



Tube Expander

확관기 • 튜브커터 • 그루빙 툴

The following reference showing the appropriate JEWOO Expander type is provided as a quick, easy guide. The correct selection for application and correct use are essential to gain these advantages which JEWOO Expanders provide.



AS-MB Type expander

Tube ID 5.4mm (7/32 in) to 10mm (3/8 in)
Roller length of 25mm (1 in)



AS-CB Type expander

Tube ID 9mm (3/8 in) to 92mm (3-1/8 in)
Standard Roller length of 38mm (1-1/2 in), 57mm (2-1/4 in) and 76mm (3 in)



AS-HB Type expander

Tube ID 9mm (3/8 in) to 92mm (3-5/8 in)
Roller length of 38mm (1-1/2 in), 57mm (2-1/4 in) and 76mm (3 in)
For tube sheets of more than 75mm (3 in) thickness and double tube sheets.



AS-BK Type expander

Tube ID 20mm (13/16 in) to 106mm (4-3/16 in) Mandrels - drum, header, and short.
Parallel expanding rollers and flaring rollers.



Five-Roller expander

Designed for smooth and accurate expansion of thin walled tubes, such as titanium tubes.

Grooving Tool, ETC

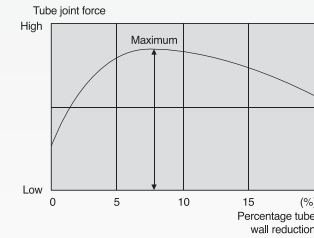


Determining Proper Amount of Tube Expansion.

Percentage reduction of tube wall thickness is generally taken as the guide to the correct amount of expansion to obtain maximum seal between tube and tube sheet, but as the percentage tube wall reduction depends on the diameter of the tube sheet hole, tube O.D, tube wall thickness, and materials of the tube sheet and tube it is a variable factor. In general terms the percentage tube wall reduction will be in the range of 5 to 10%.

The following table illustrates the varying percentage tube wall reduction according to different materials of the tube sheet and tube

Tube sheet material	Tube material	Percentage tube wall reduction
steel	steel	7%
steel	copper	5%
copper	copper	10%



Percentage Reduction of Tube wall Thickness.

$$Wt = \frac{(D - d_0) - (H - d_1)}{(D - d_0)} \times 100$$

$$d_1 = H - (D - d_0) \times (1 - Wt / 100)$$

Wt = percentage Reduction of Tube Wall Thickness(%)

H = Tube Sheet Hole Dia (m.m)

D = Tube O.D (m.m)

d₀ = Tube I.D (m.m)

d₁ = Tube I.D After Expanding(m.m)

Percentage Increased of Tube inside Diameter.

$$Wd = \frac{d_1 - (d_0 + C)}{(d_0 + C)} \times 100$$

$$d_1 = (d_0 + C) \times (1 + Wd / 100)$$

Wd = percentage Increased of Tube I.D(%)

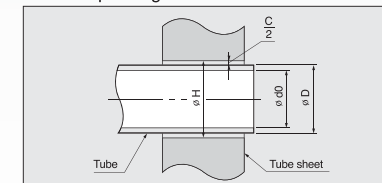
d₀ = Tube I.D (m.m)

d₁ = Tube I.D After Expanding(m.m)

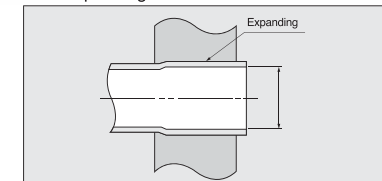
C = Clearance Between the Tube O.D and the Tube Sheet Dia(m.m)

$$(C = H - D)$$

Before Expanding

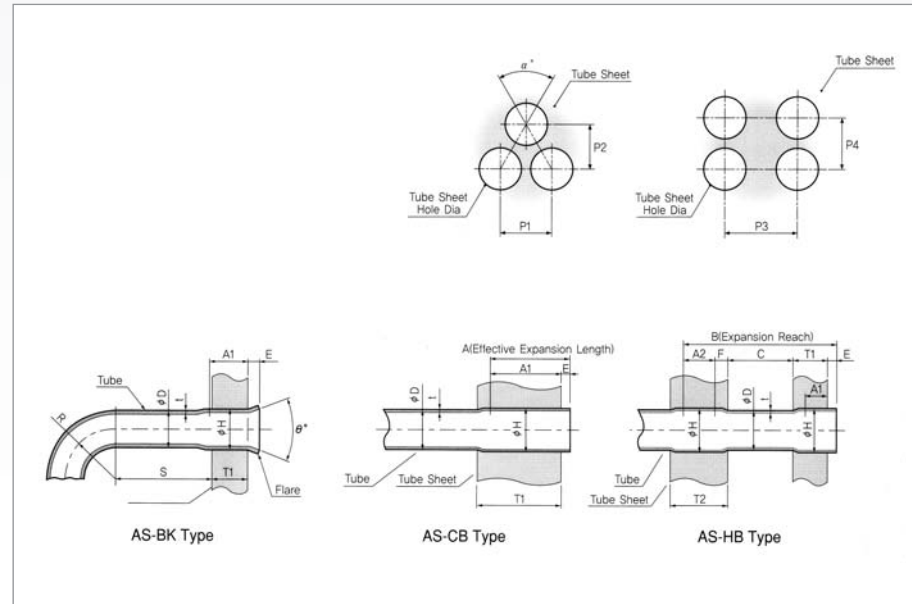


After Expanding

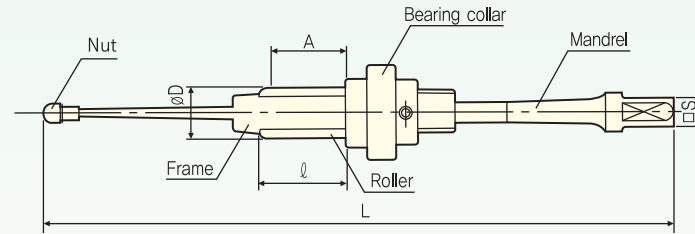


When ordering please supply the following information.

1. Tube O.D (ϕD), Tube Thickness(t).
Tube Thickness Tolerance and Tube Material.
2. Tube Sheet Material, and Thickness(T1,T2)
3. Hole Dis of Tube Sheet.(ϕH)
4. Tube Sheet Hole Pitch (P1,P2,P3,P4)
5. Effective Expansion Length.(A1,A2)
6. Yube Projection. (E)
7. Expansion Reach. (B)
8. When Requiring Flare Expansion, Flare Angle
9. Length of Straight Tube part(S)
10. Curve Radius of Bent Tube part(R)
11. Type of Expander.(AS-CB,AS-HB Type.....etc)

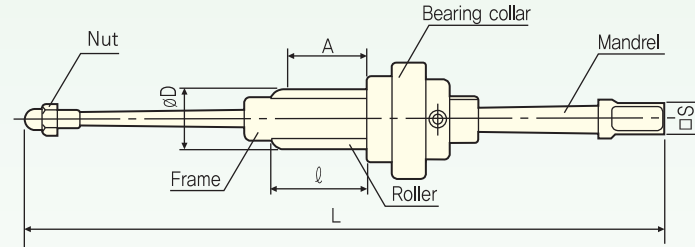


AS-MB-Type



Tool No.	Expansion Range D		Effective Roller Length A		Mandrel		
	Min. mm(in.)	Max. mm(in.)	$l = 25\text{mm}(1")$		No.	Shank Square S mm(in.)	Length L mm(in.)
Min. mm(in.)			Max. mm(in.)				
AS-MB-11	5,4(0,213)	6,4(0,252)	13(0,512)	22(0,866)	AM-1	6,3(1/4)	129(5)
AS-MB-12	5,8(0,228)	6,8(0,268)					
AS-MB-13	6,2(0,244)	7,2(0,283)					
AS-MB-14	6,6(0,260)	7,7(0,303)	13(0,512)	22(0,866)	AM-2	6,3(1/4)	129(5)
AS-MB-15	7,0(0,276)	8,1(0,319)					
AS-MB-16	7,4(0,291)	8,5(0,335)					
AS-MB-17	7,8(0,307)	9,0(0,354)	13(0,512)	22(0,866)	AM-3	6,3(1/4)	129(5)
AS-MB-18	8,2(0,323)	9,4(0,370)					
AS-MB-19	8,6(0,339)	9,8(0,386)					
AS-MB-20	9,0(0,354)	10,2(0,402)					

