



《RoHS Compliant Products》

On-Site Flange

Non-Skill Work Series



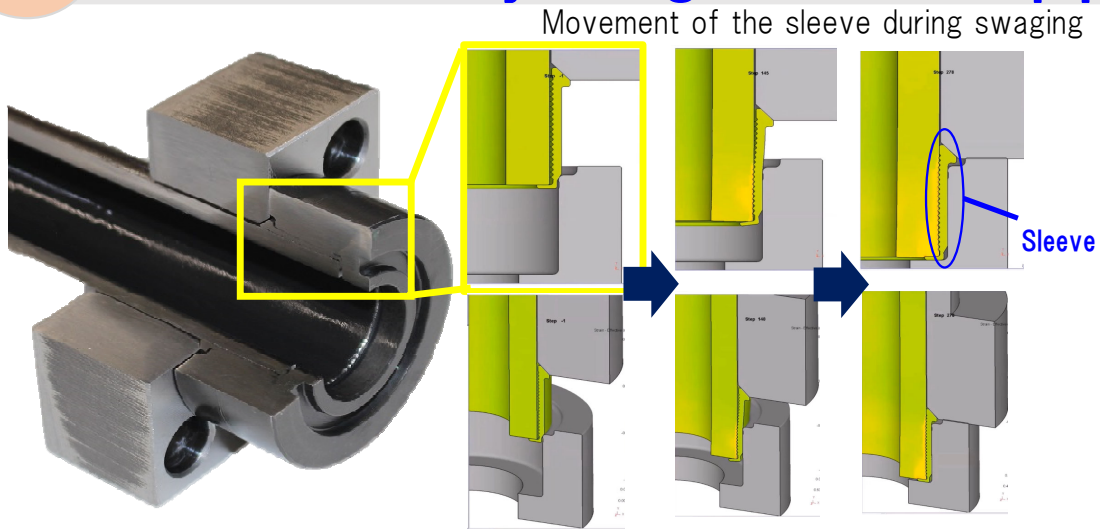
■ Features of On-site Flanges

The 『On-Site Flange』 enables piping connections without welding. By utilizing a dedicated tightening device on-site, even individuals without specialized skills can easily and reliably set up connections. No welding work allows for quick performance of piping maintenance tasks. This product achieves welding-equivalent strength through swaging the sleeve onto the piping. Pre-welding fire prevention measures are unnecessary, and processes like post-weld acid washing are not required. This significantly reduces downtime for facility operation and facilitates easy recovery during troubleshooting.

Feature

1

Sleeve securely swages onto the pipe



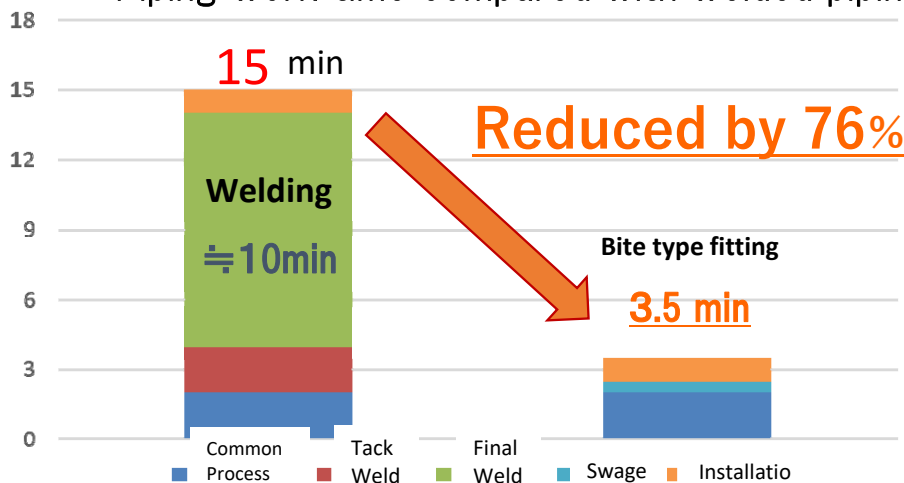
Pressure testing on Sch160 pipe under more than **140MPa**
No leak ! No pull-out ! No abnormality !

Feature

2

Significant reduction in piping man-hours !

