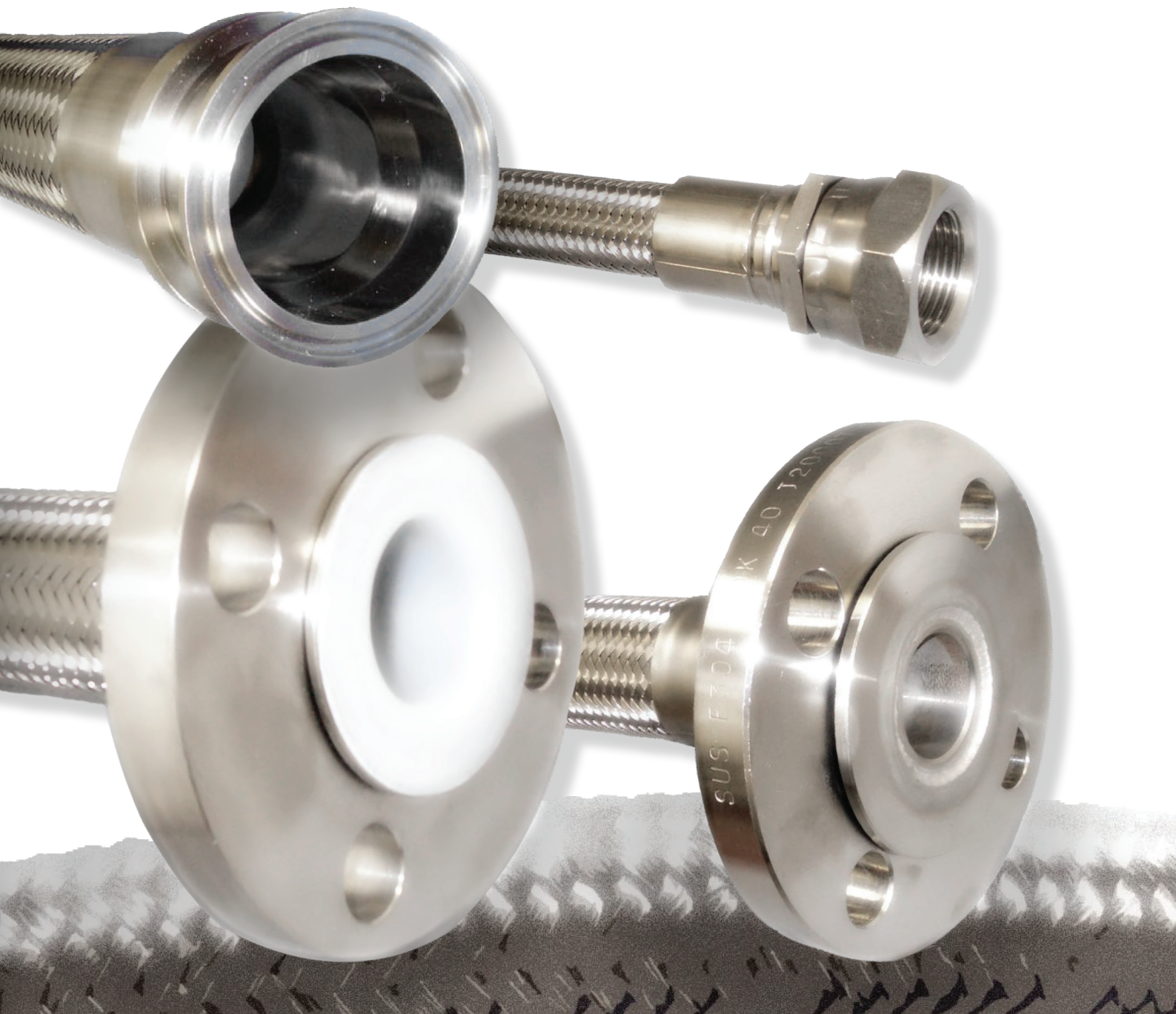


Teflon Flexible Hose *SIGMA FLEX*



Sigma Flex hose range consists of following specification; Pressure resistant PTFE smooth bore tubes reinforced with stainless-steel wires (S, H, M, and L series), and convoluted PTFE hose (R series) or pliable hoses (T, E, series) in which a PTFE tube is molded in a spiral shape to give these high flexibility characteristics.

With characteristics of excellent non-adhesivity, heat resistance, corrosion resistance, and high chemical stability, these Teflon hoses can be used as a piping for steam, chemicals, gas, food and most of other fluids.

1. Ultra-high Pressure Hose (S series)

Tube and wire braid are in close contact with each other by sintering the original braid and PTFE tube. Therefore, friction at the time of use is small and the hose type withstands impact pressure very well. Also the hose elongation/bulge at maximum working pressure is 1% or less, and it can be used for a long time even under severe use conditions. It is the world's highest performance PTFE hose with excellent flexibility.

Conform to SAE100R8 100R9

2. High Pressure Hose (H series)

It is the pressure-resistant PTFE hose with two layers of stainless-steel braid reinforcements. Like the ultra-high pressure S series, the wire is assembled by unique technology, making it excel in high pressure resistance and high temperature property.

3. Medium Pressure Hose (M series)

It is a PTFE hose with hard drawn stainless steel wire reinforcement. Highly versatile and used in a wide range of fields.

4. Low Pressure Hose (L series)

It is a PTFE hose with soft drawn stainless steel wire reinforcement. The hose has been proven in the fields of steam application for many years.

5. Pliable Hose (E series)

Corrugating manufacturing process of the PTFE tube gives this hose range excellent flexibility. Stainless steel braids provides the hose range with excellent pressure resistance.

Conform to Food sanitation law notification No.20 by Ministry of Health and Welfare.

6. Convo Hose (T series)

The hose end is flared by unique method, making all wetted parts PTFE. It is being used in various industries such as food, chemical, semiconductor industry etc. Outer spring (TS type) and outer braided (TW type) are also available depending on application.

Conform to Food sanitation law notification No. 20 by Ministry of Health and Welfare

7. Convoluted Hose (R series)

PTFE and outer glass fiber were baked while being sintered together. Tube and glass fiber are in close contact with each other, and the pitch is small, making it excel in pressure resistance and flexibility.

8. Special Hose

Production of special hose based on customer's request is possible. We are developing and offering hoses for foods, medical care, aerospace, ships and so forth that are made of various materials Including PTFE but not limited to PTFE. Please do not hesitate to contact us anytime.

How to order

Hose type	Hose length	Metal fitting on one end	Adapter	Metal fitting on other end	Adapter
Sigma L-08	1,000 mm	1S		4S	13S
Sigma M-10	10 M	4C	13C	4C	33C
Sigma TSW-16	2,500 mm	10FC		10FC	

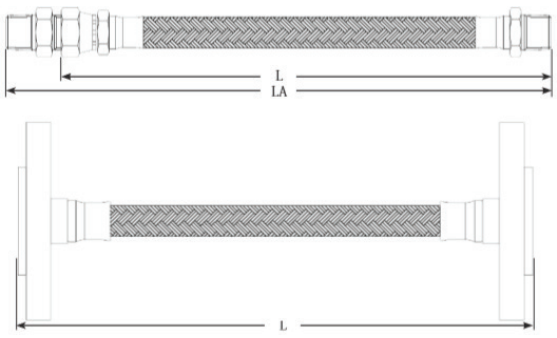
Fitting material: ← Flange specification ←

- S: Stainless steel fittings (SUS 304) 5F: JIS 5K flange
 - C: Carbon steel fittings (SS 400) 10 F: JIS 10 K flange
 - B: Brass metal fittings (C 3604) 20F: JIS 20K flange
- * Fittings with other materials such as SUS 316 / 316L and other special material can also be manufactured.

