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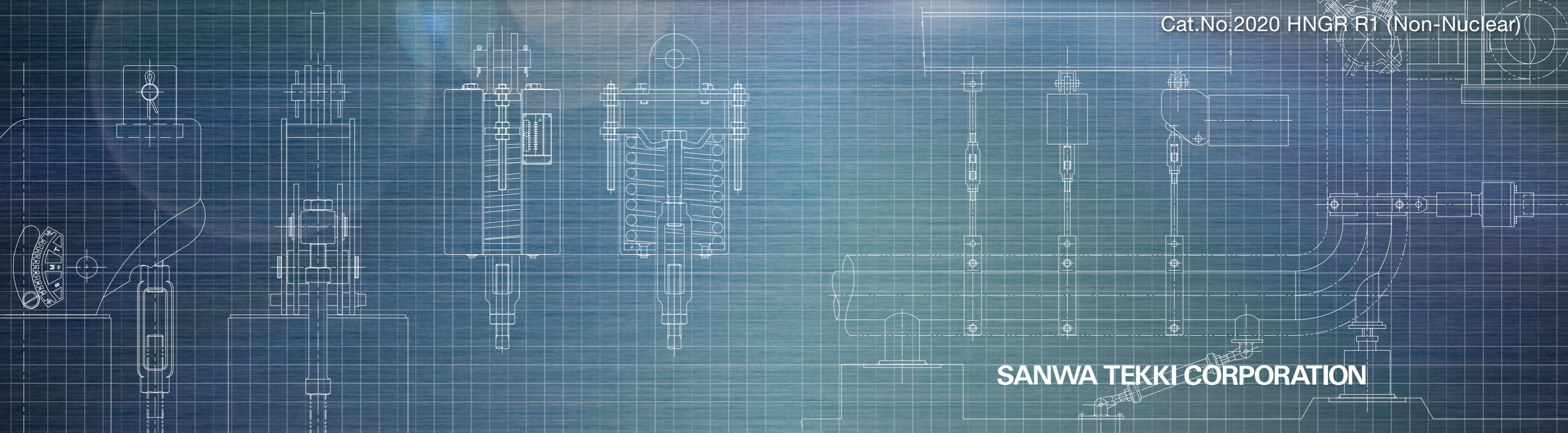
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PIPE HANGERS & SUPPORTS

Cat.No:2020 HNGR R1 (Non-Nuclear)



SANWA TEKKI CORPORATION

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Introduction

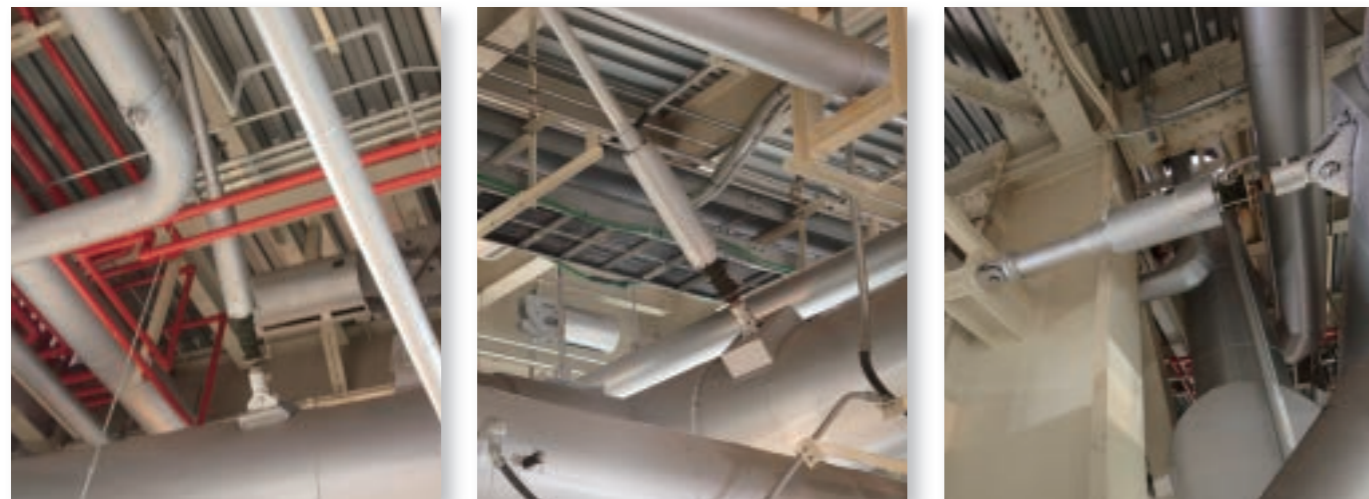
We, SANWA TEKKI CORPORATION (STC) was founded in 1907 to meet the increasing demands for modernizing the public railway facilities as Japan's very first manufacturer and specialist of hardware and equipment for overhead power supply(catenary)systems in the railway electrification program.

Since then, STC has been continuously contributing to Japan's industrial development through its high quality products and its ceaseless research and development of new products for infrastructure in Japan.

In 1953, STC began to manufacture pipe hangers and supports including variable spring hangers and constant spring hangers for high temperature and high pressure pipings in thermal power plants and large ships as the first and only manufacturer in Japan. Through its strict quality control, STC's pipe hangers & supports could receive high evaluation from customers, and expanded the market into petrochemical plants and nuclear power plants in Japan and also in the world.

Furthermore, STC originally developed hydraulic snubbers, mechanical snubbers, and computer programs for analysis of thermal stress and displacement, supporting load and static & dynamic seismic effects of piping systems. At the present, STC can prepare and supply 3D-CAD design data for efficient and easy checking of the support design by virtually examining the interface of the support assemblies by objects in the vicinity.

And then, STC have been the only one manufacturer having a full line services of piping hangers, supports, hydraulic & mechanical snubbers and engineering services in the world.



To prove its high quality and excellent performance in every phase of our business activities – customers relations, engineering and design, manufacturing, output products, after-sales services and quality control, STC is registered as an ISO 9001 company.

Trade Name:	SANWA TEKKI CORPORATION	
Head office Address	6-4-6 Minami-Shinagawa, Shinagawa-Ku, Tokyo 140-0004, Japan	
Established:	September, 1907	
Paid-in Capital:	Yen 423,800,000	
No. of Employees	388 (As of April 2020)	
Plants:	Utsunomiya	Tohoku (Sendai)
	Kumamoto	
Branches:	Chubu (Nagoya)	Sales Offices:
	Kansai (Osaka)	
	Kyushu (Fukuoka)	
	Sapporo	
Sales Offices:	Niigata	Takamatsu
	Shizuoka	
	Hiroshima	
	Hiroshima	



1. OUTLINE OF PIPE HANGERS AND SUPPORTS

Depending on their function and uses, hangers and supports are classified as follows:

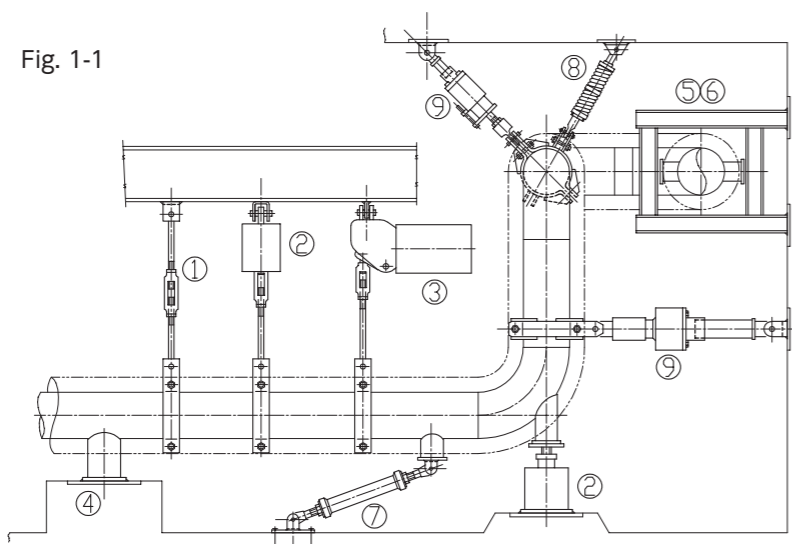
- (A) Items designed to support the weight of piping and equipment; these are collectively referred to as Hangers or Supports.
- (B) Items designed to restrain or limit three-dimensional displacements due to thermal expansion; these are known by the generic term of Restraints.

(C) Items designed to prevent piping systems from cyclic loading due to forces other than gravity or thermal expansion, such as impact by vibration, earthquake, and water-hammer; these products are called Braces or Snubbers

Each of the above three categories is subdivided, according to applications and functions, as shown in Table 1-1 and Fig. 1-1.

Table 1-1 Classification of Hangers and Supports

Item No.	Divisions		Subdivisions	
	Designation	Application	Classification	Application
A	Hangers and Supports	To support weight of piping systems, either from above (Hangers) or from below (Supports)	① Rigid Hangers	For point without vertical displacement.
			② Variable Spring Hangers	For point with small vertical displacement. (upto approx. 50mm)
			③ Constant Spring Hangers	For points with large vertical displacement. (over approx. 50mm)
B	Restraints	To restrain or limit movement of piping systems due to thermal expansion.	④ Anchors	To completely fix the piping systems at certain points.
			⑤ Stops	To prevent longitudinal movement of pipes while allowing them to rotate.
			⑥ Guides	To permit displacement only for specified direction.
			⑦ Rod Restraints	To prevent pipe movement from voluntary directions.
C	Braces or Snubbers	To limit pipe movement due to forces other than thermal expansion and gravity.	⑧ Vibration Eliminators	To prevent or diminish vibrations.
			⑨ Hydraulic Snubbers Mechanical Snubbers Shock Absorbers	To suppress movement due to earthquake, water-hammer, relief valve reaction without restraining thermal movement.



2. VARIABLE SPRING HANGER

2.1 General

Variable Spring Hangers are used for supporting piping and equipment subject to vertical movement. They are used generally at points where stress due to transfer load does not have an adverse effect on the overall stress of the piping system. Particularly in cases where the piping system has a large flexibility, careful study is required because deflection is likely to occur even when there is only a small stress variation due to transfer load.

SANWA's Variable Spring Hangers use coil springs, so that the relationship between spring deflection and supporting load is in linearity. Hence the following advantages are gained:

1. Whereas Constant Spring Hangers have a constant supporting load and therefore require accurate load calculations, Variable Spring Hangers are applicable for a wide range of loads so that it is much easier to carry actual weights.
2. By using a hanger with some allowance in travel range, the spring can be prevented from becoming rigid even when an unpredictable movement occurs in the piping system.

Because of these advantages, Variable Spring Hangers are usually employed in the following two ways:

1. Where vertical displacement in the piping system due to thermal expansion makes it impossible to use a Rigid Hanger and uneconomical to use a Constant Spring Hanger. In such cases, a Variable Spring Hanger is applied within the range of permitted transfer load for the purpose of supporting the load.
2. Where an appropriate compressive or tensile load is applied to the piping system to prevent its vibration, while supporting the load. In other words, the Variable Spring Hanger doubles as a vibration eliminator.

Table 2-1

Models	Travel range	Feature
VS1	0~30mm	Suitable where displacement is small, as spring rate is large.
VS2 VSL2	0~60mm 0~85mm	Suitable where displacement is medium.
VS4 VSL4	0~120mm 0~170mm	Can be substituted for Constant Spring Hangers where pipe displacement is large but their use is uneconomical.

Note: Commonly, Variable spring hanger can be used if the load variation dose not exceed 25 % per the following formula;

$$\text{Load Variability } 25 \% \geq \frac{|\text{Spring Rate} \times \text{Design Travel}|}{\text{Design Load}} \times 100$$

2. VARIABLE SPRING HANGER

2.2 Model, Type and Size of Variable Spring Hangers

SANWA TEKKI's Variable Spring Hanger models are classified by means of the symbols explained in the Table 2-2.

VSA or VSB	1 2 L2 4 or L4	B C D or F	—	0 ~ 23 15
Model	Travel	Type		Size

Table 2-2

Item	Symbol	Description
Model	VSA	Model for Variable Spring Hanger, Type B & C
	VSB	Model for Variable Spring Hanger, Type D & F
Travel	1, 2, 4, L2 or L4	Travel Range for each symbols 1=30mm, 2=60mm, 4=120mm L2=85mm, L4=170mm
Type	B, C D, F	Type Selection for each application; (see Table 2-3 and Fig. 2-1)
Size	A numeral from 0 to 23	Indicate sizes (See load deflection chart)

2.3 Typical Application of Variable Spring Hangers & Supports

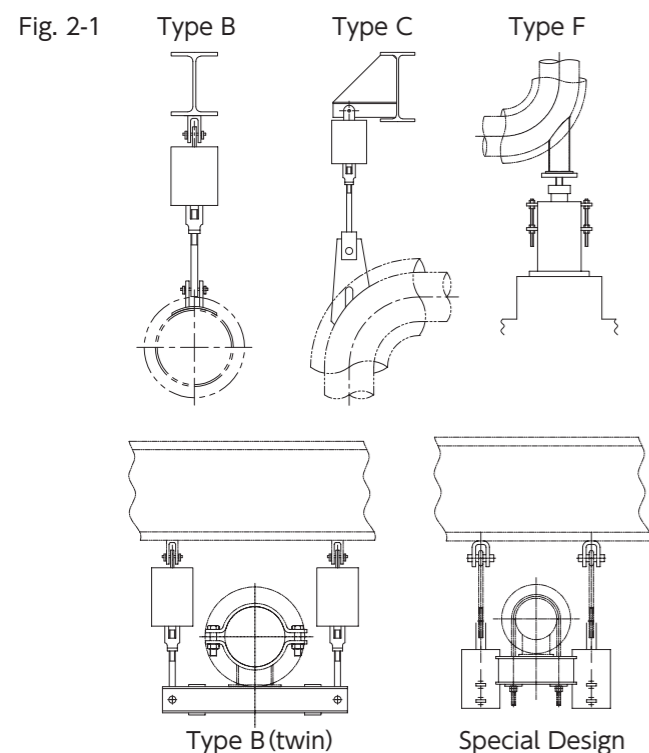


Table 2-3

Type	Construction	Application
B,C	 Type B Type C	Most common type. Spring Hanger Unit can be located at most convenient height for site inspection by using with upper & lower hanger rods.
F		To use for supporting a pipe or equipment from ground, floor or support structure.
D		To use when space between support beam and pipe is not long enough. This type is suitable to be mounted on the upper beam.

2. VARIABLE SPRING HANGER

2.4 Construction and Features

(a) A coil spring is contained in a cylindrical housing.

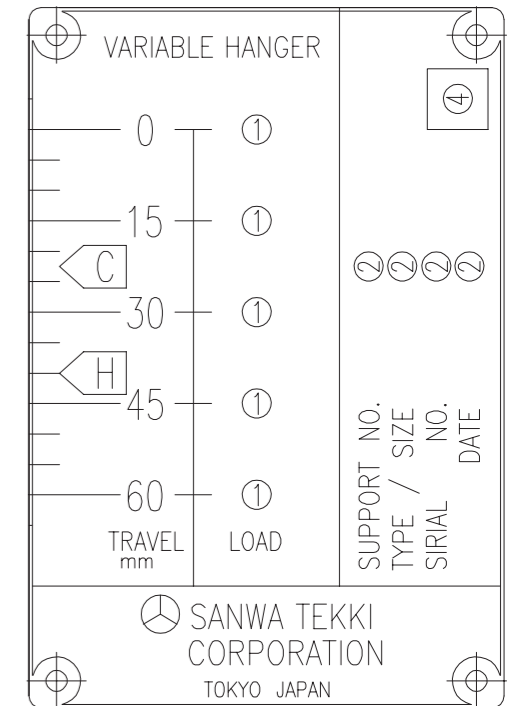
(b) A pair of locking devices, each consisting of a lock bolt and four pieces of lock nuts, are provided alongside the housing to lock up the vertical deflection of coil spring, and protect the coil spring from the excessive load by Hydrostatic Test. STC Variable Spring Hangers can be locked at any specified position by these locking devices.

(c) A Load/Travel Index Plate is affixed on the outer surface of the housing.

The amount of load and travel is pointed on the index plate by an indicator of the piston plate.

The specifications on this index plate are;

- 1) Design Load at position will be etched in each square ① located at 0 ~ Max. Travel with 15mm interval.
- 2) Each data will be etched in each square ② for each Spring Support.
- 3) The position of the designed Cold Load and Hot Load will be marked by each seal (sticker) (blue) and (red) respectively.
- 4) A mark of passing inspection will be die-stamped at square ④.
- 5) The surface of Plate is Black and the printed letters are silver color.



(d) Piston Plate for Type B and C is fabricated in a special shape so that the lower hanger rod can freely swing, and it can follow the horizontal movement of pipe.

(e) A spherical washer is installed to each Type D hanger to allow the swing of hanger rod due to the horizontal movement of pipe.

(f) Easy adjustment works for load and installation length or height are given by Turnbuckle (for Type B,C), by Lock Nut (for Type D) and Load Flange & Load Adjust Nut (for Type F) respectively.

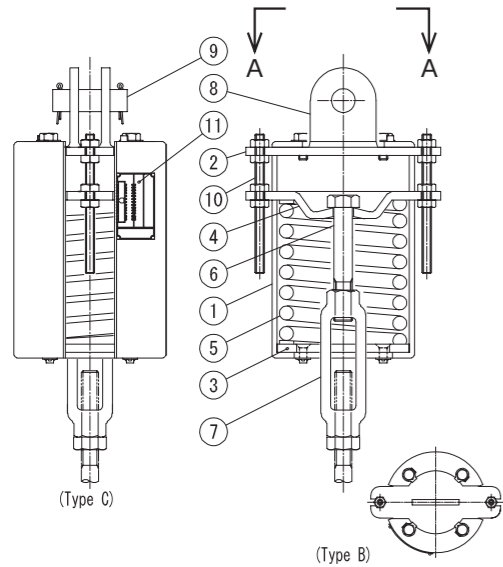
(g) The indication to read load and travel position is red-painted on the lower edge of piston plate for each type.

(h) A Guide Column is installed to each Type F to prevent sideway falling of Load Column due to lateral movement of pipe.

2. VARIABLE SPRING HANGER

2.5 Parts of Variable Spring Hanger

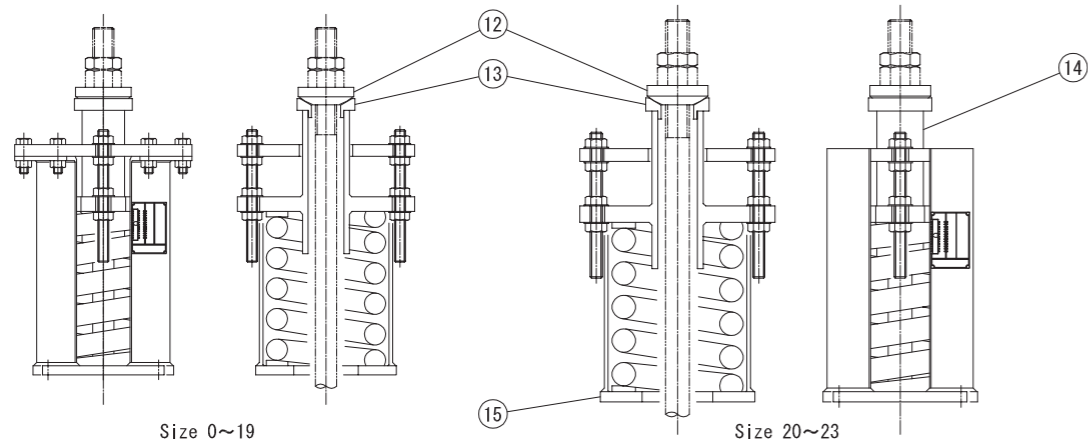
Type B, C



No.	Part Name	Material
1	Spring Housing	SS400
2	Upper Cover Plate	SS400
3	Lower Cover Plate	SS400
4	Piston Plate	SS400
5	Coil Spring	SUP, etc
6	Hanger Rod	SS400
7	Turnbuckle	S25C/SS400
8	Ear(s)	SS400
9	Clevis Pin(Only for Type C)	SS400
10	Lock Bolt with Nuts	SS400
11	Index Plate	A1050P/SUS304

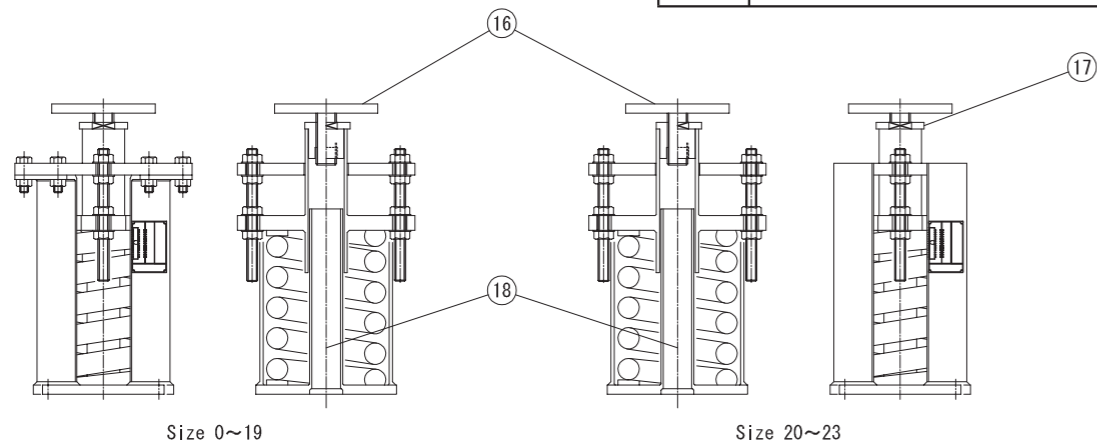
No.	Part Name	Material
12	Spherical Washer	SS400
13	Cradle for ⑫	SS400
14	Load Column	SGP/STPG370
15	Base Plate	SS400

Type D



No.	Part Name	Material
16	Load Flange	SS400
17	Load Adjust Nut	SS400
18	Guide Column	SGP

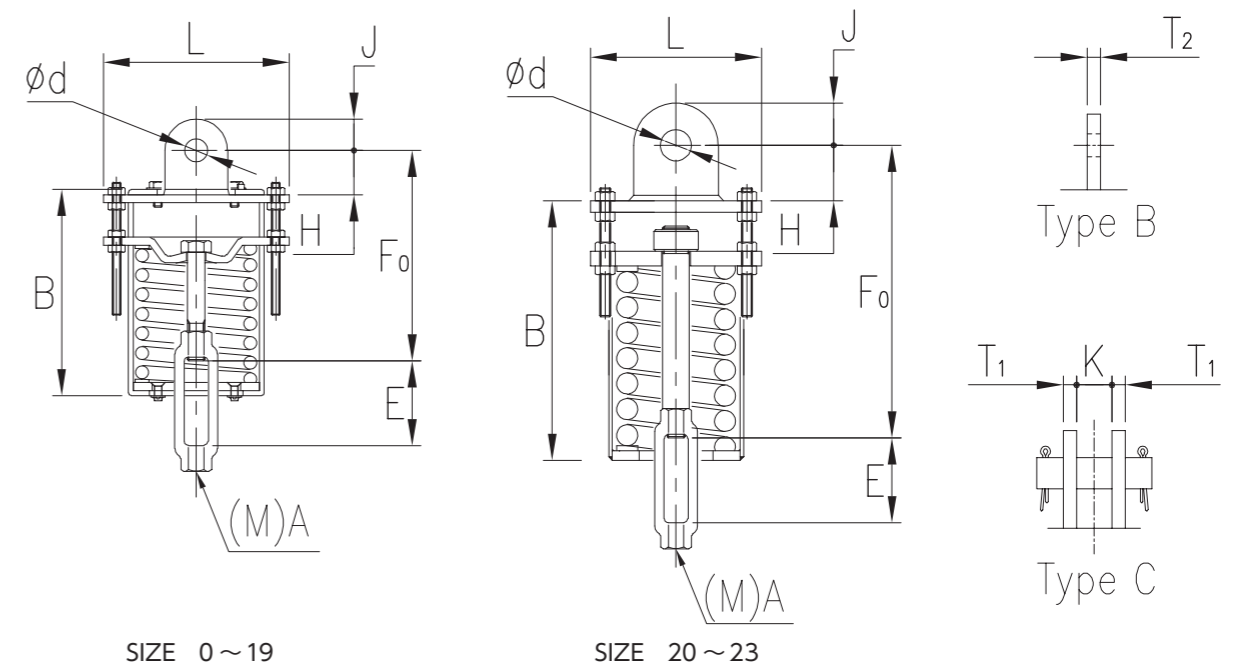
Type F



2. VARIABLE SPRING HANGER

2.6 Dimensions

VSA-Type B, VSA-Type C



SIZE 0 ~ 19

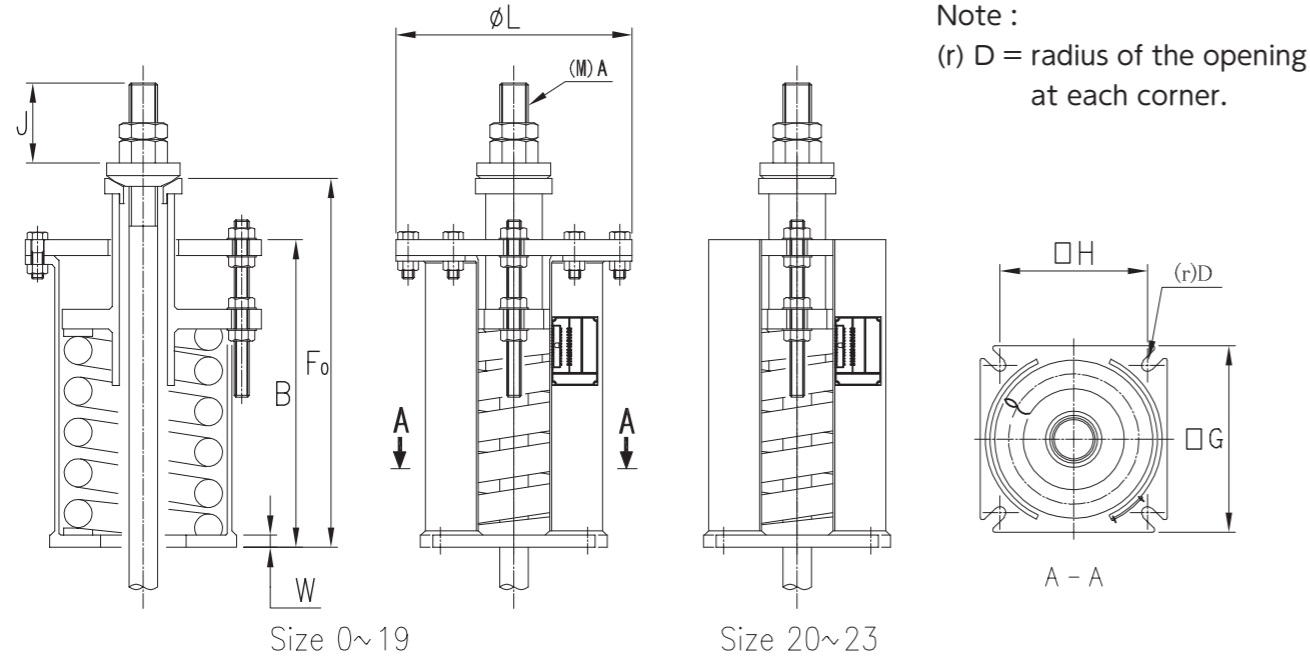
SIZE 20 ~ 23

Code	Fo (At Travel Zero Position)					B					L	(M) A	φ d	H	J		K	T1	T2	E
	1	2	L2	4	L4	1	2	L2	4	L4					B Type	C Type				
0	136	138	-	278	-															
1	135	140	165	275	310	129	179	204	299	334	150					20	20			
2	135	140	165	275	310							12	18						6	95
3	135	140	165	275	335				304	354				50	25		6			
4	140	155	180	285	335				344	394	170									
5	140	155	180	335	385	144	194	219												
6	140	155	180	320	370															
7	165	165	190	290	330				372	412										
8	165	165	190	290	330			222	247	372		16	22			25			9	
9	145	175	200	375	415															
10	155	180	205	385	425			267	292	447	210		20	26	60	38	38			
11	165	180	205	365	405	182														
12	215	250	260	430	470	202		312	322	472			24	33	75				12	145
13	215	235	245	420	460	212														
14	235	275	290	480	535	232	347	362	542	592										
15	245	300	320	555	595	262	372	392	612	652			30	39	80	50	50	40		
16	260	325	345	565	615	277	392	412	612	662										
17	300	375	395	655	710	307	452	472	712	767			36	45	95	70	70			
18	300	440	465	740	800	342	512	537	812	872			42	52				50	12	
19	345	490	515	815	850	362	532	557	857	892			48	62	105	83	83	55		
20	375	575	600	800	850	371	564	589	870	920			56	70	115	83	83		16	25
21	440	635	660	935	985	427	623	648	990	1040			64	80	125	100	100	90		
22	520	735	760	1055	1105	463	677	702	1092	1142			72	86	150	115	115		19	
23	610	845	870	1185	1235	531	753	778	1200	1250	480		80	96		125	125	100	32	

