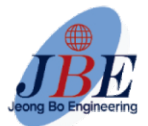




± Welding
± Expanding
± Bevelling
± Cutting
± Pulling



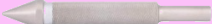
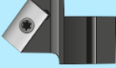
JBE Jeong Bo Eng Co.,Ltd.
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Product Index

Index	Orbital Welding Machines	Welding Head J16N  A-1	Welding Head J24M  A-3	Power Source M160  A-4
Condenser Tube Expanders	JMB Series  B-1	JCB Series  B-2	JCB-5Rolls Series  B-5	JHB Series  B-7
JHB-5Rolls Series  B-10	Boiler Tube Expanders	114 Series  C-1	A Series  C-3	AF3 Series  C-7
AB Series  C-11	ABF3 Series  C-48	P-1000 Series  C-19	P-3000 Series with Collar  C-21	Combination Beading  C-23
V Series Non Parallel Expansion  C-24	SB Series for Sugar Mills  C-25	Long Reach CSB Series  C-26	Universal Joint And Extensions  C-26	Tube Expanding Machines
JHD Series  D-1	Hydraulic Expanding Unit M-750  D-2	Pneumatic Rolling Drive J20  D-3	Pneumatic Rolling Drive J50  D-4	Pneumatic Rolling Drive J70  D-5

Tube Installation Tools	Grooving Tools  E-1	Tube End Facer  E-2	Tube Sheet Hole Reamer  E-3	Adjustable Reamer  E-4
Flaring Tools And Tube Plugs  E-5	Tube Guide  E-6	Vacuum Leak Tester  E-7	Tube to Tube-sheet Joint Tester Kit  E-9	Bevelling Machines
MiniFacer JMF-100-P  F-1	MiniFacer JMF-300-P  F-3	MiniFacer-300-E  F-5	MiniFacer JMF-300-FF  F-7	Auto MiniFacer-P  F-9
HyperFacer JHF-70-P  F-11	HyperFacer JHF-70-E  F-12	HyperFacer JHF-50-P  F-13	HyperFacer JHF-50-E  F-14	HyperFacer JHF-50-EHD  F-15
HeavyFacer-35-P  F-16	PanelFacer-53  F-17	FlangeFacer  F-18	STD. Cutter Head and Bite  F-19	Special Cutter Head And Insert Bite  F-20
Holders  F-24	MiniFacer Shaft Kit  F-27	HyperFacer Shaft Kit  F-29	Tube Cutters	Wheel Type Tube Cutter 1WTTC  G-1

Push Type Internal
Tube Cutter ATP Series



G-5

Internal Tube Cutter
PR68 Series



G-6

One Revolution Internal
Tube Cutter OTC Series



G-7

Tube Pullers

Semi-Auto Hydraulic
Tube Puller JAHP Series



H-1

Semi-Auto Hydraulic
Tube Puller CTP Series



H-4

Hydraulic Pump



H-6

Air-Hydraulic
Tube Stub Puller JSP Series



H-7

Manual Tube Puller
MTP Series



H-9

Tube Wall Reducer



H-10

Knockout Tool (Drift)



H-11

Collapsing Tool



H-12

Chipping Hammer CH-1



H-13

Pulling Accessories



H-14



Tube to Tube-sheet

Orbital Welding Machines



- Welding Head J16N

- Welding Head J24M

- Power Source M160

ORBITAL TIG WELDING HEAD

J16N



J16N 은 열교환기, 콘덴서, 보일러, 인보아용접에 적합 합니다. 토치와 와이어 스푼이 동시에 회전함에 따라 와이어 꼬임문제를 해결했습니다. 토치와 장비 몸체까지 물로 냉각이 이루어져 오랜시간 사용해도 문제가 되지 않습니다. 또한 와이어 스푼을 쉽게 분리 할 수 있도록 설계되어 전극봉 조절과 교환이 쉽습니다.

J16N head is suitable for heat exchanger, condenser, boiler and internal bore welding. Because we made that torch and wire spool rotate simultaneously, wire twist problem is solved. This machine water is cooled from torch to machine body. There is no problem to use the machine for a long time. This head was designed to dismount wire spool easily and electrode regulation and exchange are easy.

J16N	Welding procedure	Tube diameter		Welding current	Support on Tube-sheet
	TIG	I.D.10.0-78.0mm (0.39-3.07")		Max.200A	Expanding centering cartridge
	Torch cooling	Welding process		Rotaton motor	Welding position
	Water cooled	Protruding, Flush, Recessed welding type		DC 24V	horizontal, vertical
Wire size	Ø0.6 - Ø1.2mm	Electrode size	Ø1.0 - Ø3.2mm	Weight	9.9kg (without cable)

THREE POINT SUPPORT



DOUBLE GAS CHAMBER



PNEUMATIC SUPPORT



I.B.W TORCH



EXAMPLE TOOL APPLICATION



Centering Cartridge & Mandrel



Cartridge No.	Tube I.D. (mm)		Mandrel Type
	Min.	Max.	
01	10.0	10.5	A
02	10.5	11.0	
03	11.0	11.5	
04	11.5	12.0	
05	12.0	12.5	
06	12.5	13.0	
07	12.8	14.0	B
08	13.8	15.0	
09	14.8	16.0	
10	15.8	17.0	
11	16.8	18.0	
12	17.8	19.0	
13	18.8	20.5	
14	19.8	22.5	
15	22.3	25.0	C
16	24.5	27.0	
17	26.5	29.0	
18	28.5	31.0	
19	30.5	33.0	
20	32.5	36.0	
21	35.5	39.0	
22	38.5	42.0	
23	41.5	45.0	
24	44.5	48.0	
25	47.5	51.0	
26	50.5	54.0	D
27	53.5	58.0	
28	57.5	62.0	
29	61.5	66.0	
30	65.5	70.0	
31	69.5	74.0	
32	73.5	78.0	

ORBITAL TIG WELDING HEAD

J24M



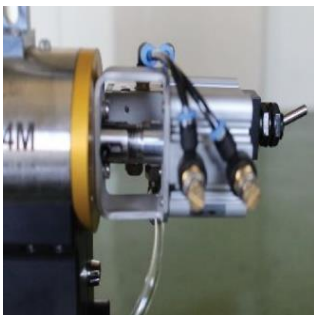
J24M 용접헤드는 용접봉 공급이 필요없는 박막 튜브 대 튜브 시트의 밀봉용접 (Seal welding) 전용 헤드로서 주로 콘덴서 용접에 사용됩니다.

튜브 내 헤드 클램핑을 공압실린더로 함으로써, 작업자 한명이 여러대의 헤드를 장착하여 사용할 수 있으며 무게가 가볍고 작업방법이 간단하여 초보자도 쉽게 사용할 수 있습니다.

J24M welding head for condenser welding.
It is engineered to be easy for women and beginners to use and has light weight. Especially, It is designed for welding of stainless, duplex and inconel. And an operator can install maximum 4 welding heads for work well.

J24M	Welding procedure	Tube diameter		Welding current	Support on Tube-sheet
	TIG	I.D.14.0-37.0mm (0.55-1.45")		Max.125A	Expanding centering cartridge
Torch cooling	Water cooled	Welding process	Protruding(Max.0.5mm), Flush, Recessed welding type	Rotation motor	DC 18V
Welding position	horizontal, vertical	Electrode size	Ø1.6mm Ø2.4mm	Weight	1.5kg (without cable)

AIR LOCKING SYSTEM



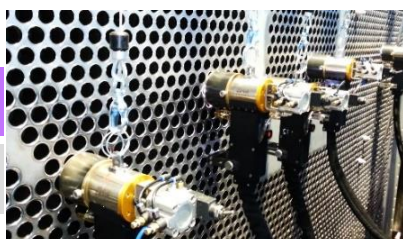
FRONT WATER COOLING



CENTERING CARTRIDGE



EXAMPLE TOOL APPLICATION



ORBITAL TIG WELDING POWER SOURCE

M160



M160 은 강력한 소형 파워소스 입니다.
고속 펄스제어로 최대의 생산성과 용접품질로 기존의 용접기에 비하여 에너지를 절약 할 수 있습니다.
리모트컨트롤 C-160 과 연결하여 원격제어 가 가능합니다.

M160 is a powerful, compact power source.
High speed pulse control provides maximum productivity and weld quality while conserving energy compared to traditional welding machine.
The C-160 and connect with the remote control.

M160	Welding procedure	Input power		Amperage range	Rated output
	TIG (GTAW-DC)	3PH	220V 380V 440V	3 - 350A	250A 100% Duty cycle
Max. Open-circuit Voltage	DC75V	Dim.	1,400x587x1,111mm (HxWxD)	Weight	160kg

■ Sector functions

고전류, 저전류, 토치와 와이어송급속도를 10개의구간으로 조절 할 수 있습니다.
10 of each segment by a High current, Low current, adjustable torch and wire-speed input.

■ Time Setting

초기가스,초기전류상승시간,전류멈춤시간,후기전류하강시간,후기가스시간을 조절 할 수 있습니다.

Pregas, Upslope, Puddle formation, Downslope, Postgas time adjustment.

■ Current Settings

고전류,저전류,고전류펄스시간,저전류펄스시간을 조절 할 수 있습니다.

High current, Low current, High pulse time, Low pulse time adjustment.

■ Error monitoring

물이나 가스가 부족하거나 튜브시트에 전극봉이 닿을때 오류가 생기면 작동이 정지한 후 리모트 컨트롤 터치판넬에서 확인 할 수 있습니다.

Water and gas shortage, when the electrode touches the base metal, emergency stop is activated and appears on the touch panel.

■ Simulation function

용접 전 작업 모드를 실제와 동일하게 테스트 해 볼 수 있습니다.

Can be simulated a testing in virtual operation mode before starting welding.

REMOTE CONTROL C-160



EXAMPLE TOOL APPLICATION







Condenser Tube Expanders

- JMB Series
- JCB Series
- JCB-5Rolls Series
- JHB Series
- JHB-5Rolls Series

JMB Series

■ JMB Series 확관틀은 직경이 작은 튜브를 확관 할 때 사용합니다.

공조설비, 콘프레서, 소형냉난방기, 항공기, 제약, 식품제조기기 등의 분야에 사용됩니다.

사양이 세분화 되어 있어 정확한 확관율(%)을 낼 수 있습니다.

■ This tool has been the workhorse for several years for use on small diameter tubes.

Use : Heating, Air Ventilation, Compressor, Pharmaceutical, Food processing machine etc.



Roller Length	Adjustable Range	
	Min.	Max.
19.05mm	6.35mm	19.05mm
31.75mm	19.05mm	31.75mm

Tube O.D.		Tube Thickness			Tube I.D.		Min. Expansion		Max. Expansion		Tool No. (STD.)	Roller		Mandrel No.	Tool No. (Long type)	Roller		Mandrel No.	Mandrel square	
mm	inch	bwg	mm	inch	mm	inch	mm	inch	mm	inch		No.	Roller Length(mm)			No.	Roller Length(mm)		No.	mm
6.35	1/4"	20	0.89	0.035	4.57	0.180	4.45	0.175	5.08	0.200	JMB-6	923	19.05	M-40	-	-	-	-	6.3	1/4
		21	0.81	0.072	4.72	0.186	4.57	0.180	5.26	0.207	JMB-7	924	19.05	M-40	-	-	-	-	6.3	1/4
		22	0.71	0.028	4.93	0.194	4.83	0.190	5.49	0.216	JMB-8	925	19.05	M-41	-	-	-	-	6.3	1/4
		23	0.64	0.025	5.08	0.200	4.95	0.195	5.64	0.222	JMB-9	923	19.05	M-41	-	-	-	-	6.3	1/4
		24	0.56	0.022	5.23	0.206	5.11	0.201	5.84	0.230	JMB-10	924	19.05	M-41	-	-	-	-	6.3	1/4
		28	0.35	0.014	5.60	0.222	5.60	0.222	6.00	0.238	JMB-11	915	19.05	M-41	-	-	-	-	6.3	1/4
		29	0.33	0.013	5.70	0.224	5.60	0.222	6.00	0.238	JMB-11	915	19.05	M-41	-	-	-	-	6.3	1/4
		30	0.30	0.012	5.70	0.226	5.60	0.222	6.00	0.238	JMB-11	915	19.05	M-41	-	-	-	-	6.3	1/4
9.5	3/8"	15	1.83	0.072	5.87	0.231	5.84	0.230	6.73	0.265	JMB-12	915	19.05	M-36	JMB-12L	1316	31.75	M-86	6.3	1/4
		16	1.65	0.065	6.22	0.245	6.10	0.240	6.99	0.275	JMB-13	916	19.05	M-36	JMB-13L	916L	31.75	M-86	6.3	1/4
		17	1.47	0.058	6.58	0.259	6.48	0.255	7.34	0.289	JMB-14	904	31.75	M-38	JMB-14L	904	31.75	M-88	6.3	1/4
		18	1.24	0.049	7.04	0.277	6.91	0.272	7.80	0.307	JMB-15	904	31.75	M-30	JMB-15L	904	31.75	M-80	6.3	1/4
		19	1.07	0.042	7.39	0.291	7.26	0.286	8.13	0.320	JMB-16	904	31.75	M-31	JMB-16L	904	31.75	M-81	6.3	1/4
		20	0.89	0.035	7.75	0.305	7.62	0.300	8.48	0.334	JMB-17	908	31.75	M-32	JMB-17L	908	31.75	M-82	6.3	1/4
		21	0.81	0.032	7.90	0.311	7.77	0.306	8.64	0.340	JMB-18	908	31.75	M-33	JMB-18L	908	31.75	M-83	6.3	1/4
		22	0.71	0.028	8.10	0.319	7.98	0.314	8.86	0.349	JMB-19	910	31.75	M-34	JMB-19L	910	31.75	M-84	6.3	1/4
		23	0.64	0.025	8.26	0.325	8.13	0.320	9.07	0.357	JMB-20	912	31.75	M-34	JMB-20L	912	31.75	M-84	6.3	1/4
		24	0.56	0.022	8.41	0.331	8.13	0.319	9.07	0.357	JMB-20	912	31.75	M-34	JMB-20L	912	31.75	M-84	6.3	1/4

◆ Note

이 외의 사양은 스페셜 툴로 제작이 가능합니다. (별도문의)

In case of any other specification, it is possible to make special tools. Please enquire.

JCB Series

■ JCB Series 확관틀은 열교환기와 콘덴서에 가장 기본적으로 사용되는 확관틀 입니다.

■ Tools are for using on heat exchangers and condensers.



Roller Length	Adjustable Range	
	Min.	Max.
38.1mm	12.7mm	38.1mm
57.1mm	31.7mm	57.1mm

Tube O.D.		Tube Thickness			Tube I.D.		Min. Expansion		Max. Expansion		Tool No.	Roller No. Roll Length (38.1mm)	Tool No.	Roller No. Roll Length (57.1mm)	Mandrel No.	Mandrel square	
mm	inch	bwg	mm	inch	mm	inch	mm	inch	mm	inch						mm	inch
12.70	1/2"	14	2.11	0.083	8.04	0.334	8.02	0.324	9.05	0.374	JCB-100	797	-	-	797	9.5	3/8
		15	1.83	0.072	9.04	0.356	8.84	0.348	10.11	0.398	JCB-100S	R-1	-	-	799	9.5	3/8
		16	1.65	0.065	9.40	0.370	9.14	0.360	10.41	0.410	JCB-101	R-1	-	-	M-1	9.5	3/8
		17	1.47	0.058	9.75	0.384	9.50	0.374	10.77	0.424	JCB-102	R-2	-	-	M-1	9.5	3/8
		18	1.24	0.049	10.21	0.402	9.96	0.392	11.35	0.447	JCB-103	R-3	-	-	M-2	9.5	3/8
		20	0.89	0.035	10.92	0.430	10.31	0.406	11.71	0.461	JCB-104	R-3	-	-	M-3	9.5	3/8
15.88	5/8"	12	2.77	0.109	10.34	0.407	9.96	0.392	11.35	0.447	JCB-103	R-3	-	-	M-2	9.5	3/8
		13	2.41	0.095	11.05	0.435	10.80	0.425	12.19	0.480	JCB-105	R-4	-	-	M-3	9.5	3/8
		14	2.11	0.083	11.66	0.459	11.40	0.449	12.93	0.509	JCB-107	R-4	JCB-207	R-4-A	M-4	9.5	3/8
		15	1.83	0.072	12.22	0.481	11.96	0.471	13.61	0.536	JCB-108	R-5	JCB-208	R-5-A	M-5	9.5	3/8
		16	1.65	0.065	12.57	0.495	12.32	0.485	13.97	0.550	JCB-109	R-6	JCB-209	R-6-A	M-5	9.5	3/8
		17	1.47	0.058	12.93	0.509	12.67	0.499	14.33	0.564	JCB-110	R-6	JCB-210	R-6-A	M-6	9.5	3/8
		18	1.24	0.049	13.39	0.527	13.13	0.517	14.53	0.572	JCB-110S	R-7	JCB-210S	R-7-A	M-7	9.5	3/8
		19	1.07	0.042	13.74	0.541	13.26	0.522	14.78	0.582	JCB-111	R-7	JCB-211	R-7-A	M-6	9.5	3/8
		20	0.89	0.035	14.10	0.555	13.61	0.536	15.14	0.596	JCB-112	R-7	JCB-212	R-7-A	M-8	9.5	3/8
		21	0.81	0.032	14.25	0.561	13.61	0.536	15.14	0.596	JCB-112	R-7	JCB-212	R-7-A	M-8	9.5	3/8
		22	0.71	0.028	14.45	0.569	13.61	0.536	15.14	0.596	JCB-112	R-7	JCB-212	R-7-A	M-8	9.5	3/8
19.05	3/4"	10	3.40	0.134	12.24	0.482	11.96	0.471	13.61	0.536	JCB-108	R-5	JCB-208	R-5-A	M-5	9.5	3/8
		11	3.05	0.120	12.95	0.510	12.67	0.499	14.33	0.564	JCB-110	R-6	JCB-210	R-6-A	M-6	9.5	3/8
		12	2.77	0.109	13.51	0.532	13.26	0.522	14.78	0.582	JCB-111	R-6	JCB-211	R-7-A	M-6	9.5	3/8
		13	2.41	0.095	14.22	0.560	13.97	0.550	15.62	0.615	JCB-113	R-8	JCB-213	R-8-A	M-8	9.5	3/8
		14	2.11	0.083	14.83	0.584	14.58	0.574	16.23	0.639	JCB-115	R-9	JCB-215	R-9-A	M-8	9.5	3/8
		15	1.83	0.072	15.39	0.606	15.14	0.596	16.79	0.661	JCB-116	R-5	JCB-216	R-5-A	M-5	9.5	3/8
		16	1.65	0.065	15.75	0.620	15.37	0.605	17.40	0.685	JCB-117	R-10	JCB-217	R-10-A	M-9	9.5	3/8
		17	1.47	0.058	16.10	0.634	15.72	0.619	17.75	0.699	JCB-118	R-11	JCB-218	R-11-A	M-9	9.5	3/8
		18	1.24	0.049	16.56	0.652	15.72	0.619	17.75	0.699	JCB-118	R-11	JCB-218	R-11-A	M-9	9.5	3/8
		19	1.07	0.042	16.92	0.666	16.31	0.642	18.34	0.722	JCB-119	R-12	JCB-219	R-12-A	M-9	9.5	3/8
		20	0.89	0.035	17.27	0.680	16.31	0.642	18.34	0.722	JCB-119	R-12	JCB-219	R-12-A	M-9	9.5	3/8
		21	0.81	0.032	17.42	0.686	16.31	0.642	18.34	0.722	JCB-119	R-12	JCB-219	R-12-A	M-9	9.5	3/8
		22	0.71	0.028	17.63	0.694	16.31	0.642	18.34	0.722	JCB-119	R-12	JCB-219	R-12-A	M-9	9.5	3/8
22.22	7/8"	10	3.40	0.134	15.42	0.607	15.14	0.596	16.79	0.661	JCB-116	R-5	JCB-216	R-5-A	M-5	9.5	3/8
		11	3.05	0.120	16.13	0.635	15.72	0.619	17.75	0.699	JCB-118	R-11	JCB-218	R-11-A	M-9	9.5	3/8
		12	2.77	0.109	16.69	0.657	16.31	0.642	18.34	0.722	JCB-119	R-12	JCB-219	R-12-A	M-9	9.5	3/8
		13	2.41	0.095	17.40	0.685	17.02	0.670	19.05	0.750	JCB-121	R-13	JCB-221	R-13-A	M-10	9.5	3/8
		14	2.11	0.083	18.01	0.709	17.40	0.685	19.66	0.774	JCB-123	R-14	JCB-223	R-14-A	M-11	9.5	3/8
		15	1.83	0.072	18.57	0.731	18.08	0.712	20.35	0.801	JCB-124	R-15	JCB-224	R-15-A	M-11	9.5	3/8
		16	1.65	0.065	18.92	0.745	18.44	0.726	20.70	0.815	JCB-125S	R-15	JCB-225S	R-15-A	M-12	9.5	3/8
		17	1.47	0.058	19.28	0.759	18.80	0.740	21.06	0.829	JCB-125	R-16	JCB-225	R-16-A	M-12	9.5	3/8
		18	1.24	0.049	19.74	0.777	18.80	0.740	21.06	0.829	JCB-125	R-16	JCB-225	R-16-A	M-12	9.5	3/8

◆ Note

이 외의 사양은 스페셜 툴로 제작이 가능합니다. (별도문의)

In case of any other specification, it is possible to make special tools. Please enquire.

JCB Series



Tube O.D.		Tube Thickness			Tube I.D.		Min. Expansion		Max. Expansion		Tool No.	Roller No. Roll Length (38.1mm)	Tool No.	Roller No. Roll Length (57.15mm)	Mandrel No.	Mandrel square	
mm	inch	bwg	mm	inch	mm	inch	mm	inch	mm	inch						mm	inch
25.40	1"	8	4.19	0.165	17.02	0.670	16.64	0.655	18.67	0.735	JCB-121S	R-13	JCB-221S	R-13-A	M-9	9.5	3/8
		9	3.76	0.148	17.88	0.704	17.40	0.685	19.66	0.774	JCB-123	R-14	JCB-223	R-14-A	M-11	9.5	3/8
		10	3.40	0.134	18.59	0.732	18.08	0.712	20.35	0.801	JCB-124	R-15	JCB-224	R-15-A	M-11	9.5	3/8
		11	3.05	0.120	19.30	0.760	18.80	0.740	21.06	0.829	JCB-125	R-16	JCB-225	R-16-A	M-12	9.5	3/8
		12	2.77	0.109	19.86	0.782	19.38	0.763	21.64	0.852	JCB-127	R-17	JCB-227	R-17-A	M-12	9.5	3/8
		13	2.41	0.095	20.57	0.810	20.09	0.791	22.35	0.880	JCB-129	R-18	JCB-229	R-18-A	M-12	9.5	3/8
		14	2.11	0.083	21.18	0.834	20.57	0.810	23.09	0.909	JCB-130	R-18	JCB-230	R-18-A	M-13	9.5	3/8
		15	1.83	0.072	21.74	0.856	21.26	0.837	23.77	0.936	JCB-131	R-19	JCB-231	R-19-A	M-13	9.5	3/8
		16	1.65	0.065	22.10	0.870	21.26	0.837	23.77	0.936	JCB-131	R-19	JCB-231	R-19-A	M-13	9.5	3/8
		17	1.47	0.058	22.45	0.884	21.97	0.865	24.49	0.964	JCB-132	R-21	JCB-232	R-21-A	M-13	9.5	3/8
		18	1.24	0.049	22.91	0.902	21.97	0.865	24.49	0.964	JCB-132	R-21	JCB-232	R-21-A	M-13	9.5	3/8
		19	1.07	0.042	23.27	0.916	21.97	0.865	24.49	0.964	JCB-132	R-21	JCB-232	R-21-A	M-13	9.5	3/8
		20	0.89	0.035	23.62	0.930	21.97	0.865	24.49	0.964	JCB-132	R-21	JCB-232	R-21-A	M-13	9.5	3/8
28.58	1-1/8"	8	4.19	0.165	20.19	0.795	19.71	0.776	22.23	0.875	JCB-129S	R-20	JCB-229S	R-20-A	M-13	9.5	3/8
		9	3.76	0.148	21.06	0.829	20.57	0.810	23.09	0.909	JCB-130	R-18	JCB-230	R-18-A	M-13	9.5	3/8
		10	3.40	0.134	21.77	0.857	21.26	0.837	23.77	0.936	JCB-131	R-19	JCB-231	R-19-A	M-13	9.5	3/8
		11	3.05	0.120	22.48	0.885	21.97	0.865	24.49	0.964	JCB-132	R-21	JCB-232	R-21-A	M-13	9.5	3/8
		12	2.77	0.109	23.04	0.907	22.43	0.883	24.94	0.982	JCB-134	R-21	JCB-234	R-21-A	M-14	9.5	3/8
		13	2.41	0.095	23.75	0.935	23.27	0.916	25.78	1.015	JCB-136	R-22	JCB-236	R-22-A	M-14	9.5	3/8
		14	2.11	0.083	24.36	0.959	23.75	0.935	26.52	1.044	JCB-138	R-23	JCB-238	R-23-A	M-15	12.7	1/2
		15	1.83	0.072	24.92	0.981	24.43	0.962	27.20	1.071	JCB-140	R-24	JCB-240	R-24-A	M-15	12.7	1/2
		16	1.65	0.065	25.27	0.995	24.43	0.962	27.20	1.071	JCB-140	R-24	JCB-240	R-24-A	M-15	12.7	1/2
		17	1.47	0.058	25.63	1.009	25.15	0.990	27.91	1.099	JCB-142	R-26	JCB-242	R-26-A	M-16	12.7	1/2
		18	1.24	0.049	26.09	1.027	25.15	0.990	27.91	1.099	JCB-142	R-26	JCB-242	R-26-A	M-16	12.7	1/2
31.75	1-1/4"	8	4.19	0.165	23.37	0.920	22.89	0.901	25.65	1.010	JCB-135	R-25	JCB-235	R-25-A	M-15	12.7	1/2
		9	3.76	0.148	24.23	0.954	23.75	0.935	26.52	1.044	JCB-138	R-23	JCB-238	R-23-A	M-15	12.7	1/2
		10	3.40	0.134	24.94	0.982	24.43	0.962	27.20	1.071	JCB-140	R-24	JCB-240	R-24-A	M-15	12.7	1/2
		11	3.05	0.120	25.65	1.100	25.15	0.990	27.91	1.099	JCB-142	R-26	JCB-242	R-26-A	M-16	12.7	1/2
		12	2.77	0.109	26.21	1.032	25.30	1.013	28.50	1.122	JCB-143	R-27	JCB-243	R-27-A	M-16	12.7	1/2
		13	2.41	0.095	26.92	1.060	26.44	1.041	29.21	1.150	JCB-144	R-28	JCB-244	R-28-A	M-17	12.7	1/2
		14	2.11	0.083	27.53	1.084	26.92	1.060	29.69	1.169	JCB-146	R-29	JCB-246	R-29-A	M-17	12.7	1/2
		15	1.83	0.072	28.09	1.106	27.61	1.087	30.38	1.196	JCB-148	R-30	JCB-248	R-30-A	M-17	12.7	1/2
		16	1.65	0.065	28.45	1.120	27.61	1.087	30.38	1.196	JCB-148	R-30	JCB-248	R-30-A	M-17	12.7	1/2
		17	1.47	0.058	28.80	1.134	28.32	1.115	31.09	1.224	JCB-150	R-30	JCB-250	R-30-A	M-18	12.7	1/2
		18	1.24	0.049	29.26	1.152	28.32	1.115	31.09	1.224	JCB-150	R-30	JCB-250	R-30-A	M-18	12.7	1/2
34.92	1-3/8"	8	4.19	0.165	26.54	1.045	26.06	1.026	28.83	1.135	JCB-144S	R-31	JCB-244S	R-31-A	M-17	12.7	1/2
		9	3.76	0.148	27.41	1.079	26.92	1.060	29.69	1.169	JCB-146	R-29	JCB-246	R-29-A	M-17	12.7	1/2
		10	3.40	0.134	28.12	1.107	27.61	1.087	30.38	1.196	JCB-148	R-30	JCB-248	R-30-A	M-17	12.7	1/2
		11	3.05	0.120	28.83	1.135	28.32	1.115	31.09	1.224	JCB-150	R-30	JCB-250	R-30-A	M-18	12.7	1/2
		12	2.77	0.109	29.39	1.157	28.78	1.133	31.55	1.242	JCB-151	R-32	JCB-251	R-32-A	M-18	12.7	1/2
		13	2.41	0.095	30.10	1.185	29.46	1.160	32.39	1.275	JCB-152	R-33	JCB-252	R-33-A	M-19	12.7	1/2
		14	2.11	0.083	30.71	1.209	29.95	1.179	32.87	1.294	JCB-154	R-34	JCB-254	R-34-A	M-20	12.7	1/2
		15	1.83	0.072	31.27	1.231	30.63	1.206	33.55	1.321	JCB-155	R-35	JCB-255	R-35-A	M-20	12.7	1/2
		16	1.65	0.065	31.62	1.245	30.63	1.206	33.55	1.321	JCB-155	R-35	JCB-255	R-35-A	M-20	12.7	1/2
38.10	1-1/2"	8	4.19	0.165	29.72	1.170	29.08	1.145	32.00	1.260	JCB-152S	R-34	JCB-252S	R-34-A	M-19	12.7	1/2
		9	3.76	0.148	30.58	1.204	29.95	1.179	32.87	1.294	JCB-154	R-34	JCB-254	R-34-A	M-20	12.7	1/2
		10	3.40	0.134	31.29	1.232	30.63	1.206	33.55	1.321	JCB-155	R-35	JCB-255	R-35-A	M-20	12.7	1/2
		11	3.05	0.120	32.00	1.260	31.37	1.235	34.29	1.350	JCB-156	R-36	JCB-256	R-36-A	M-20	12.7	1/2
		12	2.77	0.109	32.56	1.282	31.93	1.257	34.85	1.372	JCB-158	R-37	JCB-258	R-37-A	M-20	12.7	1/2
		13	2.41	0.095	33.27	1.310	32.64	1.285	35.56	1.400	JCB-160	R-37	JCB-260	R-37-A	M-21	12.7	1/2
		14	2.11	0.083	33.88	1.334	32.64	1.285	35.56	1.400	JCB-160	R-37	JCB-260	R-37-A	M-21	12.7	1/2
		15	1.83	0.072	34.44	1.356	33.81	1.331	36.73	1.446	JCB-162	R-38	JCB-262	R-38-A	M-21	12.7	1/2
		16	1.65	0.065	34.80	1.370	33.81	1.331	36.73	1.446	JCB-162	R-38	JCB-262	R-38-A	M-21	12.7	1/2
		17	1.47	0.058	35.15	1.384	33.81	1.331	37.39	1.472	JCB-163	R-38	JCB-263	R-38-A	M-22	12.7	1/2
		18	1.24	0.049	35.61	1.402	33.81	1.331	37.39	1.472	JCB-163	R-38	JCB-263	R-38-A	M-22	12.7	1/2
		19	1.07	0.042	35.97	1.416	33.81	1.331	37.39	1.472	JCB-163	R-38	JCB-263	R-38-A	M-22	12.7	1/2
44.45	1-3/4"	8	4.19	0.165	36.07	1.420	34.75	1.368	39.37	1.550	-	-	JCB-264	R-33-A	M-90	19.0	3/4
		10	3.40	0.134	37.64	1.482	36.07	1.420	40.82	1.607	-	-	JCB-266	R-37-A	M-90	19.0	3/4
		11	3.05	0.120	38.35	1.510	36.93	1.454	41.53	1.635	-	-	JCB-267S	R-42	M-90	19.0	3/4
		12	2.77	0.109	38.91	1.532	37.64	1.482	42.09	1.657	-	-	JCB-267	R-44	M-90	19.0	3/4
		13	2.41	0.095	39.62	1.560	38.35	1.510	42.80	1.685	-	-	JCB-268	R-46	M-90	19.0	3/4
		14	2.11	0.083	40.23	1.584	38.91	1.532	43.41	1.709	-	-	JCB-269S	R-48	M-90	19.0	3/4

Condenser Tube Expanders

JCB Series



Tube O.D.		Tube Thickness			Tube I.D.		Min. Expansion		Max. Expansion		Tool No.	Roller No. Roll Length (38.1mm)	Tool No.	Roller No. Roll Length (57.15mm)	Mandrel No.	Mandrel square	
mm	inch	bwg	mm	inch	mm	inch	mm	inch	mm	inch						mm	inch
50.80	2"	7	4.57	0.180	41.66	1.640	39.80	1.595	45.00	1.770	-	-	JCB-269	R-46	M-91	19.0	3/4
		8	4.19	0.165	42.42	1.670	40.51	1.640	45.59	1.795	-	-	JCB-270	R-48	M-91	19.0	3/4
		10	3.40	0.134	43.99	1.732	41.66	1.670	47.17	1.857	-	-	JCB-271S	R-50	M-91	19.0	3/4
		11	3.04	0.120	44.72	1.760	42.42	1.704	47.88	1.885	-	-	JCB-271	R-52	M-91	19.0	3/4
		12	2.76	0.109	45.26	1.782	43.28	1.732	48.44	1.907	-	-	JCB-272S	R-54	M-91	19.0	3/4
		13	2.41	0.095	45.97	1.810	43.99	1.732	49.68	1.956	-	-	JCB-272	R-56	M-91	19.0	3/4
		14	2.10	0.083	46.58	1.834	43.99	1.732	49.68	1.956	-	-	JCB-272	R-56	M-91	19.0	3/4
		15	1.83	0.072	47.14	1.856	43.99	1.732	49.68	1.956	-	-	JCB-272	R-56	M-91	19.0	3/4
		16	1.65	0.065	47.50	1.870	43.99	1.732	49.68	1.956	-	-	JCB-272	R-56	M-91	19.0	3/4
		17	1.47	0.058	47.85	1.884	43.99	1.732	49.68	1.956	-	-	JCB-272	R-56	M-91	19.0	3/4
		18	1.24	0.049	48.31	1.902	43.99	1.732	49.68	1.956	-	-	JCB-272	R-56	M-91	19.0	3/4
57.15	2-1/4"	10	3.40	0.134	50.34	1.982	48.01	1.890	53.52	2.107	-	-	JCB-275S	R-56	M-92	19.0	3/4
		11	3.04	0.120	51.05	2.010	48.77	1.920	54.23	2.135	-	-	JCB-275	R-58	M-92	19.0	3/4
		12	2.76	0.109	51.61	2.032	49.63	1.954	54.79	2.157	-	-	JCB-276	R-60	M-92	19.0	3/4
		13	2.41	0.095	52.32	2.060	50.34	1.982	55.50	2.185	-	-	JCB-277	R-62	M-92	19.0	3/4
		14	2.10	0.083	52.93	2.084	50.34	1.982	55.50	2.185	-	-	JCB-277	R-62	M-92	19.0	3/4
		15	1.83	0.072	53.49	2.106	50.34	1.982	55.50	2.185	-	-	JCB-277	R-62	M-92	19.0	3/4
		16	1.65	0.065	53.85	2.120	50.34	1.982	55.50	2.185	-	-	JCB-277	R-62	M-92	19.0	3/4
63.50	2-1/2"	7-8	4.50	0.177	54.50	2.146	52.00	2.140	59.30	2.407	-	-	JCB-278	R-45-A	M-92	19.0	3/4
		9	3.75	0.148	56.00	2.204	53.50	2.140	60.40	2.407	-	-	JCB-279	R-46-A	M-93	19.0	3/4
		10	3.40	0.134	56.69	2.232	54.36	2.140	61.14	2.407	-	-	JCB-280	R-64	M-93	19.0	3/4
		11	3.04	0.120	57.40	2.260	54.36	2.232	61.14	2.450	-	-	JCB-280	R-64	M-93	19.0	3/4
		12	2.76	0.109	57.96	2.282	54.36	2.232	61.14	2.450	-	-	JCB-280	R-64	M-93	19.0	3/4
		13	2.41	0.095	58.67	2.310	56.69	2.232	62.23	2.450	-	-	JCB-281	R-64	M-94	19.0	3/4
		14	2.10	0.083	59.28	2.334	56.69	2.232	62.23	2.450	-	-	JCB-281	R-64	M-94	19.0	3/4
		15	1.83	0.072	59.84	2.356	56.69	2.232	62.23	2.450	-	-	JCB-281	R-64	M-94	19.0	3/4
		16	1.65	0.065	60.20	2.370	56.69	2.232	62.23	2.450	-	-	JCB-281	R-64	M-94	19.0	3/4
		17	1.47	0.058	60.55	2.384	56.69	2.232	62.23	2.450	-	-	JCB-281	R-64	M-94	19.0	3/4
		18	1.24	0.049	61.01	2.402	56.69	2.232	62.23	2.450	-	-	JCB-281	R-64	M-94	19.0	3/4
69.85	2-3/4"	10	3.40	0.134	63.04	2.482	60.71	2.390	68.63	2.702	-	-	JCB-284	R-66	M-96	25.4	1
		11	3.04	0.120	63.75	2.510	60.71	2.390	68.63	2.702	-	-	JCB-284	R-66	M-96	25.4	1
		12	2.76	0.109	64.31	2.532	60.71	2.390	68.63	2.702	-	-	JCB-284	R-66	M-96	25.4	1
		13	2.41	0.095	65.02	2.560	60.71	2.390	68.63	2.702	-	-	JCB-284	R-66	M-96	25.4	1
		14	2.10	0.083	65.63	2.584	60.71	2.390	68.63	2.702	-	-	JCB-284	R-66	M-96	25.4	1
		15	1.83	0.072	66.19	2.606	60.71	2.390	68.63	2.702	-	-	JCB-284	R-66	M-96	25.4	1
		16	1.65	0.065	66.55	2.620	60.71	2.390	68.63	2.702	-	-	JCB-284	R-66	M-96	25.4	1
76.20	3"	8	4.19	0.165	67.82	2.670	65.02	2.560	71.86	2.829	-	-	JCB-286	R-67	M-97	25.4	1
		9	3.75	0.148	68.68	2.704	65.02	2.560	71.86	2.829	-	-	JCB-286	R-67	M-97	25.4	1
		10	3.40	0.134	69.39	2.732	67.06	2.640	74.98	2.952	-	-	JCB-288	R-67	M-96	25.4	1
		11	3.04	0.120	70.10	2.760	67.06	2.640	74.98	2.952	-	-	JCB-288	R-67	M-96	25.4	1
		12	2.76	0.109	70.66	2.782	67.06	2.640	74.98	2.952	-	-	JCB-288	R-67	M-96	25.4	1
		13	2.41	0.095	71.37	2.810	67.06	2.640	74.98	2.952	-	-	JCB-288	R-67	M-96	25.4	1
		14	2.10	0.083	71.98	2.834	67.06	2.640	74.98	2.952	-	-	JCB-288	R-67	M-96	25.4	1
		15	1.82	0.072	72.54	2.856	67.06	2.640	74.98	2.952	-	-	JCB-288	R-67	M-96	25.4	1
		16	1.65	0.065	72.90	2.870	67.06	2.640	74.98	2.952	-	-	JCB-288	R-67	M-96	25.4	1
		17	1.47	0.058	73.25	2.884	67.06	2.640	74.98	2.952	-	-	JCB-288	R-67	M-96	25.4	1
		18	1.24	0.049	73.14	2.892	67.06	2.640	74.98	2.952	-	-	JCB-288	R-67	M-96	25.4	1
88.90	3-1/2"	3	6.60	0.259	75.70	2.982	70.10	2.160	78.50	3.090	-	-	JCB-290	R-68	M-98	25.4	1
		5	5.59	0.220	77.70	3.060	73.40	2.890	81.80	3.220	-	-	JCB-292	R-68S	M-98	25.4	1
		8	4.19	0.165	80.50	3.170	76.40	3.010	84.80	3.340	-	-	JCB-294	R-69	M-99	25.4	1
		13	2.41	0.095	84.10	3.311	81.00	3.190	88.00	3.464	-	-	JCB-296	R-70	M-99	25.4	1
		14	2.10	0.083	84.70	3.334	81.00	3.190	88.00	3.464	-	-	JCB-296	R-70	M-99	25.4	1
		15	1.83	0.072	85.20	3.354	81.00	3.190	88.00	3.464	-	-	JCB-296	R-70	M-99	25.4	1
		16	1.65	0.065	85.60	3.370	81.00	3.190	88.00	3.464	-	-	JCB-296	R-70	M-99	25.4	1
		17	1.47	0.058	86.00	3.385	81.00	3.190	88.00	3.464	-	-	JCB-296	R-70	M-99	25.4	1
		18	1.24	0.049	86.40	3.401	81.00	3.190	88.00	3.464	-	-	JCB-296	R-70	M-99	25.4	1
101.6	4"	3	6.60	0.259	88.40	3.480	87.00	3.425	96.0	3.780	-	-	JCB-298	R-71	M-100	25.4	1
		4	6.00	0.236	89.60	3.527	87.00	3.425	96.0	3.780	-	-	JCB-298	R-71	M-100	25.4	1
		8	4.19	0.165	93.20	3.670	91.00	3.582	100.0	3.940	-	-	JCB-299	R-71	M-101	25.4	1
		9	3.75	0.148	94.10	3.704	91.00	3.582	100.0	3.940	-	-	JCB-299	R-71	M-101	25.4	1
		10	3.40	0.134	94.80	3.732	93.00	3.661	100.6	3.960	-	-	JCB-300	R-72	M-101	25.4	1
		11	3.04	0.120	95.50	3.760	93.00	3.661	100.6	3.960	-	-	JCB-300	R-72	M-101	25.4	1
		12	2.76	0.109	96.10	3.783	93.00	3.661	100.6	3.960	-	-	JCB-300	R-72	M-101	25.4	1
		13	2.41	0.095	96.80	3.811	93.00	3.661	100.6	3.960	-	-	JCB-300	R-72	M-101	25.4	1
		14	2.10	0.083	97.40	3.834	93.00	3.661	100.6	3.960	-	-	JCB-300	R-72	M-101	25.4	1
		16	1.65	0.065	98.30	3.870	93.00	3.661	100.6	3.960	-	-	JCB-300	R-72	M-101	25.4	1

JCB-5Rolls Series

■ JCB-5Rolls Series 확관틀은 롤러가 5개로 구성되어 기본 3Rolls 시리즈에 비하여 고착력이 향상되고 튜브두께가 얇은 경우에 사용되며 튜브 내부의 손상을 줄일 수 있습니다.

■ Gives a more concentric and even expansion when expanding thin walled tubes vs. a conventional 3 rolls expander and reduces tube spring back effect.



Roller Length	Adjustable Range	
	Min.	Max.
38.1mm	12.7mm	38.1mm
57.1mm	31.7mm	57.1mm

Tube O.D.		Tube Thickness			Tube I.D.		Min. Expansion		Max. Expansion		Tool No.	Roller No. Roll Length (38.1mm)	Tool No.	Roller No. Roll Length (57.15mm)	Mandrel No.	Mandrel square	
mm	inch	bwg	mm	inch	mm	inch	mm	inch	mm	inch						mm	inch
15.88	5/8"	17	1.47	0.058	12.93	0.509	12.67	0.499	14.33	0.564	JCB-110XR5	R-4-5	JCB-210XR5	R-4-A-5	816-5	9.5	3/8
		18	1.24	0.049	13.39	0.527	13.13	0.517	14.53	0.572	JCB-110SXR5	R-4-5	-	-	M-9	9.5	3/8
		19	1.07	0.042	13.74	0.541	13.26	0.522	14.78	0.582	JCB-111XR5	R-4-5	JCB-211XR5	R-4-A-5	820-5	9.5	3/8
		20	0.89	0.035	14.10	0.555	13.61	0.536	15.14	0.596	JCB-112XR5	R-4-5	JCB-212XR5	R-4-A-5	820-5S	9.5	3/8
		21	0.81	0.032	14.25	0.561	13.61	0.536	15.14	0.596	JCB-112XR5	R-4-5	JCB-212XR5	R-4-A-5	820-5S	9.5	3/8
		22	0.71	0.028	14.45	0.569	13.61	0.536	15.14	0.596	JCB-112XR5	R-4-5	JCB-212XR5	R-4-A-5	820-5S	9.5	3/8
19.05	3/4"	13	2.41	0.095	14.22	0.560	13.97	0.550	15.62	0.615	JCB-113XR5	R-5-5	JCB-213XR5	R-5-A-5	822-5	9.5	3/8
		14	2.11	0.083	14.83	0.584	14.58	0.574	16.23	0.639	JCB-115XR5	R-6-5	JCB-215XR5	R-6-A-5	824-5	9.5	3/8
		15	1.83	0.072	15.39	0.606	15.14	0.596	16.79	0.661	JCB-116XR5	R-7-5	JCB-216XR5	R-7-A-5	826-5	9.5	3/8
		16	1.65	0.065	15.75	0.620	15.37	0.605	17.40	0.685	JCB-117XR5	R-7-5	JCB-217XR5	R-7-A-5	M-13	9.5	3/8
		17	1.47	0.058	16.10	0.634	15.72	0.619	17.75	0.699	JCB-118XR5	R-7-5	JCB-218XR5	R-7-A-5	830-5	9.5	3/8
		18	1.24	0.049	16.56	0.652	15.72	0.619	17.75	0.699	JCB-118XR5	R-7-5	JCB-218XR5	R-7-A-5	830-5	9.5	3/8
		19	1.07	0.042	16.92	0.666	16.31	0.642	18.34	0.722	JCB-119XR5	R-9-5	JCB-219XR5	R-9-A-5	M-13	9.5	3/8
		20	0.89	0.035	17.27	0.680	16.31	0.642	18.34	0.722	JCB-119XR5	R-9-5	JCB-219XR5	R-9-A-5	M-13	9.5	3/8
		21	0.81	0.032	17.42	0.686	16.31	0.642	18.34	0.722	JCB-119XR5	R-9-5	JCB-219XR5	R-9-A-5	M-13	9.5	3/8
		22	0.71	0.028	17.63	0.694	16.31	0.642	18.34	0.722	JCB-119XR5	R-9-5	JCB-219XR5	R-9-A-5	M-13	9.5	3/8
		23	0.64	0.025	17.80	0.700	17.00	0.670	18.90	0.747	JCB-121XR5	R-9-5	JCB-221XR5	R-9-A-5	M-14-3/8	9.5	3/8
		24	0.56	0.022	17.90	0.706	17.00	0.670	18.90	0.747	JCB-121XR5	R-9-5	JCB-221XR5	R-9-A-5	M-14-3/8	9.5	3/8
		25	0.51	0.020	18.00	0.710	17.40	0.685	19.78	0.774	JCB-123XR5	R-10-5	JCB-223XR5	R-10-A-5	M-15-3/8	9.5	3/8
22.22	7/8"	13	2.41	0.095	17.40	0.685	17.00	0.670	18.90	0.747	JCB-121XR5	R-9-5	JCB-221XR5	R-9-A-5	M-14-3/8	9.5	3/8
		14	2.11	0.083	18.01	0.709	17.40	0.685	19.78	0.774	JCB-123XR5	R-10-5	JCB-223XR5	R-10-A-5	M-15-3/8	9.5	3/8
		16	1.65	0.065	18.92	0.745	18.44	0.726	20.70	0.815	JCB-124XR5	R-11-5	JCB-224XR5	R-11-A-5	840-5	9.5	3/8
		17	1.47	0.058	19.28	0.759	18.80	0.740	21.06	0.829	JCB-125XR5	R-11-5	JCB-225XR5	R-11-A-5	M-17-3/8	9.5	3/8
		18	1.24	0.049	19.74	0.777	18.80	0.740	21.06	0.829	JCB-125XR5	R-11-5	JCB-225XR5	R-11-A-5	M-17-3/8	9.5	3/8
		19	1.07	0.042	20.09	0.791	19.38	0.763	21.64	0.852	JCB-127XR5	R-11-5	JCB-227XR5	R-11-A-5	M-18-3/8	9.5	3/8
		20	0.89	0.035	20.45	0.805	19.38	0.763	21.64	0.852	JCB-127XR5	R-11-5	JCB-227XR5	R-11-A-5	M-18-3/8	9.5	3/8
		21	0.81	0.032	20.60	0.811	19.38	0.763	21.64	0.852	JCB-127XR5	R-11-5	JCB-227XR5	R-11-A-5	M-18-3/8	9.5	3/8
		22	0.71	0.028	20.80	0.819	19.38	0.763	21.64	0.852	JCB-127XR5	R-11-5	JCB-227XR5	R-11-A-5	M-18-3/8	9.5	3/8
		23	0.64	0.025	20.90	0.825	20.09	0.791	22.35	0.880	JCB-129XR5	R-13-5	JCB-229XR5	R-13-A-5	M-18-3/8	9.5	3/8
		24	0.56	0.022	21.10	0.831	20.09	0.791	22.35	0.880	JCB-129XR5	R-13-5	JCB-229XR5	R-13-A-5	M-18-3/8	9.5	3/8
		25	0.51	0.020	21.40	0.842	20.09	0.791	22.35	0.880	JCB-129XR5	R-13-5	JCB-229XR5	R-13-A-5	M-18-3/8	9.5	3/8
25.40	1"	12	2.77	0.109	19.86	0.782	19.38	0.763	21.64	0.852	JCB-127XR5	R-11-5	JCB-227XR5	R-11-A-5	M-18-3/8	9.5	3/8
		13	2.41	0.095	20.57	0.810	20.09	0.791	22.35	0.880	JCB-129XR5	R-13-5	JCB-229XR5	R-13-A-5	M-18-3/8	9.5	3/8
		14	2.11	0.083	21.18	0.834	20.57	0.810	23.09	0.909	JCB-130XR5	R-12-5	JCB-230XR5	R-12-A-5	850-5	9.5	3/8
		15	1.83	0.072	21.74	0.856	21.26	0.837	23.77	0.936	JCB-131XR5	R-13-5	JCB-231XR5	R-13-A-5	852-5	9.5	3/8
		16	1.65	0.065	22.10	0.870	21.26	0.837	23.77	0.936	JCB-131XR5	R-13-5	JCB-231XR5	R-13-A-5	852-5	9.5	3/8
		17	1.47	0.058	22.45	0.884	21.97	0.865	24.49	0.964	JCB-132XR5	R-13-5	JCB-232XR5	R-13-A-5	856-5	9.5	3/8
		18	1.24	0.049	22.91	0.902	21.97	0.865	24.49	0.964	JCB-132XR5	R-13-5	JCB-232XR5	R-13-A-5	856-5	9.5	3/8
		19	1.07	0.042	23.27	0.916	21.97	0.865	24.49	0.964	JCB-132XR5	R-13-5	JCB-232XR5	R-13-A-5	856-5	9.5	3/8
		20	0.89	0.035	23.62	0.930	21.97	0.865	24.49	0.964	JCB-132XR5	R-13-5	JCB-232XR5	R-13-A-5	856-5	9.5	3/8
		21	0.81	0.032	23.77	0.936	22.43	0.883	24.94	0.982	JCB-134XR5	R-15-5	JCB-234XR5	R-15-A-5	M-21-3/8	9.5	3/8
		22	0.71	0.028	23.98	0.944	22.43	0.883	24.94	0.982	JCB-134XR5	R-15-5	JCB-234XR5	R-15-A-5	M-21-3/8	9.5	3/8
		23	0.64	0.025	24.10	0.950	22.43	0.883	24.94	0.982	JCB-134XR5	R-15-5	JCB-234XR5	R-15-A-5	M-21-3/8	9.5	3/8
		24	0.56	0.022	24.30	0.956	22.43	0.883	24.94	0.982	JCB-134XR5	R-15-5	JCB-234XR5	R-15-A-5	M-21-3/8	9.5	3/8
		25	0.51	0.020	24.40	0.960	22.43	0.883	24.94	0.982	JCB-134XR5	R-15-5	JCB-234XR5	R-15-A-5	M-21-3/8	9.5	3/8

JCB-5Rolls Series

Tube O.D.		Tube Thickness			Tube I.D.		Min. Expansion		Max. Expansion		Tool No.	Roller No. Roll Length (38.1mm)	Tool No.	Roller No. Roll Length (57.15mm)	Mandrel No.	Mandrel square	
mm	inch	bwg	mm	inch	mm	inch	mm	inch	mm	inch						mm	inch
28.58	1-1/8"	12	2.77	0.109	23.04	0.907	22.43	0.883	24.94	0.982	JCB-134XR5	R-15-5	JCB-234XR5	R-15-A-5	M-21-3/8	9.5	3/8
		13	2.41	0.095	23.75	0.935	23.27	0.916	25.78	1.015	JCB-136XR5	R-16-5	JCB-236XR5	R-16-A-5	860-5	9.5	3/8
		14	2.11	0.083	24.36	0.959	23.75	0.935	26.52	1.044	JCB-138XR5	R-17-5	JCB-238XR5	R-17-A-5	862-5	12.7	1/2
		22	0.71	0.028	27.20	1.069	26.40	1.039	29.40	1.157	JCB-144XR5	R-19-5	JCB-244XR5	R-19-A-5	872-5	12.7	1/2
		24	0.56	0.022	27.50	1.081	26.40	1.039	29.40	1.157	JCB-144XR5	R-19-5	JCB-244XR5	R-19-A-5	872-5	12.7	1/2
31.75	1-1/4"	15	1.83	0.072	28.09	1.106	27.61	1.087	30.38	1.196	JCB-148XR5	R-21-5	JCB-248XR5	R-21-A-5	876-5	12.7	1/2
		16	1.65	0.065	28.45	1.120	27.61	1.087	30.38	1.196	JCB-148XR5	R-21-5	JCB-248XR5	R-21-A-5	876-5	12.7	1/2
		17	1.47	0.058	28.80	1.134	28.32	1.115	31.09	1.224	JCB-150XR5	R-21-5	JCB-250XR5	R-21-A-5	880-5	12.7	1/2
		18	1.24	0.049	29.26	1.152	28.32	1.115	31.09	1.224	JCB-150XR5	R-21-5	JCB-250XR5	R-21-A-5	880-5	12.7	1/2
		19	1.01	0.042	29.62	1.166	28.32	1.115	31.09	1.224	JCB-150XR5	R-21-5	JCB-250XR5	R-21-A-5	880-5	12.7	1/2
		20	0.89	0.035	29.97	1.180	28.32	1.115	31.09	1.224	JCB-150XR5	R-21-5	JCB-250XR5	R-21-A-5	880-5	12.7	1/2
		21	0.81	0.032	30.12	1.186	28.32	1.115	31.09	1.224	JCB-150XR5	R-21-5	JCB-250XR5	R-21-A-5	880-5	12.7	1/2
		22	0.71	0.028	30.50	1.200	28.32	1.115	31.09	1.224	JCB-150XR5	R-21-5	JCB-250XR5	R-21-A-5	880-5	12.7	1/2
		23	0.64	0.025	30.50	1.200	28.78	1.133	31.55	1.242	JCB-151XR5	R-21-5	JCB-251XR5	R-21-A-5	882-5	12.7	1/2
34.92	1-3/8"	12	2.77	0.109	29.39	1.157	28.78	1.133	31.55	1.242	JCB-151XR5	R-21-5	JCB-251XR5	R-21-A-5	882-5	12.7	1/2
		14	2.11	0.083	30.71	1.209	29.95	1.179	32.87	1.294	JCB-154XR5	R-23-5	JCB-254XR5	R-23-A-5	882-5	12.7	1/2
		20	0.89	0.035	33.20	1.305	31.90	1.257	35.20	1.385	JCB-158XR5	R-26-5	JCB-258XR5	R-26-A-5	894-5	12.7	1/2
		22	0.71	0.028	33.50	1.319	32.60	1.285	36.00	1.417	JCB-160XR5	R-26-5	JCB-260XR5	R-26-A-5	896-5	12.7	1/2
		24	0.56	0.022	33.80	1.331	32.60	1.285	36.00	1.417	JCB-160XR5	R-26-5	JCB-260XR5	R-26-A-5	896-5	12.7	1/2
38.10	1-1/2"	17	1.47	0.058	35.15	1.384	33.81	1.331	37.39	1.472	JCB-163XR5	R-29-5	JCB-263XR5	R-29-A-5	900-5	12.7	1/2
		18	1.24	0.049	35.61	1.402	33.81	1.331	37.39	1.472	JCB-163XR5	R-29-5	JCB-263XR5	R-29-A-5	900-5	12.7	1/2
		19	1.07	0.042	35.97	1.416	33.81	1.331	37.39	1.472	JCB-163XR5	R-29-5	JCB-263XR5	R-29-A-5	900-5	12.7	1/2
		20	0.89	0.035	36.32	1.430	33.81	1.331	37.39	1.472	JCB-163XR5	R-29-5	JCB-263XR5	R-29-A-5	900-5	12.7	1/2
		21	0.81	0.032	36.47	1.436	33.81	1.331	37.39	1.472	JCB-163XR5	R-29-5	JCB-263XR5	R-29-A-5	900-5	12.7	1/2
		22	0.71	0.028	36.68	1.444	33.81	1.331	37.39	1.472	JCB-163XR5	R-29-5	JCB-263XR5	R-29-A-5	900-5	12.7	1/2
		23	0.64	0.025	36.80	1.450	33.81	1.331	37.39	1.472	JCB-163XR5	R-29-5	JCB-263XR5	R-29-A-5	900-5	12.7	1/2
		24	0.56	0.022	37.00	1.456	33.81	1.331	37.39	1.472	JCB-163XR5	R-29-5	JCB-263XR5	R-29-A-5	900-5	12.7	1/2

◆ Note

이 외의 사양은 스페셜 툴로 제작이 가능합니다. (별도문의)

In case of any other specification, it is possible to make special tools. Please enquire.

JHB Series

■ JHB Series 확관틀은 확관범위가 긴 경우 사용됩니다.

■ JHB Series use for long expanding range.



