

MADE IN JAPAN

FLEXIBLE HOSE
EXPANSION JOINT

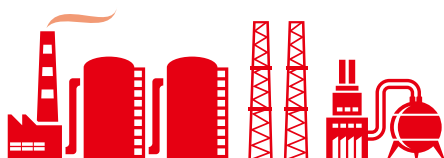
FLEXIBLE

IDEA



NANGOKU FLEXIBLE HOSE INDUSTRY CO.,LTD.

<http://www.nfk-jp.com/>



TOTAL LINE UP CATALOGUE



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FLEXIBLE HOSE & EXPANSION JOINTS TOTAL LINE UP CATALOGUE

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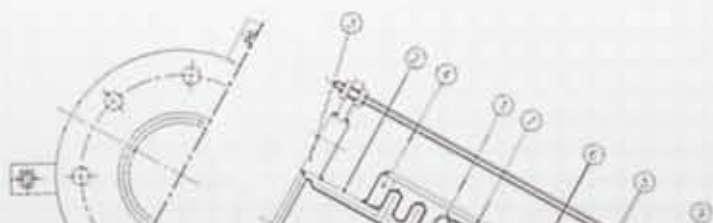
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Company Data



Company Name	: NANGOKU FLEXIBLE HOSE INDUSTRY CO.,LTD.
Head Office	: 5-9 Shinden kita-machi, Daito-shi, Osaka, JAPAN
Incorporated	: November 1971
Capital	: JPY 50,000,000
Number of Employees	: 150

In 1971, NANGOKU FLEXIBLE HOSE INDUSTRY CO., LTD. is established as a flexible hose and expansion joint assembly company. In order to meet customers' needs of high quality, short delivery time, and reasonable prices, we have made continuous efforts in "investment for equipment, improvement, and innovation" over time. As a result, we could become an integrated manufacturer from not only assembly but making pipe. Therefore, our three aims "high quality, short delivery time, and reasonable prices" are advantages and

they are evaluated by many people from various industries.

Recently, waves of globalization have sweep toward many industries in Japan. We have to compete acutely, but we have powers to win and keep existing. We believe that our customers comprehend the value of "Made-in-Japan" products.

We promise our all customers that we continuously devote ourselves to our business and contribute to our society through manufacturing products. We keep making efforts to our goals of becoming an enterprise that is required by society. We hope we make good relationships with all customers in the world. Thank you.

Masaki YOKOMAKURA, President & CEO

Qualification

Manufacturing facilities inspected by the Japan Water Works Association

Manufacture of flexible conduits conforms to to the Fire Service Act

Manufacture of approved flexible conduits for high-pressure water supply systems conforms to Announcement No. 31 by the Fire and Disaster Management Agency

Manufacture of products approved by type by Stiftelsen Det Norske Veritas (DNV)

Manufacture of products approved by type by the Nippon Kaiji Kyokai

Certified for welding by Germanischer Lloyd (GL)

Certified for welding by the High Pressure Gas Safety Institution of Japan



Equipment

9 x Fully-automatic blade machines: φ 8 - φ 350

15 x Press-type bellows forming machines: φ 3.5 - φ 2000

15 x Bulging-type bellows forming machines: φ 20 - φ 350

1 x Hydraulic bellows forming machine: φ 100 - φ 300

4 x Pipe making machines: φ 15 - φ 200

6 x Pipe forming rollers

5 x AC arc welding machines

20 x Argon welding machines

15 x Fully-automatic argon welding machines

13 x Semi-automatic air-tight testing machines

5 x Hydraulic testing machines

2 x Helium leak detectors

5 x Paint booths

3 x Electrolytic grinding machines

2 x Ultrasonic washing machines

5 x Drilling machines

10 x Lathes

3 x Double-axis grinders

7 x High-speed cutting machines

3 x Automatic gas cutting machines

2 x Plasma welding machines

1 x Displacement testing machine

1 x Vibration testing machine

1 x Pulse pressure testing machine



Dynamism

We are a company that constantly views things from new perspectives.
Everyone in our company does their best at all times.



Relief

We are a company that takes responsibility for all our products manufactured under our strict quality control system to ensure that our customers can use them with a sense of security.



Satisfaction

We are a company that values short delivery time, high quality products, and reasonable prices while providing the best possible value.

Provide, Make, Think, “What we can do”

We have continued to grow since 1971 as an integrated manufacturer of stainless steel flexible hose and expansion joint.

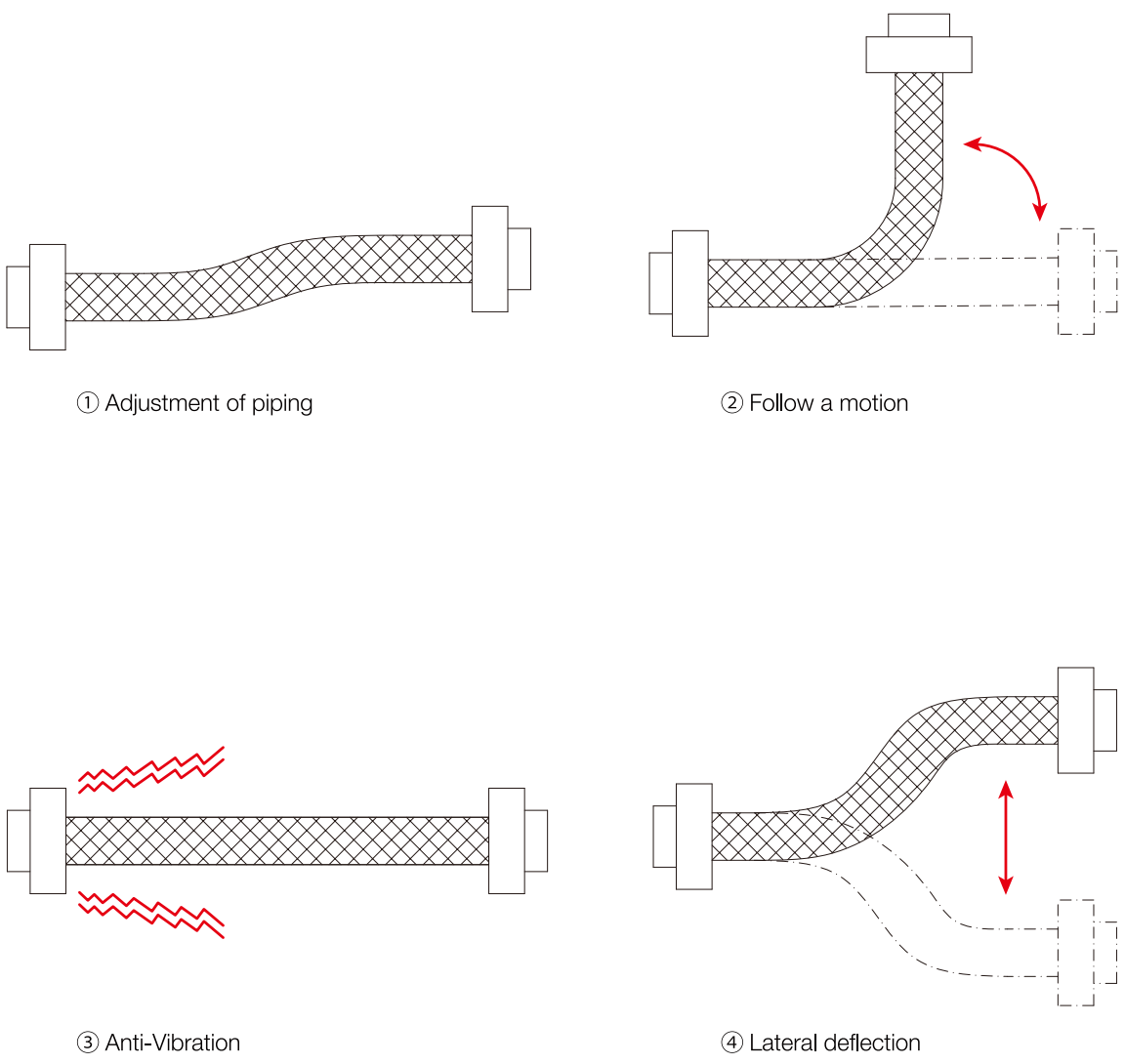
Excellent quality and flexibility are evaluated. NFK products can withstand heat, voltage, high pressure to full vacuum, and high temperature to below freezing point.

From large-scale plant to a household, we will continue to contribute in wide range of fields to create a better future of the world.



Tube Specification

Flexible hose can allow the following movements.



	Adjustment of piping	Follow a motion	Anti-vibration	Lateral Deflection
STD	○	○	-	-
SA	○	○	○	○
CLT	○	○	○	○

There are 3 different types of stainless steel hose in NFK.
For more detail, the following tables show.

Total Line up Catalogue

INDEX

STD Tube (Normal Tube)

Size		Dimension (mm)			Min. Bending Radius (mm)		Max. Pressure (M Pa)		Estimate weight (kg/M)	
DN	Inch	ID	OD	thickness	fixed	move	single braid	double braid	tube only	w/single braid
8	1/4	7.2	10.9	0.2	25	100	8.0	8.0	0.08	0.2
10	3/8	10.5	15.1	0.25	35	120	6.5	7.5	0.14	0.3
15	1/2	13.0	18.4	0.25	50	140	5.7	5.7	0.18	0.35
20	3/4	19.0	25.4	0.3	65	200	4.5	6.2	0.32	0.55
25	1	25.3	32.5	0.3	80	240	3.2	4.3	0.43	0.7
32	1-1/4	33.5	40.6	0.3	100	300	2.4	3.7	0.5	0.85
40	1-1/2	39.1	47.5	0.35	120	360	2.7	3.6	0.7	1.2
50	2	52.6	61.5	0.35	140	450	1.8	3.0	0.9	1.5
65	2-1/2	66.0	77.0	0.4	220	550	1.9	2.7	1.35	2.3
80	3	75.0	91.3	0.4	280	700	1.6	1.6	1.43	2.6
90	3-1/2	88.0	105.0	0.4	250	500	1.5	1.5	1.7	3.0
100	4	101.0	120.4	0.5	350	900	1.1	1.8	2.6	4.0
125	5	123.8	146.0	0.6	380	1100	1.4	2.0	4.0	6.5
150	6	148.8	173.0	0.6	440	1600	1.3	1.7	5.0	7.7
200	8	194.6	224.5	0.6	620	1900	1.1	1.1	7.5	11.7
250	10	244.6	278.0	0.8	860	2100	1.2	1.6	11.0	15.2
300	12	294.4	330.0	0.8	900	2600	0.8	1.4	13.5	19.5