Piping work time compared with welded piping



Basic specifications of On-Site Flange

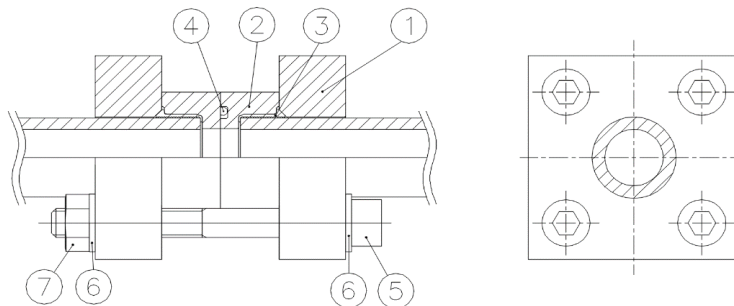
【1. Specifications】

Rated pressure	21MPa※
Size	15mm (1/2") ~50mm (2")
Temperature	-20°C~90°C (O-ring : NBR)
Material	Carbon/Stainless steel
Fluid	Hydraulic oil, Water

※Please contact us if you require specifications above the rated pressure.

【2. Primary Materials】

Number	Parts name	Material	
①	Flange	SS400 equivalent / SUS304 equivalent	
②	Brim	C45E4/SUS304	
③	Sleeve	Carbon steel/SUS316	
④	O-ring	NBR	
Ref.	⑤	Hex cup bolt	SCM435/SUS304 equivalent
	⑥	Washer	Carbon steel/SUS304 equivalent
	⑦	Hex nut	Carbon steel/SUS304 equivalent



【3.Applicable pipe standards (for reference)】

- (1) JIS G 3454 Carbon steel pipes for general service: STPG 370
- (2) JIS G 3455 Carbon steel pipes for high pressure service: STS 370
- (3) JIS G 3456 Carbon steel pipes for high temperature service: STPT 370
- (4) SUS 304TP and SUS 316TP specified in stainless steel piping for JIS 3459 piping

Table On-Site Flange Applicable pipe outer diameter dimensions and tolerances※

Nominal		pipe outer dia ϕ (mm)	tolerances
A	B		
15mm	(1/2")	21.7	± 0.3 mm
20mm	(3/4")	27.2	± 0.3 mm
25mm	(1")	34	± 0.3 mm
32mm	(1 · 1/4")	42.7	$\pm 0.8\%$
40mm	(1 · 1/2")	48.6	$\pm 0.8\%$
50mm	(2")	60.5	± 0.3 mm

Tolerances are in accordance with JIS G3454 Outer Diameter Tolerances for Cold-Finished Seamless Steel Pipes. However, 50mm (2") alone has strict allowable tolerances.

Type designation of On-site Flange

OSF — ※※ — ※※ — ※※ — ※

① Fitting Shape

Connection compatible flanges(JIS standard)	O-ring groove	Symbol
(SHA)	Yes	HA
(SHB)	No	HB
-	-	HF (HA/HB SET)
(SSA)	Yes	SA
(SSB)	No	SB
-	-	SF (SA/SB SET)

② Fitting Size

Size	Symbol
15mm (1/2")	15
20mm (3/4")	20
25mm (1")	25
32mm (1-1/4")	32
40mm (1-1/2")	40
50mm (2")	50

③ Material

Material	Symbol
Carbon steel	CS
SS 304 Equivalent	SUS

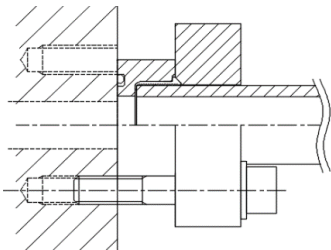
④ Connecting Parts

Set content	Symbol
Bolts (4ea) Washer (4ea)	A
Bolts (4ea), Washers (8ea), Hex nuts (4ea)	B
Bolts (4ea), Washers (8ea), Hex nuts (4ea)	C
Not required	Blank

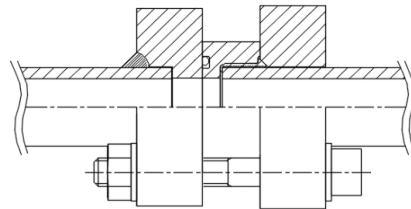
※ Select the connecting symbol (A, B, C) based on the pipe configuration from the three cases shown below.

