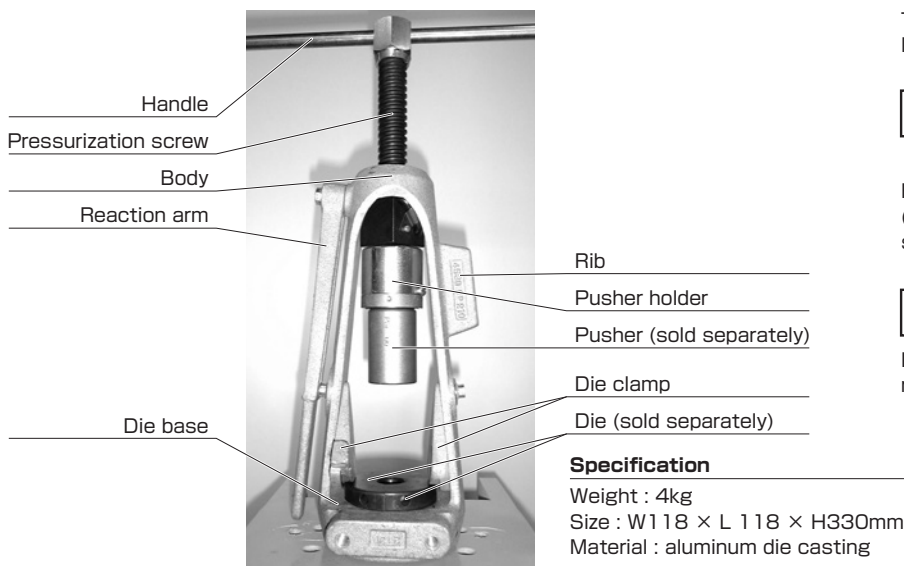


Swage coupling (with Mark 10)

Setup and specifications



There are two ways to set Mark 10 as follows:

1 Fixed on vice (recommended)

Fix the rib of Mark 10 with a vice. (In this document, we follow this way of setting.)

2 Laid on floor

Lay Mark 10 with the support of the reaction arm.

Assembling method

1 Preparation



Prepare appropriate hose, swage coupling, pusher, die, hose cutter, holding die, lubricant*, plastic hammer, scale, and white pen.

* Lubricant...
Steel coupling : Nihon Kosakuyu PG3740
Stainless coupling :
size O2-12 : JX Nippon Oil & Energy CFH68
size 16 : JX Nippon Oil & Energy DPX100

🔧 A 50cc bottle of lubricant (for steel coupling) comes with a set.

CAUTION If the recommended lubricant is not applied, coating damage and/or socket buckling may occur.

2 Hose cutting



Determine the cutting length of the hose based on the hose assembling length and cut the hose squarely using the special hose cutter.

* When cutting a wire braided hose such as 1100 series hose, secure the portion to be cut with plastic tape, etc. in advance in order to prevent the wire from breaking into pieces after cutting, and then cut the secured portion with a commercially available wire cutter, etc. Note that you need to remove the plastic tape before inserting the hose into a fitting.

WARNING Do not touch the blade of the cutter.

CAUTION The slanted cut section may cause pullout of the hose and leakage.

CAUTION If the blade is blunt, correct assembly is not possible. Change the hose cutter in this case.

3 Marking the insertion length of the hose



Measure the insertion length of the hose with a scale and mark the hose at the insertion length with the white pen.

🔧 It is recommended to draw a marking line with a width of about 2 mm in order to check it after swaging.

4 Preparation for the hose insertion



Apply the lubricant to the inner surface of the hose and insert the coupling to the marked position. When it is difficult, use the holding die to fix the hose and hit the coupling with the plastic hammer.

CAUTION

If the insertion is incomplete, pullout of the hose, leakage, or damage may occur.

5 Fixing Mark 10

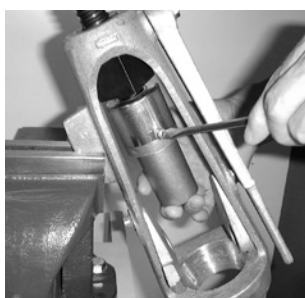


Fix the rib of Mark 10 on the vice and pull out the pressurization screw to the longest position. The die clamp should be open as shown in the figure.