Temperature = 40 deg. C

SA Tube (Soft Tube)

Size		Dimension (mm)			Min. Bending Radius (mm)		Max. Pressure (M Pa)		Estimate weight (kg/M)	
DN	Inch	ID	OD	thickness	fixed	move	single braid	double braid	tube only	w/single braid
20	3/4	21.6	30.0	0.3	80	160	2.9	4.2		
25	1	26.8	36.5	0.3	90	200	2.4	3.2	0.34	0.6
32	1-1/4	32.5	45.0	0.3	110	180	2.3	2.8	0.38	0.7
40	1-1/2	41.1	55.1	0.35	120	200	2.1	3.0	0.5	1.0
50	2	54.0	70.5	0.4	135	230	2.6	2.9	0.98	1.95
65	2-1/2	67.0	86.0	0.4	150	250	1.7	2.2	1.57	2.6
80	3	79.0	100.5	0.4	220	280	1.5	1.7	1.8	3.0
100	4	103.0	126.0	0.4	280	350	1.1	1.5	2.35	3.7
125	5	129.0	154.0	0.5	350	430	1.3	1.8	3.89	6.4
150	6	153.0	181.0	0.5	400	500	1.2	1.6	4.7	7.4
200	8	199.0	230.0	0.5	600	700	1.1	1.1	5.67	9.6
250	10	250.8	285.0	0.6	700	900	1.1	1.1	8.94	14.1
300	12	300.8	336.0	0.6	900	1200	0.8	0.9	10.3	16.4
350	14	336.6	378.0	0.8	1000	1300	0.6	1.2	14.7	22.5

Temperature = 40 deg. C

CLT Tube (Super Soft Tube)

Size		Dimension (mm)			Min. Bending Radius (mm)		Max. Pressure (M Pa)		Estimate weight (kg/M)	
DN	Inch	ID	OD	thickness	fixed	move	single braid	double braid	tube only	w/single braid
8	1/4	7.8	11.0	0.15	25	80	0.3	7.5	0.07	0.2
10	3/8	10.0	13.5	0.15	35	100	0.3	5.0	0.08	0.21
15	1/2	12.5	16.5	0.15	40	120	0.3	4.5	0.09	0.25
20	3/4	21.5	29.0	0.2	50	170	0.3	3.8	0.24	0.51
25	1	26.5	36.0	0.2	70	200	0.2	1.7	0.31	0.64
32	1-1/4	33.0	44.0	0.2	80	240	0.2	1.3	0.39	0.9
40	1-1/2	41.5	54.0	0.25	100	270	0.2	1.3	0.63	1.21
50	2	50.5	65.0	0.25	120	480	0.2	1.2	0.81	1.77
65	2-1/2	66.0	86.0	0.3	170	510	0.2	0.9	1.24	2.3
80	3	78.0	100.5	0.3	200	600	0.15	0.7	1.49	2.64
100	4	103.0	126.0	0.3	240	750	0.15	0.65	1.89	3.23
125	5	129.0	148.0	0.4	300	840	0.2	1.0	2.7	5.2
150	6	153.0	181.0	0.4	500	950	0.15	0.85	4.0	12.0

Temperature = 40 deg. C

Threaded Type Flexible Hose

F1

Flange Type Flexible Hose

F2

Fire Law Approval Flexible Hose

F3

Quick Connection Flexible Hose

F4

Vacuum Flexible Hose

F5

Fluororesin Flexible Hose

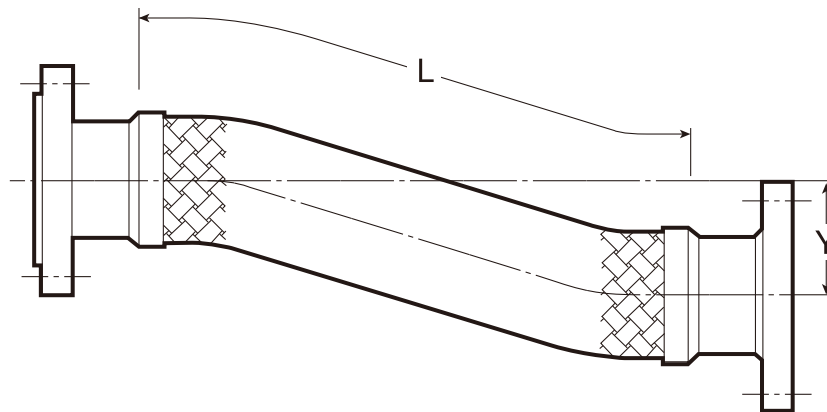
F6

Other Flexible Hose

F7

Lateral Deflection Table

The following table shows lateral deflection (Y).



*L=Live Length

Size (DN)(inch)	200			300			400			500			600			700			800			900			1000		
	STD	SA	CLT	STD	SA	CLT	STD	SA	CLT	STD	SA	CLT	STD	SA	CLT	STD	SA	CLT	STD	SA	CLT	STD	SA	CLT	STD	SA	CLT
15 1/2	12		13	29		55	118		125	210		300	331		360	475		450	510		540	610		640	710		740
20 3/4	9	12	13	20	52	54	83	120	122	150	210	217	236	332	339	338	380	400	463	480	500	607	580	600	640	680	700
25 1	8	8	16	19	35	65	76	76	147	137	140	260	216	216	350	312	316	420	421	425	520	551	562	620	580	660	720
32 1 1/4	5	10	15	12	41	64	50	92	147	91	164	256	143	257	340	207	370	410	282	504	510	365	580	610	463	640	710
40 1 1/2	4	8	11	11	32	46	45	74	109	80	131	192	127	206	298	183	296	370	251	403	470	328	527	570	416	667	670
50 2	3	7	11	8	31	47	33	68	106	61	126	195	95	194	303	138	285	340	187	382	440	246	507	550	309	634	650
65 2 1/2	2	6	5	5	26	26	27	59	67	50	105	121	80	165	198	118	237	286	158	323	390	210	422	500	268	534	600
80 3	1	3	3	6	21	22	30	49	57	60	90	107	99	151	174	142	217	256	200	296	360	268	398	460	335	503	560
100 4	1	2	1	3	18	15	21	44	40	41	86	78	68	142	128	107	213	191	147	286	275	195	383	364	248	479	465
125 5		1			11	6	15	34	20	31	68	40	52	107	67	80	162	105	113	230	146	152	297	194	191	386	256
150 6					8	6	13	26	18	28	49	39	49	86	68	71	133	100	102	182	144	140	248	196	182	323	248
200 8					4		8	17		20	40		36	68		54	103		80	145		106	195		141	252	
250 10					3		7	14		17	31		30	56		47	88		68	126		93	172		128	225	
300 12							5	8		13	19		24	36		36	53		53	79		74	11		99	147	
350 14								6		3	17		9	29		14	45		24	69		36	92		51	118	
400 16										3			8			12			21			32				45	
450 18										2			7			11			19			29				40	
500 20										2			6			10			17			26				36	

F1

Threaded Type Flexible Hose



NK-1000 Standard Union Type (Female Both Ends)

Size: DN8(1/4") ~ DN65(2-1/2")
 Length: 200mm ~ 10M
 *For any other specifications, please contact us.
 Fluid: Water, Oil, Air, Steam, Gas, Chemical
 Temperature: -40~200 deg. C
 Pressure: 0.1~1.0MPa
 (Depending on the material of fitting and gasket)



① Tube	Stainless Steel
② Braid	Stainless Steel
③ Union	Carbon steel, Stainless Steel, Copper Alloy
④ Collar	Stainless Steel
⑤ Gasket	Non Asbestos

NK-1100 Fit Union Type (Female Both Ends)

Size: DN10(3/8") ~ DN50(2")
 Length: 200mm ~ 3M
 *For any other specifications, please contact us.
 Fluid: Water, Oil, Air, Steam, Gas, Chemical
 Temperature: -40~200 deg. C
 Pressure: 0.1~1.0MPa
 (Depending on the material of fitting and gasket)



① Tube	Stainless Steel
② Braid	Stainless Steel
③ Union	Carbon Steel, Stainless Steel, Copper Alloy
④ Ring	Carbon Steel, Stainless Steel
⑤ Base Block	Carbon Steel, Stainless Steel
⑥ Gasket	Non Asbestos

NK-1200 Multiuse Union Type (Female Both Ends)

Size: DN6(1/8") ~ DN100(4")
 Length: 200mm ~ 10M
 *For any other specifications, please contact us.
 Fluid: Water, Oil, Air, Steam, Gas, Chemical
 Temperature: -40~200 deg. C
 Pressure: 0.1~2.0MPa
 (Depending on the material of fitting and gasket)



① Tube	Stainless Steel
② Braid	Stainless Steel
③ Ring	Stainless Steel
④ Union	Carbon Steel, Stainless Steel
⑤ Gasket	Non Asbestos

NK-1300 Female Threaded Type

Size: DN6(1/8") ~ DN65(2-1/2")
 Length: 200mm ~ 10M
 *For any other specifications, please contact us.
 Fluid: Water, Oil, Air, Steam, Gas, Chemical
 Temperature: -40~450 deg. C *Without considering sealing material.
 Pressure: 0.1~2.0MPa



① Tube	Stainless Steel
② Braid	Stainless Steel
③ Ring	Stainless Steel
④ Socket	Carbon Steel, Stainless Steel

NK-1500 Male Threaded Type

Size: DN6(1/8") ~ DN80(3")
 Length: 200mm ~ 10M
 *For any other specifications, please contact us.
 Fluid: Water, Oil, Air, Steam, Gas, Chemical
 Temperature: -40~450 deg. C *Without considering sealing material.
 Pressure: 0.1~2.0MPa



① Tube	Stainless Steel
② Braid	Stainless Steel
③ Ring	Stainless Steel
④ Nipple	Carbon Steel, Stainless Steel

Threaded Type Flexible Hose

F1

Flange Type Flexible Hose

F2

Fire Law Approval Flexible Hose

F3

Quick Connection Flexible Hose

F4

Vacuum Flexible Hose

F5

Fluororesin Flexible Hose

F6

Other Flexible Hose

F7

NK-1900 Female Union x Male Threaded Type

Size: DN6(1/8") ~ DN80(3")

Length: 200mm ~ 10M

*For any other specifications, please contact us.