The contents of connecting parts include the necessary bolts, washers, and nuts for piping determined by the combination of fitting size, material, and symbols of the connecting parts.

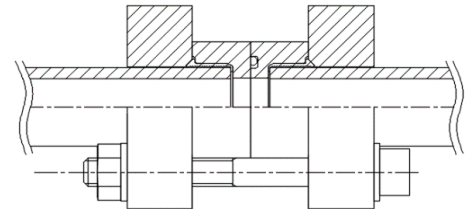
Refer to the table below for details on the material, strength, size, and other specifications of the parts.



Connect to equipment (Symbol A)



Connect to welding flange (Symbol B)



Connection between On-site flanges (Symbol C)

Table : Type symbols for connections, bolt thread size and overall bolt length

Fitting size	締結 Connect ion	Symbol A	Symbol B	Symbol C
		15 (15mm)	M10×L60	M10×L80
20 (20mm)		M10×L60	M10×L80	M10×L100
25 (25mm)		M12×L70	M12×L100	M12×L120
32 (32mm)		M12×L80	M12×L105	M12×L140
40 (40mm)		M16×L95	M16×L130	M16×L160
50 (50mm)		M16×L100	M16×L135	M16×L170

A=mm

Carbon steel

Bolt : Hex socket head bolt, Strength class (10.9 or 12.9)

