MPJOINT

Quick, Simple, and Economical Pipe Joint

주식회사 정우카프링
JEONG WOO COUPLING CO., LTD.

尚府貿易股份有限公司
https://www.sunflexhose.com.tw/

COMPANY HISTORY

1995. Nov	Jeong Woo Coupling Co., Ltd. established (Sasang-gu, Busan)
1997.	First overseas sales to Spain / Taiwan
1999. Apr	Obtained *ISO 9001 (BVQI)*
2000. Sep	Self-certified *CE Mark* (tested by *TUV*)
1997~2000	Obtained *Type Approval* from *ABS, BV, DNV, GL, KR, LR, RINA*
2002. Jun	Obtained *FESC* approval
2002. Jul	Obtained *JWWA* approval
2005. Feb	Moved head office and factory (Sangdong-myeon, Gimhae)
2005. Jul	Registered brand *"MP JOINT"*
2006. Nov	Awarded *"Million Dollar Export Tower"* (*KITA*)
2008. Apr	Produced and delivered *MJFL* (pipe OD 3,615㎜)
2009. Dec	Obtained *ISO 9001:2008* (*BVQI*)
2015. Apr	Joint research with *Waterworks Research Institute* under *The Office of Waterworks Seoul Metropolitan Government - "Development of pipe repair clamp for big size water pipe without outage"*
2015. Jun	Obtained *KC certificate for sanitation and safety* (*KWWA*, now *KIWATEC* in charge)
2018. Jan	Obtained *Conformity Product as water supply materials and products* (*KWWA*, now *KIWATEC* in charge)
2018. Jun	Obtained *ISO 9001:2015* (*German Cert*)
2019. Feb	Awarded *"Certificate of Reliability"* (*KOSHIPA + KOMEA*)
2020. Dec	Obtained *Type Approval* from *NK*

* Intellectual Property
  Korea: patent 4, utility model 5, design 6 / Japan: patent 2 / China: patent 1

* Exporting to 40 countries
  Asia & Oceania: Japan, China, Taiwan, Singapore, Thailand, Vietnam, India, UAE, Australia, etc.
  Europe: Norway, Denmark, Sweden, Netherlands, UK, France, Portugal, Spain, Italy, etc.
  Africa: Sudan, etc.
  America: USA, Brazil, etc.

CERTIFICATION

ISO 9001 | CE Mark EU | ABS USA | BV France | DNV Norway·Germany | LR UK | NK Japan | RINA Italy | Water Korea | Water Japan | Fire Japan

CONTENTS

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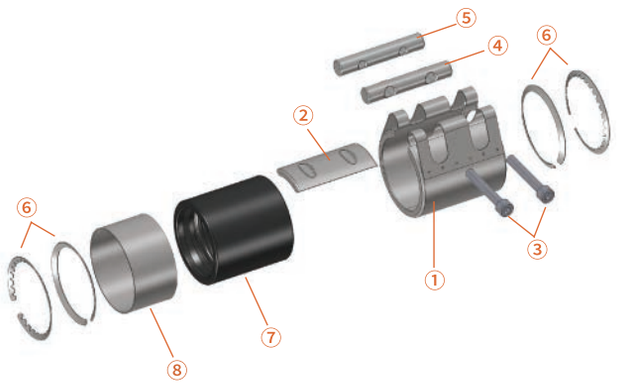
NAME AND MATERIAL OF EACH PART



① **Casing**	**SUS304**, SUS316
② **Slide**	**SUS304**, SUS316
③ **Bolt**	**SUS304**, SUS316, SCM435 galv.
④ **Bar Washer**	**SUS303F**, SUS304, SUS316, S45C galv.
⑤ **Bar Nut**	**SUS303F**, SUS304, SUS316, S45C galv.
⑥ **Grip Ring**	**SUS301H**, SUS304H (grip types only)
⑦ **Gasket**	**EPDM**, **NBR**, Silicone, FKM(Viton)
⑧ **Strip Insert**	**SUS304**, SUS316 (option for straight pipe coupling & clamp)

* SUS = STS = stainless steel

Material and Characteristics of Gasket

EPDM

- Characteristic: aging / weather / ozone / electric resistance
- Temperature: -30 ~ 110℃
- Use: air, oxygen, hydrogen, nitrogen, ammonia gas, water, potable water, black water, sewage, brine, boric acid, methyl alcohol, ammonium hydroxide, ethylene glycol, hydrochloric acid, sodium acetate, acetic acid, glacial acetic acid, propylene glycol, sulfuric acid(~50%), etc. (pH2~11)

NBR

- Characteristic: oil / abrasion / aging resistance
- Temperature: -20 ~ 80℃
- Use: oil & gas (natural gas, LNG, LPG, diesel oil, paraffin, fuel oil, hydraulic oil, lubricating oil, gasoline, butane, etc.), air, oxygen, hydrogen, carbon dioxide, nitrogen, water, potable water, black water, sewage, brine, ethylene, octane, boric acid, methyl alcohol, ethylene glycol, fatty acid, etc. (pH2~11)

Silicone

- Characteristic: heat / cold / weather resistance
- Temperature: -40 ~ 220℃
- Use: high-temperature line / air, oxygen, nitrogen, water, black water, sewage, brine, boric acid, methyl alcohol, ammonium hydroxide, acetic acid, glacial acetic acid, propylene glycol, etc.

FKM/FPM (Viton)

- Characteristic: heat / chemical / medicine resistance
- Temperature: -18 ~ 300℃ (Special Viton: steam ~230℃)
- Use: air, oxygen, hydrogen, carbon dioxide, nitrogen, water, black water, sewage, brine, natural gas, LNG, LPG, diesel oil, paraffin, bunker oil, fuel oil, crude oil, hydraulic oil, lubricating oil, heavy oil, turbine oil, gasoline, naphthalene, benzene, butane, ethylene, octane, cresol, styrene, toluene, propylene, boric acid, ammonium hydroxide, hydrochloric acid, chlorine, ethylene chloride, aqua regia, chlorine dioxide, fatty acid, nitric acid, propylene glycol, sulfuric acid, etc.

※ Gaskets should be selected according to the fluid type, temperature, etc.
※ Users should test the suitability of gaskets under their own operating conditions.

CHARACTERISTICS OF PRODUCT

* Assembly type saves work time.
* Applicable to various pipe materials, even connects pipes of different materials (e.g., steel pipe + PVC pipe).
* Using a (torque) wrench to install eliminates worry about fire.
* No preprocessing is necessary at pipe ends (no groove, no thread, etc.).
* Rubber gaskets accommodate vibration, impact, noise, angular deflection, and gap between pipe ends. This makes couplings seismic design.
* Installation is done on one side. It enables products to be stored or work to be done in a narrow area.
* Stainless steel design is much lighter than cast iron products, reducing the load on pipelines.
* Grip type couplings resist axial movement.
* Slip (flexible) type couplings allow pipe expansion and contraction.
* Repair clamps provide semi-permanent repair with speed and no downtime.
* Couplings can be assembled and disassembled several times.

PIPE COUPLING FOR PIPE CONNECTION

GRIP TYPE


MJG


MJGL


MGLP

SLIP TYPE (FLEXIBLE TYPE)


MJS


MJL

GRIP TYPE FOR FITTINGS

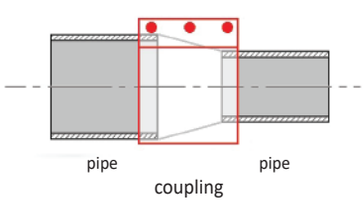

MJET

SLIP TYPE (FLEXIBLE TYPE) 2~4 LOCKS


MJD


MJDL

GRIP TYPE FOR PIPES OF DIFFERENT OD (in development)



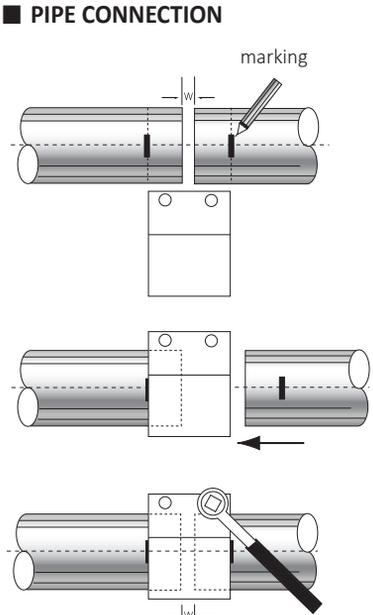
SLIP-GRIP TYPE


MJSG

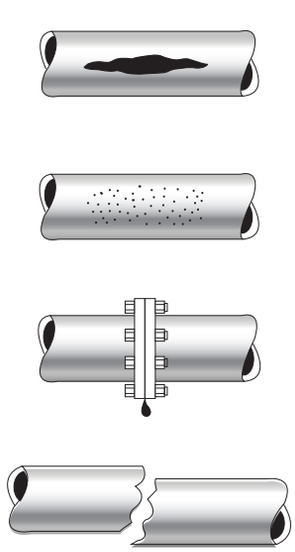

MJSGL

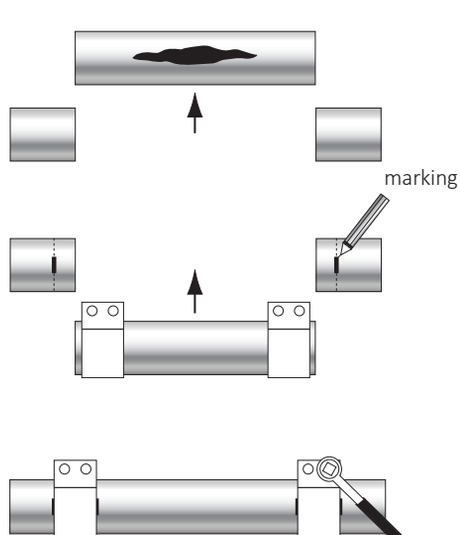
INSTALLATION METHOD

■ PIPE CONNECTION



■ PARTIAL REPLACEMENT





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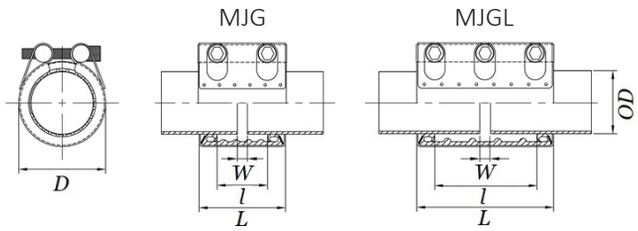
GRIP TYPE COUPLING - FOR MID PRESSURE utility model



Grip Type Coupling is axially restrained - its double grip rings hold pipes tightly and prevent them from moving or separating from each other. This is an economical alternative to conventional piping methods such as welding, flanges, groove joints, unions, etc.

■ MJG 15A~400A / MJGL 15A~300A

Item No.	Pipe OD			D (㎜)	Coupling Range (㎜)	Thick. (㎜)	Working Pressure (bar)		MJG				MJGL			
									Length (㎜)		Torque (Nm)	Bolt (M)	Length (㎜)		Torque (Nm)	Bolt (M)
	ND	inch	actual (㎜)				Ship	Ind.	L	l			L	l		
02	15A	1/2	20.0	33.5	19.5 ~ 20.5	0.8	16	32	60	28	7	6	100	68	7	6
01			**21.7**	35.2	21.2 ~ 22.0	0.8	16	32	60	28	7	6	100	68	7	6
03			22.2	35.7	21.2 ~ 22.5	0.8	16	32	60	28	7	6	100	68	7	6
05	20A	3/4	25.0	38.5	24.5 ~ 25.5	0.8	16	32	60	28	8	8	100	68	8	6
04			**27.2**	40.7	26.7 ~ 27.7	0.8	16	32	60	28	8	8	100	68	8	6
06			28.2	41.6	27.5 ~ 29.0	0.8	16	32	60	28	8	8	100	68	8	6
08	25A	1	30.0	43.5	29.5 ~ 30.5	0.8	16	32	60	28	8	8	100	68	8	8
09			32.0	45.5	31.5 ~ 32.5	0.8	16	32	60	28	8	8	100	68	8	8
07			**34.0**	47.5	33.0 ~ 34.6	0.8	16	32	60	28	8	8	100	68	8	8
N9			35.0	48.5	34.5 ~ 35.5	0.8	16	32	60	28	8	8	100	68	8	8
10	32A	1 1/4	38.0	51.5	37.5 ~ 38.5	0.8	16	32	60	28	15	8	100	68	15	8
13			40.9	54.2	39.5 ~ 41.5	0.8	16	32	60	28	15	8	100	68	15	8
11			**42.7**	56.0	41.9 ~ 43.0	0.8	16	32	60	28	15	8	100	68	15	8
12			44.5	58.0	44.0 ~ 45.0	0.8	16	32	60	28	15	8	100	68	15	8
15	40A	1 1/2	**48.6**	62.0	47.8 ~ 49.0	0.8	16	32	60	28	15	8	100	68	15	8
17			50.8	64.5	49.5 ~ 51.5	0.8	16	32	60	28	15	8	100	68	15	8
18	50A	2	54.0	69.6	53.4 ~ 54.6	1.0	16	32	80	44	18	8	150	110	18	8
19			57.0	72.6	56.4 ~ 57.6	1.0	16	32	80	44	18	8	150	110	18	8
20			**60.5**	76.0	59.0 ~ 61.5	1.0	16	32	80	44	18	8	150	110	18	8
21			63.0	78.6	62.4 ~ 63.6	1.0	16	32	80	44	18	8	150	110	18	8
26	65A	2 1/2	66.7	82.3	65.2 ~ 67.3	1.0	14	28	80	44	18	8	150	110	18	8
25			69.0	84.6	68.0 ~ 70.1	1.0	14	28	80	44	18	8	150	110	18	8
23			73.0	88.6	71.5 ~ 74.1	1.0	14	28	80	44	18	8	150	110	18	8
24			**76.3**	92.0	75.0 ~ 77.2	1.0	14	28	80	44	18	8	150	110	18	8
30	80A	3	79.9	101.0	78.8 ~ 80.8	1.0	14	28	110	59	35	12	200	150	35	12
27			84.0	105.0	83.0 ~ 84.9	1.0	14	28	110	59	35	12	200	150	35	12
28			**89.1**	110.0	87.8 ~ 91.0	1.0	14	28	110	59	35	12	200	150	35	12
32	90A	3 1/2	**101.6**	123.0	100.4 ~ 102.6	1.0	14	28	110	59	35	12	200	150	35	12
34	100A	4	104.0	125.0	103.0 ~ 104.8	1.0	14	28	110	59	35	12	200	150	35	12
37			106.3	127.3	105.0 ~ 107.4	1.0	14	28	110	59	35	12	200	150	35	12
35			108.0	129.0	106.5 ~ 108.5	1.0	14	28	110	59	35	12	200	150	35	12
38			110.0	131.0	108.5 ~ 111.0	1.0	14	28	110	59	35	12	200	150	35	12
36			**114.3**	135.3	113.2 ~ 115.4	1.0	14	28	110	59	35	12	200	150	35	12
Q2	125A	5	125.0	147.0	123.0 ~ 126.0	1.5	14	28	111	59	45	12	201	150	45	12
42			127.0	149.0	125.6 ~ 128.4	1.5	14	28	111	59	45	12	201	150	45	12
43			129.0	151.0	127.5 ~ 130.0	1.5	14	28	111	59	45	12	201	150	45	12
S4			130.2	152.2	128.8 ~ 131.6	1.5	14	28	111	59	45	12	201	150	45	12
39			133.0	155.0	131.6 ~ 134.4	1.5	14	28	111	59	45	12	201	150	45	12
40			**139.8**	162.0	137.7 ~ 140.9	1.5	14	28	111	59	45	12	201	150	45	12
41			141.3	163.3	139.7 ~ 142.5	1.5	14	28	111	59	45	12	201	150	45	12

Item No.	Pipe OD			D (㎜)	Coupling Range (㎜)	Thick. (㎜)	Working Pressure (bar)		MJG				MJGL			
									Length (㎜)		Torque (Nm)	Bolt (M)	Length (㎜)		Torque (Nm)	Bolt (M)
	ND	inch	actual (㎜)				Ship	Ind.	*L*	*l*			*L*	*l*		
49			150.0	172.0	147.5 ~ 151.0	1.5	12	24	111	59	45	12	201	150	45	12
44			154.0	176.0	151.5 ~ 155.0	1.5	12	24	111	59	45	12	201	150	45	12
45	**150A**	**6**	159.0	181.0	156.5 ~ 160.0	1.5	12	24	111	59	45	12	201	150	45	12
46			**165.2**	187.0	163.3 ~ 166.7	1.5	12	24	111	59	45	12	201	150	45	12
47			168.3	190.3	166.6 ~ 170.0	1.5	12	24	111	59	45	12	201	150	45	12
Q6	**175A**	**7**	180.0	202.0	178.0 ~ 182.0	1.5	10	20	111	59	45	12	-	-	-	-
54			200.0	226.6	198.2 ~ 201.5	2.0	8	16	150	89	70	14	-	-	-	-
55	**200A**	**8**	204.0	230.6	202.7 ~ 206.7	2.0	8	16	150	89	70	14	-	-	-	-
51			**216.3**	243.0	214.5 ~ 218.3	2.0	8	16	150	89	70	14	250	185	70	16
52			219.1	245.7	217.0 ~ 221.0	2.0	8	16	150	89	70	14	250	185	70	16
59			254.0	280.6	251.4 ~ 256.6	2.0	8	16	150	89	70	14	-	-	-	-
56	**250A**	**10**	**267.4**	294.0	264.8 ~ 270.0	2.0	8	16	150	89	70	14	250	185	70	16
57			273.1	299.7	270.4 ~ 275.6	2.0	8	16	150	89	70	14	250	185	70	16
66			304.0	330.6	301.5 ~ 306.6	2.0	7	14	150	89	70	14	-	-	-	-
61	**300A**	**12**	**318.5**	345.0	316.0 ~ 322.0	2.0	7	14	150	89	70	14	250	185	70	16
64			323.9	350.5	321.0 ~ 327.4	2.0	7	14	150	89	70	14	250	185	70	16
67	**350A**	**14**	**355.6**	382.2	352.0 ~ 360.0	2.0	7	14	150	89	70	14	-	-	-	-
71	**400A**	**16**	**406.4**	433.0	402.0 ~ 410.0	2.0	6	12	150	89	70	14	-	-	-	-

[Remarks]
D value varies depending on how much bolts are tightened.
Burst pressure ≧ working pressure for ship x safety factor (4)
Burst pressure ≧ working pressure for industry x safety factor (2)

Gap between pipes (W)		Maximum angular deflection	
15A~65A	0~8mm	15A~50A	5°
80A~	0~15mm	65A~175A	4°
		200A~	2°

*** Type of grip ring**

1. Serrated grip ring

2. Plain/Unserrated grip ring

In case of plastic pipes such as PVC or PPR, unserrated grip rings prevent those pipes from being damaged by grip ring's teeth by any chance. (special order)

■ MJGF 65A~400A / MJGFL 65A~300A

MJGF/MJGFL with a thicker casing can withstand higher pressure. (working pressure for ship industry)

ND	**MJGF / MJGFL**	MJG / MJGL
65A~125A	**16bar**	14bar
150A	**16bar**	12bar
175A	**14bar**	10bar
200A	**12bar**	8bar
250A	**10bar**	8bar
300A~350A	**10bar**	7bar
400A	**8bar**	6bar

[Remarks] Burst pressure ≧ working pressure for ship x safety factor (4)

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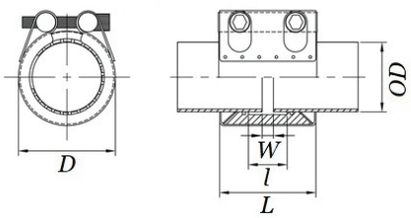
GRIP TYPE COUPLING - FOR LOW PRESSURE