Fluid: Water, Oil, Air, Steam, Gas, Chemical

Temperature: -40~450 deg. C *Without considering sealing material.

Pressure: 0.1~2.0MPa

①	Tube	Stainless Steel
②	Braid	Stainless Steel
③	Collar	Stainless Steel
④	Union	Carbon Steel, Stainless Steel
⑤	Gasket	Non Asbestos
⑥	Ring	Stainless Steel
⑦	Nipple	Carbon Steel, Stainless Steel



NK-2000 Slim Union Type

Size: DN6(1/8") ~ DN65(2-1/2")

Length: 200mm ~ 10M

*For any other specifications, please contact us.

Fluid: Water, Oil, Air, Steam, Gas, Chemical

Temperature: -40~450 deg. C *Without considering sealing material.

Pressure: 0.1~2.0MPa

①	Tube	Stainless Steel
②	Braid	Stainless Steel
③	Ring	Stainless Steel
④	Sleeve	Carbon Steel, Stainless Steel
⑤	Nut	Carbon Steel, Stainless Steel
⑥	Male Union	Carbon Steel, Stainless Steel
⑦	Female Union	Carbon Steel, Stainless Steel



- ① NK-2000MM : Both male thread ends (Metal Touch Seal)
- ② NK-2000FF : Both female thread ends (Metal Touch Seal)
- ③ NK-2000MF : Male x Female ends (Metal Touch Seal)

NK-3400 Light Union Type

Size: DN6(1/8") ~ DN25(1")

Length: 200mm ~ 10M

*For any other specifications, please contact us.

Fluid: Water, Oil, Air, Steam, Gas, Chemical

Temperature: -40~450 deg. C *Without considering sealing material.

Pressure: 0.1~1.0MPa

①	Tube	Stainless Steel
②	Braid	Stainless Steel
③	Base Block	Carbon Steel, Stainless Steel
④	Ring	Carbon Steel, Stainless Steel
⑤	Nut	Carbon Steel, Stainless Steel
⑥	Male Union	Carbon Steel, Stainless Steel
⑦	Female Union	Carbon Steel, Stainless Steel



- ① NK-3400MM : Both male thread ends (Metal Touch Seal)
- ② NK-3400FF : Both female thread ends (Metal Touch Seal)
- ③ NK-3400MF : Male x Female ends (Metal Touch Seal)

F2

Flange Type Flexible Hose



NK-2500

(Floating x Fixed Flange)

NK-2600

(Both Ends Floating Flange)

Wide Use Type

Size: DN10(3/8") ~ DN350(14")

Length: 200mm ~ 10M

*For any other specifications, please contact us.

Flange Standard: JIS, ANSI, DIN, ASME

Fluid: Water, Oil, Air, Steam, Gas, Chemical

Temperature: -40~450 deg. C *Without considering sealing material.

Pressure: 0.1~2.0MPa

① Tube	Stainless Steel
② Braid	Stainless Steel
③ Ring	Stainless Steel
④ Stub End	Carbon Steel, Stainless Steel
⑤ Flange	Carbon Steel, Stainless Steel
⑥ End Pipe	Carbon Steel, Stainless Steel



NK-2500



NK-2600

NK-3100

Standard Type

Size: DN15(1/2") ~ DN250(10")

Length: 150mm ~ 3M

*For any other specifications, please contact us.

Flange Standard: JIS, ANSI, DIN, ASME

Fluid: Water, Oil, Air, Steam, Gas, Chemical

Temperature: -40~450 deg. C *Without considering sealing material.

Pressure: 0.1~1.0MPa

① Tube	Stainless Steel
② Braid	Stainless Steel
③ Collar	Stainless Steel
④ Flange	Carbon Steel, Stainless Steel



NK-3300

No Welded Type

Size: DN15(1/2") ~ DN50(2")

Length: 150mm ~ 3M

*For any other specifications, please contact us.

Flange Standard: JIS, ANSI, DIN, ASME

Fluid: Water, Oil, Air, Steam, Gas, Chemical

Temperature: -40~300 deg. C *Without considering sealing material.

Pressure: 0.1~1.0MPa



①	Tube	Stainless Steel
②	Braid	Stainless Steel
③	Flange	Carbon Steel, Stainless Steel
④	Base Block	Carbon Steel, Stainless Steel
⑤	Ring	Carbon Steel, Stainless Steel

NK-4000

(Floating x Fixed Flange)

NK-4100

(Both Ends Floating Flange)

Ribbon Braid Type

Size: DN80(3") ~ DN350(14")

Length: 200mm ~ 3M

*For any other specifications, please contact us.

Flange Standard: JIS, ANSI, DIN, ASME

Fluid: Water, Oil, Air, Steam, Gas, Chemical

Temperature: -40~300 deg. C *Without considering sealing material.

Pressure: 0.1~1.0MPa



①	Tube	Stainless Steel
②	Braid	Stainless Steel
③	Ring	Carbon Steel, Stainless Steel
④	Stub End	Carbon Steel, Stainless Steel
⑤	Flange	Carbon Steel, Stainless Steel
⑥	End Pipe	Carbon Steel, Stainless Steel

NK-5000

(Floating x Fixed Flange)

NK-5100

(Both Ends Floating Flange)

Band Stopper Type

Size: DN80(3") ~ DN600(24")

Length: 300mm ~ 3M

*For any other specifications, please contact us.

Flange Standard: JIS, ANSI, DIN, ASME

Fluid: Water, Oil, Air, Steam, Gas, Chemical

Temperature: -40~300 deg. C *Without considering sealing material.

Pressure: 0.1~1.0MPa



①	Tube	Stainless Steel
②	Braid	Stainless Steel
③	Stub End	Carbon Steel, Stainless Steel
④	Flange	Carbon Steel, Stainless Steel
⑤	Neck Ring	Carbon Steel, Stainless Steel
⑥	Band	Carbon Steel, Stainless Steel
⑦	End Pipe	Carbon Steel, Stainless Steel

NK-5500

(Floating x Fixed Flange)

NK-5600

(Both Ends Floating Flange)

Braid-Over Type

Size: DN50(2") ~ DN350(14")
 Length: 300mm ~ 10M
 *For any other specifications, please contact us.
 Flange Standard: JIS, ANSI, DIN, ASME
 Fluid: Water, Oil, Air, Steam, Gas, Chemical
 Temperature: -40~300 deg. C *Without considering sealing material.
 Pressure: 0.1~1.0MPa



① Tube	Stainless Steel
② Braid	Stainless Steel
③ Ring	Stainless Steel
④ Stub End	Carbon Steel, Stainless Steel
⑤ Flange	Carbon Steel, Stainless Steel
⑥ Neck Ring	Carbon Steel, Stainless Steel
⑦ End Pipe	Carbon Steel, Stainless Steel

Threaded Type Flexible Hose

F1

Flange Type Flexible Hose

F2

NK-6300

Non Welded Type - MLIT specification compliant product

Size: DN20(3/4") ~ DN300(12")
 Length: 300mm ~ 3M
 *For any other specifications, please contact us.
 Flange Standard: JIS, ANSI, DIN, ASME
 Fluid: Water, Oil, Air, Steam, Gas, Chemical
 Temperature: -10~100 deg. C
 Pressure: 0.1~1.0MPa



① Tube	Stainless Steel
② Braid	Stainless Steel
③ Ring	Stainless Steel
④ Separate Ring	Carbon Steel, Stainless Steel
⑤ Flange	Carbon Steel, Stainless Steel
⑥ Gasket	Non Asbestos

Fire Law Approval Flexible Hose

F3

Quick Connection Flexible Hose

F4

Vacuum Flexible Hose

NK-7800

Pump Joint Super 10・Super 20

Size: DN50(2") ~ DN300(12")
 Length: Depending on the DN.
 Flange Standard: JIS, ANSI, DIN, ASME
 Fluid: Water, Oil, Air, Steam, Gas, Chemical
 Temperature: 10~80 deg. C
 Pressure: Super 10...1.0MPa
 Super 20...2.0MPa

Super 10		Super 20	
DN (mm)	Length (mm)	DN (mm)	Length (mm)
50	150	50	110
65	150	65	110
80	150	80	110
100	150	100	150
125	150	125	150
150	150	150	150
200	200	200	200
250	200	250	200
300	200	300	200

① 2 ply Bellows	Stainless Steel
② Flange	Carbon Steel, Stainless Steel
③ Holder	Carbon Steel, Stainless Steel
④ Tierod	Carbon Steel, Stainless Steel
⑤ Cushion	Urethane
⑥ Adjust Nut	Carbon Steel, Stainless Steel



F5

Fluororesin Flexible Hose

F6

Other Flexible Hose

F7

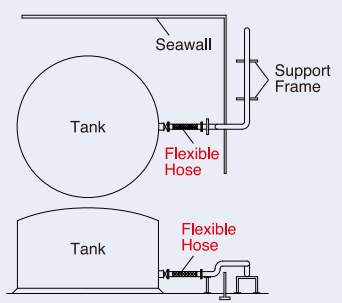
F3

Fire Law Approval Flexible Hose



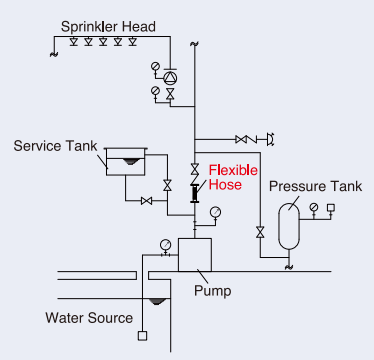
NK-9100 For Fuel Tanks (Satisfied the fire law of A)

Size: DN40(1-1/2") ~ DN400(16")
 Length: 500mm ~ 3.2M
 *Depending on the Size.
 Flange Standard: JIS, ANSI, ASME
 Max. Temperature: 100 deg. C
 Max. Pressure: 1.0MPa



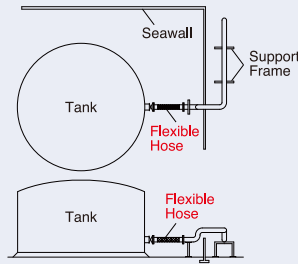
NK-9500 For Fire Extinguishing Pumps (Satisfied the fire law of B)

Size: DN32(1-1/4") ~ DN300(12") : JIS 10K, #150Lb
 DN32(1-1/4") ~ DN200(8") : JIS 20K, #300Lb
 Length: 190mm ~ 3M
 Flange Standard: JIS, ANSI, ASME
 Max. Temperature: 40 deg. C
 Max. Pressure: 1.4MPa / 2.8MPa



NK-CT2 For Chemical Tanks

Size: DN15(1/2") ~ DN65(2-1/2")
 Length: 300mm ~ 1400mm
 *Depending on the Size.
 Flange Standard: JIS, ANSI, ASME
 Max. Temperature: 100 deg. C
 Max. Pressure: 1.0MPa

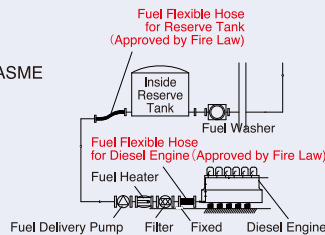


① Inner Tube	Fluororesin
② Gasket	Non Asbestos
③ Collar	Stainless Steel
④ Flexible Tube	Stainless Steel
⑤ Braid	Stainless Steel
⑥ Flange	Carbon Steel, Stainless Steel

Ship Type Approval Flexible Hose These products have type approval certificate from Ship Association.

