

RANO TECH

Better Technology For Better Life

RNT SMART CLAMP



*Quick, Simple
and Economical Pipe Coupling*



บริษัท เรโน เทคโนโลยี จำกัด
RANO TECH co.,Ltd

HOT LINE 085 941 0072

<http://www.ranotech.com> | E-mail ranotech@gmail.com | Tel 02 735 0747 Fax 02 735 0702

647/3-6 RAMKAMHAENG ROAD, HUAMARK , BANGKAPI, BANGKOK 10240 THAILAND



Good Choice ! SINCE 1995

Pride of Technology and Quality

To open A new Future - SMART CLAMP !!

Save Money & Time : 30% + α

CERTIFICATE



ISO 9001:2008



KR



ABS



LR



BV



DNV



GL



RINA



JWWA



JFESC



CE MARK

CONTENTS

02 / CERTIFICATES

04 / Name of each part & Material of Rubber
Characteristics

05 / Connection / Partial Replacement Type of Clamp

06 / Grip Ring Type

07 / Grip ring low pressure type (New Model)

08 / Flexible Type

09 / Flex Grip Type (New Model)

11 / Double Flexible Type (Double locks)

12 / Three Flexible Type (Three locks)

13 / Four Flexible Type (Three locks)

14 / Repair Type of Clamp

15 / Hinge Repair Clamp Type (Single lock)

17 / Repair Clamp Type (Single lock)

19 / Double Repair Clamp Type (Double locks)

21 / Double Repair Clamp Force Type (Double locks)

22 / Three Repair Clamp Type (Three locks)
Three Repair Clamp Force Type (Three locks)

23 / Four Repair Clamp Type (Four locks)
Four Repair Clamp Force Type (Four locks)

24 / Elbow Repair Clamp Type (Double locks)

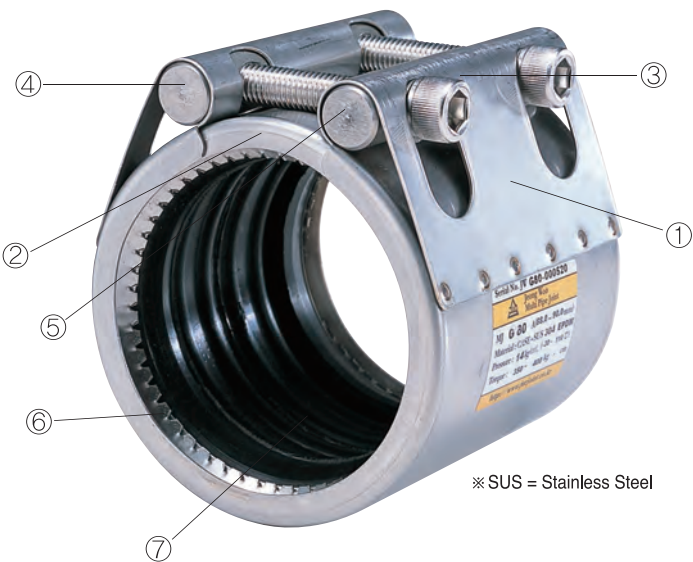
25 / Socket repair clamp type (New Model)

26 / Test data

29 / Application field for RNT SMART CLAMP

NAME OF EACH PART

- ① CASING SUS 304 / 316
- ② SLIDE PLATE SUS 304 / 316
- ③ BOLT SUS 304 / 316 / SS41C / SCM 435 GALV´
- ④ BAR-NUT SUS 303F / 316 / S45C GALV´
- ⑤ BAR-WASHER SUS 303F / 316 / S45C GALV´
- ⑥ GRIP RING SUS 301H
- ⑦ RUBBER EPDM / NBR / SILICONE / FKM (VITON)

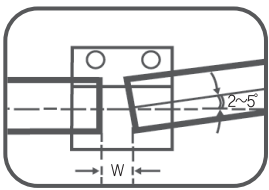


※ SUS = Stainless Steel

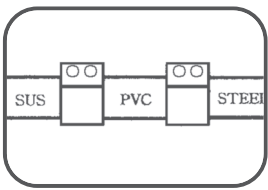
Quick
Simple and Economical
Pipe Coupling

SEALING SLEEVE	CHARACTERISTICS	
E.P.D.M. (Ethylene Propylene Rubber)	• Aging · Ozon · Elec' Resistance	• Normal Temp' : -30~130℃
N.B.R (Nitril Butadiene Rubber)	• Oil · Abrasion · Aging Resistance	• Normal Temp' : -25~100℃
SILICONE	• Heat · Weather Resistance	• Normal Temp' : -70~220℃
FKM / FPM (Fluoro Carbon Elastomer)	• Chemical · Medicine Resistance	• Normal Temp : -30~250℃

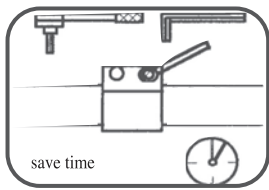
CHARACTERISTICS



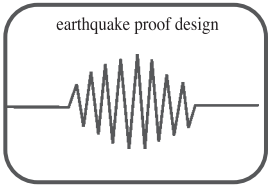
absorb sag & gap



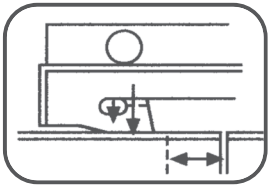
connect different pipes



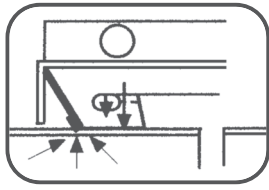
use a hexagon wrench



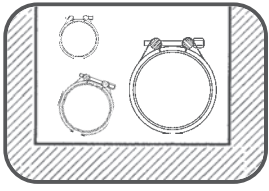
absorb stress, vibration & noise



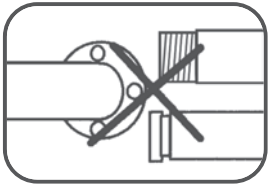
absorb expansion



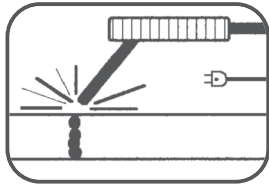
resistance against axial load



save work space



no treatment of the pipe ends



fire safe

Connection/Partial Replacement Type of Clamp

■ Grip Ring Type

■ Flexible Type

■ Flex Grip Type

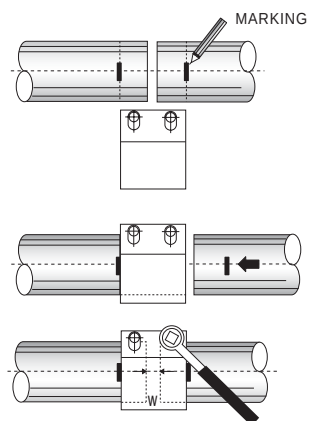
■ Flexible Type(Double locks, Three locks, Four locks)



Setting Method

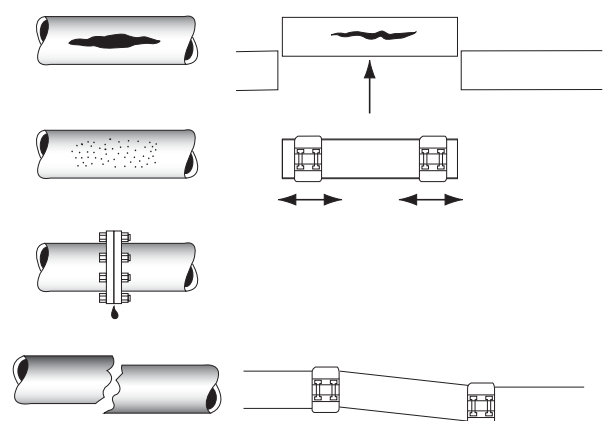
Connection

Models : MJG, MJGL, MJS, MJL, MGLP, MJSG



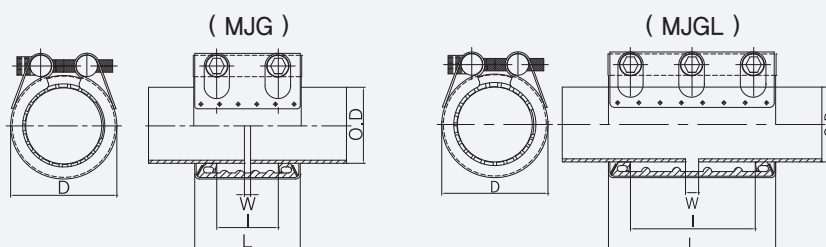
Partial Replacement

Models : MJG, MJS, MGLP



RNT SMART CLAMP

Grip Ring Type *A patent on a new device*



Fixing pipes by the movement-resistant jointing method, Grip-Ring type has grip rings inside. A new method of joining, it is widely used in advanced countries instead of welding, flanges, unions and groove joint type. Grip-Ring joints do not need to process the pipe edges.

Models and Normal Sizes: MJG(15A~350A) / MJGL(20A~350A)

ITEM NO	PIPE ND	OD (mm)	D (mm)	Coupling range (mm)	Working Pressure (bar)		MJG		MJGL		MJG		MJGL	
							Length(mm)		Length(mm)		Torque rate (Nm)	bolts thread M	Torque rate (Nm)	bolts thread M
					Ship	Industry	L	I	L	I				
02	15A	20.0	33.5	19.5 ~ 20.5	16	32	60	28	-	-	7	6	-	-
01		21.7	35.5	21.2 ~ 22.2	16	32	60	28	-	-	7	6	-	-
05	20A	25.0	38.5	24.5 ~ 25.5	16	32	60	28	100	70	8	8	7	6
04		27.2	41.0	26.7 ~ 27.7	16	32	60	28	100	70	8	8	7	6
06		28.2	41.5	27.5 ~ 29.0	16	32	60	28	-	-	8	8	-	-
08	25A	30.0	43.5	29.5 ~ 30.5	16	32	60	28	-	-	8	8	-	-
09		32.0	45.5	31.5 ~ 32.5	16	32	60	28	100	70	8	8	7	6
07		34.0	47.0	33.0 ~ 34.6	16	32	60	28	100	70	8	8	7	6
10	32A	38.0	51.5	37.5 ~ 38.5	16	32	60	28	-	-	15	8	-	-
14		40.0	53.5	39.5 ~ 41.5	16	32	60	28	100	70	15	8	7	6
11		42.7	56.0	41.9 ~ 43.0	16	32	60	28	100	70	15	8	7	6
12		44.5	58.0	44.0 ~ 45.0	16	32	60	28	-	-	15	8	-	-
15	40A	48.6	62.0	47.8 ~ 49.0	16	32	60	28	100	70	15	8	7	6
17		50.8	64.5	49.5 ~ 51.5	16	32	60	28	100	70	15	8	7	6
18	50A	54.0	69.6	53.4 ~ 54.6	16	32	80	44	-	-	18	8	-	-
19		57.0	72.6	56.4 ~ 57.6	16	32	80	44	-	-	18	8	-	-
20		60.5	76.0	59.0 ~ 61.5	16	32	80	44	150	110	18	8	18	8
21		63.0	78.6	62.4 ~ 63.6	16	32	80	44	150	110	18	8	18	8
26	65A	66.7	82.3	65.2 ~ 67.3	14	28	80	44	-	-	18	8	-	-
25		69.0	84.6	68.0 ~ 70.1	14	28	80	44	150	110	18	8	18	8
23		73.0	88.6	71.5 ~ 74.1	14	28	80	44	150	110	18	8	18	8
24		76.3	92.0	75.0 ~ 77.2	14	28	80	44	150	110	18	8	18	8
30	80A	79.9	101.0	78.8 ~ 81.2	14	28	110	59	200	150	35	12	35	12
27		84.0	105.0	83.0 ~ 84.9	14	28	110	59	-	-	35	12	-	-
28		89.1	110.0	87.8 ~ 91.0	14	28	110	59	200	150	35	12	35	12
32	90A	101.6	123.0	100.4 ~ 102.6	14	28	110	59	200	150	35	12	35	12
34	100A	104.0	125.0	103.0 ~ 104.8	14	28	110	59	200	150	35	12	35	12
37		106.3	127.5	105.0 ~ 107.4	14	28	110	59	200	150	35	12	35	12
35		108.0	129.0	106.5 ~ 108.5	14	28	110	59	200	150	35	12	35	12
36		114.3	135.0	113.2 ~ 115.4	14	28	110	59	200	150	35	12	35	12
42	125A	127.0	149.0	125.6 ~ 128.4	14	28	111	59	-	-	45	12	-	12
43		129.0	151.0	127.5 ~ 130.0	14	28	111	59	-	-	45	12	-	-
39		133.0	155.0	131.6 ~ 134.4	14	28	111	59	-	-	45	12	-	-
40		139.8	162.0	137.7 ~ 140.9	14	28	111	59	201	150	45	12	45	12
41		141.3	163.3	139.7 ~ 142.5	14	28	111	59	201	150	45	12	45	12

RNT SMART CLAMP

ITEM NO	PIPE ND	OD (mm)	D (mm)	Coupling range (mm)	Working Pressure (bar)		MJG Length (mm)		MJGL Length (mm)		MJG Torque rate (Nm)		MJGL Torque rate (Nm)	
					Ship	Industry	L	I	L	I		bolts thread M		bolts thread M
44	150A	154.0	176.0	151.5 ~ 155.0	12	24	111	59	-	-	45	12	-	-
45		159.0	181.0	156.5 ~ 160.0	12	24	111	59	201	150	45	12	45	12
46		165.2	187.0	163.3 ~ 166.7	12	24	111	59	201	150	45	12	45	12
47		168.3	190.3	166.6 ~ 170.0	12	24	111	59	201	150	45	12	45	12
Q6	175A	180.0	202.0	178.0 ~ 182.0	10	20	111	59	-	-	45	12	-	-
54	200A	200.0	226.6	198.2 ~ 201.5	8	16	150	89	-	-	70	14	-	-
55		204.0	230.6	202.7 ~ 206.7	8	16	150	89	-	-	70	14	-	-
51		216.3	243.0	214.5 ~ 218.3	8	16	150	89	250	185	70	14	70	16
52		219.1	245.7	217.0 ~ 221.0	8	16	150	89	250	185	70	14	70	16
59	250A	254.0	280.6	251.4 ~ 256.6	8	16	150	89	-	-	70	14	-	-
56		267.4	294.0	264.8 ~ 270.0	8	16	150	89	250	185	70	14	70	16
57		273.1	299.7	270.4 ~ 275.6	8	16	150	89	250	185	70	14	70	16
66	300A	304.0	330.6	301.5 ~ 306.6	7	14	150	89	-	-	70	14	-	-
61		318.5	345.0	316.0 ~ 322.0	7	14	150	89	250	185	70	14	70	16
64		323.9	350.5	321.0 ~ 327.4	7	14	150	89	250	185	70	14	70	16
67	350A	355.6	382.2	352.0 ~ 360.0	7	14	150	89	250	185	70	14	70	16

[Remark]

ND : Normal diameter of pipe / O.D : Outside diameter of Pipe(KS, JIS, DIN, ANSI etc.)