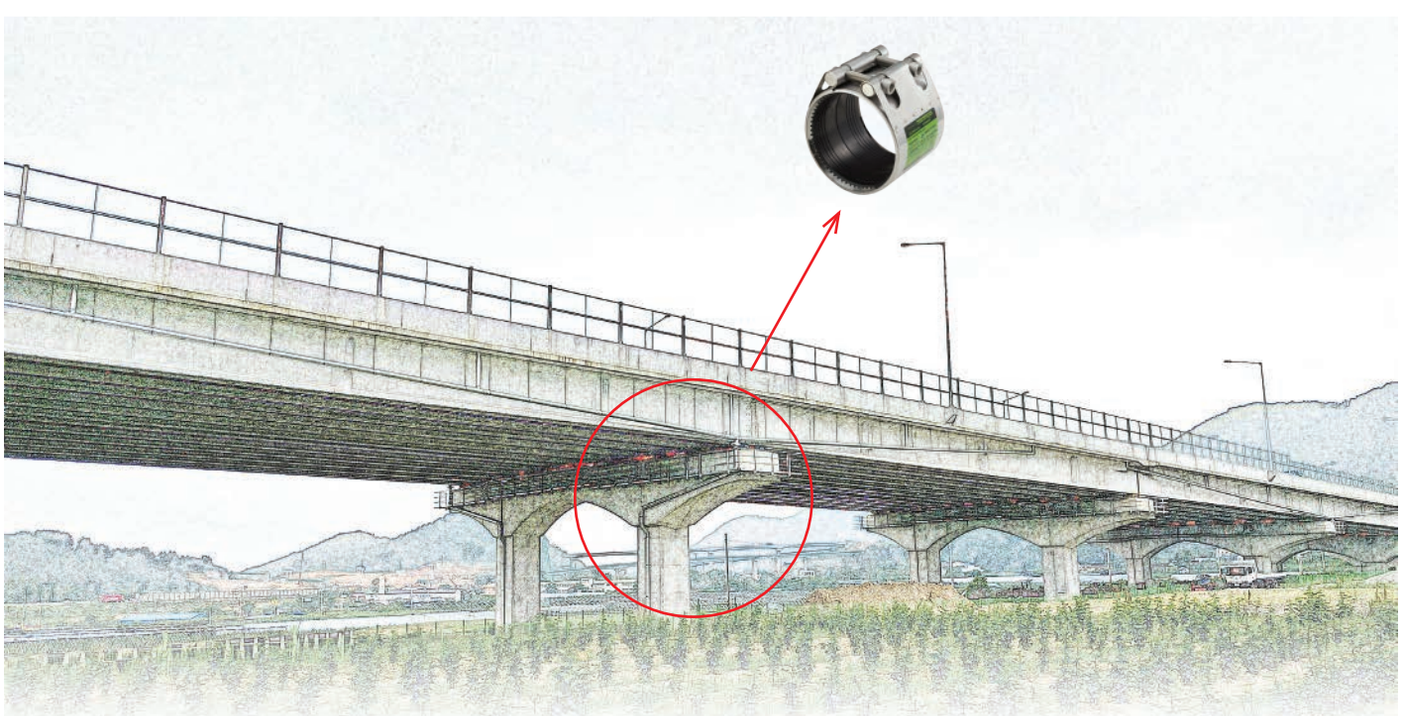


MGLP with a single grip ring and thinner casing and gasket is suitable for low-pressure pipelines (e.g., rainwater pipe) at lower costs.

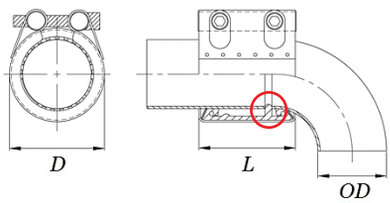
■ MGLP 20A~200A

Item No.	Pipe OD			D (㎜)	Coupling Range (㎜)	Thickness (㎜)	Pressure (bar)		MGLP			
									Length (㎜)		Torque (Nm)	Bolt (M)
	ND	inch	actual (㎜)				Working	Max.	*L*	*l*		
04	**20A**	**3/4**	**27.2**	41.5	26.7 ~ 27.7	0.8	10	20	60	28	5	6
07	**25A**	**1**	**34.0**	47.2	33.0 ~ 34.6	0.8	10	20	60	28	7	6
11	**32A**	**1 1/4**	**42.7**	56.0	41.9 ~ 43.0	0.8	10	20	60	28	7	6
15	**40A**	**1 1/2**	**48.6**	62.4	47.8 ~ 49.0	0.8	10	20	60	28	7	6
20	**50A**	**2**	**60.5**	74.0	59.0 ~ 61.5	1.0	10	20	60	28	7	6
24	**65A**	**2 1/2**	**76.3**	90.5	75.0 ~ 77.2	1.0	10	20	80	44	15	8
28	**80A**	**3**	**89.1**	103.7	87.8 ~ 91.0	1.0	10	20	80	44	15	8
36	**100A**	**4**	**114.3**	128.6	113.2 ~ 115.4	1.0	6	12	110	59	30	12
40	**125A**	**5**	**139.8**	154.8	137.7 ~ 140.9	1.0	6	12	110	59	45	12
46	**150A**	**6**	**165.2**	178.6	163.3 ~ 166.7	1.0	6	12	110	59	45	12
51	**200A**	**8**	**216.3**	232.5	214.5 ~ 218.3	1.5	3	6	111	59	55	12

[Remarks]
D value varies depending on how much bolts are tightened.
Burst pressure ≧ working pressure x safety factor (2)



GRIP TYPE COUPLING - FOR FITTINGS patent



Because elbow/tee is arc-shaped, other methods (groove joint, socket, union, coupling, etc.) need the end of elbow/tee and pipe to be grooved, threaded, or welded for connection.
MJET is the world's first coupling to connect pipe to elbow/tee without such preprocessing.

■ MJET 15A~400A

Item No.	Pipe OD			D (㎜)	Coupling Range (㎜)	Thickness (㎜)	Pressure (bar)		MJET		
	ND	inch	actual (㎜)				Working	Max.	L (㎜)	Torque (Nm)	Bolt (M)
01	**15A**	**1/2**	**21.7**	35.2	21.2 ~ 22.0	0.8	16	64	60	10	6
04	**20A**	**3/4**	**27.2**	40.7	26.7 ~ 27.7	0.8	16	64	60	10	8
07	**25A**	**1**	**34.0**	47.5	33.0 ~ 34.6	0.8	16	64	60	10	8
11	**32A**	**1 1/4**	**42.7**	56.0	41.9 ~ 43.0	0.8	16	64	60	17	8
15	**40A**	**1 1/2**	**48.6**	62.0	47.8 ~ 49.0	0.8	16	64	60	17	8
20	**50A**	**2**	**60.5**	76.0	59.0 ~ 61.5	1.0	16	64	80	20	8
24	**65A**	**2 1/2**	**76.3**	92.0	75.0 ~ 77.2	1.0	14	56	80	20	8
28	**80A**	**3**	**89.1**	110.0	87.8 ~ 91.0	1.0	14	56	110	40	12
32	**90A**	**3 1/2**	**101.6**	123.0	100.4 ~ 102.6	1.0	14	56	110	40	12
36	**100A**	**4**	**114.3**	135.3	113.2 ~ 115.4	1.0	14	56	110	40	12
40	**125A**	**5**	**139.8**	162.0	137.7 ~ 140.9	1.5	14	56	111	55	12
46	**150A**	**6**	**165.2**	187.0	163.3 ~ 166.7	1.5	12	48	111	55	12
51	**200A**	**8**	**216.3**	243.0	214.5 ~ 218.3	2.0	8	32	150	100	14
56	**250A**	**10**	**267.4**	294.0	264.8 ~ 270.0	2.0	8	32	150	100	14
61	**300A**	**12**	**318.5**	345.0	316.0 ~ 322.0	2.0	7	28	150	100	14
67	**350A**	**14**	**355.6**	382.2	352.0 ~ 360.0	2.0	7	28	150	100	14
71	**400A**	**16**	**406.4**	433.0	402.0 ~ 410.0	2.0	6	24	150	100	14

[Remarks]
D value varies depending on how much bolts are tightened.
Burst pressure ≧ working pressure x safety factor (4)

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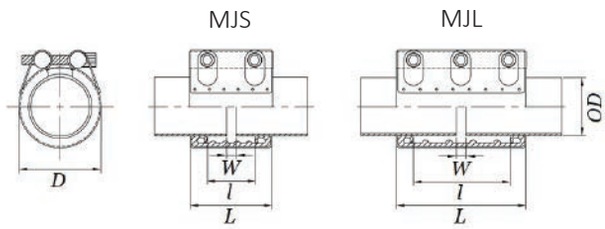
SLIP TYPE COUPLING (FLEXIBLE TYPE)



Slip Type Coupling, without grip rings, is axially non-restrained, which allows thermal expansion and contraction of pipes. Pipes need to be fixed adequately to avoid fall-out caused by axial force.

■ MJS / MJL 15A~600A

Item No.	Pipe OD			D (㎜)	Coupling Range (㎜)	Thick. (㎜)	Working Pressure (bar)		MJS				MJL			
									Length (㎜)		Torque (Nm)	Bolt (M)	Length (㎜)		Torque (Nm)	Bolt (M)
	ND	inch	actual (㎜)				Ship	Ind.	*L*	*l*			*L*	*l*		
02	15A	1/2	20.0	32.0	19.5 ~ 20.5	0.8	16	32	60	28	7	6	100	68	7	6
01			**21.7**	33.7	21.0 ~ 22.0	0.8	16	32	60	28	7	6	100	68	7	6
03			22.2	34.2	21.2 ~ 22.7	0.8	16	32	60	28	7	6	100	68	7	6
05	20A	3/4	25.0	38.1	24.0 ~ 26.0	0.8	16	32	60	28	7	8	100	68	7	6
04			**27.2**	40.3	26.0 ~ 28.0	0.8	16	32	60	28	7	8	100	68	7	6
06			28.2	41.3	26.4 ~ 29.0	0.8	16	32	60	28	7	8	100	68	7	6
08	25A	1	30.0	43.1	29.0 ~ 31.0	0.8	16	32	60	28	7	8	100	68	7	8
09			32.0	45.1	31.0 ~ 33.0	0.8	16	32	60	28	7	8	100	68	7	8
07			**34.0**	47.1	33.0 ~ 35.0	0.8	16	32	60	28	7	8	100	68	7	8
N9			35.0	48.1	34.0 ~ 36.0	0.8	16	32	60	28	7	8	100	68	7	8
10	32A	1 1/4	38.0	51.1	37.0 ~ 39.0	0.8	16	32	60	28	7	8	100	68	7	8
13			40.9	54.0	39.5 ~ 41.5	0.8	16	32	60	28	7	8	100	68	7	8
11			**42.7**	55.8	42.0 ~ 44.0	0.8	16	32	60	28	7	8	100	68	7	8
12			44.5	57.6	44.0 ~ 46.0	0.8	16	32	60	28	7	8	100	68	7	8
15	40A	1 1/2	**48.6**	61.7	47.5 ~ 49.5	0.8	16	32	60	28	7	8	100	68	7	8
17			50.8	63.9	49.2 ~ 51.5	0.8	16	32	60	28	7	8	100	68	7	8
18	50A	2	54.0	70.0	53.0 ~ 55.0	1.0	16	32	80	44	12	8	150	110	12	8
19			57.0	73.0	56.0 ~ 58.0	1.0	16	32	80	44	12	8	150	110	12	8
20			**60.5**	76.5	59.0 ~ 61.5	1.0	16	32	80	44	12	8	150	110	12	8
21			63.0	79.0	62.0 ~ 64.0	1.0	16	32	80	44	12	8	150	110	12	8
26	65A	2 1/2	66.7	82.7	65.4 ~ 68.3	1.0	14	28	80	44	12	8	150	110	12	8
25			69.0	85.0	68.5 ~ 71.0	1.0	14	28	80	44	12	8	150	110	12	8
23			73.0	89.0	72.5 ~ 75.5	1.0	14	28	80	44	12	8	150	110	12	8
24			**76.3**	92.3	75.0 ~ 78.0	1.0	14	28	80	44	12	8	150	110	12	8
30	80A	3	79.9	99.9	78.8 ~ 82.0	1.0	14	28	110	59	15	12	200	150	15	12
27			84.0	104.0	82.5 ~ 85.5	1.0	14	28	110	59	15	12	200	150	15	12
28			**89.1**	109.1	88.0 ~ 91.0	1.0	14	28	110	59	15	12	200	150	15	12
32	90A	3 1/2	**101.6**	121.6	100.0 ~ 103.0	1.0	14	28	110	59	15	12	200	150	15	12
34	100A	4	104.0	124.0	102.0 ~ 105.0	1.0	14	28	110	59	15	12	200	150	15	12
37			106.3	126.3	105.0 ~ 107.5	1.0	14	28	110	59	15	12	200	150	15	12
35			108.0	128.0	106.0 ~ 109.0	1.0	14	28	110	59	15	12	200	150	15	12
38			110.0	130.0	108.5 ~ 111.5	1.0	14	28	110	59	15	12	200	150	15	12
36			**114.3**	134.3	113.0 ~ 116.0	1.0	14	28	110	59	15	12	200	150	15	12
Q2	125A	5	125.0	146.5	123.0 ~ 126.0	1.5	14	28	111	59	25	12	201	150	25	12
42			127.0	148.5	125.0 ~ 129.0	1.5	14	28	111	59	25	12	201	150	25	12
43			129.0	150.5	127.5 ~ 130.0	1.5	14	28	111	59	25	12	201	150	25	12
S4			130.2	151.7	129.0 ~ 131.0	1.5	14	28	111	59	25	12	201	150	25	12
39			133.0	154.5	131.0 ~ 135.0	1.5	14	28	111	59	25	12	201	150	25	12
40			**139.8**	161.3	138.0 ~ 142.0	1.5	14	28	111	59	25	12	201	150	25	12
41			141.3	162.8	139.5 ~ 143.5	1.5	14	28	111	59	25	12	201	150	25	12

Item No.	Pipe OD			D (㎜)	Coupling Range (㎜)	Thick. (㎜)	Working Pressure (bar)		MJS				MJL			
									Length (㎜)		Torque (Nm)	Bolt (M)	Length (㎜)		Torque (Nm)	Bolt (M)
	ND	inch	actual (㎜)				Ship	Ind.	*L*	*l*			*L*	*l*		
49			150.0	171.5	148.0 ~ 152.0	1.5	12	24	111	59	25	12	201	150	25	12
44			154.0	175.5	151.5 ~ 155.5	1.5	12	24	111	59	25	12	201	150	25	12
45	**150A**	**6**	159.0	180.5	156.0 ~ 160.0	1.5	12	24	111	59	25	12	201	150	25	12
46			**165.2**	186.7	164.0 ~ 167.0	1.5	12	24	111	59	25	12	201	150	25	12
47			168.3	189.8	166.0 ~ 170.0	1.5	12	24	111	59	25	12	201	150	25	12
Q6	**175A**	**7**	180.0	201.5	178.0 ~ 182.0	1.5	10	20	111	59	30	12	-	-	-	-
54			200.0	224.5	198.0 ~ 203.0	2.0	8	16	150	89	35	14	250	158	45	16
55	**200A**	**8**	204.0	228.5	202.0 ~ 206.0	2.0	8	16	150	89	35	14	250	158	45	16
51			**216.3**	240.8	214.0 ~ 218.5	2.0	8	16	150	89	35	14	250	185	35	16
52			219.1	243.6	216.5 ~ 221.5	2.0	8	16	150	89	35	14	250	185	35	16
59			254.0	278.5	251.0 ~ 257.0	2.0	8	16	150	89	45	14	250	158	45	16
56	**250A**	**10**	**267.4**	291.9	262.0 ~ 269.0	2.0	8	16	150	89	35	14	250	185	35	16
57			273.1	297.6	270.0 ~ 276.0	2.0	8	16	150	89	35	14	250	185	35	16
66			304.0	328.5	301.5 ~ 308.0	2.0	7	14	150	89	75	14	250	158	75	16
61	**300A**	**12**	**318.5**	343.0	316.0 ~ 322.5	2.0	7	14	150	89	35	14	250	185	35	16
64			323.9	348.4	322.0 ~ 328.0	2.0	7	14	150	89	35	14	250	185	35	16
67	**350A**	**14**	**355.6**	380.1	352.0 ~ 359.5	2.0	7	14	150	89	75	14	250	158	75	16
71	**400A**	**16**	**406.4**	430.9	402.0 ~ 410.0	2.0	6	12	150	89	75	14	250	158	75	16
74	**450A**	**18**	**457.2**	481.7	453.0 ~ 460.0	2.0	6	12	150	89	90	14	250	158	90	16
77	**500A**	**20**	**508.0**	532.5	504.0 ~ 512.0	2.0	5	10	150	89	90	14	250	158	90	16
80	**550A**	**22**	**558.8**	583.3	555.0 ~ 563.0	2.0	4.6	9.2	150	89	90	14	250	158	90	16
83	**600A**	**24**	**609.6**	634.1	605.0 ~ 614.0	2.0	4.2	8.4	150	89	90	14	250	158	90	16

[Remarks]
D value varies depending on how much bolts are tightened.
Burst pressure ≧ working pressure for ship x safety factor (4)
Burst pressure ≧ working pressure for industry x safety factor (2)
Coupling length(*L*) 300mm and 400mm are available for ND200 and over.
MJD, MJDL, etc. (Slip Type- Multi Locks) for over ND600 (page 12~14).