NK-PG2 For Emergency Diesel Engine Fuel

Size: DN20(3/4") ~ DN50(2") : Flange Type
 φ6 ~ φ12 : Flareless Joint Type
 Length: 300mm ~ 1M
 *Depending on the Size.
 Max. Temperature: 180 deg. C
 Max. Pressure: 1.0MPa
 Flange Type Flange Standard: JIS, ANSI, ASME



Flange Type

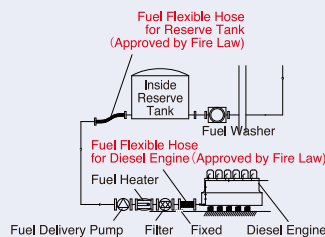
① Flange	Carbon Steel, Stainless Steel
② Flexible Tube	Stainless Steel
③ Inner Tube	Fluororesin
④ Heat-resistant Braid	Glass Fiber
⑤ Pressure-resistant Braid	Stainless Steel

Flareless Joint Type

① Flareless Joint	Stainless Steel
② Ring	Carbon Steel, Stainless Steel
③ Inner Tube	Stainless Steel
④ Flexible Tube	Fluororesin
⑤ Heat-resistant Braid	Glass Fiber
⑥ Pressure-resistant Braid	Stainless Steel

NK-PG3 For Continuous Use Diesel Engine Fuel

Size: DN20(3/4") ~ DN50(2")
 Length: 300mm ~ 1M
 *Depending on the Size.
 Flange Standard: JIS, ANSI, ASME
 Max. Temperature: 180 deg. C
 Max. Pressure: 1.0MPa



① Ditection Nozzle	Stainless Steel
② Inner Tube	Fluororesin
③ Flexible Tube	Stainless Steel
④ Heat-resistant Braid	Glass Fiber
⑤ Pressure-resistant Braid	Stainless Steel
⑥ Protect Tube	Stainless Steel
⑦ Flange	Carbon Steel, Stainless Steel

F4

Quick Connection
Flexible Hose

NK-1800 Sanitary Flange Type

Size: DN10(3/8") ~ DN300(12") 1.0S ~ 6.0S(STD type)/ 1.0S ~ 2.0S(SNT type)
Length: 200mm ~ 3M *For any other specifications, please contact us.
Fluid: Water, Oil, Air, Chemical Temperature: 0~180 deg. C Pressure: 0.1~1.0MPa

- ① NK-1800STD Normal Type
- ② NK-1800SNT Flat End Type

① Tube	Stainless Steel
② Braid	Stainless Steel
③ Ring	Stainless Steel
④ Sanitary Flange	Stainless Steel
⑤ Press Ring	Stainless Steel



NK-3500 Lever Coupling Type

Size: DN15(1/2") ~ DN200(8")
Length: 500mm ~ 10M *For any other specifications, please contact us.
Fluid: Water, Oil, Air, Steam, Chemical Temperature: -30~180 deg. C Pressure: 0.49~1.76MPa

① Tube	Stainless Steel
② Braid	Stainless Steel
③ Ring	Stainless Steel
④ Nipple	Carbon Steel, Stainless Steel
⑤ Coupling	Carbon Steel, Stainless Steel, Copper Alloy
⑥ Plug	Carbon Steel, Stainless Steel, Copper Alloy
⑦ Gasket	Non Asbestos



NK-3600 Coupler Type

Size: DN15(1/2") ~ DN200(8")
Length: 500mm ~ 10M *For any other specifications, please contact us.
Fluid: Water, Oil, Air, Steam, Chemical Temperature: -20~80 deg. C Pressure: 0.1~2.0MPa

① Tube	Stainless Steel
② Braid	Stainless Steel
③ Ring	Stainless Steel
④ Nipple	Carbon Steel, Stainless Steel
⑤ Socket	Carbon Steel, Stainless Steel, Copper Alloy
⑥ Plug	Carbon Steel, Stainless Steel, Copper Alloy
⑦ Packing	Non Asbestos



F5

Vacuum Flexible Hose



NK-2300PT Pipe End Type

Size: DN3 ~ DN15(1/2")
 Length: 100mm ~ 3M
 *For any other specifications, please contact us.
 Fluid: Gas, Water, Air
 Temperature: -196~300 deg. C
 Pressure: FV~0.3MPa

① Pipe	Stainless Steel
② Tube	Stainless Steel



NK-2300KF KF Flange Type

Size: KF10 ~ KF50
 Length: 200mm ~ 3M
 *For any other specifications, please contact us.
 Fluid: Gas, Air
 Temperature: -15~150 deg. C
 Pressure: FV~0.3MPa

① Flange	Stainless Steel
② Tube	Stainless Steel



NK-2300V JIS Flange Type

Size: DN10(3/8") ~ DN100(4")
 Length: 200mm ~ 3M
 *For any other specifications, please contact us.
 Fluid: Gas, Air
 Temperature: -15~150 deg. C
 Pressure: FV~0.3MPa

① VG Flange	Stainless Steel
② Tube	Stainless Steel
③ End Pipe	Stainless Steel
④ VF Flange	Stainless Steel



Threaded Type Flexible Hose

F1

Flange Type Flexible Hose

F2

Fire Law Approval Flexible Hose

F3

Quick Connection Flexible Hose

F4

Vacuum Flexible Hose

F5

Fluororesin Flexible Hose

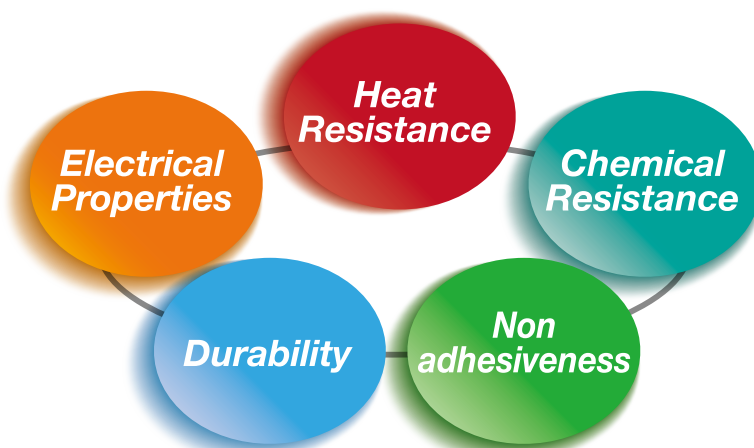
F6

Other Flexible Hose

F7

F6

Fluororesin Flexible Hose



NK-FJ-F Flange Type

Size: DN15(1/2") ~ DN100(4")
 Length: 250mm ~ 6M
 Flange Standard: JIS, ANSI, DIN, ASME
 Fluid: Air, Water, Chemical
 Temperature: -50~180 deg. C
 Pressure: 0.1~1.0MPa

NK-FJS-F/Straight Tube
 NK-FJP-F/Spiral Tube
 NK-FJIS-F/Inserted Tube

NK-FJS-F/Straight Tube

① Flange	Carbon Steel, Stainless Steel
② Stub End	Stainless Steel
③ Tube	PTFE
④ Braid	Stainless Steel
⑤ Guard Spring	Carbon Steel, Stainless Steel
⑥ Ring	Stainless Steel
⑦ Back-up Gasket	Non Asbestos

NK-FJP-F/Spiral Tube

① Flange	Carbon Steel, Stainless Steel
② FL Fitting	Stainless Steel
③ Tube	PTFE
④ Braid	Stainless Steel
⑤ Back-up Gasket	Non Asbestos



NK-FJIS-F/Inserted Tube

① Flexible Tube	Stainless Steel
② Braid	Stainless Steel
③ Collar	Stainless Steel
④ Flange	Stainless Steel
⑤ Back-up Gasket	Non Asbestos
⑥ Inner Tube	PTFE

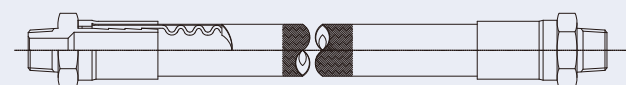
NK-FJ-A Male Threaded Type

Size: DN6(1/8") ~ DN50(2")
 Length: 250mm ~ 10M
 Fluid: Air, Water, Chemical
 Temperature: -50~180 deg. C
 Pressure: 0.1~1.0MPa

NK-FJS-A/Straight Tube



NK-FJP-A/Spiral Tube



NK-FJS-A/Straight Tube

① Nipple	Carbon Steel, Stainless Steel
② Ring	Stainless Steel
③ Tube	PTFE
④ Braid	Stainless Steel
⑤ Guard Spring	Stainless Steel



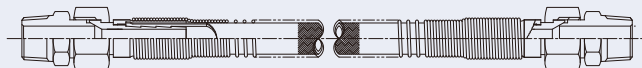
NK-FJP-A/Spiral Tube

① Nipple	Carbon Steel, Stainless Steel
② Ring	Stainless Steel
③ Tube	PTFE
④ Braid	Stainless Steel

NK-FJ-B Male Union Type

Size: DN6(1/8") ~ DN50(2")
 Length: 250mm ~ 10M
 Fluid: Air, Water, Chemical
 Temperature: -50~180 deg. C
 Pressure: 0.1~1.0MPa

