SUMITOMO RIKO GROUP

SUMITOMO RIKO Hosetex

Hydraulic Hoses

No.2010

Contents

Summary

Hydraulic Hose Series

Accessories

Technical Contents

Specification

Series			SIB SERIES				SHD SERIES	
Size			35	70	210	280	280	350
Spec	mm	inch	3.5 (35)	7 (70)	21 (210)	28 (280)	28 (280)	35 (350)
MAX WORKING PRESSURE MPa (bar)	6	1/4	3.5 (35)	7 (70)	21 (210)	28 (280)		
	9	3/8	3.5 (35)	7 (70)	21 (210)	28 (280)		
	12	1/2	3.5 (35)	7 (70)	21 (210)		28 (280)	35 (350)
	15	5/8		7 (70)	21 (210)		28 (280)	35 (350)
	19	3/4	3.5 (35)	7 (70)	21 (210)		28 (280)	35 (350)
	25	1	3.5 (35)	7 (70)	21 (210)		28 (280)	35 (350)
	32	1 1/4						
	38	1 1/2						
	50	2						
Min.Burst Pressure			Max.W.P.×4times				Max.W.P.×4times	
Operating Temperature			−40°C~+100°C (−40°F~+212°F)				−40°C~+100°C (−40°F~+212°F)	
Applicable Fluid			Mineral Hydraulic Oil				Mineral Hydraulic Oil	
Use			Construction Machine. Other Industrial Machine				Construction Machine. Other Industrial Machine	

IBG SERIES				HD SERIES	Series / Size / Spec	
35	70	140	210	350		
3.5 (35)	7 (70)	14 (140)	21 (210)	35 (350)	mm	inch
					1/4	6
					3/8	9
					1/2	12
					5/8	15
					3/4	19
					1	25
3.5 (35)	7 (70)	14 (140)	21 (210)	35 (350)	1 1/4	32
3.5 (35)	7 (70)	14 (140)	21 (210)	35 (350)	1 1/2	38
3.5 (35)	7 (70)	14 (140)	21 (210)	35 (350)	2	50
Max.W.P.×4times					Min.Burst Pressure	
−40°C~+100°C (−40°F~+212°F)				−40°C~+100°C (−40°F~+212°F)	Operating Temperature	
Mineral Hydraulic Oil					Applicable Fluid	
Construction Machine. Other Industrial Machine					Use	

MAX WORKING PRESSURE

MPa (bar)

The Point of Order

Hose Fitting and Operating Condition

1 Select Hose

- Usage,Purpose
- Fluid
- Max Working Pressure
- Operating temperature
- Condition of Hose Installation

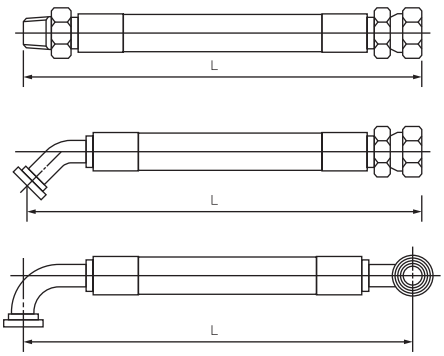
2 Select Fitting

- Shape, Thread
- Method of Seal

3 Assembled Hose

- Hose Length
  (Ordering Length)

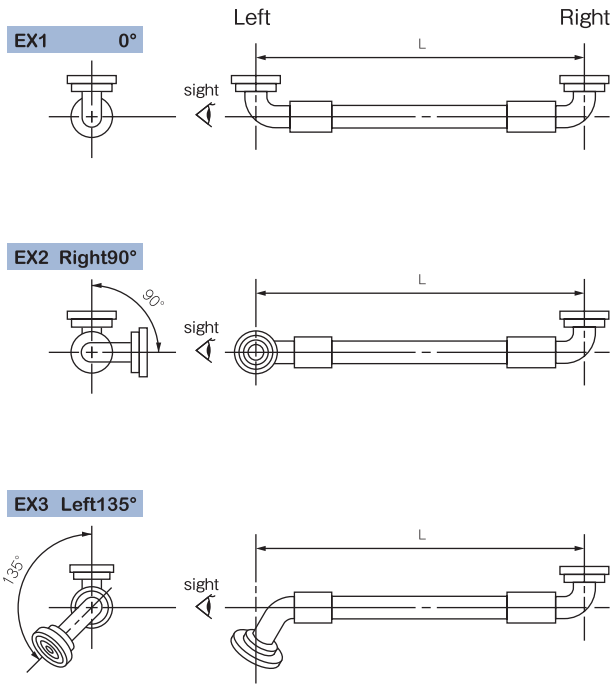
Hose Length Indication



Tolerance of Length Based on JIS B 8630(unit:mm)

Length	+	−
500	+10	0
500 ~ 1000	+15	0
1000 ~ 2000	+20	0
2000 ~ 5000	+1.0%	0
5000	+2.0%	0

Installation Angle of Bend Fitting



4 Order Form

Series	MAX W.P.	—	Inner Diameter	×	Length m/m	—	Fittings	+	Others	×	Quantity
EX)											
IBG	70	—	19	×	1,000	—	1+5	+	10	×	5
HW	35	—	12	×	1,500	—	1+4	+		×	20

We have placed just standard hydraulic hoses and fittings on this catalog.
So if you need other hoses and fittings,
please feel free to contact us.

SIB SERIES

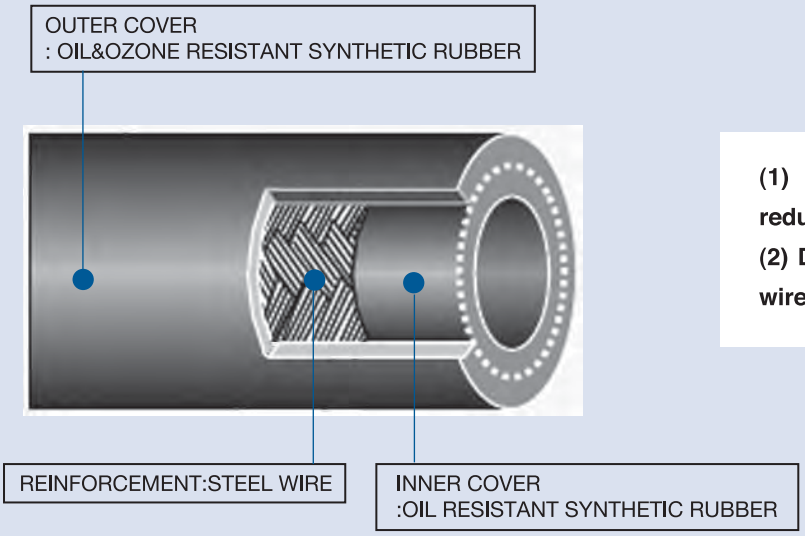
Ultra-Light &Flexible Hydraulic Hose "SIB SERIES"

SIB SERIES (FLEDYACE)

INTRODUCTION

There have been remarkably increased requirement for development of slim, light and flexible hydraulic hose to accommodate to the current trend of down-sizing of machinery. To comply with such requirements from the market, "SIB SERIES"was developed.

FEATURES



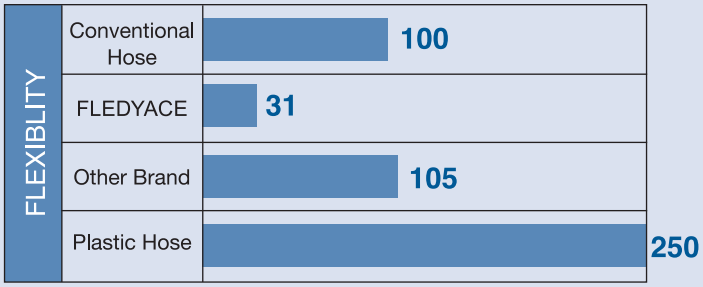
(1) Outer & inner rubber thickness have been reduced by pursuing the technologies.
(2) Developing and adopting high-tensioned wires, wire thickness as also been remarkably reduced.

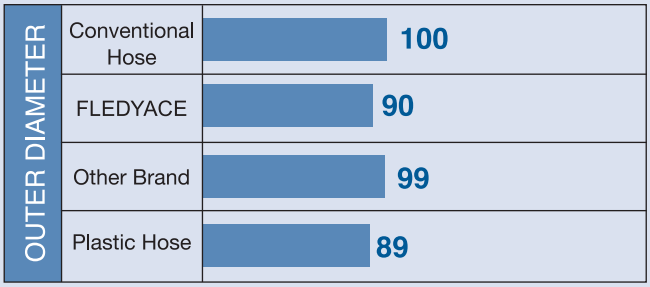
FEATURES ◆CHARACTERISTICS

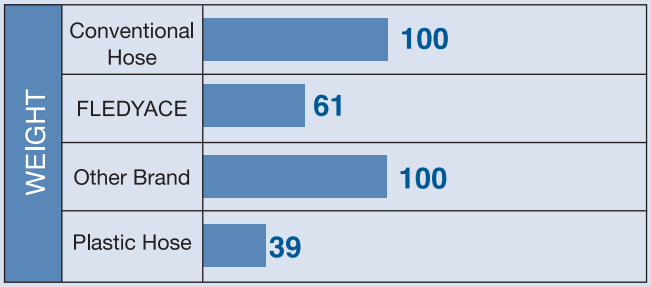
Comparison with Conventional Hose and Other Brand Hose

SIB SERIES is remarkably thinner, lighter and more flexible than conventional hoses.

Ratio comparing to conventional hose(%)7.0MPa-9







SIB35

HOSE STRUCTURE

INNER COVER: OIL RESISTANT SYNTHETIC RUBBER
REINFORCEMEMT: TEXTILE
OUTER COVER: OIL&OZONE RESISTANT SYNTHETIC RUBBER

RECOMMENDED FLUIDS

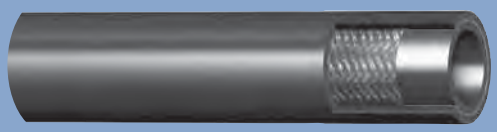
MINERAL SYNTHETIC OIL

OPERATING TEMPERATURE

-40°C~+100°C(-40°F~+212°F)

HOSE STRUCTURE&REINFORCEMEMT

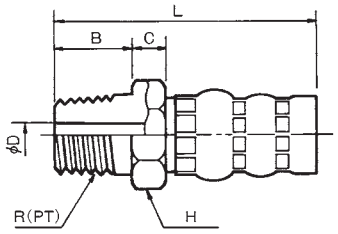
1T/B



SIZE	REINFORCEMEMT	INNER DIAMETER mm (inch)	OUTER DIAMETER mm	MAX WORKING PRESSURE MPa (bar)	MIN.BURST PRESSURE MPa (bar)	MIN.BEND RADIUS mm	WEIGHT g/m
6	1T/B	6.3(1/4)	11.5	3.5(35)	14(140)	45	100
9	1T/B	9.5(3/8)	15.2	3.5(35)	14(140)	60	150
12	1T/B	12.7(1/2)	18.5	3.5(35)	14(140)	80	200
19	1T/B	19.0(3/4)	27.1	3.5(35)	14(140)	130	375
25	1T/B	25.4(1)	33.9	3.5(35)	14(140)	165	515

SIZE	B	C	D	H				R(PT)	L	WT
6	13	6	4.2	17				1/4	44	30
9	15	6	7.0	19				3/8	49	49
12	18	8	9.5	22				1/2	58	81
19	20	10	16.0	30				3/4	71	221
25	22	10	21.8	36				1	78	300

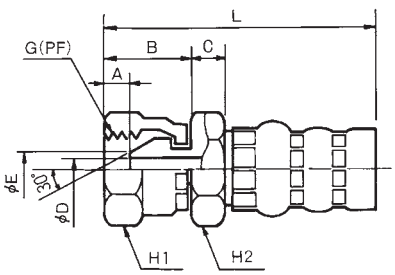
PART NO.1



male tapered pipe R thread type

SIZE	A	B	C	D	E	H1	H2	G(PF)	L	WT
6	5.5	16	6	4.2	7.5	19	17	1/4	47	44
9	6.5	19	6	7	10.0	22	19	3/8	53	66
12	8.5	21.5	8	9.5	13.0	27	22	1/2	61	104
19	9	23	10	16.1	19.0	36	30	3/4	74	266
25	9.5	25.5	10	21.8	24.7	41	36	1	81	355

PART NO.5

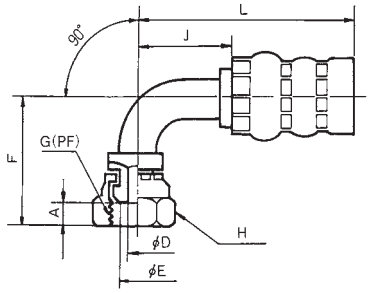


female parallel pipe G thread type
(male 30°seat)

SIB35

SIZE	A	D	E	F	H	J	G(PF)	L	WT
6	4.5	4.2	7	31.5	19	26	1/4	49	45
9	5.5	6.5	9.7	40	22	34	3/8	60	79
12	7.5	9.5	13	55	27	37	1/2	66	114
19	9	17	19	70	36	50	3/4	89	415
25	9.5	21	24	87	41	59	1	102	640

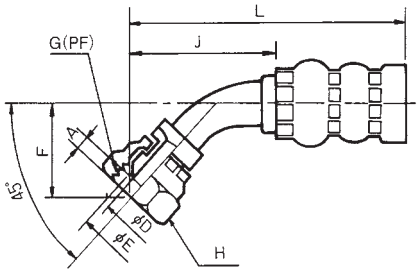
PART NO.905



female parallel pipe G thread type
(male 30°seat)
90°bend fitting

SIZE	A	D	E	F	H	J	G(PF)	L	WT
6	4.5	4.2	7	16.5	19	34.5	1/4	58	40
9	5.5	6.5	9.7	20.9	22	44.5	3/8	71	72
12	7.5	9.5	13	31.2	27	55.5	1/2	85	110
19	9	17	19	38	36	70	3/4	109	375
25	9.5	21	24	46.4	41	80	1	123	550

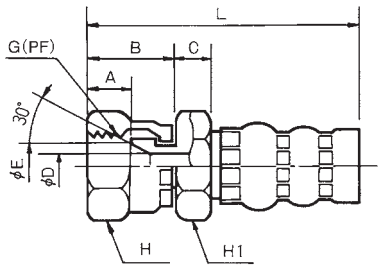
PART NO.455



female parallel pipe G thread type
(male 30°seat)
45°bend fitting

SIZE	A	B	C	D	E	H1	H2	G(PF)	L	WT
6	8.5	16	6	4.2	9.5	19	17	1/4	47	42
9	9.5	19	6	7	13	22	19	3/8	53	61
12	11	21.5	8	9.5	16	27	22	1/2	61	98
19	12.5	23	10	16	22	36	30	3/4	74	266
25	12.5	25.5	10	21.8	28	41	36	1	81	300

PART NO.4

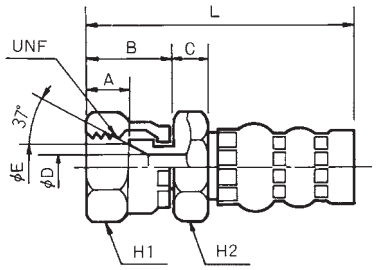


female parallel pipe G thread type
(female 30°seat)

SIB35

SIZE	A	B	C	D	E	H1	H2	G(PF)	L	WT
6	8.5	16	6	4.2	7.5	17	14	7/16-20	47	44
9	9.5	18.5	6.1	6.5	11	19	17	9/16-18	53	51
12	11	20.7	8.4	9.5	14.5	27	22	3/4-16	63	105
19	12.5	23.0	10	16.1	21.5	36	30	1·1/16-12	74	242
25	12.5	25.5	10	21.8	28	41	36	1·5/16-12	81	355

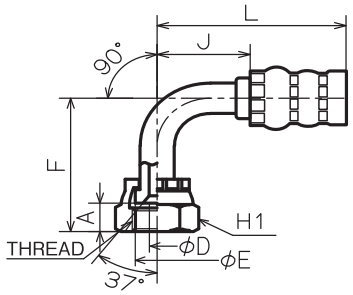
PART NO.4U



jis 37° female

SIZE	A	D	F	H1	J			UNF	L	WT
6	8.5	4.2	37	17	26			7/16-20	49	43
9	9.5	6.5	52	19	34			9/16-18	61	61
12	11	9.5	55	27	39			3/4-16	69	136

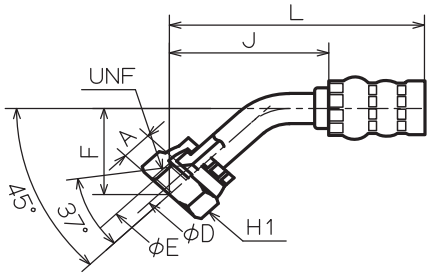
PART NO.904U



jis 37° female
90°bend fitting

SIZE	A	D	F	H1	J			UNF	L	WT
6	8.5	4.2	21	17	41			7/16-20	64	37
9	9.5	6.5	32	19	52			9/16-18	79	58
12	11	9.5	29.6	27	55.4			3/4-16	85	120

PART NO.454U

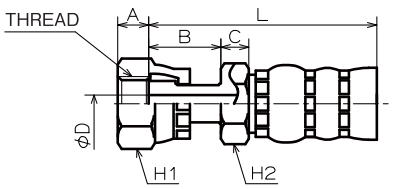


jis 37° female
45°bend fitting

SIB35

SIZE	A	B	C	D	H1	H2	UNF	L	WT
6	8.5	17.5	6	4.2	19	17	9/16-18	49	50
9	9	18.5	6	6.5	22	19	11/16-16	53	70
12	10	19.3	8.4	9.5	27	22	13/16-16	61	106

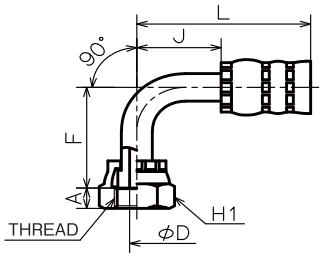
PART NO.KO



female O-ring face seal

SIZE	A	D	F	H1	J		UNF	L	WT
6	8.5	4.2	30	19	26		9/16-18	49	49
9	9	6.5	37	22	34		11/16-16	61	80
12	10	9.5	43.5	27	37		13/16-16	67	132

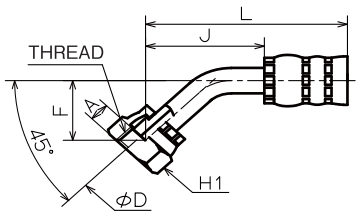
PART NO.90KO



female O-ring face seal
90°bend fitting

SIZE	A	D	F	H1	J		UNF	L	WT
6	8.5	4.2	21	19	41		9/16-18	64	49
9	9	6.5	22	22	54.9		11/16-16	81	80
12	10	9.5	22	27	51		13/16-16	81	121

PART NO.45KO



female O-ring face seal
45°bend fitting

SIB70

HOSE STRUCTURE

INNER COVER: OIL RESISTANT SYNTHETIC RUBBER
REINFORCEMEMT: STEEL WIRE
OUTER COVER: OIL&OZONE RESISTANT SYNTHETIC RUBBER

RECOMMENDED FLUIDS

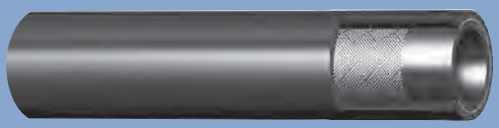
MINERAL SYNTHETIC OIL

OPERATING TEMPERATURE

-40°C~+100°C(-40°F~+212°F)