AS-CB-Type



Tool No.			Expansion Range D				Mandrel		
Roller Length ℓ			Min. mm(in.)	Max			No.	Shank Square S mm(in.)	Length L mm(in.)
38mm (1-1/2')	57mm (2-1/4')	76mm (3')		Roller Length					
				38mm(1-1/2') mm(in.)	57mm(2-1/4') mm(in.)	76mm(3') mm(in.)			
CB-101	-	-	9,2(0,362)	10,9(0,429)	-	-	AC-1		
CB-103	-	-	10,0(0,394)	11,7(0,461)	-	-	AC-2	9,5(3/8)	
CB-105	-	-	10,8(0,425)	12,5(0,492)	-	-			
CB-107	CB-207	-	11,6(0,457)	13,5(0,531)	13,2(0,520)	-			
CB-109	CB-209	-	12,4(0,488)	14,3(0,563)	14,0(0,551)	-	AC-4	9,5(3/8)	
CB-111	CB-211	-	13,2(0,520)	15,1(0,594)	14,8(0,583)	-	AC-6	9,5(3/8)	
CB-113	CB-213	CB-313	14,0(0,551)	16,2(0,638)	15,8(0,622)	15,4(0,606)			
CB-115	CB-215	CB-315	14,8(0,583)	17,0(0,669)	16,6(0,654)	16,2(0,638)			
CB-117	CB-217	CB-317	15,6(0,614)	17,8(0,701)	17,4(0,685)	17,0(0,669)	AC-8	9,5(3/8)	
CB-119	CB-219	CB-319	16,4(0,646)	18,9(0,744)	18,4(0,724)	18,0(0,709)			
CB-121	CB-221	CB-321	17,1(0,673)	19,7(0,776)	19,2(0,756)	18,8(0,740)			
CB-123	CB-223	CB-323	17,9(0,705)	20,5(0,807)	20,0(0,787)	19,6(0,771)	AC-10	9,5(3/8)	
CB-125	CB-225	CB-325	18,7(0,736)	21,5(0,846)	21,1(0,831)	20,6(0,811)			
CB-127	CB-227	CB-327	19,5(0,768)	22,3(0,878)	21,9(0,862)	21,4(0,843)			
CB-129	CB-229	CB-329	20,3(0,799)	23,1(0,909)	22,6(0,890)	22,1(0,870)	AC-11	12,7(1/2)	
CB-131	CB-231	CB-331	21,3(0,831)	23,9(0,941)	23,4(0,921)	22,9(0,902)			
CB-132	CB-232	CB-332	21,5(0,846)	25,0(0,984)	24,4(0,961)	23,8(0,937)			
CB-134	CB-234	CB-334	22,3(0,878)	25,8(1,016)	25,2(0,992)	24,6(0,969)	AC-11	12,7(1/2)	
CB-136	CB-236	CB-336	23,1(0,909)	26,5(1,043)	26,0(1,024)	25,4(1)			
CB-138	CB-238	CB-338	23,9(0,941)	27,3(1,075)	26,8(1,055)	26,2(1,031)			
CB-140	CB-240	CB-340	24,7(0,972)	28,1(1,106)	27,6(1,087)	27,0(1,063)			

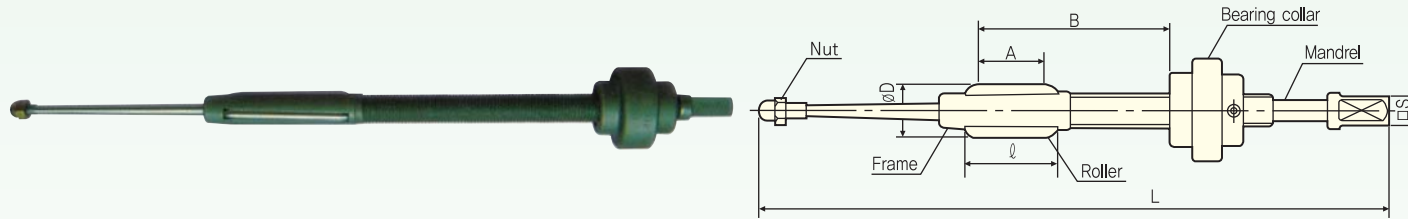
Tool No.			Expansion Range D				Mandrel		
Roller Length \varnothing			Min. mm(in.)	Max			No.	Shank Square S mm(in.)	Length L mm(in.)
38mm (1-1/2")	57mm (2-1/4")	76mm (3")		Roller Length					
				38mm(1-1/2") mm(in.)	57mm(2-1/4") mm(in.)	76mm(3") mm(in.)			
CB-142	CB-242	CB-342	25,5(1,004)	29,5(1,161)	28,8(1,134)	28,2(1,110)	AC-12	12,7(1/2)	236(9,3)
CB-144	CB-244	CB-344	26,3(1,035)	30,3(1,193)	29,6(1,165)	29,0(1,142)			
CB-146	CB-246	CB-346	27,1(1,067)	31,1(1,224)	30,4(1,197)	29,8(1,173)			
CB-148	CB-248	CB-348	27,9(1,098)	31,9(1,256)	31,2(1,229)	30,6(1,205)			
CB-150	CB-250	CB-350	28,7(1,130)	32,7(1,287)	32,0(1,260)	31,4(1,236)			
CB-152	CB-252	CB-352	29,5(1,161)	34,1(1,343)	33,3(1,311)	32,6(1,283)			
CB-154	CB-254	CB-354	30,3(1,193)	34,9(1,374)	34,1(1,343)	33,4(1,315)	AC-13	12,7(1/2)	241(9,5)
CB-156	CB-256	CB-356	31,1(1,224)	35,7(1,406)	34,9(1,374)	34,2(1,346)			
CB-158	CB-258	CB-358	31,9(1,256)	36,5(1,437)	35,7(1,406)	35,0(1,378)			
CB-160	CB-260	CB-360	32,6(1,283)	37,2(1,465)	36,5(1,437)	35,7(1,406)			
CB-162	CB-262	CB-362	33,4(1,315)	38,0(1,496)	37,3(1,469)	36,5(1,437)			
-	CB-264	CB-364	35,1(1,382)	-	39,7(1,563)	38,9(1,531)			
-	CB-266	CB-366	36,6(1,441)	-	41,3(1,626)	40,5(1,594)			
-	CB-268	CB-368	38,2(1,504)	-	42,9(1,689)	42,1(1,657)			
-	CB-270	CB-370	40,7(1,602)	-	46,1(1,815)	45,3(1,783)	AC-15	19,0(3/4)	293(11,5)
-	CB-272	CB-372	43,9(1,728)	-	49,2(1,937)	48,4(1,906)			
-	CB-274	CB-374	47,0(1,850)	-	52,4(2,063)	51,6(2,031)			
-	CB-276	CB-376	49,5(1,949)	-	55,6(2,189)	54,8(2,157)	AC-16	19,0(3/4)	312(12,3)
-	CB-278	CB-378	52,7(2,075)	-	58,8(2,315)	58,0(2,283)			
-	CB-280	CB-380	55,9(2,201)	-	61,9(2,437)	61,1(2,406)			
-	CB-282	CB-382	58,2(2,291)	-	65,1(2,563)	64,3(2,531)	AC-17	19,0(3/4)	331(13,0)
-	CB-284	CB-384	61,4(2,417)	-	68,3(2,689)	67,5(2,657)			
-	CB-286	CB-386	64,6(2,543)	-	71,5(2,815)	70,7(2,783)			
-	CB-288	CB-388	67,1(2,642)	-	75,4(2,969)	74,5(2,933)	AC-18	25,4(1)	375(14,8)
-	CB-290	CB-390	70,3(2,768)	-	78,6(3,094)	77,7(3,059)			
-	CB-292	CB-392	73,5(2,894)	-	81,8(3,220)	80,9(3,185)			
-	CB-294	CB-394	76,6(3,016)	-	84,9(3,343)	84,0(3,307)	AC-19	25,4(1)	375(14,8)
-	CB-296	CB-396	79,8(3,142)	-	88,1(3,469)	87,3(3,437)			
-	CB-298	CB-398	84,6(3,331)	-	94,5(3,720)	93,7(3,689)			
-	CB-300	CB-400	90,9(3,579)	-	100,8(3,969)	100,0(3,937)	AC-20	25,4(1)	413(16,3)



■ Five Roller Expander

- Recommended for quick, smooth and accurate expansion for stainless steel, titanium and inconel tubes.
- Designed for tube materials that work harden quickly.
- More contact area reduces the spring back effect, especially thinner tube walls (18BWG and thinner).
- Please add the suffix "5" to the end of the part Number, when ordering.