CAUTION

If you release your grip, the pusher holder will come down by its own weight. Take care not to trap your fingers.

6 Attachment of pusher

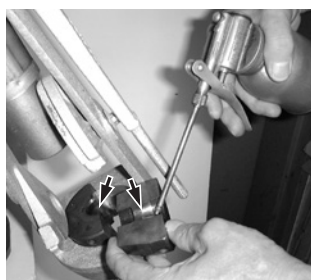


Attach the pusher to the pusher holder. Fix the pusher by turning the screw of the pusher holder with the hand so that the pusher can freely rotate. Check if the pusher is really able to rotate.

CAUTION

The wrong choice of pusher will cause pullout of the hose, leakage, or damage.

7 Application of lubricant



Apply lubricant to the inner surface of the die.

* Lubricant...
Steel coupling : Nihon Kosakuyu PG3740
Stainless coupling :
size 02-12 : JX Nippon Oil & Energy CFH68
size 16 : JX Nippon Oil & Energy DPX100

CAUTION

If the recommended lubricant is not applied, coating damage and/or socket buckling may occur.

8 Fixing a mate of the die



Fix a mate of the die onto the tapered base.

CAUTION

The wrong choice of pusher will cause pullout of the hose, leakage, or damage.

9 Insertion to pusher



Insert the coupling, to which the hose is inserted, into the pusher.

10 Fixing the other mate of the die



Put the other mate of the die on the base. Turn the die clamp to lock the die and fix it firmly.

CAUTION

Do not put your hand in the die.

11 Adjustment of positions of die and coupling



Hold the hose beneath the die base with your left hand. Pushing the coupling toward the pusher, turn the pressurization screw clockwise with your right hand to send the pusher down. As the pusher comes down, adjust the positions of the die hole and the coupling edge so they coincide.

CAUTION

Discrepancy of the positions of the die hole and the coupling edge might cause damage to the coupling, such as socket defect.

12 Rotating handle



Attach the handle to the pressurization screw and rotate the handle clockwise to send the pusher down. Continue until the pusher touches the die.

CAUTION

If you stop before the pusher touches the die, the swaging is insufficient and pullout of the hose or leakage may occur.

CAUTION

If you do not stop rotating the handle even after the pusher reaches the die, the tool may crash.

CAUTION

Do not take your hands off the handle abruptly. The handle will return in a dangerous fashion.

CAUTION

For safe operation, do not get your hands trapped.

13 Detaching hose assembly



Un-install the die clamp, rotate the pressurization screw anti-clockwise to send the pusher up, and remove the hose assembly from the die. If it is difficult to remove the assembly, gently tap the die with the plastic hammer.

CAUTION

Pay strict attention to prevent the die from falling.

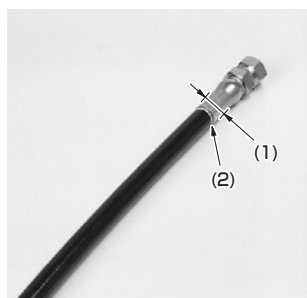
14 Completion of hose assembling



CAUTION

Before putting the die in storage, remove dust from the inner surface and thinly grease it to prevent rust.

15 Check of hose assembly



- (1) Check the swage diameter (see p.81).
- (2) Check the mark position of the hose insertion length.
- (3) Check the appearance of the coupling. (Check for any damage or misalignment of the track of the die.)
- (4) Check the appearance of the hose. (Check for any kink or cut.)

Should problems occur, do not use the hose assembly.

For details such as maintenance, please read the instruction manual that comes with the product.

Swage coupling (applicable to both Mark 10 and Mark 9)

[Swage coupling] * For any couplings which are not introduced in the catalogue, please contact us.