Maximum axial movement for slip type (W)	
15A~175A	5mm
200A~500A	10mm
550A~	15mm

■ MJSF / MJSFL 65A~600A

MJSF/MJSFL with a thicker casing can withstand higher pressure. (working pressure for ship industry)

ND	**MJSF / MJSFL**	MJS / MJL
65A~125A	**16bar**	14bar
150A	**16bar**	12bar
200A	**12bar**	8bar
250A	**10bar**	8bar
300A~350A	**10bar**	7bar

ND	**MJSF / MJSFL**	MJS / MJL
400A	**10bar**	6bar
450A	**9.5bar**	6bar
500A	**7bar**	5bar
550A	**7bar**	4.6bar
600A	**6bar**	4.2bar

[Remarks] Burst pressure ≧ working pressure for ship x safety factor (4)

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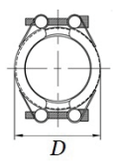
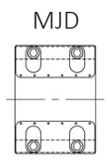
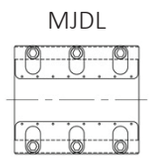
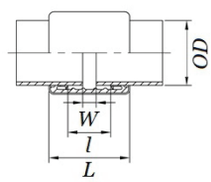
SLIP TYPE COUPLING (FLEXIBLE TYPE) - 2 LOCKS









Slip Type Coupling 2~4 Locks are composed of two, three, or four pieces of casing and a lock part at each end. They have better tightening capabilities and a wider coupling range. They are easy to install even on large diameter pipes. Pipes need to be fixed adequately to avoid fall-out caused by axial force. (3&4 locks on page 14)

■ MJD 13A~1000A / MJDL 15A~1000A

Item No.	Pipe OD			D (㎜)	Coupling Range (㎜)	Thick. (㎜)	Working Pressure (bar)		MJD				MJDL			
									Length (㎜)		Torque (Nm)	Bolt (M)	Length (㎜)		Torque (Nm)	Bolt (M)
	ND	inch	actual(㎜)				Ship	Ind.	*L*	*l*			*L*	*l*		
U2	**13A**		15.8	28.9	14.0 ~ 17.0	0.8	16	32	60	28	7	6	-	-	-	-
02	**15A**	**1/2**	20.0	33.1	19.5 ~ 21.3	0.8	16	32	60	28	7	6	100	68	7	6
01			**21.7**	34.8	21.0 ~ 23.0	0.8	16	32	60	28	7	6	100	68	7	6
05	**20A**	**3/4**	25.0	38.1	24.0 ~ 26.5	0.8	16	32	60	28	7	6	100	68	7	6
04			**27.2**	40.3	26.0 ~ 29.0	0.8	16	32	60	28	7	6	100	68	7	6
06			28.2	41.3	26.4 ~ 29.5	0.8	16	32	60	28	7	6	100	68	7	6
08	**25A**	**1**	30.0	43.1	29.0 ~ 31.5	0.8	16	32	60	28	7	6	100	68	7	6
09			32.0	45.1	31.0 ~ 33.5	0.8	16	32	60	28	7	6	100	68	7	6
07			**34.0**	47.1	33.0 ~ 35.5	0.8	16	32	60	28	7	6	100	68	7	6
10	**32A**	**1 1/4**	38.0	51.1	37.0 ~ 39.5	0.8	16	32	60	28	7	6	100	68	7	6
13			40.9	54.0	39.5 ~ 41.8	0.8	16	32	60	28	7	6	100	68	7	6
11			**42.7**	55.8	41.0 ~ 44.5	0.8	16	32	60	28	7	6	100	68	7	6
12			44.5	57.6	44.0 ~ 46.5	0.8	16	32	60	28	7	6	100	68	7	6
15	**40A**	**1 1/2**	**48.6**	61.7	47.5 ~ 50.5	0.8	16	32	60	28	7	6	100	68	7	6
17			50.8	63.9	48.6 ~ 51.5	0.8	16	32	60	28	7	6	100	68	7	6
18	**50A**	**2**	54.0	70.0	53.0 ~ 56.0	1.0	16	32	80	44	12	8	150	110	12	8
19			57.0	73.0	56.0 ~ 59.0	1.0	16	32	80	44	12	8	150	110	12	8
20			**60.5**	76.5	59.0 ~ 62.0	1.0	16	32	80	44	12	8	150	110	12	8
21			63.0	79.0	62.0 ~ 65.0	1.0	16	32	80	44	12	8	150	110	12	8
26	**65A**	**2 1/2**	66.7	82.7	64.4 ~ 69.0	1.0	14	28	80	44	12	8	150	110	12	8
25			69.0	85.0	67.5 ~ 72.0	1.0	14	28	80	44	12	8	150	110	12	8
23			73.0	89.0	71.5 ~ 76.5	1.0	14	28	80	44	12	8	150	110	12	8
24			**76.3**	92.3	75.0 ~ 79.0	1.0	14	28	80	44	12	8	150	110	12	8
30	**80A**	**3**	79.9	99.9	77.0 ~ 83.0	1.0	14	28	110	59	15	12	200	150	15	12
27			84.0	104.0	81.0 ~ 86.0	1.0	14	28	110	59	15	12	200	150	15	12
28			**89.1**	109.1	86.0 ~ 92.0	1.0	14	28	110	59	15	12	200	150	15	12
32	**90A**	**3 1/2**	**101.6**	121.6	100.0 ~ 104.0	1.0	14	28	110	59	15	12	200	150	15	12
34	**100A**	**4**	104.0	124.0	102.0 ~ 106.0	1.0	14	28	110	59	15	12	200	150	15	12
37			106.3	126.3	105.0 ~ 108.5	1.0	14	28	110	59	15	12	200	150	15	12
35			108.0	128.0	106.0 ~ 110.0	1.0	14	28	110	59	15	12	200	150	15	12
38			110.0	130.0	108.5 ~ 113.5	1.0	14	28	110	59	15	12	200	150	15	12
36			**114.3**	134.3	113.0 ~ 118.0	1.0	14	28	110	59	15	12	200	150	15	12
Q2	**125A**	**5**	125.0	146.5	123.0 ~ 126.5	1.5	14	28	111	59	25	12	201	150	25	12
42			127.0	148.5	125.0 ~ 129.5	1.5	14	28	111	59	25	12	201	150	25	12
43			129.0	150.5	127.5 ~ 131.0	1.5	14	28	111	59	25	12	201	150	25	12
S4			130.2	151.7	128.2 ~ 132.7	1.5	14	28	111	59	25	12	201	150	25	12
39			133.0	154.5	131.0 ~ 135.5	1.5	14	28	111	59	25	12	201	150	25	12
40			**139.8**	161.3	138.0 ~ 142.5	1.5	14	28	111	59	25	12	201	150	25	12
41			141.3	162.8	139.5 ~ 144.0	1.5	14	28	111	59	25	12	201	150	25	12

Item No.	Pipe OD			D (mm)	Coupling Range (mm)	Thick. (mm)	Working Pressure (bar)		MJD				MJDL			
									Length (mm)		Torque (Nm)	Bolt (M)	Length (mm)		Torque (Nm)	Bolt (M)
	ND	inch	actual (mm)				Ship	Ind.	*L*	*l*			*L*	*l*		
49			150.0	171.5	146.8 ~ 152.5	1.5	12	24	111	59	25	12	201	150	25	12
44			154.0	175.5	151.5 ~ 156.0	1.5	12	24	111	59	25	12	201	150	25	12
45	**150A**	**6**	159.0	180.5	156.0 ~ 161.0	1.5	12	24	111	59	25	12	201	150	25	12
46			**165.2**	186.7	164.0 ~ 168.5	1.5	12	24	111	59	25	12	201	150	25	12
47			168.3	189.8	166.0 ~ 170.5	1.5	12	24	111	59	25	12	201	150	25	12
Q6	**175A**	**7**	180.0	201.5	178.0 ~ 183.0	1.5	10	20	111	59	30	12	-	-	-	-
54			200.0	224.5	198.0 ~ 203.5	2.0	8	16	150	89	45	14	250	158	45	16
55	**200A**	**8**	204.0	228.5	202.0 ~ 206.5	2.0	8	16	150	89	45	14	250	158	45	16
51			**216.3**	240.8	214.0 ~ 219.0	2.0	8	16	150	89	45	14	250	185	45	16
52			219.1	243.6	216.5 ~ 222.0	2.0	8	16	150	89	45	14	250	185	45	16
59			254.0	278.5	251.0 ~ 257.0	2.0	8	16	150	89	45	14	250	158	45	16
56	**250A**	**10**	**267.4**	291.9	262.0 ~ 270.0	2.0	8	16	150	89	45	14	250	185	45	16
57			273.1	297.6	270.0 ~ 277.0	2.0	8	16	150	89	45	14	250	185	45	16
66			304.0	328.5	301.5 ~ 309.0	2.0	7	14	150	89	75	14	250	158	75	16
61	**300A**	**12**	**318.5**	343.0	316.0 ~ 323.0	2.0	7	14	150	89	75	14	250	185	75	16
64			323.9	348.4	322.0 ~ 329.0	2.0	7	14	150	89	75	14	250	185	75	16
67	**350A**	**14**	**355.6**	380.1	352.0 ~ 361.0	2.0	7	14	150	89	75	14	250	158	75	16
71	**400A**	**16**	**406.4**	430.9	402.0 ~ 411.0	2.0	6	12	150	89	75	14	250	158	75	16
74	**450A**	**18**	**457.2**	481.7	453.0 ~ 462.0	2.0	6	12	150	89	90	14	250	158	90	16
77	**500A**	**20**	**508.0**	532.5	504.0 ~ 513.0	2.0	5	10	150	89	90	14	250	158	90	16
80	**550A**	**22**	**558.8**	583.3	554.0 ~ 564.0	2.0	4.6	9.2	150	89	90	14	250	158	90	16
83	**600A**	**24**	**609.6**	634.1	605.0 ~ 615.0	2.0	4.2	8.4	150	89	90	14	250	158	90	16
86	650A	26	660.4	684.9	654.0 ~ 666.0	2.0	4.0	8.0	150	89	90	14	250	158	90	16
88	700A	28	711.2	735.7	705.0 ~ 717.0	2.0	3.7	7.4	150	89	90	14	250	158	90	16
91	750A	30	762.0	786.5	756.0 ~ 768.0	2.0	3.6	7.2	150	89	90	14	250	158	90	16
93	800A	32	812.8	837.3	806.0 ~ 818.0	2.0	3.4	6.8	150	89	90	14	250	158	90	16
96	850A	34	863.6	888.1	857.0 ~ 869.0	2.0	3.2	6.4	150	89	90	14	250	158	90	16
98	900A	36	914.4	938.9	908.0 ~ 920.0	2.0	3.0	6.0	150	89	90	14	250	158	90	16
L1	1000A	40	1016.0	1040.5	1010.0 ~ 1022.0	2.0	2.7	5.4	150	89	90	14	250	158	90	16

[Remarks]
D value varies depending on how much bolts are tightened.
Burst pressure ≧ working pressure for ship x safety factor (4)
Burst pressure ≧ working pressure for industry x safety factor (2)
Coupling length(*L*) 300mm and 400mm are available for ND200 and over.
MJT, MJTL, MJF, MJFL (Slip Type 3&4 Locks) for over ND1000 (page 14).
Slip Type 2~4 Locks can be used for both connection and leakage repair. Gasket is circular for connection, while it is cut for leakage repair (page 22~24).

Maximum axial movement for slip type (W)	
15A~175A	5mm
200A~500A	10mm
550A~	15mm

■ MJDF / MJDFL 65A~1000A

MJDF/MJDFL with a thicker casing can withstand higher pressure. (working pressure for general industry)

ND	MJDF / MJDFL	MJD / MJDL	ND	MJDF / MJDFL	MJD / MJDL	ND	MJDF / MJDFL	MJD / MJDL
65A~125A	**32bar**	28bar	400A	**20bar**	12bar	700A	**11bar**	7.4bar
150A	**32bar**	24bar	450A	**19bar**	12bar	750A	**10.5bar**	7.2bar
175A	**28bar**	20bar	500A	**14bar**	10bar	800A	**10.0bar**	6.8bar
200A	**24bar**	16bar	550A	**14bar**	9.2bar	850A	**9.3bar**	6.4bar
250A	**20bar**	16bar	600A	**12bar**	8.4bar	900A	**8.8bar**	6.0bar
300A~350A	**20bar**	14bar	650A	**12bar**	8.0bar	1000A	**8.0bar**	5.4bar

[Remarks] Burst pressure ≧ working pressure for industry x safety factor (2)

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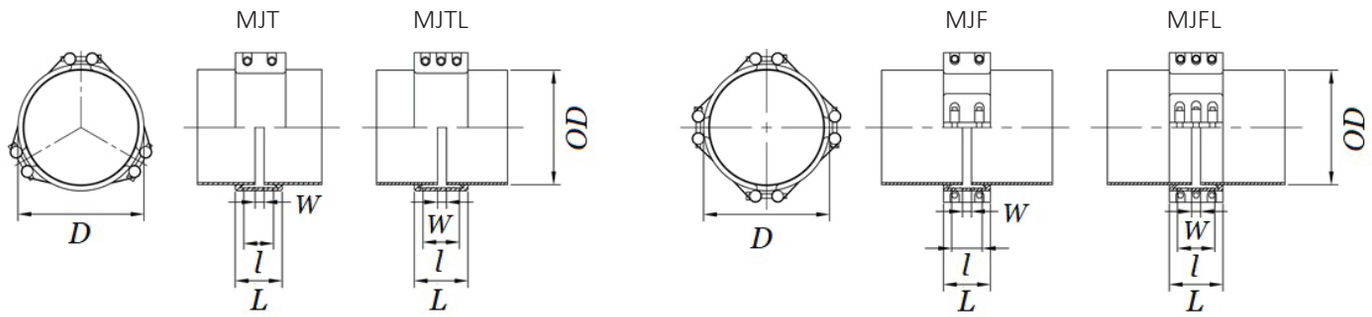
SLIP TYPE COUPLING (FLEXIBLE TYPE) - 3&4 LOCKS



■ MJT / MJTL 1100A~1500A

Item No.	Pipe OD			D (㎜)	Coupling Range (㎜)	Thick. (㎜)	Pressure (bar)		MJT				MJTL			
									Length (㎜)		Torque (Nm)	Bolt (M)	Length (㎜)		Torque (Nm)	Bolt (M)
	ND	inch	actual (㎜)				Working	Max.	*L*	*l*			*L*	*l*		
L6	1100A	44	1117.6	1142.1	1111.0 ~ 1123.0	2.0	5.0	10.0	150	89	90	14	250	158	90	16
L8	1200A	48	1219.2	1243.7	1213.0 ~ 1225.0	2.0	4.6	9.2								
M1	1300A	52	1320.8	1345.3	1316.0 ~ 1325.0	2.0	4.2	8.4								
L0	1350A	54	1371.6	1396.1	1365.0 ~ 1377.0	2.0	4.0	8.0								
T9	1400A	56	1422.4	1446.9	1418.0 ~ 1427.0	2.0	3.8	7.6								
M2	1500A	60	1524.0	1548.5	1518.0 ~ 1530.0	2.0	3.6	7.2								

■ MJF / MJFL 1600A~4000A

Item No.	Pipe OD			D (㎜)	Coupling Range (㎜)	Thick. (㎜)	Pressure (bar)		MJF				MJFL			
									Length (㎜)		Torque (Nm)	Bolt (M)	Length (㎜)		Torque (Nm)	Bolt (M)
	ND	inch	actual (㎜)				Working	Max.	*L*	*l*			*L*	*l*		
M5	1600A	64	1625.6	1650.1	1621.0 ~ 1631.0	2.0	3.4	6.8	150	89	90	14	250	158	90	16
M7	1650A	66	1676.4	1700.9	1672.0 ~ 1682.0	2.0	3.2	6.4								
M8	1700A	68	1727.2	1751.7	1722.0 ~ 1732.0	2.0	3.2	6.4								
M9	1800A	72	1828.8	1853.3	1822.0 ~ 1834.0	2.0	3.0	6.0								
N1	1900A	76	1930.4	1954.9	1924.0 ~ 1936.0	2.0	2.8	5.6								
N3	2000A	80	2032.0	2056.5	2026.0 ~ 2038.0	2.0	2.6	5.2								

[Remarks]
D value varies depending on how much bolts are tightened.
Burst pressure ≧ working pressure x safety factor (2)
Coupling length(*L*) 300mm and 400mm are available.
Big size couplings up to ND4000 are available.

Maximum axial movement for slip type (W)	
15A~175A	5mm
200A~500A	10mm
550A~	15mm

■ MJTF / MJTFL 1100A~1500A

ND	MJTF / MJTFL	MJT / MJTL
1100A	**7.2bar**	5.0bar
1200A	**6.8bar**	4.6bar
1300A	**6.2bar**	4.2bar
1350A	**6.0bar**	4.0bar
1400A	**5.8bar**	3.8bar
1500A	**5.4bar**	3.6bar

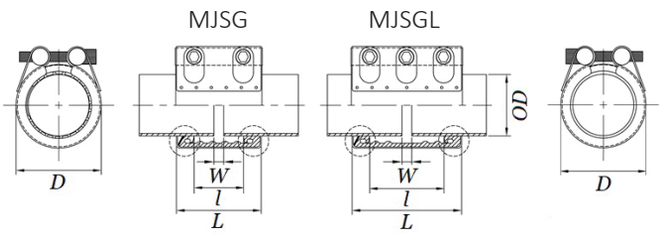
■ MJFF / MJFFL 1600A~4000A

ND	MJFF / MJFFL	MJF / MJFL
1600A	**5.0bar**	3.4bar
1650A	**4.8bar**	3.2bar
1700A	**4.6bar**	3.2bar
1800A	**4.4bar**	3.0bar
1900A	**4.2bar**	2.8bar
2000A	**4.0bar**	2.6bar

MJTF/MJTFL, MJFF/MJFFL with a thicker casing can withstand higher pressure.

[Remarks] Burst pressure ≧ working pressure x safety factor (2)
Big size couplings up to ND4000 are available.

SLIP-GRIP TYPE COUPLING utility model



Slip-Grip Type Coupling is a combination of slip type and grip type. The grip rings hold a pipe tightly at one side. The slip part on the other side allows pipe expansion and contraction. Pipes need to be fixed adequately to avoid fall-out caused by axial force.

■ MJSG 15A~400A / MJSGL 15A~300A

Item No.	Pipe OD			D (mm)	Coupling Range (mm)	Thick. (mm)	Working Pressure (bar)		MJSG				MJSGL			
									Length (mm)		Torque (Nm)	Bolt (M)	Length (mm)		Torque (Nm)	Bolt (M)
	ND	inch	actual (mm)				Ship	Ind.	L	l			L	l		
02			20.0	33.5	19.5 ~ 20.5	0.8	16	32	60	28	7	6	100	68	7	6
01	**15A**	**1/2**	**21.7**	35.2	21.2 ~ 22.0	0.8	16	32	60	28	7	6	100	68	7	6
03			22.2	35.7	21.2 ~ 22.5	0.8	16	32	60	28	7	6	100	68	7	6
05			25.0	38.5	24.5 ~ 25.5	0.8	16	32	60	28	8	8	100	68	7	6
04	**20A**	**3/4**	**27.2**	40.7	26.7 ~ 27.7	0.8	16	32	60	28	8	8	100	68	7	6
06			28.2	41.6	27.5 ~ 29.0	0.8	16	32	60	28	8	8	100	68	7	6
08			30.0	43.5	29.5 ~ 30.5	0.8	16	32	60	28	8	8	100	68	8	8
09	**25A**	**1**	32.0	45.5	31.5 ~ 32.5	0.8	16	32	60	28	8	8	100	68	8	8
07			**34.0**	47.5	33.0 ~ 34.6	0.8	16	32	60	28	8	8	100	68	8	8
N9			35.0	48.5	34.5 ~ 35.5	0.8	16	32	60	28	8	8	100	68	8	8
10			38.0	51.5	37.5 ~ 38.5	0.8	16	32	60	28	10	8	100	68	12	8
13	**32A**	**1 1/4**	40.9	54.2	39.5 ~ 41.5	0.8	16	32	60	28	10	8	100	68	12	8
11			**42.7**	56.0	41.9 ~ 43.0	0.8	16	32	60	28	10	8	100	68	12	8
12			44.5	58.0	44.0 ~ 45.0	0.8	16	32	60	28	10	8	100	68	12	8
15	**40A**	**1 1/2**	**48.6**	62.0	47.8 ~ 49.0	0.8	16	32	60	28	10	8	100	68	12	8
17			50.8	64.5	49.5 ~ 51.5	0.8	16	32	60	28	10	8	100	68	12	8
18			54.0	69.6	53.4 ~ 54.6	1.0	16	32	80	44	15	8	150	110	15	8
19	**50A**	**2**	57.0	72.6	56.4 ~ 57.6	1.0	16	32	80	44	15	8	150	110	15	8
20			**60.5**	76.0	59.0 ~ 61.5	1.0	16	32	80	44	15	8	150	110	15	8
21			63.0	78.6	62.4 ~ 63.6	1.0	16	32	80	44	15	8	150	110	15	8
26			66.7	82.3	65.2 ~ 67.3	1.0	14	28	80	44	15	8	150	110	15	8
25	**65A**	**2 1/2**	69.0	84.6	68.0 ~ 70.1	1.0	14	28	80	44	15	8	150	110	15	8
23			73.0	88.6	71.5 ~ 74.1	1.0	14	28	80	44	15	8	150	110	15	8
24			**76.3**	92.0	75.0 ~ 77.2	1.0	14	28	80	44	15	8	150	110	15	8
30			79.9	101.0	78.8 ~ 80.8	1.0	14	28	110	59	20	12	200	150	20	12
27	**80A**	**3**	84.0	105.0	83.0 ~ 84.9	1.0	14	28	110	59	20	12	200	150	20	12
28			**89.1**	110.0	87.8 ~ 91.0	1.0	14	28	110	59	20	12	200	150	20	12
32	**90A**	**3 1/2**	**101.6**	123.0	100.4 ~ 102.6	1.0	14	28	110	59	20	12	200	150	20	12
34			104.0	125.0	103.0 ~ 104.8	1.0	14	28	110	59	20	12	200	150	20	12
37			106.3	127.3	105.0 ~ 107.4	1.0	14	28	110	59	20	12	200	150	20	12
35	**100A**	**4**	108.0	129.0	106.5 ~ 108.5	1.0	14	28	110	59	20	12	200	150	20	12
38			110.0	131.0	108.5 ~ 111.0	1.0	14	28	110	59	20	12	200	150	20	12
36			**114.3**	135.3	113.2 ~ 115.4	1.0	14	28	110	59	20	12	200	150	20	12
Q2			125.0	147.0	123.0 ~ 126.0	1.5	14	28	111	59	30	12	201	150	30	12
42			127.0	149.0	125.6 ~ 128.4	1.5	14	28	111	59	30	12	201	150	30	12
43			129.0	151.0	127.5 ~ 130.0	1.5	14	28	111	59	30	12	201	150	30	12
S4	**125A**	**5**	130.2	152.2	128.8 ~ 131.6	1.5	14	28	111	59	30	12	201	150	30	12
39			133.0	155.0	131.6 ~ 134.4	1.5	14	28	111	59	30	12	201	150	30	12
40			**139.8**	162.0	137.7 ~ 140.9	1.5	14	28	111	59	30	12	201	150	30	12
41			141.3	163.3	139.7 ~ 142.5	1.5	14	28	111	59	30	12	201	150	30	12

