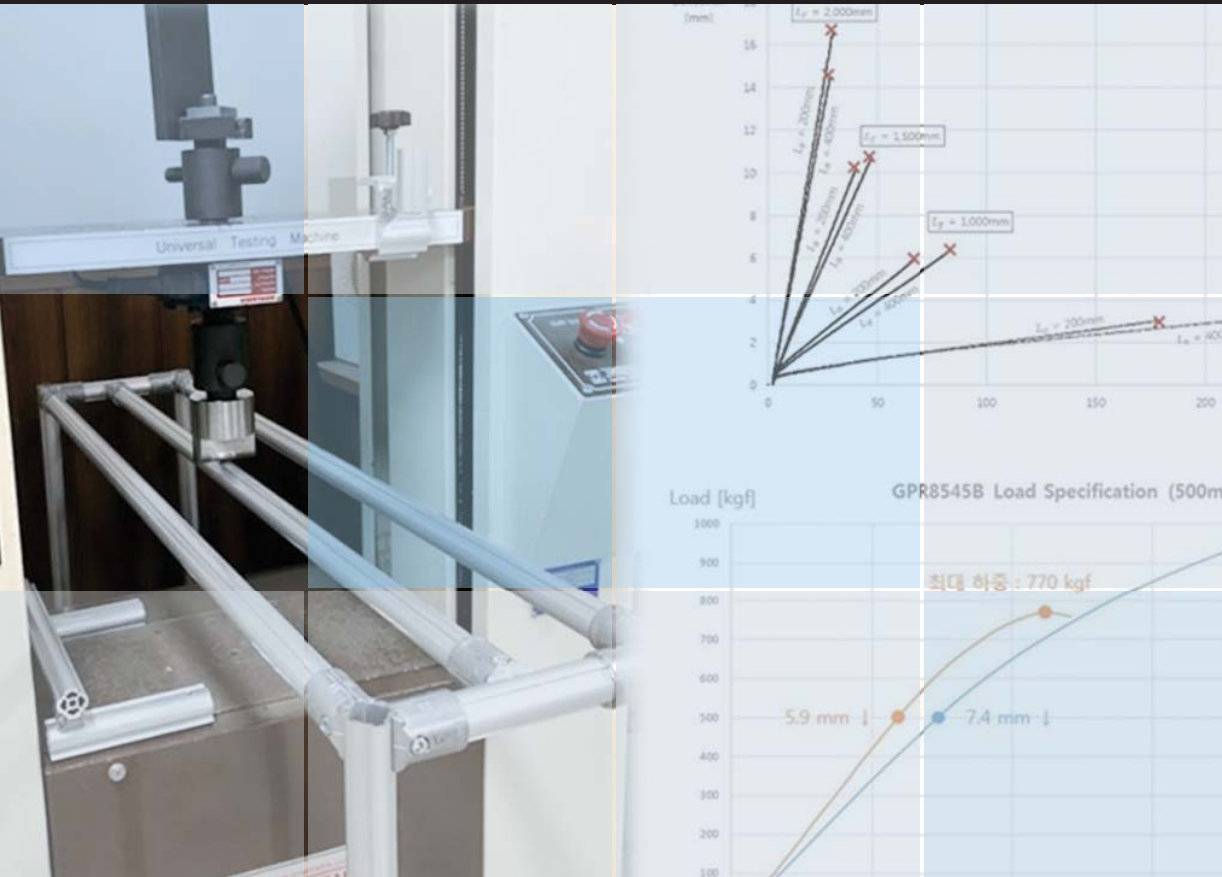
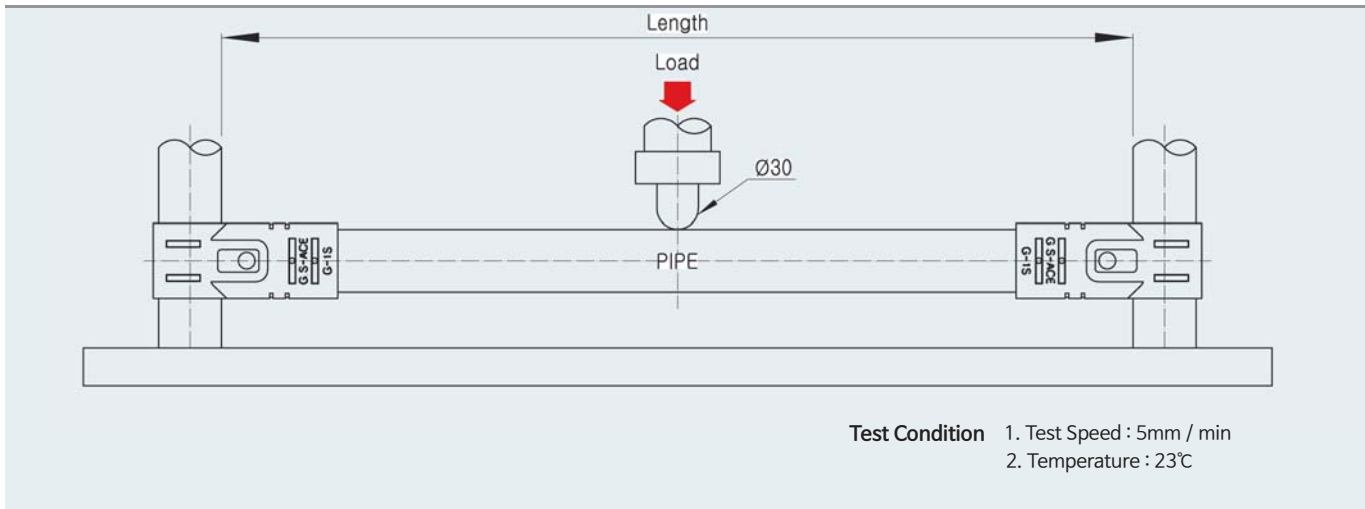