AS-HB-Type



Tool No.			Expansion Range D				Mandrel		
Roller Length ℓ			Min. mm(in.)	Max			No.	Shank Square S mm(in.)	Length L mm(in.)
38mm (1-1/2')	57mm (2-1/4')	76mm (3')		Roller Length					
				38mm(1-1/2') mm(in.)	57mm(2-1/4') mm(in.)	76mm(3') mm(in.)			
HB-101	-	-	9,2(0,362)	10,9(0,429)	-	-	AH-1		
HB-103	-	-	10,0(0,394)	11,7(0,461)	-	-	AH-2	9,5(3/8)	
HB-105	-	-	10,8(0,425)	12,5(0,492)	-	-			
HB-107	HB-207	-	11,6(0,457)	13,5(0,531)	13,2(0,520)	-	AH-4	9,5(3/8)	
HB-109	HB-209	-	12,4(0,488)	14,3(0,563)	14,0(0,551)	-			
HB-111	HB-211	-	13,2(0,520)	15,1(0,594)	14,8(0,583)	-			
HB-113	HB-213	HB-313	14,0(0,551)	16,2(0,638)	15,8(0,622)	15,4(0,606)	AH-6	9,5(3/8)	
HB-115	HB-215	HB-315	14,8(0,583)	17,0(0,669)	16,6(0,654)	16,2(0,638)			
HB-117	HB-217	HB-317	15,6(0,614)	17,8(0,701)	17,4(0,685)	17,0(0,669)			
HB-119	HB-219	HB-319	16,4(0,646)	18,9(0,744)	18,4(0,724)	18,0(0,709)	AH-8	9,5(3/8)	
HB-121	HB-221	HB-321	17,1(0,673)	19,7(0,776)	19,2(0,756)	18,8(0,740)			
HB-123	HB-223	HB-323	17,9(0,705)	20,5(0,807)	20,0(0,787)	19,6(0,771)			
HB-125	HB-225	HB-325	18,7(0,736)	21,5(0,846)	21,1(0,831)	20,6(0,811)	AH-10	9,5(3/8)	
HB-127	HB-227	HB-327	19,5(0,768)	22,3(0,878)	21,9(0,862)	21,4(0,843)			
HB-129	HB-229	HB-329	20,3(0,799)	23,1(0,909)	22,6(0,890)	22,1(0,870)			
HB-131	HB-231	HB-331	21,3(0,831)	23,9(0,941)	23,4(0,921)	22,9(0,902)			
HB-132	HB-232	HB-332	21,5(0,846)	25,0(0,984)	24,4(0,961)	23,8(0,937)			
HB-134	HB-234	HB-334	22,3(0,878)	25,8(1,016)	25,2(0,992)	24,6(0,969)	AH-11	12,7(1/2)	
HB-136	HB-236	HB-336	23,1(0,909)	26,5(1,043)	26,0(1,024)	25,4(1)			
HB-138	HB-238	HB-338	23,9(0,941)	27,3(1,075)	26,8(1,055)	26,2(1,031)			
HB-140	HB-240	HB-340	24,7(0,972)	28,1(1,106)	27,6(1,087)	27,0(1,063)			

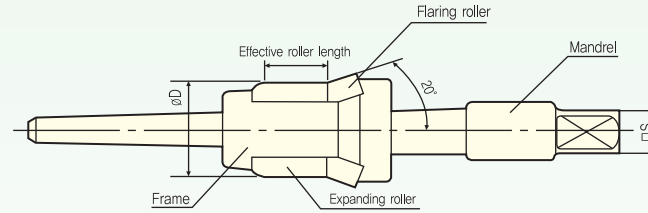
Tool No.			Expansion Range D				Mandrel		
Roller Length ℓ			Min. mm(in.)	Max			No.	Shank Square S mm(in.)	Length L mm(in.)
38mm (1-1/2")	57mm (2-1/4")	76mm (3")		Roller Length					
				38mm(1-1/2") mm(in.)	57mm(2-1/4") mm(in.)	76mm(3") mm(in.)			
HB-142	HB-242	HB-342	25,5(1,004)	29,5(1,161)	28,8(1,134)	28,2(1,110)	AH-12	12,7(1/2)	350(13,8)
HB-144	HB-244	HB-344	26,3(1,035)	30,3(1,193)	29,6(1,165)	29,0(1,142)			
HB-146	HB-246	HB-346	27,1(1,067)	31,1(1,224)	30,4(1,197)	29,8(1,173)			
HB-148	HB-248	HB-348	27,9(1,098)	31,9(1,256)	31,2(1,229)	30,6(1,205)			
HB-150	HB-250	HB-350	28,7(1,130)	32,7(1,287)	32,0(1,260)	31,4(1,236)			
HB-152	HB-252	HB-352	29,5(1,161)	34,1(1,343)	33,3(1,311)	32,6(1,283)			
HB-154	HB-254	HB-354	30,3(1,193)	34,9(1,374)	34,1(1,343)	33,4(1,315)	AH-13	12,7(1/2)	355(14,0)
HB-156	HB-256	HB-356	31,1(1,224)	35,7(1,406)	34,9(1,374)	34,2(1,346)			
HB-158	HB-258	HB-358	31,9(1,256)	36,5(1,437)	35,7(1,406)	35,0(1,378)			
HB-160	HB-260	HB-360	32,6(1,283)	37,2(1,465)	36,5(1,437)	35,7(1,406)			
HB-162	HB-262	HB-362	33,4(1,315)	38,0(1,496)	37,3(1,469)	36,5(1,437)			
-	HB-264	HB-364	35,1(1,382)	-	39,7(1,563)	38,9(1,531)			
-	HB-266	HB-366	36,6(1,441)	-	41,3(1,626)	40,5(1,594)			
-	HB-268	HB-368	38,2(1,504)	-	42,9(1,689)	42,1(1,657)			
-	HB-270	HB-370	40,7(1,602)	-	46,1(1,815)	45,3(1,783)	AH-15	19,0(3/4)	408(16,1)
-	HB-272	HB-372	43,9(1,728)	-	49,2(1,937)	48,4(1,906)			
-	HB-274	HB-374	47,0(1,850)	-	52,4(2,063)	51,6(2,031)			
-	HB-276	HB-376	49,5(1,949)	-	55,6(2,189)	54,8(2,157)	AH-16	19,0(3/4)	427(16,8)
-	HB-278	HB-378	52,7(2,075)	-	58,8(2,315)	58,0(2,283)			
-	HB-280	HB-380	55,9(2,201)	-	61,9(2,437)	61,1(2,406)			
-	HB-282	HB-382	58,2(2,291)	-	65,1(2,563)	64,3(2,531)	AH-17	19,0(3/4)	446(17,6)
-	HB-284	HB-384	61,4(2,417)	-	68,3(2,689)	67,5(2,657)			
-	HB-286	HB-386	64,6(2,543)	-	71,5(2,815)	70,7(2,783)			
-	HB-288	HB-388	67,1(2,642)	-	75,4(2,969)	74,5(2,933)	AH-18	25,4(1)	489(19,3)
-	HB-290	HB-390	70,3(2,768)	-	78,6(3,094)	77,7(3,059)			
-	HB-292	HB-392	73,5(2,894)	-	81,8(3,220)	80,9(3,185)			
-	HB-294	HB-394	76,6(3,016)	-	84,9(3,343)	84,0(3,307)	AH-19	25,4(1)	489(19,3)
-	HB-296	HB-396	79,8(3,142)	-	88,1(3,469)	87,3(3,437)			
-	HB-298	HB-398	84,6(3,331)	-	94,5(3,720)	93,7(3,689)			
-	HB-300	HB-400	90,9(3,579)	-	100,8(3,969)	100,0(3,937)	AH-20	25,4(1)	527(20,7)



■ Five Roller Expander

- Recommended for quick, smooth and accurate expansion for stainless steel, titanium and inconel tubes,
 - Designed for tube materials that work harden quickly,
 - More contact area reduces the spring back effect, especially thinner tube walls (18BWG and thinner).
- Please add the suffix "5" to the end of the part Number, when ordering.