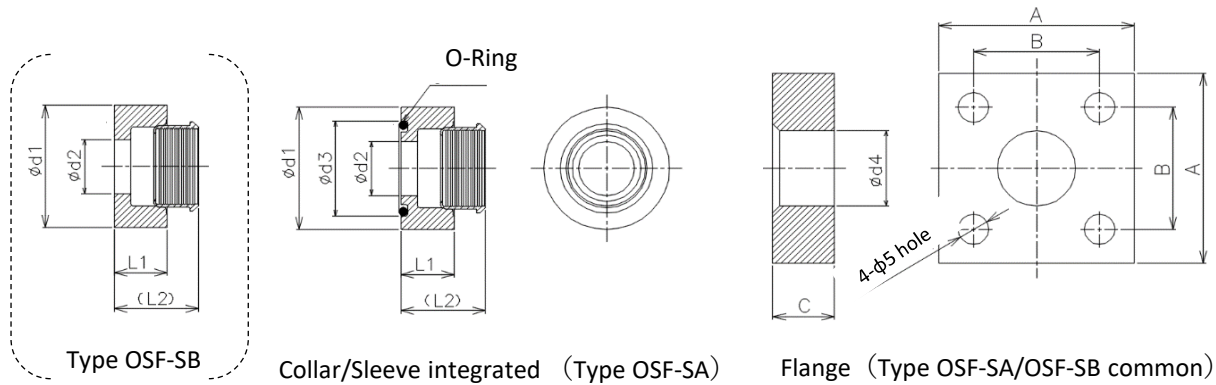
Nut : 10T

Stainless steel

Bolt : Hex socket head bolt, Strength class A2-70

Nut : A2-70

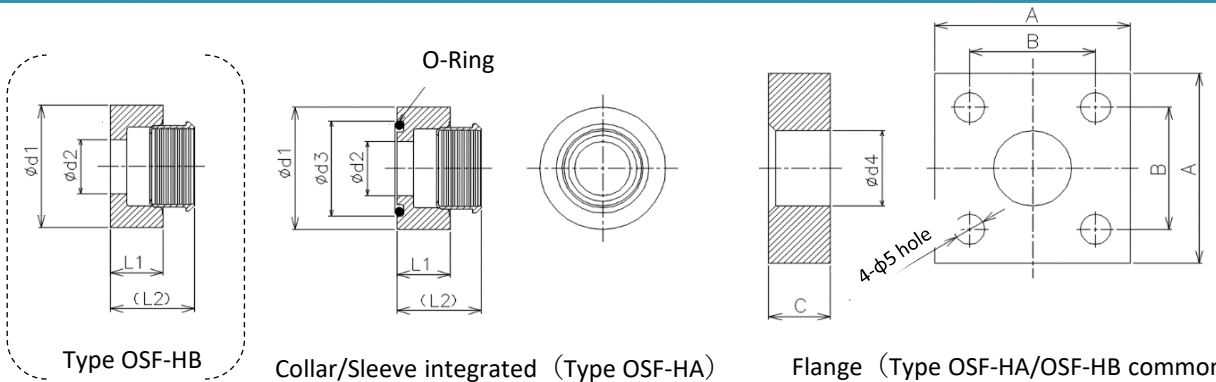
Dimension Table OSF-SA · OSF-SB



Unit: mm

Nominal Size	Pipe Size	A	A _(min)	A _(max)	B	C	d1	d2	d3	d4	d5	L1	(L2)	O ring	Ref.
															Bolt
OSF-SA-15 / OSF-SB-15	15A (1/2B)	54	53	58	36	22	40	16	30	22.3	11	19	30.4	G25	M10
OSF-SA-20 / OSF-SB-20	20A (3/4B)	58	57	62	40	22	45	20	35	27.8	11	19	29.7	G30	M10
OSF-SA-25 / OSF-SB-25	25A (1B)	68	67	73	48	28	55	25	40	34.6	13	23	36.4	G35	M12
OSF-SA-32 / OSF-SB-32	32A (1 · 1/4B)	76	73.5	81	56	28	65	31.5	45	43.3	13	31	47.7	G40	M12
OSF-SA-40 / OSF-SB-40	40A (1 · 1/2B)	92	88.5	98	65	36	72	37.5	55	49.2	18	31	47.7	G50	M16
OSF-SA-50 / OSF-SB-50	50A (2B)	100	98	106	73	36	84	47.5	65	61	18	37.5	60	G60	M16

Dimension Table OSF-HA · OSF-HB



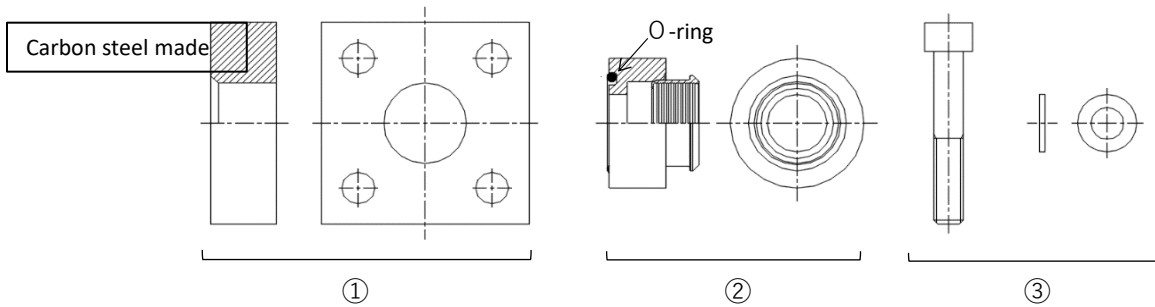
Unit: mm

Nominal Size	Pipe Size	A	A _(min)	A _(max)	B	C	d1	d2	d3	d4	d5	L1	(L2)	O ring	Ref.
															Bolt
OSF-HA-15 / OSF-HB-15	15A (1/2B)	63	62	67	40	22	40	16	30	22.3	11	19	30.4	G25	M10
OSF-HA-20 / OSF-HB-20	20A (3/4B)	68	67	72	45	22	45	20	35	27.8	11	19	29.7	G30	M10
OSF-HA-25 / OSF-HB-25	25A (1B)	80	78.5	85	53	28	55	25	40	34.6	13	23	36.4	G35	M12
OSF-HA-32 / OSF-HB-32	32A (1 · 1/4B)	90	88.5	95	63	28	65	31.5	45	43.3	13	31	47.7	G40	M12
OSF-HA-40 / OSF-HB-40	40A (1 · 1/2B)	100	98	106	70	36	72	37.5	55	49.2	18	31	47.7	G50	M16
OSF-HA-50 / OSF-HB-50	50A (2B)	112	108	118	80	36	84	47.5	65	61	18	37.5	60	G60	M16