Roller Length	Adjustable Range	
	Min.	Max.
38.1mm	38.1mm	152.4mm
57.1mm	57.1mm	171.4mm

Tube O.D.		Tube Thickness			Tube I.D.		Min. Expansion		Max. Expansion		Tool No.	Roller No. Roll Length (38.1mm)	Tool No.	Roller No. Roll Length (57.1mm)	Mandrel No.	Mandrel square	
mm	inch	bwg	mm	inch	mm	inch	mm	inch	mm	inch						mm	inch
12.70	1/2"	14	2.11	0.083	8.48	0.334	8.23	0.324	9.50	0.374	JHB-100	797	-	-	1197	9.5	3/8
		15	1.83	0.072	9.04	0.356	8.84	0.348	10.11	0.398	JHB-100S	R-1	-	-	1199	9.5	3/8
		16	1.65	0.065	9.40	0.370	9.14	0.360	10.41	0.410	JHB-101	R-1	-	-	M-51	9.5	3/8
		17	1.47	0.058	9.75	0.384	9.50	0.374	10.77	0.424	JHB-102	R-2	-	-	M-51	9.5	3/8
		18	1.24	0.049	10.21	0.402	9.96	0.392	11.35	0.447	JHB-103	R-3	-	-	M-52	9.5	3/8
		20	0.89	0.035	10.92	0.430	10.31	0.406	11.71	0.461	JHB-104	R-3	-	-	M-53	9.5	3/8
15.88	5/8"	12	2.77	0.109	10.34	0.407	9.96	0.392	11.35	0.447	JHB-103	R-3	-	-	M-52	9.5	3/8
		13	2.41	0.095	11.05	0.435	10.80	0.425	12.19	0.480	JHB-105	R-4	-	-	M-53	9.5	3/8
		14	2.11	0.083	11.66	0.459	11.40	0.449	12.93	0.509	JHB-107	R-4	JHB-207	R-4-A	M-54	9.5	3/8
		15	1.83	0.072	12.22	0.481	11.96	0.471	13.61	0.536	JHB-108	R-5	JHB-208	R-5-A	M-55	9.5	3/8
		16	1.65	0.065	12.57	0.495	12.32	0.485	13.97	0.550	JHB-109	R-6	JHB-209	R-6-A	M-55	9.5	3/8
		17	1.47	0.058	12.93	0.509	12.67	0.499	14.33	0.564	JHB-110	R-6	JHB-210	R-6-A	M-56	9.5	3/8
		18	1.24	0.049	13.39	0.527	13.13	0.517	14.53	0.572	JHB-110S	R-7	JHB-210S	R-7-A	M-57	9.5	3/8
		19	1.07	0.042	13.74	0.541	13.26	0.522	14.78	0.582	JHB-111	R-7	JHB-211	R-7-A	M-56	9.5	3/8
		20	0.89	0.035	14.1	0.555	13.61	0.536	15.14	0.596	JHB-112	R-7	JHB-212	R-7-A	M-58	9.5	3/8
		21	0.81	0.032	14.25	0.561	13.61	0.536	15.14	0.596	JHB-112	R-7	JHB-212	R-7-A	M-58	9.5	3/8
		22	0.71	0.028	14.45	0.569	13.61	0.536	15.14	0.596	JHB-112	R-7	JHB-212	R-7-A	M-58	9.5	3/8
19.05	3/4"	10	3.40	0.134	12.24	0.482	11.96	0.471	13.61	0.536	JHB-108	R-5	JHB-208	R-5-A	M-55	9.5	3/8
		11	3.05	0.120	12.95	0.510	12.67	0.499	14.33	0.564	JHB-110	R-6	JHB-210	R-6-A	M-56	9.5	3/8
		12	2.77	0.109	13.51	0.532	13.26	0.522	14.78	0.582	JHB-111	R-7	JHB-211	R-7-A	M-56	9.5	3/8
		13	2.41	0.095	14.22	0.560	13.97	0.550	15.62	0.615	JHB-113	R-8	JHB-213	R-8-A	M-58	9.5	3/8
		14	2.11	0.083	14.83	0.584	14.58	0.574	16.23	0.639	JHB-115	R-9	JHB-215	R-9-A	M-58	9.5	3/8
		15	1.83	0.072	15.39	0.606	15.14	0.596	16.79	0.661	JHB-116	R-10	JHB-216	R-10-A	M-58	9.5	3/8
		16	1.65	0.065	15.75	0.620	15.37	0.605	17.40	0.685	JHB-117	R-10	JHB-217	R-10-A	M-59	9.5	3/8
		17	1.47	0.058	16.10	0.634	15.72	0.619	17.75	0.699	JHB-118	R-11	JHB-218	R-11-A	M-59	9.5	3/8
		18	1.24	0.049	16.56	0.652	15.72	0.619	17.75	0.699	JHB-118	R-11	JHB-218	R-11-A	M-59	9.5	3/8
		19	1.07	0.042	16.92	0.666	16.31	0.642	18.34	0.722	JHB-119	R-12	JHB-219	R-12-A	M-59	9.5	3/8
		20	0.89	0.035	17.27	0.680	16.31	0.642	18.34	0.722	JHB-119	R-12	JHB-219	R-12-A	M-59	9.5	3/8
		21	0.81	0.032	17.42	0.686	16.31	0.642	18.34	0.722	JHB-119	R-12	JHB-219	R-12-A	M-59	9.5	3/8
		22	0.71	0.028	17.63	0.694	16.31	0.642	18.34	0.722	JHB-119	R-12	JHB-219	R-12-A	M-59	9.5	3/8
22.22	7/8"	10	3.40	0.134	15.42	0.607	15.14	0.596	16.79	0.661	JHB-116	R-10	JHB-216	R-10-A	M-58	9.5	3/8
		11	3.05	0.120	16.13	0.635	15.72	0.619	17.75	0.699	JHB-118	R-11	JHB-218	R-11-A	M-59	9.5	3/8
		12	2.77	0.109	16.69	0.657	16.31	0.642	18.34	0.722	JHB-119	R-12	JHB-219	R-12-A	M-59	9.5	3/8
		13	2.41	0.095	17.40	0.685	17.02	0.670	19.05	0.750	JHB-121	R-13	JHB-221	R-13-A	M-60	9.5	3/8
		14	2.11	0.083	18.01	0.709	17.40	0.685	19.66	0.774	JHB-123	R-14	JHB-223	R-14-A	M-61	9.5	3/8
		15	1.83	0.072	18.57	0.731	18.08	0.712	20.35	0.801	JHB-124	R-15	JHB-224	R-15-A	M-61	9.5	3/8
		16	1.65	0.065	18.92	0.745	18.44	0.726	20.70	0.815	JHB-124S	R-15	JHB-224S	R-15-A	M-62	9.5	3/8
		17	1.47	0.058	19.28	0.759	18.80	0.740	21.06	0.829	JHB-125	R-16	JHB-225	R-16-A	M-62	9.5	3/8
		18	1.24	0.049	19.74	0.777	18.80	0.740	21.06	0.829	JHB-125	R-16	JHB-225	R-16-A	M-62	9.5	3/8
25.40	1"	8	4.19	0.165	17.02	0.670	16.64	0.655	18.67	0.735	JHB-120	R-13	JHB-220	R-13-A	M-59	9.5	3/8
		9	3.76	0.148	17.88	0.704	17.40	0.685	19.66	0.774	JHB-123	R-14	JHB-223	R-14-A	M-61	9.5	3/8
		10	3.40	0.134	18.59	0.732	18.08	0.712	20.35	0.801	JHB-124	R-15	JHB-224	R-15-A	M-61	9.5	3/8
		11	3.05	0.120	19.30	0.760	18.80	0.740	21.06	0.829	JHB-125	R-16	JHB-225	R-16-A	M-62	9.5	3/8
		12	2.77	0.109	19.86	0.782	19.38	0.763	21.64	0.852	JHB-127	R-17	JHB-227	R-17-A	M-62	9.5	3/8
		13	2.41	0.095	20.57	0.810	20.09	0.791	22.35	0.880	JHB-129	R-18	JHB-229	R-18-A	M-62	9.5	3/8
		14	2.11	0.083	21.18	0.834	20.57	0.810	23.09	0.909	JHB-130	R-18	JHB-230	R-18-A	M-63	9.5	3/8
		15	1.83	0.072	21.74	0.856	21.26	0.837	23.77	0.936	JHB-131	R-19	JHB-231	R-19-A	M-63	9.5	3/8
		16	1.65	0.065	22.10	0.870	21.26	0.837	23.77	0.936	JHB-131	R-19	JHB-231	R-19-A	M-63	9.5	3/8
		17	1.47	0.058	22.45	0.884	21.97	0.865	24.49	0.964	JHB-132	R-21	JHB-232	R-21-A	M-63	9.5	3/8
		18	1.24	0.049	22.91	0.902	21.97	0.865	24.49	0.964	JHB-132	R-21	JHB-232	R-21-A	M-63	9.5	3/8
		19	1.07	0.042	23.27	0.916	21.97	0.865	24.49	0.964	JHB-132	R-21	JHB-232	R-21-A	M-63	9.5	3/8
		20	0.89	0.035	23.62	0.930	21.97	0.865	24.49	0.964	JHB-132	R-21	JHB-232	R-21-A	M-63	9.5	3/8

Condenser Tube Expanders

JHB Series

Tube O.D.		Tube Thickness			Tube I.D.		Min. Expansion		Max. Expansion		Tool No.	Roller No. Roll Length (38.1mm)	Tool No.	Roller No. Roll Length (57.15mm)	Mandrel No.	Mandrel square	
mm	inch	bwg	mm	inch	mm	inch	mm	inch	mm	inch						mm	inch
28.58	1.1/8"	8	4.19	0.165	20.19	0.795	19.71	0.776	22.23	0.875	JHB-129S	R-20	JHB-229S	R-20-A	M-63	9.5	3/8
		9	3.76	0.148	21.06	0.829	20.57	0.810	23.09	0.909	JHB-130	R-18	JHB-230	R-18-A	M-63	9.5	3/8
		10	3.40	0.134	21.77	0.857	21.26	0.837	23.77	0.936	JHB-131	R-19	JHB-231	R-19-A	M-63	9.5	3/8
		11	3.05	0.120	22.48	0.885	21.97	0.865	24.49	0.964	JHB-132	R-21	JHB-232	R-21-A	M-63	9.5	3/8
		12	2.77	0.109	23.04	0.907	22.43	0.883	24.94	0.982	JHB-134	R-21	JHB-234	R-21-A	M-64	9.5	3/8
		13	2.41	0.095	23.75	0.935	23.27	0.916	25.78	1.015	JHB-136	R-22	JHB-236	R-22-A	M-64	9.5	3/8
		14	2.11	0.083	24.36	0.959	23.75	0.935	26.52	1.044	JHB-138	R-23	JHB-238	R-23-A	M-65	9.5	3/8
		15	1.83	0.072	24.92	0.981	24.43	0.962	27.20	1.071	JHB-140	R-24	JHB-240	R-24-A	M-65	9.5	3/8
		16	1.65	0.065	25.27	0.995	24.43	0.962	27.20	1.071	JHB-140	R-24	JHB-240	R-24-A	M-65	9.5	3/8
		17	1.47	0.058	25.63	1.009	25.15	0.990	27.91	1.099	JHB-142	R-26	JHB-242	R-26-A	M-66	9.5	3/8
		18	1.24	0.049	26.09	1.027	25.15	0.990	27.91	1.099	JHB-142	R-26	JHB-242	R-26-A	M-66	9.5	3/8
31.75	1.1/4"	8	4.19	0.165	23.37	0.920	22.89	0.901	25.65	1.010	JHB-135	R-25	JHB-235	R-25-A	M-65	12.7	1/2
		9	3.76	0.148	24.23	0.954	23.75	0.935	26.52	1.044	JHB-138	R-23	JHB-238	R-23-A	M-65	12.7	1/2
		10	3.40	0.134	24.94	0.982	24.43	0.962	27.20	1.071	JHB-140	R-24	JHB-240	R-24-A	M-65	12.7	1/2
		11	3.05	0.120	25.65	1.010	25.15	0.990	27.91	1.099	JHB-142	R-26	JHB-242	R-26-A	M-66	12.7	1/2
		12	2.77	0.109	26.21	1.032	25.73	1.013	28.50	1.122	JHB-143	R-27	JHB-243	R-27-A	M-66	12.7	1/2
		13	2.41	0.095	26.92	1.060	26.44	1.041	29.21	1.150	JHB-144	R-28	JHB-244	R-28-A	M-67	12.7	1/2
		14	2.11	0.083	27.53	1.084	26.92	1.060	29.69	1.169	JHB-146	R-29	JHB-246	R-29-A	M-67	12.7	1/2
		15	1.83	0.072	28.09	1.106	27.61	1.087	30.38	1.196	JHB-148	R-30	JHB-248	R-30-A	M-67	12.7	1/2
		16	1.65	0.065	28.45	1.120	27.61	1.087	30.38	1.196	JHB-148	R-30	JHB-248	R-30-A	M-67	12.7	1/2
		17	1.47	0.058	28.80	1.134	28.32	1.115	31.09	1.224	JHB-150	R-30	JHB-250	R-30-A	M-68	12.7	1/2
		18	1.24	0.049	29.26	1.152	28.32	1.115	31.09	1.224	JHB-150	R-30	JHB-250	R-30-A	M-68	12.7	1/2
34.92	1.3/8"	8	4.19	0.165	26.54	1.045	26.06	1.026	28.83	1.135	JHB-143S	R-31	JHB-243S	R-31-A	M-67	12.7	1/2
		9	3.76	0.148	27.41	1.079	26.92	1.060	29.69	1.169	JHB-146	R-29	JHB-246	R-29-A	M-67	12.7	1/2
		10	3.40	0.134	28.12	1.107	27.61	1.087	30.38	1.196	JHB-148	R-30	JHB-248	R-30-A	M-67	12.7	1/2
		11	3.05	0.120	28.83	1.135	28.32	1.115	31.09	1.224	JHB-150	R-30	JHB-250	R-30-A	M-68	12.7	1/2
		12	2.77	0.109	29.39	1.157	28.78	1.133	31.55	1.242	JHB-151	R-32	JHB-251	R-32-A	M-68	12.7	1/2
		13	2.41	0.095	30.10	1.185	29.46	1.160	32.39	1.275	JHB-152	R-33	JHB-252	R-33-A	M-69	12.7	1/2
		14	2.11	0.083	30.71	1.209	29.95	1.179	32.87	1.294	JHB-154	R-24	JHB-254	R-24-A	M-70	12.7	1/2
		15	1.83	0.072	31.27	1.231	30.63	1.206	33.55	1.321	JHB-155	R-35	JHB-255	R-35-A	M-70	12.7	1/2
		16	1.65	0.065	31.62	1.245	30.63	1.206	33.55	1.321	JHB-155	R-35	JHB-255	R-35-A	M-70	12.7	1/2
38.10	1.1/2"	8	4.19	0.165	29.72	1.170	29.08	1.145	32.00	1.260	JHB-151S	R-34	JHB-251S	R-34-A	M-69	12.7	1/2
		9	3.76	0.148	30.58	1.204	29.90	1.145	32.87	1.294	JHB-154	R-34	JHB-254	R-34-A	M-70	12.7	1/2
		10	3.40	0.134	31.29	1.232	30.63	1.206	33.55	1.321	JHB-155	R-35	JHB-255	R-35-A	M-70	12.7	1/2
		11	3.05	0.120	32.00	1.260	31.37	1.235	34.29	1.350	JHB-156	R-36	JHB-256	R-36-A	M-70	12.7	1/2
		12	2.77	0.109	32.56	1.282	31.93	1.257	34.85	1.372	JHB-158	R-37	JHB-258	R-37-A	M-70	12.7	1/2
		13	2.41	0.095	33.27	1.310	32.64	1.285	35.56	1.400	JHB-160	R-37	JHB-260	R-37-A	M-71	12.7	1/2
		14	2.11	0.083	33.88	1.331	32.64	1.285	35.56	1.400	JHB-160	R-37	JHB-260	R-37-A	M-71	12.7	1/2
		15	1.83	0.072	34.44	1.356	33.81	1.331	36.73	1.446	JHB-161	R-38	JHB-261	R-38-A	M-71	12.7	1/2
		16	1.65	0.065	34.80	1.370	33.81	1.331	36.73	1.446	JHB-161	R-38	JHB-261	R-38-A	M-71	12.7	1/2
		17	1.47	0.058	35.15	1.384	33.81	1.331	37.39	1.472	JHB-162	R-38	JHB-262	R-38-A	M-72	12.7	1/2
		18	1.24	0.049	35.61	1.402	33.81	1.331	37.39	1.472	JHB-162	R-38	JHB-262	R-38-A	M-72	12.7	1/2
		19	1.07	0.042	35.97	1.416	33.81	1.331	37.39	1.472	JHB-162	R-38	JHB-262	R-38-A	M-72	12.7	1/2
		20	0.89	0.035	36.32	1.430	33.81	1.331	37.39	1.472	JHB-162	R-38	JHB-262	R-38-A	M-72	12.7	1/2
44.45	1-3/4"	8	4.19	0.165	36.07	1.420	34.75	1.368	39.37	1.550	-	-	JHB-264	R-33-A	M-90	19.0	3/4
		10	3.40	0.134	37.64	1.482	36.07	1.420	40.82	1.607	-	-	JHB-266	R-37-A	M-90	19.0	3/4
		11	3.05	0.120	38.35	1.410	36.93	1.454	41.53	1.635	-	-	JHB-267S	R-42	M-90	19.0	3/4
		12	2.77	0.109	38.91	1.532	37.64	1.482	42.09	1.657	-	-	JHB-267	R-44	M-90	19.0	3/4
		13	2.41	0.095	39.62	1.560	38.35	1.510	42.80	1.685	-	-	JHB-268	R-46	M-90	19.0	3/4
		14	2.11	0.083	40.23	1.584	38.91	1.532	43.41	1.709	-	-	JHB-269S	R-48	M-90	19.0	3/4
50.80	2"	7	4.57	0.18	41.60	1.640	39.80	1.57	45.00	1.770	-	-	JHB-269	R-46	M-91	19.0	3/4
		8	4.19	0.165	42.42	1.670	40.51	1.595	45.59	1.795	-	-	JHB-270	R-48	M-91	19.0	3/4
		10	3.40	0.134	43.99	1.732	41.66	1.640	47.17	1.857	-	-	JHB-271S	R-50	M-91	19.0	3/4
		11	3.05	0.120	44.70	1.760	42.42	1.670	47.88	1.885	-	-	JHB-271	R-52	M-91	19.0	3/4
		12	2.77	0.109	45.26	1.782	43.28	1.704	48.44	1.907	-	-	JHB-272S	R-54	M-91	19.0	3/4
		13	2.41	0.095	45.97	1.810	43.99	1.732	49.68	1.956	-	-	JHB-272	R-56	M-91	19.0	3/4
		14	2.11	0.083	46.58	1.834	43.99	1.732	49.68	1.956	-	-	JHB-272	R-56	M-91	19.0	3/4
		15	1.83	0.072	47.14	1.856	43.99	1.732	49.68	1.956	-	-	JHB-272	R-56	M-91	19.0	3/4
		16	1.65	0.065	47.50	1.870	43.99	1.732	49.68	1.956	-	-	JHB-272	R-56	M-91	19.0	3/4
		17	1.47	0.058	47.85	1.884	43.99	1.732	49.68	1.956	-	-	JHB-272	R-56	M-91	19.0	3/4
		18	1.24	0.049	48.31	1.902	43.99	1.732	49.68	1.956	-	-	JHB-272	R-56	M-91	19.0	3/4

JHB Series



Tube O.D.		Tube Thickness			Tube I.D.		Min. Expansion		Max. Expansion		Tool No.	Roller No. Roll Length (38.1mm)	Tool No.	Roller No. Roll Length (57.15mm)	Mandrel No.	Mandrel square	
mm	inch	bwg	mm	inch	mm	inch	mm	inch	mm	inch						mm	inch
57.15	2-1/4"	10	3.40	0.134	50.34	1.982	48.01	1.890	53.52	2.107	-	-	JHB-275S	R-56	M-92	19.0	3/4
		11	3.05	0.120	51.05	2.010	48.77	1.920	54.23	2.135	-	-	JHB-275	R-58	M-92	19.0	3/4
		12	2.77	0.109	51.61	2.032	49.63	1.954	54.79	2.157	-	-	JHB-276	R-60	M-92	19.0	3/4
		13	2.41	0.095	52.32	2.060	50.34	1.982	55.50	2.185	-	-	JHB-277	R-62	M-92	19.0	3/4
		14	2.11	0.083	52.93	2.084	50.34	1.982	55.50	2.185	-	-	JHB-277	R-62	M-92	19.0	3/4
		15	1.83	0.072	53.49	2.106	50.34	1.982	55.50	2.185	-	-	JHB-277	R-62	M-92	19.0	3/4
		16	1.65	0.065	53.85	2.120	50.34	1.982	55.50	2.185	-	-	JHB-277	R-62	M-92	19.0	3/4
63.50	2-1/2"	7-8	4.50	0.177	54.50	2.146	52.00	2.050	59.30	2.335	-	-	JHB-278	R-45-A	M-92	19.0	3/4
		9	3.75	0.148	56.00	2.204	53.50	2.106	60.40	2.380	-	-	JHB-279	R-46-A	M-93	19.0	3/4
		10	3.40	0.134	56.69	2.232	54.36	2.140	61.14	2.407	-	-	JHB-280	R-64	M-93	19.0	3/4
		11	3.05	0.120	57.40	2.260	54.36	2.140	61.14	2.407	-	-	JHB-280	R-64	M-93	19.0	3/4
		12	2.77	0.109	57.96	2.282	54.36	2.140	61.14	2.407	-	-	JHB-280	R-64	M-93	19.0	3/4
		13	2.41	0.095	58.67	2.310	56.69	2.232	62.23	2.450	-	-	JHB-281	R-64	M-94	19.0	3/4
		14	2.11	0.083	59.28	2.334	56.69	2.232	62.23	2.450	-	-	JHB-281	R-64	M-94	19.0	3/4
		15	1.83	0.072	59.84	2.356	56.69	2.232	62.23	2.450	-	-	JHB-281	R-64	M-94	19.0	3/4
		16	1.65	0.065	60.20	2.370	56.69	2.232	62.23	2.450	-	-	JHB-281	R-64	M-94	19.0	3/4
		17	1.47	0.058	60.55	2.384	56.69	2.232	62.23	2.450	-	-	JHB-281	R-64	M-94	19.0	3/4
69.85	2-3/4"	10	3.40	0.134	63.04	2.482	60.71	2.390	68.63	2.702	-	-	JHB-284	R-66	M-96	25.4	1
		11	3.05	0.120	63.8	2.510	60.71	2.390	68.63	2.702	-	-	JHB-284	R-66	M-96	25.4	1
		12	2.77	0.109	64.31	2.532	60.71	2.390	68.63	2.702	-	-	JHB-284	R-66	M-96	25.4	1
		13	2.41	0.095	65.02	2.560	60.71	2.390	68.63	2.702	-	-	JHB-284	R-66	M-96	25.4	1
		14	2.11	0.083	65.63	2.584	60.71	2.390	68.63	2.702	-	-	JHB-284	R-66	M-96	25.4	1
		15	1.83	0.072	66.19	2.606	60.71	2.390	68.63	2.702	-	-	JHB-284	R-66	M-96	25.4	1
		16	1.65	0.065	66.55	2.620	60.71	2.390	68.63	2.702	-	-	JHB-284	R-66	M-96	25.4	1
76.20	3"	8	4.19	0.165	67.82	2.670	65.02	2.560	71.86	2.829	-	-	JHB-286	R-67	M-97	25.4	1
		9	3.76	0.148	68.7	2.704	65.02	2.560	71.86	2.829	-	-	JHB-286	R-67	M-97	25.4	1
		10	3.40	0.134	69.39	2.732	67.06	2.640	74.98	2.952	-	-	JHB-288	R-67	M-96	25.4	1
		11	3.05	0.120	70.10	2.760	67.06	2.640	74.98	2.952	-	-	JHB-288	R-67	M-96	25.4	1
		12	2.77	0.109	70.66	2.782	67.06	2.640	74.98	2.952	-	-	JHB-288	R-67	M-96	25.4	1
		13	2.41	0.095	71.37	2.810	67.06	2.640	74.98	2.952	-	-	JHB-288	R-67	M-96	25.4	1
		14	2.11	0.083	71.98	2.834	67.06	2.640	74.98	2.952	-	-	JHB-288	R-67	M-96	25.4	1
		15	1.83	0.072	72.54	2.856	67.06	2.640	74.98	2.952	-	-	JHB-288	R-67	M-96	25.4	1
		16	1.65	0.065	72.90	2.870	67.06	2.640	74.98	2.952	-	-	JHB-288	R-67	M-96	25.4	1
		17	1.47	0.058	73.25	2.884	67.06	2.640	74.98	2.952	-	-	JHB-288	R-67	M-96	25.4	1
88.90	3-1/2"	3	6.60	0.259	75.7	2.982	70.1	2.160	78.5	3.090	-	-	JHB-290	R-70	M-99	25.4	1
		5	5.59	0.220	77.7	3.060	73.4	2.890	81.8	3.220	-	-	JHB-292	R-70	M-99	25.4	1
		8	4.19	0.165	80.5	3.170	76.4	3.010	84.8	3.340	-	-	JHB-294	R-70	M-99	25.4	1
		13	2.41	0.095	84.1	3.311	79.7	3.140	88.1	3.470	-	-	JHB-296	R-70	M-99	25.4	1
		14	2.10	0.083	84.7	3.334	79.7	3.140	88.1	3.470	-	-	JHB-296	R-70	M-99	25.4	1
		15	1.83	0.072	85.2	3.354	79.7	3.140	88.1	3.470	-	-	JHB-296	R-70	M-99	25.4	1
		16	1.65	0.065	85.6	3.370	79.7	3.140	88.1	3.470	-	-	JHB-296	R-70	M-99	25.4	1
		17	1.47	0.058	86.0	3.385	79.7	3.140	88.1	3.470	-	-	JHB-296	R-70	M-99	25.4	1
101.6	4"	18	1.24	0.049	86.4	3.401	79.7	3.140	88.1	3.470	-	-	JHB-296	R-70	M-99	25.4	1
		3	6.60	0.259	88.4	3.480	84.5	3.330	94.5	3.720	-	-	JHB-298	R-71	M-100	25.4	1
		4	6.00	0.236	89.6	3.527	84.5	3.330	94.5	3.720	-	-	JHB-298	R-71	M-100	25.4	1
		8	4.19	0.165	93.2	3.670	90.9	3.580	100.8	3.970	-	-	JHB-300	R-71	M-101	25.4	1
		9	3.75	0.148	94.1	3.704	90.9	3.580	100.8	3.970	-	-	JHB-300	R-71	M-101	25.4	1
		10	3.40	0.134	94.8	3.732	90.9	3.580	100.8	3.970	-	-	JHB-300	R-72	M-101	25.4	1
		11	3.04	0.120	95.5	3.760	90.9	3.580	100.8	3.970	-	-	JHB-300	R-72	M-101	25.4	1
		12	2.76	0.109	96.1	3.783	90.9	3.580	100.8	3.970	-	-	JHB-300	R-72	M-101	25.4	1
		13	2.41	0.095	96.8	3.811	90.9	3.580	100.8	3.970	-	-	JHB-300	R-72	M-101	25.4	1
		14	2.10	0.083	97.4	3.834	90.9	3.580	100.8	3.970	-	-	JHB-300	R-72	M-101	25.4	1
		16	1.65	0.065	98.3	3.870	90.9	3.580	100.8	3.970	-	-	JHB-300	R-72	M-101	25.4	1

◆ Note

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In case of any other specification, it is possible to make special tools. Please enquire.

JHB-5Rolls Series

■ JHB-5Rolls 확관틀은 롤러가 5개로 구성되어 기본3Rolls 시리즈에 비해 고착력이 향상되고 튜브두께가 얇은 경우에 튜브 내부의 손상을 줄일 수 있습니다.

■ Gives a more concentric and even expansion when expanding thin walled tubes vs. a conventional 3rolls expander and reduces tube spring back effect.



Roller Length	Adjustable Range	
	Min.	Max.
38.1mm	38.1mm	152.4mm
57.1mm	57.1mm	171.4mm

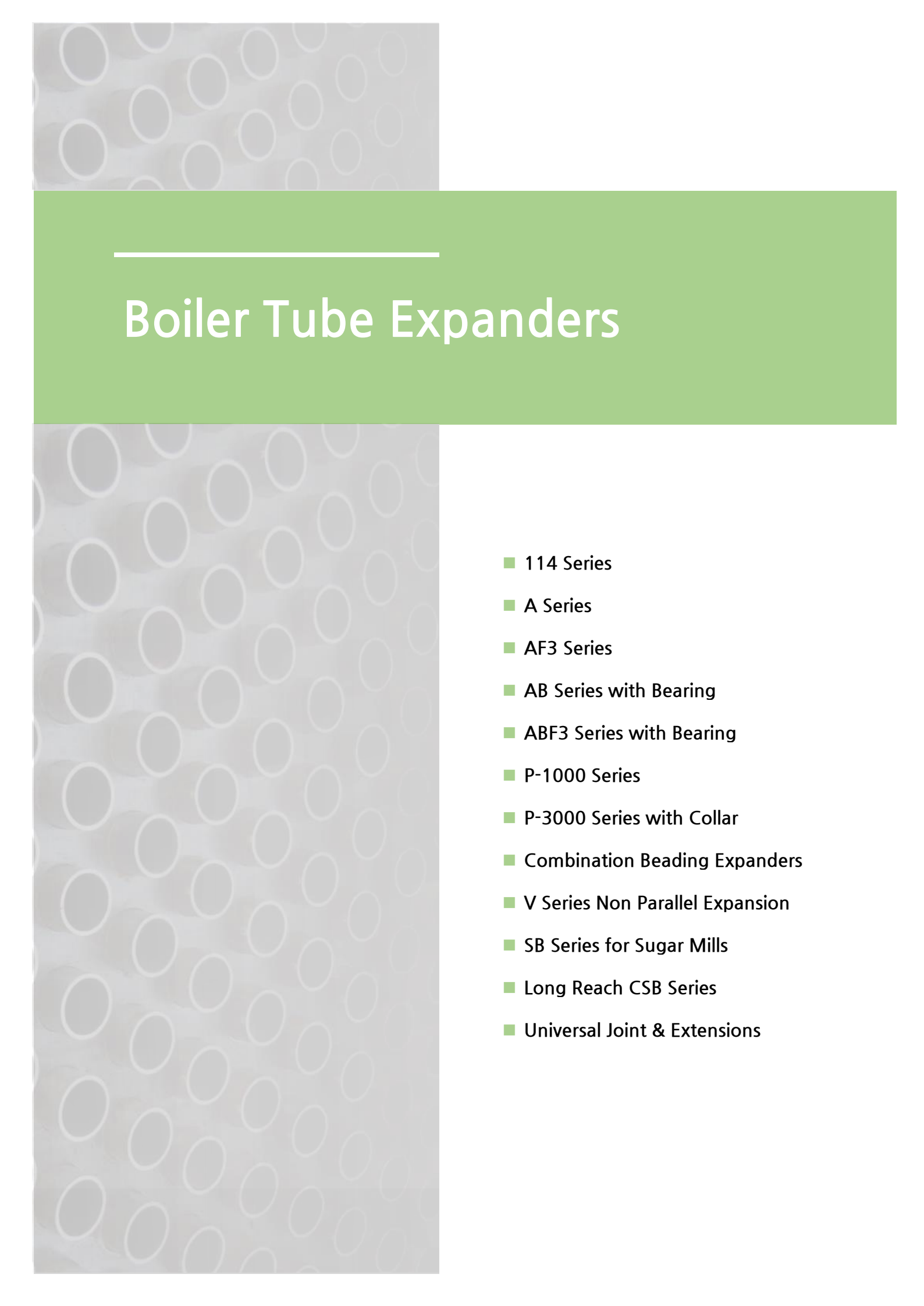
Tube O.D.		Tube Thickness			Tube I.D.		Min. Expansion		Max. Expansion		Tool No.	Roller No. Roll Length (38.1mm)	Tool No.	Roller No. Roll Length (57.1mm)	Mandrel No.	Mandrel square	
mm	inch	bwg	mm	inch	mm	inch	mm	inch	mm	inch						mm	inch
19.05	3/4"	14	2.11	0.083	14.83	0.584	14.58	0.574	16.23	0.639	JHB-115XR5	R-6-5	JHB-215XR5	R-6-A-5	1224-5	9.5	3/8
		15	1.83	0.072	15.39	0.606	15.14	0.596	16.79	0.661	JHB-116XR5	R-7-5	JHB-216XR5	R-7-A-5	1226-5	9.5	3/8
		16	1.65	0.065	15.75	0.620	15.37	0.605	17.40	0.685	JHB-117XR5	R-7-5	JHB-217XR5	R-7-A-5	M-63	9.5	3/8
		17	1.47	0.058	16.10	0.634	15.72	0.619	17.75	0.699	JHB-118XR5	R-7-5	JHB-218XR5	R-7-A-5	1230-5	9.5	3/8
		18	1.24	0.049	16.56	0.652	15.72	0.619	17.75	0.699	JHB-118XR5	R-7-5	JHB-218XR5	R-7-A-5	1230-5	9.5	3/8
		19	1.07	0.042	16.92	0.666	16.31	0.642	18.34	0.722	JHB-119XR5	R-9-5	JHB-219XR5	R-9-A-5	M-63	9.5	3/8
		20	0.89	0.035	17.27	0.680	16.31	0.642	18.34	0.722	JHB-119XR5	R-9-5	JHB-219XR5	R-9-A-5	M-63	9.5	3/8
		21	0.81	0.032	17.42	0.686	16.31	0.642	18.34	0.722	JHB-119XR5	R-9-5	JHB-219XR5	R-9-A-5	M-63	9.5	3/8
25.40	1"	14	2.11	0.083	21.18	0.834	20.57	0.810	23.09	0.909	JHB-130XR5	R-12-5	JHB-230XR5	R-12-A-5	1250-5	9.5	3/8
		15	1.83	0.072	21.74	0.856	21.26	0.837	23.77	0.936	JHB-131XR5	R-13-5	JHB-231XR5	R-13-A-5	1251-5	9.5	3/8
		16	1.65	0.065	22.10	0.870	21.26	0.837	23.77	0.936	JHB-131XR5	R-13-5	JHB-231XR5	R-13-A-5	1251-5	9.5	3/8
		17	1.47	0.058	22.45	0.884	21.97	0.865	24.49	0.964	JHB-132XR5	R-13-5	JHB-232XR5	R-13-A-5	1256-5	9.5	3/8
		18	1.24	0.049	22.91	0.902	21.97	0.865	24.49	0.964	JHB-132XR5	R-13-5	JHB-232XR5	R-13-A-5	1256-5	9.5	3/8
		19	1.07	0.042	23.27	0.916	21.97	0.865	24.49	0.964	JHB-132XR5	R-13-5	JHB-232XR5	R-13-A-5	1256-5	9.5	3/8
		20	0.89	0.035	23.62	0.930	21.97	0.865	24.49	0.964	JHB-132XR5	R-13-5	JHB-232XR5	R-13-A-5	1256-5	9.5	3/8
		21	0.81	0.032	23.77	0.963	22.43	0.883	24.94	0.982	JHB-134XR5	R-15-5	JHB-234XR5	R-15-A-5	M-71-3/8	9.5	3/8
28.58	1-1/8"	12	2.77	0.109	23.04	0.907	22.43	0.883	24.94	0.982	JHB-134XR5	R-15-5	JHB-234XR5	R-15-A-5	M-71-3/8	9.5	3/8
		15	1.83	0.072	24.92	0.981	24.43	0.962	27.20	1.071	JHB-140XR5	R-18-5	-	-	1263-5	12.7	1/2
		16	1.65	0.065	25.27	0.995	24.43	0.962	27.20	1.071	JHB-140XR5	R-18-5	-	-	1263-5	12.7	1/2
38.10	1-1/2"	17	1.47	0.058	35.15	1.384	33.81	1.331	37.39	1.472	JHB-162XR5	R-29-5	JHB-262XR5	R-29-A-5	1299-5	12.7	1/2
		18	1.24	0.049	35.61	1.402	33.81	1.331	37.39	1.472	JHB-162XR5	R-29-5	JHB-262XR5	R-29-A-5	1299-5	12.7	1/2
		19	1.07	0.042	35.97	1.416	33.81	1.331	37.39	1.472	JHB-162XR5	R-29-5	JHB-262XR5	R-29-A-5	1299-5	12.7	1/2
		20	0.89	0.035	36.32	1.430	33.81	1.331	37.39	1.472	JHB-162XR5	R-29-5	JHB-262XR5	R-29-A-5	1299-5	12.7	1/2

◆ Note

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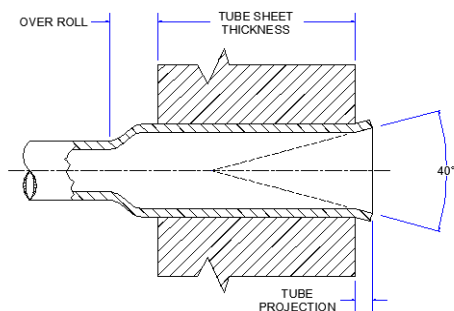




Boiler Tube Expanders

- 114 Series
- A Series
- AF3 Series
- AB Series with Bearing
- ABF3 Series with Bearing
- P-1000 Series
- P-3000 Series with Collar
- Combination Beading Expanders
- V Series Non Parallel Expansion
- SB Series for Sugar Mills
- Long Reach CSB Series
- Universal Joint & Extensions

114 Series



Tube O.D.		Tube Thickness		Tube O.D.		Tube Thickness		Minimum I.D. Tool Enters		Maximum Expansion Of Tool		Tool No.				
												Tube Sheet Thickness Range				
mm	inch	bwg	inch	mm	inch	bwg	inch	mm	inch	mm	inch	1/2" To 7/8"	3/4" To 1.1/8"	1.1/8" To 1.5/8"	1.5/8" To 2.1/8"	2.1/8" To 2.5/8"
50.80	2	4 & 5	0.238 & 0.220	44.45	1.3/4	11 - 13	0.120 - 0.095	36.7	1.444	43.1	1.696	-	14172	14174	14176	14178
50.80	2	6 & 7	0.203 & 0.180	44.45	1.3/4	14 - 16	0.480 - 0.065	38.3	1.507	44.6	1.755	-	14182	14184	14186	14188
50.80	2	7 & 8	0.180 & 0.165	-	-	-	-	39.9	1.570	46.4	1.826	14191	14192	14194	14196	14198
50.80	2	9 & 10	0.148 & 0.134	57.15	2.1/4	13	0.095	41.5	1.633	48.0	1.889	14201	14202	14204	14206	14208
50.80	2	11 - 13	0.120 - 0.095	57.15	2.1/4	4 & 5	0.238 & 0.220	43.1	1.696	49.6	1.952	14211	14212	14214	14216	14218
63.50	2.1/2	2	0.284	57.15	2.1/4	6 - 8	0.203 - 0.165	45.5	1.791	52.6	2.070	-	14222	14224	14226	14228
64.50	2.1/3	3 & 4	0.259 & 0.238	57.15	2.1/4	9 - 11	0.148 - 0.120	47.1	1.856	54.2	2.133	-	14232	14234	14236	14238
65.50	2.1/4	4 - 6	0.238 - 0.203	57.15	2.1/4	12 - 15	0.109 - 0.072	49.0	1.929	57.3	2.255	-	14242	14244	14246	14248
66.50	2.1/5	7 - 10	0.180 - 0.134	69.85	2.3/4	2 & 3	0.284 & 0.259	51.9	2.043	60.5	2.381	-	14252	14254	14256	14258
67.50	2.1/6	11 - 13	0.120 - 0.095	69.85	2.3/4	4 & 5	0.238 & 0.220	55.1	2.169	63.7	2.507	14261	14262	14264	14266	14268
76.20	3	1 - 3	0.300 - 0.259	69.85	2.3/4	6 - 10	0.203 - 0.134	57.4	2.259	66.6	2.622	-	14272	14274	14276	14278
76.20	3	4 - 6	0.238 - 0.203	69.85	2.3/4	11 - 15	0.120 - 0.072	60.6	2.385	70.0	2.755	-	14282	14284	14286	14288
76.20	3	7 - 11	0.180 - 0.120	82.55	3.1/4	1 - 4	0.300 - 0.238	63.8	2.511	73.9	2.909	-	14292	14294	14296	14298
76.20	3	10 - 12	0.134 - 0.109	82.55	3.1/4	4 - 7	0.238 - 0.180	66.9	2.635	77.3	3.043	14301	14302	14304	14306	14308
88.90	3.1/2	1 - 4	0.300 - 0.238	82.55	3.1/4	7 - 11	0.180 - 0.120	70.1	2.759	80.1	3.153	-	14312	14314	14316	14318
89.90	3.1/3	4 - 7	0.238 - 0.180	82.55	3.1/4	10 - 15	0.134 - 0.072	73.0	2.874	83.4	3.283	-	14322	14324	14326	14328
90.90	3.1/4	7 - 11	0.180 - 0.120	95.25	3.3/4	2 & 3	0.284 & 0.259	76.2	3.000	86.8	3.417	-	14332	14334	14336	14338
91.90	3.1/5	10 - 12	0.134 - 0.109	95.25	3.3/4	4 & 5	0.238 & 0.220	79.3	3.122	89.8	3.535	-	14342	14344	14346	14348
101.6	4	1 - 4	0.300 - 0.238	95.25	3.3/4	6 - 10	0.203 - 0.134	82.5	3.248	93.0	3.661	-	14352	14354	14356	14358
101.6	4	4 - 7	0.238 - 0.180	95.25	3.3/4	11 - 15	0.120 - 0.072	85.7	3.374	96.0	3.779	-	14362	14364	14366	14368
101.6	4	7 - 11	0.180 - 0.120	107.9	4.1/4	2 & 3	0.284 & 0.259	88.9	3.500	98.6	3.881	-	14372	14374	14376	14378
101.6	4	8 - 12	0.165 - 0.109	107.9	4.1/4	3 & 5	0.259 & 0.220	90.5	3.562	102.3	4.027	-	14382	14384	14386	14388
114.3	4.1/2	1 - 4	0.300 - 0.238	107.9	4.1/4	6 - 9	0.203 - 0.148	95.2	3.748	104.7	4.122	-	14392	14394	14396	14398
115.3	4.1/3	3 - 8	0.238 - 0.165	107.9	4.1/4	10 - 13	0.134 - 0.095	98.4	3.874	110.3	4.342	-	14402	14404	14406	14408
116.3	4.1/4	6 - 12	0.203 - 0.109	-	-	-	-	101.6	4.000	113.5	4.468	-	14412	14414	14416	14418

114 Series

■ 특징

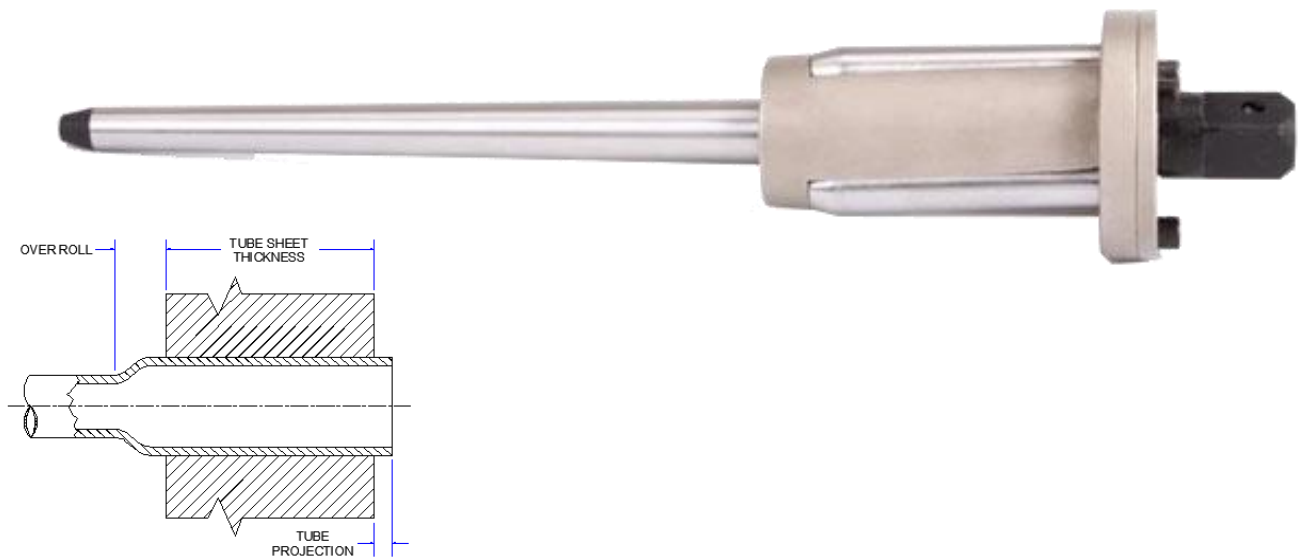
- 여러 개의 플레어롤이 튜브의 손상을 예방합니다.
- 작은 핸들홀이나 헤더를 관통하여 사용 할 수 있는 간편한 구조 입니다.
- 일반적으로 보일러, 워터월, 다운코머, 이코노마이저, 라이저와 에어히터 등의 튜브를 확관하거나 플레어링 작업을 할 때 사용됩니다.

■ Features

- Overlapping rolls prevent ridging of tube.
- Compact design for use through small hand holes, headers etc.
- Use - General purpose expander for expanding and flaring boiler tubes, water wall, downcomer, economizer, riser and air heater tubes.

Spare Rollers No.					Spare Mandrel No.						Mandrel Square		
Tube Sheet Thickness Range													
1/2" To 7/8"	3/4" To 1.1/8"	1.1/8" To 1.5/8"	1.5/8" To 2.1/8"	2.1/8" To 2.5/8"	Drum Type	Header Type	Short Series 5.1/8 inch			Short Series 7.1/8 inch		mm	inch
-	34872	34874	34878	34948	32269	32289	32308 32309 32310 32311			34876 34948		19.05	3/4
-	34879	34881	34883	34949	32269	32289	32309 32310 32311			-		19.05	3/4
34878	34879	34881	34883	34949	32270	32290	32309 32310 32311 32312			-		19.05	3/4
34878	34879	34881	34883	34949	32271	32291	32311 32312 32313			32346		19.05	3/4
34885	34886	34888	34890	34950	32270	32290	32310 32311 32312			32345		19.05	3/4
-	34893	34895	34897	34951	32270	32290	32310 32311 32312 32313			-		19.05	3/4
-	34893	34895	34897	34951	32271	32291	32311 32312 32313 32314			-		19.05	3/4
-	34893	34895	34897	34951	32272	32292	32312 32313 32314 32315 32316			-		19.05	3/4
-	34900	34902	34904	34952	32272	32292	32312 32313 32314 32315 32316			32347 32348 32349		19.05	3/4
34899	34900	34902	34904	34952	32273	32293	32315 32316 32317			33630 33631		19.05	3/4
-	34907	34909	34911	34953	32273	32293	32315 32316 32317 32318 32319			-		19.05	3/4
-	34907	34909	34911	34953	32274	32294	32317 32318 32319 32320 32321			-		25.40	1
-	34914	34916	34918	34954	32274	32294	32318 32319 32320 32321 32322			33632 33633 33634 33635		25.40	1
34913	34914	34916	34918	34954	32275	32295	32320 32321 32322			33634 33635		25.40	1
-	34921	34923	34925	34955	32274	32294	32318 32319 32320 32321 32322			-		25.40	1
-	34921	34923	34925	34955	32275	32295	32321 32322 32323 32324 32325			-		25.40	1
-	34921	34923	34925	34955	32276	32296	32323 32324 32325 32326 32327			-		25.40	1
-	34921	34923	34925	34955	32277	32297	32324 32325 32326 32327 32328			-		25.40	1
-	34928	34930	34932	34956	32276	32296	32324 32325 32326 32327 32328			-		25.40	1
-	34928	34930	34932	34956	32277	32297	32326 32327 32328 32329 32330			-		25.40	1
-	34928	34930	34932	34956	32278	32298	32328 32329 32330 32331 32332			-		25.40	1
-	34935	34937	34939	34957	32277	32297	32324 32325 32326 32327 32328			-		25.40	1
-	34935	34937	34939	34957	32278	32298	32329 32330 32331 32332 32350			-		25.40	1
-	34935	34937	34939	34957	32279	32299	32331 32332 32350 32337 32338			-		25.40	1
-	34942	34944	34946	34958	32278	32298	32326 32327 32328 32329 32330			-		25.40	1

A Series



Tube O.D.		Tube Thickness		Tube O.D.		Tube Thickness		Minimum I.D. Tool Enters		Maximum Expansion Of Tool		Tool No.				
												Tube Sheet Thickness Range				
												1/2" To 7/8"	3/4" To 1.1/8"	1.1/8" To 1.5/8"	1.5/8" To 2.1/8"	2.1/8" To 2.5/8"
mm	inch	bwg	inch	mm	inch	bwg	inch	mm	inch	mm	inch					
22.22	7/8	15	0.072	25.40	1	10	0.134	18.1	0.712	20.4	0.803	A-31/2	A-31/3	-	-	-
22.22	7/8	16	0.065	-	-	-	-	18.4	0.724	20.7	0.814	A-32/2	A-32/3	-	-	-
22.22	7/8	17	0.058	25.40	1	11	0.120	18.8	0.740	21.1	0.830	A-33/2	A-33/3	-	-	-
22.22	7/8	18	0.049	25.40	1	12	0.109	19.4	0.763	21.6	0.850	A-34/2	A-34/3	-	-	-
22.22	7/8	19&20	0.042&0.035	28.57	1.1/8	8	0.165	19.7	0.775	22.3	0.877	A-35/2	A-35/3	-	-	-
25.40	1	13	0.095	-	-	-	-	20.1	0.791	22.4	0.881	A-36/2	A-36/3	-	-	-
25.40	1	14	0.083	28.57	1.1/8	9	0.148	20.6	0.811	23.1	0.909	A-37/2	A-37/3	A-37/4	-	-
25.40	1	15&16	0.072&0.065	28.57	1.1/8	10	0.134	21.3	0.838	23.8	0.937	A-38/2	A-38/3	A-38/4	-	-
25.40	1	17&18	0.058&0.048	28.57	1.1/8	11	0.120	22.0	0.866	24.5	0.964	A-39/2	A-39/3	A-39/4	-	-
25.40	1	19&20	0.042&0.035	28.57	1.1/8	12	0.109	22.4	0.881	25.0	0.984	A-40/2	A-40/3	A-40/4	-	-
31.75	1.1/4	8	0.165	28.57	1.1/8	13	0.095	23.3	0.917	25.9	1.019	A-41/2	A-41/3	A-41/4	-	-
31.75	1.1/4	9	0.148	28.57	1.1/8	14	0.083	23.8	0.937	26.5	1.043	A-42/2	A-42/3	A-42/4	-	-
31.75	1.1/4	10	0.134	28.57	1.1/8	15&16	0.072&0.065	24.4	0.96	27.2	1.070	A-43/2	A-43/3	A-43/4	-	-
31.75	1.1/4	11	0.120	-	-	-	-	25.2	0.992	28.0	1.102	A-44/2	A-44/3	A-44/4	-	-
31.75	1.1/4	12	0.109	-	-	-	-	25.7	1.011	28.5	1.122	A-45/2	A-45/3	A-45/4	-	-
31.75	1.1/4	13	0.095	34.92	1.3/8	8	0.165	26.1	1.027	28.8	1.133	A-46/2	A-46/3	A-46/4	-	-
31.75	1.1/4	14	0.083	-	-	-	-	26.4	1.039	29.2	1.149	A-47/2	A-47/3	A-47/4	-	-
31.75	1.1/4	15	0.072	34.92	1.3/8	9	0.148	26.9	1.059	29.7	1.169	A-48/2	A-48/3	A-48/4	-	-
31.75	1.1/4	16	0.065	34.92	1.3/8	10	0.134	27.6	1.086	30.4	1.196	A-49/2	A-49/3	A-49/4	A-49/5	A-49/6
38.10	1.1/2	7	0.18	34.92	1.3/8	11	0.120	28.3	1.114	31.2	1.228	A-50/2	A-50/3	A-50/4	A-50/5	A-50/6
38.10	1.1/2	8	0.165	34.92	1.3/8	12	0.109	28.8	1.133	31.7	1.248	A-51/2	A-51/3	A-51/4	A-51/5	A-51/6
38.10	1.1/2	9	0.148	34.92	1.3/8	13&14	0.095&0.083	29.5	1.161	33.4	1.314	A-52/2	A-52/3	A-52/4	A-52/5	A-52/6
38.10	1.1/2	10	0.134	34.92	1.3/8	15&16	0.072&0.065	30.0	1.181	34.1	1.342	A-53/2	A-53/3	A-53/4	A-53/5	A-53/6
38.10	1.1/2	11&12	0.120&0.109	-	-	-	-	30.6	1.204	34.8	1.370	A-54/2	A-54/3	A-54/4	A-54/5	A-54/6
38.10	1.1/2	13	0.095	44.45	1.3/4	5	0.220	31.4	1.236	35.6	1.401	A-55/2	A-55/3	A-55/4	A-55/5	A-55/6
38.10	1.1/2	14&15	0.083&0.072	44.45	1.3/4	6	0.203	32.6	1.283	36.8	1.448	A-56/2	A-56/3	A-56/4	A-56/5	A-56/6
-	-	-	-	44.45	1.3/4	7	0.180	33.4	1.314	38.1	1.500	A-57/2	A-57/3	A-57/4	A-57/5	A-57/6
-	-	-	-	44.45	1.3/4	8	0.165	34.2	1.346	38.7	1.523	A-58/2	A-58/3	A-58/4	A-58/5	A-58/6
50.80	2	3	0.259	44.45	1.3/4	9&10	0.148&0.134	35.0	1.377	40.6	1.598	A-59/2	A-59/3	A-59/4	A-59/5	A-59/6
50.80	2	4	0.238	44.45	1.3/4	11&12	0.120&0.109	36.6	1.440	42.2	1.661	A-60/2	A-60/3	A-60/4	A-60/5	A-60/6
50.80	2	5&6	0.220&0.203	44.45	1.3/4	13&14	0.095&0.083	38.2	1.503	43.8	1.712	A-61/2	A-61/3	A-61/4	A-61/5	A-61/6
50.80	2	7&8	0.180&0.165	44.45	1.3/4	15&16	0.072&0.065	39.8	1.566	45.4	1.787	A-62/2	A-62/3	A-62/4	A-62/5	A-62/6
50.80	2	9&10	0.148&0.134	57.15	2.1/4	3	0.259	41.4	1.629	47.0	1.850	A-63/2	A-63/3	A-63/4	A-63/5	A-63/6
50.80	2	11-13	0.120-0.095	57.15	2.1/4	4	0.238	42.9	1.688	49.5	1.948	A-64/2	A-64/3	A-64/4	A-64/5	A-64/6
50.80	2	14-16	0.083-0.065	57.15	2.1/4	6&7	0.203&0.180	44.5	1.751	51.1	2.011	A-65/2	A-65/3	A-65/4	A-65/5	A-65/6
50.80	2	17&18	0.058&0.049	57.15	2.1/4	8&9	0.165&0.148	46.1	1.814	52.7	2.074	A-66/2	A-66/3	A-66/4	A-66/5	A-66/6

A Series

■ 특징

- 가성비가 뛰어난 확관틀 입니다.
- 견고한 구조의 케이지와 롤러로 구성되어 있습니다.
- 플레어링 없이 튜브 확관작업을 할 때 사용하기 경제적인 틀 입니다.

■ Features

- Best 'Value For Money' tool in the world when parallel rolling tubes.
- Sturdy construction with rolls self contained in cage.
- Use - Economical tool used for applications where tubes are to be expanded without flaring.

