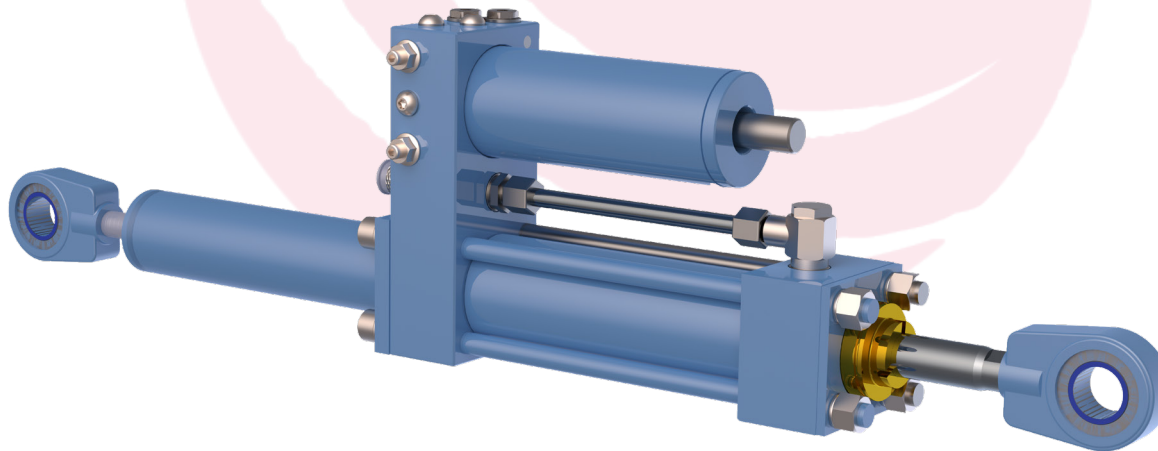
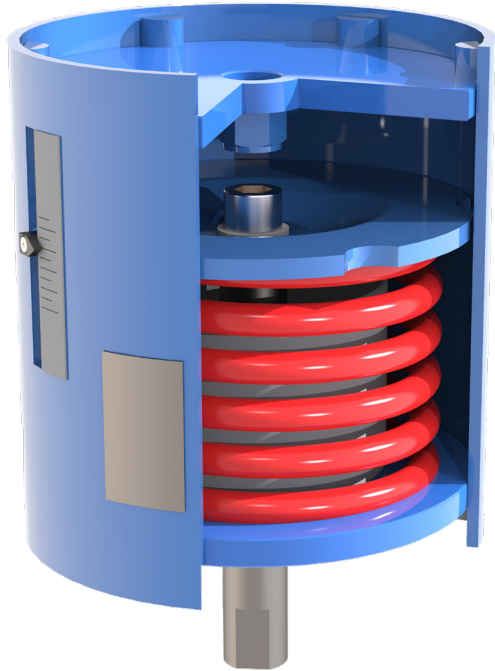


*Pipe support
catalogue
2020*





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An introduction to Dynamic Support Systems Ltd

Welcome to Dynamic Support Systems (DSS), we are here to offer you the benefit of our expertise in the industry of Pipe Hangers and Supports.

We are here to help and advise you in all facets of controlling and supporting pipework and associated equipment. No project is too big and no project is too small. We recognise that we need to offer a complete performance package to enable mutual success to our organisations.



Our motivation and commitment to the maintenance of quality and product development is always one of our main considerations. This desire to excel is always supported with proven technology and qualified staff.

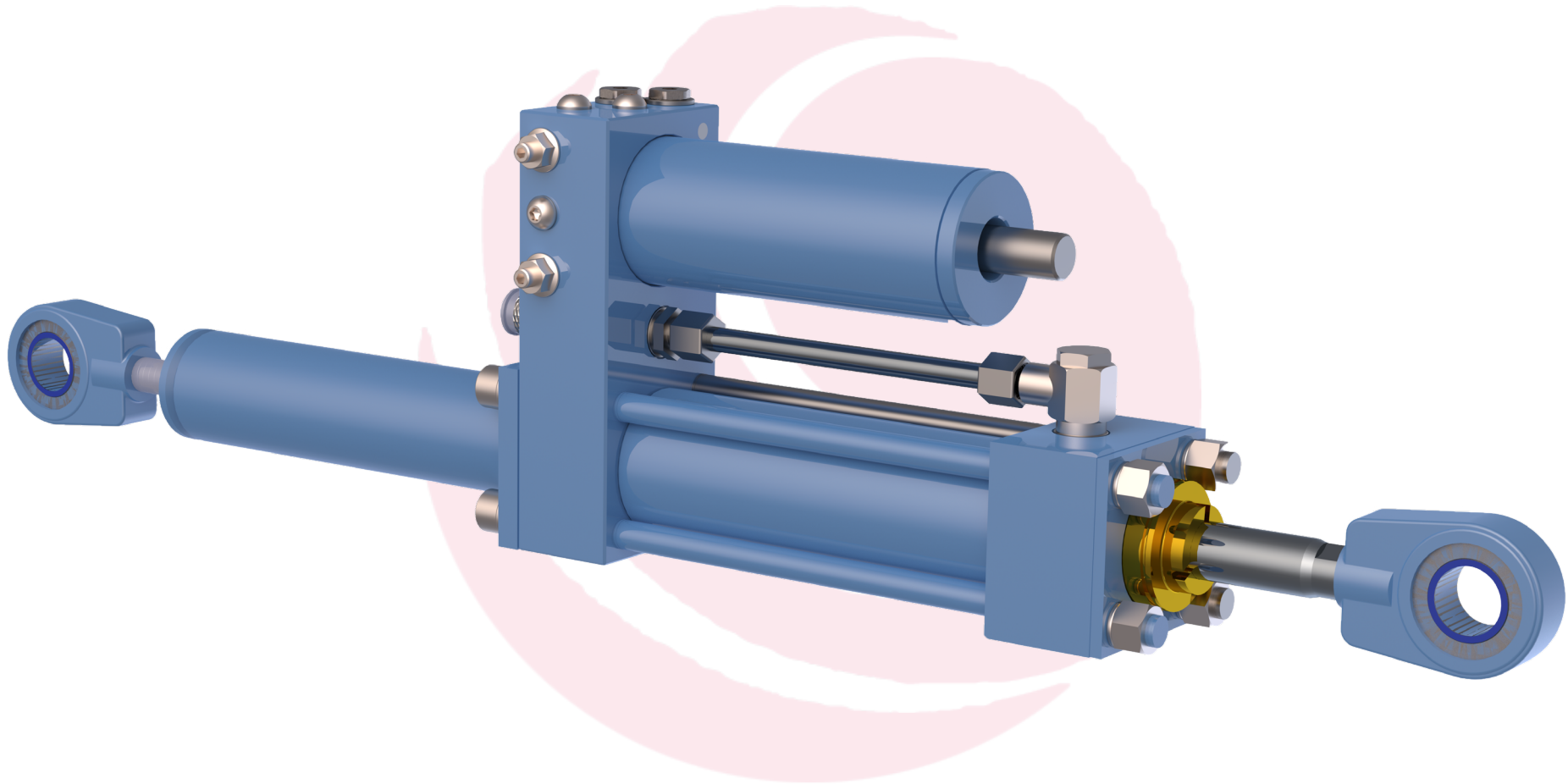
We welcome the opportunity to work with you whether it is supplying our British made products or using the knowledge of our experienced team to problem solve on your behalf.

We are active in many market sectors including.

- **Nuclear Power Plants**
- **Conventional Power Plants**
- **Offshore Platforms**
- **Process Plants**
- **Refineries**



Dynamic pipe supports





Dynamic pipe support application

Dynamic Incidents

The range of Dynamic pipe support components offer complete protection against unwanted events that can occur during the operation and commissioning of pipework systems. These events must always be the subject of suitable control, employing the appropriate expertise. Dynamic Support Systems combine this expertise with an unrivaled product range to offer complete reassurance that there is zero damage to pipework and equipment should an unexpected event occur.

Some examples of unexpected events are:

- Start up and shut down
- Water hammer
- Wind loads
- Seismic events
- Valve operation
- Dynamic and impulse loads

Product Range

Generally the following products are used for dynamic support functions with information from stress sketch analysis:

- Hydraulic snubbers
- Rigid struts
- Sway braces
- Dampers
- Whip restraints

These products offer complete compatibility with our standard clamps and end attachments.



A Standard Rigid Strut



Hydraulic Snubbers awaiting despatch.

These examples can cause major components within the piping system to be affected unless appropriate supporting principles are employed. It is important to utilize the appropriate component to suit the required function of the support.



Hydraulic snubbers and dynamic clamp assemblies.



Installation and maintenance of hydraulic snubbers

Introduction

Hydraulic Shock absorbers are used primarily to prevent damage to piping systems and connected equipment in the event of earthquakes, flow induced vibration, pipe rupture/failure and relief valve activation. The snubber permits thermal expansion and contraction of piping systems but is designed to lock and protect the piping in the event of an upset scenario.

Typically, the snubber is set to lock at velocities greater than 2mm/s, though this figure can be refined in accordance with customer requirements. Each snubber is manufactured to customer requirements and briefly consists of the following:

- Hydraulic tie-rod cylinder
- Pressurised reservoir/accumulator
- Valve manifold
- Assembly extension tube
- Spherical bearing rod ends

The design of the Dynamic Support Systems pressurised reservoir and valve system permits the Snubber to be installed in any orientation.

In an upset scenario, if the velocity of the piston rod exceeds the pre-defined locking velocity, the valve system locks and the snubber accommodates the dynamic loads. The bypass system then activates,

ensuring a controlled deactivation of the snubber unit. The snubber units and valves are calibrated at our works utilising a state of the art test rig that measures locking velocity, bleed rate and the loads applied. **Adjustment of the units on site without consulting Dynamic Support Systems is strictly forbidden.**

Installation

Prior to installation the snubber should be checked to ensure it has not been damaged during transit. The eye to eye dimension should also be checked and moved to the desired position if the piston has moved. Dynamic Support Systems utilise a centistoke polydimethylsiloxane silicone oil. This product offers excellent physical properties over a wide temperature range, however changes in ambient temperature may cause small movements of the piston rod. If the piston rod does require adjustment, appreciation of the snubber function should be considered. Adjustment should be done slowly and steadily to prevent activation of the control block system and locking the snubber unit. On smaller units, twisting the piston rod will reduce friction within the unit and allow easier movement. If larger units (4"NB or greater) require adjustment, Dynamic Support Systems should be consulted.

If the piston is in the correct position but the eye to eye dimension is not suitable for the site requirements, adjustment can be made at the end of the extension tube. As standard snubber units have a $\pm 25\text{mm}$ adjustment facility. Full installation instructions are available upon request and are attached to each unit prior to shipping.

Maintenance

Snubbers are installed throughout the world in various site conditions, and as such, maintenance requirements vary accordingly. Generally, the following procedure should be followed:

Internal, dust free environment, the following checks should be conducted annually.

- Check for oil leaks and oil deposits on the snubber unit.
- The piston rod is chrome plated to minimise friction through the seal system. It should be checked for abrasions and pitting that may lead to oil leaks.
- Check the oil level indicator pin on the pressurised reservoir.

External, heavy contamination – The same procedure above should be followed bi-annually.



Installation of Rigid struts

Introduction

Restriction of operational displacement is achieved with the application of Rigid Struts. Whilst they do not permit movement in the axial direction, they are fitted with bushes which do permit small amounts of lateral displacement. As the name implies rigid struts perform a rigid connection between the structure and the piping system, axial movement is not possible.

Construction

The rigid strut consists of a rigid body usually from thick wall tube with swaged ends. Left- and right-hand spade end connections suitable for ancillary attachments. Attachment to the piping system is by means of a dynamic clamp and attachment to the structure utilizing a weld on bracket. Details of the ancillary components are shown in our catalogue. This standard design is used for loads up to 350Kn. Details of design features above this load are available with submission of data drawings at the time of enquiry. These standard units offer an adjustment range of 150mm or 300mm.

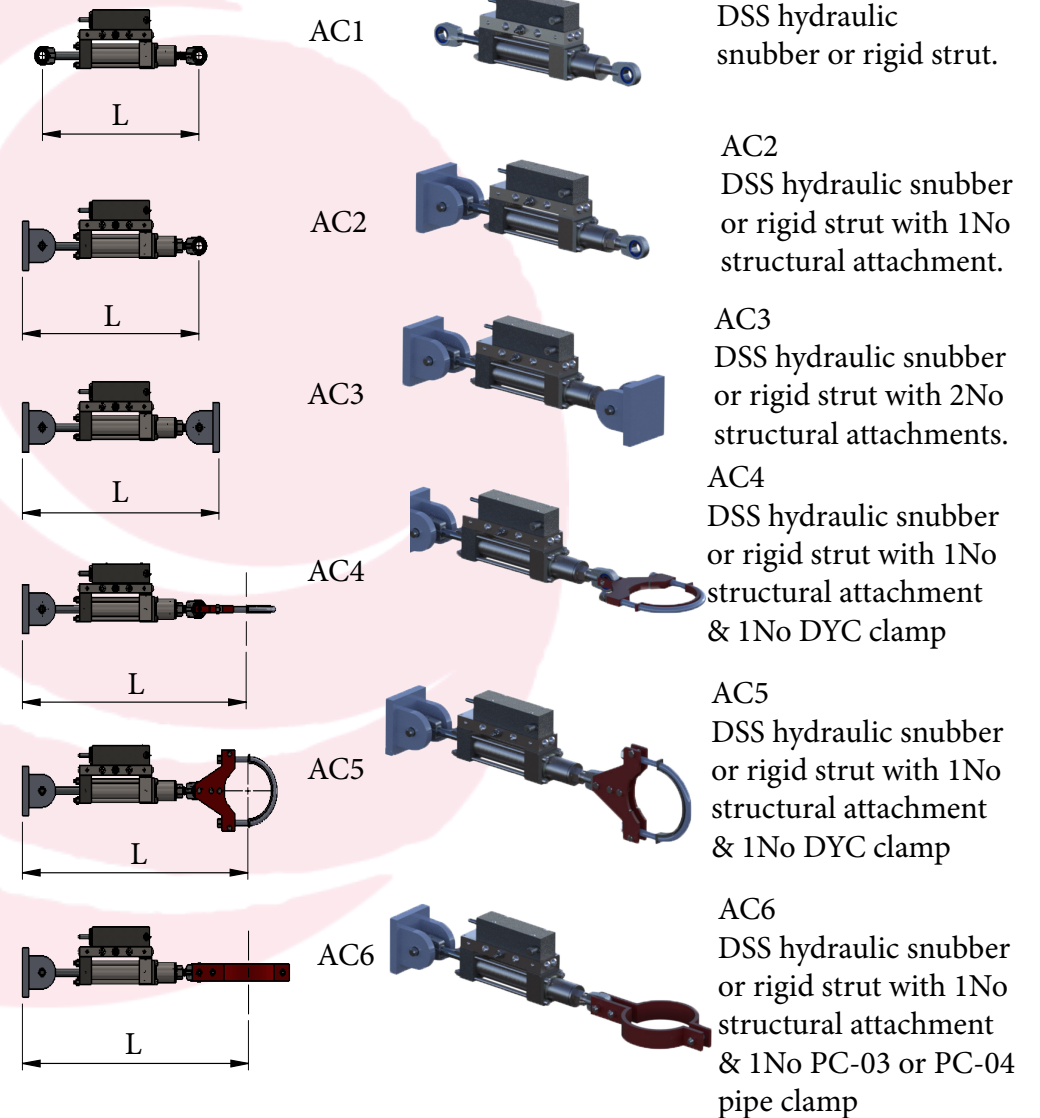
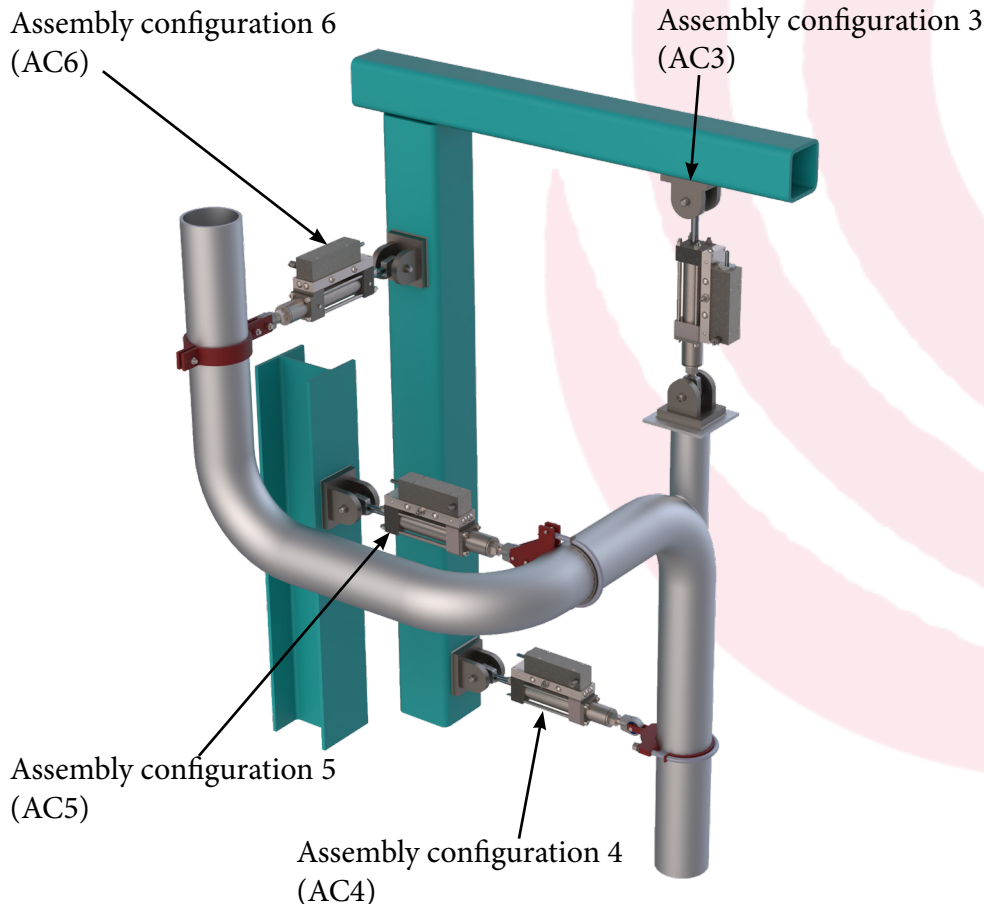
Installation