** Production of special fittings with very small quantity is possible; please feel free to contact us.

Method for measuring the length of the hose assembly

Please indicate the length of the hose assembly according to the referential drawing below. However, in case of hose assemblies with a bend fitting, the length is measured at the center line of the bend fitting



Allowable tolerance of assembly length

500 mm or less	+ 10 mm	-0
Less than 1,000 mm	+ 15 mm	-0
Less than 2,000 mm	+ 20 mm	-0
2,000 mm or more	+ 1%	-0

1.Ultra-high Pressure Hose (S series)



Tube type
Straight tube
Conductive

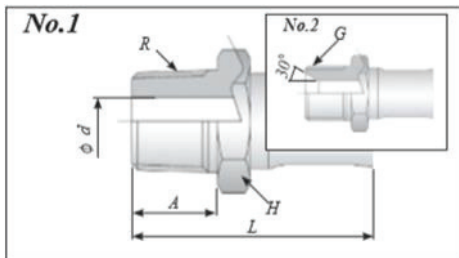


Reinforcement layer: SUS 304 wire uni-braid
Continuous use temperature range: -54 °C to + 204 °C

Name	ID (mm)	OD (mm)	Max. working pressure RT. (MPa)	Min. burst pressure RT. (MPa)	Max. working pressure 204 °C (MPa)	Min. burst pressure 204 °C (MPa)	Min. bend radius (mm)	Weight (g/m)
S-04	5.6	9.9	34.5	110.0	20.7	82.8	40	150
S-06	7.8	12.4	34.5	110.0	20.7	82.8	65	240
S-08	10.2	15.6	34.5	110.0	20.7	82.8	75	350
S-12	15.7	25.1	34.5	110.0	20.7	82.8	100	980
S-16	22.0	32.3	34.5	110.0	20.7	62.0	130	1,500
S-20	28.4	42.2	34.5	110.0	20.7	62.0	300	2,700
S-24	35.0	48.3	27.5	82.8	20.7	62.0	360	2,800

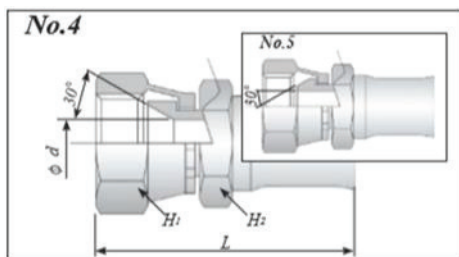
Meets requirements of SAE 100R8 and 100R9

Hose fitting for S series



No.1 · No.2 Fitting, Material: Carbon steel / Stainless steel

Hose name	Thread R-G	A	d	H	L
S-04	1/4	13	3.9	17	40
S-06	3/8	15	7.0	19	45
S-08	1/2	18	9.5	24	52
S-12	3/4	20	14.5	30	62
S-16	1	23	20.0	38	72
S-20	1 1/4	25	24.5	46	84
S-24	1 1/2	26	30.0	55	91



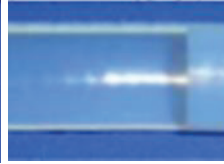
No.4 · No.5 Fitting, Material: Carbon steel / Stainless steel

Hose name	Thread R-G	A	d	H	L
S-04	1/4	4.0	19	17	42
S-06	3/8	7.0	22	19	47
S-08	1/2	9.5	27	22	51
S-12	3/4	14.5	36	30	60
S-16	1	20.0	41	38	70
S-20	1 1/4	24.5	50	46	81
S-24	1 1/2	30.0	60	55	90

2.High Pressure Hose (H series)



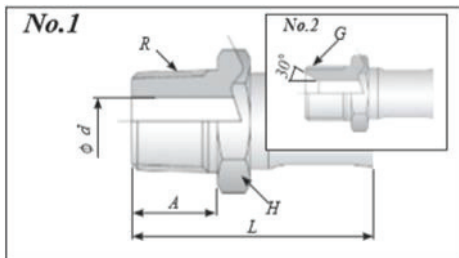
Tube type
Straight tube
No-Conductive



Reinforcement layer: SUS 304 two wires braid
Continuous use temperature range: -54 °C to + 204 °C

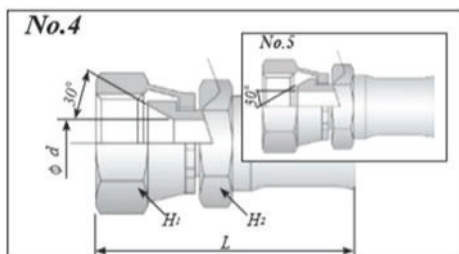
Name	ID (mm)	OD (mm)	Max. working pressure RT. (MPa)	Min. burst pressure RT. (MPa)	Max. working pressure 204 °C (MPa)	Min. burst pressure 204 °C (MPa)	Min. bend radius (mm)	Weight (g/m)
H-04	4.7	9.7	27.5	110.0	12.0	48.0	50	180
H-05	6.4	11.5	27.5	110.0	12.0	48.0	75	240
H-06	8.0	13.7	25.0	100.0	12.0	45.0	100	280
H-08	10.3	16.1	22.5	90.0	12.0	42.0	130	320
H-12	16.0	22.2	17.5	70.0	10.0	23.0	195	460
H-16	22.2	28.0	13.8	48.5	9.9	22.8	225	680
H-20	28.6	35.0	9.9	34.5	6.9	22.8	350	1,000

Hose fitting for H series



No.1 · No.2 Fitting, Material: Carbon steel / Stainless steel

Hose name	Thread R-G	A	d	H	L
H-04	1/4	13	3.5	17	42
H-05	1/4	13	5.0	17	42
H-06	3/8	15	7.0	19	45
H-08	1/2	18	9.5	24	52
H-12	3/4	20	14.5	30	62
H-16	1	23	20.0	38	73
H-20	1 1/4	25	24.5	46	90



No.4 · No.5 Fitting, Material: Carbon steel / Stainless steel

Hose name	Thread R-G	A	d	H	L
H-04	1/4	3.5	19	17	41
H-05	1/4	5.0	19	17	41
H-06	3/8	7.0	22	19	46
H-08	1/2	9.5	27	22	51
H-12	3/4	14.5	36	30	60
H-16	1	20.0	41	38	72
H-20	1 1/4	24.5	50	46	87

3. Medium Pressure Hose (M series)



Tube type
Straight tube
No-Conductive



Reinforcement layer: SUS 304 two wires braid
Continuous use temperature range: -54 °C to + 204 °C

There is also a conductive type (MCO series)

Name	ID (mm)	OD (mm)	Max. working pressure RT. (MPa)	Min. burst pressure RT. (MPa)	Max. working pressure 204 °C (MPa)	Min. burst pressure 204 °C (MPa)	Min. bend radius (mm)	Weight (g/m)
M-03	3.5	6.0	20.6	82.7	10.3	32.9	51	75
M-04	4.9	7.7	20.7	82.7	8.6	27.4	51	82
M-04T	4.7	8.0	20.6	82.7	10.3	41.2	51	90
M-05	6.5	9.5	18.1	72.4	8.6	24.3	76	101
M-05T	6.4	9.5	20.6	82.7	10.3	37.8	76	120
M-06	8.0	11.3	17.2	68.9	8.6	24.3	102	150
M-08	10.6	13.7	13.8	55.2	7.7	20.6	133	183
M-08T	10.3	14.0	13.7	55.1	8.2	23.0	132	190
M-10	12.8	16.5	10.3	41.3	6.2	17.3	165	230
M-12	16.0	19.7	8.2	33.0	4.9	13.7	196	285
M-16	22.2	26.2	6.8	27.5	2.8	7.8	230	420
M-20	28.5	33.4	5.5	22.0	2.2	6.2	410	550

4. Low Pressure Hose (L series)



Tube type
Straight tube
No-conductive

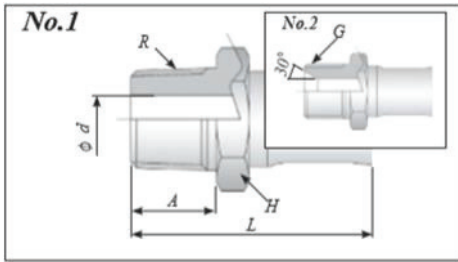


Reinforcement layer: SUS 304 two wires braid
Continuous use temperature range: -54 °C to + 204 °C

There is also a conductive type (LCO series)