NK-FJS-B/Straight Tube



NK-FJP-B/ Spiral Tube



NK-FJS-B/Straight Tube

① Nipple	Carbon Steel, Stainless Steel
② Nut	Stainless Steel
③ Sleeve	Stainless Steel
④ Ring	Stainless Steel
⑤ Tube	PTFE
⑥ Braid	Stainless Steel
⑦ Guard Spring	Stainless Steel



NK-FJP-B/ Spiral Tube

① Nipple	Carbon Steel, Stainless Steel
② Nut	Carbon Steel, Stainless Steel
③ Sleeve	Stainless Steel
④ Ring	Stainless Steel
⑤ Tube	PTFE
⑥ Braid	Stainless Steel

Threaded Type Flexible Hose

F1

Flange Type Flexible Hose

F2

Fire Law Approval Flexible Hose

F3

Quick Connection Flexible Hose

F4

Vacuum Flexible Hose

F5

Fluorescing Flexible Hose

F6

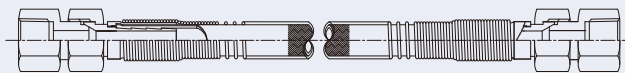
Other Flexible Hose

F7

NK-FJ-C Female Union Type

Size: DN6(1/8") ~ DN50(2")
 Length: 250mm ~ 10M
 Fluid: Air, Water, Chemical
 Temperature: -50~180 deg. C
 Pressure: 0.1~1.0MPa

NK-FJS-C/Straight Tube



NK-FJP-C/ Spiral Tube



NK-FJS-C/Straight Tube

①	Socket	Carbon Steel, Stainless Steel
②	Nut	Stainless Steel
③	Sleeve	Stainless Steel
④	Ring	Stainless Steel
⑤	Tube	PTFE
⑥	Braid	Stainless Steel
⑦	Guard Spring	Stainless Steel



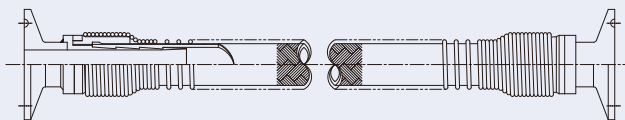
NK-FJP-C/ Spiral Tube

①	Socket	Carbon Steel, Stainless Steel
②	Nut	Carbon Steel, Stainless Steel
③	Sleeve	Stainless Steel
④	Ring	Stainless Steel
⑤	Tube	PTFE
⑥	Braid	Stainless Steel

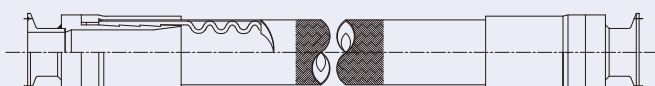
NK-FJ-S Sanitary Flange Type

Size: 1.0S ~ 2.5S
 Length: 250mm ~ 10M
 Fluid: Air, Water, Chemical
 Temperature: -50~180 deg. C
 Pressure: 0.1~1.0MPa

NK-FJS-S/Straight Tube



NK-FJP-S/Spiral Tube



NK-FJS-S/Straight Tube

①	Sanitary Flange	Stainless Steel
②	Sleeve	Stainless Steel
③	Ring	Stainless Steel
④	Tube	PTFE
⑤	Braid	Stainless Steel
⑥	Guard Spring	Stainless Steel



NK-FJP-S/Spiral Tube

①	Sanitary Flange	Stainless Steel
②	Ring	Stainless Steel
③	Tube	PTFE
④	Braid	Stainless Steel

F7

Other Flexible Hose



NK-6000 Jacket Type

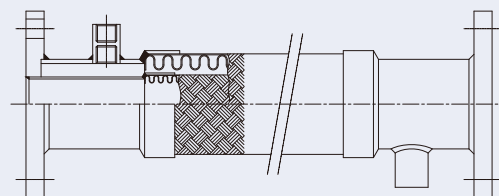
This model has double hoses, inner hose and outer hose. Temperature of inner hose is adjusted by the fluid in outer hose. Therefore the viscosity of fluid in inner tube can be managed.

- NK-6000F : Full-jacket type (Size: Based on Outer hose)
- NK-6000S : Semi-jacket type (Size: Based on Inner hose)



NK-6000F

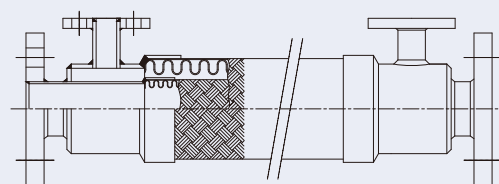
① Inner Tube	Stainless Steel
② Inner Braid	Stainless Steel
③ Ring	Stainless Steel
④ Inner Pipe	Carbon steel, Stainless Steel
⑤ Outer Tube	Stainless Steel
⑥ Outer Braid	Stainless Steel
⑦ Ring	Stainless Steel
⑧ Outer Pipe	Carbon steel, Stainless Steel
⑨ Fitting	Carbon steel, Stainless Steel
⑩ Nozzle	Carbon steel, Stainless Steel



NK-6000F

NK-6000S

① Inner Tube	Stainless Steel
② Inner Braid	Stainless Steel
③ Ring	Stainless Steel
④ Inner Pipe	Carbon steel, Stainless Steel
⑤ Outer Tube	Stainless Steel
⑥ Outer Braid	Stainless Steel
⑦ Ring	Stainless Steel
⑧ Outer Pipe	Carbon steel, Stainless Steel
⑨ Fitting	Carbon steel, Stainless Steel
⑩ Nozzle	Carbon steel, Stainless Steel
⑪ Neck Ring	Carbon steel, Stainless Steel



NK-6000S

NK-1400 Pipe End Type

This model is for butt welding, welding with other fittings.
They are used for refrigerant piping for air conditioner, muffler, and so on.
Slit processing is available.



①	Tube	Stainless Steel
②	Braid	Stainless Steel
③	Ring	Stainless Steel
④	Pipe	Carbon Steel, Stainless Steel, Copper Alloy

NK-HPG KHKS0803 Type (for high Pressure Gas)

High Pressure Gas Safety Act (KHK) is a Japanese law to protect public safety.
High pressure gas includes inflammable gas and toxicity gas.
This model has good intensity and endurance, and it can correspond to this law.



NK-HPG-F : Flange Type
NK-HPG-S : Thread Type
NK-HPG-P : Pipe End Type

①	Fitting(Flange/Screw/Pipe)	Carbon Steel, Stainless Steel
②	End Pipe	Carbon Steel, Stainless Steel
③	Socket(only for NFK-HPG-F)	Carbon Steel, Stainless Steel
④	Ring	Stainless Steel
⑤	Tube	Stainless Steel
⑥	Braid	Stainless Steel

NK-JLP JLPA209-2010 Type (for LPG) JLPA:Japan LPGas Plant Association

Temperature: 60 deg.C
Pressure: 2.12MPa

Union Type Size: DN15(1/2") ~ DN20(3/4")

①	Tube	Stainless Steel
②	Braid	Stainless Steel
③	Ring	Stainless Steel
④	Union	Stainless Steel
⑤	Gasket	Non Asbestos

Flange Type Size: DN15(1/2") ~ DN100(4")

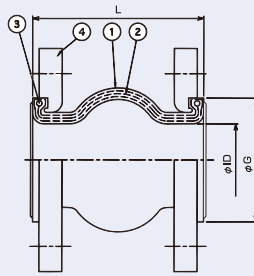
①	Tube	Stainless Steel
②	Braid	Stainless Steel
③	Ring	Stainless Steel
④	Stub End	Carbon Steel, Stainless Steel
⑤	Floating Flange	Carbon Steel, Stainless Steel
⑥	End Pipe	Carbon Steel, Stainless Steel
⑦	Fixed Flange	Carbon Steel, Stainless Steel



NK-RB-F

Rubber Flexible Joint

Flange Standard: JIS, ANSI, DIN, ASME
 Size: DN20(3/4") ~ DN750(30")
 Temperature: 70 deg. C
 Pressure: 1.0MPa



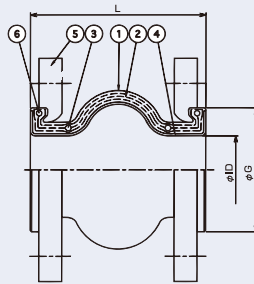
① Body Rubber	EPDM
② Reinforcing Material	Synthetic Fiber
③ Reinforcing Ring	SWRH
④ Flange	Carbon Steel



NK-RB-D

PTFE Lining Rubber Joint

Flange Standard: JIS, ANSI, DIN, ASME
 Size: DN20(3/4") ~ DN350(14")
 Temperature: 100 deg. C
 Pressure: 1.6MPa
 *Tie Rods are needed when the pressure is over 1.0MPa.



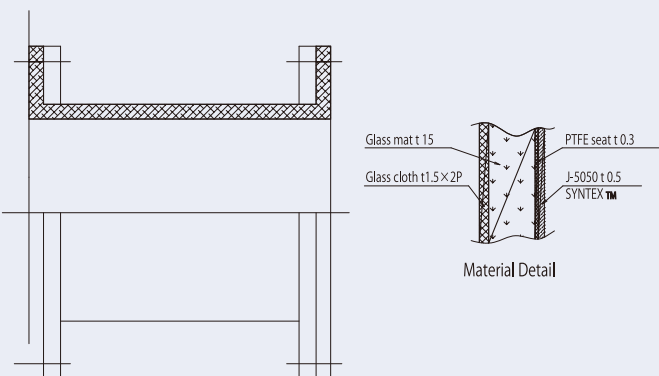
① Covering Rubber	EPDM
② Reinforcing Material	Synthetic Fiber
③ Reinforcing Ring	SWRH
④ Bellows	PTFE
⑤ Flange	Carbon Steel
⑥ Reinforcing Ring	SWRH



NK-JB-F

Non Metallic Type

Material: PTFE, Glass Fiber, Nylon, Rubber, etc...



Option for Flexible Hose

Spring Guard

Spring Guard gives more allowable bending radius and reduces the external bending stress.
Material: Carbon Steel, Stainless Steel



Insulating Jackets/Glass cloth

When media is high temperature, and there is a potential of skin contact, Glass cloth is useful. This is made of glass fiber. It prevents heat from outside and inside.



Insulating Jackets/Aeroflex®

Aeroflex prevents dew condensation problem when media is chilled.



Underground Processing

Carbon steel fittings are coated by tar epoxy coating for corrosion-resistant, and braided hoses are covered by the tapes not to enter foreign material between the carriers.



