906 · ROLL LENGTH 2.362

Size Body Ø	Exp. up to	C.w. min.	Tube outer Ø		Outer bell	Tube projection / insertion		adj. rolling w.		UD	Mandrel square
			min.	max.		Bell 426	Bell 427	from	to		
inch	inch	inch	inch	inch	inch	inch	inch	inch	inch	inch	inch
0.417	0.465	0.433	0.492	0.551	1.102	0	0.787	1.38	1.97	5.91	0.35
0.449	0.500	0.465	0.531	0.630	1.102	0	0.787	1.38	1.97	5.91	0.35
0.472	0.543	0.484	0.571	0.630	1.102	0	0.787	1.38	1.97	5.91	0.35
0.496	0.571	0.512	0.610	0.748	1.181	0	0.787	1.38	1.97	5.91	0.35
0.512	0.587	0.524	0.618	0.748	1.181	0	0.787	1.38	1.97	5.91	0.35
0.543	0.618	0.551	0.650	0.748	1.181	0	0.787	1.38	1.97	5.91	0.35
0.571	0.646	0.583	0.689	0.787	1.260	0	0.787	1.38	1.97	5.91	0.35
0.591	0.665	0.602	0.709	0.787	1.260	0	0.787	1.38	1.97	5.91	0.35
0.610	0.685	0.622	0.728	0.787	1.260	0	0.787	1.38	1.97	5.91	0.35
0.630	0.705	0.642	0.748	0.787	1.260	0	0.787	1.38	1.97	5.91	0.35
0.650	0.724	0.661	0.768	0.906	1.378	0	0.787	1.38	1.97	5.91	0.35
0.669	0.748	0.681	0.787	0.906	1.378	0	0.787	1.38	1.97	5.91	0.35
0.689	0.776	0.709	0.807	0.906	1.378	0	0.787	1.38	1.97	5.91	0.35
0.724	0.823	0.748	0.866	1.000	1.378	0	0.787	1.38	1.97	5.91	0.35
0.748	0.846	0.768	0.886	1.000	1.575	0	0.787	1.38	1.97	5.91	0.35
0.768	0.866	0.787	0.906	1.000	1.575	0	0.787	1.38	1.97	5.91	0.35
0.787	0.886	0.807	0.945	1.000	1.575	0	0.787	1.38	1.97	5.91	0.35

USABLE DEPTH 3.937 · ROLL LENGTH 2.362

Size Body Ø	Exp. up to	C.w. min.	Tube outer Ø		Outer bell	Tube projection / insertion		adj. rolling w.		UD	Mandrel square
			min.	max.		Bell 426	Bell 427	from	to		
inch	inch	inch	inch	inch	inch	inch	inch	inch	inch	inch	inch
0.417	0.465	0.433	0.492	0.551	1.102	0	0.787	1.38	1.97	3.94	0.35
0.449	0.500	0.465	0.531	0.630	1.102	0	0.787	1.38	1.97	3.94	0.35
0.472	0.543	0.484	0.571	0.630	1.102	0	0.787	1.38	1.97	3.94	0.35
0.496	0.571	0.512	0.610	0.748	1.181	0	0.787	1.38	1.97	3.94	0.35
0.512	0.587	0.524	0.618	0.748	1.181	0	0.787	1.38	1.97	3.94	0.35
0.543	0.618	0.551	0.650	0.748	1.181	0	0.787	1.38	1.97	3.94	0.35
0.571	0.646	0.583	0.689	0.787	1.260	0	0.787	1.38	1.97	3.94	0.35
0.591	0.665	0.602	0.709	0.787	1.260	0	0.787	1.38	1.97	3.94	0.35
0.610	0.685	0.622	0.728	0.787	1.260	0	0.787	1.38	1.97	3.94	0.35
0.630	0.705	0.642	0.748	0.787	1.260	0	0.787	1.38	1.97	3.94	0.35
0.650	0.724	0.661	0.768	0.906	1.378	0	0.787	1.38	1.97	3.94	0.35
0.669	0.748	0.681	0.787	0.906	1.378	0	0.787	1.38	1.97	3.94	0.35
0.689	0.776	0.709	0.807	0.906	1.378	0	0.787	1.38	1.97	3.94	0.35
0.724	0.823	0.748	0.866	1.000	1.378	0	0.787	1.38	1.97	3.94	0.35
0.748	0.846	0.768	0.886	1.000	1.575	0	0.787	1.38	1.97	3.94	0.35
0.768	0.866	0.787	0.906	1.000	1.575	0	0.787	1.38	1.97	3.94	0.35
0.787	0.886	0.807	0.945	1.000	1.575	0	0.787	1.38	1.97	3.94	0.35

USABLE DEPTH 2.756 · ROLL LENGTH 2.362

Size Body Ø	Exp. up to	C.w. min.	Tube outer Ø		Outer bell	Tube projection/insertion		adj. rolling w.		UD	Mandrel square
			min.	max.		Bell 426	Bell 427	from	to		
inch	inch	inch	inch	inch	inch	inch	inch	inch	inch	inch	inch
0.417	0.465	0.433	0.492	0.551	1.102	0	0.787	1.38	2.17	2.76	0.35
0.449	0.500	0.465	0.531	0.630	1.102	0	0.787	1.38	2.17	2.76	0.35
0.472	0.543	0.484	0.571	0.630	1.102	0	0.787	1.38	2.17	2.76	0.35
0.496	0.571	0.512	0.610	0.748	1.181	0	0.787	1.38	2.17	2.76	0.35
0.512	0.587	0.524	0.618	0.748	1.181	0	0.787	1.38	2.17	2.76	0.35
0.543	0.618	0.551	0.650	0.748	1.181	0	0.787	1.38	2.17	2.76	0.35
0.571	0.646	0.583	0.689	0.787	1.260	0	0.787	1.38	2.17	2.76	0.35
0.591	0.665	0.602	0.709	0.787	1.260	0	0.787	1.38	2.17	2.76	0.35
0.610	0.685	0.622	0.728	0.787	1.260	0	0.787	1.38	2.17	2.76	0.35
0.630	0.705	0.642	0.748	0.787	1.260	0	0.787	1.38	2.17	2.76	0.35
0.650	0.724	0.661	0.768	0.906	1.378	0	0.787	1.38	2.17	2.76	0.35
0.669	0.748	0.681	0.787	0.906	1.378	0	0.787	1.38	2.17	2.76	0.35
0.689	0.776	0.709	0.807	0.906	1.378	0	0.787	1.38	2.17	2.76	0.35
0.724	0.823	0.748	0.866	1.000	1.378	0	0.787	1.38	2.17	2.76	0.35
0.748	0.846	0.768	0.886	1.000	1.575	0	0.787	1.38	2.17	2.76	0.35
0.768	0.866	0.787	0.906	1.000	1.575	0	0.787	1.38	2.17	2.76	0.35
0.787	0.886	0.807	0.945	1.000	1.575	0	0.787	1.38	2.17	2.76	0.35

USABLE DEPTH 1.969 / 2.756 · ROLL LENGTH 1.575

Size Body Ø	Exp. up to	C.w. min.	Tube outer Ø		Outer bell	Tube projection/insertion		adj. rolling w.		UD	Mandrel square
			min.	max.		Bell 426	Bell 427	from	to		
inch	inch	inch	inch	inch	inch	inch	inch	inch	inch	inch	inch
0.346	0.394	0.354	0.433	0.551	1.102	0	0.787	0.59	1.38	1.97	0.35
0.354	0.402	0.366	0.433	0.551	1.102	0	0.787	0.59	1.38	1.97	0.35
0.378	0.425	0.394	0.453	0.551	1.102	0	0.787	0.59	1.38	1.97	0.35
0.394	0.445	0.406	0.472	0.551	1.102	0	0.787	0.59	1.38	1.97	0.35
0.417	0.465	0.433	0.492	0.551	1.102	0	0.787	0.59	1.38	2.76	0.35
0.449	0.500	0.465	0.531	0.630	1.102	0	0.787	0.59	1.38	2.76	0.35
0.472	0.543	0.484	0.571	0.630	1.102	0	0.787	0.59	1.38	2.76	0.35
0.496	0.571	0.512	0.610	0.748	1.181	0	0.787	0.59	1.38	2.76	0.35
0.512	0.587	0.524	0.618	0.748	1.181	0	0.787	0.59	1.38	2.76	0.35
0.543	0.618	0.551	0.650	0.748	1.181	0	0.787	0.59	1.38	2.76	0.35
0.571	0.646	0.583	0.689	0.787	1.260	0	0.787	0.59	1.38	2.76	0.35
0.591	0.665	0.602	0.709	0.787	1.260	0	0.787	0.59	1.38	2.76	0.35
0.610	0.685	0.622	0.728	0.787	1.260	0	0.787	0.59	1.38	2.76	0.35
0.630	0.705	0.642	0.748	0.787	1.260	0	0.787	0.59	1.38	2.76	0.35
0.650	0.724	0.661	0.768	0.906	1.378	0	0.787	0.59	1.38	2.76	0.35
0.669	0.748	0.681	0.787	0.906	1.378	0	0.787	0.59	1.38	2.76	0.35
0.689	0.776	0.709	0.807	0.906	1.378	0	0.787	0.59	1.38	2.76	0.35
0.724	0.823	0.748	0.866	1.000	1.378	0	0.787	0.59	1.38	2.76	0.35
0.748	0.846	0.768	0.886	1.000	1.575	0	0.787	0.59	1.38	2.76	0.35
0.768	0.866	0.787	0.906	1.000	1.575	0	0.787	0.59	1.38	2.76	0.35
0.787	0.886	0.807	0.945	1.000	1.575	0	0.787	0.59	1.38	2.76	0.35

USABLE DEPTH 3.937 · ROLL LENGTH 1.575

Size Body Ø	Exp. up to	C. w. min.	Tube outer Ø		Outer bell	Tube projection/insertion		adj. rolling w.		UD	Mandrel square
			min.	max.		Bell 426	Bell 427	from	to		
inch	inch	inch	inch	inch	inch	inch	inch	inch	inch	inch	inch
0.346	0.394	0.354	0.433	0.551	1.102	0	0.787	0.59	1.18	3.94	0.35
0.354	0.402	0.366	0.433	0.551	1.102	0	0.787	0.59	1.18	3.94	0.35
0.378	0.425	0.394	0.453	0.551	1.102	0	0.787	0.59	1.18	3.94	0.35
0.394	0.445	0.406	0.472	0.551	1.102	0	0.787	0.59	1.18	3.94	0.35
0.417	0.465	0.433	0.492	0.551	1.102	0	0.787	0.59	1.18	3.94	0.35
0.449	0.500	0.465	0.531	0.630	1.102	0	0.787	0.59	1.18	3.94	0.35
0.472	0.543	0.484	0.571	0.630	1.102	0	0.787	0.59	1.18	3.94	0.35
0.496	0.571	0.512	0.610	0.748	1.181	0	0.787	0.59	1.18	3.94	0.35
0.512	0.587	0.524	0.618	0.748	1.181	0	0.787	0.59	1.18	3.94	0.35
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0.571	0.646	0.583	0.689	0.787	1.260	0	0.787	0.59	1.18	3.94	0.35
0.591	0.665	0.602	0.709	0.787	1.260	0	0.787	0.59	1.18	3.94	0.35
0.610	0.685	0.622	0.728	0.787	1.260	0	0.787	0.59	1.18	3.94	0.35
0.630	0.705	0.642	0.748	0.787	1.260	0	0.787	0.59	1.18	3.94	0.35
0.650	0.724	0.661	0.768	0.906	1.378	0	0.787	0.59	1.18	3.94	0.35
0.669	0.748	0.681	0.787	0.906	1.378	0	0.787	0.59	1.18	3.94	0.35
0.689	0.776	0.709	0.807	0.906	1.378	0	0.787	0.59	1.18	3.94	0.35
0.724	0.823	0.748	0.866	1.000	1.378	0	0.787	0.59	1.18	3.94	0.35
0.748	0.846	0.768	0.886	1.000	1.575	0	0.787	0.59	1.18	3.94	0.35
0.768	0.866	0.787	0.906	1.000	1.575	0	0.787	0.59	1.18	3.94	0.35
0.787	0.886	0.807	0.945	1.000	1.575	0	0.787	0.59	1.18	3.94	0.35

USABLE DEPTH 5.906 · ROLL LENGTH 1.575

Size Body Ø	Exp. up to	C. w. min.	Tube outer Ø		Outer bell	Tube projection/insertion		adj. rolling w.		UD	Mandrel square
			min.	max.		Bell 426	Bell 427	from	to		
inch	inch	inch	inch	inch	inch	inch	inch	inch	inch	inch	inch
0.346	0.394	0.354	0.433	0.551	1.102	0	0.787	0.59	1.18	5.91	0.35
0.354	0.402	0.366	0.433	0.551	1.102	0	0.787	0.59	1.18	5.91	0.35
0.378	0.425	0.394	0.453	0.551	1.102	0	0.787	0.59	1.18	5.91	0.35
0.394	0.445	0.406	0.472	0.551	1.102	0	0.787	0.59	1.18	5.91	0.35
0.417	0.465	0.433	0.492	0.551	1.102	0	0.787	0.59	1.18	5.91	0.35
0.449	0.500	0.465	0.531	0.630	1.102	0	0.787	0.59	1.18	5.91	0.35
0.472	0.543	0.484	0.571	0.630	1.102	0	0.787	0.59	1.18	5.91	0.35
0.496	0.571	0.512	0.610	0.748	1.181	0	0.787	0.59	1.18	5.91	0.35
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0.543	0.618	0.551	0.650	0.748	1.181	0	0.787	0.59	1.18	5.91	0.35
0.571	0.646	0.583	0.689	0.787	1.260	0	0.787	0.59	1.18	5.91	0.35
0.591	0.665	0.602	0.709	0.787	1.260	0	0.787	0.59	1.18	5.91	0.35
0.610	0.685	0.622	0.728	0.787	1.260	0	0.787	0.59	1.18	5.91	0.35
0.630	0.705	0.642	0.748	0.787	1.260	0	0.787	0.59	1.18	5.91	0.35
0.650	0.724	0.661	0.768	0.906	1.378	0	0.787	0.59	1.18	5.91	0.35
0.669	0.748	0.681	0.787	0.906	1.378	0	0.787	0.59	1.18	5.91	0.35
0.689	0.776	0.709	0.807	0.906	1.378	0	0.787	0.59	1.18	5.91	0.35
0.724	0.823	0.748	0.866	1.000	1.378	0	0.787	0.59	1.18	5.91	0.35
0.748	0.846	0.768	0.886	1.000	1.575	0	0.787	0.59	1.18	5.91	0.35
0.768	0.866	0.787	0.906	1.000	1.575	0	0.787	0.59	1.18	5.91	0.35
0.787	0.886	0.807	0.945	1.000	1.575	0	0.787	0.59	1.18	5.91	0.35

VALVE SEAT EXPANDERS



Seating rings are expanded on the **capstan lathe** or the **lathe** using the BR 32 valve seat expander.