# TECHNICAL SPECIFICATIONS



- METAL RACKING SYSTEM
- ALUMINUM RACKING SYSTEM
- ROLLER TRACK SYSTEM

## BENDING STRENGTH FOR PIPE



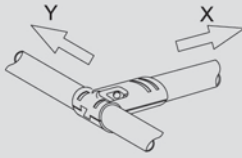
Coated Pipe	L = 500mm		L = 1000mm	
	권장 하중 (2.5mm 변형)	탄성 한계 하중 (항복 하중)	권장 하중 (5mm 변형)	탄성 한계 하중 (항복 하중)
φ28 x t0.7	87 kgf	197 kgf	30 kgf	120 kgf
φ28 x t0.9	89 kgf	251 kgf	38 kgf	121 kgf
φ28 x t1.0	83 kgf	262 kgf	45 kgf	129 kgf
φ28 x t1.4	109 kgf	388 kgf	51 kgf	185 kgf
φ28 x t2.0	141 kgf	464 kgf	46 kgf	233 kgf

STS Pipe	L = 500mm		L = 1000mm	
	권장 하중 (2.5mm 변형)	탄성 한계 하중 (항복 하중)	권장 하중 (5mm 변형)	탄성 한계 하중 (항복 하중)
φ28 x t0.7	102 kgf	193 kgf	48 kgf	112 kgf
φ28 x t0.9	122 kgf	270 kgf	59 kgf	137 kgf
φ28 x t1.2	145 kgf	391 kgf	69 kgf	188 kgf

ECCO Pipe	L = 500mm		L = 1000mm	
	권장 하중 (2.5mm 변형)	탄성 한계 하중 (항복 하중)	권장 하중 (5mm 변형)	탄성 한계 하중 (항복 하중)
φ28 x t0.7	74 kgf	142 kgf	43 kgf	96 kgf
φ28 x t0.9	111 kgf	201 kgf	44 kgf	123 kgf
φ28 x t1.2	128 kgf	303 kgf	54 kgf	184 kgf
φ28 x t2.0	196 kgf	465 kgf	63 kgf	241 kgf

# TECHNICAL SPECIFICATIONS METAL RACKING SYSTEM

## HOLDING FORCE



Test Condition

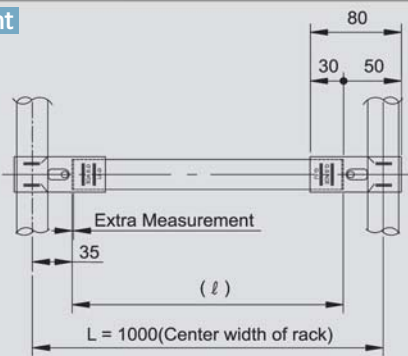
1. Test Speed : 5mm / min

2. Temperature : 23°C

Classification	L = 500mm		L = 1000mm	
	Ø28 x t0.7	Ø28 x t1.0	Ø28 x t0.7	Ø28 x t1.2
Direction : X	Mor Than 80 kg	Mor Than 80 kg	Mor Than 80 kg	Mor Than 80 kg
Direction : Y	Mor Than 80 kg	Mor Than 80 kg	Mor Than 80 kg	Mor Than 80 kg

## DETERMINING STANDARD PIPE LENGTH

### Metal Joint

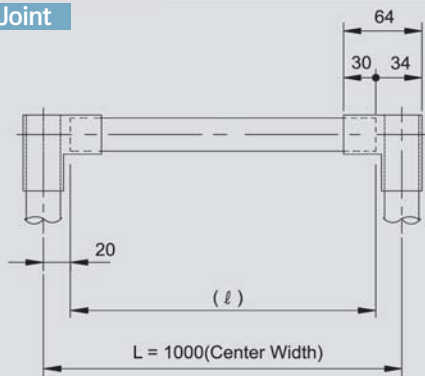


$$l = 1000 - (70+2) = 928(\text{mm})$$

Case of Ø28mm

1000mm	Center Measurement (L)
-70mm	Pipe Length Inside Joint (35mm x 2)
-2mm	Extra Measurement (2mm~5mm)
928mm	Pipe Length (l)