- Establish the Pin to Pin dimension required between Structural Attachment and Pipe Attachment. Confirm this is approximately like the unit supplied.
- If the desired length needs to be adjusted release the lock nuts. The desired length can then be achieved by holding the pin ends and rotating the strut body to the required pin to pin dimension.
- The spade ends have a minimum engagement groove machined into the rod each end which, for clarity, is colored red. When the adjustment feature is used the groove is the indication for minimum thread engagement. This visible aid should be checked during and after adjustment. Under no circumstance should the strut be placed into service without minimum thread engagement.
- The strut unit can now be installed in the desired location by using the locating pins on the pipe attachment and the structural attachment. With one pin installed minor adjustment can still be made with rotation of the strut body. Equal engagement of the spade ends is the optimum installation, but minor differences are not detrimental to the strut performance.
- The lock nuts must be tightened to the torque indicated on the relevant size chart.
- A final inspection by hand will confirm the strut is suitably engaged.



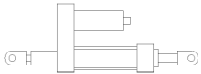
Assembly configurations

Our hydraulic snubbers and rigid struts are available in the following assembly configurations. A data sheet/design drawing will be issued reflecting the appropriate assembly configuration along with the design parameters.

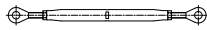




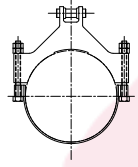
Dynamic pipe support pictorial index



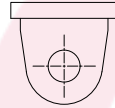
DS
Hydraulic
Snubber
Page 10



RS
Rigid strut
Page 11



DYC
Dynamic pipe
clamp
Page 12

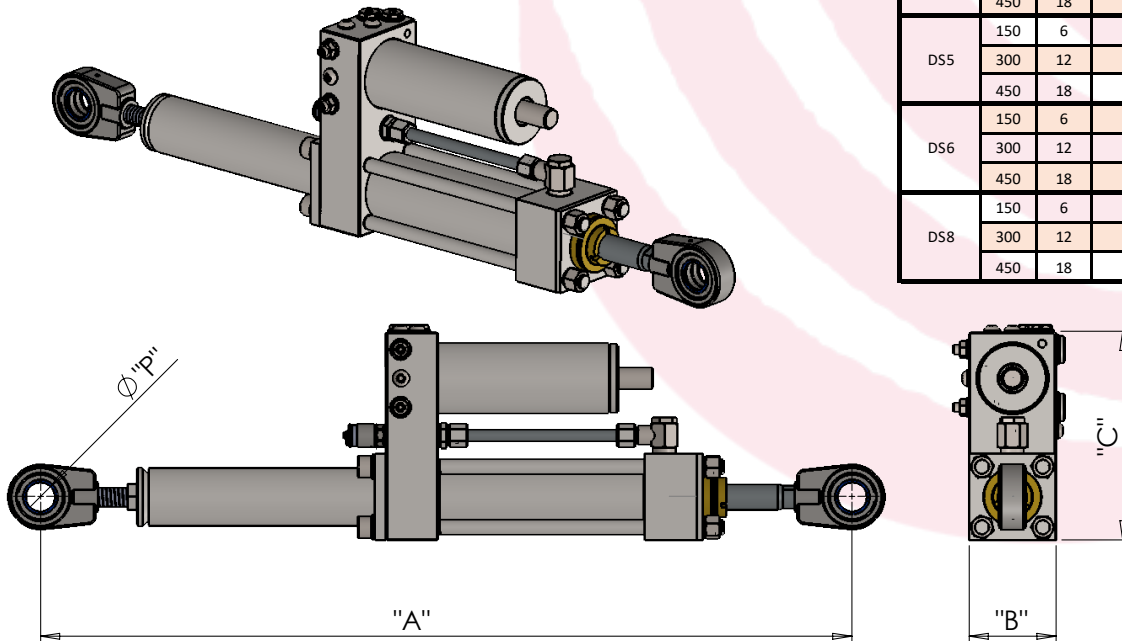


HSA
Structural
attachment
Page 13



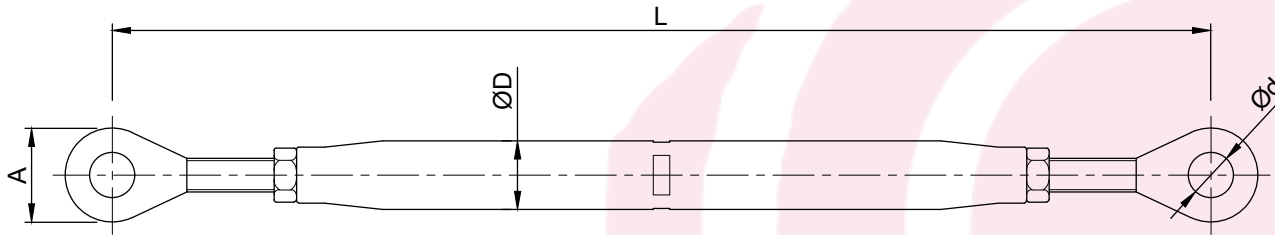
DS - Hydraulic Snubber

Snubber Model	Stroke		Cylinder Bore (mm)	Cylinder Bore (inch)	Maximum Axial Load				Dimension					
	mm	inch			Kg/F	Newtons	kN	Lb	"A" CLOSED CENTRES	"A" MID STROKE CENTRES	"B"	"C"	"P"	MAX' MID STROKE CENTRES
DS1	75	3	50	2.0	3000	29420	29.42	6614	497	535	75	180	25	2000
	150	6	50	2.0	3000	29420	29.42	6614	572	647	75	180	25	2000
	300	12	50	2.0	3000	29420	29.42	6614	722	872	75	180	25	2000
	450	18	50	2.0	3000	29420	29.42	6614	872	1097	75	180	25	2000
DS2	150	6	63	2.5	4500	44130	44.13	9921	581	656	90	210	25	2000
	300	12	63	2.5	4500	44130	44.13	9921	731	881	90	210	25	2000
	450	18	63	2.5	4500	44130	44.13	9921	881	1106	90	210	25	2000
DS3	150	6	80	3.1	8000	78453	78.45	17637	699	774	115	260	40	2500
	300	12	80	3.1	8000	78453	78.45	17637	849	999	115	260	40	2500
	450	18	80	3.1	8000	78453	78.45	17637	999	1224	115	260	40	2500
DS4	150	6	100	3.9	15000	147100	147.10	33069	774	849	130	290	50	3000
	300	12	100	3.9	15000	147100	147.10	33069	924	1074	130	290	50	3000
	450	18	100	3.9	15000	147100	147.10	33069	1074	1299	130	290	50	3000
DS5	150	6	125	4.9	20000	196133	196.13	44092	866	941	165	360	60	3000
	300	12	125	4.9	20000	196133	196.13	44092	1016	1166	165	360	60	3000
	450	18	125	4.9	20000	196133	196.13	44092	1166	1391	165	360	60	3000
DS6	150	6	160	6.3	30000	294200	294.20	66139	961	1036	200	430	80	3000
	300	12	160	6.3	30000	294200	294.20	66139	1111	1261	200	430	80	3000
	450	18	160	6.3	30000	294200	294.20	66139	1261	1486	200	430	80	3000
DS8	150	6	200	7.9	58000	568786	568.79	127868	1157	1232	245	520	100	3000
	300	12	200	7.9	58000	568786	568.79	127868	1307	1457	245	520	100	3000
	450	18	200	7.9	58000	568786	568.79	127868	1457	1682	245	520	100	3000





RS - Rigid Strut



Load group	Model	A	D	d	L	
					Min	Max
1	RS-1	30	33.4	10	300	1900
2	RS-2	38	42.2	12	300	2150
3	RS-3	45	48.3	15	300	2400
4	RS-4	60	60.3	20	400	2150
5	RS-5	82	73	30	400	2900
6	RS-6	120	101.6	50	500	3150
7	RS-7	150	114.3	60	750	2900
8	RS-8	210	141.3	70	800	3400
9	RS-9	295	168.3	100	1000	3650

Size selection chart - Rigid Strut Lengths 300 - 1650

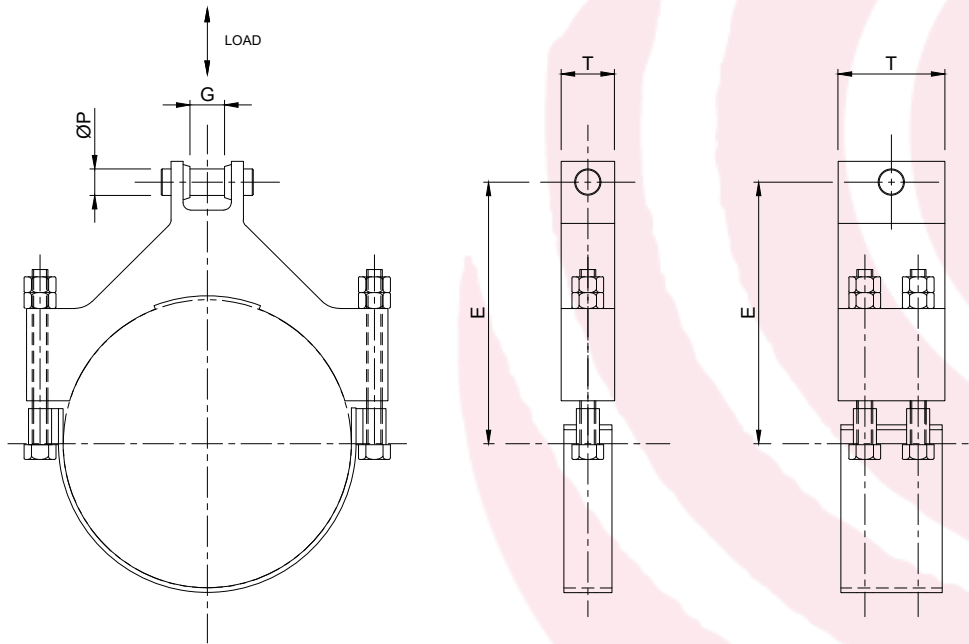
Load group		Nominal load			Adjustment range (mm)													
		kN	Kg	Newtons	300-450	400-550	500-650	600-900	750-900	800-950	900-1050	850-1150	1000-1150	1100-1250	1100-1400	1200-1350	1300-1450	1350-1650
1	3.9228	400	3922.8	RS-1-03	RS-1-04	RS-1-05	RS-1-07					RS-1-10			RS-1-12			RS-1-15
2	7.8456	800	7845.6	RS-2-03	RS-2-04	RS-2-05	RS-2-07					RS-2-10			RS-2-12			RS-2-15
3	17.6526	1800	17652.6	RS-3-03	RS-3-04	RS-3-05	RS-3-07					RS-3-10			RS-3-12			RS-3-15
4	44.1315	4500	44131.5		RS-4-04	RS-4-05	RS-4-07					RS-4-10			RS-4-12			RS-4-15
5	98.07	10000	98070		RS-5-04	RS-5-05	RS-5-07					RS-5-10			RS-5-12			RS-5-15
6	196.14	20000	196140			RS-6-05	RS-6-07					RS-6-10			RS-6-12			RS-6-15
7	343.245	35000	343245					RS-7-08				RS-7-10			RS-7-12			RS-7-15
8	539.385	55000	539385						RS-8-08	RS-8-09		RS-8-10	RS-8-11		RS-8-12	RS-8-13		RS-8-15
9	980.7	100000	980700							RS-9-09		RS-9-10	RS-9-11		RS-9-12	RS-9-13		RS-9-15

Size selection chart - Rigid Strut Lengths 1600 - 5150

Load group		Nominal load			Adjustment range (mm)													
		kN	Kg	Newtons	1600-1900	1850-2150	2100-2400	2350-2650	2600-2900	2850-3150	3100-3400	3350-3650	3600-3900	3850-4150	4100-4400	4350-4650	4600-4900	4850-5150
1	3.9228	400	3922.8	RS-1-17	RS-2-20	RS-2-22	RS-2-25	RS-2-27										
2	7.8456	800	7845.6	RS-2-17	RS-2-20	RS-3-22	RS-3-25	RS-3-27										
3	17.6526	1800	17652.6	RS-3-17	RS-3-20	RS-3-22	RS-4-25	RS-4-27	RS-4-30	RS-4-32	RS-4-35							
4	44.1315	4500	44131.5	RS-4-17	RS-4-20	RS-5-22	RS-5-25	RS-5-27	RS-5-30	RS-5-32	RS-5-35	RS-5-37						
5	98.07	10000	98070	RS-5-17	RS-5-20	RS-5-22	RS-5-25	RS-5-27	RS-6-30	RS-6-32	RS-6-35	RS-6-37	RS-6-40	RS-6-42	RS-6-45			
6	196.14	20000	196140	RS-6-17	RS-6-20	RS-6-22	RS-6-25	RS-6-27	RS-6-30	RS-7-32	RS-7-35	RS-7-37	RS-7-40	RS-7-42				
7	343.245	35000	343245	RS-7-17	RS-7-20	RS-7-22	RS-7-25	RS-7-27	RS-8-30	RS-8-32	RS-8-35	RS-8-37	RS-8-40	RS-8-42	RS-8-45			
8	539.385	55000	539385	RS-8-17	RS-8-20	RS-8-22	RS-8-25	RS-8-27	RS-8-30	RS-8-32	RS-9-35	RS-9-37	RS-9-40	RS-9-42	RS-9-45	RS-9-47		RS-9-50
9	980.7	100000	980700	RS-9-17	RS-9-20	RS-9-22	RS-9-25	RS-9-27	RS-9-30	RS-9-32	RS-9-35							