HOSE STRUCTURE&REINFORCEMEMT

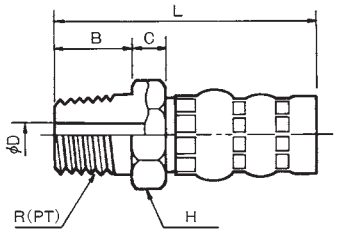
1W/B



SIZE	REINFORCEMEMT	INNER DIAMETER mm (inch)	OUTER DIAMETER mm	MAX WORKING PRESSURE MPa (bar)	MIN.BURST PRESSURE MPa (bar)	MIN.BEND RADIUS mm	WEIGHT g/m
6	1W/B	6.3 (1/4)	11.5	7 (70)	28 (280)	40	125
9	1W/B	9.5 (3/8)	14.9	7 (70)	28 (280)	50	170
12	1W/B	12.7 (1/2)	18.3	7 (70)	28 (280)	60	285
15	1W/B	15.9 (5/8)	22.1	7 (70)	28 (280)	80	400
19	1W/B	19.0 (3/4)	25.5	7 (70)	28 (280)	100	490
25	1W/B	25.4 (1)	31.8	7 (70)	28 (280)	120	620

SIZE	B	C	D	H				R(PT)	L	WT
6	13	6	4.2	17				1/4	44	30
9	15	6	7.0	19				3/8	49	49
12	18	8	9.5	22				1/2	58	81
15	20	10	16.0	30				3/4	67	190
19	20	10	16.0	30				3/4	69	221
25	22	10	21.8	36				1	76	300

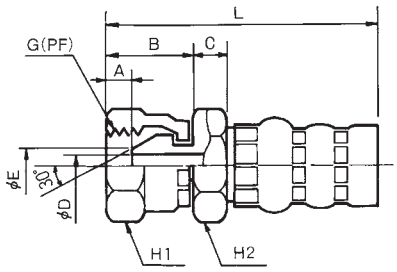
PART NO. 1



male tapered pipe R thread type

SIZE	A	B	C	D	E	H1	H2	G(PF)	L	WT
6	5.5	16	6	4.2	7.5	19	17	1/4	47	44
9	6.5	19	6	7.0	10.0	22	19	3/8	53	66
12	8.5	21.5	8	9.5	13.0	27	22	1/2	61	104
15	9	23.0	10	16.0	19.0	36	30	3/4	70	220
19	9	23.0	10	16.1	19.0	36	30	3/4	72	266
25	9.5	25.5	10	21.8	24.7	41	36	1	79	355

PART NO. 5

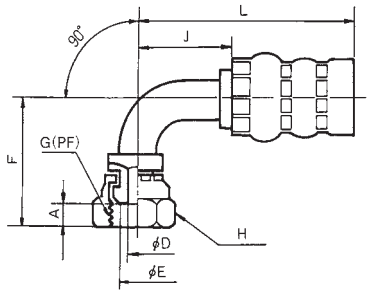


female parallel pipe G thread type
(male 30° seat)

SIB70

SIZE	A	D	E	F	H	J	G(PF)	L	WT
6	4.5	4.2	7	31.5	19	26	1/4	49	45
9	5.5	6.5	9.7	40	22	34	3/8	60	79
12	7.5	9.5	13	55	27	37	1/2	66	114
15	9.0	13.6	19	70	36	50	3/4	85	380
19	9.0	17.0	19	70	36	50	3/4	87	415
25	9.5	21.0	24	87	41	68	1	109	640

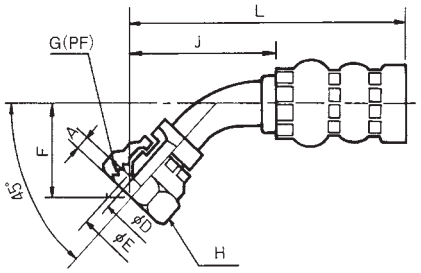
PART NO.905



female parallel pipe G thread type
(male 30° seat)
90°bend fitting

SIZE	A	D	E	F	H	J	G(PF)	L	WT
6	4.5	4.2	7.0	16.5	19	34.5	1/4	58	40
9	5.5	6.5	9.7	20.9	22	44.5	3/8	71	72
12	7.5	9.5	13.0	31.2	27	55.5	1/2	85	110
15	9.0	13.6	19.0	38	36	70	3/4	105	340
19	9.0	17.0	19.0	38	36	70	3/4	107	375
25	9.5	21.0	24.0	46.5	41	91	1	132	550

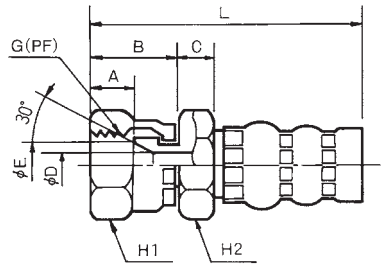
PART NO.455



female parallel pipe G thread type
(male 30° seat)
45°bend fitting

SIZE	A	B	C	D	E	H1	H2	G(PF)	L	WT
6	8.5	16	6	4.2	9.5	19	17	1/4	47	44
9	9.5	19	6	7	13	22	19	3/8	53	66
12	11	21.5	8	9.5	16	27	22	1/2	61	104
15	12.5	23	10	16	22	36	30	3/4	70	220
19	12.5	23	10	16	22	36	30	3/4	72	266
25	12.5	25.5	10	21.8	28	41	36	1	79	355

PART NO.4

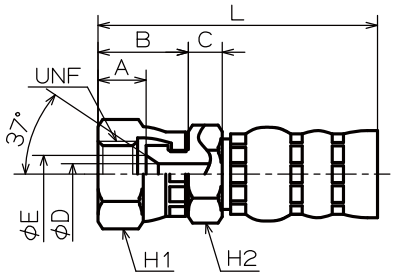


female parallel pipe G thread type
(female 30°seat)

SIB70

SIZE	A	B	C	D	E	H1	H2	UNF	L	WT
6	8.5	16	6	4.2	7.5	17	14	7/16-20	47	44
9	9.5	18.5	6.1	6.5	11	19	17	9/16-18	53	51
12	11	20.7	8.4	9.5	14.5	27	22	3/4-16	63	105
15	12	23.5	10	13.0	17.5	32	30	7/8-14	69	200
19	12.5	23.0	10	16.1	21.5	36	30	1·1/16-12	72	240
25	12.5	25.5	10	21.8	28	41	36	1·5/16-12	81	315

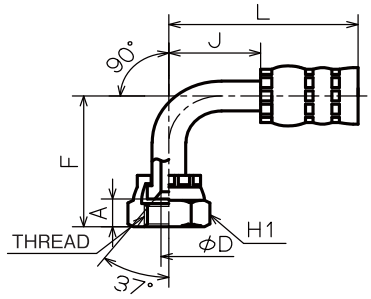
PART NO.4U



jis 37° female

SIZE	A	D	F	H1	J			UNF	L	WT
6	8.5	4.2	37	17	26			7/16-20	49	43
9	9.5	6.5	52	19	34			9/16-18	61	61
12	11	9.5	55	27	39			3/4-16	69	136
15	—	—	—	—	—			—	—	—
19	12.5	16.1	70	36	50			1·1/16-12	87	295
25	12.5	21.8	87	41	76			1·5/16-12	119	562

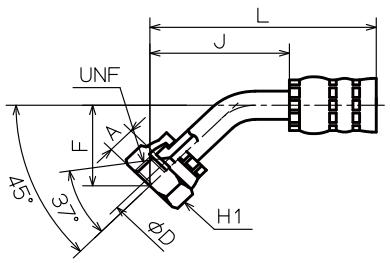
PART NO.904U



jis 37° female
90° bend fitting

SIZE	A	D	F	H1	J			UNF	L	WT
6	8.5	4.2	21	17	41			7/16-20	64	37
9	9.5	6.5	32	19	52			9/16-18	79	58
12	11	9.5	29.6	27	55.4			3/4-16	85	120
15	—	—	—	—	—			—	—	—
19	12.5	16.1	38	36	70			1·1/16-12	107	266
25	12.5	21.8	45	41	89.5			1·5/16-12	132	562

PART NO.454U

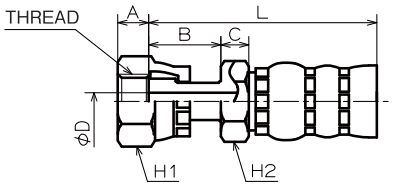


jis 37° female
45° bend fitting

SIB70

SIZE	A	B	C	D	H1	H2	UNF	L	WT
6	8.5	17.5	6	4.2	19	17	9/16-18	49	50
9	9	18.5	6	6.5	22	19	11/16-16	53	70
12	10	19.3	8.4	9.5	27	22	13/16-16	61	106
15	10.5	24.5	9.0	13	32	27	1-14	71	205
	11.5	27.5	9.0	16	36	32	1·3/16-12	74	250
19	11.5	22.5	11	15.9	36	27	1·3/16-12	71	242
25	11.5	25	11	20.5	41	32	1·7/16-12	79	345

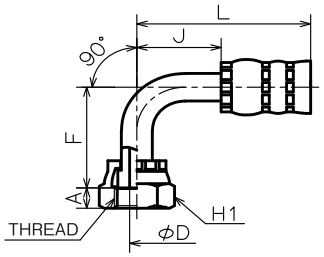
PART NO.KO



female O-ring face seal

SIZE	A	D	F	H1	J		UNF	L	WT
6	8.5	4.2	30	19	26		9/16-18	49	49
9	9	6.5	37	22	34		11/16-16	61	80
12	10	9.5	43.5	27	37		13/16-16	67	132
15	10.5	13	51	32	54		1-14	89	255
	11.5	16	58	36	54		1·3/16-12	88	280
19	11.5	15.9	58	36	64		1·3/16-12	101	303
25	11.5	20.5	66	41	76		1·7/16-12	119	539

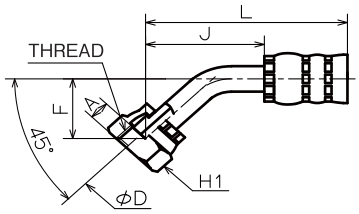
PART NO.90KO



female O-ring face seal
90°bend fitting

SIZE	A	D	F	H1	J		UNF	L	WT
6	8.5	4.2	21	19	41		9/16-18	64	49
9	9	6.5	22	22	54.9		11/16-16	81	80
12	10	9.5	22	27	51		13/16-16	81	121
15	10.5	13	26	32	64		1-14	99	235
	11.5	16	28	36	66		1·3/16-12	100	280
19	11.5	15.9	26	36	64		1·3/16-12	101	257
25	11.5	20.5	31.5	41	76		1·7/16-12	119	447

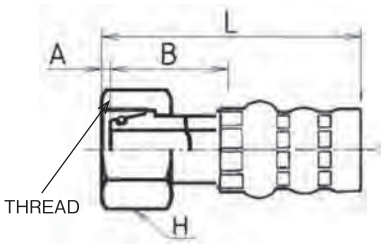
PART NO.45KO



female O-ring face seal
45°bend fitting

SIZE	A	B	H				L	THREAD	WT
6	2.0	20.8	17				45.8	M14×1.5	28
9	1.5	20.0	22				48.5	M18×1.5	56
12	2.5	22.0	27				54.5	M22×1.5	99
15	2.5	24.7	32				62.2	M26×1.5	166
19	4.0	26.0	36				67.0	M30×2.0	213
25	3.3	32.0	41				78.3	M36×2.0	354

PART NO.DKOL



24°CONE FEMALE

SIB210

HOSE STRUCTURE

INNER COVER: OIL RESISTANT SYNTHETIC RUBBER
REINFORCEMEMT: STEEL WIRE
OUTER COVER: OIL&OZONE RESISTANT SYNTHETIC RUBBER

RECOMMENDED FLUIDS

MINERAL SYNTHETIC OIL

OPERATING TEMPERATURE

-40°C~+100°C(-40°F~+212°F)

HOSE STRUCTURE&REINFORCEMEMT

1W/B

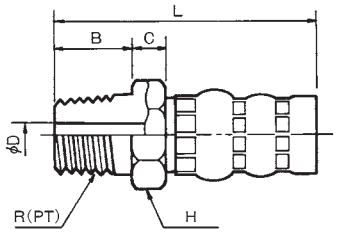
2W/B

3W/B

SIZE	REINFORCEMEMT	INNER DIAMETER mm (inch)	OUTER DIAMETER mm	MAX WORKING PRESSURE MPa (bar)	MIN.BURST PRESSURE MPa (bar)	MIN.BEND RADIUS mm	WEIGHT g/m
6	1W/B	6.3(1/4)	12.5	21 (210)	84 (840)	50	200
9	2W/B	9.5(3/8)	16.3	21 (210)	84 (840)	70	340
12	2W/B	12.7(1/2)	20.8	21 (210)	84 (840)	90	540
15	2W/B	15.9(5/8)	25.0	21 (210)	84 (840)	110	710
19	2W/B	19.0(3/4)	28.4	21 (210)	84 (840)	130	880
25	3W/B	25.4(1)	36.5	21 (210)	84 (840)	180	1,480

SIZE	B	C	D	H				R(PT)	L	WT
6	13	6	4.2	17				1/4	46	38
9	15	6	7.0	19				3/8	49	60
12	18	8	9.5	22				1/2	59	96
15	20	10	16.0	30				3/4	67	190
19	20	10	16.0	30				3/4	69	221
25	22	12	21.8	36				1	83	330

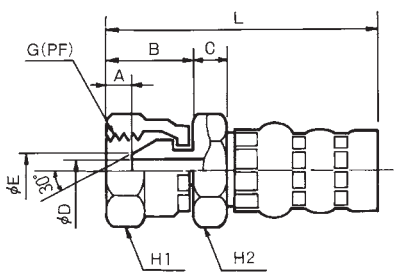
PART NO. 1



male tapered pipe R thread type

SIZE	A	B	C	D	E	H1	H2	G(PF)	L	WT
6	5.5	16	6	4.2	7.5	19	17	1/4	49	52
9	6.5	19	6	7.0	10.0	22	19	3/8	54	77
12	8.5	21.5	8	9.5	13.0	27	22	1/2	64	119
15	9.0	23.0	10	16	19.0	36	30	3/4	70	220
19	9.0	23.0	10	16.1	19.0	36	30	3/4	75	266
25	9.5	25.5	12	21.8	24.0	41	36	1	89	385

PART NO. 5

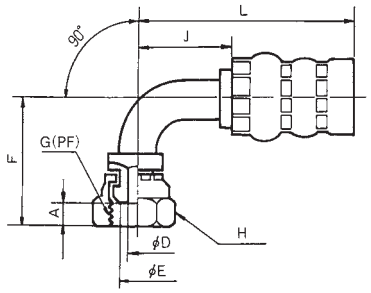


female parallel pipe G thread type
(male 30°seat)

SIB210

SIZE	A	D	E	F	H	J	G(PF)	L	WT
6	4.5	4.2	7.0	31.5	19	26	1/4	51	52
9	5.5	6.5	9.7	40	22	34	3/8	61	90
12	7.5	9.5	13.0	55	27	37	1/2	70	129
15	9.0	13.6	19.0	70	36	50	3/4	85	380
19	9.0	17.0	19.0	70	36	50	3/4	89	415
25	9.5	21.0	24.0	87	41	68	1	118	710

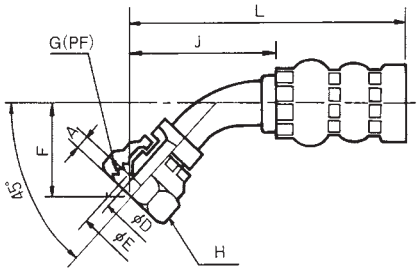
PART NO.905



female parallel pipe G thread type
(male 30°seat)
90°bend fitting

SIZE	A	D	E	F	H	J	G(PF)	L	WT
6	4.5	4.2	7.0	16.5	19	34.5	1/4	60	46
9	5.5	6.5	9.7	20.9	22	44.5	3/8	72	83
12	7.5	9.5	13.0	31.2	27	55.5	1/2	88	125
15	9.0	13.6	19.0	38	36	70	3/4	105	340
19	9.0	17	19.0	38	36	70	3/4	109	375
25	9.5	21	24.0	46.4	41	84.5	1	134	620

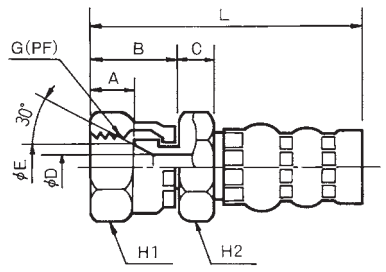
PART NO.455



female parallel pipe G thread type
(male 30°seat)
45°bend fitting

SIZE	A	B	C	D	E	H1	H2	G(PF)	L	WT
6	8.5	16.0	6	4.2	9.5	19	17	1/4	49	48
9	9.5	19.0	6	7.0	13.0	22	19	3/8	54	72
12	11.0	21.5	8	9.5	16.0	27	22	1/2	64	113
15	12.5	23.0	10	16.0	22.0	36	30	3/4	70	220
19	12.5	25.0	10	16.0	22.0	36	30	3/4	75	266
25	12.5	25.5	12	21.8	28.0	41	36	1	89	330

PART NO.4

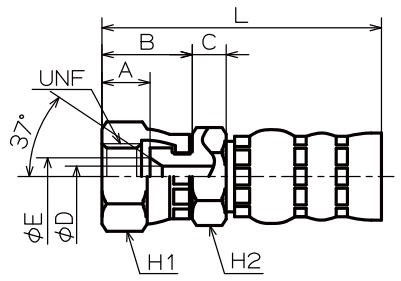


female parallel pipe G thread type
(female 30°seat)

SIB210

SIZE	A	B	C	D	E	H1	H2	UNF	L	WT
6	8.5	16.0	6	4.2	7.5	19	17	7/16-20	49	52
9	9.5	18.5	6	6.5	11.0	22	19	9/16-18	53	71
12	11.0	21.5	8	9.5	14.5	27	22	3/4-16	64	123
19	12.5	23.0	10	16.1	21.5	36	30	1·1/16-12	75	240

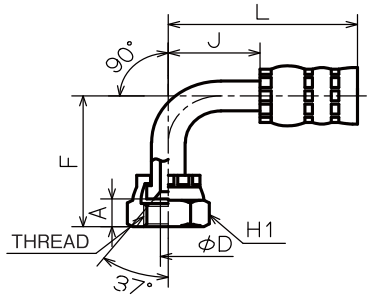
PART NO.4U



jis 37° female

SIZE	A	D	F	H1	J			UNF	L	WT
6	8.5	4.2	37	19	26			7/16-20	51	55
9	9.5	6.5	52	22	34			9/16-18	61	96
12	11.0	9.5	55	27	39			3/4-16	72	156
19	12.5	16.1	71.5	36	64			1·1/16-12	103	311