### Plastic Joint



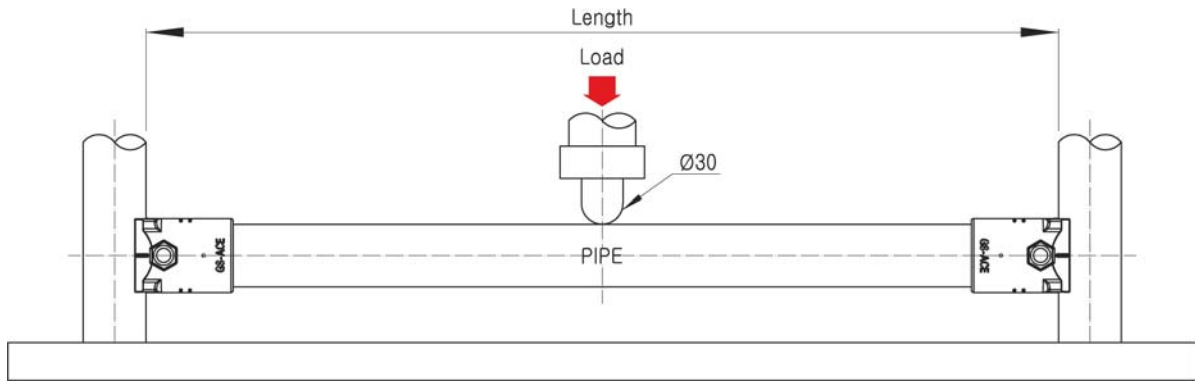
$$l = 1000 - (40+2) = 958(\text{mm})$$

Case of Ø28mm

1000mm	Center Measurement (L)
-40mm	Pipe Length Inside Joint (20mm x 2)
-2mm	Extra Measurement (2mm~5mm)
958mm	Pipe Length (l)

# TECHNICAL SPECIFICATIONS ALUMINUM RACKING SYSTEM

## PIPE BENDING STRENGTH








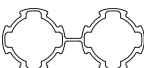

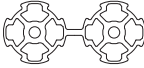









\* 일자형 조인트 (Outer)로 체결하여 측정한 결과임.







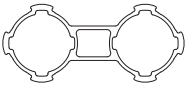







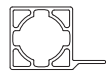

\* 일자형 조인트 (Outer)로 체결할 수 없는 파이프는 일자형 조인트 (Inner) 로 체결하여 측정함.

External Size	Part No.	TYPE	L = 500mm		L = 1,000mm		Weight (g/m)	Second Section Moment ( $\times 10^4 \text{ mm}^4$ )	Applied Joint	
			권장 하중 (2.5mm 변형)	탄성 한계 하중 (항복 하중)	권장 하중 (5mm 변형)	탄성 한계 하중 (항복 하중)				
Ø19	AP1914		43	110	15	55	201	lx : 0.26 ly : 0.26	A-1902	
Ø28	AP2810B		74	174	27	112	297	lx : 0.74 ly : 0.88	B-001H	
	AP2812		117	303	43	170	380	lx : 1.03 ly : 1.03	A-001	
	AP2812R		205	406	82	252	608	lx : 7.22 ly : 1.23	B-001H	
	AP2820		X→	124	330	46	166	441	lx : 1.32 ly : 1.06	A-001
			Y↓	137	350	47	181			
	AP2829		141	399	50	230	495	lx : 1.33 ly : 1.33	A-001	
	AP2812H		153	434	63	240	738	lx : 1.54 ly : 1.54	A-001	
	AR2812		134	248	45	149	377	lx : 1.13 ly : 1.13	A-001C	
	AR2820		133	277	48	154	446	lx : 1.30 ly : 1.30	A-001C	
	AR2829		155	359	53	194	494	lx : 1.46 ly : 1.46	A-001C	
	AL2812		101	203	46	110	335	lx : 0.98 ly : 0.87	A-001C	
	AL2813		123	218	40	118	335	lx : 1.05 ly : 1.05	A-001C	
	AL2818		146	299	48	165	393	lx : 1.21 ly : 1.21	A-001C	
	ACF2812		55	197	21	100	358	lx : 1.57 ly : 1.34	GS-AN	
ALS2812		56	155	22	89	360	lx : 1.82 ly : 1.21	GS-AN		

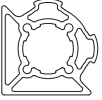
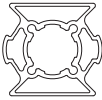
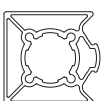
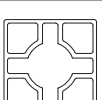


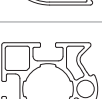

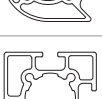
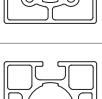
# TECHNICAL SPECIFICATIONS ALUMINUM RACKING SYSTEM