2. VARIABLE SPRING HANGER

2.6 Dimensions

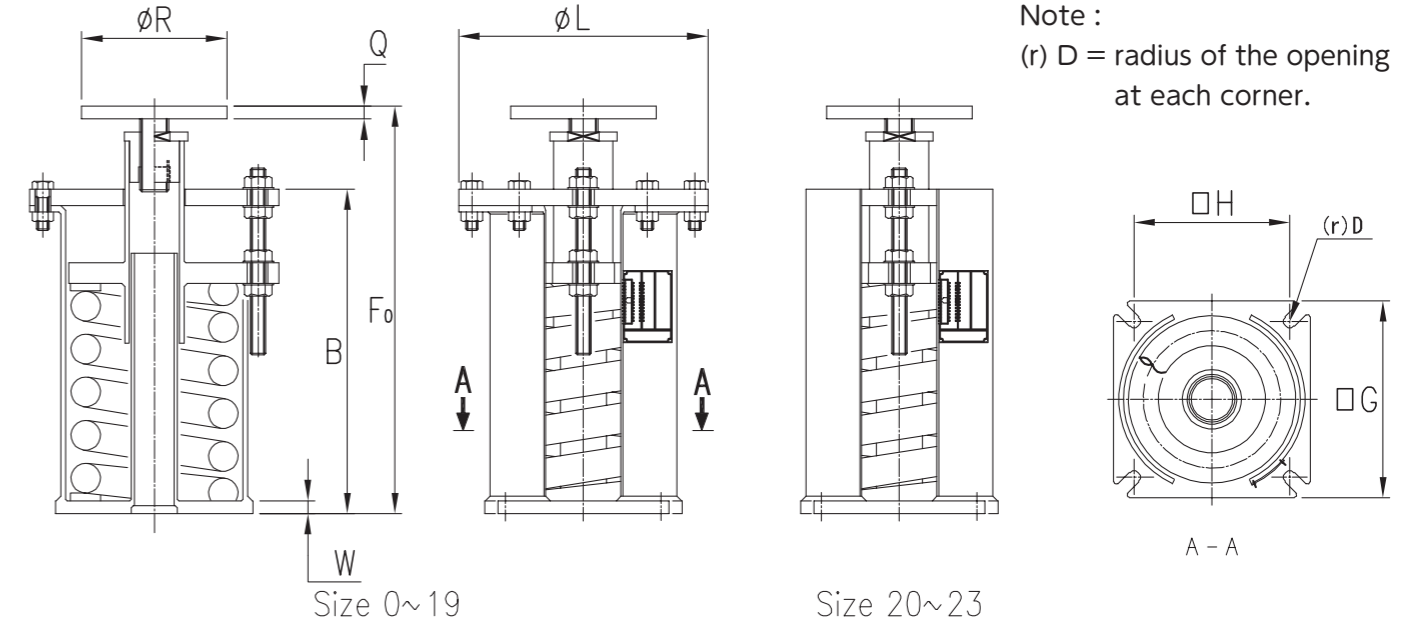
VSB-Type D



2. VARIABLE SPRING HANGER

2.6 Dimensions

VSB-Type F



Code Size	Fo (At Travel Zero Position)					B					φ L	(M) A	□ G	W	□ H	(r) D	J reference			
	1	2	L2	4	L4	1	2	L2	4	L4										
0	190	275	-	465	-															
1	185	275	325	465	565	115	180	205	305	355	175	12	170	130	80	80				
2	185	275	325	465	565															
3	185	290	340	485	585															
4	195	290	340	470	570															
5	195	300	350	500	600	130	195	220	340	390	195	9	9	9	9					
6	200	300	350	510	610															
7	210	315	365	545	645	149	219	244	364	414	225	16	200	150	115					
8	215	315	365	545	645															
9	235	355	405	605	705															
10	235	360	410	610	710	169	259	284	439	489	225	20	150	150	120					
11	235	360	410	625	725															
12	260	375	425	630	730	199	289	314	464	514	290	24	260	200	130					
13	275	395	445	640	740											203	293	318	468	518
14	295	435	485	720	820											223	333	358	543	593
15	310	460	510	775	875											243	358	383	598	648
16	330	470	520	775	875	258	363	388	598	648	340	36	290	230	13					
17	370	535	585	890	990	288	423	448	703	753										
18	410	605	655	1020	1120	331	506	531	826	876										
19	425	600	650	1010	1110	351														
20	465	665	715	1065	1165	366	531	556	856	906	400	56	360	16	275	195				
21	505	730	780	1170	1270	401	596	621	961	1011										
22	560	805	855	1305	1405	455	655	680	1077	1127	480	72	400	25	320	225				
23	615	870	920	1395	1495	495	714	739	1157	1207										

Code Size	Fo (At Travel Zero Position)					B					φ L	φ R	Q	□ G	W	□ H	(r) D			
	1	2	L2	4	L4	1	2	L2	4	L4										
0	220	310	-	500	-															
1	220	310	360	495	595	115	180	205	305	355	175	120	6	170	130	80				
2	215	305	355	500	600															
3	220	320	370	520	620															
4	230	320	370	505	605															
5	235	335	385	535	635	130	195	220	340	390	195	9	9	9	9					
6	235	335	385	545	645															
7	250	350	400	580	680	149	219	244	364	414	225	150	9	200	150					
8	250	355	405	580	680															
9	270	390	440	640	740															
10	270	395	445	645	745	169	259	284	439	489	225	150	9	200	150					
11	275	400	450	660	760															
12	300	415	465	670	770	199	289	314	464	514	290	190	12	260	200					
13	315	435	485	680	780											203	293	318	468	518
14	330	470	520	755	855											223	333	358	543	593
15	345	495	545	810	910											243	358	383	598	648
16	375	515	565	820	920	258	363	388	598	648	340	200	16	290	230	13				
17	405	570	620	925	1025	288	423	448	703	753										
18	445	635	685	1055	1155	331	506	531	826	876										
19	460	635	685	1040	1140	351														
20	505	705	755	1105	1205	366	531	556	856	906	400	250	19	360	16	275				
21	545	765	815	1210	1310	401	596	621	961	1011										
22	605	850	900	1350	1450	454	655	680	1077	1127	480	280	25	400	25	320				
23	655	905	955	1435	1535	495	714	739	1157	1207										

3. CONSTANT SPRING HANGER

3.1 General

Constant Spring Hangers are designed to support piping systems and equipments subject to large vertical movement at a specified constant load throughout total travel range. Commonly, constant spring hangers are used in case load variation using variable spring hanger exceeds 25 %.

3.2 Model, Type and Size of Constant Spring Hangers

SANWA TEKKI's Constant Spring Hanger models are identified by means of the symbols explained in the tables 3-2-1~3-2-3.

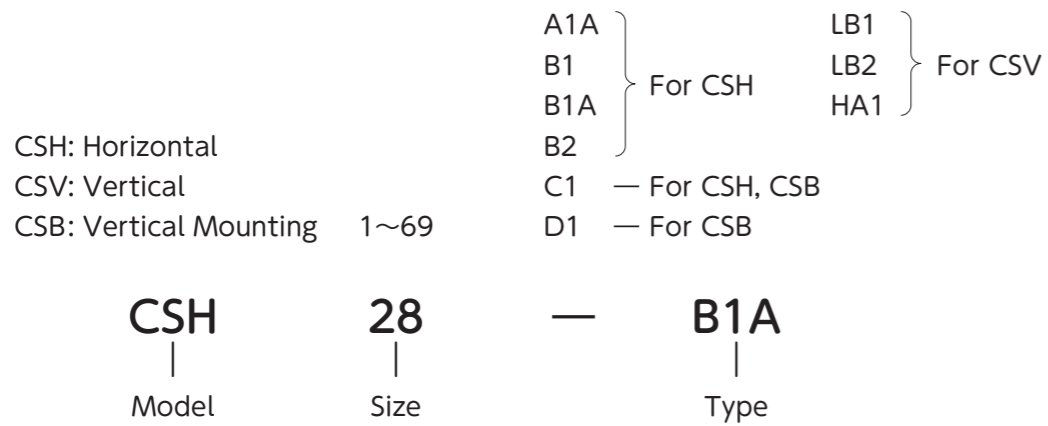
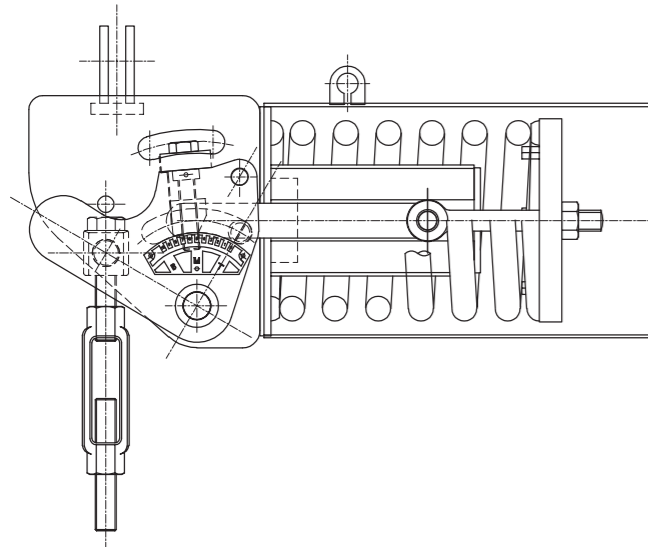


Fig. 3-1 Construction of Model CSH



3. CONSTANT SPRING HANGER

Horizontal-Hanger Type

Table 3-2-1

Model	Type	Outline	Application	Maximum Capacity
CSH	A1A		Hanger is suspended by an upper rod and located midway between upper structural steel and pipe.	23.41 ~ 64,135 kN · mm
	B1		Hanger top is connected to upper structural steel by a lug plate.	
	B1A			Hanger top is directly bolted or welded to upper structural steel.
	B2		23.41 ~ 25,890 kN · mm	
	C1		Hanger is horizontally mounted on structural steel and applicable where installation space is limited between structural steel and piping or equipment to be supported.	

Vertical-Hanger Type

Table 3-2-2

Model	Type	Outline	Application	Maximum Capacity
CSV	LB1		Hanger top is connected to upper structural steel by a lug plate. Type LB1 can be suspended by an upper rod and located midway between upper structural steel and pipe.	174.2 ~ 46,993 kN · mm
	LB2			
	HA1		This type can be selected for a location where the space around the unit is very limited.	174.2 ~ 3,981 kN · mm

3. CONSTANT SPRING HANGER

Vertical-Mount Type

Table 3-2-3

Model	Type	Outline	Application	Maximum Capacity
CSB	C1		Hanger is vertically mounted on structural steel and applicable where installation space is limited between structural steel and piping or equipment to be supported.	174.2 ~ 9,218 kN · mm
	D1		Pipe or equipment is to be supported from below.	

3.3 Construction and Features

The typical construction of the Constant Spring Hangers is illustrated in Fig. 3-1, which specifically shows a Type B1A of Model CSH.

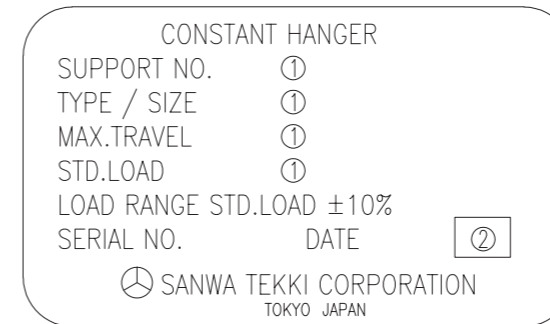
Design is mostly common to all models, although top connections and spring housing direction vary with the respective types. For providing large load capacities, exceeding our standard design, Large sizes of constant hangers can be equipped with dual springs under special design. Major design features are based on the following specifications:

1. These Constant Spring Hangers using coil spring are designed and fabricated for maximum performance on the basis of SANWA TEKKI'S many years of experience in the field.
2. The housing is of such sturdy construction that any contact with adjacent equipment during transportation or operation will not cause damage or deterioration of function. A slit is provided at the lower portion of spring housing for visual checking of coil spring.
3. Friction at all rotating points is minimized by using dry bearings which withstand enormous loads and do not require lubrication.
4. The load holder permits a rod movement of at least 4° from vertical, so that horizontal movements of piping or equipments can be followed.
5. Unless otherwise specified, STC' s Constant Spring Hanger is pre-set before shipment at Top of the travel scale in case the thermal displacement direction is downward from Cold condition to Hot condition, and is pre-set at Bottom of the travel scale in case the thermal displacement direction is upward.

If specified, the Constant Spring Hanger can be pre-set to any position on its travel scale.

3. CONSTANT SPRING HANGER

3.4 Name Plate



- 1) Each data will be etched in each space ① for each Constant Hanger.
- 2) A mark of passing inspection will be die-stamped at square ②.
- 3) The surface of Plate is Black and the printed letters are silver color.

3.5 Name Plate, Travel Scale and Travel Indicator

Fig. 3-2

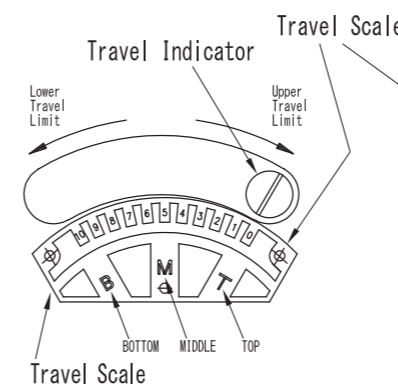
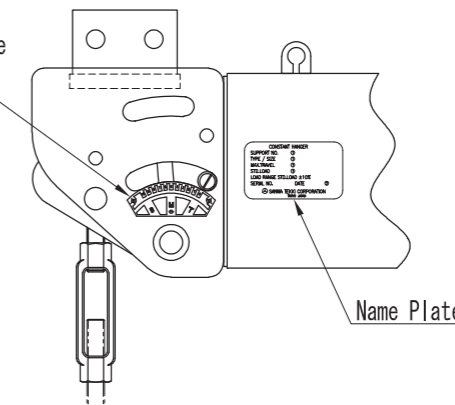


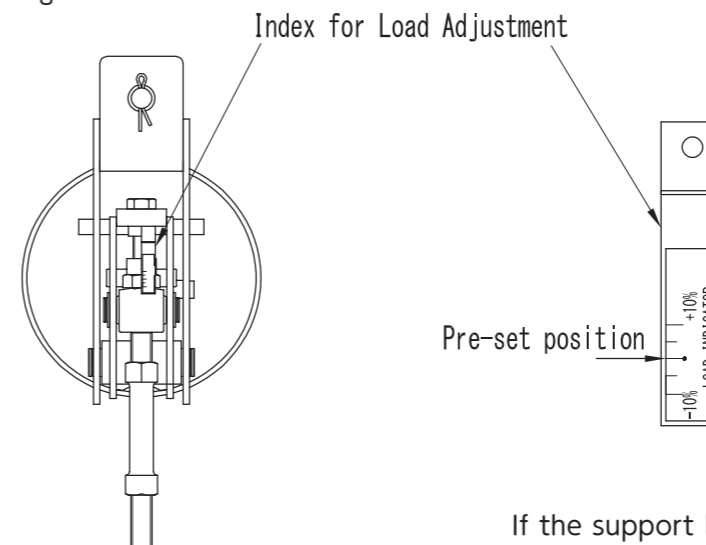
Fig. 3-3



In case of downward (-) travel, the pre-set should be at TOP (0 position).
In case of upward (+) travel, the pre-set should be at BOTTOM (10 position).

Note: Name Plate is attached on only one side of the body.
Travel Scale is attached on each side of the flame.

Fig. 3-4



If the support load is to be changed, the load can be adjusted $\pm 10\%$ against the standard load by turning Load Adjust Bolt. Load Adjust Index Plate is attached in front of the flame. (Fig. 3-4)

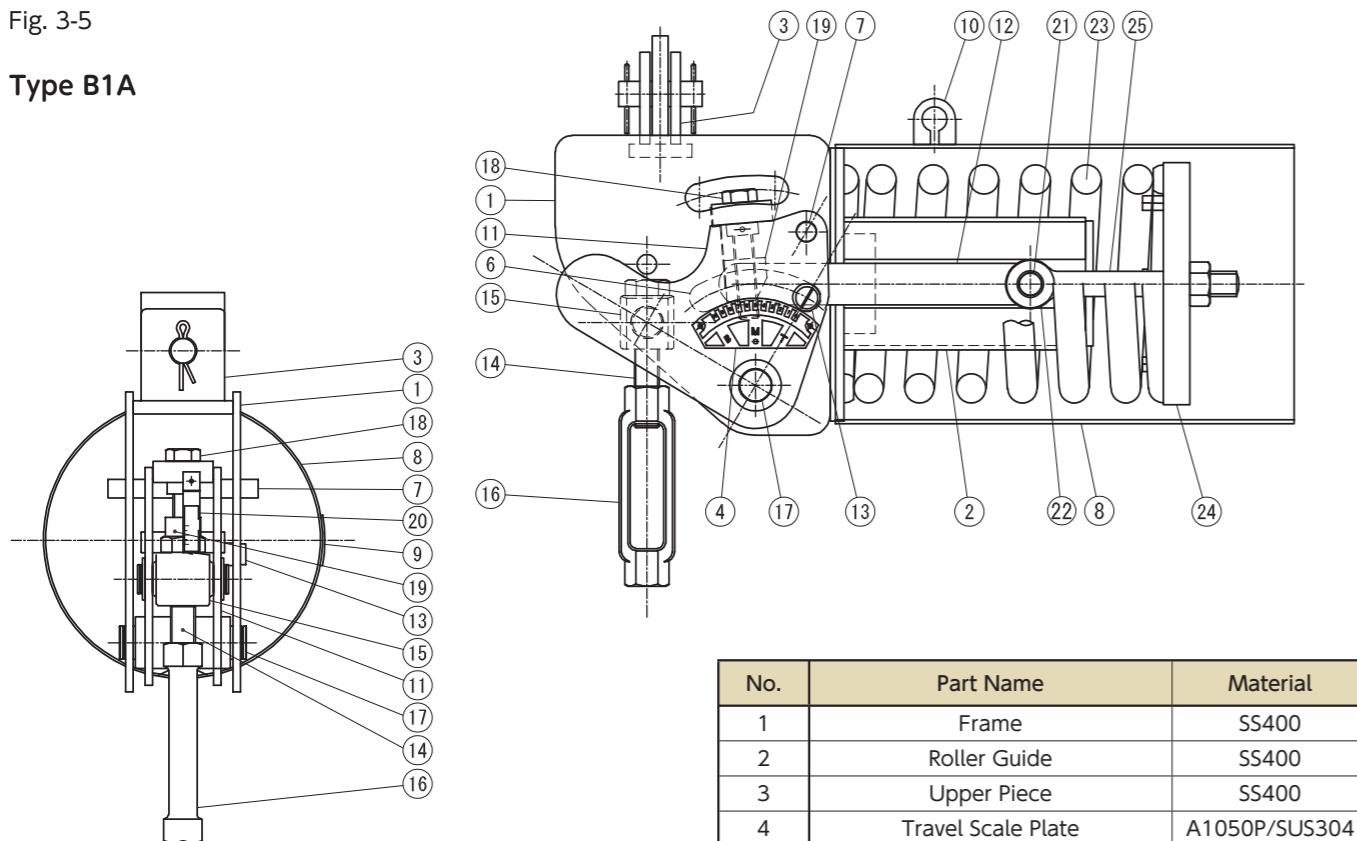
3. CONSTANT SPRING HANGER

3.6 Parts of Constant Spring Hanger

The appearance and application of each Model-Type are different, but the basic structure is the same as the CSH-B1A type described in Fig.3-5.

Fig. 3-5

Type B1A



No.	Part Name	Material
1	Frame	SS400
2	Roller Guide	SS400
3	Upper Piece	SS400
4	Travel Scale Plate	A1050P/SUS304
5	—	—
6	Travel Stop	SS400
7	Lock Pin	SS400
8	Spring Housing	SS400
9	Name Plate	A1050P/SUS304
10	Lifting Lug	SS400
11	Rotating Arm	SS400
12	Link Plate	SS400
13	Travel Indicator	SS400
14	Load Bolt	SS400/SCM435
15	Load Holder	FCD400
16	Turnbuckle	S25C/SS400
17	Main Shaft	S45C
18	Load Adjust Bolt	SS400
19	Load Adjust Nut	SS400
20	Index for Load Adjustment	A1050P/SUS304
21	Roller Shaft	S45C
22	Roller	SS400
23	Coil Spring	SUP/SAE
24	Spring Plate	SS400
25	Tension Bolt	SS400

3. CONSTANT SPRING HANGER

3.7 Selection and Ordering

3.7.1 Selection of Model-Type

In accordance with the condition of application and allowable space around constant spring hanger, select a suitable Model and Type from Table 3-2-1~3-2-3.

3.7.2 Selection of Size

Fabrication Range of each Model-Type is limited as indicated in column of Maximum Capacity (kN · mm) in Table 3-2-1~3-2-3. This Maximum Capacity is calculated by the following formula.

$$\text{Maximum Capacity} = \text{Design Load} \times \text{Total Travel}$$

$$\text{Total Travel} = \text{Design Travel} + \text{Extra Travel}$$

Though there is no regulation to determine the Extra Travel and Total Travel, it is recommended to make an enough Extra Travel toward the direction of design travel. According to Sanwa Tekki's standard, Total Travel is calculated by the following formula.

$$\text{Total Travel} = \text{Design Travel} \times 1.2 + 20\text{mm}$$

Since Sanwa Tekki's constant spring hangers provide Total Travel from 50mm to 400mm with 10mm interval, the one digit of calculated total travel shall be round up.

For example, if the design travel is 96mm,
Total Travel will be $96 \times 1.2 + 20 = 135.2 \Rightarrow 140\text{mm}$.

After determining Total Travel, suitable size can be easily selected by using the Load Capacity Chart hereinafter attached in this catalog. Because each Model-Type has its limited fabrication range, the available range of each Model Type is divided and indicated by the colored lines in the chart.

Select the column of Total Travel at the upper portion of chart, and find the smallest figure bigger than the design load in the same column. The most suitable size is indicated in the left and right side of the same line.

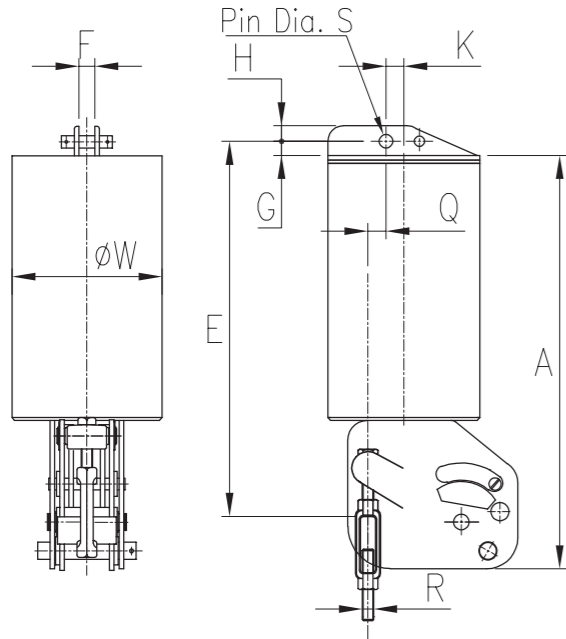
If you find a figure just same as the design load, the size shall be selected from one line below the figure. If you cannot find figure in the limited colored range, the desired Model-Type cannot be selected for the design data, and Model-Type should be changed to other Model-Type having a wider range.

After successfully finishing the selection works, the selected Model-Type and Size should be specified with the design data of travel and load.

If you have any difficulty to select a suitable Model-Type and Size of constant spring hangers, you can consult with Sanwa Tekki by showing your design data and requirements.

3. CONSTANT SPRING HANGER

CSV-HA1



Size	Outline dimension					
	A	F	G	H	S	W
8-12	574	20	18	20	16	192
13-20	720	30	45	40	24	260
21-28	790					290
29-36	961	40	40		30	325

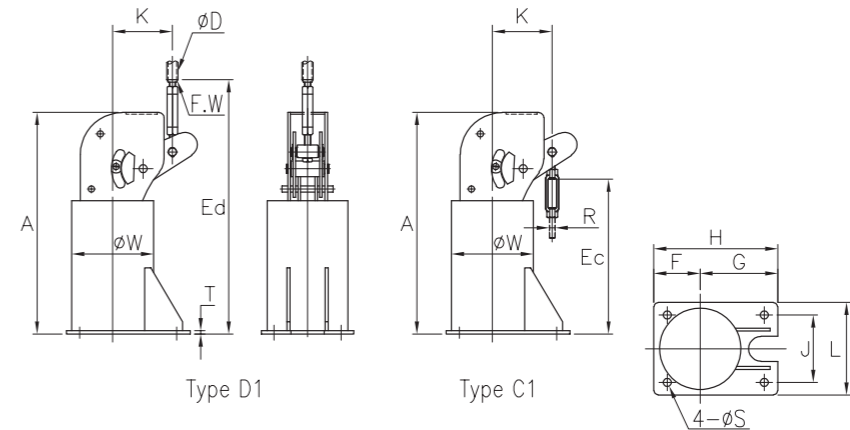
- Rod Dia. (R Dimension) shall be selected per total travel for each size of constant hanger as per Table in page 36.
- E dimension is the dimension when the indicator is at the TOP position. When the indicator is at the BOTTOM position, add Max.Travel value to E dimension in the above table.

CSV-HA1

Size	Dimension	Total Travel (mm)															
		140	150	160	170	180	190	200	220	240	260	280	300	330	360	400	
8-12	E	676	671	666	661	516	511	506	496	486							
	K	41	48	52	61	69	73	77	93	104							
	Q	7	9	14	13	14	19	23	25	31							
13-20	E			893	888	883	878	873	863	653	643	633	623				
	K			35	44	51	59	65	78	89	101	113	123				
	Q			10	9	11	12	14	19	25	30	35	43				
21-28	E			963	958	953	948	943	933	723	713	703	693				
	K			35	44	51	59	67	83	95	107	121	135				
	Q			10	9	11	12	12	14	19	24	27	31				
29-36	E							1224	1214	1204	1194	1184	1174	869	854	834	
	K							48	64	80	95	111	127	152	175	205	
	Q							3	5	6	8	9	11	12	15	19	

3. CONSTANT SPRING HANGER

CSB-C1,D1



Size	Outline dimension									
	A	D	F	G	H	J	L	S	T	W
8-12	570	42.7	90	165	305	160	210	18	6	192
13-20	749	60.5	125	185	360	250	300	22	9	260
21-24	739		135	205	390	270	320			290
25-28	789		150	240	450	300	360	22	12	340
29-36	1008	76.3	175	295	550	350	430	26	16	407

- Rod Dia. (R Dimension) shall be selected per total travel for each size of constant hanger as per Table in page 36.
- Ec/Ed dimension is the dimension when the indicator is at the TOP position. When the indicator is at the BOTTOM position, subtract Max.Travel value from Ec/Ed dimension in the above table.
- Type CSB-D1 is supplied with a supporting member with Ball Bearing to support the upper object. Its length is designed in each case to the specified mounting space.

