

MECHANICAL JOINTS, FOR STEEL PIPES,  
POLYETHYLENE PIPES, P.V.C. PIPES.



# LA COUPLINGS

Easy connection with pipes of dissimilar materials



**RIKEN**  
RIKEN CORPORATION

# TYPES AND CONNECTION OF LA COUPLINGS (LA TYPE)

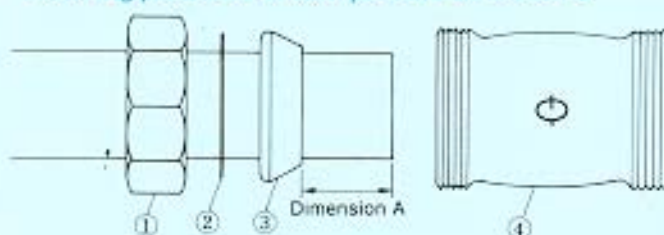
## LA Type



(Refer to RIKEN for special applications.)

## Connection of LA Type

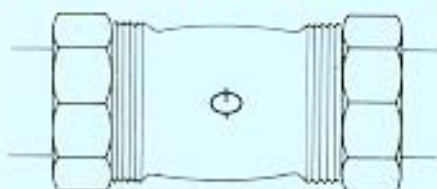
### 1. Setting procedure of each part and dimension A



Each part should be set in numerical order as shown in the figure. At that time, rubber packing should be set conforming to dimension A as listed in the following table.

Nominal size	$\frac{3}{8}$ , $\frac{1}{2}$ , $\frac{3}{4}$ , 1	$1\frac{1}{4}$ , $1\frac{1}{2}$ , 2	$2\frac{1}{2}$ , 3
Dimension A, mm	15	20	25

### 2. Tightening of nuts and required torque



The nut should be tightened with a wrench according to the tightening torque as shown in the table.

Take care not to cause deterioration of rubber packing by excessive tightening torque.

Nominal size	Tightening Torque, kgf-cm ( )/lb-in
$\frac{3}{8}$	400 ( 350)
$\frac{1}{2}$	400 ( 350)
$\frac{3}{4}$	600 ( 500)
1	700 ( 600)
$1\frac{1}{4}$	800 ( 700)
$1\frac{1}{2}$	900 ( 800)
2	1000 ( 900)
$2\frac{1}{2}$	1300 (1100)
3	1500 (1300)

As seen from the photo, LA type consists of the body, rubber packings, washers and nuts. In this type, the sealing effect on the fluid can be obtained by tightening the nut as this causes the highly elastic rubber packing to be pressed tightly against the surface of the pipe. Since the rubber packing exerts a large reaction force and frictional force on the internal face of the nut, the nut is held fast so that it will not loosen. Pipes should be fixed.

### Applications:

For general use, water supply, gas supply and hot water piping as well as other piping which requires some expansion and contraction.

### Applicable Pipes:

JIS G3452	Carbon Steel Pipes for Ordinary Piping
JIS G3454	Carbon Steel Pipes for Pressure Service
JIS G3442	Galvanized Steel Pipes for Water Service
JIS K6741	Unplasticized Polyvinyl Chloride (PVC) Pipes
JIS K6742	Unplasticized Polyvinyl Chloride Pipes for Water Works
JWWA K116	Polyvinyl Chloride Lining Steel Pipes for Water Works
JWWA K132	Polyethylene Powder Lining Steel Pipes for Water Works (PA, PB)

### Applicable Fluids and Working Pressure:

Applicable Fluid	Working pressure, kgf/cm <sup>2</sup>
Water, hot water, oil	10 (Pipes should be fixed.)
Gas, air	3 (Pipes should be fixed.)

### Available Nominal Size:

$\frac{3}{8}$  to 3 (13mm to 50mm for PVC Pipes.)

Note: Refer to RIKEN for applications other than buried piping.