External Size	Part No.	TYPE	L = 500mm		L = 1,000mm		Weight (g/m)	Second Section Moment ( $\times 10^4 \text{ mm}^4$ )	Applied Joint	
			권장 하중 (2.5mm 변형)	탄성 한계 하중 (항복 하중)	권장 하중 (5mm 변형)	탄성 한계 하중 (항복 하중)				
Ø28	AFS2810		93	190	42	109	298	lx: 1.89 ly: 1.89	A-001C	
	AFS2812		114	228	40	135	377	lx: 1.06 ly: 1.06	A-001C	
	AQ2812		87	180	47	122	374	lx: 1.09 ly: 1.10	A-001C	
	ALF2812		174	399	54	185	670	lx: 3.46 ly: 3.46	B-001H	
	ALF2812B		171	381	51	173	632	lx: 3.50 ly: 2.95	B-001H	
	ATF2812		177	425	51	184	700	lx: 3.72 ly: 3.10	B-001H	
	ATF2812B		157	430	62	190	1,080	lx: 7.05 ly: 2.16	B-001H	
	AD2812		X→	264	396	154	318	780	lx: 2.04 ly: 1.94	A-009
			Y↓	115	429	48	218			
	AD2829		X→	461	649	195	457	1,143	lx: 3.09 ly: 2.68	B-001H
			Y↓	173	498	58	261			
	AD2812H		X→	478	1096	233	956	1,367	lx: 2.40 ly: 3.28	A-009
			Y↓	207	536	68	309			
	AGP-28A			103	224	40	119	464	lx: 0.97 ly: 0.97	A-001C
	AGP-28B		X→	103	255	45	131	498	lx: 1.05 ly: 0.96	A-001C
			Y↓	119	271	47	135			
	AGP-28C		X→	59	144	39	103	378	lx: 0.83 ly: 0.83	A-001C
			Y↓	62	154	36	102			
	AT2829			83	324	30	157	580	lx: 0.95 ly: 1.63	A-001
	ASGP-08		X→	122	287	31	162	444	lx: 1.78 ly: 1.10	B-001H
Y↓			95	279	41	150				
ASJ2848A			178	425	49	190	700	lx: 2.24 ly: 5.57	B-001H	
ASJ2929A			138	428	44	204	628	lx: 1.93 ly: 1.91	B-001H	

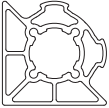

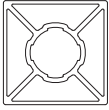

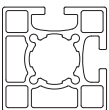
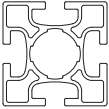
# TECHNICAL SPECIFICATIONS ALUMINUM RACKING SYSTEM

External Size	Part No.	TYPE	L = 500mm		L = 1,000mm		Weight (g/m)	Second Section Moment (x10 <sup>4</sup> mm <sup>4</sup> )	Applied Joint
			권장 하중 (2.5mm 변형)	탄성 한계 하중 (항복 하중)	권장 하중 (5mm 변형)	탄성 한계 하중 (항복 하중)			
Ø33	AP3315		161	382	66	222	458	lx: 1.76 ly: 1.76	A-301
	AP3315H		206	597	82	306	897	lx: 2.43 ly: 2.43	A-301
Ø43	AP4319C		327	736	134	435	797	lx: 5.07 ly: 5.07	A-401
	AP4319H		363	841	163	553	1,284	lx: 6.18 ly: 6.17	A-401
	AR4312		149	302	94	228	696	lx: 5.13 ly: 5.13	B-401
	AQ4320		262	612	108	366	901	lx: 6.16 ly: 6.73	B-401
	AD4319	 X→ Y↓	630 315	1,054 1,473	357 135	918 737	1,887	lx: 11.45 ly: 6.16	B-401
28X28	ASQ2812A		130	404	46	188	566	lx: 1.83 ly: 1.83	C-001
	ASQ2812AN		105	306	37	144	450	lx: 1.49 ly: 1.49	C-001
	ASQ2812B		130	437	43	235	665	lx: 1.79 ly: 2.55	C-001
	ASQ2812C		134	426	45	187	591	lx: 1.82 ly: 2.20	C-001
	ASQ2812D		153	425	45	197	555	lx: 1.95 ly: 1.95	C-001
	ASQ2812E		137	362	41	165	522	lx: 1.79 ly: 1.41	C-001
	ASQ2812EN		109	283	36	145	432	lx: 1.40 ly: 1.25	C-001
	ASQ2812F		172	408	52	215	646	lx: 2.11 ly: 3.21	C-001
	AST2828D		146	446	53	157	873	lx: 2.59 ly: 2.59	C-001T