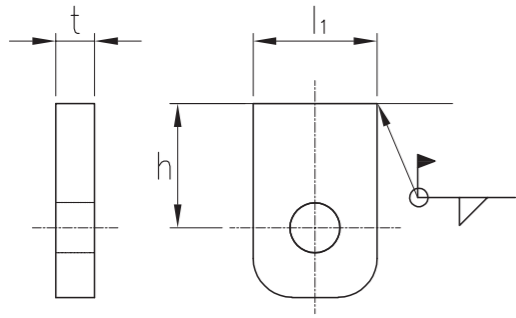
CSB-C1,D1

Size	Dimension	Total Travel (mm)																																						
		60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400				
8-12	Ec				402	407	412	417	422	427																														
	Ed				731	736	741	746	751	756																														
	K				142	151	160	168	177	186																														
13-20	Ec							526	531	536	541	546	551	556	561	566	571	576	581	586	591	596	601	606	611	616	621													
	Ed				919	924	929	934	939	944	949	954	959	964	969	974	979	984	989	994	999	1004	1009	1014	1019	1024	1029													
	K				163	172	181	189	198	207	215	224	233	241	250	259	267	276	285	293	302	311	319	328	336	345	354													
21-24	Ec							526	531	536	541	546	551	556	561	566	571	576	581	586	591	596	601	606	611	616	621													
	Ed				919	924	929	934	939	944	949	954	959	964	969	974	979	984	989	994	999	1004	1009	1014	1019	1024	1029													
	K				181	189	198	207	215	224	233	241	250	259	267	276	285	293	302	311	319	328	336	345	354															
25-28	Ec							576	581	586	591	596	601	606	611	616	621	626	631	636	641	646	651	656	661															
	Ed				969	974	979	984	989	994	999	1004	1009	1014	1019	1024	1029	1034	1039	1044	1049	1054	1059	1064	1069															
	K				181	189	198	207	215	224	233	241	250	259	267	276	285	293	302	311	319	328	336	345	354															
29-36	Ec							675	680	685	690	695	700	705	710	715	720	725	730	735	740	745	750	755	760	765	770	775	780	785	790	795	800	805						
	Ed				1218	1223	1228	1233	1238	1243	1248	1253	1258	1263	1268	1273	1278	1283	1288	1293	1298	1303	1308	1313	1318	1323	1328	1333	1338	1343	1348	1353	1358	1363	1368					
	K				209	217	226	235	243	252	261	269	278	287	295	304	313	321	330	339	347	356	364	373	382	390	399	408	416	425	434	442	451	460	468					
37-44	Ec																																							
	Ed							1521	1526	1531	1536	1541	1546	1551	1556	1561	1566	1571	1576	1581	1586	1591	1596	1601	1606	1611	1616	1621	1626	1631	1636	1641	1646	1651	1656					
	K							263	271	280	289	297	306	315	323	332	341	349	358	367	375	384	392	401	410	418	427	436	444	453	462	470	479	488	496					
45-46	Ec																																							
	Ed							1521	1526	1531	1536	1541	1546	1551	1556	1561	1566	1571	1576	1581	1586	1591	1596	1601	1606	1611	1616	1621	1626	1631	1636	1641	1646	1651	1656					
	K							263	271	280	289	297	306	315	323	332	341	349	358	367	375	384	392	401	410	418	427	436	444	453	462	470	479	488	496					

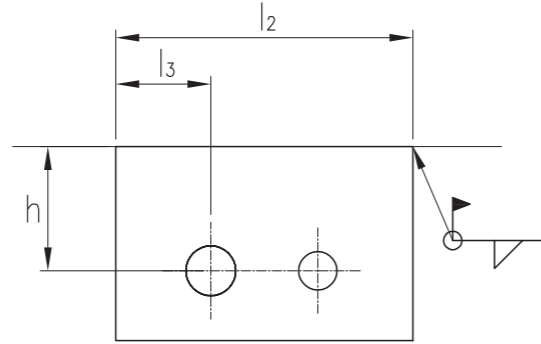
3. CONSTANT SPRING HANGER

Dimensions of Upper Lugs to be supplied together with
Type CSH-B1A, CSV-LB1, CSH-B1 and CSV-LB2

For CSH-B1A, CSV-LB1



For CSH-B1, CSV-LB2



For CSH-B1A CSH-B1	Size	t	h	l 1	l2	l3	Size of welding
	1-3	12	45	50	115	25	5
	4-7	12	45	50	115	25	5
	8-12	12	45	50	125	25	6
	13-28	19	60	70	140	32.5	8
	29-36	19	70	100	180	40	10
	37-46	25	100	140	235	65	12
	47-60	40	120	200	285	95	15
	61-64	50	135	230	340	100	16
65-66	50	135	230	340	100	18	
67-69	50	160	240	410	122.5	19	

For CSV-LB1 CSV-LB2	Size	t	h	l 1	l2	l3	Size of welding
	8-12	12	45	50	100	20	5
	13-28	19	60	70	117	27	6
	29-36	19	70	100	150	35	8
	37-46	25	100	140	195	50	10
	47-60	40	120	200	245	70	12
61-66	50	135	230	310	85	12	
67-69	50	160	240	383	122.5	15	

3. CONSTANT SPRING HANGER

Selection Chart of Rod Size for Constant Spring Hangers

Rod dia R	Size																
	1-12	13-16	17-20	21-24	25-28	29-32	33-36	37	38	39	40	41	42	43	44	45	46
M48													TR 100	TR 100	TR TR 100-110	TR TR 100-120	TR TR 100-130
M42							TR 80			TR 100	TR TR 100-110	TR TR 100-120	TR TR 110-130	TR TR 110-140	TR TR 120-150	TR TR 130-160	TR TR 140-170
M36						TR 80	TR TR 90-110	TR TR 100-120	TR TR 100-130	TR TR 110-150	TR TR 120-160	TR TR 130-180	TR TR 140-200	TR TR 150-210	TR TR 160-220	TR TR 170-240	TR TR 180-260
M30					TR TR 60-90	TR TR 90-130	TR TR 120-200	TR TR 130-400	TR TR 140-400	TR TR 160-400	TR TR 170-400	TR TR 190-400	TR TR 210-400	TR TR 220-400	TR TR 230-400	TR TR 250-400	TR TR 270-400
M24			TR TR 60-80	TR TR 60-100	TR TR 100-170	TR TR 140-400	TR TR 210-400										
M20		TR TR 60-300	TR TR 90-300	TR TR 110-300	TR TR 180-300												
M16	TR TR 50-400																

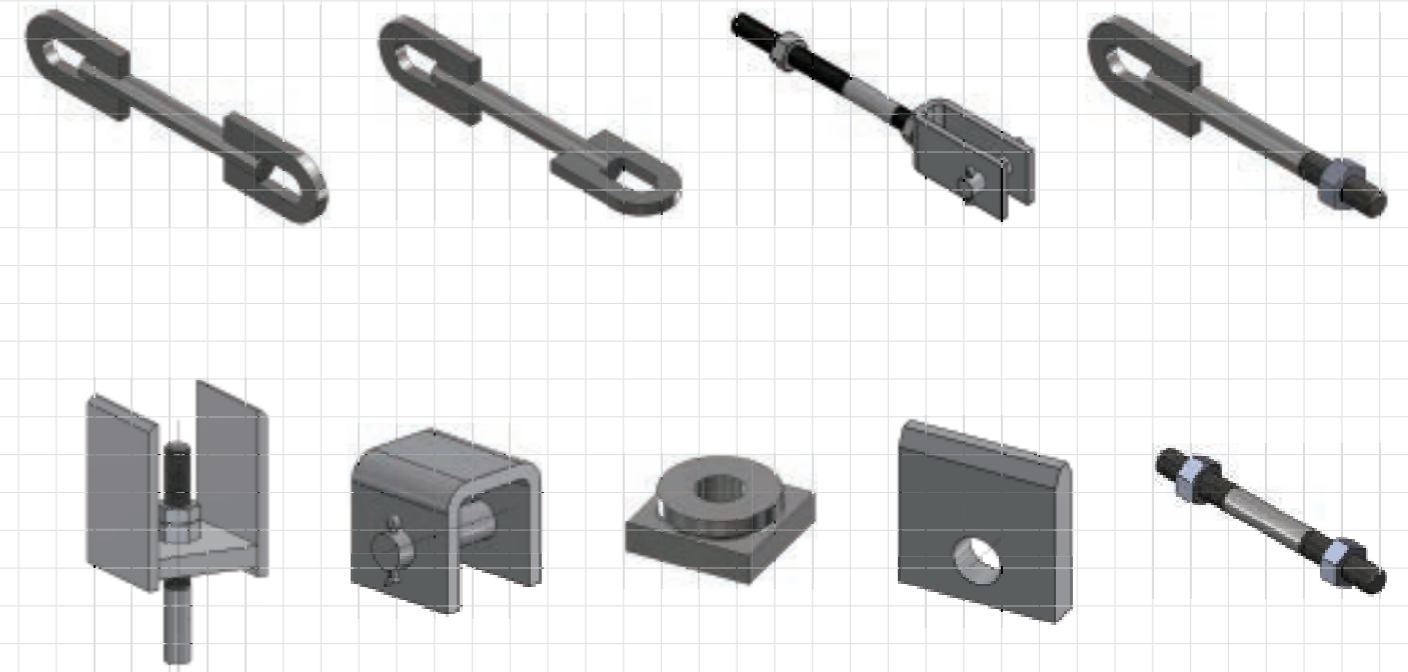
Rod dia R	Size																
	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
M80															TR 130	TR TR 130-140	TR TR 130-160
M72											TR 110	TR TR 110-120	TR TR 110-130	TR TR 110-130	TR TR 140-180	TR TR 150-200	TR TR 170-220
M64					TR 110	TR TR 110-120	TR TR 110-130	TR TR 110-140	TR TR 110-150	TR TR 110-160	TR TR 120-170	TR TR 130-180	TR TR 140-200	TR TR 140-210	TR TR 190-230	TR TR 210-250	TR TR 230-280
M56		TR 110	TR TR 110-120	TR TR 110-130	TR TR 120-140	TR TR 130-160	TR TR 140-170	TR TR 150-180	TR TR 160-200	TR TR 170-210	TR TR 180-230	TR TR 190-240	TR TR 210-260	TR TR 220-270	TR TR 240-300	TR TR 260-330	TR TR 290-360
M48	TR TR 110-140	TR TR 120-150	TR TR 130-160	TR TR 140-180	TR TR 150-190	TR TR 170-210	TR TR 180-230	TR TR 190-250	TR TR 210-260	TR TR 220-280	TR TR 240-300	TR TR 250-320	TR TR 270-340	TR TR 280-370	TR TR 310-400	TR TR 340-400	TR TR 370-400
M42	TR TR 150-190	TR TR 160-210	TR TR 170-220	TR TR 190-240	TR TR 200-260	TR TR 220-280	TR TR 240-310	TR TR 260-330	TR TR 270-350	TR TR 290-380	TR TR 310-400	TR TR 330-400	TR TR 350-400	TR TR 380-400			
M36	TR TR 200-400	TR TR 220-400	TR TR 230-400	TR TR 250-400	TR TR 270-400	TR TR 290-400	TR TR 320-400	TR TR 340-400	TR TR 360-400	TR TR 390-400							
M30																	

Rod dia R	Size															
	64	65	66	67	68	69										
M90					TR 200	TR TR 200-220										
M80	TR TR 130-170		TR 200	TR TR 200-230	TR TR 210-250	TR TR 230-280										
M72	TR TR 180-230	TR TR 200-230	TR TR 210-260	TR TR 240-290	TR TR 260-330	TR TR 290-370										
M64	TR TR 240-300	TR TR 240-310	TR TR 270-340	TR TR 300-390	TR TR 340-400	TR TR 380-400										
M56	TR TR 310-400	TR TR 320-400	TR TR 350-400	TR 400												
M48																

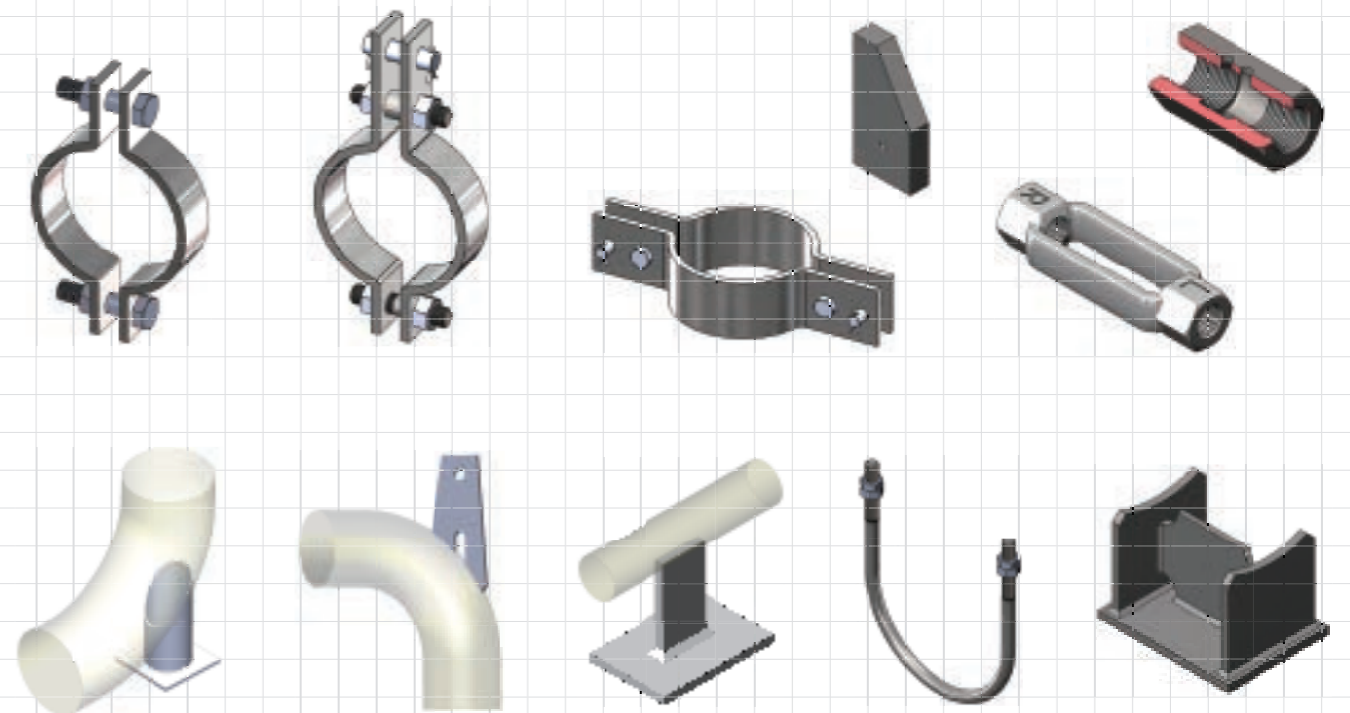
NOTE: Figures with TR in the Table means Range of Total Travel.

Rod Diameter shall be selected per size of constant spring hanger and total travel.

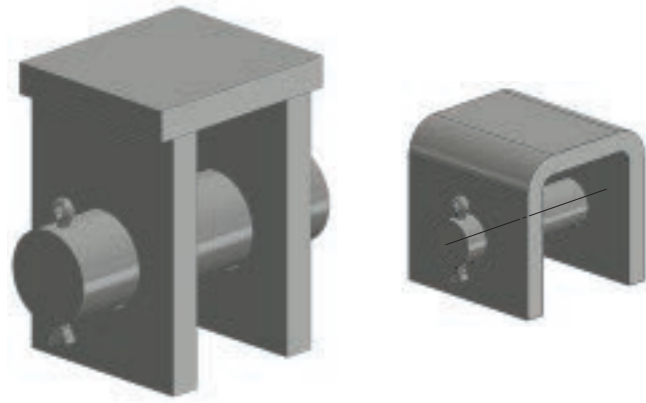
Rod Diameter described in the above tables are determined for rod made of normal carbon steel, JIS G3101-SS400.



4. RIGID HANGERS & PIPE ATTACHMENTS



CLEVIS BRACKET (TYPE : CBRC)



SIZE RANGE

For use with 10 to 80mm hanger rod diameter.
Size No. is determined by rod dia of applicable hanger rod.

MATERIAL

Carbon Steel (JIS G3101 SS400)
(ASTM Equivalent A36)

FINISH

- (1)Bracket Body: Applied STC's standard anti-corrosive paint unless otherwise specified.
- (2)Pin: Electro-plated.

SERVICE

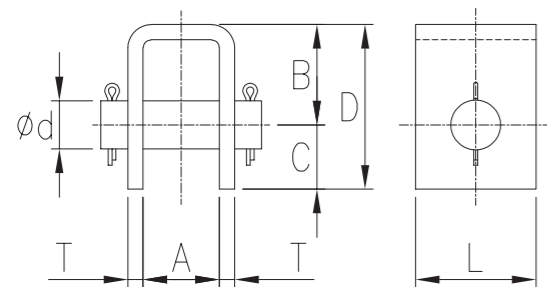
Used for top attachment of hanger assembly by welding to upper structural beam. Connected to Eye Rod or Type B variable spring hanger.

FEATURE

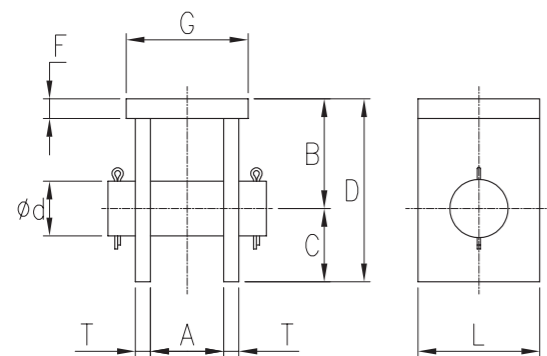
Supplied with pin with cotter pins

ORDERING

Specify Size No.
Ex: CBRC 20



For CBRC 48 and smaller

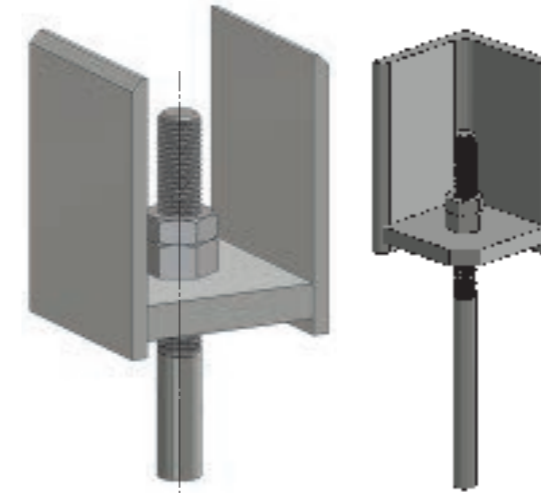


For CBRC 56 and larger

(mm)

SIZE NO.	MAX.RECOM. LOAD(KN)	A	B	C	D	F	G	T	L	d	Weight (N)
CBRC 10	3.4	30	50	25	75	-	-	9	75	12	10
CBRC 12	5	30	50	25	75	-	-	9	75	16	11
CBRC 16	9.4	30	50	25	75	-	-	9	75	20	12
CBRC 20	15	50	75	32	107	-	-	12	75	24	23
CBRC 24	21	60	75	45	120	-	-	16	100	30	46
CBRC 30	34	65	75	50	125	-	-	16	125	36	60
CBRC 36	50	75	100	65	165	-	-	19	150	42	109
CBRC 42	61	95	125	70	195	-	-	19	150	50	138
CBRC 48	80	95	125	80	205	-	-	19	150	60	152
CBRC 56	111	95	140	90	230	25	170	25	150	65	201
CBRC 64	147	95	140	90	230	25	170	25	150	75	221
CBRC 72	190	120	160	100	260	32	200	25	200	80	363
CBRC 80	239	120	180	120	300	32	200	25	200	90	427

BEAM BRACKET (TYPE : BBR)



SIZE RANGE

For use with 10 to 48mm hanger rod diameter.
Size No. is determined by rod dia of applicable hanger rod.

MATERIAL

Carbon Steel(JIS G3101 SS400)
(ASTM Equivalent A36)

FINISH

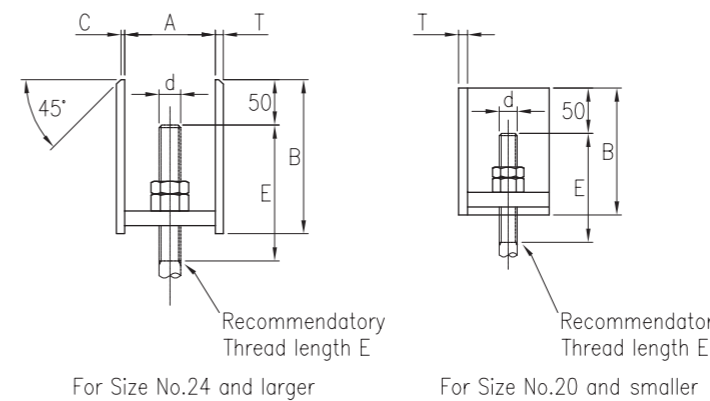
Applied STC's standard anti-corrosive paint unless otherwise specified.

SERVICE

Used for top attachment of hanger assembly by welding to upper structural beam. Connected to threaded rod (eye bolt or hanger rod) and installation length can be adjusted by turning Hex Nut, where overall installation length is too short to insert turnbuckle.

ORDERING

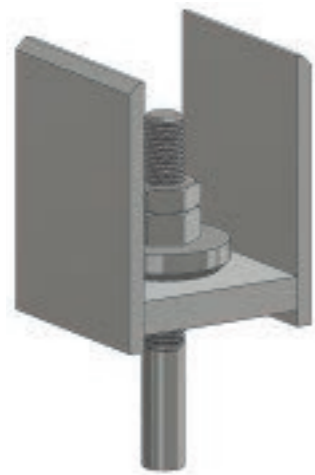
Specify size No.
Ex: BBR 24



(mm)

SIZE NO.	APPLICABLE ROD SIZE d METRIC	MAX.RECOM. LOAD(KN)	A	B	C	L	T	E	Weight (N)
BBR 10	10	3.4	-	140	-	90	9	120	24
BBR 12	12	5	-	140	-	90	9	120	24
BBR 16	16	9.4	-	140	-	90	9	120	24
BBR 20	20	15	-	140	-	100	9	120	31
BBR 24	24	21	100	170	4	115	9	150	42
BBR 30	30	34	130	200	4	150	12	170	93
BBR 36	36	50	150	200	4	180	12	170	118
BBR 42	42	61	170	200	4	200	16	190	182
BBR 48	48	80	200	200	4	250	16	190	247

BEAM BRACKET with spherical washer (BBRS)



SIZE RANGE

For use with 12 to 48mm hanger rod diameter.
Size No. is determined by rod dia of applicable hanger rod.

MATERIAL

Carbon Steel(JIS G3101 SS400)
(ASTM Equivalent A36)

FINISH

Applied STC's standard anti-corrosive paint unless otherwise specified.

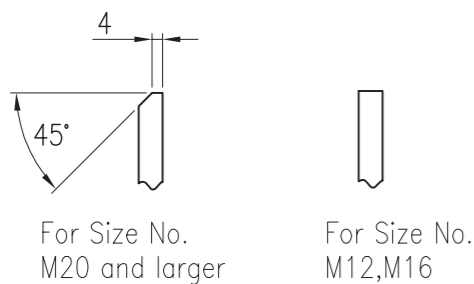
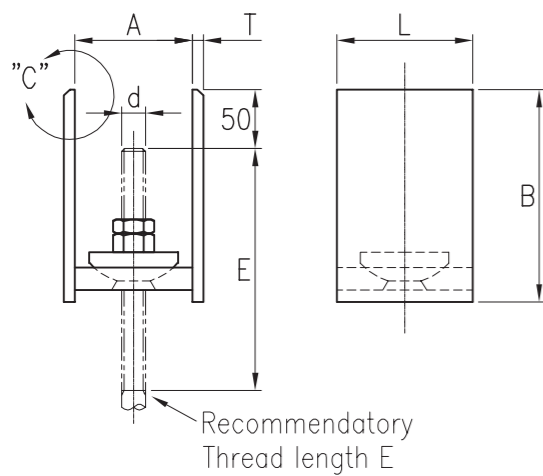
SERVICE

Used for top attachment of hanger assembly by welding to upper structural beam. Connected to threaded rod (eye bolt or hanger rod) which are passed through spherical washer and installation length can be adjusted by turning Hex Nut, where overall installation length is too short to insert turnbuckle.

Since the Spherical Washer is used, the suspension rod can easily swing and can follow the lateral movement of the pipe.

ORDERING

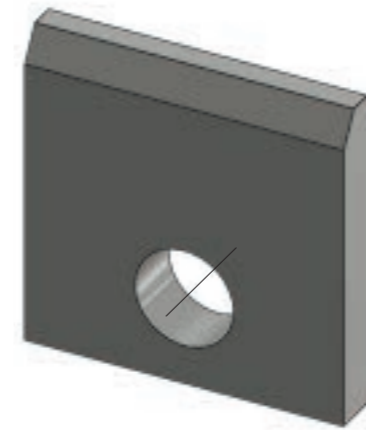
Specify size No.
Ex: BBRS M16



SIZE NO.	APPLICABLE ROD SIZE d METRIC	MAX.RECOM. LOAD(KN)	A	B	L	T	E	Weight (N)
BBRS M12	12	5	75	150	75	6	130	16
BBRS M16	16	9.4	75	160	75	6	190	20
BBRS M20	20	15	90	170	75	9	195	28
BBRS M24	24	21	100	180	115	9	205	49
BBRS M30	30	34	130	200	150	12	220	100
BBRS M36	36	50	150	210	180	12	230	129
BBRS M42	42	61	170	230	200	16	250	211
BBRS M48	48	80	200	240	250	16	260	284

(mm)

LUG PLATE (TYPE : LWPC)



SIZE RANGE

For use with 10 to 56mm dia hanger rod.
Size No. is determined by rod dia of applicable hanger rod.

MATERIAL

Carbon Steel (JIS G3101 SS400)
(ASTM Equivalent A36)

FINISH

Applied STC's standard anti-corrosive paint unless otherwise specified.

SERVICE

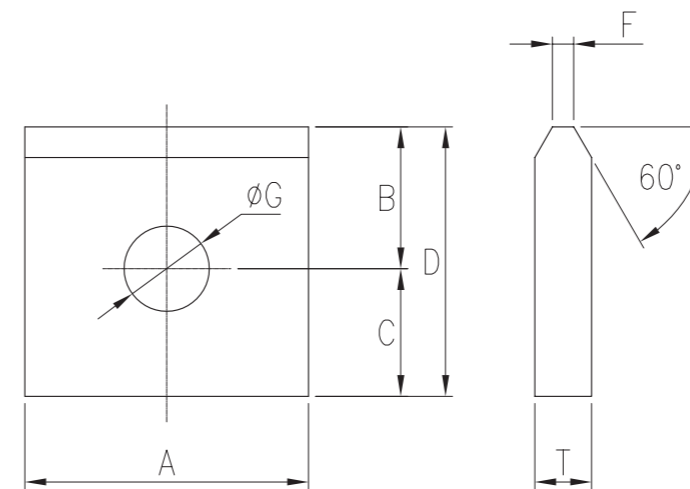
Used mainly for Type C variable spring hanger by welding to upper structural beam.

FEATURE

Grooved for easy and proper welding at site.

ORDERING

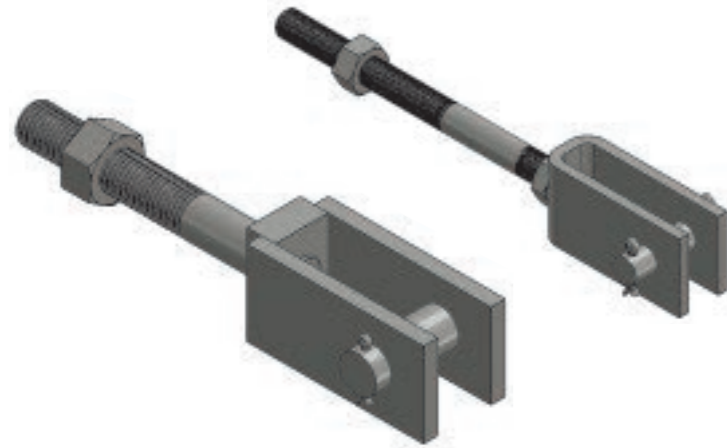
Specify Size No.
Ex: LWPC 16



SIZE NO.	MAX.RECOM LOAD(KN)	A	B	C	D	T	F	G	Weight (N)
LWPC 10	3.4	75	50	25	75	9	3	14	4
LWPC 12	5	75	50	25	75	9	3	18	4
LWPC 16	9.4	100	60	30	90	12	3	22	8
LWPC 20	15	100	65	35	100	16	5	26	13
LWPC 24	21	100	65	35	100	19	8	33	15
LWPC 30	34	125	75	50	125	25	10	39	30
LWPC 36	50	125	75	50	125	25	10	45	30
LWPC 42	61	150	80	70	150	32	10	52	55
LWPC 48	80	200	100	90	190	32	10	62	93
LWPC 56	110	200	100	90	190	40	15	70	116

(mm)

CLEVIS BOLT (TYPE : CB)



SIZE RANGE

12 through 80mm thread diameter.