DYC - Dynamic pipe clamp



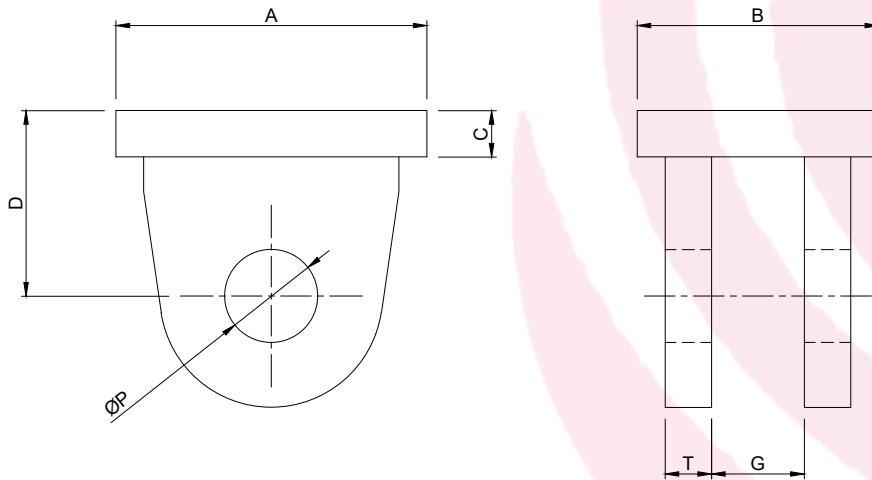
Dimensions			
Size	P	T	G
DYC 01	12	25	12
DYC 02	12	30	15
DYC 03	20	50	20
DYC 04	25	80	25
DYC 05	30	90	30
DYC 06	40	130	40
DYC 07	50	160	50
DYC 08	60	180	60

Pipe Size	Rod T.O. Dimension 'E'							
	DYC 01	DYC 02	DYC 03	DYC 04	DYC 05	DYC 06	DYC 07	DYC 08
65	125	125						
80	150	150	205					
90	160	160	210					
100	165	165	215					
125	180	180	235					
150	190	190	245	270	295	300		
175	220	220	260	285	300	310		
200	240	240	270	295	315	330	350	350
225	255	255	285	310	325	345	380	380
250	270	270	295	320	355	385	396	396
300	295	295	320	350	385	390	330	330
350		310	340	360	405	450	485	485
400		335	360	385	440	455	510	510
450			385	410	470	480	535	535
500			415	440	500	510	585	585
550			435	510	535	555	605	605
600			460	540	565	585	635	635
650			505	565	600	620	670	670
700			550	590	630	650	705	705
750			595	615	660	685	735	735
800				645	690	735	765	765

These Yoke Clamps are used with our standard range of Hydraulic Snubbers and Rigid Struts. Full details are issued on receipt of operating conditions including pipe size, load and temperature.

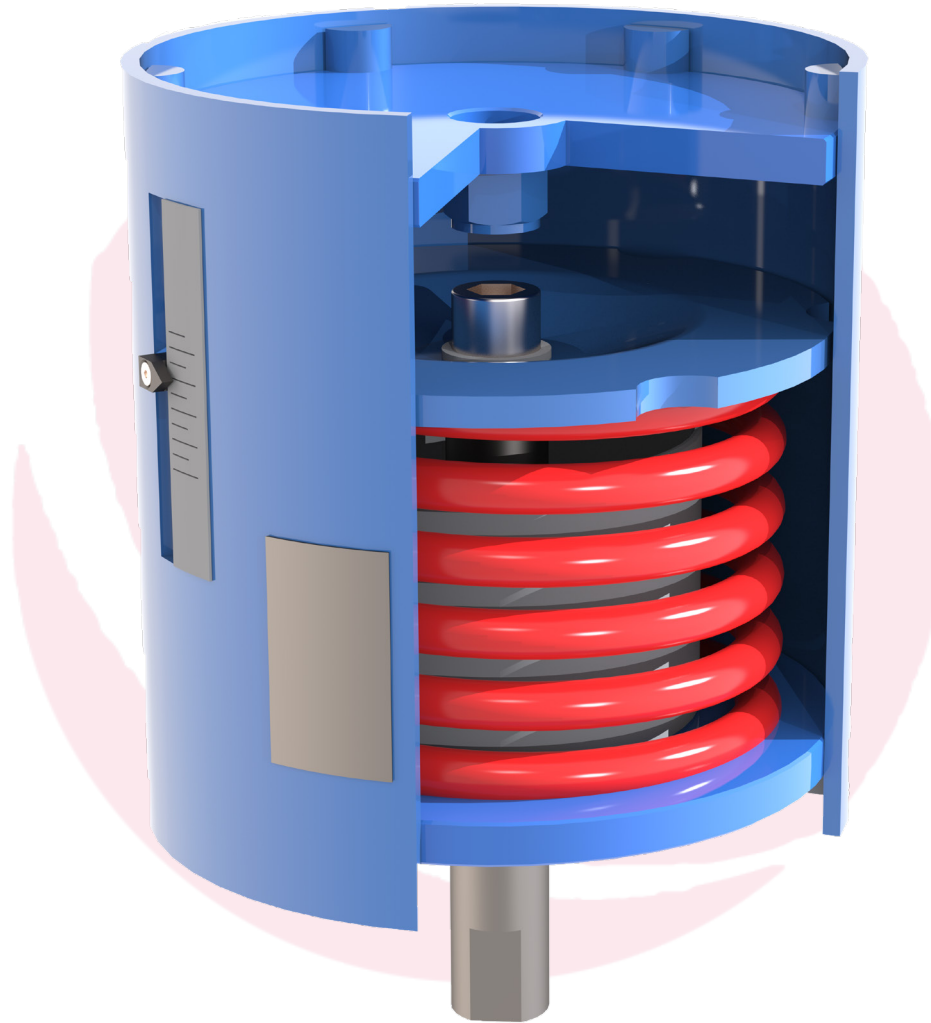


HSA - Structural attachment



Ref	A	B	C	D	G	T	P	Kg/F	kN
HSA/1	100	104	20	60	40	20	25	3000	29
HSA/2	100	104	20	60	40	20	25	4500	44
HSA/3	134	104	20	80	40	20	40	8000	78
HSA/4	154	109	20	90	45	20	50	15000	147
HSA/5	198	139	25	110	65	25	60	20000	196
HSA/6	233	169	30	130	85	30	80	30000	294
HSA/8	273	184	30	150	100	30	100	58000	570

Variable spring supports

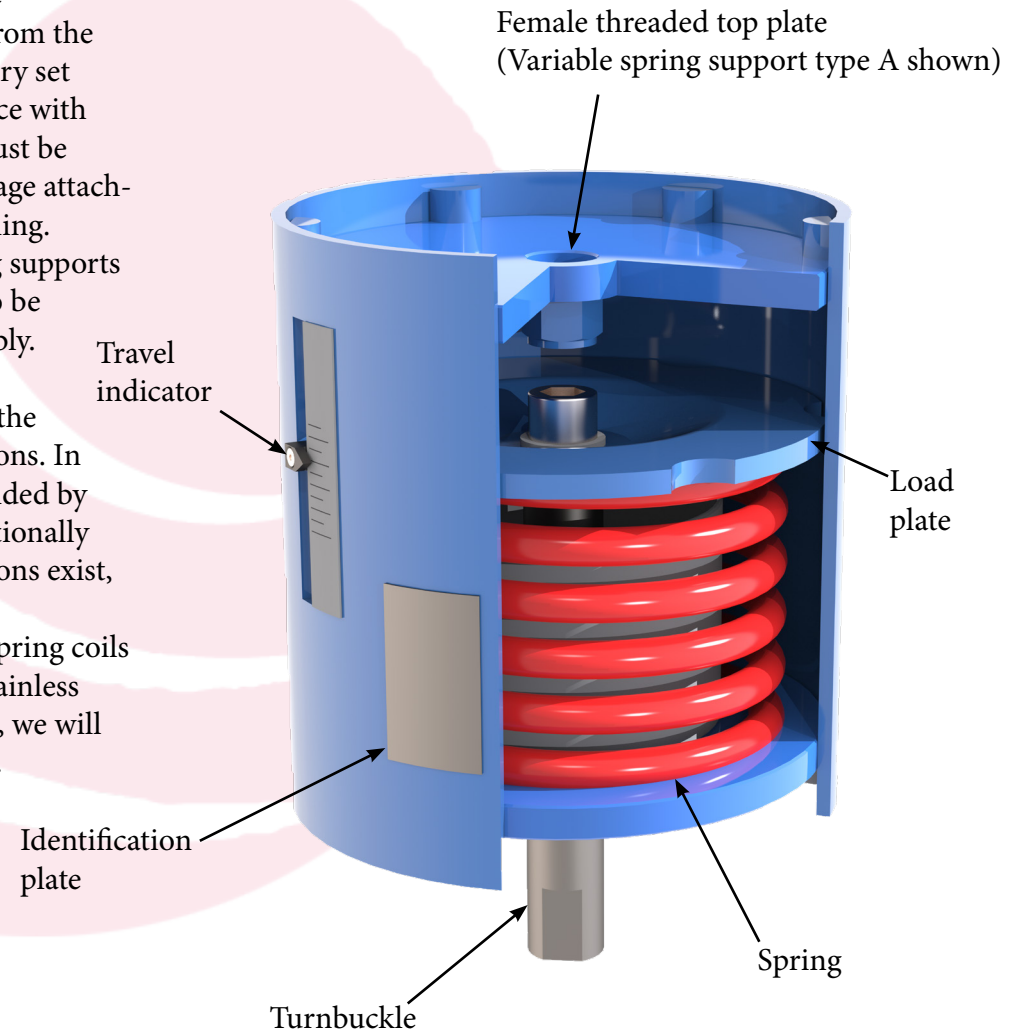




Variable spring supports description

Variable Spring Supports are utilised to support pipework or equipment which is subject to relatively small vertical displacement. The variable units accommodate this displacement ensuring the piping system is supported correctly. The construction includes a helical spring with load variation characteristics. Through the supporting range the load variation is managed in accordance with the requirements of the stress analysis. The units are of a modular design eliminating the welding discipline. Where required, spring travel stops are incorporated, these can restrict travel at the end of the travel range or at the end of the overtravel range. Lifting lugs are provided on the larger sizes. All interconnecting components are available many of which are also of modular design. The pipe movement and load is accommodated with the spring unit. During this process the spring unit will incur a load change reflected by the pipe movement from the cold to the hot position. This load change is generally accepted as not to exceed a maximum variation of 25%. The load variation is a

product of the spring rate and the theoretical movement provided from the stress analysis. The units are factory set at the cold load and locked in place with a custom pre-set key. The keys must be removed and secured to the stowage attachment prior to system commissioning. The modular design of our spring supports enables individual components to be surface treated before unit assembly. Support units are supplied with a protection system appropriate to the prevailing environmental conditions. In most cases this is a system demanded by the project specification. If exceptionally aggressive environmental conditions exist, protection would be galvanised components with plastic coated spring coils or complete manufacture from stainless steel. Where no finish is specified, we will recommend a suitable protection.





Variable spring support model selection

Step one is to establish the model required, pipe location and the fixing point location will determine this.

Type A

Upper connection is a threaded suspension point, ensure sufficient head room is available to select your choice of upper attachment. When using a threaded rod for this upper attachment ensure the thread engagement dimension is achieved and a locknut is used to secure the connection. The bottom of the unit thread is capped to identify full thread engagement this connection should be secured before the upper rod is adjusted to achieve required position of spring. The lower attachment connects to the chosen pipe component. Rotation of the turnbuckle will achieve the desired pre-set load.

Type B

Upper connection is a single lug arrangement. This unit is usually fixed directly to a double lug attachment like our UA-06 beam attachment. Consideration should be given to the support point of the pipe attachment when in the hot position. Installation should be angulated to cater for the final position. Rotation of the turnbuckle will enable withdrawal of the pre-set key at the installation cold load.

Type C

Upper connection double lug configuration sits well with our Welded Lug UA-7 welded to the existing steelwork. Consideration should be given to the support point of the pipe attachment when in the hot position. Installation should be angulated to cater for the final position. Rotation of the turnbuckle will enable withdrawal of the pre-set key at the installation cold load.

Type D

This unit is suitable where installation is required to be sited above the supporting steelwork. The straight through rod configuration offers easy installation. The upper attachment will require a nut and lock nut together with a suitable washer for the top of the support tube. Welding of the base of the unit to existing steel is not recommended. Intermediate plates of a bolted nature available to locate the spring if required. Rotation of the upper nuts will enable withdrawal of the pre-set key at the cold load. Units used in an inverted configuration forms a trapeze application.

Type E

As type D where headroom is restricted.

Type F

This base mounted unit is suitable for most floor applications. The guide column is supported internally to avoid horizontal stress on the supporting load plate. A frequent extra feature is the addition of a PTFE bearing further reducing any horizontal stress on the load column. This bearing can be represented by our standard slide plate assemble SP-03. 25mm of adjustment is available by rotation of the load column. Use of a pipe shoe PS-04 is often an added feature of this unit.

Type G

The trapeze configuration is compatible with our pipe shoe PS-04. Use central loading when installing these units. Cross beam members will be furnished on details of load and rod centres. Ensure consideration is given to the two springs in series, this will mean the required load must be 50% on each spring. Adjust the final load with the addition of the spring unit and component weight, which in the case of the type G can be very significant. During installation the load indicator on each spring should be monitored regularly making sure the springs are kept in equilibrium. The pre-set keys should be withdrawn simultaneously.



Variable spring support size selection

Step one is to establish the model required A, B, C, D, E, F or G
Pipe location and the fixing point location will determine this.

Let's say 'A'

Load say 50Kn,

Travel 20mm,

Direction of travel. Let's say, up.

From the above information select unit size 10 from the chart.

Establish Pre-set Load

Travel; Up

Pre-set load = hot load + (Travel x Spring Rate)

VS 35 is $50 + (20 \times 0.902) = 68.04 \text{ Kn}$

VS 70 is $50 + (20 \times 0.451) = 59.02 \text{ Kn}$

VS 140 is $50 + (20 \times 0.226) = 54.52 \text{ Kn}$

All units within size 10 load range.

Checking the % variation

Equation $\% \text{ load change} = \frac{\text{Travel} \times \text{spring rate} \times 100}{\text{Hot Load}}$

$$\text{VS 35} \quad \%LC = \frac{20 \times 0.902 \times 100}{50} = 36\%$$

$$\text{VS 70} \quad \%LC = \frac{20 \times 0.451 \times 100}{50} = 18\%$$

$$\text{VS 140} \quad \%LC = \frac{20 \times 0.226 \times 100}{50} = 9\%$$

Max allowable % load change is 25% therefore VS 35 is unacceptable.

Calculating Rod Take-out (RTO)

Example for VS 70-A-10 Pre-set load 59 Kn

Step 1 obtain RTO at min load from table details = 280 mm

Step 2 obtain RTO dimension at 59Kn load.

Equation: $\frac{\text{Pre-set Load} - \text{Min Load}}{\text{Spring Rate}}$

$$\text{Therefore: } \frac{59\text{Kn} - 40.5\text{Kn}}{0.451} = 41.01 \text{ mm}$$

RTO = Dimension at pre-set load + min Load Dimension

Therefore: RTO = 280 + 41 = 321mm

Calculate loaded length for Type F

Example for VS 140-F-10 Pre-set Load 54.52 Kn

Step 1 obtain Loaded Length at Min Load = 750mm

Step 2 obtain loaded length at 54.52 Kn load.