AS-BK-Type



Effective Roller Length	19mm (3/4")	25.4mm (1")	32mm (1-1/4")	38mm (1-1/2")	44.5mm (1-3/4")	51mm (2")	57mm (2-1/4")	63.5mm (2-1/2")	70mm (2-3/4")	76mm (3")	83mm (3-1/4")	89mm (3-1/2")	95mm (3-3/4")	BK-6812					
	Effective Roller Length No.	0	1	2	3	4	5	6	7	8	9	10	11	12	Effective Roller Length No.	Tool No.	Expander Type		
Tool No.	Expansion Range D													Mandrel No.			Shank Square S. mm(in.)		
	Min. mm(in.)	Max. mm(in.)												Drum	Header	Short			
28	20.6 (0,811)	24.2 (0,953)	24.0 (0,945)	23.8 (0,937)	23.6 (0,929)	23.4 (0,921)										DH-0S	HM-0S		12,7(1/2)
29	21.4 (0,843)	25.2 (0,992)	25.0 (0,984)	24.8 (0,976)	24.6 (0,969)	24.4 (0,961)													
30	22.2 (0,874)	26.0 (1,024)	25.8 (1,016)	25.6 (1,008)	25.4 (1,0)	25.2 (0,992)	25.0 (0,984)												
31	23.0 (0,906)	26.8 (1,055)	26.2 (1,047)	26.4 (1,039)	26.2 (1,031)	26.0 (1,024)	25.8 (1,016)									DH-1S	HM-1S		12,7(1/2)
32	23.8 (0,937)	27.6 (1,087)	27.4 (1,079)	27.0 (1,071)	27.2 (1,063)	26.8 (1,055)	26.6 (1,047)	26.3 (1,035)											
33	24.6 (0,969)	28.4 (1,118)	28.2 (1,110)	28.0 (1,102)	27.8 (1,094)	27.6 (1,087)	27.4 (1,079)	27.4 (1,067)	26.9 (1,059)										
34	25.4 (1,0)	30.0 (1,181)	29.8 (1,173)	29.6 (1,165)	29.4 (1,157)	29.2 (1,150)	29.0 (1,142)	28.7 (1,130)	28.5 (1,122)										
35	26.2 (1,031)	30.8 (1,213)	30.6 (1,205)	30.4 (1,197)	30.2 (1,189)	30.0 (1,181)	29.8 (1,173)	29.5 (1,161)	29.3 (1,154)	29.1 (1,146)									
36	27.0 (1,063)	31.6 (1,244)	31.4 (1,236)	31.2 (1,228)	30.9 (1,217)	30.7 (1,209)	30.5 (1,201)	30.3 (1,193)	30.1 (1,185)	29.9 (1,177)						DH-2S	HM-2S		12,7(1/2)
37	27.8 (1,094)	32.4 (1,276)	32.2 (1,268)	32.0 (1,260)	31.7 (1,248)	31.5 (1,240)	31.3 (1,232)	31.1 (1,224)	30.9 (1,217)	30.7 (1,209)	30.5 (1,201)								
38	28.6 (1,126)	33.2 (1,307)	33.0 (1,299)	32.8 (1,291)	32.5 (1,280)	32.3 (1,272)	32.1 (1,264)	31.9 (1,256)	31.7 (1,248)	31.5 (1,240)	31.3 (1,232)								

Effective Roller Length	19mm (3/4")	25.4mm (1")	32mm (1-1/4")	38mm (1-1/2")	44.5mm (1-3/4")	51mm (2")	57mm (2-1/4")	63.5mm (2-1/2")	70mm (2-3/4")	76mm (3")	83mm (3-1/4")	89mm (3-1/2")	95mm (3-3/4")					
Effective Roller Length No.	0	1	2	3	4	5	6	7	8	9	10	11	12					
Tool No.	Expansion Range D													Mandrel No.			Shank Square S. mm(in.)	
	Min. mm(in.)	Max. mm(in.)												Drum	Header	Short		
39	29.4 (1,157)	34.6 (1,362)	34.4 (1,354)	34.2 (1,346)	33.9 (1,335)	33.7 (1,327)	33.5 (1,319)	33.3 (1,311)	33.1 (1,303)	32.9 (1,295)	32.7 (1,287)	32.5 (1,280)						
40	30.2 (1,189)	35.4 (1,394)	35.2 (1,386)	35.0 (1,378)	34.7 (1,366)	34.5 (1,358)	34.3 (1,350)	34.1 (1,343)	33.9 (1,335)	33.7 (1,327)	33.5 (1,319)	33.3 (1,311)						
41	31.0 (1,220)	36.2 (1,425)	36.0 (1,417)	35.8 (1,409)	35.5 (1,398)	35.3 (1,390)	35.1 (1,382)	34.9 (1,374)	34.7 (1,366)	34.5 (1,358)	34.3 (1,350)	34.1 (1,343)	33.8 (1,331)					
42	31.8 (1,252)	37.0 (1,457)	36.8 (1,449)	36.6 (1,441)	36.3 (1,429)	36.1 (1,421)	35.9 (1,413)	35.7 (1,406)	35.5 (1,398)	35.3 (1,390)	35.1 (1,382)	34.9 (1,374)	34.6 (1,362)		DM-3	HM-3	S-3,4,5,6	12.7 (1/2)
43	32.5 (1,280)	37.7 (1,484)	37.5 (1,476)	37.3 (1,469)	37.1 (1,461)	36.9 (1,453)	36.7 (1,445)	36.5 (1,437)	36.3 (1,429)	36.0 (1,417)	35.8 (1,409)	35.6 (1,402)	35.4 (1,394)	35.2 (1,386)				
44	33.3 (1,311)	38.5 (1,516)	38.3 (1,508)	38.1 (1,5)	37.9 (1,492)	37.7 (1,484)	37.5 (1,476)	37.3 (1,469)	37.1 (1,461)	36.8 (1,449)	36.6 (1,441)	36.4 (1,433)	36.2 (1,425)	36.0 (1,417)				
45	34.1 (1,343)	40.1 (1,579)	39.9 (1,571)	39.7 (1,563)	39.5 (1,555)	39.3 (1,547)	39.1 (1,539)	38.9 (1,531)	38.7 (1,524)	38.4 (1,512)	38.2 (1,504)	38.0 (1,496)	37.8 (1,488)	37.6 (1,480)	DM-4	HM-4	S-4,5,6,7	12.7 (1/2)
48	34.9 (1,374)	41.0 (1,614)	40.8 (1,606)	40.6 (1,598)	40.4 (1,591)	40.2 (1,583)	40.0 (1,575)	39.8 (1,567)	39.6 (1,559)	39.3 (1,547)	39.1 (1,539)	38.9 (1,531)	38.7 (1,524)	38.5 (1,516)	DM-10	HM-10	SM-10,11	19.0 (3/4)
49	36.5 (1,437)	42.6 (1,677)	42.4 (1,669)	42.2 (1,661)	42.0 (1,654)	41.8 (1,646)	41.6 (1,638)	41.4 (1,630)	41.1 (1,618)	40.9 (1,610)	40.7 (1,602)	40.5 (1,594)	40.3 (1,587)	40.1 (1,579)				
50	38.1 (1,5)	45.8 (1,803)	45.6 (1,795)	45.4 (1,787)	45.2 (1,780)	45.0 (1,772)	44.8 (1,764)	44.6 (1,756)	44.3 (1,744)	44.1 (1,736)	43.9 (1,728)	43.7 (1,720)	43.5 (1,713)	43.3 (1,705)				
51	39.7 (1,563)	47.4 (1,866)	47.2 (1,858)	47.0 (1,850)	46.8 (1,843)	46.6 (1,835)	46.4 (1,827)	46.2 (1,819)	45.9 (1,807)	45.7 (1,799)	45.5 (1,791)	45.3 (1,783)	45.1 (1,776)	44.9 (1,768)	DM-11	HM-11	SM-11,12,13	19.0 (3/4)
52	41.3 (1,626)	49.0 (1,929)	48.8 (1,921)	48.6 (1,913)	48.4 (1,906)	48.2 (1,898)	47.9 (1,886)	47.7 (1,878)	47.5 (1,870)	47.3 (1,862)	47.1 (1,854)	46.9 (1,846)	46.7 (1,839)	46.5 (1,831)				
53	42.9 (1,689)	50.6 (1,992)	50.4 (1,984)	50.2 (1,976)	50.0 (1,969)	49.8 (1,961)	49.5 (1,949)	49.3 (1,941)	49.1 (1,933)	48.9 (1,925)	48.7 (1,917)	48.5 (1,909)	48.3 (1,902)	48.1 (1,894)				
54	44.5 (1,752)	52.2 (2,055)	52.0 (2,047)	51.9 (2,039)	51.6 (2,031)	51.4 (2,024)	51.1 (2,012)	50.9 (2,004)	50.7 (1,996)	50.5 (1,988)	50.3 (1,980)	50.1 (1,972)	49.9 (1,965)	49.7 (1,957)				
55	46.0 (1,811)	53.8 (2,118)	53.6 (2,110)	53.4 (2,102)	53.1 (2,091)	52.9 (2,083)	52.7 (2,075)	52.5 (2,067)	52.3 (2,059)	52.1 (2,051)	51.9 (2,043)	51.7 (2,035)	51.5 (2,028)	51.3 (2,020)	DM-12	HM-12	SM-12,13,14	19.0 (3/4)
56	47.6 (1,874)	55.3 (2,177)	55.1 (2,169)	54.9 (2,161)	54.7 (2,154)	54.5 (2,146)	54.3 (2,138)	54.1 (2,130)	53.9 (2,122)	53.7 (2,114)	53.5 (2,106)	53.2 (2,094)	53.0 (2,087)	52.8 (2,079)				
57	49.2 (1,937)	56.9 (2,240)	56.7 (2,232)	56.5 (2,224)	56.3 (2,217)	56.1 (2,209)	55.9 (2,201)	55.7 (2,193)	55.5 (2,185)	55.3 (2,177)	55.1 (2,169)	54.8 (2,157)	54.6 (2,150)	54.4 (2,142)				