A Coupling deduction length

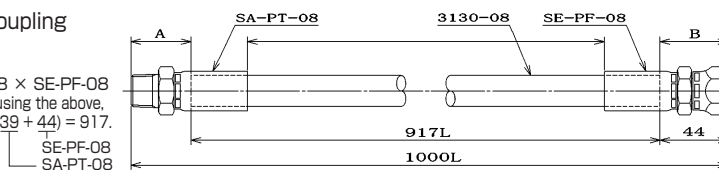
The cutting length of a hose is obtained by the hose-coupling assembly length minus the coupling deduction length*.

* Coupling deduction length :

A (SA coupling) and

B (SE, SF coupling) in the figure.

Ex. 3130-08 × 1000L SA-PT-08 × SE-PF-08
If you wish to make a hose assembly using the above, cut the hose at the length of $1000 - (39 + 44) = 917$.



B Selection of pusher die

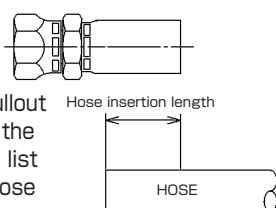
Part numbers are punched on pushers and dies.

The wrong pusher or die will cause oil leakage or pullout of the hose, or disable hose assembling, so always check the number.

C Hose insertion length

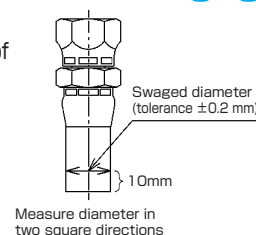
Hose insertion lengths are presented in the list below.

A shortage of hose insertion length will cause oil leakage or pullout of the hose. So mark the hose at the hose insertion length given in the list and insert the coupling into the hose to meet the marked position.



D Socket outer diameter after swaging

The socket outer diameter after swaging is measured at the point of about 10 mm from the socket end. Please regularly check the finished size. If the size is not appropriate, consult us to avoid possible oil leakage or pullout of the hose.



[Steel coupling]

Hose series	Hose size	Swage coupling part No.	A		B		C		D	
			Coupling deduction length (mm)	Pusher part No.	Die part No.	Hose insertion length (mm)	Socket outer diameter after swaging (mm)			
LB70	02	SSA-PT-02	26.0	PSA-02	SPLB70-02	12	8.5±0.1			
		SSE-PF-02	30.0	PSE-02-001						
		SSF-PF-02								
LB70 · LF70	04	SA-PT-04-14	32.0	PSA-04	SP14-04-07	19	12.4±0.1			
		SE-PF-04-14	31.0	PSE-14-04						
		SF-PF-04-14								
LB70 · LF70	06	SA-PT-06-14	33.0	PSA-06	SP14-06-07	22	15.6±0.1			
		SE-PF-06-14	32.0	PSE-14-06						
		SF-PF-06-14								
LB70 · LF70	08	SA-PT-08-14	37.0	PSA-08	SP14-08	24	19.5±0.2			
		SE-PF-08-14	37.0	PSE-14-08						
		SF-PF-08-14								
LB70	10	SA-PT-10-N30	40.0	PSA-10	SP07-10	40	24.4±0.2			
		SE-PF-10-N30	44.0	PSE-10						
		SF-PF-10-N30								
LB70	12	SA-PT-12	43.0	PSA-12	SP3-12	40	28.1±0.2			
		SE-PF-12	47.0	PSE-12						
		SF-PF-12								
LB70	16	SA-PT-16	48.0	PSA-16	SP07-16	52	34.2±0.2			
		SE-PF-16	53.0	PSE-16						
		SF-PF-16								
1000 · 1100 · 1400	04	SA-PT-04-14	32.0	PSA-04	SP14-04	19	12.7±0.2			
		SE-PF-04-14	31.0	PSE-14-04						
		SF-PF-04-14								
	06	SA-PT-06-14	33.0	PSA-06	SP14-06	22	15.9±0.2			
		SE-PF-06-14	32.0	PSE-14-06						
		SF-PF-06-14								
1000	08	SA-PT-08-14	37.0	PSA-08	SP14-08	24	19.5±0.2			
		SE-PF-08-14	37.0	PSE-14-08						
		SF-PF-08-14								
1100	08	SA-PT-08-14	37.0	PSA-08	SP10-08	24	19.9±0.2			
		SE-PF-08-14	37.0	PSE-14-08						
		SF-PF-08-14								
1500	03	SA-PT-03-14	30.0	PSA-04	SP14-03	14.5	10.5±0.1			
		SE-PF-03-14	29.0	PSE-14-04						
		SF-PF-03-14								