Spare Roller No. Tube Sheet Thickness Range					Mandrel Square		Spare Mandrel No.		
1/2" To 7/8"	3/4" To 1.1/8"	1.1/8" To 1.5/8"	1.5/8" To 2.1/8"	2.1/8" To 2.5/8"			Drum Type	Header Type	Short Series Mandrel Set (No. Of Mandrels)
					mm	inch			
15-2-RS	15-3-RS	-	-	-	9.18	3/8	DM-11	-	-
15-2-RS	15-3-RS	-	-	-	9.18	3/8	DM-12	-	-
16-2-RS	16-3-RS	-	-	-	9.18	3/8	DM-12	-	-
20-2-RS	20-3-RS	-	-	-	9.18	3/8	DM-12	-	-
17-2-RS	17-3-RS	-	-	-	9.18	3/8	DM-13	-	-
18-2-RS	18-3-RS	-	-	-	9.18	3/8	DM-12	-	-
18-2-RS	18-3-RS	18-4-RS	-	-	9.18	3/8	DM-13	HM-13	SM-13 (2)
19-2-RS	19-3-RS	19-4-RS	-	-	9.18	3/8	DM-13	HM-13	SM-13 (2)
21-2-RS	21-3-RS	21-4-RS	-	-	9.18	3/8	DM-13	HM-13	SM-13 (2)
21-2-RS	21-3-RS	21-4-RS	-	-	9.18	3/8	DM-14	HM-14	SM-14 (2)
22-2-RS	22-3-RS	22-4-RS	-	-	9.18	3/8	DM-14	HM-14	SM-14 (2)
23-2-RS	23-3-RS	23-4-RS	-	-	12.70	1/2	DM-15	HM-15	SM-15 (2)
24-2-RS	24-3-RS	24	-	-	12.70	1/2	DM-15	HM-15	SM-15 (2)
26-2-RS	26-3-RS	26	-	-	12.70	1/2	DM-16	HM-16	SM-16 (2)
27-2-RS	27-3-RS	27	-	-	12.70	1/2	DM-16	HM-16	SM-16 (2)
31-2-RS	31-3-RS	31	-	-	12.70	1/2	DM-16	HM-16	SM-16 (2)
28-2-RS	28-3-RS	28	-	-	12.70	1/2	DM-17	HM-17	SM-17 (2)
29-2-RS	29-3-RS	29	-	-	12.70	1/2	DM-17	HM-17	SM-17 (2)
30-2-RS	30-3-RS	30-4-RS	30	30	12.70	1/2	DM-17	HM-17	SM-17 (2)
30-2-RS	30-3-RS	30-4-RS	30	30	12.70	1/2	DM-18	HM-18	SM-18 (2)
32-2-RS	32-3-RS	32-4-RS	32	32	12.70	1/2	DM-18	HM-18	SM-18 (2)
28-2-RS	28-3-RS	28-4-RS	28	28	12.70	1/2	DM-20	HM-20	SM-20 (2)
29-2-RS	29-3-RS	29-4-RS	29	29	12.70	1/2	DM-20	HM-20	SM-20 (2)
30-2-RS	30-3-RS	30-4-RS	30	30	12.70	1/2	DM-20	HM-20	SM-20 (2)
33-2-RS	33-3-RS	33-4-RS	33-5-RS	33-6-RS	12.70	1/2	DM-20	HM-20	SM-20 (2)
32-2-RS	32-3-RS	32-4-RS	32	32	12.70	1/2	DM-21	HM-21	SM-21 (2)
36-2-RS	36-3-RS	36-4-RS	36	36	12.70	1/2	DM-21	HM-21	SM-21 (2)
37-2-RS	37-3-RS	37-4-RS	37	37	12.70	1/2	DM-21	HM-21	SM-21 (2)
33-2-RS	33-3-RS	33	33	33	19.05	3/4	DM-22	HM-22	SM-22 (3)
37-2-RS	37-3-RS	37	37	37	19.05	3/4	DM-22	HM-22	SM-22 (3)
38-2-RS	38-3-RS	38	38	38	19.05	3/4	DM-22	HM-22	SM-22 (3)
39-2-RS	39-3-RS	39	39	39	19.05	3/4	DM-22	HM-22	SM-22 (3)
40-2-RS	40-3-RS	40	40	40	19.05	3/4	DM-22	HM-22	SM-22 (3)
40-2-RS	40-3-RS	40	40	40	19.05	3/4	DM-23	HM-23	SM-23 (3)
41-2-RS	41-3-RS	41-4-RS	41	41	19.05	3/4	DM-23	HM-23	SM-23 (3)
42-2-RS	42-3-RS	42	42	42	19.05	3/4	DM-23	HM-23	SM-23 (3)

A Series



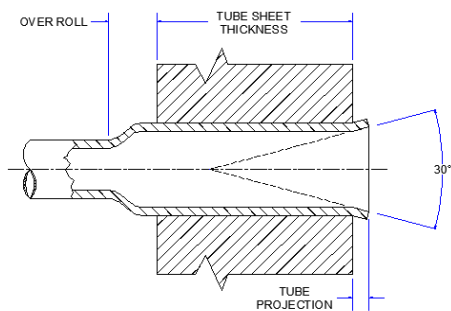
Tube O.D.		Tube Thickness		Tube O.D.		Tube Thickness		Minimum I.D. Tool Enters		Maximum Expansion Of Tool		Tool No.				
												Tube Sheet Thickness Range				
												1/2"	3/4"	1.1/8"	1.5/8"	2.1/8"
mm	inch	bwg	inch	mm	inch	bwg	inch	mm	inch	mm	inch	To 7/8"	To 1.1/8"	To 1.5/8"	To 2.1/8"	To 2.5/8"
63.50	2.1/2	3	0.259	57.15	2.1/4	10&11	0.134&0.120	47.7	1.877	54.3	2.137	A-67/2	A-67/3	A-67/4	A-67/5	A-67/6
63.50	2.1/2	4&5	0.238&0.220	57.15	2.1/4	12&13	0.109&0.095	49.3	1.940	55.9	2.200	A-68/2	A-68/3	A-68/4	A-68/5	A-68/6
63.50	2.1/2	6&7	0.203&0.180	57.15	2.1/4	14-16	0.083-0.065	50.8	2.000	57.8	2.275	A-69/2	A-69/3	A-69/4	A-69/5	A-69/6
63.50	2.1/2	8&9	0.165&0.148	69.85	2.3/4	3	0.259	52.4	2.062	59.4	2.338	A-70/2	A-70/3	A-70/4	A-70/5	A-70/6
63.50	2.1/2	10&11	0.134&0.120	69.85	2.3/4	4	0.238	54.0	2.125	61.0	2.401	A-71/2	A-71/3	A-71/4	A-71/5	A-71/6
63.50	2.1/2	12-14	0.109-0.083	69.85	2.3/4	5&6	0.220&0.203	55.6	2.188	64.0	2.519	A-72/2	A-72/3	A-72/4	A-72/5	A-72/6
63.50	2.1/2	15&16	0.072&0.065	69.85	2.3/4	7&8	0.180&0.165	57.2	2.251	65.6	2.582	A-73/2	A-73/3	A-73/4	A-73/5	A-73/6
76.20	3	3	0.259	69.85	2.3/4	9&10	0.148&0.134	58.6	2.307	67.0	2.637	A-74/2	A-74/3	A-74/4	A-74/5	A-74/6
76.20	3	4	0.238	69.85	2.3/4	11-13	0.120-0.095	60.4	2.377	68.8	2.708	A-75/2	A-75/3	A-75/4	A-75/5	A-75/6
76.20	3	5&6	0.220&0.203	69.85	2.3/4	14-16	0.083-0.065	62.2	2.448	70.4	2.771	A-76/2	A-76/3	A-76/4	A-76/5	A-76/6
76.20	3	7&8	0.180&0.165	-	-	-	-	63.6	2.503	72.0	2.834	A-77/2	A-77/3	A-77/4	A-77/5	A-77/6
76.20	3	9&10	0.148&0.134	82.55	3.1/4	3	0.259	65.0	2.559	73.4	2.889	A-78/2	A-78/3	A-78/4	A-78/5	A-78/6
76.20	3	11-13	0.120-0.095	82.55	3.1/4	4	0.238	66.6	2.622	75.0	2.952	A-79/2	A-79/3	A-79/4	A-79/5	A-79/6
76.20	3	14-16	0.083-0.065	82.55	3.1/4	5&6	0.220&0.203	68.3	2.688	76.9	3.027	A-80/2	A-80/3	A-80/4	A-80/5	A-80/6
88.90	3.1/2	2	0.284	82.55	3.1/4	7&8	0.180&0.165	69.9	2.751	78.5	3.090	A-81/2	A-81/3	A-81/4	A-81/5	A-81/6
88.90	3.1/2	3	0.259	82.55	3.1/4	9&10	0.148&0.134	71.5	2.814	80.1	3.153	A-82/2	A-82/3	A-82/4	A-82/5	A-82/6
88.90	3.1/2	4	0.238	82.55	3.1/4	11-13	0.120-0.095	73.1	2.877	81.7	3.216	A-83/2	A-83/3	A-83/4	A-83/5	A-83/6
88.90	3.1/2	5&6	0.220&0.203	82.55	3.1/4	14-16	0.083-0.065	74.6	2.937	84.2	3.314	A-84/2	A-84/3	A-84/4	A-84/5	A-84/6
88.90	3.1/2	7&8	0.180&0.165	95.25	3.3/4	2	0.284	76.2	3.000	85.5	3.366	A-85/2	A-85/3	A-85/4	A-85/5	A-85/6
88.90	3.1/2	9-10	0.148-0.120	95.25	3.3/4	3	0.259	77.8	3.062	87.4	3.440	A-86/2	A-86/3	A-86/4	A-86/5	A-86/6
88.90	3.1/2	12-16	0.109-0.065	95.25	3.3/4	4	0.238	79.4	3.125	89.0	3.503	A-87/2	A-87/3	A-87/4	A-87/5	A-87/6
-	-	-	-	95.25	3.3/4	5&6	0.220&0.203	81.0	3.188	90.6	3.566	A-88/2	A-88/3	A-88/4	A-88/5	A-88/6
101.60	4	2	0.284	95.25	3.3/4	7&8	0.180&0.165	82.6	3.251	92.2	3.629	A-89/2	A-89/3	A-89/4	A-89/5	A-89/6
101.60	4	3	0.259	95.25	3.3/4	9&10	0.148&0.134	84.2	3.314	93.8	3.692	A-90/2	A-90/3	A-90/4	A-90/5	A-90/6
101.60	4	4	0.238	95.25	3.3/4	11-13	0.120-0.095	85.8	3.377	96.2	3.787	A-91/2	A-91/3	A-91/4	A-91/5	A-91/6
101.60	4	5&6	0.220&0.203	95.25	3.3/4	14-16	0.083-0.065	87.4	3.440	97.8	3.850	A-92/2	A-92/3	A-92/4	A-92/5	A-92/6
101.60	4	7&8	0.180&0.165	107.95	4.1/4	2	-	89.0	3.503	99.4	3.913	A-93/2	A-93/3	A-93/4	A-93/5	A-93/6
101.60	4	9-11	0.148-0.120	107.95	4.1/4	3	0.284	90.4	3.559	100.8	3.968	A-94/2	A-94/3	A-94/4	A-94/5	A-94/6
101.60	4	12-16	0.109-0.065	107.95	4.1/4	4	0.238	92.0	3.622	102.4	4.031	A-95/2	A-95/3	A-95/4	A-95/5	A-95/6
-	-	-	-	107.95	4.1/4	5&6	0.220&0.203	93.4	3.677	103.8	4.086	A-96/2	A-96/3	A-96/4	A-96/5	A-96/6
114.30	4.1/2	2	0.284	107.95	4.1/4	7&8	0.180&0.165	95.0	3.740	105.4	4.149	A-97/2	A-97/3	A-97/4	A-97/5	A-97/6
114.30	4.1/2	3	0.259	107.95	4.1/4	9-11	0.148-0.120	96.6	3.803	107.0	4.212	A-98/2	A-98/3	A-98/4	A-98/5	A-98/6
114.30	4.1/2	4&5	0.238&0.220	107.95	4.1/4	11-13	0.120-0.095	98.2	3.866	108.6	4.275	A-99/2	A-99/3	A-99/4	A-99/5	A-99/6
114.30	4.1/2	6&7	0.203&0.180	-	-	-	-	101.2	3.984	110.0	4.330	A-100/2	A-100/3	A-100/4	A-100/5	A-100/6
114.30	4.1/2	8&9	0.165&0.148	-	-	-	-	102.8	4.047	111.6	4.393	A-101/2	A-101/3	A-101/4	A-101/5	A-101/6
114.30	4.1/2	10-12	.134&.109	-	-	-	-	104.4	4.110	113.2	4.456	A-102/2	A-102/3	A-102/4	A-102/5	A-102/6

A Series



Spare Roller No. Tube Sheet Thickness Range					Spare Mandrel No.			Mandrel Square	
1/2" To 7/8"	3/4" To 1 1/8"	1 1/8" To 1 5/8"	1 5/8" To 2 1/8"	2 1/8" To 2 5/8"	Drum Type	Header Type	Short Series Mandrel Set (No. Of Mandrels)		
								mm	inch
43-2-RS	43-3-RS	43-4-RS	43-5-RS	43-6-RS	DM-23	HM-23	SM-23 (3)	19.05	3/4
44-2-RS	44-3-RS	44-4-RS	44-5-RS	44-6-RS	DM-23	HM-23	SM-23 (3)	19.05	3/4
43-2-RS	43-3-RS	43-4-RS	43-5-RS	43-6-RS	DM-24	HM-24	SM-24 (3)	19.05	3/4
44-2-RS	44-3-RS	44-4-RS	44-5-RS	44-6-RS	DM-24	HM-24	SM-24 (3)	19.05	3/4
45-2-RS	45-3-RS	45-4-RS	45-5-RS	45-6-RS	DM-24	HM-24	SM-24 (3)	19.05	3/4
47-2-RS	47-3-RS	47-4-RS	47-5-RS	47-6-RS	DM-24	HM-24	SM-24 (3)	19.05	3/4
46-2-RS	46-3-RS	46-4-RS	46-5-RS	46-6-RS	DM-25	HM-25	SM-25 (3)	25.40	1
47-2-RS	47-3-RS	47-4-RS	47-5-RS	47-6-RS	DM-25	HM-25	SM-25 (3)	25.40	1
48-2-RS	48-3-RS	48-4-RS	48-5-RS	48-6-RS	DM-25	HM-25	SM-25 (3)	25.40	1
49-2-RS	49-3-RS	49-4-RS	49-5-RS	49-6-RS	DM-25	HM-25	SM-25 (3)	25.40	1
50-2-RS	50-3-RS	50-4-RS	50-5-RS	50-6-RS	DM-25	HM-25	SM-25 (3)	25.40	1
51-2-RS	51-3-RS	51-4-RS	51-5-RS	51-6-RS	DM-25	HM-25	SM-25 (3)	25.40	1
52-2-RS	52-3-RS	52-4-RS	52-5-RS	52-6-RS	DM-25	HM-25	SM-25 (3)	25.40	1
51-2-RS	51-3-RS	51-4-RS	51-5-RS	51-6-RS	DM-26	HM-26	SM-26 (4)	25.40	1
52-2-RS	52-3-RS	52-4-RS	52-5-RS	52-6-RS	DM-26	HM-26	SM-26 (4)	25.40	1
53-2-RS	53-3-RS	53-4-RS	53-5-RS	53-6-RS	DM-26	HM-26	SM-26 (4)	25.40	1
54-2-RS	54-3-RS	54-4-RS	54-5-RS	54-6-RS	DM-26	HM-26	SM-26 (4)	25.40	1
54-2-RS	54-3-RS	54-4-RS	54-5-RS	54-6-RS	DM-27	HM-27	SM-27 (4)	25.40	1
55-2-RS	55-3-RS	55-4-RS	55-5-RS	55-6-RS	DM-27	HM-27	SM-27 (4)	25.40	1
56-2-RS	56-3-RS	56-4-RS	56-5-RS	56-6-RS	DM-27	HM-27	SM-27 (4)	25.40	1
57-2-RS	57-3-RS	57-4-RS	57-5-RS	57-6-RS	DM-27	HM-27	SM-27 (4)	25.40	1
58-2-RS	58-3-RS	58-4-RS	58-5-RS	58-6-RS	DM-27	HM-27	SM-27 (4)	25.40	1
59-2-RS	59-3-RS	59-4-RS	59-5-RS	59-6-RS	DM-27	HM-27	SM-27 (4)	25.40	1
60-2-RS	60-3-RS	60-4-RS	60-5-RS	60-6-RS	DM-27	HM-27	SM-27 (4)	25.40	1
59-2-RS	59-3-RS	59-4-RS	59-5-RS	59-6-RS	DM-28	HM-28	SM-28 (4)	25.40	1
60-2-RS	60-3-RS	60-4-RS	60-5-RS	60-6-RS	DM-28	HM-28	SM-28 (4)	25.40	1
61-2-RS	61-3-RS	61-4-RS	61-5-RS	61-6-RS	DM-28	HM-28	SM-28 (4)	25.40	1
62-2-RS	62-3-RS	62-4-RS	62-5-RS	62-6-RS	DM-28	HM-28	SM-28 (4)	25.40	1
63-2-RS	63-3-RS	63-4-RS	63-5-RS	63-6-RS	DM-28	HM-28	SM-28 (4)	25.40	1
62-2-RS	62-3-RS	62-4-RS	62-5-RS	62-6-RS	DM-29	HM-29	SM-29 (4)	25.40	1
63-2-RS	63-3-RS	63-4-RS	63-5-RS	63-6-RS	DM-29	HM-29	SM-29 (4)	25.40	1
64-2-RS	64-3-RS	64-4-RS	64-5-RS	64-6-RS	DM-29	HM-29	SM-29 (4)	25.40	1
63-2-RS	63-3-RS	63-4-RS	63-5-RS	63-6-RS	DM-30	HM-30	SM-30 (4)	25.40	1
64-2-RS	64-3-RS	64-4-RS	64-5-RS	64-6-RS	DM-30	HM-30	SM-30 (4)	25.40	1
65-2-RS	65-3-RS	65-4-RS	65-5-RS	65-6-RS	DM-30	HM-30	SM-30 (4)	25.40	1
66-2-RS	66-3-RS	66-4-RS	66-5-RS	66-6-RS	DM-30	HM-30	SM-30 (4)	25.40	1

AF3 Series



Tube O.D.		Tube Thickness		Tube O.D.		Tube Thickness		Minimum I.D. Tool Enters		Maximum Expansion Of Tool		Tool No.				
												Tube Sheet Thickness Range				
mm	inch	bwg	inch	mm	inch	bwg	inch	mm	inch	mm	inch	1/2" To 7/8"	3/4" To 1 1/8"	1 1/8" To 1 5/8"	1 5/8" To 2 1/8"	2 1/8" To 2 5/8"
22.22	7/8	15	0.072	25.40	1	10	0.134	18.10	0.712	20.4	0.803	AF3-31/2	AF3-31/3	-	-	-
22.22	7/8	16	0.065	-	-	-	-	18.40	0.724	20.7	0.814	AF3-32/2	AF3-32/3	-	-	-
22.22	7/8	17	0.058	25.40	1	11	0.120	18.80	0.74	21.1	0.83	AF3-33/2	AF3-33/3	-	-	-
22.22	7/8	18	0.049	25.40	1	12	0.109	19.40	0.763	21.6	0.85	AF3-34/2	AF3-34/3	-	-	-
22.22	7/8	19&20	0.042&0.035	28.57	1 1/8	8	0.165	19.70	0.775	22.3	0.877	AF3-35/2	AF3-35/3	-	-	-
25.40	1	13	0.095	-	-	-	-	20.10	0.791	22.4	0.881	AF3-36/2	AF3-36/3	-	-	-
25.40	1	14	0.083	28.57	1 1/8	9	0.148	20.60	0.811	23.1	0.909	AF3-37/2	AF3-37/3	AF3-37/4	-	-
25.40	1	15&16	0.072&0.065	28.57	1 1/8	10	0.134	21.30	0.838	23.8	0.937	AF3-38/2	AF3-38/3	AF3-38/4	-	-
25.40	1	17&18	0.058&0.048	28.57	1 1/8	11	0.120	22.00	0.866	24.5	0.964	AF3-39/2	AF3-39/3	AF3-39/4	-	-
25.40	1	19&20	0.042&0.035	28.57	1 1/8	12	0.109	22.40	0.881	25.0	0.984	AF3-40/2	AF3-40/3	AF3-40/4	-	-
31.75	1 1/4	8	0.165	28.57	1 1/8	13	0.095	23.30	0.917	25.9	1.019	AF3-41/2	AF3-41/3	AF3-41/4	-	-
31.75	1 1/4	9	0.148	28.57	1 1/8	14	0.083	23.80	0.937	26.5	1.043	AF3-42/2	AF3-42/3	AF3-42/4	-	-
31.75	1 1/4	10	0.134	28.57	1 1/8	15&16	0.072&0.065	24.40	0.96	27.2	1.070	AF3-43/2	AF3-43/3	AF3-43/4	-	-
31.75	1 1/4	11	0.120	-	-	-	-	25.20	0.992	28.0	1.102	AF3-44/2	AF3-44/3	AF3-44/4	-	-
31.75	1 1/4	12	0.109	-	-	-	-	25.70	1.011	28.5	1.122	AF3-45/2	AF3-45/3	AF3-45/4	-	-
31.75	1 1/4	13	0.095	60.32	1 3/8	8	0.165	26.14	1.027	28.8	1.133	AF3-46/2	AF3-46/3	AF3-46/4	-	-
31.75	1 1/4	14	0.083	-	-	-	-	26.40	1.039	29.2	1.149	AF3-47/2	AF3-47/3	AF3-47/4	-	-
31.75	1 1/4	15	0.072	60.32	1 3/8	9	0.148	26.90	1.059	29.7	1.169	AF3-48/2	AF3-48/3	AF3-48/4	-	-
31.75	1 1/4	16	0.065	60.32	1 3/8	10	0.134	27.60	1.086	30.4	1.196	AF3-49/2	AF3-49/3	AF3-49/4	AF3-49/5	AF3-49/6
38.10	1 1/2	7	0.180	60.32	1 3/8	11	0.120	28.30	1.114	31.2	1.228	AF3-50/2	AF3-50/3	AF3-50/4	AF3-50/5	AF3-50/6
38.10	1 1/2	8	0.165	60.32	1 3/8	12	0.109	28.80	1.133	31.7	1.248	AF3-51/2	AF3-51/3	AF3-51/4	AF3-51/5	AF3-51/6
38.10	1 1/2	9	0.148	60.32	1 3/8	13&14	0.095&0.083	29.50	1.161	33.4	1.314	AF3-52/2	AF3-52/3	AF3-52/4	AF3-52/5	AF3-52/6
38.10	1 1/2	10	0.134	60.32	1 3/8	15&16	0.072&0.065	30.00	1.181	34.1	1.342	AF3-53/2	AF3-53/3	AF3-53/4	AF3-53/5	AF3-53/6
38.10	1 1/2	11&12	0.120&0.109	-	-	-	-	30.60	1.204	34.8	1.370	AF3-54/2	AF3-54/3	AF3-54/4	AF3-54/5	AF3-54/6
38.10	1 1/2	13	0.095	44.45	1 3/4	5	0.220	31.40	1.236	35.6	1.401	AF3-55/2	AF3-55/3	AF3-55/4	AF3-55/5	AF3-55/6
38.10	1 1/2	14&15	0.083&0.072	44.45	1 3/4	6	0.203	32.60	1.283	36.8	1.448	AF3-56/2	AF3-56/3	AF3-56/4	AF3-56/5	AF3-56/6
-	-	-	-	44.45	1 3/4	7	0.180	33.40	1.314	38.1	1.500	AF3-57/2	AF3-57/3	AF3-57/4	AF3-57/5	AF3-57/6
-	-	-	-	44.45	1 3/4	8	0.165	34.20	1.346	38.7	1.523	AF3-58/2	AF3-58/3	AF3-58/4	AF3-58/5	AF3-58/6
50.80	2	3	0.259	44.45	1 3/4	9&10	0.148&0.134	35.00	1.377	40.6	1.598	AF3-59/2	AF3-59/3	AF3-59/4	AF3-59/5	AF3-59/6
50.80	2	4	0.238	44.45	1 3/4	11&12	0.120&0.109	36.60	1.440	42.2	1.661	AF3-60/2	AF3-60/3	AF3-60/4	AF3-60/5	AF3-60/6
50.80	2	5&6	0.220&0.203	44.45	1 3/4	13&14	0.095&0.083	38.20	1.503	43.8	1.712	AF3-61/2	AF3-61/3	AF3-61/4	AF3-61/5	AF3-61/6
50.80	2	7&8	0.180&0.165	44.45	1 3/4	15&16	0.072&0.065	39.80	1.566	45.4	1.787	AF3-62/2	AF3-62/3	AF3-62/4	AF3-62/5	AF3-62/6
50.80	2	9&10	0.148&0.134	57.15	2 1/4	3	0.259	41.40	1.629	47.0	1.850	AF3-63/2	AF3-63/3	AF3-63/4	AF3-63/5	AF3-63/6
50.80	2	11-13	0.120-0.095	57.15	2 1/4	4	0.238	42.90	1.688	49.5	1.948	AF3-64/2	AF3-64/3	AF3-64/4	AF3-64/5	AF3-64/6
50.80	2	14-16	0.083-0.065	-	2 1/4	6&7	0.203&0.180	44.50	1.751	51.1	2.011	AF3-65/2	AF3-65/3	AF3-65/4	AF3-65/5	AF3-65/6
50.80	2	17&18	0.058&0.049	-	2 1/4	8&9	0.165&0.148	46.10	1.814	52.7	2.074	AF3-66/2	AF3-66/3	AF3-66/4	AF3-66/5	AF3-66/6

AF3 Series

■ 특징

- 튜브 끝 단의 플레어링 작업을 하기에 적합한 툴입니다.
- 견고한 구조의 케이지와 롤러로 구성되어 있습니다.
- 여러 개의 플레어롤이 튜브의 손상을 예방합니다.
- 적은 개수의 튜브의 확장작업과 플레어링 작업을 동시에 하기에 경제적인 툴입니다.

■ Features

- Best 'Value For Money' tool in the world when flaring of tube ends is needed.
- Sturdy construction with rolls self contained in cage.
- Time tested, durable design.
- Overlapping flare rolls prevent ridging of tube.
- Use - Economical tool used for applications where small number of tubes are to be expanded with flaring.

Spare Roller No. Tube Sheet Thickness Range					Spare Mandrel No.			Mandrel Square	
1/2" To 7/8"	3/4" To 1 1/8"	1 1/8" To 1 5/8"	1 5/8" To 2 1/8"	2 1/8" To 2 5/8"	Drum Type	Header Type	Short Series Mandrel Set (No. Of Mandrels)		
								mm	inch
15-2-F3S	15-3-F3S	-	-	-	DM-11	-	-	9.52	3/8
15-2-F3S	15-3-F3S	-	-	-	DM-12	-	-	9.52	3/8
16-2-F3S	16-3-F3S	-	-	-	DM-12	-	-	9.52	3/8
20-2-F3S	20-3-F3S	-	-	-	DM-12	-	-	9.52	3/8
17-2-F3S	17-3-F3S	-	-	-	DM-13	-	-	9.52	3/8
18-2-F3S	18-3-F3S	-	-	-	DM-12	-	-	9.52	3/8
18-2-F3S	18-3-F3S	18-4-F3S	-	-	DM-13	HM-13	SM-13 (2)	9.52	3/8
19-2-F3S	19-3-F3S	19-4-F3S	-	-	DM-13	HM-13	SM-13 (2)	9.52	3/8
21-2-F3S	21-3-F3S	21-4-F3S	-	-	DM-13	HM-13	SM-13 (2)	9.52	3/8
21-2-F3S	21-3-F3S	21-4-F3S	-	-	DM-14	HM-14	SM-14 (2)	9.52	3/8
22-2-F3S	22-3-F3S	22-4-F3S	-	-	DM-14	HM-14	SM-14 (2)	9.52	3/8
23-2-F3S	23-3-F3S	23-4-F3S	-	-	DM-15	HM-15	SM-15 (2)	12.70	1/2
24-2-F3S	24-3-F3S	24-4-F3S	-	-	DM-15	HM-15	SM-15 (2)	12.70	1/2
26-2-F3S	26-3-F3S	26-4-F3S	-	-	DM-16	HM-16	SM-16 (2)	12.70	1/2
27-2-F3S	27-3-F3S	27-4-F3S	-	-	DM-16	HM-16	SM-16 (2)	12.70	1/2
31-2-F3S	31-3-F3S	31-4-F3S	-	-	DM-16	HM-16	SM-16 (2)	12.70	1/2
28-2-F3S	28-3-F3S	28-4-F3S	-	-	DM-17	HM-17	SM-17 (2)	12.70	1/2
29-2-F3S	29-3-F3S	29-4-F3S	-	-	DM-17	HM-17	SM-17 (2)	12.70	1/2
30-2-F3S	30-3-F3S	30-4-F3S	30-5-F3S	30-6-F3S	DM-17	HM-17	SM-17 (2)	12.70	1/2
30-2-F3S	30-3-F3S	30-4-F3S	30-5-F3S	30-6-F3S	DM-18	HM-18	SM-18 (2)	12.70	1/2
34-2-F3S	34-3-F3S	34-4-F3S	34-5-F3S	34-6-F3S	DM-18	HM-18	SM-18 (2)	12.70	1/2
28-2-F3S	28-3-F3S	28-4-F3S	28-5-F3S	28-6-F3S	DM-20	HM-20	SM-20 (2)	12.70	1/2
29-2-F3S	29-3-F3S	29-4-F3S	29-5-F3S	29-6-F3S	DM-20	HM-20	SM-20 (2)	12.70	1/2
30-2-F3S	30-3-F3S	30-4-F3S	30-5-F3S	30-6-F3S	DM-20	HM-20	SM-20 (2)	12.70	1/2
33-2-F3S	33-3-F3S	33-4-F3S	33-5-F3S	33-6-F3S	DM-20	HM-20	SM-20 (2)	12.70	1/2
32-2-F3S	32-3-F3S	32-4-F3S	32-5-F3S	32-6-F3S	DM-21	HM-21	SM-21 (2)	12.70	1/2
36-2-F3S	36-3-F3S	36-4-F3S	36-5-F3S	36-6-F3S	DM-21	HM-21	SM-21 (2)	12.70	1/2
37-2-F3S	37-3-F3S	37-4-F3S	37-5-F3S	37-6-F3S	DM-21	HM-21	SM-21 (2)	12.70	1/2
33-2-F3S	33-3-F3S	33-4-F3S	33-5-F3S	33-6-F3S	DM-22	HM-22	SM-22 (3)	19.05	3/4
37-2-F3S	37-3-F3S	37-4-F3S	37-5-F3S	37-6-F3S	DM-22	HM-22	SM-22 (3)	19.05	3/4
38-2-F3S	38-3-F3S	38-4-F3S	38-5-F3S	38-6-F3S	DM-22	HM-22	SM-22 (3)	19.05	3/4
39-2-F3S	39-3-F3S	39-4-F3S	39-5-F3S	39-6-F3S	DM-22	HM-22	SM-22 (3)	19.05	3/4
40-2-F3S	40-3-F3S	40-4-F3S	40-5-F3S	40-6-F3S	DM-22	HM-22	SM-22 (3)	19.05	3/4
40-2-F3S	40-3-F3S	40-4-F3S	40-5-F3S	40-6-F3S	DM-23	HM-23	SM-23 (3)	19.05	3/4
41-2-F3S	41-3-F3S	41-4-F3S	41-5-F3S	41-6-F3S	DM-23	HM-23	SM-23 (3)	19.05	3/4
42-2-F3S	42-3-F3S	42-4-F3S	42-5-F3S	42-6-F3S	DM-23	HM-23	SM-23 (3)	19.05	3/4

AF3 Series



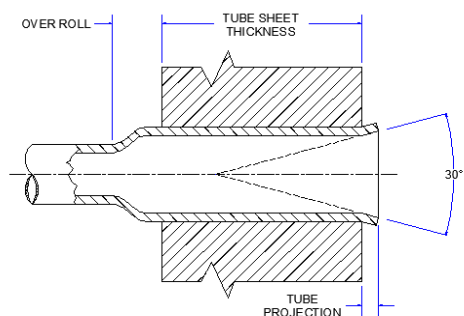
Tube O.D.		Tube Thickness		Tube O.D.		Tube Thickness		Minimum I.D. Tool Enters		Maximum Expansion Of Tool		Tube Expander Model Number				
												Tube Sheet Thickness Range				
												1/2" To 7/8"	3/4" To 1.1/8"	1.1/8" To 1.5/8"	1.5/8" To 2.1/8"	2.1/8" To 2.5/8"
mm	inch	bwg	inch	mm	inch	bwg	inch	mm	inch	mm	inch					
63.50	2.1/2	3	0.259	57.15	2.1/4	10&11	0.134&0.120	47.7	1.877	54.3	2.137	AF3-67/2	AF3-67/3	AF3-67/4	AF3-67/5	AF3-67/6
63.50	2.1/2	4&5	0.238&0.220	57.15	2.1/4	12&13	0.109&0.095	49.3	1.940	55.9	2.200	AF3-68/2	AF3-68/3	AF3-68/4	AF3-68/5	AF3-68/6
63.50	2.1/2	6&7	0.203&0.180	57.15	2.1/4	14-16	0.083-0.065	50.8	2.000	57.8	2.275	AF3-69/2	AF3-69/3	AF3-69/4	AF3-69/5	AF3-69/6
63.50	2.1/2	8&9	0.165&0.148	69.85	2.3/4	3	0.259	52.4	2.062	59.4	2.338	AF3-70/2	AF3-70/3	AF3-70/4	AF3-70/5	AF3-70/6
63.50	2.1/2	10&11	0.134&0.120	69.85	2.3/4	4	0.238	54.0	2.125	61.0	2.401	AF3-71/2	AF3-71/3	AF3-71/4	AF3-71/5	AF3-71/6
63.50	2.1/2	12-14	0.109-0.083	69.85	2.3/4	5&6	0.220&0.203	55.6	2.188	64.0	2.519	AF3-72/2	AF3-72/3	AF3-72/4	AF3-72/5	AF3-72/6
63.50	2.1/2	15&16	0.072&0.065	69.85	2.3/4	7&8	0.180&0.165	57.2	2.251	65.6	2.582	AF3-73/2	AF3-73/3	AF3-73/4	AF3-73/5	AF3-73/6
76.20	3	3	0.259	69.85	2.3/4	9&10	0.148&0.134	58.6	2.307	67.0	2.637	AF3-74/2	AF3-74/3	AF3-74/4	AF3-74/5	AF3-74/6
76.20	3	4	0.238	69.85	2.3/4	11-13	0.120-0.095	60.4	2.377	68.8	2.708	AF3-75/2	AF3-75/3	AF3-75/4	AF3-75/5	AF3-75/6
76.20	3	5&6	0.220&0.203	69.85	2.3/4	14-16	0.083-0.065	62.2	2.448	70.4	2.771	AF3-76/2	AF3-76/3	AF3-76/4	AF3-76/5	AF3-76/6
76.20	3	7&8	0.180&0.165	-	-	-	-	63.6	2.503	72.0	2.834	AF3-77/2	AF3-77/3	AF3-77/4	AF3-77/5	AF3-77/6
76.20	3	9&10	0.148&0.134	82.55	3.1/4	3	0.259	65.0	2.559	73.4	2.889	AF3-78/2	AF3-78/3	AF3-78/4	AF3-78/5	AF3-78/6
76.20	3	11-13	0.120-0.095	82.55	3.1/4	4	0.238	66.6	2.622	75.0	2.952	AF3-79/2	AF3-79/3	AF3-79/4	AF3-79/5	AF3-79/6
76.20	3	14-16	0.083-0.065	82.55	3.1/4	5&6	0.220&0.203	68.3	2.688	76.9	3.027	AF3-80/2	AF3-80/3	AF3-80/4	AF3-80/5	AF3-80/6
88.90	3.1/2	2	0.284	82.55	3.1/4	7&8	0.180&0.165	69.9	2.751	78.5	3.090	AF3-81/2	AF3-81/3	AF3-81/4	AF3-81/5	AF3-81/6
88.90	3.1/2	3	0.259	82.55	3.1/4	9&10	0.148&0.134	71.5	2.814	80.1	3.153	AF3-82/2	AF3-82/3	AF3-82/4	AF3-82/5	AF3-82/6
88.90	3.1/2	4	0.238	82.55	3.1/4	11-13	0.120-0.095	73.1	2.877	81.7	3.216	AF3-83/2	AF3-83/3	AF3-83/4	AF3-83/5	AF3-83/6
88.90	3.1/2	5&6	0.220&0.203	82.55	3.1/4	14-16	0.083-0.065	74.6	2.937	84.2	3.314	AF3-84/2	AF3-84/3	AF3-84/4	AF3-84/5	AF3-84/6
88.90	3.1/2	7&8	0.180&0.165	95.25	3.3/4	2	0.284	76.2	3.000	85.5	3.366	AF3-85/2	AF3-85/3	AF3-85/4	AF3-85/5	AF3-85/6
88.90	3.1/2	9-11	0.148-0.120	95.25	3.3/4	3	0.259	77.8	3.062	87.4	3.440	AF3-86/2	AF3-86/3	AF3-86/4	AF3-86/5	AF3-86/6
88.90	3.1/2	12-16	0.109-0.065	95.25	3.3/4	4	0.238	79.4	3.125	89.0	3.503	AF3-87/2	AF3-87/3	AF3-87/4	AF3-87/5	AF3-87/6
-	-	-	-	95.25	3.3/4	5&6	0.220&0.203	81.0	3.188	90.6	3.566	AF3-88/2	AF3-88/3	AF3-88/4	AF3-88/5	AF3-88/6
101.60	4	2	0.284	95.25	3.3/4	7&8	0.180&0.165	82.6	3.251	92.2	3.629	AF3-89/2	AF3-89/3	AF3-89/4	AF3-89/5	AF3-89/6
101.60	4	3	0.259	95.25	3.3/4	9&10	0.148&0.134	84.2	3.314	93.8	3.692	AF3-90/2	AF3-90/3	AF3-90/4	AF3-90/5	AF3-90/6
101.60	4	4	0.238	95.25	3.3/4	11-13	0.120-0.095	85.8	3.377	96.2	3.787	AF3-91/2	AF3-91/3	AF3-91/4	AF3-91/5	AF3-91/6
101.60	4	5&6	0.220 & 0.203	95.25	3.3/4	14-16	0.083-0.065	87.4	3.440	97.8	3.850	AF3-92/2	AF3-92/3	AF3-92/4	AF3-92/5	AF3-92/6
101.60	4	7&8	0.180&0.165	107.95	4.1/4	2	0.284	89.0	3.503	99.4	3.913	AF3-93/2	AF3-93/3	AF3-93/4	AF3-93/5	AF3-93/6
101.60	4	9-11	0.148-0.120	107.95	4.1/4	3	0.259	90.4	3.559	100.8	3.968	AF3-94/2	AF3-94/3	AF3-94/4	AF3-94/5	AF3-94/6
101.60	4	12-16	0.109-0.065	107.95	4.1/4	4	0.238	92.0	3.622	102.4	4.031	AF3-95/2	AF3-95/3	AF3-95/4	AF3-95/5	AF3-95/6
-	-	-	-	107.95	4.1/4	5&6	0.220&0.203	93.4	3.677	103.8	4.086	AF3-96/2	AF3-96/3	AF3-96/4	AF3-96/5	AF3-96/6
114.30	4.1/2	2	0.284	107.95	4.1/4	7&8	0.180&0.165	95.0	3.740	105.4	4.149	AF3-97/2	AF3-97/3	AF3-97/4	AF3-97/5	AF3-97/6
114.30	4.1/2	3	0.259	107.95	4.1/4	9-11	0.148-0.120	96.6	3.803	107.0	4.212	AF3-98/2	AF3-98/3	AF3-98/4	AF3-98/5	AF3-98/6
114.30	4.1/2	4&5	0.238&0.220	107.95	4.1/4	11-13	0.120-0.095	98.2	3.866	108.6	4.275	AF3-99/2	AF3-99/3	AF3-99/4	AF3-99/5	AF3-99/6
114.30	4.1/2	6&7	0.203&0.180	-	-	-	-	101.2	3.984	110.0	4.330	AF3-100/2	AF3-100/3	AF3-100/4	AF3-100/5	AF3-100/6
114.30	4.1/2	8&9	0.165&0.148	-	-	-	-	102.8	4.047	111.6	4.393	AF3-101/2	AF3-101/3	AF3-101/4	AF3-101/5	AF3-101/6
114.30	4.1/2	10-12	0.134-0.109	-	-	-	-	104.4	4.110	113.2	4.456	AF3-102/2	AF3-102/3	AF3-102/4	AF3-102/5	AF3-102/6

AF3 Series



Spare Roller No.					Spare Mandrel No.			Mandrel Square	
Tube Sheet Thickness Range					Drum Type	Header Type	Short Series Mandrel Set (No. Of Mandrels)		
1/2" To 7/8"	3/4" To 1 1/8"	1 1/8" To 1 5/8"	1 5/8" To 2 1/8"	2 1/8" To 2 5/8"					
43-2-F3S	43-3-F3S	43-4-F3S	43-5-F3S	43-6-F3S	DM-23	HM-23	SM-23 (3)	19.05	3/4
44-2-F3S	44-3-F3S	44-4-F3S	44-5-F3S	44-6-F3S	DM-23	HM-23	SM-23 (3)	19.05	3/4
43-2-F3S	43-3-F3S	43-4-F3S	43-5-F3S	43-6-F3S	DM-24	HM-24	SM-24 (3)	19.05	3/4
44-2-F3S	44-3-F3S	44-4-F3S	44-5-F3S	44-6-F3S	DM-24	HM-24	SM-24 (3)	19.05	3/4
45-2-F3S	45-3-F3S	45-4-F3S	45-5-F3S	45-6-F3S	DM-24	HM-24	SM-24 (3)	19.05	3/4
47-2-F3S	47-3-F3S	47-4-F3S	47-5-F3S	47-6-F3S	DM-24	HM-24	SM-24 (3)	19.05	3/4
46-2-F3S	46-3-F3S	46-4-F3S	46-5-F3S	46-6-F3S	DM-25	HM-25	SM-25 (3)	25.40	1
47-2-F3S	47-3-F3S	47-4-F3S	47-5-F3S	47-6-F3S	DM-25	HM-25	SM-25 (3)	25.40	1
48-2-F3S	48-3-F3S	48-4-F3S	48-5-F3S	48-6-F3S	DM-25	HM-25	SM-25 (3)	25.40	1
49-2-F3S	49-3-F3S	49-4-F3S	49-5-F3S	49-6-F3S	DM-25	HM-25	SM-25 (3)	25.40	1
50-2-F3S	50-3-F3S	50-4-F3S	50-5-F3S	50-6-F3S	DM-25	HM-25	SM-25 (3)	25.40	1
51-2-F3S	51-3-F3S	51-4-F3S	51-5-F3S	51-6-F3S	DM-25	HM-25	SM-25 (3)	25.40	1
52-2-F3S	52-3-F3S	52-4-F3S	52-5-F3S	52-6-F3S	DM-25	HM-25	SM-25 (3)	25.40	1
51-2-F3S	51-3-F3S	51-4-F3S	51-5-F3S	51-6-F3S	DM-26	HM-26	SM-26 (4)	25.40	1
52-2-F3S	52-3-F3S	52-4-F3S	52-5-F3S	52-6-F3S	DM-26	HM-26	SM-26 (4)	25.40	1
53-2-F3S	53-3-F3S	53-4-F3S	53-5-F3S	53-6-F3S	DM-26	HM-26	SM-26 (4)	25.40	1
54-2-F3S	54-3-F3S	54-4-F3S	54-5-F3S	54-6-F3S	DM-26	HM-26	SM-26 (4)	25.40	1
54-2-F3S	54-3-F3S	54-4-F3S	54-5-F3S	54-6-F3S	DM-27	HM-27	SM-27 (4)	25.40	1
55-2-F3S	55-3-F3S	55-4-F3S	55-5-F3S	55-6-F3S	DM-27	HM-27	SM-27 (4)	25.40	1
56-2-F3S	56-3-F3S	56-4-F3S	56-5-F3S	56-6-F3S	DM-27	HM-27	SM-27 (4)	25.40	1
57-2-F3S	57-3-F3S	57-4-F3S	57-5-F3S	57-6-F3S	DM-27	HM-27	SM-27 (4)	25.40	1
58-2-F3S	58-3-F3S	58-4-F3S	58-5-F3S	58-6-F3S	DM-27	HM-27	SM-27 (4)	25.40	1
59-2-F3S	59-3-F3S	59-4-F3S	59-5-F3S	59-6-F3S	DM-27	HM-27	SM-27 (4)	25.40	1
60-2-F3S	60-3-F3S	60-4-F3S	60-5-F3S	60-6-F3S	DM-27	HM-27	SM-27 (4)	25.40	1
59-2-F3S	59-3-F3S	59-4-F3S	59-5-F3S	59-6-F3S	DM-28	HM-28	SM-28 (4)	25.40	1
60-2-F3S	60-3-F3S	60-4-F3S	60-5-F3S	60-6-F3S	DM-28	HM-28	SM-28 (4)	25.40	1
61-2-F3S	61-3-F3S	61-4-F3S	61-5-F3S	61-6-F3S	DM-28	HM-28	SM-28 (4)	25.40	1
62-2-F3S	62-3-F3S	62-4-F3S	62-5-F3S	62-6-F3S	DM-28	HM-28	SM-28 (4)	25.40	1
63-2-F3S	63-3-F3S	63-4-F3S	63-5-F3S	63-6-F3S	DM-28	HM-28	SM-28 (4)	25.40	1
62-2-F3S	62-3-F3S	62-4-F3S	62-5-F3S	62-6-F3S	DM-29	HM-29	SM-29 (4)	25.40	1
63-2-F3S	63-3-F3S	63-4-F3S	63-5-F3S	63-6-F3S	DM-29	HM-29	SM-29 (4)	25.40	1
64-2-F3S	64-3-F3S	64-4-F3S	64-5-F3S	64-6-F3S	DM-29	HM-29	SM-29 (4)	25.40	1
63-2-F3S	63-3-F3S	63-4-F3S	63-5-F3S	63-6-F3S	DM-30	HM-30	SM-30 (4)	25.40	1
64-2-F3S	64-3-F3S	64-4-F3S	64-5-F3S	64-6-F3S	DM-30	HM-30	SM-30 (4)	25.40	1
65-2-F3S	65-3-F3S	65-4-F3S	65-5-F3S	65-6-F3S	DM-30	HM-30	SM-30 (4)	25.40	1
66-2-F3S	66-3-F3S	66-4-F3S	66-5-F3S	66-6-F3S	DM-30	HM-30	SM-30 (4)	25.40	1

AB Series with Bearing



Tube O.D.		Tube Thickness		Tube O.D.		Tube Thickness		Minimum I.D. Tool Enters		Maximum Expansion Of Tool		Tool No.				
												Tube Sheet Thickness Range				
mm	inch	bwg	inch	mm	inch	bwg	inch	mm	inch	mm	inch	1/2" To 7/8"	3/4" To 1.1/8"	1.1/8" To 1.5/8"	1.5/8" To 2.1/8"	2.1/8" To 2.5/8"
22.22	7/8	15	0.072	25.40	1	10	0.134	18.1	0.712	20.4	0.803	AB-31/2	AB-31/3	-	-	-
22.22	7/8	16	0.065	-	-	-	-	18.4	0.724	20.7	0.814	AB-32/2	AB-32/3	-	-	-
22.22	7/8	17	0.058	25.40	1	11	0.120	18.8	0.74	21.1	0.83	AB-33/2	AB-33/3	-	-	-
22.22	7/8	18	0.049	25.40	1	12	0.109	19.4	0.763	21.6	0.85	AB-34/2	AB-34/3	-	-	-
22.22	7/8	19&20	0.042&0.035	28.57	1.1/8	8	0.165	19.7	0.775	22.3	0.877	AB-35/2	AB-35/3	-	-	-
25.40	1	13	0.095	-	-	-	-	20.1	0.791	22.4	0.881	AB-36/2	AB-36/3	-	-	-
25.40	1	14	0.083	28.57	1.1/8	9	0.148	20.6	0.811	23.1	0.909	AB-37/2	AB-37/3	AB-37/4	-	-
25.40	1	15&16	0.072&0.065	28.57	1.1/8	10	0.134	21.3	0.838	23.8	0.937	AB-38/2	AB-38/3	AB-38/4	-	-
25.40	1	17&18	0.058&0.048	28.57	1.1/8	11	0.120	22.0	0.866	24.5	0.964	AB-39/2	AB-39/3	AB-39/4	-	-
25.40	1	19&20	0.042&0.035	28.57	1.1/8	12	0.109	22.4	0.881	25.0	0.984	AB-40/2	AB-40/3	AB-40/4	-	-
31.75	1.1/4	8	0.165	28.57	1.1/8	13	0.095	23.3	0.917	25.9	1.019	AB-41/2	AB-41/3	AB-41/4	-	-
31.75	1.1/4	9	0.148	28.57	1.1/8	14	0.083	23.8	0.937	26.5	1.043	AB-42/2	AB-42/3	AB-42/4	-	-
31.75	1.1/4	10	0.134	28.57	1.1/8	15&16	0.072&0.065	24.4	0.96	27.2	1.070	AB-43/2	AB-43/3	AB-43/4	-	-
31.75	1.1/4	11	0.120	-	-	-	-	25.2	0.992	28.0	1.102	AB-44/2	AB-44/3	AB-44/4	-	-
31.75	1.1/4	12	0.109	-	-	-	-	25.7	1.011	28.5	1.122	AB-45/2	AB-45/3	AB-45/4	-	-
31.75	1.1/4	13	0.095	60.32	1.3/8	8	0.165	26.1	1.027	28.8	1.133	AB-46/2	AB-46/3	AB-46/4	-	-
31.75	1.1/4	14	0.083	-	-	-	-	26.4	1.039	29.2	1.149	AB-47/2	AB-47/3	AB-47/4	-	-
31.75	1.1/4	15	0.072	60.32	1.3/8	9	0.148	26.9	1.059	29.7	1.169	AB-48/2	AB-48/3	AB-48/4	-	-
31.75	1.1/4	16	0.065	60.32	1.3/8	10	0.134	27.6	1.086	30.4	1.196	AB-49/2	AB-49/3	AB-49/4	AB-49/5	AB-49/6
38.10	1.1/2	7	0.180	60.32	1.3/8	11	0.120	28.3	1.114	31.2	1.228	AB-50/2	AB-50/3	AB-50/4	AB-50/5	AB-50/6
38.10	1.1/2	8	0.165	60.32	1.3/8	12	0.109	28.8	1.133	31.7	1.248	AB-51/2	AB-51/3	AB-51/4	AB-51/5	AB-51/6
38.10	1.1/2	9	0.148	60.32	1.3/8	13&14	0.095&0.083	29.5	1.161	33.4	1.314	AB-52/2	AB-52/3	AB-52/4	AB-52/5	AB-52/6
38.10	1.1/2	10	0.134	60.32	1.3/8	15&16	0.072&0.065	30.0	1.181	34.1	1.342	AB-53/2	AB-53/3	AB-53/4	AB-53/5	AB-53/6
38.10	1.1/2	11&12	0.120&0.109	-	-	-	-	30.6	1.204	34.8	1.370	AB-54/2	AB-54/3	AB-54/4	AB-54/5	AB-54/6
38.10	1.1/2	13	0.095	44.45	1.3/4	5	0.220	31.4	1.236	35.6	1.401	AB-55/2	AB-55/3	AB-55/4	AB-55/5	AB-55/6
38.10	1.1/2	14&15	0.083&0.072	44.45	1.3/4	6	0.203	32.6	1.283	36.8	1.448	AB-56/2	AB-56/3	AB-56/4	AB-56/5	AB-56/6
-	-	-	-	44.45	1.3/4	7	0.180	33.4	1.314	38.1	1.500	AB-57/2	AB-57/3	AB-57/4	AB-57/5	AB-57/6
-	-	-	-	44.45	1.3/4	8	0.165	34.2	1.346	38.7	1.523	AB-58/2	AB-58/3	AB-58/4	AB-58/5	AB-58/6
50.80	2	3	0.259	44.45	1.3/4	9&10	0.148&0.134	35.0	1.377	40.6	1.598	AB-59/2	AB-59/3	AB-59/4	AB-59/5	AB-59/6
50.80	2	4	0.238	44.45	1.3/4	11&12	0.120&0.109	36.6	1.440	42.2	1.661	AB-60/2	AB-60/3	AB-60/4	AB-60/5	AB-60/6
50.80	2	5&6	0.220&0.203	44.45	1.3/4	13&14	0.095&0.083	38.2	1.503	43.8	1.712	AB-61/2	AB-61/3	AB-61/4	AB-61/5	AB-61/6
50.80	2	7&8	0.180&0.165	44.45	1.3/4	15&16	0.072&0.065	39.8	1.566	45.4	1.787	AB-62/2	AB-62/3	AB-62/4	AB-62/5	AB-62/6
50.80	2	9&10	0.148&0.134	57.15	2.1/4	3	0.259	41.4	1.629	47.0	1.850	AB-63/2	AB-63/3	AB-63/4	AB-63/5	AB-63/6
50.80	2	11-13	0.120-0.095	57.15	2.1/4	4	0.238	42.9	1.688	49.5	1.948	AB-64/2	AB-64/3	AB-64/4	AB-64/5	AB-64/6
50.80	2	14-16	0.083-0.065	-	2.1/4	6&7	0.203&0.180	44.5	1.751	51.1	2.011	AB-65/2	AB-65/3	AB-65/4	AB-65/5	AB-65/6
50.80	2	17&18	0.058&0.049	-	2.1/4	8&9	0.165&0.148	46.1	1.814	52.7	2.074	AB-66/2	AB-66/3	AB-66/4	AB-66/5	AB-66/6

AB Series with Bearing

■ 특징

- C-3쪽의 A시리즈와 비슷한 틀입니다.
- 베어링이 마찰을 줄여 부드러운 확관이 가능합니다.
- 베어링이 툴의 사용기간을 늘려줍니다.
- 플레어링 작업이 필요없는 튜브확관 작업에 적합한 툴 입니다.

■ Features

- Similar to 'A' Series expanders (Page. C-3)
- Bearing reduces frictional build up for smoother expanding cycles.
- Bearing increases useful life of tool.
- Use - High productivity tool used where flaring of tubes is not needed.

Spare Roller No. Tube Sheet Thickness Range					Drum Mandrel Model Number	Mandrel Square	
1/2" To 7/8"	3/4" To 1.1/8"	1.1/8" To 1.5/8"	1.5/8" To 2.1/8"	2.1/8" To 2.5/8"		mm	inch
15-2-RS	15-3-RS	-	-	-	DMB-11	9.52	3/8
15-2-RS	15-3-RS	-	-	-	DMB-12	9.52	3/8
16-2-RS	16-3-RS	-	-	-	DMB-12	9.52	3/8
20-2-RS	20-3-RS	-	-	-	DMB-12	9.52	3/8
17-2-RS	17-3-RS	-	-	-	DMB-13	9.52	3/8
18-2-RS	18-3-RS	-	-	-	DMB-12	9.52	3/8
18-2-RS	18-3-RS	18-4-RS	-	-	DMB-13	9.52	3/8
19-2-RS	19-3-RS	19-4-RS	-	-	DMB-13	9.52	3/8
21-2-RS	21-3-RS	21-4-RS	-	-	DMB-13	9.52	3/8
21-2-RS	21-3-RS	21-4-RS	-	-	DMB-14	9.52	3/8
22-2-RS	22-3-RS	22-4-RS	-	-	DMB-14	9.52	3/8
23-2-RS	23-3-RS	23-4-RS	-	-	DMB-15	12.70	1/2
24-2-RS	24-3-RS	24-4-RS	-	-	DMB-15	12.70	1/2
26-2-RS	26-3-RS	26-4-RS	-	-	DMB-16	12.70	1/2
27-2-RS	27-3-RS	27-4-RS	-	-	DMB-16	12.70	1/2
31-2-RS	31-3-RS	31-4-RS	-	-	DMB-16	12.70	1/2
28-2-RS	28-3-RS	28-4-RS	-	-	DMB-17	12.70	1/2
29-2-RS	29-3-RS	29-4-RS	-	-	DMB-17	12.70	1/2
30-2-RS	30-3-RS	30-4-RS	30-5-RS	30-6-RS	DMB-17	12.70	1/2
30-2-RS	30-3-RS	30-4-RS	30-5-RS	30-6-RS	DMB-18	12.70	1/2
32-2-RS	32-3-RS	32-4-RS	32-5-RS	32-6-RS	DMB-18	12.70	1/2
28-2-RS	28-3-RS	28-4-RS	28-5-RS	28-6-RS	DMB-20	12.70	1/2
29-2-RS	29-3-RS	29-4-RS	29-5-RS	29-6-RS	DMB-20	12.70	1/2
30-2-RS	30-3-RS	30-4-RS	30-5-RS	30-6-RS	DMB-20	12.70	1/2
33-2-RS	33-3-RS	33-4-RS	33-5-RS	33-6-RS	DMB-20	12.70	1/2
32-2-RS	32-3-RS	32-4-RS	32-5-RS	32-6-RS	DMB-21	12.70	1/2
36-2-RS	36-3-RS	36-4-RS	36-5-RS	36-6-RS	DMB-21	12.70	1/2
37-2-RS	37-3-RS	37-4-RS	37-5-RS	37-6-RS	DMB-21	12.70	1/2
33-2-RS	33-3-RS	33-4-RS	33-5-RS	33-6-RS	DMB-22	19.05	3/4
37-2-RS	37-3-RS	37-4-RS	37-5-RS	37-6-RS	DMB-22	19.05	3/4
38-2-RS	38-3-RS	38-4-RS	38-5-RS	38-6-RS	DMB-22	19.05	3/4
39-2-RS	39-3-RS	39-4-RS	39-5-RS	39-6-RS	DMB-22	19.05	3/4
40-2-RS	40-3-RS	40-4-RS	40-5-RS	40-6-RS	DMB-22	19.05	3/4
40-2-RS	40-3-RS	40-4-RS	40-5-RS	40-6-RS	DMB-23	19.05	3/4
41-2-RS	41-3-RS	41-4-RS	41-5-RS	41-6-RS	DMB-23	19.05	3/4
42-2-RS	42-3-RS	42-4-RS	42-5-RS	42-6-RS	DMB-23	19.05	3/4

AB Series with Bearing



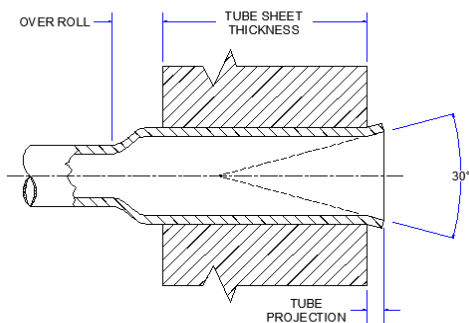
Tube O.D.		Tube Thickness		Tube O.D.		Tube Thickness		Minimum I.D. Tool Enters		Maximum Expansion Of Tool		Tube Expander Model Number				
												Tube Sheet Thickness Range				
mm	inch	bwg	inch	mm	inch	bwg	inch	mm	inch	mm	inch	1/2" To 7/8"	3/4" To 1 1/8"	1 1/8" To 1 5/8"	1 5/8" To 2 1/8"	2 1/8" To 2 5/8"
63.50	2.1/2	3	0.259	57.15	2.1/4	10&11	0.134&0.120	47.7	1.877	54.3	2.137	AB-67/2	AB-67/3	AB-67/4	AB-67/5	AB-67/6
63.50	2.1/2	4&5	0.238&0.220	57.15	2.1/4	12&13	0.109&0.095	49.3	1.940	55.9	2.200	AB-68/2	AB-68/3	AB-68/4	AB-68/5	AB-68/6
63.50	2.1/2	6&7	0.203&0.180	57.15	2.1/4	14-16	0.083-0.065	50.8	2.000	57.8	2.275	AB-69/2	AB-69/3	AB-69/4	AB-69/5	AB-69/6
63.50	2.1/2	8&9	0.165&0.148	69.85	2.3/4	3	0.259	52.4	2.062	59.4	2.338	AB-70/2	AB-70/3	AB-70/4	AB-70/5	AB-70/6
63.50	2.1/2	10&11	0.134&0.120	69.85	2.3/4	4	0.238	54.0	2.125	61.0	2.401	AB-71/2	AB-71/3	AB-71/4	AB-71/5	AB-71/6
63.50	2.1/2	12-14	0.109-0.083	69.85	2.3/4	5&6	0.220&0.203	55.6	2.188	64.0	2.519	AB-72/2	AB-72/3	AB-72/4	AB-72/5	AB-72/6
63.50	2.1/2	15&16	0.072&0.065	69.85	2.3/4	7&8	0.180&0.165	57.2	2.251	65.6	2.582	AB-73/2	AB-73/3	AB-73/4	AB-73/5	AB-73/6
76.20	3	3	0.259	69.85	2.3/4	9&10	0.148&0.134	58.6	2.307	67.0	2.637	AB-74/2	AB-74/3	AB-74/4	AB-74/5	AB-74/6
76.20	3	4	0.238	69.85	2.3/4	11-13	0.120-0.095	60.4	2.377	68.8	2.708	AB-75/2	AB-75/3	AB-75/4	AB-75/5	AB-75/6
76.20	3	5&6	0.220&0.203	69.85	2.3/4	14-16	0.083-0.065	62.2	2.448	70.4	2.771	AB-76/2	AB-76/3	AB-76/4	AB-76/5	AB-76/6
76.20	3	7&8	0.180&0.165	-	-	-	-	63.6	2.503	72.0	2.834	AB-77/2	AB-77/3	AB-77/4	AB-77/5	AB-77/6
76.20	3	9&10	0.148&0.134	82.55	3.1/4	3	0.259	65.0	2.559	73.4	2.889	AB-78/2	AB-78/3	AB-78/4	AB-78/5	AB-78/6
76.20	3	11-13	0.120-0.095	82.55	3.1/4	4	0.238	66.6	2.622	75.0	2.952	AB-79/2	AB-79/3	AB-79/4	AB-79/5	AB-79/6
76.20	3	14-16	0.083-0.065	82.55	3.1/4	5&6	0.220&0.203	68.3	2.688	76.9	3.027	AB-80/2	AB-80/3	AB-80/4	AB-80/5	AB-80/6
88.90	3.1/2	2	0.284	82.55	3.1/4	7&8	0.180&0.165	69.9	2.751	78.5	3.090	AB-81/2	AB-81/3	AB-81/4	AB-81/5	AB-81/6
88.90	3.1/2	3	0.259	82.55	3.1/4	9&10	0.148&0.134	71.5	2.814	80.1	3.153	AB-82/2	AB-82/3	AB-82/4	AB-82/5	AB-82/6
88.90	3.1/2	4	0.238	82.55	3.1/4	11-13	0.120-0.095	73.1	2.877	81.7	3.216	AB-83/2	AB-83/3	AB-83/4	AB-83/5	AB-83/6
88.90	3.1/2	5&6	0.220&0.203	82.55	3.1/4	14-16	0.083-0.065	74.6	2.937	84.2	3.314	AB-84/2	AB-84/3	AB-84/4	AB-84/5	AB-84/6
88.90	3.1/2	7&8	0.180&0.165	95.25	3.3/4	2	0.284	76.2	3.000	85.5	3.366	AB-85/2	AB-85/3	AB-85/4	AB-85/5	AB-85/6
88.90	3.1/2	9-11	0.148-0.120	95.25	3.3/4	3	0.259	77.8	3.062	87.4	3.440	AB-86/2	AB-86/3	AB-86/4	AB-86/5	AB-86/6
88.90	3.1/2	12-16	0.109-0.065	95.25	3.3/4	4	0.238	79.4	3.125	89.0	3.503	AB-87/2	AB-87/3	AB-87/4	AB-87/5	AB-87/6
-	-	-	-	95.25	3.3/4	5&6	0.220&0.203	81.0	3.188	90.6	3.566	AB-88/2	AB-88/3	AB-88/4	AB-88/5	AB-88/6
101.60	4	2	0.284	95.25	3.3/4	7&8	0.180&0.165	82.6	3.251	92.2	3.629	AB-89/2	AB-89/3	AB-89/4	AB-89/5	AB-89/6
101.60	4	3	0.259	95.25	3.3/4	9&10	0.148&0.134	84.2	3.314	93.8	3.692	AB-90/2	AB-90/3	AB-90/4	AB-90/5	AB-90/6
101.60	4	4	0.238	95.25	3.3/4	11-13	0.120-0.095	85.8	3.377	96.2	3.787	AB-91/2	AB-91/3	AB-91/4	AB-91/5	AB-91/6
101.60	4	5&6	0.220&0.203	95.25	3.3/4	14-16	0.083-0.065	87.4	3.440	97.8	3.850	AB-92/2	AB-92/3	AB-92/4	AB-92/5	AB-92/6
101.60	4	7&8	0.180&0.165	107.95	4.1/4	2	0.284	89.0	3.503	99.4	3.913	AB-93/2	AB-93/3	AB-93/4	AB-93/5	AB-93/6
101.60	4	9-11	0.148-0.120	107.95	4.1/4	3	0.259	90.4	3.559	100.8	3.968	AB-94/2	AB-94/3	AB-94/4	AB-94/5	AB-94/6
101.60	4	12-16	0.109-0.065	107.95	4.1/4	4	0.238	92.0	3.622	102.4	4.031	AB-95/2	AB-95/3	AB-95/4	AB-95/5	AB-95/6
-	-	-	-	107.95	4.1/4	5&6	0.220&0.203	93.4	3.677	103.8	4.086	AB-96/2	AB-96/3	AB-96/4	AB-96/5	AB-96/6
114.30	4.1/2	2	0.284	107.95	4.1/4	7&8	0.180&0.165	95.0	3.740	105.4	4.419	AB-97/2	AB-97/3	AB-97/4	AB-97/5	AB-97/6
114.30	4.1/2	3	0.259	107.95	4.1/4	9-11	0.148-0.120	96.6	3.803	107.0	4.212	AB-98/2	AB-98/3	AB-98/4	AB-98/5	AB-98/6
114.30	4.1/2	4&5	0.238&0.220	107.95	4.1/4	11-13	0.120-0.095	98.2	3.866	108.6	4.275	AB-99/2	AB-99/3	AB-99/4	AB-99/5	AB-99/6
114.30	4.1/2	6&7	0.203&0.180	-	-	-	-	101.2	3.984	110.0	4.330	AB-100/2	AB-100/3	AB-100/4	AB-100/5	AB-100/6
114.30	4.1/2	8&9	0.165&0.148	-	-	-	-	102.8	4.047	111.6	4.393	AB-101/2	AB-101/3	AB-101/4	AB-101/5	AB-101/6
114.30	4.1/2	10-12	0.134-0.109	-	-	-	-	104.4	4.110	113.2	4.456	AB-102/2	AB-102/3	AB-102/4	AB-102/5	AB-102/6