Equation: $\frac{\text{Pre-set Load} - \text{Min Load}}{\text{Spring Rate}}$

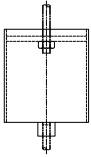
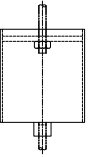
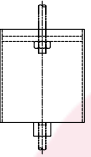
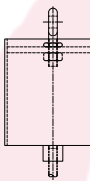
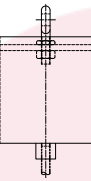
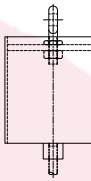
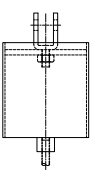
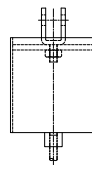
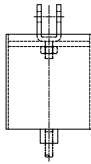
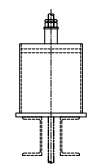
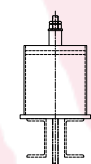
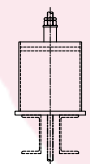
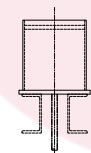
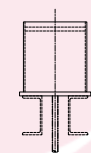
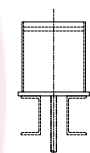
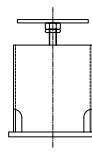
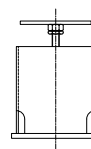
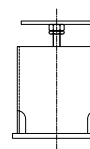
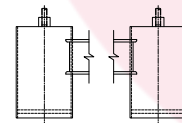
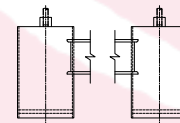
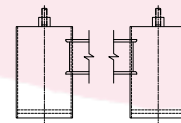
$$\text{Therefore: } \frac{54.52\text{Kn} - 40.5\text{Kn}}{0.226} = 62.03\text{mm}$$

Loaded Length = Dimension at Min load - Pre-set Dimension

Therefore: Loaded Length = 750 - 62 = 688mm

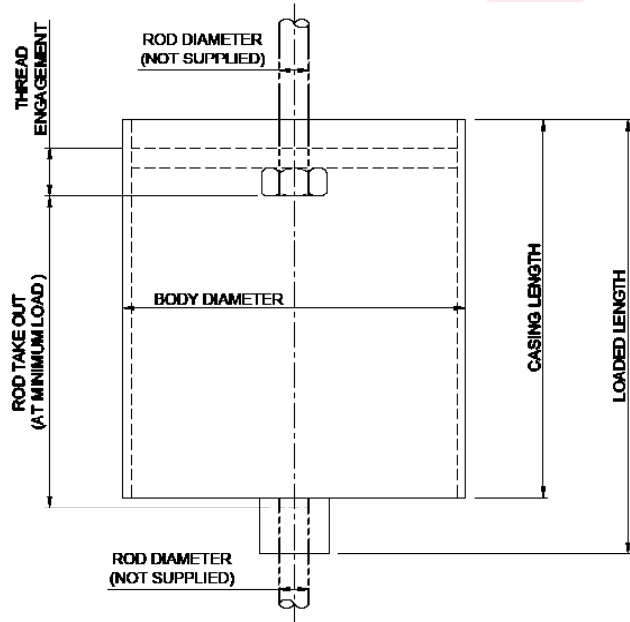


Variable spring support pictorial index

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 <p>Variable spring Type VS140-C Page 27</p>	 <p>Variable spring Type VS35-D Page 28</p>	 <p>Variable spring Type VS70-D Page 29</p>	 <p>Variable spring Type VS140-D Page 30</p>	 <p>Variable spring Type VS35-E Page 31</p>	 <p>Variable spring Type VS70-E Page 32</p>	 <p>Variable spring Type VS140-E Page 33</p>	 <p>Variable spring Type VS35-F Page 34</p>
 <p>Variable spring Type VS70-F Page 35</p>	 <p>Variable spring Type VS140-F Page 36</p>	 <p>Variable spring Type VS35-G Page 37</p>	 <p>Variable spring Type VS70-G Page 38</p>	 <p>Variable spring Type VS140-G Page 39</p>			



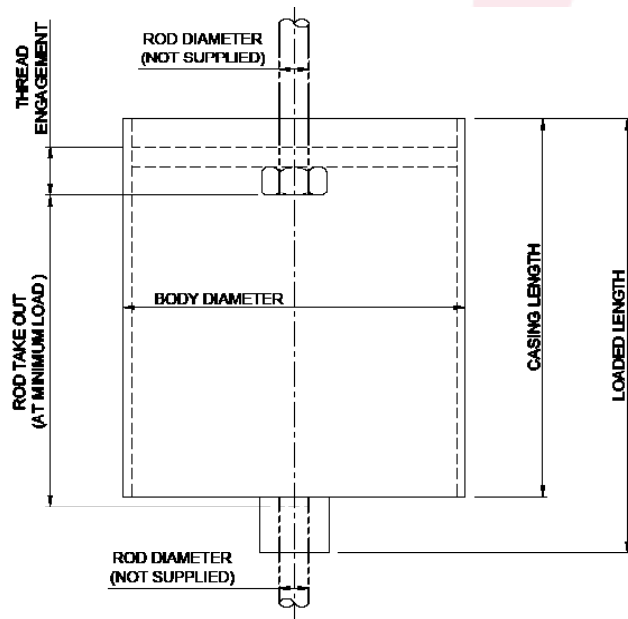
VS35-A (35mm travel) - Variable spring support



SIZE	LOAD RANGE KN		SPRING RATE	ROD DIAM	BODY DIAM	THREAD ENGAGEMENT	CASING LENGTH	ROD TAKE OUT AT MIN LOAD	LOADED LENGTH		UNIT WT KGS APPROX	LOAD RANGE KG		SPRING RATE	SIZE
	MIN	MAX	KN						MIN	MAX		MIN	MAX	KG	
0	2.21	4.07	0.052	M12	114	18	170	130	245	280	3	22.5	41.5	0.53	0
1	3.29	5.88	0.074	M12	114	18	180	130	248	283	3	33.5	60	0.75	1
2	4.22	7.55	0.094	M12	114	18	190	142	270	305	3	43	77	0.96	2
3	5.49	9.71	0.123	M12	168	18	190	127	255	290	5	56	99	1.25	3
4	7.36	13.14	0.157	M12	168	18	190	139	270	305	5	75	134	1.60	4
5	9.91	17.55	0.216	M12	168	18	200	144	270	305	5	101	179	2.20	5
6	13	23.34	0.294	M16	168	24	215	151	280	315	7	133	238	3.00	6
7	17.5	31.19	0.392	M16	168	24	235	156	290	325	9	178	318	4.00	7
8	23.3	41.68	0.530	M16	168	24	235	149	290	325	9	238	425	5.40	8
9	31.1	55.70	0.696	M20	219	30	260	162	310	345	21	317	568	7.10	9
10	40.5	72.57	0.902	M20	219	30	270	150	300	335	25	413	740	9.20	10
11	53	94.64	1.187	M20	219	30	240	150	300	335	20	540	965	12.10	11
12	70.1	125.24	1.569	M24	219	36	260	150	320	355	20	715	1277	16.00	12
13	93.2	166.92	2.099	M30	219	45	300	180	370	405	30	950	1702	21.40	13
14	125	222.62	2.805	M30	219	45	320	190	375	410	30	1270	2270	28.60	14
15	168	300.49	3.786	M30	273	45	320	215	400	435	35	1714	3064	38.60	15
16	233	417.48	5.257	M36	273	54	360	240	430	465	40	2380	4257	53.60	16
17	311	556.55	7.002	M42	273	63	380	270	470	505	50	3175	5675	71.40	17
18	415	740.72	9.317	M48	324	72	360	276	450	485	100	4227	7553	95.00	18
19	551	997.08	12.398	M56	324	84	400	310	480	515	120	5615	10167	126.42	19
20	732	1308.25	16.476	M64	324	96	460	365	550	585	140	7465	13340	168.00	20
21	973	1739.27	21.889	M72	324	108	500	347	560	595	170	9922	17735	223.20	21
22	1298	2319.36	29.205	M80	324	120	620	460	700	735	200	13233	23650	297.80	22



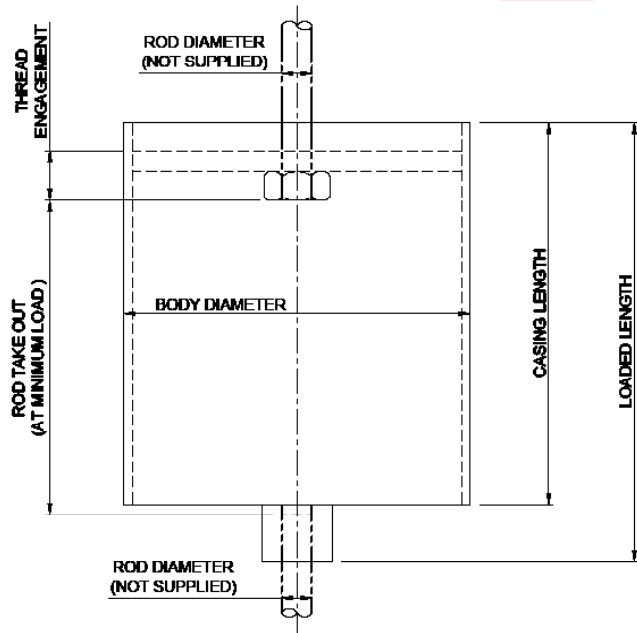
VS70-A (70mm travel) - Variable spring support



SIZE	LOAD RANGE KN		SPRING RATE	ROD DIAM	BODY DIAM	THREAD ENGAGEMENT	CASING LENGTH	ROD TAKE OUT AT MIN LOAD	LOADED LENGTH		UNIT WT KGS APPROX	LOAD RANGE KG		SPRING RATE	SIZE
	MIN	MAX	KN						MIN	MAX		MIN	MAX	KG	
0	2.21	4.07	0.026	M12	114	18	220	150	275	345	3	22.5	41.5	0.27	0
1	3.29	5.88	0.037	M12	114	18	240	170	300	370	3	33.5	60	0.38	1
2	4.22	7.55	0.047	M12	114	18	260	190	310	380	4	43	77	0.48	2
3	5.49	9.71	0.061	M12	168	18	235	170	295	365	6	56	99	0.63	3
4	7.36	13.14	0.078	M12	168	18	255	180	300	370	6	75	134	0.80	4
5	9.91	17.55	0.108	M12	168	18	270	200	330	400	7	101	179	1.10	5
6	13	23.34	0.147	M16	168	24	280	210	345	415	10	133	238	1.50	6
7	17.5	31.19	0.196	M16	168	24	305	230	370	440	10	178	318	2.00	7
8	23.3	41.68	0.265	M16	168	24	320	240	380	450	14	238	425	2.70	8
9	31.1	55.70	0.348	M20	219	30	330	245	395	465	25	317	568	3.55	9
10	40.5	72.57	0.451	M20	219	30	360	280	430	500	25	413	740	4.60	10
11	53	94.64	0.593	M20	219	30	305	250	400	470	25	540	965	6.05	11
12	70.1	125.24	0.785	M24	219	36	335	210	380	450	30	715	1277	8.00	12
13	93.2	166.92	1.049	M30	219	45	395	290	470	540	35	950	1702	10.70	13
14	125	222.62	1.402	M30	219	45	400	290	480	550	40	1270	2270	14.30	14
15	168	300.49	1.893	M30	273	45	415	330	520	590	45	1714	3064	19.30	15
16	233	417.48	2.628	M36	273	54	480	380	570	640	52	2380	4257	26.80	16
17	311	556.55	3.501	M42	273	63	545	430	630	700	70	3175	5675	35.70	17
18	415	740.72	4.658	M48	324	72	480	405	580	650	140	4227	7553	47.50	18
19	551	997.08	6.199	M56	324	84	545	470	650	720	150	5615	10167	63.21	19
20	732	1308.25	8.238	M64	324	96	640	560	750	820	200	7465	13340	84.00	20
21	973	1739.27	10.945	M72	324	108	735	600	820	890	250	9922	17735	111.60	21
22	1298	2319.36	14.603	M80	324	120	900	770	1005	1075	320	13233	23650	148.90	22



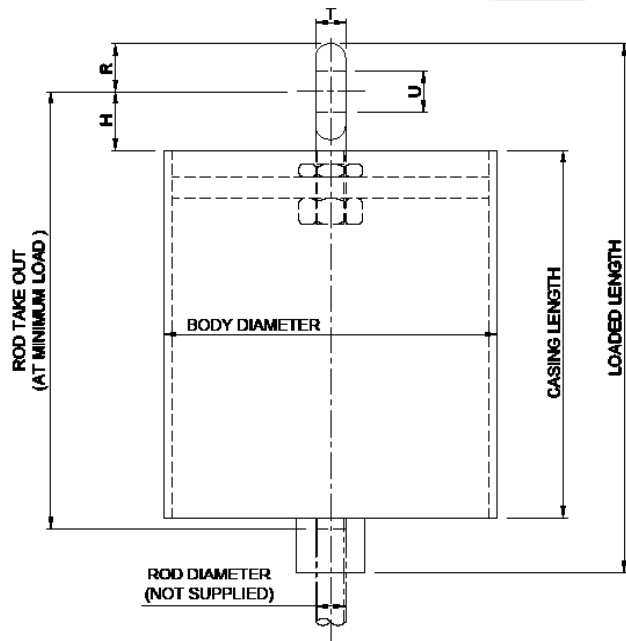
VS140-A (140mm travel) - Variable spring support



SIZE	LOAD RANGE KN		SPRING RATE	ROD DIAM	BODY DIAM	THREAD ENGAGEMENT	CASING LENGTH	ROD TAKE OUT AT MIN LOAD	LOADED LENGTH		UNIT WTKGS APPROX	LOAD RANGE KG		SPRING RATE	SIZE
	MIN	MAX	KN						MIN	MAX		KG	KG		
0	2.21	4.07	0.013	M12	114.3	18	370	290	420	560	3	22.5	41.5	0.13	0
1	3.29	5.88	0.018	M12	114.3	18	405	340	465	605	6	33.5	60	0.19	1
2	4.22	7.55	0.024	M12	114.3	18	445	370	500	640	7	43	77	0.24	2
3	5.49	9.71	0.031	M12	168.3	18	400	320	450	590	9	56	99	0.31	3
4	7.36	13.14	0.039	M12	168.3	18	430	365	490	630	10	75	134	0.40	4
5	9.91	17.55	0.054	M12	168.3	18	465	400	525	665	12	101	179	0.55	5
6	13.04	23.34	0.074	M16	168.3	24	470	400	540	680	20	133	238	0.75	6
7	17.46	31.19	0.098	M16	168.3	24	520	460	600	740	22	178	318	1.00	7
8	23.34	41.68	0.132	M16	168.3	24	540	465	600	740	25	238	425	1.35	8
9	31.09	55.70	0.174	M20	219.1	30	555	470	620	760	40	317	568	1.78	9
10	40.50	72.57	0.226	M20	219.1	30	615	530	680	820	47	413	740	2.30	10
11	52.96	94.64	0.297	M20	219.1	30	605	430	580	720	40	540	965	3.03	11
12	70.12	125.24	0.392	M24	219.1	36	600	410	580	720	45	715	1277	4.00	12
13	93.17	166.92	0.525	M30	219.1	45	675	570	750	890	60	950	1702	5.35	13
14	124.55	222.62	0.701	M30	219.1	45	685	590	770	910	65	1270	2270	7.15	14
15	168.09	300.49	0.946	M30	273.1	45	700	600	780	920	70	1714	3064	9.65	15
16	233.41	417.48	1.314	M36	273.1	54	810	715	900	1040	90	2380	4257	13.40	16
17	311.37	556.55	1.751	M42	273.1	63	930	830	1030	1170	120	3175	5675	17.85	17
18	414.54	740.72	2.329	M48	323.9	72	850	790	960	1100	210	4227	7553	23.75	18
19	550.66	997.08	3.099	M56	323.9	84	965	920	1100	1240	250	5615	10167	31.60	19
20	732.09	1308.25	4.119	M64	323.9	96	1150	1080	1270	1410	351	7465	13340	42.00	20
21	973.05	1739.27	5.472	M72	323.9	108	1315	1180	1390	1530	413	9922	17735	55.80	21
22	1297.76	2319.36	7.301	M80	323.9	120	1640	1480	1720	1860	550	13233	23650	74.45	22