Test pressure of ship application = Working pressure x 4.0 times

Test pressure of industry application = Working pressure x 2.0 times

For more higher pressure, please choose MJGF, MJGFL (Grip ring force Type)

Settings gap between Pipe ends W

Angular deflection

ND 15~65A

0 ~ 8mm

15~50A

5°

ND 80A more than

0 ~ 15mm

65~175A

4°

200A more than

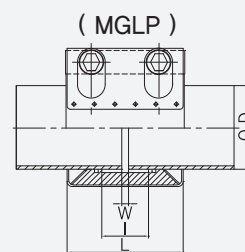
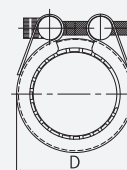
2°

New model

Grip ring low pressure type



To use MGLP for low pressure and more economical cost for connection or partial replacement.



Models and Norminal Sizes: MGLP(15A~200A)

ITEM NO	PIPE ND	OD (mm)	D (mm)	Coupling range (mm)	Working Pressure (bar)	Length (mm)		Torque rate (Nm)	bolts thread M
					Industry	L	I		
01	15A	21.7	37.0	21.2 ~ 22.2	10	60	28	5	6
04	20A	27.2	42.5	26.7 ~ 27.7	10	60	28	5	6
07	25A	34.0	50.0	33.0 ~ 34.6	10	60	28	5	6
11	32A	42.7	59.7	41.9 ~ 43.0	10	60	28	7	6
15	40A	48.6	66.4	47.8 ~ 49.0	10	60	28	7	6
20	50A	60.5	78.8	59.0 ~ 61.5	10	60	28	7	6
24	65A	76.3	96.5	75.0 ~ 77.2	10	80	44	15	8
28	80A	89.1	107.0	87.8 ~ 91.0	10	80	44	15	8
36	100A	114.3	136.8	113.2 ~ 115.4	6	110	59	30	12
40	125A	139.8	156.0	137.7 ~ 140.9	6	110	59	45	12
46	150A	165.2	182.0	163.3 ~ 166.7	6	110	59	45	12
51	200A	216.3	233.1	214.5 ~ 218.3	3	110	59	55	12

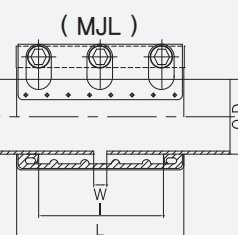
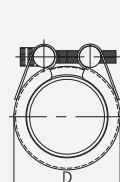
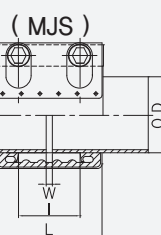
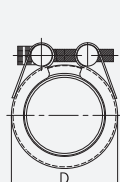
[Remark]

ND : Normal diameter of pipe / O.D : Outside diameter of Pipe(KS, JIS, DIN, ANSI etc.)

Test pressure of industry application = Working pressure x 2.0 times

RNT SMART CLAMP

Flexible Type



With the inside made of rubber sleeve, Flexible joints absorb impact, vibration, bending [2~5°], noise (over 60% compared to welded joints) and expansion. Because a thrust can happen with non-pressure pipes on new construction, these products are recommended to fix pipes.

Models and Norminal Sizes: MJS(15A~600A) / MJL(15A~600A)

ITEM NO	PIPE ND	OD (mm)	D (mm)	Coupling range (mm)	Working Pressure (bar)		MJS		MJL		MJS		MJL	
							Length(mm)		Length(mm)		Torque rate (Nm)	bolts thread M	Torque rate (Nm)	bolts thread M
					Ship	Industry	L	I	L	I				
02	15A	20.0	30.0	19.5 ~ 20.5	16	32	60	28	100	70	7	6	7	6
01		21.7	31.7	21.0 ~ 22.0	16	32	60	28	100	70	7	6	7	6
05	20A	25.0	37.6	24.0 ~ 26.0	16	32	60	28	100	70	7	8	7	6
04		27.2	39.8	26.0 ~ 28.0	16	32	60	28	100	70	7	8	7	6
06		28.2	40.8	26.4 ~ 29.0	16	32	60	28	-	-	7	8	-	-
08	25A	30.0	42.6	29.0 ~ 31.0	16	32	60	28	-	-	7	8	-	-
09		32.0	44.6	31.0 ~ 33.0	16	32	60	28	100	70	7	8	7	6
07		34.0	46.6	33.0 ~ 35.0	16	32	60	28	100	70	7	8	7	6
10	32A	38.0	50.6	37.0 ~ 39.0	16	32	60	28	-	-	7	8	-	-
14		40.0	52.6	39.5 ~ 41.3	16	32	60	28	100	70	7	8	7	6
11		42.7	55.3	42.0 ~ 44.0	16	32	60	28	100	70	7	8	7	6
12		44.5	57.1	44.0 ~ 46.0	16	32	60	28	-	-	7	8	-	-
15	40A	48.6	61.2	47.5 ~ 49.5	16	32	60	28	100	70	7	8	7	6
17		50.8	63.4	49.2 ~ 51.5	16	32	60	28	100	70	7	8	7	6
18	50A	54.0	69.0	53.0 ~ 55.0	16	32	80	44	-	-	12	8	-	-
19		57.0	72.0	56.0 ~ 58.0	16	32	80	44	-	-	12	8	-	-
20		60.5	75.5	59.0 ~ 61.5	16	32	80	44	150	110	12	8	12	8
21		63.0	78.0	62.0 ~ 64.0	16	32	80	44	150	110	12	8	12	8
26	65A	66.7	81.7	65.4 ~ 68.3	14	28	80	44	-	-	-	-	-	-
25		69.0	84.0	68.5 ~ 71.0	14	28	80	44	150	110	12	8	12	8
23		73.0	88.0	72.5 ~ 75.5	14	28	80	44	150	110	12	8	12	8
24		76.3	91.3	75.0 ~ 78.0	14	28	80	44	150	110	12	8	12	8
30	80A	79.9	98.9	78.8 ~ 82.0	14	28	110	59	-	-	15	12	-	-
27		84.0	103.0	82.5 ~ 85.5	14	28	110	59	-	-	15	12	-	-
28		89.1	108.0	88.0 ~ 91.0	14	28	110	59	200	150	15	12	15	12
32	90A	101.6	121.0	100.0 ~ 103.0	14	28	110	59	200	150	15	12	15	12
34	100A	104.0	123.0	102.0 ~ 105.0	14	28	110	59	200	150	15	12	15	12
37		106.3	125.3	105.0 ~ 107.5	14	28	110	59	200	150	15	12	15	12
35		108.0	127.0	106.0 ~ 109.0	14	28	110	59	200	150	15	12	15	12
36		114.3	133.0	113.0 ~ 116.0	14	28	110	59	200	150	15	12	15	12
42	125A	127.0	147.0	125.0 ~ 129.0	14	28	111	59	-	-	25	12	-	-
43		129.0	149.0	127.5 ~ 130.0	14	28	111	59	-	-	25	12	-	-
39		133.0	153.0	131.0 ~ 135.0	14	28	111	59	-	-	25	12	-	-
40		139.8	160.0	138.0 ~ 142.0	14	28	111	59	201	150	25	12	25	12
41		141.3	161.3	139.5 ~ 143.5	14	28	111	59	201	150	25	12	25	12

RNT SMART CLAMP

ITEM NO	PIPE ND	OD (mm)	D (mm)	Coupling range (mm)	Working Pressure (bar)		MJS		M.JL		MJS		M.JL	
							Length(mm)		Length(mm)		Torque rate (Nm)	bolts thread M	Torque rate (Nm)	bolts thread M
					Ship	Industry	L	I	L	I				
44	150A	154.0	174.0	151.5 ~ 155.5	12	24	111	59	-	-	25	12	-	-
45		159.0	179.0	156.0 ~ 160.0	12	24	111	59	201	150	25	12	25	12
46		165.2	185.0	164.0 ~ 167.0	12	24	111	59	201	150	25	12	25	12
47		168.3	188.0	166.0 ~ 170.0	12	24	111	59	201	150	25	12	25	12
Q6	175A	180.0	200.0	178.0 ~ 182.0	10	20	111	59	-	-	30	12	-	-
54	200A	200.0	224.5	198.0 ~ 203.0	8	16	150	89	-	-	35	14	-	-
55		204.0	228.5	202.0 ~ 206.0	8	16	150	89	-	-	35	14	-	-
51		216.3	240.0	214.0 ~ 218.5	8	16	150	89	250	185	35	14	35	16
52		219.1	243.6	216.5 ~ 221.5	8	16	150	89	250	185	35	14	35	16
59	250A	254.0	278.5	251.0 ~ 257.0	8	16	150	89	-	-	35	14	-	-
56		267.4	292.0	262.0 ~ 269.0	8	16	150	89	250	185	35	14	35	16
57		273.1	297.6	270.0 ~ 276.0	8	16	150	89	250	185	35	14	35	16
66	300A	304.0	328.5	301.5 ~ 308.0	7	14	150	89	-	-	35	14	-	-
61		318.5	343.0	316.0 ~ 322.5	7	14	150	89	250	185	35	14	35	16
64		323.9	348.4	322.0 ~ 328.0	7	14	150	89	250	185	35	14	35	16
67	350A	355.6	380.0	352.0 ~ 360.0	7	14	150	89	250	185	75	14	75	16
71	400A	406.4	431.0	402.0 ~ 410.0	6	12	150	89	250	185	75	14	75	16
74	450A	457.2	481.0	453.0 ~ 460.0	6	12	150	89	250	185	90	14	90	16
77	500A	508.0	532.0	504.0 ~ 512.0	5	10	150	89	250	185	90	14	90	16
80	550A	558.8	583.0	555.0 ~ 563.0	4.6	9.2	150	89	250	185	90	14	90	16
83	600A	609.6	634.0	605.0 ~ 614.0	4.2	8.4	150	89	250	185	90	14	90	16

[Remark]

ND : Normal diameter of pipe / O.D : Outside diameter of Pipe(KS, JIS, DIN, ANSI etc.)

Test pressure of ship application = Working pressure x 4.0 times

Test pressure of industry application = Working pressure x 2.0 times

Length 300mm, 400mm is available over 200A.(Manufacture by order)

To use Double flexible type over 600A.

For more higher pressure, please choose MJSF, MJSFL (Flexible force Type)

Max. axial movement

ND 15A~ 150A 5mm

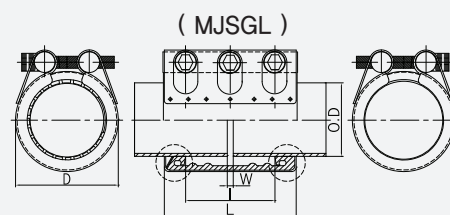
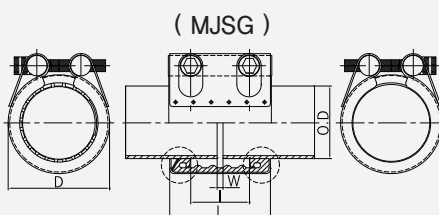
ND 175A~ 500A 10mm

ND 550A more than 15mm

New model

Flex Grip Type

A patent on a new device



This model combines Flexible type and Grip ring type which can fix the pipe to resist a slip off from one side of pipe. The other side coupling is Flexible type which can absorb a continuous internal/external conditions(expansion, stress, vibration, sag etc.). It is an improved Flexible type(MJS).