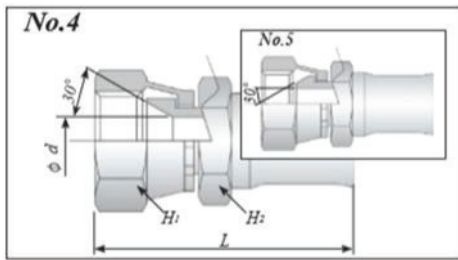
Name	ID (mm)	OD (mm)	Max. working pressure RT. (MPa)	Min. burst pressure RT. (MPa)	Max. working pressure 170 °C (MPa)	Min. bend radius (mm)	Weight (g/m)
L-04	4.7	8.0	7.8	30.4	3.9	50	70
L-05	6.4	9.5	6.9	28.4	3.4	75	100
L-06	8.0	11.3	5.9	24.5	2.9	100	120
L-08	10.3	14.0	4.9	20.6	2.5	130	135
L-10	12.7	16.5	4.4	17.6	2.0	165	160
L-12	16.0	20.0	2.9	12.7	1.5	195	190
L-16	22.0	26.0	2.2	8.8	1.0	225	290
L-20	29.0	33.5	1.8	6.9	0.9	NA	580
L-24	36.0	40.5	1.4	5.4	0.7	NA	950
L-32	46.0	51.5	1.0	3.9	0.5	NA	1,250

Hose fitting for M·L series



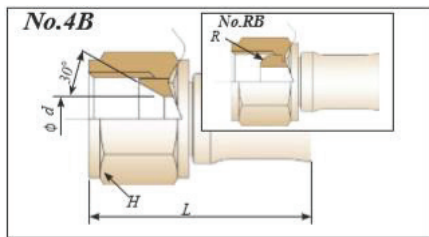
No.1 · No.2 Fitting, Material: Carbon steel / Stainless steel

Hose name		Thread R-G	A	d	H	L
M-03		1/8	10	2.4	14	30
M-04	L-04	1/4	13	3.8	17	37
M-05	L-05	1/4	13	5.2	17	37
M-06	L-06	3/8	15	7.0	19	43
M-08	L-08	1/2	18	9.0	24	49
M-10	L-10	1/2	18	11.5	24	51
M-12	L-12	3/4	20	15.0	30	57
M-16	L-16	1	23	20.5	38	66
M-20	L-20	1 1/4	25	26.0	46	77
	L-24	1 1/2	26	32.5	55	87
	L-32	2	30	42.0	65	97



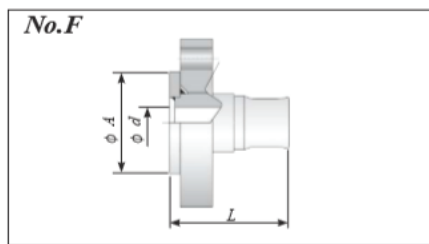
No.4 · No.5 Fitting, Material: Carbon steel / Stainless steel

Hose name		Thread G	A	d	H	L
M-03		1/8	2.4	14	14	35
M-04	L-04	1/4	3.8	19	17	39
M-05	L-05	1/4	5.2	19	17	39
M-06	L-06	3/8	7.0	22	19	46
M-08	L-08	1/2	9.0	27	22	50
M-10	L-10	1/2	11.5	27	22	52
M-12	L-12	3/4	15.0	36	30	57
M-16	L-16	1	20.5	41	38	65
M-20	L-20	1 1/4	26.0	50	46	75
	L-24	1 1/2	32.5	60	55	85
	L-32	2	42.0	70	65	95



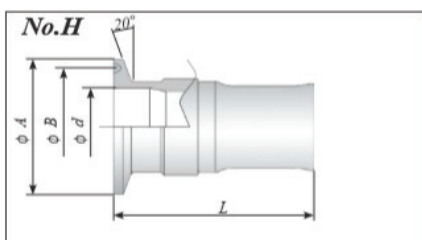
No.4B · No.RB Fitting, Material: Brass (Maximum working pressure 0.98 MPa)

Hose name		Thread G	d	H	L
M-04	L-04	1/4	3.8	17	31
M-05	L-05	1/4	5.2	17	31
M-06	L-06	3/8	7.0	21	37
M-08	L-08	1/2	9.0	26	40
M-10	L-10	1/2	11.5	26	43
M-12	L-12	3/4	15.0	32	48
M-16	L-16	1	20.5	38	55



No. F Flange fitting, Material: Carbon steel / Stainless steel (10 F: JIS 10 K, 5 F: JIS 5 K)

Hose name		Flange size	A 10F	A 5F	d	L
M-10	L-10	15A	52.0	48.0	11.5	64
M-12	L-12	20A	58.0	52.0	15.0	66
M-16	L-16	25A	70.0	62.0	20.5	71
M-20	L-20	32A	80.0	72.0	26.0	83
M-24	L-24	40A	85.0	78.0	32.5	84
M-32	L-32	50A	100.0	88.0	42.0	87



No. H Sanitary fittings, Material: stainless steel 304/316

Hose name		Ferrule size	A	B	d	L
M-10	L-10	1/2S	34.0	27.5	17.5	55
M-12	L-12	1/2S	34.0	27.5	17.5	58
		1S	50.5	43.5	23.0	65
M-16	L-16	1S	50.5	43.5	23.0	67
		1.5S	50.5	43.5	35.7	67
M-20	L-20	1.5S	50.5	43.5	23.0	75
M-20	L-20	2S	64.0	56.5	35.7	75
	L-24	1.5S	50.5	43.5	35.7	85
M-24	L-24	2S	64.0	56.5	47.8	85
		2S	64.0	56.5	47.8	90

5. Pliable Hose (E series)



Tube type
Pliable tube
No-conductive



Reinforcement layer: SUS 304

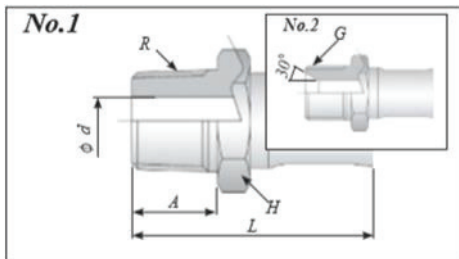
Continuous use temperature range: -54 °C to + 204 °C

There is also an antistatic type (ECO series).

Name	ID (mm)	OD (mm)	Max. working pressure RT. (MPa)	Min. burst pressure RT. (MPa)	Min. bend radius (mm)	Weight (g/m)
E-04	6.7	12.3	16.9	50.7	18	155
E-06	9.1	15.3	13.5	40.6	20	190
E-08	12.4	18.8	10.1	30.4	25	235
E-12	18.5	24.7	6.8	20.3	64	270
E-16	24.9	32.8	4.5	13.5	89	550
E-20	31.0	40.7	3.3	10.1	127	690
E-24	37.5	48.3	2.9	8.8	152	1,000
E-32	48.0	59.7	2.3	6.8	200	1,150

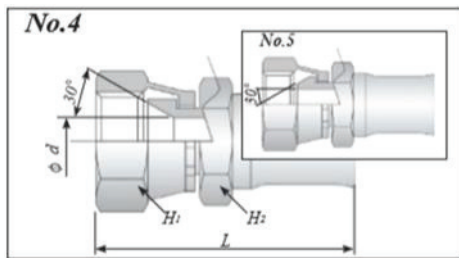
**“Food Sanitation Law, The Ministry of Health and Welfare Notification No. 20” is complied with.