AB Series with Bearing



Spare Roller No.					Drum Mandrel No.	Mandrel Square	
Tube Sheet Thickness Range						mm	inch
1/2" To 7/8"	3/4" To 1.1/8"	1.1/8" To 1.5/8"	1.5/8" To 2.1/8"	2.1/8" To 2.5/8"			
43-2-RS	43-3-RS	43-4-RS	43-5-RS	43-6-RS	DMB-23	19.05	3/4
44-2-RS	44-3-RS	44-4-RS	44-5-RS	44-6-RS	DMB-23	19.05	3/4
43-2-RS	43-3-RS	43-4-RS	43-5-RS	43-6-RS	DMB-24	19.05	3/4
44-2-RS	44-3-RS	44-4-RS	44-5-RS	44-6-RS	DMB-24	19.05	3/4
45-2-RS	45-3-RS	45-4-RS	45-5-RS	45-6-RS	DMB-24	19.05	3/4
47-2-RS	47-3-RS	47-4-RS	47-5-RS	47-6-RS	DMB-24	19.05	3/4
46-2-RS	46-3-RS	46-4-RS	46-5-RS	46-6-RS	DMB-25	25.40	1
47-2-RS	47-3-RS	47-4-RS	47-5-RS	47-6-RS	DMB-25	25.40	1
48-2-RS	48-3-RS	48-4-RS	48-5-RS	48-6-RS	DMB-25	25.40	1
49-2-RS	49-3-RS	49-4-RS	49-5-RS	49-6-RS	DMB-25	25.40	1
50-2-RS	50-3-RS	50-4-RS	50-5-RS	50-6-RS	DMB-25	25.40	1
51-2-RS	51-3-RS	51-4-RS	51-5-RS	51-6-RS	DMB-25	25.40	1
52-2-RS	52-3-RS	52-4-RS	52-5-RS	52-6-RS	DMB-25	25.40	1
51-2-RS	51-3-RS	51-4-RS	51-5-RS	51-6-RS	DMB-26	25.40	1
52-2-RS	52-3-RS	52-4-RS	52-5-RS	52-6-RS	DMB-26	25.40	1
53-2-RS	53-3-RS	53-4-RS	53-5-RS	53-6-RS	DMB-26	25.40	1
54-2-RS	54-3-RS	54-4-RS	54-5-RS	54-6-RS	DMB-26	25.40	1
54-2-RS	54-3-RS	54-4-RS	54-5-RS	54-6-RS	DMB-27	25.40	1
55-2-RS	55-3-RS	55-4-RS	55-5-RS	55-6-RS	DMB-27	25.40	1
56-2-RS	56-3-RS	56-4-RS	56-5-RS	56-6-RS	DMB-27	25.40	1
57-2-RS	57-3-RS	57-4-RS	57-5-RS	57-6-RS	DMB-27	25.40	1
58-2-RS	58-3-RS	58-4-RS	58-5-RS	58-6-RS	DMB-27	25.40	1
59-2-RS	59-3-RS	59-4-RS	59-5-RS	59-6-RS	DMB-27	25.40	1
60-2-RS	60-3-RS	60-4-RS	60-5-RS	60-6-RS	DMB-27	25.40	1
59-2-RS	59-3-RS	59-4-RS	59-5-RS	59-6-RS	DMB-28	25.40	1
60-2-RS	60-3-RS	60-4-RS	60-5-RS	60-6-RS	DMB-28	25.40	1
61-2-RS	61-3-RS	61-4-RS	61-5-RS	61-6-RS	DMB-28	25.40	1
62-2-RS	62-3-RS	62-4-RS	62-5-RS	62-6-RS	DMB-28	25.40	1
63-2-RS	63-3-RS	63-4-RS	63-5-RS	63-6-RS	DMB-28	25.40	1
62-2-RS	62-3-RS	62-4-RS	62-5-RS	62-6-RS	DMB-29	25.40	1
63-2-RS	63-3-RS	63-4-RS	63-5-RS	63-6-RS	DMB-29	25.40	1
64-2-RS	64-3-RS	64-4-RS	64-5-RS	64-6-RS	DMB-29	25.40	1
63-2-RS	63-3-RS	63-4-RS	63-5-RS	63-6-RS	DMB-30	25.40	1
64-2-RS	64-3-RS	64-4-RS	64-5-RS	64-6-RS	DMB-30	25.40	1
65-2-RS	65-3-RS	65-4-RS	65-5-RS	65-6-RS	DMB-30	25.40	1
66-2-RS	66-3-RS	66-4-RS	66-5-RS	66-6-RS	DMB-30	25.40	1

ABF3 Series with Bearing



Tube O.D.		Tube Thickness		Tube O.D.		Tube Thickness		Minimum I.D. Tool Enters		Maximum Expansion Of Tool		Tool No.				
												Tube Sheet Thickness Range				
mm	inch	bwg	inch	mm	inch	bwg	inch	mm	inch	mm	inch	1/2" To 7/8"	3/4" To 1 1/8"	1 1/8" To 1 5/8"	1 5/8" To 2 1/8"	2 1/8" To 2 5/8"
22.22	7/8	15	0.072	25.40	1	10	0.134	18.1	0.712	20.4	0.803	ABF3-31/2	ABF3-31/3	-	-	-
22.22	7/8	16	0.065	-	-	-	-	18.4	0.724	20.7	0.814	ABF3-32/2	ABF3-32/3	-	-	-
22.22	7/8	17	0.058	25.40	1	11	0.120	18.8	0.74	21.1	0.83	ABF3-33/2	ABF3-33/3	-	-	-
22.22	7/8	18	0.049	25.40	1	12	0.109	19.4	0.763	21.6	0.85	ABF3-34/2	ABF3-34/3	-	-	-
22.22	7/8	19&20	0.042&0.035	28.57	1 1/8	8	0.165	19.7	0.775	22.3	0.877	ABF3-35/2	ABF3-35/3	-	-	-
25.40	1	13	0.095	-	-	-	-	20.1	0.791	22.4	0.881	ABF3-36/2	ABF3-36/3	-	-	-
25.40	1	14	0.083	28.57	1 1/8	9	0.148	20.6	0.811	23.1	0.909	ABF3-37/2	ABF3-37/3	ABF3-37/4	-	-
25.40	1	15&16	0.072&0.065	28.57	1 1/8	10	0.134	21.3	0.838	23.8	0.937	ABF3-38/2	ABF3-38/3	ABF3-38/4	-	-
25.40	1	17&18	0.058&0.048	28.57	1 1/8	11	0.120	22.0	0.866	24.5	0.964	ABF3-39/2	ABF3-39/3	ABF3-39/4	-	-
25.40	1	19&20	0.042&0.035	28.57	1 1/8	12	0.109	22.4	0.881	25.0	0.984	ABF3-40/2	ABF3-40/3	ABF3-40/4	-	-
31.75	1 1/4	8	0.165	28.57	1 1/8	13	0.095	23.3	0.917	25.9	1.019	ABF3-41/2	ABF3-41/3	ABF3-41/4	-	-
31.75	1 1/4	9	0.148	28.57	1 1/8	14	0.083	23.8	0.937	26.5	1.043	ABF3-42/2	ABF3-42/3	ABF3-42/4	-	-
31.75	1 1/4	10	0.134	28.57	1 1/8	15&16	0.072&0.065	24.4	0.96	27.2	1.070	ABF3-43/2	ABF3-43/3	ABF3-43/4	-	-
31.75	1 1/4	11	0.120	-	-	-	-	25.2	0.992	28.0	1.102	ABF3-44/2	ABF3-44/3	ABF3-44/4	-	-
31.75	1 1/4	12	0.109	-	-	-	-	25.7	1.011	28.5	1.122	ABF3-45/2	ABF3-45/3	ABF3-45/4	-	-
31.75	1 1/4	13	0.095	60.32	1 3/8	8	0.165	26.1	1.027	28.8	1.133	ABF3-46/2	ABF3-46/3	ABF3-46/4	-	-
31.75	1 1/4	14	0.083	-	-	-	-	26.4	1.039	29.2	1.149	ABF3-47/2	ABF3-47/3	ABF3-47/4	-	-
31.75	1 1/4	15	0.072	60.32	1 3/8	9	0.148	26.9	1.059	29.7	1.169	ABF3-48/2	ABF3-48/3	ABF3-48/4	-	-
31.75	1 1/4	16	0.065	60.32	1 3/8	10	0.134	27.6	1.086	30.4	1.196	ABF3-49/2	ABF3-49/3	ABF3-49/4	ABF3-49/5	ABF3-49/6
38.10	1 1/2	7	0.180	60.32	1 3/8	11	0.120	28.3	1.114	31.2	1.228	ABF3-50/2	ABF3-50/3	ABF3-50/4	ABF3-50/5	ABF3-50/6
38.10	1 1/2	8	0.165	60.32	1 3/8	12	0.109	28.8	1.133	31.7	1.248	ABF3-51/2	ABF3-51/3	ABF3-51/4	ABF3-51/5	ABF3-51/6
38.10	1 1/2	9	0.148	60.32	1 3/8	13&14	0.095&0.083	29.5	1.161	33.4	1.314	ABF3-52/2	ABF3-52/3	ABF3-52/4	ABF3-52/5	ABF3-52/6
38.10	1 1/2	10	0.134	60.32	1 3/8	15&16	0.072&0.065	30.0	1.181	34.1	1.342	ABF3-53/2	ABF3-53/3	ABF3-53/4	ABF3-53/5	ABF3-53/6
38.10	1 1/2	11&12	0.120&0.109	-	-	-	-	30.6	1.204	34.8	1.370	ABF3-54/2	ABF3-54/3	ABF3-54/4	ABF3-54/5	ABF3-54/6
38.10	1 1/2	13	0.095	44.45	1 3/4	5	0.220	31.4	1.236	35.6	1.401	ABF3-55/2	ABF3-55/3	ABF3-55/4	ABF3-55/5	ABF3-55/6
38.10	1 1/2	14&15	0.083&0.072	44.45	1 3/4	6	0.203	32.6	1.283	36.8	1.448	ABF3-56/2	ABF3-56/3	ABF3-56/4	ABF3-56/5	ABF3-56/6
-	-	-	-	44.45	1 3/4	7	0.180	33.4	1.314	38.1	1.500	ABF3-57/2	ABF3-57/3	ABF3-57/4	ABF3-57/5	ABF3-57/6
-	-	-	-	44.45	1 3/4	8	0.165	34.2	1.346	38.7	1.523	ABF3-58/2	ABF3-58/3	ABF3-58/4	ABF3-58/5	ABF3-58/6
50.80	2	3	0.259	44.45	1 3/4	9&10	0.148&0.134	35.0	1.377	40.6	1.598	ABF3-59/2	ABF3-59/3	ABF3-59/4	ABF3-59/5	ABF3-59/6
50.80	2	4	0.238	44.45	1 3/4	11&12	0.120&0.109	36.6	1.440	42.2	1.661	ABF3-60/2	ABF3-60/3	ABF3-60/4	ABF3-60/5	ABF3-60/6
50.80	2	5&6	0.220&0.203	44.45	1 3/4	13&14	0.095&0.083	38.2	1.503	43.8	1.712	ABF3-61/2	ABF3-61/3	ABF3-61/4	ABF3-61/5	ABF3-61/6
50.80	2	7&8	0.180&0.165	44.45	1 3/4	15&16	0.072&0.065	39.8	1.566	45.4	1.787	ABF3-62/2	ABF3-62/3	ABF3-62/4	ABF3-62/5	ABF3-62/6
50.80	2	9&10	0.148&0.134	57.15	2 1/4	3	0.259	41.4	1.629	47.0	1.850	ABF3-63/2	ABF3-63/3	ABF3-63/4	ABF3-63/5	ABF3-63/6
50.80	2	11-13	0.120-0.095	57.15	2 1/4	4	0.238	42.9	1.688	49.5	1.948	ABF3-64/2	ABF3-64/3	ABF3-64/4	ABF3-64/5	ABF3-64/6
50.80	2	14-16	0.083-0.065	-	2 1/4	6&7	0.203&0.180	44.5	1.751	51.1	2.011	ABF3-65/2	ABF3-65/3	ABF3-65/4	ABF3-65/5	ABF3-65/6
50.80	2	17&18	0.058&0.049	-	2 1/4	8&9	0.165&0.148	46.1	1.814	52.7	2.074	ABF3-66/2	ABF3-66/3	ABF3-66/4	ABF3-66/5	ABF3-66/6

ABF3 Series with Bearing

■ Features

- C-7쪽의 AF3 확관틀과 비슷합니다.
- 베어링이 마찰을 줄여 부드러운 확관이 가능합니다.
- 베어링이 튜브의 사용기간을 늘려줍니다.
- 플레어링이 필요한 튜브의 확관작업에 사용하기 적합합니다.

■ Features

- Similar to 'AF3' Series expanders (Page C-7)
- Bearing reduces frictional buildup for smoother expanding cycles.
- Bearing increases useful life of tool.
- Use - High productivity tool used where flaring of tubes is needed.

Spare Roller No. Tube Sheet Thickness Range					Drum Mandrel No.	Mandrel Square	
1/2" To 7/8"	3/4" To 1 1/8"	1 1/8" To 1 5/8"	1 5/8" To 2 1/8"	2 1/8" To 2 5/8"			
						mm	inch
15-2-F3S	15-3-F3S	-	-	-	DMB-11	9.52	3/8
15-2-F3S	15-3-F3S	-	-	-	DMB-12	9.52	3/8
16-2-F3S	16-3-F3S	-	-	-	DMB-12	9.52	3/8
20-2-F3S	20-3-F3S	-	-	-	DMB-12	9.52	3/8
17-2-F3S	17-3-F3S	-	-	-	DMB-13	9.52	3/8
18-2-F3S	18-3-F3S	-	-	-	DMB-12	9.52	3/8
18-2-F3S	18-3-F3S	18-4-F3S	-	-	DMB-13	9.52	3/8
19-2-F3S	19-3-F3S	19-4-F3S	-	-	DMB-13	9.52	3/8
21-2-F3S	21-3-F3S	21-4-F3S	-	-	DMB-13	9.52	3/8
21-2-F3S	21-3-F3S	21-4-F3S	-	-	DMB-14	9.52	3/8
22-2-F3S	22-3-F3S	22-4-F3S	-	-	DMB-14	9.52	3/8
23-2-F3S	23-3-F3S	23-4-F3S	-	-	DMB-15	12.70	1/2
24-2-F3S	24-3-F3S	24-4-F3S	-	-	DMB-15	12.70	1/2
26-2-F3S	26-3-F3S	26-4-F3S	-	-	DMB-16	12.70	1/2
27-2-F3S	27-3-F3S	27-4-F3S	-	-	DMB-16	12.70	1/2
31-2-F3S	31-3-F3S	31-4-F3S	-	-	DMB-16	12.70	1/2
28-2-F3S	28-3-F3S	28-4-F3S	-	-	DMB-17	12.70	1/2
29-2-F3S	29-3-F3S	29-4-F3S	-	-	DMB-17	12.70	1/2
30-2-F3S	30-3-F3S	30-4-F3S	30-5-F3S	30-6-F3S	DMB-17	12.70	1/2
30-2-F3S	30-3-F3S	30-4-F3S	30-5-F3S	30-6-F3S	DMB-18	12.70	1/2
32-2-F3S	32-3-F3S	32-4-F3S	32-5-F3S	32-6-F3S	DMB-18	12.70	1/2
28-2-F3S	28-3-F3S	28-4-F3S	28-5-F3S	28-6-F3S	DMB-20	12.70	1/2
29-2-F3S	29-3-F3S	29-4-F3S	29-5-F3S	29-6-F3S	DMB-20	12.70	1/2
30-2-F3S	30-3-F3S	30-4-F3S	30-5-F3S	30-6-F3S	DMB-20	12.70	1/2
33-2-F3S	33-3-F3S	33-4-F3S	33-5-F3S	33-6-F3S	DMB-20	12.70	1/2
32-2-F3S	32-3-F3S	32-4-F3S	32-5-F3S	32-6-F3S	DMB-21	12.70	1/2
36-2-F3S	36-3-F3S	36-4-F3S	36-5-F3S	36-6-F3S	DMB-21	12.70	1/2
37-2-F3S	37-3-F3S	37-4-F3S	37-5-F3S	37-6-F3S	DMB-21	12.70	1/2
33-2-F3S	33-3-F3S	33-4-F3S	33-5-F3S	33-6-F3S	DMB-22	19.05	3/4
37-2-F3S	37-3-F3S	37-4-F3S	37-5-F3S	37-6-F3S	DMB-22	19.05	3/4
38-2-F3S	38-3-F3S	38-4-F3S	38-5-F3S	38-6-F3S	DMB-22	19.05	3/4
39-2-F3S	39-3-F3S	39-4-F3S	39-5-F3S	39-6-F3S	DMB-22	19.05	3/4
40-2-F3S	40-3-F3S	40-4-F3S	40-5-F3S	40-6-F3S	DMB-22	19.05	3/4
40-2-F3S	40-3-F3S	40-4-F3S	40-5-F3S	40-6-F3S	DMB-23	19.05	3/4
41-2-F3S	41-3-F3S	41-4-F3S	41-5-F3S	41-6-F3S	DMB-23	19.05	3/4
42-2-F3S	42-3-F3S	42-4-F3S	42-5-F3S	42-6-F3S	DMB-23	19.05	3/4

ABF3 Series with Bearing



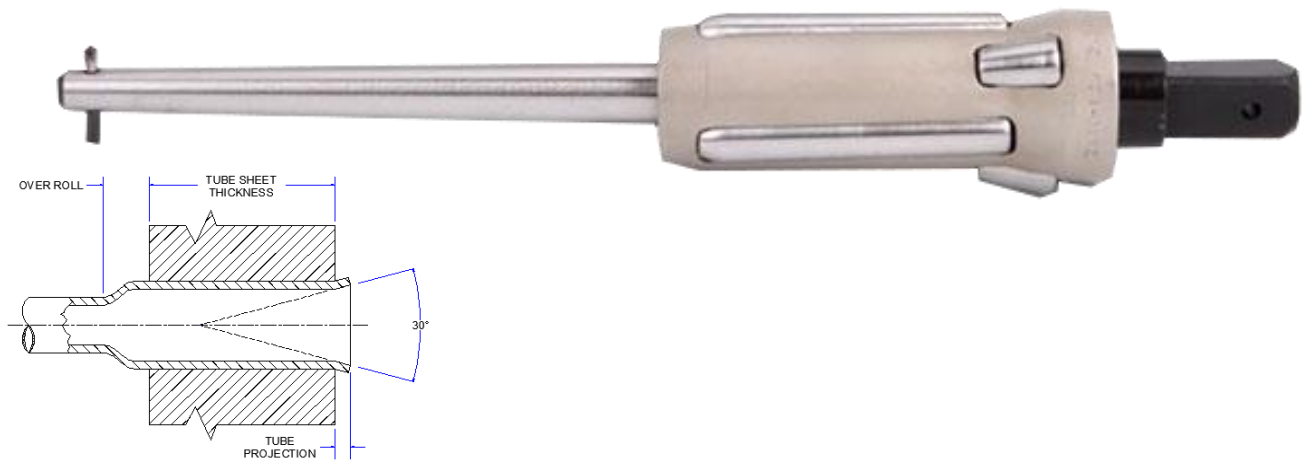
Tube O.D.		Tube Thickness		Tube O.D.		Tube Thickness		Minimum I.D. Tool Enters		Maximum Expansion Of Tool		Tool No.				
												Tube Sheet Thickness Range				
mm	inch	bwg	inch	mm	inch	bwg	inch	mm	inch	mm	inch	1/2"	3/4"	1.1/8"	1.5/8"	2.1/8"
												To 7/8"	To 1.1/8"	To 1.5/8"	To 2.1/8"	To 2.5/8"
63.50	2.1/2	3	0.259	57.15	2.1/4	10&11	0.134&0.120	47.7	1.877	54.3	2.137	ABF3-67/2	ABF3-67/3	ABF3-67/4	ABF3-67/5	ABF3-67/6
63.50	2.1/2	4&5	0.238&0.220	57.15	2.1/4	12&13	0.109&0.095	49.3	1.940	55.9	2.200	ABF3-68/2	ABF3-68/3	ABF3-68/4	ABF3-68/5	ABF3-68/6
63.50	2.1/2	6&7	0.203&0.180	57.15	2.1/4	14-16	0.083-0.065	50.8	2.000	57.8	2.275	ABF3-69/2	ABF3-69/3	ABF3-69/4	ABF3-69/5	ABF3-69/6
63.50	2.1/2	8&9	0.165&0.148	69.85	2.3/4	3	0.259	52.4	2.062	59.4	2.338	ABF3-70/2	ABF3-70/3	ABF3-70/4	ABF3-70/5	ABF3-70/6
63.50	2.1/2	10&11	0.134&0.120	69.85	2.3/4	4	0.238	54.0	2.125	61.0	2.401	ABF3-71/2	ABF3-71/3	ABF3-71/4	ABF3-71/5	ABF3-71/6
63.50	2.1/2	12-14	0.109-0.083	69.85	2.3/4	5&6	0.220&0.203	55.6	2.188	64.0	2.519	ABF3-72/2	ABF3-72/3	ABF3-72/4	ABF3-72/5	ABF3-72/6
63.50	2.1/2	15&16	0.072&0.065	69.85	2.3/4	7&8	0.180&0.165	57.2	2.251	65.6	2.582	ABF3-73/2	ABF3-73/3	ABF3-73/4	ABF3-73/5	ABF3-73/6
76.20	3	3	0.259	69.85	2.3/4	9&10	0.148&0.134	58.6	2.307	67.0	2.637	ABF3-74/2	ABF3-74/3	ABF3-74/4	ABF3-74/5	ABF3-74/6
76.20	3	4	0.238	69.85	2.3/4	11-13	0.120-0.095	60.4	2.377	68.8	2.708	ABF3-75/2	ABF3-75/3	ABF3-75/4	ABF3-75/5	ABF3-75/6
76.20	3	5&6	0.220&0.203	69.85	2.3/4	14-16	0.083-0.065	62.2	2.448	70.4	2.771	ABF3-76/2	ABF3-76/3	ABF3-76/4	ABF3-76/5	ABF3-76/6
76.20	3	7&8	0.180&0.165	-	-	-	-	63.6	2.503	72.0	2.834	ABF3-77/2	ABF3-77/3	ABF3-77/4	ABF3-77/5	ABF3-77/6
76.20	3	9&10	0.148&0.134	82.55	3.1/4	3	0.259	65.0	2.559	73.4	2.889	ABF3-78/2	ABF3-78/3	ABF3-78/4	ABF3-78/5	ABF3-78/6
76.20	3	11-13	0.120-0.095	82.55	3.1/4	4	0.238	66.6	2.622	75.0	2.952	ABF3-79/2	ABF3-79/3	ABF3-79/4	ABF3-79/5	ABF3-79/6
76.20	3	14-16	0.083-0.065	82.55	3.1/4	5&6	0.220&0.203	68.3	2.688	76.9	3.027	ABF3-80/2	ABF3-80/3	ABF3-80/4	ABF3-80/5	ABF3-80/6
88.90	3.1/2	2	0.284	82.55	3.1/4	7&8	0.180&0.165	69.9	2.751	78.5	3.090	ABF3-81/2	ABF3-81/3	ABF3-81/4	ABF3-81/5	ABF3-81/6
88.90	3.1/2	3	0.259	82.55	3.1/4	9&10	0.148&0.134	71.5	2.814	80.1	3.153	ABF3-82/2	ABF3-82/3	ABF3-82/4	ABF3-82/5	ABF3-82/6
88.90	3.1/2	4	0.238	82.55	3.1/4	11-13	0.120-0.095	73.1	2.877	81.7	3.216	ABF3-83/2	ABF3-83/3	ABF3-83/4	ABF3-83/5	ABF3-83/6
88.90	3.1/2	5&6	0.220&0.203	82.55	3.1/4	14-16	0.083-0.065	74.6	2.937	84.2	3.314	ABF3-84/2	ABF3-84/3	ABF3-84/4	ABF3-84/5	ABF3-84/6
88.90	3.1/2	7&8	0.180&0.165	95.25	3.3/4	2	0.284	76.2	3.000	85.5	3.366	ABF3-85/2	ABF3-85/3	ABF3-85/4	ABF3-85/5	ABF3-85/6
88.90	3.1/2	9-11	0.148-0.120	95.25	3.3/4	3	0.259	77.8	3.062	87.4	3.440	ABF3-86/2	ABF3-86/3	ABF3-86/4	ABF3-86/5	ABF3-86/6
88.90	3.1/2	12-16	0.109-0.065	95.25	3.3/4	4	0.238	79.4	3.125	89.0	3.503	ABF3-87/2	ABF3-87/3	ABF3-87/4	ABF3-87/5	ABF3-87/6
-	-	-	-	95.25	3.3/4	5&6	0.220&0.203	81.0	3.188	90.6	3.566	ABF3-88/2	ABF3-88/3	ABF3-88/4	ABF3-88/5	ABF3-88/6
101.60	4	2	0.284	95.25	3.3/4	7&8	0.180&0.165	82.6	3.251	92.2	3.629	ABF3-89/2	ABF3-89/3	ABF3-89/4	ABF3-89/5	ABF3-89/6
101.60	4	3	0.259	95.25	3.3/4	9&10	0.148&0.134	84.2	3.314	93.8	3.692	ABF3-90/2	ABF3-90/3	ABF3-90/4	ABF3-90/5	ABF3-90/6
101.60	4	4	0.238	95.25	3.3/4	11-13	0.120-0.095	85.8	3.377	96.2	3.787	ABF3-91/2	ABF3-91/3	ABF3-91/4	ABF3-91/5	ABF3-91/6
101.60	4	5&6	0.220 & 0.203	95.25	3.3/4	14-16	0.083-0.065	87.4	3.440	97.8	3.850	ABF3-92/2	ABF3-92/3	ABF3-92/4	ABF3-92/5	ABF3-92/6
101.60	4	7&8	0.180&0.165	107.95	4.1/4	2	0.284	89.0	3.503	99.4	3.913	ABF3-93/2	ABF3-93/3	ABF3-93/4	ABF3-93/5	ABF3-93/6
101.60	4	9-11	0.148-0.120	107.95	4.1/4	3	0.259	90.4	3.559	100.8	3.968	ABF3-94/2	ABF3-94/3	ABF3-94/4	ABF3-94/5	ABF3-94/6
101.60	4	12-16	0.109-0.065	107.95	4.1/4	4	0.238	92.0	3.622	102.4	4.031	ABF3-95/2	ABF3-95/3	ABF3-95/4	ABF3-95/5	ABF3-95/6
-	-	-	-	107.95	4.1/4	5&6	0.220&0.203	93.4	3.677	103.8	4.086	ABF3-96/2	ABF3-96/3	ABF3-96/4	ABF3-96/5	ABF3-96/6
114.30	4.1/2	2	0.284	107.95	4.1/4	7&8	0.180&0.165	95.0	3.740	105.4	4.419	ABF3-97/2	ABF3-97/3	ABF3-97/4	ABF3-97/5	ABF3-97/6
114.30	4.1/2	3	0.259	107.95	4.1/4	9-11	0.148-0.120	96.6	3.803	107.0	4.212	ABF3-98/2	ABF3-98/3	ABF3-98/4	ABF3-98/5	ABF3-98/6
114.30	4.1/2	4&5	0.238&0.220	107.95	4.1/4	11-13	0.120-0.095	98.2	3.866	108.6	4.275	ABF3-99/2	ABF3-99/3	ABF3-99/4	ABF3-99/5	ABF3-99/6
114.30	4.1/2	6&7	0.203&0.180	-	-	-	-	101.2	3.984	110.0	4.330	ABF3-100/2	ABF3-100/3	ABF3-100/4	ABF3-100/5	ABF3-100/6
114.30	4.1/2	8&9	0.165&0.148	-	-	-	-	102.8	4.047	111.6	4.393	ABF3-101/2	ABF3-101/3	ABF3-101/4	ABF3-101/5	ABF3-101/6
114.30	4.1/2	10-12	0.134&0.109	-	-	-	-	104.4	4.110	113.2	4.456	ABF3-102/2	ABF3-102/3	ABF3-102/4	ABF3-102/5	ABF3-102/6

ABF3 Series with Bearing



Spare Roller No. Tube Sheet Thickness Range					Drum Mandrel No.	Mandrel Square	
1/2" To 7/8"	3/4" To 1.1/8"	1.1/8" To 1.5/8"	1.5/8" To 2.1/8"	2.1/8" To 2.5/8"		mm	inch
43-2-F3S	43-3-F3S	43-4-F3S	43-5-F3S	43-6-F3S	DMB-23	19,05	3/4
44-2-F3S	44-3-F3S	44-4-F3S	44-5-F3S	44-6-F3S	DMB-23	19,05	3/4
43-2-F3S	43-3-F3S	43-4-F3S	43-5-F3S	43-6-F3S	DMB-24	19,05	3/4
44-2-F3S	44-3-F3S	44-4-F3S	44-5-F3S	44-6-F3S	DMB-24	19,05	3/4
45-2-F3S	45-3-F3S	45-4-F3S	45-5-F3S	45-6-F3S	DMB-24	19,05	3/4
47-2-F3S	47-3-F3S	47-4-F3S	47-5-F3S	47-6-F3S	DMB-24	19,05	3/4
46-2-F3S	46-3-F3S	46-4-F3S	46-5-F3S	46-6-F3S	DMB-25	25,40	1
47-2-F3S	47-3-F3S	47-4-F3S	47-5-F3S	47-6-F3S	DMB-25	25,40	1
48-2-F3S	48-3-F3S	48-4-F3S	48-5-F3S	48-6-F3S	DMB-25	25,40	1
49-2-F3S	49-3-F3S	49-4-F3S	49-5-F3S	49-6-F3S	DMB-25	25,40	1
50-2-F3S	50-3-F3S	50-4-F3S	50-5-F3S	50-6-F3S	DMB-25	25,40	1
51-2-F3S	51-3-F3S	51-4-F3S	51-5-F3S	51-6-F3S	DMB-25	25,40	1
52-2-F3S	52-3-F3S	52-4-F3S	52-5-F3S	52-6-F3S	DMB-25	25,40	1
51-2-F3S	51-3-F3S	51-4-F3S	51-5-F3S	51-6-F3S	DMB-26	25,40	1
52-2-F3S	52-3-F3S	52-4-F3S	52-5-F3S	52-6-F3S	DMB-26	25,40	1
53-2-F3S	53-3-F3S	53-4-F3S	53-5-F3S	53-6-F3S	DMB-26	25,40	1
54-2-F3S	54-3-F3S	54-4-F3S	54-5-F3S	54-6-F3S	DMB-26	25,40	1
54-2-F3S	54-3-F3S	54-4-F3S	54-5-F3S	54-6-F3S	DMB-27	25,40	1
55-2-F3S	55-3-F3S	55-4-F3S	55-5-F3S	55-6-F3S	DMB-27	25,40	1
56-2-F3S	56-3-F3S	56-4-F3S	56-5-F3S	56-6-F3S	DMB-27	25,40	1
57-2-F3S	57-3-F3S	57-4-F3S	57-5-F3S	57-6-F3S	DMB-27	25,40	1
58-2-F3S	58-3-F3S	58-4-F3S	58-5-F3S	58-6-F3S	DMB-27	25,40	1
59-2-F3S	59-3-F3S	59-4-F3S	59-5-F3S	59-6-F3S	DMB-27	25,40	1
60-2-F3S	60-3-F3S	60-4-F3S	60-5-F3S	60-6-F3S	DMB-27	25,40	1
59-2-F3S	59-3-F3S	59-4-F3S	59-5-F3S	59-6-F3S	DMB-28	25,40	1
60-2-F3S	60-3-F3S	60-4-F3S	60-5-F3S	60-6-F3S	DMB-28	25,40	1
61-2-F3S	61-3-F3S	61-4-F3S	61-5-F3S	61-6-F3S	DMB-28	25,40	1
62-2-F3S	62-3-F3S	62-4-F3S	62-5-F3S	62-6-F3S	DMB-28	25,40	1
63-2-F3S	63-3-F3S	63-4-F3S	63-5-F3S	63-6-F3S	DMB-28	25,40	1
62-2-F3S	62-3-F3S	62-4-F3S	62-5-F3S	62-6-F3S	DMB-29	25,40	1
63-2-F3S	63-3-F3S	63-4-F3S	63-5-F3S	63-6-F3S	DMB-29	25,40	1
64-2-F3S	64-3-F3S	64-4-F3S	64-5-F3S	64-6-F3S	DMB-29	25,40	1
63-2-F3S	63-3-F3S	63-4-F3S	63-5-F3S	63-6-F3S	DMB-30	25,40	1
64-2-F3S	64-3-F3S	64-4-F3S	64-5-F3S	64-6-F3S	DMB-30	25,40	1
65-2-F3S	65-3-F3S	65-4-F3S	65-5-F3S	65-6-F3S	DMB-30	25,40	1
66-2-F3S	66-3-F3S	66-4-F3S	66-5-F3S	66-6-F3S	DMB-30	25,40	1

P-1000 Series



Tube O.D.		Tube Thickness		Tube O.D.		Tube Thickness		Minimum I.D. Tool Enters		Maximum Expansion Of Tool		Tool No.				
												Tube Sheet Thickness Range				
mm	inch	bwg	inch	mm	inch	bwg	inch	mm	inch	mm	inch	1/2" To 3/4"	7/8" To 1 1/4"	1 3/8" To 1 3/4"	1 7/8" To 2 1/4"	2 3/8" To 2 3/4"
25.40	1	13&14	0.095&0.083	28.57	1 1/8	9	0.148	19.7	0.775	23.4	0.921	P1079/3	P1079/5	-	-	-
25.40	1	15&16	0.072&0.065	28.57	1 1/8	10	0.134	20.7	0.814	24.4	0.961	P1083/3	P1083/5	-	-	-
31.75	1 1/4	7	0.180	28.57	1 1/8	11&12	0.120&0.109	21.7	0.854	25.5	1.004	P1087/3	P1087/5	-	-	-
31.75	1 1/4	8&9	0.165&0.148	28.57	1 1/8	13&14	0.095&0.083	22.7	0.893	26.5	1.043	P1091/3	P1091/5	-	-	-
31.75	1 1/4	10	0.134	28.57	1 1/8	15&16	0.072&0.065	23.7	0.933	28.1	1.105	P1095/3	P1095/5	-	-	-
31.75	1 1/4	11-13	0.120-0.095	60.32	1 3/8	8	0.165	24.7	0.972	29.0	1.142	P1099/3	P1099/5	-	-	-
31.75	1 1/4	14&15	0.083&0.072	60.32	1 3/8	9	0.148	25.7	1.011	30.0	1.181	P1103/3	P1103/5	-	-	-
31.75	1 1/4	16	0.065	60.32	1 3/8	10	0.134	27.8	1.094	33.0	1.299	P1111/3	P1111/5	-	-	-
38.10	1 1/2	10-12	0.134-0.109	60.32	1 3/8	15&16	0.072&0.065	30.7	1.208	35.0	1.378	P1118/3	P1118/5	-	-	-
38.10	1 1/2	13-16	0.095-0.065	60.32	1 3/4	6&7	0.203&0.180	32.7	1.287	38.0	1.496	P1126/3	P1126/5	-	-	-
50.80	2	3	0.259	60.32	1 3/4	8&9	0.165&0.148	34.7	1.366	40.0	1.575	P1134/3	P1134/5	P1134/7	P1134/9	P1134/11
50.80	2	4&5	0.238&0.220	60.32	1 3/4	10-12	0.134-0.109	36.7	1.444	42.5	1.673	P1142/3	P1142/5	P1142/7	P1142/9	P1142/11
50.80	2	6	0.203	60.32	1 3/4	13-16		38.7	1.523	44.5	1.752	P1150/3	P1150/5	P1150/7	P1150/9	P1150/11
50.80	2	7-9	0.180-0.148	57.15	2 1/4	3	0.259	40.7	1.602	47.0	1.850	P1158/3	P1158/5	P1158/7	P1158/9	P1158/11
50.80	2	10-12	0.134-0.109	57.15	2 1/4	4	0.238	42.7	1.681	49.0	1.929	P1166/3	P1166/5	P1166/7	P1166/9	P1166/11
50.80	2	13-15	0.095-0.072	57.15	2 1/4	5&6	0.220&0.203	44.7	1.760	51.5	2.027	P1174/3	P1174/5	P1174/7	P1174/9	P1174/11
50.80	2	16	0.065	57.15	2 1/4	7-9	0.180-0.148	46.7	1.838	54.0	2.126	P1181/3	P1181/5	P1181/7	P1181/9	P1181/11
63.50	2 1/2	4&5	0.238&0.220	57.15	2 1/4	10-13	0.134-0.095	48.7	1.917	56.0	2.205	P1189/3	P1189/5	P1189/7	P1189/9	P1189/11
63.50	2 1/2	6	0.203	57.15	2 1/4	14-16	0.083-0.065	50.7	1.996	60.0	2.362	P1197/3	P1197/5	P1197/7	P1197/9	P1197/11
63.50	2 1/2	7-10	0.180-0.134	69.85	2 3/4	2&3	0.284&0.259	52.7	2.074	62.0	2.441	P1205/3	P1205/5	P1205/7	P1205/9	P1205/11
63.50	2 1/2	11-13	0.120-0.095	69.85	2 3/4	4&5	0.238&0.220	54.7	2.153	64.0	2.520	P1213/3	P1213/5	P1213/7	P1213/9	P1213/11
63.50	2 1/2	14-16	0.083-0.065	69.85	2 3/4	6-8	0.203-0.165	56.7	2.232	66.0	2.598	P1221/3	P1221/5	P1221/7	P1221/9	P1221/11
76.20	3	2	0.284	69.85	2 3/4	7-9	0.180-0.148	58.7	2.311	68.0	2.677	P1229/3	P1229/5	P1229/7	P1229/9	P1229/11
76.20	3	3&4	0.259&0.238	69.85	2 3/4	10-12	0.134-0.109	60.7	2.389	70.0	2.756	P1237/3	P1237/5	P1237/7	P1237/9	P1237/11
76.20	3	5&6	0.220&0.203	69.85	2 3/4	13-16	0.095-0.065	62.7	2.468	72.0	2.835	P1244/3	P1244/5	P1244/7	P1244/9	P1244/11
76.20	3	7&8	0.180&0.165	-	-	-	-	64.7	2.547	74.0	2.913	P1252/3	P1252/5	P1252/7	P1252/9	P1252/11
76.20	3	10-12	0.134-0.109	82.55	3 1/4	3	0.259	66.7	2.625	76.0	2.992	P1260/3	P1260/5	P1260/7	P1260/9	P1260/11
76.20	3	13&14	0.095&0.083	82.55	3 1/4	4	0.238	68.7	2.704	78.0	3.071	P1268/3	P1268/5	P1268/7	P1268/9	P1268/11
76.20	3	15&16	0.072&0.065	82.55	3 1/4	5&6	0.220&0.203	70.7	2.783	80.0	3.150	P1276/3	P1276/5	P1276/7	P1276/9	P1276/11
88.90	3 1/2	2&3	0.284&0.259	82.55	3 1/4	7-11	0.180-0.120	72.7	2.862	82.0	3.228	P1284/3	P1284/5	P1284/7	P1284/9	P1284/11
88.90	3 1/2	4-6	0.259-0.203	82.55	3 1/4	12-14	0.109-0.480	74.7	2.940	84.0	3.307	P1292/3	P1292/5	P1292/7	P1292/9	P1292/11
88.90	3 1/2	7-9	0.180-0.148	82.55	3 1/4	15&16	0.072&0.065	76.7	3.019	86.0	3.386	P1300/3	P1300/5	P1300/7	P1300/9	P1300/11
88.90	3 1/2	10-12	0.134-0.109	95.25	3 3/4	2&3	0.284&0.259	78.7	3.098	88.0	3.465	P1308/3	P1308/5	P1308/7	P1308/9	P1308/11
88.90	3 1/2	13-15	0.095-0.072	95.25	3 3/4	4-6	0.259-0.203	80.7	3.177	92.0	3.622	P1315/3	P1315/5	P1315/7	P1315/9	P1315/11
88.90	3 1/2	16	0.065	95.25	3 3/4	7&8	0.180&0.165	82.7	3.255	94.0	3.701	P1323/3	P1323/5	P1323/7	P1323/9	P1323/11
101.60	4	3	0.259	95.25	3 3/4	9-12	0.148-0.109	84.7	3.334	96.0	3.780	P1331/3	P1331/5	P1331/7	P1331/9	P1331/11
101.60	4	4-6	0.259-0.203	95.25	3 3/4	13-16	0.095-0.065	86.7	3.413	98.0	3.858	P1339/3	P1339/5	P1339/7	P1339/9	P1339/11
101.60	4	7&8	0.180&0.165	107.95	4 1/4	2	0.284	88.7	3.492	100.0	3.937	P1347/3	P1347/5	P1347/7	P1347/9	P1347/11
101.60	4	9-12	0.148-0.109	107.95	4 1/4	3	0.259	90.7	3.570	102.0	4.016	P1355/3	P1355/5	P1355/7	P1355/9	P1355/11
101.60	4	13-15	0.095-0.072	107.95	4 1/4	4	0.238	92.7	3.649	104.0	4.094	P1363/3	P1363/5	P1363/7	P1363/9	P1363/11
101.60	4	16	0.065	107.95	4 1/4	7&8	0.180&0.165	94.7	3.728	106.0	4.173	P1370/3	P1370/5	P1370/7	P1370/9	P1370/11
114.30	4 1/2	3	0.259	107.95	4 1/4	9-11	0.148-0.120	96.7	3.807	108.0	4.252	P1378/3	P1378/5	P1378/7	P1378/9	P1378/11
114.30	4 1/2	4-6	0.259-0.203	107.95	4 1/4	12-16	0.109-0.065	98.7	3.885	110.0	4.331	P1386/3	P1386/5	P1386/7	P1386/9	P1386/11
114.30	4 1/2	7-14	0.180-0.083	-	-	-	-	100.7	3.964	111	4.407	P1394/3	P1394/5	P1394/7	P1394/9	P1394/11

P-1000 Series

■ 특징

- 여러 개의 롤러가 튜브의 손상을 예방합니다.
- 워터박스나 작은드럼 등의 제한된 공간에서 작업하기 적합합니다.

■ Features

- Overlapping rolls prevent ridging of tube.
- Use - Ideal for use in limited access space like water boxes, small diameter drums.

Spare Roller No. Tube Sheet Thickness Range					Drum Mandrel No.		Mandrel Square	
1/2" To 3/4"	7/8" To 1, 1/4"	1, 3/8" To 1, 3/4"	1, 7/8" To 2, 1/4"	2, 3/8" To 2, 3/4"	Drum Type	Short Series Mandrels		
							mm	inch
079-3-FS	079-5-FS	-	-	-	83-MP	-	12.70	1/2
083-3-FS	083-5-FS	-	-	-	83-MP	-	12.70	1/2
087-3-FS	087-5-FS	-	-	-	91-MP	-	12.70	1/2
095-3-FS	095-5-FS	-	-	-	91-MP	-	12.70	1/2
095-3-FS	095-5-FS	-	-	-	99-MP	-	12.70	1/2
099-3-FS	099-5-FS	-	-	-	99-MP	-	12.70	1/2
103-3-FS	103-5-FS	-	-	-	99-MP	-	12.70	1/2
111-3-FS	111-5-FS	-	-	-	118-MP	MPS-1, 2, 3	19.05	3/4
118-3-FS	118-5-FS	-	-	-	118-MP	MPS-1, 2, 3	19.05	3/4
126-3-FS	126-5-FS	-	-	-	126-MP	MPS-2, 3, 4	19.05	3/4
126-3-FS	126-5-FS	126-7-FS	126-9-FS	126-11-FS	134-MP	MPS-3, 4, 5	19.05	3/4
142-3-FS	142-5-FS	142-7-FS	142-9-FS	142-11-FS	150-MP	MPS-3, 4, 5, 6	19.05	3/4
150-3-FS	150-5-FS	150-7-FS	150-9-FS	150-11-FS	150-MP	MPS-3, 4, 5, 6	19.05	3/4
158-3-FS	158-5-FS	158-7-FS	158-9-FS	158-11-FS	174-MP	MPS-4, 5, 6, 7, 8	19.05	3/4
166-3-FS	166-5-FS	166-7-FS	166-9-FS	166-11-FS	174-MP	MPS-4, 5, 6, 7, 8	19.05	3/4
174-3-FS	174-5-FS	174-7-FS	174-9-FS	174-11-FS	174-MP	MPS-4, 5, 6, 7, 8	19.05	3/4
181-3-FS	181-5-FS	181-7-FS	181-9-FS	181-11-FS	197-MP	MPS-7, 8, 9, 10, 11	25.40	1
174-3-FS	174-5-FS	174-7-FS	174-9-FS	174-11-FS	197-MP	MPS-7, 8, 9, 10, 11	25.40	1
205-3-FS	205-5-FS	205-7-FS	205-9-FS	205-11-FS	197-MP	MPS-6, 7, 8, 9, 10, 11	25.40	1
205-3-FS	205-5-FS	205-7-FS	205-9-FS	205-11-FS	221-MP	MPS-7, 8, 9, 10, 11, 12	25.40	1
213-3-FS	213-5-FS	213-7-FS	213-9-FS	213-11-FS	221-MP	MPS-7, 8, 9, 10, 11, 12	25.40	1
221-3-FS	221-5-FS	221-7-FS	221-9-FS	221-11-FS	221-MP	MPS-7, 8, 9, 10, 11, 12	25.40	1
221-3-FS	221-5-FS	221-7-FS	221-9-FS	221-11-FS	244-MP	MPS-8, 9, 10, 11, 12, 13	25.40	1
237-3-FS	237-5-FS	237-7-FS	237-9-FS	237-11-FS	244-MP	MPS-8, 9, 10, 11, 12, 13	25.40	1
252-3-FS	252-5-FS	252-7-FS	252-9-FS	252-11-FS	244-MP	MPS-8, 9, 10, 11, 12, 13	25.40	1
252-3-FS	252-5-FS	252-7-FS	252-9-FS	252-11-FS	268-MP	MPS-10, 11, 12, 13, 14	25.40	1
260-3-FS	260-5-FS	260-7-FS	260-9-FS	260-11-FS	268-MP	MPS-10, 11, 12, 13, 14	25.40	1
268-3-FS	268-5-FS	268-7-FS	268-9-FS	268-11-FS	268-MP	MPS-10, 11, 12, 13, 14	25.40	1
276-3-FS	276-5-FS	276-7-FS	276-9-FS	276-11-FS	300-MP	MPS-12, 13, 14, 15, 16	25.40	1
284-3-FS	284-5-FS	284-7-FS	284-9-FS	284-11-FS	300-MP	MPS-12, 13, 14, 15, 16	25.40	1
292-3-FS	292-5-FS	292-7-FS	292-9-FS	292-11-FS	300-MP	MPS-12, 13, 14, 15, 16	25.40	1
315-3-FS	315-5-FS	315-7-FS	315-9-FS	315-11-FS	300-MP	MPS-12, 13, 14, 15, 16	25.40	1
284-3-FS	284-5-FS	284-7-FS	284-9-FS	284-11-FS	347-MP	MPS-15, 16, 17, 18, 19	25.40	1
315-3-FS	315-5-FS	315-7-FS	315-9-FS	315-11-FS	347-MP	MPS-14, 15, 16, 17, 18, 19	25.40	1
323-3-FS	323-5-FS	323-7-FS	323-9-FS	323-11-FS	347-MP	MPS-14, 15, 16, 17, 18, 19	25.40	1
331-3-FS	331-5-FS	331-7-FS	331-9-FS	331-11-FS	347-MP	MPS-14, 15, 16, 17, 18, 19	25.40	1
355-3-FS	355-5-FS	355-7-FS	355-9-FS	355-11-FS	347-MP	MPS-14, 15, 16, 17, 18, 19	25.40	1
363-3-FS	363-5-FS	363-7-FS	363-9-FS	363-11-FS	347-MP	MPS-14, 15, 16, 17, 18, 19	25.40	1
355-3-FS	355-5-FS	355-7-FS	355-9-FS	355-11-FS	394-MP	MPS-17, 18, 19, 20, 21	25.40	1
363-3-FS	363-5-FS	363-7-FS	363-9-FS	363-11-FS	394-MP	MPS-17, 18, 19, 20, 21	25.40	1
370-3-FS	370-5-FS	370-7-FS	370-9-FS	370-11-FS	394-MP	MPS-17, 18, 19, 20, 21	25.40	1
378-3-FS	378-5-FS	378-7-FS	378-9-FS	378-11-FS	394-MP	MPS-17, 18, 19, 20, 21	25.40	1
386-3-FS	386-5-FS	386-7-FS	386-9-FS	386-11-FS	394-MP	MPS-17, 18, 19, 20, 21	25.40	1
394-3-FS	394-5-FS	394-7-FS	394-9-FS	394-11-FS	394-MP	MPS-17, 18, 19, 20, 21	25.40	1

P-3000 Series with Collar



Tube O.D.		Tube Thickness		Tube O.D.		Tube Thickness		Minimum I.D. Tool Enters		Maximum Expansion Of Tool		Tool No.	
												Tube Sheet Thickness Range	
mm	inch	bwg	inch	mm	inch	bwg	inch	mm	inch	mm	inch	1/2" To 4.3/8"	1.1/2" To 5.3/8"
31.75	1.1/4	16	0.065	34.92	1.3/8	10	0.134	27.8	1.094	33.0	1.299	P3111/7	-
38.10	1.1/2	10-12	0.134-0.109	34.92	1.3/8	13-16	0.095-0.065	30.7	1.208	35.0	1.378	P3118/7	-
38.10	1.1/2	13-16	0.095-0.065	44.45	1.3/4	5-7	0.220-0.180	32.7	1.287	38.0	1.496	P3126/7	-
50.80	2	3	0.259	44.45	1.3/4	8&9	0.165&0.148	34.7	1.366	40.0	1.575	P3134/7	P3134/11
50.80	2	4&5	0.238&0.220	44.45	1.3/4	10-12	0.134-0.109	36.7	1.444	42.5	1.673	P3142/7	P3142/11
50.80	2	6	0.203	44.45	1.3/4	13-16	0.095-0.065	38.7	1.523	44.5	1.752	P3150/7	P3150/11
50.80	2	7-9	0.180-0.148	57.15	2.1/4	3	0.259	40.7	1.602	47.0	1.850	P3158/7	P3158/11
50.80	2	10-12	0.134-0.109	57.15	2.1/4	4&5	0.238&0.220	42.7	1.681	49.0	1.929	P3166/7	P3166/11
50.80	2	13-15	0.095-0.072	57.15	2.1/4	6&7	0.203&0.180	44.7	1.760	51.5	2.027	P3174/7	P3174/11
50.80	2	16	0.065	57.15	2.1/4	8&9	0.165&0.148	46.7	1.838	54.0	2.126	P3181/7	P3181/11
63.50	2.1/2	4&5	0.238-0.220	57.15	2.1/4	10-13	0.134-0.095	48.7	1.917	56.0	2.205	P3189/7	P3189/11
63.50	2.1/2	6	0.203	57.15	2.1/4	14-16	0.083-0.065	50.7	1.996	60.0	2.362	P3197/7	P3197/11
63.50	2.1/2	7-10	0.180-0.134	69.85	2.3/4	3	0.259	52.7	2.074	62.0	2.441	P3205/7	P3205/11
63.50	2.1/2	11-13	0.120-0.095	69.85	2.3/4	4&5	0.238&0.220	54.7	2.153	64.0	2.520	P3213/7	P3213/11
63.50	2.1/2	14-16	0.083-0.065	69.85	2.3/4	6	0.203	56.7	2.232	66.0	2.598	P3221/7	P3221/11
76.20	3	2&3	0.284&0.259	69.85	2.3/4	7-9	0.203-0.148	58.7	2.311	68.0	2.677	P3229/7	P3229/11
76.20	3	4	0.238	69.85	2.3/4	10-12	0.134-0.109	60.7	2.389	70.0	2.756	P3237/7	P3237/11
76.20	3	5&6	0.220-0.203	69.85	2.3/4	13-16	0.095-0.065	62.7	2.468	72.0	2.835	P3244/7	P3244/11
76.20	3	7-9	0.180-0.148	82.55	3.1/4	2&3	0.284&0.259	64.7	2.547	74.0	2.913	P3252/7	P3252/11
76.20	3	10-12	0.134-0.109	82.55	3.1/4	4	0.238	66.7	2.625	76.0	2.992	P3260/7	P3260/11
76.20	3	13-14	0.095-0.083	82.55	3.1/4	5	0.220	68.7	2.704	78.0	3.071	P3268/7	P3268/11
76.20	3	15&16	0.072&0.065	82.55	3.1/4	6	0.203	70.7	2.783	80.0	3.150	P3276/7	P3276/11
88.90	3.1/2	3&4	0.284&0.238	82.55	3.1/4	7-11	0.203-0.120	72.7	2.862	82.0	3.228	P3284/7	P3284/11
88.90	3.1/2	5&6	0.220&0.203	82.55	3.1/4	12-14	0.109-0.083	74.7	2.940	84.0	3.307	P3292/7	P3292/11
88.90	3.1/2	7-9	0.180-0.148	79.38	3.1/8	15&16	0.072&0.065	76.7	3.019	86.0	3.386	P3300/7	P3300/11
88.90	3.1/2	10-12	0.134-0.109	82.55	3.1/4	3&4	0.284&0.238	78.7	3.098	88.0	3.465	P3308/7	P3308/11
88.90	3.1/2	13-15	0.095-0.072	95.25	3.3/4	5&6	0.220&0.203	80.7	3.177	92.0	3.622	P3315/7	P3315/11
88.90	3.1/2	16	0.065	95.25	3.3/4	7&8	0.203&0.165	82.7	3.255	94.0	3.701	P3323/7	P3323/11
101.60	4	3&4	0.284&0.238	95.25	3.3/4	9-12	0.148-0.109	84.7	3.334	96.0	3.780	P3331/7	P3331/11
101.60	4	5&6	0.220&0.203	95.25	3.3/4	13-16	0.095-0.065	86.7	3.413	98.0	3.858	P3339/7	P3339/11
101.60	4	7&8	0.180&0.165	107.95	4.1/4	2	0.284	88.7	3.492	100.0	3.937	P3347/7	P3347/11
101.60	4	9-12	0.148-0.109	107.95	4.1/4	3&4	0.284&0.238	90.7	3.570	102.0	4.016	P3355/7	P3355/11
101.60	4	13-15	0.095-0.072	107.95	4.1/4	5&6	0.220&0.203	92.7	3.649	104.0	4.094	P3363/7	P3363/11
101.60	4	16	0.065	107.95	4.1/4	7&8	0.203&0.165	94.7	3.728	106.0	4.173	P3370/7	P3370/11
114.30	4.1/2	3	0.284	107.95	4.1/4	9-11	0.148-0.120	96.7	3.807	108.0	4.252	P3378/7	P3378/11
114.30	4.1/2	4-6	0.238-0.203	107.95	4.1/4	12-16	0.109-0.065	98.7	3.885	110.0	4.331	P3386/7	P3386/11
114.30	4.1/2	7-14	0.180-0.083	-	-	-	-	100.7	3.964	111	4.407	P3394/7	P3394/11

P-3000 Series with Collar

■ 특징

- 확관틀이 보일러튜브와 드럼의 연결부분에서 일관된 확관을 하기 위한 정확한 위치를 잡도록 합니다.
- 보일러 튜브 시트 와 드럼 두께가 70mm (2.34") 이상일 때 사용합니다.
보통 P-1000시리즈와 함께 사용합니다.