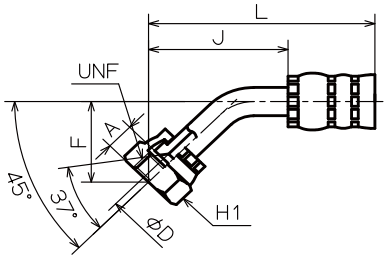
PART NO.904U



jis 37° female
90°bend fitting

SIZE	A	D	F	H1	J			UNF	L	WT
6	8.5	4.2	21	19	41			7/16-20	66	53
9	9.5	6.5	32	22	50			9/16-18	77	87
12	11.0	9.5	29.6	27	55.4			3/4-16	88	140
19	12.5	16.1	39	36	71			1·1/16-12	110	305

PART NO.454U

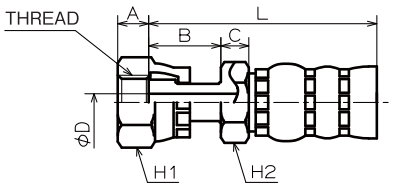


jis 37° female
45°bend fitting

SIB210

SIZE	A	B	C	D	H1	H2	UNF	L	WT
6	8.5	17.5	6	4.2	19	17	9/16-18	51	57
9	9.0	18.5	6	6.5	22	19	11/16-16	54	82
12	10.0	19.3	8.4	9.5	27	22	13/16-16	63	131
19	11.5	22.5	11	15.9	36	27	1·3/16-12	71	259
25	11	30	9	21	41	32	1·7/16-12	87	400

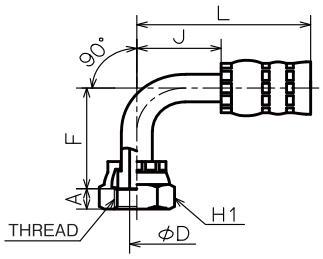
PART NO.KO



female O-ring face seal

SIZE	A	D	F	H1	J		UNF	L	WT
6	8.5	4.2	30	19	26		9/16-18	51	56
9	9.0	6.5	37	22	34		11/16-16	61	92
12	10.0	9.5	43.5	27	37		13/16-16	70	150
19	11.5	15.9	58	36	64		1·3/16-12	103	313
25	11	21	66	41	76		1·7/16-12	126	640

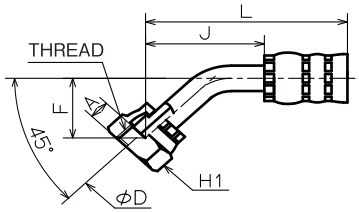
PART NO.90KO



female O-ring face seal
90°bend fitting

SIZE	A	D	F	H1	J		UNF	L	WT
6	8.5	4.2	21	19	41		9/16-18	66	55
9	9.0	6.5	22	22	54.9		11/16-16	82	92
12	10.0	9.5	22	27	51		13/16-16	83	140
19	11.5	15.9	26	36	64		1·3/16-12	103	270
25	11	21	31.5	41	76		1·7/16-12	126	540

PART NO.45KO

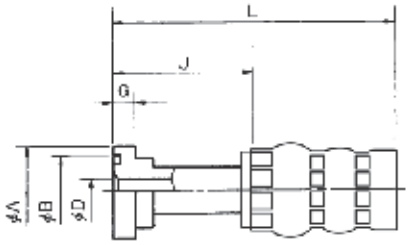


female O-ring face seal
45°bend fitting

SIB210

SIZE	A	B	D	G	J			L	WT
12	30.2	25.46	9.5	6.7	51.2			84	120
19	38.1	31.81	15.0	6.7	54			93	235
25	44.5	39.68	20.0	8	65			115	430

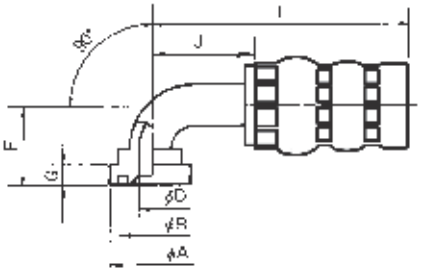
PART NO.3F



SAE standard pressure type flange (3000PSI)
(straight type)

SIZE	A	B	D	F	G	J		L	WT
12	30.2	25.46	10.5	43	6.7	51.5		84	145
19	38.1	31.81	17.0	55.5	6.7	50		89	258
25	44.5	39.68	21.0	63	8	76		126	570

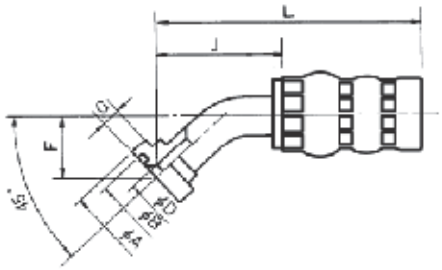
PART NO.903F



SAE standard pressure type flange (3000PSI)
(90°bend fitting)

SIZE	A	B	D	F	G	J		L	WT
19	38.1	31.81	17.0	26	6.7	64		103	235
25	44.5	39.68	21.0	28	8	76		126	480

PART NO.453F



SAE standard pressure type flange (3000PSI)
(45°bend fitting)

SIB280

HOSE STRUCTURE

INNER COVER: OIL RESISTANT SYNTHETIC RUBBER
REINFORCEMEMT: STEEL WIRE
OUTER COVER: OIL&OZONE RESISTANT SYNTHETIC RUBBER

RECOMMENDED FLUIDS

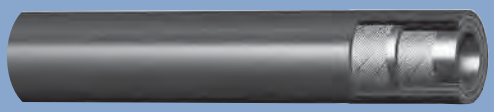
MINERAL SYNTHETIC OIL

OPERATING TEMPERATURE

-40°C~+100°C(-40°F~+212°F)

HOSE STRUCTURE&REINFORCEMEMT

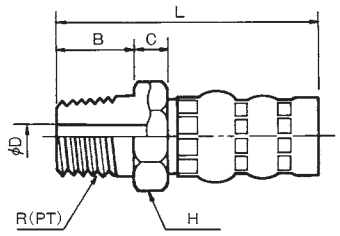
2W/B



SIZE	REINFORCEMEMT	INNER DIAMETER mm (inch)	OUTER DIAMETER mm	MAX WORKING PRESSURE MPa (bar)	MIN.BURST PRESSURE MPa (bar)	MIN.BEND RADIUS mm	WEIGHT g/m
6	2W/B	6.3(1/4)	13.7	28 (280)	112 (1,120)	70	285
9	2W/B	9.5(3/8)	17.7	28 (280)	112 (1,120)	90	510

SIZE	B	C	D	H				R(PT)	L	WT
6	13	6	4.2	17				1/4	46	38
9	15	6	7.0	19				3/8	49	60

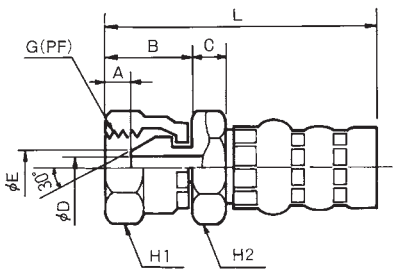
PART NO.1



male tapered pipe R thread type

SIZE	A	B	C	D	E	H1	H2	G(PF)	L	WT
6	5.5	16	6	4.2	7.5	19	17	1/4	49	52
9	6.5	19	6	7.0	10	22	19	3/8	54	77

PART NO.5

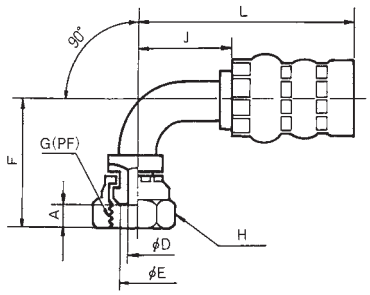


female parallel pipe G thread type
(male 30°seat)

SIB280

SIZE	A	D	E	F	H	J	G(PF)	L	WT
6	4.5	4.2	7.0	31.5	19	26	1/4	51	52
9	5.5	6.5	9.7	40	22	34	3/8	61	90

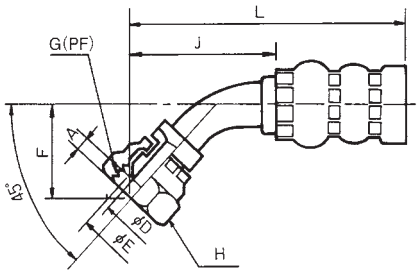
PART NO.905



female parallel pipe G thread type
(male 30°seat)
90°bend fitting

SIZE	A	D	E	F	H	J	G(PF)	L	WT
6	4.5	4.2	7.0	16.5	19	34.5	1/4	60	46
9	5.5	6.5	9.7	20.9	22	44.5	3/8	72	83

PART NO.455

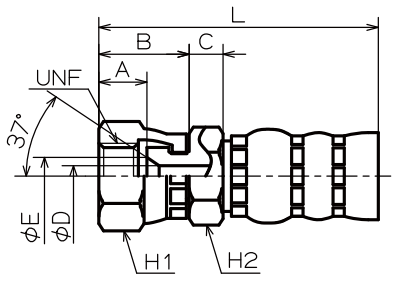


female parallel pipe G thread type
(male 30°seat)
45°bend fitting

SIB280

SIZE	A	B	C	D	E	H1	H2	UNF	L	WT
6	8.5	16.0	6	4.2	7.5	19	17	7/16-20	49	52
9	9.5	18.5	6	6.5	11.0	22	19	9/16-18	53	71

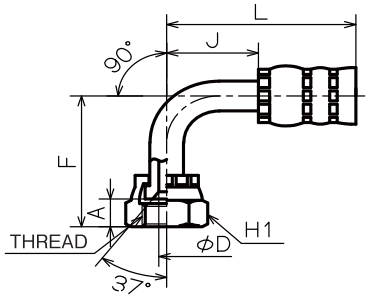
PART NO.4U



jis 37° female

SIZE	A	D	F	H1	J			UNF	L	WT
6	8.5	4.2	37	19	26			7/16-20	51	55
9	9.5	6.5	52	22	34			9/16-18	61	96

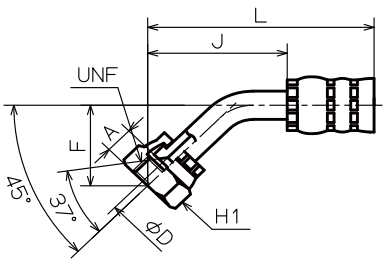
PART NO.904U



jis 37° female
90° bend fitting

SIZE	A	D	F	H1	J			UNF	L	WT
6	8.5	4.2	21	19	41			7/16-20	66	53
9	9.5	6.5	32	22	50			9/16-18	77	87

PART NO.454U

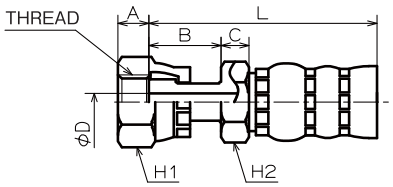


jis 37° female
45° bend fitting

SIB280

SIZE	A	B	C	D	H1	H2	UNF	L	WT
6	8.5	17.5	6	4.2	19	17	9/16-18	51	57
9	9.0	18.5	6	6.5	22	19	11/16-16	54	82

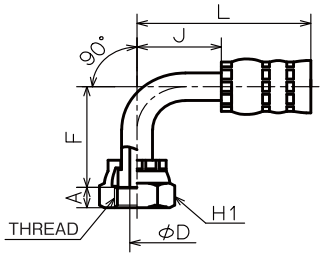
PART NO.KO



female O-ring face seal

SIZE	A	D	F	H1	J		UNF	L	WT
6	8.5	4.2	30	19	26		9/16-18	51	56
9	9.0	6.5	37	22	34		11/16-16	61	92

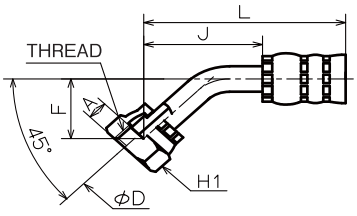
PART NO.90KO



female O-ring face seal
90°bend fitting

SIZE	A	D	F	H1	J		UNF	L	WT
6	8.5	4.2	21	19	41		9/16-18	66	55
9	9.0	6.5	22	22	54.9		11/16-16	82	92

PART NO.45KO



female O-ring face seal
45°bend fitting

SHD SERIES

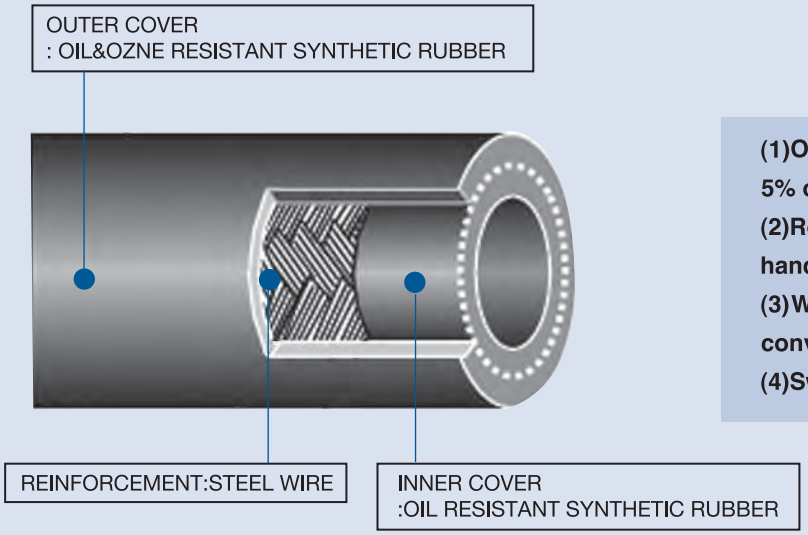
Slim Heavy Duty Hose

SHD HOSE

INTRODUCTION

Developed to accommodate with requirement of down-sizing of the hydraulic devices of construction machines.

FEATURES



(1)Outer diameter Size has been reduced by approx 5% of existing HD hoses.
(2)Reduction in bending radius achieved easier handling.
(3)Weight has been reduced by 20% from conventional HD hose.
(4)Swage area of metal fittings has been redueced

Extention of Slim Hose Range

Ex.34.5MPa-ϕ19

Bending Rad	Conventional Hose	100
	SHD Hose	90
Weight	Conventional Hose	100
	SHD Hose	80
Outer Diameter	Conventional Hose	100
	SHD Hose	95

Ex.34.5MPa-ϕ25

Bending Rad	Conventional Hose	100
	SHD Hose	86
Weight	Conventional Hose	100
	SHD Hose	90
Outer Diameter	Conventional Hose	100
	SHD Hose	97

SHD280

HOSE STRUCTURE

INNER COVER: OIL RESISTANT SYNTHETIC RUBBER
REINFORCEMEMT: WIRE
OUTER COVER: OIL&OZONE RESISTANT SYNTHETIC RUBBER

RECOMMENDED FLUIDS

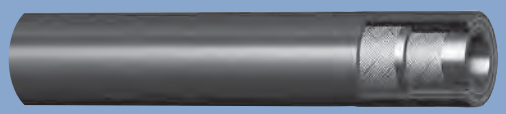
MINERAL SYNTHETIC OIL

OPERATING TEMPERATURE

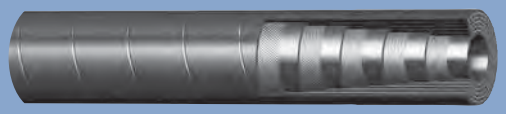
-40°C~+100°C(-40°F~+212°F)

HOSE STRUCTURE&REINFORCEMEMT

2W/B



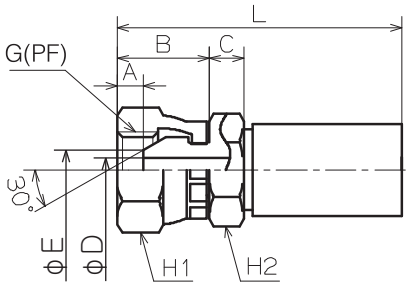
4W/S



SIZE	REINFORCEMEMT	INNER DIAMETER mm (inch)	OUTER DIAMETER mm	MAX WORKING PRESSURE MPa (bar)	MIN.BURST PRESSURE MPa (bar)	MIN.BEND RADIUS mm	WEIGHT g/m
12	2W/B	12.7(1/2)	21.0	28 (280)	112 (1,120)	90	590
15	4W/S	15.9(5/8)	26.6	28 (280)	112 (1,120)	140	990
19	4W/S	19.0(3/4)	29.8	28 (280)	112 (1,120)	175	1,155
25	4W/S	25.4(1)	36.6	28 (280)	112 (1,120)	220	1,485

SIZE	A	B	C	D	E	H1	H2	G(PF)	L	WT
12	8.5	21.5	8	9.5	13	27	22	1/2	70	160
15	9.0	23.0	11	16.0	19	36	30	3/4	80	300
19	9.0	23.0	10	16.1	19	36	30	3/4	90	350
25	9.5	25.5	12	21.0	24	41	36	1	105	544

PART NO.5

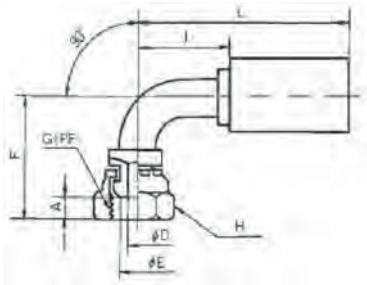


female parallel pipe G thread type
(male 30°seat)

SHD280

SIZE	A	D	E	F	H	J	G(PF)	L	WT
12	7.0	9.5	13	55	27	50	1/2	88	210
15	9.0	13.6	19	70	36	64	3/4	108	405
19	9.0	17.0	19	70	36	64	3/4	120	472
25	9.5	21.0	24	87	41	68	1	133	820

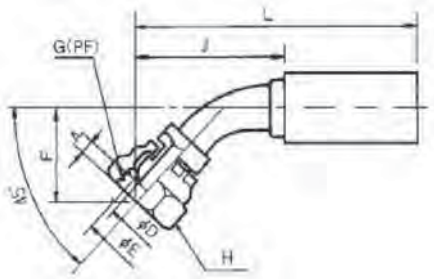
PART NO.905



female parallel pipe G thread type
(male 30°seat)
90°bend fitting

SIZE	A	D	E	F	H	J	G(PF)	L	WT
12	7.0	9.5	13	34	27	61.4	1/2	100	190
15	9.0	13.6	19	38	36	70	3/4	114	365
19	9.0	17.0	19	38	36	76	3/4	132	445
25	9.5	21.0	24	46.4	41	84.5	1	150	735

PART NO.455

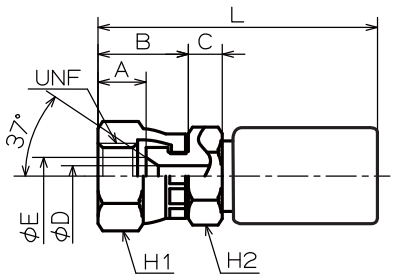


female parallel pipe G thread type
(male 30°seat)
45°bend fitting

SHD280

SIZE	A	B	C	D	E	H1	H2	UNF	L	WT
12	11.0	21.5	10	9.5	14.5	27	22	3/4-16	70	165
15	11.0	21.5	9	13.0	17.3	27	27	7/8-14	77	220
19	12.5	23.0	10	16.0	21.5	36	30	1-1/16-12	90	345
25	12.5	25.5	12	21.0	28.0	41	36	1-5/16-12	105	540