Hose series	Hose size	Swage coupling part No.	A	B		C	D
			Coupling deduction length (mm)	Pusher part No.	Die part No.	Hose insertion length (mm)	Socket outer diameter after swaging (mm)
3130 · 34PW	02	SSA-PT-02	26.0	PSA-02	SP3-02-001	12	9.2±0.2
		SSE-PF-02	30.0	PSE-02-001			
		SSF-PF-02					
N3130 · 3700 3130 · 3000 · 34PW	03	SA-PT-03	32.0	PSA-04	SP3-03	26	12.4±0.2
		SE-PF-03	33.0	PSE-03			
		SF-PF-03					
	04	SA-PT-04	33.0	PSA-04	SP3-04	28	14.4±0.2
		SE-PF-04	36.0	PSE-04			
		SF-PF-04					
	05	SA-PT-05	35.0	PSA-06	SP3-05	28	16.0±0.2
		SE-PF-05	38.0	PSE-05			
	SF-PF-05						
	06	SA-PT-06	35.0	PSA-06	SP3-06	33	17.6±0.2
SE-PF-06		39.0	PSE-06				
SF-PF-06							
08	SA-PT-08	39.0	PSA-08	SP3-08	37	21.5±0.2	
	SE-PF-08	44.0	PSE-08				
SF-PF-08							
N3130 · 3700 3130 · 3000	12	SA-PT-12	43.0	PSA-12	SP3-12	40	28.1±0.2
		SE-PF-12	47.0	PSE-12			
		SF-PF-12					
	16	SA-PT-16	48.0	PSA-16	SP3-16	52	34.5±0.2
SE-PF-16		53.0	PSE-16				
SF-PF-16							
N3000 · HT	04	SA-PT-04	33.0	PSA-04	SPN-04	28	14.6±0.2
		SE-PF-04	36.0	PSE-04			
		SF-PF-04					
	06	SA-PT-06-N30	35.0	PSA-06	SPN-06	33	18.9±0.2
		SE-PF-06-N30	39.0	PSE-06			
	SF-PF-06-N30						
	08	SA-PT-08-N30	39.0	PSA-08	SPN-08	37	22.7±0.2
SE-PF-08-N30		44.0	PSE-08				
SF-PF-08-N30							
10	SA-PT-10-N30	40.0	PSA-10	SPN-10	40	26.2±0.2	
	SE-PF-10-N30	44.0	PSE-10				
SF-PF-10-N30							
3R80	03	SA-PT-03-3R	35.0	PSA-04	SPH-03	23	13.5±0.2
		SE-PF-03-3R	36.0	PSE-03			
		SF-PF-03-3R					
	04	SA-PT-04-3R	33.0	PSA-04	SPH-04	28	17.2±0.2
		SE-PF-04-3R	36.0	PSE-04			
	SF-PF-04-3R						
	06	SA-PT-06-N30	35.0	PSA-06	SPH-06	33	20.1±0.2
SE-PF-06-N30		39.0	PSE-06				
SF-PF-06-N30							
08	SA-PT-08-N30	39.0	PSA-08	SPH-08	37	23.0±0.2	
	SE-PF-08-N30	44.0	PSE-08				
SF-PF-08-N30							
3R80 · 34PW	12	SA-PT-12-3R	43.0	PSA-12	SPH-12	40	29.5±0.2
		SE-PF-12-3R	47.0	PSE-12			
		SF-PF-12-3R					
	16	SA-PT-16-3R	48.0	PSA-16	SPH-16	52	37.8±0.2
		SE-PF-16-3R	53.0	PSE-16			
SF-PF-16-3R							

Hydraulic hose products

Hydraulic Hose

Airless-painting Hose

Clean Hose

Adapter

Hose Guard
Parts, Specially-
Treated Parts

Assembling
Machine,
Jig, Tool

Hose
Assembling
Method

Technical
Document

Reference
Document

Swage coupling (applicable to both Mark 10 and Mark 9)

[Swage coupling] * For any couplings which are not introduced in the catalogue, please contact us.