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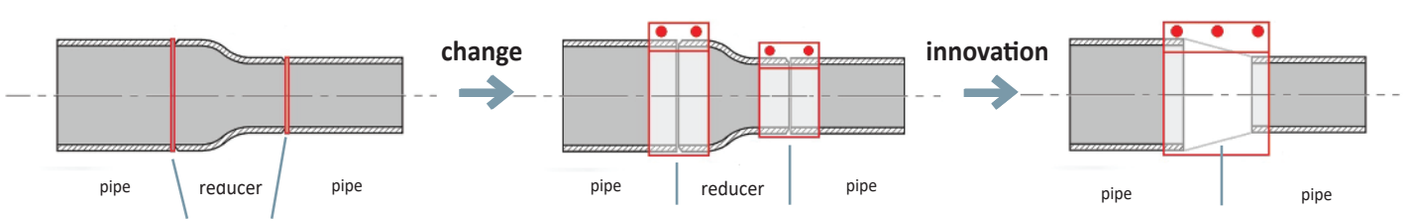
Item No.	Pipe OD			D (㎜)	Coupling Range (㎜)	Thick. (㎜)	Working Pressure (bar)		MJSG				MJSGL			
									Length (㎜)		Torque (Nm)	Bolt (M)	Length (㎜)		Torque (Nm)	Bolt (M)
	ND	inch	actual (㎜)				Ship	Ind.	L	l			L	l		
49			150.0	172.0	147.5 ~ 151.0	1.5	12	24	111	59	30	12	201	150	30	12
44			154.0	176.0	151.5 ~ 155.0	1.5	12	24	111	59	30	12	201	150	30	12
45	**150A**	**6**	159.0	181.0	156.5 ~ 160.0	1.5	12	24	111	59	30	12	201	150	30	12
46			**165.2**	187.0	163.3 ~ 166.7	1.5	12	24	111	59	30	12	201	150	30	12
47			168.3	190.3	166.6 ~ 170.0	1.5	12	24	111	59	30	12	201	150	30	12
Q6	**175A**	**7**	180.0	202.0	178.0 ~ 182.0	1.5	10	20	111	59	30	12	-	-	-	-
54			200.0	226.6	198.2 ~ 201.5	2.0	8	16	150	89	60	14	-	-	-	-
55	**200A**	**8**	204.0	230.6	202.7 ~ 206.7	2.0	8	16	150	89	60	14	-	-	-	-
51			**216.3**	243.0	214.5 ~ 218.3	2.0	8	16	150	89	60	14	250	185	70	16
52			219.1	245.7	217.0 ~ 221.0	2.0	8	16	150	89	60	14	250	185	70	16
59			254.0	280.6	251.4 ~ 256.6	2.0	8	16	150	89	60	14	-	-	-	-
56	**250A**	**10**	**267.4**	294.0	264.8 ~ 270.0	2.0	8	16	150	89	60	14	250	185	70	16
57			273.1	299.7	270.4 ~ 275.6	2.0	8	16	150	89	60	14	250	185	70	16
66			304.0	330.6	301.5 ~ 306.6	2.0	7	14	150	89	60	14	-	-	-	-
61	**300A**	**12**	**318.5**	345.0	316.0 ~ 322.0	2.0	7	14	150	89	60	14	250	185	70	16
64			323.9	350.5	321.0 ~ 327.4	2.0	7	14	150	89	60	14	250	185	70	16
67	**350A**	**14**	**355.6**	382.2	352.0 ~ 360.0	2.0	7	14	150	89	60	14	-	-	-	-
71	**400A**	**16**	**406.4**	433.0	402.0 ~ 410.0	2.0	6	12	150	89	60	14	-	-	-	-

[Remarks]
D value varies depending on how much bolts are tightened.
Burst pressure ≧ working pressure for ship x safety factor (4)
Burst pressure ≧ working pressure for industry x safety factor (2)

GRIP TYPE COUPLING - FOR PIPES OF DIFFERENT OD design

Two pipes of different OD can be connected without a reducer. (in development)

■ 25Ax15A ~ 200Ax150A



welding
reducer x 1
welding x 2

coupling for straight pipe
reducer x 1
coupling x 2

this developed coupling
coupling x 1

Developed sizes

ND	Working Pressure	Max. Pressure
32A x 20A	13bar	52bar
50A x 32A	13bar	52bar
100A x 50A	13bar	52bar

ND	Working Pressure	Max. Pressure
150A x 80A	13bar	52bar
200A x 80A	10bar	40bar

[Remarks] Burst pressure ≧ working pressure x safety factor (4)

REPAIR CLAMP FOR LEAKAGE REPAIR

HINGE TYPE - BOLT INSERTING

MJH

MJHL

HINGE TYPE - BOLT ROTATING

MJHT

MULTI LOCKS TYPE 2~4 LOCKS

MJD

MJDL

SINGLE LOCK TYPE

MJR

MJRL

ELBOW REPAIR

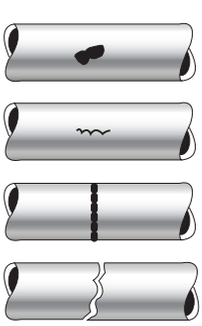
MJER

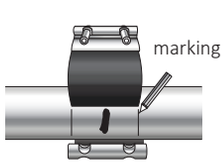
SOCKET REPAIR

MJCX

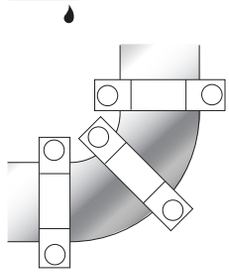
INSTALLATION METHOD

■ STRAIGHT PIPE REPAIR

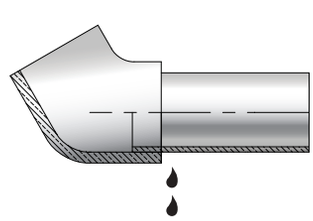


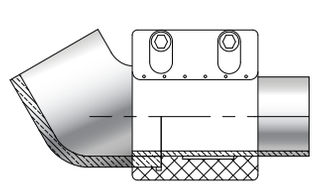


■ ELBOW REPAIR / WELD PROTECTION & REPAIR



■ SOCKET REPAIR





※ The damaged area of pipeline should be smaller than gasket's "*l*" value. If bigger than "*l*", the solution is to do a "partial replacement of pipe" using pipe coupling 2 pcs (refer to page 5).

※ For repair clamp to be wrapped around the damaged area, its casing opens and gasket is cut.

※ For installation, do not overlap the ends of gasket, but face them.

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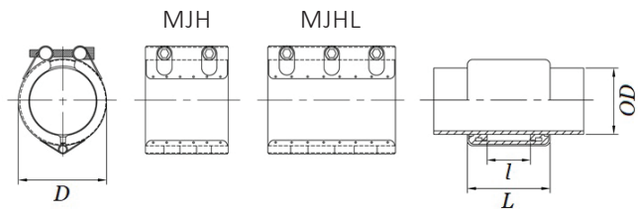
HINGE TYPE CLAMP - BOLT INSERTING



With hinge on the opposite side of lock part, you can easily and quickly open clamp and cover up the leaking area of pipes.

■ MJH 13A~600A / MJHL 25A~500A

Item No.	Pipe OD			D (㎜)	Clamping Range (㎜)	Thick. (㎜)	Working Pressure (bar)		MJH				MJHL			
									Length (㎜)		Torque (Nm)	Bolt (M)	Length (㎜)		Torque (Nm)	Bolt (M)
	ND	inch	actual (㎜)				Ship	Ind.	*L*	*l*			*L*	*l*		
U2	**13A**		15.8	28.9	14.0 ~ 16.5	0.8	16	32	60	28	7	6	-	-	-	-
02	**15A**	**1/2**	20.0	33.1	19.5 ~ 20.5	0.8	16	32	60	28	7	6	-	-	-	-
01			**21.7**	34.8	21.0 ~ 23.0	0.8	16	32	60	28	7	6	-	-	-	-
05	**20A**	**3/4**	25.0	38.1	24.0 ~ 26.0	0.8	16	32	60	28	7	6	-	-	-	-
04			**27.2**	40.3	26.0 ~ 28.0	0.8	16	32	60	28	7	6	-	-	-	-
06			28.2	41.3	26.4 ~ 29.0	0.8	16	32	60	28	7	6	-	-	-	-
08	**25A**	**1**	30.0	43.1	29.0 ~ 31.0	0.8	16	32	60	28	7	6	100	68	7	6
09			32.0	45.1	31.0 ~ 33.0	0.8	16	32	60	28	7	6	100	68	7	6
07			**34.0**	47.1	33.0 ~ 35.0	0.8	16	32	60	28	7	6	100	68	7	6
N9			35.0	48.1	34.0 ~ 36.0	0.8	16	32	60	28	7	6	100	68	7	6
10	**32A**	**1 1/4**	38.0	51.1	37.0 ~ 39.0	0.8	16	32	60	28	7	8	100	68	7	6
13			40.9	54.0	39.5 ~ 41.5	0.8	16	32	60	28	7	8	100	68	7	6
11			**42.7**	55.8	42.0 ~ 44.0	0.8	16	32	60	28	7	8	100	68	7	6
12			44.5	57.6	44.0 ~ 46.0	0.8	16	32	60	28	7	8	100	68	7	6
15	**40A**	**1 1/2**	**48.6**	61.7	47.5 ~ 49.5	0.8	16	32	60	28	7	8	100	68	7	6
17			50.8	63.9	49.2 ~ 51.5	0.8	16	32	60	28	7	8	100	68	7	6
18	**50A**	**2**	54.0	70.0	53.0 ~ 55.0	1.0	16	32	80	44	12	8	150	110	12	8
19			57.0	73.0	56.0 ~ 58.0	1.0	16	32	80	44	12	8	150	110	12	8
20			**60.5**	76.5	59.0 ~ 61.5	1.0	16	32	80	44	12	8	150	110	12	8
21			63.0	79.0	62.0 ~ 64.0	1.0	16	32	80	44	12	8	150	110	12	8
26	**65A**	**2 1/2**	66.7	82.7	65.4 ~ 68.3	1.0	14	28	80	44	12	8	150	110	12	8
25			69.0	85.0	68.5 ~ 71.0	1.0	14	28	80	44	12	8	150	110	12	8
23			73.0	89.0	72.5 ~ 75.5	1.0	14	28	80	44	12	8	150	110	12	8
24			**76.3**	92.3	75.0 ~ 78.0	1.0	14	28	80	44	12	8	150	110	12	8
30	**80A**	**3**	79.9	99.9	78.8 ~ 82.0	1.0	14	28	110	59	30	12	200	150	30	12
27			84.0	104.0	82.5 ~ 85.5	1.0	14	28	110	59	30	12	200	150	30	12
28			**89.1**	109.1	88.0 ~ 91.0	1.0	14	28	110	59	30	12	200	150	30	12
32	**90A**	**3 1/2**	**101.6**	121.6	100.0 ~ 103.0	1.0	14	28	110	59	30	12	200	150	30	12
34	**100A**	**4**	104.0	124.0	102.0 ~ 105.0	1.0	14	28	110	59	40	12	200	150	40	12
37			106.3	126.3	105.0 ~ 107.5	1.0	14	28	110	59	40	12	200	150	40	12
35			108.0	128.0	106.0 ~ 109.0	1.0	14	28	110	59	40	12	200	150	40	12
38			110.0	130.0	108.5 ~ 111.5	1.0	14	28	110	59	40	12	200	150	40	12
36			**114.3**	134.3	113.0 ~ 116.0	1.0	14	28	110	59	40	12	200	150	40	12
Q2	**125A**	**5**	125.0	146.5	123.0 ~ 126.0	1.5	14	28	111	59	40	12	201	150	40	12
42			127.0	148.5	125.0 ~ 129.0	1.5	14	28	111	59	40	12	201	150	40	12
43			129.0	150.5	127.5 ~ 130.0	1.5	14	28	111	59	40	12	201	150	40	12
S4			130.2	151.7	129.0 ~ 131.0	1.5	14	28	111	59	40	12	201	150	40	12
39			133.0	154.5	131.0 ~ 135.0	1.5	14	28	111	59	40	12	201	150	40	12
40			**139.8**	161.3	138.0 ~ 142.0	1.5	14	28	111	59	40	12	201	150	40	12
41			141.3	162.8	139.5 ~ 143.5	1.5	14	28	111	59	40	12	201	150	40	12

Item No.	Pipe OD			D (mm)	Clamping Range (mm)	Thick. (mm)	Working Pressure (bar)		MJH				MJHL			
									Length (mm)		Torque (Nm)	Bolt (M)	Length (mm)		Torque (Nm)	Bolt (M)
	ND	inch	actual (mm)				Ship	Ind.	*L*	*l*			*L*	*l*		
49			150.0	171.5	148.0 ~ 152.0	1.5	12	24	111	59	40	12	201	150	40	12
44			154.0	175.5	151.5 ~ 155.5	1.5	12	24	111	59	40	12	201	150	40	12
45	**150A**	**6**	159.0	180.5	156.0 ~ 160.0	1.5	12	24	111	59	40	12	201	150	40	12
46			**165.2**	186.7	164.0 ~ 167.0	1.5	12	24	111	59	40	12	201	150	40	12
47			168.3	189.8	166.0 ~ 170.0	1.5	12	24	111	59	40	12	201	150	40	12
Q6	**175A**	**7**	180.0	201.5	178.0 ~ 182.0	1.5	10	20	111	59	45	12	-	-	-	-
54			200.0	224.5	198.0 ~ 203.0	2.0	8	16	150	89	60	14	250	158	60	16
55	**200A**	**8**	204.0	228.5	202.0 ~ 206.0	2.0	8	16	150	89	60	14	250	158	60	16
51			**216.3**	240.8	214.0 ~ 218.5	2.0	8	16	150	89	60	14	250	158	60	16
52			219.1	**243.6**	216.5 ~ 221.5	2.0	8	16	150	89	60	14	250	158	60	16
59			254.0	278.5	251.0 ~ 257.0	2.0	8	16	150	89	60	14	250	158	60	16
56	**250A**	**10**	**267.4**	291.9	262.0 ~ 269.0	2.0	8	16	150	89	60	14	250	158	60	16
57			273.1	297.6	270.0 ~ 276.0	2.0	8	16	150	89	60	14	250	158	60	16
66			304.0	328.5	301.5 ~ 308.0	2.0	7	14	150	89	60	14	250	158	60	16
61	**300A**	**12**	**318.5**	343.0	316.0 ~ 322.5	2.0	7	14	150	89	60	14	250	158	60	16
64			323.9	348.4	322.0 ~ 328.0	2.0	7	14	150	89	60	14	250	158	60	16
67	**350A**	**14**	**355.6**	380.1	352.0 ~ 359.5	2.0	7	14	150	89	75	14	250	158	75	16
71	**400A**	**16**	**406.4**	430.9	402.0 ~ 410.0	2.0	6	12	150	89	75	14	250	158	75	16
74	**450A**	**18**	**457.2**	481.7	453.0 ~ 460.0	2.0	6	12	150	89	90	14	250	158	90	16
77	**500A**	**20**	**508.0**	532.5	504.0 ~ 512.0	2.0	5	10	150	89	90	14	250	158	90	16
80	**550A**	**22**	**558.8**	583.3	555.0 ~ 563.0	2.0	4.6	9.2	150	89	90	14	-	-	-	-
83	**600A**	**24**	**609.6**	634.1	605.0 ~ 614.0	2.0	4.2	8.4	150	89	90	14	-	-	-	-

[Remarks]

D value varies depending on how much bolts are tightened.

Burst pressure ≧ working pressure for ship x safety factor (4)

Burst pressure ≧ working pressure for industry x safety factor (2)

MJD, MJT, MJF (Multi-Locks Type) for over ND600, instead of MJH (page 22~24).

MJDL, MJTL, MJFL (Multi-Locks Long Type) for over ND500, instead of MJHL (page 22~24).

MJDF, MJDFL (Multi-Locks Force Type) for higher pressure (page 23).

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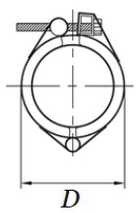
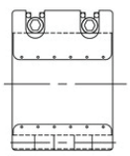
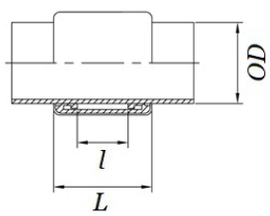
HINGE TYPE CLAMP - BOLT ROTATING patent







This is the improved version of MJH. You can lock up clamp by simply ① swiveling bolt, the end of which is already inserted into bar nut, ② putting it onto bar washer, and ③ bolting up. The process is very simple and reduces working time compared to MJH or other types.