AS-BK-Type

Effective Roller Length	19mm (3/4")	25.4mm (1")	32mm (1-1/4")	38mm (1-1/2")	44.5mm (1-3/4")	51mm (2")	57mm (2-1/4")	63.5mm (2-1/2")	70mm (2-3/4")	76mm (3")	83mm (3-1/4")	89mm (3-1/2")	95mm (3-3/4")					
Effective Roller Length No.	0	1	2	3	4	5	6	7	8	9	10	11	12					
Tool No.	Expansion Range D													Mandrel No.			Shank Square S, mm(in.)	
	Min, mm(in.)	Max. mm(in.)												Drum	Header	Short		
58	50,8 (2,0)	58,5 (2,303)	58,3 (2,295)	58,1 (2,287)	57,9 (2,280)	57,7 (2,272)	57,5 (2,264)	57,3 (2,256)	57,1 (2,248)	56,8 (2,236)	56,6 (2,228)	56,4 (2,220)	56,2 (2,213)	56,0 (2,205)	DM-13	HM-13	SM-13, 14,15	19,0 (3/4)
59	52,4 (2,063)	60,1 (2,366)	59,9 (2,358)	59,7 (2,350)	59,5 (2,343)	59,3 (2,335)	59,1 (2,327)	58,9 (2,319)	58,6 (2,307)	58,4 (2,299)	58,2 (2,291)	58,0 (2,283)	57,8 (2,276)	57,6 (2,268)				
60	54,0 (2,126)	61,7 (2,429)	61,5 (2,421)	61,3 (2,413)	61,1 (2,406)	60,9 (2,398)	60,6 (2,386)	60,4 (2,378)	60,2 (2,370)	60,0 (2,362)	59,8 (2,354)	59,6 (2,346)	59,4 (2,339)	59,2 (2,331)				
61	55,6 (2,189)	63,3 (2,492)	63,1 (2,484)	62,9 (2,476)	62,7 (2,469)	62,5 (2,461)	62,2 (2,449)	62,0 (2,441)	61,8 (2,433)	61,6 (2,425)	61,4 (2,417)	61,2 (2,409)	61,0 (2,402)	60,8 (2,394)				
62	57,2 (2,252)		66,0 (2,598)	65,8 (2,591)	65,5 (2,579)	65,3 (2,571)	65,1 (2,563)	64,8 (2,551)	64,6 (2,543)	64,4 (2,535)	64,1 (2,524)	63,9 (2,516)	63,7 (2,508)	63,5 (2,5)	DM-14	HM-14	SM-14, 15,16,17	19,0 (3/4)
63	58,7 (2,311)		67,6 (2,661)	67,4 (2,654)	67,1 (2,642)	66,9 (2,634)	66,7 (2,626)	66,4 (2,614)	66,2 (2,606)	65,9 (2,594)	65,7 (2,587)	65,5 (2,579)	65,2 (2,567)	65,0 (2,559)				
64	60,3 (2,374)		69,2 (2,724)	69,0 (2,717)	68,7 (2,705)	68,5 (2,697)	68,3 (2,689)	68,0 (2,677)	67,8 (2,669)	67,5 (2,657)	67,3 (2,650)	67,1 (2,642)	66,8 (2,630)	66,6 (2,622)				
65	61,9 (2,437)		70,8 (2,787)	70,5 (2,776)	70,3 (2,768)	70,1 (2,760)	69,8 (2,748)	69,6 (2,740)	69,4 (2,732)	69,1 (2,720)	68,9 (2,713)	68,7 (2,705)	68,4 (2,693)	68,2 (2,685)				
66	63,5 (2,5)		72,3 (2,846)	72,1 (2,839)	71,9 (2,831)	71,6 (2,819)	71,4 (2,811)	71,2 (2,803)	70,9 (2,791)	70,7 (2,783)	70,5 (2,776)	70,2 (2,764)	70,0 (2,756)	69,8 (2,748)				
67	65,1 (2,563)		73,9 (2,909)	73,7 (2,902)	73,5 (2,894)	73,2 (2,882)	73,0 (2,874)	72,8 (2,866)	72,5 (2,854)	72,3 (2,846)	72,0 (2,835)	71,8 (2,827)	71,6 (2,819)	71,4 (2,811)				
68	66,7 (2,626)		75,5 (2,972)	75,3 (2,965)	75,0 (2,953)	74,8 (2,945)	74,6 (2,937)	74,3 (2,925)	74,1 (2,917)	73,9 (2,909)	73,6 (2,898)	73,4 (2,890)	73,2 (2,882)	73,0 (2,874)	DM-16	HM-16	SS-16, 17,18,19	25,4 (1)
69	68,3 (2,689)		77,1 (3,035)	76,9 (3,028)	76,6 (3,016)	76,4 (3,008)	76,2 (3,0)	75,9 (2,988)	75,7 (2,980)	75,5 (2,972)	75,2 (2,961)	75,0 (2,953)	74,8 (2,945)	74,6 (2,937)				
70	69,9 (2,752)		78,7 (3,098)	78,5 (3,091)	78,2 (3,079)	78,0 (3,071)	77,8 (3,063)	77,5 (3,051)	77,3 (3,043)	77,0 (3,031)	76,8 (3,024)	76,6 (3,016)	76,3 (3,004)	76,1 (2,996)				
71	71,4 (2,811)		80,3 (3,161)	80,1 (3,154)	79,8 (3,142)	79,6 (3,134)	79,4 (3,126)	79,1 (3,114)	78,9 (3,106)	78,6 (3,094)	78,4 (3,087)	78,2 (3,079)	77,9 (3,067)	77,7 (3,059)				
72	73,0 (2,874)		81,9 (3,224)	81,6 (3,213)	81,4 (3,205)	81,2 (3,197)	80,9 (3,185)	80,7 (3,177)	80,5 (3,169)	80,2 (3,157)	80,0 (3,150)	79,8 (3,142)	79,5 (3,130)	79,3 (3,122)				
73	74,6 (2,937)		83,5 (3,287)	83,2 (3,276)	83,0 (3,268)	82,8 (3,260)	82,5 (3,248)	82,3 (3,240)	82,1 (3,232)	81,8 (3,220)	81,6 (3,213)	81,4 (3,205)	81,1 (3,193)	80,9 (3,185)				
															DM-15	HM-15	SM-15, 16,17,18	19,0 (3/4)
															DM-17	HM-17	SS-17, 18,19,20	25,4 (1)