A Coupling deduction length

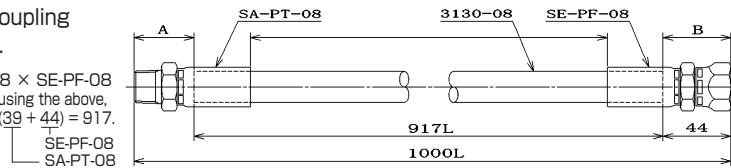
The cutting length of a hose is obtained by the hose-coupling assembly length minus the coupling deduction length*.

* Coupling deduction length :

A (SA coupling) and

B (SE, SF coupling) in the figure.

Ex. 3130-08 × 1000L SA-PT-08 × SE-PF-08
If you wish to make a hose assembly using the above,
cut the hose at the length of $1000 - (39 + 44) = 917$.



B Selection of pusher die

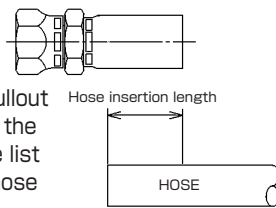
Part numbers are punched on pushers and dies.

The wrong pusher or die will cause oil leakage or pullout of the hose, or disable hose assembling, so always check the number.

C Hose insertion length

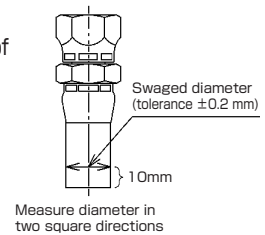
Hose insertion lengths are presented in the list below.

A shortage of hose insertion length will cause oil leakage or pullout of the hose. So mark the hose at the hose insertion length given in the list and insert the coupling into the hose to meet the marked position.



D Socket outer diameter after swaging

The socket outer diameter after swaging is measured at the point of about 10 mm from the socket end. Please regularly check the finished size. If the size is not appropriate, consult us to avoid possible oil leakage or pullout of the hose.



[Stainless steel coupling]

Hose series	Hose size	Swage coupling part No.	A Coupling deduction length (mm)	Pusher part No.	B Die part No.		C Hose insertion length (mm)	D Socket outer diameter after swaging (mm)		
					First	Second				
1000 · 1100 · 1400	04	SA-PT-04-14-S	32.0	PSA-04	SPH-03	SP14-04	19	12.7±0.2		
		SE-PF-04-14-S	31.0	PSE-14-04						
		SF-PF-04-14-S								
	06	SA-PT-06-14-S	33.0	PSA-06	SP3-05-1-ST	SP14-06				
		SE-PF-06-14-S	32.0	PSE-14-06						
		SF-PF-06-14-S								
1000	08	SA-PT-08-14-S	37.0	PSA-08	SPH-06-1-ST	SP14-08	24	19.5±0.2		
		SE-PF-08-14-S	37.0	PSE-14-08						
		SF-PF-08-14-S								
1100	08	SA-PT-08-14-S	37.0	PSA-08	SPH-06-1-ST	SP10-08			24	19.9±0.2
		SE-PF-08-14-S	37.0	PSE-14-08						
		SF-PF-08-14-S								
3130 · 34PW	02	SSA-PT-02-S	26.0	PSA-02	SP3-02-001	—	12	9.2±0.2		
		SSE-PF-02-S	30.0	PSE-02-001						
		SSF-PF-02-S								
N3130 · 3700 3130 · 3000	03	SA-PT-03-S	32.0	PSA-04	SP3-03-1-ST	SP3-03			24	12.4±0.2
		SE-PF-03-S	33.0	PSE-03						
N3130 · 3700	04	SA-PT-04-S	33.0	PSA-04	SP3-04-1-ST	KM-04				
		SE-PF-04-S	36.0	PSE-04						
		SF-PF-04-S								
3130 · 3000 · 34PW	04	SA-PT-04-S	33.0	PSA-04	SP3-04-1-ST	SP3-04	28	14.4±0.2		
		SE-PF-04-S	36.0	PSE-04						
		SF-PF-04-S								
N3130 · 3700 3130 · 3000 · 34PW	06	SA-PT-06-S	35.0	PSA-06	SP3-06-1-ST	SP3-06			33	17.6±0.2
		SE-PF-06-S	39.0	PSE-06						
		SF-PF-06-S								
	08	SA-PT-08-S	39.0	PSA-08	SP3-08-1-ST	SP3-08	37	21.5±0.2		
		SE-PF-08-S	44.0	PSE-08						
		SF-PF-08-S								
N3130 · 3700 3130 · 3000	12	SA-PT-12-S	43.0	PSA-12	SP3-12-1-ST	SP3-12			40	28.1±0.2
		SE-PF-12-S	47.0	PSE-12						
		SF-PF-12-S								
	16	SA-PT-16-S	48.0	PSA-16	SP3-16-1-ST	SP3-16	52	34.5±0.2		
		SE-PF-16-S	53.0	PSE-16						
		SF-PF-16-S								