■ MJHT 15A~600A

Item No.	Pipe OD			D (㎜)	Clamping Range (㎜)	Thickness (㎜)	Working Pressure (bar)		MJHT			
									Length (㎜)		Torque (Nm)	Bolt (M)
	ND	inch	actual (㎜)				Ship	Industry	*L*	*l*		
01	**15A**	**1/2**	**21.7**	34.8	21.0 ~ 23.0	0.8	16	32	60	28	7	6
05	**20A**	**3/4**	25.0	**38.1**	24.0 ~ 26.0	0.8	16	32	60	28	7	8
04			**27.2**	40.3	26.0 ~ 28.0	0.8	16	32	60	28	7	8
06			28.2	41.3	26.4 ~ 29.0	0.8	16	32	60	28	7	8
08	**25A**	**1**	30.0	43.1	29.0 ~ 31.0	0.8	16	32	60	28	7	8
09			32.0	45.1	31.0 ~ 33.0	0.8	16	32	60	28	7	8
07			**34.0**	47.1	33.0 ~ 35.0	0.8	16	32	60	28	7	8
N9			35.0	48.1	34.0 ~ 36.0	0.8	16	32	60	28	7	8
10	**32A**	**1 1/4**	38.0	51.1	37.0 ~ 39.0	0.8	16	32	60	28	7	8
13			40.9	54.0	39.5 ~ 41.5	0.8	16	32	60	28	7	8
11			**42.7**	55.8	42.0 ~ 44.0	0.8	16	32	60	28	7	8
12			44.5	57.6	44.0 ~ 46.0	0.8	16	32	60	28	7	8
15	**40A**	**1 1/2**	**48.6**	61.7	47.5 ~ 49.5	0.8	16	32	60	28	7	8
17			50.8	63.9	49.2 ~ 51.5	0.8	16	32	60	28	7	8
18	**50A**	**2**	54.0	70.0	53.0 ~ 55.0	1.0	16	32	80	44	12	8
19			57.0	73.0	56.0 ~ 58.0	1.0	16	32	80	44	12	8
20			**60.5**	76.5	59.0 ~ 61.5	1.0	16	32	80	44	12	8
21			63.0	79.0	62.0 ~ 64.0	1.0	16	32	80	44	12	8
26	**65A**	**2 1/2**	66.7	82.7	65.4 ~ 68.3	1.0	14	28	80	44	12	8
25			69.0	85.0	68.5 ~ 71.0	1.0	14	28	80	44	12	8
23			73.0	89.0	72.5 ~ 75.5	1.0	14	28	80	44	12	8
24			**76.3**	92.3	75.0 ~ 78.0	1.0	14	28	80	44	12	8
30	**80A**	**3**	79.9	99.9	78.8 ~ 82.0	1.0	14	28	110	59	30	12
27			84.0	104.0	82.5 ~ 85.5	1.0	14	28	110	59	30	12
28			**89.1**	109.1	88.0 ~ 91.0	1.0	14	28	110	59	30	12
32	**90A**	**3 1/2**	**101.6**	121.6	100.0 ~ 103.0	1.0	14	28	110	59	30	12
34	**100A**	**4**	104.0	124.0	102.0 ~ 105.0	1.0	14	28	110	59	40	12
37			106.3	126.3	105.0 ~ 107.5	1.0	14	28	110	59	40	12
35			108.0	128.0	106.0 ~ 109.0	1.0	14	28	110	59	40	12
38			110.0	130.0	108.5 ~ 111.5	1.0	14	28	110	59	40	12
36			**114.3**	134.3	113.0 ~ 116.0	1.0	14	28	110	59	40	12
Q2	**125A**	**5**	125.0	146.5	123.0 ~ 126.0	1.5	14	28	111	59	40	12
42			127.0	148.5	125.0 ~ 129.0	1.5	14	28	111	59	40	12
43			129.0	150.5	127.5 ~ 130.0	1.5	14	28	111	59	40	12
S4			130.2	151.7	129.0 ~ 131.0	1.5	14	28	111	59	40	12
39			133.0	154.5	131.0 ~ 135.0	1.5	14	28	111	59	40	12
40			**139.8**	161.3	138.0 ~ 142.0	1.5	14	28	111	59	40	12
41			141.3	162.8	139.5 ~ 143.5	1.5	14	28	111	59	40	12

Item No.	Pipe OD			D (mm)	Clamping Range (mm)	Thickness (mm)	Working Pressure (bar)		MJHT			
									Length (mm)		Torque (Nm)	Bolt (M)
	ND	inch	actual (mm)				Ship	Industry	*L*	*l*		
49			150.0	171.5	148.0 ~ 152.0	1.5	12	24	111	59	40	12
44			154.0	175.5	151.5 ~ 155.5	1.5	12	24	111	59	40	12
45	**150A**	**6**	159.0	180.5	156.0 ~ 160.0	1.5	12	24	111	59	40	12
46			**165.2**	186.7	164.0 ~ 167.0	1.5	12	24	111	59	40	12
47			168.3	189.8	166.0 ~ 170.0	1.5	12	24	111	59	40	12
Q6	**175A**	**7**	180.0	201.5	178.0 ~ 182.0	1.5	10	20	111	59	45	12
54			200.0	224.5	198.0 ~ 203.0	2.0	8	16	150	89	60	14
55	**200A**	**8**	204.0	228.5	202.0 ~ 206.0	2.0	8	16	150	89	60	14
51			**216.3**	240.8	214.0 ~ 218.5	2.0	8	16	150	89	60	14
52			219.1	243.6	216.5 ~ 221.5	2.0	8	16	150	89	60	14
59			254.0	278.5	251.0 ~ 257.0	2.0	8	16	150	89	60	14
56	**250A**	**10**	**267.4**	291.9	262.0 ~ 269.0	2.0	8	16	150	89	60	14
57			273.1	297.6	270.0 ~ 276.0	2.0	8	16	150	89	60	14
66			304.0	328.5	301.5 ~ 308.0	2.0	7	14	150	89	60	14
61	**300A**	**12**	**318.5**	343.0	316.0 ~ 322.5	2.0	7	14	150	89	60	14
64			323.9	348.4	322.0 ~ 328.0	2.0	7	14	150	89	60	14
67	**350A**	**14**	**355.6**	380.1	352.0 ~ 359.5	2.0	7	14	150	89	75	14
71	**400A**	**16**	**406.4**	430.9	402.0 ~ 410.0	2.0	6	12	150	89	75	14
74	**450A**	**18**	**457.2**	481.7	453.0 ~ 460.0	2.0	6	12	150	89	90	14
77	**500A**	**20**	**508.0**	532.5	504.0 ~ 512.0	2.0	5	10	150	89	90	14
80	**550A**	**22**	**558.8**	583.3	555.0 ~ 563.0	2.0	4.6	9.2	150	89	90	14
83	**600A**	**24**	**609.6**	634.1	605.0 ~ 614.0	2.0	4.2	8.4	150	89	90	14

[Remarks]

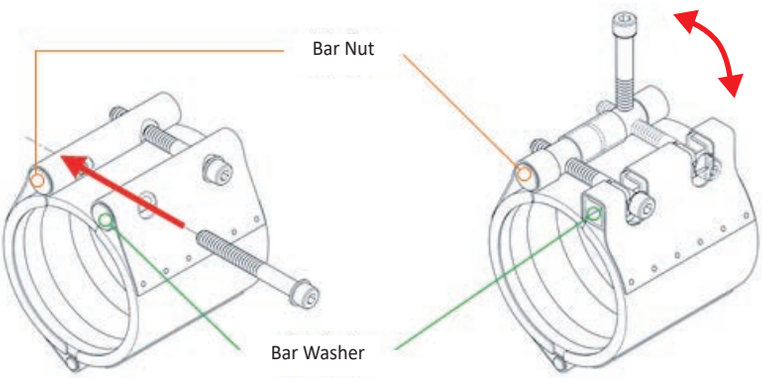
D value varies depending on how much bolts are tightened.

Burst pressure ≧ working pressure for ship x safety factor (4)

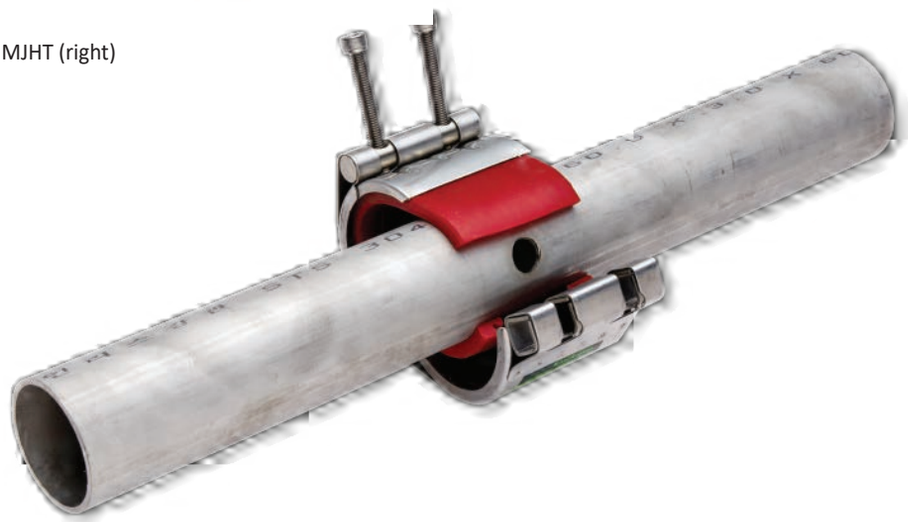
Burst pressure ≧ working pressure for industry x safety factor (2)

MJD, MJT, MJF (Multi-Locks Type) for over ND600 (page 22~24).

MJDF (Multi-Locks Force Type) for higher pressure (page 23).



MJH (left) vs. MJHT (right)



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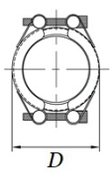
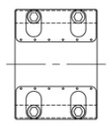
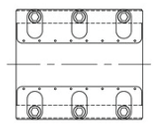
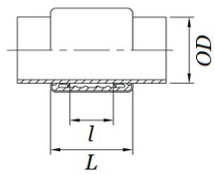
MULTI-LOCKS TYPE CLAMP - 2 LOCKS









Multi-Locks Type Clamp - 2~4 Locks are composed of two, three, or four pieces of casing and a lock part at each end. They have better tightening capabilities and a wider clamping range. They are easy to install even on large diameter pipes. (3&4 locks on page 24)

■ MJD 13A~1000A / MJDL 15A~1000A

Item No.	Pipe OD			D (㎜)	Clamping Range (㎜)	Thick. (㎜)	Working Pressure (bar)		MJD				MJDL			
									Length (㎜)		Torque (Nm)	Bolt (M)	Length (㎜)		Torque (Nm)	Bolt (M)
	ND	inch	actual (㎜)				Ship	Ind.	*L*	*l*			*L*	*l*		
U2	**13A**		15.8	28.9	14.0 ~ 17.0	0.8	16	32	60	28	7	6	-	-	-	-
02	**15A**	**1/2**	20.0	33.1	19.5 ~ 21.3	0.8	16	32	60	28	7	6	100	68	7	6
01			**21.7**	34.8	21.0 ~ 23.0	0.8	16	32	60	28	7	6	100	68	7	6
05	**20A**	**3/4**	25.0	38.1	24.0 ~ 26.5	0.8	16	32	60	28	7	6	100	68	7	6
04			**27.2**	40.3	26.0 ~ 29.0	0.8	16	32	60	28	7	6	100	68	7	6
06			28.2	41.3	26.4 ~ 29.5	0.8	16	32	60	28	7	6	100	68	7	6
08	**25A**	**1**	30.0	43.1	29.0 ~ 31.5	0.8	16	32	60	28	7	6	100	68	7	6
09			32.0	45.1	31.0 ~ 33.5	0.8	16	32	60	28	7	6	100	68	7	6
07			**34.0**	47.1	33.0 ~ 35.5	0.8	16	32	60	28	7	6	100	68	7	6
10	**32A**	**1 1/4**	38.0	51.1	37.0 ~ 39.5	0.8	16	32	60	28	7	6	100	68	7	6
13			40.9	54.0	39.5 ~ 41.8	0.8	16	32	60	28	7	6	100	68	7	6
11			**42.7**	55.8	41.0 ~ 44.5	0.8	16	32	60	28	7	6	100	68	7	6
12			44.5	57.6	44.0 ~ 46.5	0.8	16	32	60	28	7	6	100	68	7	6
15	**40A**	**1 1/2**	**48.6**	61.7	47.5 ~ 50.5	0.8	16	32	60	28	7	6	100	68	7	6
17			50.8	63.9	48.6 ~ 51.5	0.8	16	32	60	28	7	6	100	68	7	6
18	**50A**	**2**	54.0	70.0	53.0 ~ 56.0	1.0	16	32	80	44	12	8	150	110	12	8
19			57.0	73.0	56.0 ~ 59.0	1.0	16	32	80	44	12	8	150	110	12	8
20			**60.5**	76.5	59.0 ~ 62.0	1.0	16	32	80	44	12	8	150	110	12	8
21			63.0	79.0	62.0 ~ 65.0	1.0	16	32	80	44	12	8	150	110	12	8
26	**65A**	**2 1/2**	66.7	82.7	64.4 ~ 69.0	1.0	14	28	80	44	12	8	150	110	12	8
25			69.0	85.0	67.5 ~ 72.0	1.0	14	28	80	44	12	8	150	110	12	8
23			73.0	89.0	71.5 ~ 76.5	1.0	14	28	80	44	12	8	150	110	12	8
24			**76.3**	92.3	75.0 ~ 79.0	1.0	14	28	80	44	12	8	150	110	12	8
30	**80A**	**3**	79.9	99.9	77.0 ~ 83.0	1.0	14	28	110	59	15	12	200	150	15	12
27			84.0	104.0	81.0 ~ 86.0	1.0	14	28	110	59	15	12	200	150	15	12
28			**89.1**	109.1	86.0 ~ 92.0	1.0	14	28	110	59	15	12	200	150	15	12
32	**90A**	**3 1/2**	**101.6**	121.6	100.0 ~ 104.0	1.0	14	28	110	59	15	12	200	150	15	12
34	**100A**	**4**	104.0	124.0	102.0 ~ 106.0	1.0	14	28	110	59	15	12	200	150	15	12
37			106.3	126.3	105.0 ~ 108.5	1.0	14	28	110	59	15	12	200	150	15	12
35			108.0	128.0	106.0 ~ 110.0	1.0	14	28	110	59	15	12	200	150	15	12
38			110.0	130.0	108.5 ~ 113.5	1.0	14	28	110	59	15	12	200	150	15	12
36			**114.3**	134.3	113.0 ~ 118.0	1.0	14	28	110	59	15	12	200	150	15	12
Q2	**125A**	**5**	125.0	146.5	123.0 ~ 126.5	1.5	14	28	111	59	25	12	201	150	25	12
42			127.0	148.5	125.0 ~ 129.5	1.5	14	28	111	59	25	12	201	150	25	12
43			129.0	150.5	127.5 ~ 131.0	1.5	14	28	111	59	25	12	201	150	25	12
S4			130.2	151.7	128.2 ~ 132.7	1.5	14	28	111	59	25	12	201	150	25	12
39			133.0	154.5	131.0 ~ 135.5	1.5	14	28	111	59	25	12	201	150	25	12
40			**139.8**	161.3	138.0 ~ 142.5	1.5	14	28	111	59	25	12	201	150	25	12
41			141.3	162.8	139.5 ~ 144.0	1.5	14	28	111	59	25	12	201	150	25	12

Item No.	Pipe OD			D (mm)	Clamping Range (mm)	Thick. (mm)	Working Pressure (bar)		MJD				MJDL			
									Length (mm)		Torque (Nm)	Bolt (M)	Length (mm)		Torque (Nm)	Bolt (M)
	ND	inch	actual (mm)				Ship	Ind.	*L*	*l*			*L*	*l*		
49			150.0	171.5	146.8 ~ 152.5	1.5	12	24	111	59	25	12	201	150	25	12
44			154.0	175.5	151.5 ~ 156.0	1.5	12	24	111	59	25	12	201	150	25	12
45	**150A**	**6**	159.0	180.5	156.0 ~ 161.0	1.5	12	24	111	59	25	12	201	150	25	12
46			**165.2**	186.7	164.0 ~ 168.5	1.5	12	24	111	59	25	12	201	150	25	12
47			168.3	189.8	166.0 ~ 170.5	1.5	12	24	111	59	25	12	201	150	25	12
Q6	**175A**	**7**	180.0	201.5	178.0 ~ 183.0	1.5	10	20	111	59	30	12	-	-	-	-
54			200.0	224.5	198.0 ~ 203.5	2.0	8	16	150	89	45	14	250	158	45	16
55	**200A**	**8**	204.0	228.5	202.0 ~ 206.5	2.0	8	16	150	89	45	14	250	158	45	16
51			**216.3**	240.8	214.0 ~ 219.0	2.0	8	16	150	89	45	14	250	158	45	16
52			219.1	**243.6**	216.5 ~ 222.0	2.0	8	16	150	89	45	14	250	158	45	16
59			254.0	278.5	251.0 ~ 257.0	2.0	8	16	150	89	45	14	250	158	45	16
56	**250A**	**10**	**267.4**	291.9	262.0 ~ 270.0	2.0	8	16	150	89	45	14	250	158	45	16
57			273.1	297.6	270.0 ~ 277.0	2.0	8	16	150	89	45	14	250	158	45	16
66			304.0	328.5	301.5 ~ 309.0	2.0	7	14	150	89	75	14	250	158	75	16
61	**300A**	**12**	**318.5**	343.0	316.0 ~ 323.0	2.0	7	14	150	89	75	14	250	158	75	16
64			323.9	**348.4**	322.0 ~ 329.0	2.0	7	14	150	89	75	14	250	158	75	16
67	**350A**	**14**	**355.6**	380.1	352.0 ~ 361.0	2.0	7	14	150	89	75	14	250	158	75	16
71	**400A**	**16**	**406.4**	430.9	402.0 ~ 411.0	2.0	6	12	150	89	75	14	250	158	75	16
74	**450A**	**18**	**457.2**	481.7	453.0 ~ 462.0	2.0	6	12	150	89	90	14	250	158	90	16
77	**500A**	**20**	**508.0**	532.5	504.0 ~ 513.0	2.0	5	10	150	89	90	14	250	158	90	16
80	**550A**	**22**	**558.8**	583.3	554.0 ~ 564.0	2.0	4.6	9.2	150	89	90	14	250	158	90	16
83	**600A**	**24**	**609.6**	634.1	605.0 ~ 615.0	2.0	4.2	8.4	150	89	90	14	250	158	90	16
86	650A	26	660.4	684.9	654.0 ~ 666.0	2.0	4.0	8.0	150	89	90	14	250	158	90	16
88	700A	28	711.2	735.7	705.0 ~ 717.0	2.0	3.7	7.4	150	89	90	14	250	158	90	16
91	750A	30	762.0	786.5	756.0 ~ 768.0	2.0	3.6	7.2	150	89	90	14	250	158	90	16
93	800A	32	812.8	837.3	806.0 ~ 818.0	2.0	3.4	6.8	150	89	90	14	250	158	90	16
96	850A	34	863.6	888.1	857.0 ~ 869.0	2.0	3.2	6.4	150	89	90	14	250	158	90	16
98	900A	36	914.4	938.9	908.0 ~ 920.0	2.0	3.0	6.0	150	89	90	14	250	158	90	16
L1	1000A	40	1016.0	1040.5	1010.0 ~ 1022.0	2.0	2.7	5.4	150	89	90	14	250	158	90	16

[Remarks]
D value varies depending on how much bolts are tightened.
Burst pressure ≧ working pressure for ship x safety factor (4)
Burst pressure ≧ working pressure for industry x safety factor (2)
Clamp length(*L*) 300mm and 400mm are available for ND200 and over.
MJT, MJTL, MJF, MJFL (Multi-Locks Type- 3&4 Locks) for over ND1000 (page 24).
Multi-Locks Type Clamps can be used for both leakage repair and connection. Gasket is cut for leakage repair, but circular for connection (page 12~14).