MATERIAL

Carbon Steel (JIS G3101 SS400)
(ASTM Equivalent A36)

FINISH

- (1)Main Body: Applied STC's standard anti-corrosive paint unless otherwise specified.
- (2)Pin and Nut: Electro-plated.
- (3)Threaded portion: Applied anti-corrosive wax only.

SERVICE

Used by connecting with variable and constant spring hanger, turnbuckle, lug plate, elbow lug, etc.

CONSTRUCTION

Hanger rod is screwed into clevis and welded. One hex. nut is screwed to the thread portion of hanger rod, and a clevis pin with cotter pins is assembled in the clevis.

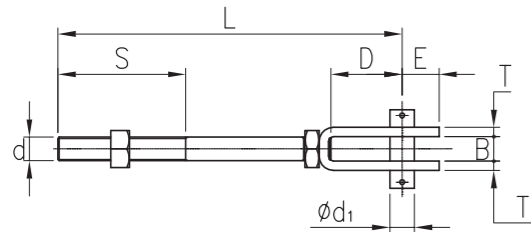
ORDERING

Specify Size No., rod length (L), thread length (S).
Ex: CB 16 x 500 x 125

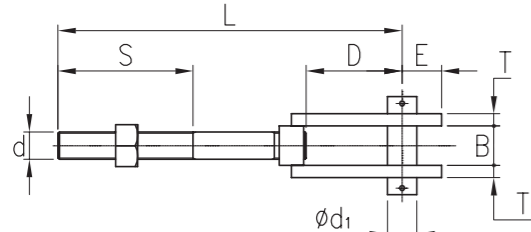
When left hand thread is required, specify dimension "S" with suffix "L".
Ex: CB 16 x 500 x 125L

When double nuts are required, put "H" following the type.
Ex: CBH 16 x 500 x 125

*Thread length (S) is as shown below, unless otherwise specified.



For CB 48 and smaller

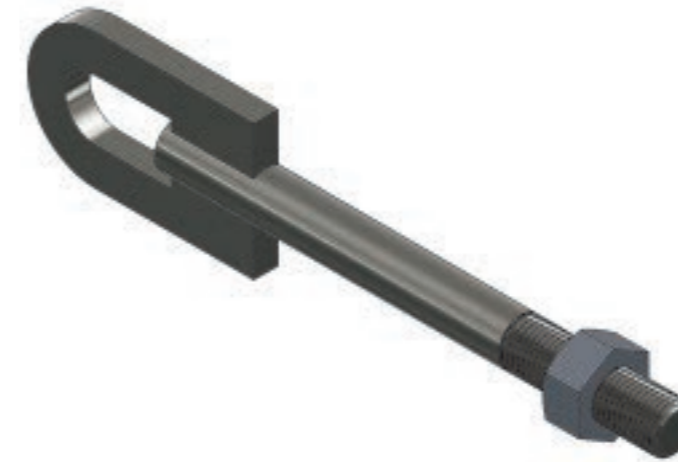


For CB 56 and larger

SIZE NO.	THREAD DIA. d METRIC	MAX.RECOM. LOAD(KN)	B	T	D	E	F	d1	S (Standard Dimension)	L (MIN.)	Weight (N) L.MIN
CB 12	12	5	25	6	80	25	50	12	130	235	4
CB 16	16	9.4	25	6	80	25	50	16	190	295	6
CB 20	20	15	35	9	80	25	50	20	195	305	10
CB 24	24	21	35	9	100	40	75	24	205	340	16
CB 30	30	34	40	12	130	45	90	30	220	390	27
CB 36	36	50	50	16	130	60	125	36	230	410	44
CB 42	42	61	50	16	150	60	125	42	250	460	62
CB 48	48	80	50	19	150	75	125	50	260	480	87
CB 56	56	111	80	25	200	80	150	60	275	550	339
CB 64	64	147	95	25	200	90	150	65	290	570	388
CB 72	72	190	110	25	200	100	180	75	310	600	553
CB 80	80	239	120	25	200	100	180	80	325	620	615

(mm)

EYE BOLT (TYPE : EBA, EBAL)



SIZE RANGE

10 through 80mm thread diameter.

MATERIAL

Carbon steel (JIS G3101 SS400)
(ASTM Equivalent A36)

FINISH

- (1)Main Body: Applied STC's standard anti-corrosive paint unless otherwise specified.
- (2)Nut: Electro-plated.
- (3)Threaded portion: Applied anti-corrosive wax only.

SERVICE

Used by connecting with clevis bracket, variable and constant spring hanger, turnbuckle, pipe clamp, etc.

CONSTRUCTION

Eye plate is welded to the rod at one end. One hex. nut is screwed to the thread portion of hanger rod.

ORDERING

Specify Size No., Pin dia (d1), rod length (L), and thread length(S)

Ex: EBA 12 x 16 x 500 x 130

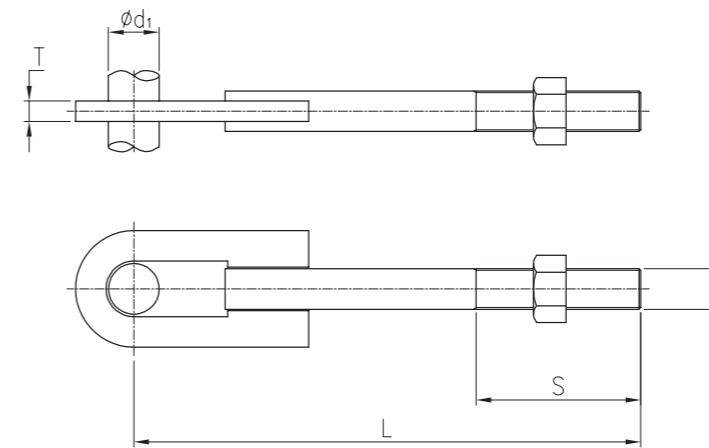
When left hand thread is required, put "L" following the type.

Ex: EBAL 12 x 16 x 800 x 190

When double nuts are required, put "H" following the type.

Ex: EBAH 12 x 16 x 500 x 130

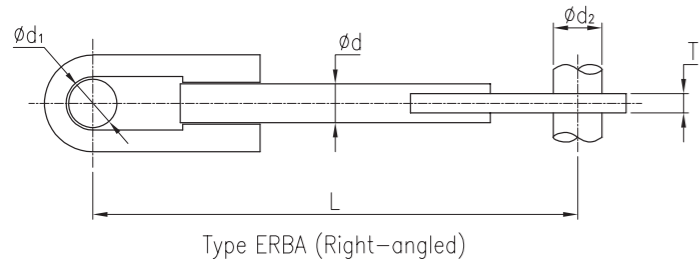
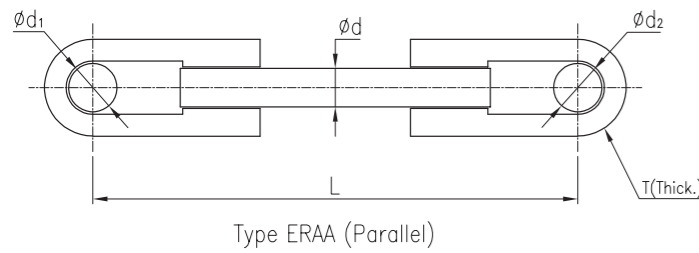
* Thread length (S) is as shown below, unless otherwise specified.



SIZE NO.	THREAD DIA. d METRIC	MAX.RECOM. LOAD(kN)	d1	L (MIN)	T	S (Standard Dimension)	Weight (N) L.MIN
EBA 10	10	3.4	10~24	220	9	130	3
EBA 12	12	5	12~24	240	9	130	4
EBA 16	16	9.4	16~30	300	9	190	8
EBA 20	20	15	20~42	330	16	195	18
EBA 24	24	21	24~42	350	16	205	22
EBA 30	30	34	30~60	430	19	220	46
EBA 36	36	50	36~60	450	19	230	56
EBA 42	42	61	42~60	480	19	250	70
EBA 48	48	80	48~65	530	25	260	107
EBA 56	56	111	56~72	570	32	275	178
EBA 64	64	147	64~90	640	40	290	244
EBA 72	72	190	72~90	650	40	310	326
EBA 80	80	239	80~100	680	40	325	371

(mm)

DOUBLE EYE ROD (TYPE : ERAA & ERBA)



SIZE RANGE

10 through 80mm rod diameter.

MATERIAL

Carbon steel (JIS G3101 SS400)
(ASTM Equivalent A36)

FINISH

Applied STC's standard anti-corrosive paint unless otherwise specified.

SERVICE

Used by connecting with clevis bracket, variable and constant spring hanger, pipe clamp, etc.

CONSTRUCTION

Eye plates are welded to the rod at both end.

ORDERING

Specify Size No., Pin dia (d1), Pin dia (d2), and rod length (L)

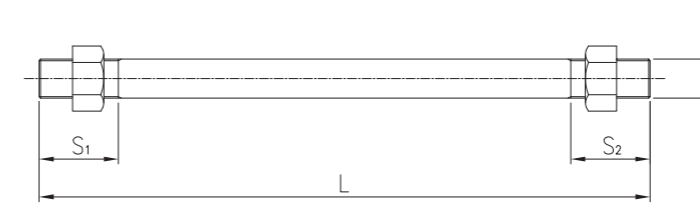
Ex: ERAA 12 x 16 x 20 x 500

ERBA 12 x 16 x 20 x 500

(mm)

SIZE NO.	d	MAX.RECOM. LOAD(kN)	T	d1 & d2 Max	L (MIN)	Weight (N) L.MIN
ERAA 10, ERBA 10	10	3.4	9	24	190	3
ERAA 12, ERBA 12	12	5	9	24	230	4
ERAA 16, ERBA 16	16	9.4	9	30	240	6
ERAA 20, ERBA 20	20	15	16	42	270	14
ERAA 24, ERBA 24	24	21	16	42	270	16
ERAA 30, ERBA 30	30	34	19	60	450	38
ERAA 36, ERBA 36	36	50	19	60	450	43
ERAA 42, ERBA 42	42	61	22	60	450	49
ERAA 48, ERBA 48	48	80	25	65	450	71
ERAA 56, ERBA 56	60	111	32	72	500	120
ERAA 64, ERBA 64	65	147	40	90	550	165
ERAA 72, ERBA 72	75	190	40	90	650	246
ERAA 80, ERBA 80	80	239	40	100	750	440

HANGER ROD (TYPE : HR)



SIZE RANGE

12 through 80mm thread diameter.

MATERIAL

Carbon steel (JIS G3101 SS400)
(ASTM Equivalent A36)

FINISH

- (1)Main Body: Applied STC's standard anti-corrosive paint unless otherwise specified.
- (2)Nut: Electro-plated.
- (3)Threaded portion: Applied anti-corrosive wax only.

SERVICE

Used by connecting with variable and constant spring hanger and others.

CONSTRUCTION

One hex. nut is screwed into the thread on both sides.

ORDERING

Specify Size No. x L x S1 x S2

Ex: HR 30 x 1500 x 150 x 150

When left hand thread is required, specify dimension "S" with suffix "L".

Ex: HR 30 x 1500 x 150 x 150L

When double nuts are required, put "H"(s) following the type.

Ex: HRHH 30 x 1500 x 150 x 150(total 4 nuts)

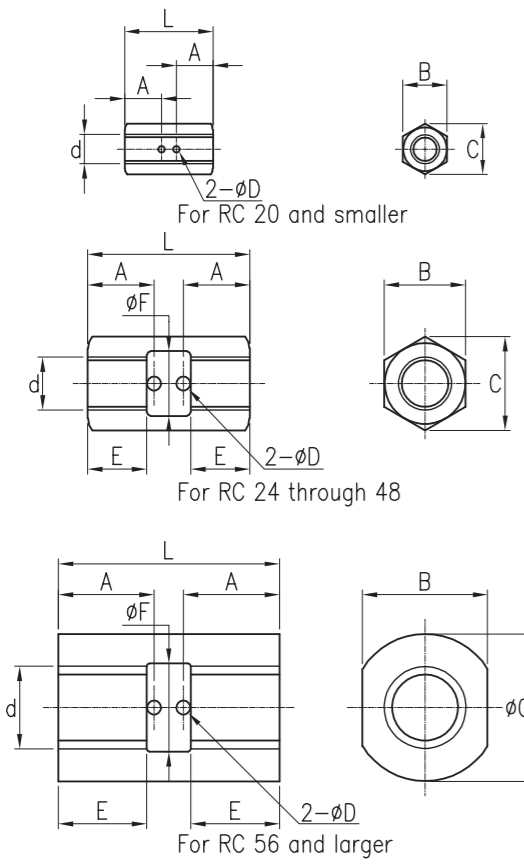
HRH 30 x 1500 x 150 x 150(total 3 nuts)

(mm)

SIZE NO.	THREAD DIA. d METRIC	MAX.RECOM. LOAD(kN)	S1=S2 Unless otherwise specified	MAX. LENGTH L	Weight (N) L.MAX
HR 10	10	3.4	130	2500	16
HR 12	12	5	130	2500	23
HR 16	16	9.4	190	2500	40
HR 20	20	15	195	2500	62
HR 24	24	21	205	2500	90
HR 30	30	34	220	2500	141
HR 36	36	50	230	2500	204
HR 42	42	61	250	2500	280
HR 48	48	80	260	2500	367
HR 56	56	111	275	2500	502
HR 64	64	147	290	2500	658
HR 72	72	190	310	2500	835
HR 80	80	239	325	2500	1034

ROD COUPLING (TYPE : RC)

TURNBUCKLE (TYPE : TB & TBA)



SIZE RANGE
12 through 48mm thread diameter.

MATERIAL
Carbon steel (JIS G3101 SS400)
(ASTM Equivalent A36)

FINISH
Electro-plated, unless otherwise specified.

SERVICE
Used to couple two rods.
If long rod longer than 2400 mm is required,
it is recommended to split the rod length and
connect with Rod Coupler.

FEATURE
Two holes are provided to visually secure
insertion of both rods.

ORDERING
Specify Size No.
Ex: RC 20



For RC 20 and smaller For RC 24 through 48 For RC 56 and larger

SIZE NO.	THREAD DIA. d METRIC	MAX.RECOM. LOAD (KN) 350°C	L	A	B	C	D	E	F	Weight (N)
RC 12	12	5	40	15	19	21.9	5	-	-	1
RC 16	16	9.4	50	20	24	27.7	5	-	-	2
RC 20	20	15	60	25	30	34.6	5	-	-	3
RC 24	24	21	80	30	36	41.6	5	25	29	4
RC 30	30	34	90	35	46	53.1	10	30	35	8
RC 36	36	50	110	45	55	63.5	10	40	44	13
RC 42	42	61	120	50	63	72.7	10	45	50	18
RC 48	48	80	130	55	71	82	10	50	56	25
RC 56	56	111	150	65	85	100	10	60	60	56
RC 64	64	147	160	70	95	110	10	65	65	71
RC 72	72	190	190	80	105	120	10	75	75	98
RC 80	80	239	200	85	115	130	10	80	85	117

(mm)



SIZE RANGE
10 through 80mm thread diameter.

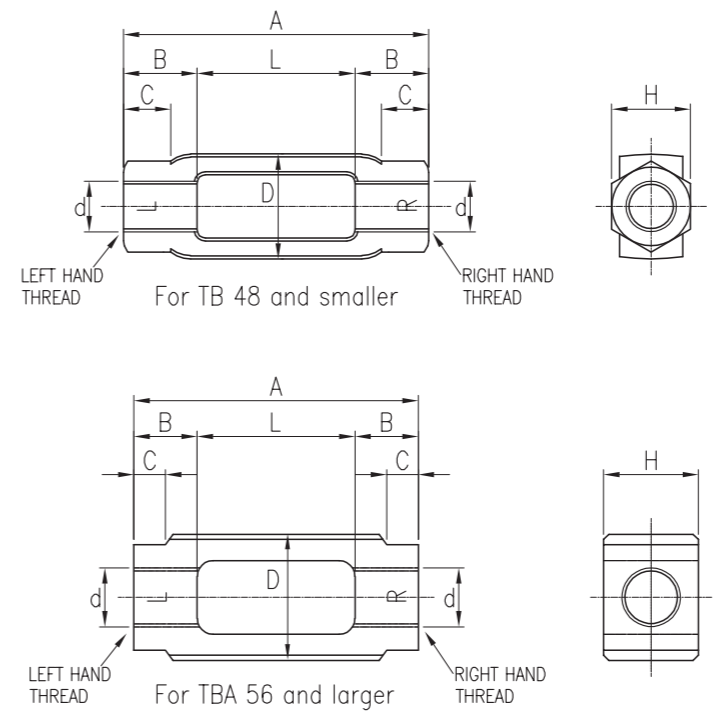
MATERIAL
Carbon Steel
SIZE 48 and smaller: JIS G4051 S25C
(ASTM Equivalent A668CL70)
SIZE 56 and larger: JIS G3101 SS400
(ASTM Equivalent A36)

FINISH
(1)Main Body: Applied STC's standard anti-corrosive paint unless otherwise specified.
(2)Threaded portion: Applied anti-corrosive wax only.

SERVICE
Used for length adjustment by connecting with hanger rod, eye bolt, clevis bolt, variable and constant spring hanger, etc.

FEATURE
(1)"R" is displayed on the right-hand thread, and "L" is displayed on the left-hand thread.

ORDERING
Specify Size No. x L
Ex: TB 36 x 150
Ex: TBA 56 x 150

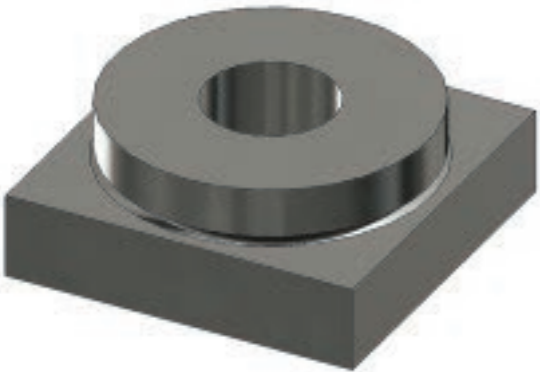


SIZE NO.	THREAD DIA. d METRIC	MAX.RECOM. LOAD (KN)	A	B	C	D	H	L	Weight (N)
TB 10	10	3.4	140	20	13	36	19	100	3
TB 12	12	5	140	20	13	36	19	100	3
TB 16	16	9.4	204	27	16	50	30	150	8
TB 20	20	15	204	27	16	50	30	150	8
TB 24	24	21	220	35	21	58	36	150	12
TB 30	30	34	240	45	29	67	46	150	19
TB 36	36	50	250	50	33	77	55	*150	27
TB 42	42	61	280	65	40	90	65	*150	45
TB 48	48	80	290	70	45	100	75	*150	60
TBA 56	56	111	270	60	30	120	90	*150	116
TBA 64	64	147	280	65	35	130	100	*150	133
TBA 72	72	190	300	75	40	150	120	*150	192
TBA 80	80	239	320	85	45	160	120	*150	221

*200mm is available when specified.

(mm)

SPHERICAL WASHER (TYPE : SW)



SIZE RANGE

For use with 12 to 64mm hanger rod diameter. Size No. is determined by rod dia of applicable hanger rod.

MATERIAL

Carbon Steel (JIS G3101 SS400)
(ASTM Equivalent A36)

FINISH

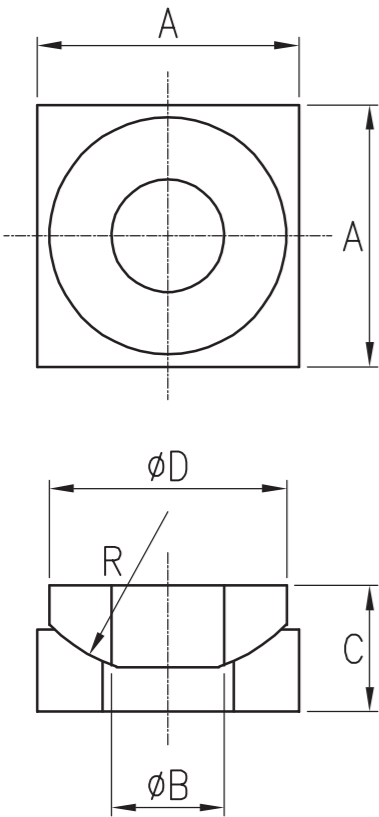
Applied STC's standard anti-corrosive paint unless otherwise specified.

SERVICE

Used for where swing angle of hanger rod is required. (MAX. swing angle is 6°)

ORDERING

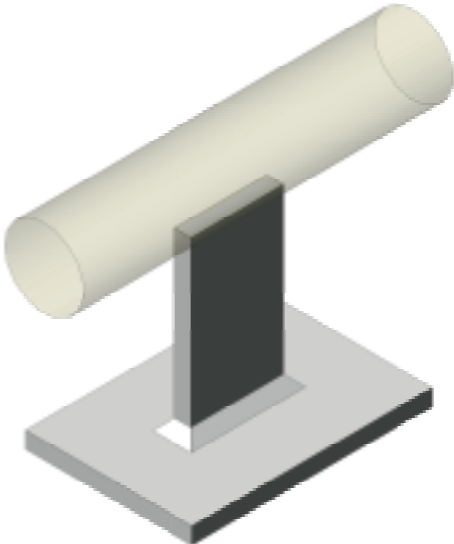
Specify size No.
Ex: SW 36



(mm)

SIZE NO.	A	B	C	D	R	Weight (N)
SW 12	55	14	19	38	23	4
SW 16	60	18	26	50	35	6
SW 20	70	22	27	50	35	7
SW 24	85	26	32	75	50	13
SW 30	105	33	41	95	65	26
SW 36	105	39	42	95	65	25
SW 42	125	46	54	120	80	49
SW 48	130	52	52	120	80	50
SW 56	150	61	65	135	95	75
SW 64	160	69	77	145	100	103

T-SADDLE CARBON STEEL (TYPE : TSCN)



SIZE RANGE

1/2 through 2-1/2 inch pipe outer diameter.

MATERIAL

Carbon Steel (JIS G3101 SS400)
(ASTM Equivalent A36)

FINISH

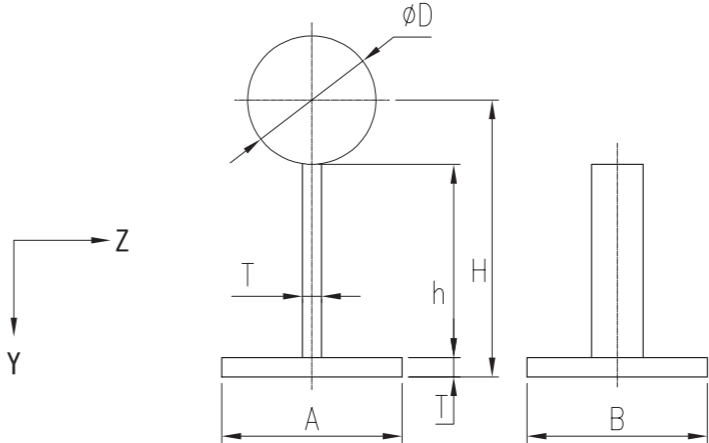
Applied STC's standard anti-corrosive paint unless otherwise specified.

SERVICE

To be attached by welding to support a pipe with temperature of 350°C or less.

ORDERING

Specify Size No.
Ex: TSCN 2
When special dimension for "h" is required, specify the dimension "h" after Size No.
Ex: TSCNV 1 x 90

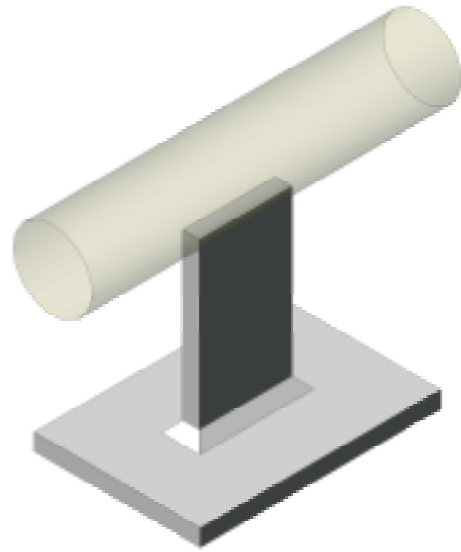


(mm)

SIZE NO.	MAX.RECOM.LOAD(KN) 350°C		PIPE DIA. ANSI D	A	B	T	h	H	Weight (N)
	Y DIRECTION	Z DIRECTION							
TSCN 1/2	1.12	0.33	21.3	90	130	9	75	95	11
TSCN 3/4			26.7				77	100	11
TSCN 1			33.4				94	120	12
TSCN 1-1/4			42.2				95	125	12
TSCN 1-1/2			48.3				92	125	12
TSCN 2			60.3				91	130	12
TSCN 2-1/2			73.0				103	150	12

For other pipe standards (JIS, API, etc.) are available on request.

T-SADDLE SB-CARBON STEEL (TYPE : TSBN)



SIZE RANGE

1/2 through 2-1/2 inch pipe outer diameter.

MATERIAL

Carbon Steel (JIS G3103 SB410)
(ASTM Equivalent A515Gr60)

FINISH

Applied STC's standard anti-corrosive paint unless otherwise specified.

SERVICE

To be attached by welding to support a pipe with temperature of 351°C ~ 450°C.

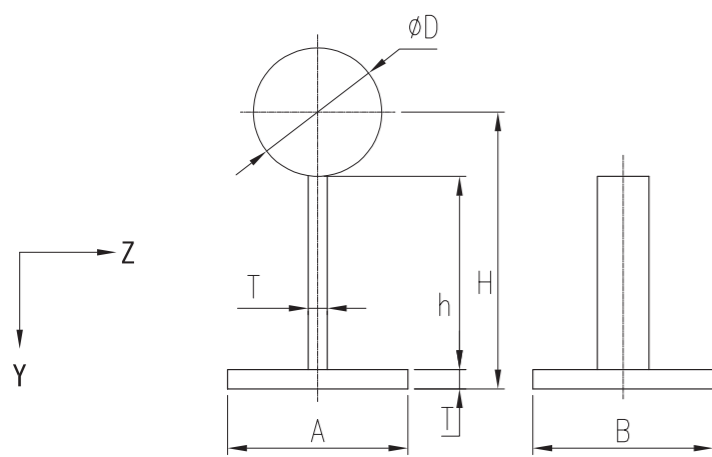
ORDERING

Specify Size No.

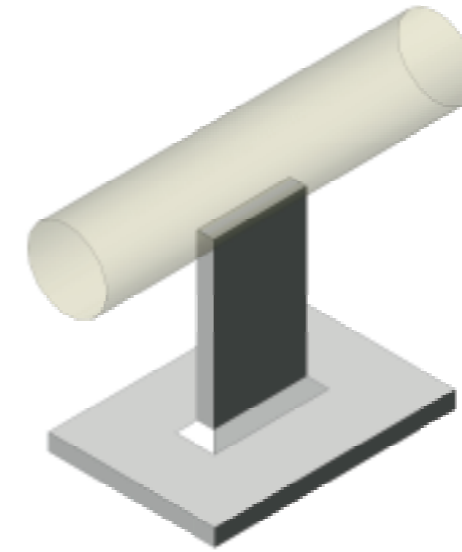
Ex: TSBN 2

When special dimension for "h" is required, specify the dimension "h" after Size No.

Ex: TSBNV 1 x 90



T-SADDLE ALLOY STEEL (TYPE : TSAN)



SIZE RANGE

1/2 through 2-1/2 inch pipe outer diameter.

MATERIAL

Chromium Molybdenum Steel (ASTM A387Gr22)

FINISH

Applied STC's standard anti-corrosive paint unless otherwise specified.

SERVICE

To be attached by welding to support a pipe with temperature of 451°C ~ 575°C.

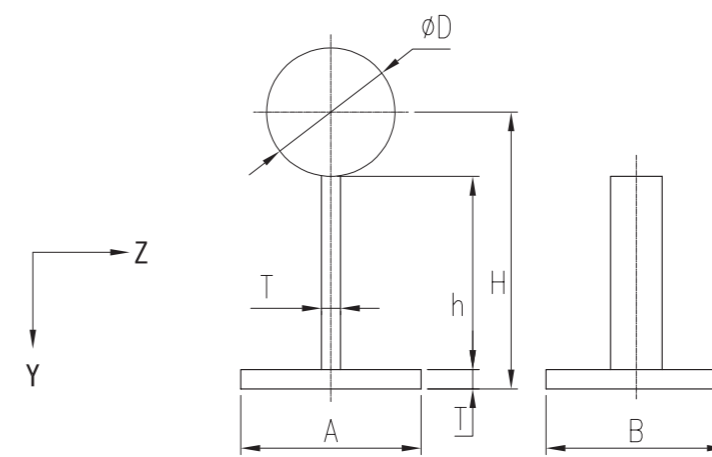
ORDERING

Specify Size No.