After turning the seat receptacle the lathe operator inserts the seating ring in the seat. The **expansion** of the ring can be performed by the machine tool without changing the direction of rotation of the workpiece. Following expansion the lathe operator can immediately complete the machining of the valve seat.

The **feeding** of the expanding mandrel, which is clamped tight, is accomplished by the revolver head, the lathe support or the sleeve of the tailstock. The feeding of the expanding mandrel is limited by two **adjustable lock nuts** on the mandrel. The feared stresses in the valve seat housing due to overexpansion are ruled out as a result. Axial pressures occurring during expansion are absorbed by **thrust ball bearings**. Due to the design of the valve seat expander, the seating ring is held flat on its seat before the start of expansion. The expansion is **completely round** and **absolutely tight**. The BR 32 valve seat expander is also available in a custom version for **transfer lines**.

Note: Since valves differ in their series and the seating rings sometimes have somewhat different dimensions, the expansion ranges of the complete tube expander have not been stated. Therefore, we kindly request that you supply us with exact details, including dimensional sketches or drawings, when enquiring or ordering.

The mandrels can be supplied with **Morse taper, square receptacle** or **straight shank**. Please state precisely which receptacle is required when ordering.

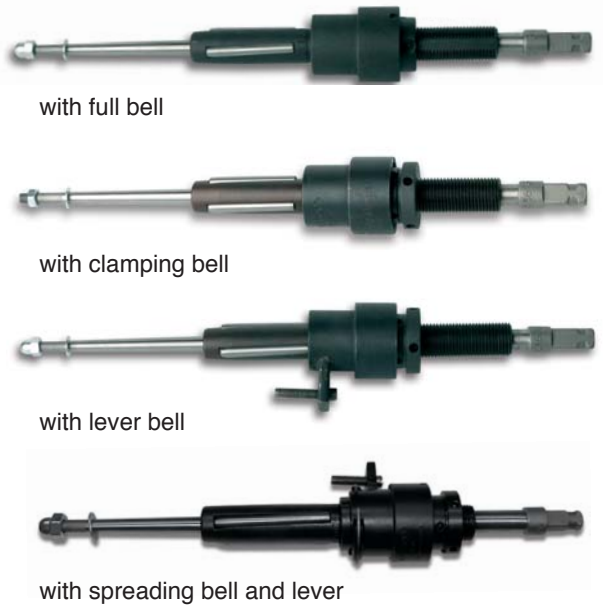
Custom versions are available.

TECHNICAL DATA – VALVE SEAT EXPANDERS

Valve seat expander	Spare mandrel	Spare rolls	Nominal width	Number of rolls
Order no.	Order no.	Order no.	inch	
0321500	1321500	2321500	0.59 / 0.79	3
0322500	1322500	2322500	0.98	4
0323200	1323200	2323200	1.26	4
0324000	1324000	2324000	1.58	4
0325000	1325000	2325000	1.97	5
0326500	1326500	2326500	2.56	5
0328000	1328000	2328000	3.15	5
0328100	1328100	2328100	3.94	5
0328200	1328200	2328200	4.92	5
0328300	1328300	2328300	5.91	5
0328400	1328400	2328400	6.89	5
0328500	1328500	2328500	7.87	5



SELF-FEEDING TUBE EXPANDERS BV



In the **self-feeding tube expanders**, the central axes of the mandrel and the rolls do not lie in one plane, i.e. the rolls are mounted at an angle to the mandrel (twisted). The principle of this tube expander is based on **automatic self-feeding**, caused by the angled position of the rolls.

These tube expanders can be driven both **by hand** and **by machine**. They are partly equipped with **ball bearings** in order to reduce friction heat to a minimum.

TECHNICAL DATA – TUBE EXPANDER BV

FOR TUBES WITH METRIC OR IMPERIAL DIMENSIONS

Size body Ø	Tube sheet thickness	Roll length	Roll parabolas	Series	Bell version
inch	inch	inch			
0.283 - 0.335	0.39 - 1.18	1.18	1	BV	) Full bell = 36
0.354 - 0.394	0.59 - 1.97	1.57	1	BV	) Lever bell = 37
0.417 - 3.307	0.59 - 2.76	1.57	1	BV	) Clamping bell = 38
0.283 - 0.335	0.39 - 3.94	1.18	2	BVL	) Full bell = 36
0.354 - 0.394	0.59 - 3.94	1.57	2	BVL	) Lever bell = 37
0.417 - 3.307	0.59 - 3.94	1.57	2	BVL	) Clamping bell = 38
0.283 - 0.335	0.39 - 3.94	1.18	2	BVL	) Full bell = 36
0.354 - 0.394	0.59 - 3.94	1.57	2	BVL	) Lever bell = 37
0.417 - 3.307	0.59 - 3.94	1.57	2	BVL	) Clamping bell = 38
0.417 - 3.307	0.98 - 2.76	1.97	1	BV	) Full bell = 36
0.417 - 3.311	0.98 - 3.94	1.97	2	BVL	) Lever bell = 37
0.417 - 3.315	0.98 - 5.91	1.97	2	BVL	) Clamping bell = 38
0.417 - 3.307	1.38 - 2.76	2.36	1	BV	) Full bell = 36
0.417 - 3.311	1.38 - 3.94	2.36	2	BVL	) Lever bell = 37
0.417 - 3.315	1.38 - 5.91	2.36	2	BVL	) Clamping bell = 38

Tube expanders for tube sheets with thicknesses over 5.906 inch are available in steps of 1.969 inch.

USABLE DEPTH 1.181 / 3.937 / 5.906 · ROLL LENGTH 1.181 inch (SIZES 0.283 - 0.335)

Size body Ø	Ex-pansion up to	Tube inner Ø min.	Tube outer Ø min.	Tube outer Ø max.	Outer bell Ø	Tube projection / insertion Bell 0437	adj. from	rolling width*) to	Usable depth	Mandrel square
inch	inch	inch	inch	inch	inch	inch	inch	inch	inch	inch
0.283	0.323	0.295	0.374	0.433	1.102	0	0.591	0.39-0.98 (0.79)	1.181	Straight shank
0.295	0.335	0.307	0.374	0.472	1.102	0	0.591	0.39-0.98 (0.79)	or	Straight shank
0.303	0.343	0.315	0.374	0.512	1.102	0	0.591	0.39-0.98 (0.79)	3.937	Straight shank
0.315	0.354	0.323	0.394	0.512	1.102	0	0.591	0.39-0.98 (0.79)	or	Straight shank
0.323	0.362	0.335	0.394	0.512	1.102	0	0.591	0.39-0.98 (0.79)	5.906	Straight shank
0.335	0.374	0.346	0.394	0.551	1.102	0	0.591	0.39-0.98 (0.79)	...	Straight shank

*) value in brackets = max. rolling width for rolls with double-sided parabola

USABLE DEPTH 1.969 / 2.756 / 3.937 / 5.906 inch · ROLL LENGTH 1.575 inch (SIZES 0.346 - 2.756)

Size body Ø	Ex-pansion up to	Tube inner Ø min.	Tube outer Ø min.	Tube outer Ø max.	Outer bell Ø	Tube projection / insertion Bell		adj. rolling width* from	adj. rolling width* to	Usable depth	Mandrel square
inch	inch	inch	inch	inch	inch	Bell 0437	Bell 0438	inch	inch	inch	inch
0.346	0.394	0.354	0.433	0.551	1.102	0.08	0.787	0.59	1.38 (1.18)	1.969	3/8
0.354	0.402	0.366	0.433	0.551	1.102	0.08	0.787	0.59	1.38 (1.18)	or	3/8
0.378	0.425	0.394	0.453	0.551	1.102	0.08	0.787	0.59	1.38 (1.18)	3.937	3/8
0.394	0.445	0.406	0.472	0.551	1.102	0.08	0.787	0.59	1.38 (1.18)	or	3/8
0.417	0.465	0.433	0.492	0.630	1.102	0.08	0.787	0.59	1.38 (1.18)	5.906	3/8
0.449	0.500	0.465	0.531	0.630	1.102	0.08	0.787	0.59	1.38 (1.18)		3/8
0.472	0.543	0.484	0.571	0.748	1.181	0.08	0.787	0.59	1.38 (1.18)	2.756	3/8
0.496	0.575	0.512	0.610	0.748	1.181	0.08	0.787	0.59	1.38 (1.18)	or	3/8
0.512	0.591	0.524	0.618	0.748	1.181	0.08	0.787	0.59	1.38 (1.18)	3.937	3/8
0.543	0.626	0.551	0.650	0.787	1.260	0.08	0.787	0.59	1.38 (1.18)	or	3/8
0.571	0.654	0.583	0.689	0.787	1.260	0.08	0.787	0.59	1.38 (1.18)	5.06	3/8
0.591	0.681	0.602	0.709	0.787	1.260	0.08	0.787	0.59	1.38 (1.18)		3/8
0.610	0.697	0.622	0.728	0.787	1.260	0.08	0.787	0.59	1.38 (1.18)		3/8
0.630	0.724	0.642	0.748	0.906	1.378	0.12	0.787	0.59	1.38 (1.18)		3/8
0.650	0.732	0.661	0.768	0.906	1.378	0.12	0.787	0.59	1.38 (1.18)		3/8
0.669	0.748	0.681	0.787	0.906	1.378	0.12	0.787	0.59	1.38 (1.18)		3/8
0.689	0.776	0.709	0.807	1.000	1.378	0.12	0.787	0.59	1.38 (1.18)		3/8
0.724	0.835	0.748	0.866	1.000	1.575	0.12	0.787	0.59	1.38 (1.18)		3/8
0.748	0.846	0.768	0.886	1.000	1.575	0.12	0.787	0.59	1.38 (1.18)		3/8
0.768	0.858	0.787	0.906	1.000	1.575	0.12	0.787	0.59	1.38 (1.18)		3/8
0.787	0.906	0.807	0.945	1.260	1.654	0.12	0.787	0.59	1.38 (1.18)		3/8
0.807	0.929	0.827	0.965	1.260	1.654	0.12	0.787	0.59	1.38 (1.18)		3/8
0.827	0.945	0.846	0.984	1.260	1.654	0.12	0.787	0.59	1.38 (1.18)		3/8
0.866	0.984	0.886	0.984	1.260	1.654	0.12	0.787	0.59	1.38 (1.18)		3/8
0.906	1.024	0.925	1.063	1.260	1.850	0.12	0.787	0.59	1.26 (1.02)		1/2
0.945	1.063	0.965	1.102	1.260	1.850	0.12	0.787	0.59	1.26 (1.02)		1/2
0.984	1.102	1.004	1.142	1.417	1.850	0.12	0.787	0.59	1.26 (1.02)		1/2
1.024	1.142	1.043	1.181	1.417	1.850	0.12	0.787	0.59	1.26 (1.02)		1/2
1.063	1.181	1.083	1.220	1.417	2.047	0.12	0.787	0.59	1.26 (1.02)		1/2
1.102	1.228	1.122	1.248	1.417	2.047	0.12	0.787	0.59	1.26 (1.02)		1/2
1.142	1.268	1.161	1.299	1.417	2.047	0.12	0.787	0.59	1.26 (1.02)		1/2
1.181	1.307	1.201	1.339	1.772	2.047	0.00	1.024	0.59	1.26 (1.02)		1/2
1.220	1.346	1.240	1.378	1.772	2.047	0.00	1.024	0.59	1.26 (1.02)		1/2
1.260	1.386	1.280	1.417	1.772	2.047	0.00	1.024	0.59	1.26 (1.02)		1/2
1.299	1.425	1.319	1.457	1.772	2.047	0.00	1.024	0.59	1.26 (1.02)		1/2
1.339	1.465	1.358	1.496	1.772	2.047	0.00	1.024	0.59	1.26 (1.02)		1/2
1.358	1.484	1.378	1.496	1.772	2.047	0.00	1.024	0.59	1.26 (1.02)		1/2
1.378	1.504	1.398	1.535	1.772	2.047	0.00	1.024	0.59	1.26 (1.02)		3/4
1.417	1.575	1.437	1.614	1.772	2.047	0.00	1.024	0.59	1.26 (1.02)		3/4
1.496	1.654	1.516	1.693	1.772	2.047	0.00	1.024	0.59	1.26 (1.02)		3/4
1.575	1.732	1.594	1.772	2.205	2.559	0.00	1.024	0.59	1.26 (1.02)		3/4
1.654	1.811	1.673	1.850	2.205	2.559	0.00	1.024	0.59	1.26 (1.02)		3/4
1.732	1.890	1.752	1.929	2.205	2.559	0.00	1.339	0.59	1.26 (1.02)		3/4
1.811	1.969	1.831	2.008	2.205	2.559	0.00	1.339	0.59	1.26 (1.02)		3/4
1.890	2.047	1.909	2.087	2.205	2.559	0.00	1.339	0.59	1.26 (1.02)		3/4
1.969	2.165	1.988	2.165	2.598	2.953	0.00	1.339	0.59	1.26 (1.02)		3/4
2.047	2.244	2.087	2.283	2.598	2.953	0.00	1.339	0.59	1.18 (0.94)		3/4
2.126	2.323	2.165	2.362	2.598	2.953	0.00	1.339	0.59	1.18 (0.94)		3/4
2.205	2.402	2.244	2.441	2.598	2.953	0.00	1.339	0.59	1.18 (0.94)		3/4
2.283	2.480	2.323	2.520	2.598	2.953	0.00	1.339	0.59	1.18 (0.94)		3/4
2.362	2.559	2.402	2.598	3.268	3.740	0.00	1.339	0.59	1.18 (0.94)		3/4
2.441	2.638	2.480	2.677	3.268	3.740	0.00	1.339	0.59	1.18 (0.94)		3/4
2.520	2.717	2.559	2.756	3.268	3.740	0.00	1.339	0.59	1.18 (0.94)		3/4
2.598	2.795	2.638	2.835	3.268	3.740	0.00	1.339	0.59	1.18 (0.94)		3/4
2.677	2.874	2.717	2.913	3.465	3.937	0.00	1.339	0.59	1.18 (0.94)		1
2.756	2.953	2.795	2.992	3.465	3.937	0.00	1.339	0.59	1.18 (0.94)		1

*) value in brackets = max. rolling width for rolls with double-sided parabola

USABLE DEPTH 1.969 / 2.756 / 3.937 / 5.906 inch · ROLL LENGTH 1.969 inch (SIZES 0.417 - 3.307)