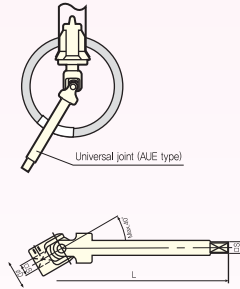
Effective Roller Length	19mm (3/4")	25.4mm (1")	32mm (1-1/4")	38mm (1-1/2")	44.5mm (1-3/4")	51mm (2")	57mm (2-1/4")	63.5mm (2-1/2")	70mm (2-3/4")	76mm (3")	83mm (3-1/4")	89mm (3-1/2")	95mm (3-3/4")				
Effective Roller Length No.	0	1	2	3	4	5	6	7	8	9	10	11	12				
Tool No.	Expansion Range D													Mandrel No.			Shank Square S. mm(in.)
	Min. mm(in.)	Max. mm(in.)												Drum	Header	Short	
74	76,2 (3,0)	86,3 (3,398)	86,1 (3,390)	85,8 (3,378)	85,5 (3,366)	85,3 (3,358)	85,0 (3,346)	84,7 (3,335)	84,5 (3,327)	84,2 (3,315)	84,0 (3,307)	83,7 (3,295)	83,5 (3,287)	DM-18	HM-18	SS-18,19 20,21,22	25,4 (1)
75	77,8 (3,063)	87,9 (3,461)	87,6 (3,449)	87,4 (3,441)	87,1 (3,430)	86,9 (3,421)	86,6 (3,409)	86,3 (3,398)	86,1 (3,390)	85,8 (3,378)	85,5 (3,366)	85,3 (3,358)	85,0 (3,346)				
76	79,4 (3,126)	89,5 (3,524)	89,2 (3,512)	89,0 (3,504)	88,7 (3,492)	88,5 (3,484)	88,2 (3,472)	87,9 (3,461)	87,7 (3,453)	87,4 (3,441)	87,1 (3,429)	86,9 (3,421)	86,6 (3,409)				
77	81,0 (3,189)	91,0 (3,583)	90,8 (3,575)	90,6 (3,567)	90,3 (3,555)	90,0 (3,543)	89,8 (3,535)	89,5 (3,524)	89,2 (3,512)	89,0 (3,504)	88,7 (3,492)	88,4 (3,480)	88,2 (3,472)				
78	82,6 (3,252)	92,7 (3,650)	92,4 (3,638)	92,1 (3,626)	91,9 (3,618)	91,6 (3,606)	91,4 (3,598)	91,1 (3,587)	90,8 (3,575)	90,6 (3,567)	90,3 (3,555)	90,0 (3,543)	89,8 (3,535)				
79	84,1 (3,311)	94,3 (3,713)	94,0 (3,701)	93,7 (3,689)	93,5 (3,681)	93,2 (3,669)	92,9 (3,657)	92,7 (3,650)	92,4 (3,638)	92,1 (3,626)	91,9 (3,618)	91,6 (3,606)	91,3 (3,594)				
80	85,7 (3,374)	95,9 (3,776)	95,6 (3,764)	95,3 (3,752)	95,1 (3,744)	94,8 (3,732)	94,5 (3,720)	94,3 (3,713)	94,0 (3,701)	93,7 (3,689)	93,5 (3,681)	93,2 (3,669)	93,0 (3,661)	DM-20	HM-20	SS-20,21 22,23,24	25,4 (1)
81	87,3 (3,437)	97,4 (3,835)	97,2 (3,827)	96,9 (3,815)	96,6 (3,803)	96,4 (3,795)	96,1 (3,783)	95,8 (3,772)	95,6 (3,764)	95,3 (3,752)	95,1 (3,744)	94,8 (3,732)	94,6 (3,724)				
82	88,9 (3,5)	99,0 (3,898)	98,8 (3,890)	98,5 (3,878)	98,2 (3,866)	98,0 (3,858)	97,7 (3,846)	97,4 (3,835)	97,2 (3,827)	96,9 (3,815)	96,7 (3,807)	96,4 (3,795)	96,2 (3,787)				
83	90,5 (3,563)	100,6 (3,961)	100,3 (3,949)	100,1 (3,941)	99,8 (3,929)	99,6 (3,921)	99,3 (3,909)	99,0 (3,898)	98,8 (3,890)	98,5 (3,878)	98,2 (3,866)	98,0 (3,858)	97,7 (3,846)				
84	92,1 (3,626)	102,2 (4,024)	101,9 (4,012)	101,7 (4,004)	101,4 (3,992)	101,2 (3,984)	100,9 (3,972)	100,6 (3,961)	100,4 (3,953)	100,1 (3,941)	99,8 (3,929)	99,6 (3,921)	99,4 (3,913)				
85	93,7 (3,689)	103,8 (4,087)	103,5 (4,075)	103,3 (4,067)	103,0 (4,055)	102,7 (4,043)	102,5 (4,035)	102,2 (4,024)	101,9 (4,012)	101,7 (4,004)	101,4 (3,992)	101,1 (3,980)	100,8 (3,969)				
86	95,3 (3,752)	105,4 (4,150)	105,1 (4,138)	104,9 (4,130)	104,6 (4,118)	104,3 (4,106)	104,1 (4,098)	103,8 (4,087)	103,5 (4,075)	103,3 (4,067)	103,0 (4,055)	102,7 (4,043)	102,4 (4,031)	DM-22	HM-22	SS-22,23 24,25,26	25,4 (1)
87	96,8 (3,811)	107,0 (4,213)	106,7 (4,201)	106,4 (4,189)	106,2 (4,181)	105,9 (4,169)	105,7 (4,161)	105,4 (4,150)	105,1 (4,138)	104,9 (4,130)	104,6 (4,118)	104,3 (4,106)	104,0 (4,094)				
88	98,4 (3,874)	108,6 (4,276)	108,3 (4,264)	108,0 (4,252)	107,8 (4,244)	107,5 (4,232)	107,3 (4,224)	107,0 (4,213)	106,7 (4,201)	106,5 (4,193)	106,2 (4,181)	105,9 (4,169)	105,6 (4,157)				
89	100,0 (3,937)	110,2 (4,339)	109,9 (4,327)	109,6 (4,315)	109,4 (4,307)	109,1 (4,295)	108,8 (4,283)	108,6 (4,276)	108,3 (4,264)	108,0 (4,252)	107,8 (4,244)	107,5 (4,232)	107,2 (4,220)				
90	101,6 (4,000)	111,7 (4,398)	111,5 (4,390)	111,2 (4,378)	110,9 (4,366)	110,7 (4,358)	110,4 (4,346)	110,1 (4,335)	109,9 (4,327)	109,6 (4,315)	109,4 (4,307)	109,1 (4,295)	108,8 (4,283)				
91	103,2 (4,063)	113,3 (4,461)	113,1 (4,453)	112,8 (4,441)	112,5 (4,429)	112,3 (4,421)	112,0 (4,409)	111,8 (4,402)	111,5 (4,390)	111,2 (4,378)	111,0 (4,331)	110,7 (4,358)	110,4 (4,346)				
92	104,8 (4,126)	114,9 (4,524)	114,7 (4,516)	114,4 (4,504)	114,1 (4,492)	113,9 (4,484)	113,6 (4,472)	113,4 (4,465)	113,1 (4,453)	112,8 (4,441)	112,6 (4,433)	112,3 (4,421)	112,0 (4,409)	DM-24	HM-24	SS-24,25 26,27,28	25,4 (1)

- Note 1. Standard Short Mandrels are designed for use with Tube Expanders up to effective roller length No.4(44,5mm)
- 2. Tool No.39 & larger sizes Tube Expanders have Retainer to hold Roller in Frame, For Tool No.38 & Smaller sizes, no Retainer used,

Universal Joint

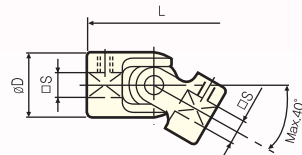
AUE type

Tool No.	S	L	D
AUE-308	9,5($\frac{3}{8}$)	20,3 (8,0)	29(1,142)
AUE-312		305 (12,0)	
AUE-408	12,7($\frac{1}{2}$)	203 (8,0)	33(1,099)
AUE-412		305 (12,0)	
AUE-416		406 (16,0)	
AUE-612	19,0($\frac{3}{4}$)	305 (12,0)	43(1,693)
AUE-616		406 (16,0)	
AUE-620		508 (20,0)	
AUE-812	25,4(1)	305 (12,0)	54(2,126)
AUE-816		406 (16,0)	
AUE-820		508 (20,0)	



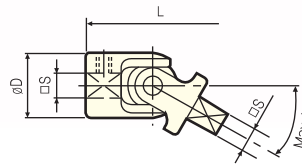
AUJ type

Tool No.	S	L	D
AUJ-33	9,5($\frac{3}{8}$)	62 (2,441)	29 (1,142)
AUJ-44	12,7($\frac{1}{2}$)	67 (2,638)	33 (1,299)
AUJ-66	19,0($\frac{3}{4}$)	95 (3,740)	43 (1,693)
AUJ-88	25,4(1)	106 (4,173)	54 (2,126)



AUC type

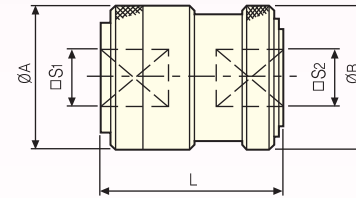
Tool No.	S	L	D
AUC-33	9,5($\frac{3}{8}$)	69 (2,717)	29 (1,142)
AUC-44	12,7($\frac{1}{2}$)	74 (2,913)	33 (1,299)
AUC-66	19,0($\frac{3}{4}$)	106 (4,173)	43 (1,693)
AUC-88	25,4(1)	118 (4,646)	54 (2,126)



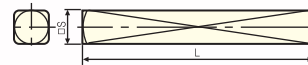
Mandrel Couplings

These are engineered to facilitate rapid connection and disconnection of the expanders to the Tube Roller. A "one-touch" design allows quick change with positive connection.