Hose fitting for E series



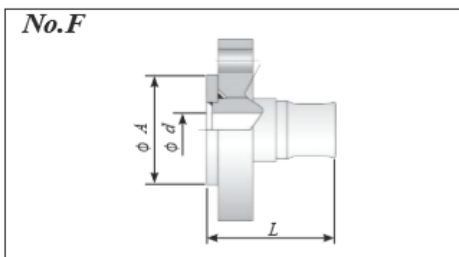
No.1 · No.2 Fitting, Material: Carbon steel / Stainless steel

Hose name	Thread R-G	A	d	H	L
E-04	1/4	13	5.2	17	37
E-06	3/8	15	7.0	19	45
E-08	1/2	18	11.5	24	51
E-12	3/4	20	16.0	30	68
E-16	1	23	21.0	36	73
E-20	1 1/4	25	27.0	46	90
E-24	1 1/2	26	33.0	55	92
E-32	2	30	44.5	65	98



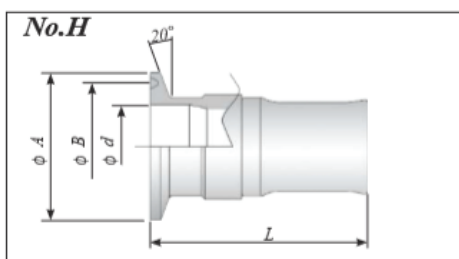
No.4 · No.5 Fitting, Material: Carbon steel / Stainless steel

Hose name	Thread R-G	A	d	H	L
E-04	1/4	5.2	19	17	39
E-06	3/8	7.0	22	19	48
E-08	1/2	11.5	27	22	52
E-12	3/4	16.0	36	30	68
E-16	1	21.0	41	36	74
E-20	1 1/4	27.0	50	46	90
E-24	1 1/2	33.0	60	55	94
E-32	2	44.5	70	65	100



No. F Flange fitting, Material: Carbon steel / Stainless steel (10 F: JIS 10 K, 5 F: JIS 5 K)

Hose name	Thread R-G	A	d	H	L
E-08	15A	52.0	48.0	11.5	66
E-12	20A	58.0	52.0	16.0	66
E-16	25A	70.0	62.0	21.0	71
E-20	32A	80.0	72.0	27.0	83
E-24	40A	85.0	78.0	33.0	84
E-32	50A	100.0	88.0	44.5	87



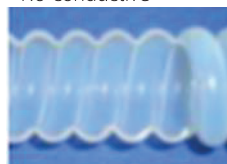
No. H Sanitary fittings, Material: stainless steel 304/316

Hose name	Thread R-G	A	d	H	L
E-04	1/4	5.2	19	17	39
E-06	3/8	7.0	22	19	48
E-08	1/2	11.5	27	22	52
E-12	3/4	16.0	36	30	68
E-16	1	21.0	41	36	74
E-20	1 1/4	27.0	50	46	90
E-24	1 1/2	33.0	60	55	94
E-32	2	44.5	70	65	100

6. Flare Pliable Hose (T series)



Tube type
Pliable tube
No-conductive



Tube :PTFE
Spring :SUS304 / SUS316
Braid :SUS304 / SUS316
Fitting :SUS304/ SUS316
Flange :SUS304 / SUS316
Continuous use temperature range: -54 °C to + 204 °C

T type (exterior)



TS type (with spring)



TW type (with braid)



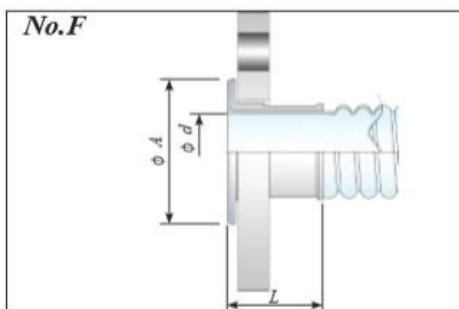
*TSW specification (spring and wire braid) is also available.

Unique flaring method on both hose ends makes all wetted parts PTFE, and because of this, it is used in various fields such as food, chemical, semiconductor industry and etc.

Depending on usage conditions, outer spring (TS type) and outer braided (TW type) are also available.

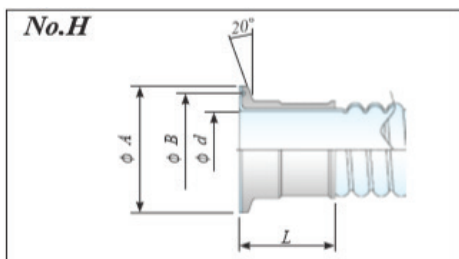
It conforms to “Food Sanitation Law, The Ministry of Health and Welfare Notification No. 20”

Hose fittings T series



No. F Flange fitting (10F:JIS10K, 5F:JIS5K)

Hose name	Flange size	A	d	L
T**-08	15A	35	15.0	45
T**-12	20A	41	19.0	47
T**-16	25A	51	25.0	47
T**-20	32A	63.5	31.5	50
T**-24	40A	73	38.0	50
T**-32	50A	92	50.0	56
T**-40	65A	105	60.0	67
T**-48	80A	127	78.0	72
T**-64	100A	157	102.0	85



No. H sanitary fitting

Hose name	Ferrule size	A	B	d	L
T**-12	1S	50.5	43.5	19.0	47
T**-16	1S	50.5	43.5	23.0	47
T**-20	1.5S	50.5	43.5	31.5	47
T**-24	2S	64.0	56.5	40.8	49
T**-32	2S	64.0	56.5	47.8	58
T**-32	2.5S	77.5	70.5	57.5	50
T**-40	3S	91.0	76.3	70.0	60

T type (PTFE tube only)

Name	size	ID (mm)	OD (mm)	Thickness (mm)	Max. working pressure RT. (MPa)	Min. burst pressure RT. (MPa)	Vacuum (mmHG)	Min. bend radius (mm)	Weight (g/m)
T-08	1/2	11.6	18.2	0.9	0.20	0.8	655	50	72
T-12	3/4	19.5	29.4	1.0	0.30	1.2	655	65	142
T-16	1	24.5	36.2	1.1	0.30	1.0	655	85	194
T-20	1 1/4	31.5	44.1	1.1	0.25	0.9	655	100	258
T-24	1 1/2	36.5	49.4	1.5	0.25	0.9	655	120	377
T-32	2	49.5	64.1	1.5	0.20	0.8	655	165	522
T-40	2 1/2	62.5	86.1	1.6	0.15	0.6	655	230	654
T-48	3	73.5	96.6	1.6	0.13	0.5	655	260	765
T-64	4	94.5	124.5	1.8	0.10	0.4	655	400	1,310

TS type (PTFE tube with spring)

Name	size	ID (mm)	OD (mm)	Thickness (mm)	Max. working pressure RT. (MPa)	Min. burst pressure RT. (MPa)	Vacuum (mmHG)	Min. bend radius (mm)	Weight (g/m)
TS-08	1/2	11.6	18.2	0.9	0.40	1.4	710	50	152
TS-12	3/4	19.5	29.4	1.0	0.30	1.1	710	65	292
TS-16	1	24.5	36.2	1.1	0.30	1.0	710	85	544
TS-20	1 1/4	31.5	44.1	1.1	0.25	0.9	710	100	758
TS-24	1 1/2	36.5	49.4	1.5	0.25	0.9	710	120	977
TS-32	2	49.5	64.1	1.5	0.20	0.8	710	165	1,422
TS-40	2 1/2	62.5	86.1	1.6	0.15	0.6	710	230	1,954
TS-48	3	73.5	96.6	1.6	0.13	0.5	710	260	2,165
TS-64	4	94.5	124.5	1.8	0.10	0.4	710	400	2,810

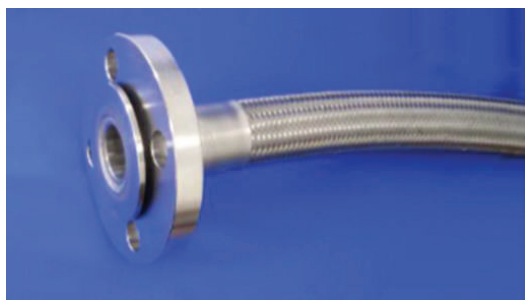
TS type (PTFE tube with braid)

Name	size	ID (mm)	OD (mm)	Thickness (mm)	Max. working pressure RT. (MPa)	Min. burst pressure RT. (MPa)	Vacuum (mmHG)	Min. bend radius (mm)	Weight (g/m)
TW-08	1/2	11.6	20.0	0.9	5.0	25.0	655	25	140
TW-12	3/4	19.5	31.4	1.0	6.0	29.0	655	55	390
TW-16	1	24.5	38.2	1.1	4.0	21.0	655	80	540
TW-20	1 1/4	31.5	46.1	1.1	4.5	21.0	655	100	680
TW-24	1 1/2	36.5	49.9	1.5	4.0	17.5	655	120	1,110
TW-32	2	49.5	66.7	1.5	2.5	13.5	655	165	1,710
TW-40	2 1/2	62.5	89.1	1.6	1.4	6.0	655	230	2,140
TW-48	3	73.5	99.6	1.6	1.2	6.5	655	260	3,310
TW-64	4	94.5	127.5	1.8	1.0	4.0	655	400	4,050