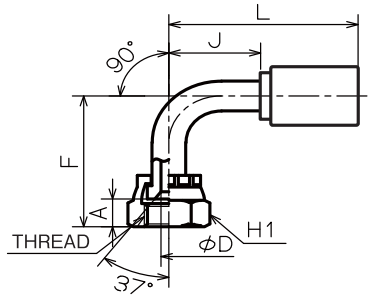
PART NO.4U



jis 37° female

SIZE	A	D	F	H1	J			UNF	L	WT
12	11.0	9.5	55.5	27	50			3/4-16	88	210
15	11.0	13.0	70	27	64			7/8-14	108	500
19	12.5	16.0	70	36	64.9			1-1/16-12	121	490
25	12.5	21.0	87	41	68			1-5/16-12	133	820

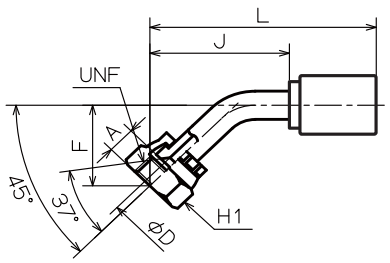
PART NO.904U



jis 37° female
90° bend fitting

SIZE	A	D	F	H1	J			UNF	L	WT
12	11.0	9.5	31.9	27	59.3			3/4-16	98	190
15	11.0	13.0	38	27	70			7/8-14	114	360
19	12.5	16.0	38	36	76.8			1-1/16-12	133	445
25	12.5	21.0	46.4	41	84.5			1-5/16-12	150	735

PART NO.454U

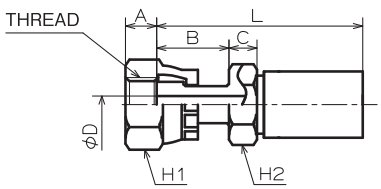


jis 37° female
45° bend fitting

SHD280

SIZE	A	B	C	D	H1	H2	UNF	L	WT
12	10.0	22.0	10	9.5	27	22	13/16-16	70	175
15	10.5	24.5	9	13.0	32	27	1-14	80	280
	11.5	27.5	9	16.0	36	27	1·3/16-12	83	320
19	11.3	22.7	11	15.9	36	27	1·3/16-12	92	350
25	11.8	24.7	11	20.5	41	32	1·7/16-12	102	540

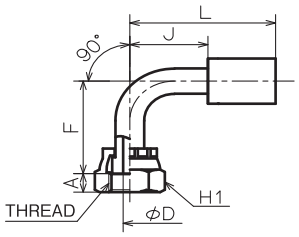
PART NO.KO



female O-ring face seal

SIZE	A	D	F	H1	J		UNF	L	WT
12	10.0	9.5	43.5	27	50		13/16-16	88	208
15	10.5	13.0	51	32	54		1-14	98	330
	11.5	16.0	58	36	64		1·3/16-12	108	390
19	11.3	15.9	58	36	64		1·3/16-12	120	445
25	11.8	20.5	66	41	76		1·7/16-12	141	738

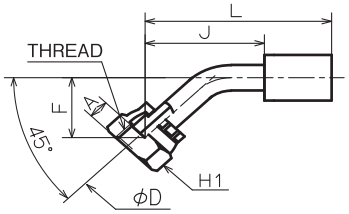
PART NO.90KO



female O-ring face seal
90°bend fitting

SIZE	A	D	F	H1	J		UNF	L	WT
12	10.0	9.5	22	27	51		13/16-16	89	190
15	10.5	13.0	26	32	64		1-14	108	310
	11.5	16.0	26	36	64		1·3/16-12	108	350
19	11.3	15.9	26	36	64		1·3/16-12	120	380
25	11.8	20.5	31.5	41	76		1·7/16-12	141	645

PART NO.45KO

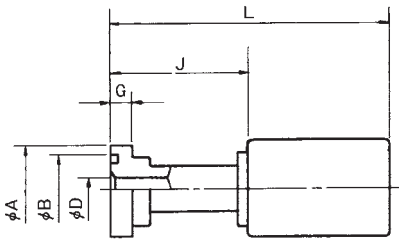


female O-ring face seal
45°bend fitting

SHD280

SIZE	A	B	D	G	J			L	WT
12	30.2	25.46	9.0	6.7	51			89	195
15	38.1	31.81	12.6	6.7	54			98	300
19	38.1	31.81	17.0	6.7	54			110	325
25	44.5	39.68	20.0	8	65			130	590

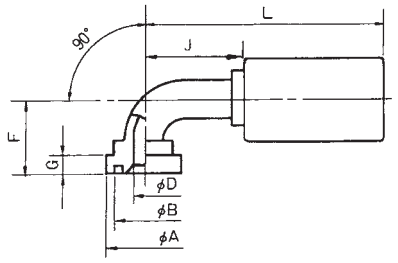
PART NO.3F



SAE standard pressure type flange (3000PSI)
(straight type)

SIZE	A	B	D	F	G	J		L	WT
12	30.2	25.46	10.5	43	6.7	51.5		90	190
15	38.1	31.81	13.6	55.5	6.7	50		94	320
19	38.1	31.81	17.0	55	6.7	64		120	407
25	44.5	39.68	21.0	63	8	76		141	715

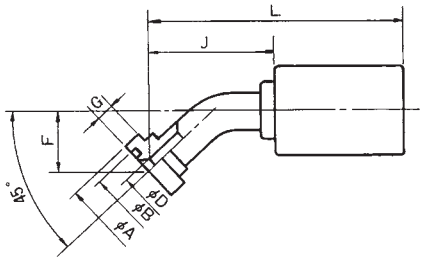
PART NO.903F



SAE standard pressure type flange (3000PSI)
(90°bend fitting)

SIZE	A	B	D	F	G	J		L	WT
12	30.2	25.46	10.5	22	6.7	51		89	165
15	38.1	31.81	13.6	26	6.7	64		108	290
19	38.1	31.81	17.0	26.7	6.7	73.2		129	371
25	44.5	39.68	21.0	28	8	76		141	630

PART NO.453F

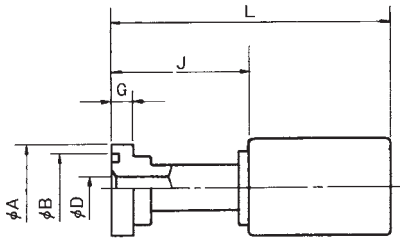


SAE standard pressure type flange (3000PSI)
(45°bend fitting)

SHD280

SIZE	A	B	D	G	J			L	WT
12	31.8	25.46	9.5	7.75	51.2			90	200
15	41.3	31.81	16.0	8.75	54			98	292
19	41.3	31.81	17.0	8.75	54			110	354
25	47.6	39.68	20.0	9.5	65			130	620

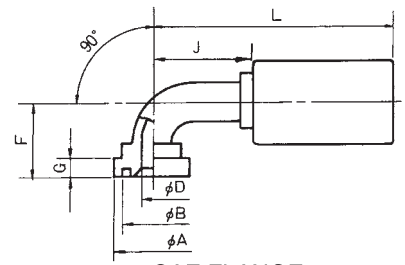
PART NO.6F



STRAIGHT SAE FLANGE
6000PSI

SIZE	A	B	D	F	G	J		L	WT
12	31.8	25.46	10.5	44.1	7.75	51.5		90	203
15	41.3	31.81	13.6	56	8.75	64		108	350
19	41.3	31.81	17.0	56	8.75	66		122	435
25	47.6	39.68	21.0	65	9.5	76		141	745

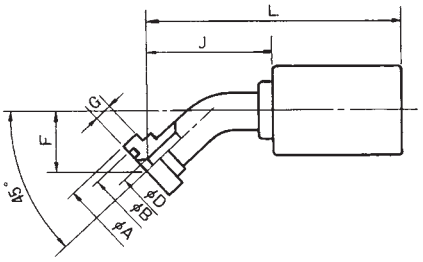
PART NO.906F



90° SAE FLANGE
6000PSI

SIZE	A	B	D	F	G	J		L	WT
12	31.8	25.46	10.5	22.8	7.75	51.8		90	180
15	41.3	31.81	13.6	26.5	8.75	64.5		109	310
19	41.3	31.81	17.0	26.7	8.75	73.2		129	400
25	47.6	39.68	21.0	34	9.5	77.4		143	665

PART NO.456F



45° SAE FLANGE
6000PSI

SHD350

HOSE STRUCTURE

INNER COVER: OIL RESISTANT SYNTHETIC RUBBER
REINFORCEMEMT: STEEL WIRE
OUTER COVER: OIL&OZONE RESISTANT SYNTHETIC RUBBER

RECOMMENDED FLUIDS

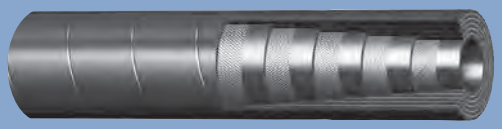
MINERAL SYNTHETIC OIL

OPERATING TEMPERATURE

-40°C~+100°C(-40°F~+212°F)

HOSE STRUCTURE&REINFORCEMEMT

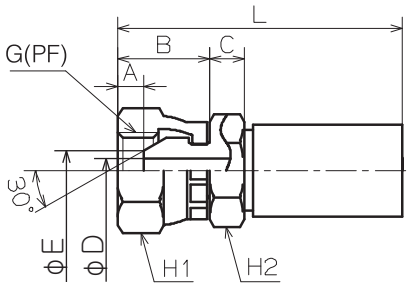
4W/S



SIZE	REINFORCEMEMT	INNER DIAMETER mm (inch)	OUTER DIAMETER mm	MAX WORKING PRESSURE MPa (bar)	MIN.BURST PRESSURE MPa (bar)	MIN.BEND RADIUS mm	WEIGHT g/m
12	4W/S	12.7(1/2)	22.9	35(350)	140(1,400)	135	745
15	4W/S	15.9(5/8)	26.6	35(350)	140(1,400)	160	1,015
19	4W/S	19.0(3/4)	29.8	35(350)	140(1,400)	190	1,165
25	4W/S	25.4(1)	37.6	35(350)	140(1,400)	240	1,880

SIZE	A	B	C	D	E	H1	H2	G(PF)	L	WT
12	8.5	21.5	10	9.5	13	27	22	1/2	70	160
19	9.0	23.0	10	16	19	36	30	3/4	90	350
25	9.5	25.5	12	21	24	41	36	1	105	544

PART NO.5

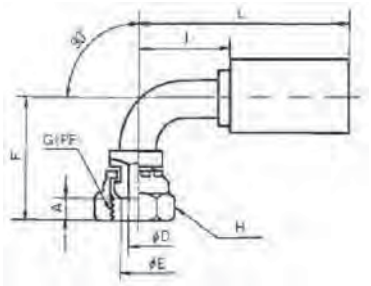


female parallel pipe G thread type
(male 30°seat)

SHD350

SIZE	A	D	E	F	H	J	G(PF)	L	WT
12	7.0	9.5	13	55	27	50	1/2	88	210
19	9.0	17	19	70	36	64	3/4	119	472
25	9.5	21	24	87	41	68	1	136	820

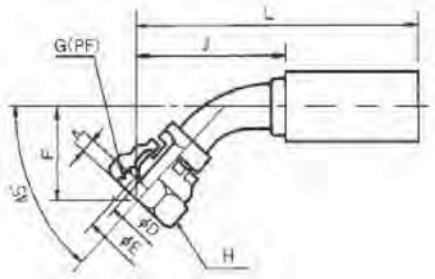
PART NO.905



female parallel pipe G thread type
(male 30°seat)
90°bend fitting

SIZE	A	D	E	F	H	J	G(PF)	L	WT
12	7.0	9.5	13	34	27	61.4	1/2	100	190
19	9.0	17.0	19	38	36	76	3/4	132	445
25	9.5	21.0	24	46.4	41	84.5	1	150	735

PART NO.455

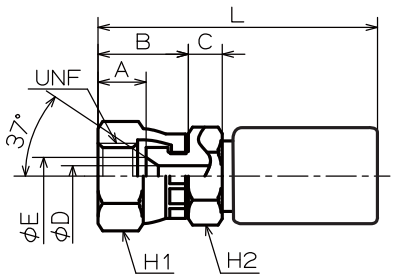


female parallel pipe G thread type
(male 30°seat)
45°bend fitting

SHD350

SIZE	A	B	C	D	E	H1	H2	UNF	L	WT
12	11.0	21.5	10	9.5	14.5	27	22	3/4-16	70	165
15	11.0	21.5	9	13	17.3	27	27	7/8-14	77	220
19	12.5	23.0	10	16	21.5	36	30	1·1/16-12	90	345
25	12.5	25.5	12	21	28.0	41	36	1·5/16-12	105	540

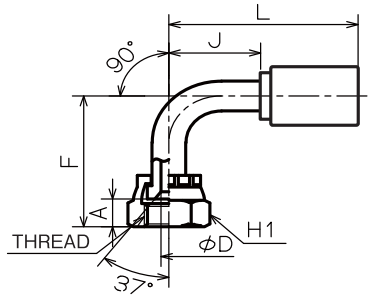
PART NO.4U



jis 37° female

SIZE	A	D	F	H1	J			UNF	L	WT
12	11.0	9.5	55	27	50			3/4-16	88	210
15	11.0	13.0	70	27	64			7/8-14	108	500
19	12.5	16.0	70	36	64.9			1·1/16-12	121	490
25	12.5	21.0	87	41	68			1·5/16-12	133	820

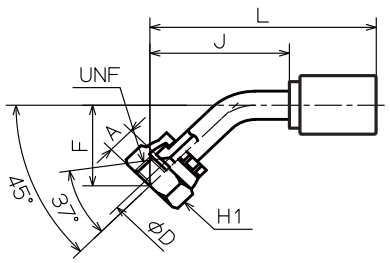
PART NO.904U



jis 37° female
90° bend fitting

SIZE	A	D	F	H1	J			UNF	L	WT
12	11.0	9.5	31.9	27	59.3			3/4-16	98	190
15	11.0	13	38	27	70			7/8-14	114	360
19	12.5	16	38	36	76.8			1·1/16-12	133	445
25	12.5	21	46.4	41	84.5			1·5/16-12	150	735

PART NO.454U

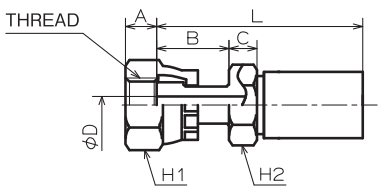


jis 37° female
45° bend fitting

SHD350

SIZE	A	B	C	D	H1	H2	UNF	L	WT
12	10.0	22.0	10	9.5	27	22	13/16-16	70	175
15	10.5	24.5	9	13.0	32	27	1-14	80	280
	11.5	27.5	9	16.0	36	27	1·3/16-12	83	320
19	11.3	22.7	11	15.9	36	27	1·3/16-12	92	350
25	11.8	24.7	11	20.5	41	32	1·7/16-12	102	540

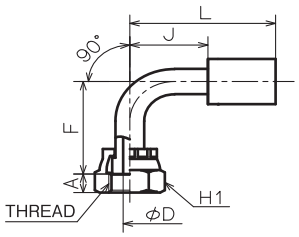
PART NO.KO



female O-ring face seal

SIZE	A	D	F	H1	J		UNF	L	WT
12	10.0	9.5	43.5	27	50		13/16-16	88	208
15	10.5	13.0	51	32	54		1-14	98	330
	11.5	16.0	58	36	64		1·3/16-12	108	390
19	11.3	15.9	58	36	64		1·3/16-12	120	445
25	11.8	20.5	66	41	76		1·7/16-12	141	738

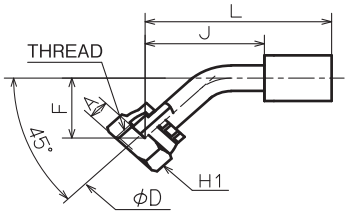
PART NO.90KO



female O-ring face seal
90°bend fitting

SIZE	A	D	F	H1	J		UNF	L	WT
12	10.0	9.5	22	27	51		13/16-16	89	190
15	10.5	13.0	26	32	64		1-14	108	310
	11.5	16.0	26	36	64		1·3/16-12	108	350
19	11.3	15.9	26	36	64		1·3/16-12	120	380
25	11.8	20.5	31.5	41	76		1·7/16-12	141	645

PART NO.45KO

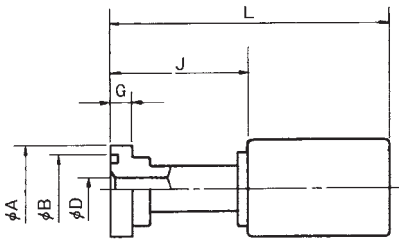


female O-ring face seal
45°bend fitting

SHD350

SIZE	A	B	D	G	J			L	WT
12	30.2	25.46	9.5	6.7	51			89	195
15	38.1	31.81	12.6	6.7	54			98	300
19	38.1	31.81	17.0	6.7	54			110	325
25	44.5	39.68	20.0	8	65			130	590

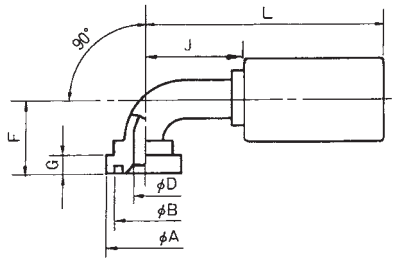
PART NO.3F



SAE standard pressure type flange (3000PSI)
(straight type)

SIZE	A	B	D	F	G	J		L	WT
12	30.2	25.46	10.5	43	6.7	51.5		90	190
15	38.1	31.81	13.6	55.5	6.7	50		94	320
19	38.1	31.81	17.0	55	6.7	64		120	407
25	44.5	39.68	21.0	63	8	76		141	715

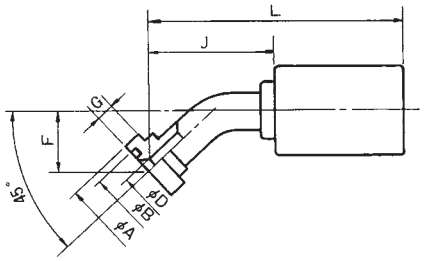
PART NO.903F



SAE standard pressure type flange (3000PSI)
(90°bend fitting)

SIZE	A	B	D	F	G	J		L	WT
12	30.2	25.46	10.5	22	6.7	51		89	165
15	38.1	31.81	13.6	26	6.7	64		108	290
19	38.1	31.81	17.0	26.7	6.7	73.2		129	371
25	44.5	39.68	21.0	28	8	76		141	630

PART NO.453F

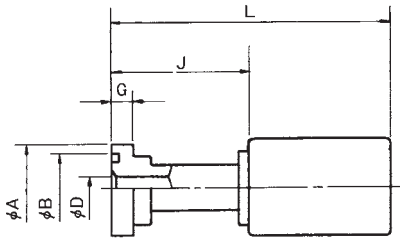


SAE standard pressure type flange (3000PSI)
(45°bend fitting)

SHD350

SIZE	A	B	D	G	J		L	WT
12	36.8	25.46	9.5	7.75	51.2		90	200
15	41.3	31.81	16.0	8.75	54		98	292
19	41.3	31.81	17.0	8.75	54		110	354
25	47.6	39.68	20.0	9.5	65		130	620