No.	AMC-32	AMC-33	AMC-43	AMC-44	AMC-63	AMC-64	AMC-66	AMC-86
□S ₁	6,3	9,5	9,5	12,7	9,5	12,7	19	19
□S ₂	9,5	9,5	12,7	12,7	19	19	19	25,4
A	26	29	29	32	43	43	48	48
B	29	29	32	32	48	48	48	60
L	37	41	41	41	53	53	66	88

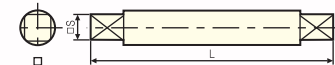


Drive Shaft



Tool No.	S	L
ASD-34	9,5($\frac{3}{8}$)	102(4,0)
ASD-312		305(12,0)
ASD-44	12,7($\frac{1}{2}$)	102(4,0)
ASD-412		305(12,0)
ASD-64	19,0($\frac{3}{4}$)	102(4,0)
ASD-612		305(12,0)
ASD-84	25,4(1)	102(4,0)
ASD-812		305(12,0)

Extension Bar

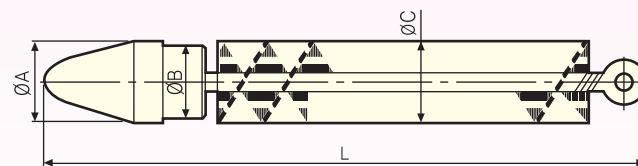


Tool No.	S	L
AEB-38	9,5($\frac{3}{8}$)	203(8,0)
AEB-312		305(12,0)
AEB-48	12,7($\frac{1}{2}$)	203(8,0)
AEB-412		305(12,0)
AEB-68	19,0($\frac{3}{4}$)	203(8,0)
AEB-612		305(12,0)
AEB-88	25,4(1)	203(8,0)
AEB-812		305(12,0)

Tube Guide

Tube guide has tapered aluminum pilot with a replaceable nylon brush used to guide tubes through tube sheets and support plate holes. Speeds the assembly operation and prevents tube end damage during assembly. The nylon brush fits in the tube end, holding pilot firmly in place. Brush also cleans tube where it will be rolled. Pilot is easily removed by a slight twist.

No.	Tube O.D	Thickness		A	B	C	L
		m.m	B.W.G				
		mm(in.)					
1	25,4	0,8	21	25,4	23,7	25	205
2		1,24	18		22,4	25	
3		1,65	16		21,7	24	
4		2,11	14		20,9	24	
5	22,2	0,8	21	22,2	19,1	22	205
6		1,24	18		19,5	22	
7		1,65	16		18,7	21	
8		2,11	14		17,8	21	
9	19,1	0,8	21	19,1	17,1	20	205
10		1,24	18		16,1	20	
11		1,65	16		15,3	18	
12		2,11	14		12,7	18	
13	15,9	0,6	23	15,9	14,2	16	200
14		0,8	21		13,9	16	
15		1,24	18		13,0	16	
16		1,65	16		12,3	15	
17		2,11	14		11,9	14	



Tube Spear



Tool No.	Tube I.D	Length
SPM-0914	I.D 9	9~10
SPM-1015	I.D 10	10~11
SPM-1116	I.D 11	11~12
SPM-1217	I.D 12	12~13
SPM-1318	I.D 13	13~14
SPM-1419	I.D 14	14~15
SPM-1520	I.D 15	15~16
SPM-1621	I.D 16	16~17
SPM-1722	I.D 17	17~18

Tool No.	Tube I.D	Length
SPM-1823	I.D 18	18~19
SPM-1924	I.D 19	19~20
SPM-2025	I.D 20	20~21
SPM-2126	I.D 21	21~22
SPM-2227	I.D 22	22~23
SPM-2328	I.D 23	23~25
SPM-2429	I.D 24	24~26
SPM-2530	I.D 25	25~27
SPM-2631	I.D 26	26~28

Tube Cutter

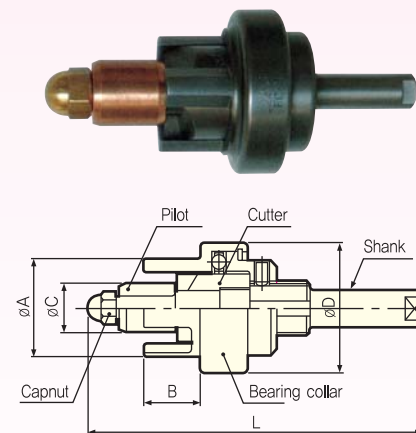


mm(in.)

Tool No.	Cutting Dia.		MAX Cutting Reach(in.)	Cutter No.	Shank S□	L
	MIN mm(in.)	MAX mm(in.)				
AS-TCV 10	10 (0,394)	14 (0,551)	75 (2,952)	TC-10	9,5($\frac{3}{8}$)	230 (9,05)
AS-TCV 11	11 (0,433)	15 (0,591)	75 (2,952)	TC-10	9,5($\frac{3}{8}$)	230 (9,05)
AS-TCV 12	12 (0,472)	16 (0,630)	75 (2,952)	TC-10	9,5($\frac{3}{8}$)	230 (9,05)
AS-TCV 13	13 (0,512)	17 (0,669)	75 (2,952)	TC-10	9,5($\frac{3}{8}$)	230 (9,05)
AS-TCV 14	14 (0,551)	18 (0,709)	75 (2,952)	TC-14	9,5($\frac{3}{8}$)	230 (9,05)
AS-TCV 15	15 (0,591)	19 (0,748)	75 (2,952)	TC-14	9,5($\frac{3}{8}$)	230 (9,05)
AS-TCV 16	16 (0,630)	20 (0,787)	75 (2,952)	TC-14	9,5($\frac{3}{8}$)	230 (9,05)
AS-TCV 17	17 (0,669)	21 (0,827)	75 (2,952)	TC-14	9,5($\frac{3}{8}$)	230 (9,05)
AS-TCV 18	18 (0,709)	22 (0,866)	75 (2,952)	TC-14	9,5($\frac{3}{8}$)	230 (9,05)
AS-TCV 19	19 (0,748)	23 (0,906)	75 (2,952)	TC-14	9,5($\frac{3}{8}$)	230 (9,05)
AS-TCV 20	20 (0,787)	25 (0,984)	100 (3,937)	TC-20	12,7($\frac{1}{2}$)	270 (10,63)
AS-TCV 21	21 (0,827)	26 (1,024)	100 (3,937)	TC-20	12,7($\frac{1}{2}$)	270 (10,63)
AS-TCV 22	22 (0,866)	27 (1,063)	100 (3,937)	TC-20	12,7($\frac{1}{2}$)	270 (10,63)
AS-TCV 23	23 (0,906)	28 (1,102)	100 (3,937)	TC-23	12,7($\frac{1}{2}$)	270 (10,63)
AS-TCV 24	24 (0,945)	29 (1,142)	100 (3,937)	TC-23	12,7($\frac{1}{2}$)	270 (10,63)
AS-TCV 25	25 (0,984)	30 (1,181)	100 (3,937)	TC-23	12,7($\frac{1}{2}$)	270 (10,63)

Facing Tool

For flat facing (FF type cutter) of ends of tubes from 12.7mm(5/8 in.) to 57.1mm(2-1/4 in.) O.D.(standard range), A collar to rest against the tube sheet face gives constant gives constant tube end projection from the tube sheet, Either electric or pneumatic drive can be employed, Unless otherwise specified, tools up to 25.4mm (1in.) O.D. are supplied with straight round shank, and above 31.8mm (1-1/4 in.) O.D. with morse taper shank, For facing of tubes in excess of 57.1mm (2-1/4in.) O.D. Jewoo will be pleased to design and quote on special tools for your particular requirements.