TS type (PTFE tube with spring and braid)

Name	size	ID (mm)	OD (mm)	Thickness (mm)	Max. working pressure RT. (MPa)	Min. burst pressure RT. (MPa)	Vacuum (mmHG)	Min. bend radius (mm)	Weight (g/m)
TSW-08	1/2	11.6	20.0	0.9	5.0	25.0	710	50	232
TSW-12	3/4	19.5	31.4	1.0	6.0	29.0	710	65	442
TSW-16	1	24.5	38.2	1.1	4.0	21.0	710	85	894
TSW-20	1 1/4	31.5	46.1	1.1	4.5	21.0	710	100	1,258
TSW-24	1 1/2	36.5	49.9	1.5	4.0	17.5	710	120	1,577
TSW-32	2	49.5	66.7	1.5	2.5	13.5	710	165	2,322
TSW-40	2 1/2	62.5	89.1	1.6	1.4	6.0	710	230	3,254
TSW-48	3	73.5	99.6	1.6	1.2	6.5	710	260	3,565
TSW-64	4	94.5	127.5	1.8	1.0	4.0	710	400	4,310

7. Convuluted Hose (R series)



Tube type
Tape wrapped tube
No-Conductive



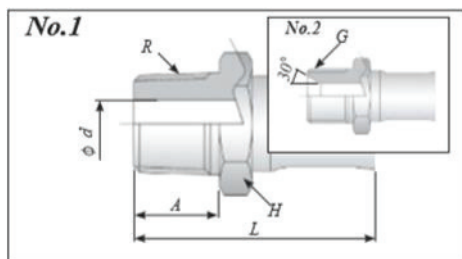
Reinforcement layer: Glass Fiber,
SUS 304 two wires braid

Continuous use temperature range: -54 °C to + 204 °C

There is also an antistatic type (RCO series).

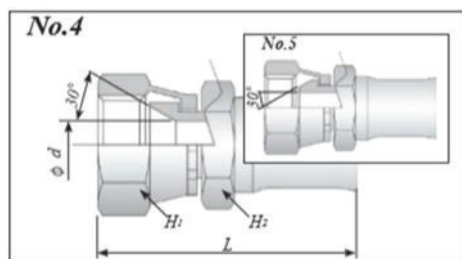
Name	ID (mm)	OD (mm)	Max. working pressure RT. (MPa)	Min. burst pressure RT. (MPa)	Minimum burst pressure 204 °C (MPa)	Min. bend radius (mm)	Weight (g/m)
R-06	9.5	14.5	6.9	27.4	19.6	15	180
R-08	13.0	20.0	6.9	27.4	19.6	50	240
R-12	19.0	27.7	6.9	27.4	17.2	60	400
R-16	25.4	33.0	6.9	27.4	17.2	75	540
R-20	31.5	39.6	6.9	24.7	17.2	160	700
R-24	38.0	45.5	5.1	20.6	14.4	190	900
R-32	50.3	59.3	3.4	13.7	11.8	250	1,450

Hose fitting for R series



No.1 · No.2 Fitting, Material: Carbon steel / Stainless steel

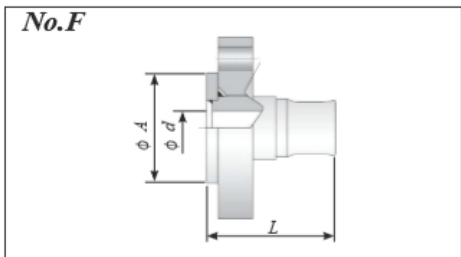
Hose name	Thread R-G	A	d	H	L
R-06	3/8	15	7.0	19	45
R-08	1/2	18	9.7	24	65
R-12	3/4	20	16.0	30	68
R-16	1	23	21.0	38	73
R-20	1 1/4	25	27.0	46	90
R-24	1 1/2	26	33.0	55	92
R-32	2	30	44.5	65	98



No.4 · No.5 Fitting, Material: Carbon steel / Stainless steel

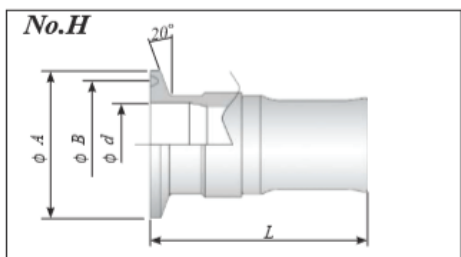
Hose name	Thread G	d	H1	H2	L
R-06	3/8	7.0	22	19	48
R-08	1/2	9.7	27	22	65
R-12	3/4	16.0	36	30	68
R-16	1	21.0	41	38	74
R-20	1 1/4	27.0	50	46	90
R-24	1 1/2	33.0	60	55	94
R-32	2	44.5	70	65	100

No. F Flange fitting, Material: Carbon steel / Stainless steel (10 F: JIS 10 K, 5 F: JIS 5 K)



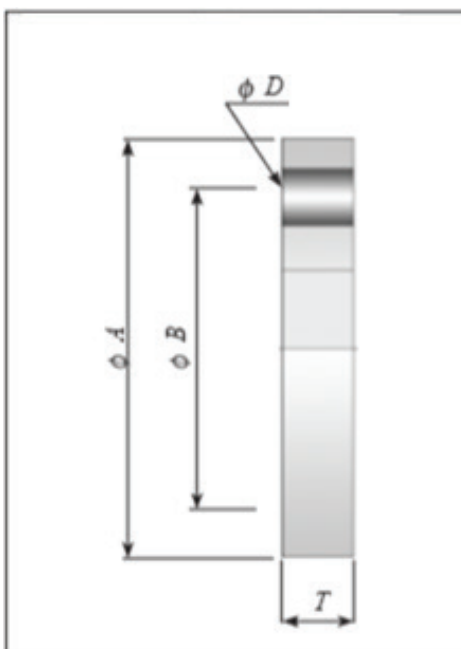
Hose name	Flange size	A 10K	A 5K	d	L
R-08	15A	52.0	48.0	11.5	66
R-12	20A	58.0	52.0	16.0	66
R-16	25A	70.0	62.0	21.0	71
R-20	32A	80.0	72.0	27.0	83
R-24	40A	85.0	78.0	33.0	84
R-32	50A	100.0	88.0	44.5	87

No. H Sanitary fittings, Material: stainless steel 304/316



Hose name	Ferrule size	A	B	d	L
R-08	1/2S	34.0	27.5	17.5	68
R-12	1/2S	34.0	27.5	17.5	68
	1S	50.5	43.5	23.0	75
R-16	1S	50.5	43.5	23.0	76
	1.5S	50.5	43.5	35.7	76
R-20	1.5S	50.5	43.5	35.7	90
	2S	64.0	56.5	47.8	90
R-24	1.5S	50.5	43.5	35.7	90
	2S	64.0	56.5	47.8	90
R-32	2S	64.0	56.5	47.8	90
	3S	91.0	83.5	72.3	90

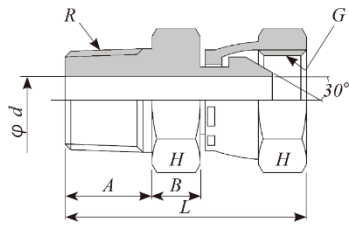
Material: Carbon steel / stainless steel 304/316



Pressure	Size	A	T	B	D	Number of holes	Bolt
5K	15A	80.0	9	60	12.0	4	M10
	20A	85.0	10	65	12.0	4	M10
	25A	95.0	10	75	12.0	4	M10
	32A	115.0	12	90	15.0	4	M12
	40A	120.0	12	95	15.0	4	M12
	50A	130.0	14	105	15.0	4	M12
	65A	155.0	14	130	15.0	4	M12
	80A	180.0	14	145	19.0	4	M16
10K	100A	200.0	16	165	19.0	8	M16
	15A	95.0	12	70	15.0	4	M12
	20A	100.0	14	75	15.0	4	M12
	25A	125.0	14	90	19.0	4	M16
	32A	135.0	16	100	19.0	4	M16
	40A	140.0	16	105	19.0	4	M16
	50A	155.0	16	120	19.0	4	M16
	65A	175.0	18	140	19.0	4	M16
80A	185.0	18	150	19.0	8	M16	
100A	210.0	18	175	19.0	8	M16	