# TECHNICAL SPECIFICATIONS ALUMINUM RACKING SYSTEM

External Size	Part No.	TYPE	L = 500mm		L = 1,000mm		Weight (g/m)	Second Section Moment (x10 <sup>4</sup> mm <sup>4</sup> )	Applied Joint	
			권장 하중 (25mm 변형)	탄성 한계 하중 (항복 하중)	권장 하중 (5mm 변형)	탄성 한계 하중 (항복 하중)				
40X40	ASJ4040A		X→	344	750	107	414	1,194	Ix: 6.85 Iy: 6.85	D-001
			Y↓	313	704	113	446			
	ASJ4040B		X→	301	626	117	407	1,211	Ix: 6.98 Iy: 6.89	D-001
			Y↓	346	625	118	380			
	ASJ4040C		X→	346	784	113	386	1,188	Ix: 7.73 Iy: 7.51	D-001
			Y↓	351	714	117	371			
	ASJ4040D			318	898	110	426	1,175	Ix: 7.72 Iy: 7.72	D-001
	ASJ4040E		X→	283	642	106	370	1,145	Ix: 6.08 Iy: 6.03	D-001
			Y↓	300	604	103	350			
	ASJ4040R		X→	270	594	104	354	1,126	Ix: 5.04 Iy: 6.90	D-001
			Y↓	294	700	108	393			
	ASM4040C		X→	330	921	120	465	1,292	Ix: 7.56 Iy: 7.70	D-001
			Y↓	373	949	125	444			
	ASM4040R		X→	260	680	105	339	1,169	Ix: 6.00 Iy: 6.99	D-001
Y↓			347	860	116	419				
AST4040A		X→	333	717	118	388	1,189	Ix: 7.13 Iy: 7.13	D-001	
		Y↓	374	822	113	416				
AST4040D			299	978	112	478	1,264	Ix: 7.67 Iy: 7.67	D-001	

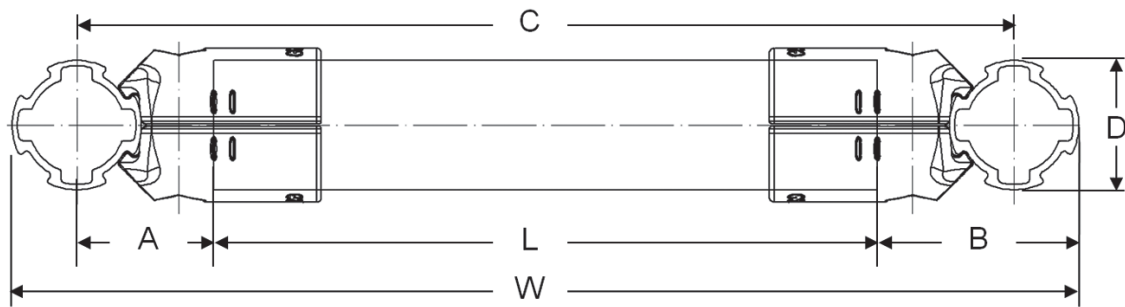
# TECHNICAL SPECIFICATIONS ALUMINUM RACKING SYSTEM

External Size	Part No.	TYPE		L = 500mm		L = 1,000mm		Weight (g/m)	Second Section Moment (x10 <sup>4</sup> mm <sup>4</sup> )	Applied Joint
				권장 하중 (2.5mm 변형)	탄성 한계 하중 (항복 하중)	권장 하중 (5mm 변형)	탄성 한계 하중 (항복 하중)			
45X45	ASJ4545A		X→	366	950	137	490	1,320	Ix: 9.10 Iy: 9.10	E-001
			Y↓	361	784	143	496			
	ASJ4545C		X→	425	1,006	143	511	1,412	Ix: 11.37 Iy: 10.59	E-001
			Y↓	352	986	163	526			
	ASJ4545D			482	1,123	168	566	1,495	Ix: 12.42 Iy: 12.42	E-001
	ASM4545C		X→	375	960	170	627	1,594	Ix: 12.35 Iy: 11.69	E-001
			Y↓	481	966	155	636			
	AST4545A		X→	429	1,024	166	590	1,513	Ix: 11.41 Iy: 11.41	E-001
Y↓			481	1,199	171	594				
AST4545D			453	1,032	169	664	1,607	Ix: 12.47 Iy: 12.47	E-001	