Size body Ø	Ex- pansion up to	Tube inner Ø min.	Tube outer Ø min.	Tube outer Ø max.	Outer bell Ø	Tube projection / insertion Bell 0437 Bell 0438		adj. rolling width*) from	adj. rolling width*) to	Usable depth	Mandrel square
inch	inch	inch	inch	inch	inch	inch	inch	inch	inch	inch	inch
0.417	0.465	0.433	0.492	0.630	1.102	0.08	0.787	0.98	1.77 (1.57)	2.756	3/8
0.449	0.500	0.465	0.531	0.630	1.102	0.08	0.787	0.98	1.77 (1.57)		or	3/8
0.472	0.543	0.484	0.571	0.748	1.181	0.08	0.787	0.98	1.77 (1.57)	3.937	3/8
0.496	0.575	0.512	0.610	0.748	1.181	0.08	0.787	0.98	1.77 (1.57)		or	3/8
0.512	0.591	0.524	0.618	0.748	1.181	0.08	0.787	0.98	1.77 (1.57)	5.906	3/8
0.543	0.626	0.551	0.650	0.787	1.260	0.08	0.787	0.98	1.77 (1.57)		or	3/8
0.571	0.654	0.583	0.689	0.787	1.260	0.08	0.787	0.98	1.77 (1.57)	3.937	3/8
0.591	0.681	0.602	0.709	0.787	1.260	0.08	0.787	0.98	1.77 (1.57)		or	3/8
0.610	0.697	0.622	0.728	0.787	1.260	0.08	0.787	0.98	1.77 (1.57)	5.906	3/8
0.630	0.724	0.642	0.748	0.906	1.378	0.12	0.787	0.98	1.77 (1.57)		or	3/8
0.650	0.732	0.661	0.768	0.906	1.378	0.12	0.787	0.98	1.77 (1.57)	3.937	3/8
0.669	0.748	0.681	0.787	0.906	1.378	0.12	0.787	0.98	1.77 (1.57)		or	3/8
0.689	0.776	0.709	0.807	1.000	1.378	0.12	0.787	0.98	1.77 (1.57)	5.906	3/8
0.724	0.835	0.748	0.866	1.000	1.575	0.12	0.787	0.98	1.77 (1.57)		or	3/8
0.748	0.846	0.768	0.886	1.000	1.575	0.12	0.787	0.98	1.77 (1.57)	3.937	3/8
0.768	0.858	0.787	0.906	1.000	1.575	0.12	0.787	0.98	1.77 (1.57)		or	3/8
0.787	0.906	0.807	0.945	1.260	1.654	0.12	0.787	0.98	1.77 (1.57)	5.906	3/8
0.807	0.929	0.827	0.965	1.260	1.654	0.12	0.787	0.98	1.77 (1.57)		or	3/8
0.827	0.945	0.846	0.984	1.260	1.654	0.12	0.787	0.98	1.77 (1.57)	3.937	3/8
0.866	0.984	0.886	0.984	1.260	1.654	0.12	0.787	0.98	1.77 (1.57)		or	3/8
0.906	1.024	0.925	1.063	1.260	1.850	0.12	0.787	0.98	1.65 (1.42)	5.906	1/2
0.945	1.063	0.965	1.102	1.260	1.850	0.12	0.787	0.98	1.65 (1.42)		or	1/2
0.984	1.102	1.004	1.142	1.417	1.850	0.12	0.787	0.98	1.65 (1.42)	3.937	1/2
1.024	1.142	1.043	1.181	1.417	1.850	0.12	0.787	0.98	1.65 (1.42)		or
1.063	1.181	1.083	1.220	1.417	2.047	0.12	0.787	0.98	1.65 (1.42)	5.906	1/2
1.102	1.228	1.122	1.248	1.417	2.047	0.12	0.787	0.98	1.65 (1.42)		or
1.142	1.268	1.161	1.299	1.417	2.047	0.12	0.787	0.98	1.65 (1.42)	3.937	1/2
1.181	1.307	1.201	1.339	1.772	2.047	0.00	1.024	0.98	1.65 (1.42)		or
1.220	1.346	1.240	1.378	1.772	2.047	0.00	1.024	0.98	1.65 (1.42)	5.906	1/2
1.260	1.386	1.280	1.417	1.772	2.047	0.00	1.024	0.98	1.65 (1.42)		or
1.299	1.425	1.319	1.457	1.772	2.047	0.00	1.024	0.98	1.65 (1.42)	3.937	1/2
1.339	1.465	1.358	1.496	1.772	2.047	0.00	1.024	0.98	1.65 (1.42)		or
1.358	1.484	1.378	1.496	1.772	2.047	0.00	1.024	0.98	1.65 (1.42)	5.906	1/2
1.378	1.504	1.398	1.535	1.772	2.047	0.00	1.024	0.98	1.65 (1.42)		or	3/4
1.417	1.575	1.437	1.614	1.772	2.047	0.00	1.024	0.98	1.65 (1.42)	3.937	3/4
1.496	1.654	1.516	1.693	1.772	2.047	0.00	1.024	0.98	1.65 (1.42)		or	3/4
1.575	1.732	1.594	1.772	2.205	2.559	0.00	1.024	0.98	1.65 (1.42)	5.906	3/4
1.654	1.811	1.673	1.850	2.205	2.559	0.00	1.024	0.98	1.65 (1.42)		or	3/4
1.732	1.890	1.752	1.929	2.205	2.559	0.00	1.339	0.98	1.65 (1.42)	3.937	3/4
1.811	1.969	1.831	2.008	2.205	2.559	0.00	1.339	0.98	1.65 (1.42)		or	3/4
1.890	2.047	1.909	2.087	2.205	2.559	0.00	1.339	0.98	1.65 (1.42)	5.906	3/4
1.969	2.165	1.988	2.165	2.598	2.953	0.00	1.339	0.98			or	3/4
2.047	2.244	2.087	2.283	2.598	2.953	0.00	1.339	0.98	1.57 (1.34)	3.937	3/4
2.126	2.323	2.165	2.362	2.598	2.953	0.00	1.339	0.98	1.57 (1.34)		or	3/4
2.205	2.402	2.244	2.441	2.598	2.953	0.00	1.339	0.98	1.57 (1.34)	5.906	3/4
2.283	2.480	2.323	2.520	2.598	2.953	0.00	1.339	0.98	1.57 (1.34)		or	3/4
2.362	2.559	2.402	2.598	3.268	3.740	0.00	1.339	0.98	1.57 (1.34)	3.937	3/4
2.441	2.638	2.480	2.677	3.268	3.740	0.00	1.339	0.98	1.57 (1.34)		or	3/4
2.520	2.717	2.559	2.756	3.268	3.740	0.00	1.339	0.98	1.57 (1.34)	5.906	3/4
2.598	2.795	2.638	2.835	3.268	3.740	0.00	1.339	0.98	1.57 (1.34)		or	3/4
2.677	2.874	2.717	2.913	3.465	3.937	0.00	1.339	0.98	1.57 (1.34)	3.937	1
2.756	2.953	2.795	2.992	3.465	3.937	0.00	1.339	0.98	1.57 (1.34)		or	1
2.835	3.031	2.874	3.071	3.543	4.134	0.00	1.339	0.98	1.57 (1.34)	5.906	1
2.913	3.110	2.953	3.150	3.622	4.134	0.00	1.339	0.98	1.57 (1.34)		or	1
2.992	3.189	3.031	3.228	3.701	4.331	0.00	1.339	0.98	1.50 (1.26)	3.937	1
3.071	3.268	3.110	3.307	3.780	4.331	0.00	1.339	0.98	1.50 (1.26)		or	1
3.150	3.346	3.189	3.386	3.858	4.528	0.00	1.339	0.98	1.50 (1.26)	5.906	1
3.228	3.425	3.268	3.465	3.937	4.724	0.00	1.339	0.98	1.50 (1.26)		or	1
3.307	3.504	3.346	3.543	4.016	4.724	0.00	1.339	0.98	1.50 (1.26)		1

*) value in brackets = max. rolling width for rolls with double-sided parabola

USABLE DEPTH 1.969 / 2.756 / 3.937 / 5.906 inch · ROLL LENGTH 2.362 inch (SIZES 0.346 - 2.756)

Size body Ø	Ex-pansion up to	Tube inner Ø min.	Tube outer Ø min.	Tube outer Ø max.	Outer bell Ø	Tube projection / insertion Bell		adj. rolling width*) from	adj. rolling width*) to	Usable depth	Mandrel square
inch	inch	inch	inch	inch	inch	0437	0438	inch	inch	inch	inch
0.417	0.465	0.433	0.492	0.630	1.102	0.08	0.787	1.38	2.17 (1.97)	2.756	3/8
0.449	0.500	0.465	0.531	0.630	1.102	0.08	0.787	1.38	2.17 (1.97)	or	3/8
0.472	0.543	0.484	0.571	0.748	1.181	0.08	0.787	1.38	2.17 (1.97)		3/8
0.496	0.575	0.512	0.610	0.748	1.181	0.08	0.787	1.38	2.17 (1.97)	3.937	3/8
0.512	0.591	0.524	0.618	0.748	1.181	0.08	0.787	1.38	2.17 (1.97)	or	3/8
0.543	0.626	0.551	0.650	0.787	1.260	0.08	0.787	1.38	2.17 (1.97)	5.906	3/8
0.571	0.654	0.583	0.689	0.787	1.260	0.08	0.787	1.38	2.17 (1.97)		3/8
0.591	0.681	0.602	0.709	0.787	1.260	0.08	0.787	1.38	2.17 (1.97)		3/8
0.610	0.697	0.622	0.728	0.787	1.260	0.08	0.787	1.38	2.17 (1.97)		3/8
0.630	0.724	0.642	0.748	0.906	1.378	0.12	0.787	1.38	2.17 (1.97)		3/8
0.650	0.732	0.661	0.768	0.906	1.378	0.12	0.787	1.38	2.17 (1.97)		3/8
0.669	0.748	0.681	0.787	0.906	1.378	0.12	0.787	1.38	2.17 (1.97)		3/8
0.689	0.776	0.709	0.807	1.000	1.378	0.12	0.787	1.38	2.17 (1.97)		3/8
0.724	0.835	0.748	0.866	1.000	1.575	0.12	0.787	1.38	2.17 (1.97)		3/8
0.748	0.846	0.768	0.886	1.000	1.575	0.12	0.787	1.38	2.17 (1.97)		3/8
0.768	0.858	0.787	0.906	1.000	1.575	0.12	0.787	1.38	2.17 (1.97)		3/8
0.787	0.906	0.807	0.945	1.260	1.654	0.12	0.787	1.38	2.17 (1.97)		3/8
0.807	0.929	0.827	0.965	1.260	1.654	0.12	0.787	1.38	2.17 (1.97)		3/8
0.827	0.945	0.846	0.984	1.260	1.654	0.12	0.787	1.38	2.17 (1.97)		3/8
0.866	0.984	0.886	0.984	1.260	1.654	0.12	0.787	1.38	2.17 (1.97)		3/8
0.906	1.024	0.925	1.063	1.260	1.850	0.12	0.787	1.38	2.05 (1.81)		1/2
0.945	1.063	0.965	1.102	1.260	1.850	0.12	0.787	1.38	2.05 (1.81)		1/2
0.984	1.102	1.004	1.142	1.417	1.850	0.12	0.787	1.38	2.05 (1.81)		1/2
1.024	1.142	1.043	1.181	1.417	1.850	0.12	0.787	1.38	2.05 (1.81)		1/2
1.063	1.181	1.083	1.220	1.417	2.047	0.12	0.787	1.38	2.05 (1.81)		1/2
1.102	1.228	1.122	1.248	1.417	2.047	0.12	0.787	1.38	2.05 (1.81)		1/2
1.142	1.268	1.161	1.299	1.417	2.047	0.12	0.787	1.38	2.05 (1.81)		1/2
1.181	1.307	1.201	1.339	1.772	2.047	0.00	1.024	1.38	2.05 (1.81)		1/2
1.220	1.346	1.240	1.378	1.772	2.047	0.00	1.024	1.38	2.05 (1.81)		1/2
1.260	1.386	1.280	1.417	1.772	2.047	0.00	1.024	1.38	2.05 (1.81)		1/2
1.299	1.425	1.319	1.457	1.772	2.047	0.00	1.024	1.38	2.05 (1.81)		1/2
1.339	1.465	1.358	1.496	1.772	2.047	0.00	1.024	1.38	2.05 (1.81)		1/2
1.358	1.484	1.378	1.496	1.772	2.047	0.00	1.024	1.38	2.05 (1.81)		1/2
1.378	1.504	1.398	1.535	1.772	2.047	0.00	1.024	1.38	2.05 (1.81)		3/4
1.417	1.575	1.437	1.614	1.772	2.047	0.00	1.024	1.38	2.05 (1.81)		3/4
1.496	1.654	1.516	1.693	1.772	2.047	0.00	1.024	1.38	2.05 (1.81)		3/4
1.575	1.732	1.594	1.772	2.205	2.559	0.00	1.024	1.38	2.05 (1.81)		3/4
1.654	1.811	1.673	1.850	2.205	2.559	0.00	1.024	1.38	2.05 (1.81)		3/4
1.732	1.890	1.752	1.929	2.205	2.559	0.00	1.339	1.38	2.05 (1.81)		3/4
1.811	1.969	1.831	2.008	2.205	2.559	0.00	1.339	1.38	2.05 (1.81)		3/4
1.890	2.047	1.909	2.087	2.205	2.559	0.00	1.339	1.38	2.05 (1.81)		3/4
1.969	2.165	1.988	2.165	2.598	2.953	0.00	1.339	1.38	2.05 (1.81)		3/4
2.047	2.244	2.087	2.283	2.598	2.953	0.00	1.339	1.38	1.97 (1.73)		3/4
2.126	2.323	2.165	2.362	2.598	2.953	0.00	1.339	1.38	1.97 (1.73)		3/4
2.205	2.402	2.244	2.441	2.598	2.953	0.00	1.339	1.38	1.97 (1.73)		3/4
2.283	2.480	2.323	2.520	2.598	2.953	0.00	1.339	1.38	1.97 (1.73)		3/4
2.362	2.559	2.402	2.598	3.268	3.740	0.00	1.339	1.38	1.97 (1.73)		3/4
2.441	2.638	2.480	2.677	3.268	3.740	0.00	1.339	1.38	1.97 (1.73)		3/4
2.520	2.717	2.559	2.756	3.268	3.740	0.00	1.339	1.38	1.97 (1.73)		3/4
2.598	2.795	2.638	2.835	3.268	3.740	0.00	1.339	1.38	1.97 (1.73)		3/4
2.677	2.874	2.717	2.913	3.465	3.937	0.00	1.339	1.38	1.97 (1.73)		1
2.756	2.953	2.795	2.992	3.465	3.937	0.00	1.339	1.38	1.97 (1.73)		1
2.835	3.031	2.874	3.071	3.543	4.134	0.00	1.339	1.38	1.97 (1.73)		1
2.913	3.110	2.953	3.150	3.622	4.134	0.00	1.339	1.38	1.97 (1.73)		1
2.992	3.189	3.031	3.228	3.701	4.331	0.00	1.339	1.38	1.89 (1.65)		1
3.071	3.268	3.110	3.307	3.780	4.331	0.00	1.339	1.38	1.89 (1.65)		1
3.150	3.346	3.189	3.386	3.858	4.528	0.00	1.339	1.38	1.89 (1.65)		1
3.228	3.425	3.268	3.465	3.937	4.724	0.00	1.339	1.38	1.89 (1.65)		1
3.307	3.504	3.346	3.543	4.016	4.724	0.00	1.339	1.38	1.89 (1.65)		1

*) value in brackets = max. rolling width for rolls with double-sided parabola

SELF-FEEDING TUBE EXPANDERS T



with full bell



with lever bell



with clamping bell

In the **self-feeding tube expanders**, the central axes of the mandrel and the rolls do not lie in one plane, i.e. the rolls are mounted at an angle to the mandrel (twisted). The principle of this tube expander is based on **automatic self-feeding**, caused by the angled position of the rolls.