Adapter (Carbon steel, Stainless steel)

No.6

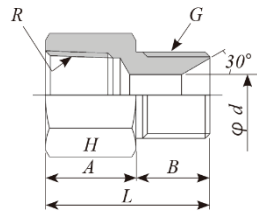


Size of the Stainless steel

*1 = H32, *2 = H38, *3 = H46, *4 = H50, *5 = H63

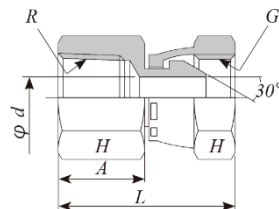
Name	Thread	A	B	Φ d	L	H
No.6-04	1/4	13	8	5.5	38	19
No.6-06	3/8	15	8	7.0	42	22
No.6-08	1/2	18	10	10.0	50	27
No.6-12	3/4	20	12	16.0	56	36
No.6-16	1	22	12	22.0	60	41
No.6-20	1 1/4	25	14	28.0	69	50
No.6-24	1 1/2	25	14	34.0	72	60
No.6-32	2	30	17	45.0	83	70

No.7



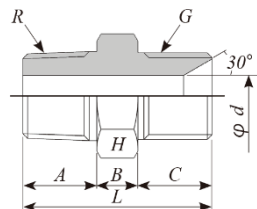
Name	Thread	A	B	Φ d	L	H
No.7-04	1/4	17	13	5.5	30	19
No.7-06	3/8	19	15	7.0	34	22
No.7-08	1/2	22	18	10.0	40	27
No.7-12	3/4	25	20	16.0	45	36
No.7-16	1	27	22	22.0	49	41
No.7-20	1 1/4	30	24	28.0	54	50
No.7-24	1 1/2	30	24	34.0	54	60
No.7-32	2	36	28	45.0	64	70

No.8



Name	Thread	A	Φ d	L	H
No.8-04	1/4	17	5.5	34	19
No.8-06	3/8	19	7.0	38	22
No.8-08	1/2	22	10.0	43	27
No.8-12	3/4	25	16.0	49	36
No.8-16	1	27	22.0	53	41
No.8-20	1 1/4	30	28.0	60	50
No.8-24	1 1/2	30	34.0	63	60
No.8-32	2	36	45.0	71	70

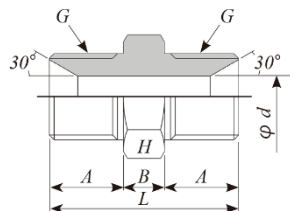
No.9



Name	Thread	A	B	C	Φ d	L	H
No.9-04	1/4	13	8	13	5.5	34	19
No.9-06	3/8	15	8	15	7.0	38	22
No.9-08	1/2	18	10	18	10.0	46	27
No.9-12	3/4	20	12	20	16.0	52	36
No.9-16	1	22	12	22	22.0	56	41
No.9-20	1 1/4	25	14	24	28.0	63	50
No.9-24	1 1/2	25	14	24	34.0	63	60
No.9-32	2	30	17	28	45.0	75	70

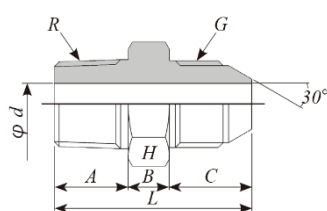
No.9B(Brass) 1/4~1" 45°

No.11



Name	Thread	A	B	Φ d	L
No.11-04	1/4	13	8	5.5	34
No.11-06	3/8	15	8	7.0	38
No.11-08	1/2	18	10	10.0	46
No.11-12	3/4	20	12	16.0	52
No.11-16	1	22	12	22.0	56
No.11-20	1 1/4	24	14	28.0	62
No.11-24	1 1/2	24	14	34.0	62
No.11-32	2	28	17	45.0	73

No.13

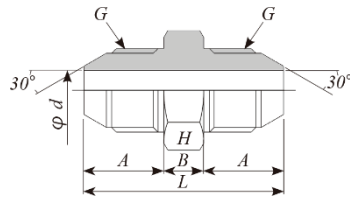


Name	Thread	A	B	C	Φ d	L	H
No.13-04	1/4	13	8	16.0	5.5	37.0	19
No.13-06	3/8	15	8	17.5	7.0	40.5	22
No.13-08	1/2	18	10	20.0	10.0	48.0	27
No.13-12	3/4	20	12	21.5	16.0	53.5	36
No.13-16	1	22	12	22.5	22.0	56.5	41
No.13-20	1 1/4	25	14	27.0	28.0	66.0	50
No.13-24	1 1/2	25	14	27.0	34.0	66.0	60
No.13-32	2	30	17	30.0	45.0	77.0	70

No.13B(Brass) 1/4~1"

Adapter (Carbon steel, Stainless steel)

No.14

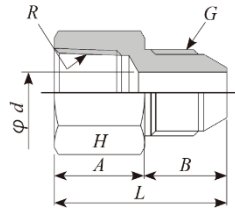


Size of the Stainless steel

*1 = H32, *2 = H38, *3 = H46, *4 = H50, *5 = H63

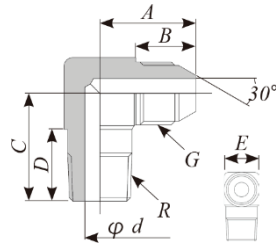
Name	Thread	A	B	Φ d	L	H
No.14-04	1/4	16.0	8	5.5	40	19
No.14-06	3/8	17.5	8	7.0	43	22
No.14-08	1/2	20.0	10	10.0	50	27
No.14-12	3/4	21.5	12	16.0	55	36
No.14-16	1	22.5	12	22.0	57	41
No.14-20	1 1/4	27.0	14	28.0	68	50
No.14-24	1 1/2	27.0	14	34.0	68	60
No.14-32	2	30.0	17	45.0	77	70

No.15



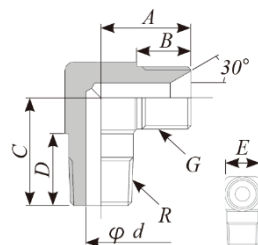
Name	Thread	A	B	Φ d	L	H
No.15-04	1/4	17	16.0	5.5	33.0	19
No.15-06	3/8	19	17.5	7.0	36.5	22
No.15-08	1/2	22	20.0	10.0	42.0	27
No.15-12	3/4	25	21.5	16.0	46.5	36
No.15-16	1	27	22.5	22.0	49.5	41
No.15-20	1 1/4	30	27.0	28.0	57.0	50
No.15-24	1 1/2	30	27.0	34.0	57.0	60
No.15-32	2	36	30.0	45.0	66.0	70

No.33



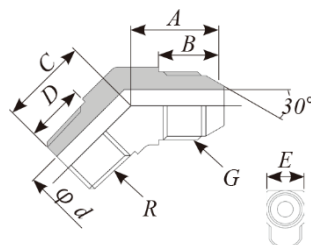
Name	Thread	A	B	C	D	E	Φ d
No.33-04	1/4	24.5	16.0	25.5	17.0	17	5.5
No.33-06	3/8	27.5	17.5	30.0	20.0	19	7.0
No.33-08	1/2	32.0	20.0	36.0	24.0	24	10.0
No.33-12	3/4	36.5	21.5	43.0	28.0	30	16.0
No.33-16	1	40.5	22.5	50.0	32.0	36	22.0
No.33-20	1 1/4	49.5	27.0	57.5	35.0	45	28.0
No.33-24	1 1/2	52.0	27.0	63.0	38.0	50	34.0
No.33-32	2	61.5	30.0	73.5	42.0	63	45.0