Order Examples

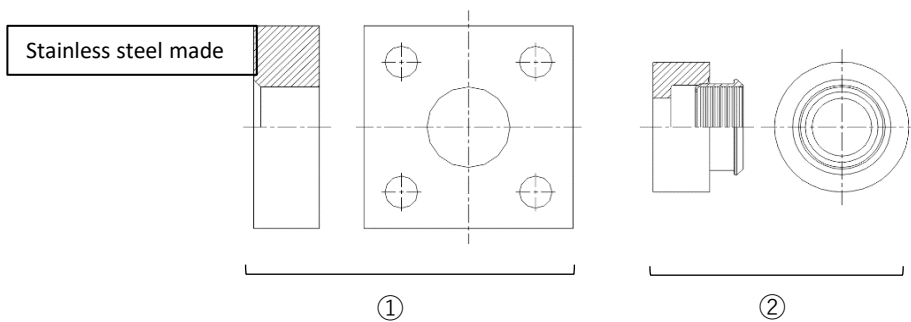
Ex.1) Type : O S F – S A – 2 0 – C S – A

- ① Flange × 1
- ② Collar/Sleeve integrated (with O-ring) × 1
- ③ Connecting parts {Hex socket head bolt (M10 × L 60) × 4, Washer × 4}



Ex.2) Type : O S F – S B – 2 0 – S U S

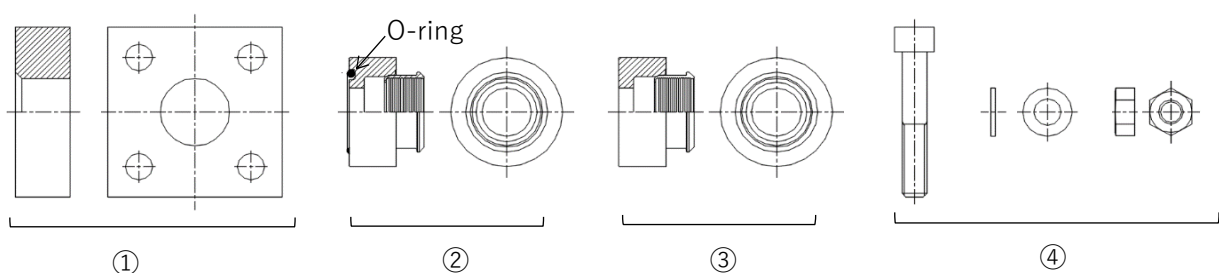
- ① Flange × 1
- ② Collar/Sleeve integrated × 1



Ex.3) Type : O S F – S F – 2 0 – C S – C

- ① Flange × 2
- ② Collar/Sleeve integrated (with O-ring) × 1
- ③ Collar/Sleeve integrated × 1
- ④ Connecting parts {Hex socket head bolt (M10 × L 100) × 4, Washer × 8, Hex nut × 4}

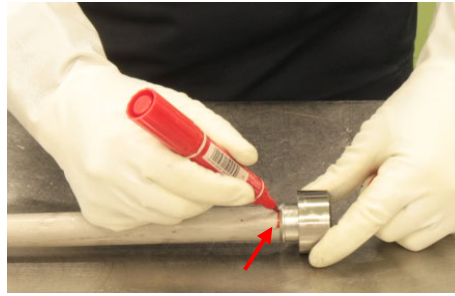
Carbon steel made



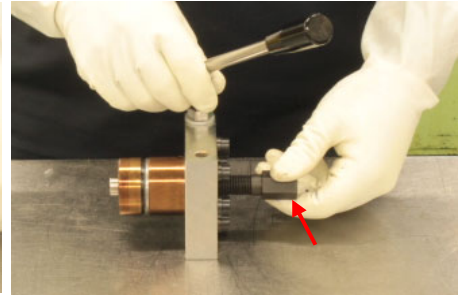
Swaging jig and procedures for sizes 15A (1/2B) and 20A (3/4B)



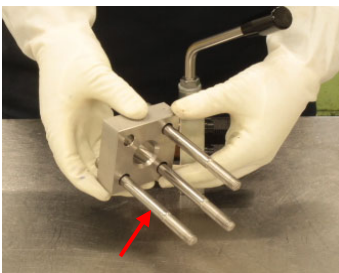
Swaging jig appearance



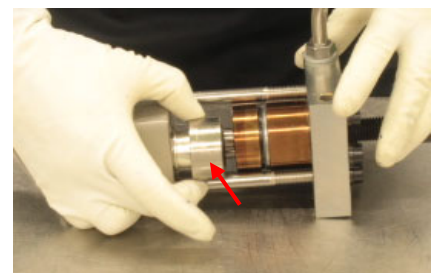
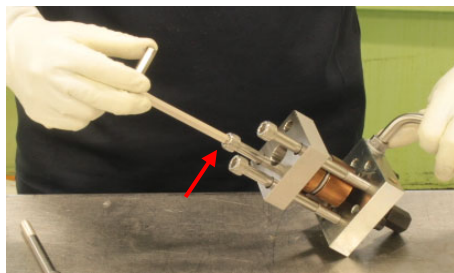
① Insert collar/sleeve into the tube until it reaches the bottom, then mark at the boundary between the components.