# TECHNICAL SPECIFICATIONS ALUMINUM RACKING SYSTEM

## DETERMINING STANDARD PIPE LENGTH



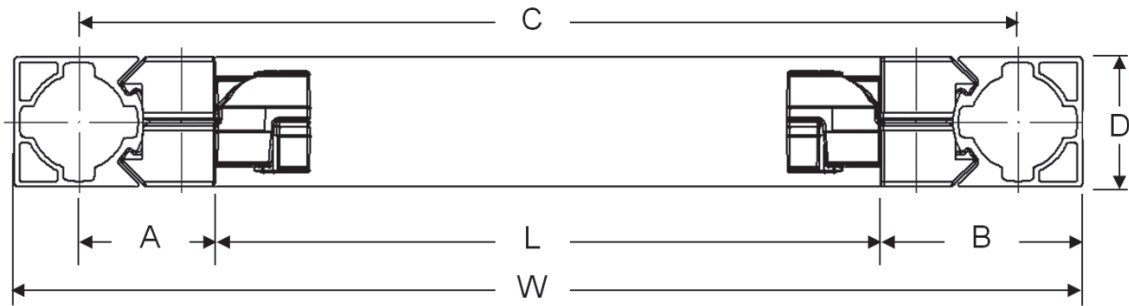
## ALUMINUM PIPE

Unit : mm

Diameter (D)	Item No.	중심 거리 기준 파이프 길이 (C = 1000)		외곽 거리 기준 파이프 길이 (W = 1000)		Remark
		〈A〉	〈L〉	〈B〉	〈L〉	
Ø19	A-1901	22	956 (-44)	31.5	937 (-63)	
	B-1901	22	956 (-44)	31.5	937 (-63)	
Ø28	A-1902	26.5	947 (-53)	40	920 (-80)	
	B-1902	26.5	947 (-53)	40	920 (-80)	
	A-001	29	942 (-58)	43	914 (-86)	
	B-001	29	942 (-58)	43	914 (-86)	
Ø33	A-1902	29	942 (-58)	45.5	909 (-91)	
	B-1902	29	942 (-58)	45.5	909 (-91)	
	A-001	32	936 (-64)	44	912 (-88)	
	B-001	32	936 (-64)	44	912 (-88)	
	A-301	33	934 (-66)	49.5	901 (-99)	
	B-301	33	934 (-66)	49.5	901 (-99)	
Ø43	A-1902	34	932(-68)	55.5	889 (-111)	
	B-1902	34	932(-68)	55.5	889 (-111)	
	A-001	37	926 (-74)	47.5	905 (-95)	
	B-001	37	926 (-74)	47.5	905 (-95)	
	A-301	38	924 (-76)	53	894 (-106)	
	B-301	38	924 (-76)	53	894 (-106)	
	A-401	41.5	917 (-83)	63	874 (-126)	
	B-401	41.5	917 (-83)	63	874 (-126)	

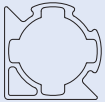
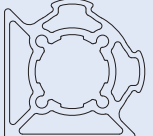
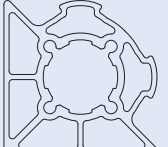
# TECHNICAL SPECIFICATIONS ALUMINUM RACKING SYSTEM

## DETERMINING STANDARD PIPE LENGTH

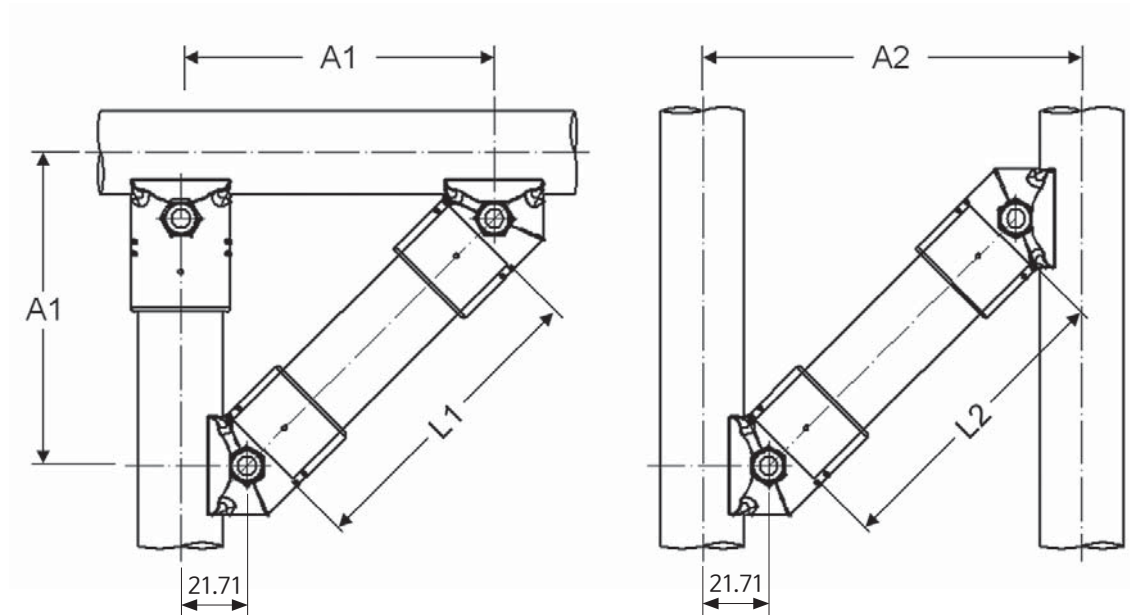


## ALUMINUM PIPE

Unit : mm

Diameter (D)	Item No.	중심 거리 기준 파이프 길이 (C = 1000)		외곽 거리 기준 파이프 길이 (W = 1000)		Remark
		〈A〉	〈L〉	〈B〉	〈L〉	
28x28 	A-1902	26.5	947 (-53)	40	920 (-80)	
	B-1902	26.5	947 (-53)	40	920 (-80)	
	A-001	29	942 (-58)	43	914 (-86)	
	B-001	29	942 (-58)	43	914 (-86)	
	C-001	29	942 (-58)	43	914 (-86)	
40x40 	A-1902	34	932 (-68)	54	892 (-108)	
	B-1902	34	932 (-68)	54	892 (-108)	
	A-001	37	926 (-74)	57	886 (-114)	
	B-001	37	926 (-74)	57	886 (-114)	
	C-001	37	926 (-74)	57	886 (-114)	
	D-001	41.5	917 (-83)	61.5	877 (-123)	
45x45 	A-1902	35	930 (-70)	58	884 (-116)	
	B-1902	35	930 (-70)	58	884 (-116)	
	A-001	37	926 (-74)	60.5	875 (-121)	
	B-001	37	926 (-74)	60.5	875 (-121)	
	C-001	37	926 (-74)	60.5	875 (-121)	
	E-001	41.5	917 (-83)	65	870 (-130)	