These tube expanders can be driven both **by hand** and **by machine**. They are partly equipped with **ball bearings** in order to reduce friction heat to a minimum.

TECHNICAL DATA – TUBE EXPANDERS WITH FULL BELL SERIES T 44 (formerly T 54)

TUBE EXPANDER WITH ADJUSTABLE USABLE DEPTH AND FULL BELL (ULTRA-SMALL TUBE EXPANDER)

Tube expander	Spare mandrel	Spare rolls	Spare body	Size	Body Ø	Tube c.w.	max. exp.	Rolling width	Usable depth
Order no.	Order no.	Order no.	Order no.		inch	inch	inch	inch	inch
0445200	1455200	2455200	3455200	009	0.205	0.217	0.224	0.63	1.18
0445500	1455500	2455500	3455500	008	0.217	0.228	0.248	0.63	1.18
0445800	1455800	2455800	3455800	007	0.228	0.236	0.260	0.63	1.18
0446300	1456300	2456300	3456300	006	0.248	0.256	0.280	0.63	1.18
0446700	1456700	2456700	3456700	005	0.264	0.276	0.303	0.63	1.18
0447200	1457200	2457200	3457200	004	0.283	0.295	0.323	0.63	1.18
0447700	1457700	2457700	3457700	003	0.303	0.315	0.343	0.79	1.18
0448200	1458200	2458200	3458200	002	0.323	0.335	0.362	0.79	1.18
0448600	1458600	2458600	3458600	001	0.339	0.354	0.386	0.79	1.18

Tube expander with adjustable rolling width and full bell for the expansion of tubes that lie flush with the tube sheet.

DIMENSIONS FOR NORMAL VERSION

Tube expander	Spare Mandrel	Spare rolls	Spare body	Size	Body Ø	Tube c.w.	max. exp.	Rolling width	Mandr. sq.	Outer bell Ø	Actual roll l.
Order no.	Order no.	Order no.	Order no.		inch	inch	inch	inch	inch	inch	inch
0449600	1459600	2459600	3459600	00	0.378	0.394	0.437	0.59 - 0.98	0.35	1.18	1.18
0449700	1459700	2459700	3459700	01	0.417	0.433	0.476	0.59 - 0.98	0.35	1.26	1.18
0449800	1459800	2459800	3459800	02	0.457	0.472	0.535	0.59 - 0.98	0.35	1.26	1.18
0449900	1459900	2459900	3459900	03	0.496	0.512	0.575	0.79 - 1.18	0.35	1.34	1.38
0440100	1450100	2450100	3450100	1	0.535	0.551	0.614	0.79 - 1.18	0.35	1.34	1.38
0440200	1450200	2450200	3450200	2	0.575	0.591	0.654	0.98 - 1.57	0.35	1.54	1.77
0440300	1450300	2450300	3450300	3	0.610	0.630	0.709	0.98 - 1.57	0.35	1.54	1.77
0440400	1450400	2450400	3450400	4	0.650	0.669	0.768	0.98 - 1.77	0.35	1.81	1.97
0440500	1450500	2450500	3450500	5	0.685	0.709	0.803	0.98 - 1.77	0.35	1.81	2.09
0440600	1450600	2450600	3450600	6	0.724	0.748	0.862	0.98 - 1.77	0.35	1.81	2.09
0440700	1450700	2450700	3450700	7	0.748	0.787	0.886	0.98 - 1.77	0.35	1.81	2.09
0440800	1450800	2450800	3450800	8	0.787	0.827	0.906	0.98 - 1.77	0.35	1.81	2.09
0440900	1450900	2450900	3450900	9	0.827	0.866	0.965	0.98 - 1.77	0.35	1.81	2.09
0441000	1451000	2451000	3451000	10	0.866	0.906	1.004	0.98 - 1.77	0.47	2.01	2.09
0441100	1451100	2451100	3451100	11	0.906	0.945	1.043	0.98 - 1.97	0.47	2.01	2.28
0441200	1451200	2451200	3451200	12	0.945	0.984	1.102	0.98 - 1.97	0.47	2.01	2.28
0449000	1459000	2459000	3459000	90	0.984	1.024	1.142	0.98 - 1.97	0.47	2.01	2.28
0441300	1451300	2451300	3451300	13	1.024	1.063	1.181	0.98 - 1.97	0.47	2.24	2.28
0449100	1459100	2459100	3459100	91	1.063	1.102	1.220	0.98 - 1.97	0.47	2.24	2.28
0441400	1451400	2451400	3451400	14	1.102	1.142	1.260	0.98 - 1.97	0.47	2.24	2.28
0449200	1459200	2459200	3459200	92	1.142	1.181	1.299	0.98 - 1.97	0.47	2.24	2.28
0441500	1451500	2451500	3451500	15	1.181	1.220	1.339	0.98 - 1.97	0.55	2.05	2.28
0441600	1451600	2451600	3451600	16	1.260	1.299	1.417	0.98 - 1.97	0.55	2.05	2.28
0441700	1451700	2451700	3451700	17	1.339	1.378	1.496	0.98 - 1.97	0.55	2.05	2.28
0441800	1451800	2451800	3451800	18	1.417	1.457	1.614	0.98 - 1.97	0.55	2.28	2.28
0441900	1451900	2451900	3451900	19	1.496	1.535	1.693	0.98 - 1.97	0.63	2.28	2.28
0442000	1452000	2452000	3452000	20	1.575	1.614	1.772	0.98 - 1.97	0.63	2.56	2.28
0442100	1452100	2452100	3452100	21	1.654	1.693	1.850	0.98 - 1.97	0.63	2.56	2.76
0442200	1452200	2452200	3452200	22	1.732	1.772	1.969	0.98 - 2.24	0.71	2.56	2.76
0442300	1452300	2452300	3452300	23	1.811	1.850	2.047	0.98 - 2.24	0.71	2.95	2.76
0442400	1452400	2452400	3452400	24	1.890	1.929	2.126	0.98 - 2.24	0.71	2.95	2.76
0442500	1452500	2452500	3452500	25	1.969	2.008	2.205	0.98 - 2.24	0.71	2.95	2.76
0442600	1452600	2452600	3452600	26	2.047	2.087	2.323	0.98 - 2.24	0.71	3.31	2.76
0442700	1452700	2452700	3452700	27	2.126	2.165	2.402	0.98 - 2.24	0.71	3.31	2.76
0442800	1452800	2452800	3452800	28	2.205	2.244	2.480	0.98 - 2.24	0.87	3.31	2.76
0442900	1452900	2452900	3452900	29	2.283	2.323	2.559	0.98 - 2.24	0.71	3.31	2.76
0443000	1453000	2453000	3453000	30	2.362	2.402	2.677	0.98 - 2.24	0.87	3.70	2.76
0443100	1453100	2453100	3453100	31	2.441	2.520	2.756	0.98 - 2.24	0.87	3.70	2.76
0443200	1453200	2453200	3453200	32	2.520	2.598	2.835	0.98 - 2.24	0.87	3.70	2.76
0443300	1453300	2453300	3453300	33	2.598	2.677	2.913	0.98 - 2.24	0.87	3.70	2.76
0443400	1453400	2453400	3453400	34	2.677	2.756	2.992	0.98 - 2.24	0.87	4.02	2.76

TECHNICAL DATA – TUBE EXPANDERS WITH CLAMPING BELL SERIES T 45 (formerly T 55)

TUBE EXPANDER WITH ADJUSTABLE USABLE DEPTH AND FULL BELL (ULTRA-SMALL TUBE EXPANDER)

Tube expander	Spare mandrel	Spare rolls	Spare body	Size	Body Ø	Tube c.w.	max. exp.	Rolling width	Usable depth
Order no.	Order no.	Order no.	Order no.		inch	inch	inch	inch	inch
0455200	1455200	2455200	3455200	009	0.205	0.217	0.224	0.63	1.18
0455500	1455500	2455500	3455500	008	0.217	0.228	0.248	0.63	1.18
0455800	1455800	2455800	3455800	007	0.228	0.236	0.260	0.63	1.18
0456300	1456300	2456300	3456300	006	0.248	0.256	0.280	0.63	1.18
0456700	1456700	2456700	3456700	005	0.264	0.276	0.303	0.63	1.18
0457200	1457200	2457200	3457200	004	0.283	0.295	0.323	0.63	1.18
0457700	1457700	2457700	3457700	003	0.303	0.315	0.343	0.79	1.18
0458200	1458200	2458200	3458200	002	0.323	0.335	0.362	0.79	1.18
0458600	1458600	2458600	3458600	001	0.339	0.354	0.386	0.79	1.18

Tube expander with adjustable rolling width and clamping bell for the expansion of the tubes at the second, opposite expansion side in the case of straight tubes. With full bell for U-tubes.

DIMENSIONS FOR NORMAL VERSION

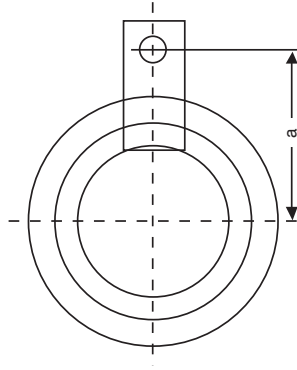
Tube expander	Spare mandrel	Spare rolls	Spare body	Size	Body Ø	Tube c.w.	max. exp.	Rolling width	Mandr. sq.	Insert. clamp. b.	Outer bell Ø	Actual roll l.
Order no.	Order no.	Order no.	Order no.		inch	inch	inch	inch	inch	inch	inch	inch
0459600	1459600	2459600	3459600	00	0,378	0,394	0,437	0.59 - 0.98	0,35	0,59	1,18	1,18
0459700	1459700	2459700	3459700	01	0,417	0,433	0,476	0.59 - 0.98	0,35	0,59	1,26	1,18
0459800	1459800	2459800	3459800	02	0,457	0,472	0,535	0.59 - 0.98	0,35	0,59	1,26	1,18
0459900	1459900	2459900	3459900	03	0,496	0,512	0,575	0.79 - 1.18	0,35	0,59	1,34	1,38
0450100	1450100	2450100	3450100	1	0,535	0,551	0,614	0.79 - 1.18	0,35	0,59	1,34	1,38
0450200	1450200	2450200	3450200	2	0,575	0,591	0,654	0.98 - 1.57	0,35	0,59	1,54	1,77
0450300	1450300	2450300	3450300	3	0,610	0,630	0,709	0.98 - 1.57	0,35	0,59	1,54	1,77
0450400	1450400	2450400	3450400	4	0,650	0,669	0,768	0.98 - 1.77	0,35	0,59	1,81	1,97
0450500	1450500	2450500	3450500	5	0,685	0,709	0,803	0.98 - 1.77	0,35	0,59	1,81	2,09
0450600	1450600	2450600	3450600	6	0,724	0,748	0,862	0.98 - 1.77	0,35	0,59	1,81	2,09
0450700	1450700	2450700	3450700	7	0,748	0,787	0,886	0.98 - 1.77	0,35	0,59	1,81	2,09
0450800	1450800	2450800	3450800	8	0,787	0,827	0,906	0.98 - 1.77	0,35	0,59	1,81	2,09
0450900	1450900	2450900	3450900	9	0,827	0,866	0,965	0.98 - 1.77	0,35	0,59	1,81	2,09
0451000	1451000	2451000	3451000	10	0,866	0,906	1,004	0.98 - 1.77	0,47	0,59	2,01	2,09
0451100	1451100	2451100	3451100	11	0,906	0,945	1,043	0.98 - 1.97	0,47	0,59	2,01	2,28
0451200	1451200	2451200	3451200	12	0,945	0,984	1,102	0.98 - 1.97	0,47	0,59	2,01	2,28
0459000	1459000	2459000	3459000	90	0,984	1,024	1,142	0.98 - 1.97	0,47	0,59	2,01	2,28
0451300	1451300	2451300	3451300	13	1,024	1,063	1,181	0.98 - 1.97	0,47	0,59	2,24	2,28
0459100	1459100	2459100	3459100	91	1,063	1,102	1,220	0.98 - 1.97	0,47	0,59	2,24	2,28
0451400	1451400	2451400	3451400	14	1,102	1,142	1,260	0.98 - 1.97	0,47	0,59	2,24	2,28
0459200	1459200	2459200	3459200	92	1,142	1,181	1,299	0.98 - 1.97	0,47	0,59	2,24	2,28
0451500	1451500	2451500	3451500	15	1,181	1,220	1,339	0.98 - 1.97	0,55	0,00	2,05	2,28
0451600	1451600	2451600	3451600	16	1,260	1,299	1,417	0.98 - 1.97	0,55	0,00	2,05	2,28
0451700	1451700	2451700	3451700	17	1,339	1,378	1,496	0.98 - 1.97	0,55	0,00	2,05	2,28
0451800	1451800	2451800	3451800	18	1,417	1,457	1,614	0.98 - 1.97	0,55	0,00	2,28	2,28
0451900	1451900	2451900	3451900	19	1,496	1,535	1,693	0.98 - 1.97	0,63	0,00	2,28	2,28
0452000	1452000	2452000	3452000	20	1,575	1,614	1,772	0.98 - 1.97	0,63	0,00	2,56	2,28
0452100	1452100	2452100	3452100	21	1,654	1,693	1,850	0.98 - 1.97	0,63	0,00	2,56	2,76
0452200	1452200	2452200	3452200	22	1,732	1,772	1,969	0.98 - 2.24	0,71	0,00	2,56	2,76
0452300	1452300	2452300	3452300	23	1,811	1,850	2,047	0.98 - 2.24	0,71	0,00	2,95	2,76
0452400	1452400	2452400	3452400	24	1,890	1,929	2,126	0.98 - 2.24	0,71	0,00	2,95	2,76
0452500	1452500	2452500	3452500	25	1,969	2,008	2,205	0.98 - 2.24	0,71	0,00	2,95	2,76
0452600	1452600	2452600	3452600	26	2,047	2,087	2,323	0.98 - 2.24	0,71	0,00	3,31	2,76
0452700	1452700	2452700	3452700	27	2,126	2,165	2,402	0.98 - 2.24	0,71	0,00	3,31	2,76
0452800	1452800	2452800	3452800	28	2,205	2,244	2,480	0.98 - 2.24	0,87	0,00	3,31	2,76
0452900	1452900	2452900	3452900	29	2,283	2,323	2,559	0.98 - 2.24	0,71	0,00	3,31	2,76
0453000	1453000	2453000	3453000	30	2,362	2,402	2,677	0.98 - 2.24	0,87	0,00	3,70	2,76
0453100	1453100	2453100	3453100	31	2,441	2,520	2,756	0.98 - 2.24	0,87	0,00	3,70	2,76
0453200	1453200	2453200	3453200	32	2,520	2,598	2,835	0.98 - 2.24	0,87	0,00	3,70	2,76
0453300	1453300	2453300	3453300	33	2,598	2,677	2,913	0.98 - 2.24	0,87	0,00	3,70	2,76
0453400	1453400	2453400	3453400	34	2,677	2,756	2,992	0.98 - 2.24	0,87	0,00	4,02	2,76