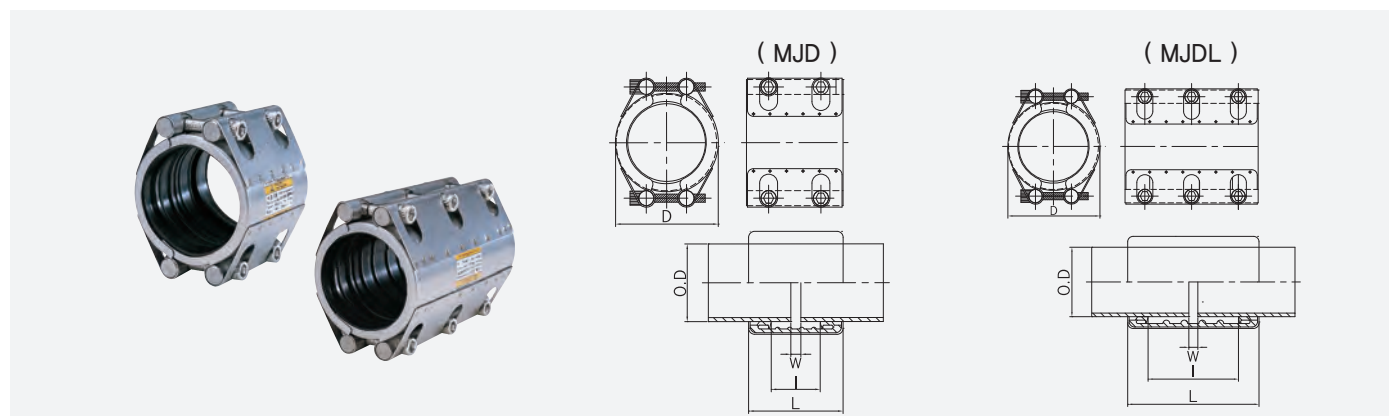
Models and Normal Sizes: MJSGL(15A~350A) / MJSGL(20A~350A)

ITEM NO	PIPE ND	OD (mm)	D (mm)	Coupling range (mm)	Working Pressure (bar)		MJSGL		MJSGL		MJSGL		MJSGL	
							Length(mm)		Length(mm)		Torque rate (Nm)	bolts thread M	Torque rate (Nm)	bolts thread M
					Ship	Industry	L	I	L	I				
02	15A	20.0	33.5	19.5 ~ 20.5	16	32	60	28	-	-	7	6	-	-
01		21.7	35.5	21.2 ~ 22.2	16	32	60	28	-	-	7	6	-	-

RNT SMART CLAMP

ITEM NO	PIPE ND	OD (mm)	D (mm)	Coupling range (mm)	Working Pressure (bar)		MJSG		MJSGL		MJSG		MJSGL	
							Length(mm)		Length(mm)		Torque rate (Nm)	bolts thread M	Torque rate (Nm)	bolts thread M
					Ship	Industry	L	I	L	I				
05	20A	25.0	38.5	24.5 ~ 25.5	16	32	60	28	100	70	8	8	7	6
04		27.2	41.0	26.7 ~ 27.7	16	32	60	28	100	70	8	8	7	6
06		28.2	41.5	27.5 ~ 29.0	16	32	60	28	-	-	8	8	-	-
08	25A	30.0	43.5	29.5 ~ 30.5	16	32	60	28	-	-	8	8	-	-
09		32.0	45.5	31.5 ~ 32.5	16	32	60	28	100	70	8	8	7	6
07		34.0	47.0	33.0 ~ 34.6	16	32	60	28	100	70	8	8	7	6
10	32A	38.0	51.5	37.5 ~ 38.5	16	32	60	28	-	-	10	8	-	-
14		40.0	53.5	39.5 ~ 41.5	16	32	60	28	100	70	10	8	7	6
11		42.7	56.0	41.9 ~ 43.0	16	32	60	28	100	70	10	8	7	6
12		44.5	58.0	44.0 ~ 45.0	16	32	60	28	-	-	10	8	-	-
15	40A	48.6	62.0	47.8 ~ 49.0	16	32	60	28	100	70	10	8	7	6
17		50.8	64.5	50.0 ~ 51.5	16	32	60	28	100	70	10	8	7	6
18	50A	54.0	69.6	53.4 ~ 54.6	16	32	80	44	-	-	15	8	-	-
19		57.0	72.6	56.4 ~ 57.6	16	32	80	44	-	-	15	8	-	-
20		60.5	76.0	59.0 ~ 61.5	16	32	80	44	150	110	15	8	15	8
21		63.0	78.6	62.4 ~ 63.6	16	32	80	44	150	110	15	8	15	8
26	65A	66.7	82.3	65.2 ~ 67.3	14	28	80	44	-	-	15	8	-	-
25		69.0	84.6	68.0 ~ 70.1	14	28	80	44	150	110	15	8	15	8
23		73.0	88.6	71.5 ~ 74.1	14	28	80	44	150	110	15	8	15	8
24		76.3	92.0	75.0 ~ 77.2	14	28	80	44	150	110	15	8	15	8
30	80A	79.9	101.0	78.8 ~ 81.2	14	28	110	59	-	-	20	12	-	-
27		84.0	105.0	83.0 ~ 84.9	14	28	110	59	-	-	20	12	-	-
28		89.1	110.0	87.8 ~ 91.0	14	28	110	59	200	150	20	12	20	12
32	90A	101.6	123.0	100.4 ~ 102.6	14	28	110	59	200	150	20	12	20	12
34	100A	104.0	125.0	103.0 ~ 104.8	14	28	110	59	200	150	20	12	20	12
37		106.3	127.5	105.0 ~ 107.4	14	28	110	59	200	150	20	12	20	12
35		108.0	129.0	106.5 ~ 108.5	14	28	110	59	200	150	20	12	20	12
36		114.3	135.0	113.2 ~ 115.4	14	28	110	59	200	150	20	12	20	12
42	125A	127.0	149.0	125.6 ~ 128.4	14	28	111	59	-	-	30	12	-	12
43		129.0	151.0	127.5 ~ 130.0	14	28	111	59	-	-	30	12	-	-
39		133.0	155.0	131.6 ~ 134.4	14	28	111	59	-	-	30	12	-	-
40		139.8	162.0	137.7 ~ 140.9	14	28	111	59	201	150	30	12	30	12
41		141.3	163.3	139.7 ~ 142.5	14	28	111	59	-	-	30	12	-	-
44	150A	154.0	176.0	151.5 ~ 155.0	12	24	111	59	-	-	30	12	-	-
45		159.0	181.0	156.5 ~ 160.0	12	24	111	59	201	150	30	12	30	12
46		165.2	187.0	163.3 ~ 166.7	12	24	111	59	201	150	30	12	30	12
47		168.3	190.3	166.6 ~ 170.0	12	24	111	59	201	150	30	12	30	12
Q6	175A	180.0	202.0	178.0 ~ 182.0	10	20	111	59	-	-	30	12	-	-
54	200A	200.0	226.6	198.2 ~ 201.5	8	16	150	89	-	-	60	14	-	-
55		204.0	230.6	202.7 ~ 206.7	8	16	150	89	-	-	60	14	-	-
51		216.3	243.0	214.5 ~ 218.3	8	16	150	89	250	185	60	14	70	16
52		219.1	245.7	217.0 ~ 221.0	8	16	150	89	250	185	60	14	70	16
59	250A	254.0	280.6	251.4 ~ 256.6	8	16	150	89	-	-	60	14	-	-
56		267.4	294.0	264.8 ~ 270.0	8	16	150	89	250	185	60	14	70	16
57		273.1	299.7	270.4 ~ 275.6	8	16	150	89	250	185	60	14	70	16
66	300A	304.0	330.6	301.5 ~ 306.6	7	14	150	89	-	-	60	14	-	-
61		318.5	345.0	316.0 ~ 322.0	7	14	150	89	250	185	60	14	70	16
64		323.9	350.5	321.0 ~ 327.4	7	14	150	89	250	185	60	14	70	16
67	350A	355.6	382.2	352.0 ~ 360.0	7	14	150	89	250	185	60	14	70	16

RNT SMART CLAMP



Double Flexible Type (Double locks)

Models and Norminal Sizes: MJD(650A~1000A) / MJDL(650A~1000A)

ITEM NO	PIPE ND	OD (mm)	D (mm)	Coupling range (mm)	Working Pressure(bar) Industry	MJDL		MJDL		MJDL		MJDL	
						Length(mm)		Length(mm)		Torque rate (Nm)		Torque rate (Nm)	
86	650A	660.4	684.8	654.0 ~ 666.0	8	150	89	250	185	90	14	90	16
88	700A	711.2	735.0	705.0 ~ 717.0	7.4	150	89	250	185	90	14	90	16
91	750A	762.0	786.2	756.0 ~ 768.0	7.2	150	89	250	185	90	14	90	16
93	800A	812.8	837.0	806.0 ~ 818.0	6.8	150	89	250	185	90	14	90	16
96	850A	863.6	887.8	857.0 ~ 869.0	6.4	150	89	250	185	90	14	90	16
98	900A	914.4	938.6	908.0 ~ 920.0	6	150	89	250	185	90	14	90	16
L1	1000A	1016.0	1040.2	1010.0 ~ 1022.0	5.4	150	89	250	185	90	14	90	16

Double Flexible Force Type (Double locks)

Models and Norminal Sizes: MJDF(650A~1000A) / MJDFL(650A~1000A)

ITEM NO	PIPE ND	OD (mm)	D (mm)	Coupling range (mm)	Working Pressure(bar) Industry	MJDF		MJDFL		MJDF		MJDFL	
						Length(mm)		Length(mm)		Torque rate (Nm)		Torque rate (Nm)	
86	650A	660.4	686.8	654.0 ~ 666.0	12	152	89	252	185	120	14	120	16
88	700A	711.2	737.0	705.0 ~ 717.0	11.2	152	89	252	185	120	14	120	16
91	750A	762.0	788.2	756.0 ~ 768.0	10.6	152	89	252	185	120	14	120	16
93	800A	812.8	839.0	806.0 ~ 818.0	10	152	89	252	185	120	14	120	16
96	850A	863.6	889.8	857.0 ~ 869.0	9.4	152	89	252	185	120	14	120	16
98	900A	914.4	940.6	908.0 ~ 920.0	8.8	152	89	252	185	120	14	120	16
L1	1000A	1016.0	1042.2	1010.0 ~ 1022.0	8	152	89	252	185	120	14	120	16

[Remark]

ND : Normal diameter of pipe / O.D : Outside diameter of Pipe(KS, JIS, DIN, ANSI etc.)

Test pressure of industry application = Working pressure x 2.0 times

Length 300mm, 400mm, 600mm is producible(Manufacture by order)

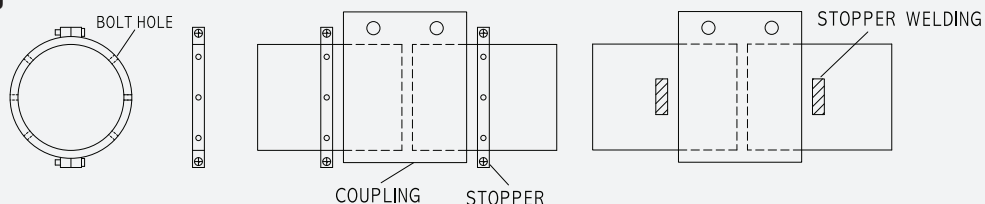
Max. axial movement

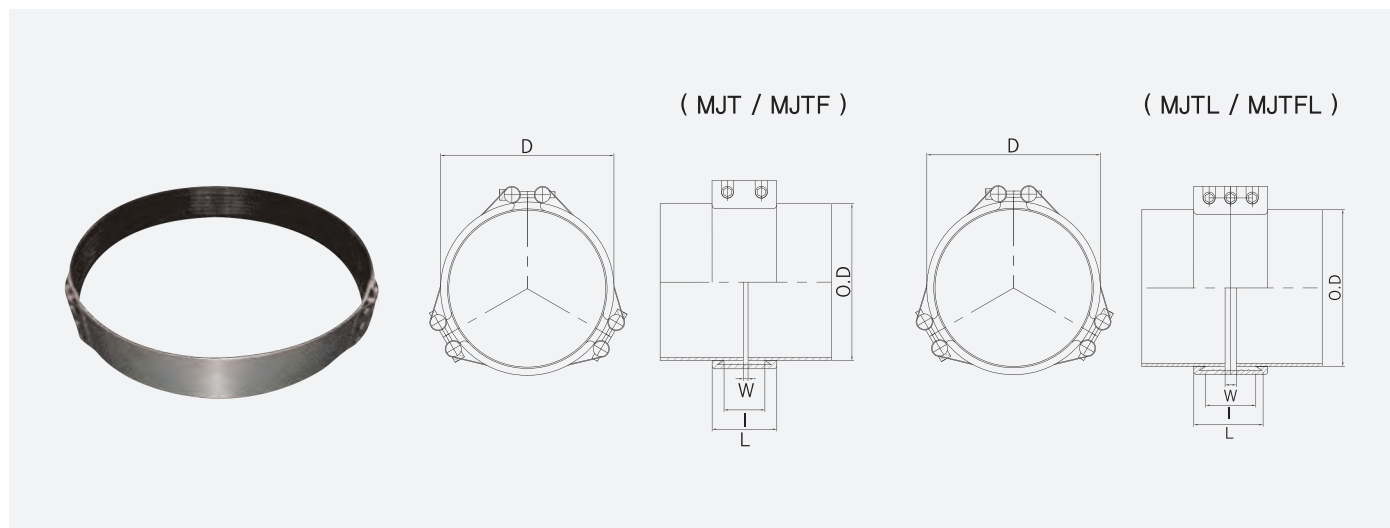
ND 15A~ 150A 5mm

ND 175A~ 500A 10mm

ND 550A more than 15mm

No slip-off of Flexible Coupling





Three flexible type(Three locks)

Models and Norminal Sizes: MJT(1100A~1500A) / MJTL(1100A~1500A)

ITEM NO	PIPE ND	OD (mm)	D (mm)	Coupling range (mm)	Working Pressure(bar) Industry	MJT		MJTL		MJT		MJTL	
						Length(mm)		Length(mm)		Torque rate (Nm)	bolts thread M	Torque rate (Nm)	bolts thread M
						L	I	L	I				
L7	1100A	1117.6	1142.0	1111.0 ~ 1123.0	5	150	89	250	185	90	14	90	16
L8	1200A	1219.2	1243.6	1213.0 ~ 1225.0	4.6	150	89	250	185	90	14	90	16
L0	1300A	1320.8	1345.2	1316.0 ~ 1325.0	4.2	150	89	250	185	90	14	90	16
M1	1350A	1371.2	1395.6	1365.0 ~ 1377.0	4	150	89	250	185	90	14	90	16
T9	1400A	1422.4	1446.8	1418.0 ~ 1427.0	3.8	150	89	250	185	90	14	90	16
M2	1500A	1524.0	1548.4	1518.0 ~ 1530.0	3.6	150	89	250	185	90	14	90	16