No.34



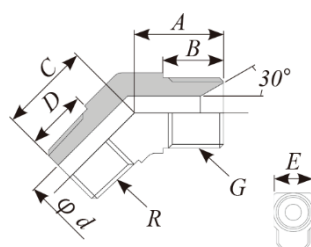
Name	Thread	A	B	C	D	E	Φ d
No.34-04	1/4	21.0	13.0	25.0	17.0	17	5.5
No.34-06	3/8	25.0	15.0	30.0	20.0	19	7.0
No.34-08	1/2	30.0	18.0	36.0	24.0	24	10.0
No.34-12	3/4	35.0	20.0	43.0	28.0	30	16.0
No.34-16	1	40.0	22.0	50.0	32.0	36	22.0
No.34-20	1 1/4	46.5	24.0	57.5	35	45	28.0
No.34-24	1 1/2	49.0	24.0	63.0	38.0	50	34.0
No.34-32	2	59.5	28.0	73.5	42.0	63	45.0

No.35



Name	Thread	A	B	C	D	E	Φ d
No.35-04	1/4	22.0	16.0	19.0	13.0	17	5.5
No.35-06	3/8	24.5	17.5	22.0	15.0	19	7.0
No.35-08	1/2	28.0	20.0	27.0	18.0	24	10.0
No.35-12	3/4	31.5	21.5	30.0	20.0	30	16.0
No.35-16	1	34.0	22.5	34.0	22.0	36	22.0
No.35-20	1 1/4	41.0	27.0	40.0	25.0	45	28.0
No.35-24	1 1/2	43.0	27.0	41.0	25.0	50	34.0
No.35-32	2	50.0	30.0	50.0	30.0	63	45.0

No.36



Name	Thread	A	B	C	D	E	Φ d
No.36-04	1/4	19.0	13.0	19.0	13.0	17	5.5
No.36-06	3/8	22.0	15.0	22.0	15.0	19	7.0
No.36-08	1/2	26.0	18.0	27.0	18.0	24	10.0
No.36-12	3/4	30.0	20.0	30.0	20.0	30	16.0
No.36-16	1	34.0	22.0	34.0	22.0	36	22.0
No.36-20	1 1/4	38.0	24.0	40.0	25.0	45	28.0
No.36-24	1 1/2	40.0	24.0	41.0	25.0	50	34.0
No.36-32	2	48.0	28.0	50.0	30.0	63	45.0

**Please contact us for adapter of different diameter.

**Special adapters can be manufactured from a small quantity.

~ Chemical Resistance List ~

This data relates to PTFE and various fitting materials, and it shows the influence of listed fluids as a general guide. All information below should be treated as a general guide only, and testing under actual service condition is strongly recommended.

- Permeation level

A: A chemical that permeates but does not corrode in particular.

B: There is a good possibility of permeation. It is not influenced by chemicals themselves; it is toxic (liquid at normal state) chemical products which corrode braid and fitting to evaporated folds, especially when it is in a vaporized (vapor) state, A well-ventilated environment is the good condition for usage.

C: All possibilities of permeation are sufficient, and some chemicals that are corrosive toxic are also included

- Material chemical resistance (at about 20 °C)

1: Good, 2: Can be used in the limited use period, 3: unsuitable, 0: No information available

Fluid	PTFE	Metal fitting material				Trans- parent	Fluid	PTFE	Metal fitting material				Trans- parent
		CS	SUS304	SUS316	Brass				CS	SUS304	SUS316	Brass	
Acrylonitrile	1	1	1	1	0		Citric acid	1	3	3	1	3	
Asphalt	1	1	1	1	2		Glycol	1	1	1	1	1	
Acetyl chloride	1	1	1	1	3		Glycerin	1	2	1	1	1	
Acetylene	1	0	1	1	2	C	Creosote	1	2	1	1	3	
Acetaldehyde	1	1	1	1	1	B	Cresol	1	2	1	1	0	
Acetone	1	1	1	1	1		Chromic acid	1	3	3	2	3	
Aniline	1	2	1	1	3		Chrome plating solution	1	0	3	3	0	
Aniline hydrochloride	1	0	3	3	3		Chlorotoluene	1	1	1	1	1	
Aluminum alcohol	1	1	1	1	1		Chlorobenzene	1	1	1	1	1	
Aluminum chloride	1	0	1	1	0		Chloroform	1	1	1	1	1	
Aluminum chloronaphthalene	1	0	1	1	0		Aviation fuel	1	1	1	1	1	
Aluminum acetate	1	0	1	1	3		Corn oil	1	1	1	1	1	
Aluminum Ammonium	1	3	2	2	3		Acetic acid (glacial acetic acid)	1	0	2	2	0	
Aluminum Closedide	1	3	2	2	3		Acetic acid (glacial acetic acid 30%)	1	3	2	2	3	
Aluminum bromide	1	3	2	2	3		Butyl acetate	1	2	1	1	1	
Ammonia (aqueous)	1	0	1	1	3		Salicylic acid	0	0	1	1	0	
Ammonia (anhydrous)	1	1	1	1	0		Sodium cyanide	1	2	1	1	3	
Isooctane	1	1	1	1	1		Diisobutylene	0	0	1	1	1	
Carbon monoxide	1	1	1	1	1	C	Diethyl phthalate	1	0	1	1	1	
Whiskey / wine	1	3	2	1	3		Carbon tetrachloride	1	3	2	2	2	
Ethyl acrylate	0	1	1	1	0		Diocetyl phthalate	1	1	1	1	1	
Ethyl acetate	1	1	1	1	1		Cyclohexanone	1	0	1	1	0	
Ethyl acetoacetate	1	1	1	1	1		Cyclohexane	1	1	1	1	1	
Ethyl alcohol	1	1	1	1	2		Dimethylaniline	1	0	0	0	1	
Ethyl chloride	1	1	1	1	2	C	Dimethyl phthalate	1	0	0	0	1	
Ethyl cellulose	1	1	1	1	1		Bromine water	1	3	3	3	3	
Ethylbenzene	1	1	1	1	1		Calcium nitrate	1	1	1	1	1	
Ethyl pent chlorobenzene	1	2	1	1	1		Zinc acetate	1	1	1	1	1	
Ethyl ether	1	2	1	1	1		Zinc chloride	1	3	2	1	3	
Ethylene chlorotoluene	1	0	0	0	0		Steam	1	1	1	1	2	A
ethylene glycol	1	2	1	1	1		Styrene	1	2	0	2	2	
Ethylene chloride	1	2	1	1	2		Stearic acid	1	3	2	1	3	
Ammonium chloride	1	0	2	2	3		carbolic acid	1	3	1	1	3	
Calcium chloride	1	3	2	1	2		Cello solve acetate	1	1	1	1	0	
Chlorine (gaseous) wet	1	3	3	3	3	B	Tar	1	1	1	1	2	
Chlorine (gaseous) dry	1	2	3	3	2	C	Carbonation	1	3	1	1	3	
Aqua regia	1	0	3	3	0		Ammonium carbonate	0	1	1	1	0	
Caustic soda	1	2	1	1	3		Calcium carbonate	1	1	1	1	1	
Gasoline	1	2	1	1	1		Tannic acid 10%	1	2	1	1	3	
Copper chlorite	1	3	3	1	3		Diacetone	1	1	1	1	1	
Calcium sulfide	1	1	1	1	0		Turpentine Oil	1	0	1	1	2	