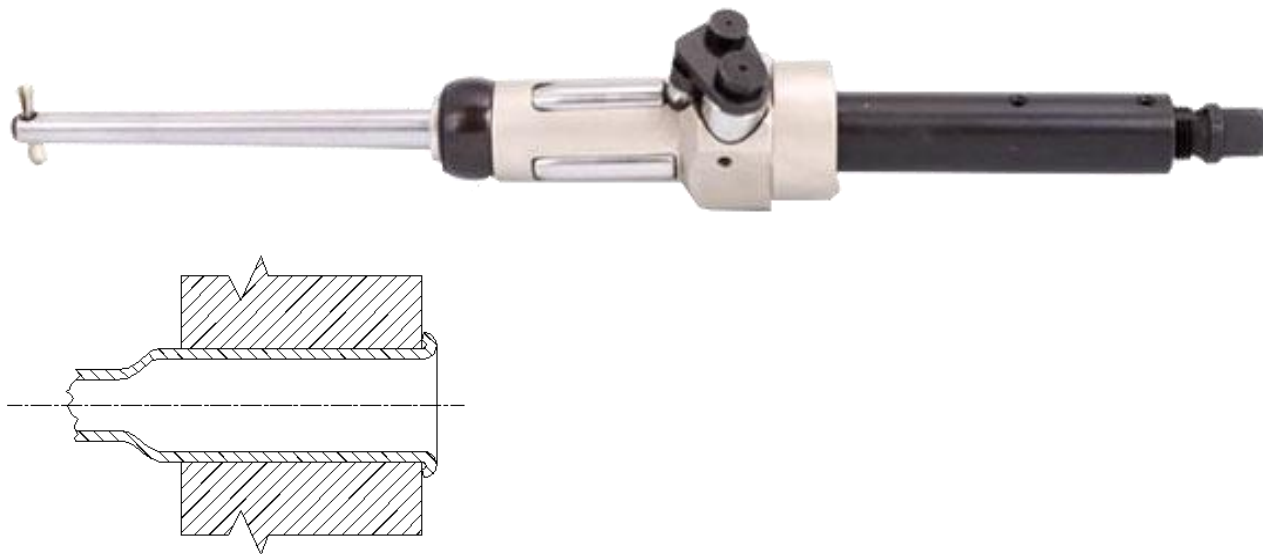
■ Features

- Expander can be accurately positioned in the boiler tube in relation to the drum, for consistent expansions.
- Use - For boiler tube sheets and drums thicker than 2.3/4" (70mm).
Normally used in conjunction with P-1000 Series.

Spare Roller No. Tube Sheet Thickness Range		Drum Mandrel No.		Mandrel Square	
1/2" To 4.3/8"	1.1/2" To 5.3/8"	Drum Type	Short Series Mandrels	mm	inch
111-7-RS	-	118-M	MS-1,2,3	19.05	3/4
118-7-RS	-	118-M	MS-1,2,3	19.05	3/4
126-7-RS	-	126-M	MS-2,3,4	19.05	3/4
126-7-RS	126-11-RS	134-M	MS-3,4,5	19.05	3/4
142-7-RS	142-11-RS	150-M	MS-3,4,5,6	19.05	3/4
150-7-RS	150-11-RS	150-M	MS-3,4,5,6	19.05	3/4
158-7-RS	158-11-RS	174-M	MS-4,5,6,7,8	19.05	3/4
166-7-RS	166-11-RS	174-M	MS-4,5,6,7,8	19.05	3/4
174-7-RS	174-11-RS	174-M	MS-4,5,6,7,8	19.05	3/4
181-7-RS	181-11-RS	197-M	MS-7,8,9,10,11,12	25.40	1
174-7-RS	174-11-RS	197-M	MS-7,8,9,10,11,12	25.40	1
205-7-RS	205-11-RS	197-M	MS-6,7,8,9,10,11,12	25.40	1
205-7-RS	205-11-RS	221-M	MS-7,8,9,10,11,12	25.40	1
213-7-RS	213-11-RS	221-M	MS-7,8,9,10,11,12	25.40	1
221-7-RS	221-11-RS	221-M	MS-7,8,9,10,11,12	25.40	1
221-7-RS	221-11-RS	244-M	MS-8,9,10,11,12,13	25.40	1
237-7-RS	237-11-RS	244-M	MS-8,9,10,11,12,13	25.40	1
252-7-RS	252-11-RS	244-M	MS-8,9,10,11,12,13	25.40	1
252-7-RS	252-11-RS	268-M	MS-10,11,12,13,14	25.40	1
260-7-RS	260-11-RS	268-M	MS-10,11,12,13,14	25.40	1
268-7-RS	268-11-RS	268-M	MS-10,11,12,13,14	25.40	1
276-7-RS	276-11-RS	300-M	MS-12,13,14,15,16	25.40	1
284-7-RS	284-11-RS	300-M	MS-12,13,14,15,16	25.40	1
292-7-RS	292-11-RS	300-M	MS-12,13,14,15,16	25.40	1
315-7-RS	315-11-RS	300-M	MS-12,13,14,15,16	25.40	1
284-7-RS	284-11-RS	347-M	MS-15,16,17,18,19	25.40	1
315-7-RS	315-11-RS	347-M	MS-14,15,16,17,18,19	25.40	1
323-7-RS	323-11-RS	347-M	MS-14,15,16,17,18,19	25.40	1
331-7-RS	331-11-RS	347-M	MS-14,15,16,17,18,19	25.40	1
355-7-RS	355-11-RS	347-M	MS-14,15,16,17,18,19	25.40	1
363-7-RS	363-11-RS	347-M	MS-14,15,16,17,18,19	25.40	1
355-7-RS	355-11-RS	394-M	MS-17,18,19,20,21	25.40	1
363-7-RS	363-11-RS	394-M	MS-17,18,19,20,21	25.40	1
370-7-RS	370-11-RS	394-M	MS-17,18,19,20,21	25.40	1
378-7-RS	378-11-RS	394-M	MS-17,18,19,20,21	25.40	1
386-7-RS	386-11-RS	394-M	MS-17,18,19,20,21	25.40	1
394-7-RS	394-11-RS	394-M	MS-17,18,19,20,21	25.40	1

Combination Beading Expanders

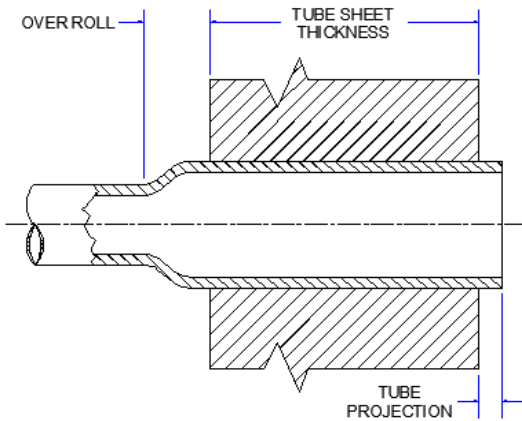
Tube expanding and beading in single operation



	Previously	Now
Tools Required	1) Flaring tube expander 2) Tube expander drive 3) Beading tool 4) Air hammer	1) Combination beading expander 2) Tube expander drive
Operating Steps	1) Expand 2) Bead 3) Reroll	1) Expand and bead (single operation)
Operator Fatigue	high...largely due to air hammer vibration and noise	Reduced significantly no air hammer for beading...no rerolling

Tube O.D		Tube Thickness		Expansion Range		Tool No.	Spare Roller No.	Beading Roll Model No.	Guide Roll Assembly Model No.	Mandrel Square		Spare Mandrel No.
mm	inch	bwg	inch	mm	inch					mm	inch	
50.80	2	10	0.134	43.2 - 48.41	1.700 - 1.906	41633 - 0010	41670 set of 4	41631 - 0010	41701 - 0010	19.05	(3/4")	41615
		11	0.120			41633 - 0011		41631 - 0011	41701 - 0011			
63.50	2.1/2	10	0.134	55.9 - 62.48	2.200 - 2.460	41634 - 0010	41673 set of 5	41651 - 0010	41702 - 0010	25.40	(1")	41635
		11	0.120			41634 - 0011		41651 - 0011	41702 - 0011			
		12	0.109			41634 - 0012		41651 - 0012	41702 - 0012			
		13	0.095			41634 - 0013		41651 - 0013	41702 - 0013			
76.20	3	10	0.134	68.6 - 75.69	2.700 - 2.980	41359 - 0010	41676 set of 5	41666 - 0010	41703 - 0010	25.40	(1")	41653
		11	0.120			41359 - 0011		41666 - 0011	41703 - 0011			
		12	0.109			41359 - 0012		41666 - 0012	41703 - 0012			

V Series Non Parallel Expansion



· V타입 확관틀은 얇은 튜브시트를 가진 보일러를 수리하거나 조립 할 때 사용합니다. 보통 확관틀을 사용 할 때 보다 두배 빠릅니다. 확관틀이 워터렉을 관통 할 때는 헤더맨드렐(Header mandrel) 을 함께 사용합니다.

- Use : Type 'V' Expander is used for repair and erection of boilers having thin tube sheets.
It is approximately twice as fast during use than other conventional expanders.
Use Header Mandrel when expander is to be used through a waterleg.

Tube O,D		Tube Thickness		Expansion Range Dim.A - Dim.B		Effective Rolling Length		Tool No.	Spare Roller No.	Spare Mandrel			
										Short Mandrel No.	Header Mandrel No.	Mandrel Sq. Size	
mm	inch	bwg	inch	mm	inch	mm	inch					mm	inch
25.40	1	10 - 13	0.134 - 0.095	17.3 - 23.7	0.681 - 0.937	84.20	3.5/16	V - 1	VR - 1	VSM - 1	VHM - 1	12.70	1/2
31.75	1.1/4	10 - 13	0.134 - 0.095	23.8 - 30.6	0.940 - 1.206	84.20	3.5/16	V - 2	VR - 2	VSM - 2	VHM - 2	12.70	1/2
38.10	1.1/2	10 - 13	0.134 - 0.095	29.3 - 37.3	1.156 - 1.469	101.20	4.000	V - 3	VR - 3	VSM - 3	VHM - 3	12.70	1/2
50.80	2	10 - 13	0.134 - 0.095	42.3 - 49.7	1.665 - 1.960	101.20	4.000	V - 4	VR - 4	VSM - 4	VHM - 4	19.05	3/4
63.50	2.1/2	10 - 13	0.134 - 0.095	54.5 - 62.7	2.145 - 2.469	101.20	4.000	V - 5	VR - 5	VSM - 5	VHM - 5	19.05	3/4
76.20	3	10 - 13	0.134 - 0.095	68.2 - 76.6	2.687 - 3.015	101.20	4.000	V - 6	VR - 6	VSM - 6	VHM - 6	25.40	1

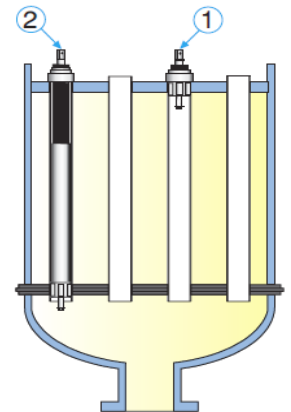
◆ **Note** : 기본 사양 외 사이즈는 제작문의 바랍니다.
Other sizes available on request.

SB Series for Sugar Mills



SB SERIES

①



특징

- 두께가 얇은 튜브의 확관작업시 5개의 롤러로 구성된 확관틀은 기본3개로 구성된 확관틀에 비하여 더 넓은 동심원을 주어 정확한 확관을 할 수 있고 튜브의 복원을 억제합니다.

Features

- '5 Roll' give you a more concentric, uniform expansion vs. a '3 Roll' expander in thin tubes and reduces tube 'spring back' effect.

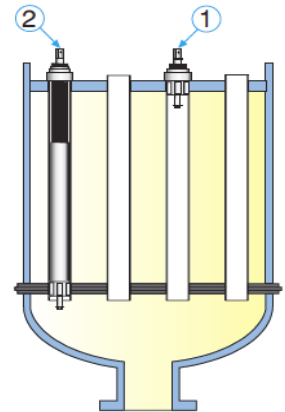
Tube O.D.		Tube Thickness		Min.I.D. Tool Enters		Max. Expansion Of Tool		Tube Sheet Thickness			Spare Roller No.			Spare Mandrel No.	Mandrel Square	
								31.75mm (1.25")	38.1mm (1.5")	50.8mm (2.0")						
mm	inch	bwg	inch	mm	inch	mm	inch	Tool No.							mm	inch
38.1	1 1/2	11&12	0.120&0.109	31.00	1.220	33.20	1.307	SB-00A	SB-00B	SB-00C	SBR-1A	SBR-1B	SBR-1C	SBM-1	12.7	1/2
38.1	1 1/2	13&14	0.095&0.083	32.50	1.279	36.00	1.417	SB-0A	SB-0B	SB-0C	SBR-2A	SBR-2B	SBR-2C	SBM-2	12.7	1/2
38.1	1 1/2	15&16	0.072&0.065	33.50	1.319	37.20	1.465	SB-1A	SB-1B	SB-1C	SBR-3A	SBR-3B	SBR-3C	SBM-2	12.7	1/2
44.45	1 3/4	9&10	0.148&0.134	35.20	1.386	39.10	1.539	SB-2A	SB-2B	SB-2C	SBR-3A	SBR-3B	SBR-3C	SBM-3	19.05	3/4
44.45	1 3/4	11&12	0.120&0.109	36.50	1.437	40.50	1.594	SB-3A	SB-3B	SB-3C	SBR-4A	SBR-4B	SBR-4C	SBM-3	19.05	3/4
44.45	1 3/4	13&14	0.095&0.083	38.10	1.500	42.70	1.681	SB-4A	SB-4B	SB-4C	SBR-5A	SBR-5B	SBR-5C	SBM-3	19.05	3/4
44.45	1 3/4	15&16	0.072&0.065	39.10	1.539	44.20	1.740	SB-5A	SB-5B	SB-5C	SBR-4A	SBR-4B	SBR-4C	SBM-4	19.05	3/4
50.8	2	7&8	0.180&0.165	41.30	1.626	46.70	1.838	SB-6A	SB-6B	SB-6C	SBR-5A	SBR-5B	SBR-5C	SBM-4	19.05	3/4
50.8	2	9&10	0.148&0.134	42.80	1.685	48.30	1.901	SB-7A	SB-7B	SB-7C	SBR-6A	SBR-6B	SBR-6C	SBM-4	19.05	3/4
50.8	2	11-13	0.120-0.095	44.40	1.748	49.70	1.957	SB-8A	SB-8B	SB-8C	SBR-6A	SBR-6B	SBR-6C	SBM-5	19.05	3/4
50.8	2	14-16	0.083-0.065	46.00	1.811	52.20	2.055	SB-9A	SB-9B	SB-9C	SBR-7A	SBR-7B	SBR-7C	SBM-5	19.05	3/4
57.15	2 1/4	9&10	0.148&0.134	47.60	1.874	53.80	2.118	SB-10A	SB-10B	SB-10C	SBR-8A	SBR-8B	SBR-8C	SBM-5	19.05	3/4
57.15	2 1/4	11-13	0.120-0.095	49.20	1.937	55.40	2.181	SB-11A	SB-11B	SB-11C	SBR-9A	SBR-9B	SBR-9C	SBM-5	19.05	3/4
57.15	2 1/4	14-16	0.083-0.065	50.70	1.996	57.80	2.275	SB-12A	SB-12B	SB-12C	SBR-8A	SBR-8B	SBR-8C	SBM-6	19.05	3/4
63.5	2 1/2	9&10	0.148&0.134	54.90	2.161	61.00	2.401	SB-13A	SB-13B	SB-13C	SBR-10A	SBR-10B	SBR-10C	SBM-6	19.05	3/4
63.5	2 1/2	14-16	0.083-0.065	57.10	2.248	65.60	2.582	SB-14A	SB-14B	SB-14C	SBR-11A	SBR-11B	SBR-11C	SBM-7	25.4	1
63.5	2 3/4	10-14	0.134-0.083	60.30	2.374	68.80	2.708	SB-15A	SB-15B	SB-15C	SBR-12A	SBR-12B	SBR-12C	SBM-7	25.4	1
76.2	3	7-9	0.180-0.148	63.50	2.500	72.00	2.835	SB-16A	SB-16B	SB-16C	SBR-13A	SBR-13B	SBR-13C	SBM-7	25.4	1
76.2	3	10-14	0.134-0.083	66.50	2.618	75.00	2.953	SB-17A	SB-17B	SB-17C	SBR-14A	SBR-14B	SBR-14C	SBM-7	25.4	1
82.55	3 1/4	7&8	0.180&0.165	69.80	2.748	78.50	3.090	SB-18A	SB-18B	SB-18C	SBR-14A	SBR-14B	SBR-14C	SBM-8	25.4	1
88.9	3 1/2	4&5	0.238&0.220	73.00	2.874	81.70	3.216	SB-19A	SB-19B	SB-19C	SBR-15A	SBR-15B	SBR-15C	SBM-8	25.4	1
88.9	3 1/2	6-8	0.203-0.165	76.10	2.996	85.80	3.378	SB-20A	SB-20B	SB-20C	SBR-16A	SBR-16B	SBR-16C	SBM-9	25.4	1
95.25	3 3/4	4&5	0.238&0.220	79.30	3.122	89.00	3.504	SB-21A	SB-21B	SB-21C	SBR-17A	SBR-17B	SBR-17C	SBM-9	25.4	1
95.25	3 3/4	6-8	0.203-0.165	82.50	3.248	92.20	3.629	SB-22A	SB-22B	SB-22C	SBR-18A	SBR-18B	SBR-18C	SBM-9	25.4	1
101.6	4	3&4	0.259&0.238	85.70	3.374	96.20	3.787	SB-23A	SB-23B	SB-23C	SBR-18A	SBR-18B	SBR-18C	SBM-10	25.4	1
101.6	4	10-16	0.134-0.065	90.30	3.555	100.80	3.968	SB-24A	SB-24B	SB-24C	SBR-19A	SBR-19B	SBR-19C	SBM-10	25.4	1
107.95	4 1/4	6-8	0.203-0.165	94.90	3.736	105.20	4.141	SB-25A	SB-25B	SB-25C	SBR-20A	SBR-20B	SBR-20C	SBM-11	25.4	1
114.3	4 1/2	4-7	0.238-0.180	89.70	3.531	110.90	4.366	SB-26A	SB-26B	SB-26C	SBR-21A	SBR-21B	SBR-21C	SBM-11	25.4	1
114.3	4 1/2	8-10	0.165-0.134	104.30	4.106	113.10	4.452	SB-27A	SB-27B	SB-27C	SBR-21A	SBR-21B	SBR-21C	SBM-12	25.4	1

Long Reach CSB Series



CSB SERIES

②



특징

- 두께가 얇은 튜브의 확관작업시 5개의 롤러로 구성된 확관틀은 기본3개로 구성된 확관틀에 비하여 더 넓은 동심원을 주어 정확한 확관을 할 수 있고 튜브의 복원을 억제합니다.

Features

- '5 Roll' give you a more concentric, uniform expansion vs. a '3 Roll' expander in thin tubes and reduces tube 'spring back' effect.

Tube O.D		Tube Thickness		Min. I.D Tool		Max. Expansion		Tube Sheet Thickness 'T'		Depth in Mtrs.		Oal	Tube Expander No.	Spare Roller No.	Spare Mandrel No.	Mandrel Square		Weight (kg)
mm	inch	bwg	inch	mm	inch	mm	inch	mm	inch	min	max	Mtrs.				mm	inch	
CSB-5 (3 Rollers)																		
44.45	1.3/4	15&16	0.072&0.065	39.8	1.566	45.30	1.783	32.0	1.259	1.7	2.0	2.258	CSB-5STD	CSBR-5	CSBM-5STD	19.05	3/4	10.0
44.45	1.3/4	15&16	0.072&0.065	39.8	1.566	45.30	1.783	32.0	1.259	2.0	2.3	2.558	CSB-5A	CSBR-5	CSBM-5A	19.05	3/4	11.2
44.45	1.3/4	15&16	0.072&0.065	39.8	1.566	45.30	1.783	32.0	1.259	2.3	2.3	2.858	CSB-5B	CSBR-5	CSBM-5B	19.05	3/4	12.4
44.45	1.3/4	15&16	0.072&0.065	39.8	1.566	45.30	1.783	32.0	1.259	2.6	2.9	3.158	CSB-5C	CSBR-5	CSBM-5C	19.05	3/4	13.7
44.45	1.3/4	15&16	0.072&0.065	39.8	1.566	45.30	1.783	32.0	1.259	2.9	3.2	3.458	CSB-5D	CSBR-5	CSBM-5D	19.05	3/4	14.9
44.45	1.3/4	15&16	0.072&0.065	39.8	1.566	45.30	1.783	32.0	1.259	3.2	3.5	3.758	CSB-5E	CSBR-5	CSBM-5E	19.05	3/4	16.2
CSB-9 (5 Rollers)																		
50.80	2	14-16	0.083-0.065	46.2	1.818	50.80	2.000	32.0	1.259	1.7	2.0	2.241	CSB-9STD	CSBR-9	CSBM-9STD	19.05	3/4	16.2
50.80	2	14-16	0.083-0.065	46.2	1.818	50.80	2.000	32.0	1.259	2.0	2.3	2.541	CSB-9A	CSBR-9	CSBM-9A	19.05	3/4	18.3
50.80	2	14-16	0.083-0.065	46.2	1.818	50.80	2.000	32.0	1.259	2.3	2.3	2.841	CSB-9B	CSBR-9	CSBM-9B	19.05	3/4	20.4
50.80	2	14-16	0.083-0.065	46.2	1.818	50.80	2.000	32.0	1.259	2.6	2.9	3.141	CSB-9C	CSBR-9	CSBM-9C	19.05	3/4	22.5
50.80	2	14-16	0.083-0.065	46.2	1.818	50.80	2.000	32.0	1.259	2.9	3.2	3.441	CSB-9D	CSBR-9	CSBM-9D	19.05	3/4	24.6
50.80	2	14-16	0.083-0.065	46.2	1.818	50.80	2.000	32.0	1.259	3.2	3.5	3.741	CSB-9E	CSBR-9	CSBM-9E	19.05	3/4	26.7
CSB-24 (5 Rollers)																		
101.6	4	12-18	0.109-0.049	90.5	3.563	102.40	4.031	32.0	1.259	0.7	1.0	1.416	CSB-24STD	CSBR-24	CSBM-24STD	25.40	1	23.7
101.6	4	12-18	0.109-0.049	90.5	3.563	102.40	4.031	32.0	1.259	1.0	1.3	1.716	CSB-24A	CSBR-24	CSBM-24A	25.40	1	29.4
101.6	4	12-18	0.109-0.049	90.5	3.563	102.40	4.031	32.0	1.259	1.3	1.6	2.016	CSB-24B	CSBR-24	CSBM-24B	25.40	1	35.5
101.6	4	12-18	0.109-0.049	90.5	3.563	102.40	4.031	32.0	1.259	1.6	1.9	2.316	CSB-24C	CSBR-24	CSBM-24C	25.40	1	40.8
101.6	4	12-18	0.109-0.049	90.5	3.563	102.40	4.031	32.0	1.259	1.9	2.2	2.616	CSB-24D	CSBR-24	CSBM-24D	25.40	1	46.5
101.6	4	12-18	0.109-0.049	90.5	3.563	102.40	4.031	32.0	1.259	2.2	2.5	2.916	CSB-24E	CSBR-24	CSBM-24E	25.40	1	52.5

Boiler Tube Expanding Accessories

①

Universal Joint -

가장 무난하게 사용할 수 있는 유니버설 조인트 입니다. 유연한 몸체로 닿기 힘든 지점까지 사용이 가능합니다. (굴곡을 생성하여 닿기 힘든 지점에 도달합니다)

Female X Female are most common and are used to create flexibility in reaching hard to get to spots.

Double Universal Joint -

Female X Female 유니버설 조인트보다 더 높은 유연성을 가지고 있습니다.

Allow more deflection than Female X Female universal joint.

Male X Male -

Super heater headers에 사용하기에 적합합니다. Male x Male are suitable for use in super heater headers.

③

Extension couplings -

드라이브익스텐션, 맨드릴, 유니버설 조인트를 연결할 때 사용 됩니다.

Are available in plain or reducing type and are used to connect drive extensions, mandrels, and universal joints.

④

Right angle worm Gear Drive -

boiler header의 좁고 막힌 부분을 작업할 때 사용합니다. Used for operating in very confined areas of boiler headers. Has a one piece construction for maximum life.

②

Extension Universal Joint-

확관기에 연결된 커플링을 제거하고 Extension Universal Joint 를 연결하여 water wall headers, Super heater headers, water legs 등의 속에 있는 튜브를 확관할 때 사용합니다. Integral design eliminates coupling an extension with a universal joint and are used when expanding tubes through water wall headers, super heater headers, water legs etc.

⑤

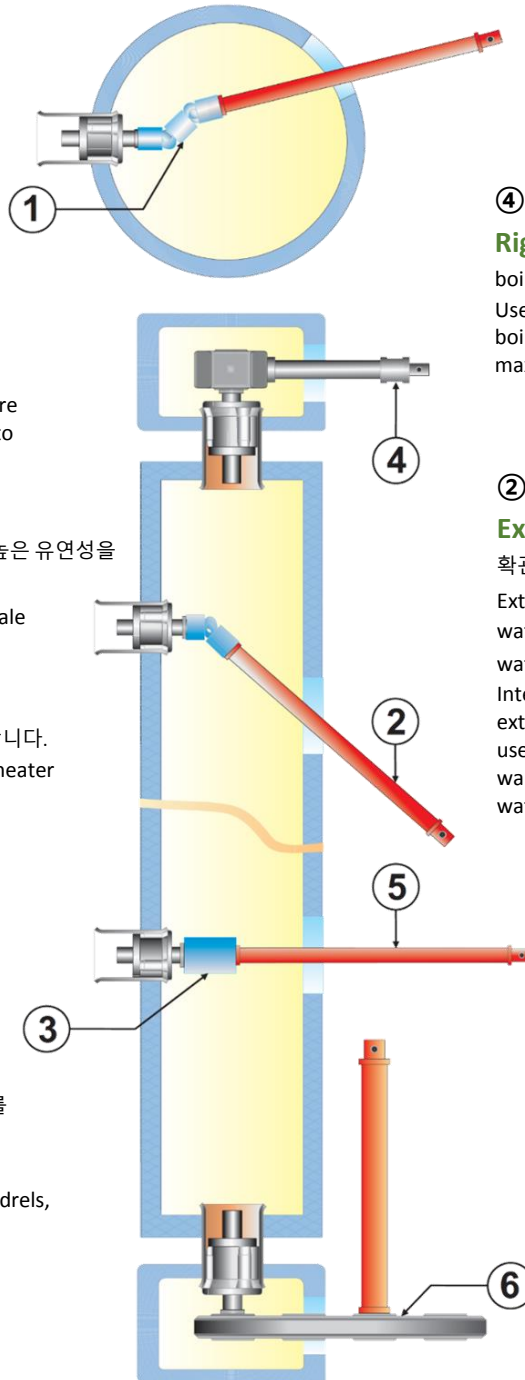
Drive Extensions -

water legs, headers 등을 통과하여 유니버설 조인트와 parallel gear train drives (회전분배기), 익스텐션 커플링이 확관통에 연결될 수 있는 길이만큼 연장해 줍니다. Are used with universal joints and parallel gear train drives as well as extension couplings for extending expander mandrel reach through water legs, headers etc.

⑥

Drive Parallel Gear Train Drive -

닿기 힘든 곳에 위치한 튜브를 확관 할 수 있습니다. Have high strength gears with bronze bushings to expand tubes in hard to reach places.



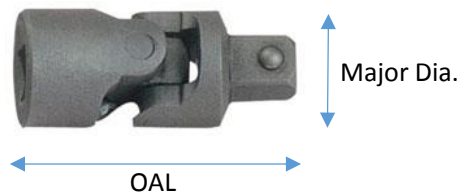
Universal Joints and Extensions

■ Universal Joint Female-Female



Square Size		Model No.	OAL		Major Dia.	
mm	inch		mm	inch	mm	inch
9.53	3/8	UJ-95	57.15	2-1/4	22.22	7/8
12.7	1/2	UJ-127	66.67	2-5/8	25.40	1
19.05	3/4	UJ-195	76.20	3	38.10	1-1/2
25.4	1	UJ-254	95.25	3-3/4	44.45	1-3/4

■ Universal Joint Male-Female



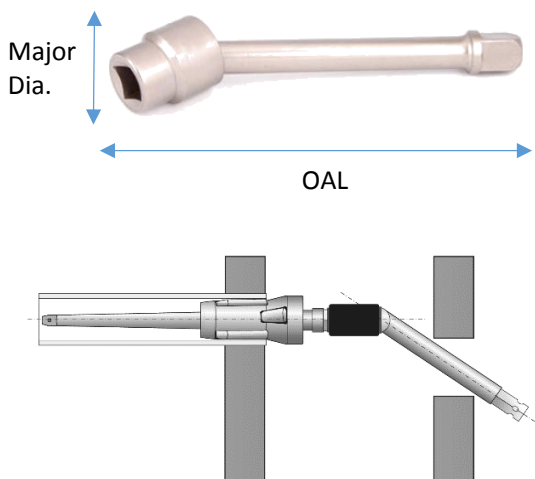
Square Size		Model No.	OAL		Major Dia.	
mm	inch		mm	inch	mm	inch
9.53	3/8	UC-95	57.15	2-1/4	22.22	7/8
12.7	1/2	UC-127	65.88	2-19/32	25.40	1
19.05	3/4	UC-195	83.34	3-9/32	38.10	1-1/2
25.4	1	UC-254	101.6	4	44.45	1-3/4

■ Universal Joint Female-Female



Square Size		Model No.	OAL		Major Dia.	
mm	inch		mm	inch	mm	inch
9.53	3/8	DUJ-95	100.0	3-15/16	28.57	1-1/8
12.7	1/2	DUJ-127	101.6	4	33.33	1-5/16
19.05	3/4	DUJ-195	119.0	4-11/16	41.27	1-5/8
25.4	1	DUJ-254	153.1	6-1/32	57.15	2-1/4

■ Extension Universal Joint Female-Male



Female Square Size		Male Square Size		Model No.	OAL		Major Dia.	
mm	inch	mm	inch		mm	inch	mm	inch
9.53	3/8	9.53	3/8	UE-95-6	152.4	6	28.57	1-1/8
				UE-95-9	228.6	9		
				UE-95-12	304.8	12		
9.53	3/8	12.70	1/2	UE-95S-9	228.6	9	28.57	1-1/8
				UE-95S-12	304.8	12		
				UE-95S-16	406.4	16		
12.70	1/2	12.70	1/2	UE-127-6	152.4	6	33.33	1-5/16
				UE-127-9	228.6	9		
				UE-127-12	304.8	12		
				UE-127-16	406.4	16		
				UE-127-20	508.0	20		
19.05	3/4	19.05	3/4	UE-195-9	228.6	9	44.45	1-3/4
				UE-195-12	304.8	12		
				UE-195-16	406.4	16		
				UE-195-20	508.0	20		
25.40	1	25.40	1	UE-254-9	228.6	9	57.15	2-1/4
				UE-254-12	304.8	12		
				UE-254-16	406.4	16		

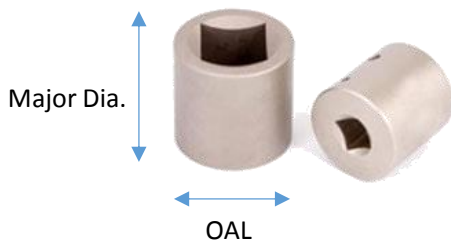
Universal Joints and Extensions

Male x Male Drive Extensions



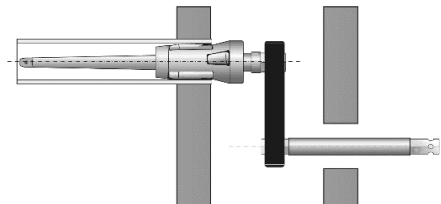
Square Size		Model No.	OAL		Major Dia.	
mm	inch		mm	inch	mm	inch
9.53	3/8	EB-95-6	152.4	6	12.70	1/2
		EB-95-9	228.6	9		
		EB-95-12	304.8	12		
		EB-95-18	457.2	18		
12.70	1/2	EB-127-6	152.4	6	15.88	5/8
		EB-127-9	228.6	9		
		EB-127-12	304.8	12		
		EB-127-18	457.2	18		
		EB-127-24	609.6	24		
19.05	3/4	EB-195-6	152.4	6	25.40	1
		EB-195-9	228.6	9		
		EB-195-12	304.8	12		
		EB-195-18	457.2	18		
		EB-195-24	609.6	24		
25.4	1	EB-254-6	152.4	6	31.75	1-1/4
		EB-254-12	304.8	12		
		EB-254-14	457.2	14		
		EB-254-18	609.6	18		
		EB-254-24	609.6	24		

Female x Female Extension Couplings



Square Size		Model No.	OAL		Major Dia.	
mm	inch		mm	inch	mm	inch
9.53 X 9.53	3/8 X 3/8	EC-95-95	36.51	1-7/16	20.63	13/16
9.53 X 12.70	3/8 X 1/2	EC-95-127	39.68	1-9/16	26.98	1-1/16
9.53 X 15.88	3/8 X 5/8	EC-95-158	38.10	1-1/2	31.75	1-1/4
12.70 X 12.70	1/2 X 1/2	EC-127-127	42.86	1-11/16	26.98	1-1/16
12.70 X 15.88	1/2 X 5/8	EC-127-158	41.27	1-5/8	31.75	1-1/4
12.70 X 19.05	1/2 X 3/4	EC-127-195	41.27	1-5/8	34.92	1-3/8
12.70 X 22.22	1/2 X 7/8	EC-127-222	41.27	1-5/8	41.27	1-5/8
12.70 X 25.40	1/2 X 1	EC-127-254	41.27	1-5/8	47.62	1-7/8
15.88 X 19.05	5/8 X 3/4	EC-158-195	39.68	1-9/16	34.92	1-3/8
15.88 X 22.22	5/8 X 7/8	EC-158-222	50.80	2	41.27	1-5/8
15.88 X 25.40	5/8 X 1	EC-158-254	46.03	1-13/16	47.62	1-7/8
19.05 X 19.05	3/4 X 3/4	EC-195-195	41.27	1-5/8	36.51	1-7/16
19.05 X 22.22	3/4 X 7/8	EC-195-222	41.27	1-5/8	44.45	1-3/4
19.05 X 25.40	3/4 X 1	EC-195-254	46.03	1-13/16	47.62	1-7/8
22.22 X 22.22	7/8 X 7/8	EC-222-222	42.86	1-11/16	44.45	1-3/4
22.22 X 25.40	7/8 X 1	EC-222-254	53.97	2-1/8	53.97	2-1/8
25.40 X 25.40	1 X 1	EC-254-254	52.38	2-1/16	47.62	1-7/8

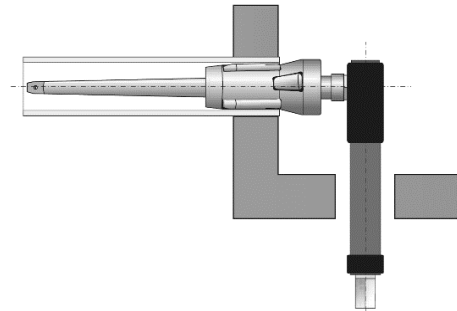
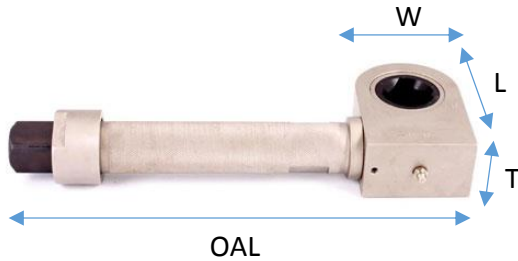
Parallel Gear Train Drive



Square Size		Number of Openings	Model No.	Replacement Parts				Dimensions			
				Double Hub Gear		Center Gear		OAL		Width	
mm	inch			Model No.	Nos. Req'd.	Model No.	Nos. Req'd.	mm	inch	mm	inch
9.52	3/8	3	BG-3-95	BGH-3-95	3	BGC-3-95	4	215.9	8-1/2	50.80	2
12.70	1/2	3	BG-3-127	BGH-3-127	3	BGC-3-127	4	215.9	8-1/2	50.80	2
		4	BG-4-127	BGH-4-127	4	BGC-4-127	3				
19.05	3/4	3	BG-3-195	BGH-3-195	3	BGC-3-195	4	228.6	9	63.50	2-1/2
		4	BG-4-195	BGH-4-195	4	BGC-4-195	3				
25.40	1	4	BG-4-254	BGH-4-254	4	BGC-4-254	3	228.6	9	63.50	2-1/2

Universal Joint and Extensions

■ Right Angle Worm Gear Drive



Female Square Size		Male Square Size		Model No.	OAL		Gear Housing						Min. Hand Hole Dia.		Gear Ratio	
							Length		Width		Thk.					
mm	inch	mm	inch		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
12.70	1/2	12.70	1/2	RW-127-127	258.7	10-3/16	80.96	3-3/16	57.15	2-1/4	34.92	1-3/8	85.72	3-3/8	114.3	4-1/2 to 1
12.70	1/2	19.05	3/4	RW-127-195	258.7	10-3/16	80.96	3-3/16	57.15	2-1/4	34.92	1-3/8	85.72	3-3/8	114.3	4-1/2 to 1
19.05	3/4	19.05	3/4	RW-195-195	286.5	11-9/32	97.63	3-27/32	66.67	2-5/8	47.62	1-7/8	101.6	4	114.3	4-1/2 to 1
25.40	1	25.40	1	RW-195-254	286.5	11-9/32	107.9	4-1/4	77.78	3-1/16	47.62	1-7/8	114.3	4-1/2	114.3	4-1/2 to 1

■ Reversible Ratchet Wrench



Model No.	Square Size		Length	
	mm	inch	mm	inch
HR-95	9.52	3/8"	203.2	8"
HR-127	12.70	1/2"	254.0	10"
HR-195	19.05	3/4"	508.0	20"
HR-254	25.4	1"	609.6	24"

■ Taper Shank - Interchangeable Female Square



Morse Taper No.		Square Size		Model No.	Insert Square Size		Insert Model No.
					mm	inch	
50.80	2	9.52	3/8	MM-2-95	9.52	3/8	MD-95
		12.70	1/2	MM-2-127	12.70	1/2	MD-127
76.20	3	9.52	3/8	MM-3-95	9.52	3/8	MD-95
		12.70	1/2	MM-3-127	12.70	1/2	MD-127
		19.05	3/4	MM-3-190	19.05	3/4	MD-190
		25.4	1	MM-3-254	25.4	1	MD-254
101.6	4	9.52	3/8"	MM-4-95	9.52	3/8"	MD-95
		12.70	1/2	MM-4-127	12.70	1/2	MD-127
		19.05	3/4	MM-4-190	19.05	3/4	MD-190
		25.4	1	MM-4-254	25.4	1	MD-254
127	5	9.52	3/8	MM-5-95	9.52	3/8	MD-95
		12.70	1/2	MM-5-127	12.70	1/2	MD-127
		19.05	3/4	MM-5-190	19.05	3/4	MD-190
		25.4	1	MM-5-254	25.4	1	MD-254

Universal Joints and Extensions

Taper Shank - Male Square



Model No.	Morse Taper No.	Square Size	
		mm	inch
MTM-1-95	1	9.52	3/8
MTM-1-127		12.70	1/2
MTM-2-95	2	9.52	3/8
MTM-2-127		12.70	1/2
MTM-3-190	3	19.05	3/4
MTM-3-254		25.40	1
MTM-4-190	4	19.05	3/4
MTM-4-254		25.40	1

Taper Shank - Female Square



Model No.	Morse Taper No.	Square Size	
		mm	inch
MTM-1-95	1	9.52	3/8
MTM-1-127		12.70	1/2
MTM-2-95	2	9.52	3/8
MTM-2-127		12.70	1/2
MTM-3-190	3	19.05	3/4
MTM-3-254		25.40	1
MTM-4-190	4	19.05	3/4
MTM-4-254		25.40	1

Triangle Shank - Female Square



Model No.	Chuck Size		Square Size	
	mm	inch	mm	inch
MTC-95-63	6.35	1/4	9.52	3/8
MTC-95-95	9.52	3/8	9.52	3/8
MTC-95-127	12.70	1/2	19.05	3/4
MTC-127-127	12.70	1/2	19.05	3/4

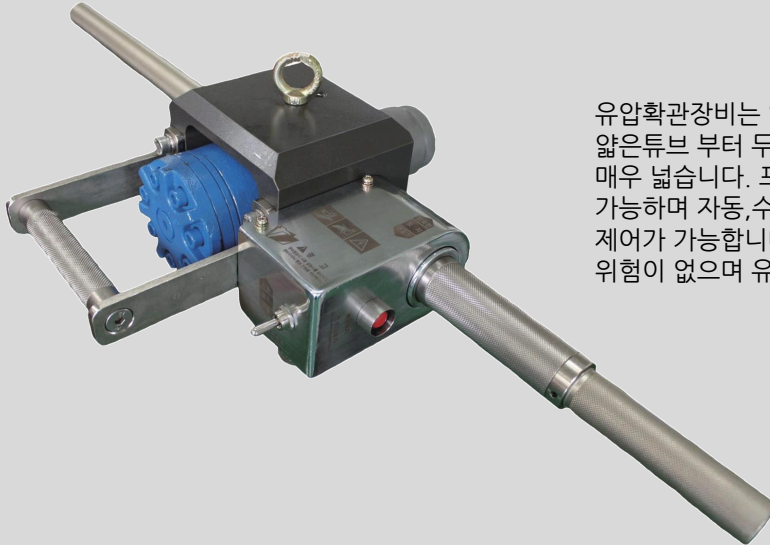


Tube Expanding Machines

- Hydraulic Expanding Machine
 - Pneumatic Expanding Machine
- 

PORTABLE DRIVE HEAD

JHD Series



유압확관장비는 열교환기, 보일러기 등의 확관작업에 사용됩니다. 얇은튜브 부터 두꺼운튜브와 파이프에 이르기까지 사용범위가 매우 넓습니다. 프레스스위치 셋팅에 의해서 정확한 압력제어가 가능하며 자동, 수동 기능모드에서 설정된 입력 값에 정확한 제어가 가능합니다. 드라이브는 튼튼하게 디자인되어 파손의 위험이 없으며 유지보수 비용이 적습니다.

DRIVE HEAD	Max.Torque	Full load Speed	Capacity	Dimensions (WxLxHmm)	Mandrel Coupling No.	Mandrel Shank	Weight
JHD-70	72Nm 90bar	550RPM	O.D.16-32mm	762X254X254	MC-803, MC-804	9.5/12.7mm	9.6kg
JHD-50	97Nm 90bar	400RPM	O.D.19-38mm	762X254X254	MC-803, MC-804	9.5/12.7mm	9.6kg
JHD-20	223Nm 90bar	180RPM	O.D.38-76mm	762X254X254	MC-804, MC-806	12.7/19mm	10kg
JHD-10	389Nm 90bar	100RPM	O.D.50-100mm	762X254X254	MC-804, MC-806	19/25mm	10.6kg

■ 자동기능 / Auto

반복된 작업시 드라이브의 정, 역회전이 자동으로 이루어집니다. 또한 드라이브는 셋팅된 압력 값에 자동으로 멈춥니다.
When repeated work, right rotation and reverse rotation will be automatically actuated.
Also drive will be automatically stopped in setting pressure.

■ 반자동기능 / Semi auto

셋팅된 압력 값에 자동으로 멈추며 역회전시 수동 조절로 작동 됩니다.
Drive is automatically stopped in setting pressure. In reverse rotation, drive is manually controlled.

■ 수동기능 / Manual

수동으로 정, 역회전이 조절 됩니다.
Right, reverse rotation is controlled by manual mode.

■ 비상정지기능 / Emergency stop

확관작업 중 드라이브가 멈추지 않을 경우 비상정지 버튼을 누르면 자동으로 전원이 차단됩니다.
In case of non-stopping of drive during expanding, push the emergency button then the power will automatically be off.

HYDRAULIC EXPANDING UNIT M-750

Hydraulic expanding machine is used to expanding work of heat exchanger and boiler. Range of using is too wide because the machine is used from thin tubes to thick tubes and pipes. Pressure can be controlled by pressure switch set of hydraulic expanding machine. Exact control of setting pressure can be possible in auto and manual mode.

Also hydraulic drive is designed strongly. So it doesn't have danger of breakdown and doesn't cost a lot of maintenance fee.



M-750	Input Voltage	Electric Motor	Max. Pressure	Max. Flux per a minute	Oil Tank Capacity	Dimensions	Weight
	AC 220/380 V AC 220/440 V	7.5HP 1,750RPM	90bar	90liter/min	28liter	1,300x600x1,100mm	150kg (without oil)

TELESCO HAND TH-500



FOOT SWITCH FS-FRSA-4B



STAND ST-1750

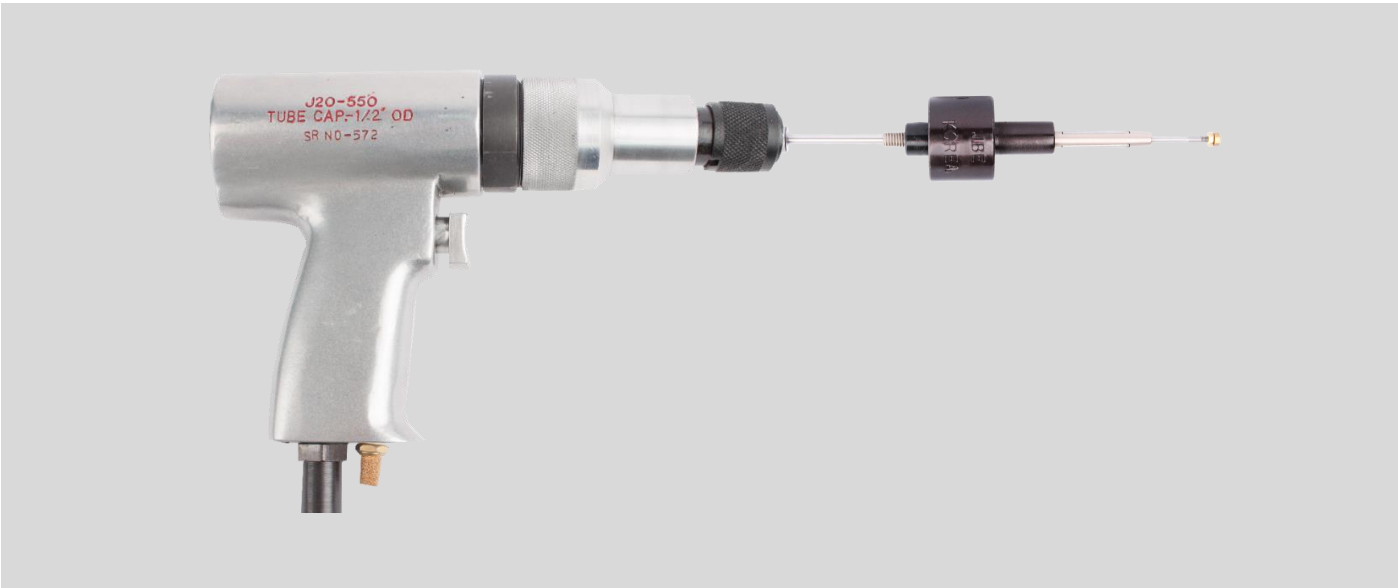


EXAMPLE TOOL APPLICATION



PNEUMATIC ROLLING DRIVES

J20 Series



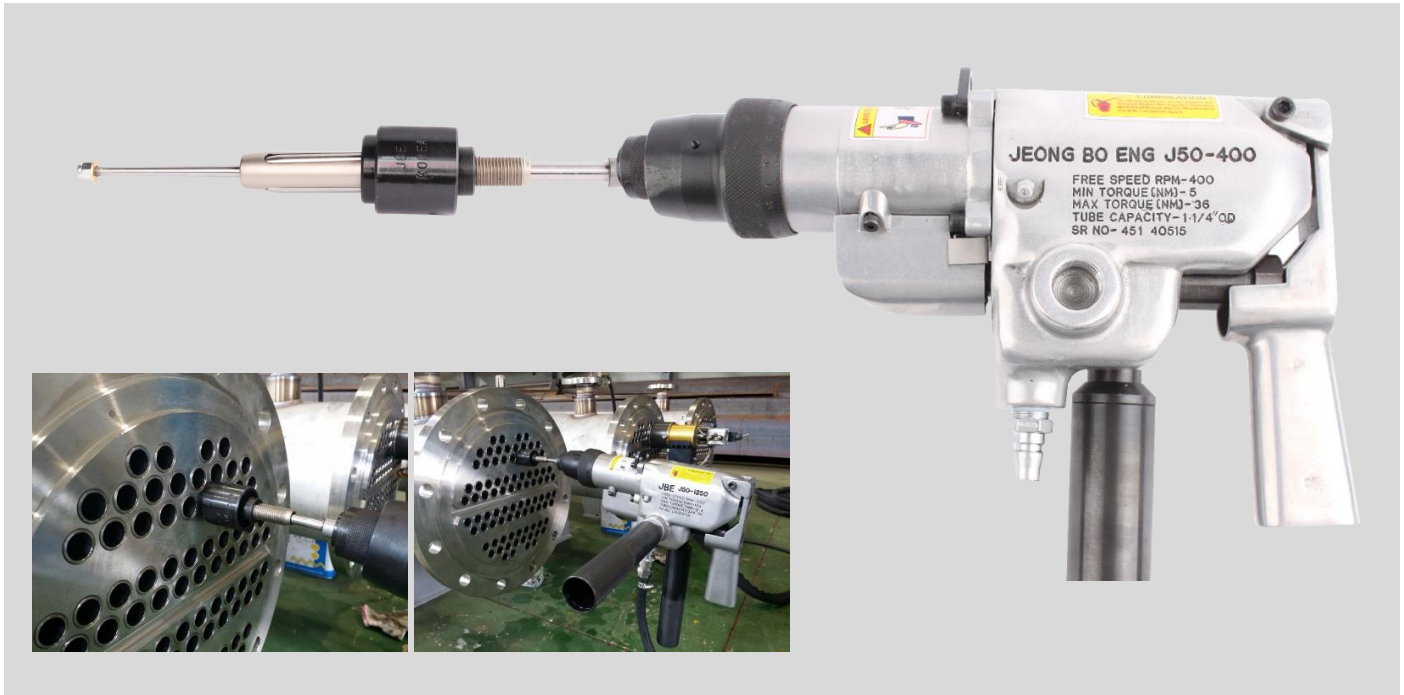
■ **특징**
J20 공압식 확관기는 O.D. 6 - 12.7mm (0.23-1/2") 범위의 튜브를 빠르고 일정한 토크로 확관 할 수 있습니다. 미리 설정된 토크값으로 튜브를 확관시킨 후 자동으로 역회전되어 복귀되므로 다음확관 작업에 용이합니다.

■ **Features**
J20 Pneumatic rolling drive is designed for the fast and accurate torque controlled rolling of tubes from 1/4"-1/2" (O.D.6.3-12.7mm). This uniquely designed tool with automatic reverse, expands tubes to a preset torque, at which point it automatically trips over to its reverse rotation, backing itself out of the tube ready for the next expansion.

J20-550		Torque		Tube Capacity		Free Speed	Air Consumption
		Min. 0.226Nm Max. 8.47Nm		Min. O.D. 6mm (0.23") Max. O.D. 12.7mm (1/2")		550RPM	480 liter/min
Coupling No.	J20-22 , J20-23 J20-24	Square Drive	8mm (0.31")	Overall Length	22mm (0.67")	Weight	1.2kg

PNEUMATIC ROLLING DRIVES

J50 Series



■ 특징

- 알루미늄으로 제작하여 가볍습니다.
- 밀고 당김으로 정,역회전을 제어 할 수 있습니다.
- 설정된 값에 자동으로 정지됩니다.
- 확관율을 정밀하게 조절 할 수 있습니다.

■ Features

- Light weight aluminum body.
- Ergonomically correct push/pull throttle.
- Automatically stops tube expansion at defined setting.
- Precision control measures torque output.

J50-1250		Torque		Tube Capacity		Free Speed	Air Consumption
		Min. 1.58Nm Max. 12.20Nm		Min. O.D. 15.88mm (0.62") Max. O.D. 19.05mm (3/4")		1250RPM	1,700 liter/min
Coupling No.	J50-33 , J50-34	Square Drive	9.5mm (0.37")	Length	311mm (12-1/4")	Weight	4.8kg

J50-600		Torque		Tube Capacity		Free Speed	Air Consumption
		Min. 2.49Nm Max. 21.81Nm		Min. O.D. 19.05mm (3/4") Max. O.D. 25.4mm (1")		600RPM	1,700 liter/min
Coupling No.	J50-33 , J50-34	Square Drive	9.5mm (0.37")	Overall Length	311mm (12-1/4")	Weight	4.8kg

J50-400		Torque		Tube Capacity		Free Speed	Air Consumption
		Min. 5.0Nm Max. 36.0Nm		Min. O.D. 25.4mm (1") Max. O.D. 31.75mm (1-1/4")		400RPM	1,700 liter/min
Coupling No.	J50-33 , J50-34	Square Drive	9.5mm (0.37")	Overall Length	311mm (12-1/4")	Weight	4.8kg

PNEUMATIC ROLLING DRIVES

J72 Series



■ 특징

- 장비의 고장률이 적고 수명이 깁니다.
- 받침대가 기본으로 구성됩니다.
- 토그 조절이 쉽습니다.
- 앵글헤드를 다양한 형태로 변형시켜 사용 할 수 있습니다.
- 받침대는 360도로 조절가능 합니다.

■ Features

- Unique head design consisting of fully enclosed bearing for long& trouble free life.
- Both models equipped with roll throttle as standard
Lever throttle optional.
- Easy adjustable torque.
- Angle head can be setup In numerous positions.
- 360 degree adjustable air exhaust.

J72-RT-190		Torque		Tube Capacity		Free Speed	Air Consumption
		Min. 95Nm Max. 190Nm		Min. O.D. 31.75mm (1-1/4") Max. O.D. 63.5mm (2.5")		190RPM	1,982 liter/min
Coupling No.	J72-63 , J72-64 J72-66	Square Drive	15.88mm (5/8")	Overall Length	530mm (20.1")	Weight	4.8kg

J72-RT-90		Torque		Tube Capacity		Free Speed	Air Consumption
		Min. 200Nm Max. 410Nm		Min. O.D. 38.1mm (1-1/2") Max. O.D. 101.6mm (4")		90RPM	1,982 liter/min
Coupling No.	J72-63 , J72-64 J72-66	Square Drive	19.05mm (3/4")	Overall Length	550mm (20.1")	Weight	4.8kg

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Tube Installation Tools

- 
- Grooving (Serrating) Tools
 - Tube End Facer
 - Tube Sheet Hole Reamer
 - Adjustable Reamer
 - Flaring Tools & Tube Plugs
 - Tube Guide
 - Vacuum Leak Tester
 - Tube To Tube Sheet Joint Testing Kit

Grooving (Serating) Tools

FOR GROOVING IN TUBE SHEETS



SPARE TOOL BITS



- 특징
- 생산성이 높습니다.
 - 홀 크기에 가장 알맞은 규격의 툴을 선택해야 합니다.
 - 바이트는 극저온처리를 하여 최대수명을 보장합니다.
 - 툴의 중심축(멘드럴)이 짧게 제작되어 CNC 작업에 이상적으로 적용 할 수 있습니다.

- FEATURES
- High production tool.
 - Ideal for use where 1 tool is needed per bore.
 - One piece cryogenically treated tool bit ensures maximum life.
 - Tool is ideally suited for CNC applications on account of 1 piece mandrel construction and short design.

Tube O.D.		Tool No.	Spare Tool Bits		
mm	inch		3x9x3mm (1/8"x3/8"x1/8")	3x6x3mm (1/8"x1/4"x1/8")	Special
9.53	3/8	ST-375	ST-3703	ST-3703-S	ST-3703-SPEC
12.70	1/2	ST-500	ST-5003	ST-5003-S	ST-5003-SPEC
15.88	5/8	ST-625	ST-6203	ST-6203-S	ST-6203-SPEC
19.05	3/4	ST-750	ST-7503	ST-7503-S	ST-7503-SPEC
22.22	7/8	ST-875	ST-7503	ST-7503-S	ST-7503-SPEC
25.40	1	ST-1000	ST-7503	ST-7503-S	ST-7503-SPEC
31.75	1.1/4	ST-1250	ST-7503	ST-7503-S	ST-7503-SPEC
38.10	1.1/2	ST-1500	ST-7503	ST-7503-S	ST-7503-SPEC
44.45	1.3/4	ST-1750	ST-7503	ST-7503-S	ST-7503-SPEC
50.80	2	ST-2000	ST-7503	ST-7503-S	ST-7503-SPEC
57.15	2.1/4	ST-2250	ST-7503	ST-7503-S	ST-7503-SPEC
63.50	2.1/2	ST-2500	ST-7503	ST-7503-S	ST-7503-SPEC

Tube End Facer

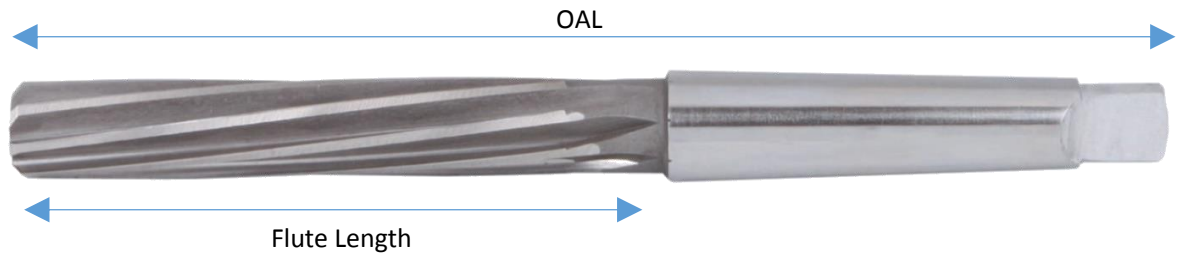


■ Tube End Facer는 열교환기와 콘덴서, 보일러 튜브의 끝단에 주로 사용되며 사용법이 간단하여 빠른 작업효율을 낼 수 있습니다. (TEF-375는 하나의 Tube ID에 적용) Tube O.D. 3/8" 에서 2-1/2" 까지 사용 할 수 있습니다. 각각의 툴은 하나의 사이즈로 여러가지의 튜브 두께에 사용할 수 있도록 파일럿트가 세트로 구성됩니다.

■ Ideal for quick facing of projecting tube ends in heat exchangers, condensers and boilers. One size of tool is suitable for use on multiple tube thicknesses by interchanging pilot. (TEF-375 is the exception with the tool suitable for one tube ID only.) Available from 3/8" up to 2-1/2".