Tube Size			Tool No.	Cutter Type FF	D	L	A	B	Shank
O.D.	Thickness	B.W.G.							
12.7($\frac{1}{2}$)	1.6/1.5/1.2	16,17,18	FC-4	FF-4	38(1,496)	111(4,370)	26(1,024)	19(0,748)	$\phi 9.5(\frac{3}{8})$
15.9($\frac{5}{8}$)	1.8/1.6/1.5/1.2	15,16,17,18	FC-5	FF-5	41(1,614)	111(4,370)	30(1,181)	19(0,748)	$\phi 12.7(\frac{1}{2})$
19.0($\frac{3}{4}$)	2.4/2.1/1.8/1.6/1.5/1.2	13,14,15,16,17,18	FC-6	FF-6	44(1,732)	113(4,449)	33(1,299)	19(0,748)	$\phi 12.7(\frac{1}{2})$
22.2($\frac{7}{8}$)	2.1/1.8/1.6/1.5/1.2	14,15,16,17,18	FC-7	FF-7	52(2,047)	113(4,449)	38(1,496)	19(0,748)	$\phi 12.7(\frac{1}{2})$
25.4(1)	3.4/3.0/2.8/2.4/2.1/1.8 1.6/1.5/1.2	10,11,12,13,14,15,16,17,18	FC-8	FF-8	57(2,244)	131(5,157)	44(1,732)	25(0,984)	$\phi 12.7(\frac{1}{2})$
31.8(1 $\frac{1}{4}$)	3.4/3.0/2.8/2.4/2.1	10,11,12,13,14	FC-10	FF-10	62(2,441)	175(6,890)	49(1,929)	25(0,984)	MT2
38.1(1 $\frac{1}{2}$)	3.4/3.0/2.8	10,11,12	FC-12	FF-12	71(2,795)	182(7,165)	55(2,165)	27.5(1,083)	MT2
44.5(1 $\frac{3}{4}$)	3.4/3.0/2.8	10,11,12	FC-14	FF-14	81(3,189)	203(7,992)	65(2,559)	28(1,102)	MT3
50.8(2)	4.2/3.8/3.4	8,9,10	FC-16	FF-16	91(3,583)	206(8,110)	71(2,795)	28(1,102)	MT3
57.1(2 $\frac{1}{4}$)	4.2/3.8/3.4	8,9,10	FC-18	FF-18	100(3,937)	206(8,110)	80(3,150)	28(1,102)	MT3

Grooving Tool

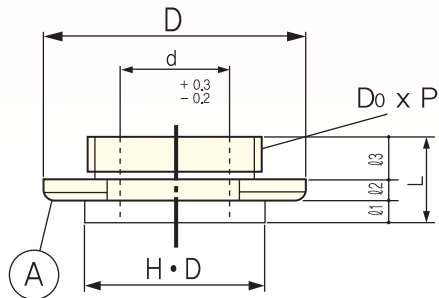


Tool specifications

Specifications	Tool No.					
	GT-102	GT-122	GT-162	GT-193	GT-303	GT-504
Hole diameter	10~14	12,7~17	16~21	19~32	30~54	50~78
Adjustable range(Face to Groove)	4~20	4~20	4~20	6~30	6~40	6~60
Weight (Kgf)	1,1	1,1	1,2	2,2	3,7	8,6

Guide Bushing

The tool bushing accurately positions the tool in the hole of the workpiece. It is essential that the bushing dimensions match the workpiece specifications. When ordering please specify the exact hole diameter. Bushing blanks may also be ordered for machining and heat treating by the customer. Machining tolerance should be within 0,5mm, grinding tolerance should be $-0,05$ to $-0,01$ mm. The bushing metal (carbon steel) should have a hardness of HRC-35 after heat treatment.

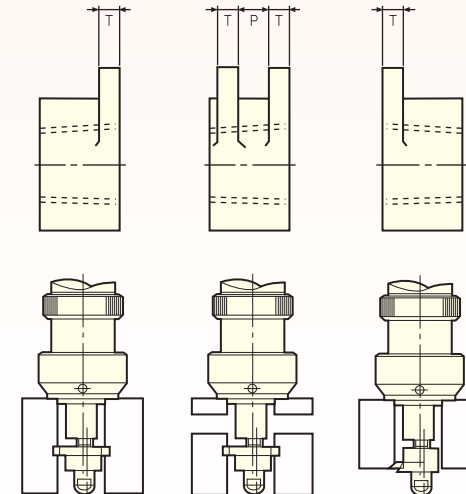


Tool No.	Hole Diameter	ℓ 1	ℓ 2	ℓ 3	L	d	D	Do x P
GT-102	10~11,5 11,5~14	3	3	7,5	13,5	8,5 / 8,8	28	M22, P1,5
GT-122	12,7~14 14~17	3	3	7,5	13,5	11,0 / 11,3	28	M22, P1,5
GT-162	16~17 17~21	3	3	7,5	13,5	14,2 / 14,4	44	M22, P1,5
GT-193	19~20 20~32	4	3	7,5	14,5	17,2 / 17,4	44	M28, P1,5
GT-303	30~52	5	3	9,5	17,5	27,5	59	M35, P1,5
GT-504	50~64 64~78	5	3	12,5	20,5	44,5	78 / 88	M50, P1,5

Grooving Cutter

Tool No.	Cutter No.	Applicable Hole Dia. Min.~Max.	Max. Groove Depth (mm)		Type of Blade	
			For Min. Hole Dia.	For Max. Hole Dia.	Single	Double
			T	T+P+T		
GH-102	H,D 10~11	10~11	1.0	0.5	3	3+3+3
	H,D 11~12	11~12				
	H,D 12~13	12~13				
	H,D 13~14	13~14				
GH-122	H,D 12,7~14	12,7~14	1.5	1.0	3	3+5+3 3+6+3
	H,D 14~15	14~15				
	H,D 15~16	15~16				
	H,D 16~17	16~17				
GH-162	H,D 16~17	16~17	1.5	1.0	3	3+5+3 3+6+3
	H,D 17~18	17~18				
	H,D 18~19	18~19				
	H,D 19~20	19~20				
GH-193	H,D 20~21	20~21	2.5	2.0	3	3+6+3 4+6+4
	H,D 21~22	21~22				
	H,D 22~24	22~24	2.5	1.5	4	3+6+3 4+6+4
	H,D 24~26	24~26				
	H,D 26~28	26~28				
GH-303	H,D 28~30	28~30	4.0	2.0	3 4 5	3+6+3 4+6+4
	H,D 30~32	30~32				
	H,D 32~34	32~34				
	H,D 34~38	34~38				
	H,D 38~42	38~42				
GH-504	H,D 42~46	42~46	6.5	2.5	3 4 5	3+6+3 4+6+4
	H,D 46~50	46~50				
	H,D 50~54	50~54	3.5	2.5	3 4 5	3+6+3 4+6+4
	H,D 54~58	54~58				
	H,D 58~66	58~66				
GH-504	H,D 64~70	64~70	3.5	2.5	3 4 5	3+6+3 4+6+4
	H,D 70~76	70~76				
	H,D 76~78	76~78				

STANDARD CUTTER





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납품 업체 현황

강릉MBC방송국 · 강림기연 · 강원산업 · 계룡종합폐기물처리 · 고등기술연구원 · 고려아연 · 구리농수산물도매시장 · 군산화학 · 귀뚜라미범양냉방 · 금호석유화학 · 금화피에스시 · 기아자동차 · 남제주화학 · 남해화학 · 남촌레저개발 · 농심 당진화학 · 대경엔지니어링 · 대림산업개발 · 대상 · 대상산업가스 · 대열보일러 · 대우 · 대원화학 · 대한생명(63빌딩) · 대창기계기술 · 동아제약 · 동양나이론 · 동양제철화학 · 동원산업 · 동일알미늄 · 동창제지 · 동해화학 · 롯데삼강 롯데알미늄 · 미원상사 · 범양냉방공업 · 부경양돈협동조합 · 부산경남우유협동조합 · 부산화학 · 삼광유리공업 · 삼성전자 · 삼성종합화학 · 삼양사 · 삼정보일러공업 · 삼중공조이엔지 · 삼천포화학 · 서울사료 · 서울화학 · 서천화학 서흥칼벨 · 선일포도당 · 세광알미늄 · 셉츨리에어콘 · 수산특장 · 신인천복합화학발전소 · 신풍제약 · 신한열기공업 · 씨제이제일제당 · 아모레퍼시픽 · 아세아페이퍼텍 · 영동화학 · 예수그리스도후기성도교회 · 애경산업 · 에스와이페인트 에치엔지화학 · 예고솔루션 · 영풍석포제련소 · 은양필프 · 올리브시스템 · 울산화학 · 울산퍼시픽화학 · 유공 · 유한양행 · 율촌화학 · 의료법인동승원병원 · 이수화학공업 · 인천제철 · 정석기업 · 중근당바이오 · 지역난방공사 · 제일모직 제일제당 · 제철공무 · 제철화학 · 조광페인트 · 조흥화학공업 · 중근당 · 지하철공사 · 진로이천공장 · 추교쿠삼화페인트 · 코리아PTG · 코스모스정밀화학 · 태안발전본부 · 태평양물산 · 포항산업과학연구원 · 포항제철 · 평택발전본부 물무원건강생활 · 피앤이 · 한국가스공사연구개발원 · 한국가스기술공업 · 한국공항공사 · 한국다우케미칼 · 한국아쿠르트 · 한발 · 한국원자력연구원 · 한국이엘이 · 한국플마 · 한국플랜트서비스 · 한미약품 · 한솔제지 · 한전(KPS) · 한텍 한화석유화학 · 한화에너지 · 현대건설 · 현대석유화학 · 현대자동차 · 현대정유 · 현대페인트공업 · 호남화학 · KCC · LG화학 · LS엘트론 · LS전선 · POSCO · S-OIL · SK · SY PAINT · KOREA PTG 외