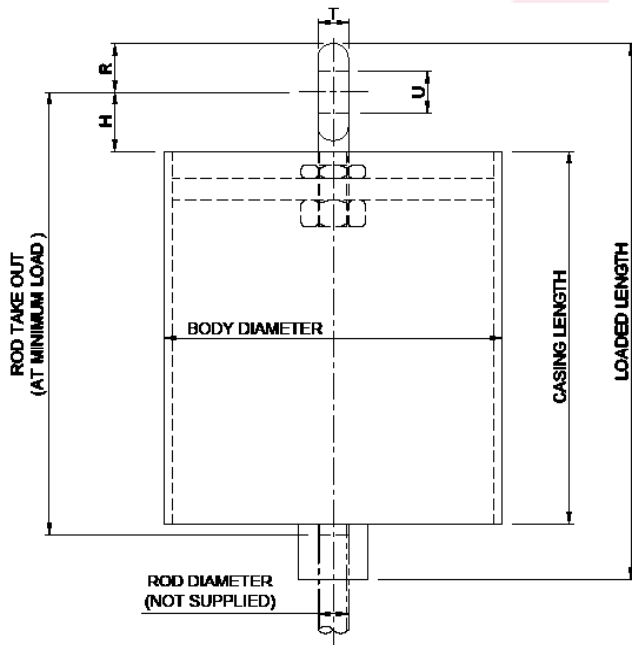
VS35-B (35mm travel) - Variable spring support



SIZE	LOAD RANGE KN		SPRING RATE	ROD DIAM	BODY DIAM	CASING LENGTH	ROD TAKE OUT AT MIN LOAD	H	R	T	U	LOADED LENGTH		UNIT WT KGS APPROX	LOAD RANGE KG		SPRING RATE KG	SIZE
	MIN	MAX	KN									MIN	MAX		MIN	MAX		
0	2.21	4.07	0.052	M12	114.3	170	200	60	35	16	14	310	345	3	22.5	41.5	0.53	0
1	3.29	5.88	0.074	M12	114.3	180	200	60	35	16	14	310	345	3	33.5	60	0.75	1
2	4.22	7.55	0.094	M12	114.3	190	210	60	35	16	14	340	375	4	43	77	0.96	2
3	5.49	9.71	0.123	M12	168.3	190	200	60	35	16	14	324	359	6	56	99	1.25	3
4	7.36	13.14	0.157	M12	168.3	190	210	60	35	16	14	336	371	6	75	134	1.60	4
5	9.91	17.55	0.216	M12	168.3	200	210	60	35	16	14	340	375	7	101	179	2.20	5
6	13.04	23.34	0.294	M16	168.3	215	225	60	35	16	18	350	385	10	133	238	3.00	6
7	17.46	31.19	0.392	M16	168.3	235	230	60	35	16	18	355	390	10	178	318	4.00	7
8	23.34	41.68	0.530	M16	168.3	235	220	60	35	16	18	350	385	14	238	425	5.40	8
9	31.09	55.70	0.696	M20	219.1	260	245	65	35	20	22	380	415	25	317	568	7.10	9
10	40.50	72.57	0.902	M20	219.1	270	234	65	35	20	22	370	405	25	413	740	9.20	10
11	52.96	94.64	1.187	M20	219.1	240	250	75	35	20	22	390	425	25	540	965	12.10	11
12	70.12	125.24	1.569	M24	219.1	260	250	75	35	24	26	400	435	30	715	1277	16.00	12
13	93.17	166.92	2.099	M30	219.1	300	310	100	50	30	32	490	525	35	950	1702	21.40	13
14	124.55	222.62	2.805	M30	219.1	320	320	100	50	30	32	500	535	40	1270	2270	28.60	14
15	168.09	300.49	3.786	M30	273.1	320	350	100	50	30	32	530	565	45	1714	3064	38.60	15
16	233.41	417.48	5.257	M36	273.1	360	376	100	65	36	38	570	605	52	2380	4257	53.60	16
17	311.37	556.55	7.002	M42	273.1	380	410	110	70	42	44	630	665	70	3175	5675	71.40	17
18	414.54	740.72	9.317	M48	323.9	360	420	110	70	48	50	630	665	140	4227	7553	95.00	18
19	550.66	997.08	12.398	M56	323.9	400	470	120	80	56	58	680	715	150	5615	10167	126.42	19
20	732.09	1308.25	16.476	M64	323.9	460	530	120	90	64	66	770	805	200	7465	13340	168.00	20
21	973.05	1739.27	21.889	M72	323.9	500	530	120	90	72	74	770	805	250	9922	17735	223.20	21
22	1297.76	2319.36	29.205	M80	323.9	620	650	130	100	80	82	930	965	320	13233	23650	297.80	22



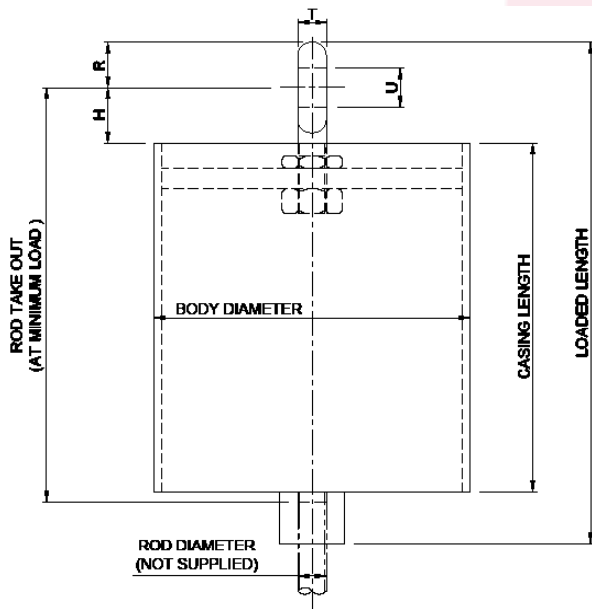
VS70-B (70mm travel) - Variable spring support



SIZE	LOAD RANGE KN		SPRING RATE	ROD DIAM	BODY DIAM	CASING LENGTH	ROD TAKE OUT AT MIN LOAD	H	R	T	U	LOADED LENGTH		UNIT WT KGS APPROX	LOAD RANGE KG		SPRING RATE	SIZE
	MIN	MAX	KN									MIN	MAX		MIN	MAX	KG	
0	2.21	4.07	0.026	M12	114.3	220	220	60	35	16	14	345	415	3	22.5	41.5	0.27	0
1	3.29	5.88	0.037	M12	114.3	240	240	60	35	16	14	365	435	3	33.5	60	0.38	1
2	4.22	7.55	0.047	M12	114.3	260	250	60	35	16	14	380	450	4	43	77	0.48	2
3	5.49	9.71	0.061	M12	168.3	235	240	60	35	16	14	360	430	6	56	99	0.63	3
4	7.36	13.14	0.078	M12	168.3	250	250	60	35	16	14	375	445	6	75	134	0.80	4
5	9.91	17.55	0.108	M12	168.3	270	270	60	35	16	14	400	470	7	101	179	1.10	5
6	13.04	23.34	0.147	M16	168.3	280	280	60	35	16	18	410	480	10	133	238	1.50	6
7	17.46	31.19	0.196	M16	168.3	300	300	60	35	16	18	440	510	10	178	318	2.00	7
8	23.34	41.68	0.265	M16	168.3	320	320	60	35	16	18	450	520	14	238	425	2.70	8
9	31.09	55.70	0.348	M20	219.1	330	320	65	35	20	22	465	535	25	317	568	3.55	9
10	40.50	72.57	0.451	M20	219.1	360	360	65	35	20	22	500	570	25	413	740	4.60	10
11	52.96	94.64	0.593	M20	219.1	300	345	75	35	20	22	490	560	25	540	965	6.05	11
12	70.12	125.24	0.785	M24	219.1	330	310	75	35	24	26	460	530	30	715	1277	8.00	12
13	93.17	166.92	1.049	M30	219.1	390	420	100	50	30	32	600	670	35	950	1702	10.70	13
14	124.55	222.62	1.402	M30	219.1	400	420	100	50	30	32	602	672	40	1270	2270	14.30	14
15	168.09	300.49	1.893	M30	273.1	410	460	100	50	30	32	640	710	45	1714	3064	19.30	15
16	233.41	417.48	2.628	M36	273.1	480	510	100	65	36	38	710	780	52	2380	4257	26.80	16
17	311.37	556.55	3.501	M42	273.1	545	570	110	70	42	44	790	860	70	3175	5675	35.70	17
18	414.54	740.72	4.658	M48	323.9	480	550	110	70	48	50	760	830	140	4227	7553	47.50	18
19	550.66	997.08	6.199	M56	323.9	545	630	120	80	56	58	840	910	150	5615	10167	63.21	19
20	732.09	1308.25	8.238	M64	323.9	640	730	120	90	64	66	970	1040	200	7465	13340	84.00	20
21	973.05	1739.27	10.945	M72	323.9	730	780	120	90	72	74	1040	1110	250	9922	17735	111.60	21
22	1297.76	2319.36	14.603	M80	323.9	900	950	130	100	80	82	1240	1310	320	13233	23650	148.90	22



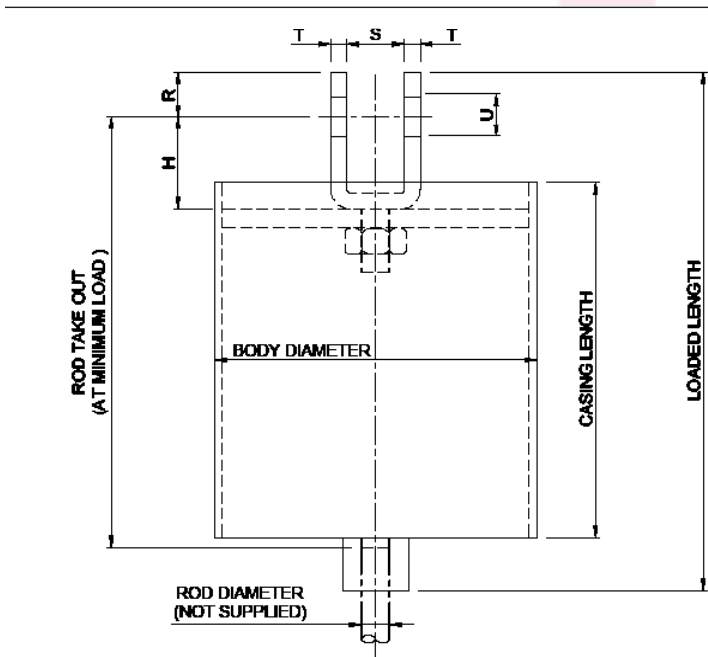
VS140-B (140mm travel) - Variable spring support



SIZE	LOAD RANGE KN		SPRING RATE	ROD DIAM	BODY DIAM	CASING LENGTH	ROD TAKE OUT AT MIN LOAD	H	R	T	U	LOADED LENGTH		UNIT WTS APPROX	LOAD RANGE KG		SPRING RATE	SIZE
	MIN	MAX	KN									MIN	MAX		KG	KG		
0	2.21	4.07	0.013	M12	114	370	360	60	35	16	14	490	630	3	22.5	41.5	0.13	0
1	3.29	5.88	0.018	M12	114	400	400	60	35	16	14	535	675	6	33.5	60	0.19	1
2	4.22	7.55	0.024	M12	114	440	450	60	35	16	14	580	720	7	43	77	0.24	2
3	5.49	9.71	0.031	M12	168	400	390	60	35	16	14	520	660	9	56	99	0.31	3
4	7.36	13.14	0.039	M12	168	430	430	60	35	16	14	560	700	10	75	134	0.40	4
5	9.91	17.55	0.054	M12	168	465	465	60	35	16	14	590	730	12	101	179	0.55	5
6	13.04	23.34	0.074	M16	168	470	470	60	35	16	18	600	740	20	133	238	0.75	6
7	17.46	31.19	0.098	M16	168	520	530	60	35	16	18	660	800	22	178	318	1.00	7
8	23.34	41.68	0.132	M16	168	540	540	60	35	16	18	670	810	25	238	425	1.35	8
9	31.09	55.70	0.174	M20	219	550	550	65	35	20	22	690	830	40	317	568	1.78	9
10	40.50	72.57	0.226	M20	219	610	610	65	35	20	22	750	890	47	413	740	2.30	10
11	52.96	94.64	0.297	M20	219	500	520	75	35	20	22	660	800	40	540	965	3.03	11
12	70.12	125.24	0.392	M24	219	545	520	75	35	24	26	660	800	45	715	1277	4.00	12
13	93.17	166.92	0.525	M30	219	675	700	100	50	30	32	880	1020	60	950	1702	5.35	13
14	124.55	222.62	0.701	M30	219	680	710	100	50	30	32	890	1030	65	1270	2270	7.15	14
15	168.09	300.49	0.946	M30	273	700	730	100	50	30	32	900	1040	70	1714	3064	9.65	15
16	233.41	417.48	1.314	M36	273	810	850	100	65	36	38	1050	1190	90	2380	4257	13.40	16
17	311.37	556.55	1.751	M42	273	930	970	110	70	42	44	1190	1330	120	3175	5675	17.85	17
18	414.54	740.72	2.329	M48	324	850	940	110	70	48	50	1140	1280	210	4227	7553	23.75	18
19	550.66	997.08	3.099	M56	324	960	1090	120	80	56	58	1300	1440	250	5615	10167	31.60	19
20	732.09	1308.25	4.119	M64	324	1140	1250	120	90	64	66	1480	1620	351	7465	13340	42.00	20
21	973.05	1739.27	5.472	M72	324	1310	1360	120	90	72	74	1600	1740	413	9922	17735	55.80	21
22	1297.76	2319.36	7.301	M80	324	1640	1670	130	100	80	82	1950	2090	550	13233	23650	74.45	22



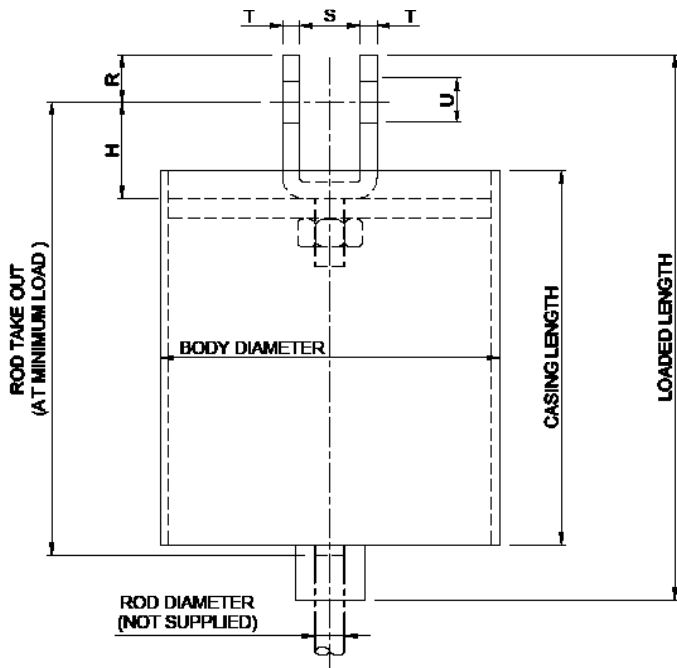
VS35-C (35mm travel) - Variable spring support