Hose series	Hose size	Swage coupling part No.	A		B		C	D
			Coupling deduction length (mm)	Pusher part No.	Die part No.		Hose insertion length (mm)	Socket outer diameter after swaging (mm)
					First	Second		
N3000 · HT	04	SA-PT-04-S	33	PSA-04	SP3-04-1-ST	SPN-04	28	14.6±0.2
		SE-PF-04-S	35	PSE-04				
	06	SA-PT-06-N30-S	34	PSA-06	SPH-06-1-ST	SPN-06	33	18.9±0.2
		SE-PF-06-N30-S	38	PSE-06				
	08	SA-PT-08-N30-S	39	PSA-08	SPH-08-1-ST	SPN-08	37	22.7±0.2
		SE-PF-08-N30-S	43	PSE-08				
3R80	04	SA-PT-04-3R-S	33	PSA-04	SPH-04-1-ST	SPH-04	28	17.2±0.2
		SE-PF-04-3R-S	35	PSE-04				
	06	SA-PT-06-N30-S	34	PSA-06	SPH-06-1-ST	SPH-06	33	20.1±0.2
		SE-PF-06-N30-S	38	PSE-06				
	08	SA-PT-08-N30-S	39	PSA-08	SPH-08-1-ST	SPH-08	37	23.0±0.2
		SE-PF-08-N30-S	43	PSE-08				
3R80 · 34PW	12	SE-PF-12-3R-S	47	PSE-12	SPH-12-1-ST	SPH-12	40	29.5±0.2
	16	SE-PF-16-3R-S	53	PSE-16	SPH-16-1-ST	SPH-16	52	37.8±0.2
34PW	04	SE-G-04-PW	36	PSE-04	SP3-04-VC	—	28	14.4±0.2
	06	SE-G-06-PW	39	PSE-06	SP3-06-VC	—	33	17.6±0.2
	08	SE-G-08-PW	44	PSE-08	SP3-08-VC	—	37	21.5±0.2
	12	SE-G-12-PW	47	PSE-12	SPH-12-1-ST	SPH-12-VC	40	29.5±0.2
	16	SE-G-16-PW	53	PSE-16	SPH-16-1-ST	SPH-16-37VC	52	37.0±0.2
	04	SE-G-04-PWL	31	PSE-04-PWL	SPP-04-VC	—	11	14.7±0.2
	06	SE-G-06-PWL	32	PSE-06-PWL	SPP-06-VC	—	11	18.0±0.2
	08	SE-G-08-PWL	39	PSE-08-PWL	SPP-08-VC	—	14	21.8±0.2
	12	SE-G-12-PWL	42	PSE-12-PWL	SPP-12-VC	—	21	29.6±0.2
	16	SE-G-16-PWL	45	PSE-16-PWL	SPP-16-VC	—	29	37.2±0.2

Hydraulic Hose

Airless-painting Hose

Clean Hose

Adapter

Hose Guard Parts, Specially-Treated Parts

Assembling Machine, Jig, Tool

Hose Assembling Method

Technical Document

Reference Document