■ MJDF / MJDFL 65A~1000A

MJDF/MJDFL with a thicker casing can withstand higher pressure. (working pressure for general industry)

ND	**MJDF / MJDFL**	MJD / MJDL	ND	**MJDF / MJDFL**	MJD / MJDL	ND	**MJDF / MJDFL**	MJD / MJDL
65A~125A	**32bar**	28bar	400A	**20bar**	12bar	700A	**11bar**	7.4bar
150A	**32bar**	24bar	450A	**19bar**	12bar	750A	**10.5bar**	7.2bar
175A	**28bar**	20bar	500A	**14bar**	10bar	800A	**10.0bar**	6.8bar
200A	**24bar**	16bar	550A	**14bar**	9.2bar	850A	**9.3bar**	6.4bar
250A	**20bar**	16bar	600A	**12bar**	8.4bar	900A	**8.8bar**	6.0bar
300A~350A	**20bar**	14bar	650A	**12bar**	8.0bar	1000A	**8.0bar**	5.4bar

[Remarks] Burst pressure ≧ working pressure for industry x safety factor (2)

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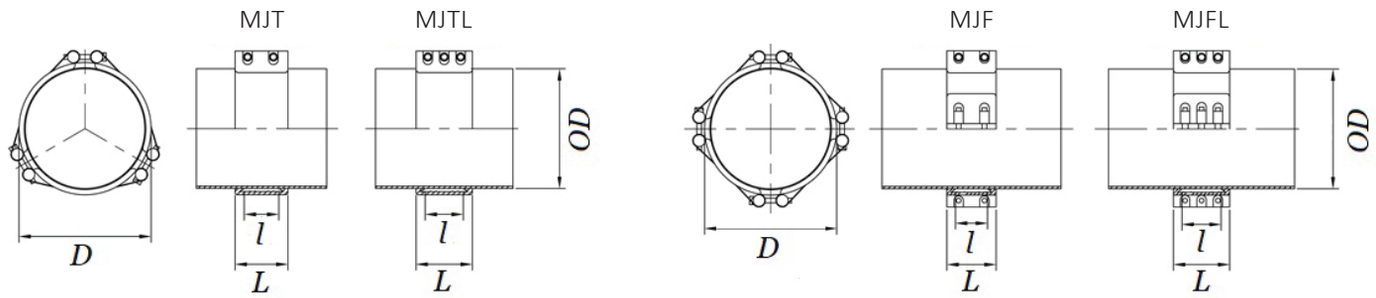
MULTI-LOCKS TYPE CLAMP - 3&4 LOCKS



■ MJT / MJTL 1100A~1500A

Item No.	Pipe OD			D (㎜)	Clamping Range (㎜)	Thick. (㎜)	Pressure (bar)		MJT				MJTL			
									Length (㎜)		Torque (Nm)	Bolt (M)	Length (㎜)		Torque (Nm)	Bolt (M)
	ND	inch	actual (㎜)				Working	Max.	*L*	*l*			*L*	*l*		
L6	1100A	44	1117.6	1142.1	1111.0 ~ 1123.0	2.0	5.0	10.0	150	89	90	14	250	158	90	16
L8	1200A	48	1219.2	1243.7	1213.0 ~ 1225.0	2.0	4.6	9.2								
M1	1300A	52	1320.8	1345.3	1316.0 ~ 1325.0	2.0	4.2	8.4								
L0	1350A	54	1371.6	1396.1	1365.0 ~ 1377.0	2.0	4.0	8.0								
T9	1400A	56	1422.4	1446.9	1418.0 ~ 1427.0	2.0	3.8	7.6								
M2	1500A	60	1524.0	1548.5	1518.0 ~ 1530.0	2.0	3.6	7.2								

■ MJF / MJFL 1600A~4000A

Item No.	Pipe OD			D (㎜)	Clamping Range (㎜)	Thick. (㎜)	Pressure (bar)		MJF				MJFL			
									Length (㎜)		Torque (Nm)	Bolt (M)	Length (㎜)		Torque (Nm)	Bolt (M)
	ND	inch	actual (㎜)				Working	Max.	*L*	*l*			*L*	*l*		
M5	1600A	64	1625.6	1650.1	1621.0 ~ 1631.0	2.0	3.4	6.8	150	89	90	14	250	158	90	16
M7	1650A	66	1676.4	1700.9	1672.0 ~ 1682.0	2.0	3.2	6.4								
M8	1700A	68	1727.2	1751.7	1722.0 ~ 1732.0	2.0	3.2	6.4								
M9	1800A	72	1828.8	1853.3	1822.0 ~ 1834.0	2.0	3.0	6.0								
N1	1900A	76	1930.4	1954.9	1924.0 ~ 1936.0	2.0	2.8	5.6								
N3	2000A	80	2032.0	2056.5	2026.0 ~ 2038.0	2.0	2.6	5.2								

[Remarks]
D value varies depending on how much bolts are tightened.
Burst pressure ≧ working pressure x safety factor (2)
Clamp length(*L*) 300mm and 400mm are available.
Big size clamps up to ND4000 are available.

■ MJTF / MJTFL 1100A~1500A

ND	MJTF / MJTFL	MJT / MJTL
1100A	**7.2bar**	5.0bar
1200A	**6.8bar**	4.6bar
1300A	**6.2bar**	4.2bar
1350A	**6.0bar**	4.0bar
1400A	**5.8bar**	3.8bar
1500A	**5.4bar**	3.6bar

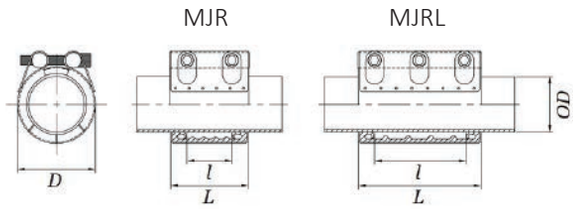
■ MJFF / MJFFL 1600A~4000A

ND	MJFF / MJFFL	MJF / MJFL
1600A	**5.0bar**	3.4bar
1650A	**4.8bar**	3.2bar
1700A	**4.6bar**	3.2bar
1800A	**4.4bar**	3.0bar
1900A	**4.2bar**	2.8bar
2000A	**4.0bar**	2.6bar

MJTF/MJTFL, MJFF/MJFFL with a thicker casing can withstand higher pressure.

[Remarks] Burst pressure ≧ working pressure x safety factor (2)
Big size clamps up to ND4000 are available.

SINGLE LOCK TYPE CLAMP



This is the basic repair clamp. You can tighten clamp easily with a fastener.

■ MJR 20A~600A / MJRL 25A~600A

Item No.	Pipe OD			D (㎜)	Clamping Range (㎜)	Thick. (㎜)	Working Pressure (bar)		MJR				MJRL			
									Length (㎜)		Torque (Nm)	Bolt (M)	Length (㎜)		Torque (Nm)	Bolt (M)
	ND	inch	actual(㎜)				Ship	Ind.	*L*	*l*			*L*	*l*		
05	**20A**	**3/4**	25.0	38.1	24.0 ~ 26.0	0.8	16	32	60	28	7	8	-	-	-	-
04			**27.2**	40.3	26.0 ~ 28.0	0.8	16	32	60	28	7	8	-	-	-	-
06			28.2	41.3	26.4 ~ 29.0	0.8	16	32	60	28	7	8	-	-	-	-
08	**25A**	**1**	30.0	43.1	29.0 ~ 31.0	0.8	16	32	60	28	7	8	100	68	7	8
09			32.0	45.1	31.0 ~ 33.0	0.8	16	32	60	28	7	8	100	68	7	8
07			**34.0**	47.1	33.0 ~ 35.0	0.8	16	32	60	28	7	8	100	68	7	8
N9			35.0	48.1	34.0 ~ 36.0	0.8	16	32	60	28	7	8	100	68	7	8
10	**32A**	**1 1/4**	38.0	51.1	37.0 ~ 39.0	0.8	16	32	60	28	7	8	100	68	7	8
13			40.9	54.0	39.5 ~ 41.5	0.8	16	32	60	28	7	8	100	68	7	8
11			**42.7**	55.8	42.0 ~ 44.0	0.8	16	32	60	28	7	8	100	68	7	8
12			44.5	57.6	44.0 ~ 46.0	0.8	16	32	60	28	7	8	100	68	7	8
15	**40A**	**1 1/2**	**48.6**	61.7	47.5 ~ 49.5	0.8	16	32	60	28	7	8	100	68	7	8
17			50.8	63.9	49.2 ~ 51.5	0.8	16	32	60	28	7	8	100	68	7	8
18	**50A**	**2**	54.0	70.0	53.0 ~ 55.0	1.0	16	32	80	44	12	8	150	110	12	8
19			57.0	73.0	56.0 ~ 58.0	1.0	16	32	80	44	12	8	150	110	12	8
20			**60.5**	76.5	59.0 ~ 61.5	1.0	16	32	80	44	12	8	150	110	12	8
21			63.0	79.0	62.0 ~ 64.0	1.0	16	32	80	44	12	8	150	110	12	8
26	**65A**	**2 1/2**	66.7	82.7	65.4 ~ 68.3	1.0	14	28	80	44	12	8	150	110	12	8
25			69.0	85.0	68.5 ~ 71.0	1.0	14	28	80	44	12	8	150	110	12	8
23			73.0	89.0	72.5 ~ 75.5	1.0	14	28	80	44	12	8	150	110	12	8
24			**76.3**	92.3	75.0 ~ 78.0	1.0	14	28	80	44	12	8	150	110	12	8
30	**80A**	**3**	79.9	99.9	78.8 ~ 82.0	1.0	14	28	110	59	15	12	200	150	15	12
27			84.0	104.0	82.5 ~ 85.5	1.0	14	28	110	59	15	12	200	150	15	12
28			**89.1**	109.1	88.0 ~ 91.0	1.0	14	28	110	59	15	12	200	150	15	12
32	**90A**	**3 1/2**	**101.6**	121.6	100.0 ~ 103.0	1.0	14	28	110	59	15	12	200	150	15	12
34	**100A**	**4**	104.0	124.0	102.0 ~ 105.0	1.0	14	28	110	59	15	12	200	150	15	12
37			106.3	126.3	105.0 ~ 107.5	1.0	14	28	110	59	15	12	200	150	15	12
35			108.0	128.0	106.0 ~ 109.0	1.0	14	28	110	59	15	12	200	150	15	12
38			110.0	130.0	108.5 ~ 111.5	1.0	14	28	110	59	15	12	200	150	15	12
36			**114.3**	134.3	113.0 ~ 116.0	1.0	14	28	110	59	15	12	200	150	15	12
Q2	**125A**	**5**	125.0	146.5	123.0 ~ 126.0	1.5	14	28	111	59	25	12	201	150	25	12
42			127.0	148.5	125.0 ~ 129.0	1.5	14	28	111	59	25	12	201	150	25	12
43			129.0	150.5	127.5 ~ 130.0	1.5	14	28	111	59	25	12	201	150	25	12
S4			130.2	151.7	129.0 ~ 131.0	1.5	14	28	111	59	25	12	201	150	25	12
39			133.0	154.5	131.0 ~ 135.0	1.5	14	28	111	59	25	12	201	150	25	12
40			**139.8**	161.3	138.0 ~ 142.0	1.5	14	28	111	59	25	12	201	150	25	12
41			141.3	162.8	139.5 ~ 143.5	1.5	14	28	111	59	25	12	201	150	25	12

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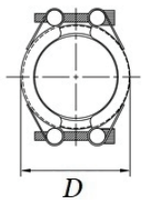
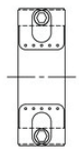
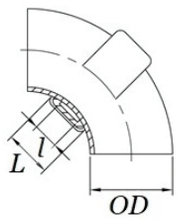
Item No.	Pipe OD			D (㎜)	Clamping Range (㎜)	Thick. (㎜)	Working Pressure (bar)		MJR				MJRL			
									Length (㎜)		Torque (Nm)	Bolt (M)	Length (㎜)		Torque (Nm)	Bolt (M)
	ND	inch	actual (㎜)				Ship	Ind.	*L*	*l*			*L*	*l*		
49			150.0	171.5	148.0 ~ 152.0	1.5	12	24	111	59	25	12	201	150	25	12
44			154.0	175.5	151.5 ~ 155.5	1.5	12	24	111	59	25	12	201	150	25	12
45	**150A**	**6**	159.0	180.5	156.0 ~ 160.0	1.5	12	24	111	59	25	12	201	150	25	12
46			**165.2**	186.7	164.0 ~ 167.0	1.5	12	24	111	59	25	12	201	150	25	12
47			168.3	189.8	166.0 ~ 170.0	1.5	12	24	111	59	25	12	201	150	25	12
Q6	**175A**	**7**	180.0	201.5	178.0 ~ 182.0	1.5	10	20	111	59	30	12	-	-	-	-
54			200.0	224.5	198.0 ~ 203.0	2.0	8	16	150	89	45	14	250	158	45	16
55	**200A**	**8**	204.0	228.5	202.0 ~ 206.0	2.0	8	16	150	89	45	14	250	158	45	16
51			**216.3**	240.8	214.0 ~ 218.5	2.0	8	16	150	89	45	14	250	158	45	16
52			219.1	243.6	216.5 ~ 221.5	2.0	8	16	150	89	45	14	250	158	45	16
59			254.0	278.5	251.0 ~ 257.0	2.0	8	16	150	89	45	14	250	158	45	16
56	**250A**	**10**	**267.4**	291.9	262.0 ~ 269.0	2.0	8	16	150	89	45	14	250	158	45	16
57			273.1	297.6	270.0 ~ 276.0	2.0	8	16	150	89	45	14	250	158	45	16
66			304.0	328.5	301.5 ~ 308.0	2.0	7	14	150	89	75	14	250	158	75	16
61	**300A**	**12**	**318.5**	343.0	316.0 ~ 322.5	2.0	7	14	150	89	75	14	250	158	75	16
64			323.9	348.4	322.0 ~ 328.0	2.0	7	14	150	89	75	14	250	158	75	16
67	**350A**	**14**	**355.6**	380.1	352.0 ~ 359.5	2.0	7	14	150	89	75	14	250	158	75	16
71	**400A**	**16**	**406.4**	430.9	402.0 ~ 410.0	2.0	6	12	150	89	75	14	250	158	75	16
74	**450A**	**18**	**457.2**	481.7	453.0 ~ 460.0	2.0	6	12	150	89	90	14	250	158	90	16
77	**500A**	**20**	**508.0**	532.5	504.0 ~ 512.0	2.0	5	10	150	89	90	14	250	158	90	16
80	**550A**	**22**	**558.8**	583.3	555.0 ~ 563.0	2.0	4.6	9.2	150	89	90	14	250	158	90	16
83	**600A**	**24**	**609.6**	634.1	605.0 ~ 614.0	2.0	4.2	8.4	150	89	90	14	250	158	90	16

[Remarks]
D value varies depending on how much bolts are tightened.
Burst pressure ≧ working pressure for ship x safety factor (4)
Burst pressure ≧ working pressure for industry x safety factor (2)
MJD, MJDL, etc. (Multi-Locks Type) for over ND600 (page 22~24).
MJDF, MJDFL (Multi-Locks Force Type) for higher pressure (page 23).

ELBOW REPAIR CLAMP utility model







This is useful for repairing a leaking area on an elbow or a weld, or covering up a weld to prevent leaks. This is a top-bottom separated type, like MJD.

■ MJER 13A~500A

Item No.	Pipe OD			D (㎜)	Clamping Range (㎜)	Thickness (㎜)	Pressure (bar)		MJER			
									Length (㎜)		Torque (Nm)	Bolt (M)
	ND	inch	actual (㎜)				Working	Max.	L	l		
U2	**13A**		15.8	34.0	14.0 ~ 17.0	1.0	17.5	35	27	8	7	6
02	**15A**	**1/2**	20.0	38.0	19.5 ~ 21.3	1.0	17.5	35	27	10	7	6
01			**21.7**	39.0	21.0 ~ 23.0	1.0	17.5	35	27	10	7	6
05	**20A**	**3/4**	25.0	43.0	24.0 ~ 26.5	1.0	17.5	35	27	10	7	6
04			**27.2**	45.0	26.0 ~ 29.0	1.0	17.5	35	27	10	7	6
06			28.2	46.0	26.4 ~ 29.5	1.0	17.5	35	27	10	7	6
08	**25A**	**1**	30.0	48.0	29.0 ~ 31.5	1.0	17.5	35	27	10	7	6
09			32.0	50.0	31.0 ~ 33.5	1.0	17.5	35	27	10	7	6
07			**34.0**	52.0	33.0 ~ 35.5	1.0	17.5	35	27	10	7	6
10	**32A**	**1 1/4**	38.0	56.0	37.0 ~ 39.5	1.0	17.5	35	27	10	7	6
13			40.9	58.0	39.5 ~ 41.8	1.0	17.5	35	27	10	7	6
11			**42.7**	61.0	41.0 ~ 44.5	1.0	17.5	35	27	10	7	6
12			44.5	62.5	44.0 ~ 46.5	1.0	17.5	35	27	10	7	6
15	**40A**	**1 1/2**	**48.6**	66.0	47.5 ~ 50.5	1.0	15	30	27	10	7	6
17			50.8	68.8	48.6 ~ 51.5	1.0	15	30	27	10	7	6
18	**50A**	**2**	54.0	78.6	53.0 ~ 56.0	1.0	15	30	40	18	15	8
19			57.0	81.6	56.0 ~ 59.0	1.0	15	30	40	18	15	8
20			**60.5**	85.0	59.0 ~ 62.0	1.0	15	30	40	18	15	8
21			63.0	87.6	62.0 ~ 65.0	1.0	15	30	40	18	15	8
26	**65A**	**2 1/2**	66.7	91.3	64.4 ~ 69.0	1.0	15	30	40	18	15	8
25			69.0	93.6	67.5 ~ 72.0	1.0	15	30	40	18	15	8
23			73.0	97.6	71.5 ~ 76.5	1.0	15	30	40	18	15	8
24			**76.3**	101.0	75.0 ~ 79.0	1.0	15	30	40	18	15	8
30	**80A**	**3**	79.9	103.9	77.0 ~ 83.0	1.0	15	30	60	29	28	12
27			84.0	108.0	81.0 ~ 86.0	1.0	15	30	60	29	28	12
28			**89.1**	113.1	86.0 ~ 92.0	1.0	15	30	60	29	28	12
32	**90A**	**3 1/2**	**101.6**	125.6	100.0 ~ 104.0	1.0	15	30	60	29	28	12
34	**100A**	**4**	104.0	128.0	102.0 ~ 106.0	1.0	12.5	25	60	29	28	12
37			106.3	130.3	105.0 ~ 108.5	1.0	12.5	25	60	29	28	12
35			108.0	132.0	106.0 ~ 110.0	1.0	12.5	25	60	29	28	12
38			110.0	134.0	108.5 ~ 113.5	1.0	12.5	25	60	29	28	12
36			**114.3**	138.3	113.0 ~ 118.0	1.0	12.5	25	60	29	28	12
Q2	**125A**	**5**	125.0	149.0	123.0 ~ 126.5	1.0	9	18	60	29	28	12
42			127.0	151.0	125.0 ~ 129.5	1.0	9	18	60	29	28	12
43			129.0	153.0	127.5 ~ 131.0	1.0	9	18	60	29	28	12
S4			130.2	154.2	128.2 ~ 132.7	1.0	9	18	60	29	28	12
39			133.0	157.0	131.0 ~ 135.5	1.0	9	18	60	29	28	12
40			**139.8**	163.8	138.0 ~ 142.5	1.0	9	18	60	29	28	12
41			141.3	165.3	139.5 ~ 144.0	1.0	9	18	60	29	28	12

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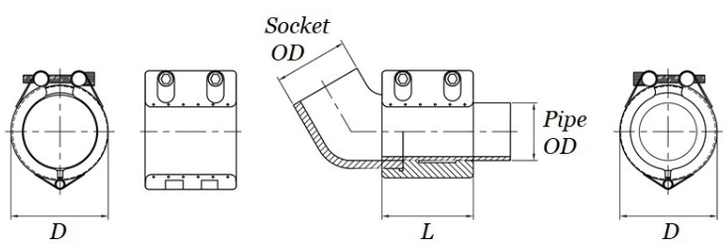
Item No.	Pipe OD			D (㎜)	Clamping Range (㎜)	Thickness (㎜)	Pressure (bar)		MJER			
									Length (㎜)		Torque (Nm)	Bolt (M)
	ND	inch	actual (㎜)				Working	Max.	*L*	*l*		
49	**150A**	**6**	150.0	174.0	146.8 ~ 152.5	1.0	9	18	60	29	28	12
44			154.0	178.0	151.5 ~ 156.0	1.0	9	18	60	29	28	12
45			159.0	183.0	156.0 ~ 161.0	1.0	9	18	60	29	28	12
46			**165.2**	189.2	164.0 ~ 168.5	1.0	9	18	60	29	28	12
47			168.3	192.3	166.0 ~ 170.5	1.0	9	18	60	29	28	12
Q6	**175A**	**7**	180.0	204.0	178.0 ~ 183.0	1.0	8	16	60	29	28	12
54	**200A**	**8**	200.0	225.0	198.0 ~ 203.5	1.5	8	16	61	29	40	12
55			204.0	229.0	202.0 ~ 206.5	1.5	8	16	61	29	40	12
51			**216.3**	241.3	214.0 ~ 219.0	1.5	8	16	61	29	40	12
52			219.1	244.1	216.5 ~ 222.0	1.5	8	16	61	29	40	12
59	**250A**	**10**	254.0	279.0	251.0 ~ 257.0	1.5	8	16	61	29	40	12
56			**267.4**	292.4	262.0 ~ 270.0	1.5	8	16	61	29	40	12
57			273.1	298.1	270.0 ~ 277.0	1.5	8	16	61	29	40	12
66	**300A**	**12**	304.0	329.0	301.5 ~ 309.0	1.5	6.5	13	61	29	40	12
61			**318.5**	343.5	316.0 ~ 323.0	1.5	6.5	13	61	29	40	12
64			323.9	348.9	322.0 ~ 329.0	1.5	6.5	13	61	29	40	12
67	**350A**	**14**	**355.6**	380.6	352.0 ~ 361.0	1.5	6.0	12	61	29	40	12
71	**400A**	**16**	**406.4**	431.4	402.0 ~ 411.0	1.5	5.5	11	61	29	40	12
74	**450A**	**18**	**457.2**	482.2	453.0 ~ 462.0	1.5	5.0	10	61	29	40	12
77	**500A**	**20**	**508.0**	533.0	504.0 ~ 513.0	1.5	4.5	9	61	29	40	12

[Remarks]
D value varies depending on how much bolts are tightened.
Burst pressure ≧ working pressure x safety factor (2)
MJD (Multi-Locks type) for elbow repair over ND500 (page 22~23).