Xylene	1	2	2	2	0		Sugar beet	1	1	1	1	0	
Animal fat	1	1	1	1	0		Lard oil	1	1	1	1	3	
Trichlorethylene	1	3	0	1	1		Lacquer	1	3	3	1	1	
Toluene	1	1	1	1	1		Lacquer solvent	1	3	3	1	1	B
Toluene diisocyanate	0	0	0	0	0		Linoleic acid	1	0	0	0	0	
Naphtha	1	2	1	1	1		Ammonium sulfate	1	1	1	1	3	
Naphthalene	1	0	1	1	0		Calcium sulfate	1	1	1	1	1	
Gyoza	1	2	1	1	3		Copper sulfate	1	3	1	1	3	
Carbon dioxide	1	1	1	1	1	A	Barium sulfate	1	1	1	1	2	
Varnish	0	2	1	1	2		Malic acid	1	2	2	1	0	
Nitroethane	1	0	1	1	1		Ferrous chlorite	1	3	1	2	2	
Nitrobenzene	1	1	1	1	1		Ferrous chlorite	1	3	3	3	3	
Fuel charcoal oil	1	1	1	1	1		Linseed oil	1	2	1	1	2	
Perchloride ethylene	1	1	1	1	1		Sulfurous acid 10%	1	3	2	1	3	
Arsenic acid	1	2	0	1	0		Sulfurous acid 75%	1	3	3	2	3	
Hydraulic oil	1	1	1	1	1		Potassium chloride	1	2	2	1	3	
Hydroquinone	0	0	1	1	0		Sodium chloride	1	2	2	1	3	
Butter oil	1	1	1	1	1		Vinyl chloride	1	2	2	1	3	C
Barium carbonate	1	2	1	1	1		Magnesium chloride	1	3	2	1	2	
Beer	1	2	1	1	1		Mercuric chloride	1	3	1	1	3	
Castor oil	1	1	1	1	1		Hydrochloric acid 15%	1	3	3	3	3	B
Phenol	1	3	1	1	3		Hydrochloric acid 37%	1	3	3	3	3	B
Butadiene	1	0	1	1	1		Sodium peroxide	1	3	1	1	3	
Butane	1	1	1	1	1	C	Hydrogen peroxide 70%	1	3	2	1	3	
Butyl chloride	1	1	1	1	1		Formic acid	1	3	2	1	2	
Butyl bromide	1	0	0	0	0		Formaldehyde	1	0	1	1	1	
Butyl alcohol	1	1	1	1	1		Oxygen gas	1	1	1	1	1	A
Fumaric acid	0	0	1	1	0		Oxalic acid	1	3	2	1	3	
Freon (gas) 12	1	3	1	1	0	A	Potassium dichromate	1	0	1	1	0	
Freon (gas) 22	1	3	1	1	0	A	Nitric acid 10%	1	3	2	2	3	
Propane	1	1	1	1	1	A	Nitric acid 70%	1	3	2	2	3	
Propyl acetate	0	1	1	1	1		Potassium nitrate	0	3	2	1	0	
Propyl alcohol	1	1	1	1	2		Sodium nitrate	1	1	2	2	2	
Propylene	1	1	1	1	1		Nitrate ferrous	1	0	1	1	0	
Hexane	1	1	1	1	1		Ferric Nitrate	1	3	1	1	0	
Hexin	1	1	1	1	1		Silver nitrate	1	2	1	1	2	
Benzine	1	1	1	1	1		Vinegar	1	3	2	1	3	
Benzine alcohol	1	1	1	1	0		Mercury	1	1	1	1	3	
Benzine chloride	1	1	0	0	0		Magnesium hydroxide	1	1	1	1	0	
Denatured alcohol	1	1	1	1	1		Hydrogen gas	1	1	1	1	1	C
Benzene	1	1	1	1	1	B	Hydrocarbon acid	1	3	1	1	3	C
Borax	1	2	1	1	2		Nitrogen gas	1	1	1	1	1	A
Boric acid	1	3	2	1	3		Paint	1	0	1	1	1	
Acetic anhydride	1	3	2	2	3		Lactic acid	1	3	2	1	2	
Methyl acetate	1	1	1	1	1		Urea acid 50%	1	1	1	1	0	
Methyl alcohol	1	1	1	1	2		Hydrogen sulfide gas	1	3	2	1	3	C
Methyl isobutyl ketone	1	1	1	1	1		10% sulfuric acid	1	3	3	2	3	
Methyl ethyl ketone(MEK)	1	1	1	1	1		98% sulfuric acid	1	2	3	2	3	
Methyl chloride	1	1	1	1	0		Magnesium sulfate	1	2	1	1	1	
Methyl butyl ketone	0	1	1	1	1		Zinc sulfate	1	3	2	1	3	
Methyl bromide	1	1	1	1	1	B	Sulfuric acid vapor	1	2	0	1	3	
Methyl methacrylate	1	1	1	1	0		Ferrous sulfate	1	3	1	1	2	
Methylene chloride	1	1	1	1	1	B	Ferric sulfate	1	2	1	1	3	
Monoethanolamine	0	1	1	1	1		Sodium phosphate	1	0	1	1	3	
Monochlorobenzene	1	1	1	1	1								

~ When installing hose ~

- During installation of a hose, be sure to sag a little. (A hose will stretch by about 2% when pressure is applied.)
- Do not install the hose twistedly. (It may cause detachment of metal fittings, leakage.)
- Please do piping so that the hose will not bend sharply from the vicinity of the end fittings. (Leakage, cause early fatigue)
- Please do not bend below the minimum bend radius. (It will cause early fatigue.)
- Try not to let the hose contact with other subjects. (It might cause destruction.)

~ Protection method of hose ~

- Exterior spring (on all length)
Attach a spring to the hose to prevent outer surface damage
- Exterior shrink tube
Apply a shrink tube to the hose to prevent wear and chemical erosion. (Tube material will be selected according to specifications.)
- Hose end spring
Attaching springs to the ferrule parts of end fittings, to prevents concentration of stress due to bending (softens).
- Glass braid
Apply a glass braid to the hose to relieve stress caused by radiant heat. (It can also be used for heat insulation when using high temperature fluids.)
- Heat resistant sponge
Heat resistant sponge is attached to whole or part of hose to prevent wear. (It can also be used for heat insulation when using high temperature fluids.)

In addition, we will propose a protection method depending on the situation. Please don't hesitate to contact us.

~ Tightening torque of hose fitting ~

When mounting the hose assembly, union nut type metal fittings may damage the nut and the seat surface if tightened too strongly than necessary. Please refer to the "proper tightening torque table" below

Proper tightening torque table

Thread Size	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Maximum tightening torque value (N·m)	25	34	64	132	196	225	255	316

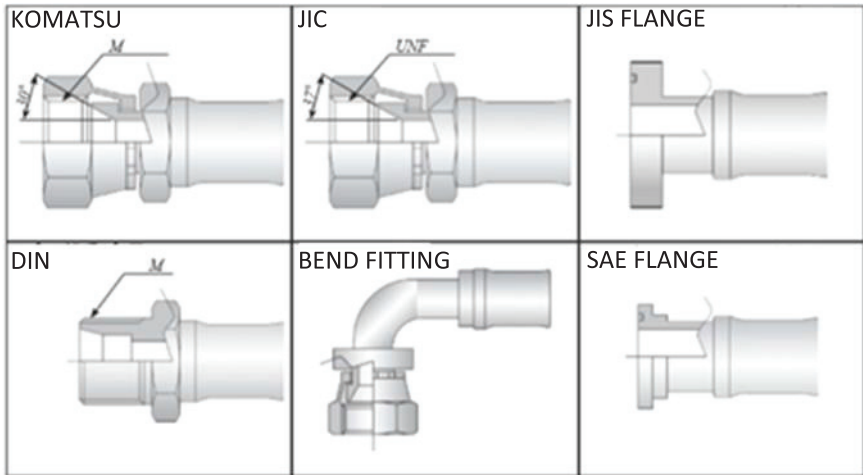
~ Our test facilities ~

We strive to improve the quality on a daily basis using various test equipment

Facilities		Qty
Crimping machine	8"	1
Crimping machine	4"	11
Crimping machine	2"	8
Crimping machine	1"	6
Fast speed Crimping machine		4
Crimping machine for Sigma Flex series		4
PTFE Flaring Machine		1
Hose Cutting machine		12
Skiving machine		7
Flushing Machine		2
Hydrostatic Pressure Test Machine		4
Impulse Test Machine		5
Air Leak Test Machine		1
Vacuum Test Machine		1
Tensile Strength Test Machine		1
High Temperature Hydraulic Oil Circuit Machine		1
High Temperature Thermostat bath		2
Cold Temperature Thermostat bath		2
Ozone Resistance Test machine		1
Abrasion Test Machine		1
Thermo-Hygrostat Test Bath		1
Aging Test Machine		1
Permanent Compression Test		1
Image Measurement Machine		2
Contour Shape Measuring Machines		2
Three-dimensional Coordinate Measuring Machines		1
Surface Roughness Measuring Machine		3
Caliper and Micrometer		1 set
Thread Gauge, Angle Gauge, and other gauges		1 set

~ Production of special metal fittings ~

Apart from metal fittings listed in catalog, we also manufacture other special metal fittings from a small quantity. Please do not hesitate to contact us.





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