MEMO

Horizontal lines for taking notes.

Threaded Type
Flexible Hose

F1

Flange Type
Flexible Hose

F2

Fire Law Approval
Flexible Hose

F3

Quick Connection
Flexible Hose

F4

Vacuum
Flexible Hose

F5

Fluororesin
Flexible Hose

F6

Other
Flexible Hose

F7

E1

Expansion Joint



Recommended Installation Instructions

Do not drop or strike carton.

Inspect for damage during shipment, i.e., Dents, broken hardware, water marks on carton, etc.

Store in clean dry area where it will not be exposed to heavy traffic or damaging environments.

Do not remove shipping bars until installation is complete.

Do not remove any moisture-absorbing desiccant bags or protective coatings until ready for installation.

Do not use hanger lugs as lifting lugs without approval of the manufacturer.

Do not use chains or any lifting device directly on the bellows or bellows cover.

Do not allow weld splatter to hit unprotected bellows. Protect with wet chloride-free insulation.

Do not use cleaning agents that contain chlorides.

Do not use steel wool or wire brushes on bellows.

Do not force-rotate one end of an expansion joint for alignment of bolt holes.

Ordinary bellows are not capable of absorbing torque.

Do not hydrostatic pressure test or evacuate the system before installation of all guides and anchors.

Do not exceed a pressure test of 1 1/2 times the rated working pressure of the expansion joint.

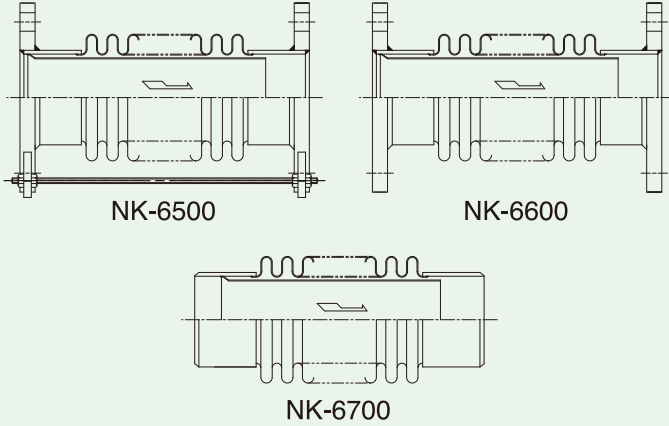
Do not use shipping bars to retain thrust if tested prior to installation.



CAUTION

NK-6500·6600·6700 General-Purpose Type

Size: DN50(2") ~ 2500(100")
 Flange Standard: JIS, ANSI, DIN
 Fluid: Exhaust Gas, Air, Low Pressure Steam, Water



NK-6500 General type

① Bellows	Stainless Steel
② End Pipe	Carbon Steel, Stainless Steel
③ Inner Sleeve	Stainless Steel
④ Flange	Carbon Steel, Stainless Steel
⑤ Holder	Carbon Steel, Stainless Steel
⑥ Shipping Bolt	Carbon Steel, Stainless Steel

NK-6600 General Type without Shipping Bolt

① Bellows	Stainless Steel
② End Pipe	Carbon Steel, Stainless Steel
③ Inner Sleeve	Stainless Steel
④ Flange	Carbon Steel, Stainless Steel

NK-6700 General Type with Pipe Ends

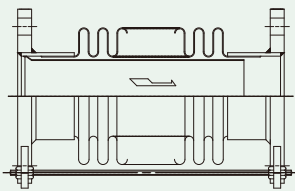
① Bellows	Stainless Steel
② End Pipe	Carbon Steel, Stainless Steel
③ Inner Sleeve	Stainless Steel

X=Axial Movement

DN	Length(mm)					Resisting pressure (MPa)
	X=10	X=15	X=20	X=25	X=30	
50	230	290	350			1.0
65	175	220	250	300	330	0.5
80	200	250	310	360	400	0.9
90	200	250	310	360	400	0.9
100	200	260	300	360	400	0.8
125	220	250	280	340	370	0.5
150	220	250	280	340	370	0.5
175	220	250	280	340	370	0.5
200	220	250	280	340	370	0.5
250	220	250	280	340	370	0.5
300	240	270	300	360	390	0.5
350	230	270	310	350	390	0.45
400	230	270	310	350	390	0.45
450	230	270	310	350	390	
500	250		300		350	
550	250		300		350	
600	250		300		350	

NK-6900 High Performance Type

This product is used high convolutions bellows made by hydraulic forming.
 Flange Standard: JIS,ANSI,DIN Fluid: Exhaust Gas, Air, Low Pressure Steam, Water



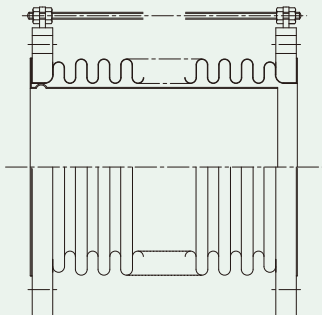
X=Axial Movement

① Flange	Carbon Steel, Stainless Steel
② End Pipe	Carbon Steel, Stainless Steel
③ Inner Sleeve	Stainless Steel
④ Bellows	Stainless Steel
⑤ Shipping Bolt	Carbon Steel, Stainless Steel
⑥ Holder	Carbon Steel, Stainless Steel

DN	Length(mm)				Resisting pressure (MPa)
	X=15	X=20	X=30	X=40	
100	200	250	350	430	0.3
125	200	220	300	370	0.25
150	200	240	300	350	0.2
200	210	260	300	370	0.18
250	250	250	310	370	0.19
300	250	250	310	370	0.19

NK-7300 Non Welding Type for Exhaust Gas (Both Ends Floating Flanges)

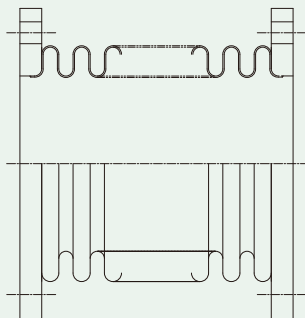
Size: DN20(3/4") ~ DN1500(60")
Resisting Pressure: 0.15MPa ~ 1.0MPa ※Depending on the DN.
Flange Standard: JIS, ANSI, DIN Fluid: Exhaust Gas, Air, Low Pressure Steam, Water



① Bellows	Stainless Steel
② Inner Sleeve	Stainless Steel
③ Flange	Carbon Steel, Stainless Steel
④ Shipping Bolt	Carbon Steel, Stainless Steel
⑤ Holder	Carbon Steel, Stainless Steel

NK-7900 Compact and Light Welding Type (Both Ends Fixed Flanges)

Size: DN20(3/4") ~ DN1500(60")
Resisting Pressure: 0.15MPa ~ 1.0MPa ※Depending on the DN.
Flange Standard: JIS, ANSI, DIN Fluid: Exhaust Gas, Air, Low Pressure Steam, Water



① Bellows	Stainless Steel
② Flange	Carbon Steel, Stainless Steel

※You can add Internal Sleeve and Shipping Bolt as options if you need.

Bellows for NK-7300,7900

iO Bellows

X=Axial Movement

DN	Length(mm)					Spring Rate (N/mm)
	X=10	X=15	X=20	X=25	X=30	
20	170	250				1352.8
25	150	210	275	335		1092.6
32	130	165	230	280	325	787.9
40	140	190	245	295	350	1255.1
50	140	190	240	300	350	1214.4
65	125	160	210	250	295	1130.0
80	115	155	200	240	280	976.6
90	135	175	230	270	325	2218.2
100	105	140	170	200	235	888.5
125	140	190	240	285	335	4941.2
150	125	170	220	250	290	3450.5
175	125	170	220	250	290	1956.5
200	130	175	220	250	295	2216.8
250	115	155	190	225	260	1492.2
300		145	185	225	245	1243.2
350		170	210	230	270	2398.9
400		150	175	200	225	1333.0
450		150	175	200	225	2983.2
500		150	175	200	225	1645.9
600			195		230	1747.0
700			195		230	2021.6
800					220	1609.5
900					220	1802.7
1000					245	1450.2

E Bellows

X=Axial Movement

DN	Length(mm)					Spring Rate (N/mm)
	X=10	X=15	X=20	X=25	X=30	
20	100	140				458.2
25	90	120	155	185		425.8
32	80	105	135	165	190	286.9
40	80	105	135	165	190	298.8
50	80	105	130	155	180	305.5
65	70	90	110	130	150	206.3
80	80	105	130	155	180	618.5
100	85	110	140	165	195	719.4
125	85	110	140	165	195	865.2
150	85	110	135	160	185	800.2
200	90	115	140	165	190	1029.5
250	85	105	125	150	170	724.2
300		105	125	150	170	850.3
350		125	150	180	205	1378.1

NK-7500

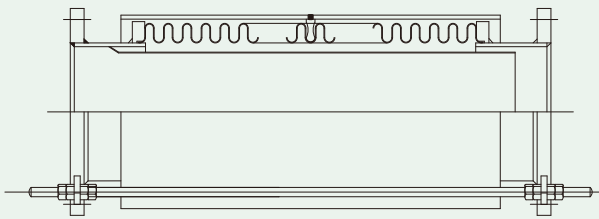
Single Bellows

NK-7700

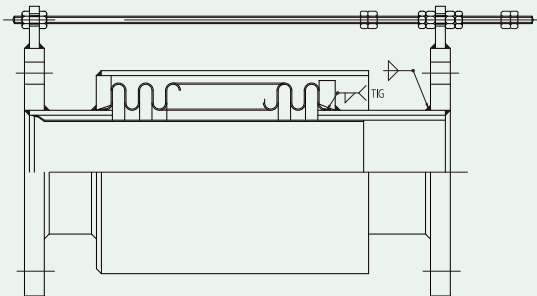
Double Bellows

Outer Cylinder Type

Bellows are covered with outer cylinder to prevent buckling caused by large axial movement.
 Flange Standard: JIS, ANSI, DIN
 Fluid: Exhaust Gas, Air, Steam



NK-7700



NK-7500

①	Bellows	Stainless Steel
②	Inner Sleeve	Stainless Steel
③	Outer Cylinder	Carbon Steel, Stainless Steel
④	End Pipe	Carbon Steel, Stainless Steel
⑤	Flange	Carbon Steel, Stainless Steel
⑥	Neck Ring	Carbon Steel, Stainless Steel
⑦	Middle Ring	Carbon Steel, Stainless Steel
⑧	Tie Rod	Carbon Steel, Stainless Steel
⑨	Holder	Carbon Steel, Stainless Steel