SOCKET REPAIR CLAMP



The connecting part of the socket method is half thick compared to the other part of a pipe. So, it is weak against vibration or other impacts. MJCX protects the weak part and also covers up damaged ones.

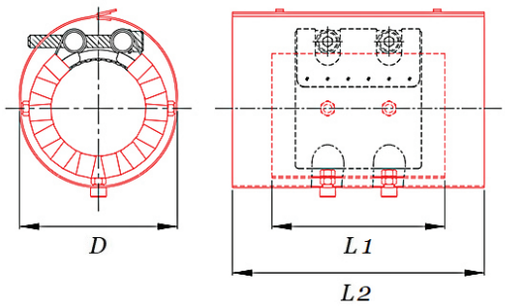
■ MJCX 20A~50A

Item No.	Pipe OD			Socket OD (㎜)	D (㎜)	Thickness (㎜)	Pressure (bar)		MJCX		
									L (㎜)	Torque (Nm)	Bolt (M)
	ND	inch	actual (㎜)				Working	Max.			
4	**20A**	**3/4**	**27.2**	34.3	47.9	0.8	10	20	60	7	6
7	**25A**	**1**	**34.0**	42.3	55.9	0.8	10	20	60	7	6
11	**32A**	**1 1/4**	**42.7**	51.0	64.6	0.8	10	20	60	15	6
15	**40A**	**1 1/2**	**48.6**	57.2	70.8	0.8	10	20	60	15	6
20	**50A**	**2**	**60.5**	70.4	84.0	0.8	10	20	60	20	6

[Remarks]
D value varies depending on how much bolts are tightened.
Burst pressure ≧ working pressure x safety factor (2)

MISCELLANEOUS

FIRE RESISTANT COVER - FRC



IACS(International Association of Classification Societies) and other societies regulate that only approved fire-resistant types can be installed on specific applications (for details, refer to [Shipbuilding] on page 34). FRC is wrapped around couplings and makes them resistant to a fire of 800±50℃ for 30 minutes or longer. (red in the above drawing)
Applicable to MJG, MJGF

Pipe OD			D (mm)	Length (mm)	
ND	inch	actual (mm)		*L1*	*L2*
15A	1/2	21.7	57.7	77	100
20A	3/4	27.2	63.2		
25A	1	34.0	70.0		
32A	1 1/4	42.7	78.7		
40A	1 1/2	48.6	84.6		
50A	2	60.5	98.5	137	160
65A	2 1/2	76.3	114.3		
80A	3	89.1	136.1	169	200

Pipe OD			D (mm)	Length (mm)	
ND	inch	actual (mm)		*L1*	*L2*
100A	4	114.3	161.3	169	200
125A	5	139.8	186.8		
150A	6	165.2	212.2		
200A	8	216.3	272.5	262	300
250A	10	267.4	323.6		
300A	12	318.5	374.7		
350A	14	355.6	411.8		
400A	16	406.4	462.6		

ACCESSORY TYPE

Accessories such as drain valve and gauge can be installed.

- MJG-A: 50A~400A
- MJS-A: 50A~600A
- MJH-A: 50A~600A
- MJD-A: 50A~2000A

INNER STAINLESS STEEL PLATE - STRIP INSERT

Strip Insert prevents rubber gasket from being sucked into a vacuum or suction pipe.

- Material: SUS304, SUS316
- Size: 15A~600A

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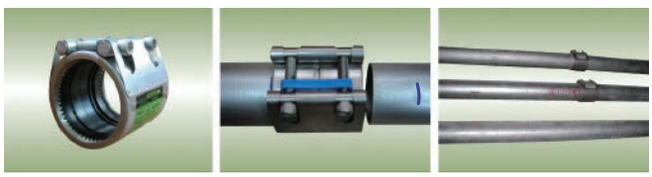
INSTALLATION METHOD

Pipe Connection



1. Remove burrs and contaminants on pipes.
2. Mark the half-length of coupling on each pipe, considering the gap between pipes.
3. Slide coupling over one pipe, up to the marking.
4. Insert the other pipe into the opposite side of coupling.
5. Tighten bolts little by little & alternately, up to the torque value on label.

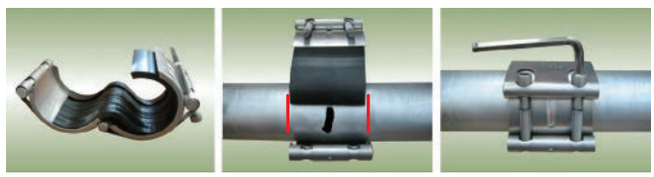
※ Please do not rotate coupling when bolts are tightened. It may damage pipes or couplings.

Pipe Partial Replacement

※ When the damaged area is bigger than gasket's "*l*" value

1. Cut off the damaged area.
2. Prepare a new pipe of the same length.
3. Mark the half-length of coupling on each pipe.
4. Slide two couplings over the new pipe and place the new pipe between the existing pipes.
5. Connect the existing pipes and the new pipe in the manner of pipe connection.

Leakage Repair

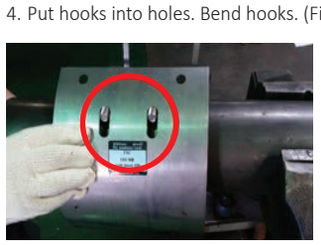


1. Place clamp at the center of the damaged area of pipeline.
2. Mark the length of clamp on it.
3. Cover up the damaged area with clamp, fitting to the markings.
   Do not overlap gasket ends, but face them.
4. Tighten bolts little by little & alternately, up to the torque value on label.

※ Damaged area should be smaller than gasket's "*l*" value.

Fire-Resistant Cover (FRC)

1. Install coupling on two pipes.
2. Wrap FRC around the installed coupling.
3. Match FRC holes with coupling bolts' end. (Fig.1)
4. Put hooks into holes. Bend hooks. (Fig.2)



<Fig. 1>

<Fig. 2>

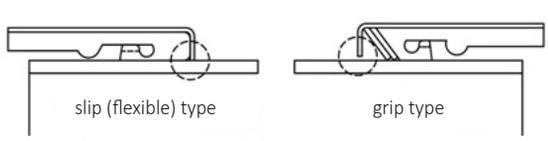
BOLT TIGHTENING

Bolts should be tightened little by little & alternately & evenly, up to the torque value specified on label. If bolts are adequately tightened, bar washer and bar nut become parallel. Overtightened, casing or bolts can be broken. On the other hand, below the torque value, product performance such as tightness and pull-out resistance would be lower than its capability.

If you don't have a torque wrench,
- Grip type couplings: tighten bolts until the gap between casing edge and pipe surface becomes 1 ㎜.
- Others: tighten bolts until casing edge touches pipe surface.

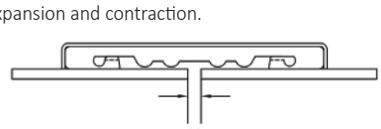
If high vibration is expected, install couplings with a gap of 1.0㎜ for grip types, 0.5 ㎜ for others to protect casing.

Stainless steel bolts are treated with a special coating to avoid bolts' getting stuck.



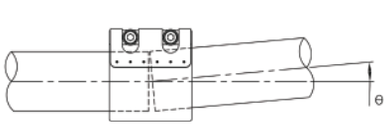
GAP BETWEEN PIPES

The gap between pipes may be 0㎜ when expansion joints are installed together on the pipeline. However, if not, it is recommended to have a gap as below to cope with pipe expansion and contraction.



ND	Pipe gap (w)
15A~65A	0~8mm
80A~	0~15mm

ANGULAR DEFLECTION

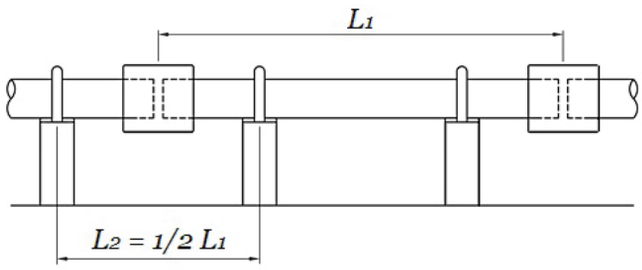


ND	Maximum angular deflection
~50A	5°
65A~175A	4°
200A~	2°

PULL-OUT RESISTANCE & PIPE ANCHORING, SUPPORTS

It is better to keep the space (*L2*) between supports as narrow as possible. The space may be as wide as half the length of the pipe (*L1*). Pipe load should be considered.

ND	15A~40A	50A~80A	100A~400A
L2	2m	3m	4m



Grip Type:

Grip type coupling is axially restrained because its double grip rings hold pipes tightly. Pipe anchoring and support are the same as what is required for the welding method, and additional anchoring is unnecessary. Please refer to [Pull-out Test] on page 32 for pull-out resistance.

Slip Type:

Slip type coupling is used for pipes' thermal contraction or under the condition of atmospheric pressure. Pipes must be properly anchored against internal pressure (e.g., U-bolts 2pcs for each pipe), and then they can withstand the design pressure.

REUSE OF PRODUCT

Couplings can be used again under the below condition (**EPDM / NBR gasket, water / air application**) :

Fluid temperature	Use time	Reusability
~40℃	~ 6 months	Reusable
	6 months ~	Rubber gasket should be replaced
40℃~	(no matter)	Rubber gasket should be replaced

Also, it is not recommended to reuse products if casing or lock part is deformed due to high pressure or excessive bolt tightening.

※ The torque value and working pressure on this catalog apply to standard carbon steel pipes.
※ Piping systems should be designed by professionals or specialists, in accordance with applicable industry standards and related regulations.

Support and Alignment

Piping in which a mechanical joint is fitted is to be adequately adjusted, aligned and supported. Supports or hangers are not to be used to force alignment of piping at the point of connection.

Pipe support

Adjoining pipes are to be suitably supported so that the joints do not carry any significant pipe weight.

Alignment

Joints are not to be used to make up for piping misalignment errors. Misalignment of a joint reduces the rated movements and can induce severe stresses into the joint material, thus causing reduced service life. Alignment is to be within tolerances specified by the joint manufacturer.

Anchoring

Joints are to be installed as close as possible to an anchor point. Where an anchoring system is not used, control rods may be installed on the joint to prevent excessive movements from occurring due to pressure thrust of the line.

Mechanical damage

Where necessary, joints are to be protected against mechanical damage.

Extracted from ABS MVR 4-6-2, for reference

QUALITY WARRANTY

EPDM / NBR application

The warranty is valid for 18 months from the ex-factory date or 12 months from the installation date, whichever comes first. It is limited to when products are installed in accordance with the manufacturer's installation guide and piping standards.

A replacement will be provided without charge if leakage or other problem occurs within the warranty period despite normal installation and use. You can also have a replacement at a cost for the non-discontinued products even after the warranty period.

If a problem occurs due to any of the following reasons, service will be provided at a cost even during the warranty period.

- Natural disaster
- Product is modified by somebody other than the manufacturer
- Careless and negligent installation or use
  1) installation guide by the manufacturer is not followed
  2) inappropriate model applied
  3) used at pipes out of the allowable range of the product
  4) inappropriate rubber gasket is used in terms of the type and temperature of the fluid
  5) pressure exceeds the allowable pressure of the product
- External impact or damage

Our products have been subscribed to product liability insurance. You can receive compensation up to USD100,000 for physical and material damages against ...oduct is installed in accordance with the installati...

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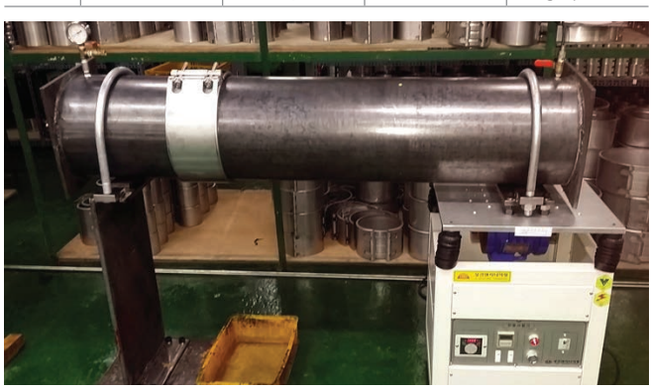
TIGHTNESS TEST & BURST PRESSURE TEST

Test Method: IACS UR P2.11.5.5.1 & 4
Test Condition: tightness test = design pressure x 1.5 for 5min
burst pressure test = design pressure x 4 for 5min

VIBRATION (FATIGUE) TEST

Test Method: IACS UR P2.11.5.5.2
Test Condition:

Section	Num. of Cycles	Amplitude (㎜)	Frequency (Hz)	Pressure (bar)
1	3 x 10^6	±0.06	100	design pressure
2	3 x 10^6	±0.50	45	design pressure
3	3 x 10^6	±1.50	10	design pressure



PRESSURE PULSATION TEST

Test Method: IACS UR P2.11.5.5.3
Test Condition: 500,000 cycles of pressure change
1 cycle: 0 → design pressure x 1.5 → design pressure → 0

PULL-OUT TEST

Test Method: IACS UR P2.11.5.5.5
Test Condition: design pressure & axial load for 5min
applied axial load = π/4 x pipe OD^2 x design pressure

Test Result: (Unit: kN)

ND	MJG		MJGF	
	Passing	Result	Passing	Result
20A	0.9	2	-	-
65A	6.4	8	7.3	8
100A	14.4	17	16.4	20
200A	29.4	45	44.1	48
300A	55.8	65	79.7	93
400A	77.8	89	103.8	110

FIRE ENDURANCE TEST

Test Method: IACS UR P2.11.5.5.6 - ISO19921:2005/19922:2005
Test Condition:
1) flame test: 800±50℃ flame, 80℃ circulating water at 5bar, 30min
2) pressure test: design pressure x 2 for 5min
※ The test items were installed with FRC for the flame test (refer to page 29).

VACUUM TEST

Test Method: IACS UR P2.11.5.5.7
Test Condition: 170mbar absolute for 5min

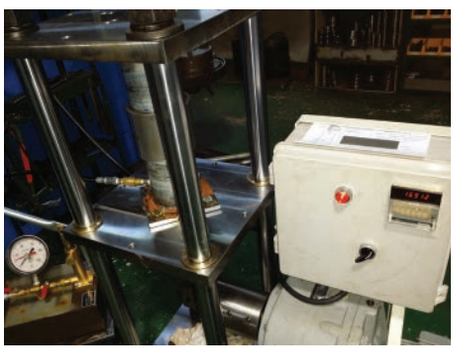
REPEATED ASSEMBLY TEST

Test Method: IACS UR P2.11.5.5.8
Test Condition: assembly 10 times, then tightness test

RECIPROCATING TEST & BENDING TEST

(joint development product)

Reciprocating: MJS, MJH 100A - 6mm, 300,000 times
Bending: MJH 100A - 2°, 78,000 times



SALT SPRAY TEST

Test Method: KS D 9502. 72 hours
Test Result: OK

BOLT TENSILE LOAD TEST

Test Method: KS B 0802
Bolt Material: SUS304(A2-70)

(Unit: N)

Bolt size	M6	M8	M12	M14
Tensile load	11,445	28,795	59,273	81,310

BREAK TEST

Test Method: KS B 0802
Test Result:

Test item	SUS bolt	SC bolt
Break load	42,031N	41,619N
Break section	spot weld	bolt

RUBBER PLATE ANALYSIS

EPDM

Test Method: KS M 6613

Test item		Result
Hardness(Hs)		63
Tensile test	elongation at 686N/cm^{2}load(%)	220
	tensile strength(N/cm^2)	1210
	elongation(%)	380
Tensile set(%)		5
Heat aging test (70±1℃, 96hours)	change in tensile strength(%)	0.5
	change in elongation(%)	0.4
	change in hardness(Hs)	0
Compression set (70±1℃, 22hours)(%)		13

NBR

Test Method: KS M 6518

Test item		Result
Hardness(Hs)		60
Tensile strength(MPa)		13.2
Elongation(%)		430
Heat aging test (80±1℃, 96hours)	change in tensile strength(%)	5.8
	change in elongation(%)	1.0
	change in hardness(Hs)	1
Compression set (80±1℃, 22hours)(%)		11
Immersion test (No.3 oil, 80±1℃, 96hours)	change in tensile strength(%)	5.9
	change in elongation(%)	2.6
	change in hardness(Hs)	-1
	change in volume(%)	-1.0

SILICONE

Test Method: KS M 6518

Test item		Result
Hardness(Hs)		60
Tensile strength(MPa)		8.1
Elongation(%)		370
Heat aging test (150±2℃, 96hours)	change in tensile strength(%)	-2.3
	change in elongation(%)	-9.8
	change in hardness(Hs)	2
Compression set (150±2℃, 22hours)(%)		16

FKM (Viton)

Test Method: KS M 6518

Test item		Result
Hardness(Hs)		73
Tensile strength(MPa)		11.2
Elongation(%)		210
Heat aging test (230±2℃, 24hours)	change in tensile strength(%)	3.6
	change in elongation(%)	-23.5
	change in hardness(Hs)	2
Compression set (175±2℃, 22hours)(%)		22

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INDUSTRY & PIPELINE (examples)

- ***General Industry*** *- chemical, petrochemical, steel mill, cement, mining, paper, pharmaceuticals, semiconductor, fiber & textile, food & beverage, etc.*

  Raw material transfer line, cooling water line, vacuum line, plumbing system, ventilation system, exhaust system, dust collector, cleaning equipment, sludge line, sewage & wastewater line, sprinkler, steam line, conduit pipe, fuel line, material storage tank

- ***Water & Environment***

  - Various kinds of pipeline at purification plant, sewage treatment plant, seawater desalination plant, pumping station
  - Water and sewage pipeline (incl. underground piping)

- ***Oil & Gas***

  Oil & gas distribution line

- ***Civil Engineering & Construction***

  Plumbing system, heating/ ventilating/ air-conditioning system, fuel line, fire fighting line, rainwater pipe, district heating system, agricultural water line, industrial water line, conduit pipe

- ***Power***

  Circulating water system, cooling water system, sewage & wastewater line, atmospheric gas line, dust collector

- ***Machinery & Equipment***

  Engine, fire truck, drinking fountain, dust collector, train, air compressor, automatic winder, other machine and equipment

- ***Maintenance of pipeline***

- ***Shipbuilding*** (according to IACS rule)

  Flammable fluids (flash point ≤ 60℃)
  - Cargo oil lines *
  - Crude oil washing lines *
  - Vent lines *

  Inert gas
  - Water seal effluent lines *
  - Scrubber effluent lines *
  - Main lines *
  - Distributions lines *

  Flammable fluids (flash point > 60℃)
  - Cargo oil lines *
  - Fuel oil lines *
  - Lubricating oil lines *
  - Hydraulic oil *
  - Thermal oil *

  Sea Water
  - Bilge lines *
  - Permanent water filled fire extinguishing systems * (e.g. fire main, sprinkler systems)
  - Non-permanent water filled fire extinguishing systems * (e.g. foam, drencher systems and fire main)
  - Ballast system *
  - Cooling water system *
  - Tank cleaning services
  - Non-essential systems

  Fresh water
  - Cooling water system *
  - Condensate return *
  - Non-essential system

  Sanitary / Drains / Scuppers
  - Deck drains (internal)
  - Sanitary drains

  Sounding / Vent
  - Water tanks / Dry spaces
  - Oil tanks (flash point>60℃)

  Miscellaneous
  - Service air (non-essential)
  - Brine
  - Steam

  * : FRC is required (page 29)

PIPE MATERIAL

Steel, stainless steel, cast iron, ductile iron, copper, concrete, Cu-Ni, aluminum, PVC, PPR, PE, GRE, GRP, etc.