# TYPES AND DIMENSIONS OF LA COUPLINGS

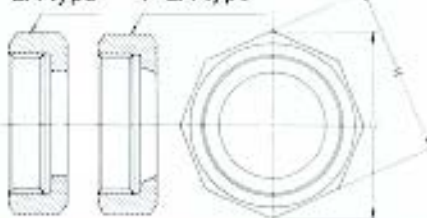
● Types of LA Couplings (Other types and dimensions are available on request.)

Type	LA Coupling				
	LA Type	HI-LA Type			P-LA Type
		With lock ring on one outlet	With lock ring on both outlets	With lock ring on three outlets	
Socket (S)	○	○	A	AB	○
Reducing socket (RS)	○	○	A	AB	○
Long socket (SSS)	○	○	A	AB	○
Elbow (L)	○	○	A	AB	○
45° Elbow (45° L)	○	○	A	AB	○
Tee with threaded branch outlet (T)	○	○	A	AB	○
Reducing tee with threaded branch outlet (RT)	○	○	A	AB	○
Tee (NT)	○	○	A	AB, AC	ABC
Reducing tee (PNT)	○	○	A	AB, AC	ABC
Adapter, male threaded (AP)	○	○	A		○
Reducing adapter, male threaded (RAP)	○	○	A		○
Adapter, female threaded (AQ)	○	○	A		○
Reducing adapter, female threaded (RAQ)	○	○	A		○
Flange (LA-FL)	○	○	A		○

## ● Nut

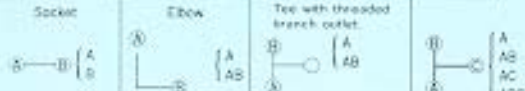
for LA type

for HI-LA, P-LA type



Nominal size of nut	B Width across flats, mm	C Approx. diagonal dimension, mm	Shape of nut
3/8	37	40	Octagon
1/2	42	45.5	Octagon
3/4	49	53	Octagon
1	58	62.8	Octagon
1 1/4	66	69.4	Decagon
1 1/2	73	76.8	Decagon
2	87	91.5	Decagon
2 1/2	108	113.6	Decagon
3	123	129.3	Decagon

A : with one lock ring  
AB, AC : with two lock rings  
ABC : with three lock rings



○ Taper Pipe Threads

## Dimensions of LA Couplings

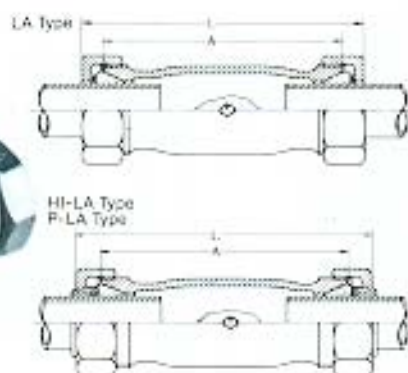
SOCKET (S)	LA Type	LA Type		HI-LA Type	P-LA Type	
		L Approx	A	L Approx	A	
		3/8	64	50	75	50
		1/2	69	55	80	55
		3/4	75	60	85	60
		1	80	65	90	65
		1 1/4	85	70	96	70
		1 1/2	91	75	102	75
		2	97	80	112	80
		2 1/2	110	90	124	90
		3	120	100	136	100

REDUCING SOCKET (RS)	LA Type	LA Type		HI-LA Type	P-LA Type		
		L Approx	A	L Approx	A		
		1/2 x 3/8	69	55	80	55	