TECHNICAL DATA – TUBE EXPANDERS WITH LEVER BELL, SERIES T 46 (formerly T 56)

DIMENSIONS FOR NORMAL VERSION

Tube expander	Spare mandrel	Spare rolls	Spare body	Size	Body Ø	Tube c.w.	max. exp.	Rolling width	Man-drel sq.	Tube proj.	Tube outer Ø min.	Tube outer Ø max.	Outer bell Ø	Actual roll l.	Centre-dist. „a“
Order no.	Order no.	Order no.	Order no.		inch	inch	inch	inch	inch	inch	inch	inch	inch	inch	inch
0459600	1459600	2459600	3459600	00	0.378	0.394	0.437	0.59 - 0.98	0.35	0.08	0.472	0.551	1.18	1.18	0.79
0459700	1459700	2459700	3459700	01	0.417	0.433	0.476	0.59 - 0.98	0.35	0.08	0.512	0.669	1.26	1.18	0.87
0459800	1459800	2459800	3459800	02	0.457	0.472	0.535	0.59 - 0.98	0.35	0.08	0.571	0.669	1.26	1.18	0.87
0459900	1459900	2459900	3459900	03	0.496	0.512	0.575	0.79 - 1.18	0.35	0.08	0.610	0.748	1.34	1.38	0.91
0450100	1450100	2450100	3450100	1	0.535	0.551	0.614	0.79 - 1.18	0.35	0.08	0.650	0.748	1.34	1.38	0.91
0450200	1450200	2450200	3450200	2	0.575	0.591	0.654	0.98 - 1.57	0.35	0.08	0.689	0.846	1.54	1.77	0.98
0450300	1450300	2450300	3450300	3	0.610	0.630	0.709	0.98 - 1.57	0.35	0.08	0.748	0.846	1.54	1.77	0.98
0450400	1450400	2450400	3450400	4	0.650	0.669	0.768	0.98 - 1.77	0.35	0.12	0.807	0.846	1.81	1.97	0.98
0450500	1450500	2450500	3450500	5	0.685	0.709	0.803	0.98 - 1.77	0.35	0.12	0.846	0.906	1.81	2.09	1.02
0450600	1450600	2450600	3450600	6	0.724	0.748	0.862	0.98 - 1.77	0.35	0.12	0.906	0.906	1.81	2.09	1.02
0450700	1450700	2450700	3450700	7	0.748	0.787	0.886	0.98 - 1.77	0.35	0.12	0.925	1.102	1.81	2.09	1.14
0450800	1450800	2450800	3450800	8	0.787	0.827	0.906	0.98 - 1.77	0.35	0.12	0.965	1.102	1.81	2.09	1.14
0450900	1450900	2450900	3450900	9	0.827	0.866	0.965	0.98 - 1.77	0.35	0.12	1.004	1.181	1.81	2.09	1.18
0451000	1451000	2451000	3451000	10	0.866	0.906	1.004	0.98 - 1.77	0.47	0.12	1.043	1.181	2.01	2.09	1.18
0451100	1451100	2451100	3451100	11	0.906	0.945	1.043	0.98 - 1.97	0.47	0.12	1.083	1.299	2.01	2.28	1.26
0451200	1451200	2451200	3451200	12	0.984	1.102	1.102	0.98 - 1.97	0.47	0.12	1.142	1.339	2.01	2.28	1.26
0459000	1459000	2459000	3459000	90	0.984	1.024	1.142	0.98 - 1.97	0.47	0.12	1.181	1.299	2.01	2.28	1.26
0451300	1451300	2451300	3451300	13	1.024	1.063	1.181	0.98 - 1.97	0.47	0.12	1.220	1.457	2.24	2.28	1.34
0459100	1459100	2459100	3459100	91	1.063	1.102	1.220	0.98 - 1.97	0.47	0.12	1.260	1.457	2.24	2.28	1.34
0451400	1451400	2451400	3451400	14	1.102	1.142	1.260	0.98 - 1.97	0.47	0.12	1.299	1.457	2.24	2.28	1.34
0459200	1459200	2459200	3459200	92	1.142	1.181	1.299	0.98 - 1.97	0.47	0.12	1.339	1.457	2.24	2.28	1.34
0451500	1451500	2451500	3451500	15	1.181	1.220	1.339	0.98 - 1.97	0.55	0.00	1.378	—	2.05	2.28	2.13
0451600	1451600	2451600	3451600	16	1.260	1.299	1.417	0.98 - 1.97	0.55	0.00	1.457	—	2.05	2.28	2.13
0451700	1451700	2451700	3451700	17	1.339	1.378	1.496	0.98 - 1.97	0.55	0.00	1.535	—	2.05	2.28	2.13
0451800	1451800	2451800	3451800	18	1.417	1.457	1.614	0.98 - 1.97	0.55	0.00	1.654	—	2.28	2.28	2.24
0451900	1451900	2451900	3451900	19	1.496	1.535	1.693	0.98 - 1.97	0.63	0.00	1.732	—	2.28	2.28	2.24
0452000	1452000	2452000	3452000	20	1.575	1.614	1.772	0.98 - 1.97	0.63	0.00	1.811	—	2.56	2.28	2.40
0452100	1452100	2452100	3452100	21	1.654	1.693	1.850	0.98 - 1.97	0.63	0.00	1.890	—	2.56	2.76	2.40
0452200	1452200	2452200	3452200	22	1.732	1.772	1.969	0.98 - 2.24	0.71	0.00	2.008	—	2.56	2.76	2.40
0452300	1452300	2452300	3452300	23	1.811	1.850	2.047	0.98 - 2.24	0.71	0.00	2.087	—	2.95	2.76	2.60
0452400	1452400	2452400	3452400	24	1.890	1.929	2.126	0.98 - 2.24	0.71	0.00	2.165	—	2.95	2.76	2.60
0452500	1452500	2452500	3452500	25	1.969	2.008	2.205	0.98 - 2.24	0.71	0.00	2.244	—	2.95	2.76	2.60
0452600	1452600	2452600	3452600	26	2.047	2.087	2.323	0.98 - 2.24	0.71	0.00	2.362	—	3.31	2.76	2.76
0452700	1452700	2452700	3452700	27	2.126	2.165	2.402	0.98 - 2.24	0.71	0.00	2.441	—	3.31	2.76	2.76
0452800	1452800	2452800	3452800	28	2.205	2.244	2.480	0.98 - 2.24	0.87	0.00	2.520	—	3.31	2.76	2.76
0452900	1452900	2452900	3452900	29	2.283	2.323	2.559	0.98 - 2.24	0.71	0.00	2.598	—	3.31	2.76	2.76
0453000	1453000	2453000	3453000	30	2.362	2.402	2.677	0.98 - 2.24	0.87	0.00	2.717	—	3.70	2.76	2.95
0453100	1453100	2453100	3453100	31	2.441	2.520	2.756	0.98 - 2.24	0.87	0.00	2.795	—	3.70	2.76	2.95
0453200	1453200	2453200	3453200	32	2.520	2.598	2.835	0.98 - 2.24	0.87	0.00	2.874	—	3.70	2.76	2.95
0453300	1453300	2453300	3453300	33	2.598	2.677	2.913	0.98 - 2.24	0.87	0.00	2.953	—	3.70	2.76	2.95
0453400	1453400	2453400	3453400	34	2.677	2.756	2.992	0.98 - 2.24	0.87	0.00	3.031	—	4.02	2.76	3.11

Tube expander with adjustable rolling width and holding lever for holding the loose tube at the start of expansion at the first expansion end.



TUBE END FACER TF 50



The TF 50 tube end facer is a tool for **manually cutting to length projecting tubes** at the tube sheet and is mounted by means of a Morse taper, a square or a hexagon on a drive machine having a suitable rotary speed and sufficient torque.

The cutter is centred inside the tube when cutting by a **guide sleeve** adapted to the internal diameter of the tube. An **adjustable stop bell**, which braces itself against the tube sheet when the set cutting depth is reached, ensures the **repeatable cutting to length** of tubes at the tube sheet. Guide pin, guide sleeve, cutter and stop bell are exchangeable, making the TF 50 tube end facer a versatile tool.

TECHNICAL DATA – TUBE END FACER TF 50

Order no.	Unit	Description	Tube outer Ø	Drive
			inch	inch
010 ... 10	piece	size 0	0.394 - 0.551	Hexagon 0.394
010 ... 20	piece	size 0	0.394 - 0.551	Hexagon 0.374 inch (3/8")
010 ... 30	piece	size 0	0.394 - 0.551	Morse taper MK 2
010 ... 11	piece	size 1	0.555 - 0.984	Hexagon 0.394 inch
010 ... 21	piece	size 1	0.555 - 0.984	Hexagon 0.374 inch (3/8")
010 ... 31	piece	size 1	0.555 - 0.984	Morse taper MK 2
010 ... 12	piece	size 2	0.988 - 1.496	Hexagon 0.394 inch
010 ... 22	piece	size 2	0.988 - 1.496	Hexagon 0.374 inch (3/8")
010 ... 32	piece	size 2	0.988 - 1.496	Morse taper MK 2

... = tube outer diameter

SPARE CUTTER (REAMER)

Order no.	Unit	Description	Diameter
			inch
110 ... 00	piece	Reamer, Größe 0	0.413 - 0.650
110 ... 00	piece	Reamer, Größe 1	0.669 - 1.083
110 ... 00	piece	Reamer, Größe 2	0.945 - 1.654

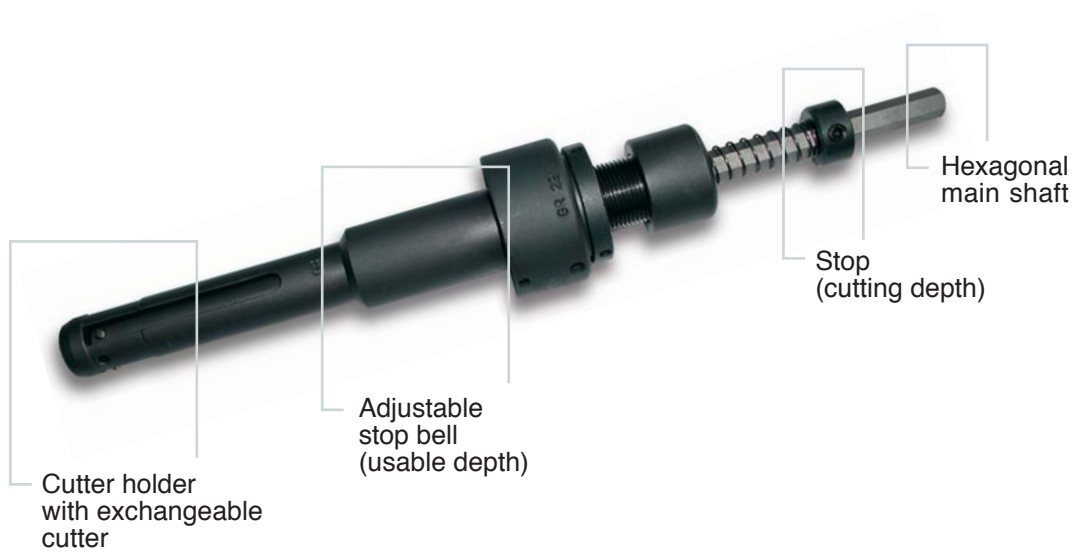
GUIDE SLEEVES

Order no.	Unit	Description	Diameter
			inch
41000130	piece	Guide sleeve	up to 0.512 inch Gr. 0
41013524	piece	Guide sleeve	up to 0.945 inch Gr. 1
41024537	piece	Guide sleeve	up to 1.457 inch Gr. 2

GUIDE BOLTS

Order no.	Unit	Description
21000000	piece	Guide bolt for size 0
21000100	piece	Guide bolt for size 1
21000200	piece	Guide bolt for size 2

INTERNAL TUBE CUTTER TC 51



The TC 51 internal tube cutter enables **thin-walled tubes** that are **inaccessible from outside** to be cut off from the inside.

The tool is driven by a **drive machine** having a suitable rotary speed and sufficient torque and is guided by hand. The **symmetrical configuration** of the three cutters centres the internal tube cutter during the cutting procedure. The **adjustable stop bell** for the usable depth and the stop for limiting the cutting depth ensure repeatable cutting off behind the tube sheet.