## DETERMINING STANDARD PIPE LENGTH



### Ø28 ALUMINUM ANGLE JOINT

Unit : mm

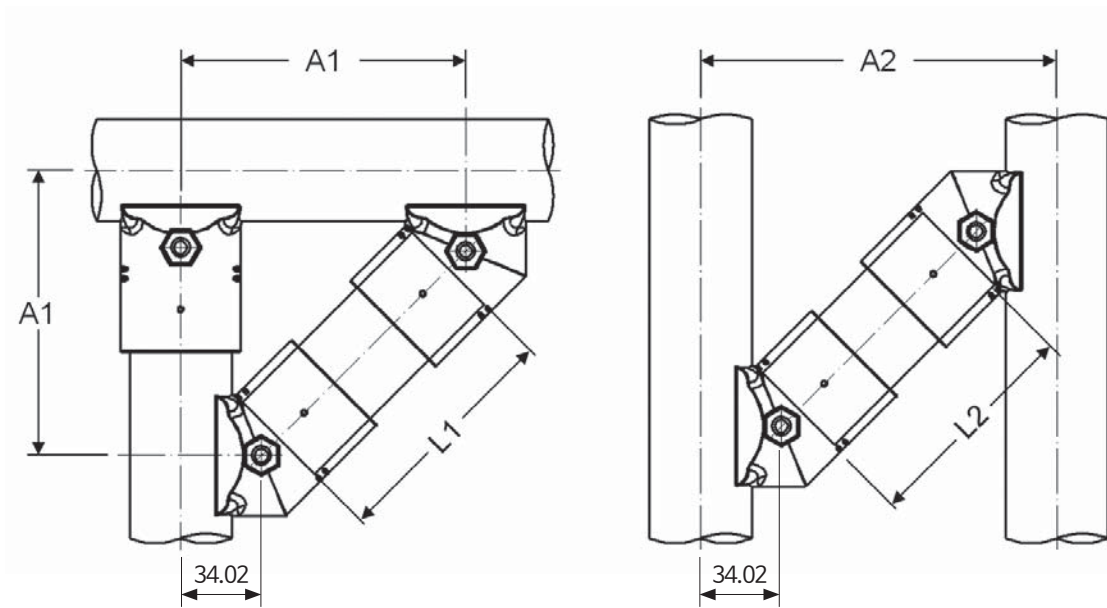
Diameter (D)	Item No.	조인트 수직 체결 기준		조인트 수평 체결 기준		Remark
		A1	L1	A2	L2	
Ø28	A-013L/R B-013L/R	100	95.7	100	65	
		200	237.1	200	206.4	
		300	378.5	300	347.8	
		400	519.9	400	489.2	
		500	661.3	500	630.6	
		600	802.7	600	772	

[ Ø28 Aluminum Angle Joint 적용시 Pipe 조립 길이 계산 ]

※  $L1 = 1.414 \times A1 - 45.706$

※  $L2 = 1.414 \times A2 - 76.414$

## DETERMINING STANDARD PIPE LENGTH



### Ø43 ALUMINUM ANGLE JOINT

Unit : mm

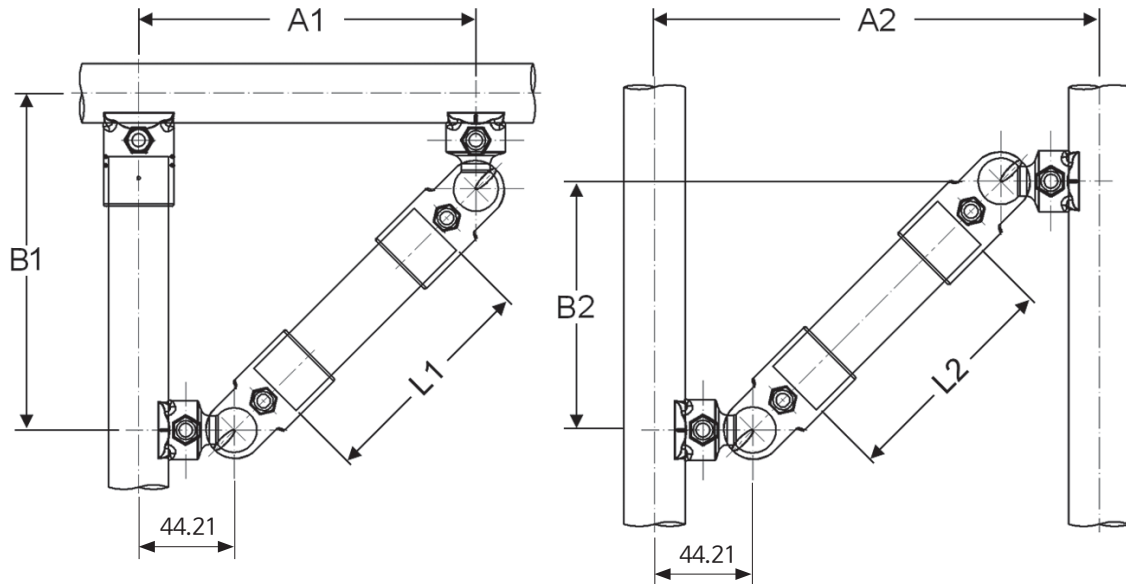
Diameter (D)	Item No.	조인트 수직 체결 기준		조인트 수평 체결 기준		Remark
		A1	L1	A2	L2	
Ø43	A-413L/R	150	143.2	150	95	
		200	213.9	200	165.7	
		300	355.3	300	307.1	
		400	496.7	400	448.5	
		500	638.1	500	589.9	
		600	779.5	600	731.3	