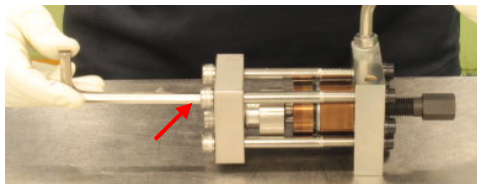
② Turn the push screw to the left and bring it back in front.



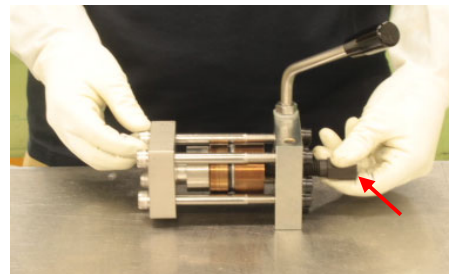
③ Pass only 3 bolts through the flange, and using a wrench lightly screw them into the threaded holes on the main body of swaging fixture of matching sizes, until they contact the stopper.



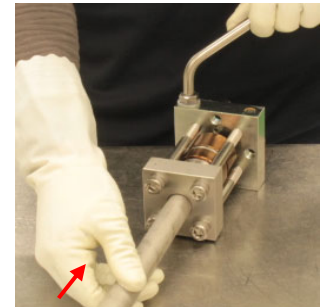
④ Insert Collar/Sleeve through the gap.



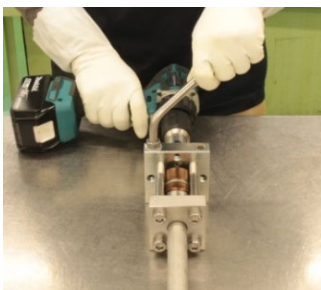
⑤ Screw in the fourth bolt following the same procedure as in step ③.



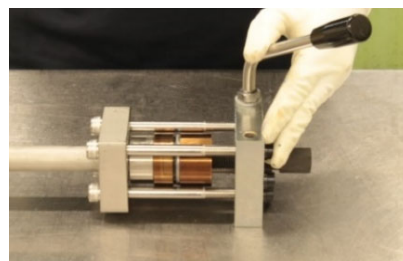
⑥ Turn the push screw to the right and finger-tighten it until there is no rattling between the parts. At this point, the cores of the parts naturally align.



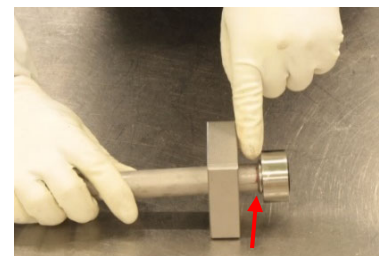
⑦ Insert the tube to the bottom.



⑧ Firmly grip the handle and tighten the push screw with an impact wrench ※ until it no longer advances.



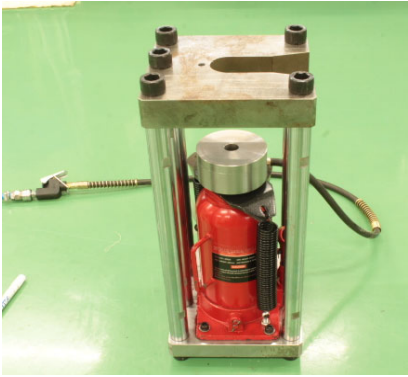
⑨ After tightening, loosen the push screw and remove the 4 bolts. The photo shows the completely tightened state.



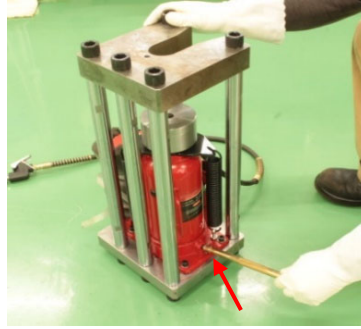
⑩ Finally, confirm that the mark made in step ① has not shifted.