X=Axial Movement

DN	Length(mm)					
	X=30	X=40	X=50	X=60	X=80	X=100
50	560	690	820	960	1370	1630
65	450	540	640	730	1070	1260
80	600	720	820	900	1330	1550
100	560	680	800	900	1320	1550
125	500	560	650	710	860	1380
150	500	560	650	710	860	1380
200	520	580	670	710	860	1380
250	520	580	670	710	860	1380
300	520	580	670	710	860	1380
350	520	580	680	780	1020	1200
400	520	580	680	780	1020	1200
450	540	600	700	800	1030	1230
500	520	590	660	730	870	1160

NK-7000

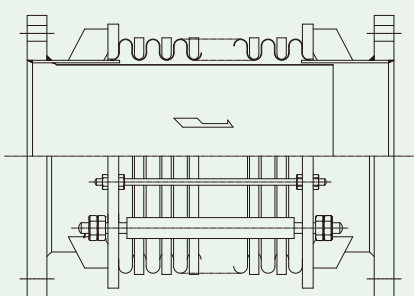
Single Bellows

NK-7100

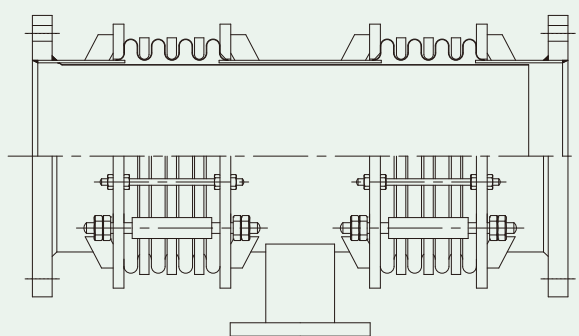
Double Bellows

Reinforced Bellows Type

This model has reinforcing rings between each convolution to withstand high pressure.
Flange Standard: JIS, ANSI, DIN
Fluid: High Pressure Gas, Air, Steam, Water



NK-7000



NK-7100

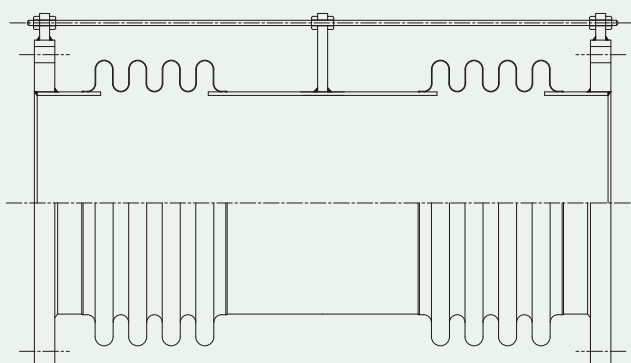
X=Axial Movement

DN	Length(mm)							
	NK-7000				NK-7100			
	X=10	X=20	X=30	X=40	X=50	X=60	X=80	X=100
50	320	400	500	570	660	750	1040	1210
65	320	400	500	570	660	750	1040	1210
80	350	470	570	690	820	900	1300	1530
100	350	420	550	650	750	850	1170	1370
125	370	430	520	580	640	700	1030	1220
150	370	430	520	580	640	700	1030	1220
200	370	430	520	580	640	700	1030	1220
250	430	470	590	630	720	790	1080	1240
300	430	470	590	630	720	790	1080	1240
350	430	470	590	630	720	790	1080	1240
400	430	470	590	630	720	790	1080	1240
450	430	470	590	630	720	790	1080	1240
500	500	550	600	650	700	750	1100	1200
550	500	550	600	650	700	750	1100	1200
600	500	550	600	650	700	750	1100	1200

① Bellows	Stainless Steel
② End Pipe	Carbon Steel, Stainless Steel
③ Inner Sleeve	Stainless Steel
④ Flange	Carbon Steel, Stainless Steel
⑤ Reinforcing Ring	Carbon Steel, Stainless Steel
⑥ Neck Ring	Carbon Steel, Stainless Steel
⑦ Beam	Carbon Steel, Stainless Steel
⑧ Tie Rod	Carbon Steel, Stainless Steel
⑨ Stopper	Carbon Steel, Stainless Steel
⑩ Shipping Bolt	Carbon Steel, Stainless Steel

NK-6800 Double Bellows Type

This product has double bellows, so it can move bigger than single one.
 Flange Standard: JIS, ANSI, DIN
 Fluid: Exhaust Gas, Air, Low Pressure Steam, Water



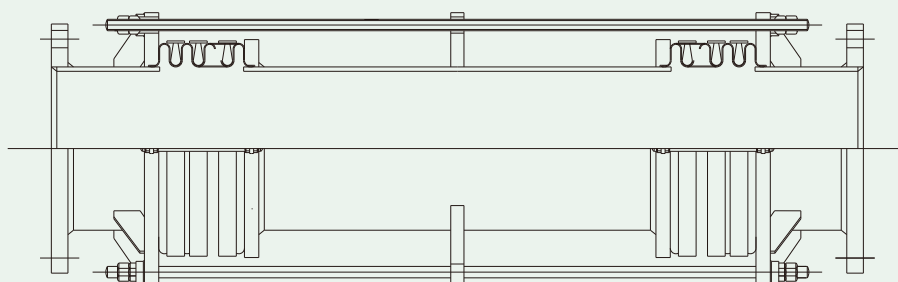
X=Axial Movement

DN	Length(mm)					
	Y=50	Y=100	Y=150	Y=200	Y=250	Y=300
50	600	800	950	1100	1300	1500
65	600	750	850	1000	1100	1250
80	700	800	950	1100	1200	1300
100	600	800	1000	1150	1250	1350
125	650	850	950	1100	1250	1400
150	700	850	1050	1200	1350	1500
200	800	1000	1200	1350	1500	1700
250	800	1100	1350	1550	1700	1900
300	850	1150	1400	1700	1900	2100
350	850	1150	1400	1700	1900	2100
400	900	1200	1500	1750	1950	2200
450	950	1250	1550	1800	2050	2300
500	900	1200	1400	1650	1850	2000
550	950	1250	1500	1700	1900	2100
600	1000	1300	1550	1800	1950	2200

① Bellows	Stainless Steel
② End Pipe	Carbon Steel, Stainless Steel
③ Flange	Carbon Steel, Stainless Steel
④ Holder	Carbon Steel, Stainless Steel
⑤ Shipping Bolt	Carbon Steel, Stainless Steel
⑥ Common Connector	Carbon Steel, Stainless Steel

NK-7400 Universal Bellows Type

Flange Standard: JIS, ANSI, DIN
Fluid: Gas, Air, Low Pressure Steam



X=Axial Movement

DN	Length(mm)					
	Y=50	Y=100	Y=150	Y=200	Y=250	Y=300
50	600	800	1000	1100	1200	1400
65	650	850	1000	1200	1400	1600
80	750	1000	1300	1400	1700	1800
100	850	1100	1300	1500	1700	1800
125	750	1000	1200	1300	1500	1600
150	800	1050	1350	1450	1600	1800
200	900	1200	1400	1700	1800	2050
250	1000	1300	1500	1700	1800	2100
300	1050	1400	1600	1800	2000	2300
350	1100	1500	1700	1900	2150	2450
400	1200	1600	1900	2100	2400	2700
450	1250	1700	2000	2200	2500	2900
500	1400	1800	2100	2400	2700	3100
550	1200	1600	1850	2000	2300	2600
600	1300	1700	1900	2100	2400	2700

① Bellows	Stainless Steel
② End Pipe	Carbon Steel, Stainless Steel
③ Flange	Carbon Steel, Stainless Steel
④ Reinforcing Ring	Carbon Steel, Stainless Steel
⑤ Guide Flange	Carbon Steel, Stainless Steel
⑥ Neck Ring	Carbon Steel, Stainless Steel
⑦ Common Connector	Carbon Steel, Stainless Steel
⑧ Tie Rods	Carbon Steel, Stainless Steel
⑨ Shipping Bolt	Carbon Steel, Stainless Steel
⑩ Beam	Carbon Steel, Stainless Steel
⑪ Holder	Carbon Steel, Stainless Steel
⑫ Stopper	Carbon Steel, Stainless Steel
⑬ Spherical Washer	Carbon Steel, Stainless Steel

E2

Special Use Expansion Joint



NK-8600 In-Line Pressure Balanced Type

This product can absorb the thrust generated from internal pressure of piping.
Flange Standard: JIS, ANSI, DIN

①	Flange	Carbon Steel, Stainless Steel
②	End Pipe	Carbon Steel, Stainless Steel
③	Beam	Carbon Steel, Stainless Steel
④	Guide Flange	Carbon Steel, Stainless Steel
⑤	Reinforcing Ring	Carbon Steel, Stainless Steel
⑥	Expansion Bellows	Stainless Steel
⑦	Tie Rods	Carbon Steel, Stainless Steel
⑧	Neck Ring	Carbon Steel, Stainless Steel
⑨	Spherical Washer	Carbon Steel, Stainless Steel
⑩	Internal Sleeve	Carbon Steel, Stainless Steel
⑪	Shipping Bolt	Carbon Steel, Stainless Steel
⑫	Holder	Carbon Steel, Stainless Steel
⑬	Blance Bellows	Stainless Steel



NK-8700 Pressure Balanced Type

The function is the same as NK-8700. This type is for curved piping.
Flange Standard: JIS, ANSI, DIN

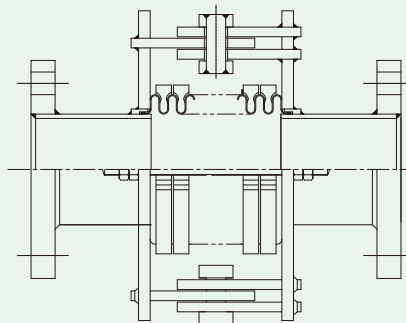
①	Flange	Carbon Steel, Stainless Steel
②	End Pipe	Carbon Steel, Stainless Steel
③	Cap	Carbon Steel, Stainless Steel
④	Guide Flange	Carbon Steel, Stainless Steel
⑤	Spherical Washer	Carbon Steel, Stainless Steel
⑥	Bellows	Stainless Steel
⑦	Tie Rod	Carbon Steel, Stainless Steel
⑧	Neck Ring	Carbon Steel, Stainless Steel
⑨	90 deg Elbow	Stainless Steel
⑩	Spherical Nut	Carbon Steel, Stainless Steel
⑪	Shipping Bolt	Carbon Steel, Stainless Steel



NK-8300 Hinged Type

A hinged Expansion Joint contains one bellows and is designed to permit angular rotation in one plane only by the use of a pair of pins through hinge plates attached to the Expansion Joint ends. The hinges and hinge pins must be designed to restrain the thrust of the Expansion Joint due to pressure and extraneous forces, where applicable. Hinged Expansion Joints should be used in sets of two or three to function properly.