Ex: TSAN 2

When special dimension for "h" is required, specify the dimension "h" after Size No.

Ex: TSANV 1 x 90



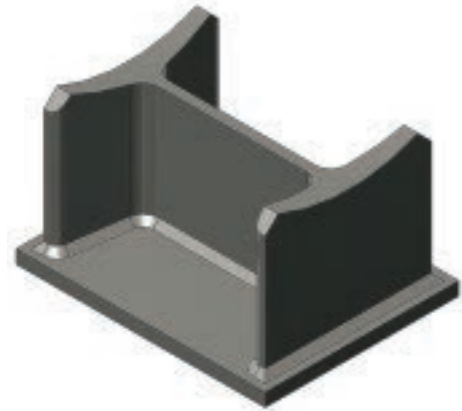
SIZE NO.	MAX.RECOM.LOAD(KN)				PIPE DIA. ANSI D	A	B	T	h	H	Weight (N)
	400°C		450°C								
	Y DIRECTION	Z DIRECTION	Y DIRECTION	Z DIRECTION							
TSBN 1/2	0.91	0.27	0.58	0.17	21.3	90	130	9	90	110	12
TSBN 3/4					26.7				92	115	12
TSBN 1					33.4				94	120	12
TSBN 1-1/4					42.2				100	130	12
TSBN 1-1/2					48.3				102	135	12
TSBN 2					60.3				101	140	12
TSBN 2-1/2					73.0				113	160	13

For other pipe standards (JIS, API, etc.) are available on request.

SIZE NO.	MAX.RECOM.LOAD(KN)				PIPE DIA. ANSI D	A	B	T	h	H	Weight (N)
	500°C		575°C								
	Y DIRECTION	Z DIRECTION	Y DIRECTION	Z DIRECTION							
TSAN 1/2	0.78	0.23	0.34	0.10	21.3	90	130	9	90	110	12
TSAN 3/4					26.7				102	125	12
TSAN 1					33.4				109	135	13
TSAN 1-1/4					42.2				115	145	13
TSAN 1-1/2					48.3				117	150	13
TSAN 2					60.3				116	155	13
TSAN 2-1/2					73.0				123	170	13

For other pipe standards (JIS, API, etc.) are available on request.

PIPE CHAIR CARBON STEEL (TYPE : PHC , PHCZ)



SIZE RANGE

3 through 24 inch pipe outer diameter.

MATERIAL

Carbon Steel (JIS G3101 SS400)
(ASTM Equivalent A36)

FINISH

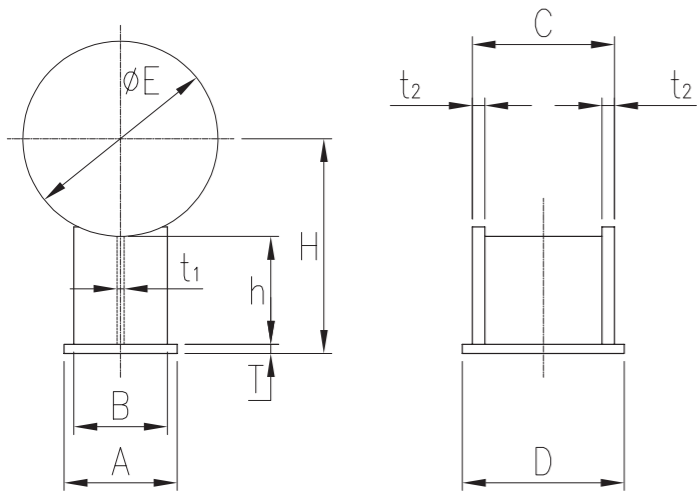
Applied STC's standard anti-corrosive paint unless otherwise specified.

SERVICE

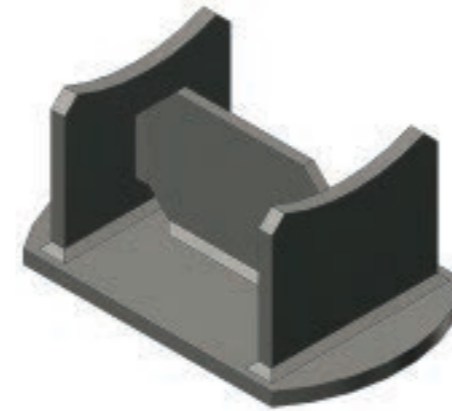
To be attached by welding to support a pipe with temperature of ~ 350°C .

ORDERING

Specify Size No.
Ex: PHC 18 & PHCZ 10
When special dimension for "h" is required, specify the dimension "h" after Size No.
Ex: PHCV 4 x 100



PIPE CHAIR SB-CARBON STEEL (TYPE : PHB , PHBZ)



SIZE RANGE

3 through 24 inch pipe outer diameter.

MATERIAL

Carbon Steel (JIS G3103 SB410)
(ASTM Equivalent A515Gr60)

FINISH

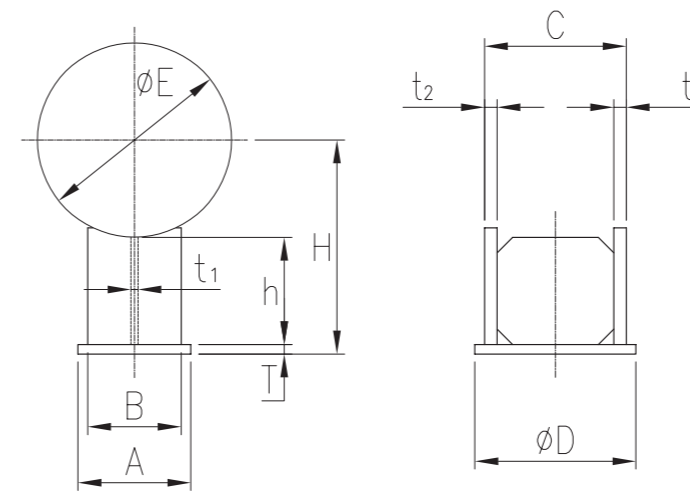
Applied STC's standard anti-corrosive paint unless otherwise specified.

SERVICE

To be attached by welding to support a pipe with temperature of 351°C ~ 450°C .

ORDERING

Specify Size No.
Ex: PHB 18 & PHBZ 10
When special dimension for "h" is required, specify the dimension "h" after Size No.
Ex: PHBV 4 x 100



(mm)

SIZE NO.	MAX.RECOM. LOAD(KN) 350°C	PIPE DIA. ANSI E	A	B	C	D	h	H	T	t1	t2	Weight (N)
PHC 3-1/2	15	101.6	90	75	100	120	88	145	6	5	8	17
PHC 4	15	114.3	90	75	100	120	87	150	6	5	8	17
PHCZ 5	22	141.3	90	75	100	120	83	160	6	5	8	16
PHCZ 6	30	168.3	125	100	200	220	82	175	9	5.5	8	37
PHCZ 8	55	219.1	125	100	200	220	107	225	9	5.5	8	43
PHCZ 10	85	273.0	175	150	200	225	107	255	12	9	16	91
PHCZ 12	127	323.8	175	150	200	225	106	280	12	9	16	91
PHC 14	157	355.6	220	200	200	225	135	325	12	8	12	113
PHC 16	216	406.4	220	200	200	225	135	350	12	8	12	113
PHC 18	284	457.2	220	200	200	225	134	375	12	8	12	112
PHC 20	363	508.0	280	250	250	285	135	405	16	9	14	195
PHC 22	451	558.8	280	250	250	285	130	425	16	9	14	192
PHC 24	539	609.6	280	250	250	285	129	450	16	9	14	191

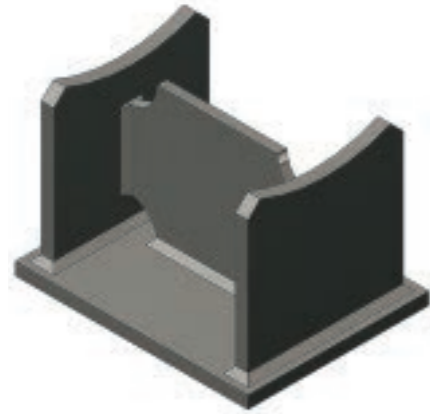
For other pipe standards (JIS, API, etc.) are available on request.

(mm)

SIZE NO.	MAX.RECOM. LOAD(KN)		PIPE DIA. ANSI E	A	B	C	D	h	H	T	t1	t2	Weight (N)
	400°C	450°C											
PHB 3	7.2	4.7	88.9	85	75	100	142	84	135	6	6	9	19
PHB 3-1/2	12	7.8	101.6	90	75	100	150	88	145	6	6	9	20
PHB 4	12	7.8	114.3	90	75	100	150	87	150	6	6	9	20
PHBZ 5	18	11	141.3	90	75	100	150	108	185	9	6	9	27
PHBZ 6	25	16	168.3	125	100	200	253	107	200	9	6	9	49
PHBZ 8	45	29	219.1	125	100	200	253	107	225	9	6	9	49
PHBZ 10	70	45	273.0	175	150	200	285	107	255	12	9	12	91
PHBZ 12	105	68	323.8	175	150	200	285	106	280	12	9	12	91
PHB 14	129	83	355.6	220	200	200	315	160	350	12	9	12	144
PHB 16	177	114	406.4	220	200	200	315	160	375	12	9	12	144
PHB 18	233	151	457.2	220	200	200	315	160	400	12	9	12	144
PHB 20	298	192	508.0	280	250	250	400	160	430	16	9	16	268
PHB 22	370	239	558.8	280	250	250	400	155	450	16	9	16	264
PHB 24	442	286	609.6	280	250	250	400	155	475	16	9	16	264

For other pipe standards (JIS, API, etc.) are available on request.

PIPE CHAIR ALLOY STEEL (TYPE : PHA , PHAZ)



SIZE RANGE

3 through 24 inch pipe outer diameter.

MATERIAL

Chromium Molybdenum Steel (ASTM A387Gr22)

FINISH

Applied STC's standard anti-corrosive paint unless otherwise specified.

SERVICE

To be attached by welding to support a pipe with temperature of 451°C ~ 575°C .

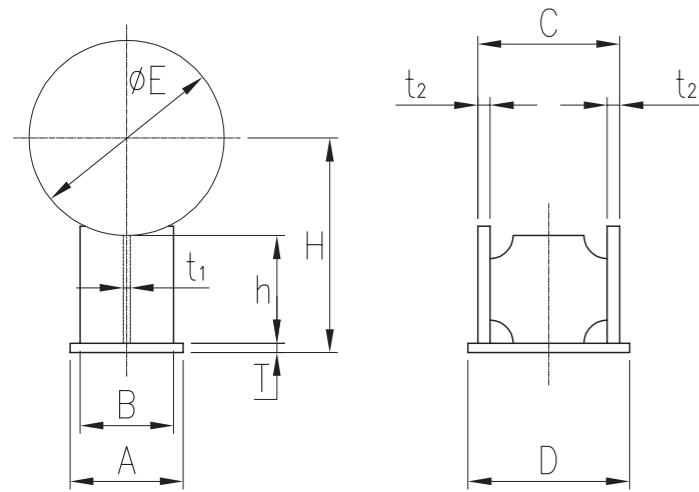
ORDERING

Specify Size No.

Ex: PHA 18 & PHAZ 10

When special dimension for "h" is required, specify the dimension "h" after Size No.

Ex: PHAV 4 x 100



(mm)

SIZE NO.	MAX.RECOM. LOAD(KN)		PIPE DIA. ANSI E	A	B	C	D	h	H	T	t1	t2	Weight (N)
	500°C	575°C											
PHA 3	6.1	2.8	88.9	85	75	100	120	109	160	6	6	9	23
PHA 3-1/2	10	4.6	101.6	90	75	100	120	113	170	6	6	9	24
PHA 4	10	4.6	114.3	90	75	100	120	112	175	6	6	9	24
PHAZ 5	15	6.7	141.3	90	75	100	120	108	185	6	6	9	23
PHAZ 6	21	9.5	168.3	125	100	200	220	107	200	9	6	9	48
PHAZ 8	38	17	219.1	125	100	200	220	132	250	9	6	9	55
PHAZ 10	59	27	273.0	175	150	200	225	132	280	12	9	12	96
PHAZ 12	88	40	323.8	175	150	200	225	131	305	12	9	12	96
PHA 14	108	49	355.6	220	200	200	225	210	400	12	9	12	159
PHA 16	149	68	406.4	220	200	200	225	210	425	12	9	12	159
PHA 18	196	89	457.2	220	200	200	225	209	450	12	9	12	159
PHA 20	250	114	508.0	280	250	250	285	210	480	16	9	16	285
PHA 22	311	141	558.8	280	250	250	285	205	500	16	9	16	281
PHA 24	372	169	609.6	280	250	250	285	204	525	16	9	16	281

For other pipe standards (JIS, API, etc.) are available on request.

ELBOW EAR CARBON STEEL (TYPE : EEC , EECZ)



SIZE RANGE

3 through 18 inch pipe outer diameter.

MATERIAL

Carbon Steel (JIS G3101 SS400)

(ASTM Equivalent A36)

FINISH

Applied STC's standard anti-corrosive paint unless otherwise specified.

SERVICE

Used for pipe suspension by welding to Long Elbow.

In case of Short Elbow or Bent Pipe, the dimensions will be slightly changed.

FEATURE

For plate thickness 19mm and lager, edge preparation is made for groove weld.

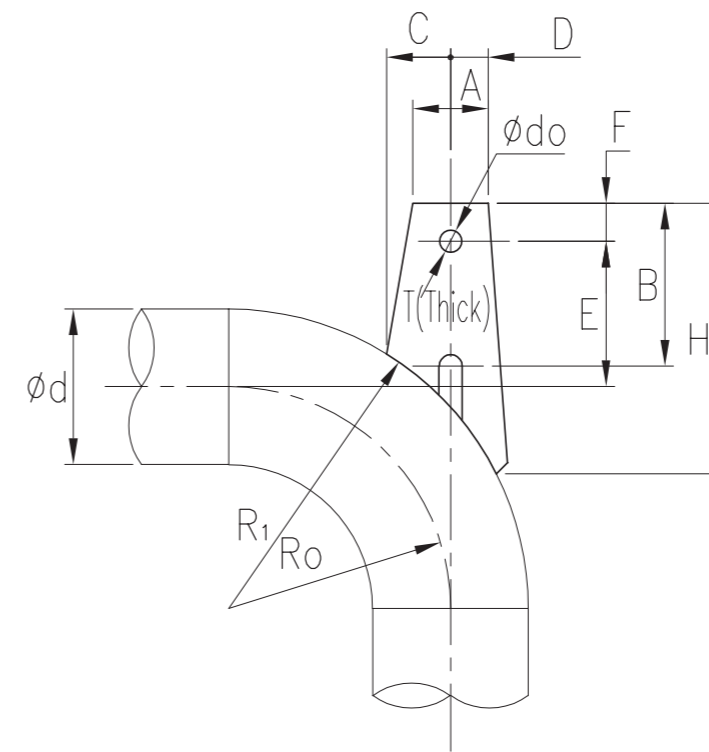
ORDERING

Specify Size No. and dia of hole for pin (ϕ d0)

Ex: EEC 4 x 26 & EECZ 10 x 39

E dimension, etc. are changeable after receiving specifications of the thickness of insulation, pin hole diameter, etc.

Ex: EECV 4 x 26 x 250



(mm)

SIZE NO.	MAX.RECOM. LOAD(KN) 350°C	PIPE DIA. ANSI d	R0	R1	A	B	C	D	E	F	H	d0	T	Weight (N)
EEC 3-1/2	7.3	101.6	133.4	184.15	90	200	50	50	190	45	310	26	6	11
EEC 4	7.3	114.3	152.4	209.55	90	200	60	56	190	45	320	26	6	12
EECZ 5	11	141.3	190.5	261.15	90	200	70	62	190	45	319	26	9	19
EECZ 6	11	168.3	228.6	312.75	90	200	70	64	190	45	320	26	9	19
EECZ 8	20	219.1	304.8	414.35	110	240	100	81	220	55	398	33	12	39
EECZ 10	34	273.0	381.0	517.5	130	280	110	98	250	65	462	39	16	69
EECZ 12	50	323.8	457.2	619.1	180	305	130	114	270	85	533	52	16	95
EEC 14	61	355.6	533.4	711.2	180	365	120	114	330	85	615	52	19	133
EEC 16	80	406.4	609.6	812.8	180	345	120	112	330	85	625	52	25	173
EEC 18	80	457.2	685.8	914.4	180	345	120	118	330	85	625	52	25	179

For other pipe standards (JIS, API, etc.) are available on request.

ELBOW EAR SB-CARBON STEEL (TYPE : EEB , EEBZ)



SIZE RANGE

3 through 18 inch pipe outer diameter.

MATERIAL

Carbon Steel (JIS G3103 SB410)
(ASTM Equivalent A515Gr60)

FINISH

Applied STC's standard anti-corrosive paint unless otherwise specified.

SERVICE

Used for pipe suspension by welding to Long Elbow.

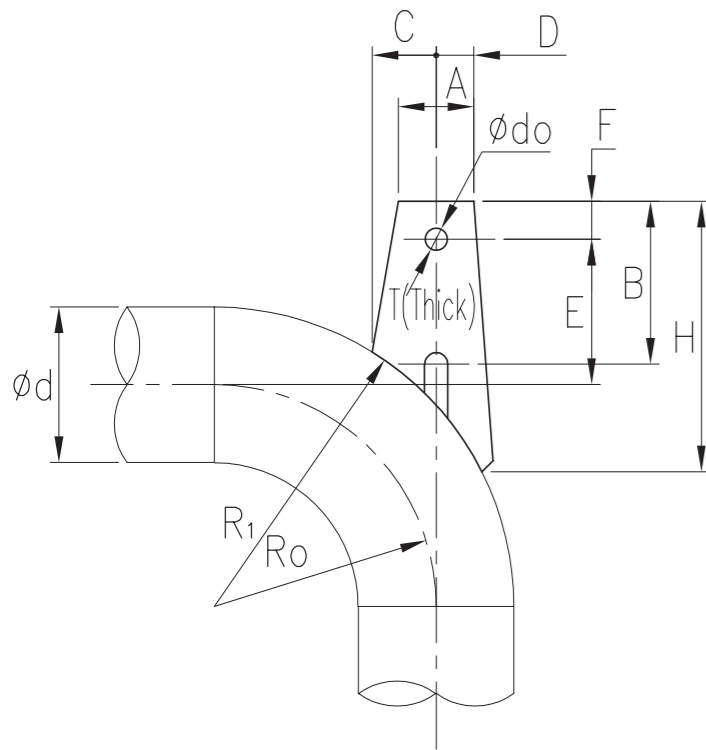
In case of Short Elbow or Bent Pipe, the dimensions will be slightly changed.

FEATURE

For plate thickness 19mm and lager, edge preparation is made for groove weld.

ORDERING

Specify Size No. and dia of hole for pin (ϕ d0)
Ex: EEB 4 x 26 & EEBZ 10 x 39
E dimension, etc. are changeable after receiving specifications of the thickness of insulation, pin hole diameter, etc.
Ex: EEBV 4 x 26 x 250



(mm)

SIZE NO.	MAX.RECOM. LOAD(KN)		PIPE DIA. ANSI d	R0	R1	A	B	C	D	E	F	H	d0	T	Weight (N)
	400°C	450°C													
EEB 3	6	3.9	88.9	114.3	158.75	90	180	45	45	170	45	255	26	6	9.0
EEB 3-1/2	6	3.9	101.6	133.4	184.15	90	200	50	50	190	45	310	26	6	11
EEB 4	6	3.9	114.3	152.4	209.55	90	200	60	56	190	45	320	26	6	12
EEBZ 5	9.1	5.9	141.3	190.5	261.15	90	200	70	62	190	45	319	26	9	19
EEBZ 6	9.1	5.9	168.3	228.6	312.75	90	200	70	64	190	45	320	26	9	19
EEBZ 8	17	11	219.1	304.8	414.35	110	240	100	81	220	55	398	33	12	39
EEBZ 10	28	18	273.0	381.0	517.5	130	280	110	98	250	65	462	39	16	69
EEBZ 12	41	26	323.8	457.2	619.1	180	305	130	114	270	85	533	52	16	95
EEB 14	51	32	355.6	533.4	711.2	180	365	120	114	330	85	615	52	19	133
EEB 16	66	43	406.4	609.6	812.8	180	345	120	112	330	85	625	52	25	173
EEB 18	66	43	457.2	685.8	914.4	180	345	120	118	330	85	625	52	25	179

For other pipe standards (JIS, API, etc.) are available on request.

ELBOW EAR ALLOY STEEL (TYPE : EEA , EEAZ)



SIZE RANGE

3 through 18 inch pipe outer diameter.

MATERIAL

Chromium Molybdenum Steel (ASTM A387Gr22)

FINISH

Applied STC's standard anti-corrosive paint unless otherwise specified.

SERVICE

Used for pipe suspension by welding to Long Elbow.

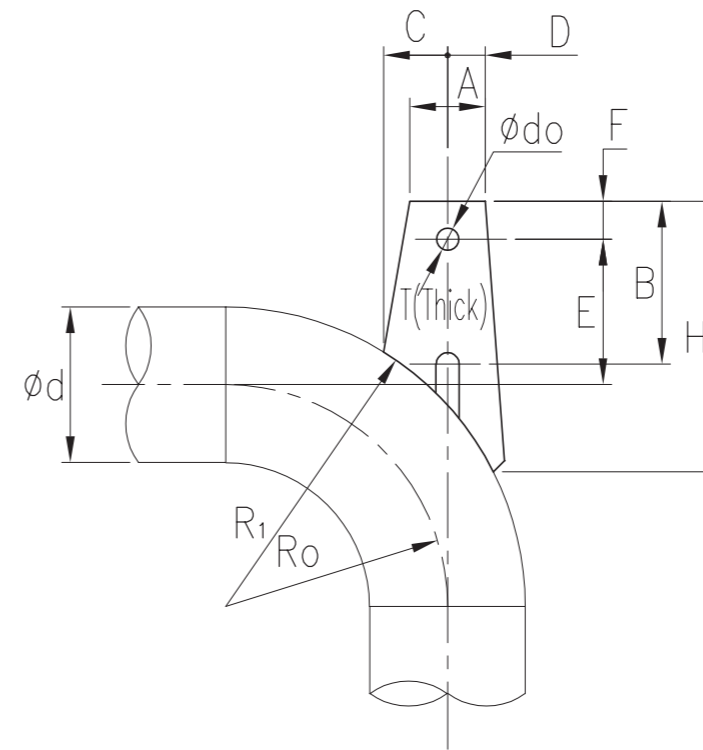
In case of Short Elbow or Bent Pipe, the dimensions will be slightly changed.

FEATURE

Edge preparation is made for groove weld.

ORDERING

Specify Size No. and dia of hole for pin (ϕ d0)
Ex: EEA 4 x 26 & EEAZ 10 x 39
E dimension, etc. are changeable after receiving specifications of the thickness of insulation, pin hole diameter, etc.
Ex: EEAZ 4 x 26 x 250

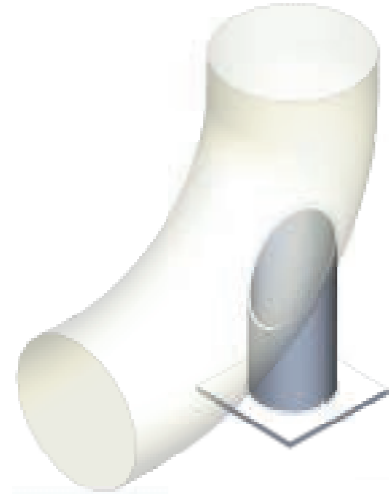


(mm)

SIZE NO.	MAX.RECOM. LOAD(KN)		PIPE DIA. ANSI d	R0	R1	A	B	C	D	E	F	H	d0	T	Weight (N)
	500°C	575°C													
EEA 3	5	2.3	88.9	114.3	158.75	90	180	45	45	170	45	255	26	6	9.0
EEA 3-1/2	5	2.3	101.6	133.4	184.15	90	200	50	50	190	45	310	26	6	11
EEA 4	5	2.3	114.3	152.4	209.55	90	200	60	56	190	45	320	26	6	12
EEAZ 5	7.6	3.5	141.3	190.5	261.15	90	200	70	62	190	45	319	26	9	19
EEAZ 6	7.6	3.5	168.3	228.6	312.75	90	200	70	64	190	45	320	26	9	19
EEAZ 8	14	6.4	219.1	304.8	414.35	110	240	100	81	220	55	398	33	12	39
EEAZ 10	23	11	273.0	381.0	517.5	130	280	110	98	250	65	462	39	16	69
EEAZ 12	34	15	323.8	457.2	619.1	180	305	130	114	270	85	533	52	16	95
EEA 14	42	19	355.6	533.4	711.2	180	365	120	114	330	85	615	52	19	133
EEA 16	55	25	406.4	609.6	812.8	180	345	120	112	330	85	625	52	25	173
EEA 18	55	25	457.2	685.8	914.4	180	345	120	118	330	85	625	52	25	179

For other pipe standards (JIS, API, etc.) are available on request.

ELBOW CHAIR CARBON STEEL (TYPE : EHG , EHGZ)



SIZE RANGE

3 through 24 inch pipe outer diameter.

MATERIAL

Column: Carbon Steel (JIS G3452 SGP)
(ASTM Equivalent A53GrATpF)

Base plate: Carbon Steel (JIS G3101 SS400)
(ASTM Equivalent A36)

FINISH

Applied STC's standard anti-corrosive paint unless otherwise specified.

SERVICE

Used for pipe support by welding to Long Elbow.

In case of Short Elbow or Bent Pipe, the dimensions will be slightly changed.

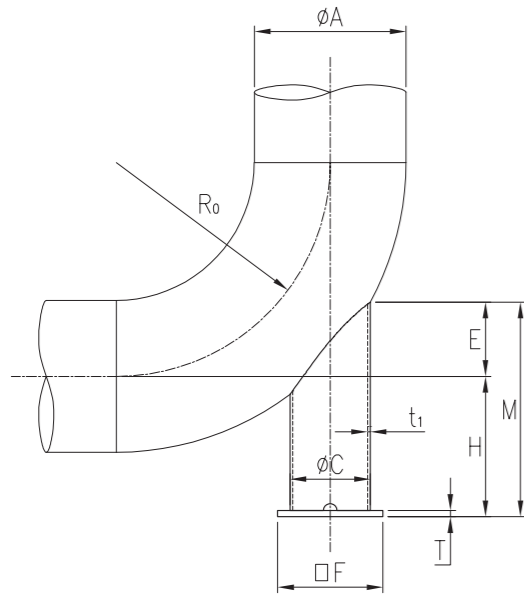
ORDERING

Specify Size No.

Ex: EHG 18 & EHGZ 10

H dimension, etc. are changeable after receiving specifications of the thickness of insulation, etc.

Ex: EHG 4 x 200



(mm)

SIZE NO.	MAX.RECOM. LOAD(KN) 350°C	PIPE DIA. ANSI A	R0	C	E	F	T	t1	H	M	Weight (N)
EHG 4	15	114.3	152.4	2B	49	90	6	3.8	130	179	12
EHGZ 5	22	141.3	190.5	2-1/2B	64	120	9	4.2	150	214	22
EHGZ 6	30	168.3	228.6	3B	76	120	9	4.2	150	226	25
EHGZ 8	55	219.1	304.8	4B	103	150	9	4.5	200	303	44
EHGZ 10	85	273.0	381.0	5B	126	200	12	4.5	220	346	75
EHGZ 12	127	323.8	457.2	6B	153	250	12	5	220	373	110
EHG 14	157	355.6	533.4	6B	177	250	12	5	250	427	120
EHG 16	157	406.4	609.6	8B	228	250	12	5.8	320	548	178
EHG 18	157	457.2	685.8	8B	232	250	12	5.8	320	552	180
EHG 20	157	508.0	762.0	10B	281	300	16	6.6	350	631	301
EHG 24	157	609.6	914.4	10B	291	300	16	6.6	350	641	306

For other pipe standards (JIS, API, etc.) are available on request.