### [ Ø43 Aluminum Angle Joint 적용시 Pipe 조립 길이 계산 ]

※  $L1 = 1.414 \times A1 - 68.946$

※  $L2 = 1.414 \times A2 - 117.06$

## DETERMINING STANDARD PIPE LENGTH



### Ø28 ALUMINUM SWIVEL JOINT

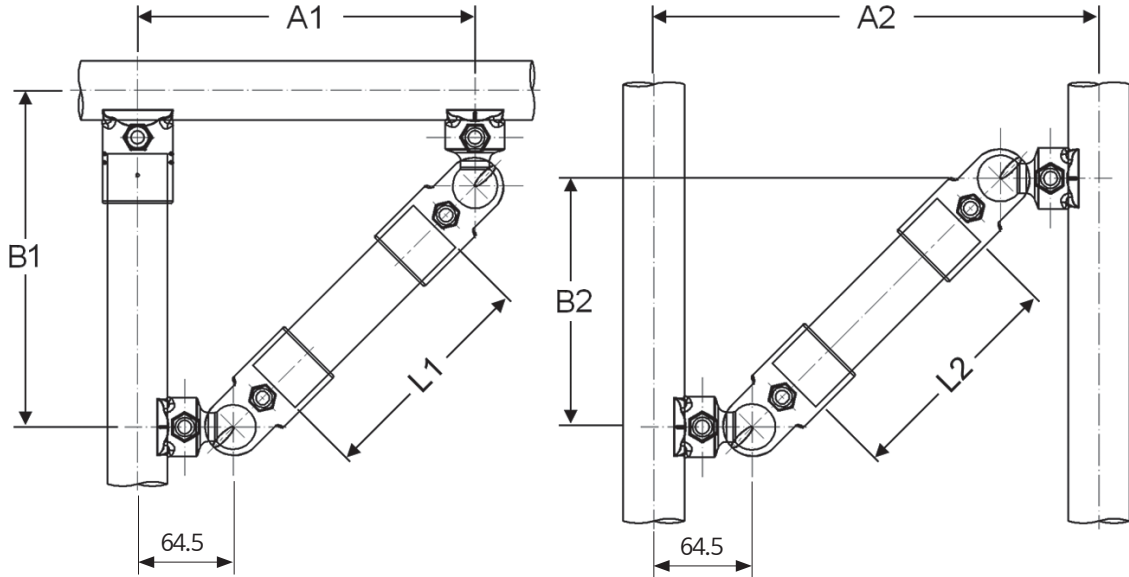
Unit : mm

Diameter (D)	Item No.	조인트 수직 체결 기준			조인트 수평 체결 기준			Remark
		A1	B1	L1	A2	B2	L2	
Ø28	AA-007F AA-007R AA-027F AA-027M BA-007F BA-007R	200	200	176	200	200	176	
	300	300	314.1	300	300	314.1		
	400	400	454	400	400	454		
	500	500	594.6	500	500	594.6		
	600	600	735.5	600	600	735.5		
	700	700	876.5	700	700	876.5		

[ Ø28 Aluminum Swivel Joint 적용시 Pipe 조립 길이 계산 ]

$$* L1 = \sqrt{(A-88.42)^2 + B^2} - 53$$

## DETERMINING STANDARD PIPE LENGTH



### Ø43 ALUMINUM SWIVEL JOINT

Unit : mm

Diameter (D)	Item No.	조인트 수직 체결 기준			조인트 수평 체결 기준			Remark
		A1	B1	L1	A2	B2	L2	
Ø43	AA-407F BA-407F BA-427F	300	300	277.7	300	300	277.7	
		400	400	415.6	400	400	415.6	
		500	500	555	500	500	555	
		600	600	695.2	600	600	695.2	
		700	700	835.7	700	700	835.7	
		800	800	976.5	800	800	976.5	

[ Ø43 Aluminum Swivel Joint 적용시 Pipe 조립 길이 계산 ]

※  $L1 = \sqrt{(A-129)^2 + B^2} - 67.6$