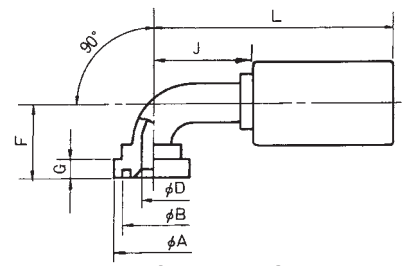
PART NO.6F



STRAIGHT SAE FLANGE
6000PSI

SIZE	A	B	D	F	G	J	L	WT
12	36.8	25.46	10.5	44.1	7.75	51.5	90	203
15	41.3	31.81	13.6	56	8.75	64	108	350
19	41.3	31.81	17.0	56	8.75	66	122	435
25	47.6	39.68	21.0	65	9.5	76	141	745

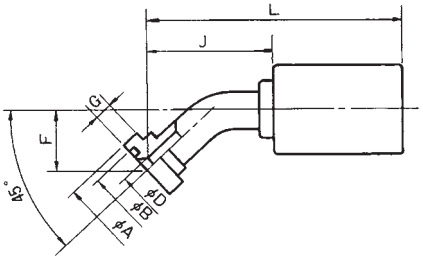
PART NO.906F



90° SAE FLANGE
6000PSI

SIZE	A	B	D	F	G	J	L	WT
12	31.8	25.46	10.5	22.8	7.75	51.8	90	180
15	41.3	31.81	13.6	26.5	8.75	64.5	109	310
19	41.3	31.81	17.0	26.7	8.75	73.2	129	400
25	47.6	39.68	21.0	34	9.5	77.4	143	665

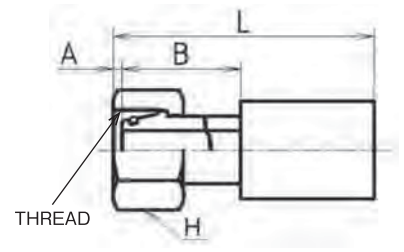
PART NO.456F



45° SAE FLANGE
6000PSI

SIZE	A	B	H				L	THREAD	WT
12	1.0	24.7	30				63.7	M24×1.5	175
15	4.0	25.4	36				73.4	M30×2.0	275
19	3.0	28.0	46				87.0	M36×2.0	392
25	4.0	32.5	50				101.5	M42×2.0	720

PART NO.DKOS



24°CONE FEMALE

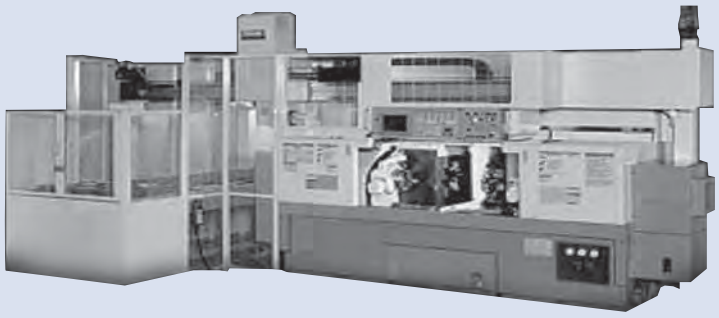
IBG SERIES

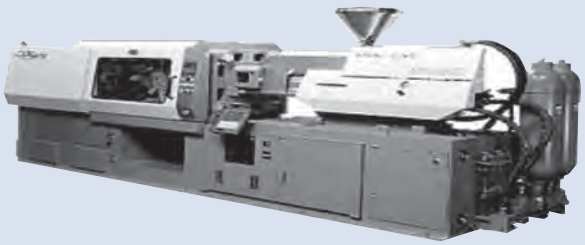
IBG SERIES means IMPULSE BASE. This series is organized by each pressure level and size.
Therefore it is easy to select the suitable hose with various conditions.
This series will be perfect for general purpose hose for the Construction and Industrial machineries.

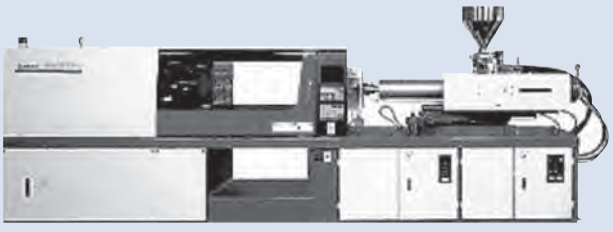
IBG SERIES is based on the impulse pressure through the hydraulic line.
Impulse pressure is 1.5times by working pressure.
IBG SERIES can be trusted to use the hydraulic line.

The structure of the hose reinforcement is the tensile-steel wire according to the various pressure condition.
The structure type is wire braiding or wire spiral.

IBG SERIES principally aims at the durability of the hose,
It is easy to select the hose under various conditions.







IBG35/IBG70

HOSE STRUCTURE

INNER COVER: OIL RESISTANT SYNTHETIC RUBBER
REINFORCEMEMT: STEEL WIRE
OUTER COVER: OIL&OZONE RESISTANT SYNTHETIC RUBBER

RECOMMENDED FLUIDS

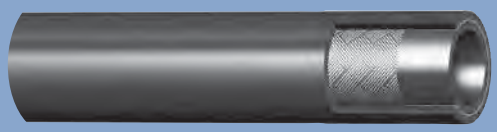
MINERAL SYNTHETIC OIL

OPERATING TEMPERATURE

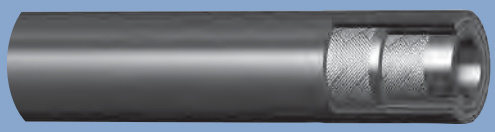
-40°C~+100°C(-40°F~+212°F)

HOSE STRUCTURE&REINFORCEMEMT

1W/B



2W/B



IBG 35

SIZE	REINFORCEMEMT	INNER DIAMETER mm (inch)	OUTER DIAMETER mm	MAX WORKING PRESSURE MPa (bar)	MIN.BURST PRESSURE MPa (bar)	MIN.BEND RADIUS mm	WEIGHT g/m
32	1W/B	31.8(1 1/4)	41.1	3.5(35)	14(140)	210	945
38	1W/B	38.1(1 1/2)	47.4	3.5(35)	14(140)	240	1,160
50	1W/B	50.8(2)	61.0	3.5(35)	14(140)	310	1,700

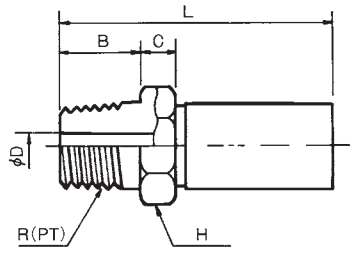
IBG 70

SIZE	REINFORCEMEMT	INNER DIAMETER mm	OUTER DIAMETER mm	MAX WORKING PRESSURE MPa (bar)	MIN.BURST PRESSURE MPa (bar)	MIN.BEND RADIUS mm	WEIGHT g/m
32	2W/B	31.8(1 1/4)	43.2	7(70)	28(280)	220	1,485
38	2W/B	38.1(1 1/2)	50.1	7(70)	28(280)	260	1,850
50	2W/B	50.8(2)	63.3	7(70)	28(280)	320	2,580

IBG35/IBG70

SIZE	B	C	D	H	R(PT)		L	WT
32	25	13	27.0	46	1¼		82	500
38	25	14	31.8	50	1½		90	800
50	30	19	42.0	65	2		105	1,200

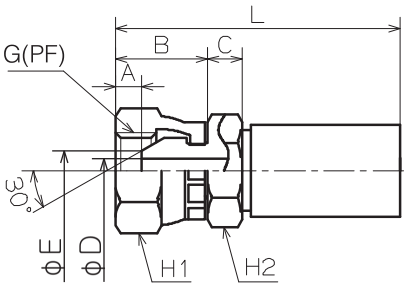
PART NO. 1



male tapered pipe R thread type

SIZE	A	B	C	D	E	H1	H2	G(PF)	L	WT
32	12.5	30.5	13	27.0	32.0	50	46	1¼	88	610
38	12.5	33.5	14	31.8	38.0	55	50	1½	99	790
50	15.0	37.0	19	42.0	49.0	70	65	2	112	1,400

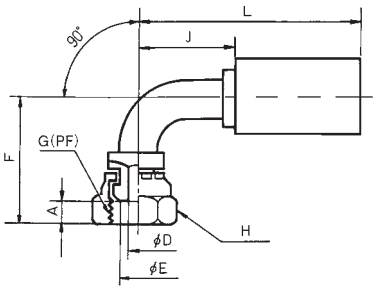
PART NO. 5



female parallel pipe G thread type
(male 30°seat)

SIZE	A	D	E	F	H	J		G(PF)	L	WT
32	12.5	28.0	32.0	110	50	91		1¼	134	1,100
38	12.5	32.8	38.0	143	55	117		1½	166	1,500
50	15.0	42.0	49.0	168	70	151		2	205	3,800

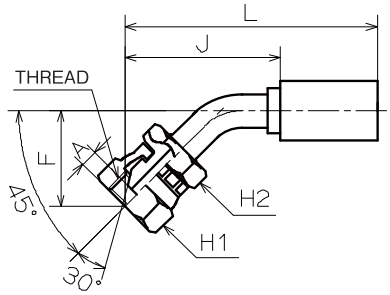
PART NO. 905



90°BEND FITTING
JIS B 8363

SIZE	A	D	E	F	H	J		G(PF)	L	WT
32	12.5	28.0	32.0	65	50	124		1¼	167	1,000
38	12.5	32.8	38.0	76	55	145		1½	194	1,650
50	15.0	42.0	49.0	84	70	185		2	239	2,800

PART NO. 455

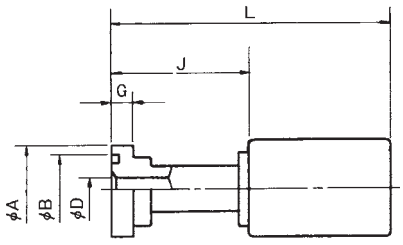


45°BEND FITTING
JIS B 8363

IBG35/IBG70

SIZE	A	B	D	G	J			L	WT
32	50.8	44.51	26.0	8.0	68			110	670
38	60.3	53.84	31.8	8.0	70			119	820
50	71.4	63.37	42.0	9.5	80			134	1,450

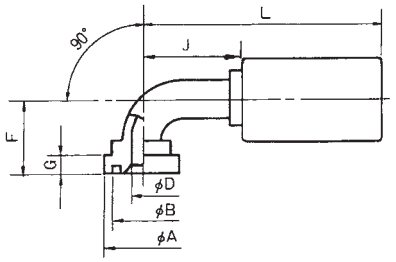
PART NO.3F



SAE standard pressure type flange (3000PSI)
(straight type)

SIZE	A	B	D	F	G	J		L	WT
32	50.8	44.51	27.0	71	8.0	91		134	790
38	60.3	53.84	32.5	92	8.0	117		166	1,240
50	71.4	63.37	43.5	125	9.5	151		205	3,250

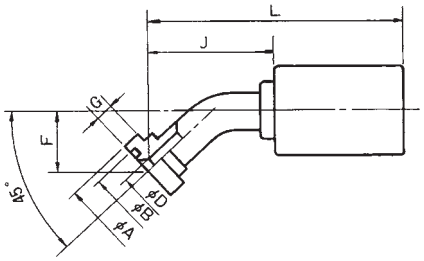
PART NO.903F



SAE standard pressure type flange (3000PSI)
(90°bend fitting)

SIZE	A	B	D	F	G	J		L	WT
32	50.8	44.51	27.0	32	8.0	90		133	660
38	60.3	53.84	32.5	43	8.0	108		157	1,000
50	71.4	63.37	43.5	55	9.5	156		210	1,950

PART NO.453F



SAE standard pressure type flange (3000PSI)
(45°bend fitting)

IBG140

HOSE STRUCTURE

INNER COVER: OIL RESISTANT SYNTHETIC RUBBER
REINFORCEMEMT: STEEL WIRE
OUTER COVER: OIL&OZONE RESISTANT SYNTHETIC RUBBER

RECOMMENDED FLUIDS

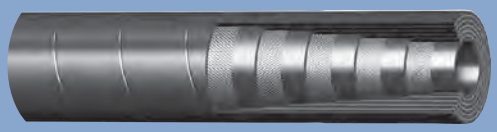
MINERAL SYNTHETIC OIL

OPERATING TEMPERATURE

-40°C~+100°C(-40°F~+212°F)

HOSE STRUCTURE&REINFORCEMEMT

4W/S

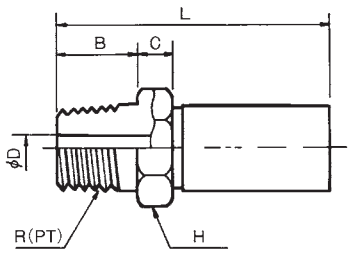


IBG 140

SIZE	REINFORCEMEMT	INNER DIAMETER mm (inch)	OUTER DIAMETER mm	MAX WORKING PRESSURE MPa (bar)	MIN.BURST PRESSURE MPa (bar)	MIN.BEND RADIUS mm	WEIGHT g/m
32	4W/S	31.8(1¼)	44.5	14(140)	56(560)	230	2,470
38	4W/S	38.1(1½)	53.6	14(140)	56(560)	270	3,245
50	4W/S	50.8(2)	66.7	14(140)	56(560)	350	4,530

SIZE	B	C	D	H	R(PT)	L	WT	
32	25	13	27.0	46	1 ¼	108	720	
38	25	14	31.8	50	1 ½	119	1,150	
50	30	19	42.0	65	2	143	2,100	

PART NO. 1

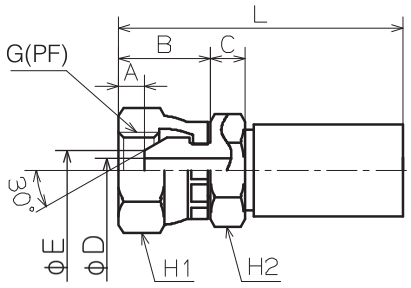


male tapered pipe R thread type

IBG140

SIZE	A	B	C	D	E	H1	H2	G(PF)	L	WT
32	12.5	30.5	13	27.0	32.0	50	46	1 1/4	114	780
38	12.5	33.5	14	31.8	38.0	55	50	1 1/2	128	1,250
50	15.0	37.0	19	42.0	49.0	70	65	2	150	2,200

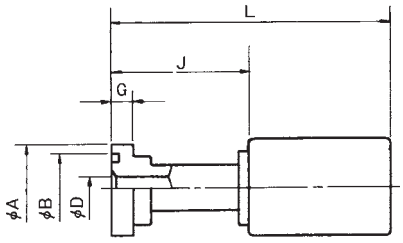
PART NO.5



female parallel pipe G thread type
(male 30°seat)

SIZE	A	B	D	G	J		L	WT
32	50.8	44.51	26.0	8.0	85		153	900
38	60.3	53.84	31.8	8.0	87		165	1,500
50	71.4	63.37	42.0	9.5	101		193	2,600

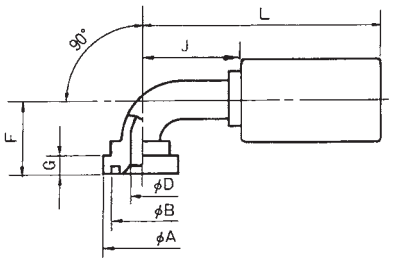
PART NO.3F



SAE standard pressure type flange (3000PSI)
(straight type)

SIZE	A	B	D	F	G	J		L	WT
32	50.8	44.51	27.0	71	8.0	91		159	1,000
38	60.3	53.84	32.5	112	8.0	115		193	1,800
50	71.4	63.37	43.5	127	9.5	140		232	3,900

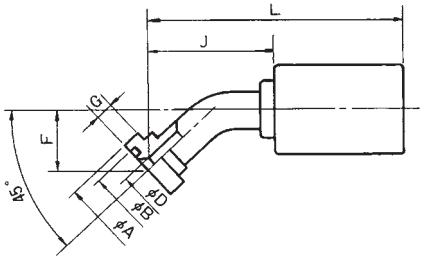
PART NO.903F



SAE standard pressure type flange (3000PSI)
(90°bend fitting)

SIZE	A	B	D	F	G	J		L	WT
32	50.8	44.51	27.0	32	8.0	91		159	700
38	60.3	53.84	32.5	52	8.0	140		218	1,500
50	71.4	63.37	43.5	58	9.5	148		240	2,800

PART NO.453F



SAE standard pressure type flange (3000PSI)
(45°bend fitting)

IBG210

HOSE STRUCTURE

INNER COVER: OIL RESISTANT SYNTHETIC RUBBER
REINFORCEMEMT: STEEL WIRE
OUTER COVER: OIL&OZONE RESISTANT SYNTHETIC RUBBER

RECOMMENDED FLUIDS

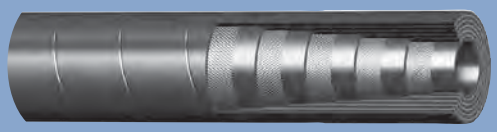
MINERAL SYNTHETIC OIL

OPERATING TEMPERATURE

-40°C~+100°C(-40°F~+212°F)

HOSE STRUCTURE&REINFORCEMEMT

4W/S

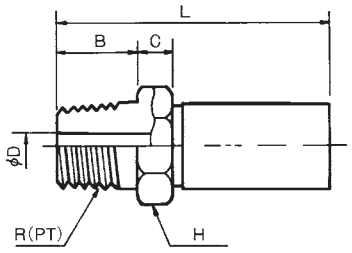


IBG 210

SIZE	REINFORCEMEMT	INNER DIAMETER mm (inch)	OUTER DIAMETER mm	MAX WORKING PRESSURE MPa (bar)	MIN.BURST PRESSURE MPa (bar)	MIN.BEND RADIUS mm	WEIGHT g/m
32	4W/S	31.8(1¼)	44.5	21 (210)	84 (840)	230	2,485
38	4W/S	38.1 (1½)	53.6	21 (210)	84 (840)	310	3,265
50	4W/S	50.8(2)	66.7	21 (210)	84 (840)	430	4,560

SIZE	B	C	D	H	R(PT)		L	WT
32	25	13	27.0	46	1 ¼		108	720
38	25	14	31.8	50	1 ½		119	1,150
50	30	19	42.0	65	2		143	2,100

PART NO. 1

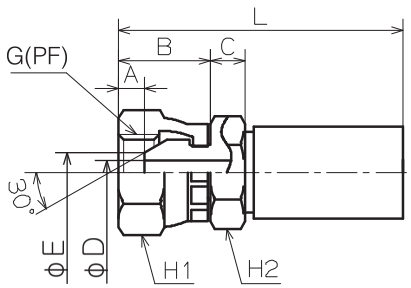


male tapered pipe R thread type

IBG210

SIZE	A	B	C	D	E	H1	H2	G(PF)	L	WT
32	12.5	30.5	13	27.0	32.0	50	46	1 1/4	114	780
38	12.5	33.5	14	31.8	38.0	55	50	1 1/2	128	1,250
50	15.0	37.0	19	42.0	49.0	70	65	2	150	2,200

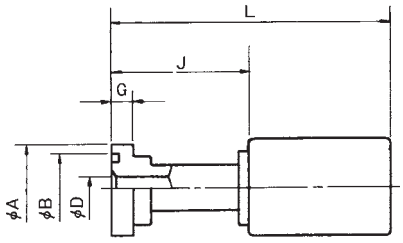
PART NO.5



female parallel pipe G thread type
(male 30°seat)