SIZE	LOAD RANGE KN		SPRING RATE	ROD DIAM	BODY DIAM	CASING LENGTH	ROD TAKE OUT AT MIN LOAD	H	R	T	U	S	LOADED LENGTH		UNIT WT/KGS APPROX	LOAD RANGE KG		SPRING RATE	SIZE
	MIN	MAX	KN										MIN	MAX		KG	KG		
0	2.21	4.07	0.052	M12	114.3	170	200	60	35	16	14	22	310	345	3	22.5	41.5	0.53	0
1	3.29	5.88	0.074	M12	114.3	180	200	60	35	16	14	22	310	345	3	33.5	60	0.75	1
2	4.22	7.55	0.094	M12	114.3	190	210	60	35	16	14	22	340	375	3	43	77	0.96	2
3	5.49	9.71	0.123	M12	168.3	190	200	60	35	16	14	22	324	359	5	56	99	1.25	3
4	7.36	13.14	0.157	M12	168.3	190	210	60	35	16	14	22	336	371	5	75	134	1.60	4
5	9.91	17.55	0.216	M12	168.3	200	210	60	35	16	14	22	340	375	5	101	179	2.20	5
6	13.04	23.34	0.294	M16	168.3	215	225	60	35	16	18	27	350	385	7	133	238	3.00	6
7	17.46	31.19	0.392	M16	168.3	235	230	60	35	16	18	27	355	390	9	178	318	4.00	7
8	23.34	41.68	0.530	M16	168.3	235	220	60	35	16	18	27	350	385	9	238	425	5.40	8
9	31.09	55.70	0.696	M20	219.1	260	245	65	35	20	22	32	380	415	21	317	568	7.10	9
10	40.50	72.57	0.902	M20	219.1	270	234	65	35	20	22	32	370	405	25	413	740	9.20	10
11	52.96	94.64	1.187	M20	219.1	240	250	75	35	20	22	37	390	425	20	540	965	12.10	11
12	70.12	125.24	1.569	M24	219.1	260	250	75	35	24	26	40	400	435	20	715	1277	16.00	12
13	93.17	166.92	2.099	M30	219.1	300	310	100	50	30	32	45	490	525	30	950	1702	21.40	13
14	124.55	222.62	2.805	M30	219.1	320	320	100	50	30	32	45	500	535	30	1270	2270	28.60	14
15	168.09	300.49	3.786	M30	273.1	320	350	100	50	30	32	50	530	565	35	1714	3064	38.60	15
16	233.41	417.48	5.257	M36	273.1	360	376	100	65	36	38	60	570	605	40	2380	4257	53.60	16
17	311.37	556.55	7.002	M42	273.1	380	410	110	70	42	44	68	630	665	50	3175	5675	71.40	17
18	414.54	740.72	9.317	M48	323.9	360	420	110	70	48	50	72	630	665	100	4227	7553	95.00	18
19	550.66	997.08	12.398	M56	323.9	400	470	120	80	56	58	80	680	715	120	5615	10167	126.42	19
20	732.09	1308.25	16.476	M64	323.9	460	530	120	90	64	66	85	770	805	140	7465	13340	168.00	20
21	973.05	1739.27	21.889	M72	323.9	500	530	120	90	72	74	90	770	805	170	9922	17735	223.20	21
22	1297.76	2319.36	29.205	M80	323.9	620	650	130	100	80	82	100	930	965	200	13233	23650	297.80	22



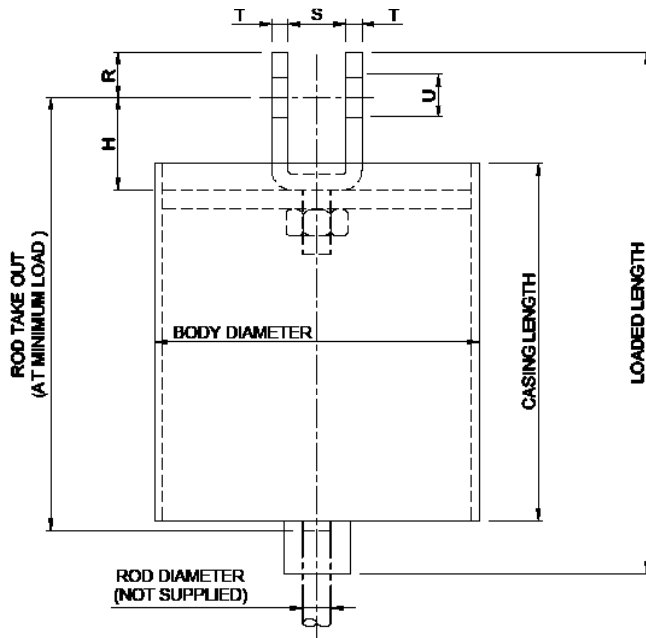
VS70-C (70mm travel) - Variable spring support



SIZE	LOAD RANGE KN		SPRING RATE	ROD DIAM	BODY DIAM	CASING LENGTH	ROD TAKE OUT AT MIN LOAD	H	R	T	s	U	LOADED LENGTH		UNIT WT KGS APPROX	LOAD RANGE KG		SPRING RATE	SIZE
	MIN	MAX	KN										MIN	MAX		KG	KG		
0	2.21	4.07	0.026	M12	114.3	220	220	60	35	16	22	14	345	415	3	22.5	41.5	0.27	0
1	3.29	5.88	0.037	M12	114.3	240	240	60	35	16	22	14	365	435	3	33.5	60	0.38	1
2	4.22	7.55	0.047	M12	114.3	260	250	60	35	16	22	14	380	450	4	43	77	0.48	2
3	5.49	9.71	0.061	M12	168.3	235	240	60	35	16	22	14	360	430	6	56	99	0.63	3
4	7.36	13.14	0.078	M12	168.3	250	250	60	35	16	22	14	375	445	6	75	134	0.80	4
5	9.91	17.55	0.108	M12	168.3	270	270	60	35	16	22	14	400	470	7	101	179	1.10	5
6	13.04	23.34	0.147	M16	168.3	280	280	60	35	16	27	18	410	480	10	133	238	1.50	6
7	17.46	31.19	0.196	M16	168.3	300	300	60	35	16	27	18	440	510	10	178	318	2.00	7
8	23.34	41.68	0.265	M16	168.3	320	320	60	35	16	27	18	450	520	14	238	425	2.70	8
9	31.09	55.70	0.348	M20	219.1	330	320	65	35	20	32	22	465	535	25	317	568	3.55	9
10	40.50	72.57	0.451	M20	219.1	360	360	65	35	20	32	22	500	570	25	413	740	4.60	10
11	52.96	94.64	0.593	M20	219.1	300	345	75	35	20	37	22	490	560	25	540	965	6.05	11
12	70.12	125.24	0.785	M24	219.1	330	310	75	35	24	40	26	460	530	30	715	1277	8.00	12
13	93.17	166.92	1.049	M30	219.1	390	420	100	50	30	45	32	600	670	35	950	1702	10.70	13
14	124.55	222.62	1.402	M30	219.1	400	420	100	50	30	45	32	602	672	40	1270	2270	14.30	14
15	168.09	300.49	1.893	M30	273.1	410	460	100	50	30	50	32	640	710	45	1714	3064	19.30	15
16	233.41	417.48	2.628	M36	273.1	480	510	100	65	36	60	38	710	780	52	2380	4257	26.80	16
17	311.37	556.55	3.501	M42	273.1	545	570	110	70	42	68	44	790	860	70	3175	5675	35.70	17
18	414.54	740.72	4.658	M48	323.9	480	550	110	70	48	72	50	760	830	140	4227	7553	47.50	18
19	550.66	997.08	6.199	M56	323.9	545	630	120	80	56	80	58	840	910	150	5615	10167	63.21	19
20	732.09	1308.25	8.238	M64	323.9	640	730	120	90	64	85	66	970	1040	200	7465	13340	84.00	20
21	973.05	1739.27	10.945	M72	323.9	730	780	120	90	72	90	74	1040	1110	250	9922	17735	111.60	21
22	1297.76	2319.36	14.603	M80	323.9	900	950	130	100	80	100	82	1240	1310	320	13233	23650	148.90	22



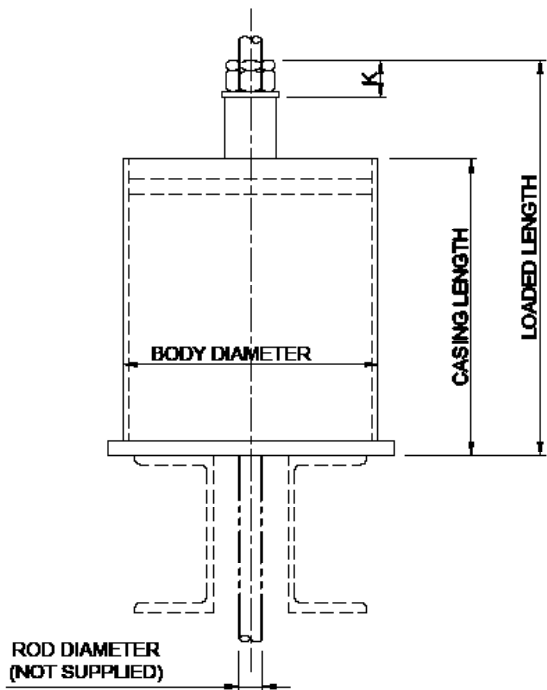
VS140-C (140mm travel) - Variable spring support



SIZE	LOAD RANGE KN		SPRING RATE KN	ROD DIAM	BODY DIAM	CASING LENGTH	ROD TAKE OUT AT MIN LOAD	H	R	T	S	U	LOADED LENGTH		UNIT WT KGS APPROX	LOAD RANGE KG		SPRING RATE KG	SIZE
	MIN	MAX											MIN	MAX		MIN	MAX		
0	2.21	4.07	0.013	M12	114.3	370	360	60	35	16	22	14	490	630	3	22.5	41.5	0.13	0
1	3.29	5.88	0.018	M12	114.3	400	400	60	35	16	22	14	535	675	6	33.5	60	0.19	1
2	4.22	7.55	0.024	M12	114.3	440	450	60	35	16	22	14	580	720	7	43	77	0.24	2
3	5.49	9.71	0.031	M12	168.3	400	390	60	35	16	22	14	520	660	9	56	99	0.31	3
4	7.36	13.14	0.039	M12	168.3	430	430	60	35	16	22	14	560	700	10	75	134	0.40	4
5	9.91	17.55	0.054	M12	168.3	465	465	60	35	16	22	14	590	730	12	101	179	0.55	5
6	13.04	23.34	0.074	M16	168.3	470	470	60	35	16	27	18	600	740	20	133	238	0.75	6
7	17.46	31.19	0.098	M16	168.3	520	530	60	35	16	27	18	660	800	22	178	318	1.00	7
8	23.34	41.68	0.132	M16	168.3	540	540	60	35	16	27	18	670	810	25	238	425	1.35	8
9	31.09	55.70	0.174	M20	219.1	550	550	65	35	20	32	22	690	830	40	317	568	1.78	9
10	40.50	72.57	0.226	M20	219.1	610	610	65	35	20	32	22	750	890	47	413	740	2.30	10
11	52.96	94.64	0.297	M20	219.1	500	520	75	35	20	37	22	660	800	40	540	965	3.03	11
12	70.12	125.24	0.392	M24	219.1	545	520	75	35	24	40	26	660	800	45	715	1277	4.00	12
13	93.17	166.92	0.525	M30	219.1	675	700	100	50	30	45	32	880	1020	60	950	1702	5.35	13
14	124.55	222.62	0.701	M30	219.1	680	710	100	50	30	45	32	890	1030	65	1270	2270	7.15	14
15	168.09	300.49	0.946	M30	273.1	700	730	100	50	30	50	32	900	1040	70	1714	3064	9.65	15
16	233.41	417.48	1.314	M36	273.1	810	850	100	65	36	60	38	1050	1190	90	2380	4257	13.40	16
17	311.37	556.55	1.751	M42	273.1	930	970	110	70	42	68	44	1190	1330	120	3175	5675	17.85	17
18	414.54	740.72	2.329	M48	323.9	850	940	110	70	48	72	50	1140	1280	210	4227	7553	23.75	18
19	550.66	997.08	3.099	M56	323.9	960	1090	120	80	56	80	58	1300	1440	250	5615	10167	31.60	19
20	732.09	1308.25	4.119	M64	323.9	1140	1250	120	90	64	85	66	1480	1620	351	7465	13340	42.00	20
21	973.05	1739.27	5.472	M72	323.9	1310	1360	120	90	72	90	74	1600	1740	413	9922	17735	55.80	21
22	1297.76	2319.36	7.301	M80	323.9	1640	1670	130	100	80	100	82	1950	2090	550	13233	23650	74.45	22



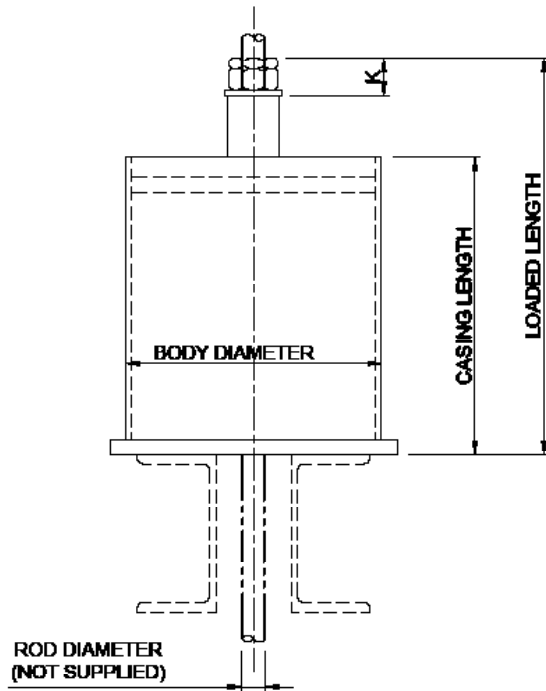
VS35-D (35mm travel) - Variable spring support



SIZE	LOAD RANGE KN		SPRING RATE	ROD DIAM	BODY DIAM	CASING LENGTH	K	LOADED LENGTH		UNIT WT KGS APPROX	LOAD RANGE KG		SPRING RATE	SIZE
	MIN	MAX	KN					MIN	MAX		KG			
0	2.21	4.07	0.052	M12	114.3	130	55	180	215	2	22.5	41.5	0.53	0
1	3.29	5.88	0.074	M12	114.3	140	55	190	225	3	33.5	60	0.75	1
2	4.22	7.55	0.094	M12	114.3	150	55	205	240	3	43	77	0.96	2
3	5.49	9.71	0.123	M12	168.3	140	55	190	225	4	56	99	1.25	3
4	7.36	13.14	0.157	M12	168.3	150	55	200	235	4	75	134	1.60	4
5	9.91	17.55	0.216	M12	168.3	160	55	210	245	5	101	179	2.20	5
6	13.04	23.34	0.294	M16	168.3	170	55	220	255	7	133	238	3.00	6
7	17.46	31.19	0.392	M16	168.3	180	55	230	265	9	178	318	4.00	7
8	23.34	41.68	0.530	M16	168.3	190	55	240	275	9	238	425	5.40	8
9	31.09	55.70	0.696	M20	219.1	200	55	260	295	20	317	568	7.10	9
10	40.50	72.57	0.902	M20	219.1	220	55	270	305	20	413	740	9.20	10
11	52.96	94.64	1.187	M20	219.1	180	55	240	275	20	540	965	12.10	11
12	70.12	125.24	1.569	M24	219.1	200	55	250	285	20	715	1277	16.00	12
13	93.17	166.92	2.099	M30	219.1	230	55	290	325	25	950	1702	21.40	13
14	124.55	222.62	2.805	M30	219.1	240	55	290	325	25	1270	2270	28.60	14
15	168.09	300.49	3.786	M30	273.1	270	80	320	355	30	1714	3064	38.60	15
16	233.41	417.48	5.257	M36	273.1	300	80	350	385	35	2380	4257	53.60	16
17	311.37	556.55	7.002	M42	273.1	310	80	380	415	40	3175	5675	71.40	17
18	414.54	740.72	9.317	M48	323.9	311	90	420	455	90	4227	7553	95.00	18
19	550.66	997.08	12.398	M56	323.9	330	90	450	485	100	5615	10167	126.42	19
20	732.09	1308.25	16.476	M64	323.9	400	90	500	535	120	7465	13340	168.00	20
21	973.05	1739.27	21.889	M72	323.9	420	120	560	595	140	9922	17735	223.20	21
22	1297.76	2319.36	29.205	M80	323.9	540	120	680	715	180	13233	23650	297.80	22