TECHNICAL DATA – INTERNAL TUBE CUTTER TC 51

for thin-walled tubes (max. 0.071 inch tube wall thickness)
as triple cutter with a usable depth of 3.937 inch

Size	Complete tool	Spare cutter	Body	Cutter holder	Mandrel
	Order no.	Order no.	Order no.	Order no.	Order no.
16	05 116 000	15 116 000	25 116 000	35 116 000	45 116 000
17	05 117 000	15 117 000	25 117 000	35 117 000	45 117 000
18	05 118 000	15 118 000	25 118 000	35 118 000	45 118 000
19	05 119 000	15 119 000	25 119 000	35 119 000	45 119 000
20	05 120 000	15 120 000	25 120 000	35 120 000	45 120 000
21	05 121 000	15 121 000	25 121 000	35 121 000	45 121 000
22	05 122 000	15 122 000	25 122 000	35 122 000	45 122 000
23	05 123 000	15 123 000	25 123 000	35 123 000	45 123 000
24	05 124 000	15 124 000	25 124 000	35 124 000	45 124 000
25	05 125 000	15 125 000	25 125 000	35 125 000	45 125 000

Size	Complete stop	Nut	Stop	Compression spring
	Order no.	Order no.	Order no.	Order no.
16	85 116 000	55 116 000	65 116 000	95 116 000
17	85 117 000	55 117 000	65 117 000	95 117 000
18	85 118 000	55 118 000	65 118 000	95 118 000
19	85 119 000	55 119 000	65 119 000	95 119 000
20	85 120 000	55 120 000	65 120 000	95 120 000
21	85 121 000	55 121 000	65 121 000	95 121 000
22	85 122 000	55 122 000	65 122 000	95 122 000
23	85 123 000	55 123 000	65 123 000	95 123 000
24	85 124 000	55 124 000	65 124 000	95 124 000
25	85 125 000	55 125 000	65 125 000	95 125 000

Note: Size = 0.039 inch smaller than clearance width / tube
Custom versions and longer usable depths on enquiry!

Groove plunge-cutting steels / spare cutters for series TC 51

1 piece	0.138 x 0.47 inch	ground
1 piece	0.20 x 0.67 inch	ground
1 piece	0.24 x 0.83 inch	ground
1 piece	0.31 x 1.18 inch	ground

CENTERING CARTRIDGES AND SPRING SLEEVES



TECHNICAL DATA – CENTERING CARTRIDGES AND CENTERING MANDRELS FOR WELDING EDGE FACER ORBIMAT T 200 / 250

Centering cartridge version with spring sleeve

CENTERING CARTRIDGES

Order no.	Description	
1792 ... 00	for tubes	clearance width 0.394 - 0.472 inch
1792 ... 00	for tubes	clearance width 0.476 - 0.866 inch
1792 ... 00	for tubes	clearance width 0.870 - 1.220 inch
1792 ... 00	for tubes	clearance width 1.224 - 1.772 inch
1792 ... 00	for tubes	clearance width 1,776 - 2.008 inch
1792 ... 00	for tubes	clearance width 2.012 - 3.071 inch

CENTERING MANDRELS

Order no.	Description	
179200101	Size I	for centering cartridges c.w. 0.394 - 0.472 inch
179200111	Size II	for centering cartridges c.w. 0.476 - 0.866 inch
179200121	Size III	for centering cartridges c.w. 0.870 - 1.772 inch
179200131	Size IV	for centering cartridges c.w. 1.776 - 3.071 inch

TECHNICAL DATA – CENTERING CARTRIDGES

Order no.	Description		
179209805	Centering cartridges for tube c.w.	0.386 - 0.406 inch	Size 101
179210305	Centering cartridges for tube c.w.	0.406 - 0.425 inch	Size 102
179219805	Centering cartridges for tube c.w.	0.425 - 0.445 inch	Size 103
179211305	Centering cartridges for tube c.w.	0.445 - 0.465 inch	Size 104
179211805	Centering cartridges for tube c.w.	0.465 - 0.484 inch	Size 105
179212307	Centering cartridges for tube c.w.	0.484 - 0.512 inch	Size 106
179212812	Centering cartridges for tube c.w.	0.504 - 0.551 inch	Size 107
179213812	Centering cartridges for tube c.w.	0.543 - 0.591 inch	Size 108
179214812	Centering cartridges for tube c.w.	0.583 - 0.630 inch	Size 109
179215812	Centering cartridges for tube c.w.	0.622 - 0.669 inch	Size 110
179216812	Centering cartridges for tube c.w.	0.661 - 0.709 inch	Size 111
179217812	Centering cartridges for tube c.w.	0.701 - 0.748 inch	Size 112
179218812	Centering cartridges for tube c.w.	0.740 - 0.787 inch	Size 113
179219827	Centering cartridges for tube c.w.	0.780 - 0.886 inch	Size 114
179222327	Centering cartridges for tube c.w.	0.878 - 0.976 inch	Size 115
179224525	Centering cartridges for tube c.w.	0.965 - 1.063 inch	Size 116
179226525	Centering cartridges for tube c.w.	1.043 - 1.142 inch	Size 117
179228525	Centering cartridges for tube c.w.	1.122 - 1.220 inch	Size 118
179230525	Centering cartridges for tube c.w.	1.201 - 1.299 inch	Size 119
179232535	Centering cartridges for tube c.w.	1.280 - 1.417 inch	Size 120
179235535	Centering cartridges for tube c.w.	1.398 - 1.535 inch	Size 121
179238535	Centering cartridges for tube c.w.	1.516 - 1.654 inch	Size 122
179241535	Centering cartridges for tube c.w.	1.634 - 1.772 inch	Size 123
179244535	Centering cartridges for tube c.w.	1.752 - 1.890 inch	Size 124
179247535	Centering cartridges for tube c.w.	1.870 - 2.008 inch	Size 125
179250535	Centering cartridges for tube c.w.	1.988 - 2.126 inch	Size 126
179253545	Centering cartridges for tube c.w.	2.106 - 2.283 inch	Size 127
179257545	Centering cartridges for tube c.w.	2.264 - 2.441 inch	Size 128
179261545	Centering cartridges for tube c.w.	2.421 - 2.598 inch	Size 129
179265545	Centering cartridges for tube c.w.	2.579 - 2.756 inch	Size 130
179269545	Centering cartridges for tube c.w.	2.736 - 2.913 inch	Size 131
179273545	Centering cartridges for tube c.w.	2.894 - 3.071 inch	Size 132
179200101	Centering mandrel size I for centering cartridge	101 - 106	
179200111	Centering mandrel size II for centering cartridge	107 - 114	
179200121	Centering mandrel size III for centering cartridge	115 - 125	
179200131	Centering mandrel size IV for centering cartridge	126 - 132	

TUBE EXTRACTING SYSTEM TPS 55



The TPS 55 hydraulic tube extracting machine is a device for **extracting thick-walled tubes** out of the expansion area of tube sheets.

The machine is comprised of a **transportable hydraulic unit** and an extracting unit connected to it via hydraulic hoses. The extracting unit is comprised of a **trunk piston pulling cylinder** with a **mechanical quick clamping device** and is supplemented by the necessary extracting tools (extracting spindle, spacer sleeve and clamping jaws).

The tools must be adapted to the respective conditions or pipe dimensions. The extracting spindle is screwed clockwise via its square by a drive machine with sufficient torque into the end of the tube to be extracted. After that the extracting unit, with the spacer sleeve mounted to it, is pushed onto the extracting spindle up to the stop and the clamping jaws are tightened against the thread of the extracting spindle with the aid of the quick-change chuck. Pressure is applied to the piston, which then pulls the pipe out of the expansion area of the tube sheet. After completion of the extracting procedure, the clamping jaws are released from the extracting spindle and the cylinder is removed from the spindle. After that the extracting spindle is screwed anticlockwise back out of the tube that has been extracted.

TUBE EXPANDERS FOR BOILERS, SERIES KA



Series KA 64 with ball race



Series KB 65
with ball bearing and ball race



Series KC 66 with flanging rolls



Series KD 67
with flanging rolls and stop bell

TECHNICAL DATA

BOILER TUBE EXPANDERS, SERIES KA 64, KB 65, KC 66, KD 67

with and without expander holder · Roll lengths 0.984, 1.26, 1.772, 1.969, 2.205, 2.441

Size	Expansion		Mandrel square
inch	from	to	inch
0.550	0.550	0.610	0.35
0.590	0.590	0.650	0.35
0.630	0.630	0.710	0.35
0.670	0.670	0.750	0.35
0.710	0.710	0.790	0.35
0.750	0.750	0.850	0.35
0.790	0.790	0.890	0.35
0.830	0.830	0.930	0.35
0.870	0.870	0.960	0.35
0.910	0.910	1.000	0.35
0.940	0.940	1.060	0.47
0.980	0.980	1.100	0.47
1.020	1.020	1.140	0.47
1.100	1.100	1.260	0.55
1.180	1.180	1.340	0.55
1.260	1.260	1.420	0.55

TECHNICAL DATA
BOILER TUBE EXPANDERS, SERIES KA 64, KB 65, KC 66, KD 67
 with and without expander holder · Roll lengths 0.984, 1.26, 1.772, 1.969, 2.205, 2.441

Size	Expansion		Mandrel square
	from	to	
inch	inch	inch	inch
1.340	1.340	1.500	0.55
1.420	1.420	1.610	0.63
1.500	1.500	1.690	0.63
1.570	1.570	1.810	0.63
1.650	1.650	1.890	0.63
1.730	1.730	1.970	0.71
1.810	1.810	2.050	0.71
1.890	1.890	2.130	0.71
1.970	1.970	2.200	0.71
2.050	2.050	2.280	0.71
2.130	2.130	2.360	0.71
2.200	2.200	2.440	0.71
2.280	2.280	2.520	0.87
2.360	2.360	2.600	0.87
2.440	2.440	2.680	0.87
2.520	2.520	2.760	0.87
2.600	2.600	2.830	0.87
2.680	2.680	2.910	0.87
2.760	2.760	2.990	0.94
2.830	2.830	3.070	0.94
2.910	2.910	3.150	0.94
2.990	2.990	3.270	0.94
3.070	3.070	3.350	0.94
3.150	3.150	3.460	0.94
3.230	3.230	3.540	0.94
3.310	3.310	3.620	0.94
3.390	3.390	3.700	0.94
3.460	3.460	3.780	0.94
3.540	3.540	3.860	0.94
3.620	3.620	3.940	0.94
3.700	3.700	4.020	0.94
3.780	3.780	4.090	0.94
3.860	3.860	4.170	0.94
3.940	3.940	4.250	0.94

TELESCOPIC SPINDLES AND SPARE PARTS



TECHNICAL DATA – EXTENDABLE TELESCOPIC SPINDLES WITH TRIPLE BALL GUIDE AND SPARE PARTS

Without square inserts and quick-change chuck

Order no.	Description
00721600	Telescopic spindle, series TS 72, size 1 External taper B 16 for accepting various chucks
00722020	Telescopic spindle, series TS 72, size 2, MK 2
00722030	Telescopic spindle, series TS 72, size 2, MK 3
00723030	Telescopic spindle, series TS 72, size 3, MK 3
00723040	Telescopic spindle, series TS 72, size 3, MK 4
00724040	Telescopic spindle, series TS 72, size 4, MK 4
00724050	Telescopic spindle, series TS 72, size 4, MK 5
00724025	Telescopic spindle, series TS 72, size 4, 0.984 inch inner square
00722520	Safety telescopic spindle, series TSS 72, size 2, MK 2
00722530	Safety telescopic spindle, series TSS 72, size 2, MK 3
00703040	Telescopic spindle, series T 70, size 3, MK 4

Spare parts and accessories

Order no.	Description
04722008	Square insert for telescopic spindle size 2, 0.315 inch inner square
04722009	Square insert for telescopic spindle size 2, 0.354 inch inner square
04722010	Square insert for telescopic spindle size 2, 0.394 inch inner square
04722012	Square insert for telescopic spindle size 2, 0.472 inch inner square
04722014	Square insert for telescopic spindle size 2, 0.551 inch inner square
04722038	Square insert for telescopic spindle size 2, 3/8" inch inner square
04722013	Square insert for telescopic spindle size 2, 0.551 inch inner square

Square inserts for telescopic spindles, sizes 3 and 4

Order no.	Description
04723009	Square insert for telescopic spindle sizes 3 + 4, 0.354 inch inner square
04723012	Square insert for telescopic spindle sizes 3 + 4, 0.472 inch inner square
04723014	Square insert for telescopic spindle sizes 3 + 4, 0.551 inch inner square
04723016	Square insert for telescopic spindle sizes 3 + 4, 0.63 inch inner square
04723018	Square insert for telescopic spindle sizes 3 + 4, 0.709 inch inner square
04723020	Square insert for telescopic spindle sizes 3 + 4, 0.787 inch inner square
04723022	Square insert for telescopic spindle sizes 3 + 4, 0.866 inch inner square
04723038	Square insert for telescopic spindle size 3 + 4, 3/8" inch inner square
04723013	Square insert for telescopic spindle size 3 + 4, 1/2" inch inner square
04723019	Square insert for telescopic spindle size 3 + 4, 3/4" inch inner square

Simple telescopic spindles

Order no.	Description
017209090	Drive square 0.354 inch – drive square 0.354 inch
017212120	Drive square 0.472 inch – drive square 0.472 inch
017214140	Drive square 0.551 inch – drive square 0.551 inch
017216160	Drive square 0.63 inch – drive square 0.63 inch
017218180	Drive square 0.709 inch – drive square 0.709 inch
017222220	Drive square 0.866 inch – drive square 0.866 inch
017225250	Drive square 0.984 inch – drive square 0.984 inch
017202090	Drive MK 2 – drive square 0.354 inch
017202120	Drive MK 2 – drive square 0.472 inch
017202140	Drive MK 2 – drive square 0.551 inch
017203090	Drive MK 3 – drive square 0.354 inch
017203120	Drive MK 3 – drive square 0.472 inch
017203140	Drive MK 3 – drive square 0.551 inch
017203160	Drive MK 3 – drive square 0.63 inch
017203180	Drive MK 3 – drive square 0.709 inch
017204160	Drive MK 4 – drive square 0.63 inch
017204180	Drive MK 4 – drive square 0.709 inch
017204220	Drive MK 4 – drive square 0.866 inch
017204250	Drive MK 4 – drive square 0.984 inch
017205290	Drive MK 5 – drive square 1.142 inch
017205320	Drive MK 5 – drive square 1.26 inch

Square chuck

Order no.	Description
017202090	External Morse taper no. 2 - inner square 0.354 inch
017202095	External Morse taper no. 2 - inner square 0.374 inch (3/8")
017202120	External Morse taper no. 2 - inner square 0.472 inch
017202127	External Morse taper no. 2 - inner square 0.5 inch (1/2")
017202140	External Morse taper no. 2 - inner square 0.551 inch
017203090	External Morse taper no. 3 - inner square 0.354 inch
017203095	External Morse taper no. 3 - inner square 0.374 inch (3/8")
017203120	External Morse taper no. 3 - inner square 0.472 inch
017203127	External Morse taper no. 3 - inner square 0.5 inch (1/2")
017203140	External Morse taper no. 3 - inner square 0.551 inch
017203160	External Morse taper no. 3 - inner square 0.63 inch (5/8")
017203180	External Morse taper no. 3 - inner square 0.709 inch
017203191	External Morse taper no. 3 - inner square 0.748 inch (3/4")
017204160	External Morse taper no. 4 - inner square 0.63 inch (5/8")
017204180	External Morse taper no. 4 - inner square 0.709 inch
017204191	External Morse taper no. 4 - inner square 0.748 inch (3/4")
017204220	External Morse taper no. 4 - inner square 0.866 inch (7/8")
017204250	External Morse taper no. 4 - inner square 0.984 inch
017204254	External Morse taper no. 4 - inner square 1 inch (1")
017205254	External Morse taper no. 5 - inner square 1 inch (1")
017205290	External Morse taper no. 5 - inner square 1.142 inch (1 1/8")
017205320	External Morse taper no. 5 - inner square 1.26 inch (1 1/4")
017205380	External Morse taper no. 5 - inner square 1.496 inch (1 1/2")