※Tightening torque 300N · m~600N · m、Socket size 19mm (Hexagonal width of push screw 19mm)

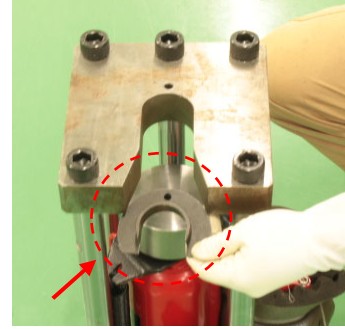
Swaging jigs and procedures for sizes 5A (1/2B) ~50A (2B)



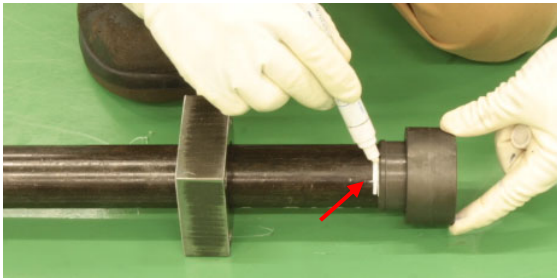
Swaging jig appearance
(Air Hydraulic Jack※)
※Operating air pressure
0.5MPa~0.9MPa



① Close the relief valve of the hydraulic jack.



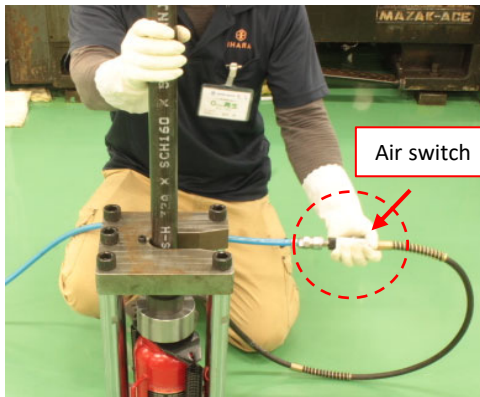
② Attach a fixture corresponding to the tube size to the main body of the swaging fixture.



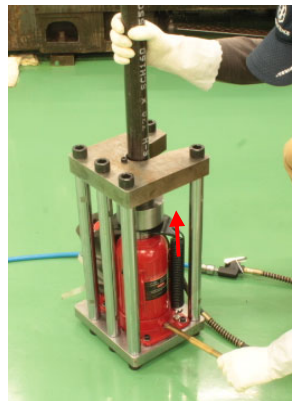
③ Insert the flange into the tube, then slide Sleeve/ Collar all the way in. Mark at the boundary between the components.



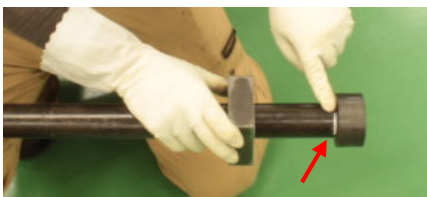
④ While supporting the components and preventing them from falling, insert the tube into the U-shaped flange, reaching the back. Place it on top of the hydraulic jack. In this position, the core of the jack and the components align.



⑤ While supporting the tube, turn on the air switch and jack it up until it no longer rises.



⑥ Gently open the relief valve of the hydraulic jack, return the cylinder to its original position, and remove the tube assembly.



⑦ Finally, confirm that the mark made in step ③ has not shifted.



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Warning

If you don't select and handle fittings, valves and related accessories in an adequate manner, it may injure human beings and damage applicable systems. Within the responsibility and authorization of users and piping designers, fittings, valves and related accessories shall be adequately selected, assembled, used and maintained based on the applicable conditions and product conformity to the system to be applied. Please read our operation manual carefully and feel free to contact us if you have any questions or requests.

WARRANTY CLAUSE

1. Warranty Period

The warranty period of the products is one (1) year from start of use or one and half (1.5) years after delivery, whichever comes earlier. However, the products with special specification and/or the cases used deviating from the design specification shall be exempted.

2. Scope of Warranty

Any failure and damage under maker's responsibility found during the warranty period, the substitutes and/or replacement parts shall be provided free of charge. The warranty shall not be applied to a claim for the liquidated damages.

■URL : <http://www.ihara-sc.co.jp/en/>

CAT No. GKT02

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