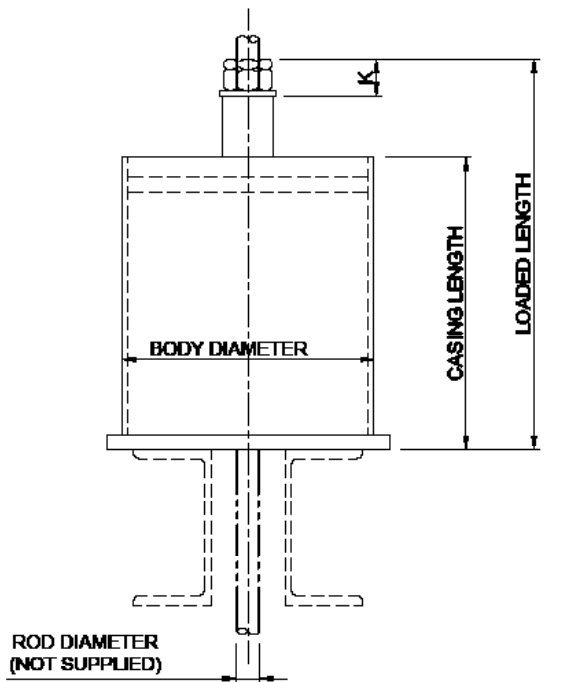
VS70-D (70mm travel) - Variable spring support



SIZE	LOAD RANGE KN		SPRING RATE	ROD DIAM	BODY DIAM	CASING LENGTH	K	LOADED LENGTH		UNIT WT KGS APPROX	LOAD RANGE KG		SPRING RATE	SIZE
	MIN	MAX	KN					MIN	MAX		MIN	MAX	KG	
0	2.21	4.07	0.026	M12	114.3	180	55	230	300	3	22.5	41.5	0.27	0
1	3.29	5.88	0.037	M12	114.3	200	55	250	320	3	33.5	60	0.38	1
2	4.22	7.55	0.047	M12	114.3	210	55	270	340	4	43	77	0.48	2
3	5.49	9.71	0.061	M12	168.3	190	55	250	320	5	56	99	0.63	3
4	7.36	13.14	0.078	M12	168.3	210	55	260	330	7	75	134	0.80	4
5	9.91	17.55	0.108	M12	168.3	220	55	280	350	7	101	179	1.10	5
6	13.04	23.34	0.147	M16	168.3	230	55	280	350	10	133	238	1.50	6
7	17.46	31.19	0.196	M16	168.3	250	55	310	380	12	178	318	2.00	7
8	23.34	41.68	0.265	M16	168.3	270	55	320	390	12	238	425	2.70	8
9	31.09	55.70	0.348	M20	219.1	275	55	330	400	25	317	568	3.55	9
10	40.50	72.57	0.451	M20	219.1	310	55	370	440	25	413	740	4.60	10
11	52.96	94.64	0.593	M20	219.1	250	55	310	380	30	540	965	6.05	11
12	70.12	125.24	0.785	M24	219.1	270	55	330	400	30	715	1277	8.00	12
13	93.17	166.92	1.049	M30	219.1	340	55	400	470	30	950	1702	10.70	13
14	124.55	222.62	1.402	M30	219.1	340	55	400	470	35	1270	2270	14.30	14
15	168.09	300.49	1.893	M30	273.1	360	80	425	495	40	1714	3064	19.30	15
16	233.41	417.48	2.628	M36	273.1	420	80	480	550	50	2380	4257	26.80	16
17	311.37	556.55	3.501	M42	273.1	470	80	530	600	60	3175	5675	35.70	17
18	414.54	740.72	4.658	M48	323.9	430	90	550	620	120	4227	7553	47.50	18
19	550.66	997.08	6.199	M56	323.9	480	90	600	670	130	5615	10167	63.21	19
20	732.09	1308.25	8.238	M64	323.9	575	90	690	760	170	7465	13340	84.00	20
21	973.05	1739.27	10.945	M72	323.9	650	120	790	860	150	9922	17735	111.60	21
22	1297.76	2319.36	14.603	M80	323.9	820	120	960	1030	200	13233	23650	148.90	22



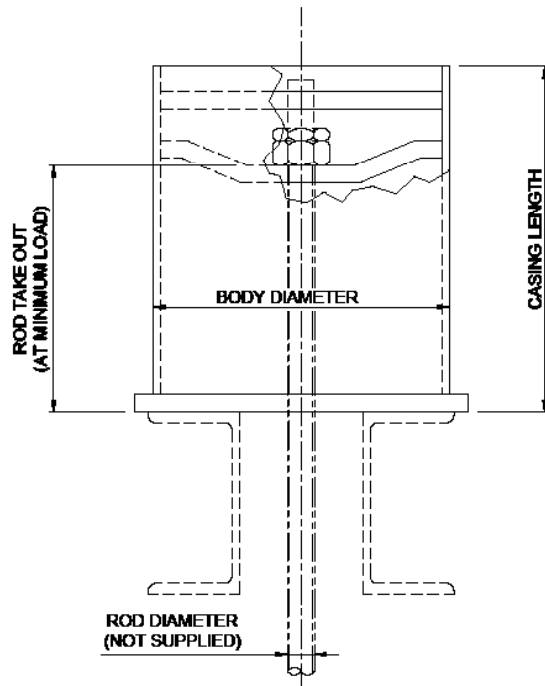
VS140-D (140mm travel) - Variable spring support



SIZE	LOAD RANGE KN		SPRING RATE	ROD DIAM	BODY DIAM	CASING LENGTH	K	LOADED LENGTH		UNIT WT KGS APPROX	LOAD RANGE KG		SPRING RATE	SIZE
	MIN	MAX	KN					MIN	MAX		KG			
0	2.21	4.07	0.013	M12	114.3	330	55	390	530	5	22.5	41.5	0.13	0
1	3.29	5.88	0.018	M12	114.3	360	55	420	560	6	33.5	60	0.19	1
2	4.22	7.55	0.024	M12	114.3	400	55	460	600	7	43	77	0.24	2
3	5.49	9.71	0.031	M12	168.3	350	55	410	550	9	56	99	0.31	3
4	7.36	13.14	0.039	M12	168.3	385	55	450	590	10	75	134	0.40	4
5	9.91	17.55	0.054	M12	168.3	420	55	480	620	11	101	179	0.55	5
6	13.04	23.34	0.074	M16	168.3	420	55	480	620	18	133	238	0.75	6
7	17.46	31.19	0.098	M16	168.3	470	55	530	670	20	178	318	1.00	7
8	23.34	41.68	0.132	M16	168.3	500	55	550	690	22	238	425	1.35	8
9	31.09	55.70	0.174	M20	219.1	500	55	570	710	40	317	568	1.78	9
10	40.50	72.57	0.226	M20	219.1	560	55	630	770	45	413	740	2.30	10
11	52.96	94.64	0.297	M20	219.1	450	55	520	660	40	540	965	3.03	11
12	70.12	125.24	0.392	M24	219.1	490	55	550	690	40	715	1277	4.00	12
13	93.17	166.92	0.525	M30	219.1	620	55	690	830	60	950	1702	5.35	13
14	124.55	222.62	0.701	M30	219.1	620	55	690	830	60	1270	2270	7.15	14
15	168.09	300.49	0.946	M30	273.1	640	80	720	860	70	1714	3064	9.65	15
16	233.41	417.48	1.314	M36	273.1	760	80	830	970	80	2380	4257	13.40	16
17	311.37	556.55	1.751	M42	273.1	860	80	940	1080	100	3175	5675	17.85	17
18	414.54	740.72	2.329	M48	323.9	795	90	920	1060	200	4227	7553	23.75	18
19	550.66	997.08	3.099	M56	323.9	910	90	1040	1180	230	5615	10167	31.60	19
20	732.09	1308.25	4.119	M64	323.9	1080	90	1200	1340	320	7465	13340	42.00	20
21	973.05	1739.27	5.472	M72	323.9	1240	120	1390	1530	370	9922	17735	55.80	21
22	1297.76	2319.36	7.301	M80	323.9	1550	120	1700	1840	500	13233	23650	74.45	22



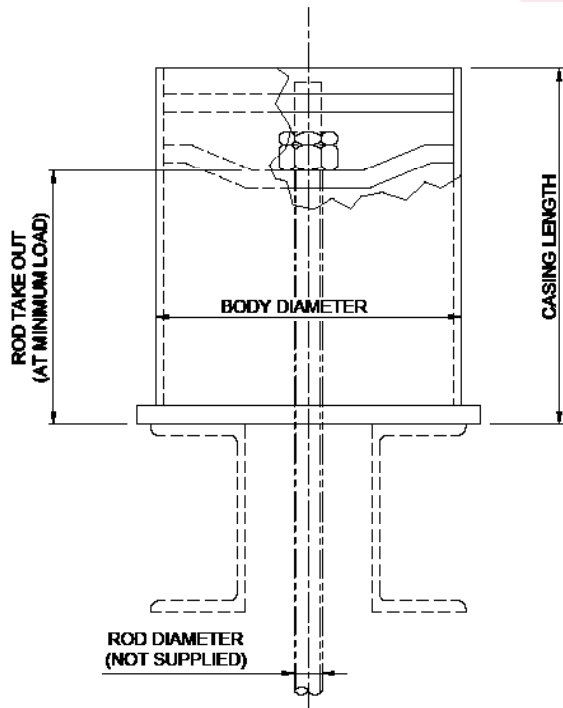
VS35-E (35mm travel) - Variable spring support



SIZE	LOAD RANGE KN		SPRING RATE	ROD DIAM	BODY DIAM	CASING LENGTH	ROD TAKE OUT AT MIN LOAD	UNIT WT KGS APPROX	LOAD RANGE KG		SPRING RATE	SIZE
	MIN	MAX	KN						MIN	MAX	KG	
0	2.21	4.07	0.052	M12	114.3	130	103	2	22.5	41.5	0.53	0
1	3.29	5.88	0.074	M12	114.3	140	110	3	33.5	60	0.75	1
2	4.22	7.55	0.094	M12	114.3	150	126	3	43	77	0.96	2
3	5.49	9.71	0.123	M12	168.3	140	113	4	56	99	1.25	3
4	7.36	13.14	0.157	M12	168.3	150	123	4	75	134	1.60	4
5	9.91	17.55	0.216	M12	168.3	160	132	5	101	179	2.20	5
6	13.04	23.34	0.294	M16	168.3	170	138	7	133	238	3.00	6
7	17.46	31.19	0.392	M16	168.3	180	158	9	178	318	4.00	7
8	23.34	41.68	0.530	M16	168.3	190	153	9	238	425	5.40	8
9	31.09	55.70	0.696	M20	219.1	200	166	20	317	568	7.10	9
10	40.50	72.57	0.902	M20	219.1	220	179	20	413	740	9.20	10
11	52.96	94.64	1.187	M20	219.1	180	147	20	540	965	12.10	11
12	70.12	125.24	1.569	M24	219.1	200	157	20	715	1277	16.00	12
13	93.17	166.92	2.099	M30	219.1	230	192	25	950	1702	21.40	13
14	124.55	222.62	2.805	M30	219.1	240	198	25	1270	2270	28.60	14
15	168.09	300.49	3.786	M30	273.1	270	211	30	1714	3064	38.60	15
16	233.41	417.48	5.257	M36	273.1	300	243	35	2380	4257	53.60	16
17	311.37	556.55	7.002	M42	273.1	310	256	40	3175	5675	71.40	17
18	414.54	740.72	9.317	M48	323.9	311	281	90	4227	7553	95.00	18
19	550.66	997.08	12.398	M56	323.9	330	307	100	5615	10167	126.42	19
20	732.09	1308.25	16.476	M64	323.9	400	357	120	7465	13340	168.00	20
21	973.05	1739.27	21.889	M72	323.9	420	393	140	9922	17735	223.20	21
22	1297.76	2319.36	29.205	M80	323.9	540	501	180	13233	23650	297.80	22



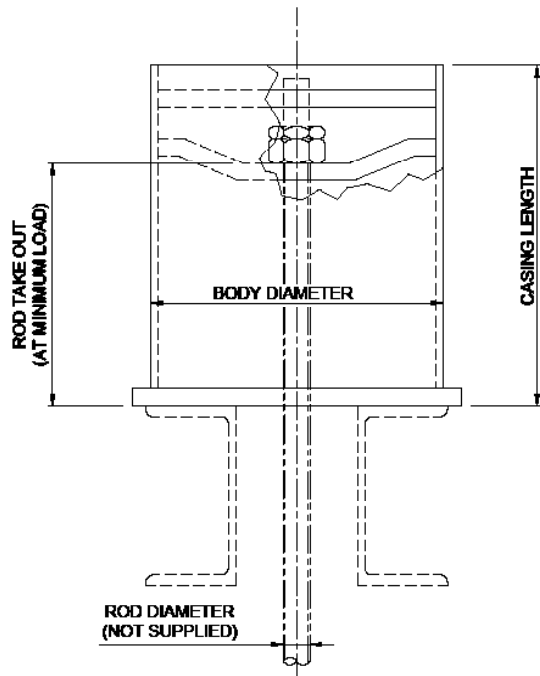
VS70-E (70mm travel) - Variable spring support



SIZE	LOAD RANGE KN		SPRING RATE	ROD DIAM	BODY DIAM	CASING LENGTH	ROD TAKE OUT AT MIN LOAD	UNIT WT KGS APPROX	LOAD RANGE KG		SPRING RATE	SIZE
	MIN	MAX	KN						MIN	MAX	KG	
0	2.21	4.07	0.026	M12	114.3	180	150	3	22.5	41.5	0.27	0
1	3.29	5.88	0.037	M12	114.3	200	167	3	33.5	60	0.38	1
2	4.22	7.55	0.047	M12	114.3	220	186	4	43	77	0.48	2
3	5.49	9.71	0.061	M12	168.3	190	162	5	56	99	0.63	3
4	7.36	13.14	0.078	M12	168.3	210	178	7	75	134	0.80	4
5	9.91	17.55	0.108	M12	168.3	230	196	7	101	179	1.10	5
6	13.04	23.34	0.147	M16	168.3	230	200	10	133	238	1.50	6
7	17.46	31.19	0.196	M16	168.3	260	224	12	178	318	2.00	7
8	23.34	41.68	0.265	M16	168.3	270	236	12	238	425	2.70	8
9	31.09	55.70	0.348	M20	219.1	275	233	25	317	568	3.55	9
10	40.50	72.57	0.451	M20	219.1	310	265	25	413	740	4.60	10
11	52.96	94.64	0.593	M20	219.1	250	209	30	540	965	6.05	11
12	70.12	125.24	0.785	M24	219.1	270	227	30	715	1277	8.00	12
13	93.17	166.92	1.049	M30	219.1	340	291	30	950	1702	10.70	13
14	124.55	222.62	1.402	M30	219.1	340	295	35	1270	2270	14.30	14
15	168.09	300.49	1.893	M30	273.1	360	300	40	1714	3064	19.30	15
16	233.41	417.48	2.628	M36	273.1	420	359	50	2380	4257	26.80	16
17	311.37	556.55	3.501	M42	273.1	470	411	60	3175	5675	35.70	17
18	414.54	740.72	4.658	M48	323.9	430	395	120	4227	7553	47.50	18
19	550.66	997.08	6.199	M56	323.9	490	453	130	5615	10167	63.21	19
20	732.09	1308.25	8.238	M64	323.9	575	535	170	7465	13340	84.00	20
21	973.05	1739.27	10.945	M72	323.9	650	623	150	9922	17735	111.60	21
22	1297.76	2319.36	14.603	M80	323.9	820	777	200	13233	23650	148.90	22



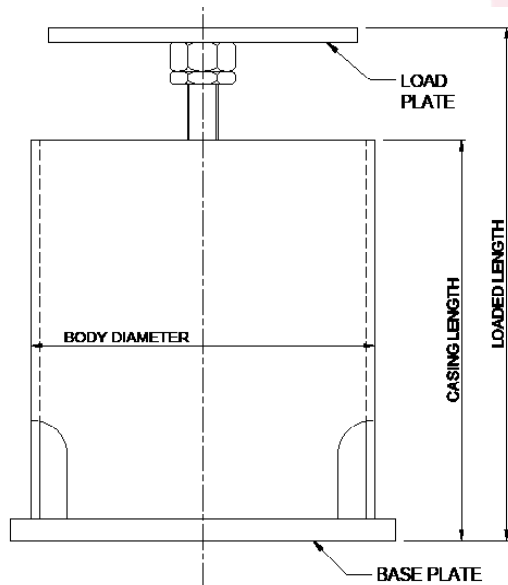
VS140-E (140mm travel) - Variable spring support