Tube O.D.		Tube Thicknesses		Tool No.	Spare Tool Bits No.
mm	inch	bwg	mm		
9.53	3/8	16-22	0.71-1.65	TEF-375	TEF-376-SS
12.70	1/2	15-20	0.89-1.82	TEF-500	TEF-506-SS
15.88	5/8	14-18	1.24-2.10	TEF-625	TEF-626-SS
19.05	3/4	13-18	1.24-2.41	TEF-750	TEF-756-SS
22.22	7/8	11-18	1.24-3.04	TEF-875	TEF-876-SS
25.40	1	11-18	1.24-3.04	TEF-1000	TEF-1006-SS
28.57	1.1/8	11-18	1.24-3.04	TEF-1125	TEF-1126-SS
31.75	1.1/4	11-18	1.24-3.04	TEF-1250	TEF-1256-SS
34.92	1.3/8	11-18	1.24-3.04	TEF-1375	TEF-1376-SS
38.10	1.1/2	11-18	1.24-3.04	TEF-1500	TEF-1506-SS
41.27	1.5/8	11-18	1.24-3.04	TEF-1625	TEF-1626-SS
44.45	1.3/4	11-18	1.24-3.04	TEF-1750	TEF-1756-SS
47.62	1.7/8	11-18	1.24-3.04	TEF-1875	TEF-1876-SS
50.80	2	11-18	1.24-3.04	TEF-2000	TEF-2006-SS
57.15	2.1/4	11-18	1.24-3.04	TEF-2250	TEF-2256-SS
63.50	2.1/2	11-18	1.24-3.04	TEF-2500	TEF-2506-SS

Tube Sheet Hole Reamer



특징

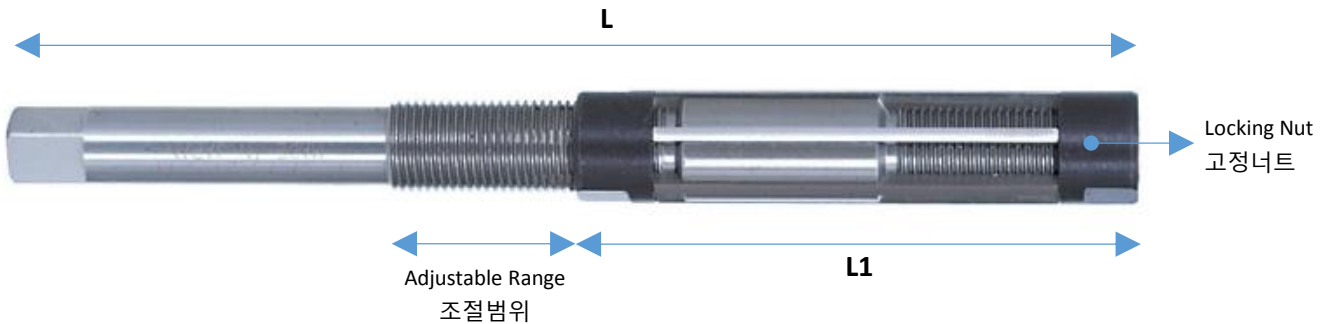
- 저온처리, 티타늄코팅 처리를 한 하이스로 만들어져 수명이 깁니다.
- 열교환기 및 콘덴서 튜브시트가 손상되었을때 다듬기 위해 사용합니다.
- 1-1/4" 이상의 사이즈는 문의바랍니다.

Features

- High speed steel, cryogenically treated and coated with Titanium Nitride for long life.
- Ideal for heat exchanger and condenser tube sheet reaming.
- For larger diameters, Please enquire.

Tube O.D.		Reamer Size to "TEMA" Specification		Model No.	Flute Length		OAL		Shank : Morse Taper#
mm	inch	mm	inch		mm	inch	mm	inch	
9.53	3/8	9.65	0.380	RM-095-66	66	2.60	146	5.70	1
				RM-095-101	101	3.97	181	7.12	
				RM-095-152	152	5.98	232	9.13	
12.70	1/2	12.83	0.505	RM-127-76	76	2.99	156	6.14	1
				RM-127-101	101	3.97	181	7.12	
				RM-127-152	152	5.98	232	9.13	
15.87	5/8	16.03	0.631	RM-158-887	87	3.42	187	7.36	2
				RM-158-152	152	5.98	252	9.92	
				RM-158-203	203	7.99	303	11.93	
16.00	-	16.16	0.636	RM-160-87	87	3.42	187	7.36	2
				RM-160-152	152	5.98	252	9.92	
				RM-160-203	203	7.99	303	11.93	
19.05	3/4	19.25	0.758	RM-190-100	100	3.90	200	7.87	2
				RM-190-152	152	5.98	252	9.92	
				RM-190-203	203	7.99	303	11.93	
20.00	-	20.20	0.795	RM-200-100	100	3.90	200	7.87	2
				RM-200-152	152	5.98	252	9.92	
				RM-200-203	203	7.99	303	11.93	
22.00	-	22.22	0.875	RM-220-107	107	4.21	207	8.15	2
				RM-220-152	152	5.98	252	9.92	
				RM-220-203	203	7.99	303	11.93	
22.22	7/8	22.42	0.883	RM-222-107	107	4.21	207	8.15	2
				RM-222-152	152	5.98	252	9.92	
				RM-222-203	203	7.99	303	11.93	
25.00	-	25.25	0.994	RM-250-115	115	4.53	242	9.53	3
				RM-250-203	203	7.99	330	12.99	
				RM-250-254	254	10.00	381	15.00	
25.40	1	25.65	1.010	RM-254-115	115	4.53	242	9.53	3
				RM-254-203	203	7.99	330	12.99	
				RM-254-254	254	10.00	381	15.00	
28.57	1.1/8	28.86	1.136	RM-285-124	124	4.88	251	9.88	3
				RM-285-203	203	7.99	330	12.99	
				RM-285-254	254	10.00	381	15.00	
31.75	1.1/4	32.07	1.262	RM-317-133	133	5.23	293	11.53	4
				RM-317-203	203	7.99	363	14.29	
				RM-317-254	254	10.00	414	16.30	

Adjustable Reamer



특징

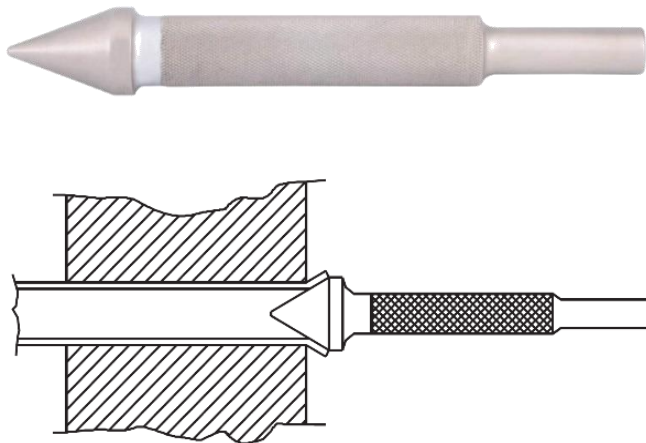
조절나사 경사면으로 인해 커팅날이 위아래로 조절되며 2개의 너트로 커팅날을 고정시켜 외경의 크기에 맞추어 사용 합니다.

Features

Adjustment is easily done with to screwd collars wich raise or lower the cutting blades by moving them along tapered seatings. They are locked in position when the required diameter is reached.

Model No.	L1 Blade Length (mm)	L Full Length (mm)	Adjustable Range
13-A	25	62	4.50 - 4.76
12-A	25	65	4.76 - 5.16
11-A	25	68	5.16 - 5.56
10-A	27	72	5.56 - 5.95
9-A	30	77	5.95 - 6.35
8-A	35	83	6.35 - 7.15
7-A	35	91	7.15 - 7.95
6-A	38	107	7.95 - 8.70
5-A	38	112	8.70 - 9.50
4-A	38	121	9.50 - 10.25
3-A	38	127	10.25 - 11.00
2-A	42	134	11.00 - 12.00
A	42	141	12.00 - 13.50
B	45	146	13.50 - 15.00
C	53	166	15.00 - 16.75
D	56	172	16.75 - 18.25
E	64	178	18.25 - 19.75
F	67	188	19.75 - 21.50
G	76	204	21.50 - 23.75
H	83	230	23.75 - 27.00
I	86	254	27.00 - 30.25
J	98	280	30.25 - 34.25
K	109	305	34.25 - 38.00
L	113	356	38.00 - 46.00
M	128	407	46.00 - 56.00
N	124	457	56.00 - 70.00
O	135	509	70.00 - 85.00
P	135	560	85.00 - 100.0
Q	135	560	100.0 - 115.0
R	135	560	115.0 - 130.0

Flaring Tools



Model No.	Tube O.D.		Tube Thk.
	mm	inch	Bwg
FT-1	12.70	1/2	16-22
FT-2	15.87	5/8	14-15
FT-3			16-22
FT-4	19.05	3/4	14-15
FT-5			16-22
FT-6	22.22	7/8	14-15
FT-7			16-22
FT-8	25.40	1	12-15
FT-9			16-22
FT-10	28.57	1-1/8	12-15
FT-11			16-22
FT-12	31.75	1-1/4	8-14
FT-13			15-22
FT-14	34.92	1-3/8	8-14
FT-15			15-22
FT-16	38.10	1-1/2	8-14
FT-17			15-22

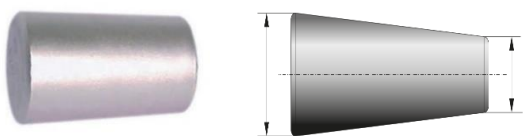
◆ Note

Chipping Hammer 와 함께 사용하기 위하여 기본 Shank1로 제작되며, 이외는 요청에 따라 제작됩니다.

Fitted with Type 1 round shank for use with standard pneumatic chipping hammer. Other shanks on request.

Tube Plugs

One piece Tube Plug

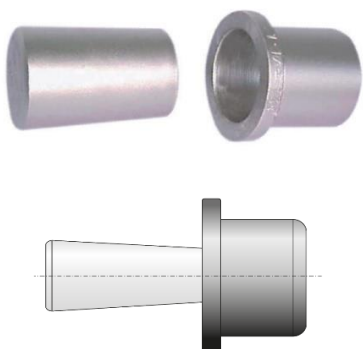


◆ Note

튜브 플러그는 열교환기, 콘덴서, 보일러 등에서 튜브와 튜브시트를 손상시키지 않고 균일하게 접합하기 위해 사용됩니다.

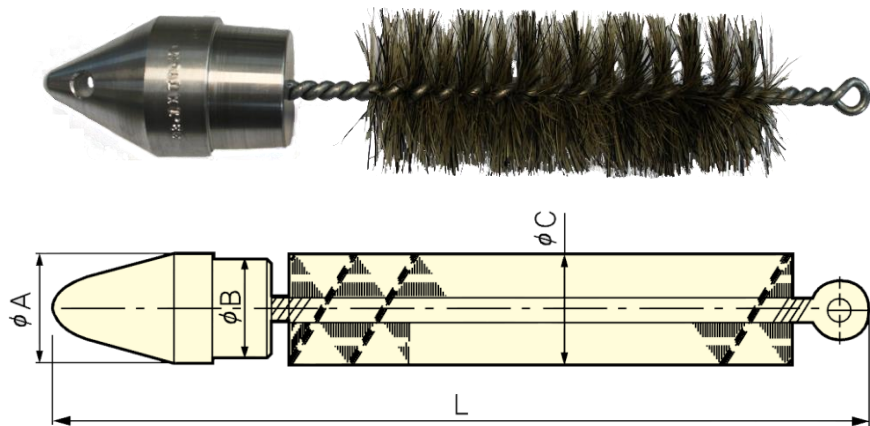
Tube plugs are designed for sealing off leaking or damaged tubes in heat exchangers, condensers, boilers etc. It ensures a uniform joint without damaging the tube sheet.

Two Piece Tube Plug



Tube O.D		One Piece Tube Plug Model No.	Two Piece Tube Plug Model No.
mm	inch		
9.53	3/8	PLG-375-1	-
12.70	1/2	PLG-500-4	PLG-500-2
15.88	5/8	PLG-652-1	PLG-625-2
19.05	3/4	PLG-750-1	PLG-750-2
22.22	7/8	PLG-875-14	PLG-875-2
25.40	1	PLG-1000-1	PLG-1000-2
31.75	1-1/4	PLG-1250-1	PLG-1250-2
38.10	1-1/2	PLG-1500-1	PLG-1500-2

Tube Guide



■ 튜브가이드는 철,알루미늄,플라스틱으로 만든 고깔모양의 헤드와 나일론 브러쉬로 이루어져 있습니다.
번들 작업시 튜브시트에 튜브를 삽입할때에 용이합니다.

■ The Tube guide consist of a steel or aluminium or plastic tapered head and an replaceable nylon brush, and it's to guide tubes through the sheets and the tube support plates during tube bundles assembling. The nylon brush fits in the tube end, holding pilot firmly in place.

Model No.	Tube O.D.		Thckness		A (mm)	B (mm)	C (mm)	L (mm)
	mm	inch	mm	bwg				
Ø25.4XT0.8	25.4	1	0.80	21	25.4	23.7	25	205
Ø25.4XT1.24			1.24	18		22.4	25	
Ø25.4XT1.65			1.65	16		21.7	24	
Ø25.4XT2.11			2.11	14		20.9	24	
Ø22.22XT0.8	22.22	7/8	0.80	21	22.22	19.1	22	205
Ø22.22XT1.24			1.24	18		19.5	22	
Ø22.22XT1.65			1.65	16		18.7	21	
Ø22.22XT2.11			2.11	14		17.8	21	
Ø19.05XT0.8	19.05	3/4	0.80	21	19.05	17.1	20	205
Ø19.05XT1.24			1.24	18		16.1	20	
Ø19.05XT1.65			1.65	16		15.3	18	
Ø19.05XT2.11			2.11	14		12.7	18	
Ø15.88T0.6	15.88	5/8	0.60	23	15.88	14.2	16	200
Ø15.88XT0.8			0.80	21		13.9	16	
Ø15.88XT1.24			1.24	18		13.0	16	
Ø15.88XT1.65			1.65	16		12.3	15	
Ø15.88XT2.11			2.11	14		11.9	14	

◆ Note

작업 할 튜브의 사양 (O.D. x Thikness) 에 맞추어 제작됩니다.

Tube guides will be manufactured according to the specifications (O.D. x Thikness) of the work. .

VACUUM LEAK TESTER

JVLD-3000

튜브 리크 테스터 JVLD-3000 은 열교환기, 콘덴서, 보일러 등의 보수작업이나 신규제작 작업시 튜브의 손상여부를 빠르고 정확하게 간단한 방법으로 테스트 할 수 있는 특징기입니다. 이 테스터기는 튜브내부를 진공상태로 만들어 게이지의 변화를 관찰하며 튜브의 손상여부를 판단 할 수 있습니다. 게이지의 지침이 변동이 없으면 튜브가 새는 곳이 없음을 나타내고, 변동이 생기면 균열(리크)이 발생함을 나타냅니다.

The Vacuum Tube Leak Tester JVLD-3000 is a simple and precise tool used for testing tubes of boilers, condensers and heat exchangers. It is the fastest and most accurate method of locating leaky tubes for plugging or replacement or installation of new tubes. It works on the principle of vacuum in which the tool sucks the air from the tube and creates a vacuum to a desired reading on gauge. Steady reading on gauge indicates NO LEAK. If the reading on the gauge drops it indicates a tube with a LEAK.



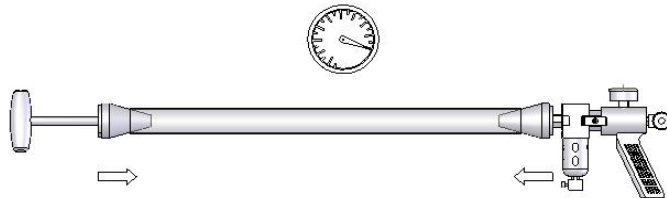
SPECIFICATIONS

Tube Capacity		Max Vacuum
O.D. 6.3 - 76.2mm (1/4 - 3")		80%
Air Consumption	Air Pressure required	Temperature range
26 cfm (720 l/min)	90 psi (6.0 Bar)	-20 to 80 C
Vacuum pressure	Weight	Dimensions
-0.4 ~ -0.8 bar	2kg	230x120x170mm

TUBE SEALS AVAILABLE

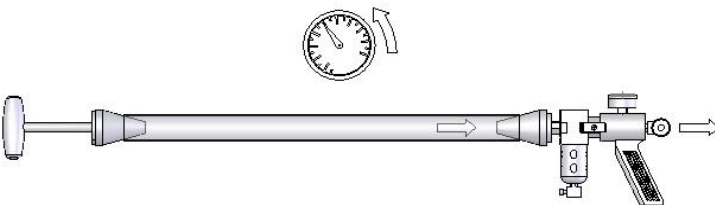
Tube Seal No.	Tube O.D.	
	mm	inch
P-760	6.3 - 19.5	1/4 - 3/4
P-1250	15.9 - 31.7	5/8 - 1-1/4
P-2000	28.6 - 50.8	1-1/8 - 2
P-3000	47.6 - 76.2	1-7/8 - 3

OPERATING INSTRUCTIONS



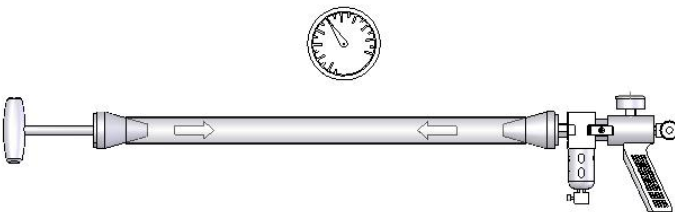
테스트기에 에어를 공급한 후 테스트할 튜브의 한쪽에는 T핸들형 튜브플러그를 반대쪽에는 테스트기를 배치하여 튜브를 밀봉시킵니다.

Connect air supply to the gun Plug both ends of the tube to be tested with Plugging 'T' handle one end & vacuum gun at other end.



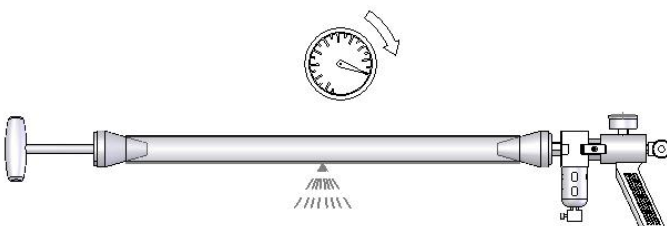
게이지의 지침이 원하는 읽기에 도달 할 때까지 테스트기의 슬라이드 밸브를 ON 시킵니다.

Shut off the slide valve when vacuum gauge reaches to the desire pressure.



슬라이드 밸브를 OFF 시킨 후 게이지를 관찰합니다.

Shut off the slide valve when vacuum gauge reaches to the desire pressure.



게이지의 지침이 변동이 없으면 튜브가 새는곳이 없음을 나타내고, 게이지의 지침에 변동이 생기면 튜브에 균열 (리크)이 발생함을 나타냅니다.

다음튜브도 위 과정을 반복하여 테스트합니다.

Hold for seconds if gauge shows steady pressure there is no leak. Hold for seconds if gauge shows steady pressure there is no leak.

If gauge is not showing the steady pressure it means the tube is leak.

TUBE TO TUBE-SHEET JOINT TESTING KIT

JTK-6500

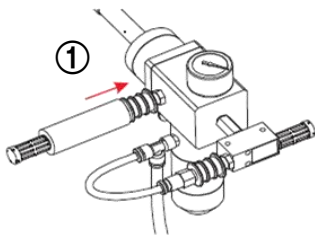


튜브-튜브시트 조인트 테스터기 JTK-6500 은 튜브와 튜브시트 (TUBE TO TUBESHEET) 간의 확관작업 불량 여부를 테스트 하는 장비로, 1.5kg 으로 간편하고 신속하며 안정적으로 테스트 하며, 분당 10개의 튜브를 테스트 할 수 있습니다. 70PSI~100PSI (4.7~6.8bar) 까지 공기 공급장치를 사용하며, 테스트 하는 동안 소음이 없고 효율성이 높은 디자인을 갖추었습니다.

For simple, quick and reliable testing of tube to tube sheet bore joints. Silent during use. Ergonomic design makes testing effortless.

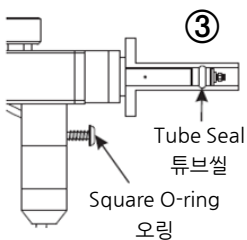
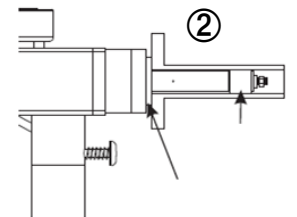


OPERATING INSTRUCTIONS



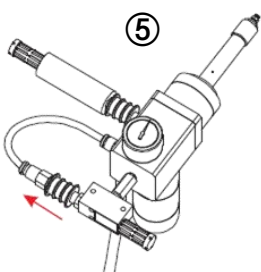
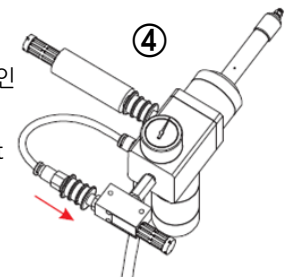
① 배출밸브를 오른쪽으로 끝까지 밀어 닫습니다.
Close exhaust valve by sliding to extreme right.

② 튜브에 오링이 닿을때까지 분기관을 삽입합니다.
Insert manifold till square o-ring firmly sits on tube.



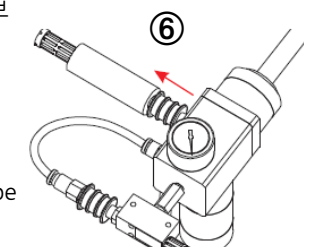
③ 방아쇠를 당기면 튜브셀이 볼록하게 팽창하면서 진공상태를 만듭니다.
As pull the trigger the tube seal be state of vacuum while expanded bulging.

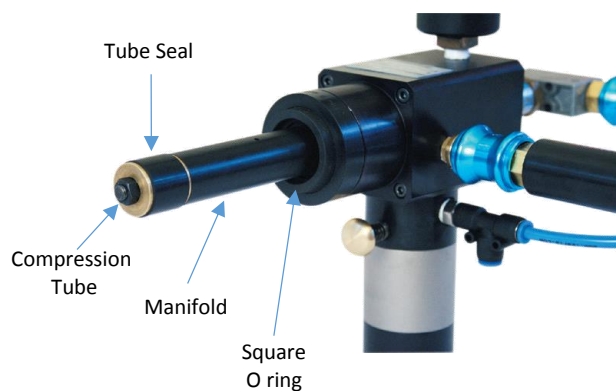
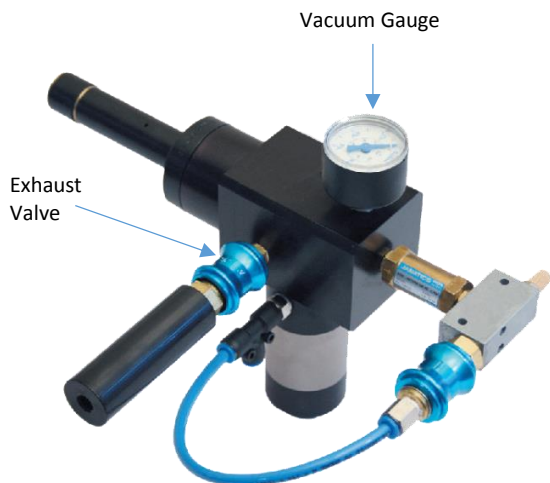
④ 발전기의 오른쪽에 진공밸브를 밀어 넣어 진공상태를 만들고, 게이지로 확인 합니다.
Slide vacuum valve to right to start generating vacuum. Gauge will indicate vacuum level.



⑤ 진공 슬라이드 밸브를 왼쪽으로 밀어 진공상태를 멈춘 후 게이지를 관찰합니다. 튜브에 리크가 발생하면 진공압이 떨어지는것을 확인 할 수 있습니다.
Close vacuum slide valve by shifting to left. This will stop vacuum generation. Observe vacuum gauge. Vacuum level falls if the joint is leaking.

⑥ 튜브를 테스트 한 후에는 배출밸브를 왼쪽으로 밀어내어 팽창 되어있는 튜브 셀을 축소 시킨 후 튜브에서 장치를 제거합니다.
After testing the joint release the tube seal by sliding the exhaust to the left. The Joint Testing Kit can be withdrawn after the tube seal collapses.





Tube Size			Tube ID Range		Tube Seal Diameter		Tube Seal No.	Manifold with Square O ring	Compression Tube No.	Square O ring
O.D.		bwg			mm	inch				
mm	inch									
12.70	5/8	9	8.37	0.330	7.5	0.295	JTK-300N	JTM-15-125-5/8	JTK-15-125	JTK-16-5/8
		10-13	9.07-11.05	0.357-0.435	9.0	0.354	JTK-370N			
		14-15	11.67-12.23	0.459-0.481	11.6	0.457	JTK-450N			
		16-17	12.57-12.93	0.495-0.509	12.2	0.480	JTK-470N	JTM-15-312-5/8	JTK-15-312	
		18-19	13.39-13.75	0.527-0.541	13.3	0.523	JTK-490N			
		20-24	14.11-14.77	0.555-0.581	13.8	0.543	JTK-530N			
19.05	3/4	9	11.55	0.455	10.8	0.425	JTK-430N	JTM-15-312-3/4-1	JTK-15-312	JTK-16-3/4
		10-11	12.25-12.95	0.482-0.510	11.6	0.457	JTK-450N	JTM-15-125-3/4	JTK-15-125	
		12-13	13.53-14.23	0.532-0.560	13.3	0.523	JTK-490N	JTM-15-312-3/4-2	JTK-15-312	
		14-15	14.85-15.41	0.584-0.606	13.8	0.543	JTK-530N			
		16-17	15.75-16.11	0.620-0.634	15.4	0.606	JTK-570N			
		18-24	16.57-17.95	0.652-0.706	16.5	0.649	JTK-610N			
22.22	7/8	8-9	13.84-14.72	0.544-0.579	13.8	0.543	JTK-530N	JTM-15-312-7/8-1	JTK-15-312	JTK-16-7/8
		10-11	15.42-16.12	0.607-0.635	15.4	0.606	JTK-570N			
		12-13	16.70-17.40	0.657-0.685	16.5	0.649	JTK-610N			
		14-17	18.02-19.28	0.709-0.759	18.0	0.708	JTK-690N	JTM-15-312-7/8-2		
		18-19	19.74-20.10	0.777-0.791	19.7	0.775	JTK-740N			
		20-24	20.46-21.12	0.805-0.831	20.1	0.791	JTK-790N			
25.40	1	8-9	17.02-17.90	0.670-0.704	16.5	0.649	JTK-610N	JTM-15-312-1	JTK-15-312	JTK-16-1
		10-11	18.60-19.30	0.732-0.760	18.0	0.708	JTK-690N			
		12-13	19.88-20.58	0.782-0.810	19.7	0.775	JTK-740N			
		14-15	21.20-21.76	0.834-0.856	20.1	0.791	JTK-790N	JTM-15-405-1	JTK-15-405	
		16-17	22.10-22.46	0.870-0.884	21.7	0.854	JTK-840N			
		18-19	22.92-23.28	0.902-0.916	22.9	0.901	JTK-870N			
		20-24	23.64-24.30	0.930-0.956	23.3	0.917	JTK-890N			
28.58	1.1/8	8-9	20.19-21.07	0.795-0.829	20.1	0.791	JTK-790N	JTM-15-312-1.1/8	JTK-15-312	JTK-16-1.1/8
		10-11	21.77-22.47	0.857-0.884	21.7	0.854	JTK-840N	JTM-15-405-1.1/8	JTK-15-405	
		12-13	23.05-23.75	0.907-0.935	22.9	0.901	JTK-870N			
		14-15	24.37-24.93	0.959-0.981	23.3	0.917	JTK-890N			
		16-17	25.27-25.63	0.994-1.009	25.2	0.992	JTK-980N			
		18-19	26.09-26.45	1.027-1.041	26.0	1.024	JTK-990N			
31.75	1.1/4	20-24	26.81-27.47	1.055-1.081	26.8	1.055	JTK-1040N	JTM-15-405-1.1/4	JTK-15-405	JTK-16-1.1/4
		8-11	23.37-25.65	0.920-1.010	23.3	0.917	JTK-890N			
		12-13	26.23-26.93	1.032-1.060	26.0	1.024	JTK-990N			
		14-17	27.55-28.81	1.084-1.134	27.5	1.082	JTK-1090N			
		18-24	29.27-30.65	1.152-1.206	29.2	1.149	JTK-1100N			





Bevelling Machines

- 
- **MiniFacer Series**
 - **HyperFacer Series**
 - **HeaveyFacer Series**
 - **PanelFacer**
 - **FlangeFacer**
 - **Standard Cutter Head & Bites**
 - **Special Cutter Head & Insert Bites**
 - **HOLDERS**
 - **MiniFacer Shaft Kit**
 - **HyperFacer Shaft Kit**

MiniFacer JMF-100-P

JMF-100-P은 스테인레스 스틸(Stainless steel)과 듀플렉스(Duplex), 인코넬(Inconel)을 비롯한 그밖의 다양한 소재로 된 튜브&파이프 단면을 간편하게 가공하거나 용접비드를 제거 할 수 있는 장비 입니다. 빠르고 안전하게 용접준비 작업이 가능하며 작동법이 쉽고 간편하게 설치가 가능하여 보수공사에도 적합합니다.

냉각기(Condenser)와 열교환기(Heat exchanger), 보일러(Boiler)에 주로 사용됩니다.

The JMF-100-P is a light weight and compact machine for facing, bevelling and weld preparation on all materials including stainless steel, duplex, inconel and others. One operator per-forms weld preparations safely, accurately and quickly vs. the slow and cumbersome grinding operation. Easy to handle and quick to setup. Used in shutdown environments condensers and heat exchangers, boiler.



JMF-100-P		Application Range	STD. Locking Range	Free Speed		Torque	Pneumatic Power
		20-108mm (0.79-4.25")	20-42mm (0.79-1.65")	120RPM		38Nm	0.583HP
Air Consumption	15-18cfm	Air Pressure	6Bar (90psi)	Body Size	50x300x400mm (WXHXL)	Body Weight	4.8kg

CUTTER HEADS



Optional
Cutter Head
60mm / 2.36"



Standard
Cutter Head
88mm / 3.46"



Optional
Cutter Head
106mm / 4.17"

STAR FEED SM



SM 타입은 가장 보편적인 방식으로 면치, 개선, 용접비드제거작업에 적합합니다. The most universal feed system that is suitable for facing, bevelling, seal and strength weld removal.

LEVER FEED LM



LM 타입은 미는 방식의 튼튼한 핸들로 크고 두꺼운 튜브의 개선작업에 적합합니다. A heavy duty feed handle ideal for heavy wall tube and pipe bevelling.

Optional MINI SHAFT KIT



4개의 샤프트탑(12.4, 13.9, 16.9, 18.9)을 교환하여 튜브내경 12.5 - 30mm 까지 적용할 수 있습니다.

A system with 4 interchangeable shaft tops 12.4, 13.9, 16.9 and 18.9mm.

A complete jaws set to cover I.D. 12.5 to 30mm. (0.49-1.18")

Standard 20MM MAIN SHAFT KIT



샤프트와 죠를 이용해 내경 20 - 108mm 까지 적용할 수 있습니다.

(기본조 : 내경20-42mm / 옵션조 : 39-108mm)

Shaft with jaw sets to cover I.D. 20 to 108mm. (0.79-4.25")

(Std. Jaws : I.D. 20-42mm / Opt. Jaws : I.D. 39-108mm)

Optional 23MM MAIN SHAFT KIT



샤프트에서 죠가 고정되는 부분을 강화시켜 가공강도를 향상시킬 수 있습니다.

Shaft with increased cross sectional diameter within the jaw retaining section. Enhances machining rigidity.

※ 락킹조의 사용범위는 F27,28페이지를 참고하세요.
Refer to page F27,28 for locking jaws range.

SPECIAL CUTTER HEAD +Insert Bite



작업환경이 특수한 경우 스페셜커터헤드로 교체하여 사용할 수 있습니다.
※F20-23 페이지 참고

Be replaced by a special cutter head as the special working environment.
(Refer to page F20-23)

LOCKING CYLINDER PCD-20



락킹실린더를 옵션으로 선택하면 작업시간을 최대 4배 단축시킬 수 있어 작업능률이 향상됩니다.

This optional pneumatic lock decreases the cycle time between end preps by up to four times and is ideal for fabrication shops.

EXAMPLE TOOL APPLICATION



MiniFacer JMF-300-P

JMF-300-P은 스테인레스 스틸(Stainless steel)과 듀플렉스(Duplex), 인코넬(Inconel)을 비롯한 그밖의 다양한 소재로 된 튜브&파이프 단면을 간편하게 가공하거나 용접비드를 제거 할 수 있는 장비 입니다. 빠르고 안전하게 용접준비 작업이 가능하며 작동법이 쉽고 간편하게 설치가 가능하여 보수공사에도 적합합니다. 냉각기(Condenser)와 열교환기(Heat exchanger), 보일러(Boiler)에 주로 사용됩니다.

The JMF-300-P is a light weight and compact machine for facing, bevelling and weld preparation on all materials including stainless steel, duplex, inconel and others. One operator per-forms weld preparations safely, accurately and quickly vs. the slow and cumbersome grinding operation. Easy to handle and quick to setup. Used in shutdown environments condensers and heat exchangers, boiler.



JMF-300-P		Application Range	STD. Locking Range	Free Speed		Torque	Pneumatic Power
		12.5-76mm (0.49-3")	12.5-25mm (0.49-0.98")	320RPM		20.5Nm	0.583HP
Air Consumption	15-18cfm	Air Pressure	6Bar (90psi)	Body Size	50x400x300mm (WXHXL)	Body Weight	4.8kg

CUTTER HEADS



Standard
Cutter Head
60mm / 2.36"



Optional
Cutter Head
88mm / 3.46"



N/A

STAR FEED SM



SM 타입은 가장 보편적인 방식으로 면치, 개선, 용접비드 제거 작업에 적합합니다.
The most universal feed system that is suitable for facing, bevelling, seal and strength weld removal.

LEVER FEED LM



LM 타입은 미는 방식의 튼튼한 핸들로 크고 두꺼운 튜브의 개선 작업에 적합합니다.
A heavy duty feed handle ideal for heavy wall tube and pipe bevelling.

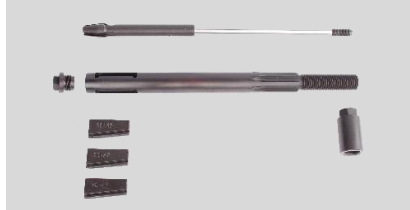
Standard MINI SHAFT KIT



4개의 샤프트탑(12.4, 13.9, 16.9, 18.9)을 교환하여 튜브내경 12.5 - 30mm 까지 적용할 수 있습니다.

A system with 4 interchangeable shaft tops 12.4, 13.9, 16.9 and 18.9mm.
A complete jaws set to cover I.D. 12.5 to 30mm. (0.49-1.18")

Optional 20MM MAIN SHAFT KIT



샤프트와 죠를 이용해 내경 20 - 108mm 까지 적용 할 수 있습니다.
(기본조 : 내경20-42mm / 옵션조 : 39-108mm)
Shaft with jaw sets to cover I.D. 20 to 108mm. (0.79-4.25")
(Std. Jaws : I.D. 20-42mm / Opt. Jaws : I.D. 39-108mm)

Optional 23MM MAIN SHAFT KIT



샤프트에서 죠가 고정되는 부분을 강화시켜 가공강도를 향상 시킬 수 있습니다.
Shaft with increased cross sectional diameter within the jaw retaining section. Enhances machining rigidity.

※ 락킹조의 사용범위는 F27,28페이지를 참고하세요.
Refer to page F27,28 for locking jaws range.

SPECIAL CUTTER HEAD + Insert Bite



작업환경이 특수한 경우 스페셜커터헤드로 교체하여 사용할 수 있습니다.
※F20-23 페이지 참고

Be replaced by a special cutter head as the special working environment.
(Refer to page F20-23)

LOCKING CYLINDER PCD-20



락킹실린더를 옵션으로 선택하면 작업시간을 최대 4배 단축 시킬 수 있어 작업능률이 향상 됩니다.

This optional pneumatic lock decreases the cycle time between end preps by up to four times and is ideal for fabrication shops.

EXAMPLE TOOL APPLICATION



MiniFacer JMF-300-E



JMF-300-E은 스테인레스 스틸(Stainless steel)과 듀플렉스(Duplex), 인코넬(Inconel)을 비롯한 그밖의 다양한 소재로 된 튜브&파이프 단면을 간편하게 가공하거나 용접비드를 제거 할 수 있는 장비 입니다. 빠르고 안전하게 용접준비 작업이 가능하며 작동법이 쉽고 간편하게 설치가 가능하여 보수공사에도 적합합니다.

냉각기(Condenser)와 열교환기(Heat exchanger) 보일러(Boiler)에 주로 사용됩니다.

The JMF-300-E is a light weight and compact machine for facing, bevelling and weld preparation on all materials including stainless steel, duplex, inconel and others. One operator per-forms weld preparations safely, accurately and quickly vs. the slow and cumbersome grinding operation. Easy to handle and quick to setup. Used in shutdown environments condensers and heat exchangers, boiler.

JMF-300-E			Application Range	STD. Locking Range	Free Speed	Torque	Electric Power
			12.5-76mm (0.49-3")	12.5-25mm (0.49-0.98")	320RPM *Adjustable Speed* 속도조절가능	45Nm	700W
Feeding Stroke	23mm	Voltage	220V	Body Size	50x440x300mm (WXHXL)	Body Weight	5.5kg

CUTTER HEADS



Standard
Cutter Head
60mm / 2.36"



Optional
Cutter Head
88mm / 3.46"



N/A

STAR FEED SM



SM 타입은 가장 보편적인 방식으로 면치, 개선, 용접비드제거작업에 적합합니다. The most universal feed system that is suitable for facing, bevelling, seal and strength weld removal.

LEVER FEED LM



LM 타입은 미는 방식의 튼튼한 핸들로 크고 두꺼운 튜브의 개선작업에 적합합니다. A heavy duty feed handle ideal for heavy wall tube and pipe bevelling.

Standard MINI SHAFT KIT

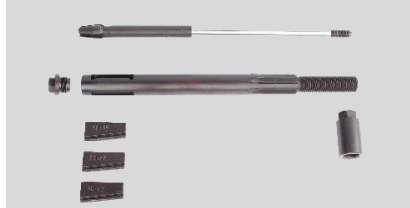


4개의 샤프트탑(12.4, 13.9, 16.9, 18.9)을 교환하여 튜브내경 12.5 - 30mm 까지 적용할 수 있습니다.

A system with 4 interchangeable shaft tops 12.4, 13.9, 16.9 and 18.9mm.

A complete jaws set to cover I.D. 12.5 to 30mm. (0.49-1.18")

Optional 20MM MAIN SHAFT KIT



샤프트와 죠를 이용해 내경 20 - 108mm 까지 적용 할 수 있습니다.

(기본조 : 내경20-42mm / 옵션조 : 39-108mm)

Shaft with jaw sets to cover I.D. 20 to 108mm. (0.79-4.25")

(Std. Jaws : I.D. 20-42mm / Opt. Jaws : I.D. 39-108mm)

Optional 23MM MAIN SHAFT KIT



샤프트에서 죠가 고정되는 부분을 강화시켜 가공강도를 향상 시킬 수 있습니다.

Shaft with increased cross sectional diameter within the jaw retaining section. Enhances machining rigidity.

※ 락킹조의 사용범위는 F27,28페이지를 참고하세요.

Refer to page F27,28 for locking jaws range.

SPECIAL CUTTER HEAD

+Insert Bite



작업환경이 특수한 경우 스페셜커터헤드로 교체하여 사용할 수 있습니다.

※F20-23 페이지 참고

Be replaced by a special cutter head as the special working environment.

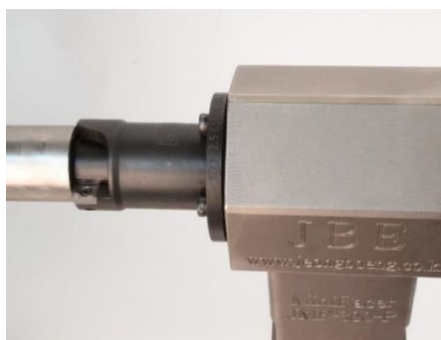
(Refer to page F20-23)

FINFAN ATTACHMENT



옵션으로 장착하여 사용 합니다. ※ F7-8 페이지 참고
Equipped with optional use. ※Refer to page F7-8

EXAMPLE TOOL APPLICATION



MiniFacer JMF-300-FF



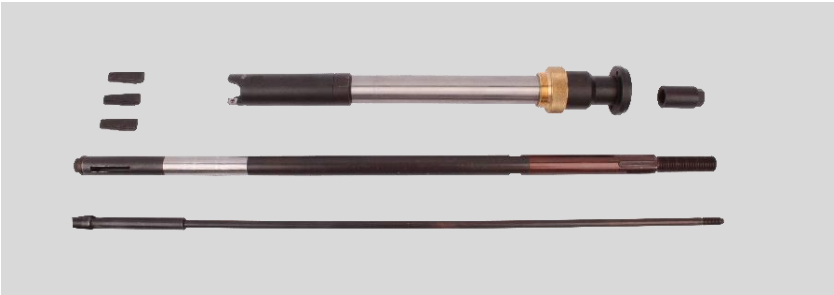
JMF-300-FF은 사용 용도에 따라 FIN FAN ATTACHMENT를 사양에 맞게 옵션 으로 선택 할 수 있습니다.
JMF-300 을 기본으로 하여 INSERT BIT 2개가 결합된 구성입니다.
워터박스의 튜브커팅이나 기타 다른작업에 응용이 가능합니다.

The JMF-300-FF is equipped with custom gear and locking system to suit your application. The JMF-300-FF cutter heads have 2 carbide inserts with 4 cutting edges each. Can be applied to the tube cutting of water box or other operations.

			Application Range	STD. Locking Range	Free Speed	Torque	Pneumatic Power
Pneumatic			12.5-52.0mm (0.49-2.04")	Depends on attachment	320RPM	20.5Nm	0.583HP
Air Con sumption	15-18cfm	Air Pressure	6Bar (90psi)	Body Size	Depends on attachment	Body Weight	Depends on attachment

			Application Range	STD. Locking Range	Free Speed	Torque	Electric Power
Electric			12.5-52.0mm (0.49-2.04")	Depends on attachment	320RPM *Adjustable Speed* 속도조절기능	45Nm	700W
Feeding Stroke	23mm	Voltage	220V	Body Size	Depends on attachment	Body Weight	Depends on attachment

FINFAN ATTACHMENT



FIN FAN ATTACHMENT PARTS NUMBERS

Fin Fan Attachment	Tube Capacity			Insert	Insert Q'ty	Screw	Standard Length		Min. Length		Locking Range			
	bwg	mm	inch				mm	inch	mm	inch	mm		inch	
											Min	Max	Min	Max
FinFan-1-12"	12-23	25.40	1.000	CSS	2	1-1/8	304.8	12	127.0	5	17.00	23.00	0.66	0.90
FinFan-1-1/8-12"	12-23	28.58	1.125	CSS	2	1-1/4	304.8	12	127.0	5	20.00	25.00	0.78	0.98
FinFan-1-1/4-12"	11-23	31.75	1.250	CSS	2	1-3/8	304.8	12	127.0	5	23.00	32.00	0.91	1.26
FinFan-1-1/2-12"	11-23	38.10	1.500	CSS	2	1-5/8	304.8	12	127.0	5	29.00	39.00	1.14	1.53
FinFan-1-3/4-12"	9-23	44.45	1.750	CSS	2	1-7/8	304.8	12	127.0	5	38.00	43.00	1.50	1.69
FinFan-1-2-12"	9-23	50.80	2.000	CSS	2	2-1/8	304.8	12	127.0	5	45.00	49.00	1.77	1.92

FIN FAN ATTACHMENT AVAILABLE LENGTHS

		Optional FaiFan-()-6"	Optional FaiFan-()-8"	Optional FaiFan-()-10"	Standard FaiFan-()-12"	Optional FaiFan-()-14"	Optional FaiFan-()-16"
Length	mm	152.4	203.2	254	304.8	355.6	406.4
	inch	6	8	10	12	14	16

STAR FEED SM



SM 타입은 가장 보편적인 방식으로 면치, 개선, 용접비드 제거작업에 적합합니다.

The most universal feed system that is suitable for facing, bevelling, seal and

LEVER FEED LM



LM 타입은 미는 방식의 튼튼한 핸들로 크고 두꺼운 튜브의 개선택업에 적합합니다.

A heavy duty feed handle ideal for heavy wall tube and pipe bevelling.

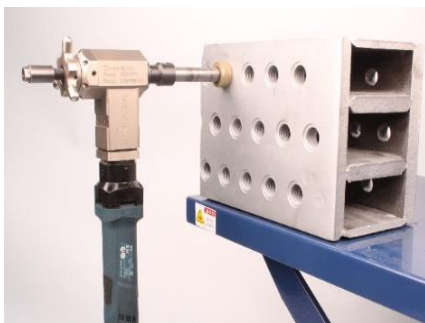
LOCKING CYLINDER PCD-20



락킹실린더를 옵션으로 선택하면 작업시간을 최대 4배 단축시킬 수 있어 작업능률이 향상 됩니다.

This optional pneumatic lock decreases the cycle time between end preps by up to four times and is ideal for

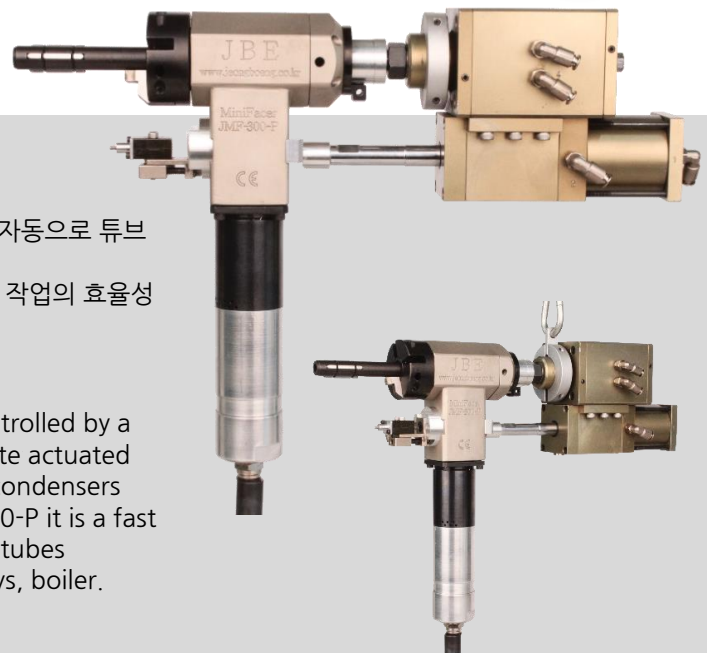
EXAMPLE TOOL APPLICATION



Auto MiniFacer-P

Auto MiniFacer-P 는 컨트롤 박스와 풋스위치를 이용하여 자동으로 튜브에 고정후 전진되어 커팅작업을 실행합니다.
JMF-300-P와 사양은 동일하나 보다 쉽고 빠르게 할 수 있어 작업의 효율성이 높습니다.
냉각기와 열교환기, 보일러에 주로 사용됩니다.

The Auto MiniFacer-P is a fully automatic machine controlled by a pneumatic-electric control box with adjustable feed rate actuated with a foot switch, ideal for repetitive cycle works on condensers and heat exchangers. This tool is based on the JMF-300-P it is a fast facing and end preparation lathe designed for various tubes including stainless steel and other high chromium alloys, boiler.



Auto MiniFacer-P	Application Range		STD. Locking Range	Free Speed	Torque	Pneumatic Power	
	12.5-42mm (0.49-1.65")		12.5-25mm (0.49-0.98")	320RPM	20.5Nm	0.583HP	
Air Consumption	15-18cfm	Air Pressure	6Bar (90psi)	Body Size	500x310mm (WxH)	Body Weight	8.9kg

CUTTER HEADS



Standard
Cutter Head
60mm / 2.36"



N/A



N/A

SPECIAL CUTTER HEAD

+ Insert Bite



작업환경이 특수한 경우
스페셜커터헤드로 교체하여
사용할 수 있습니다.
※F20-23 페이지 참고

Be replaced by a special
cutter head as the
special working
environment.
(Refer to page F20-23)

Standard MINI SHAFT KIT



4개의 샤프트탑(12.4, 13.9, 16.9, 18.9)을 교환하여 튜브내경 12.5 - 30mm 까지 적용할 수 있습니다.

A system with 4 interchangeable shaft tops 12.4, 13.9, 16.9 and 18.9mm.
A complete jaws set to cover I.D. 12.5 to 30mm. (0.49-1.18")

Optional 20MM MAIN SHAFT KIT



샤프트와 죠를 이용해 내경 20 - 108mm 까지 적용할 수 있습니다.
(기본조 : 내경20-42mm / 옵션조 : 39-108mm)

Shaft with jaw sets to cover I.D. 20 to 108mm. (0.79-4.25")
(Std. Jaws : I.D. 20-42mm / Opt. Jaws : I.D. 39-108mm)

Optional 23MM MAIN SHAFT KIT

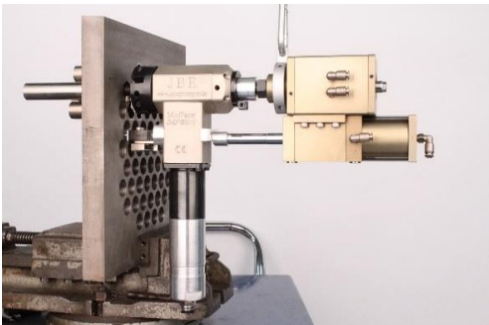


샤프트에서 죠가 고정되는 부분을 강화시켜 가공강도를 향상시킬 수 있습니다.

Shaft with increased cross sectional diameter within the jaw retaining section. Enhances machining rigidity.

※ 락킹조의 사용범위는 F27,28페이지를 참고하세요.
Refer to page F27,28 for locking jaws range.

EXAMPLE TOOL APPLICATION

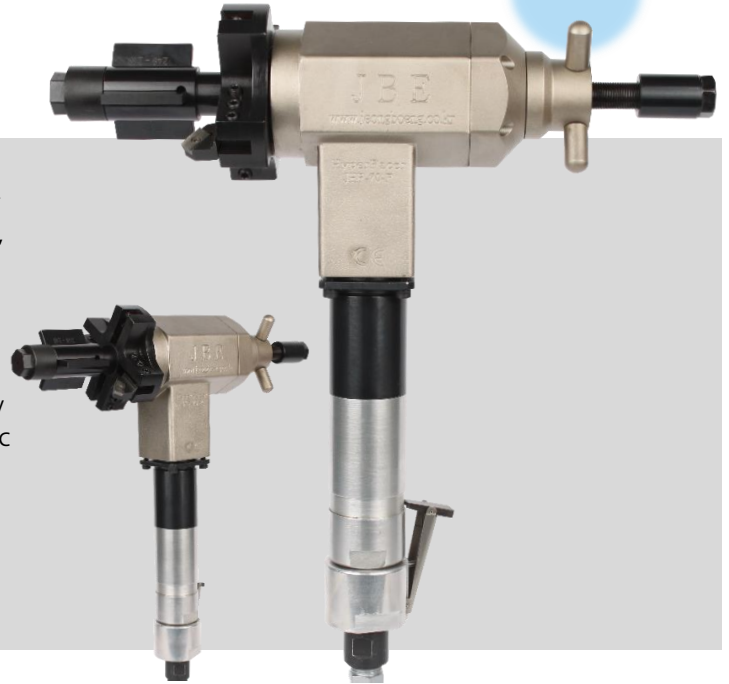


HyperFacer JHF-70-P

HyperFacer JHF-70-P 는 높은 토크로 보일러튜브의 단면가공과 용접비드제거에 용이하며, 스테인레스 스틸과 크롬합금, 그밖의 다양한 소재로 된 튜브&파이프 단면을 간편하게 가공할 수 있는 장비입니다.

The HyperFacer JHF-70-P is a portable and powerful machine used on boiler tubes. Light in weight and easy in handling make it very useful. Modular and ergonomic design with high torque makes it useful for heavy duty working conditions.

The MiniFacer is a rugged, fast, portable weld end preparation lathe for various tubes including stainless steel and other high chromium alloys.



JHF-70-P		Application Range	STD. Locking Range	Free Speed		Torque	Pneumatic Power
		23-168mm (1-6.61")	35-104mm (1.38-4")	70RPM		140Nm	1.33HP
Air Consumption	55-60cfm	Air Pressure	6Bar (90psi)	Body Size	115x470x405mm (WxHxL)	Body Weight	9kg

CUTTER HEADS



Standard
Cutter Head
144mm / 4.6"



Optional
Cutter Head
135mm / 5.3"



Optional
Cutter Head
175mm / 6.9"

Optional
20MM/23MM HYPER SHAFT KIT



옵션으로 장착 할 수 있는 샤프트 키트 입니다.
내경20 - 42mm 까지 적용 할 수 있습니다.

A special shaft for HyperFacer JHF-70.
Clamping range I.D. 20 to 42mm.
(0.79" to 1.65")

Standard
35MM HYPER SHAFT KIT



기본 장착된 샤프트 키트 입니다.

내경35 - 168mm 까지 적용 할 수 있습니다.
Std. Jaws35-104mm / Opt. jaws103-168mm
A standard shaft for HyperFacer JHF-70.
Clamping range I.D.35 to 168mm.
(1.38" to 6.61")

LOCKING CYLINDER
PCD-35



락킹실린더를 옵션으로 선택하면 작업시간을 최대 4배 단축시킬 수 있어 작업능률이 향상 됩니다.

This optional pneumatic lock decreases the cycle time between end preps by up to four times and is ideal for fabrication shops.

※ 락킹조의 사용범위는 F29페이지를 참고하세요. Refer to pageF29 for locking jaws Range.

HyperFacer JHF-70-E



HyperFacer JHF-70-E 는 높은 토크로 보일러튜브의 단면가공과 용접비드제거에 용이하며, 스테인레스 스틸과 크롬합금, 그밖의 다양한 소재로 된 튜브&파이프 단면을 간편하게 가공 할 수 있는 장비입니다.

The HyperFacer JHF-70-E is a portable and powerful machine used on boiler tubes. Light in weight and easy in handling make it very useful. Modular and ergonomic design with high torque makes it useful for heavy duty working conditions.

The MiniFacer is a rugged, fast, portable weld end preparation lathe for various tubes including stainless steel and other high chromium alloys.

HyperFacer JHF-70-E		Application Range		STD. Locking Range		Free Speed		Torque		Electric Power	
		23-128mm (1-5.039")		35-104mm (1.38-4")		70RPM		143Nm		900W	
Feeding Stroke	40mm		Voltage	220V		Body Size	115x500x405mm (WXHXL)		Body Weight	10kg	

CUTTER HEADS



Standard
Cutter Head
144mm / 4.6"



Optional
Cutter Head
135mm / 5.3"



Optional
Cutter Head
175mm / 6.9"

Optional

20MM/23MM HYPER SHAFT KIT

Standard

35MM HYPER SHAFT KIT



옵션으로 장착 할 수 있는 샤프트 키트 입니다.
내경20 - 42mm 까지 적용 할 수 있습니다.
A special shaft for HyperFacer JHF-70.
Clamping range I.D. 20 to 42mm.
(0.79" to 1.65")



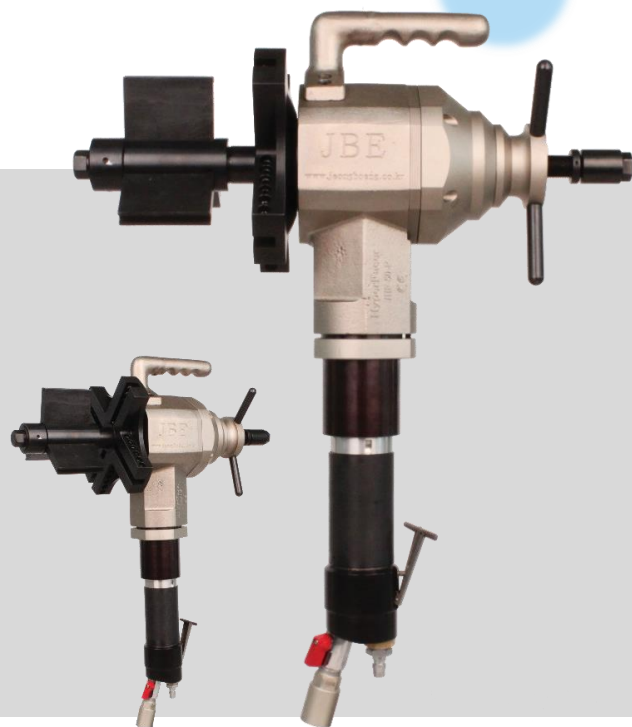
기본 장착된 샤프트 키트 입니다.
내경35 - 168mm 까지 적용 할 수 있습니다.
Std. Jaws 35-104mm / Opt. jaws 103-168mm
A standard shaft for HyperFacer JHF-70.
Clamping range I.D. 35 to 168mm.
(1.38" to 6.61")

※ 락킹조의 사용범위는 F29페이지를 참고하세요. Refer to page F29 for locking jaws range.

HyperFacer JHF-50-P

HyperFacer JHF-50-P 는 광범위 한 튜브와 파이프의 사이즈에 사용 할 수 있습니다.
높은 토크로 거칠고 힘든 작업 조건에 적합합니다.

The HyperFacer JHF-50-P is a modular and ergonomic designed machine that develops high torque to suit the toughest working conditions.
Suitable for a wide range of tube and pipe internal diameters.



HyperFacer JHF-50-P		Application Range	STD. Locking Range	Free Speed	Torque	Pneumatic Power
		49-255mm (2-10")	49-203mm (2-8")	52RPM	250Nm	1.8HP
Air Consumption	60-65cfm	Air Pressure	6Bar (90psi)	Body Size	220x660x480mm (WxHxL)	Body Weight
						21kg

CUTTER HEADS



Standard
Cutter Head
220mm / 8.6"



Optional
Cutter Head
290mm / 11.4"

Standard

50MM HYPER SHAFT KIT



기본 장착된 샤프트 키트 입니다.

내경 50 - 255mm 까지 적용 할 수 있습니다.

(기본조 : 50 - 207mm / 옵션조 : 206 - 255MM)

A standard shaft for HyperFacer JHF-70.

Clamping range I.D. 50 to 255mm.

(1.97" to 10.04")

(Std. jaws 50-207mm / Opt. jaws 206-255mm)

※ 락킹조의 사용범위는 F30페이지를 참고하세요.

Refer to page F30 for locking jaws range.

HyperFacer JHF-50-E

JHF-50-E 은 튜브와 파이프의 광범위한 사이즈에 사용 할 수 있습니다. 높은 토크로 거칠고 힘든 작업조건에 적합합니다.

The JHF-50-E is a modular and ergonomic designed machine that develops high torque to suit the toughest working conditions. Suitable for a wide range of tube and pipe internal diameters.



JHF-50-P		Application Range	STD. Locking Range	Free Speed		Torque	Electric Power
		49-255mm (2-10")	49-203mm (2-8")	34RPM		264Nm	1,020W
Feeding Stroke	40mm	Voltage	220V	Body Size	220X568X480mm (WXHXL)	Body Weight	22kg

CUTTER HEADS



Standard
Cutter Head
220mm / 8.6"



Optional
Cutter Head
290mm / 11.4"

Standard

50MM HYPER SHAFT KIT



기본 장착된 샤프트 키트 입니다.

내경50 - 255mm 까지 적용 할 수 있습니다.

(기본조 : 50 - 207mm / 옵션조 : 206 - 255MM)

A standard shaft for HyperFacer JHF-70.