ELBOW CHAIR SB-CARBON STEEL (TYPE : EHB , EHBZ)



SIZE RANGE

3 through 24 inch pipe outer diameter.

MATERIAL

Carbon Steel (JIS G3103 SB410)
(ASTM Equivalent A515Gr60)

FINISH

Applied STC's standard anti-corrosive paint unless otherwise specified.

SERVICE

Used for pipe support by welding to Long Elbow.

In case of Short Elbow or Bent Pipe, the dimensions will be slightly changed.

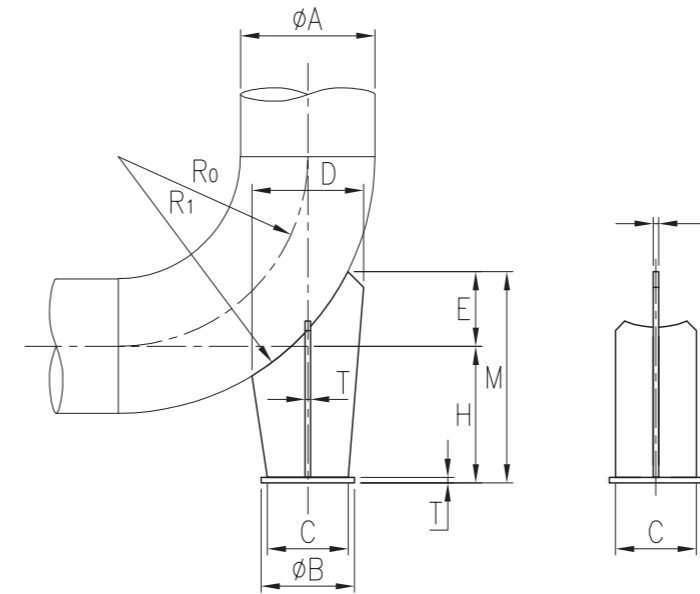
ORDERING

Specify Size No.

Ex: EHB 18 & EHBZ 10

H dimension, etc. are changeable after receiving specifications of the thickness of insulation, etc.

Ex: EHBV 4 x 250



(mm)

SIZE NO.	MAX.RECOM. LOAD(KN)		PIPE DIA. ANSI A	R0	R1	B	C	D	E	T	H	M	Weight (N)
	400°C	450°C											
EHB 3	7.2	4.7	88.9	114.3	158.75	90	75	120	80	6	130	210	14
EHB 4	12	7.8	114.3	152.4	209.55	90	75	120	80	6	130	210	14
EHBZ 5	18	11	141.3	190.5	261.15	90	80	130	89	6	180	269	19
EHBZ 6	25	16	168.3	228.6	312.75	110	100	150	99	9	180	279	35
EHBZ 8	45	29	219.1	304.8	414.35	150	130	180	119	9	200	319	55
EHBZ 10	70	45	273.0	381.0	517.5	175	150	200	148	9	220	368	71
EHBZ 12	105	68	323.8	457.2	619.1	175	150	200	148	9	220	368	73
EHB 14	129	83	355.6	533.4	711.2	220	200	250	180	12	250	430	150
EHB 16	129	83	406.4	609.6	812.8	220	200	250	200	12	320	520	181
EHB 18	129	83	457.2	685.8	914.4	220	200	280	220	12	320	540	190
EHB 20	129	83	508.0	762.0	1016.0	220	200	280	220	16	350	570	267
EHB 24	129	83	609.6	914.4	1219.2	280	250	300	250	16	350	600	355

For other pipe standards (JIS, API, etc.) are available on request.

ELBOW CHAIR ALLOY STEEL (TYPE : EHA , EHAZ)



SIZE RANGE

3 through 24 inch pipe outer diameter.

MATERIAL

Chromium Molybdenum Steel (ASTM A387Gr22)

FINISH

Applied STC's standard anti-corrosive paint unless otherwise specified.

SERVICE

Used for pipe support by welding to Long Elbow.

In case of Short Elbow or Bent Pipe, the dimensions will be slightly changed.

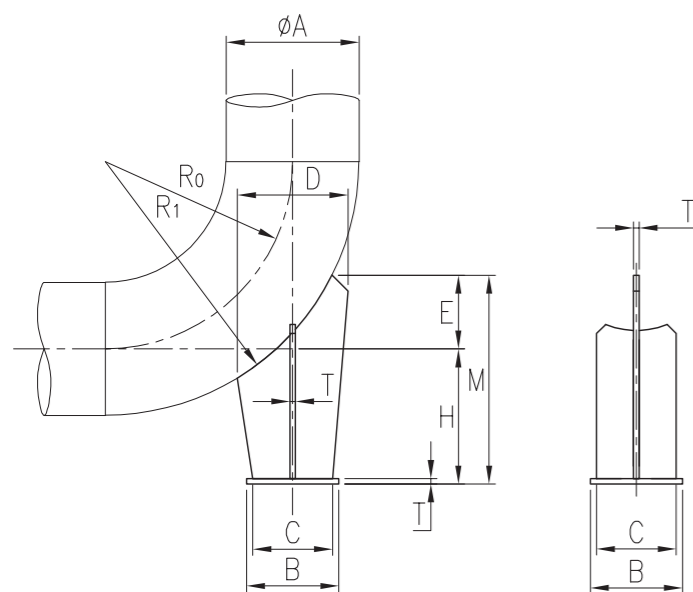
ORDERING

Specify Size No.

Ex: EHA 18 & EHAZ 10

H dimension, etc. are changeable after receiving specifications of the thickness of insulation, etc.

Ex: EHAV 4 x 250



SIZE NO.	MAX.RECOM. LOAD(KN)		PIPE DIA. ANSI A	R0	R1	B	C	D	E	T	H	M	Weight (N)
	500°C	575°C											
	EHA 3	6.1											
EHA 4	10	4.6	114.3	152.4	209.55	90	75	120	80	6	150	230	16
EHAZ 5	15	6.7	141.3	190.5	261.15	90	80	130	89	6	180	269	20
EHAZ 6	21	10	168.3	228.6	312.75	110	100	150	99	9	180	279	37
EHAZ 8	38	17	219.1	304.8	414.35	150	130	180	119	9	220	339	62
EHAZ 10	59	27	273.0	381.0	517.5	175	150	200	148	9	250	398	82
EHAZ 12	88	40	323.8	457.2	619.1	175	150	200	148	9	250	398	84
EHA 14	108	49	355.6	533.4	711.2	220	200	250	180	12	320	500	187
EHA 16	108	49	406.4	609.6	812.8	220	200	250	200	12	350	550	203
EHA 18	108	49	457.2	685.8	914.4	220	200	280	220	12	350	570	211
EHA 20	108	49	508.0	762.0	1016.0	220	200	280	220	16	370	590	290
EHA 24	108	49	609.6	914.4	1219.2	280	250	300	250	16	370	620	388

For other pipe standards (JIS, API, etc.) are available on request.

LUG PIECE CARBON STEEL (TYPE : PLGC)



SIZE RANGE

1 through 24 inch pipe outer diameter.

MATERIAL

Carbon Steel (JIS G3101 SS400)
(ASTM Equivalent A36)

FINISH

Applied STC's standard anti-corrosive paint unless otherwise specified.

SERVICE

Mainly used as a non-slip for Riser Clamp used for vertical piping.

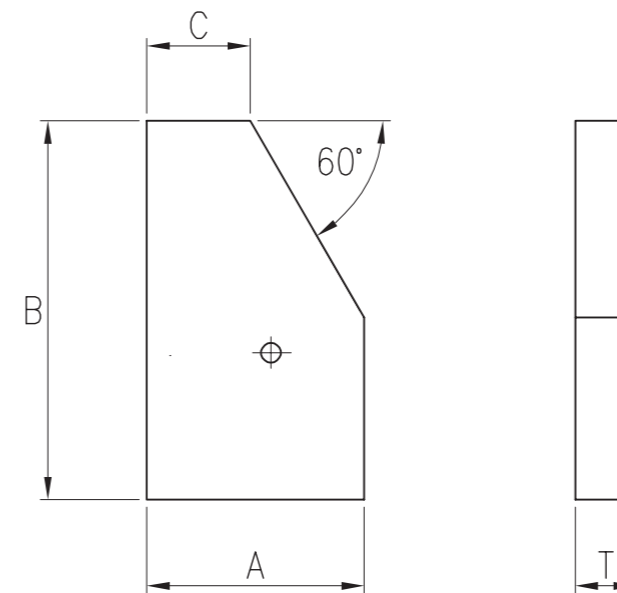
FEATURE

Providing a hole for wiring or tagging.

ORDERING

Specify Size No.

Ex: PLGC 6



SIZE NO.	MAX.RECOM. LOAD(KN) 350°C	PIPE SIZE	A	B	C	T	REQ'D PER ASBLY	LUG LOCATION	Weight (N) 1 PIECE
PLGC 1	11	33.4	30	50	15	6	4	 Fig. 1	1
PLGC 1-1/4 ~ PLGC 2	11	42.2 ~ 60.3	30	50	15	6	4		1
PLGC 2-1/2 ~ PLGC 3	16	73.0 ~ 88.9	30	50	15	9	4		1
PLGC 3-1/2 ~ PLGC 4	22	101.6 ~ 114.3	30	75	15	12	4		2
PLGC 5	22	141.3	30	75	15	12	4		2
PLGC 6	22	168.3	30	75	15	12	4		2
PLGC 8	43	219.1	50	100	20	16	4	 Fig. 2	6
PLGC 10	115	273.0	50	100	20	16	6		6
PLGC 12	115	323.8	50	100	20	16	6		6
PLGC 14	180	355.6	50	100	20	25	6		9
PLGC 16	180	406.4	50	100	20	25	6		9
PLGC 18	214	457.2	50	120	20	25	6		11
PLGC 20	214	508.0	50	120	20	25	6		11
PLGC 22	214	558.8	50	120	20	25	6		11
PLGC 24	214	609.6	50	120	20	25	6		11

LUG PIECE SB-CARBON STEEL (TYPE : PLGB)



SIZE RANGE

1 through 24 inch pipe outer diameter.

MATERIAL

Carbon Steel (JIS G3103 SB410)
(ASTM Equivalent A515Gr60)

FINISH

Applied STC's standard anti-corrosive paint unless otherwise specified.

SERVICE

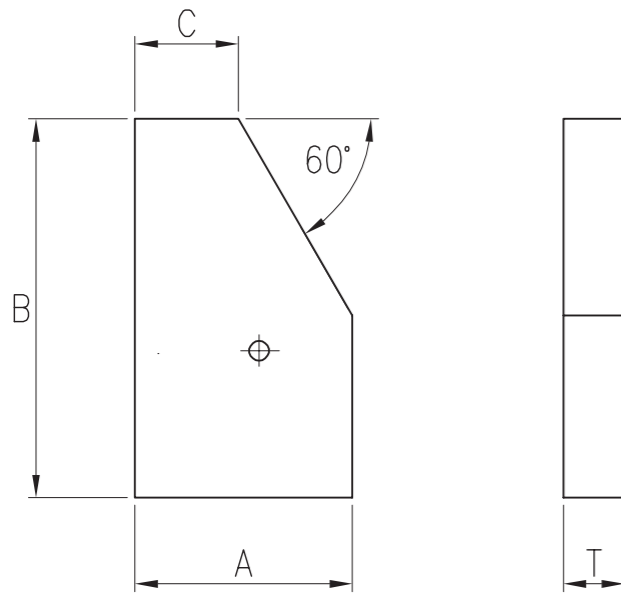
Mainly used as a non-slip for Riser Clamp used for vertical piping.

FEATURE

Providing a hole for wiring or tagging.

ORDERING

Specify Size No.
Ex: PLGB 10



(mm)

SIZE NO.	MAX. RECOM. LOAD (KN)		PIPE SIZE	A	B	C	T	REQ'D PER ASBLY	LUG LOCATION	Weight (N) 1 PIECE
	400°C	450°C								
PLGB 1	9	6	33.4	30	50	15	6	4	 Fig.1	1
PLGB 1-1/4 ~ PLGB 2	9	6	42.2 ~ 60.3	30	50	15	6	4		1
PLGB 2-1/2 PLGB 3	13	8	73.0 88.9	30	50	15	9	4		1
PLGB 3-1/2 PLGB 4"	18	11	101.6 114.3	30	75	15	12	4		2
PLGB 5	18	11	141.3	30	75	15	12	4		2
PLGB 6	18	11	168.3	30	75	15	12	4		2
PLGB 8	35	23	219.1	50	100	20	16	4	 Fig.2	6
PLGB 10	95	61	273.0	50	100	20	16	6		6
PLGB 12	95	61	323.8	50	100	20	16	6		6
PLGB 14	147	96	355.6	50	100	20	25	6		9
PLGB 16	147	96	406.4	50	100	20	25	6		9
PLGB 18	176	114	457.2	50	120	20	25	6		11
PLGB 20	176	114	508.0	50	120	20	25	6		11
PLGB 22	176	114	558.8	50	120	20	25	6		11
PLGB 24	176	114	609.6	50	120	20	25	6		11

LUG PIECE ALLOY STEEL (TYPE : PLGA)



SIZE RANGE

1 through 24 inch pipe outer diameter.

MATERIAL

Chromium Molybdenum Steel
(ASTM A387Gr22)

FINISH

Applied STC's standard anti-corrosive paint unless otherwise specified.

SERVICE

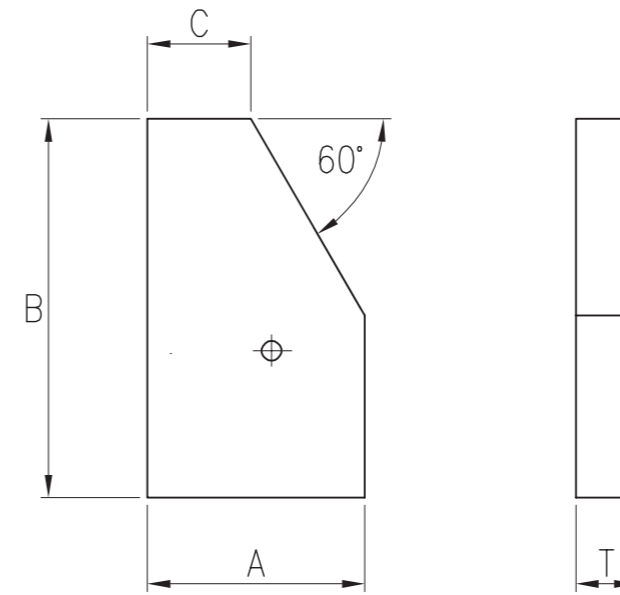
Mainly used as a non-slip for Riser Clamp used for vertical piping.

FEATURE

Providing a hole for wiring or tagging.

ORDERING

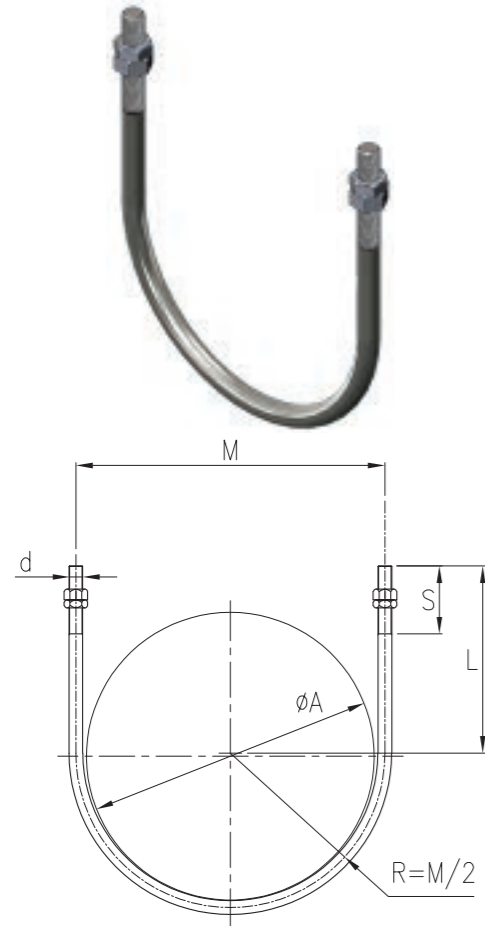
Specify Size No.
Ex: PLGA 12



(mm)

SIZE NO.	MAX. RECOM. LOAD (KN)		PIPE SIZE	A	B	C	T	REQ'D PER ASBLY	LUG LOCATION	Weight (N) 1 PIECE
	500°C	575°C								
PLGA 1	7.4	3.4	33.4	30	50	15	6	4	 Fig.1	1
PLGA 1-1/4 ~ PLGA 2	7.4	3.4	42.2 ~ 60.3	30	50	15	6	4		1
PLGA 2-1/2 PLGA 3	11	4.9	73.0 88.9	30	50	15	9	4		1
PLGA 3-1/2 PLGA 4	15	6.7	101.6 114.3	30	75	15	12	4		2
PLGA 5	15	6.7	141.3	30	75	15	12	4		2
PLGA 6	15	6.7	168.3	30	75	15	12	4		2
PLGA 8	30.0	14	219.1	50	100	20	16	4	 Fig.2	6
PLGA 10	80.0	36	273.0	50	100	20	16	6		6
PLGA 12	80.0	36	323.8	50	100	20	16	6		6
PLGA 14	125	56	355.6	50	100	20	25	6		9
PLGA 16	125	56	406.4	50	100	20	25	6		9
PLGA 18	148	67	457.2	50	120	20	25	6		11
PLGA 20	148	67	508.0	50	120	20	25	6		11
PLGA 22	148	67	558.8	50	120	20	25	6		11
PLGA 24	148	67	609.6	50	120	20	25	6		11

U-BOLT CARBON STEEL (TYPE : UBC , UBCV)



SIZE RANGE

1/2 through 24 inch pipe outer diameter.

MATERIAL

Carbon Steel(JIS G3101 SS400)
(ASTM Equivalent A36)

FINISH

Electro-plated only.

SERVICE

Used for two-way restraint up and down and guide in the direction perpendicular to the horizontal axis.

FEATURE

One pair of hex. nut and lock nut is supplied to both threads.

ORDERING

Specify Size No.

Ex: UBC 5

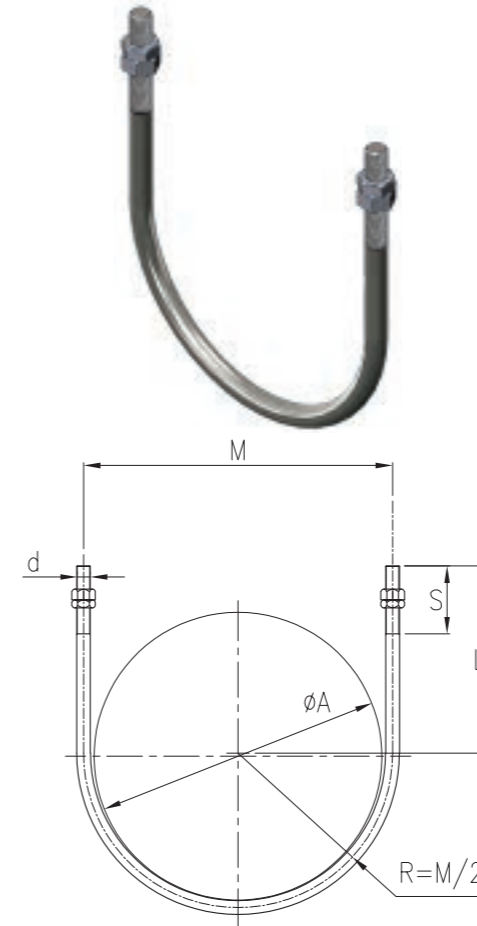
When changing dimension L, etc., those specifications are to be specified.

(mm)

SIZE NO.	PIPE DIA. ANSI A	THREAD DIA. d METRIC	M	L	S	Weight (N)
UBC 1/2	21.3	10	35	45	40	0.9
UBC 3/4	26.7	10	40	50	40	1.0
UBC 1	33.4	10	45	55	45	1.1
UBC 1-1/4	42.2	10	55	60	45	1.2
UBC 1-1/2	48.3	10	60	60	45	1.3
UBC 2	60.3	10	75	65	45	1.5
UBC 2-1/2	73.0	10	90	75	50	1.7
UBC 3	88.9	12	105	85	55	2.9
UBC 3-1/2	101.6	12	120	90	55	3.2
UBC 4	114.3	12	130	95	55	3.4
UBC 5	141.3	16	160	120	70	7.6
UBCV 6	168.3	16	190	130	70	8.5
UBCV 8	219.1	20	245	170	90	18
UBCV 10	273.0	20	300	195	90	21
UBCV 12	323.8	24	355	240	120	36
UBC 14	355.6	24	390	260	120	40
UBC 16	406.4	24	440	280	120	44
UBC 18	457.2	24	495	310	120	49
UBC 20	508.0	24	545	330	120	53
UBC 22	558.8	24	595	360	120	58
UBC 24	609.6	24	645	390	120	63

For other pipe standards (JIS, API, etc.) are available on request.

U-BOLT CARBON STEEL (TYPE : UBB , UBBV)



SIZE RANGE

1/2 through 24 inch pipe outer diameter.

MATERIAL

Carbon Steel (JIS G4051 S45C)
(ASTM Equivalent A576 Gr1045)

FINISH

Electro-plated only.

SERVICE

Used for two-way restraint up and down and guide in the direction perpendicular to the horizontal axis.

FEATURE

One pair of hex. nut and lock nut is supplied to both threads.

ORDERING

Specify Size No.

Ex: UBB 5

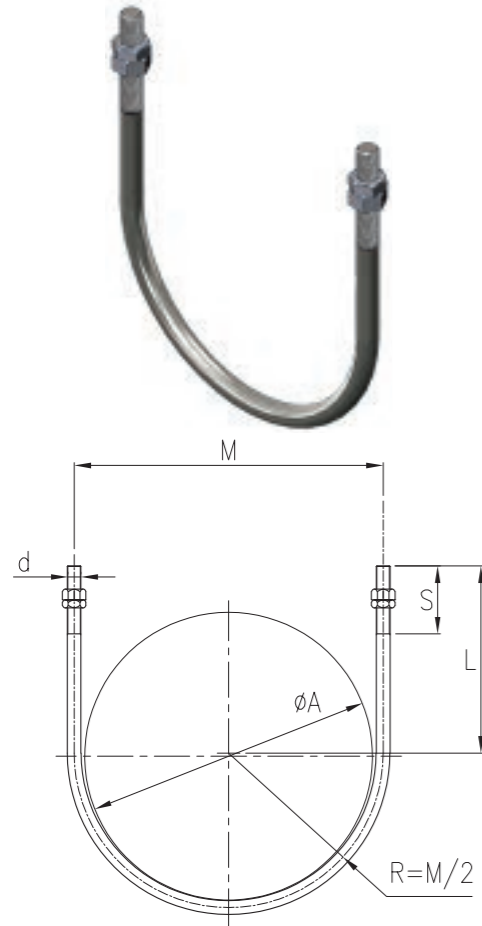
When changing dimension L, etc., those specifications are to be specified.

(mm)

SIZE NO.	PIPE DIA. ANSI A	THREAD DIA. d METRIC	M	L	S	Weight (N)
UBB 1/2	21.3	10	35	45	40	0.9
UBB 3/4	26.7	10	40	50	40	1.0
UBB 1	33.4	10	45	55	45	1.1
UBB 1-1/4	42.2	10	55	60	45	1.2
UBB 1-1/2	48.3	10	60	60	45	1.3
UBB 2	60.3	10	75	65	45	1.5
UBB 2-1/2	73.0	10	90	75	50	1.7
UBB 3	88.9	12	105	85	55	2.9
UBB 3-1/2	101.6	12	120	90	55	3.2
UBB 4	114.3	12	130	95	55	3.4
UBB 5	141.3	16	160	120	70	7.6
UBBV 6	168.3	16	190	130	70	8.5
UBBV 8	219.1	20	245	170	90	18
UBBV 10	273.0	20	300	195	90	21
UBBV 12	323.8	24	355	240	120	36
UBB 14	355.6	24	390	260	120	40
UBB 16	406.4	24	440	280	120	44
UBB 18	457.2	24	495	310	120	49
UBB 20	508.0	24	545	330	120	53
UBB 22	558.8	24	595	360	120	58
UBB 24	609.6	24	645	390	120	63

For other pipe standards (JIS, API, etc.) are available on request.

U-BOLT ALLOY STEEL (TYPE : UBA , UBAV)



SIZE RANGE

1/2 through 24 inch pipe outer diameter.

MATERIAL

Chromium Molybdenum Steel (JIS G4052 SCM435H)
(ASTM Equivalent A322Gr4137)

FINISH

- (1)Main Body: Applied STC's standard anti-corrosive paint unless otherwise specified.
- (2)Nut: Electro-plated.
- (3)Threaded portion: Applied anti-corrosive wax only.

SERVICE

Used for two-way restraint up and down and guide in the direction perpendicular to the horizontal axis.

FEATURE

One pair of hex. nut and lock nut is supplied to both threads.

ORDERING

Specify Size No.

Ex: UBA 5

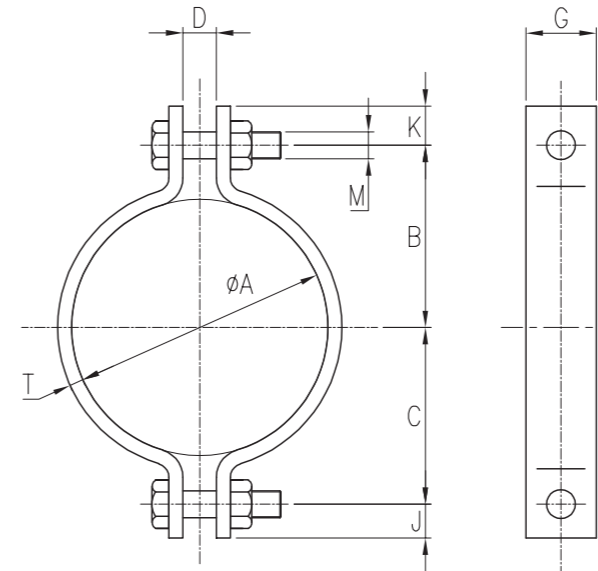
When changing dimension L, etc., those specifications are to be specified.

(mm)

SIZE NO.	PIPE DIA. ANSI A	THREAD DIA. d METRIC	M	L	S	Weight (N)
UBA 1/2	21.3	10	35	45	40	0.9
UBA 3/4	26.7	10	40	50	40	1.0
UBA 1/2	33.4	10	45	55	45	1.1
UBA 1-1/4	42.2	10	55	60	45	1.2
UBA 1-1/2	48.3	10	60	60	45	1.3
UBA 2	60.3	10	75	65	45	1.5
UBA 2-1/2	73.0	10	90	75	50	1.7
UBA 3	88.9	12	105	85	55	2.9
UBA 3-1/2	101.6	12	120	90	55	3.2
UBA 4	114.3	12	130	95	55	3.4
UBA 5	141.3	16	160	120	70	7.6
UBAV 6	168.3	16	190	130	70	8.5
UBAV 8	219.1	20	245	170	90	18
UBAV 10	273.0	20	300	195	90	21
UBAV 12	323.8	24	355	240	120	36
UBA 14	355.6	24	390	260	120	40
UBA 16	406.4	24	440	280	120	44
UBA 18	457.2	24	495	310	120	49
UBA 20	508.0	24	545	330	120	53
UBA 22	558.8	24	595	360	120	58
UBA 24	609.6	24	645	390	120	63

For other pipe standards (JIS, API, etc.) are available on request.

PIPE CLAMP LIGHT DUTY TWO-BOLT (TYPE : PCSC-L , PCSCV-L , PCSCZ-L)



SIZE RANGE

1 through 24 inch pipe outer diameter.

MATERIAL

- (1)Clamp plate: Carbon steel (JIS G3101 SS400)
(ASTM Equivalent A36)
- (2)Hex Bolts, nuts: Carbon steel (JIS G3101 SS400)
(ASTM Equivalent A307 Gr.B & A563 Gr.A)

FINISH

- (1)Clamp plate: Applied STC's standard anti-corrosive paint unless otherwise specified.
- (2)Hex bolts, nuts: Electro-plated.

SERVICE

Used for non-insulated pipe when the load is light.

ORDERING

Specify Size No.

Ex: PCSC 4L

When changing dimension B, etc., those specifications are to be specified.