Three flexible force type(Three locks)

Models and Norminal Sizes: MJTF(1100A~1500A) / MJTFL(1100A~1500A)

ITEM NO	PIPE ND	OD (mm)	D (mm)	Coupling range (mm)	Working Pressure(bar) Industry	MJTF		MJTFL		MJTF		MJTFL	
						Length(mm)		Length(mm)		Torque rate (Nm)	bolts thread M	Torque rate (Nm)	bolts thread M
						L	I	L	I				
L7	1100A	1117.6	1144.0	1111.0 ~ 1123.0	7.2	152	89	252	185	120	14	120	16
L8	1200A	1219.2	1245.6	1213.0 ~ 1225.0	6.8	152	89	252	185	120	14	120	16
L0	1300A	1320.8	1347.2	1316.0 ~ 1325.0	6.2	152	89	252	185	120	14	120	16
M1	1350A	1371.2	1397.6	1365.0 ~ 1377.0	6	152	89	252	185	120	14	120	16
T9	1400A	1422.4	1448.8	1418.0 ~ 1427.0	5.8	152	89	252	185	120	14	120	16
M2	1500A	1524.0	1550.4	1518.0 ~ 1530.0	5.4	152	89	252	185	120	14	120	16

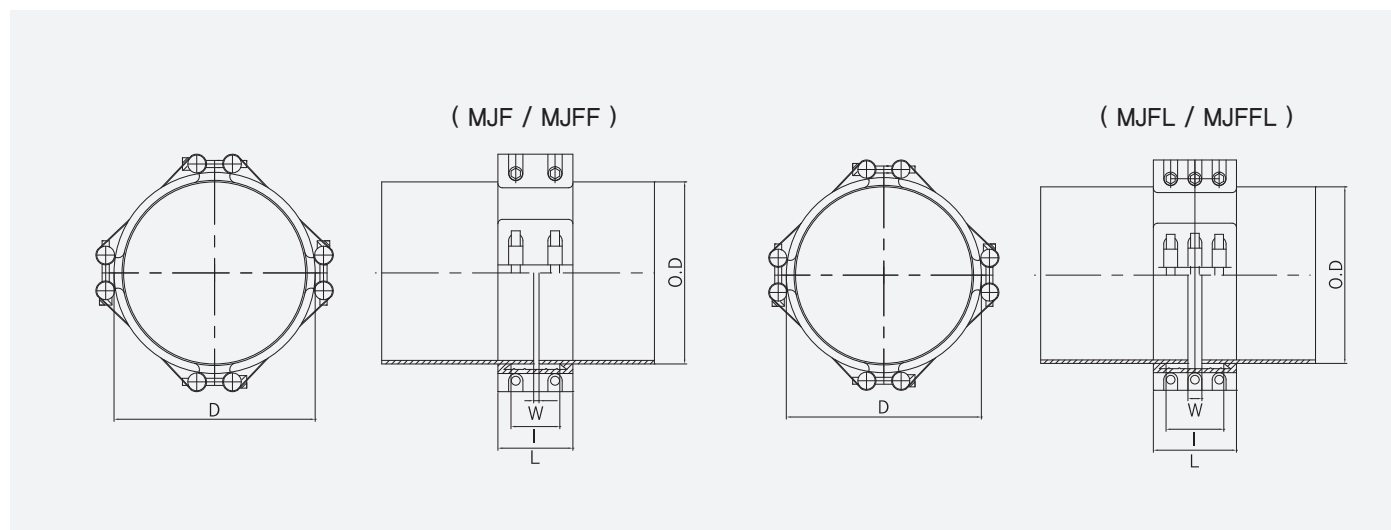
[Remark]

ND : Normal diameter of pipe / O.D : Outside diameter of Pipe(KS, JIS, DIN, ANSI etc.)

Test pressure of industry application = Working pressure x 2.0 times

Length 300mm, 400mm, 600mm is producible(Manufacture by order)

Max. axial movement	
ND 15A~ 150A	5mm
ND 175A~ 500A	10mm
ND 550A more than	15mm



Four flexible type(Four locks)

Models and Normal Sizes: MJF(1600A~2000A) / MJFL(1600A~2000A)

ITEM NO	PIPE ND	OD (mm)	D (mm)	Coupling range (mm)	Working Pressure(bar)	MJF		MJFL		MJF		MJFL	
						Length(mm)		Length(mm)		Torque rate (Nm)	bolts thread M	Torque rate (Nm)	bolts thread M
						L	I	L	I				
M5	1600A	1625.6	1650.0	1621.0 ~ 1631.0	3.4	150	89	250	185	90	14	90	16
M7	1650A	1676.4	1700.8	1672.0 ~ 1682.0	3.2	150	89	250	185	90	14	90	16
M8	1700A	1727.2	1751.6	1722.0 ~ 1732.0	3.2	150	89	250	185	90	14	90	16
M9	1800A	1828.8	1853.2	1822.0 ~ 1834.0	3	150	89	250	185	90	14	90	16
N1	1900A	1930.4	1954.8	1924.0 ~ 1936.0	2.8	150	89	250	185	90	14	90	16
N3	2000A	2032.0	2056.4	2026.0 ~ 2038.0	2.6	150	89	250	185	90	14	90	16

Four flexible force type(Four locks)

Models and Normal Sizes: MJFF(1600A~2000A) / MJFFL(1600A~2000A)

ITEM NO	PIPE ND	OD (mm)	D (mm)	Coupling range (mm)	Working Pressure(bar)	MJFF		MJFFL		MJFF		MJFFL	
						Length(mm)		Length(mm)		Torque rate (Nm)	bolts thread M	Torque rate (Nm)	bolts thread M
						L	I	L	I				
M5	1600A	1625.6	1652.0	1621.0 ~ 1631.0	5	152	89	252	185	120	14	120	16
M7	1650A	1676.4	1702.8	1672.0 ~ 1682.0	4.8	152	89	252	185	120	14	120	16
M8	1700A	1727.2	1753.6	1722.0 ~ 1732.0	4.6	152	89	252	185	120	14	120	16
M9	1800A	1828.8	1855.2	1822.0 ~ 1834.0	4.4	152	89	252	185	120	14	120	16
N1	1900A	1930.4	1956.8	1924.0 ~ 1936.0	4.2	152	89	252	185	120	14	120	16
N3	2000A	2032.0	2058.4	2026.0 ~ 2038.0	4.0	152	89	250	185	120	14	120	16

[Remark]

ND : Normal diameter of pipe / O.D : Outside diameter of Pipe(KS, JIS, DIN, ANSI etc.)

Test pressure of industry application = Working pressure x 2.0 times

Length 300mm, 400mm, 600mm is producible(Manufacture by order)

More than ND 2000A is producible

Max. axial movement	
ND 15A~ 150A	5mm
ND 175A~ 500A	10mm
ND 550A more than	15mm

Repair Types of Clamp

■ Hinge Repair Clamp Type

■ Repair Clamp Type

■ Double, Three, Four Repair Clamp Type



MJH

MJHL



MJR

MJRL



MJD

MJDL

Elbow Repair Clamp Type

A patent on a new device



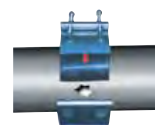
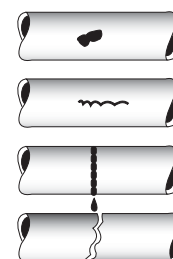
MJER

Setting Method

Repair

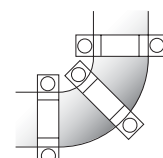
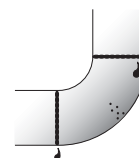
Models :

MJD, MJDL, MJH
MJHL, MJR, MJRL



Elbow repair clamp

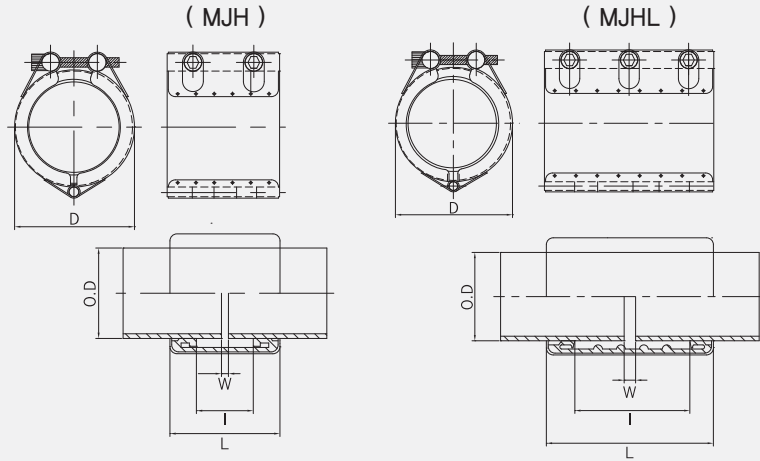
Models : MJER



Hinge Repair Clamp Type(Single lock)



Equipped with hinges at the opposite side of clamp, Hinge clamp type joints are chiefly used in repairing and are suitable in repairing the pipe of small diameter because of the open cut rubber packing attached inside.
※ Rubber : Pocket Type or Circle Type



Models and Norminal Sizes: MJH(15A~600A) / MJHL(25A~300A)

ITEM NO	PIPE ND	OD (mm)	D (mm)	Coupling range (mm)	Working Pressure (bar)		MJH		MJHL		MJH		MJHL	
							Length(mm)		Length(mm)		Torque rate (Nm)	bolts thread M	Torque rate (Nm)	bolts thread M
					Ship	Industry	L	I	L	I				
02	15A	20.0	32.6	19.5 ~ 20.5	16	32	60	28	-	-	5	6	-	-
01		21.7	34.3	21.0 ~ 22.0	16	32	60	28	-	-	5	6	-	-
05	20A	25.0	37.6	24.0 ~ 26.0	16	32	60	28	-	-	7	8	-	-
04		27.2	39.8	26.0 ~ 28.0	16	32	60	28	-	-	7	8	-	-
06		28.2	40.8	26.4 ~ 29.0	16	32	60	28	-	-	7	8	-	-
08	25A	30.0	42.6	29.0 ~ 31.0	16	32	60	28	-	-	7	8	-	-
09		32.0	44.6	31.0 ~ 33.0	16	32	60	28	100	70	7	8	7	6
07		34.0	46.6	33.0 ~ 35.0	16	32	60	28	100	70	7	8	7	6
10	32A	38.0	50.6	37.0 ~ 39.0	16	32	60	28	-	-	7	8	-	-
14		40.0	52.6	39.5 ~ 41.3	16	32	60	28	-	-	7	8	-	-
11		42.7	55.3	42.0 ~ 44.0	16	32	60	28	100	70	7	8	7	6
12		44.5	57.1	44.0 ~ 46.0	16	32	60	28	-	-	7	8	-	-
15	40A	48.6	61.2	47.5 ~ 49.5	16	32	60	28	100	70	7	8	7	6
17		50.8	63.4	49.2 ~ 51.5	16	32	60	28	100	70	7	8	7	6
18	50A	54.0	65.0	53.0 ~ 55.0	16	32	80	44	-	-	12	8	-	-
19		57.0	72.0	56.0 ~ 58.0	16	32	80	44	-	-	12	8	-	-
20		60.5	75.5	59.0 ~ 61.5	16	32	80	44	150	110	12	8	12	8
21		63.0	78.0	62.0 ~ 64.0	16	32	80	44	150	110	12	8	12	8
26	65A	66.7	81.7	65.4 ~ 68.3	14	28	80	44	-	-	-	-	-	-
25		69.0	84.0	68.5 ~ 71.0	14	28	80	44	150	110	12	8	12	8
23		73.0	88.0	72.5 ~ 75.5	14	28	80	44	150	110	12	8	12	8
24		76.3	91.3	75.0 ~ 78.0	14	28	80	44	150	110	12	8	12	8
30	80A	79.9	98.4	78.8 ~ 82.0	14	28	110	59	-	-	30	12	-	-
27		84.0	102.5	82.5 ~ 85.5	14	28	110	59	-	-	30	12	-	-
28		89.1	108.0	88.0 ~ 91.0	14	28	110	59	200	150	30	12	30	12
32	90A	101.6	121.0	100.0 ~ 103.0	14	28	110	59	200	150	30	12	30	12
34	100A	104.0	122.5	102.0 ~ 105.0	14	28	110	59	200	150	40	12	40	12
37		106.3	124.8	105.0 ~ 107.5	14	28	110	59	200	150	40	12	40	12
35		108.0	126.5	106.0 ~ 109.0	14	28	110	59	200	150	40	12	40	12
36		114.3	133.0	113.0 ~ 116.0	14	28	110	59	200	150	40	12	40	12