SIZE	A	B	D	G	J		L	WT
32	50.8	44.51	26.0	8.0	85		153	900
38	60.3	53.84	31.8	8.0	87		165	1,500
50	71.4	63.37	42.0	9.5	101		193	2,600

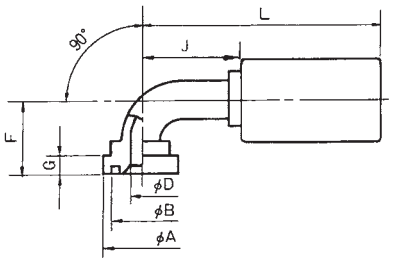
PART NO.3F



SAE standard pressure type flange (3000PSI)
(straight type)

SIZE	A	B	D	F	G	J		L	WT
32	50.8	44.51	27.0	71	8.0	91		159	1,000
38	60.3	53.84	32.5	112	8.0	115		193	1,800
50	71.4	63.37	43.5	127	9.5	140		232	3,900

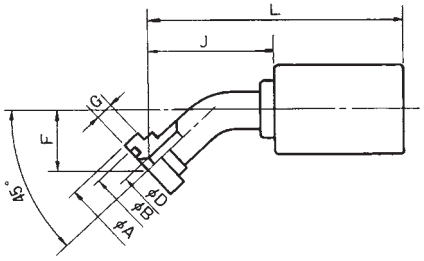
PART NO.903F



SAE standard pressure type flange (3000PSI)
(90°bend fitting)

SIZE	A	B	D	F	G	J		L	WT
32	50.8	44.51	27.0	32	8.0	91		159	700
38	60.3	53.84	32.5	52	8.0	140		218	1,500
50	71.4	63.37	43.5	58	9.5	148		240	2,800

PART NO.453F



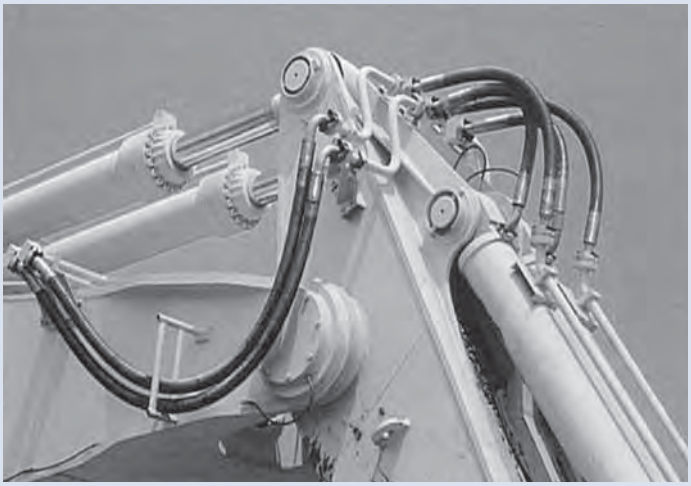
SAE standard pressure type flange (3000PSI)
(45°bend fitting)

HD SERIES

HD SERIES means the hoses for Heavy Duty works.
It can stand the hard condition such as Construction and Mining Machinery.
HD SERIES strengthens a long life and a high temperature resistant.
HD SERIES can correspond to the needs for the customers.

It is easy for the customers to design the hydraulic plumbing line,
because HD SERIES adopts thin outer cover,
And it is a remarkable improvement on the existing product
regarding Min. bend radius , Flexibilty , Weight.

We get complete sets of the high -quality and high-performance hose series
to correspond to Ultra high pressure and bigger diameter
for hydraulic line.



HD350

HOSE STRUCTURE

INNER COVER: OIL RESISTANT SYNTHETIC RUBBER
REINFORCEMEMT: STEEL WIRE
OUTER COVER: OIL&OZONE RESISTANT SYNTHETIC RUBBER

RECOMMENDED FLUIDS

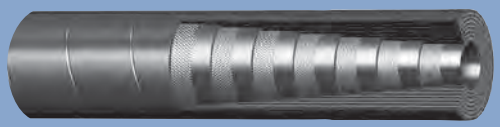
MINERAL SYNTHETIC OIL

OPERATING TEMPERATURE

-40°C~+100°C(-40°F~+212°F)

HOSE STRUCTURE&REINFORCEMEMT

6W/S



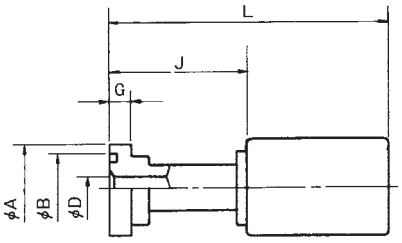
HD 350

SIZE	REINFORCEMEMT	INNER DIAMETER mm (inch)	OUTER DIAMETER mm	MAX WORKING PRESSURE MPa (bar)	MIN.BURST PRESSURE MPa (bar)	MIN.BEND RADIUS mm	WEIGHT g/m
32	6W/S	31.8 (1¼)	49.7	35 (350)	140 (1,400)	320	3,845
38	6W/S	38.1 (1½)	57.8	35 (350)	140 (1,400)	370	5,160
50	6W/S	50.8 (2)	73.1	35 (350)	140 (1,400)	480	7,500

HD350

SIZE	A	B	D	G	J		L	WT
32	54.0	44.51	26.0	10.3	71		149	1,169
38	63.5	53.84	31.8	12.6	73		163	1,660
50	79.4	63.37	42.0	12.6	110		235	3,489

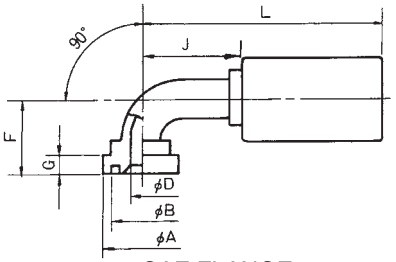
PART NO.6F



STRAIGHT SAE FLANGE
6000PSI

SIZE	A	B	D	F	G	J		L	WT
32	54.0	44.51	27.1	100	10.3	96		174	1,600
38	63.5	53.84	32.4	115	12.6	115		205	2,420
50	79.4	63.37	42	155	12.6	166		291	4,950

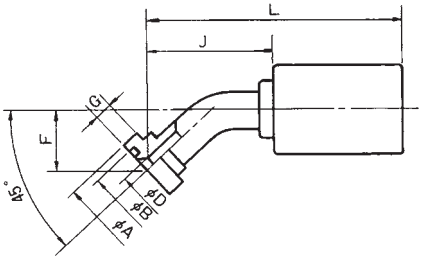
PART NO.906F



90° SAE FLANGE
6000PSI

SIZE	A	B	D	F	G	J		L	WT
32	54.0	44.51	27.1	47	10.3	105		183	1,380
38	63.5	53.84	32.4	63	12.6	145		235	2,200
50	79.4	63.37	42	76	12.6	186		311	4,295

PART NO.456F



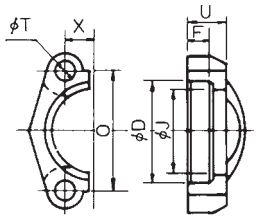
45° SAE FLANGE
6000PSI

ACCESSORIES

SAE SPLIT FLANGE

PART.NO	D	F	J	O	T	U	X	weight
SF-3008	31.0	6.09~6.35	24.3	38.1	8.7	12.7	8.7	55
SF-3012	38.9	6.09~6.35	32.1	47.6	10.3	14.2	11.1	80
SF-3016	45.2	7.36~7.62	38.5	52.4	10.3	15.7	13.1	110
SF-3020	51.6	7.36~7.62	43.7	58.7	11.9	14.2	15.1	135
SF-3024	61.1	7.41~7.67	50.8	69.9	13.5	15.7	17.9	215
SF-3032	72.2	8.89~9.15	62.7	77.8	13.5	15.7	21.4	250

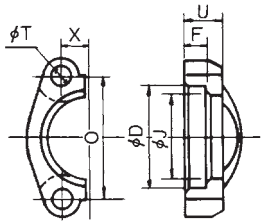
PART NO.SF3000



SAE SPLIT FLANGE CLAMPS
3000PSI CODE61-SAE J518

PART.NO	D	F	J	O	T	U	X	weight
SF-6008	32.5	6.97~7.23	24.6	40.4	8.4	16.0	9.1	60
SF-6012	42.1	8.13~8.39	32.5	50.8	10.3	19.0	11.9	150
SF-6016	48.4	8.89~9.15	38.9	57.2	11.9	23.9	13.9	250
SF-6020	54.8	9.65~9.91	44.5	66.7	13.5	26.9	15.9	400
SF-6024	64.3	11.94~12.20	51.6	79.4	16.7	30.2	18.3	590
SF-6032	80.2	11.94~12.20	67.6	96.8	19.8	36.6	22.2	1,100

PART NO.SF6000



SAE SPLIT FLANGE CLAMPS
6000PSI CODE62-SAE J518

ACCESSORIES O'RING

Size	SAE 3000PSI·6000PSI O'RING		
	inch	O'RING	
		JIS	SAE
15	1/2	W1516 AN6227-15	MIL-P-25732-210
20	3/4	W1516 AN6227-19	MIL-P-25732-214
25	1	W1516 AN6227-24	MIL-P-25732-219
32	1 1/4	W1516 AN6227-27	MIL-P-25732-222
40	1 1/2	W1517 AN6230-3	MIL-P-25732-225
50	2	W1517 AN6230-6	MIL-P-25732-228

The hardness of O'RING recommend JIS90°

BOLT·NATT FOR FLANGE

Size	SAE 3000 PSI		SAE 6000 PSI	
	inch	BOLT	inch	BOLT
15	1/2	5/16 -18UNC2A	1/2	5/16 -18UNC2A
20	3/4	3/8 -16UNC2A	3/4	3/8 -16UNC2A
25	1	3/8 -16UNC2A	1	7/16 -14UNC2A
32	1 1/4	7/16 -14UNC2A	1 1/4	1/2 -13UNC2A
40	1 1/2	1/2 -13UNC2A	1 1/2	5/8 -11UNC2A
50	2	1/2 -13UNC2A	2	3/4 -10UNC2A

Technical Contents

Hose selection conditions

One must consider a variety of conditions when determining which hose to use including meeting all the required functionality and the ability of the hose to last for an extended period of use. Please determine the specifications by comparing the use conditions with the following items as a basis for your hose selection

1 Maximum working pressure

Maximum working pressure refers to the set pressure of the hydraulic device (controlled with safety valves or other means). At a pressure level under the one indicated the hose can be used safely continuously over a long period of time.

2 Impulse pressure

There are cases where impulse pressure occurs that exceeds the controlled pressure due to variably load in general hydraulic devices. In terms of an impulse pressure wave, in general the one can consider the peak waveform (150% of maximum working pressure) and the trapezoidal waveform (133% of maximum working pressure).

3 Bend radius

Bending the hose reduces the ability to resist pressure so do not use with bends with radius higher than that indicated.

4 Temperature

Fluid has a small effect on the life of the hose. Please use within the fluid temperature range indicated in the catalog. Additionally, to use in locations with radiant heat or where the ambient temperature is high we ask that you enclose the hose in an insulator, but the effectiveness of insulators is limited.

5 Twisting

Take care that no significant twisting is applied in the routing of the hose, due to the ease with which flexible hoses twist. Using the hose while twisted may lower the usable life and can cause abnormal damage. When twisting during use cannot be prevented please use a rotary joint.

6 Flow speed

Select a hose specification that the maximum speed of fluid through the hose is held to 10m/ s. If the speed is too high it may cause heat or skiving (the peeling away of the inside layer of rubber).

7 External Pressure

If something heavy is dropped on the hose or an impact applied it can cause abnormal damage and shorter life. Please consider the hose protection to prevent external damage or wear caused by contact with other objects.

8 Fluid

The appropriate fluids differ depending on the hose series so please ensure the hose meets your requirements before selecting it.

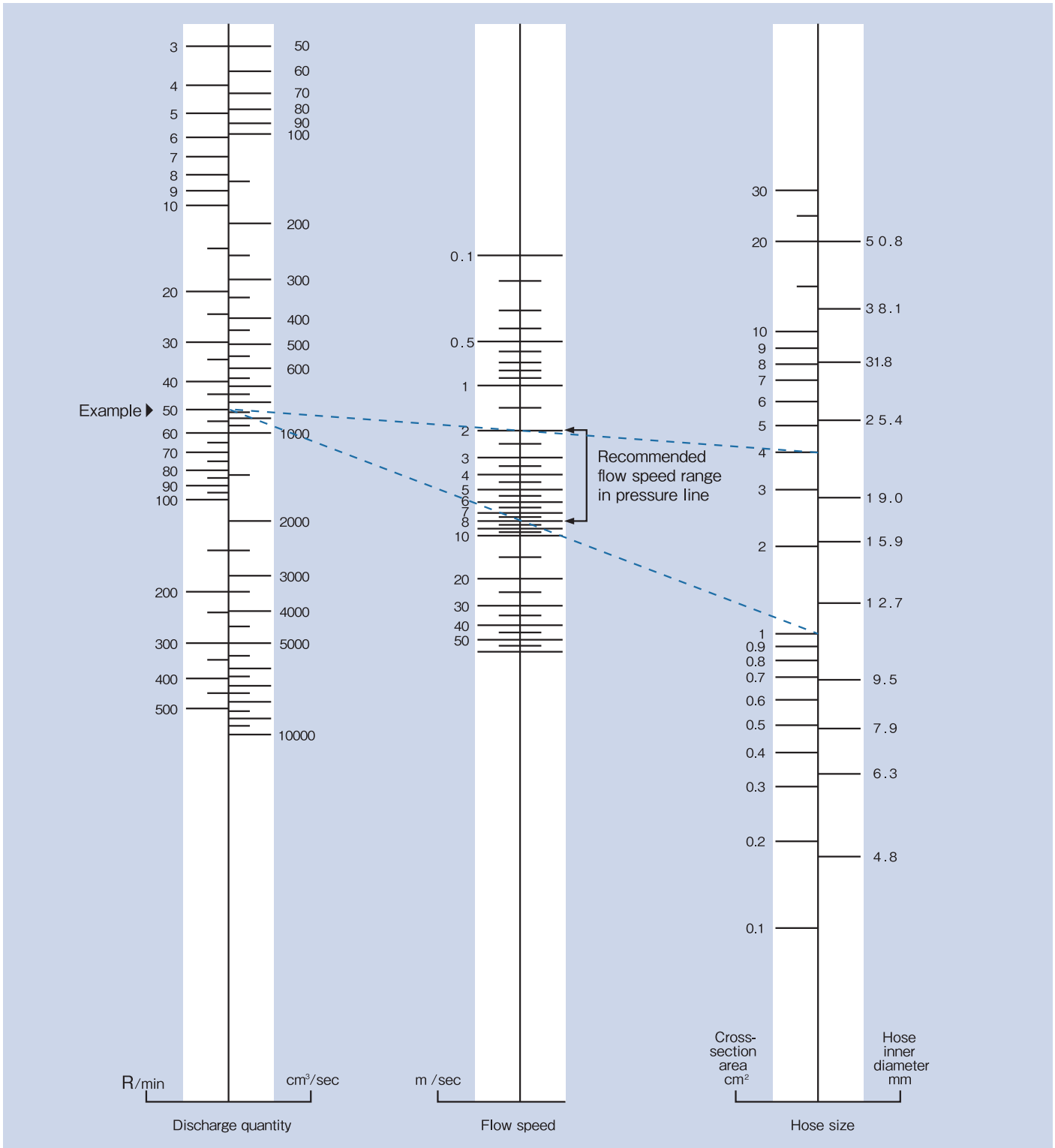
Discharge quantity, flow speed, and hose size

Use the following nomograph to select the appropriate hose size to use when able to determine the discharge quantity in the pressure line.

How to use the following graph

Example: Appropriate hose size when Discharge quantity = 50 liters/minute

When the discharge quantity is 50 liters/minute, we can discover the maximum and minimum flow speed on the center axis to get the recommended standard flow speed range. Extending the lines joining these points from the point on the first axis, the size closest to where they meet the hose size axis on the right is the appropriate size. (broken lines for reference.)
That is, the appropriate size is in the range from 12.7 to 19.0mm in diameter.



Discharge quantity and pressure loss

Pressure loss occurs due to friction resistance with the discharge quantity inside a pressure routing. The relationship between the discharge quantity and pressure loss in the high pressure hose is as follows.

Using the graph

Example: How much pressure is lose with a 2 meter lergth Hase, 12mm in diameter hose with fixtures on both ends and the flow volume is 20 liters/minute.

Horizontal access discharge quantity is 20 liters/minute and the hose size is 12mm in diameter intersects on the vertical access at 0.2MPa.

Pressure loss in hoses:

$0.2\text{MPa} \times \frac{2\text{m}}{10\text{m}} = 0.04\text{MPa}$

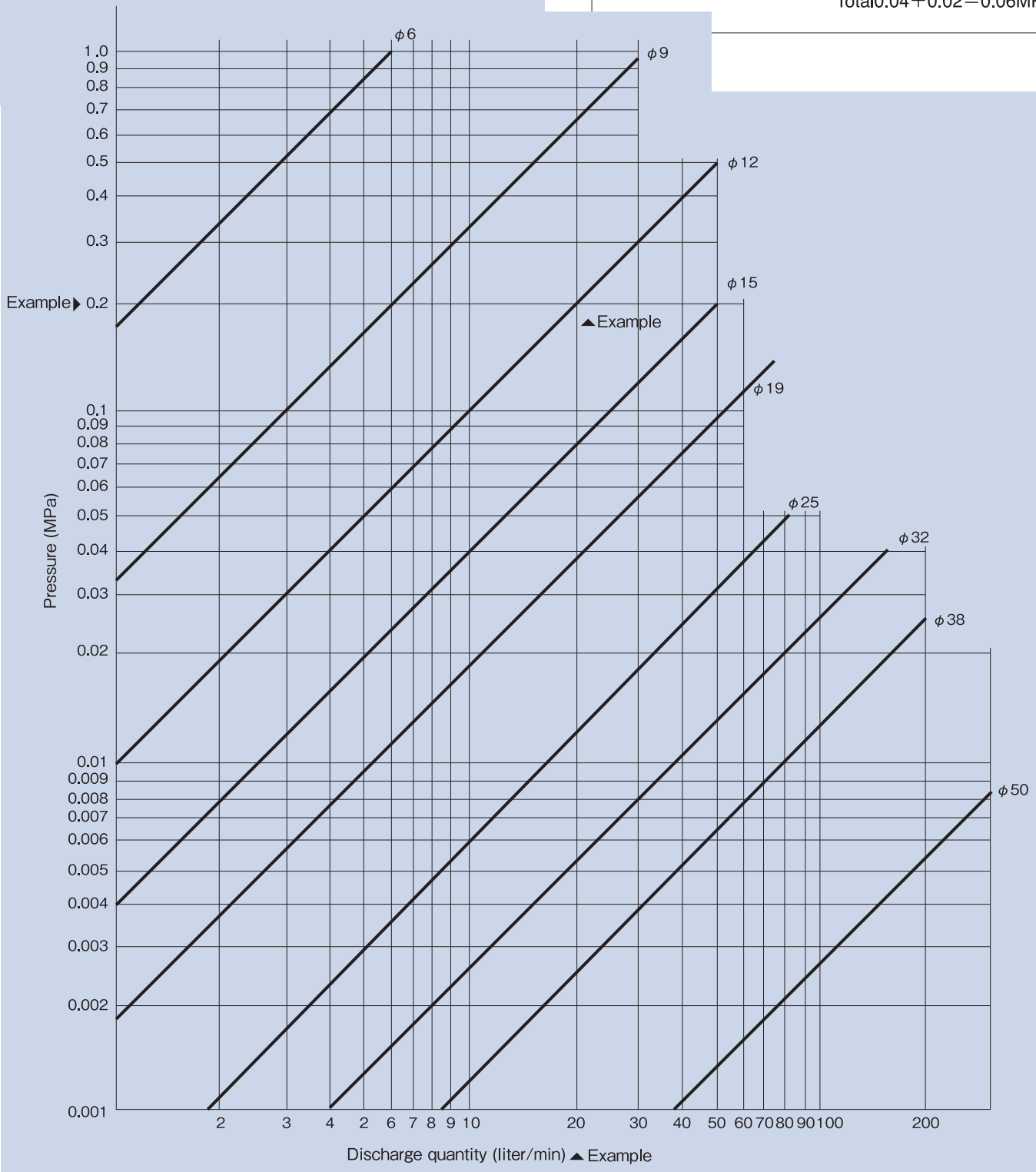
Pressure loss in the fixtures at both ends

$0.2\text{MPa} \times \frac{1}{20} \times 2\text{locations} = 0.02\text{MPa}$

Total 0.04 + 0.02 = 0.06MPa

Hose: 10m fluid – Hydraulic oil 46cst (33°C)

※Pressure loss in fixtures is close to $\frac{1}{20}$th of the hose value (per location)



Designing hose length / piping

1. Take care to prevent the hose from touching other parts due to excessive length when installing.
2. Consider the extension and contraction of the hose while pressurized to prevent additional tensile force on the hose.