Clamping range I.D.50 to 255mm.

(1.97" to 10.04")

(Std. jaws 50-207mm / Opt. jaws 206-255mm)

※ 락킹조의 사용범위는 F30페이지를 참고하세요.

Refer to page F30 for locking jaws range.

HyperFacer JHF-50-EHD

HyperFacer JHF-50-EHD 는 튜브나 파이프의 단면을 가공, 개선작업을 하는 중장비 입니다. O.D.49-203mm를 가공 할 수 있습니다. JHF-50-E 모델보다 Electric Power 가 향상 된 버전 입니다.

The HyperFacer JHF-50-EHD is a heavy duty machine designed to bevel, face, and prepare weld edges. Modular and ergonomic design. It is suitable for tubes and pipe in the size range of O.D.49-203mm.



JHF-50-EHD		Application Range	STD. Locking Range	Free Speed	Torque	Electric Power
		49-203mm (2-8")	49-203mm (2-8")	40RPM	295Nm	1,800W
Feeding Stroke	40mm	Voltage	220V	Body Size	220X670X480mm (WXHXL)	Body Weight
						30kg

CUTTER HEADS



Standard
Cutter Head
220mm / 8.6"



Optional
Cutter Head
290mm / 11.4"

Standard

50MM HYPER SHAFT KIT



기본 장착된 샤프트 키트 입니다.

내경50 - 255mm 까지 적용 할 수 있습니다.

(기본조 : 50 - 207mm / 옵션조 : 206 - 255MM)

A standard shaft for HyperFacer JHF-70.

Clamping range I.D.50 to 255mm.

(1.97" to 10.04")

(Std. jaws 50-207mm / Opt. jaws 206-255mm)

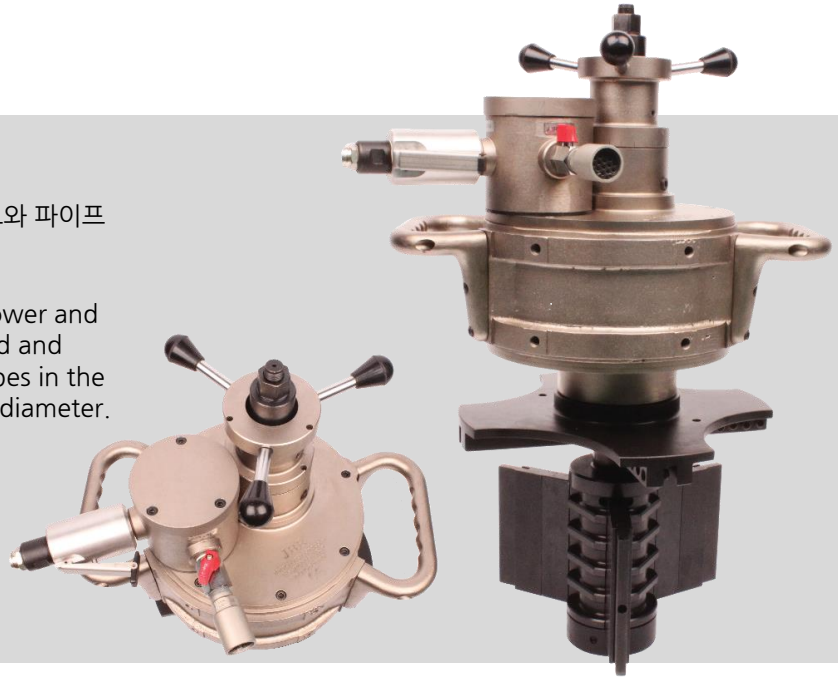
※ 락킹조의 사용범위는 F30페이지를 참고하세요.

Refer to page F30 for locking jaws range.

HeavyFacer-35-P

HeavyFacer-35-P 는 간단한 작동방법으로 튜브와 파이프 I.D.100-306mm 범위에 사용 할 수 있습니다.

The HeavyFacer-35-P is a combination of power and range in a light and portable design. Rugged and balanced machine suitable for tubes and pipes in the size range of 100mm to 306mm in internal diameter.



HeavyFacer 35-P		Application Range	STD. Locking Range	Free Speed		Torque	Pneumatic Power
		100-355mm (4-14")	100-306mm (4-12")	35RPM		180Nm	1.88HP
Air Con sumption	60cfm	Air Pressure	6Bar(90psi)	Body Size	700x310x325mm (WXHXL)	Body Weight	43kg

FEED SHAFT :

단단한 구조를 가진 샤프트가 안정적인 헤드의 전진(가공)을 가능하게 합니다.

High strength, precise machined and hardened feed shaft provides powerful feeding to the assembly which slides over it.

LOCKING JAWS :

내경 100mm - 306mm까지 안정적인 포지셔닝이 가능하고, 수명이 깁니다
Maximum life and secure positioning.
Available within the locking range of 100mm to 306mm.

CENTRAL MANDREL :

큰 힘을 들이지 않고 빠르고 정확하게 안전하게 중심축을 잡을 수 있습니다.

Expanding mandrel allows fast, accurate and self centering alignment with torque-free operation safety.

TOOL HOLDER :

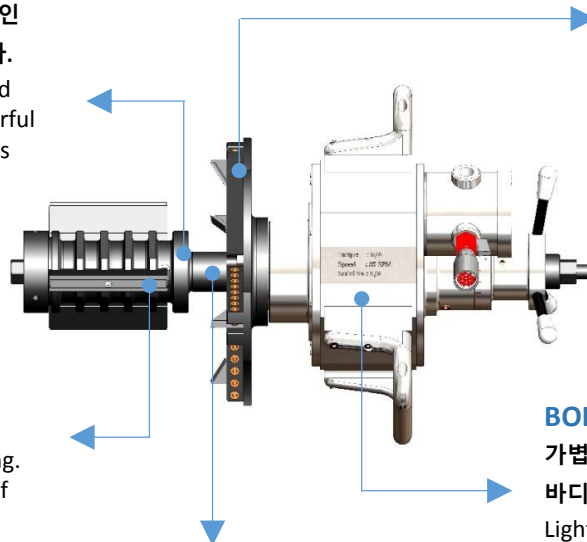
커터 바이트를 확실하게 고정시켜 작업중 진동의 영향을 덜 받도록 도와줍니다.

Holds the cutting tool bits tightly at the desired position. Its robust construction and support to the cutting bits ensure vibration free performance.

BODY :

가볍고 강한압력을 견뎌내는 알루미늄 바디가 고강도의 작업을 가능하게 합니다.

Light weight, high pressure cast aluminum body allows continuous operation under the harshest conditions.



PanelFacer-53

PanelFacer-53은 외경이 작은 파이프의 끝을 가공 할 수 있는 간편한 장비로 O.D.25-53mm에 사용하기 적합합니다.
외경을 고정하는 형태로 간단하고 정확한 센터링, 안정적이고 편리한 작동, 쉬운분리가 가능하고 높은 작업률과 내구성을 가지고 있습니다.
자동으로 회전하며 전진되어 일의 효율성과 기계의 수명을 높여줍니다.

The PanelFacer-53 is designed for pipe end beveling of small diameter, portable pipe beveling device, Suitable for pipe diameter of O.D. 25-53mm. It adopts outside clamping device, precise centering and positioning. Simple and light, precise centering, steady mount and convenient operation. easy disassembly. Automatically feeding, reduce labor intensity greatly, extend machine lifespan.



PanelFacer-53		Application Range		STD. Locking Range		Free Speed		Wall Thickness		Electric Power	
		O.D.14-53mm (0.55-2.08")		O.D.14-53mm (0.55-2.08")		70-280RPM		Up to 12mm		1.10KW	
Feeding Stroke	25mm		Voltage	220V , 60Hz		Body Size	4x36x43mm (WxHxL)		Body Weight	7kg	

FlangeFacer Series



FlangeFacer는 무게가 가볍고 견고하여 어떤 자세에서도 셋팅작업이 가능합니다. 플랜지 페이스링 가공, 세레이션, 그루브 가공에 적합하며 손상된 플랜지를 간편하고 쉽게 재가공 할 수 있습니다.

HyperFacer JHF-70 모델 뿐만 아니라 타사장비와도 호환이 되도록 제작가능하며 플랜지 유닛만 옵션구매하여 응용 할 수 있습니다.

Flange Facer could setting operation which all posture with right weight and sturdy construction Ideal for serration, manufacture flange facing and groove. Also simply remanufacture damaged flange.

Be able to produced compatible with not only HyperFacer JHF-70 but also other companies's with optional Unit of JBE(our company).

Accurate locking system :

정확하고 안전한 락킹시스템

Both version of FlangeMill uses the same internal locking system for safety and better accuracy.



Machining in every position :

어느 각도에서나 회전 /

모든 위치, 어떤 자세에서도 플랜지 가공 가능

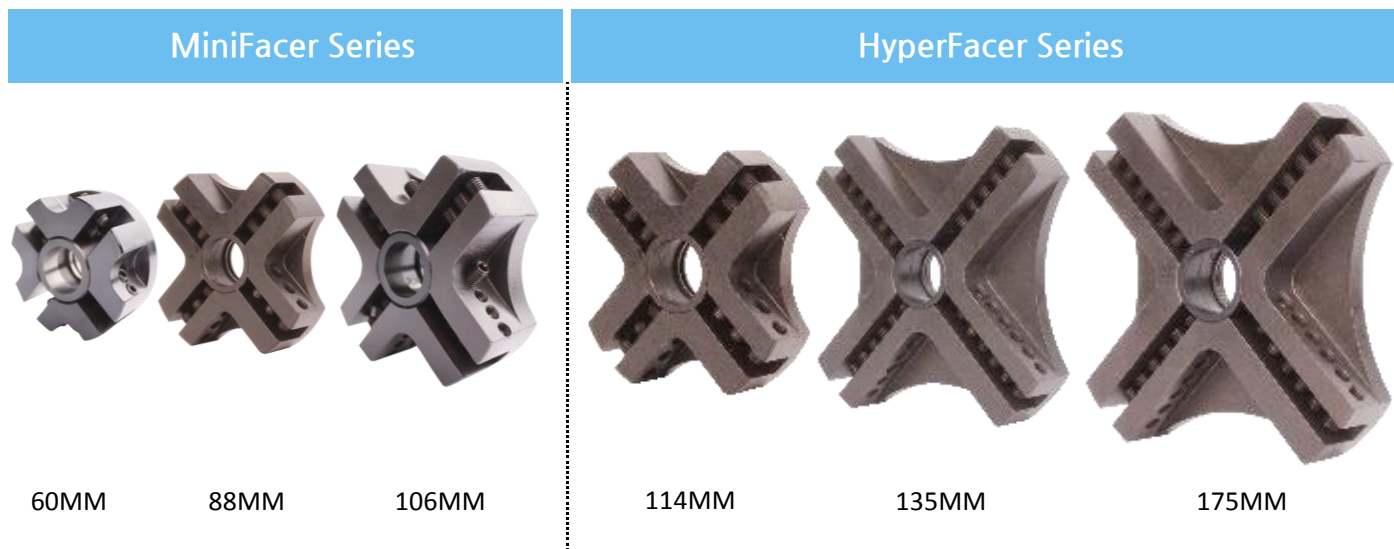
FlangeFacer can be rotated under any angle.

Machine can be used for machining flanges in every position.

FlangeFacer 14		Application Range	STD. Locking Range	Free Speed	Torque	Pneumatic Power
		44.45-355.6mm (1.75-14")	44.45-355.6mm (1.75-14")	70RPM	140Nm	1.33HP
Air Consumption	55-60cfm	Air Pressure	6Bar (90psi)	Body Size	430x480mm (WxHxL)	Body Weight
						14 kg
FlangeFacer 8		Application Range	STD. Locking Range	Free Speed	Torque	Pneumatic Power
		19.1-203.2mm (0.75-8")	19.1-203.2mm (0.75-8")	120RPM	38Nm	0.583HP
Air Consumption	15-18cfm	Air Pressure	6Bar (90psi)	Body Size	330x400x300mm (WxHxL)	Body Weight
						9.8kg
FlangeFacer 8E		Application Range	STD. Locking Range	Free Speed	Torque	Electric Power
		19.1-203.2mm (0.75-8")	19.1-203.2mm (0.75-8")	120RPM	45Nm	700W
Feeding Stroke	23mm	Voltage	220V	Body Size	330x440x300 (WxHxL)	Body Weight
						10.5kg

Standard Cutter Heads and Bites

Standard Heads of MiniFacer & HyperFacer



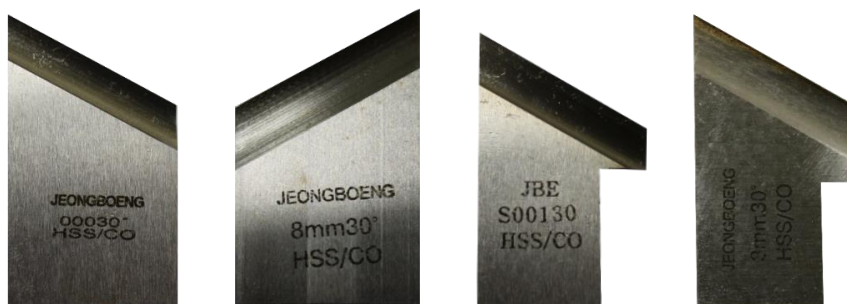
Standard Bites

별도로 홀더를 사용할 필요 없이 헤드에 직접 장착하여 사용합니다. 간편한 방식으로 작업효율이 좋고 비용이 절감됩니다.
Install the Bites directly without holders. High work efficiency and saving cost.



Boiler Bites

별도로 홀더를 사용할 필요 없이 헤드에 직접 장착하여 사용합니다. 간편한 방식으로 작업효율이 좋고 비용이 절감됩니다.
Install the Bites directly without holders. High work efficiency and saving cost.



Note. 바이트는 작업용도에 따라 특수한 형상으로 제작가능합니다. (외경,내경)

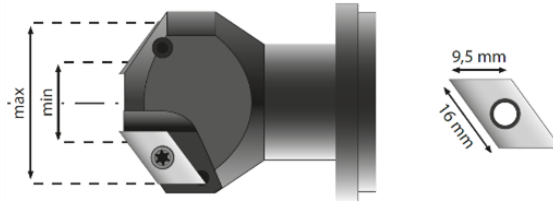
Special Cutter Heads and Insert Bites

TWBRH

Tube Welding for
Bead Removal Head



- ▶ Insert Bite : HSS 6% Cobalt
- ▶ Dergee : 37.5°



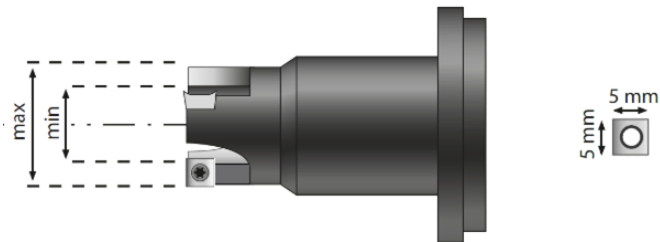
Special Head No.	Tube Capacity			Range				Insert Bite No.	Insert Bite Q'ty	Shaft
				mm		inch				
	mm	inch	bwg	Min.	Max.	Min.	Max.			
TWBRH-3/4"	19.05	0.750	12-23	13.50	37.00	0.530	1.460	JSWC	2	Shaft Top 12.4mm
TWBRH-7/8"	22.23	0.875	12-23	16.50	38.00	0.650	1.496	JSWC	2	Shaft Top 13.9mm
TWBRH-1"	25.40	1.000	10-23	18.60	42.00	0.732	1.654	JSWC	2	Shaft Top 16.9mm
TWBRH-1-1/8"	28.58	1.125	10-23	21.80	45.00	0.858	1.772	JSWC	2	Shaft Top 18.9mm
TWBRH-1-1/4"	31.75	1.250	9-23	24.00	47.00	0.945	1.850	JSWC	2	STD shaft 20mm or 22
TWBRH-1-1/2"	38.10	1.500	8-23	29.00	52.00	1.142	2.047	JSWC	2	STD shaft 20mm or 23
TWBRH-1-3/4"	44.45	1.750	8-23	36.00	57.00	1.417	2.244	JSSW	2	STD shaft 20mm or 24
TWBRH-2"	50.80	2.000	6-23	40.00	63.00	1.575	2.480	JSSW	2	STD shaft 20mm or 25
TWBRH-2-1/4"	57.15	2.250	6-23	46.00	69.00	1.811	2.717	JSSW	2	STD shaft 20mm or 26
TWBRH-2-3/8"	60.33	2.375	6-23	59.50	72.50	1.949	2.854	JSSW	2	STD shaft 20mm or 27
TWBRH-2-1/2"	63.50	2.500	6-23	52.50	75.50	2.067	2.972	JSSW	2	STD shaft 20mm or 28
TWBRH-3"	76.20	3.000	6-23	65.50	88.50	2.579	3.484	JSSW	2	STD shaft 20mm or 29
TWBRH-3-1/2"	88.90	3.500	6-23	78.00	101.0	3.071	3.976	JSSW	2	STD shaft 20mm or 30
TWBRH-3-9/16"	101.6	4.000	6-23	90.50	113.5	3.563	4.469	JSSW	2	STD shaft 20mm or 31

MFFH

MiniFacer Facing Head



- ▶ Insert Bite : HSS 6% Cobalt
- ▶ Dergee : 90°



Special Head No.	Tube Capacity			Range				Insert Bite No.	Insert Bite Q'ty	Shaft
				mm		inch				
	mm	inch	bwg	Min.	Max.	Min.	Max.			
TFCH-9/16"	14.00	0.550	17-23	11.20	20.50	0.440	0.807	JC	3	Shaft Top 10.0mm
TFCH-5/8"	15.88	0.625	16-23	12.70	22.00	0.500	0.866	JC	3	Shaft Top 11.5mm
TFCH-3/4"	19.05	0.750	13-23	14.20	23.00	0.559	0.906	JC	3	Shaft Top 12.4mm
TFCH-7/8"	22.23	0.875	12-23	16.60	24.50	0.654	0.965	JC	3	Shaft Top 13.9mm
TFCH-1"	25.40	1.000	11-23	19.40	27.50	0.764	1.087	JC	3	Shaft Top 16.9mm
MMFH-1-1/8"	28.58	1.125	11-23	22.50	30.80	0.886	1.213	JC	3	Shaft Top 18.9mm

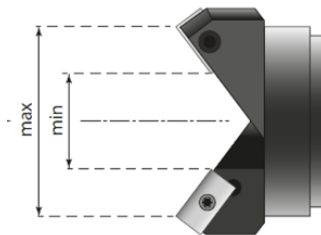
Special Cutter Heads and Insert Bites

OBFH

Outside Bevel Facing Head



- ▶ Insert Bite : HSS 6% Cobalt
- ▶ Dergee : 37.5°



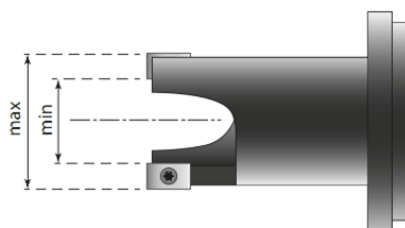
Special Head No.	Tube Capacity			Range				Insert Bite No.	Insert Bite Q'ty	Shaft
				mm		inch				
	mm	inch	bwg	Min.	Max.	Min.	Max.			
OBFH-3/4"	19.05	0.750	14-23	14.80	22.00	0.583	0.866	JS	2	Shaft Top 12.4mm
OBFH-7/8"	22.23	0.875	12-23	16.60	25.50	0.654	1.004	JS	2	Shaft Top 13.9mm
OBFH-1"	25.40	1.000	11-23	19.40	28.50	0.764	1.122	JS	2	Shaft Top 16.9mm
OBFH-1-1/8"	28.58	1.125	11-23	22.60	31.50	0.890	1.240	JS	2	Shaft Top 18.9mm
OBFH-1-1/4"	31.75	1.250	8-23	23.30	44.00	0.917	1.732	JSSW	2	STD shaft 20mm
OBFH-1-1/2"	38.10	1.500	6-23	25.00	47.00	0.984	1.850	JSSW	2	STD shaft 20mm or 23
OBFH-1-3/4"	44.45	1.750	6-23	26.00	48.00	1.024	1.890	JSSW	2	STD shaft 20mm or 23
OBFH-2"	50.80	2.000	6-23	30.00	52.00	1.181	2.047	JSSW	2	STD shaft 20mm or 23
OBFH-2-1/4"	57.15	2.250	6-23	36.00	58.00	1.417	2.283	JSSW	2	STD shaft 20mm or 23
OBFH-2-3/8"	60.33	2.375	6-23	39.00	61.00	1.535	2.402	JSSW	2	STD shaft 20mm or 23
OBFH-2-1/2"	63.50	2.500	6-23	42.00	65.00	1.654	2.559	JSSW	2	STD shaft 20mm or 23
OBFH-3"	76.20	3.000	6-23	55.00	77.00	2.165	3.031	JSSW	2	STD shaft 20mm or 23
OBFH-3-1/2"	88.90	3.500	6-23	68.00	90.00	2.677	3.543	JSSW	2	STD shaft 20mm or 23
OBFH-3-9/16"	101.6	4.000	6-23	80.00	102.0	3.150	4.016	JSSW	2	STD shaft 20mm or 23

TFCH

Tube Facer Cutting Head



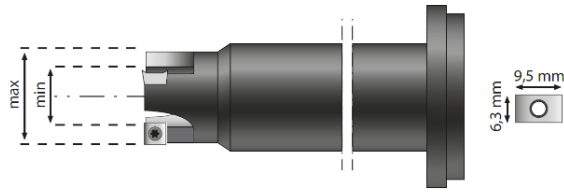
- ▶ Insert Bite : HSS 6% Cobalt
- ▶ Dergee : 90°



Special Head No.	Tube Capacity			Range				Insert Bite No.	Insert Bite Q'ty	Shaft
				mm		inch				
	mm	inch	bwg	Min.	Max.	Min.	Max.			
TFCH-9/16"	14.48	0.570	16-23	11.20	22.10	0.441	0.870	JCT	2	Shaft Top 10.0mm
TFCH-5/8"	15.88	0.625	16-23	12.70	23.70	0.500	0.933	JCT	2	Shaft Top 11.5mm
TFCH-3/4"	19.05	0.750	12-23	13.50	25.50	0.531	1.004	JCT	2	Shaft Top 12.4mm
TFCH-7/8"	22.23	0.875	12-23	16.60	27.00	0.654	1.063	JCT	2	Shaft Top 13.9mm
TFCH-1"	25.40	1.000	11-23	19.40	30.50	0.764	1.201	JCT	2	Shaft Top 16.9mm
TFCH-1-1/8"	28.58	1.125	11-23	21.70	33.20	0.854	1.307	JCT	2	Shaft Top 18.9mm
TFCH-1-1/4"	31.75	1.250	9-23	24.10	34.70	0.949	1.366	JCT	2	Shaft Top 18.9mm
TFCH-1-1/2"	38.10	1.500	9-23	30.40	41.00	1.197	1.614	JCT	2	Shaft Top 18.9mm
TFCH-1-3/4"	44.45	1.750	9-23	36.80	47.30	1.449	1.862	JS	2	Shaft Top 18.9mm
TFCH-2"	50.80	2.000	9-23	43.20	53.70	1.701	2.114	JS	2	Shaft Top 18.9mm

TFCHL

Tube Facer Cutting Head - Long



- ▶ Insert Bite : HSS 6% Cobalt
- ▶ Dergee : 90°

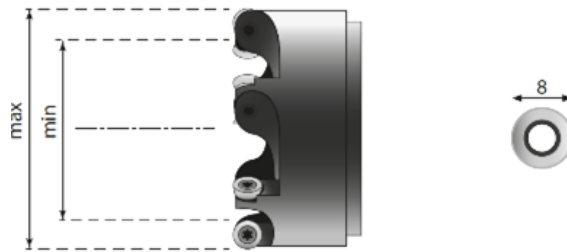
※ Option

TFCHL-〈Headn No.〉-Length"
8" / 10" / 12"

Special Head No.	Tube Capacity			Range				Insert Bite No.	Insert Bite Q'ty	Standard length	
				mm		inch				mm	inch
	mm	inch	bwg	Min.	Max.	Min.	Max.				
TFMHL-3/4"L	19.05	0.750	12-23	13.50	25.50	0.531	1.004	JSS	2	127	5
TFMHL-7/8"L	22.23	0.875	12-23	16.60	25.50	0.654	1.004	JSS	2	127	5
TFMHL-1"L	25.40	1.000	11-23	19.40	28.50	0.764	1.122	JSS	2	127	5
TFMHL-1-1/8"L	28.58	1.125	11-23	22.60	31.50	0.890	1.240	JSS	2	127	5
TFMHL-1-1/4"L	31.75	1.250	9-23	23.30	44.00	0.917	1.732	JSS	2	127	5
TFMHL-1-1/2"L	38.10	1.500	9-23	25.00	47.00	0.984	1.850	JSS	2	127	5

BPPH

Boiler Panel Plate Head



- ▶ Insert Bite : HSS 6% Cobalt
- ▶ Dergee : 90°

Special Head No.	Tube Capacity		Range				Insert Bite No.	Insert Bite Q'ty	APLICABLE MACHINE
			mm		inch				
	mm	inch	Min.	Max.	Min.	Max.			
MFBPPH-1"	25.40	1.000	25.40	41.40	1.000	1.630	JBPP	4	MiniFacer-100
MFBPPH-1-1/8"	28.58	1.125	28.80	44.80	1.134	1.764	JBPP	5	MiniFacer-100
MFBPPH-1-1/4"	31.75	1.250	31.70	47.70	1.248	1.878	JBPP	5	MiniFacer-100
MFBPPH-1-1/2"	38.10	1.500	38.10	54.10	1.500	2.130	JBPP	6	MiniFacer-100
MFBPPH-1-3/4"	44.45	1.750	44.40	60.40	1.748	2.378	JBPP	6	MiniFacer-100
MFBPPH-2"	50.80	2.000	50.80	66.80	2.000	2.630	JBPP	7	MiniFacer-100
MFBPPH-2-1/4"	57.15	2.250	57.20	73.20	2.252	2.882	JBPP	7	MiniFacer-100
MFBPPH-2-3/8"	60.33	2.375	60.30	76.30	2.374	3.004	JBPP	7	MiniFacer-100
MFBPPH-2-1/2"	63.50	2.500	63.50	79.50	2.500	3.130	JBPP	7	MiniFacer-100
MFBPPH-3"	76.20	3.000	76.20	92.20	3.000	3.630	JBPP	8	HyperFacer-70
MFBPPH-3-1/2"	88.90	3.500	88.90	104.90	3.500	4.130	JBPP	8	HyperFacer-70
MFBPPH-4"	101.6	4.000	101.60	117.60	4.000	4.630	JBPP	9	HyperFacer-70

PFBPPH-1"	25.40	1.000	25.40	41.40	1.000	1.630	JBPP	4	PanelFacer-53
PFBPPH-1-1/8"	28.58	1.125	28.80	44.80	1.134	1.764	JBPP	5	PanelFacer-53
PFBPPH-1-1/4"	31.75	1.250	31.70	47.70	1.248	1.878	JBPP	5	PanelFacer-53
PFBPPH-1-1/2"	38.10	1.500	38.10	54.10	1.500	2.130	JBPP	6	PanelFacer-53
PFBPPH-1-3/4"	44.45	1.750	44.40	60.40	1.748	2.378	JBPP	6	PanelFacer-53

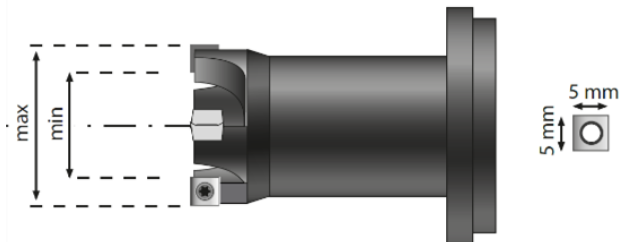
Special Cutter Heads and Insert Bites

TWBPH

Tube Weld Boiler Panel Head



- ▶ Insert Bite : HSS 6% Cobalt
- ▶ Dergee : 90°



Special Head No.	Tube Capacity			Range				Insert Bite No.	Insert Bite Q'ty	Screw
				mm		inch				
	mm	inch	bwg	Min.	Max.	Min.	Max.			
TWBPH-5/8"	15.88	0.625	17-22	12.70	28.00	0.500	1.100	JC	4	MHS-2
TWBPH-3/4"	19.05	0.750	11-22	13.00	29.00	0.510	1.140	JC	4	MHS-2
TWBPH-7/8"	22.23	0.875	10-22	18.00	33.00	0.710	1.300	JC	4	MHS-2
TWBPH-1"	25.40	1.000	8-20	20.50	35.00	0.810	1.380	JC	4	MHS-2

Insert Bites

스페셜헤드나 홀더에 장착하여 사용합니다.

Insert Bites for use only with holders or special heads.

JS

▶ Mat : HHS 6% Cobalt
▶ Screw : MHS-4

JSS

▶ Mat : HHS 6% Cobalt
▶ Screw : MHS-2.5

JSSW

▶ Mat : HHS 6% Cobalt
▶ Screw : MHS-4

JC

▶ Mat : HHS 6% Cobalt
▶ Screw : MHS-2.5

JSWC

▶ Mat : HHS 6% Cobalt
▶ Screw : MHS-4

JSWR

▶ Mat : HHS 6% Cobalt
▶ Screw : MHS-2.5

JCT

▶ Mat : HHS 6% Cobalt
▶ Screw : MHS-4

JSWL

▶ Mat : HHS 6% Cobalt
▶ Screw : MHS-2.5

JWB

▶ Mat : HHS 6% Cobalt
▶ Screw : MHS-4

JBPP

▶ Mat : HHS 6% Cobalt
▶ Screw : MHS-2.5

JWBR

mm	A	B	R
JWBR-2.5	18	9.5	2.5
JWBR-5	18	9.5	4.7
JWBR-8	18	9.5	8.0

▶ Mat : HHS 6% Cobalt
▶ Screw : MHS-4

TBF2

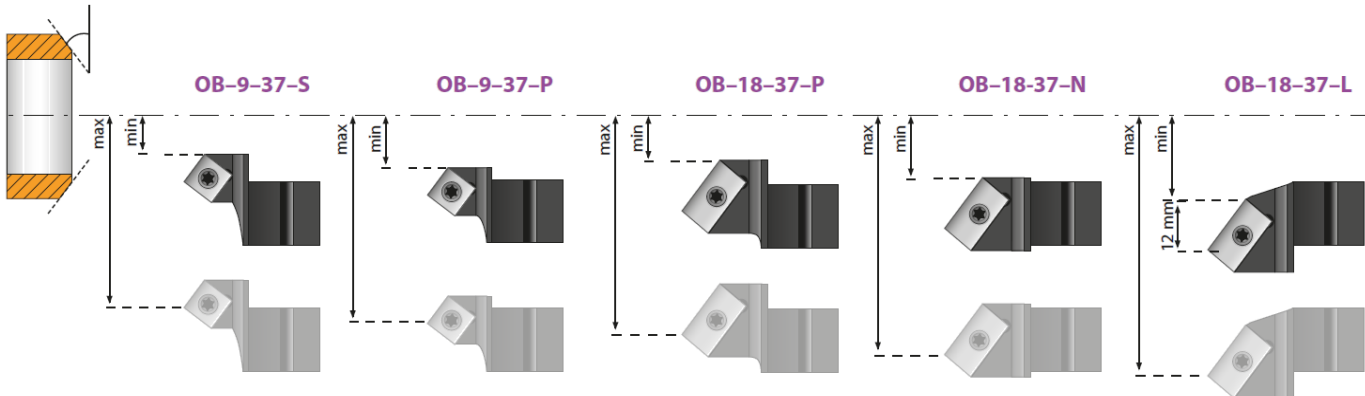
▶ Mat : HHS 6% Cobalt
▶ Screw : MHS-4

TBF1

▶ Mat : HHS 6% Cobalt
▶ Screw : MHS-4

Holders

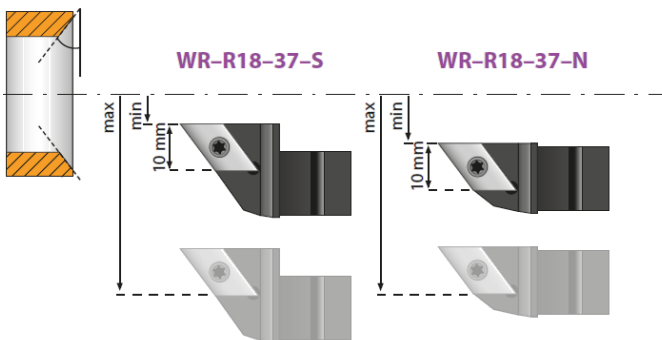
Outside Beveling Holders



Holder No.	Insert Bite No.	Head	Range				Degree
			mm		inch		
			Min.	Max.	Min.	Max.	
OB-9-37-S	JS	60	16.00	26.00	0.630	1.024	20: 30: 37.5: 45
		88	16.00	51.00	0.630	2.008	20: 30: 37.5: 45
OB-9-37-P	JS	60	24.00	34.00	0.945	1.339	20: 30: 37.5: 45
		88	24.00	58.00	0.945	2.283	20: 30: 37.5: 45
		106	28.00	72.00	1.102	2.835	20: 30: 37.5: 45
OB-18-37-P	JSSW	60	24.00	47.00	0.945	1.850	20: 30: 37.5: 45
		88	24.00	71.00	0.945	2.795	20: 30: 37.5: 45
		106	28.00	85.00	1.102	3.346	20: 30: 37.5: 45
		114	31.00	88.00	1.220	3.465	20: 30: 37.5: 45
		135	31.00	109.00	1.220	4.291	20: 30: 37.5: 45
		175	31.00	149.00	1.220	5.866	20: 30: 37.5: 45

Holder No.	Insert Bite No.	Head	Range				Degree
			mm		inch		
			Min.	Max.	Min.	Max.	
OB-18-37-N	JSSW	60	34.00	56.00	1.339	2.205	20: 30: 37.5; 45
		88	34.00	80.00	1.339	3.15	20: 30: 37.5; 45
		106	38.00	94.00	1.496	3.701	20: 30: 37.5; 45
		114	43.00	101.00	1.693	3.976	20: 30: 37.5; 45
		135	43.00	122.00	1.693	4.803	20: 30: 37.5; 45
		175	43.00	162.00	1.693	6.378	20: 30: 37.5; 45
OB-18-37-L	JSSW	60	40.00	63.00	1.575	2.48	20: 30: 37.5; 45
		88	40.00	87.00	1.575	3.425	20: 30: 37.5; 45
		106	44.00	101.00	1.732	3.976	20: 30: 37.5; 45
		114	47.00	104.00	1.850	4.094	20: 30: 37.5; 45
		135	47.00	125.00	1.850	4.921	20: 30: 37.5; 45
		175	47.00	165.00	1.850	6.496	20: 30: 37.5; 45

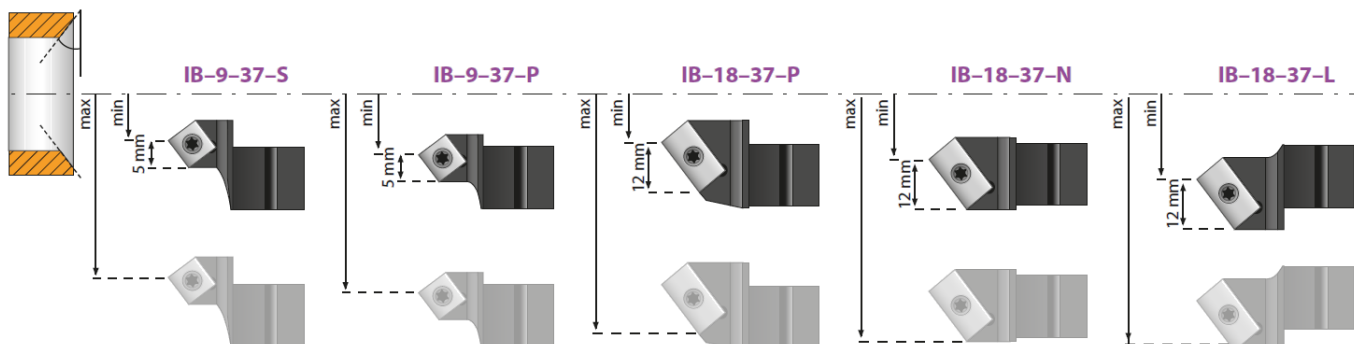
Weld Removal Holders



Holder No.	Insert Bite No.	Head	Range				Degree
			mm		inch		
			Min.	Max.	Min.	Max.	
WR-R18-37-S	JSWC	60	15.50	36.00	0.610	1.417	20: 30: 37.5; 45
		88	15.50	61.00	0.610	2.402	20: 30: 37.5; 45
		106	19.50	75.00	0.768	2.953	20: 30: 37.5; 45
WR-R18-37-N	JSWC	60	30.00	50.00	1.181	1.969	20: 30: 37.5; 45
		88	30.00	75.00	1.181	2.953	20: 30: 37.5; 45
		106	34.00	89.00	1.339	3.504	20: 30: 37.5; 45
		114	37.00	94.00	1.457	3.701	20: 30: 37.5; 45
		135	37.00	115.00	1.457	4.528	20: 30: 37.5; 45
		175	37.00	155.00	1.457	6.102	20: 30: 37.5; 45

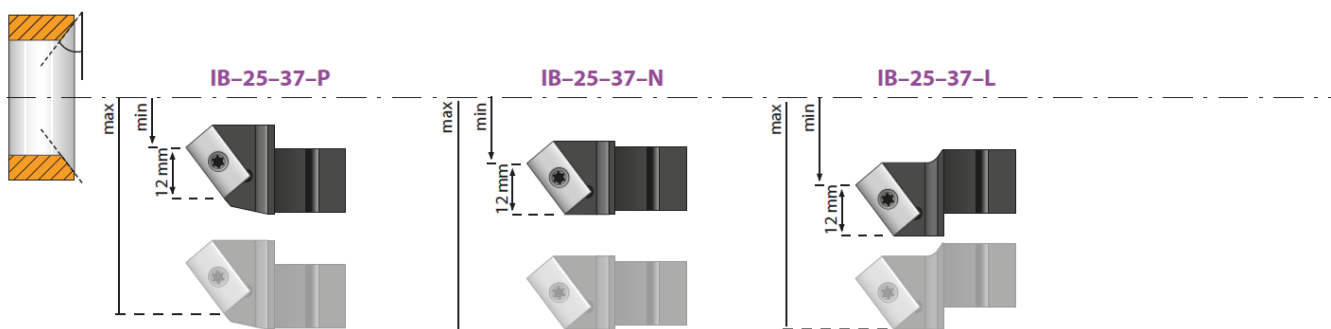
Holders

Inside Beveling Holders



Holder No.	Insert Bite No.	Head	Range				Degree
			mm		inch		
			Min.	Max.	Min.	Max.	
IB-9-37-S	JS	60	29.00	39.00	1.142	1.535	20: 30: 37.5 ; 45
		88	29.00	63.00	1.142	2.48	20: 30: 37.5 ; 45
		106	33.00	77.00	1.299	3.031	20: 30: 37.5 ; 45
IB-9-37-P	JS	60	35.50	45.50	1.398	1.791	20: 30: 37.5 ; 45
		88	35.50	70.00	1.398	2.756	20: 30: 37.5 ; 45
		106	39.50	84.00	1.555	3.307	20: 30: 37.5 ; 45
IB-18-37-P	JSSW	60	35.50	58.00	1.398	2.283	20: 30: 37.5 ; 45
		88	35.50	82.50	1.398	3.248	20: 30: 37.5 ; 45
		106	39.50	96.50	1.555	3.799	20: 30: 37.5 ; 45
		114	42.00	102.00	1.654	4.016	20: 30: 37.5 ; 45
		135	42.00	123.00	1.654	4.843	20: 30: 37.5 ; 45
		175	42.00	163.00	1.654	6.417	20: 30: 37.5 ; 45

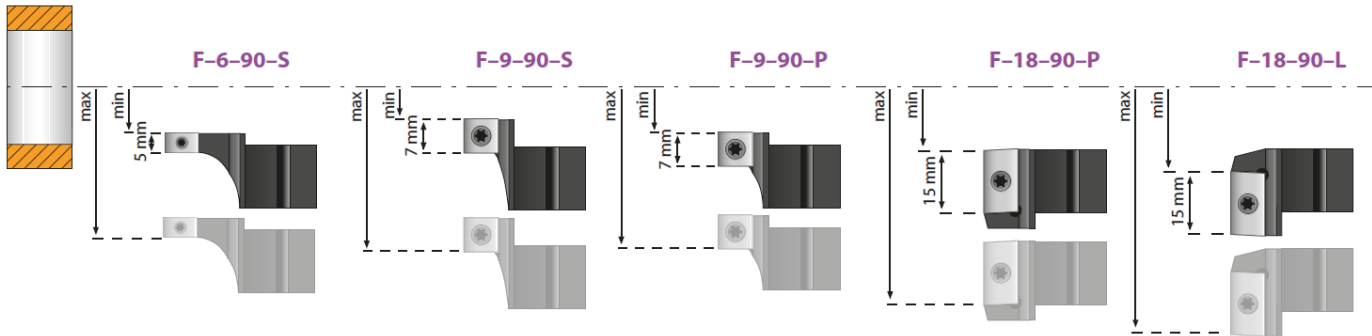
Holder No.	Insert Bite No.	Head	Range				Degree
			mm		inch		
			Min.	Max.	Min.	Max.	
IB-18-37-N	JSSW	60	44.50	67.50	1.752	2.657	20: 30: 37.5 ; 45
		88	44.50	92.00	1.752	3.622	20: 30: 37.5 ; 45
		106	48.50	106.00	1.909	4.173	20: 30: 37.5 ; 45
		114	51.00	111.00	2.008	4.37	20: 30: 37.5 ; 45
		135	51.00	132.00	2.008	5.197	20: 30: 37.5 ; 45
		175	51.00	172.00	2.008	6.772	20: 30: 37.5 ; 45
IB-18-37-L	JSSW	60	53.00	76.00	2.087	2.992	20: 30: 37.5 ; 45
		88	53.00	100.00	2.087	3.937	20: 30: 37.5 ; 45
		106	57.00	114.00	2.244	4.488	20: 30: 37.5 ; 45
		114	60.00	120.00	2.362	4.724	20: 30: 37.5 ; 45
		135	60.00	141.00	2.362	5.551	20: 30: 37.5 ; 45
		175	60.00	181.00	2.362	7.126	20: 30: 37.5 ; 45



Holder No.	Insert Bite No.	Head	Range				Degree
			mm		inch		
			Min.	Max.	Min.	Max.	
IB-25-37-P	JSSW	60	35.50	63.00	1.398	2.48	20: 30: 37.5 ; 45
		88	35.50	87.50	1.398	3.444	20: 30: 37.5 ; 45
		106	39.50	101.50	1.555	3.996	20: 30: 37.5 ; 45
		114	42.00	107.00	1.654	4.212	20: 30: 37.5 ; 45
		135	42.00	128.00	1.654	5.039	20: 30: 37.5 ; 45
		175	42.00	168.00	1.654	6.614	20: 30: 37.5 ; 45
IB-25-37-N	TBF1	60	44.50	72.50	1.752	2.854	20: 30: 37.5 ; 45
		88	44.50	97.00	1.752	3.818	20: 30: 37.5 ; 45
		106	48.50	111.00	1.909	4.37	20: 30: 37.5 ; 45
		114	51.00	116.00	2.008	4.566	20: 30: 37.5 ; 45
		135	51.00	137.00	2.008	5.393	20: 30: 37.5 ; 45
		175	51.00	177.00	2.008	6.969	20: 30: 37.5 ; 45

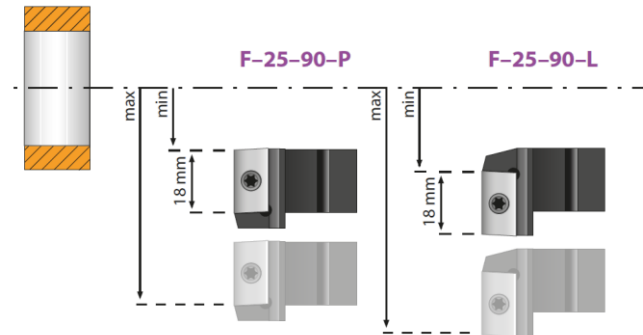
Holder No.	Insert Bite No.	Head	Range				Degree
			mm		inch		
			Min.	Max.	Min.	Max.	
IB-25-37-L	TBF1	60	53.00	81.00	2.087	3.188	20: 30: 37.5 ; 45
		88	53.00	105.00	2.087	4.133	20: 30: 37.5 ; 45
		106	57.00	119.00	2.244	4.685	20: 30: 37.5 ; 45
		114	60.00	125.00	2.362	4.921	20: 30: 37.5 ; 45
		135	60.00	146.00	2.362	5.748	20: 30: 37.5 ; 45
		175	60.00	186.00	2.362	7.322	20: 30: 37.5 ; 45

Facing Holders



Holder No.	Insert Bite No.	Head	Range				Degree
			mm		inch		
			Min.	Max.	Min.	Max.	
F-6-90-S	JSS	60	14.50	24.50	0.571	0.965	90
F-9-90-S	JS	60	16.00	30.00	0.630	1.181	90
F-9-90-P	JS	60	24.00	38.00	0.945	1.496	90
		88	24.00	62.00	0.945	2.441	90
		106	28.00	75.00	1.102	2.953	90
		114	31.00	80.00	1.220	3.150	90
F-18-90-P	JSSW	60	24.00	54.00	0.945	2.126	90
		88	24.00	79.00	0.945	3.11	90
		106	28.00	95.00	1.102	3.74	90

Holder No.	Insert Bite No.	Head	Range				Degree
			mm		inch		
			Min.	Max.	Min.	Max.	
F-18-90-P	JSSW	114	31.00	98.00	1.220	3.858	90
		135	31.00	119.00	1.220	4.685	90
		175	31.00	159.00	1.220	6.26	90
F-18-90-L	JSSW	60	33.00	62.00	1.299	2.441	90
		88	33.00	87.00	1.299	3.425	90
		106	37.00	101.00	1.457	3.976	90
		114	38.00	104.00	1.496	4.094	90
		135	38.00	125.00	1.496	4.921	90
		175	38.00	165.00	1.496	6.496	90



Holder No.	Insert Bite No.	Head	Range				Degree
			mm		inch		
			Min.	Max.	Min.	Max.	
F-25-90-P	TBF1	60	24.00	61.00	0.945	2.401	90
		88	24.00	86.00	0.945	3.385	90
		106	28.00	102.00	1.102	4.015	90
	TBF1	114	31.00	105.00	1.220	4.133	90
		135	31.00	126.00	1.220	4.96	90
		175	31.00	166.00	1.220	6.535	90
F-25-90-L	JSSW	60	33.00	69.00	1.299	2.716	90
		88	33.00	94.00	1.299	3.7	90
		106	37.00	108.00	1.457	4.251	90
		114	38.00	111.00	1.496	4.370	90
		135	38.00	132.00	1.496	5.196	90
		175	38.00	172.00	1.496	6.771	90

MiniFacer Shaft Kit

Micro Shaft Kit



Shaft Top No.	Size		Spring or O-ring No.
	mm	inch	
Shaft Top 10.0	10.0	0.394	Spring 10.0
			O-ring 10.0
Shaft Top 11.5	11.5	0.453	Spring 11.5
			O-ring 11.5

Mini Shaft Kit



Shaft Top No.	Size		Spring or O-ring No.
	mm	inch	
Shaft Top 12.4	12.4	0.492	Spring 12.4
			O-ring 12.4
Shaft Top 13.9	13.9	0.547	Spring 13.9
			O-ring 13.9
Shaft Top 16.9	16.9	0.665	Spring 16.9
			O-ring 16.9
Shaft Top 18.9	18.9	0.744	Spring 18.9
			O-ring 18.9

Locking Jaws No.	Range				Cutter Head
	mm		inch		
	Min.	Max.	Min.	Max.	
MC38-1	10.0	11.0	0.394	0.433	Special Head
MC38-2	11.0	12.0	0.433	0.472	
MC38-3	12.0	13.0	0.472	0.512	
MC38-4	13.0	14.0	0.512	0.551	
MC38-5	14.0	15.0	0.551	0.591	

Locking Jaws No.	Range				Cutter Head	
	mm		inch			
	Min.	Max.	Min.	Max.		
MF38-1	12.5	14.5	0.49	0.57	60MM	Standard
MF38-2	13.0	15.0	0.51	0.59		
MF38-3	14.0	16.0	0.55	0.62		
MF38-4	15.0	17.0	0.59	0.66		
MF38-5	16.0	18.0	0.62	0.70		
MF38-6	17.0	19.0	0.66	0.74		
MF38-7	18.0	20.0	0.70	0.78		
MF38-8	19.0	21.0	0.74	0.82		
MF38-9	20.0	22.0	0.78	0.86		
MF38-10	21.0	23.0	0.38	0.90		
MF38-11	22.0	24.0	0.86	0.94		
MF38-12	23.0	25.0	0.90	0.98		
MF38-13	24.0	26.0	0.94	1.02	60MM	Optional
MF38-14	25.0	27.0	0.98	1.06		
MF38-15	26.0	28.0	1.02	1.10		
MF38-16	27.0	29.0	1.06	1.14		
MF38-17	28.0	30.0	1.10	1.18		

20MM SHAFT KIT



23MM SHAFT KIT



Locking Jaws No.	Range				Cutter Head			
	mm		inch					
	Min.	Max.	Min.	Max.				
MF38-1	20.00	24.00	0.79	0.94	60MM		Standard	
MF38-2	23.00	27.00	0.91	1.06				
MF38-3	26.00	30.00	1.02	1.18				
MF38-4	29.00	33.00	1.14	1.30				
MF38-5	32.00	36.00	1.26	1.42				
MF38-6	35.00	39.00	1.38	1.54				
MF38-7	38.00	42.00	1.50	1.65				
MF38-8	39.00	44.00	1.54	1.73	-	88MM	-	Optional
MF38-9	43.00	48.00	1.69	1.89				
MF38-10	47.00	52.00	1.85	2.05				
MF38-11	51.00	56.00	2.01	2.20				
MF38-12	55.00	60.00	2.17	2.36				
MF38-13	59.00	64.00	2.32	2.52				
MF38-14	63.00	68.00	2.48	2.68				
MF38-15	67.00	72.00	2.64	2.83				
MF38-16	71.00	76.00	2.80	2.99				
MF38-17	75.00	80.00	2.95	3.15				
MF38-18	79.00	84.00	3.11	3.31				
MF38-19	83.00	88.00	3.27	3.46				
MF38-20	87.00	92.00	3.43	3.62				
MF38-21	91.00	96.00	3.58	3.78				
MF38-22	95.00	100.0	3.74	3.94				
MF38-23	99.00	104.0	3.90	4.09				
MF38-24	103.0	108.0	4.06	4.25				

HyperFacer Shaft Kit

20MM/23MM Hyper Shaft Kit



35MM Hyper Shaft Kit



JHF-70 Series

Locking Jaws No.	Range				Cutter Head	
	mm		inch			
	Min.	Max.	Min.	Max.		
MF38-1	20.0	24.0	0.79	0.94	114MM	Standard
MF38-2	23.0	27.0	0.91	1.06		
MF38-3	26.0	30.0	1.02	1.18		
MF38-4	29.0	33.0	1.14	1.30		
MF38-5	32.0	36.0	1.26	1.42		
MF38-6	35.0	39.0	1.38	1.54		
MF38-7	38.0	42.0	1.50	1.65		

Locking Jaws No.	Range				Cutter Head	
	mm		inch			
	Min.	Max.	Min.	Max.		
HF65-1	35.0	40.0	1.38	1.57	114MM	Standard
HF65-2	39.0	44.0	1.54	1.73		
HF65-3	43.0	48.0	1.69	1.89		
HF65-4	47.0	52.0	1.85	2.05		
HF65-5	51.0	56.0	2.01	2.20		
HF65-6	55.0	60.0	2.17	2.36		
HF65-7	59.0	64.0	2.32	2.52		
HF65-8	63.0	68.0	2.48	2.68		
HF65-9	67.0	72.0	2.64	2.83		
HF65-10	71.0	76.0	2.80	2.99		
HF65-11	75.0	80.0	2.95	3.15		
HF65-12	79.0	84.0	3.11	3.31		
HF65-13	83.0	88.0	3.27	3.46		
HF65-14	87.0	92.0	3.43	3.62		
HF65-15	91.0	96.0	3.58	3.78		
HF65-16	95.0	100.0	3.74	3.94		
HF65-17	99.0	104.0	3.90	4.09		
HF65-18	103.0	108.0	4.06	4.25		
HF65-19	107.0	112.0	4.21	4.41		
HF65-20	111.0	116.0	4.37	4.57		
HF65-21	115.0	120.0	4.53	4.72		
HF65-22	119.0	124.0	4.69	4.88		
HF65-23	123.0	128.0	4.84	5.04		
HF65-24	127.0	132.0	5.00	5.20		
HF65-25	131.0	136.0	5.16	5.35		
HF65-26	135.0	140.0	5.31	5.51		
HF65-27	139.0	144.0	5.47	5.67		
HF65-28	143.0	148.0	5.63	5.83		
HF65-29	147.0	152.0	5.79	5.98		
HF65-30	151.0	156.0	5.94	6.14		
HF65-31	155.0	160.0	6.10	6.30		
HF65-32	159.0	164.0	6.26	6.46		
HF65-33	163.0	168.0	6.42	6.61		

50MM Hyper Shaft Kit



JHF-50 Series

Locking Jaws No.	Range				Cutter Head	
	mm		inch			
	Min.	Max.	Min.	Max.		
B1+X	50.0	55.0	1.97	2.17	220MM	Standard
B1+Y	54.0	59.0	2.13	2.32		
B1+A	58.0	63.0	2.28	2.48		
B1+B	62.0	67.0	2.44	2.64		
B1+C	66.0	71.0	2.60	2.80		
B1+D	70.0	75.0	2.76	2.95		
B1+E	74.0	79.0	2.91	3.11		
B1+F	78.0	83.0	3.07	3.27		
B1+G	82.0	87.0	3.23	3.43		
B1+H	86.0	91.0	3.39	3.58		
B1+I	90.0	95.0	3.54	3.74		
B1+L	94.0	99.0	3.70	3.90		
B1+M	98.0	103.0	3.86	4.06		
B1+H21+X	102.0	107.0	4.02	4.21		
B1+H21+Y	106.0	111.0	4.17	4.37		
B1+H21+A	110.0	115.0	4.33	4.53		
B1+H21+B	114.0	119.0	4.50	4.70		
B1+H21+C	118.0	123.0	4.65	4.85		
B1+H21+D	122.0	127.0	4.80	5.00		
B1+H21+E	126.0	131.0	4.96	5.16		
B1+H21+F	130.0	135.0	5.12	5.32		
B1+H21+G	134.0	139.0	5.28	5.48		
B1+H21+H	138.0	143.0	5.43	5.63		
B1+H21+I	142.0	147.0	5.59	5.79		
B1+H21+L	146.0	151.0	5.75	5.95		
B1+H21+M	150.0	155.0	5.91	6.10		
B2+X	154.0	159.0	6.06	6.26	290MM	Standard
B2+A	162.0	167.0	6.38	6.57		
B2+B	166.0	171.0	6.53	6.73		
B2+C	170.0	175.0	6.69	6.89		
B2+D	174.0	179.0	6.85	7.05		
B2+E	178.0	183.0	7.00	7.20		
B2+F	182.0	187.0	7.16	7.36		
B2+G	186.0	191.0	7.32	7.52		
B2+H	190.0	195.0	7.48	7.68		
B2+I	194.0	199.0	7.64	7.83		
B2+L	198.0	203.0	7.79	7.99		
B2+M	202.0	207.0	7.95	8.15		

Standard

Locking Jaws No.	Range				Cutter Head	
	mm		inch			
	Min.	Max.	Min.	Max.		
B2+H21+X	206.0	211.0	8.11	8.31	290MM	Optional
B2+H21+A	210.0	215.0	8.27	8.46		
B2+H21+B	214.0	219.0	8.43	8.62		
B2+H21+C	218.0	223.0	8.58	8.78		
B2+H21+D	222.0	227.0	8.74	8.94		
B2+H21+E	226.0	231.0	8.90	9.09		
B2+H21+F	230.0	235.0	9.06	9.25		
B2+H21+G	234.0	239.0	9.21	9.41		
B2+H21+H	238.0	243.0	9.37	9.57		
B2+H21+I	242.0	247.0	9.53	9.72		
B2+H21+L	246.0	251.0	9.69	9.88		
B2+H21+M	250.0	255.0	9.84	10.04		

Optional





Tube Cutters

- Tube Rolling Cutter (1WTTC)
- Push Type Internal Tube Cutter
- Internal Tube Cutter
- One Revolution Internal
Tube Cutter

TUBE ROLLING CUTTER

1WTTC Wheel Type Tube Cutter



1WTTC 은 하나의 휠로 중심점을 이용하여 빠르고 간단하게 절단함으로써 작업시간을 매우 단축 시켜 일의 효율성을 높일 수 있습니다.
 튜브를 절단 하는 중 칩이 발생되지 않으므로 간섭되지 않습니다.
 외경 19.05mm(3/4") - 31.75mm(1-1/4") 의 튜브에 적합합니다.

The 1WELTC-300 greatly reduces cutting time by utilizing the special 1 point self - centering cutter wheel design and works with 3/4", thru 1-1/4" O.D.tubes (after changing cutter body wheels and pilots). The tool does not create any chips during the cutting process.