Drive tools

Order no.	Description
017212090	External square 0.472 inch - inner square 0.354 inch
017209120	External square 0.354 inch - inner square 0.472 inch
017214120	External square 0.551 inch - inner square 0.472 inch
017216140	External square 0.63 inch - inner square 0.551 inch
017218140	External square 0.709 inch - inner square 0.551 inch
017218160	External square 0.709 inch - inner square 0.63 inch
017222180	External square 0.866 inch - inner square 0.709 inch
017225220	External square 0.984 inch - inner square 0.866 inch
017229250	External square 1.142 inch - inner square 0.984 inch
017232290	External square 1.26 inch - inner square 1.142 inch

Square chuck with exchangeable square inserts

Order no.	Description
017202000	External Morse taper no. 2, exchangeable square inserts, 0.354, 0.472 and 0.551 inch inner square
017202111	External Morse taper no. 2, exchangeable square inserts, 0.374 (3/8") and 0.5 inch (1/2") inner square
017203000	External Morse taper no. 3, exchangeable square inserts, 0.472, 0.551, 0.63 and 0.709 inch inner square
017203111	External Morse taper no. 3, exchangeable square inserts, 0.5 inch (1/2"), 0.63 inch (5/8") and 0.748 inch (3/4")
017204000	External Morse taper no. 4, exchangeable square inserts, 0.551, 0.63, 0.709 and 0.866 inch inner square
017204111	External Morse taper no. 4, exchangeable square inserts, 0.63 inch (5/8"), 0.748 inch (3/4") and 0.866 inch (7/8")

Extendable telescopic spindles with triple ball guide and spare parts

Description	Part no.
Ball guide bush with MK shaft, complete	1
Shaft tube	2
Protective tube	3
Grub screw	5
Grub screw	6
Bolt	7
Heavy-duty dowel pin	8
Thrust bearing	9
Washer	10
Nut	11
Grub screw	12
Shaft joint	13
Heavy-duty dowel pins	14
Receptacle	15
Square insert	16
Wedge	17
Cap nut	18
Grub screw	19
Grub screw	20
Cable tie / bellows	21 / 22
Cap nut	23
Round circlip	24
Heavy-duty dowel pin	25
Bush	26
Bush	28
Collar bush	29
Bush	30
Thrust bearing	4
Counter washer	27

FAST STEP EXPANDERS FOR MECHANICAL / HYDRAULIC EXPANSION PROCEDURE



With **quick closure** (quick adjustment option forward and backward). With built-in **return spring** for the expanding mandrel, hence quick release. Equipped with a **mandrel catch**, hence mandrel nut and washer are dispensed with. Rolls with **double-sided parabola**.

The speed of this tube expander can be significantly further increased by the use of our **expansion controller** with automatic clockwise and anticlockwise rotation. The overlapping of the individual rolling steps takes place automatically, hence complete rolling of each tube over the entire tube sheet thickness, independent of the number of consecutive rolling steps. Correction of the rolling length is possible by means of an additional built-in **fine adjuster**. Considerable shortening of non-productive times between individual rolling steps. All individual parts are easily replaceable. **Time savings of over 50% are possible.**

TECHNICAL DATA – FAST STEP TUBE EXPANDERS FOR MECHANICAL / HYDRAULIC TUBE EXPANSION PROCEDURE, SERIES 76

Roll length 1.575 inch - full bell

Usable depth	Size	Tube expander BR 76 with full bell	Spare mandrel BR 76	Spare roll BR 76	Spare body BR 76	Manual closure with full bell
inch	inch	Order no.	Order no.	Order no.	Order no.	Order no.
4.13	0.354	007609014	017609014	027609014	037609014	047609014
4.13	0.610	007615514	017615514	027615514	037615514	047615514
4.13	0.630	007616014	017616014	027616014	037616014	047616014
4.13	0.866	007622014	017622014	027622014	037622014	047622014
4.13	0.906	007622014	017622014	027622014	037622014	047622014
4.13	1.181	007630014	017630014	027630014	037630014	047630014
4.13	1.220	007637614	017637614	027637614	037637614	047637614
4.13	1.378	007635014	017635014	027635014	037635014	047635014
6.10	0.354	007609024	017609024	027609024	037609024	047609024
6.10	0.610	007615524	017615524	027615524	037615524	047615524
6.10	0.630	007616024	017616024	027616024	037616024	047616024
6.10	0.866	007622024	017622024	027622024	037622024	047622024
5.75	0.906	007622024	017622024	027622024	037622024	047622024
5.75	1.181	007630024	017630024	027630024	037630024	047630024
5.75	1.220	007637624	017637624	027637624	037637624	047637624
5.75	1.378	007635024	017635024	027635024	037635024	047635024
8.07	0.354	007609034	017609034	027609034	037609034	047609034
8.07	0.610	007615534	007615534	007615534	007615534	007615534
8.07	0.630	007616034	017616034	027616034	037616034	047616034
8.07	0.866	007622034	017622034	027622034	037622034	047622034
8.07	0.906	007622034	017622034	027622034	037622034	047622034
8.07	1.181	007630034	017630034	027630034	037630034	047630034
8.07	1.220	007637634	017637634	027637634	037637634	047637634
8.07	1.378	007635034	017635034	027635034	037635034	047635034
10.04	0.354	007609044	017609044	027609044	037609044	047609044
10.04	0.610	007615544	017615544	027615544	037615544	047615544
10.04	0.630	007616044	017616044	027616044	037616044	047616044
10.04	0.866	007622044	017622044	027622044	037622044	047622044
9.69	0.906	007622044	017622044	027622044	037622044	047622044
9.69	1.181	007630044	017630044	027630044	037630044	047630044
9.69	1.220	007637644	017637644	027637644	037637644	047637644
9.69	1.378	007635044	017635044	027635044	037635044	047635044
12.01	0.354	007609054	017609054	027609054	037609054	047609054
12.01	0.610	007615554	017615554	027615554	037615554	047615554
12.01	0.630	007616054	017616054	027616054	037616054	047616054
12.01	0.866	007622054	017622054	027622054	037622054	047622054
12.01	0.906	007622054	017622054	027622054	037622054	047622054
12.01	1.181	007630054	017630054	027630054	037630054	047630054
12.01	1.220	007637654	017637654	027637654	037637654	047637654
12.01	1.378	007635054	017635054	027635054	037635054	047635054

Smaller and larger dimensions on enquiry.

TECHNICAL DATA – FAST STEP TUBE EXPANDERS FOR MECHANICAL / HYDRAULIC TUBE EXPANSION PROCEDURE, SERIES 77

Roll length 2.362 inch – with RV bell

Usable depth	Size	Tube expander BR 77 with RV bell	Spare mandrel BR 77	Spare roll BR 77	Spare body BR 77	Manual closure with RV bell
inch	inch	Order no.	Order no.	Order no.	Order no.	Order no.
3.74	0.417	007710616	017710616	027710616	037710616	047710616
3.74	0.610	007715516	017715516	027715516	037715516	047715516
3.74	0.630	007716016	017716016	027716016	037716016	047716016
3.74	0.866	007722016	017722016	027722016	037722016	047722016
3.39	0.906	007722016	017722016	027722016	037722016	047722016
3.39	1.181	007730016	017730016	027730016	037730016	047730016
3.39	1.220	007737716	017737716	027737716	037737716	047737716
3.39	1.378	007735016	017735016	027735016	037735016	047735016
5.51	0.417	007710626	017710626	027710626	037710626	047710626
5.51	0.610	007715526	017715526	027715526	037715526	047715526
5.51	0.630	007716026	017716026	027716026	037716026	047716026
5.51	0.866	007722026	017722026	027722026	037722026	047722026
4.96	0.906	007722026	017722026	027722026	037722026	047722026
4.96	1.181	007730026	017730026	027730026	037730026	047730026
4.96	1.220	007737726	017737726	027737726	037737726	047737726
4.96	1.378	007735026	017735026	027735026	037735026	047735026
7.28	0.417	007710636	017710636	027710636	037710636	047710636
7.28	0.610	007715536	007715536	007715536	007715536	007715536
7.28	0.630	007716036	017716036	027716036	037716036	047716036
7.28	0.866	007722036	017722036	027722036	037722036	047722036
6.54	0.906	007722036	017722036	027722036	037722036	047722036
6.54	1.181	007730036	017730036	027730036	037730036	047730036
6.54	1.220	007737736	017737736	027737736	037737736	047737736
6.54	1.378	007735036	017735036	027735036	037735036	047735036
9.06	0.417	007710646	017710646	027710646	037710646	047710646
9.06	0.610	007715546	017715546	027715546	037715546	047715546
9.06	0.630	007716046	017716046	027716046	037716046	047716046
9.06	0.866	007722046	017722046	027722046	037722046	047722046
9.69	0.906	007722046	017722046	027722046	037722046	047722046
9.69	1.181	007730046	017730046	027730046	037730046	047730046
9.69	1.220	007737746	017737746	027737746	037737746	047737746
9.69	1.378	007735046	017735046	027735046	037735046	047735046
10.83	0.417	007710656	017710656	027710656	037710656	047710656
10.83	0.610	007715556	017715556	027715556	037715556	047715556
10.83	0.630	007716056	017716056	027716056	037716056	047716056
10.83	0.866	007722056	017722056	027722056	037722056	047722056
11.26	0.906	007722056	017722056	027722056	037722056	047722056
11.26	1.181	007730056	017730056	027730056	037730056	047730056
11.26	1.220	007737756	017737756	027737756	037737756	047737756
11.26	1.378	007735056	017735056	027735056	037735056	047735056

Smaller and larger dimensions on enquiry.

TUBE EXTRACTION SYSTEM TP FOR THIN-WALLED TUBES



In heat exchanger construction it is a great advantage to be able to remove **thin-walled tubes** as quickly as possible from the tube sheet with little effort. The TP 79 was developed in order to be able to perform **tube extraction work**, especially of thin-walled tubes (e.g. in condensers), quickly and conveniently with an extremely handy, mobile device.

Depending on the different tool and cylinder designs, various tube dimensions can be removed or pulled out from the expansion area in the tube sheet with the TP 79. The extremely **low weights** in particular make flexible, low-fatigue work possible.

TUBE EXTRACTION SYSTEM TP FOR THICK-WALLED TUBES



In heat exchanger construction it is a great advantage to be able to remove **thick-walled tubes** as quickly as possible from the tube sheet with little effort. The TP 80 was developed in order to be able to perform **tube extraction work**, especially of thick-walled tubes (e.g. in vaporisers), quickly and conveniently with an extremely handy, mobile device.

Depending on the different tool and cylinder designs, various tube dimensions can be removed or pulled out from the expansion area in the tube sheet with the TP 80. The extremely **low weights** in particular make flexible, low-fatigue work possible.

Automatic tube expanders AUTOMA / ULTRA

The series AL 82, KL 84, ALA 82 and KLA 84 are custom series, which are only manufactured **upon the special request of the customer**. The expansion of the tube is accomplished in all types by three or more cone-shaped rolls, which are pressed radially outwards by the axial shift of a similarly cone-shaped mandrel. Since the taper of the mandrel is twice as large as that of the rolls, the rolls grouped around the mandrel produce a cylindrical surface once again.

The axial shift of the mandrel is achieved in all automatic sealing machines by means of a thread. The feeding of the mandrel is naturally resisted by the rolls running along the interior surface of the tube. As the expanding mandrel is turned, this resistance is expressed as increased flank pressure in the thread of the expanding mandrel and the surrounding nut. As the flank pressure in the thread increases - i.e. increased thread friction - the expanding mandrel attempts to take the surrounding nut - threaded sleeve - with it as it turns.

Uncontrolled turning of the nut sleeve is prevented by the coupling. The outer hexagonal nut enables the coupling surfaces to be pressed more or less tightly together by tightening with a greater or lesser force and, hence, to precisely control the disabling of the expanding mandrel feed - i.e. the expansion pressure.

TECHNICAL DATA – AUTOMATIC TUBE EXPANDER ULTRA

SERIES A 81

Tube expander	Expanding mandrel	Threaded spindle	Spare rolls	Spare body	Spare nut	Size	Exp.	b	c	d
Order no.	Order no.	Order no.	Order no.	Order no.	Order no.		inch	inch	inch	inch
0817800	1817800	2817800	3817800	4817800	5817800	A 7,8	0.307 - 0.374	0.79	7.36	1.50
0819000	1819000	2819000	3819000	4819000	5819000	A 9,0	0.354 - 0.433	0.98	8.07	1.50
0811000	1811000	2811000	3811000	4811000	5811000	A 10	0.394 - 0.472	0.98	8.07	1.50
0811100	1811100	2811100	3811100	4811100	5811100	A 11	0.433 - 0.512	0.98	8.07	1.50
0811200	1811200	2811200	3811200	4811200	5811200	A 12	0.472 - 0.571	0.98	8.46	1.50
0811300	1811300	2811300	3811300	4811300	5811300	A 13	0.512 - 0.610	0.98	8.46	1.50
0811400	1811400	2811400	3811400	4811400	5811400	A 14	0.551 - 0.669	0.98	8.66	1.50
0811500	1811500	2811500	3811500	4811500	5811500	A 15	0.591 - 0.728	0.98	9.06	1.50
0811600	1811600	2811600	3811600	4811600	5811600	A 16	0.630 - 0.768	0.98	9.06	1.50
0811700	1811700	2811700	3811700	4811700	5811700	A 17	0.669 - 0.827	1.18	9.88	1.89
0811800	1811800	2811800	3811800	4811800	5811800	A 18	0.709 - 0.866	1.18	9.88	1.89
0812000	1812000	2812000	3812000	4812000	5812000	A 20	0.787 - 0.945	1.18	10.08	1.89
0812200	1812200	2812200	3812200	4812200	5812200	A 22	0.866 - 1.063	1.18	10.28	1.89
0812400	1812400	2812400	3812400	4812400	5812400	A 24	0.945 - 1.142	1.18	10.28	1.89

Expanding mandrel and threaded spindle are separated in this version; however, they can be supplied in one piece.