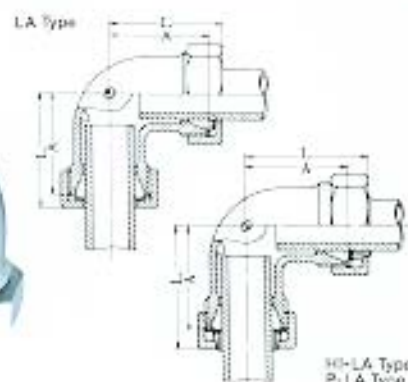
# DIMENSIONS OF LA COUPLINGS

## LONG SOCKET (SSS)



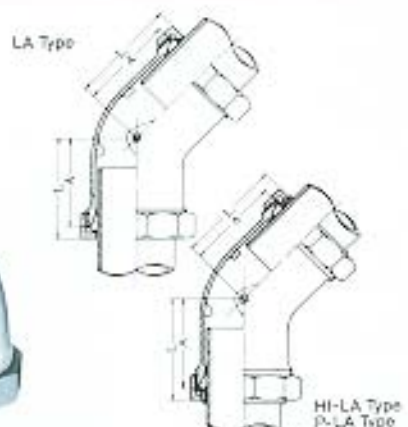
Nominal Size	LA Type		HI-LA Type	P-LA Type
	L Approx	A	L Approx	A
1/2	101.5	87.5	112.5	87.5
3/4	109	94	119	94
1	115	100	125	100
1 1/4	122	106	132	106
1 1/2	128.5	112.5	139.5	112.5
2	136	119	151	119

## ELBOW (L)



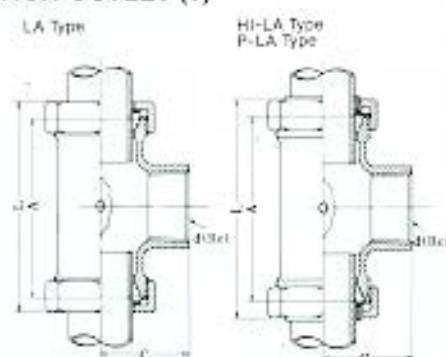
Nominal Size	LA Type		HI-LA Type	P-LA Type
	L Approx	A	L Approx	A
1/2	49	42	54	42
3/4	55.5	48	60	48
1	61.5	54	66	54
1 1/4	70	62	75	62
1 1/2	77	69	82	69
2	87.5	79	95.5	79
2 1/2	97	87	104	87
3	105	95	112	95

## 45° ELBOW (45°L)

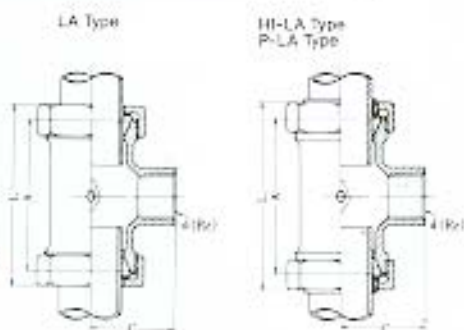


Nominal Size	LA Type		HI-LA Type	P-LA Type
	L Approx	A	L Approx	A
1/2	50	38	50	38
3/4	54	42	54	42
1	58	46	58	46
1 1/2	70	57	70	57
2	83.5	67	83.5	67

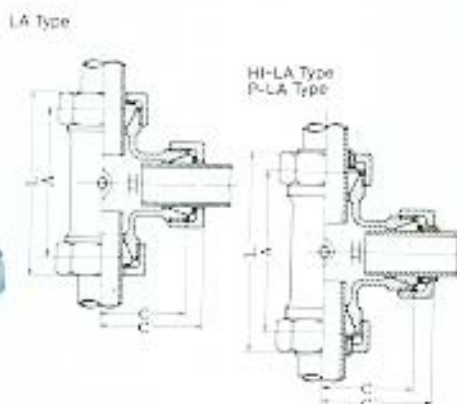
## TEE WITH THREADED BRANCH OUTLET (T)