RNT SMART CLAMP

ITEM NO	PIPE ND	OD (mm)	D (mm)	Coupling range (mm)	Working Pressure (bar)		MJH		MJHL		MJH		MJHL	
							Length(mm)		길이 (mm)		Torque rate (Nm)	bolts thread M	Torque rate (Nm)	bolts thread M
					Ship	Industry	L	I	L	I				
42	125A	127.0	147.0	125.0 ~ 129.0	14	28	111	59	-	-	40	12	-	-
43		129.0	149.0	127.5 ~ 130.0	14	28	111	59	-	-	40	12	-	-
39		133.0	153.0	131.0 ~ 135.0	14	28	111	59	-	-	40	12	-	-
40		139.8	160.0	138.0 ~ 142.0	14	28	111	59	201	150	40	12	40	12
41		141.3	161.3	139.5 ~ 143.5	14	28	111	59	201	150	40	12	40	12
44	150A	154.0	174.0	151.5 ~ 155.5	12	24	111	59	-	-	40	12	-	-
45		159.0	179.0	156.0 ~ 160.0	12	24	111	59	201	150	40	12	40	12
46		165.2	185.0	164.0 ~ 167.0	12	24	111	59	201	150	40	12	40	12
47		168.3	188.3	166.0 ~ 170.0	12	24	111	59	201	150	40	12	40	12
Q6	175A	180.0	200.0	178.0 ~ 182.0	10	20	111	59	-	-	45	12	-	-
54	200A	200.0	224.5	198.0 ~ 203.0	8	16	150	89	-	-	60	14	-	-
55		204.0	228.5	202.0 ~ 206.0	8	16	150	89	-	-	60	14	-	-
51		216.3	240.0	214.0 ~ 218.5	8	16	150	89	250	185	60	14	60	16
52		219.1	243.6	216.5 ~ 221.5	8	16	150	89	250	185	60	14	60	16
59	250A	254.0	278.5	251.0 ~ 257.0	8	16	150	89	-	-	60	14	-	-
56		267.4	292.0	262.0 ~ 269.0	8	16	150	89	250	185	60	14	60	16
57		273.1	297.6	270.0 ~ 276.0	8	16	150	89	250	185	60	14	60	16
66	300A	304.0	328.5	301.5 ~ 308.0	7	14	150	89	-	-	60	14	-	-
61		318.5	343.0	316.0 ~ 322.5	7	14	150	89	250	185	60	14	60	16
64		323.9	348.4	322.0 ~ 328.0	7	14	150	89	250	185	60	14	60	16
67	350A	355.6	380.1	352.0 ~ 359.5	7	14	150	89	-	-	75	14	-	-
71	400A	406.4	430.9	402.0 ~ 410.0	6	12	150	89	-	-	75	14	-	-
74	450A	457.2	481.7	453.0 ~ 460.0	6	12	150	89	-	-	90	14	-	-
77	500A	508.0	532.5	504.0 ~ 512.0	5	10	150	89	-	-	90	14	-	-
80	550A	558.8	583.3	555.0 ~ 563.0	4.6	9.2	150	89	-	-	90	14	-	-
83	600A	609.6	634.1	605.0 ~ 614.0	4.2	8.4	150	89	-	-	90	14	-	-

[Remark]

ND : Normal diameter of pipe / O.D : Outside diameter of Pipe(KS, JIS, DIN, ANSI etc.)

Test pressure of ship application = Working pressure x 4.0 times

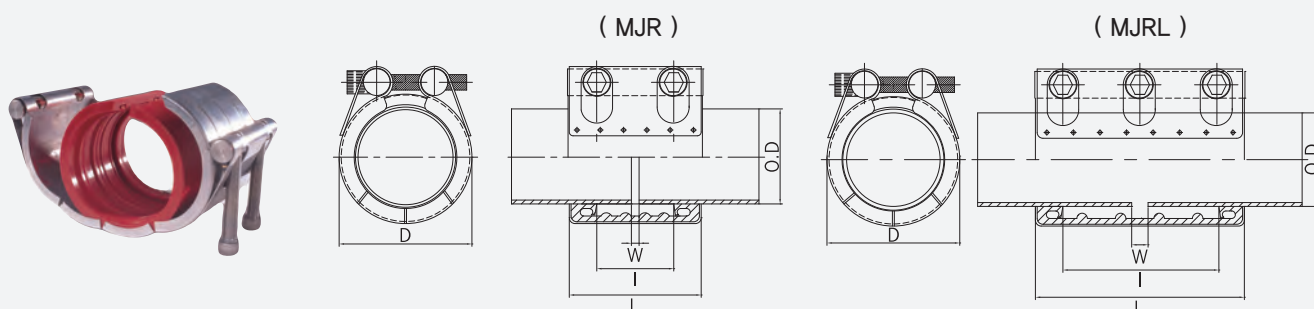
Test pressure of industry application = Working pressure x 2.0 times

To use Double repair clamp type over 600A.

※ To use Double Long, three Long, four Long clamp over 350A instead of MJHL.

For more higher pressure, please choose MJDF, MJDFL etc. (Repair force Type)

Repair Clamp Type(Single lock)



Chiefly used to cover a part of the damaged and leaking pipes, Repair clamp joints enable easy replacement.

Models and Nominal Sizes: MJR(20A~600A) / MJRL(25A~600A)

ITEM NO	PIPE ND	OD (mm)	D (mm)	Coupling range (mm)	Working Pressure (bar)		MJR Length(mm)		MJRL Length(mm)		MJR Torque rate (Nm)		MJRL Torque rate (Nm)	
					Ship	Industry	L	I	L	I		bolts thread M		bolts thread M
05	20A	25.0	37.6	24.0 ~ 26.0	16	32	60	28	-	-	7	8	-	-
04		27.2	39.8	26.0 ~ 28.0	16	32	60	28	-	-	7	8	-	-
06		28.2	40.8	26.4 ~ 29.0	16	32	60	28	-	-	7	8	-	-
08	25A	30.0	42.6	29.0 ~ 31.0	16	32	60	28	-	-	7	8	-	-
09		32.0	44.6	31.0 ~ 33.0	16	32	60	28	-	-	7	8	-	-
07		34.0	46.6	33.0 ~ 35.0	16	32	60	28	100	70	7	8	7	6
10	32A	38.0	50.6	37.0 ~ 39.0	16	32	60	28	-	-	7	8	-	-
14		40.0	52.6	39.5 ~ 41.3	16	32	60	28	-	-	7	8	-	-
11		42.7	55.3	42.0 ~ 44.0	16	32	60	28	100	70	7	8	7	6
12		44.5	57.1	44.0 ~ 46.0	16	32	60	28	-	-	7	8	-	-
15	40A	48.6	61.2	47.5 ~ 49.5	16	32	60	28	100	70	7	8	7	6
17		50.8	63.4	49.2 ~ 51.5	16	32	60	28	100	70	7	8	7	6
18	50A	54.0	69.0	53.0 ~ 55.0	16	32	80	44	-	-	12	8	-	-
19		57.0	72.0	56.0 ~ 58.0	16	32	80	44	-	-	12	8	-	-
20		60.5	75.5	59.0 ~ 61.5	16	32	80	44	150	110	12	8	12	8
21		63.0	78.0	62.0 ~ 64.0	16	32	80	44	150	110	12	8	12	8
26	65A	66.7	81.7	65.4 ~ 68.3	14	28	80	44	-	-	-	-	-	-
25		69.0	84.0	68.5 ~ 71.0	14	28	80	44	150	110	12	8	12	8
23		73.0	88.0	72.5 ~ 75.5	14	28	80	44	150	110	12	8	12	8
24		76.3	91.3	75.0 ~ 78.0	14	28	80	44	150	110	12	8	12	8
30	80A	79.9	98.9	78.8 ~ 82.0	14	28	110	59	-	-	15	12	-	-
27		84.0	103.0	82.5 ~ 85.5	14	28	110	59	-	-	15	12	-	-
28		89.1	108.0	88.0 ~ 91.0	14	28	110	59	200	150	15	12	15	12
32	90A	101.6	121.0	100.0 ~ 103.0	14	28	110	59	200	150	15	12	15	12
34	100A	104.0	123.0	102.0 ~ 105.0	14	28	110	59	200	150	15	12	15	12
37		106.3	125.3	105.0 ~ 107.5	14	28	110	59	200	150	15	12	15	12
35		108.0	127.0	106.0 ~ 109.0	14	28	110	59	200	150	15	12	15	12
36		114.3	133.0	113.0 ~ 116.0	14	28	110	59	200	150	15	12	15	12

RNT SMART CLAMP

ITEM NO	PIPE ND	OD (mm)	D (mm)	Coupling range (mm)	Working Pressure (bar)		MJR Length(mm)		MJRL Length(mm)		MJR Torque rate (Nm)		MJRL Torque rate (Nm)	
					Ship	Industry	L	I	L	I	Torque rate (Nm)	bolts thread M	Torque rate (Nm)	bolts thread M
42	125A	127.0	147.0	125.0 ~ 129.0	14	28	111	59	-	-	25	12	-	-
43		129.0	149.0	127.5 ~ 130.0	14	28	111	59	-	-	25	12	-	-
39		133.0	153.0	131.0 ~ 135.0	14	28	111	59	-	-	25	12	-	-
40		139.8	160.0	138.0 ~ 142.0	14	28	111	59	201	150	25	12	25	12
41		141.3	161.3	139.5 ~ 143.5	14	28	111	59	201	150	25	12	25	12
44	150A	154.0	174.0	151.5 ~ 155.5	12	24	111	59	-	-	25	12	-	-
45		159.0	179.0	156.0 ~ 160.0	12	24	111	59	201	150	25	12	25	12
46		165.2	185.0	164.0 ~ 167.0	12	24	111	59	201	150	25	12	25	12
47		168.3	188.3	166.0 ~ 170.0	12	24	111	59	201	150	25	12	25	12
Q6	175A	180.0	200.0	178.0 ~ 182.0	10	20	111	59	-	-	30	12	-	-
54	200A	200.0	224.2	198.0 ~ 203.0	8	16	150	89	-	-	45	14	-	-
55		204.0	228.2	202.0 ~ 206.0	8	16	150	89	-	-	45	14	-	-
51		216.3	240.0	214.0 ~ 218.5	8	16	150	89	250	185	45	14	45	16
52		219.1	243.3	216.5 ~ 221.5	8	16	150	89	250	185	45	14	45	16
59	250A	254.0	278.2	251.0 ~ 257.0	8	16	150	89	-	-	45	14	-	-
56		267.4	292.0	262.0 ~ 269.0	8	16	150	89	250	185	45	14	45	16
57		273.1	297.3	270.0 ~ 276.0	8	16	150	89	250	185	45	14	45	16
66	300A	304.0	328.2	301.5 ~ 308.0	7	14	150	89	-	-	75	14	-	-
61		318.5	343.0	316.0 ~ 322.5	7	14	150	89	250	185	75	14	75	16
64		323.9	348.1	322.0 ~ 328.0	7	14	150	89	250	185	75	14	75	16
67	350A	355.6	380.0	352.0 ~ 360.0	7	14	150	89	250	185	75	14	75	16
71	400A	406.4	431.0	402.0 ~ 410.0	6	12	150	89	250	185	75	14	75	16
74	450A	457.2	481.0	453.0 ~ 460.0	6	12	150	89	250	185	90	14	90	16
77	500A	508.0	532.0	504.0 ~ 512.0	5	10	150	89	250	185	90	14	90	16
80	550A	558.8	583.0	555.0 ~ 563.0	4.6	9.2	150	89	250	185	90	14	90	16
83	600A	609.6	634.0	605.0 ~ 614.0	4.2	8.4	150	89	250	185	90	14	90	16

[Remark]

ND : Normal diameter of pipe / O.D : Outside diameter of Pipe(KS, JIS, DIN, ANSI etc.)

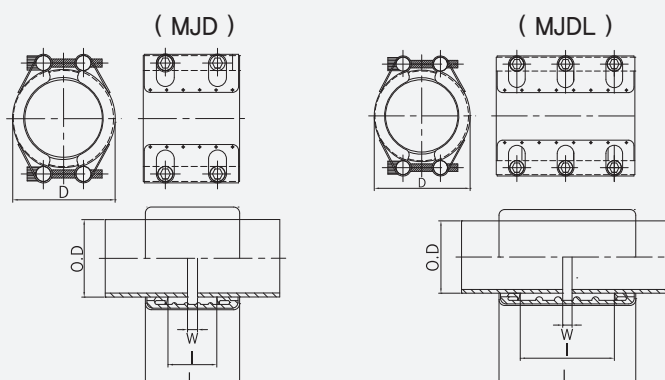
Test pressure of ship application = Working pressure x 4.0 times

Test pressure of industry application = Working pressure x 2.0 times

To use Double, Three, Four repair clamp type over 600A.

For more higher pressure, please choose MJDF, MJDFL etc. (Repair force Type)

Double Repair Clamp Type(Double locks)



With a wide permissible limit, owing to clamps attached at both ends, Double Clamp joints can be easily installed large -diameter pipes and have good tightening. With open-cut rubber packing inside, Double Clamp is ideal for repairing Large-diameter pipes.