Flange Standard: JIS, ANSI, DIN
Fluid: Water, Air, Exhaust Gas, Steam

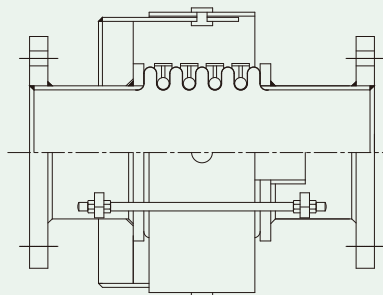


①	Bellows	Stainless Steel
②	Reinforcing Ring	Carbon Steel, Stainless Steel
③	Flange	Carbon Steel, Stainless Steel
④	End Pipe	Carbon Steel, Stainless Steel
⑤	Spacer	Carbon Steel, Stainless Steel
⑥	Guide Flange	Carbon Steel, Stainless Steel
⑦	Hinged Arms	Carbon Steel, Stainless Steel
⑧	Hinged Pin	Carbon Steel, Stainless Steel
⑨	Shipping Bolt	Carbon Steel, Stainless Steel

NK-8400 Gimbal Type

A gimbal Expansion Joint is designed to permit angular rotation in any plane by the use of two pairs of hinges affixed to a common floating gimbal ring. The gimbal ring, hinges and pins must be designed to restrain the thrust of the Expansion Joint due to pressure and extraneous forces, where applicable.

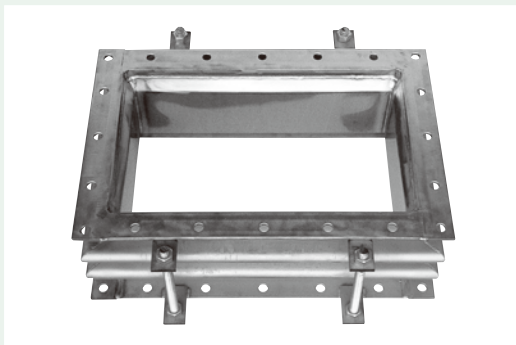
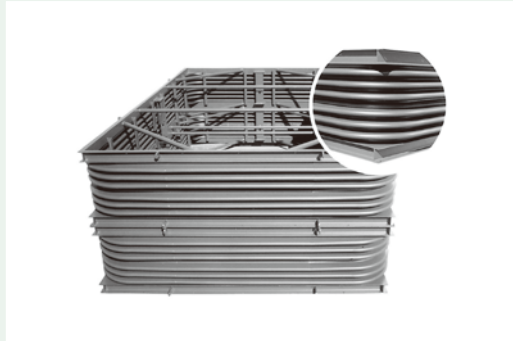
Flange Standard: JIS, ANSI, DIN
Fluid: Water, Air, Exhaust Gas, Steam



①	Hinged Pin	Carbon Steel, Stainless Steel
②	Reinforcing Ring	Carbon Steel, Stainless Steel
③	Neck Ring	Carbon Steel, Stainless Steel
④	Bellows	Stainless Steel
⑤	Hinge Arms	Carbon Steel, Stainless Steel
⑥	End Pipes	Carbon Steel, Stainless Steel
⑦	Flange	Carbon Steel, Stainless Steel
⑧	Shipping Bolt	Carbon Steel, Stainless Steel
⑨	Holder	Carbon Steel, Stainless Steel

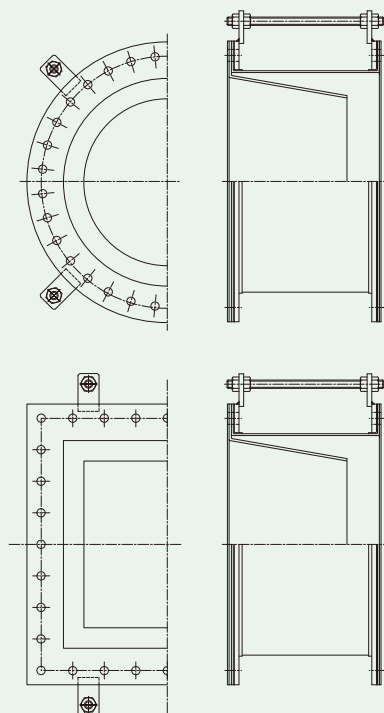
NK-10000 Square Type

These product are used for duct piping.
Fluid: Air, Exhaust Gas

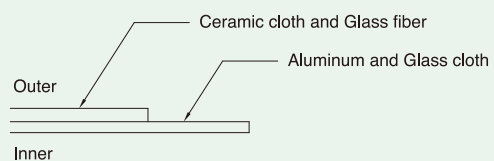


NK-8900 Non Metallic Type

Material: Nylon, PTFE, Synthetic Rubber, Glass Fiber etc.



■ Composition material detail



01

Other Products



Vacuum Fitting

**KF Standard Flange
V-KF-S**

DN: KF10 ~ KF50
Material: SUS(SS)304



**KF Long Flange
V-KF-L**

DN: KF10 ~ KF50
Material: SUS(SS)304



**KF Blind Flange
V-KF-B**

DN: KF10 ~ KF50
Material: SUS(SS)304



**KF Clamp
V-KF-CL**

DN: KF16 ~ KF50
Material: Aluminium



**KF Center Ring
V-KF-P**

DN: KF16 ~ KF50
Material: SUS(SS)304



**KF90° Elbow
V-KF-90EL**

DN: KF10 ~ KF50
Material: SUS(SS)304



**KF Nipple
V-KF-NP**

DN: KF10 ~ KF50
Material: SUS(SS)304



**KF Reducer
V-KF-CR**

Size: 10-25, 16-25, 16-40
25-40, 25-50
Material: SUS(SS)304



**KF Tee
V-KF-TE**

DN: KF10 ~ KF50
Material: SUS(SS)304



**KF Reduce Tee
V-KF-RTE**

Material: SUS(SS)304



**KF SM-KF Conversion Adapter
V-KF-M**

Material: SUS(SS)304



**KF Gauge Port
V-KF-GP**

Material: SUS(SS)304



Corrosion Resistance of Stainless Steel

Organic Matter

Name	SUS(SS)304	SUS(SS)316L
acetic acid	○	○
acetic anhydride	○	○
acetone	○	○
acetylene	○	○
alcohol	○	○
amyl acetate	○	○
aniline	○	○
benzene	○	○
benzoic acid	○	○
butyric acid	○	○
carbon tetrachloride(wet)	×	×
carbon tetrachloride(dry)	○	○
chloroacetic acid	○	○
chloroform	○	○
carbon disulfide	○	○
citric acid	○	○
creosote	○	○
ether	○	○
ethyl acetate	△	△
ethyl chloride	△	△
ethylene glycol	○	○
formaldehyde	△	△
formic acid	△	○
fuel oil	○	○

○: No effect △: Moderate effect ×: Severe effect

Name	SUS(SS)304	SUS(SS)316L
furfural	○	○
gasoline	○	○
glycerine	○	○
hydrogen sulfide(wet)	△	○
hydrogen sulfide(dry)	○	○
kerosene	○	○
methanol	○	○
natural gas	○	○
oleic acid	○	○
oxalic acid	×	△
paraffin	○	○
propane	○	○
rosin	○	○
stearic acid	△	○
tannic acid	○	○
toluene	○	○
trichloroethylene(wet)	×	×
trichloroethylene(dry)	○	○
terebic acid	○	○
varnish	○	○
lactic acid	△	○
linseed oil	○	○
phenol	○	○

Inorganic Matter

Name	SUS(SS)304	SUS(SS)316L
potassium sulfide	△	○
seawater	×	×
silver salts	×	×
bicarbonate of soda	○	○
sodium hydrogen sulfate	△	○
carbonate of soda	○	○
salt	×	×
sodium hydroxide	△	△
sodium nitrate	○	○
sodium silicate	○	○
sodium sulfate	△	○
sodium sulfide	△	○
sodium sulfite	△	○
sodium thiosulfate(hypo)	○	○
steam	○	○
sulfur(dry)	○	○
sulfur(wet)	×	×
sulfurous acid gas(wet)	×	△
sulfurous acid gas(dry)	×	×
sulfuric acid (95%~100%)	○	○
sulfuric acid (80%~95%)	△	△
sulfuric acid (40%~80%)	×	×
water	○	○
zinc chloride	×	×
zinc sulfate	△	○
aluminum chloride	×	×
aluminum hydroxide	○	○
aluminum sulfate	△	○
ammonia(wet)	○	○
ammonia(dry)	○	○
ammonium chloride	×	×
ammonium hydroxide	○	○
ammonium sulfate	○	○
barium carbonate	○	○
barium chloride	×	×
barium hydroxide	○	○
barium sulfate	○	○

Name	SUS(SS)304	SUS(SS)316L
barium sulfide	○	○
borax	○	○
boric acid	○	○
salt water	×	×
bromine	×	×
calcium sulfide	○	○
calcium chloride	×	×
calcium hydroxide	○	○
hypochlorite	×	×
carbon dioxide(wet)	○	○
carbon dioxide(dry)	○	○
carbonated water	○	○
chlorine gas(wet)	×	×
chlorine gas(dry)	×	△
chromic acid	△	△
copper chloride	×	×
copper nitrate	○	○
copper sulfate	○	○
ferric chloride	×	×
ferrous chloride	×	×
ferric sulfate	△	○
ferrous sulfate	△	○
hydrochloric acid	×	×
hydrogen peroxide	○	○
magnesium chloride	×	×
magnesium sulfide	△	○
mercury	○	○
mercury salts	×	×
nitric acid	○	○
nitrogen	○	○
oxygen	○	○
phosphoric acid	×	△
potassium carbonate	○	○
potassium chloride	×	×
potassium cyanide	○	○
potassium hydroxide	△	△



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