(mm)

SIZE NO.	MAX.RECOM. LOAD (KN) 350°C	PIPE DIA. ANSI A	B	C	D	J	K	Standard Plate Size TxG	M	Weight (N)
PCSC 1L	3.3	33.4	35	35	20	15	16	6x32	12	5
PCSC 1-1/4L	3.3	42.2	45	45	25	15	16	6x32	12	6
PCSC 1-1/2L	3.3	48.3	50	50	25	15	16	6x32	12	6
PCSC 2L	3.3	60.3	55	50	25	15	16	6x32	12	6
PCSCV 2-1/2L	3.3	73.0	70	60	25	15	16	6x32	12	7
PCSC 3L	3.3	88.9	85	70	25	15	16	6x32	12	8
PCSCZ 3-1/2L	6.1	101.6	90	85	30	22	28	9x50	16	21
PCSC 4L	9.6	114.3	100	95	30	22	28	9x50	20	25
PCSCZ 5L	9.6	141.3	115	110	30	22	28	9x50	20	28
PCSCV 6L	11	168.3	135	125	35	30	35	9x65	24	45
PCSCZ 8L	11	219.1	165	155	35	30	35	9x65	24	52
PCSCZ 10L	14	273.0	200	195	35	30	40	12x75	30	97
PCSCV 12L	14	323.8	240	220	50	30	40	12x75	30	112
PCSC 14L	22	355.6	255	240	50	40	50	16x90	30	180
PCSC 16L	22	406.4	290	270	50	40	50	16x90	30	201
PCSC 18L	22	457.2	310	290	50	40	50	16x90	30	216
PCSC 20L	29	508.0	350	330	60	45	55	19x100	36	327
PCSC 22L	29	558.8	375	350	60	45	55	19x100	36	348
PCSC 24L	29	609.6	410	390	60	45	55	19x100	36	378

For other pipe standards (JIS, API, etc.) are available on request.

PIPE CLAMP HEAVY DUTY TWO-BOLT (TYPE : PCSC-H , PCSCZ-H)



SIZE RANGE

6 through 24 inch pipe outer diameter.

MATERIAL

- (1)Clamp plate: Carbon steel (JIS G3101 SS400) (ASTM Equivalent A36)
- (2)Hex Bolts, nuts: Carbon steel (JIS G3101 SS400) (ASTM Equivalent A307 Gr.B & A563 Gr.A)

FINISH

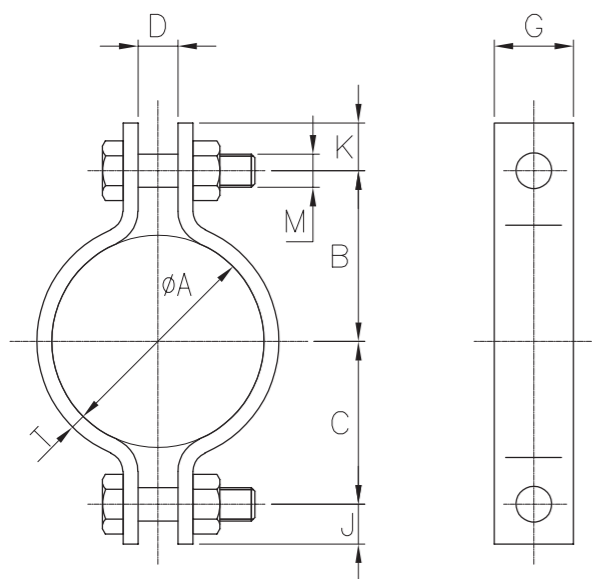
- (1)Clamp plate: Applied STC's standard anti-corrosive paint unless otherwise specified.
- (2)Hex bolts, nuts: Electro-plated.

SERVICE

Used for non-insulated pipe when the load is heavy.

ORDERING

Specify Size No.
Ex: PCSC 18H
When changing dimension B, etc., those specifications are to be specified.



(mm)

SIZE NO.	MAX.RECOM. LOAD (KN) 350°C	PIPE DIA. ANSI A	B	C	D	Standard Plate Size TxG	J	K	M	Weight (N)
PCSCZ 6H	25	168.3	150	140	45	12x100	50	60	36	118
PCSCZ 8H	25	219.1	180	170	45	12x100	50	60	36	133
PCSCZ 10H	41	273.0	215	215	50	19x100	50	60	42	236
PCSCZ 12H	41	323.8	250	245	50	19x100	50	60	42	263
PCSC 14H	64	355.6	270	260	60	25x125	60	70	48	455
PCSC 16H	64	406.4	300	290	60	25x125	60	70	48	497
PCSC 18H	64	457.2	325	315	60	25x125	60	70	48	534
PCSC 20H	71	508.0	360	350	60	25x125	60	70	48	581
PCSC 22H	98	558.8	400	390	70	32x150	70	80	* 56	1006
PCSC 24H	98	609.6	430	415	70	32x150	70	80	* 56	1066

For other pipe standards (JIS, API, etc.) are available on request. * Stud bolt

PIPE CLAMP LIGHT DUTY THREE-BOLT CARBON STEEL (TYPE : PCDC-L , PCDCV-L , PCDCZ-L)



SIZE RANGE

1 through 24 inch pipe outer diameter.

MATERIAL

- (1)Clamp plate, pin: Carbon steel (JIS G3101 SS400) (ASTM Equivalent A36)
- (2)Hex Bolts, nuts: Carbon steel (JIS G3101 SS400) (ASTM Equivalent A307 Gr.B & A563 Gr.A)

FINISH

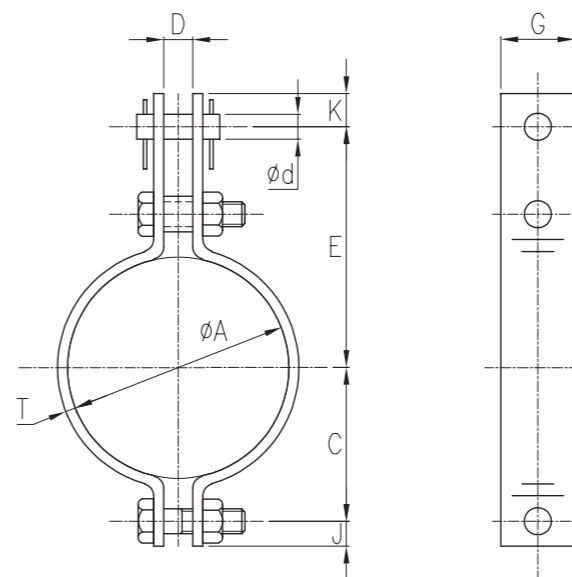
- (1)Clamp plate: Applied STC's standard anti-corrosive paint unless otherwise specified.
- (2)Hex bolts, nuts, and pin: Electro-plated.

SERVICE

Used for insulated pipe when the load is light.

ORDERING

Specify Size No.
Ex: PCDC 4L
When changing dimension E, etc., those specifications are to be specified.

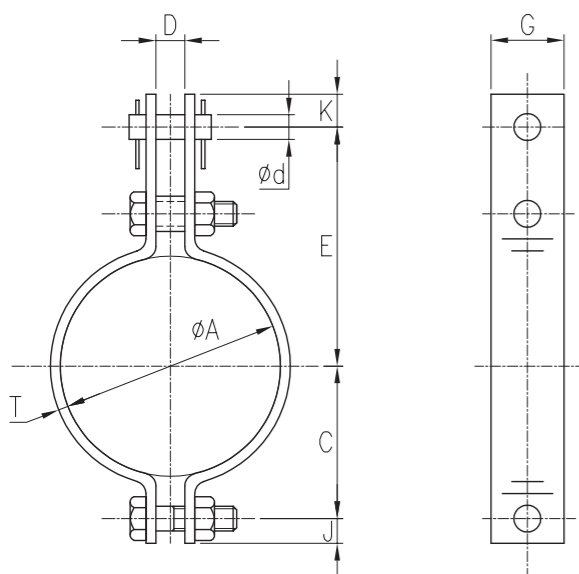


(mm)

SIZE NO.	MAX.RECOM. LOAD (KN) 350°C	PIPE DIA. ANSI A	C	D	E	J	K	Standard Plate Size TxG	d	Weight (N)
PCDC 1L	3.3	33.4	35	20	90	15	16	6x32	12	7
PCDC 1-1/4L	3.3	42.2	45	25	105	15	16	6x32	12	8
PCDC 1-1/2L	3.3	48.3	50	25	115	15	16	6x32	12	9
PCDC 2L	3.3	60.3	50	25	120	15	16	6x32	12	9
PCDCV 2-1/2L	3.3	73.0	60	25	130	15	16	6x32	12	10
PCDC 3L	3.3	88.9	70	25	150	15	16	6x32	12	11
PCDCZ 3-1/2L	6.1	101.6	85	30	160	22	28	9x50	16	27
PCDC 4L	9.6	114.3	95	30	170	22	28	9x50	20	32
PCDCZ 5L	9.6	141.3	110	30	185	22	28	9x50	20	35
PCDCV 6L	11	168.3	125	35	215	30	35	9x65	24	55
PCDCZ 8L	11	219.1	155	35	260	30	35	9x65	24	63
PCDCZ 10L	14	273.0	195	35	290	30	40	12x75	30	114
PCDCV 12L	14	323.8	220	50	325	30	40	12x75	30	128
PCDC 14L	22	355.6	240	50	370	40	50	16x90	30	214
PCDC 16L	22	406.4	270	50	400	40	50	16x90	30	234
PCDC 18L	22	457.2	290	50	420	40	50	16x90	30	249
PCDC 20L	29	508.0	330	60	470	45	55	19x100	36	370
PCDC 22L	29	558.8	355	60	500	45	55	19x100	36	394
PCDC 24L	29	609.6	390	60	530	45	55	19x100	36	422

For other pipe standards (JIS, API, etc.) are available on request.

PIPE CLAMP HEAVY DUTY THREE-BOLT CARBON STEEL
(TYPE : PCDC-H , PCDCZ-H)



SIZE RANGE

6 through 24 inch pipe outer diameter.

MATERIAL

- (1) Clamp plate, pin: Carbon steel (JIS G3101 SS400)
(ASTM Equivalent A36)
- (2) Hex Bolts, nuts: Carbon steel (JIS G3101 SS400)
(ASTM Equivalent A307 Gr.B & A563 Gr.A)

FINISH

- (1) Clamp plate: Applied STC's standard anti-corrosive paint unless otherwise specified.
- (2) Hex bolts, nuts, and pin: Electro-plated.

SERVICE

Used for insulated pipe when the load is heavy.

ORDERING

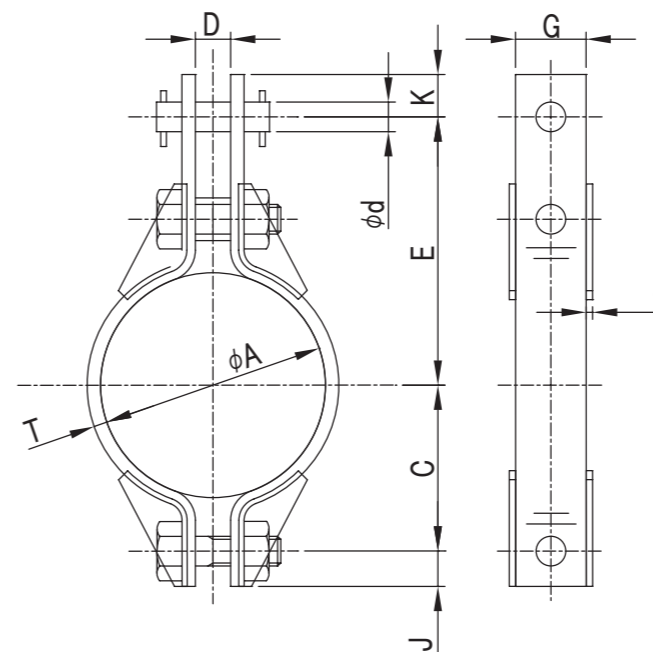
Specify Size No.
Ex: PCDC 20H
When changing dimension E, etc., those specifications are to be specified.

(mm)

SIZE NO.	MAX.RECOM. LOAD (KN) 350°C	PIPE DIA. ANSI A	C	D	E	J	K	Standard Plate Size TxG	d	Weight (N)
PCDCZ 6H	25	168.3	140	45	250	50	60	12x100	36	139
PCDCZ 8H	25	219.1	170	45	280	50	60	12x100	36	154
PCDCZ 10H	41	273.0	215	50	340	50	60	19x100	42	279
PCDCZ 12H	41	323.8	245	50	380	50	60	19x100	42	308
PCDC 14H	64	355.6	260	60	410	60	70	25x125	50	537
PCDC 16H	64	406.4	290	60	440	60	70	25x125	50	578
PCDC 18H	64	457.2	315	60	470	60	70	25x125	50	618
PCDC 20H	71	508.0	350	60	520	60	70	25x125	50	672
PCDC 22H	98	558.8	390	70	550	70	80	32x150	60	1151
PCDC 24H	98	609.6	415	70	590	70	80	32x150	60	1219

For other pipe standards (JIS, API, etc.) are available on request.

PIPE CLAMP ULTRA-HEAVY DUTY THREE-BOLT CARBON STEEL
(TYPE : PCDC-G , PCDCZ-G)



SIZE RANGE

6 through 24 inch pipe outer diameter.

MATERIAL

- (1) Clamp plate, Pin: Carbon steel (JIS G3101 SS400)
(ASTM Equivalent A36)
- (2) Hex. Bolts, nuts: Carbon steel (JIS G3101 SS400)
(ASTM Equivalent A307 Gr.B & A563 Gr.A)

FINISH

- (1) Clamp plate: Applied STC's standard anti-corrosive paint unless otherwise specified.
- (2) Hex. bolts, nuts and pin: Electro-plated.

SERVICE

Used for insulated pipe when the load is ultra-heavy.

ORDERING

Specify Size No.
Ex: PCDC 24G
When changing dimension E, etc., those specifications are to be specified.

(mm)

SIZE NO.	MAX.RECOM. LOAD (KN) 350°C	PIPE DIA. ANSI A	C	D	E	J	K	Standard Plate Size TxG	phi d	t	Weight (N)
PCDCZ 6G	62	168.3	135	45	240	50	60	9x100	36	6	127
PCDCZ 8G	62	219.1	160	45	270	50	60	9x100	36	6	137
PCDCZ 10G	89	273.0	200	50	330	45	60	12x100	42	9	206
PCDCZ 12G	89	323.8	225	50	360	50	60	12x100	42	9	225
PCDC 14G	111	355.6	250	60	400	60	70	16x125	50	9	392
PCDC 16G	111	406.4	280	60	430	60	70	16x125	50	9	422
PCDC 18G	111	457.2	305	60	450	55	70	16x125	50	9	441
PCDC 20G	111	508.0	340	60	500	60	70	19x125	50	12	559
PCDC 22G	152	558.8	370	70	540	70	80	19x150	60	12	765
PCDC 24G	152	609.6	400	70	570	70	80	19x150	60	12	804

For other pipe standards (JIS, API, etc.) are available on request.

PIPE CLAMP LIGHT DUTY THREE-BOLT SB CARBON STEEL
(TYPE : PCDB-L , PCDBV-L , PCDBZ-L)



SIZE RANGE

1 through 24 inch pipe outer diameter.

MATERIAL

- (1) Clamp plate: Carbon steel (JIS G3103 SB410)
(ASTM Equivalent A515 Gr60)
- (2) Stud Bolts, nuts: Carbon steel (JIS G4051 S45C)
(ASTM Equivalent A576 Gr1045)
- (3) Pin: Carbon steel (JIS G3101 SS400)
(ASTM Equivalent A36)

FINISH

- (1) Clamp plate: Applied STC's standard anti-corrosive paint unless otherwise specified.
- (2) Stud bolts, nuts, and pin: Electro-plated.

SERVICE

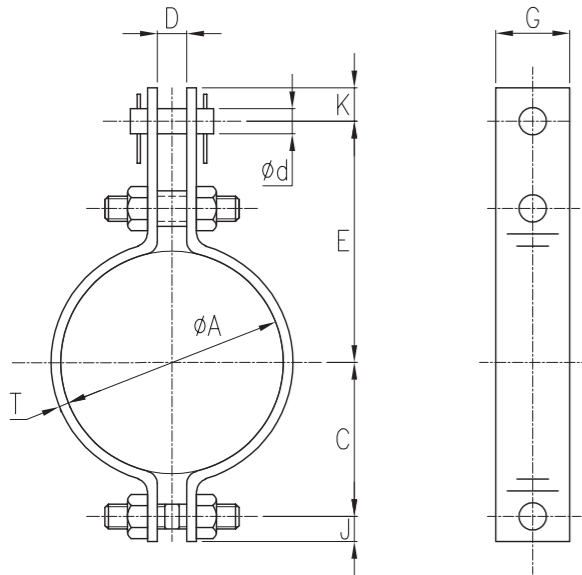
Used for insulated pipe when the load is light.

ORDERING

Specify Size No.

Ex: PCDB 4L

When changing dimension E, etc., those specifications are to be specified.



(mm)

SIZE NO.	MAX.RECOM. LOAD (KN)		PIPE DIA. ANSI A	C	D	E	J	K	Standard Plate Size TxG	d	Weight (N)
	400°C	450°C									
PCDB 1L	2.7	1.7	33.4	35	20	90	15	16	6x32	12	8
PCDB 1-1/4L	2.7	1.7	42.2	45	25	105	15	16	6x32	12	9
PCDB 1-1/2L	2.7	1.7	48.3	50	25	115	15	16	6x32	12	9
PCDB 2L	2.7	1.7	60.3	50	25	120	15	16	6x32	12	9
PCDBV 2-1/2L	2.7	1.7	73.0	60	25	130	15	16	6x32	12	10
PCDB 3L	2.7	1.7	88.9	70	25	150	15	16	6x32	12	11
PCDBZ 3-1/2L	5	3.2	101.6	85	30	160	22	28	9x50	16	28
PCDB 4L	7.9	5.1	114.3	95	30	170	22	28	9x50	20	33
PCDBZ 5L	7.9	5.1	141.3	110	30	185	22	28	9x50	20	36
PCDBV 6L	9.2	6	168.3	125	35	215	30	35	9x65	24	57
PCDBZ 8L	9.2	6	219.1	155	35	260	30	35	9x65	24	66
PCDBZ 10L	11	7.3	273.0	195	35	290	30	40	12x75	30	119
PCDBV 12L	11	7.3	323.8	220	50	325	30	40	12x75	30	133
PCDB 14L	18	11	355.6	240	50	370	40	50	16x90	30	219
PCDB 16L	18	11	406.4	270	50	400	40	50	16x90	30	238
PCDB 18L	18	11	457.2	290	50	420	40	50	16x90	30	253
PCDB 20L	24	15	508.0	330	60	470	45	55	19x100	36	376
PCDB 22L	24	15	558.8	355	60	500	45	55	19x100	36	401
PCDB 24L	24	15	609.6	390	60	530	45	55	19x100	36	428

For other pipe standards (JIS, API, etc.) are available on request.

PIPE CLAMP HEAVY DUTY THREE-BOLT SB-CARBON STEEL
(TYPE : PCDB-H , PCDBZ-H)



SIZE RANGE

6 through 24 inch pipe outer diameter.

MATERIAL

- (1) Clamp plate: Carbon steel (JIS G3103 SB410)
(ASTM Equivalent A515 Gr60)
- (2) Stud Bolts, nuts: Carbon steel (JIS G4051 S45C)
(ASTM Equivalent A576 Gr1045)
- (3) Pin: Carbon steel (JIS G3101 SS400)
(ASTM Equivalent A36)

FINISH

- (1) Clamp plate: Applied STC's standard anti-corrosive paint unless otherwise specified.
- (2) Stud bolts, nuts, and pin: Electro-plated.

SERVICE

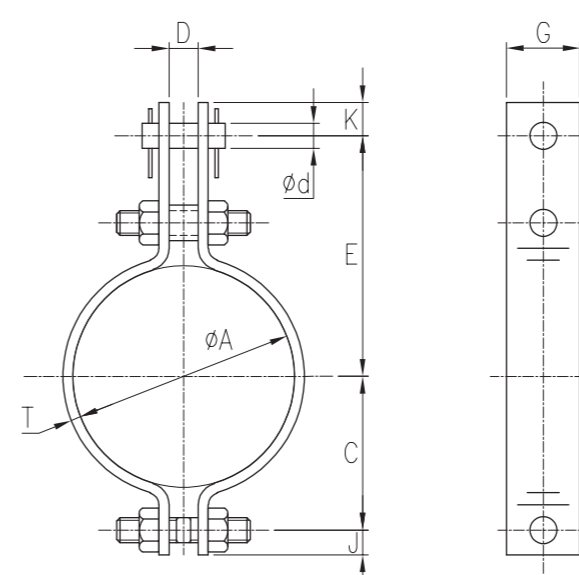
Used for insulated pipe when the load is heavy.

ORDERING

Specify Size No.

Ex: PCDB 14H

When changing dimension E, etc., those specifications are to be specified.



(mm)

SIZE NO.	MAX. RECOM. LOAD.(KN)		PIPE DIA. ANSI A	C	D	E	J	K	Standard Plate Size TxG	d	Weight (N)
	400°C	450°C									
PCDBZ 6H	20	13	168.3	140	45	250	50	60	12x100	36	149
PCDBZ 8H	20	13	219.1	170	45	280	50	60	12x100	36	164
PCDBZ 10H	34	22	273.0	215	50	340	50	60	19x100	42	297
PCDBZ 12H	34	22	323.8	245	50	380	50	60	19x100	42	325
PCDB 14H	52	34	355.6	260	60	410	60	70	25x125	50	559
PCDB 16H	52	34	406.4	290	60	440	60	70	25x125	50	601
PCDB 18H	52	34	457.2	315	60	470	60	70	25x125	50	640
PCDB 20H	58	37	508.0	350	60	520	60	70	25x125	50	694
PCDB 22H	80	52	558.8	390	70	550	70	80	32x150	60	1150
PCDB 24H	80	52	609.6	415	70	590	70	80	32x150	60	1219

For other pipe standards (JIS, API, etc.) are available on request.

PIPE CLAMP **ULTRA-HEAVY DUTY THREE-BOLT SB CARBON STEEL**
(TYPE : PCDB-G , PCDBZ-G)



SIZE RANGE

6 through 24 inch pipe outer diameter.

MATERIAL

- (1) Clamp plate: Carbon steel (JIS G3103 SB410)
(ASTM Equivalent A515 Gr60)
- (2) Stud Bolts, nuts: Carbon steel (JIS G4052 S45C)
(ASTM Equivalent A576 Gr1045)
- (3) Pin: Carbon Steel (JIS G3101 SS400)
(ASTM Equivalent A36)

FINISH

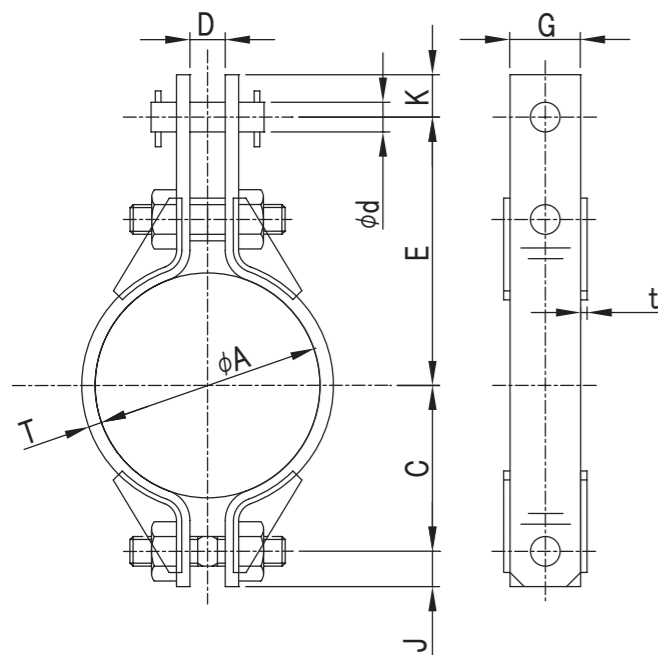
- (1) Clamp plate: Applied STC's standard anti-corrosive paint unless otherwise specified.
- (2) Stud bolts, nuts and pin: Electro-plated.

SERVICE

Used for insulated pipe when the load is ultra-heavy.

ORDERING

Specify Size No.
Ex: PCDB 24G
When changing dimension E, etc., those specifications are to be specified.



SIZE NO.	MAX. RECOM. LOAD.(KN)		PIPE DIA. ANSI A	C	D	E	J	K	Standard Plate Size TxG	φ d	t	Weight (N)
	400°C	450°C										
	PCDBZ 6G	51										
PCDBZ 8G	51	33	219.1	160	45	270	62	60	9x100	36	6	137
PCDBZ 10G	73	47	273.0	200	50	330	60	60	12x100	42	9	206
PCDBZ 12G	73	47	323.8	225	50	360	65	60	12x100	42	9	225
PCDB 14G	91	59	355.6	250	60	400	75	70	16x125	50	9	392
PCDB 16G	91	59	406.4	280	60	430	75	70	16x125	50	9	422
PCDB 18G	91	59	457.2	305	60	450	70	70	16x125	50	9	441
PCDB 20G	91	59	508.0	340	60	500	75	70	19x125	50	12	559
PCDB 22G	124	80	558.8	370	70	540	85	80	19x150	60	12	765
PCDB 24G	124	80	609.6	400	70	570	85	80	19x150	60	12	804

For other pipe standards (JIS, API, etc.) are available on request.

PIPE CLAMP **LIGHT DUTY THREE-BOLT ALLOY STEEL**
(TYPE : PCDA-L , PCDAV-L , PCDAZ-L)



SIZE RANGE

1 through 24 inch pipe outer diameter.

MATERIAL

- (1) Clamp plate: Chromium Molybdenum steel
(ASTM A387 Gr22)
- (2) Stud Bolts, nuts: Chromium Molybdenum steel
(JIS G4052 SCM435H)
(ASTM Equivalent A322 Gr4137)
- (3) Pin: Carbon steel (JIS G3101 SS400)
(ASTM Equivalent A36)

FINISH

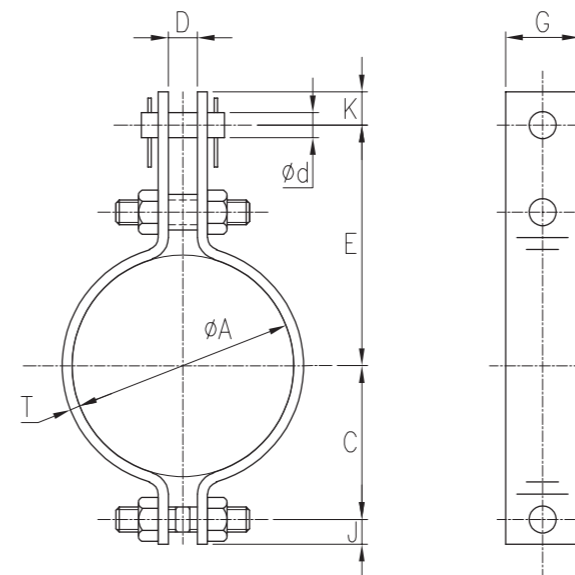
- (1) Clamp plate, stud bolts, nuts: Applied STC's standard anti-corrosive paint unless otherwise specified.
- (2) Pin: Electro-plated.

SERVICE

Used for insulated pipe when the load is light.

ORDERING

Specify Size No.
Ex: PCDA 4L
When changing dimension E, etc., those specifications are to be specified.



SIZE NO.	MAX.RECOM. LOAD (KN)		PIPE DIA. ANSI A	C	D	E	J	K	Standard Plate Size TxG	d	Weight (N)
	500°C	575°C									
	PCDA 1L	2.3									
PCDA 1-1/4L	2.3	1	42.2	45	25	125	15	16	6x32	12	9
PCDA 1-1/2L	2.3	1	48.3	50	25	135	15	16	6x32	12	10
PCDA 2L	2.3	1	60.3	50	25	145	15	16	6x32	12	10
PCDAV 2-1/2L	2.3	1	73.0	60	25	165	15	16	6x32	12	11
PCDA 3L	2.3	1	88.9	70	25	175	15	16	6x32	12	12
PCDAZ 3-1/2L	4.2	1.9	101.6	85	30	185	22	28	9x50	16	29
PCDA 4L	6.6	3	114.3	95	30	195	22	28	9x50	20	35
PCDAZ 5L	6.6	3	141.3	110	30	225	22	28	9x50	20	39
PCDAV 6L	7.8	3.5	168.3	125	35	250	30	35	9x65	24	60
PCDAZ 8L	7.8	3.5	219.1	155	35	280	30	35	9x65	24	67
PCDAZ 10L	9.5	4.3	273.0	195	35	340	30	40	12x75	30	126
PCDAV 12L	9.5	4.3	323.8	220	50	380	30	40	12x75	30	140
PCDA 14L	15	6.7	355.6	240	50	410	40	50	16x90	30	227
PCDA 16L	15	6.7	406.4	270	50	440	40	50	16x90	30	247
PCDA 18L	15	6.7	457.2	290	50	470	40	50	16x90	30	264
PCDA 20L	23	9.1	508.0	330	60	520	45	55	19x100	36	391
PCDA 22L	23	9.1	558.8	355	60	550	45	55	19x100	36	415
PCDA 24L	23	9.1	609.6	390	60	590	45	55	19x100	36	445

For other pipe standards (JIS, API, etc.) are available on request.