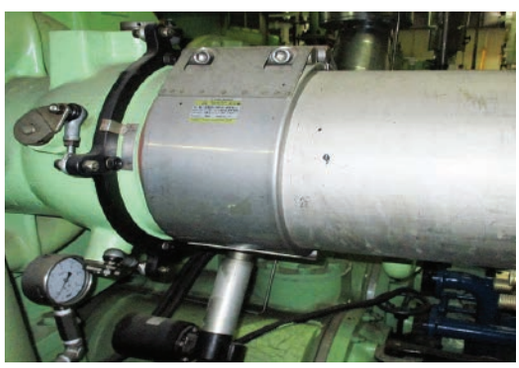
* Pipes of different materials can be connected by coupling as long as they have the same outside diameter (within coupling range).
  e.g., steel pipe + PVC pipe

INSTALLATION EXAMPLES - SHIPBUILDING

MJS NBR + strip insert 335mm, etc.
medium speed propulsion engines & marine genset. Korea

MJS NBR + strip insert 335mm, etc.
medium speed propulsion engines & marine genset. Korea

MJG EPDM 100A. engine room.
Australia



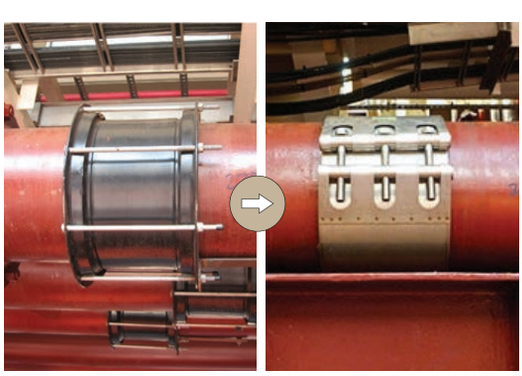
MJH EPDM 250A.

MJG NBR 40A. engine room. Taiwan

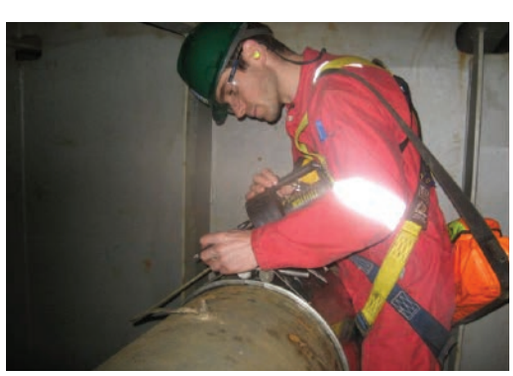
MJG NBR 40A. Taiwan

MJGL EPDM 40A. water supply line.
PPR pipe. Korea

MJS EPDM 100A. PVC pipe + steel pipe. Korea



MJL HNBR 300A. inert gas line at FPSO deck header.
replacement of dresser coupling. UK



MJDL 400A. ballast system. Netherlands

MJG EPDM 100A.
sprinkler line for deck wash.
Netherlands

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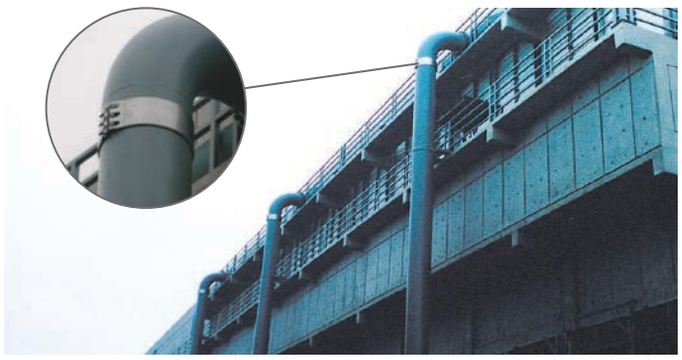
INSTALLATION EXAMPLES - PIPES CONNECTION



MJDL EPDM 600A. HVAC line. Incheon International Airport. Korea

MJGF EPDM 50A. fire protection system. Japan

MJS EPDM 50.8mm
material feeding line of injection molding system.
Poland

MGLP EPDM 50A, 80A.
latex and coagulant conveying line. UPVC pipe.
Malaysia

MJG. silo system.

MJS EPDM 200A. pulp conveying line.
PVC pipe. couplings used for pipe connection
for pipes to be cleaned regularly. Korea

MJG EPDM 152.4mm.
air line of dedusting system. Korea

MJS EPDM + strip insert 80A~125A.
wheat flour conveying system. Korea

MGLP EPDM 100A.
rainwater drainage pipe under overpass. Japan

MJGF EPDM 100A.
pump up drain pipe. subway station. Japan

MJGF EPDM 100A.
drain pipe. subway station. Japan

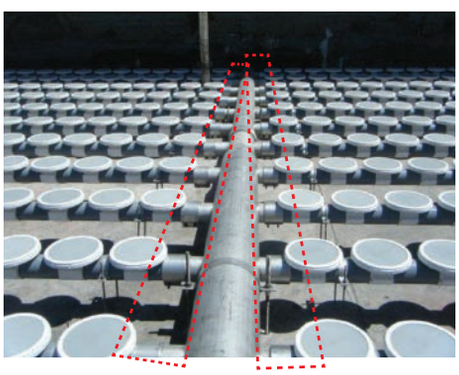
INSTALLATION EXAMPLES - PIPES CONNECTION

MJL 400A. pressure test on fiberglass pipe @29.6kg/cm^3. Korea

MJS EPDM 600A. hydroelectric plant. Australia

MJD-A EPDM 100mm. pressure gauge installed on PVC pipe. water supply line at power plant. Thailand

MJG EPDM 40A, 65A. sprinkler. PE pipe. Korea

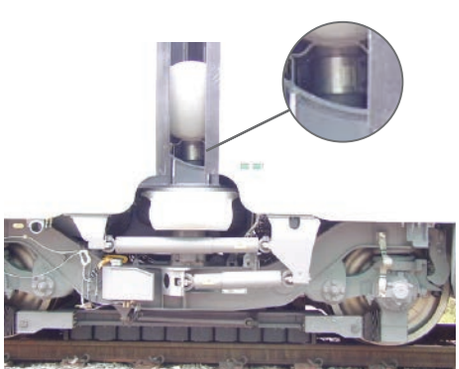


MJS EPDM 80A~300A. aeration tank. USA

MJFL Viton 3,615mm. chemical storage tank. for protection of weld. Korea

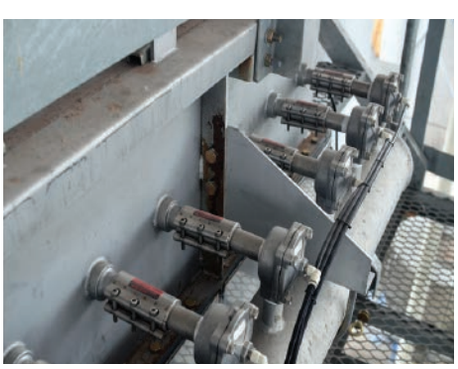
MJDL EPDM + strip insert 507mm. ash slurry line. 1km heavy weight fiberglass pipe of a coal fired power station. Australia

MJS EPDM 400A. mineral conveying line. Australia



MJG EPDM 125A. between carriages of express train. Korea

MJG EPDM 65A. dust collector. Korea



MJGL Silicone 40A. dust collector. Pakistan

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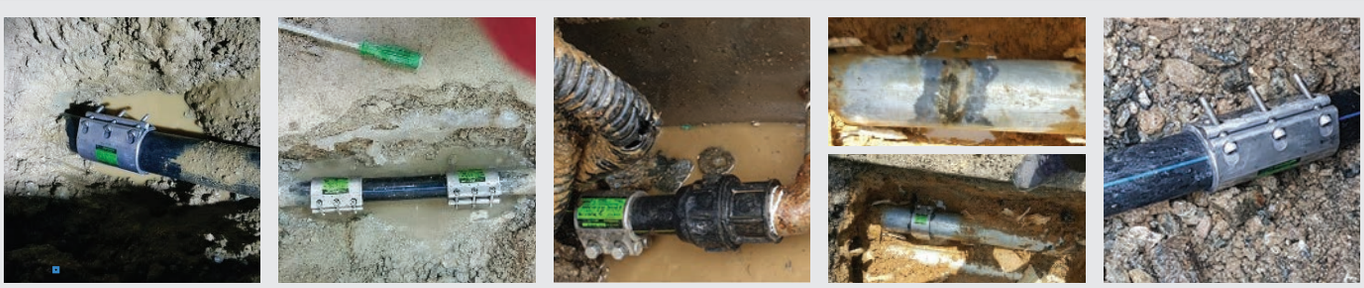
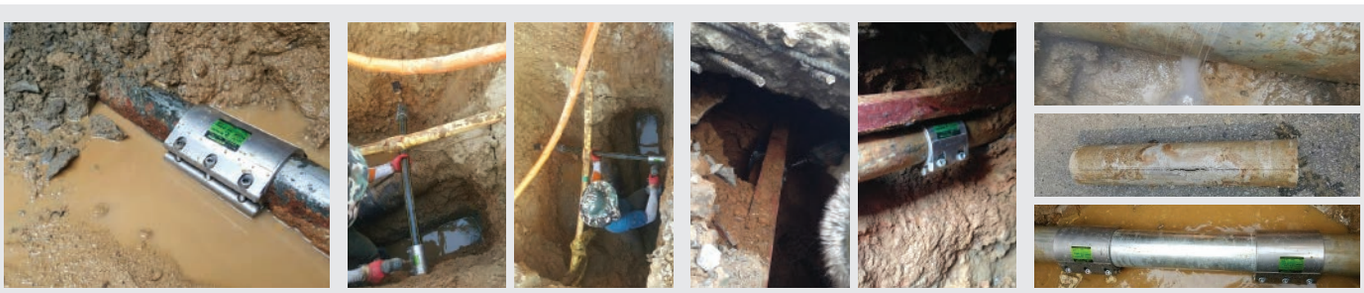
INSTALLATION EXAMPLES - LEAKAGE REPAIR



INSTALLATION EXAMPLES - LEAKAGE REPAIR



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https://www.sunflexhose.com.tw/

Item No.	Pipe Outside Diameter			Coupling / Clamping Range (mm)			Max. WP (bar)		Product Length (mm)	
	ND	inch	actual OD (mm)	MJG / MJGL / MGLP MJSG / MJSGL / MJET	MJS / MJL / MJR / MJRL MJH / MJHL / MJHT	MJD / MJDL / MJER	ship	general industry	standard	long
U2	13A-1		15.8	-	MJH: 14.0 ~ 16.5	14.0 ~ 17.0	16	32	60 (MJER:27)	100
01	**15A-1**	**1/2**	**21.3 21.7 21.8**	21.2 ~ 22.0	21.0 ~ 22.0 / MJH: ~23.0	21.0 ~ 23.0				
02	15A-2		20.0	19.5 ~ 20.5	19.5 ~ 20.5	19.5 ~ 21.3				
03	15A-3		22.2	21.2 ~ 22.5	21.2 ~ 22.7 / MJH: (15A-1)	(15A-1)				
04	**20A-1**	**3/4**	**26.7 26.9 27.2**	26.7 ~ 27.7	26.0 ~ 28.0	26.0 ~ 29.0				
05	20A-2		25.0	24.5 ~ 25.5	24.0 ~ 26.0	24.0 ~ 26.5				
06	20A-3		28.2 28.6	27.5 ~ 29.0	26.4 ~ 29.0	26.4 ~ 29.5				
07	**25A-1**	**1**	**33.4 33.7 34.0**	33.0 ~ 34.6	33.0 ~ 35.0	33.0 ~ 35.5				
08	25A-2		30.0 30.2	29.5 ~ 30.5	29.0 ~ 31.0	29.0 ~ 31.5				
09	25A-3		32.0	31.5 ~ 32.5	31.0 ~ 33.0	31.0 ~ 33.5				
N9	25A-4		35.0	34.5 ~ 35.5	34.0 ~ 36.0	(25A-1)				
10	32A-1		38.0 38.5	37.5 ~ 38.5	37.0 ~ 39.0	37.0 ~ 39.5				
11	**32A-2**	**1 1/4**	**42.2 42.4 42.7**	41.9 ~ 43.0	42.0 ~ 44.0	41.0 ~ 44.5				
12	32A-3		44.5	44.0 ~ 45.0	44.0 ~ 46.0	44.0 ~ 46.5				
13	32A-4		40.0 40.9 41.3	39.5 ~ 41.5	39.5 ~ 41.5	39.5 ~ 41.8				
15	**40A-1**	**1 1/2**	**48.3 48.6**	47.8 ~ 49.0	47.5 ~ 49.5	47.5 ~ 50.5				
17	40A-3		50.0 50.8	49.5 ~ 51.5	49.2 ~ 51.5	48.6 ~ 51.5				
18	50A-1		54.0	53.4 ~ 54.6	53.0 ~ 55.0	53.0 ~ 56.0				
19	50A-2		57.0	56.4 ~ 57.6	56.0 ~ 58.0	56.0 ~ 59.0				
20	**50A-3**	**2**	**60.3 60.5**	59.0 ~ 61.5	59.0 ~ 61.5	59.0 ~ 62.0				
21	50A-4		63.0	62.4 ~ 63.6	62.0 ~ 64.0	62.0 ~ 65.0			80 (40)	150
23	65A-1		73.0	71.5 ~ 74.1	72.5 ~ 75.5	71.5 ~ 76.5				
24	**65A-2**	**2 1/2**	**76.1 76.3**	75.0 ~ 77.2	75.0 ~ 78.0	75.0 ~ 79.0				
25	65A-3		69.0 70.0	68.0 ~ 70.1	68.5 ~ 71.0	67.5 ~ 72.0				
26	65A-4		66.7	65.2 ~ 67.3	65.4 ~ 68.3	64.4 ~ 69.0				
27	80A-1		84.0 85.0	83.0 ~ 84.9	82.5 ~ 85.5	81.0 ~ 86.0				
28	**80A-2**	**3**	**88.9 89.1**	87.8 ~ 91.0	88.0 ~ 91.0	86.0 ~ 92.0				
30	80A-4		79.9	78.8 ~ 80.8	78.8 ~ 82.0	77.0 ~ 83.0				
32	**90A-1**	**3 1/2**	**101.6**	100.4 ~ 102.6	100.0 ~ 103.0	100.0 ~ 104.0			110 (60)	200
34	100A-1		104.0	103.0 ~ 104.8	102.0 ~ 105.0	102.0 ~ 106.0				
35	100A-2		108.0	106.5 ~ 108.5	106.0 ~ 109.0	106.0 ~ 110.0	14	28		
36	**100A-3**	**4**	**114.3**	113.2 ~ 115.4	113.0 ~ 116.0	113.0 ~ 118.0				
37	100A-4		106.3	105.0 ~ 107.4	105.0 ~ 107.5	105.0 ~ 108.5				
38	100A-5		110.0	108.5 ~ 111.0	108.5 ~ 111.5	108.5 ~ 113.5				
39	125A-1		133.0	131.6 ~ 134.4	131.0 ~ 135.0	131.0 ~ 135.5			111 (60)	201
40	**125A-2**	**5**	**139.7 139.8**	137.7 ~ 140.9	138.0 ~ 142.0	138.0 ~ 142.5				
41	125A-3		141.1 141.3	139.7 ~ 142.5	139.5 ~ 143.5	139.5 ~ 144.0				
42	125A-4		127.0	125.6 ~ 128.4	125.0 ~ 129.0	125.0 ~ 129.5				
43	125A-5		129.0	127.5 ~ 130.0	127.5 ~ 130.0	127.5 ~ 131.0				
Q2	125A-9		125.0	123.0 ~ 126.0	123.0 ~ 126.0	123.0 ~ 126.5				
S4	125A-12		130.2	128.8 ~ 131.6	129.0 ~ 131.0	128.2 ~ 132.7				
44	150A-1		154.0	151.5 ~ 155.0	151.5 ~ 155.5	151.5 ~ 156.0	12	24		
45	150A-2		159.0	156.5 ~ 160.0	156.0 ~ 160.0	156.0 ~ 161.0				
46	**150A-3**	**6**	**165.2**	163.3 ~ 166.7	164.0 ~ 167.0	164.0 ~ 168.5				
47	150A-4		168.3	166.6 ~ 170.0	166.0 ~ 170.0	166.0 ~ 170.5				
49	150A-6		150.0	147.5 ~ 151.0	148.0 ~ 152.0	146.8 ~ 152.5				
Q6	175A-1		180.0 181.0	178.0 ~ 182.0	178.0 ~ 182.0	178.0 ~ 183.0	10	20		
51	**200A-1**	**8**	**216.3**	214.5 ~ 218.3	214.0 ~ 218.5	214.0 ~ 219.0	8	16	150 (61)	250 (300,400: by special order)
52	200A-2		219.1	217.0 ~ 221.0	216.5 ~ 221.5	216.5 ~ 222.0				
54	200A-4		200.0	198.2 ~ 201.5	198.0 ~ 203.0	198.0 ~ 203.5				
55	200A-5		203.0 204.0	202.7 ~ 206.7	202.0 ~ 206.0	202.0 ~ 206.5				
56	**250A-1**	**10**	**267.0 267.4**	264.8 ~ 270.0	262.0 ~ 269.0	262.0 ~ 270.0				
57	250A-2		273.1 274.0	270.4 ~ 275.6	270.0 ~ 276.0	270.0 ~ 277.0				
59	250A-4		252.0 254.0	251.4 ~ 256.6	251.0 ~ 257.0	251.0 ~ 257.0				
61	**300A-1**	**12**	**318.5**	316.0 ~ 322.0	316.0 ~ 322.5	316.0 ~ 323.0	7	14		
64	300A-2		323.9	321.0 ~ 327.4	322.0 ~ 328.0	322.0 ~ 329.0				
66	300A-6		304.0	301.5 ~ 306.6	301.5 ~ 308.0	301.5 ~ 309.0				
67	**350A-1**	**14**	**355.6**	352.0 ~ 360.0	352.0 ~ 359.5	352.0 ~ 361.0				
71	**400A-1**	**16**	**406.4**	402.0 ~ 410.0	402.0 ~ 410.0	402.0 ~ 411.0	6	12		
74	**450A-1**	**18**	**457.2**	-	453.0 ~ 460.0	453.0 ~ 462.0				
77	**500A-1**	**20**	**508.0**		504.0 ~ 512.0	504.0 ~ 513.0	5	10		
80	**550A-1**	**22**	**558.8**		555.0 ~ 563.0	554.0 ~ 564.0	4.6	9.2		
83	**600A-1**	**24**	**609.6**		605.0 ~ 614.0	605.0 ~ 615.0	4.2	8.4		

※ available up to 4000A

[Remarks]

* Burst pressure ≧ working pressure for ship x safety factor (4)
  Burst pressure ≧ working pressure for industry x safety factor (2)
* The sizes highlighted in bold are JWC standards.
* There are some more sizes available.
* It is not recommended to use couplings for food ingredient conveying lines where those fluids can get jammed in rubber gasket and rotted.

* Please check pipe OD in millimeter, pressure, fluid type & temperature, etc.

how to order	for example
Model + **Pipe OD** + **Gasket material** (+ Casing & other materials) + **Quantity** (+ Certification)	**MJG** 100A(**114.3mm**), **NBR** (for diesel oil), SUS304 casing, SUS304 bolt, SUS303F bar, **350pcs**, ABS approval

JEONG WOO COUPLING CO., LTD.
83-16, Dongbuk-ro 437beon-gil, Sangdong-myeon, Gimhae-si, Gyeongnam, Republic of Korea 50804
Tel **+82-55-339-7666** Fax **+82-55-339-8666**
Web **www.mpjoint.com** Email **mpjoint.com@gmail.com**