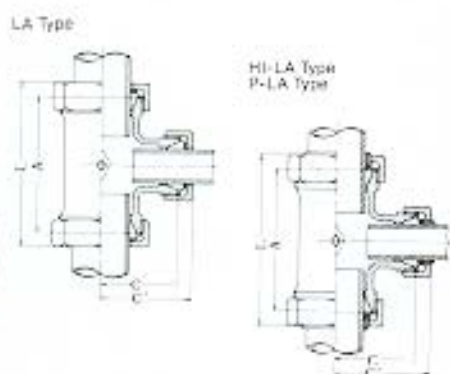
Nominal Size	LA Type				HI-LA Type				P-LA Type			
	L Approx	A	C	d (Rc)	L Approx	A	C	d (Rc)	L Approx	A	C	d (Rc)
1/2	85	71	29	1/2	95	71	29	1/2	95	71	29	1/2
3/4	97	82	34	3/4	107	82	34	3/4	107	82	34	3/4
1	106	91	40	1	116	91	40	1	116	91	40	1
1 1/4	122	106	46.5	1 1/4	132	106	46.5	1 1/4	132	106	46.5	1 1/4
1 1/2	133	117	51	1 1/2	144	117	51	1 1/2	144	117	51	1 1/2
2	150	133	59	2	165	133	59	2	165	133	59	2
2 1/2	178	158	71.5	2 1/2	192	158	71.5	2 1/2	192	158	71.5	2 1/2
3	191	171	81	3	205	171	81	3	205	171	81	3

**REDUCING TEE WITH THREADED BRANCH OUTLET (RT)**


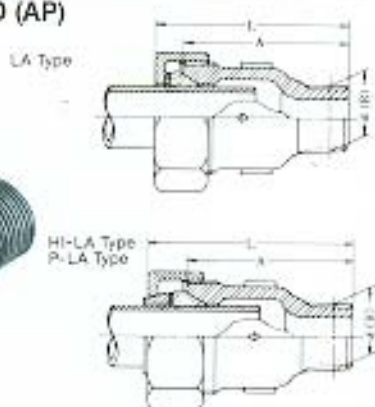
Nominal Size	LA Type				HI-LA Type P-LA Type			
	L Approx	A	C	d	L Approx	A	C	d
3/4 x 1/2	90.5	76	32	1/2	101	76	32	1/2
1 x 1/2	90.5	81	36	1/2	106	81	36	1/2
1 x 3/4	102	87	38	3/4	112	87	38	3/4
1 1/4 x 1/2	101	86	40	1/2	112	86	40	1/2
1 1/4 x 3/4	107.5	92	42	3/4	118	92	42	3/4
1 1/4 x 1	113.5	98	44	1	124	98	44	1
1 1/2 x 1/2	106	91	43.5	1/2	118	91	43.5	1/2
1 1/2 x 3/4	112.5	97	45.5	3/4	124	97	45.5	3/4
1 1/2 x 1	118.5	103	47.5	1	130	103	47.5	1
1 1/2 x 1 1/4	127	111	50	1 1/4	138	111	50	1 1/4
2 x 1/2	111.5	96	50	1/2	128	96	50	1/2
2 x 3/4	118	102	52	3/4	134	102	52	3/4
2 x 1	124	108	54	1	140	108	54	1
2 x 1 1/4	132.5	116	56.5	1 1/4	148	116	56.5	1 1/4
2 x 1 1/2	132.5	122	57.5	1 1/2	154	122	57.5	1 1/2

**TEE (NT)**


Nominal Size	LA Type				HI-LA Type P-LA Type			
	L Approx	A	C	C'	L Approx	A	C	C'
3/4	77	63	35	42	87	63	35	47
1/2	85	71	39	46	95	71	39	51
3/4	97	82	44	51.5	106	82	44	56
1	106	91	50	57.5	115	91	50	62
1 1/4	122	106	56.5	64.5	132	106	56.5	70
1 1/2	133	117	63	71	143	117	63	76
2	150	133	71	79.5	165	133	71	87

**REDUCING TEE (RNT)**


Nominal	LA Type				HI-LA Type P-LA Type			
	L Approx	A	C	C'	L Approx	A	C	C'
3/4 x 1/2	91	76	42	49	101	76	42	55

**ADAPTER, MALE THREADED (AP)**


Nominal Size	LA Type			HI-LA Type P-LA Type		
	L Approx	A	d	L Approx	A	d
1/2	61	54	1/2	66	54	1/2
3/4	61.5	56	3/4	68	56	3/4
1	69.5	62	1	74	62	1
1 1/4	72	64	1 1/4	77	64	1 1/4
1 1/2	73	65	1 1/2	78	65	1 1/2
2	82	73.5	2	89	73.5	2
2 1/2	93	83	2 1/2	100	83	2 1/2
3	99	89	3	106	89	3

# RUBBER PACKINGS FOR LA COUPLINGS

## Types of Rubber Packings and Applicable Fluids (Refer to RIKEN for details of applications.)

- Three types of rubber packing materials are available for each nominal size according to applicable fluids.