Models and Norminal Sizes: MJD(13A~1000A) / MJDL(15A~1000A)

ITEM NO	PIPE ND	OD (mm)	D (mm)	Coupling range (mm)	Working Pressure (bar)		MJD		MJDL		MJD		MJDL	
							Length(mm)		Length(mm)		Torque rate (Nm)	bolts thread M	Torque rate (Nm)	bolts thread M
					Ship	Industry	L	I	L	I				
U2	13A	15.8	34.0	15.3 ~ 17.0	16	32	60	28	-	-	7	6	-	-
02	15A	20.0	32.6	19.5 ~ 21.3	16	32	60	28	100	70	7	6	7	6
01		21.7	34.3	21.0 ~ 23.0	16	32	60	28	100	70	7	6	7	6
05	20A	25.0	37.6	24.0 ~ 26.5	16	32	60	28	100	70	7	6	7	6
04		27.2	39.8	26.0 ~ 28.5	16	32	60	28	100	70	7	6	7	6
06		28.2	40.8	26.4 ~ 29.5	16	32	60	28	-	-	7	6	-	-
08	25A	30.0	42.6	29.0 ~ 31.5	16	32	60	28	-	-	7	6	-	-
09		32.0	44.6	31.0 ~ 33.5	16	32	60	28	100	70	7	6	7	6
07		34.0	46.6	33.0 ~ 35.5	16	32	60	28	100	70	7	6	7	6
10	32A	38.0	50.6	37.0 ~ 39.5	16	32	60	28	-	-	7	6	-	-
14		40.0	52.6	39.5 ~ 41.8	16	32	60	28	100	70	7	6	7	6
11		42.7	55.3	42.0 ~ 44.5	16	32	60	28	100	70	7	6	7	6
12		44.5	57.1	44.0 ~ 46.5	16	32	60	28	-	-	7	6	-	-
15	40A	48.6	61.2	47.5 ~ 50.5	16	32	60	28	100	70	7	6	7	6
17		50.8	63.4	49.2 ~ 51.5	16	32	60	28	100	70	7	6	7	6
18	50A	54.0	69.0	53.0 ~ 56.0	16	32	80	44	-	-	12	8	-	-
19		57.0	72.0	56.0 ~ 59.0	16	32	80	44	-	-	12	8	-	-
20		60.5	75.5	59.0 ~ 62.0	16	32	80	44	150	110	12	8	18	8
21		63.0	78.0	62.0 ~ 65.0	16	32	80	44	150	110	12	8	18	8
26	65A	66.7	81.7	65.4 ~ 69.0	14	28	80	44	-	-	-	-	-	-
25		69.0	84.0	68.0 ~ 72.0	14	28	80	44	150	110	12	8	12	8
23		73.0	88.0	72.5 ~ 76.5	14	28	80	44	150	110	12	8	12	8
24		76.3	91.3	75.0 ~ 79.0	14	28	80	44	150	110	12	8	12	8
30	80A	79.9	98.9	78.8 ~ 83.0	14	28	110	59	-	-	15	8	-	-
27		84.0	103.0	82.5 ~ 86.0	14	28	110	59	-	-	15	8	-	-
28		89.1	108.0	88.0 ~ 92.0	14	28	110	59	200	150	15	12	15	12
32	90A	101.6	121.0	100.0 ~ 104.0	14	28	110	59	200	150	15	12	15	12
34	100A	104.0	123.0	102.0 ~ 106.0	14	28	110	59	200	150	15	12	15	12
37		106.3	125.3	105.0 ~ 108.5	14	28	110	59	200	150	15	12	15	12
35		108.0	127.0	106.0 ~ 110.0	14	28	110	59	200	150	15	12	15	12
36		114.3	133.0	113.0 ~ 118.0	14	28	110	59	200	150	15	12	15	12

RNT SMART CLAMP

ITEM NO	PIPE ND	OD (mm)	D (mm)	Coupling range (mm)	Working Pressure (bar)		MJD Length(mm)		MJDL Length(mm)		MJD Torque rate (Nm)		MJDL Torque rate (Nm)	
					Ship	Industry	L	I	L	I	Torque rate (Nm)	bolts thread M	Torque rate (Nm)	bolts thread M
42	125A	127.0	147.0	125.0 ~ 129.5	14	28	111	59	201	150	25	12	25	12
43		129.0	149.0	127.5 ~ 131.0	14	28	111	59	-	-	25	12	-	-
39		133.0	153.0	131.0 ~ 135.5	14	28	111	59	-	-	25	12	-	-
40		139.8	160.0	138.0 ~ 142.5	14	28	111	59	201	150	25	12	25	12
41		141.3	161.3	139.5 ~ 144.0	14	28	111	59	201	150	25	12	25	12
44	150A	154.0	174.0	151.5 ~ 156.0	12	24	111	59	-	-	25	12	-	-
45		159.0	179.0	156.0 ~ 161.0	12	24	111	59	201	150	25	12	25	12
46		165.2	185.0	164.0 ~ 168.5	12	24	111	59	201	150	25	12	25	12
47		168.3	188.3	166.0 ~ 170.5	12	24	111	59	201	150	25	12	25	12
Q6	175A	180.0	200.0	178.0 ~ 183.0	10	20	111	59	-	-	30	12	-	-
54	200A	200.0	224.2	198.0 ~ 203.5	8	16	150	89	-	-	45	14	-	-
55		204.0	228.2	202.0 ~ 206.5	8	16	150	89	-	-	45	14	-	-
51		216.3	240.0	214.0 ~ 219.0	8	16	150	89	250	185	45	14	45	16
52		219.1	243.3	216.5 ~ 222.0	8	16	150	89	250	185	45	14	45	16
59	250A	254.0	278.2	251.0 ~ 257.0	8	16	150	89	-	-	45	14	-	-
56		267.4	292.0	262.0 ~ 270.0	8	16	150	89	250	185	45	14	45	16
57		273.1	297.3	270.0 ~ 277.0	8	16	150	89	250	185	45	14	45	16
66	300A	304.0	328.2	301.5 ~ 309.0	7	14	150	89	-	-	75	14	-	-
61		318.5	343.0	316.0 ~ 323.0	7	14	150	89	250	185	75	14	75	16
64		323.9	348.1	322.0 ~ 329.0	7	14	150	89	250	185	75	14	75	16
67	350A	355.6	380.0	352.0 ~ 361.0	7	14	150	89	250	185	75	14	75	16
71	400A	406.4	431.0	402.0 ~ 411.0	6	12	150	89	250	185	75	14	75	16
74	450A	457.2	481.0	453.0 ~ 462.0	6	12	150	89	250	185	90	14	90	16
77	500A	508.0	532.0	504.0 ~ 513.0	5	10	150	89	250	185	90	14	90	16
80	550A	558.8	583.0	554.0 ~ 564.0	4.6	9.2	150	89	250	185	90	14	90	16
83	600A	609.6	634.0	605.0 ~ 615.0	4.2	8.4	150	89	250	185	90	14	90	16
86	650A	660.4	684.6	654.0 ~ 666.0	-	8	150	89	250	185	90	14	90	16
88	700A	711.2	735.0	705.0 ~ 717.0	-	7.4	150	89	250	185	90	14	90	16
91	750A	762.0	786.2	756.0 ~ 768.0	-	7.2	150	89	250	185	90	14	90	16
93	800A	812.8	837.0	806.0 ~ 818.0	-	6.8	150	89	250	185	90	14	90	16
96	850A	863.6	887.8	857.0 ~ 869.0	-	6.4	150	89	250	185	90	14	90	16
98	900A	914.4	938.6	908.0 ~ 920.0	-	6	150	89	250	185	90	14	90	16
L1	1000A	1016.0	1040.2	1010.0 ~ 1022.0	-	5.4	150	89	250	185	90	14	90	16

[Remark]

ND : Normal diameter of pipe / O.D : Outside diameter of Pipe(KS, JIS, DIN, ANSI etc.)

Test pressure of ship application = Working pressure x 4.0 times

Test pressure of industry application = Working pressure x 2.0 times

Length 300mm, 400mm, 600mm is available over 200A.(Manufacture by order)

RNT SMART CLAMP

Double Repair Clamp Force Type (Double locks)



For improving Working pressure, the casing thickness is thicker than a standard type.
This is the upgraded Repair clamp type.

Models and Nominal Sizes: MJDF(65A~1000A) / MJDFL(80A~1000A)

ITEM NO	PIPE ND	OD (mm)	D (mm)	Coupling range (mm)	Working Pressure (bar)		MJDF Length(mm)		MJDFL Length(mm)		MJDF Torque rate (Nm)		MJDFL Torque rate (Nm)	
					Ship	Industry	L	I	L	I		bolts thread M		bolts thread M
26	65A	66.7	-	65.4 ~ 69.0	-	-	-	-	-	-	-	-	-	-
25		69.0	-	68.0 ~ 72.0	-	-	-	-	-	-	-	-	-	-
23		73.0	-	72.5 ~ 76.5	-	-	-	-	-	-	-	-	-	-
24		76.3	92.3	75.0 ~ 79.0	16	32	111	59	-	-	30	12	-	-
30	80A	79.9	99.9	78.8 ~ 83.0	16	32	111	59	-	-	30	12	-	-
27		84.0	104.0	82.5 ~ 86.0	16	32	111	59	-	-	30	12	-	-
28		89.1	109.0	88.0 ~ 92.0	16	32	111	59	201	150	30	12	30	12
32	90A	101.6	122.0	100.0 ~ 103.5	16	32	111	59	201	150	30	12	30	12
34	100A	104.0	124.0	102.0 ~ 106.0	16	32	111	59	201	150	30	12	30	12
37		106.3	126.3	105.0 ~ 108.5	16	32	111	59	201	150	30	12	30	12
35		108.0	128.0	106.0 ~ 110.0	16	32	111	59	201	150	30	12	30	12
36		114.3	134.0	113.0 ~ 118.0	16	32	111	59	201	150	30	12	30	12
42	125A	127.0	148.0	125.0 ~ 129.5	16	32	113	59	-	-	40	12	-	-
43		129.0	150.0	127.5 ~ 131.0	16	32	113	59	-	-	40	12	-	-
39		133.0	154.0	131.0 ~ 135.5	16	32	113	59	-	-	40	12	-	-
40		139.8	161.0	138.0 ~ 142.5	16	32	113	59	203	150	40	12	40	12
41		141.3	162.3	139.5 ~ 144.0	16	32	113	59	203	150	40	12	40	12
44	150A	154.0	175.0	151.5 ~ 156.0	16	32	113	59	-	-	40	12	-	-
45		159.0	180.0	156.0 ~ 161.0	16	32	113	59	203	150	40	12	40	12
46		165.2	186.0	164.0 ~ 168.5	16	32	113	59	203	150	40	12	40	12
47		168.3	189.3	166.0 ~ 170.5	16	32	113	59	203	150	40	12	40	12
Q6	175A	180.0	201.0	178.0 ~ 183.0	14	28	113	59	-	-	50	12	-	-
54	200A	200.0	225.2	198.0 ~ 203.5	12	24	152	89	-	-	100	14	-	-
55		204.0	229.2	202.0 ~ 206.5	12	24	152	89	-	-	100	14	-	-
51		216.3	241.0	214.0 ~ 219.0	12	24	152	89	252	185	100	14	100	16
52		219.1	244.3	216.5 ~ 222.0	12	24	152	89	252	185	100	14	100	16
59	250A	254.0	279.2	251.0 ~ 257.0	10	20	152	89	-	-	120	14	-	-
56		267.4	293.0	262.0 ~ 270.0	10	20	152	89	252	185	120	14	120	16
57		273.1	298.3	270.0 ~ 277.0	10	20	152	89	252	185	120	14	120	16
66	300A	304.0	329.2	301.5 ~ 309.0	10	20	152	89	-	-	120	14	-	-
61		318.5	344.0	316.0 ~ 323.0	10	20	152	89	252	185	120	14	120	16
64		323.9	349.1	322.0 ~ 329.0	10	20	152	89	252	185	120	14	120	16
67	350A	355.6	381.0	352.0 ~ 361.0	10	20	152	89	252	185	120	14	120	16
71	400A	406.4	432.0	402.0 ~ 411.0	10	20	152	89	252	185	120	14	120	16

[Remark]

ND : Normal diameter of pipe / O.D : Outside diameter of Pipe(KS, JIS, DIN, ANSI etc.)

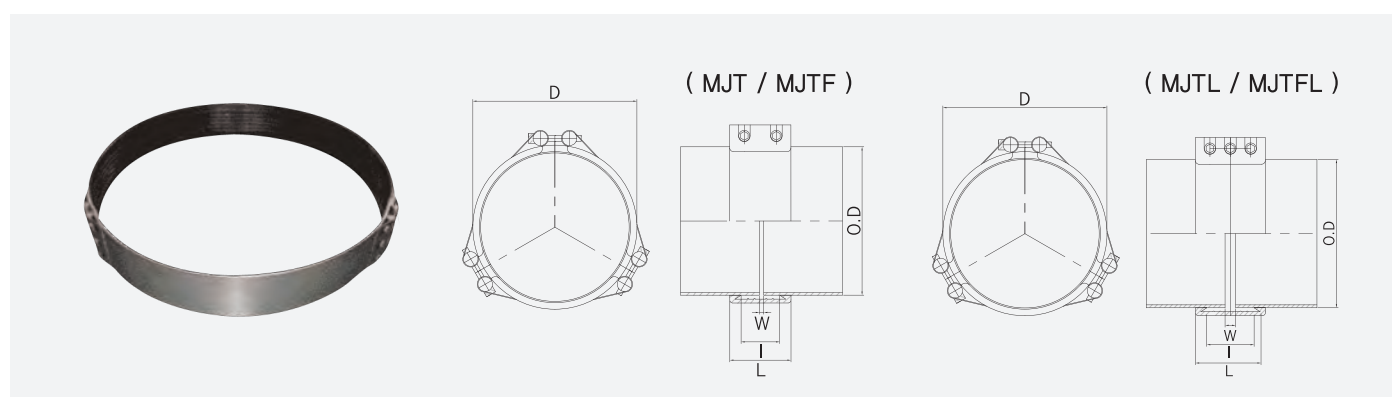
Test pressure of ship application = Working pressure x 4.0 times

Test pressure of industry application = Working pressure x 2.0 times

Length 300mm, 400mm, 600mm is available over 200A.(Manufacture by order)

RNT SMART CLAMP

ITEM NO	PIPE ND	OD (mm)	D (mm)	Coupling range (mm)	Working Pressure (bar)		MJDF		MJDFL		MJDF		MJDFL	
							Length(mm)		Length(mm)		Torque rate (Nm)	bolts thread M	Torque rate (Nm)	bolts thread M
					Ship	Industry	L	I	L	I				
74	450A	457.2	482.0	453.0 ~ 462.0	9.5	19	152	89	252	185	120	14	120	16
77	500A	508.0	533.0	504.0 ~ 513.0	7	14	152	89	252	185	120	14	120	16
80	550A	558.8	584.0	554.0 ~ 564.0	7	14	152	89	252	185	120	14	120	16
83	600A	609.6	635.0	605.0 ~ 615.0	6	12	152	89	252	185	120	14	120	16
86	650A	660.4	685.6	654.0 ~ 666.0	-	12	152	89	252	185	120	14	120	16
88	700A	711.2	736.0	705.0 ~ 717.0	-	11	152	89	252	185	120	14	120	16
91	750A	762.0	787.2	756.0 ~ 768.0	-	10.5	152	89	252	185	120	14	120	16
93	800A	812.8	838.0	806.0 ~ 818.0	-	10	152	89	252	185	120	14	120	16
96	850A	863.6	888.8	857.0 ~ 869.0	-	9.3	152	89	252	185	120	14	120	16
98	900A	914.4	939.6	908.0 ~ 920.0	-	8.8	152	89	252	185	120	14	120	16
L1	1000A	1016.0	1041.2	1010.0 ~ 1022.0	-	8	152	89	252	185	120	14	120	16