PIPE CLAMP HEAVY DUTY THREE-BOLT ALLOY STEEL
(TYPE : PCDA-H , PCDAZ-H)



SIZE RANGE

6 through 24 inch pipe outer diameter.

MATERIAL

- (1) Clamp plate: Chromium Molybdenum steel (ASTM A387 Gr22)
- (2) Stud Bolts, nuts: Chromium Molybdenum steel (JIS G4052 SCM435H) (ASTM Equivalent A322 Gr4137)
- (3) Pin: Carbon steel (JIS G3101 SS400) (ASTM Equivalent A36)

FINISH

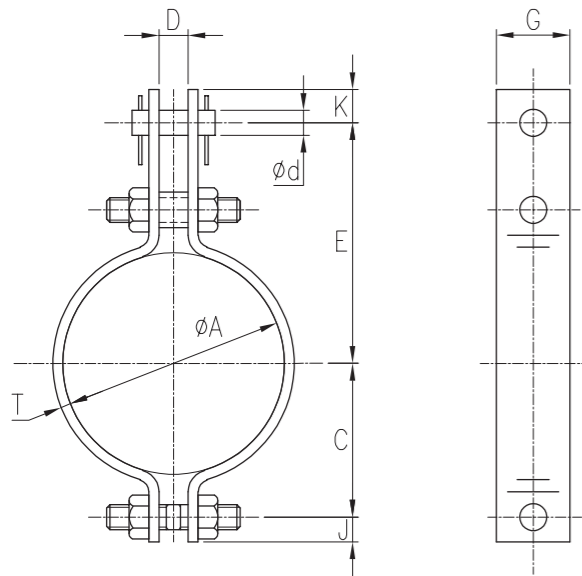
- (1) Clamp plate, stud bolts, nuts: Applied STC's standard anti-corrosive paint unless otherwise specified.
- (2) Pin: Electro-plated.

SERVICE

Used for insulated pipe when the load is heavy.

ORDERING

Specify Size No.
Ex: PCDA 24H
When changing dimension E, etc., those specifications are to be specified.



PIPE CLAMP ULTRA-HEAVY DUTY THREE-BOLT ALLOY STEEL
(TYPE : PCDA-G , PCDAZ-G)



SIZE RANGE

6 through 24 inch pipe outer diameter.

MATERIAL

- (1) Clamp plate: Chromium Molybdenum steel (ASTM A387 Gr22)
- (2) Stud Bolts, nuts: Chromium Molybdenum steel (JIS G4052 SCM435H) (ASTM Equivalent A322 Gr4137)
- (3) Pin: Carbon Steel (JIS G3101 SS400) (ASTM Equivalent A36)

FINISH

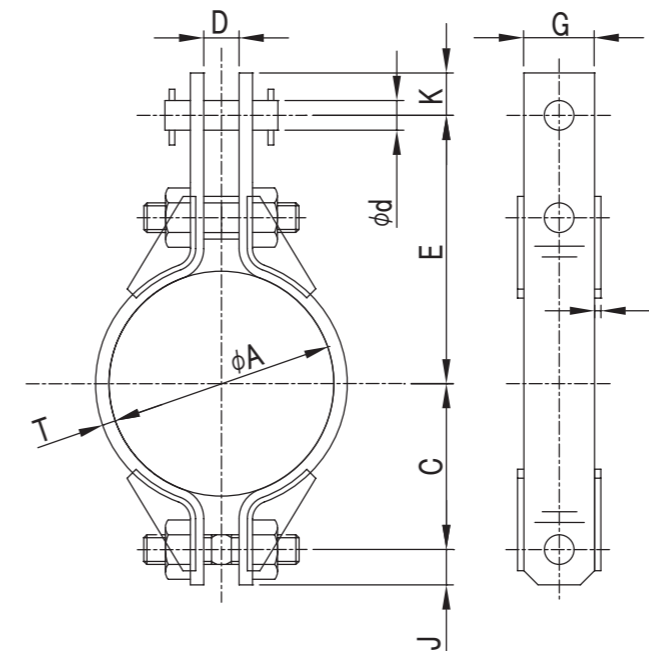
- (1) Clamp plate, stud bolts, nuts: Applied STC's standard anti-corrosive paint unless otherwise specified.
- (2) Pin: Electro-plated.

SERVICE

Used for insulated pipe when the load is ultra-heavy.

ORDERING

Specify Size No.
Ex: PCDA 24G
When changing dimension E, etc., those specifications are to be specified.



(mm)

SIZE NO.	MAX. RECOM. LOAD.(KN)		PIPE DIA. ANSI A	C	D	E	J	K	Standard Plate Size TxG	d	Weight (N)
	500°C	575°C									
PCDAZ 6H	17	7.7	168.3	140	45	250	50	60	12x100	36	149
PCDAZ 8H	17	7.7	219.1	170	45	280	50	60	12x100	36	163
PCDAZ 10H	28	13	273.0	215	50	340	50	60	19x100	42	297
PCDAZ 12H	28	13	323.8	245	50	380	50	60	19x100	42	325
PCDA 14H	44	20	355.6	260	60	410	60	70	25x125	50	558
PCDA 16H	44	20	406.4	290	60	440	60	70	25x125	50	600
PCDA 18H	44	20	457.2	315	60	470	60	70	25x125	50	640
PCDA 20H	49	22	508.0	350	60	520	60	70	25x125	50	694
PCDA 22H	68	31	558.8	390	70	550	70	80	32x150	60	1150
PCDA 24H	68	31	609.6	415	70	590	70	80	32x150	60	1218

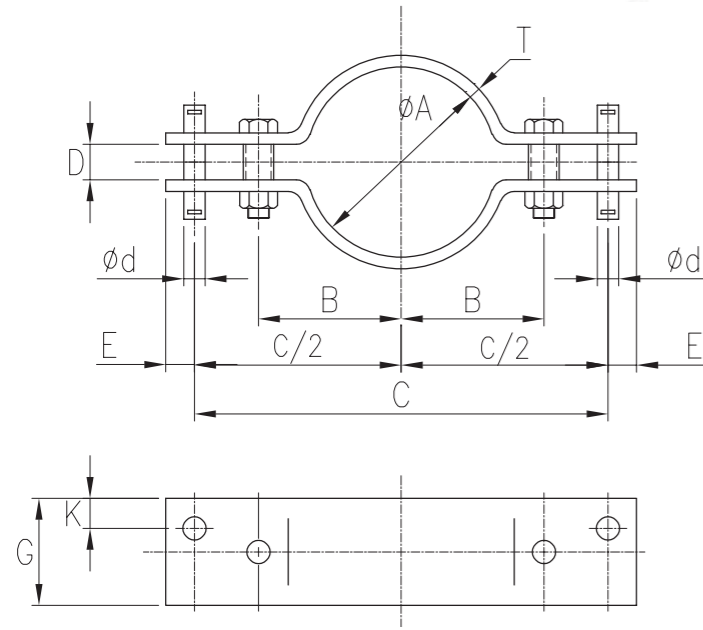
For other pipe standards (JIS, API, etc.) are available on request.

(mm)

SIZE NO.	MAX. RECOM. LOAD.(KN)				PIPE DIA. ANSI A	C	D	E	J	K	Standard Plate Size TxG	phi d	t	Weight (N)
	500°C	525°C	550°C	575°C										
PCDAZ 6G	43	33	25	19	168.3	135	45	240	62	60	9x100	36	6	127
PCDAZ 8G	43	33	25	19	219.1	160	45	270	62	60	9x100	36	6	137
PCDAZ 10G	61	48	36	27	273.0	200	50	330	60	60	12x100	42	9	206
PCDAZ 12G	61	48	36	27	323.8	225	50	360	65	60	12x100	42	9	225
PCDA 14G	77	60	45	34	355.6	250	60	400	75	70	16x125	50	9	392
PCDA 16G	77	60	45	34	406.4	280	60	430	75	70	16x125	50	9	422
PCDA 18G	77	60	45	34	457.2	305	60	450	70	70	16x125	50	9	441
PCDA 20G	77	60	45	34	508.0	340	60	500	75	70	19x125	50	12	559
PCDA 22G	104	82	61	47	558.8	370	70	540	85	80	19x150	60	12	765
PCDA 24G	104	82	61	47	609.6	400	70	570	85	80	19x150	60	12	804

For other pipe standards (JIS, API, etc.) are available on request.

RISER CLAMP CARBON STEEL (TYPE : PCRC , PCRCZ)



SIZE RANGE

1 through 24 inch pipe outer diameter.

MATERIAL

- (1) Clamp plate, pin: Carbon steel (JIS G3101 SS400) (ASTM Equivalent A36)
- (2) Hex Bolts, nuts: Carbon steel (JIS G3101 SS400) (ASTM Equivalent A307 Gr.B & A563 Gr.A)

FINISH

- (1) Clamp plate: Applied STC's standard anti-corrosive paint unless otherwise specified.
- (2) Hex bolts, nuts, and pin: Electro-plated.

SERVICE

Used for insulated vertical piping in combination with Lug Pieces (PLGC) on page 66.

ORDERING

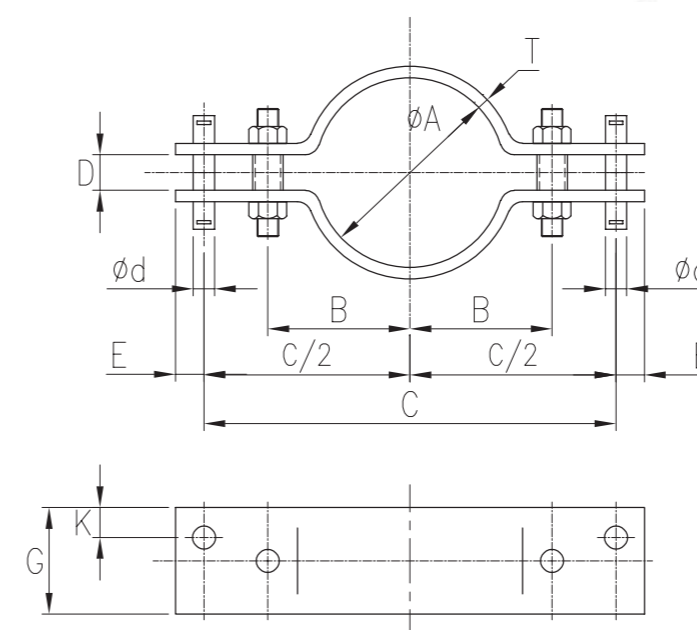
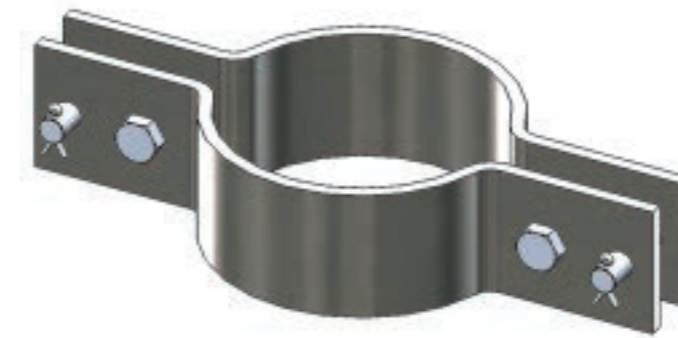
Specify Size No. and dimension "C" (Rod span)
Ex: PCRC 14 x 1000 & PCRCZ 6 x 800

(mm)

SIZE NO.	MAX. RECOM. LOAD.(KN) 350°C	PIPE DIA. ANSI" A	B	C		D	E	K	Standard Plate Size TxG	d	Weight (N) C.MIN
				MIN.	MAX.						
PCRC 1	3.4	33.4	35	160	400	20	20	25	6x50	12	13
PCRC 1-1/4	3.9	42.2	45	180	600	25	20	25	6x65	12	17
PCRC 1-1/2	3.9	48.3	50	190	600	25	20	25	6x65	12	18
PCRC 2	3.9	60.3	55	200	600	25	25	25	6x65	12	19
PCRCZ 2-1/2	5.4	73.0	70	240	600	25	25	25	6x75	16	27
PCRC 3	5.4	88.9	85	270	600	25	25	25	6x75	16	30
PCRC 3-1/2	5.4	101.6	90	280	600	25	25	25	6x75	16	31
PCRC 4	5.9	114.3	100	340	800	30	35	37.5	9x75	20	56
PCRCZ 5	5.9	141.3	115	360	800	30	35	37.5	9x75	20	59
PCRCZ 6	11	168.3	135	420	800	30	35	50	9x100	24	93
PCRCZ 8	24	219.1	165	520	800	35	35	62.5	12x125	30	183
PCRCZ 10	31	273.0	200	580	1000	50	40	75	16x150	30	314
PCRCZ 12	31	323.8	240	660	1000	50	40	75	16x150	30	353
PCRC 14	36	355.6	255	700	1000	50	50	75	16x150	36	401
PCRC 16	36	406.4	290	780	1000	50	50	75	16x150	36	441
PCRC 18	43	457.2	310	820	1000	50	50	75	19x150	36	540
PCRC 20	54	508.0	350	900	1400	60	55	100	19x200	42	795
PCRC 22	54	558.8	370	940	1400	60	55	100	19x200	42	835
PCRC 24	54	609.6	410	1020	1400	60	55	100	19x200	42	898

For other pipe standards (JIS, API, etc.) are available on request.

RISER CLAMP SB-CARBON STEEL (TYPE : PCRB , PCRBZ)



SIZE RANGE

1 through 24 inch pipe outer diameter.

MATERIAL

- (1) Clamp plate: Carbon steel (JIS G3103 SB410) (ASTM Equivalent A515 Gr60)
- (2) Stud Bolts, nuts: Carbon steel (JIS G4051 S45C) (ASTM Equivalent A576 Gr1045)
- (3) Pin: Carbon steel (JIS G3101 SS400) (ASTM Equivalent A36)

FINISH

- (1) Clamp plate: Applied STC's standard anti-corrosive paint unless otherwise specified.
- (2) Stud bolts, nuts, and pin: Electro-plated.

SERVICE

Used for insulated vertical piping in combination with Lug Pieces (PLGB) on page 67.

ORDERING

Specify Size No. and dimension "C" (Rod Span).
Ex: PCRB 14 x 1000 & PCRBZ 6 x 800

(mm)

SIZE NO.	MAX. RECOM. LOAD.(KN)		PIPE DIA. ANSI" A	B	C		D	E	K	Standard Plate Size TxG	d	Weight (N) C.MIN
	400°C	450°C			MIN.	MAX.						
	PCRB 1	2.8			1.8	33.4						
PCRB 1-1/4	3.2	2.1	42.2	45	180	600	25	20	25	6x65	12	17
PCRB 1-1/2	3.2	2.1	48.3	50	190	600	25	20	25	6x65	12	18
PCRB 2	3.2	2.1	60.3	55	200	600	25	25	25	6x65	12	20
PCRBZ 2-1/2	4.4	2.9	73.0	70	240	600	25	25	25	6x75	16	28
PCRB 3	4.4	2.9	88.9	85	270	600	25	25	25	6x75	16	30
PCRB 3-1/2	4.4	2.9	101.6	90	280	600	25	25	25	6x75	16	31
PCRB 4	4.8	3.1	114.3	100	340	800	30	35	37.5	9x75	20	57
PCRBZ 5	4.8	3.1	141.3	115	360	800	30	35	37.5	9x75	20	61
PCRBZ 6	8.8	5.7	168.3	135	420	800	30	35	50	9x100	24	95
PCRBZ 8	19	12	219.1	165	520	800	35	35	62.5	12x125	30	189
PCRBZ 10	26	17	273.0	200	580	1000	50	40	75	16x150	30	320
PCRBZ 12	26	17	323.8	240	660	1000	50	40	75	16x150	30	360
PCRB 14	30	19	355.6	255	700	1000	50	50	75	16x150	36	411
PCRB 16	30	19	406.4	290	780	1000	50	50	75	16x150	36	450
PCRB 18	35	23	457.2	310	820	1000	50	50	75	19x150	36	550
PCRB 20	44	29	508.0	350	900	1400	60	55	100	19x200	42	808
PCRB 22	44	29	558.8	370	940	1400	60	55	100	19x200	42	848
PCRB 24	44	29	609.6	410	1020	1400	60	55	100	19x200	42	911

For other pipe standards (JIS, API, etc.) are available on request.

RISER CLAMP ALLOY STEEL (TYPE : PCRA , PCRAZ)



SIZE RANGE

1 through 24 inch pipe outer diameter.

MATERIAL

- (1) Clamp plate: Chromium Molybdenum steel (ASTM A387 Gr22)
- (2) Stud Bolts, nuts: Chromium Molybdenum steel (JIS G4052 SCM435H) (ASTM Equivalent A322 Gr4137)
- (3) Pin: Carbon steel (JIS G3101 SS400) (ASTM Equivalent A36)

FINISH

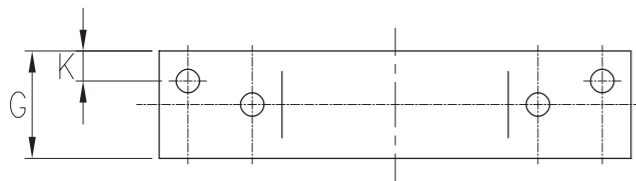
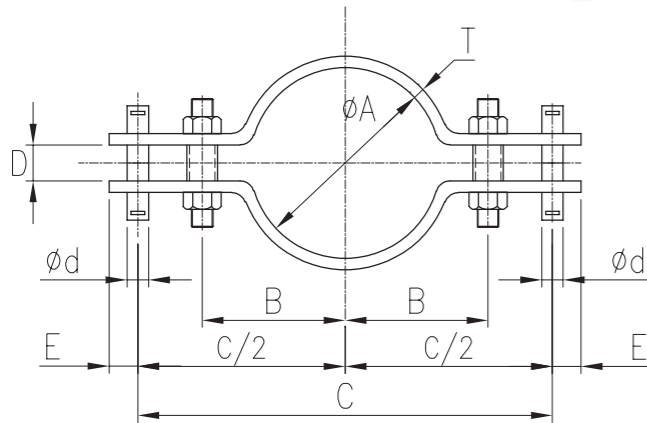
- (1) Clamp plate, stud bolts, nuts: Applied STC's standard anti-corrosive paint unless otherwise specified.
- (2) Pin: Electro-plated.

SERVICE

Used for insulated vertical piping in combination with Lug Pieces (PLGA) on page 68.

ORDERING

Specify Size No. and dimension "C" (Rod Span).
Ex: PCRA 20 x 1200 & PCRAZ 6 x 800



(mm)

SIZE NO.	MAX. RECOM. LOAD.(KN)		PIPE DIA. ANSI A	B	C		D	E	K	Standard Plate Size TxG	d	Weight (N) C.MIN
	500°C	575°C			MIN.	MAX.						
PCRA 1	2.4	1.1	33.4	35	160	400	20	20	25	6x50	12	13
PCRA 1-1/4	2.7	1.2	42.2	45	180	600	25	20	25	6x65	12	17
PCRA 1-1/2	2.7	1.2	48.3	50	190	600	25	20	25	6x65	12	18
PCRA 2	2.7	1.2	60.3	55	200	600	25	25	25	6x65	12	20
PCRAZ 2-1/2	3.7	1.7	73.0	70	240	600	25	25	25	6x75	16	28
PCRA 3	3.7	1.7	88.9	85	270	600	25	25	25	6x75	16	30
PCRA 3-1/2	3.7	1.7	101.6	90	280	600	25	25	25	6x75	16	31
PCRA 4	4.1	1.8	114.3	100	340	800	30	35	37.5	9x75	20	57
PCRAZ 5	4.1	1.8	141.3	115	360	800	30	35	37.5	9x75	20	61
PCRAZ 6	7.4	3.4	168.3	135	420	800	30	35	50	9x100	24	95
PCRAZ 8	16	7.4	219.1	165	520	800	35	35	62.5	12x125	30	189
PCRAZ 10	22	9.8	273.0	200	580	1000	50	40	75	16x150	30	320
PCRAZ 12	22	9.8	323.8	240	660	1000	50	40	75	16x150	30	359
PCRA 14	25	11	355.6	255	700	1000	50	50	75	16x150	36	410
PCRA 16	25	11	406.4	290	780	1000	50	50	75	16x150	36	450
PCRA 18	30	14	457.2	310	820	1000	50	50	75	19x150	36	549
PCRA 20	37	17	508.0	350	900	1400	60	55	100	19x200	42	808
PCRA 22	37	17	558.8	370	940	1400	60	55	100	19x200	42	848
PCRA 24	37	17	609.6	410	1020	1400	60	55	100	19x200	42	911

For other pipe standards (JIS, API, etc.) are available on request.

PIPE OUTER DIAMETER OF JIS, ANSI API STANDARD

B Nominal Pipe Out Dia. (In)	A Nominal Pipe Out Dia (mm)	Actual Outer Diameter		
		JIS (mm)	ANSI (mm)	API (mm)
1/8	6	10.5	10.29	10.3
1/4	8	13.8	13.72	13.7
3/8	10	17.3	17.15	17.1
1/2	15	21.7	21.34	21.3
3/4	20	27.2	26.67	26.7
1	25	34.0	33.40	33.4
1-1/4	32	42.7	42.16	42.2
1-1/2	40	48.6	48.26	48.3
2	50	60.5	60.33	60.3
2-1/2	65	76.3	73.03	73.0
3	80	89.1	88.90	88.9
3-1/2	90	101.6	101.60	101.6
4	100	114.3	114.30	114.3
5	125	139.8	141.30	141.3
6	150	165.2	168.28	168.3
8	200	216.3	219.08	219.1
10	250	267.4	273.05	273.0
12	300	318.5	323.85	323.8
14	350	355.6	355.60	355.6
16	400	406.4	406.40	406.4
18	450	457.2	457.20	457.2
20	500	508.0	508.00	508.0
22	550	558.8	558.80	558.8
24	600	609.6	609.60	609.6
26	650	660.4	660.40	660.4
28	700	711.2	711.20	711.2
30	750	762.0	762.00	762.0
32	800	812.8	812.80	812.8
34	850	863.6	863.60	863.6
36	900	914.4	914.40	914.4
40	1000	1016.0		1016.0
44	1100	1117.6		1117.6
48	1200	1219.2		1219.2
54	1350	1371.6		
60	1500	1524.0		

Note: JIS = Japanese Industrial Standards
ANSI = American National Standards Institute
API = American Petroleum Institute

JIS (Japanese Industrial Standards) Steel Materials mainly used for pipe supports
CHEMICAL COMPOSITION AND MECHANICAL PROPERTIES

JIS No. & Symbol	Thick (mm)	Chemical Composition (%)					
		C	Si	Mn	P	S	Cr
G3101-SS400	t ≤ 16	—	—	—	≤ 0.050	≤ 0.050	—
	16 < t ≤ 40	—	—	—	"	"	—
	40 < t	—	—	—	"	"	—
G3106-SM400B	t ≤ 16	≤ 0.20	≤ 0.35	0.60 ~ 1.50	≤ 0.035	≤ 0.035	—
	16 < t ≤ 40	"	"	"	"	"	—
	40 < t ≤ 50	"	"	"	"	"	—
	50 < t ≤ 100	≤ 0.22	"	"	"	"	—
G3103-SB410	t ≤ 25	≤ 0.24	0.15 ~ 0.40	≤ 0.90	≤ 0.020	≤ 0.020	—
	25 < T ≤ 50	≤ 0.27	"	"	"	"	—
	50 < t ≤ 100	≤ 0.29	"	"	"	"	—
G4304-SUS304		≤ 0.08	≤ 1.00	≤ 2.00	≤ 0.045	≤ 0.030	18.00 ~ 20.00
G4303-SUS304		"	"	"	"	"	"
G4051-S25C		0.22 ~ 0.28	0.15 ~ 0.35	0.30 ~ 0.60	≤ 0.030	≤ 0.035	—
G4051-S45C		0.42 ~ 0.48	0.15 ~ 0.35	0.60 ~ 0.90	≤ 0.030	≤ 0.035	—
G4052-SCM435H		0.32 ~ 0.39	0.15 ~ 0.35	0.55 ~ 0.95	≤ 0.030	≤ 0.030	0.85 ~ 1.25
G3452-SGP		—	—	—	≤ 0.040	≤ 0.040	—
G3454-STPG370		≤ 0.25	≤ 0.35	0.30 ~ 0.90	≤ 0.040	≤ 0.040	—
G3456-STPT370		≤ 0.25	0.10 ~ 0.35	0.30 ~ 0.90	≤ 0.035	≤ 0.035	—
G3456-STPT480		≤ 0.33	0.10 ~ 0.35	0.30 ~ 1.00	≤ 0.035	≤ 0.035	—
G3458-STPA24		≤ 0.15	≤ 0.50	0.30 ~ 0.60	≤ 0.030	≤ 0.030	1.90 ~ 2.60
G3459-SUS-304TP		≤ 0.08	≤ 1.00	≤ 2.00	≤ 0.045	≤ 0.030	18.00 ~ 20.00
G3201-SF390A		≤ 0.60	0.15 ~ 0.50	0.30 ~ 1.20	≤ 0.030	≤ 0.035	—
G4801-SUP9		0.52 ~ 0.60	0.15 ~ 0.35	0.65 ~ 0.95	≤ 0.030	≤ 0.030	0.65 ~ 0.95
G4801-SUP9A		0.56 ~ 0.64	"	0.70 ~ 1.00	"	"	0.70 ~ 1.00
G4801-SUP11A		0.56 ~ 0.64	0.15 ~ 0.35	0.70 ~ 1.00	"	"	"

Chemical Composition (%)	Mechanical Properties (N/mm ²)		Nearly Equivalent ASTM Material No. (Example)	Remarks
	Other	Yield P.		
—	245 ≤	400 ~ 510	A36 A36 A307GrB & A563GrA	For Plate
—	235 ≤	"		For rod,bar
—	215 ≤	"		For bolt and nuts
—	245 ≤	400 ~ 510	A516 Gr60	For plate
—	235 ≤	"		
—	215 ≤	"		
—	215 ≤	"		
—	225 ≤	410 ~ 550	A515 Gr60	For plate
—	"	"		
—	"	"		
Ni 8.00 ~ 10.50	205 ≤	520 ≤	A240Tp304 A276Tp304 A193GrB8 & A194Gr8	For plate
"	"	"		For rod
"	"	"		For bolt and nuts
—	265 ≤	440 ≤	A576Gr1025 A668CID A193GrB7 & A194Gr7	For rod, bar For Forgings For bolt and nuts
—	N345 ≤ , H490 ≤	N570 ≤ , H690 ≤	A576Gr1045 A193GrB7 & A194Gr7	For rod, bar For bolt and nuts
Mo 0.15 ~ 0.35 Ni ≤ 0.25	785 ≤	930 ≤	A322Gr4137 A540GrB23 & A194Gr2H	For rod, bar For bolt and nuts
—	—	290 ≤	A53GrA TpF	For ordinary piping
—	215 ≤	370 ≤	A53GrA TpE	For pressure service piping
—	215 ≤	370 ≤	A106GrA	For high temperature service piping
—	275 ≤	480 ≤	A106GrC	
Mo 0.87 ~ 1.13	205 ≤	410 ≤	A335GrP22	Alloy steel piping
Ni 8.00 ~ 11.00	205 ≤	520 ≤	A312GrTP304	Stainless steel piping
—	195 ≤	390 ~ 490	A105Gr1	Carbon steel forging
Cu ≤ 0.30	1080 ≤	1230 ≤	A322Gr5155	Spring steel
"	"	"	A322Gr5160	
B 0.0050 ≤	"	"	A322Gr51B60	
Cu ≤ 0.30	"	"	"	

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GENERAL NOTE

Specifications in this catalog are subject to change without notice.