Material	Marking	Applicable Fluid	Working Temperature, °C
NBR (Nitrile rubber)	G	Water, gas, air, hot water (up to 60°C)	-10-60
EPDM (Ethylene-propylene rubber)	EP	Hot water	-100
ACM (Acrylic rubber)	ACM	Oil, air	-100

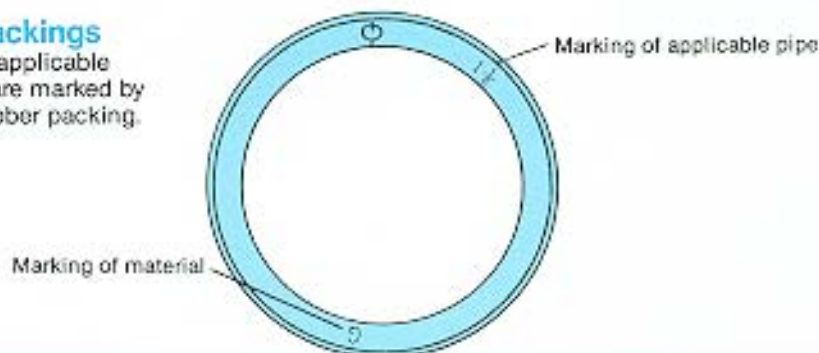
- Reference data for material selection

Application			Rubber Packing Material		
Fluid	Concentration, %	Temperature, °C	NBR	EPDM	ACM
Water, hot water	100	R.T.	⊙ (× above 60°C)	⊙ (up to 100°C)	△
Air	100	60	⊙	⊙ (× with oil)	⊙
City gas	100	R.T.	⊙	×	⊙
Propane gas	100	R.T.	⊙	×	⊙
Natural gas	100	R.T.	⊙	×	⊙
Gasoline	100	R.T.	×	×	×
Gas oil	100	R.T.	○	×	○
Heavy oil	100	R.T.	○	×	○
Kerosine	100	R.T.	○	×	○
Machine oil	100	R.T.	○ (× with additive)	×	○ (× with additive)

⊙ Excellent ○ Good △ Fair × Not recommended (Refer to RIKEN for details)

### Marking of Rubber Packings

As shown in the figure, the applicable nominal size, material, etc. are marked by embossed letters on the rubber packing.



Nominal size of LA Type	Nominal size of Rubber Packing	Applicable Pipe, Pipe Nominal Size						Mark of Nominal Size		
		Steel Pipe		PVC Pipe mm	PVC Pipe for Waterworks, mm	Polyethylene Pipe, in.	Polyethylene Pipe for Waterworks, mm	For Steel Pipe	For PVC Pipe	For Polyethylene Pipe
		in.	mm							
3/8	3/8	3/8	10	13	13	10	10	3/8	13	10
1/2	1/2	1/2	15	16	—	13	13	1/2	16	13
3/4	3/4	3/4	20	20	20	20	20	3/4	20	20
1	PVC 25mm	—	—	25	25	—	—	—	25	—
	1	1	25	—	—	25	25	1	—	25
1 1/4	PVC 30mm	—	—	30	30	—	—	—	30	—
	1 1/4	1 1/4	32	—	—	30	30	1 1/4	—	30
1 1/2	1 1/2	1 1/2	40	40	40	40	40	1 1/2	40	40
2	2	2	50	50	50	50	50	2	50	50
2 1/2	2 1/2	2 1/2	65	—	—	65	—	2 1/2	—	—
3	3	3	80	—	—	75	—	3	—	—