Three Repair Clamp Type (Three locks)

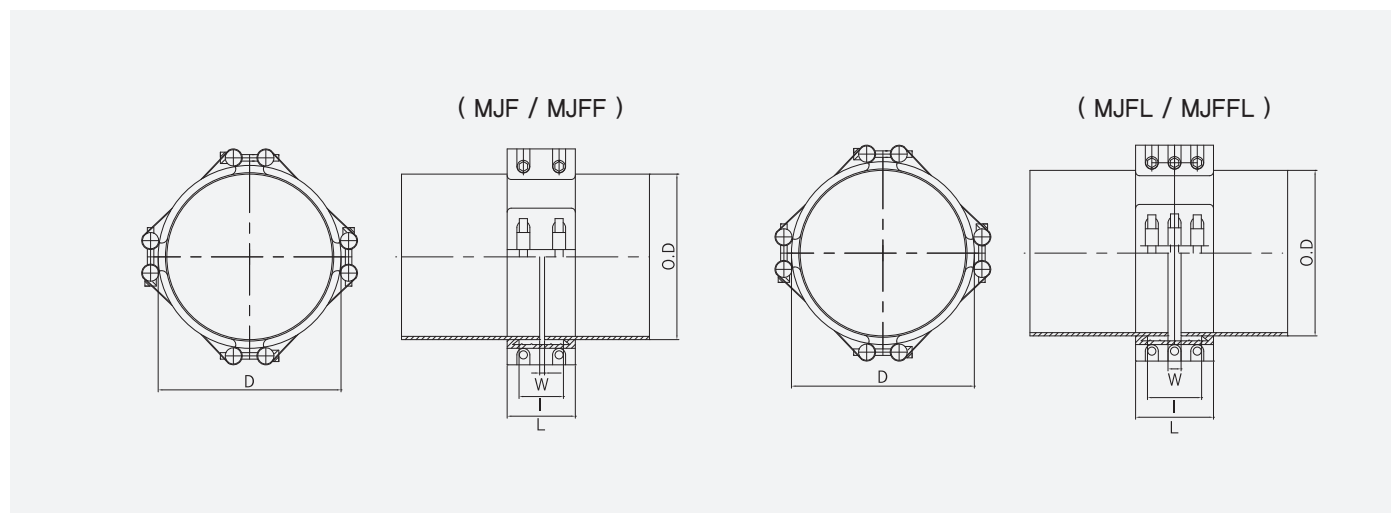
Models and Nominal Sizes: MJT(1100A~1500A) / MJTL(1100A~1500A)

ITEM NO	PIPE ND	OD (mm)	D (mm)	Coupling range (mm)	Working Pressure(bar)	MJT		MJTL		MJT		MJTL	
						Length(mm)		Length(mm)		Torque rate (Nm)	bolts thread M	Torque rate (Nm)	bolts thread M
						L	I	L	I				
L7	1100A	1117.6	1142.0	1111.0 ~ 1123.0	5	150	89	250	185	90	14	90	16
L8	1200A	1219.2	1243.6	1213.0 ~ 1225.0	4.6	150	89	250	185	90	14	90	16
L0	1300A	1320.8	1345.2	1316.0 ~ 1325.0	4.2	150	89	250	185	90	14	90	16
M1	1350A	1371.2	1395.6	1365.0 ~ 1377.0	4	150	89	250	185	90	14	90	16
T9	1400A	1422.4	1446.8	1418.0 ~ 1427.0	3.8	150	89	250	185	90	14	90	16
M2	1500A	1524.0	1548.4	1518.0 ~ 1530.0	3.6	150	89	250	185	90	14	90	16

Three Repair Clamp Force Type (Three locks)

Models and Nominal Sizes: MJTF(1100A~1500A) / MJTFL(1100A~1500A)

ITEM NO	PIPE ND	OD (mm)	D (mm)	Coupling range (mm)	Working Pressure(bar)	MJTF		MJTFL		MJTF		MJTFL	
						Length(mm)		Length(mm)		Torque rate (Nm)	bolts thread M	Torque rate (Nm)	bolts thread M
						L	I	L	I				
L7	1100A	1117.6	1144.0	1111.0 ~ 1123.0	7.2	152	89	252	185	120	14	120	16
L8	1200A	1219.2	1245.6	1213.0 ~ 1225.0	6.8	152	89	252	185	120	14	120	16
L0	1300A	1320.8	1347.2	1316.0 ~ 1325.0	6.2	152	89	252	185	120	14	120	16
M1	1350A	1371.2	1397.6	1365.0 ~ 1377.0	6	152	89	252	185	120	14	120	16
T9	1400A	1422.4	1448.8	1418.0 ~ 1427.0	5.8	152	89	252	185	120	14	120	16
M2	1500A	1524.0	1550.4	1518.0 ~ 1530.0	5.4	152	89	252	185	120	14	120	16



Four Repair Clamp Type (Four locks)

Models and Nominal Sizes: MJF(1600A~2000A) / MJFL(1600A~2000A)

ITEM NO	PIPE ND	OD (mm)	D (mm)	Coupling range (mm)	Working Pressure(bar) Industry	MJF		MJFL		MJF		MJFL	
						Length(mm)		Length(mm)		Torque rate (Nm)	bolts thread M	Torque rate (Nm)	bolts thread M
						L	I	L	I				
M5	1600A	1625.6	1650.0	1621.0 ~ 1631.0	3.4	150	89	250	185	90	14	90	16
M7	1650A	1676.4	1700.8	1672.0 ~ 1682.0	3.2	150	89	250	185	90	14	90	16
M8	1700A	1727.2	1751.6	1722.0 ~ 1732.0	3.2	150	89	250	185	90	14	90	16
M9	1800A	1828.8	1853.2	1822.0 ~ 1834.0	3	150	89	250	185	90	14	90	16
N1	1900A	1930.4	1954.8	1924.0 ~ 1936.0	2.8	150	89	250	185	90	14	90	16
N3	2000A	2032.0	2056.4	2026.0 ~ 2038.0	2.6	150	89	250	185	90	14	90	16

}
3600A

Four Repair Clamp Force Type (Four locks)

Models and Nominal Sizes: MJFF(1600A~2000A) / MJFFL(1600A~2000A)

ITEM NO	PIPE ND	OD (mm)	D (mm)	Coupling range (mm)	Working Pressure(bar) Industry	MJFF		MJFFL		MJFF		MJFFL	
						Length(mm)		Length(mm)		Torque rate (Nm)	bolts thread M	Torque rate (Nm)	bolts thread M
						L	I	L	I				
M5	1600A	1625.6	1652.0	1621.0 ~ 1631.0	5	152	89	252	185	120	14	120	16
M7	1650A	1676.4	1702.8	1672.0 ~ 1682.0	4.8	152	89	252	185	120	14	120	16
M8	1700A	1727.2	1753.6	1722.0 ~ 1732.0	4.6	152	89	252	185	120	14	120	16
M9	1800A	1828.8	1855.2	1822.0 ~ 1834.0	4.4	152	89	252	185	120	14	120	16
N1	1900A	1930.4	1956.8	1924.0 ~ 1936.0	4.2	152	89	252	185	120	14	120	16
N3	2000A	2032.0	2058.4	2026.0 ~ 2038.0	4	152	89	252	185	120	14	120	16

}
3600A

[Remark]

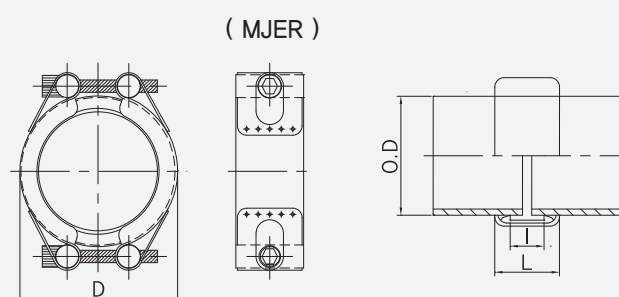
ND : Normal diameter of pipe / O.D : Outside diameter of Pipe(KS, JIS, DIN, ANSI etc.)

Test pressure of industry application = Working pressure x 2.0 times

Length 300mm, 400mm, 600mm is available over 200A.(Manufacture by order)

More than ND 2000A is producible.

Elbow Repair Clamp Type(Double locks)



To repair the damaged and leaking elbows and welded sections, the low and upper parts are separated.

Models and Norminal Sizes: MJER(13A~500A)

ITEM NO	PIPE ND	OD (mm)	D (mm)	Coupling range (mm)	Working Pressure (bar)		Length (mm)		Torque rate (Nm)	bolts thread M
					Ship	Industry	L	I		
U2	13A	15.8	34.0	15.3 ~ 17.0	17.5	40	27	8	7	6
02	15A	20.0	38.0	19.5 ~ 21.3	17.5	35	27	10	7	6
01		21.7	39.0	21.0 ~ 23.0	17.5	35	27	10	7	6
05	20A	25.0	43.0	24.0 ~ 26.5	17.5	35	27	10	7	6
04		27.2	45.0	26.0 ~ 28.5	17.5	35	27	10	7	6
06		28.2	46.0	26.4 ~ 29.5	17.5	35	27	10	7	6
08	25A	30.0	48.0	29.0 ~ 31.5	17.5	35	27	10	7	6
09		32.0	50.0	31.0 ~ 33.5	17.5	35	27	10	7	6
07		34.0	52.0	33.0 ~ 35.5	17.5	35	27	10	7	6
10	32A	38.0	56.0	37.0 ~ 39.5	17.5	35	27	10	7	6
14		40.0	58.0	39.5 ~ 41.8	17.5	35	27	10	7	6
11		42.7	61.0	42.0 ~ 44.5	17.5	35	27	10	7	6
12		44.5	62.5	44.0 ~ 46.5	17.5	35	27	10	7	6
15	40A	48.6	66.0	47.5 ~ 50.5	15	30	27	10	7	6
17		50.8	68.8	49.2 ~ 51.5	15	30	27	10	7	6
18	50A	54.0	78.6	53.0 ~ 56.0	15	30	40	18	15	8
19		57.0	81.6	56.0 ~ 59.0	15	30	40	18	15	8
20		60.5	85.0	59.0 ~ 62.0	15	30	40	18	15	8
21		63.0	87.6	62.0 ~ 65.0	15	30	40	18	15	8
26	65A	66.7	91.3	65.4 ~ 69.0	15	30	40	18	15	8
25		69.0	93.6	68.0 ~ 72.0	15	30	40	18	15	8
23		73.0	97.6	72.5 ~ 76.5	15	30	40	18	15	8
24		76.3	101	75.0 ~ 79.0	15	30	40	18	15	8
30	80A	79.9	111.9	78.8 ~ 83.0	15	30	60	29	28	12
27		84.0	116	82.5 ~ 86.0	15	30	60	29	28	12
28		89.1	121	88.0 ~ 92.0	15	30	60	29	28	12
32	90A	101.6	133.0	100.0 ~ 104.0	15	30	60	29	28	12

RNT SMART CLAMP

ITEM NO	PIPE ND	OD (mm)	D (mm)	Coupling range (mm)	Working Pressure (bar)		Length (mm)		Torque rate (Nm)	bolts thread M
					Ship	Industry	L	I		
34	100A	104.0	136.0	102.0 ~ 106.0	12.5	25	60	29	28	12
37		106.3	138.3	105.0 ~ 108.5	12.5	25	60	29	28	12
35		108.0	140.0	106.0 ~ 110.0	12.5	25	60	29	28	12
36		114.3	147.0	113.0 ~ 118.0	12.5	25	60	29	28	12
42	125A	127.0	159.4	125.0 ~ 129.5	9	18	60	29	28	12
43		129.0	161.4	127.5 ~ 131.0	9	18	60	29	28	12
39		133.0	165.4	131.0 ~ 135.5	9	18	60	29	28	12
40		139.8	172.0	138.0 ~ 142.5	9	18	60	29	28	12
41		141.3	173.7	139.5 ~ 144.0	9	18	60	29	28	12
44	150A	154.0	186.4	151.5 ~ 156.0	9	18	60	29	28	12
45		159.0	191.4	156.0 ~ 161.0	9	18	60	29	28	12
46		165.2	198.0	164.0 ~ 168.5	9	18	60	29	28	12
47		168.3	200.7	166.0 ~ 170.5	9	18	60	29	28	12
Q6	175A	180.0	212.4	178.0 ~ 183.0	8	16	60	29	28	12
54	200A	200.0	232.7	198.0 ~ 203.5	8	16	61	29	40	12
55		204.0	236.7	202.0 ~ 206.5	8	16	61	29	40	12
51		216.3	249.0	214.0 ~ 219.0	8	16	61	29	40	12
52		219.1	251.8	216.5 ~ 222.0	8	16	61	29	40	12
59	250A	254.0	286.7	251.0 ~ 257.0	8	16	61	29	40	12
56		267.4	300.0	262.0 ~ 270.0	8	16	61	29	40	12
57		273.1	305.8	270.0 ~ 277.0	8	16	61	29	40	12
66	300A	304.0	338.0	301.5 ~ 309.0	6.5	13	61	29	40	12
61		318.5	353.0	316.0 ~ 323.0	6.5	13	61	29	40	12
64		323.9	357.9	322.0 ~ 329.0	6.5	13	61	29	40	12
67	350A	355.6	389.6	352.0 ~ 361.0	6	12	61	29	40	12
71	400A	406.4	440.4	402.0 ~ 411.0	5.5	11	61	29	40	12
74	450A	457.2	491.2	453.0 ~ 460.0	5	10	61	29	40	12
77	500A	508.0	525.2	504.0 ~ 512.0	4.5	9	61	29	40	12

[Remark]

ND : Normal diameter of pipe / O.D : Outside diameter of Pipe(KS, JIS, DIN, ANSI etc.)