Example1:When the hose is straight (Fig.1)

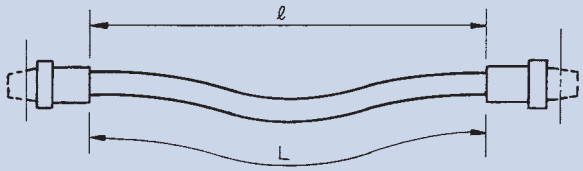
Hose free length　L≧ℓ(1+0.04)

Example2:U-shaped piping with both ends fixed (Fig.2)

L=2D+πR

Example3:U-shaped piping with one terminus moving by distance T (Fig.3)　L=2D+πR+T

Fig.1



Coefficient in straight hose area

Hose Size	6	9	12	15	19	25	32	38	50
D mm	40	50	60	65	75	90	110	120	140

Fig.2

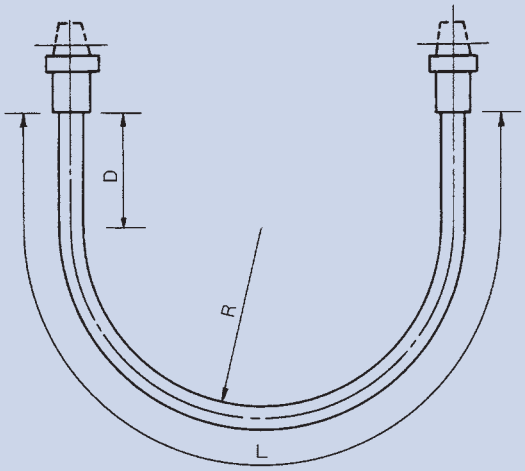
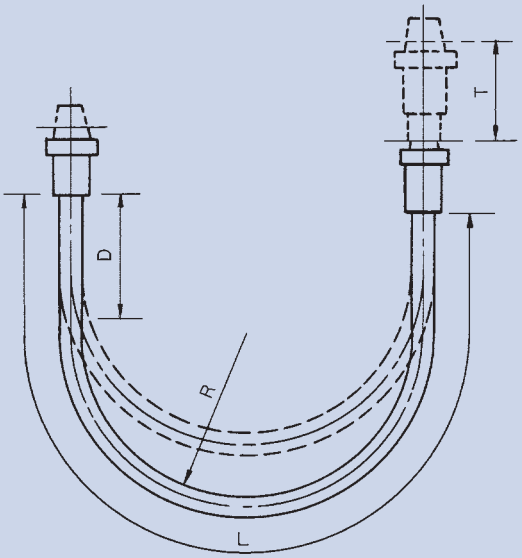
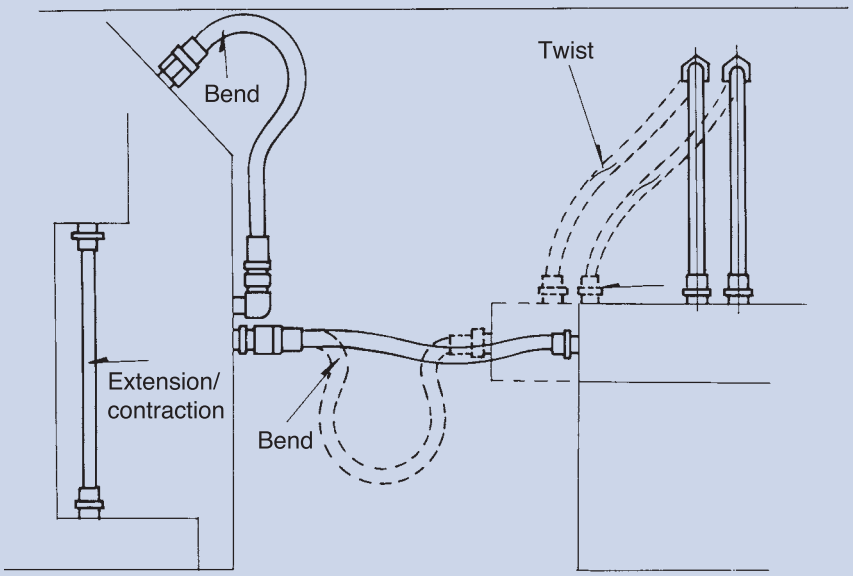


Fig.3



Piping examples (Bad examples)



Handling hoses

The functionality is greatly influenced by hose storage and hose installation methods. Please take care of the following items for proper use of the hose.

Storing the hoses and assembled hose

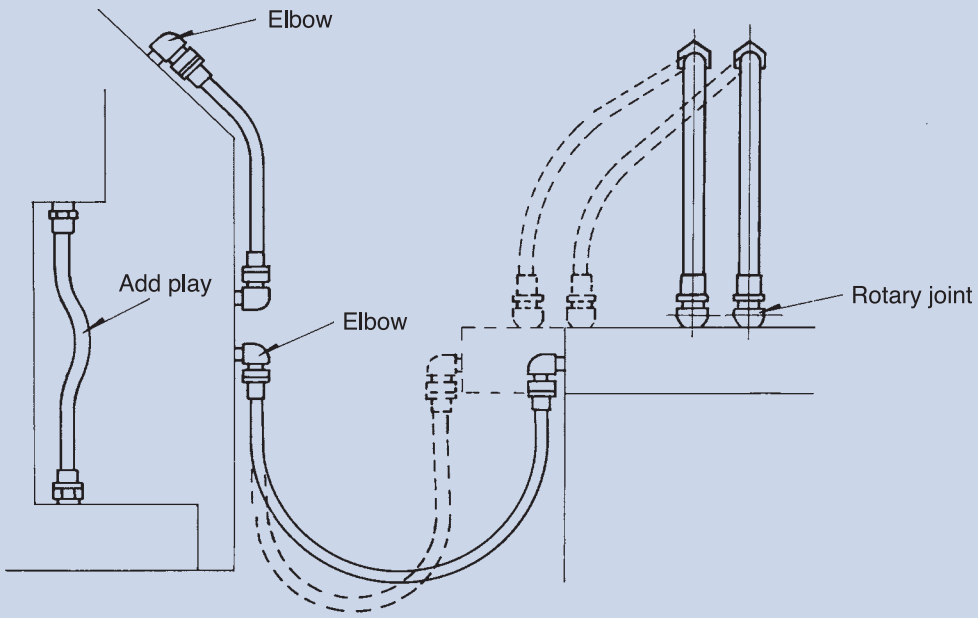
- Please select a cool, dark location to store the hoses that lacks humidity and direct sunlight.
- Please take care to prevent placed on top of the hoses. Take care to prevent entry of dust or grime into the hoses.
- Do not store the hoses for long periods of time. (Consider one year as a rough estimate.)
- Changes that take place as the hose ages may cause leaks. Use the hoses starting with the oldest ones in stock. Hoses after opening their caps, store on a flat surface avoiding bumpy places or grates.

Piping precautions

Hoses are made from raw (organic) material. Take particular care in routing the hoses.

- When internal pressure is applied the hose extends or contracts. Route the hose taking the amount of play into consideration. Under normal pressure the length of the hose stretches anywhere from +2% to -4%.
- Twisting the hose can result in decreased functionality. In cases where twisting can occur due to oscillating, rotating, and so on we recommend use of a rotary joint. Our hoses have a printed mark to use as a rough guide in preventing twisting.
- When bending to use near fixtures the hose while become damaged earlier than necessary. Modify the hose position or use the accompanying fixture (such as an elbow fitting).
- Contact with other objects may cause wear. Protect the hose by installing a support or guard wire. (spring wire)

Piping examples (good examples)



Fitting fastening torque

Union type nuts of hose fixtures will be damaged by unlimited fastening. Determine the fastening torque based on the working pressure conditions for safety. Refer to the chart on the right.

Hose sizeHose size		6	9	12	15	19	25	32	38	50
Thread Size	Pipe thread G(PF)	1/4	3/8	1/2	3/4	3/4	1	1 1/4	1 1/2	2
	Metric thread (MXP)	14×1.5	18×1.5	22×1.5	27×2	27×2	33×2	42×2	50×2	60×2
	Unified thread (UNF)	7/16-20	9/16-18	3/4-16	—	1 1/16-12	1 5/16-12	—	—	—
Maximum fastening torque N・m		25	34	64	132	132	196	225	255	316
Applicable pressure MPa		34.5					27.5	20.5	17.0	10.5

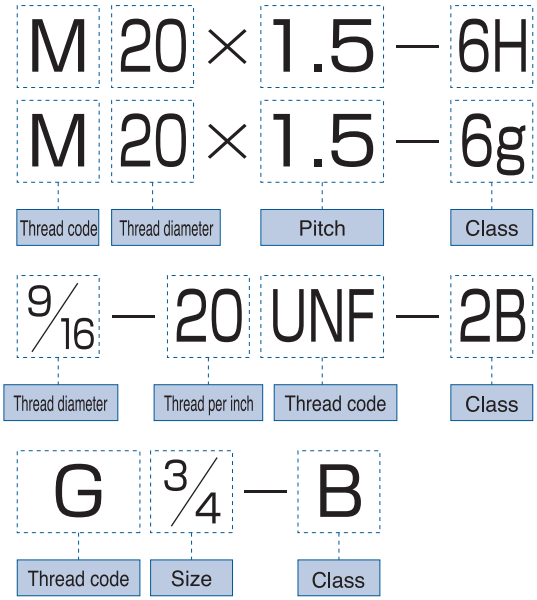
Note: The tightening torque values for pipe threads are based on JIS B8363.

Thread

Types

Thread code	Thread type	Related standard
M	Metric coarse thread	JIS B0205
M	Metric fine thread	JIS B0207
UNC	Unified coarse thread	JIS B0206
UNF	Unified fine thread	JIS B0208
G	Parallel pipe thread	JIS B0202
R	Taper pipe thread	JIS B0203
NPT	American Standard taper pipe threads for general use	ANSI B2・1
NPS	American Standard straight pipe threads	ANSI B2・1
NPTF	Dryseal American Standard taper pipe threads	ANSI B1・20・3
NPSM	American Standard straight pipe threads for free-fitting mechanical joints for fixtures	ANSI B2・1

Indication



Types

Threadtype	Female thread	Male thread	Unified Thread						Parallel pipe male thread	
Class	4H～6H	6～8g	3Aclass	3Bclass	2Aclass	2Bclass	1Aclass	1Bclass	Aclass	Bclass
Code	4H～6H	6～8g	3A	3B	2A	2B	1A	1B	A	B

Hose standard listing

Standard		JIS			ISO		
		JIS K6349-3	JIS K6379	JIS K6375	ISO 1436	ISO 3862	ISO 18752
		Wire reinforced rubber hose for hydraulic use	Fiber reinforced rubber hose for hydraulic use	Fiber reinforced resin hose for hydraulic use	Wire reinforced rubber hose and hose assembly for hydraulic use	←	Wire reinforced or fiber reinforced rubber hose and hose assembly for hydraulic use
Categorization method		Pressure standard(rubber)	Pressure standard(rubber)	Pressure standard(resin)	Composition standard (W/B)	Composition standard (W/S)	Pressure standard(rubber)
Types		9 types from 70 to 345	Types 1 to 4	Types 1 and 2	Types 1A, 2A, 2B, 1AT, 2AT, 2BT	Types 1 to 7	Class:9 types from 35 to 560 Types:AS,AC,BS, BC,CS,CC,DC
Operating temperature range		-40 to +100°C	←	←	←	←	AS,AC, BS,BC:-40 to +100°C CS,CC,DC:-40 to +120°C
Maximum working pressure (W.P)		7.0to 34.5MPa	1.0 to16.0MPa	6.9 to 34.5MPa	2.6 to 35.0 MPa	14.0 to 86.0 MPa	3.5 to 56 MPa
Pressure resistance test	Pressure resistance test	No abnormalities at double maximum working pressure	←	←	←	←	←
	Minimum bursting test	No abnormalities at four times maximum working pressure	←	←	←	←	←
	Length deformation ratio (%)at maximum working pressure	-4 to+2%	←	-3 to+3%	-4 to+2%	←	←
Impulse pressure test	Pressure	Maximum working pressure: (W.P) ×133%	Under diameter 25mm: (W.P) ×133% Over diameter 31.5mm: (W.P) × 100% (Excludes type1)	Type 1: (W.P) ×125% Type 2: (W.P) ×133%	Type 1 under diameter 25mm: (W.P) ×125% over diameter 31.5mm: (W.P) ×100% Type 2: (W.P) ×133%	Type 1,Type 2, 3 over diameter 12.5mm, Type 4 over diameter 19mm, Type 5,6: (W.P) ×133% Type 7: (W.P) ×120%	Maximum working pressure: (W.P) ×133% CS, CC class 350, 420, 560: (W.P) ×120%
	Waveform	Square	←	←	←	←	←
	Frequency	0.75 to1.25Hz	←	←	←	←	←
	Oil type	2 types of JIS K2213, ISO-VG46 conformance oil	←	←	←	←	←
	Test temperature	100°C	93°C	←	←	Type1 to 5:93°C Type6,7:121°C	AS, AC, BS, BC : 100°C CS, CC, DC : 120°C
	Mounting	Minimum bend radius U shape or L shape; Diameter more than 25mm is L shape	←	←	←	←	←
	Minimum impulse pressure repetitions	400,000 times	200,000 times	Type1: 150,000 Type2: 200,000 times	Type1: 150,000 Type2: 200,000 times	Type1: diameter 8 to 12.5mm: 200,000 times Diameter 16 to 51mm:300,000 times Type2 to 5: 400,000 times Type6,7: 500,000 times	AS, AC: 200,000times BS, BC: 500,000 times CS, CC: 500,000 times DC: 1,000,000 times
Low temperature flexibility test		After setting for 24 hours in -40°C, within 8 to 12 seconds, at the minimum bending radius (diameter 22mm or less is 180° and diameter 25mm or more, 90°) ensured nothing is abnormal when testing for pressure resistance and no cracks in the inner or outer surface layers					
Leak test		No standard	With pressure of 70% of the minimum bursting test pressure for 5 to 5.5 minutes, after releasing pressure, apply the same pressure for the same time again, no abnormality occurs.				

Hose, fitting material and usable fluid

The relationships between hose, fitting material and usable fluids can be seen in the table below. Please refer to the table when selecting a hose to use. Note that conditions change with differences in fluid temperature and concentration.

※Use air or gasses at under 1.0MPa.

Fluid type	Hose	Fitting		
	1	A	B	C
Asphalt	○	◎	◎	○
Acetaldehyde	×	—	—	—
Acetone	×	◎	◎	◎
Acetylene	△	◎	◎	○
Aniline	×	◎	◎	×
Ammonia gas (cold)	○	◎	◎	×
Ammonia gas (hot)	△	◎	×	×
Liquid ammonia	○	◎	◎	×
Sulfurous acid gas	△	○	○	△
Isooctane	◎	◎	◎	○
ASTM No. 1 oil	◎	◎	◎	○
ASTM No. 3 oil	△	◎	◎	○
Ethyl alcohol	◎	△	◎	◎
Hydrochloric acid (10% RT)	◎	×	×	△
Hydrochloric acid (36% RT)	△	×	×	△
LPG	◎	◎	◎	○
Olive oil	◎	◎	◎	◎
Hydrogen peroxide (5% RT)	×	×	◎	×
Hydrogen (30% RT)	×	×	◎	×
Seawater (RT)	◎	△	◎	△
Sodium hydroxide (10% RT)	◎	◎	◎	×
Sodium hydroxide (30% 60°C)	◎	◎	◎	×
Gasoline	×	◎	◎	◎
Formic acid (25% RT)	×	×	◎	△
Formic acid (50% RT)	×	×	◎	△
Cresol	×	—	—	—
Chloroform	×	×	◎	×
Grease	○	◎	◎	◎
Glycerin	◎	◎	◎	○
Kerosene (RT)	△	◎	◎	◎
Coke oven gas	△	◎	◎	△
Mineral oil (generic petroleum-based)	◎	◎	◎	◎
Acetic acid (10% RT)	△	×	◎	×
Acetic acid (100% RT)	×	×	◎	×
Ethyl Acetate	×	○	○	○
Oxygen	×	×	◎	◎
Cyclohexane	×	—	—	—
Carbon tetrachloride	×	△	○	○
Diethylene glycol	◎	◎	○	○
Sodium hypochlorite (5% RT)	△	×	○	×
Sodium hypochlorite (5% 60°C)	×	×	○	×
Heavy oil (B, C)	○	◎	◎	◎
Potassium bichromate(10%RT)	◎	◎	◎	◎

Hose, fitting material and usable fluid

	Usability
◎	No or almost no effect
○	Some effect occurs but sufficient for use depending on conditions
△	Relatively large effect
×	Do not use

	Hose series name
1	IB, SIB, HD, SHD

	Fitting material
A	Steel
B	Stainless steel
C	Brass

Fluid type	Hose	Fitting		
	1	A	B	C
Oxalic acid	○	△	○	△
Nitrous acid (10% RT)	×	×	◎	×
Nitrous acid (30% RT)	×	×	◎	×
Lubricant (Mineral oil)	◎	◎	◎	◎
Steam (only ST hoses)	×	◎	◎	◎
Stearic acid	○	△	○	△
Petroleum	○	◎	◎	◎
Tar	○	◎	◎	△
Carbonic acid	◎	×	○	×
Carbonated gas (under 1.0MPa)	△	◎	◎	◎
Nitrogen (under 1.0MPa)	△	◎	◎	◎
Natural gas (under 1.0MPa)	×	◎	◎	○
Trichloroethylene	×	△	◎	◎
Toluene	×	◎	◎	◎
Vegetable oil	◎	◎	◎	◎
Naphtha	○	◎	○	○
Castor oil	◎	◎	◎	◎
Vinegar	△	○	◎	○
Picric acid	○	△	○	×
Butane	○	◎	◎	◎
Freon 12	×	◎	◎	◎
Freon 22	×	◎	◎	◎
Phenol	×	×	◎	◎
Propane	◎	◎	◎	◎
Fuel oil	×	◎	◎	◎
Benzene	×	◎	◎	△
Boric acid	◎	×	◎	△
Formaldehyde (40% RT)	○	○	◎	○
Methyl alcohol	○	△	◎	◎
Methyl ethyl ketone	×	○	○	○
Monochlorobenzene	×	○	—	—
Lacquer	×	△	◎	◎
Lard	◎	◎	◎	◎
Sulfuric acid (10% RT)	○	×	○	×
Sulfuric acid (30% 60°C)	○	×	△	×
Hydrogen sulphide	○	△	○	△
Phosphoric acid (50% RT)	○	○	○	×
Phosphoric acid (30% 60°C)	○	×	○	×

Hoses and hose accessory JIS standards and compatible ISO standards

JIS standard			Compatible ISO standard	
Name	Hose	Hose assembly	Hose and hose assembly	Name
Wire reinforced rubber hose for hydraulic use	JIS K 6349	JIS B 8360	ISO 18752	Rubber hoses and hose assemblies-Wire-or textile reinforced single-pressure types for hydraulic applications Specification
Fittings and adapters for hydraulic hose assembly	—	JIS B 8360	—	—

National Shipping Association Certifications

Nippon Kaiji Kyokai (NK)	Japan
Maritime Bureau, Ministry of Land, Infrastructure,Transport and Tourism,Japan(JG)	Japan
American Bureau of Shipping （ABS）	America
Lloyd's Register （LR）	U.K.