SERIES A 82 FOR LOW-LYING EXPANSION POINTS

The expansion ranges are the same as for the series A81, similarly with a divided spindle. For the series AL82 the order numbers remain as listed above for the series A81.

For the usable depth, however, the 3rd, 6th and 7th numbers change.
 Example: 0827810 – usable depth 3.937 inch, 0827815 – usable depth 5.906 inch,
 0827820 – usable depth 7.874 inch

The same applies to the spare parts.
 Order numbers for spare rolls and nuts are the same as for A81, however.

SERIES K 83 (CONTINUATION OF SERIES 81)

Tube expander	Expanding mandrel	Threaded spindle	Spare rolls	Spare body	Spare nut	Size	Exp.	b	c	d
Order no.	Order no.	Order no.	Order no.	Order no.	Order no.		inch	inch	inch	inch
0832600	1832600	2832600	3832600	4832600	5832600	K 26	1.024 - 1.220	1.65	10.63	2.05
0832900	1832900	2832900	3832900	4832900	5832900	K 29	1.142 - 1.339	1.65	10.63	2.05
0833050	1833050	2833050	3833050	4833050	5833050	K30,5	1.201 - 1.398	1.65	10.63	2.05
0833200	1833200	2833200	3833200	4833200	5833200	K 32	1.260 - 1.457	1.65	10.63	2.05
0833350	1833350	2833350	3833350	4833350	5833350	K33,5	1.319 - 1.594	1.65	11.73	2.36
0833500	1833500	2833500	3833500	4833500	5833500	K 35	1.378 - 1.654	1.65	11.73	2.36
0833750	1833750	2833750	3833750	4833750	5833750	K37,5	1.476 - 1.752	1.65	11.73	2.36
0834000	1834000	2834000	3834000	4834000	5834000	K 40	1.575 - 1.850	1.65	11.73	2.36
0834200	1834200	2834200	3834200	4834200	5834200	K 42	1.654 - 1.969	1.77	12.99	2.56
0834400	1834400	2834400	3834400	4834400	5834400	K 44	1.732 - 2.047	1.77	12.99	2.56
0834550	1834550	2834550	3834550	4834550	5834550	K45,5	1.791 - 2.106	1.77	12.99	2.56
0834750	1834750	2834750	3834750	4834750	5834750	K47,5	1.870 - 2.185	1.77	12.99	2.56
0835000	1835000	2835000	3835000	4835000	5835000	K 50	1.969 - 2.283	1.77	12.99	2.56
0835600	1835600	2835600	3835600	4835600	5835600	K 56	2.205 - 2.638	1.77	14.96	2.95
0836000	1836000	2836000	3836000	4836000	5836000	K 60	2.362 - 2.795	1.77	14.96	2.95
0836300	1836300	2836300	3836300	4836300	5836300	K 63	2.480 - 2.913	1.77	14.96	2.95
0836800	1836800	2836800	3836800	4836800	5836800	K 68	2.677 - 3.189	1.97	16.93	3.15
0837400	1837400	2837400	3837400	4837400	5837400	K 74	2.913 - 3.425	1.97	16.93	3.15

Expanding mandrel and threaded spindle are separated in this version; however, they can be supplied in one piece.



SERIES KL 84 FOR LOW-LYING EXPANSION POINTS

The expansion ranges are the same as for the series K83, similarly with a divided spindle. For the series KL84 the order numbers remain as listed above for the series K83.

For the usable depth, however, the 3rd, 6th and 7th numbers change.

Example: 0842601 – usable depth 3.937 inch, 0842602 – usable depth 7,874 inch
0842603 – usable depth 11,811 inch

The same applies to the spare parts.

Order numbers for spare rolls and nuts are the same as for K83, however.

SERIES NA89

Group	Size	Expansion from diameter „a“ to	b	c	d	f
		inch	inch	inch	inch	inch
I	NA 24 - NA 32	as for series N87	1.50	16.97	2.05	2.87
II	NA 34 - NA 42		1.57	20.87	2.36	3.07
III	NA 46 - NA 58		1.81	21.18	2.56	4.09
IV	NA 62 - NA 80		1.77	23.23	3.11	4.80
V	NA 85 - NA 102		1.97	25.51	3.35	5.04
VI	NA106 - NA 130		1.97	25.51	3.58	5.63

As for series N87, but with adjustable, ball bearing mounted stop, which ensures even flanging.

SERIES SS 85

Tube expander	Expanding mandrel	Threaded spindle	Spare rolls	Spare body	Spare nut	Size	Exp.	b	c	d
Order no.	Order no.	Order no.	Order no.	Order no.	Order no.		inch	inch	inch	inch
0852400	1832400	2832400	3832400	4832400	5832400	SS 24	0.94 - 1.26	1.65	11.22	2.05
0852500	1832500	2832500	3832500	4832500	5832500	SS 25	0.98 - 1.30	1.65	11.22	2.05
0852600	1832600	2832600	3832600	4832600	5832600	SS 26	1.02 - 1.34	1.65	11.22	2.05
0852800	1832800	2832800	3832800	4832800	5832800	SS 28	1.10 - 1.42	1.65	11.22	2.05
0853000	1833000	2833000	3833000	4833000	5833000	SS 30	1.18 - 1.65	1.65	13.39	2.36
0853200	1833200	2833200	3833200	4833200	5833200	SS 32	1.26 - 1.73	1.65	13.39	2.36
0853400	1833400	2833400	3833400	4833400	5833400	SS 34	1.34 - 1.81	1.65	13.39	2.36
0853600	1833600	2833600	3833600	4833600	5833600	SS 36	1.42 - 1.89	1.65	13.39	2.36
0853700	1833700	2833700	3833700	4833700	5833700	SS 37	1.46 - 2.09	1.77	15.43	2.76
0854200	1834200	2834200	3834200	4834200	5834200	SS 42	1.65 - 2.28	1.77	15.43	2.76
0854800	1834800	2834800	3834800	4834800	5834800	SS 48	1.89 - 2.52	1.77	17.05	2.95

The AUTOMA series SS85, like the SE86, are improved as follows:

1. Large expansion ranges (compare series K83)
2. Expanding spindle subdivided into grub screw and expanding mandrel
3. Trapezoidal thread in all sizes



SERIES SE 86 (CONTINUATION OF SERIES SS 85)

Tube expander	Expanding mandrel	Threaded spindle	Spare rolls	Spare body	Spare nut	Size	Exp.	b	c	d
Order no.	Order no.	Order no.	Order no.	Order no.	Order no.		inch	inch	inch	inch
0865600	1865600	2865600	3865600	4865600	5865600	SE 56	2.20 - 2.80	1.77	16.22	3.35
0866400	1866400	2866400	3866400	4866400	5866400	SE 64	2.44 - 3.23	1.97	18.50	3.35
0866900	1866900	2866900	3866900	4866900	5866900	SE 69	2.72 - 3.43	1.97	18.50	3.35
0868000	1868000	2868000	3868000	4868000	5868000	SE 80	3.15 - 3.94	1.97	20.67	3.35
0868500	1868500	2868500	3868500	4868500	5868500	SE 85	3.35 - 4.21	1.97	21.26	3.35
0869200	1869200	2869200	3869200	4869200	5869200	SE 92	3.62 - 4.49	1.97	21.26	3.35
0861040	1861040	2861040	3861040	4861040	5861040	SE104	4.09 - 5.00	1.97	22.24	3.54
0861210	1861210	2861210	3861210	4861210	5861210	SE121	4.76 - 5.71	1.97	22.24	3.54
0861300	1861300	2861300	3861300	4861300	5861300	SE130	5.12 - 6.06	1.97	22.24	3.54
0861400	1861400	2861400	3861400	4861400	5861400	SE140	5.51 - 6.50	2.36	24.61	4.80
0861600	1861600	2861600	3861600	4861600	5861600	SE160	6.30 - 7.28	2.36	24.61	4.80

The AUTOMA series SS85, like the SE86, are improved as follows:

1. Large expansion ranges (compare series K83)
2. Expanding spindle subdivided into grub screw and expanding mandrel
3. Trapezoidal thread in all sizes



SERIES N 87

Tube expander	Expanding mandrel	Threaded spindle	Spare rolls	Spare body	Spare nut	Size	Exp.	b	c	d
Order no.	Order no.	Order no.	Order no.	Order no.	Order no.		inch	inch	inch	inch
0872400	1872400	2872400	3872400	4872400	5872400	N 24	0.94 - 1.10	1.50	16.97	2.05
0872600	1872600	2872600	3872600	4872600	5872600	N 26	1.02 - 1.18	1.50	16.97	2.05
0872800	1872800	2872800	3872800	4872800	5872800	N 28	1.10 - 1.26	1.50	16.97	2.05
0873000	1873000	2873000	3873000	4873000	5873000	N 30	1.18 - 1.34	1.50	16.97	2.05
0873200	1873200	2873200	3873200	4873200	5873200	N 32	1.26 - 1.50	1.50	16.97	2.05
0873400	1873400	2873400	3873400	4873400	5873400	N 34	1.34 - 1.65	1.57	20.87	2.36
0873700	1873700	2873700	3873700	4873700	5873700	N 37	1.46 - 1.77	1.57	20.87	2.36
0874000	1874000	2874000	3874000	4874000	5874000	N 40	1.57 - 1.89	1.57	20.87	2.44
0874200	1874200	2874200	3874200	4874200	5874200	N 42	1.65 - 1.97	1.57	20.87	2.36
0874600	1874600	2874600	3874600	4874600	5874600	N 46	1.81 - 2.13	1.81	21.18	2.56
0875000	1875000	2875000	3875000	4875000	5875000	N 50	1.97 - 2.28	1.81	21.18	2.56
0875400	1875400	2875400	3875400	4875400	5875400	N 54	2.13 - 2.44	1.81	21.18	2.56
0875800	1875800	2875800	3875800	4875800	5875800	N 58	2.28 - 2.60	1.81	21.18	2.56
0876200	1876200	2876200	3876200	4876200	5876200	N 62	2.44 - 2.80	1.77	23.23	2.95
0876700	1876700	2876700	3876700	4876700	5876700	N 67	2.64 - 2.99	1.77	23.23	2.95
0877200	1877200	2877200	3877200	4877200	5877200	N 72	2.83 - 3.19	1.77	23.23	2.95
0877700	1877700	2877700	3877700	4877700	5877700	N 77	3.03 - 3.39	1.77	23.23	2.95
0878000	1878000	2878000	3878000	4878000	5878000	N 80	3.15 - 3.50	1.77	23.23	2.95
0878500	1878500	2878500	3878500	4878500	5878500	N 85	3.35 - 3.74	1.97	25.51	3.15
0879000	1879000	2879000	3879000	4879000	5879000	N 90	3.54 - 3.94	1.97	25.51	3.15
0879400	1879400	2879400	3879400	4879400	5879400	N 94	3.70 - 4.09	1.97	25.51	3.15
0879800	1879800	2879800	3879800	4879800	5879800	N 98	3.86 - 4.25	1.97	25.51	3.15
0871020	1871020	2871020	3871020	4871020	5871020	N 102	4.02 - 4.41	1.97	25.51	3.15
0871060	1871060	2871060	3871060	4871060	5871060	N 106	4.17 - 4.57	1.97	25.51	3.54
0871100	1871100	2871100	3871100	4871100	5871100	N 110	4.33 - 4.72	1.97	25.51	3.54
0871180	1871180	2871180	3871180	4871180	5871180	N 118	4.65 - 5.04	1.97	25.51	3.54
0871240	1871240	2871240	3871240	4871240	5871240	N 124	4.88 - 5.28	1.97	25.51	3.54
0871300	1871300	2871300	3871300	4871300	5871300	N 130	5.12 - 5.51	1.97	25.51	3.54

If you need to flange, our series N87 and NL88 are available. It goes without saying that these types also expand at the same time. Here also, the AUTOMA design is used, i.e. flanging and expanding in one working step!
Flanging angle up to 30° on both sides of the tube axis.



SERIES NL 88 FOR LOW-LYING EXPANSION POINTS

For the series NL88 the order numbers remain as listed for the series N87.

For the usable depth, however, the 3rd, 6th and 7th numbers change.
Example: 0882410 – usable depth 3.937 inch, 0882420 – usable depth 7.874 inch,
0882430 – usable depth 11.811 inch

The expansion ranges are the same as for the series N87.

TUBE ROLLING SYSTEM TES



In the case of thin-walled tube sheets in heat exchanger construction, it is a great advantage to be able to expand or roll tubes in preparation for welding.

This applies in particular to the combination **welding / rolling**, since the rolling takes over first and foremost the function of 'attachment' of the tube in the tube sheet. The TES 97 was developed in order to be able to perform tube expansion work in preparation for welding, especially of thin-walled tubes (e.g. in condensers), quickly and conveniently with an extremely handy, mobile device. Depending on the different tool design, projecting tubes, recessed tubes and flush tubes can be manufactured using the TES 97. The extremely **low weights** in particular make flexible, low-fatigue work possible.

Information and questionnaire for the technical specification of tube expanding tools and spare parts

Sender:

Company: _____ Surname / forename: _____
 Street: _____ Post code / town: _____
 Phone: _____ Fax: _____
 E-Mail: _____

Please call me back!

Tube outer diameter "d": _____ inch Tube wall thickness "s": _____ inch
 Tube material: _____ Number of tubes: _____ pieces
 Straight tubes: yes no U-tubes: yes no
 Expanded connection: yes no Welded / expanded connection: yes no
 Expanded / welded connection: yes no

Desired final tube expansion: _____ % Calculation method: _____
 Hole "D": _____ inch Tube sheet thickness "B": _____ inch
 Tube sheet material: _____

Cladding side: Pressure: _____ inch / Temperature: _____ °C / Medium: _____
 Tube side: Pressure: _____ inch / Temperature: _____ °C / Medium: _____

Pressure: _____ bar
 Depth of the prechamber "T": _____ inch Smallest distance "a": _____ inch
 Usable depth "NT": _____ inch Required rolling width "WB": _____ inch
 Tube flush: yes no

Tube projection "v": _____ inch Tube recess "r": _____ inch
 Flange angle single-sided "e": _____ ° Total flange angle "2e": _____ °
 Length of front parabola: _____ inch Length of rear parabola: _____ inch
 Division: _____ inch

Additional details for groove plunge-cutting device:

Distance front / 1st groove "C": _____ inch Groove width "E": _____ inch
 Groove depth "G": _____ inch Distance groove / groove "F": _____ inch

> > Please turn the page!!

Remarks:

Just fill in and send back to us. The quickest way is by fax:

Fax: + 49 (0) 9733 / 81 81 - 81

A.O. ROHRWERKZEUG GMBH
Goldgrundweg 4 · D-97702 Münnerstadt
Tel.: + 49 (0) 9733 / 81 81 - 0
E-Mail: albertotto@walztechnik.de