1WPNTC-100 Pneumatic	Cutting Range	Standard Reach	Torque	Free Speed	Weight
	O.D.15.8-101.6mm (5/8 - 4")	Up to 177.8mm (7")	20.5Nm	120PM	6.8kg

1WPNTC-200 Pneumatic	Cutting Range	Standard Reach	Torque	Free Speed	Weight
	O.D.15.8-101.6mm (5/8 - 4")	Up to 177.8mm (7")	29Nm	235RPM	6.8kg

1WPNTC-300 Pneumatic	Cutting Range	Standard Reach	Torque	Free Speed	Weight
	O.D.15.8-101.6mm (5/8 - 4")	Up to 177.8mm (7")	20.5Nm	320RPM	6.8kg

1WELTC-300 Electric	Cutting Range	Standard Reach	Torque	Free Speed	Weight
	O.D.15.8-101.6mm (5/8 - 4")	Up to 177.8mm (7")	45Nm	320RPM	7kg

Tube O.D		Tube Gauge		Tool No.	Wheel Holder	Wheel Pin	CUTTING			TRIMMING			Body
inch	mm	bwg	inch	mm			Cutter Wheel	Pilot	Thrust Collar	Trimming Collar	Pilot	Pilot Extension	
3/4	19.05	14	0.08	2.11	1WTTC-3/4"	CP-20	CW-21	P-008	SWTC-750	WTTA-750	T-8	PE-1WTTC-190	1WTB-750
		15	0.07	1.83			CW-21	P-009			T-9		
		16	0.07	1.63			CW-21	P-010			T-10		
		17	0.06	1.47			CW-21	P-011			T-11		
		18	0.05	1.24			CW-21	P-012			T-12		
		19	0.04	1.07			CW-21	P-013			T-13		
		20	0.04	0.89			CW-21	P-014			T-14		
		21	0.03	0.81			CW-21	P-015			T-15		
		22	0.03	0.71			CW-21	P-016			T-16		
		23	0.03	0.63			CW-21	P-017			T-17		
		24	0.02	0.56			CW-21	P-018			T-18		

1 Wheel Type Tube Cutter

Spare parts for 1WTC

Tube O.D		Tube Gauge			Tool No.	Wheel Holder	Wheel Pin	CUTTING			TRIMMING			Body			
inch	mm	bwg	inch	mm				Cutter Wheel	Pilot	Thrust Collar	Trimming Collar	Pilot	Pilot Extension				
7/8	22.23	14	0.08	2.11	1WTC-7/8"	1CCWH-222	CP-25	CW-25	P-019	SWTC-875	WTTA-875	T-19	PE-1WTTC-222	1WTB-875			
		15	0.07	1.83				CW-25	P-020			T-20					
		16	0.07	1.65				CW-25	P-021			T-21					
		17	0.06	1.47				CW-25	P-022			T-22					
		18	0.05	1.24				CW-25	P-023			T-23					
		19	0.04	1.07		CW-25		P-024	T-24			1CCWH-222-2			CW-25	P-025	T-25
		20	0.04	0.89		CW-25		P-026	T-26								
		21	0.03	0.81		CW-25		P-027	T-27								
		22	0.03	0.71		CW-25		P-028	T-28								
		23	0.03	0.63													
1	25.40	12	0.11	2.77	1WTC-1"	1CCWH-254	CP-25	CW-31	P-029-1	SWTC-1000	WTTA-1000	T-29-1	PE-1WTTC-254	1WTB-1000			
		13	0.10	2.41				CW-31	P-029-2			T-29-2					
		14	0.08	2.11				CW-31	P-029			T-29					
		15	0.07	1.83				CW-31	P-030			T-30					
		16	0.07	1.65				CW-31	P-031			T-31					
		17	0.06	1.47		CW-31		P-032	T-32			1CCWH-254-2			CW-31	P-033	T-33
		18	0.05	1.24		CW-31		P-034	T-34								
		19	0.04	1.07		CW-31		P-035	T-35								
		20	0.04	0.89		CW-31		P-036	T-36								
		21	0.03	0.81		CW-31		P-037	T-37								
		22	0.03	0.71		CW-31		P-038	T-38								
		23	0.03	0.63		CW-31		P-039	T-39								
		24	0.02	0.56													
		1.1/8	28.58	12		0.11		2.77	1WTC-1.1/8"						1CCWH-286	CP-30	CW-34
13	0.10			2.41	CW-34	P-040-2	T-40-2										
14	0.08			2.11	CW-34	P-040	T-40										
15	0.07			1.83	CW-34	P-041	T-41										
16	0.07			1.65	CW-34	P-042	T-42										
17	0.06			1.47	CW-34	P-043	T-43	1CCWH-286-2		CW-34	P-044	T-44					
18	0.05			1.24	CW-34	P-045	T-45										
19	0.04			1.07	CW-34	P-046	T-46										
20	0.04			0.89	CW-34	P-047	T-47										
21	0.03			0.81	CW-34	P-048	T-48										
22	0.03			0.71	CW-34	P-049	T-49										
23	0.03			0.63	CW-34	P-050	T-50										
24	0.02			0.56													
1.1/4	31.75			12	0.11	2.77	1WTC-1.1/4"			1CCWH-317	CP-30	CW-37	P-051	SWTC-1250	WTTA-1250		T-51
		13	0.10	2.41	CW-37	P-052		T-52									
		14	0.08	2.11	CW-37	P-053		T-53									
		15	0.07	1.83	CW-37	P-054		T-54									
		16	0.07	1.65	CW-37	P-055		T-55									
		17	0.06	1.47	CW-37	P-056		T-56	1CCWH-317-2	CW-37		P-057	T-57				
		18	0.05	1.24	CW-37	P-058		T-58									
		19	0.04	1.07	CW-37	P-059		T-59									
		20	0.04	0.89	CW-37	P-060		T-60									
		21	0.03	0.81	CW-37	P-061		T-61									
		22	0.03	0.71	CW-37	P-062		T-62									
		23	0.03	0.63	CW-37	P-063		T-63									
		24	0.02	0.56													

Tube Cutters

Spare parts for 1WTTC

Tube O.D		Tube Gauge			Tool No.	Wheel Holder	Wheel Pin	CUTTING			TRIMMING			Body	
inch	mm	bwg	inch	mm				Cutter Wheel	Pilot	Thrust Collar	Trimming Collar	Pilot	Pilot Extension		
1.1/2	38.10	10	0.13	3.40	1WTC-1.1/2"	1CCWH-381	CP-30	CW-41	P-064	SWTC-1500	WTTA-1500	T-64	PE-1WTTC-381	1WTB-1500	
		11	0.12	3.00				CW-41	P-065			T-65			
		12	0.11	2.77				CW-41	P-066			T-66			
		13	0.10	2.41				CW-41	P-067			T-67			
		14	0.08	2.11				CW-41	P-068			T-68			
		15	0.07	1.83				CW-41	P-069			T-69			
		16	0.07	1.65				CW-41	P-070			T-70			
		17	0.06	1.47				CW-41	P-071			T-71			
		18	0.05	1.24		1CCWH-383		CW-41	P-072			T-72			
		19	0.04	1.07				CW-41	P-073			T-73			
		20	0.04	0.89				CW-41	P-074			T-74			
		21	0.03	0.81				CW-41	P-075			T-75			
		22	0.03	0.71				CW-41	P-076			T-76			
		23	0.03	0.63				CW-41	P-077			T-77			
24	0.02	0.56	CW-41	P-078	T-78										
1.3/4	44.45	8	0.17	4.20	1WTC-1.3/4"		1CCWH-444	CP-30	CW-45	P-079	SWTC-1750	WTTA-1750	T-79	PE-1WTTC-444	1WTB-1750
		9	0.15	3.80		CW-45			P-080	T-80					
		10	0.13	3.40		CW-45			P-081	T-81					
		11	0.12	3.00		CW-45			P-082	T-82					
		12	0.11	2.77		CW-45			P-083	T-83					
		13	0.10	2.41		CW-45			P-084	T-84					
		14	0.08	2.11		CW-45			P-085	T-85					
		15	0.07	1.83		CW-45			P-086	T-86					
		16	0.07	1.65		1CCWH-445	CW-45		P-087	T-87					
		17	0.06	1.47			CW-45		P-088	T-88					
		18	0.05	1.24			CW-45		P-089	T-89					
		19	0.04	1.07			CW-45		P-090	T-90					
		20	0.04	0.89			CW-45		P-091	T-91					
		2	50.80	6			0.20		5.20	1WTC-2"			1CCWH-508		
7	0.18			4.60	CW-51	P-093	T-93								
8	0.17			4.20	CW-51	P-094	T-94								
9	0.15			3.80	CW-51	P-095	T-95								
10	0.13			3.40	CW-51	P-096	T-96								
11	0.12			3.00	CW-51	P-097	T-97								
12	0.11			2.77	1CCWH-506	CW-51	P-098	T-98							
13	0.10			2.41		CW-51	P-099	T-99							
14	0.08			2.11		CW-51	P-100	T-100							
15	0.07			1.83		CW-51	P-101	T-101							
16	0.07			1.65		CW-51	P-102	T-102							
17	0.06			1.47		CW-51	P-103	T-103							
18	0.05			1.24		CW-51	P-104	T-104							
19	0.04			1.07		CW-51	P-105	T-105							
20	0.04	0.89	CW-51	P-106	T-106										
2.1/4	57.1	6	0.20	5.20	1WTC-2.1/4"	1CCWH-571	CP-30	CW-51	P-107	SWTC-2250	WTTA-2250	T-107	PE-1WTTC-508	1WTB-2000	
		7	0.18	4.60				CW-51	P-108			T-108			
		8	0.17	4.20				CW-51	P-109			T-109			
		9	0.15	3.80				CW-51	P-110			T-110			
		10	0.13	3.40				CW-51	P-111			T-111			
		11	0.12	3.00				CW-51	P-112			T-112			
		12	0.11	2.77		1CCWH-573		CW-51	P-113			T-113			
		13	0.10	2.41				CW-51	P-114			T-114			
		14	0.08	2.11				CW-51	P-115			T-115			
		15	0.07	1.83				CW-51	P-116			T-116			
		16	0.07	1.65				1CCWH-575	CW-51			P-117			T-117
		17	0.06	1.47					CW-51			P-118			T-118
		18	0.05	1.24					CW-51			P-119			T-119
		19	0.04	1.07					CW-51			P-120			T-120
20	0.04	0.89	CW-51	P-121	T-121										

1 Wheel Type Tube Cutter

Spare parts for 1W TTC

Tube O.D		Tube Gauge			Tool No.	Wheel Holder	Wheel Pin	CUTTING			TRIMMING			Body	
inch	mm	bwg	inch	mm				Cutter Wheel	Pilot	Thrust Collar	Trimming Collar	Pilot	Pilot Extension		
2.5	63.5	6	0.20	5.20	1WTC-2.5"	1CCWH-635	CP-30	CW-51	P-122	SWTC-2500	WTTA-2500	T-122	PE-1W TTC-508	1WTB-2000	
		7	0.18	4.60				CW-51	P-123			T-123			
		8	0.17	4.20				CW-51	P-124			T-124			
		9	0.15	3.80				CW-51	P-125			T-125			
		10	0.13	3.40				CW-51	P-126			T-126			
		11	0.12	3.00				CW-51	P-127			T-127			
		12	0.11	2.77		1CCWH-637		CW-51	P-128			T-128			
		13	0.10	2.41				CW-51	P-129			T-129			
		14	0.08	2.11				CW-51	P-130			T-130			
		15	0.07	1.83				CW-51	P-131			T-131			
		16	0.07	1.65				CW-51	P-132			T-132			
		17	0.06	1.47				1CCWH-639	CW-51			P-133			T-133
		18	0.05	1.24		CW-51			P-134			T-134			
19	0.04	1.07	CW-51	P-135	T-135										
20	0.04	0.89	CW-51	P-136	T-136										
3	76.20	6	0.20	5.20	1WTC-3"	1CCWH-762	CP-30		CW-51	P-137	SWTC-2000	WTTA-2000	T-137	PE-1W TTC-508	1WTB-2000
		7	0.18	4.60					CW-51	P-138			T-138		
		8	0.17	4.20				CW-51	P-139	T-139					
		9	0.15	3.80				CW-51	P-140	T-140					
		10	0.13	3.40				CW-51	P-141	T-141					
		11	0.12	3.00		1CCWH-764		CW-51	P-142	T-142					
		12	0.11	2.77				CW-51	P-143	T-143					
		13	0.10	2.41				CW-51	P-144	T-144					
		14	0.08	2.11				CW-51	P-145	T-145					
		15	0.07	1.83				CW-51	P-146	T-146					
		16	0.07	1.65				1CCWH-766	CW-51	P-147			T-147		
		17	0.06	1.47		CW-51			P-148	T-148					
		18	0.05	1.24		CW-51			P-149	T-149					
19	0.04	1.07	CW-51	P-150	T-150										
20	0.04	0.89	CW-51	P-151	T-151										
4	101.6	6	0.20	5.20	1WTC-4"	1CCWH-101	CP-30		CW-51	P-107	SWTC-2250	WTTA-2250	T-107	PE-1W TTC-508	1WTB-2000
		7	0.18	4.60				CW-51	P-108	T-108					
		8	0.17	4.20				CW-51	P-109	T-109					
		9	0.15	3.80				CW-51	P-110	T-110					
		10	0.13	3.40				CW-51	P-111	T-111					
		11	0.12	3.00		1CCWH-103		CW-51	P-112	T-112					
		12	0.11	2.77				CW-51	P-113	T-113					
		13	0.10	2.41				CW-51	P-114	T-114					
		14	0.08	2.11				CW-51	P-115	T-115					
		15	0.07	1.83				CW-51	P-116	T-116					
		16	0.07	1.65				1CCWH-105	CW-51	P-117			T-117		
		17	0.06	1.47		CW-51			P-118	T-118					
		18	0.05	1.24		CW-51			P-119	T-119					
19	0.04	1.07	CW-51	P-120	T-120										
20	0.04	0.89	CW-51	P-121	T-121										

PUSH TYPE INTERNAL TUBE CUTTER

ATP Series



SPARE CUTTER BIT

■ 특징

- ATC 시리즈는 콘덴서와 히터의 튜브제거 작업시 튜브시트 내부에서 튜브를 빠르게 절단 할 수 있습니다.
- 휴대용 전기, 에어드릴에 연결하여 사용 할 수 있습니다.
- 작동법이 간단하고 튜브시트의 길이 변화에 따라 컬러를 조정하여 사용 합니다.
- 바이트의 교체가 간편합니다.
- 기본사양 : 4" (101.6mm)
주문사양 : 6"(152.4mm) / 8"(203.2mm) / 10"(254.0mm)
- 튜브커터는 해당 튜브 O.D.에 맞추어 선택하면 두께에 관계없이 사용할 수 있도록 파일롯트와 세트 구성됩니다.

■ FEATURES

- Push type internal tube cutter quickly cuts through the walls of ferrous tubes in condensers and heat exchangers as a step in their removal from the tube sheet.
 - This sturdy push type internal tube cutter can be used with a portable electric or air drill motor.
 - The cutter is simple to operate. Merely insert it into the tube, apply power, press inward and the tube can be cut in a few seconds. Releasing of inward pressure automatically retracts the cutter bit. This cutter is equipped with an adjustable collar suitable for reaching into tubes at various depths.
 - The replaceable cutting bit can be interchanged in a few seconds. **Standard adjustable reach is 4". (101.6mm)** and they are available in optional increments of 2"(50.8mm).
6"(152.4mm) / 8"(203.2mm) / 10"(254.0mm) etc.
- All Tube Cutters come with a complete set of pilots covering the entire range of tube thicknesses for a particular tube O.D.

Tube O.D.		Tube Thickness		Tube Cutter No.	Spare Cutter Bits No.
mm	inch	bwg	mm		
15.88	5/8	14-22	0.711 - 2.108	ATP-625	ATP-625-SB
19.05	3/4	14-22	0.711 - 2.108	ATP-750	ATP-750-SB
22.22	7/8	14-22	0.711 - 2.108	ATP-875	ATP-875-SB
25.40	1	12-22	0.711 - 2.769	ATP-1000	ATP-1000-SB
31.75	1.1/4	12-22	0.711 - 2.769	ATP-1250	ATP-1250-SB
38.10	1.1/2	12-22	0.711 - 2.769	ATP-1500	ATP-1500-SB

◆ Note

비철금속용, 스테인리스용(SUS) 바이트를 선택 할 수 있습니다.

When ordering Spare Cutter Bits, Please specify whether ordering for Non Ferrous, Stainless Tubes.

INTERNAL TUBE CUTTER PR68 Series

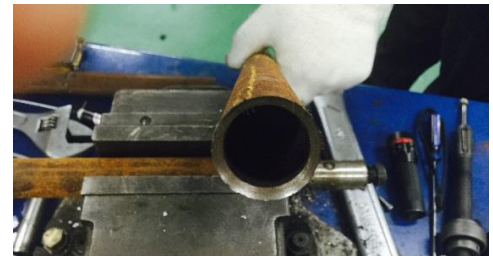


SPARE CUTTER BIT



■ 특징

- PR68 시리즈는 O.D.2" 이상의 보일러튜브를 절단하기에 적합합니다.
- 시계방향으로 회전하는 스퀘어타입의 전기,공압,유압식 동력장치를 연결하여 사용합니다.
- 기본사양 : 4"(101.6mm)
주문사양 : 4"(101.6mm)-16"(400mm)



■ FEATURES

- PR68 tube cutters are ideal for cutting thick walled boiler tubes of 2" O.D. and higher.
- The Internal Tube Cutter PR68 is driven via the square in a clockwise direction using either an electric, pneumatic or hydraulic driving machine.
- PR68 type tube cutters are available in **standard reach of 4"(100mm)**. Additional reaches in increments of 4" are available up to 16" (400mm)

Tube I.D.		Max. Tube O.D.		Body Diameter		Tube Cutter No.	Spare Cutter Bits No.	Drive Square Male	
mm	inch	mm	inch	mm	inch			mm	inch
10-12	0.394-0.472	15	0.591	9.5	0.374	PR-0680951	1680951	12.70	1/2"
11-13	0.433-0.512	18	0.709	10.5	0.413	PR-0681051			
12-14	0.472-0.551	19	0.748	11.5	0.453	PR-0681151	1681151		
13-15	0.519-0.591	20	0.787	12.5	0.492	PR-0681251	1681251		
14-17	0.551-0.669	23	0.906	13.5	0.531	PR-0681351			
16-19	0.630-0.748	25	0.984	15.5	0.610	PR-0681551			
18-21	0.709-0.827	27	1.063	17.5	0.689	PR-0681751			
20-25	0.787-0.984	34	1.339	19.5	0.768	PR-0681951	1681951		
25-30	0.984-1.181	38	1.496	24.5	0.965	PR-0682451	1682451		
30-35	1.181-1.378	43	1.693	29	1.142	PR-0682901	1682901		
35-40	1.378-1.575	48	1.890	33	1.299	PR-0683301			
40-50	1.575-1.969	58	2.126	38	1.496	PR-0683801			
50-60	1.969-2.362	68	2.677	48	1.890	PR-0684801			
55-65	2.165-2.559	73	2.874	53	2.087	PR-0685301	1684801		
65-75	2.559-2.953	83	3.268	63	2.480	PR-0686301			
75-85	2.953-3.346	93	3.661	73	2.874	PR-0687301	1687301		
85-95	3.346-3.740	103	4.055	83	3.268	PR-0688301			
95-105	3.740-4.134	113	4.449	93	3.661	PR-0689301			

ONE REVOLUTION INTERNAL TUBE CUTTER

OTC Series

SPARE
CUTTER BIT

■ 특징

- OTC 시리즈는 얇은 두께의 철과 비철을 한바퀴의 회전으로 컷팅 할 수 있습니다.
- 라쳇 핸들을 사용 하여 회전 할 수 있습니다.
- 기본사양 : 6"(152.4mm)
- 주문사양 : 8"(203.2mm), 10"(254.0mm), 12"(304.8mm)

■ FEATURES

- One Revolution Internal Tube Cutter pierces and cuts off non-ferrous and thin walled ferrous tubes in one revolution.
- This One Revolution Internal Tube Cutter is designed for hand operation using a ratchet handle.
- **Standard adjustable reach is 6"(152.4mm).**
- Special adjustable reach is 8"(203.2mm), 10"(254.0mm), 12"(304.8mm)

Tube O.D.		Tube Gauge bwg	Tube I.D.		Tube Cutter No.	Spare Cutter Bits No.
mm	inch		mm	inch		
15.88	5/8	14	11.4-11.9	0.450-0.470	OTC-625-14	OTC-625-SB
		15-16	12.0-12.9	0.472-0.510	OTC-625-16	
		17-18	12.7-13.5	0.500-0.531	OTC-625-18	
		19-20	13.5-14.2	0.531-0.560	OTC-625-20	
		22	14.0-14.7	0.550-0.580	OTC-625-22	
19.05	3/4	14-15	14.7-15.5	0.580-0.610	OTC-750-14	OTC-750-SB
		16	15.2-16.0	0.600-0.630	OTC-750-16	
		17-18	15.9-16.5	0.625-0.650	OTC-750-18	
		19-20	16.7-17.5	0.660-0.690	OTC-750-20	
22.22	7/8	14-15	17.8-18.5	0.700-0.730	OTC-875-14	OTC-875-SB
		16-17	18.8-19.5	0.740-0.770	OTC-875-16	
		18	19.3-20.0	0.760-0.790	OTC-875-18	
		19-20	19.8-20.6	0.780-0.810	OTC-875-20	
25.40	1	14	20.8-21.6	0.820-0.850	OTC-1000-14	OTC-1000-SB
		15	21.3-22.1	0.840-0.870	OTC-1000-15	
		16-17	21.8-22.6	0.860-0.890	OTC-1000-16	
		18-20	22.6-23.1	0.890-0.910	OTC-1000-18	
		22	23.9-24.6	0.940-0.970	OTC-1000-22	
31.75	1.1/4	12	25.9-26.7	1.020-1.050	OTC-1250-12	OTC-1250-SB
		13-14	26.7-27.4	1.050-1.080	OTC-1250-14	
		15-16	27.9-28.7	1.100-1.130	OTC-1250-16	
		17-19	28.7-29.6	1.130-1.160	OTC-1250-18	
38.10	1.1/2	12-13	32.5-33.3	1.280-1.310	OTC-1500-12	OTC-1500-SB
		14-15	33.8-34.5	1.330-1.360	OTC-1500-14	
		16-17	34.5-35.3	1.360-1.390	OTC-1500-16	
		18-19	35.3-36.1	1.390-1.420	OTC-1500-18	
50.80	2	12-13	45.0-46.0	1.770-1.810	OTC-2000-12	OTC-2000-SB
		14-15	46.2-47.2	1.820-1.860	OTC-2000-14	
		16-17	47.2-48.2	1.860-1.900	OTC-2000-16	
		18-19	48.0-49.0	1.890-1.930	OTC-2000-18	
63.50	2.1/2	12-13	57.6-58.6	2.270-2.310	OTC-2500-12	OTC-2500-SB
		14-15	58.9-60.0	2.320-2.360	OTC-2500-14	
		16-17	60.0-61.0	2.360-2.400	OTC-2500-16	
		18-19	60.7-61.7	2.390-2.430	OTC-2500-18	



Tube Pullers

- Semi-Auto Hydraulic Tube Puller & Hydraulic Pump
- Air-Hydraulic Tube Stub Puller & Air-Hydraulic Pump
- Manual Tube Puller
- Tube Removal Tools
- Pulling Accessories

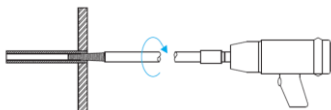
SEMI-AUTO HYDRAULIC TUBE PULLER

JAHP Series

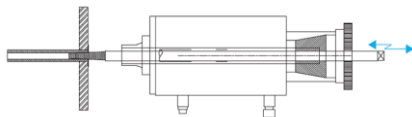


Tube Puller No.	Pulling Capacity	Max. Tube O.D.		Stub Pulling Capacity		Free Pulling Speed (with JTPP-300)	Weight
		mm	inch	mm	inch		
JAHP-15	15ton	25.40	1	38.10	1.1/2	3.3 meter/min	18kg
JAHP-30	30ton	38.10	1.1/2	76.20	3	2 meter/min	25kg
JAHP-45	45ton	76.20	3	101.6	4	1.3 meter/min	51kg

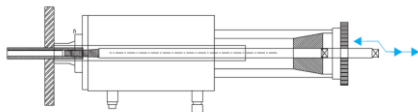
SEQUENCE OF OPERATION



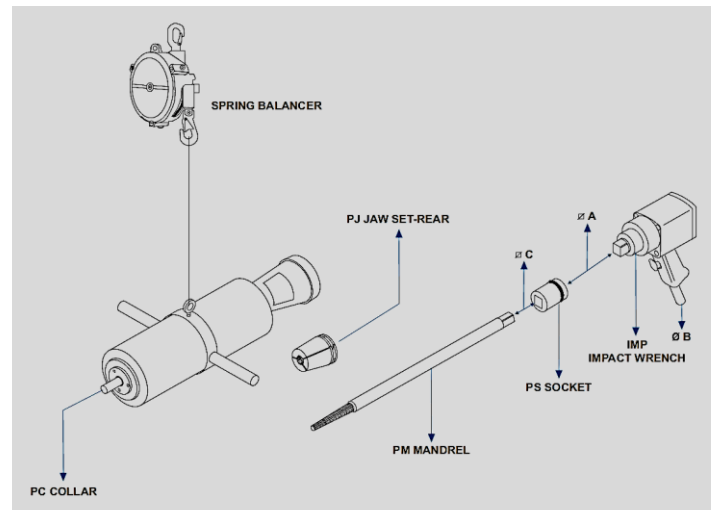
- ① 임팩レンチ로 스피어를 튜브에 고정 시킵니다.
PM mandrel into tube with Impact Wrench.



- ② 고정시킨 스피어에 장비를 장착합니다.
Mount Pulling Gun onto Mandrel.

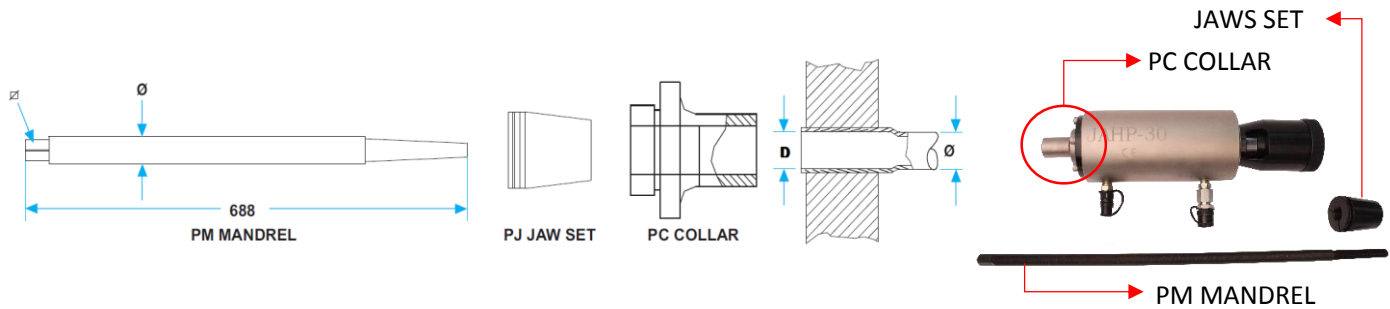


- ③ 전진 버튼을 눌러 전진시킨 후 후진버튼으로 스피어를 당겨 튜브가 발출 될 때 까지 반복합니다.
Start the pump using the start button on the Pendant. Press forward button to pull the tube and release the button for the return stroke. Push the Gun forward by hand till it touches the tube sheet and repeat the pulling / return motion. Continue the operation till the tube is completely out.



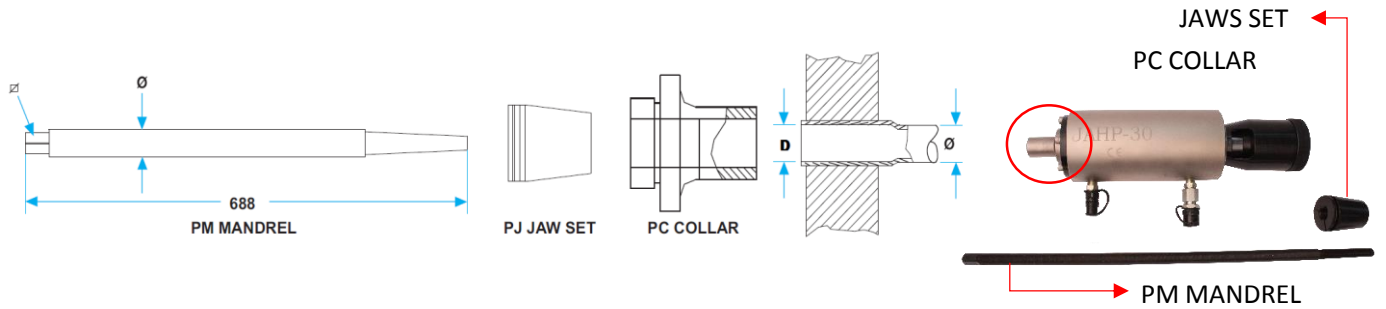
PS SOCKET No.	∅ A		∅ C	
	mm	inch	mm	inch
PS-1	19.05	3/4	9.52	3/8
PS-2	15.24	3/5	12.70	1/2
PS-3	12.69	3/6	15.88	5/8
PS-4	10.88	3/7	19.05	3/4
PS-5	9.52	3/8	25.40	1
PS-6	25.40	1	19.05	3/4
PS-7	25.40	1	25.40	1
PS-8	25.40	1	38.10	1-1/2

Spare Parts for JAHP Series



Tube size O.D. Ø			Tube I.D. after Expansion D		PM Mandrel ⌀		Jaws Set No.			Collar No.		
mm	inch	bwg	mm	inch	Mandrel No.	Square Size	JAHP-15	JAHP-30	JAHP-45	JAHP-15	JAHP-30	JAHP-45
9.52	3/8	17-19	6.5-7.5	0.260-0.295	PM-7	5/16"	PJ-15-1	PJ-30-1	-	PC-15-11	PC-30-11	-
		20-21	7.5-8.5	0.295-0.335	PM-8							
12.70	1/2	14-16	8.5-9.5	0.335-0.375	PM-9	3/8"	PJ-15-2	PJ-30-2		PC-15-15	PC-30-15	
		17-18	9.5-10.5	0.375-0.415	PM-10							
		19-21	10.5-11.5	0.415-0.455	PM-11							
		24	11.5-12.5	0.455-0.495	PM-12							
15.88	5/8	16-17	12.5-13.5	0.495-0.535	PM-13A	1/2"	PJ-15-3	PJ-30-3		PC-15-18	PC-30-18	
		19-21	13.5-14.5	0.535-0.570	PM-14A							
		23-24	14.5-15.5	0.570-0.610	PM-15A							
19.05	3/4	11	12.5-13.5	0.495-0.535	PM-13	5/8"	PJ-15-4	PJ-30-4		PC-15-21	PC-30-21	
		12-13	13.5-14.5	0.535-0.570	PM-14							
		14-15	14.5-15.5	0.570-0.610	PM-15							
		16-17	15.5-16.5	0.610-0.650	PM-16							
		18-20	16.5-17.5	0.650-0.690	PM-17							
		21-24	17.5-18.5	0.690-0.730	PM-18							
22.22	7/8	4	17.5-18.5	0.690-0.730	PM-18S	5/8	PJ-15-4/A	PJ-30-4/A		PC-15-25	PC-30-25	
		16-17	18.5-19.5	0.730-0.770	PM-19S							
		18-19	19.5-20.5	0.770-0.810	PM-20S							
25.40	1	10-11	18.5-19.5	0.730-0.770	PM-19	3/4"	PJ-15-5	PJ-30-5	PJ-45-5	PC-15-28	PC-30-28	PC-45-28
		12	19.5-20.5	0.770-0.810	PM-20							
		13-14	20.5-21.5	0.810-0.845	PM-21							
		15-16	21.5-22.5	0.845-0.885	PM-22							
		18	22.5-23.5	0.885-0.925	PM-23							
		19-20	23.5-24.5	0.925-0.965	PM-24							
26.7	3/4 Schedule pipe	13	21.5-22.5	0.845-0.886	PM-22G	1"	-	PJ-30-6	PJ-45-6	PC-30-31	PC-45-31	
		14-15	22.5-23.5	0.886-0.925	PM-23G							
		16-17	23.5-24.5	0.925-0.965	PM-24G							
		19-21	24.5-25.5	0.965-1.005	PM-25G							
31.75	1.1/4	10	24.5-25.5	0.965-1.005	PM-25			PJ-30-7	PJ-45-7	PC-30-34	PC-45-34	
		11-12	25.5-26.5	1.005-1.045	PM-26							
		13	26.5-27.5	1.045-1.085	PM-27							
		14-15	27.5-28.5	1.085-1.125	PM-28							
		16-18	28.5-29.5	1.125-1.160	PM-29							
		19-22	29.5-30.5	1.160-1.200	PM-30							
33.4	1 Schedule pipe	23-24	30.5-31.5	1.200-1.240	PM-31			PJ-30-8	PJ-45-8	PC-30-37	PC-45-37	
		9	25.5-26.5	1.005-1.045	PM-26G							
		10	26.5-27.5	1.045-1.085	PM-27G							
		11-12	27.5-28.5	1.085-1.125	PM-28G							
38.10	1.1/2	13-14	28.5-29.5	1.125-1.160	PM-29G			PJ-30-9	PJ-45-9	PC-30-41	PC-45-41	
		10-11	31.5-32.5	1.240-1.280	PM-32							
		12-13	32.5-33.5	1.280-1.320	PM-33							
		14	33.5-34.5	1.320-1.360	PM-34							
		15-17	34.5-35.5	1.360-1.400	PM-35							
		18-20	35.5-36.5	1.400-1.440	PM-36							
		21-24	36.5-37.5	1.440-1.475	PM-37							

Spare Parts for JAHP Series



Tube size O.D. Ø			Tube I.D. after Expansion D		PM Mandrel Ø		Jaws Set No.			Collar No.				
mm	inch	bwg	mm	inch	Mandrel No.	Square Size	JAHP-15	JAHP-30	JAHP-45	JAHP-15	JAHP-30	JAHP-45		
42.2	1.1/4 Schedule pipe	12	36.5-37.5	1.440-1.475	PM-37G	2"		PJ-30-10	PJ-45-10		PC-30-44	PC-45-44		
		13-14	37.5-38.5	1.475-1.515	38G									
		15-16	38.5-39.5	1.515-1.555	39G									
		17-19	39.5-40.5	1.555-1.595	40G									
		20-24	40.5-41.5	1.595-1.635	41G									
44.45	1.3/4	10-11	37.5-38.5	1.475-1.515	38/44					PJ-45-11			PC-45-48	
		12	38.5-39.5	1.515-1.555	39/44									
		13-14	39.5-40.5	1.555-1.595	40/44									
		15-16	40.5-41.5	1.595-1.635	41/44									
		18-19	41.5-42.5	1.635-1.675	42/44									
20-24	42.5-43.5	1.675-1.715	43/44											
48.30	1.1/2 Schedule pipe	11-12	42.5-43.5	1.715-1.755	43G				PJ-45-12			PC-45-53		
		13-14	43.5-44.5	1.755-1.795	44G									
		15-17	44.5-45.5	1.795-1.830	45G									
		18-19	45.5-46.5	1.830-1.870	46G									
50.8	2	10	43.5-44.5	1.830-1.870	44/51			PJ-45-13				PC-45-54		
		11-12	44.5-45.5	1.870-1.910	45/51									
		13	45.5-46.5	1.910-1.950	46/51									
		14-15	46.5-47.5	1.950-1.990	47/51									
		16-18	47.5-48.5	1.870-1.910	48/51									
		19-22	48.5-49.5	1.910-1.950	49/51									
57.15	2.1/4	9-10	49.5-50.5	1.950-1.990	50/57	1.1/2"			PJ-45-14			PC-45-60		
		11	50.5-51.5	1.990-2.030	51/57									
		12-13	51.5-52.5	2.030-2.070	52/57				PJ-45-15			PC-45-63		
60.3	2 Schedule pipe	7	50.5-51.5	1.990-2.030	51G									
		8	51.5-52.5	2.030-2.070	52G									
		9	52.5-53.5	2.070-2.105	53G									
63.5	2.1/2	7	53.5-54.5	2.015-2.145	54/63				PJ-45-16			PC-45-66		
		8	54.5-55.5	2.145-2.185	55/63									
		9	55.5-56.5	2.185-2.225	56/63									
		10	56.5-57.5	2.225-2.265	57/63									
76.2	3	7	66.5-67.5	2.580-2.620	67/76				PJ-45-17			PC-45-80		
		8	67.5-68.5	2.620-2.660	68/76									
		9-10	68.5-69.5	2.660-2.695	69/76									
		11	69.5-70.5	2.695-2.735	70/76									

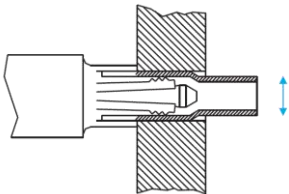
SEMI-AUTO HYDRAULIC TUBE PULLER

CTP Series

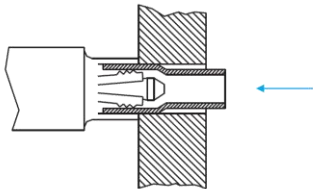


Tube Puller No.	Capacity Tube I.D.		Max. Stroke		Max. Working Pressure	Max. Pulling force	Weight
	mm	inch	mm	inch			
CTP-900	15.88 - 31.75	5/8 - 1.1/4	75	2.95	700bar	13ton	21kg
CTP-1100	31.75 - 50.80	1.1/4 - 2	120	4.72	700bar	31ton	39kg

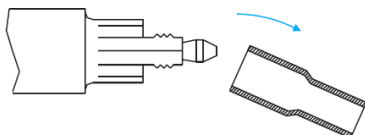
SEQUENCE OF OPERATION



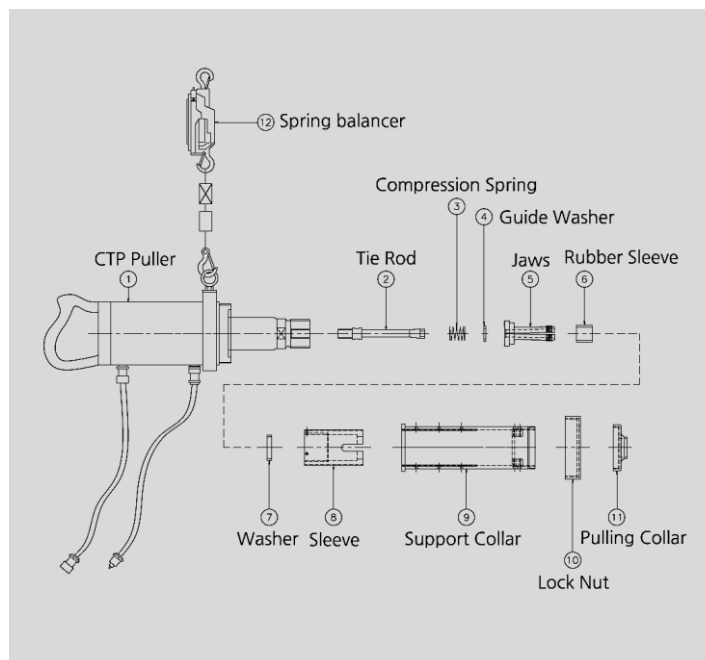
① 튜브안에 조를 삽입합니다.
Opening of jaws inside tube



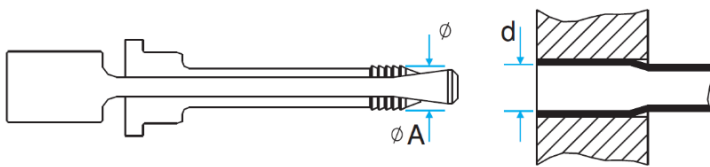
② Tie Rod 가 후진하면 조가 확장되면서 튜브내벽에 고정되어 튜브가 발출됩니다.
Tube Pulling



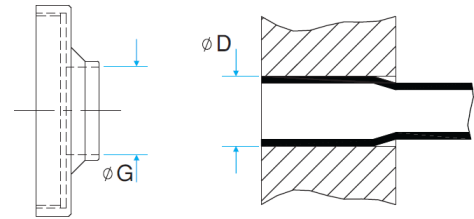
③ 전진하면 발출된 튜브가 제거됩니다.
Removal of pulled tube



Spare Parts for CTP Series



Ød : 확관된 튜브의 내경 / Inside diameter of expanded tube
 ØA : Ød-(0.5 to 1mm)



ØG : ØD+3mm
 Collar의 내경 / Inside diameter of collar
 ØD : 제거 할 튜브의 외경
 / Outside diameter of tube to be pulled

Puller No.	Jaws No.	ØA	
		mm	inch
CTP-900	960/160	16.0	0.630
	960/170	17.0	0.669
	960/180	18.0	0.709
	960/190	19.0	0.748
	960/200	20.0	0.787
	960/210	21.0	0.827
	960/220	22.0	0.866
	960/230	23.0	0.906
	960/240	24.0	0.945
	960/250	25.0	0.984
	960/260	26.0	1.024
	960/270	27.0	1.063
	960/280	28.0	1.102
	960/290	29.0	1.142
	960/300	30.0	1.181
	960/310	31.0	1.181
	960/320	32.0	1.181
CTP-1100	1160/310	31.0	1.220
	1160/320	32.0	1.260
	1160/330	33.0	1.299
	1160/340	34.0	1.339
	1160/350	35.0	1.378
	1160/360	36.0	1.417
	1160/370	37.0	1.457
	1160/380	38.0	1.496
	1160/390	39.0	1.535
	1160/400	40.0	1.575
	1160/410	41.0	1.614
	1160/420	42.0	1.654
	1160/430	43.0	1.693
	1160/440	44.0	1.732
	1160/450	45.0	1.772
	1160/460	46.0	1.811
	1160/470	47.0	1.850
	1160/480	48.0	1.890
	1160/490	49.0	1.929
	1160/500	50.0	1.969

Puller No.	Pulling Collar No.	Tube O.D.		Collar I.D.	
		mm	inch	mm	inch
CTP-900	PC-950/190	15.88	5/8	19.0	0.748
	PC-950/220	19.05	3/4	22.0	0.866
	PC-950/250	22.22	7/8	25.0	0.984
	PC-950/290	25.40	1	29.0	1.142
	PC-950/320	28.57	1-1/8	32.0	1.260
	PC-950/350	31.75	1-1/4	35.0	1.378
	PC-950/370	34.92	1-3/8	38.0	1.496
	410	38.10	1-1/2	41.0	1.614
CTP-1100	440	41.27	1-5/8	44.0	1.732
	480	44.45	1-3/4	48.0	1.890
	510	47.62	1-7/8	51.0	2.001
	540	50.80	2	54.0	2.126
	570	53.97	2-1/8	57.0	2.244



Puller No.	Tie Rod No.	Support Collar No.	Sleeve No.
CTP-900	970/55	SC-980	S-990
	970/60		
	970/80		
	970/120		
	970/160		
CTP-1100	1170/220	SC-1180	S-1190
	1170/270		
	1170/320		
	1170/370		

HYDRAULIC PUMP JTPP-700



▶ 디지털, 아날로그 압력게이지 선택
Digital or Analog Pressure gauges



▶ 완벽하게 밀폐된 솔리드 스테이트 컨트롤박스
Enclosed fully solid state electronics.



▶ 고온의 오일 냉각을 위한 에어쿨러
Air oil cooler for higher degree of oil cooling.



▶ 고정밀도 압력설정밸브
Highly Precise pressure setting valves.

Main Voltage		Solenoid Voltage	Main Consumption	Motor Capacity
220V 60Hz 200V 50Hz		DC 24V	7.2A	1.1kW
Nominal Pressure		Tank Volume	Usable Volume	Oil Type
20-700bar		6liter	3liter	ISO VG 68
Flow Rate		Ambient Temperature	Max. Oil Temperature	Weight
1st stage	2st stage			
9.7lpm (70bar)	1lpm (700bar)	45 deg	60 deg	38kg (Without Oil)

Application of equipment



Torque Wrench



Tube Puller



Hydraulic Pump JTPP-300

Volts /Phase	Power	Oil Tank Capacity
DC 220V / 1Ph.	3hp	10 liter
Hyd.Hoses SizeXLength	Dimensions (WxLxH)	Weight
1/4"x5 Twin Jack Hose	610x370x680mm	68kg

AIR-HYDRAULIC TUBE STUB PULLER

JSP Series



	Extraction Load	Recommended Tube Size	Overall Dimension (LxØ)	Stroke	Pulling Speed	Weight
JSP-4	4 ton	Up to O.D.19.05mm(3/4")	550xØ65.0mm	150mm	15 Sec/stroke	9kg
JSP-9	9 ton	Up to O.D.31.75mm(1.1/4")	550xØ104.0mm	150mm	30 Sec/stroke	18.5kg

Air-Hydraulic Pump

JTPP-1008



Hose Length	Hose I.D.	Air Inlet Port
6ft.	1/4"	1/2"BSP
Air Pressure	Hydraulic Port	Hydraulic Oil
7bar	3/8"NPT	VG /ISO 68 Grade
Hydraulic Pressure	Dimension (LxWXH)	Weight
700bar	264x135x205mm	6.6kg (Without Oil)

■ 특징

- 풋 스위치를 이용하여 제어 할 수 있어 효율적입니다.
- 경량화 되어 휴대가 간편하고 협소한 환경에서 작업 할 수 있습니다.
- 빠르고 쉽게 튜브를 발출 할 수 있습니다.
- 폭발 위험이 있는 환경에서도 안전하게 사용 할 수 있습니다.

■ Features

- Improved productivity and better operator control through foot switch.
- Extremely compact, durable, lightweight and portable package-useful in confined areas.
- Makes pulling tubes faster and easier.
- Safe. Totally air operated for use in explosive environments.

Spare Parts for JSP Series



SUPPORT COLLAR



SPEAR LOCK ADAPTER



HORSE SHOE LOCK



SINGLE PULL ADAPTER

Model No.	Suitable for	Model No.	Suitable for	Model No.	Suitable for	Model No.	Suitable for
JSP-1014a	JSP-4	JSP-1015a	JSP-4	JSP-1016a	JSP-4	JSP-1017a	JSP-4
JSP-1014b	JSP-9	JSP-1015b	JSP-9	JSP-1016b	JSP-9	JSP-1017b	JSP-9

TUBE SPEARS



Tube Spear No.	Tube O.D.		Tube thk.		Tube Spear No.	Tube O.D.		Tube thk.	
	mm	inch	bwg	mm		mm	inch	bwg	mm
SS-0916	9.52	3/8	16-17	1.47-1.65	SS-2212	22.22	7/8	12-13	2.41-2.76
SS-0918			18-19	1.06-1.24	SS-2214			14-15	1.82-2.10
SS-0920			20-21	0.81-0.88	SS-2216			16-17	1.47-1.65
SS-0922			22-23	0.63-0.71	SS-2218			18-19	1.06-1.24
SS-1214	12.70	1/2	14-15	1.82-2.10	SS-2220	25.40	1	20-21	0.81-0.88
SS-1216			16-17	1.47-1.65	SS-2509			9-10	3.40-3.75
SS-1218			18-19	1.06-1.24	SS-2510			10-11	3.04-3.40
SS-1220			20-21	0.81-0.88	SS-2512			12-13	2.41-2.76
SS-1222	15.88	5/8	22-23	0.63-0.71	SS-2514			14-15	1.82-2.10
SS-1512			12-13	2.41-2.76	SS-2516			16-17	1.47-1.65
SS-1514			14-15	1.82-2.10	SS-2518			18-19	1.06-1.24
SS-1516			16-17	1.47-1.65	SS-2520			20-21	0.81-0.88
SS-1518	19.05	3/4	18-19	1.06-1.24	SS-3112	31.75	1.1/4	12-13	2.41-2.76
SS-1520			20-21	0.81-0.88	SS-3114			14-15	1.82-2.10
SS-1911			11-12	2.76-3.04	SS-3116			16-17	1.47-1.65
SS-1912			12-13	2.41-2.76	SS-3118			18-19	1.06-1.24
SS-1914	19.05	3/4	14-15	1.82-2.10	SS-3120			20-21	0.81-0.88
SS-1916			16-17	1.47-1.65					
SS-1918			18-19	1.06-1.24					
SS-1920			20-21	0.81-0.88					

MANUAL TUBE PULLER

MTP Series



■ 특징

- 전원 공급이 필요 없는 수동방식 풀러 입니다.
- 컬러와 스피어를 교환하여 다양한 범위에 사용 할 수 있다.
- 육각형태로 디자인 되어 스패너, 라쳇핸들 과 같은 공구를 사용하면 수동으로 작동 하기 쉽습니다.
- 다양한 튜브사이즈에 적용 할 수 있도록 스피어가 구성되어 있습니다.

■ Features

- No power needed : Manual insertion and removal of tube with a hand wrench. Ideal for field service applications.
- Ease of use : Hex at back of spear allows tightening without disassembly of thrust mechanism.
- Range of Sizes : A wide range of sizes allows use on popular tube size.

Tube Size							Tube Puller No.	Tube Spear No.
O.D.		bwg	Wall Thickness		I.D.			
mm	inch		mm	inch	mm	inch		
6.35	1/4	18	1.24	0.049	3.86	0.152	MTP-25-18	MPS-25-18
9.52	3/8	16	1.65	0.065	6.22	0.245	MTP-38-16	MPS-38-16
		18	1.24	0.049	7.04	0.277	MTP-38-18	MPS-38-18
		20	0.88	0.035	7.75	0.305	MTP-38-20	MPS-38-20
12.70	1/2	14	2.11	0.083	8.48	0.334	MTP-50-14	MPS-50-14
		16	1.65	0.065	9.47	0.370	MTP-50-16	MPS-50-16
		18	1.24	0.049	10.21	0.402	MTP-50-18	MPS-50-18
		20	0.88	0.035	10.92	0.430	MTP-50-20	MPS-50-20
15.88	5/8	14	2.10	0.083	11.66	0.459	MTP-63-14	MPS-63-14
		16	1.65	0.065	12.57	0.495	MTP-63-16	MPS-63-16
		18	1.24	0.049	13.39	0.527	MTP-63-18	MPS-63-18
		20	0.88	0.035	14.10	0.555	MTP-63-20	MPS-63-20
19.05	3/4	14	2.10	0.083	14.86	0.585	MTP-75-14	MPS-75-14
		16	1.65	0.065	15.75	0.620	MTP-75-16	MPS-75-16
		18	1.24	0.049	16.56	0.652	MTP-75-18	MPS-75-18
		20	0.88	0.035	17.27	0.680	MTP-75-20	MPS-75-20
22.22	7/8	14	2.10	0.083	18.01	0.709	MTP-87-14	MPS-87-14
		16	1.65	0.065	18.92	0.745	MTP-87-16	MPS-87-16
		18	1.24	0.049	19.74	0.777	MTP-87-18	MPS-87-18
		20	0.88	0.035	20.45	0.805	MTP-87-20	MPS-87-20
25.40	1	14	2.10	0.083	21.18	0.834	MTP-100-14	MPS-100-14
		16	1.65	0.065	22.10	0.870	MTP-100-16	MPS-100-16
		18	1.24	0.049	22.91	0.902	MTP-100-18	MPS-100-18
		20	0.88	0.035	23.62	0.930	MTP-100-20	MPS-100-20

Tube Wall Reducer

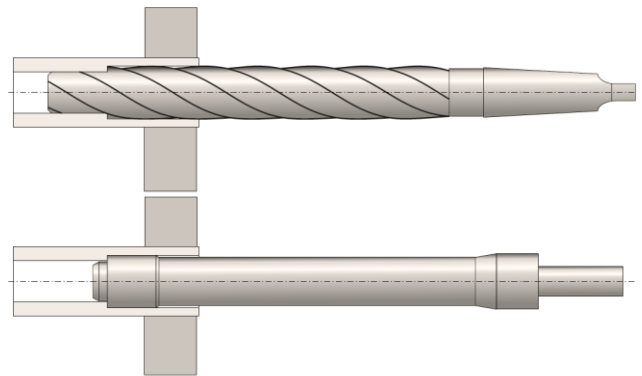


■ 특징

- 튜브시트에서 튜브를 제거하는 단계에서 튜브의 두께가 두꺼워 제거가 힘들때 리듀서로 튜브의 내경을 가공하여 튜브두께를 가공하여 얇게 만들 수 있습니다.
- 주문시 모델번호 < WR - Tool No. - 튜브게이지No. >
예) O.D.19.05(3/4")x16G 일때 모델번호는 "WR-750-16"
- 튜브시트 두께 127mm (5") 까지 적용 가능합니다.

■ Features

- Used to 'thin' the walls of heavy gauge tubes as a step in their removal from tube sheet.
- Suffix model number with tube gauge when ordering.
Example for 3/4"O.D.16G, model number will be WR-750-16.
- Wall reducers are suited for tube sheets up to 5" thick. Longer reaches are available.



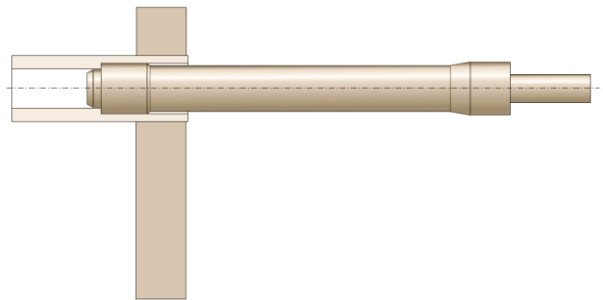
Tool No.	Tube O.D.		MT Shafk #
	mm	inch	
WR-375	9.52	3/8	1
WR-500	12.70	1/2	2
WR-625	15.88	5/8	2
WR-750	19.05	3/4	2
WR-875	22.22	7/8	2
WR-1000	25.40	1	3
WR-1250	31.75	1.1/4	3
WR-1500	38.10	1.1/2	3
WR-1750	44.45	1.3/4	3
WR-2000	50.80	2	3
WR-2500	63.50	2.1/2	4
WR-2750	69.85	2.3/4	4
WR-3000	76.20	3	4
WR-3250	82.55	3.1/4	4
WR-3500	88.90	3.1/2	4
WR-4000	101.6	4	4

Knockout Tool (Tube Drift)



■ 특징

- 튜브시트에서 튜브를 제거하는 단계에서 공압식 치핑 햄머에 연결하여 두드려 사용합니다.
- 기본Shank 1-6 에서 사용할 수 있습니다.
15shank 는 주문사양입니다.
- 주문시 모델번호 <KT - Tool No. - 튜브게이지No. - Shank No.>
예) O.D.19.05(3/4")x16Gx16shank 일때 모델번호는 "KT-750-16-6"
- 기본 길이는 152mm (6") 입니다. 6" 이상은 스페셜 제작됩니다.



■ Features

- Used with pneumatic chipping hammer to knock out tubes / tube stubs from tube sheet.
- Available in 01 and 06 shanks as standard. 15 (Jumbo) shank available on request.
- Suffix model number with tube gauge and shank when ordering. Examl for 3/4" O.D. 16G, 06 shank, model number will be KT-750-16-06.
- Standard reach is 6". Longer reaches are available.

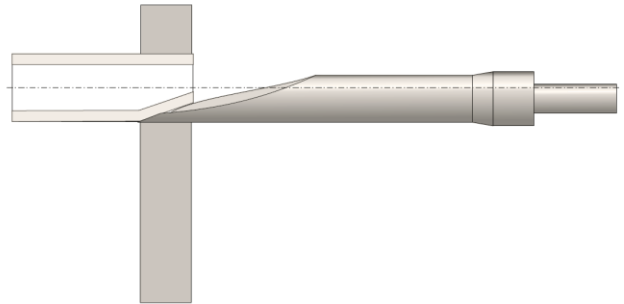
Tool No.	Tube O.D.	
	mm	inch
KT-375	9.52	3/8
KT-500	12.70	1/2
KT-625	15.88	5/8
KT-750	19.05	3/4
KT-875	22.22	7/8
KT-1000	25.40	1
KT-1250	31.75	1.1/4
KT-1500	38.10	1.1/2
KT-1750	44.45	1.3/4
KT-2000	50.80	2
KT-2500	63.50	2.1/2
KT-2750	69.85	2.3/4
KT-3000	76.20	3
KT-3250	82.55	3.1/4
KT-3500	88.90	3.1/2
KT-4000	101.6	4

Collapsing Tool



■ 특징

- 튜브시트에서 튜브를 제거하는 단계에서 튜브를 접어 축소시키며 치핑햄머에 연결하여 사용합니다.
- 16G (1.47mm) 정도의 얇은 튜브에 사용하는것이 적합합니다.
- 기본 1,6 Shank 에 사용 할 수 있습니다.
- 주문시 모델번호 < KT - Tool No. - 튜브게이지No.-Shank No.>
예) O.D.19.05(3/4")x16Gx Shank6 일때 모델번호는 "KT-750-16-6"



■ Features

- Used to collapse tube and drive out collapsed tube from tube sheet with a chipping hammer.
- Recommended for use on 16G and thinner tubes.
- Available on 01 and 06 shanks as standard.
- Suffix model number with shank number when ordering. Example for 3/4" O.D. 16G, 06 shank, model number will be CT-750-06.

Tool No.	Tube O.D.	
	mm	inch
CT-375	9.52	3/8
CT-500	12.70	1/2
CT-625	15.88	5/8
CT-750	19.05	3/4
CT-875	22.22	7/8
CT-1000	25.40	1
CT-1250	31.75	1.1/4
CT-1500	38.10	1.1/2
CT-1750	44.45	1.3/4
CT-2000	50.80	2
CT-2500	63.50	2.1/2

Chipping Hammer CH-1



튜브 제거 작업시 Collapsing tool 과 Knockout Tool(Drift) 를
 햄머에 연결하여 사용하면 빠르고 안전하게 작업 할 수 있습니다.

Able to fast and safty operation while use
 the Collapsing tool and Knockout tool(Drift) connect
 with Hammer as the tube removal.

Blows/min	Bore	Stroke	Weight
1600	1.1/8" (82.5mm)	3.1/4" (82.5mm)	7kg

Knockout Tool (Drift)



※ H-11쪽 참조

Refer to Page H-11.

Collapsing tool



※ H-12쪽 참조

Refer to Page H-12.

EXAMPLE TOOL APLICATION



Pulling Accessories

TUBE SPEARS



Tube Spear No.	Tube O.D.		Tube thk.	
	mm	inch	bwg	mm
S-0916	9.52	3/8	16-17	1.47-1.65
S-0918			18-19	1.06-1.24
S-0920			20-21	0.81-0.88
S-0922			22-24	0.55-0.71
S-1212	15.88	5/8	12-13	2.41-2.76
S-1214			14-15	1.82-2.10
S-1216			16-17	1.47-1.65
S-1218			18-19	1.06-1.24
S-1220			20-21	0.81-0.88
S-1911	19.05	3/4	11-13	2.41-3.04
S-1914			14-15	1.82-2.10
S-1916			16-17	1.47-1.65
S-1918			18-19	1.06-1.24
S-1920			20-21	0.81-0.88
S-2212	22.22	7/8	12-13	2.41-2.76
S-2214			14-15	1.82-2.10
S-2216			16-17	1.47-1.65
S-2218			18-19	1.06-1.24
S-2220			20-21	0.81-0.88
S-2509	25.4	1	9	3.75
S-2510			10-11	3.04-3.40
S-2512			12-13	2.41-2.76
S-2514			14-15	1.82-2.10
S-2516			16-17	1.47-1.65
S-2518			18-19	1.06-1.24
S-2520			20-21	0.81-0.88
S-3112	31.75	1.1/4	12-13	2.41-2.76
S-3114			14-15	1.82-2.10
S-3116			16-17	1.47-1.65
S-3318			18-19	1.06-1.24
S-3120	31.75	1.1/4	20-21	0.81-0.88
S-3814			14-16	1.65-2.10
S-3817	38.1	1.1/2	17-20	0.88-1.47
S-4414	44.45	1.3/4	14-18	1.24-2.10
S-5014	50.8	2	14-18	1.24-2.10
S-5714	63.5	2.1/2	14-18	1.24-2.10
S-7610	76.2	3	10-14	2.10-3.40

3055-3 SINGLE PULL ADAPTOR



3055-6 DOUBLE PULL ADAPTOR



3055-5 MALE X MALE EXTENSION



3055-10 MALE X FEMALE EXTENSION



EXTENSION CHAIRS



Model No.	Tube O.D.	
	mm	inch
80-3055-7	31.75 - 38.10	1.1/4 - 1.1/2
80-36307	44.45	1.3/4
80-36308	50.8 - 57.15	2 - 2.1/4
80-36309	63.5	2.1/2
80-36310	69.85 - 76.20	2.3/4 - 3

3055-4 HORSE SHOE LOCK