※For details, please contact one of our sales locations.

Mine Safety and Health Administration MSHA United States Department of Labor

MSHA Approual

ACCEPTED HYDRAULIC HOSE

UNDER THE INTERIM FIRE CRITERIA

Instruction Manual – 1. Introduction –

This instruction manual is a guide for the proper use of the various kinds of hydraulic pressure rubber hose assemblies (hereafter, “hose assemblies”).
Ensure that you use the hose assembly only after completely reading these instructions.
Afterwards, store carefully for reference again at a later date.

Symbols in the instruction manual

Danger These marks indicate instructions that, if not implemented properly, may result in death or serious injury.

Caution These marks indicate instructions that, if not implemented properly, may result in injury or physical damage. Also used to announce non-specific, general prohibitions.

Intended purpose of the hose assembly

The hose assembly is used for hydraulic devices and circuits as channels for mineral or hydrogenous Hydraulic oils.

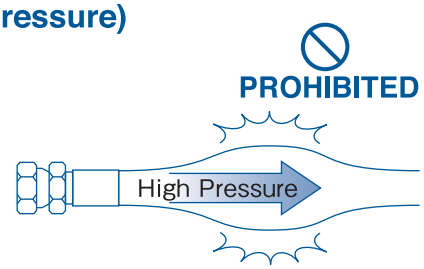
Contact us regarding this instruction manual at your nearest sales location.

Instruction Manual – 2. Selecting a hose assembly –

2-1. Pressure (maximum working pressure, maximum impulse pressure)

Danger Stay below the pressure levels indicated in the catalog.

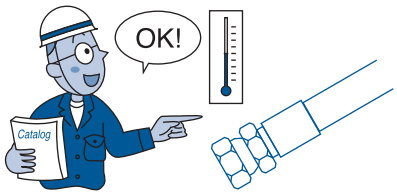
Using the hose assembly at levels exceeding those listed in the catalog is dangerous and may result in hose bursting or joint fittings coming off.



2-2. Temperature (fluid temperature)

Danger Stay within the temperature range indicated in the catalog.

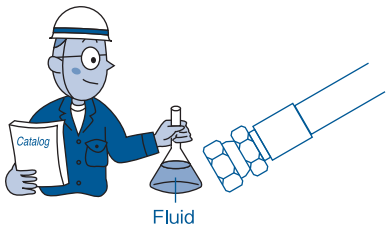
Using the hose assembly at levels outside the range listed in the catalog is dangerous and may result in hose bursting or joint fittings coming off.



2-3. Fluid

Danger Use only compatible fluids indicated in the catalog

Using the hose assembly with incompatible fluids is dangerous and may result in degradation of the inner layer (rubber) and the reinforcing layer (wire or fiber) of the hose causing hose bursting or joint fittings coming off.



2-4. Bend radius

Danger Stay over the minimum bending radius indicated in the catalog.

Using the hose assembly bent at angles under the minimum bending radius is dangerous and may result in hose bursting.

2-5. Joint Fittings

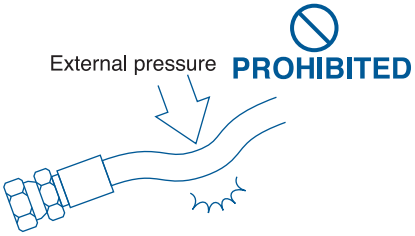
Danger Thoroughly evaluate the connecting fixture (thread, shape) when selecting a compatible joint fixture hose assembly.

Fitting with an incompatible joint fittings is dangerous and may result in leaks or disconnection between the joint fittings

2-6. Unusual conditions

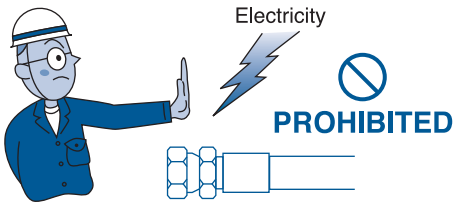
Danger Do not apply negative or external pressure.

The hose is designed to resist internal pressure; negative or external pressure may cause the inner surface to come apart or collapse drastically reducing the lifetime of the hose assembly.



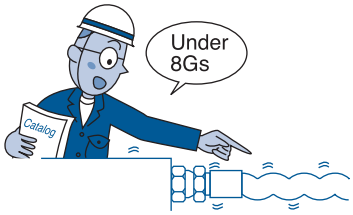
Danger Do not electrify the hose assembly.

Electrifying the hose assembly is dangerous and may result in hose bursting or receiving electric shocks.



Danger Do not apply excessive vibration to the hose assembly.

Application of excessive vibration to the hose assembly is dangerous and may result in fatigue cracks in the hose assembly joint fittings, leaks or bursting. (Keep vibration acceleration levels under approximately 8Gs).



Instruction Manual – 3. Setting the length of the hose assembly –

Danger Ensure play in the hose length to prevent tensile force from being applied to the hose assembly.

The length of the hose assembly changes when pressurized. Not giving play in the hose length will cause tensile force to be applied. This is dangerous and may result in hose bursting or joint fittings coming off.

Instruction Manual – 4. Mounting the hose assembly –

Caution Completely remove contaminants such as dust from the joint fittings.

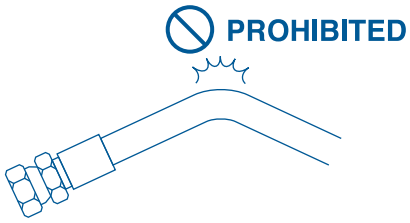
Before connecting the hose assembly inspect the thread part of the connection fitting and completely remove any contaminants such as dust that may be present with an air-blower or cleaning oil (light oil). Not doing so may result in fluid leaks.

Caution Please prevent sealant from entering into the hose.

In cases where sealant is used on the thread part of the joint fittings to achieve a good seal take care to prevent sealant from entering into the hose or from being left behind. Not properly doing so may result in the hose clogging or flow reduction.

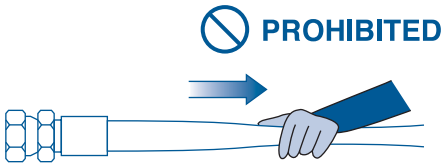
Danger Do not bend the hose

Take care to prevent unreasonable bending to the hose unit (the joint fitting area, in particular). Applying unreasonable bending is dangerous and may result in bursting at the bending location. A hose that has been bent before may retain a memory of the deformation and is not usable.



Danger Do not pull the hose assembly.

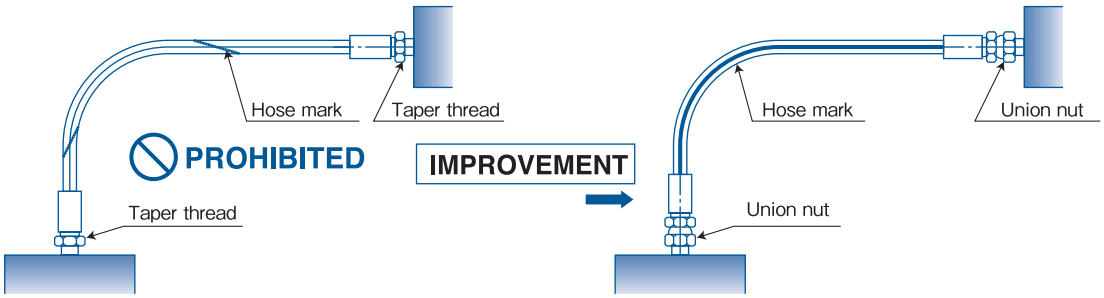
Pulling the hose assembly is dangerous and may result in concentration of stress in the joint fitting mounting part leading to damage pulling free.



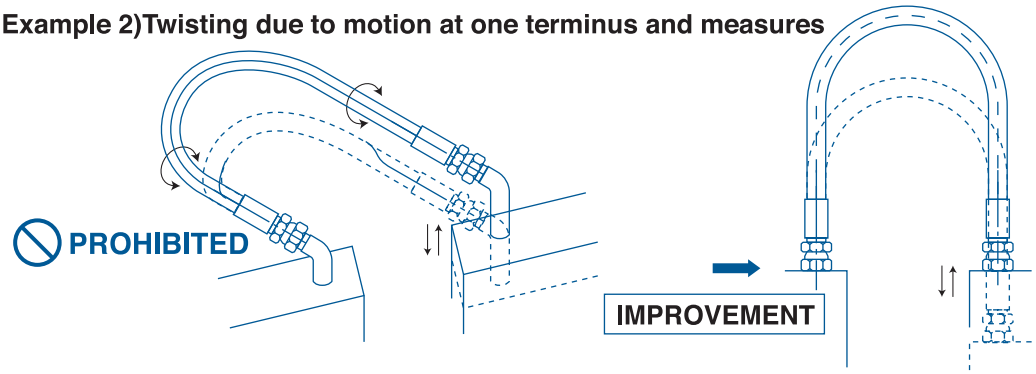
Danger Do not twist the hose assembly.

Application of twisting to the hose assembly is dangerous and may result in deformation of the internal composition of the hose or damage. Refer to the following examples to add appropriate measures.

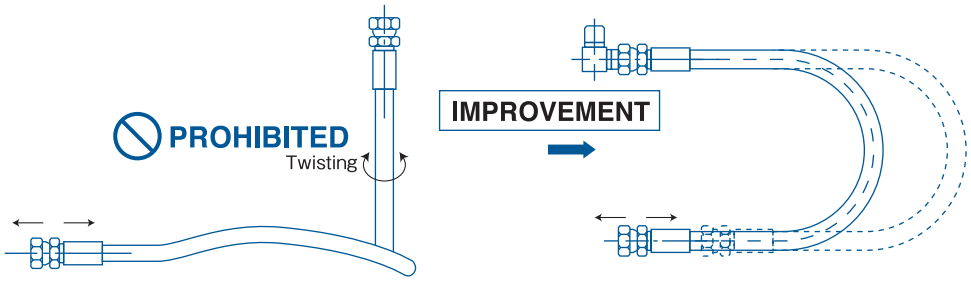
Example 1) Twisting due to thread type joints and measures



Example 2)Twisting due to motion at one terminus and measures



Example 3) Twisting due to 3-dimensional bendings and measures



Danger Do not allow interference with the hose assembly.

Protect the hose assembly from external damage.

Possibility of contact with the hose assembly by other objects (such as machine equipment) is dangerous and may result in hose bursting or damage to the joint fittings caused by external damage. Refer to the following examples to add appropriate measures.

Example 1)

Condition The hose is in contact with a sharp angle.

↓

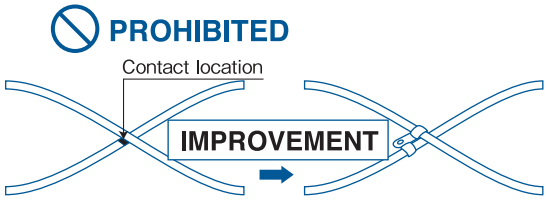
Measure Reduce the clamp gap to prevent contact.

Example 2)

Condition Two hoses touch each other.

↓

Measure Prevent contact with a jig.

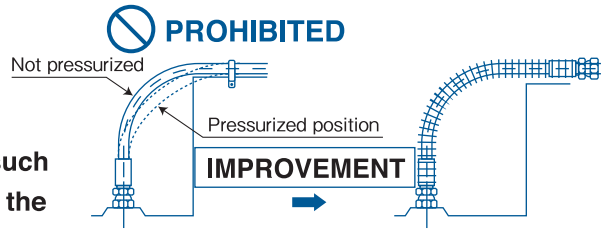


Example 3)

Condition Contact is made when pressurized.

↓

Measure Attach external damage protection such as a protective spring and do not fix the hose bending.

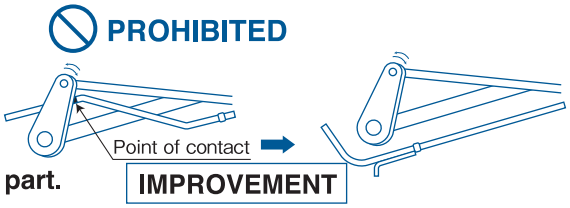


Example 4)

Condition Moving mechanical part makes contact.

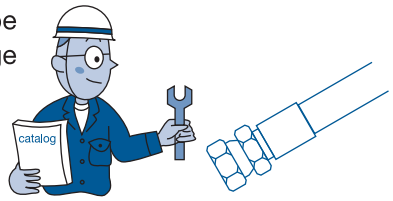
↓

Measure Changing piping the hose assembly, prevent contact with moving mechanical part.



Caution Comply with fastening torque requirements listed in the catalog.

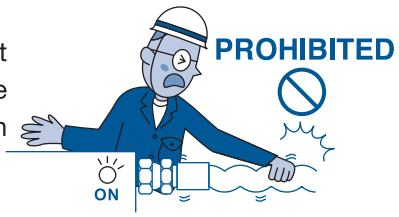
Unless fastening torque is correct, a proper seal cannot be ensured. This is dangerous and may lead to fluid leaks or damage of the connections.



Instruction Manual – 5. Handling the hose assembly –

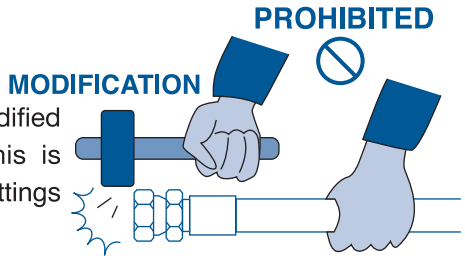
Danger Do not touch pressurized hoses or joint fittings.

Unnecessary touching or approaching pressurized hoses or joint fittings is dangerous, if sudden damage should occur to the hose or joint fittings the fluids will be sprayed. If the fluid is used at high temperatures, burns may occur.



Danger Do not fix, repair or modify the hose assembly.

Hose assemblies that are fixed (reprocessed), repaired or modified may not reflect the functionality listed in the catalog. This is dangerous and may result in hose bursting or the joint fittings coming off.



Instruction Manual – 6. Maintenance and inspection of the hose assembly –

⚠ Caution **Implement pre-work and periodic inspection in accordance with the following table.**

Appropriately implementing the following inspection and measures, can prevent unexpected hose bursting or joint fitting damage. Refer to the following table to implement inspection.

Item		Primary Causes	Measures
Thread joint oil leak		Dust or scratches on the seat surface or entrance of contaminants	Clean the seat surface
		Thread looseness or degradation of the O' ring	Tighten the thread, replace the O ring
		Uneven contact with seat surface	Retighten or replace depending on degree
Fluid leak from flange joint		Loose tap bolt	Retighten bolt
		Degradation of O' ring or packing	Replace O' ring, packing
Hose and joint assembly part fluid leak		Degradation of hose material due to heat, fluid or long-term use	Replace
		Unreasonable piping	Review piping method that does not significantly the joint assembly part
Deformation	Crushing (dents) or,kinks	External impact	·Remove possible causes ·Apply external protector to hose ·Replace depending on degree
	Bulge	External application of fluid Fluid from connection	
External damage (wear or cuts)		Contact with other products External impact	
Outer cover rubber cracking (occurrence of large or small cracks in the outer cover rubber)		Effect of ozone, sunlight, or coating	·Hose outer cover rubber protection ·Replace depending on degree
Unusual hose movement when operated (extension, shrinkage, twisting,bending, kinks)		Inappropriate hose length	Replace
		Inappropriate piping method	Review piping, use attached fixtures
Hardening or softening		Degradation due to high or low temperatures or fluid	Replace as necessary
Abnormal noise, smell, temperature		Often from related circuit	Inspect whole circuit
Rusting at joint		Dust clouds, water droplets, industrial water, salt wind	Coat appropriately with rust prevention agent, avoid application to the outer cover rubber of the hose

Even without any abnormalities in the above items, it is best to replace the hose assembly after two years of use. (Refer to the explanations in JIS B 8360, JIS B 8362 or JIS B 8364)

Instruction Manual – 7. Storing the hose and hose assembly –

Caution If storing for more than one month, implement rust prevention measures.

Apply rust prevention agents to the metal parts including the joint fittings or wrap them in rust preventive paper. Corroded joint fittings may cause contamination of the fluid or leaks.

Caution Store in an appropriate environment.

Store in a dry location avoiding direct sunlight, maintaining temperatures between -10 and +40°C. Direct sunlight or high temperatures may cause progressive degradation of the rubber resulting in cracking. Humidity noticeably increases the rate of clow temperatures the rubber hardens, which may causing damage.

Caution Do not allow the hoses or joint fittings to become deformed or damaged during storage.

Store the hose assemblies stretched out straight, or in cases where they will be wound ensure they are not bent in excess of the standard minimum bend radius. Do not place heavy objects on top of the hose assemblies. If the hose or joint fittings are deformed or damaged, unexpected bursting or damage may occur.

Caution Keep the inside of the hose assembly clean.

Seal the joint fittings such as with a cap to prevent contaminants including dust or grime from entering the hose assembly. If contaminants such as dust or grime enter, the fluid will become contaminated, which may cause hydraulic circuit and device problems.

Caution Maintain hose storage to not exceed one year.

Even with properly sealed and stored hoses, there is no way to completely prevent degradation and the functionality will decrease. Please manage your hose storage to prevent hoses from being stored for more than one year.

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Remark: Specifications mentioned in this publication are subject to change without prior notice