Test pressure of ship application = Working pressure x 4.0 times

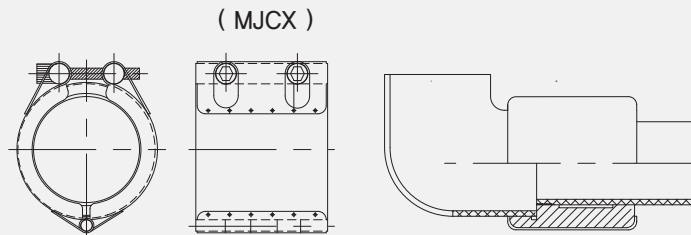
Test pressure of industry application = Working pressure x 2.0 times

※Double Repair clamp(MJD) type is available over 400A.

Socket repair clamp type

Models and Norminal Sizes: MJCX(20A~50A)

New model



The connection part(a screw thread connection) of a socket method is weak.
Because the pipe thickness is half of comparing the original thickness.
An earthquake or an impact can make a damage easily.
MJCX can cover the connection part of a socket and repair the damaged part of socket.

Test data

VACUUM TEST

- TEST METHOD : DNV TYPE APPROVAL NO. 102-2
- RESULT : No leakage

SAMPLES	MJG-50A		MJG-150A		MJG-200A	
TEST ITEM	VACUUM 300mbar					
SAMPLES	MJG-50A	MJG-300A	MJS-50A	MJS-300		
TEST ITEM	VACUUM 100mbar					

VIBRATION & FATIGUE TEST

- TEST METHOD : GL Part6('98),
- RESULT : No leakage
- SAMPLES : MJS 125A, MJG 50A, MJG 200A

SECTION1 : No. of cycles 3×10^6 , Amplitude 0.12mm, Frequency 50/s
 SECTION2 : No. of cycles 3×10^6 , Amplitude 1.0mm, Frequency 20/s
 SECTION3 : No. of cycles 3×10^6 , Amplitude 3.2mm, Frequency 5/s

HYDRAULIC & BURST TEST

- TEST METHOD : [DNV(2011), BV(2011), RINA(2012)]
- SAMPLES : MULTI PIPE JOINT 15A~500A
(MJS/MJG/MJR/MJH/MJD/MJL/MJGL/MJRL/MJHL/MJDL)
- RESULT : No leakage

N.D	HYD' TEST	BURST TEST	N.D	HYD' TEST	BURST TEST	N.D	HYD' TEST	BURST TEST
15A	24K	64K	65A	21K	56K	250A	12K	32K
20A			80A			300A	10.5K	28K
25A			100A			350A		
32A			125A			400A		
40A			150A	18K	48K	450A	9K	24K
50A			200A	12K	32K	500A	7.5K	20K

※ MJGF / MJGFLTYPE

20A ~ 200A HYD' TEST : 24kgf / cm^2

BURST TEST : 64kgf / cm^2

- RESULT : No leakage

BREAK TEST

- SAMPLES : Coupling 50A
- TEST METHOD : KS B 0802 ('98)

TEST ITEM	TEST RESULT	
	SUS BOLT	SC BOLT
BREAK LOAD	4286 kgf	4244 kgf
BREAK SECTION	SPOT WELD	BOLT

PULL-OUT TEST

- TEST METHOD : DNV No.102('91)
- RESULT : No leakage (kgf)

ND	20A	25A	32A	40A	50A	65A
MJG	536	763	1,040	1,380	2,106	2,772
MJGF	1,904	1,496	2,050	1,612	3,309	3,584
80A	100A	125A	150A	200A	250A	300A
3,089	4,094	5,880	6,126	6,298	6,416	8,700
5,655	8,002	7,119	8,424	12,430	9,046	10,110

FIRE ENDURANCE TEST

- TEST METHOD : RINA SPEC (not circulating / 700°C / 30Min.)
- RESULT : No leakage

SAMPLES	N.D	WORKING PRESSURE	HYD' TEST
MJG	25A	16bar	24bar
	80A	14bar	21bar
MJGL	300A	7bar	10.5bar

- TEST METHOD : ISO 19921 / ISO 19922 (circulating / 800°C / 30Min.)
- RESULT : No leakage

SAMPLES	N.D	WORKING PRESSURE	HYD' TEST
MJG	300A	7.0bar	14.0bar
MJG	50A	16.0bar	32.0bar
MJGL	25A	16.0bar	32.0bar
MJS	300A	7.0bar	14.0bar
MJS	50A	16.0bar	32.0bar
MJL	25A	16.0bar	32.0bar
MJGF	65A	16.0bar	32.0bar
MJGF	150A	16.0bar	32.0bar
MJGF	300A	8.0bar	16.0bar

PRESSURE PULSATION TEST

- SAMPLES : Coupling 50A, 150A, 200A
- TEST METHOD : DNV TYPE APPROVAL
- RESULT : No leakage

N.D(mm)	TEST METHOD	70CYCLE/MIN
50A	0→16→24→0 kgf/ cm^2 / 1cycle	200,000cycle
150A	0→14→24→0 kgf/ cm^2 / 1cycle	
200A	0→12→24→0 kgf/ cm^2 / 1cycle	

BRINE SPRAY TEST

- SAMPLES : Coupling 100A
- TEST METHOD : KS D 9502 ('97)

TEST ITEM	TEST RESULT
[72H]	GOOD

Stainless steel plate test & Analysis

- TEST METHOD : KS D 1652-96

ITEM	C	Si	Mn	P	S	Cr	Ni
RESULT	0.07	0.05	1.08	0.018	0.004	19.00	8.82

(%)

Hexagon socket buttonhead screws test & analysis

- TEST METHOD : KS D 1652-96

ITEM	C	Si	Mn	P	S	Cr	Ni
RESULT	0.03	0.25	0.63	0.015	0.004	18.10	10.27

(%)

BOLT TENSILE LOAD TEST

- TEST METHOD : KS B 0233 ('96)

HEXAGON SOCKET BUTTON HEAD SCREWS

(kgf)

ITEM	TEST RESULT					
	M12-C	M12-CM	M12-US	M14-C	M14-CM	M12-US
BOLT TENSILE LOAD	3549	10690	5473	5259	12650	7264

Rubber Plate Test Analysis

TEST METHOD : KS M 6518 ('06)

EPDM

Test Item		Result
Hardness (HS)		61
Tensile strength (N/mm ²)		13.9
Elongation(%)		520
After Aging (110°C×96h)	HS change	2
	TS change(%)	13
	E change(%)	-22
(110°C × 22h)	Compression set(%)	43

NBR

Test Item		Result
Hardness (HS)		65
Tensile strength (N/mm ²)		16.1
Elongation(%)		480
After Aging (80°C×96h)	HS change	1
	TS change(%)	-12
	E change(%)	-9
(80°C × 22h)	Compression set(%)	9
Oil resistance (N0.3 Oil, (80°C×96h)	HS change	2
	TS change(%)	6
	E change(%)	-6

FKM(VITON)

Test Item		Result
Hardness (HS)		71
Tensile strength (N/mm ²)		15.0
Elongation(%)		280
After Aging (230°C×24h)	HS change	3
	TS change(%)	4
	E change(%)	-24
(175°C × 22h)	Compression set(%)	11

SILICONE

Test Item		Result
Hardness (HS)		59
Tensile strength (N/mm ²)		6.8
Elongation(%)		320
After Aging (110°C×96h)	HS change	3
	TS change(%)	-2
	E change(%)	-20
(80°C × 22h)	Compression set(%)	16

Test data



PULL-OUT TEST



VACUUM TEST



FIRE RESISTANCE TEST



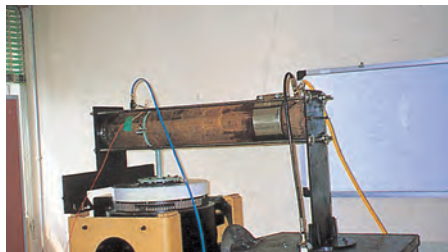
VIBRATION & FATIGUE TEST



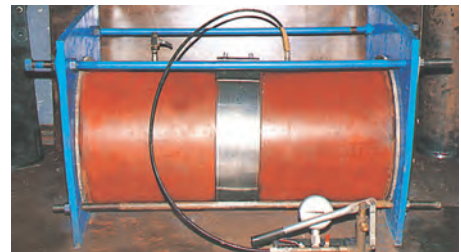
HYDRAULIC TEST(JAPAN)



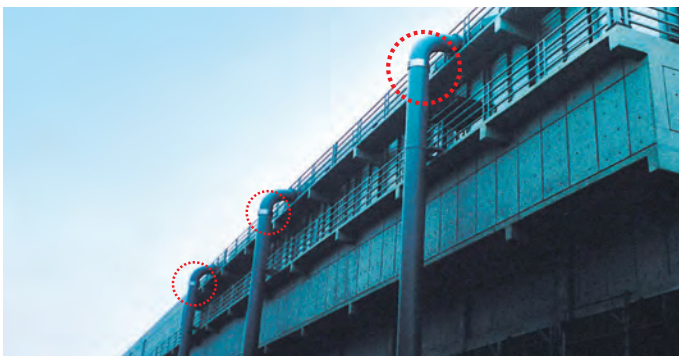
PRESSURE PULSATION TEST



VIBRATION TEST



HYDRAULIC & BURST TEST



INCHEON INTERNATIONAL AIRPORT



APPLICATION PICTURES FOR PARTIAL REPLACEMENT

APPLICATION FIELD FOR RNT SMART CLAMP

Engineering Industry :

irrigation, groundwater supplies, thermal & hydropower stations, land reclamation & drainage, aqueducts, flood relief schemes, swimming pools, thermal baths, lake & river abstractions, sea outfalls, municipal aquariums, tunnel works, sewerage, sewage treatment plants, pumping stations, service reservoirs, distribution systems, clarification & filtration plants, purification plants, desalination plants, water storage towers, trade wastes, distillation plants.

Beverages & Food Processing Ind. :

compressed air lines, water supply lines, process lines

Building & construction industry

Cement Ind. :

slurry lines, pneumatic conveying lines

Fertilizer, chemical & plastics Ind. :

caustic, compressed air, acid, nitrogen solution, latex, steam condensate return, cooling water, brine, waste, vent, bleach, phosphoric acid lines

Gas Ind. :

distribution & service lines, tank equipment.

Heating & Air Conditioning Ind. :

district heating(outfit of secondary pipe systems), pollution control, chill water lines, steam condensate return lines, cooling tower lines

Mechanical Engineering Industry :

water supply lines, gas lines, compressed air lines, lines for air conditioning and refrigeration, mixing and dosing machines, cyclones, cable protecting tubes, pneumatic and wet conveying of abrasive solids

Metallurgical Industry :

steel mills, aluminium plants, zinc smelters, foundry sand slurry lines, pickling acid lines, spent acid dump lines, waste treatment systems, plating solution lines, sulphuric acid lines, hydrochloric acid lines, chromic acid lines, waste acid lines (for acids and bleaches consult our chemical resistance list!)

Mining Industry :

Waste water lines, leaching lines, dilute acid lines, mine tailings conveying lines, fly ash lines, vent lines

Chemistry, Oil and Petrochemical Industry :

fire-fighting lines in refineries and oil field installations, sea-water lines, effluent lines, acid waste lines, product lines, oil storage tanks, riser pipes in deepwater wells, lines in gasoline service stations, lines in off-shore installations, hook-ups on oil rig modules, air conducts, vacuum lines

Power Generating Industry :

steam condensate return lines, waste water and water treatment lines, boiler make-up water lines, cooling water lines, vent lines

Pulp and Paper Industry and Printing Industry :

air lines to control panels, steam condensate return lines, demineralizer piping, sulphuric acid lines for pH control, alum lines, hydrochloric acid piping for caustic cleaning operations, pneumatic conveying lines

Shipbuilding Ind. (Including Ship-Repairing)

These couplings could be used for the following circuits :

- Flammable fluids (Flash point $\leq 60^\circ$)
 - Cargo oil, Crude oil washing, Vent lines
 - Inert gas
 - Water seal effluent, Scrubber effluent lines
 - Main, Distributions lines
 - Flammable fluids, (Flash point $> 60^\circ$)
 - Cargo oil, Fuel oil, Lubricating oil lines
 - Hydraulic, Thermal oil lines
 - Sea water
 - Bilge, Fire main and water spray lines
 - Foam, Sprinkler, Ballast system
 - Cooling water, Non-essential system
 - Tank cleaning services
 - Fresh water
 - Cooling water, Non-essential system
 - Condensate return
 - Sanitary / Drains / Scuppers
 - Deck drains(internal), Sanitary drains
 - Sounding / Vent
 - Water tanks / Dry spaces
 - Oil tanks(f.p. $> 60^\circ$)
 - Miscellaneous
 - Service air(non-essential), Brain
- ※ IACS Rules

※ NOTICE : NOT RECOMMENDABLE FOR LINES WHICH DECOMPOSE BACTERIOLOGICALLY, e.g. (food stuffs, beer, wine, etc.)

Application



Connection & Repairing for pipelines
Together with RNT SMART CLAMP
RANO TECH CO., LTD.