SIZE	LOAD RANGE KN		SPRING RATE	ROD DIAM	BODY DIAM	CASING LENGTH	ROD TAKE OUT AT MIN LOAD	UNIT WT KGS APPROX	LOAD RANGE KG		SPRING RATE	SIZE
	MIN	MAX	KN						MIN	MAX	KG	
0	2.21	4.07	0.013	M12	114.3	330	294	5	22.5	41.5	0.13	0
1	3.29	5.88	0.018	M12	114.3	360	328	6	33.5	60	0.19	1
2	4.22	7.55	0.024	M12	114.3	400	366	7	43	77	0.24	2
3	5.49	9.71	0.031	M12	168.3	350	318	9	56	99	0.31	3
4	7.36	13.14	0.039	M12	168.3	385	350	10	75	134	0.40	4
5	9.91	17.55	0.054	M12	168.3	420	385	11	101	179	0.55	5
6	13.04	23.34	0.074	M16	168.3	420	386	18	133	238	0.75	6
7	17.46	31.19	0.098	M16	168.3	470	434	20	178	318	1.00	7
8	23.34	41.68	0.132	M16	168.3	500	458	22	238	425	1.35	8
9	31.09	55.70	0.174	M20	219.1	500	452	40	317	568	1.78	9
10	40.50	72.57	0.226	M20	219.1	560	516	45	413	740	2.30	10
11	52.96	94.64	0.297	M20	219.1	450	404	40	540	965	3.03	11
12	70.12	125.24	0.392	M24	219.1	490	438	40	715	1277	4.00	12
13	93.17	166.92	0.525	M30	219.1	620	568	60	950	1702	5.35	13
14	124.55	222.62	0.701	M30	219.1	620	574	60	1270	2270	7.15	14
15	168.09	300.49	0.946	M30	273.1	640	580	70	1714	3064	9.65	15
16	233.41	417.48	1.314	M36	273.1	760	696	80	2380	4257	13.40	16
17	311.37	556.55	1.751	M42	273.1	860	802	100	3175	5675	17.85	17
18	414.54	740.72	2.329	M48	323.9	795	750	200	4227	7553	23.75	18
19	550.66	997.08	3.099	M56	323.9	910	866	230	5615	10167	31.60	19
20	732.09	1308.25	4.119	M64	323.9	1080	1030	320	7465	13340	42.00	20
21	973.05	1739.27	5.472	M72	323.9	1240	1200	370	9922	17735	55.80	21
22	1297.76	2319.36	7.301	M80	323.9	1550	1500	500	13233	23650	74.45	22



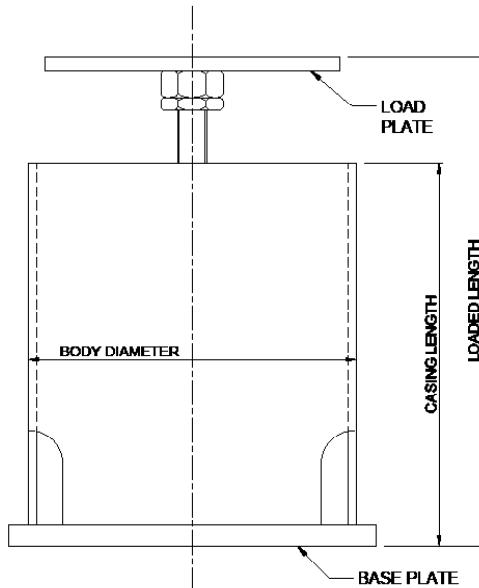
VS35-F (35mm travel) - Variable spring support



SIZE	LOAD RANGE KN		SPRING RATE KN	BODY DIAM	CASING LENGTH	BASE PLATE SIZE	BASE PLATE HOLE CENTRES	BOLT DIAM	BASE PLATE THK.	LOAD PLATE SIZE SQUARE	LOAD PLATE TH	LOADED LENGTH		UNIT WT KGS APPROX	LOAD RANGE KG		SPRING RATE KG	SIZE
	MIN	MAX										MIN	MAX					
0	2.21	4.07	0.052	114.3	130	150	113	M16	6	130	8	180	215	5	22.5	41.5	0.53	0
1	3.29	5.88	0.074	114.3	135	150	113	M16	6	130	8	188	223	5	33.5	60	0.75	1
2	4.22	7.55	0.094	114.3	150	150	113	M16	6	130	8	204	239	5	43	77	0.96	2
3	5.49	9.71	0.123	168.3	138	200	139	M20	6	130	8	200	235	7	56	99	1.25	3
4	7.36	0.10	0.157	168.3	148	200	139	M20	6	130	8	200	235	2107	75	1	1.60	4
5	9.91	17.55	0.216	168.3	158	200	139	M20	6	130	8	210	245	10	101	179	2.20	5
6	13.04	23.34	0.294	168.3	165	200	139	M20	8	150	10	220	255	14	133	238	3.00	6
7	17.46	31.19	0.318	168.3	180	200	139	M20	8	150	10	240	275	15	178	318	3.24	7
8	23.34	41.68	0.530	168.3	187	200	139	M20	8	150	10	245	280	15	238	425	5.40	8
9	31.09	55.70	0.696	219.1	200	220	143	M20	8	150	12	270	305	30	317	568	7.10	9
10	40.50	72.57	0.902	219.1	215	220	143	M20	8	150	12	280	315	35	413	740	9.20	10
11	52.96	94.64	1.187	219.1	180	220	143	M20	8	180	12	250	285	30	540	965	12.10	11
12	70.12	125.24	1.569	219.1	196	220	143	M20	8	180	12	260	295	30	715	1277	16.00	12
13	93.17	166.92	2.099	219.1	230	220	143	M20	8	180	12	290	325	30	950	1702	21.40	13
14	124.55	222.62	2.805	219.1	237	220	143	M20	8	180	12	300	335	35	1270	2270	28.60	14
15	168.09	300.49	3.786	273.1	260	270	190	M20	10	200	15	308	343	40	1714	3064	38.60	15
16	233.41	417.48	5.257	273.1	290	270	190	M20	10	200	15	340	375	45	2380	4257	53.60	16
17	311.37	556.55	7.002	273.1	310	270	190	M20	10	200	15	370	405	50	3175	5675	71.40	17
18	414.54	740.72	9.317	323.9	303	350	283	M24	12	250	20	390	425	110	4227	7553	95.00	18
19	550.66	997.08	12.398	323.9	330	350	283	M24	12	250	20	420	455	110	5615	10167	126.42	19
20	732.09	1308.25	16.476	323.9	390	350	283	M24	15	250	20	470	505	150	7465	13340	168.00	20
21	973.05	1739.27	21.889	323.9	410	350	283	M24	15	250	20	500	535	150	9922	17735	223.20	21
22	1297.76	2319.36	29.205	323.9	530	350	283	M24	15	250	20	600	635	190	13233	23650	297.80	22



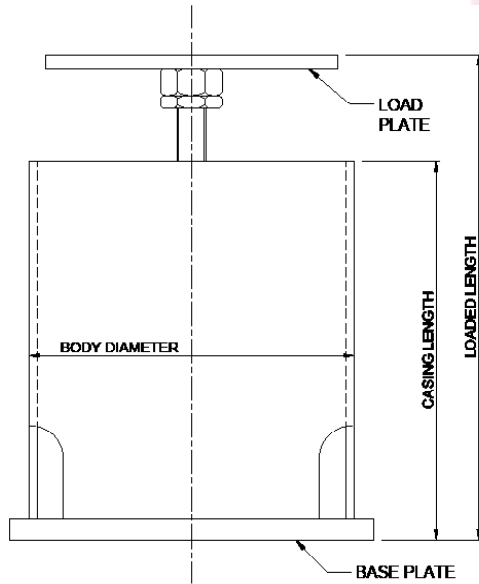
VS70-F (70mm travel) - Variable spring support



SIZE	LOAD RANGE KN		SPRING RATE	BODY DIAM	CASING LENGTH	BASE PLATE SIZE	BASE PLATE HOE CENTRES	BOLT DIAM	BASE PLATE THK.	LOAD PLATE SIZE SQUARE	LOAD PLATE TH	LOADED LENGTH		UNIT WT KGS APPROX	LOAD RANGE KG		SPRING RATE	SIZE
	MIN	MAX	KN									MIN	MAX		KG			
0	2.21	4.07	0.026	114.3	180	150	113	M16	6	130	8	233	303	6	22.5	41.5	0.27	0
1	3.29	5.88	0.037	114.3	197	150	113	M16	6	130	8	255	325	6	33.5	60	0.38	1
2	4.22	7.55	0.047	114.3	215	150	113	M16	6	130	8	275	345	7	43	77	0.48	2
3	5.49	9.71	0.061	168.3	190	200	139	M20	6	130	8	250	320	10	56	99	0.63	3
4	7.36	13.14	0.078	168.3	210	200	139	M20	6	130	8	270	340	12	75	134	0.80	4
5	9.91	17.55	0.108	168.3	225	200	139	M20	6	130	8	285	355	12	101	179	1.10	5
6	13.04	23.34	0.147	168.3	230	200	139	M20	8	150	10	290	360	17	133	238	1.50	6
7	17.46	31.19	0.159	168.3	255	200	139	M20	8	150	10	320	390	20	178	318	1.62	7
8	23.34	41.68	0.265	168.3	270	200	139	M20	8	150	10	330	400	20	238	425	2.70	8
9	31.09	55.70	0.348	219.1	270	240	143	M20	8	150	12	350	420	35	317	568	3.55	9
10	40.50	72.57	0.451	219.1	300	240	143	M20	8	150	12	380	450	40	413	740	4.60	10
11	52.96	94.64	0.593	219.1	250	240	143	M20	8	180	12	320	390	35	540	965	6.05	11
12	70.12	125.24	0.785	219.1	270	240	143	M20	8	180	12	340	410	40	715	1277	8.00	12
13	93.17	166.92	1.049	219.1	340	240	143	M20	8	180	12	400	470	48	950	1702	10.70	13
14	124.55	222.62	1.402	219.1	340	240	143	M20	8	180	12	405	475	50	1270	2270	14.30	14
15	168.09	300.49	1.893	273.1	355	270	190	M20	10	200	15	410	480	50	1714	3064	19.30	15
16	233.41	417.48	2.628	273.1	415	270	190	M20	10	200	15	475	545	60	2380	4257	26.80	16
17	311.37	556.55	3.501	273.1	470	270	190	M20	10	200	15	530	600	70	3175	5675	35.70	17
18	414.54	740.72	4.658	323.9	420	350	283	M24	12	250	20	523	593	140	4227	7553	47.50	18
19	550.66	997.08	6.199	323.9	480	350	283	M24	12	250	20	580	650	160	5615	10167	63.21	19
20	732.09	1308.25	8.238	323.9	570	350	283	M24	15	250	20	660	730	200	7465	13340	84.00	20
21	973.05	1739.27	10.945	323.9	650	350	283	M24	15	250	20	730	800	220	9922	17735	111.60	21
22	1297.76	2319.36	14.603	323.9	810	350	283	M24	15	250	20	890	960	300	13233	23650	148.90	22



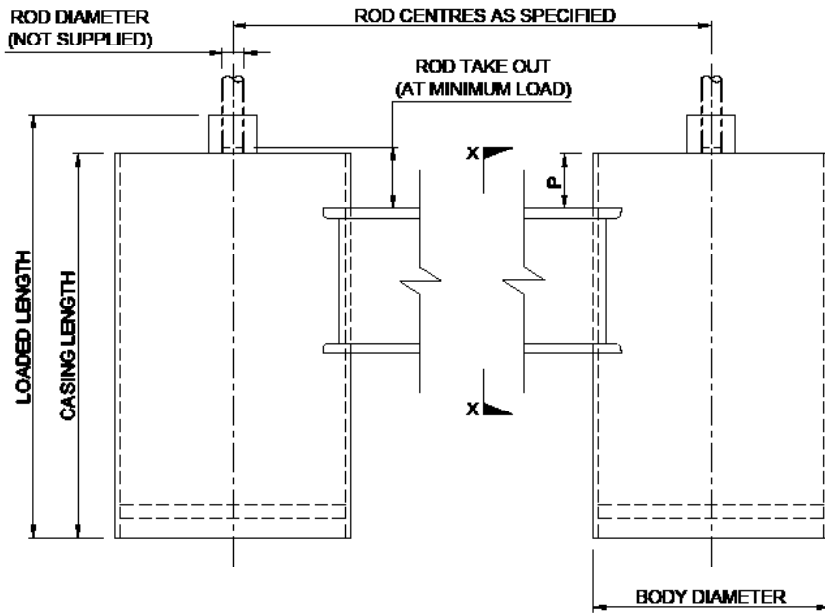
VS140-F (140mm travel) - Variable spring support



SIZE	LOAD RANGE KN		SPRING RATE	BODY DIAM	CASING LENGTH	BASE PLATE SIZE	BASE PLATE HOLE CENTRES	BOLT DIAM	BASE PLATE THK.	LOAD PLATE SIZE SQUARE	LOAD PLATE TH	LOADED LENGTH		UNIT WT KGS APPROX	LOAD RANGE KG		SPRING RATE	SIZE
	MIN	MAX	KN									MIN	MAX		KG			
0	2.21	4.07	0.013	114.3	330	150	113	M16	6	130	8	380	520	9	22.5	41.5	0.13	0
1	3.29	5.88	0.018	114.3	360	150	113	M16	6	130	8	420	560	9	33.5	60	0.19	1
2	4.22	7.55	0.024	114.3	400	150	113	M16	6	130	8	460	600	10	43	77	0.24	2
3	5.49	9.71	0.031	168.3	350	200	139	M20	6	130	8	415	555	15	56	99	0.31	3
4	7.36	13.14	0.039	168.3	385	200	139	M20	6	130	8	450	590	15	75	134	0.40	4
5	9.91	17.55	0.054	168.3	420	200	139	M20	6	130	8	480	620	20	101	179	0.55	5
6	13.04	23.34	0.074	168.3	420	200	139	M20	8	150	10	490	630	27	133	238	0.75	6
7	17.46	31.19	0.079	168.3	470	200	139	M20	8	150	10	540	680	32	178	318	0.81	7
8	23.34	41.68	0.132	168.3	490	200	139	M20	8	150	10	560	700	33	238	425	1.35	8
9	31.09	55.70	0.174	219.1	490	240	143	M20	8	150	12	580	720	55	317	568	1.78	9
10	40.50	72.57	0.226	219.1	560	240	143	M20	8	150	12	640	780	60	413	740	2.30	10
11	52.96	94.64	0.297	219.1	450	240	143	M20	8	180	12	530	670	60	540	965	3.03	11
12	70.12	125.24	0.392	219.1	490	240	143	M20	8	180	12	560	700	60	715	1277	4.00	12
13	93.17	166.92	0.525	219.1	615	240	143	M20	8	180	12	690	830	78	950	1702	5.35	13
14	124.55	222.62	0.701	219.1	620	240	143	M20	8	180	12	700	840	80	1270	2270	7.15	14
15	168.09	300.49	0.946	273.1	635	270	190	M20	10	200	15	700	840	90	1714	3064	9.65	15
16	233.41	417.48	1.314	273.1	750	270	190	M20	10	200	15	820	960	100	2380	4257	13.40	16
17	311.37	556.55	1.751	273.1	850	270	190	M20	10	200	15	920	1060	120	3175	5675	17.85	17
18	414.54	740.72	2.329	323.9	790	350	283	M24	12	250	20	900	1040	240	4227	7553	23.75	18
19	550.66	997.08	3.099	323.9	900	350	283	M24	12	250	20	1010	1150	270	5615	10167	31.60	19
20	732.09	1308.25	4.119	323.9	1075	350	283	M24	15	250	20	1170	1310	350	7465	13340	42.00	20
21	973.05	1739.27	5.472	323.9	1230	350	283	M24	15	250	20	1310	1450	380	9922	17735	55.80	21
22	1297.76	2319.36	7.301	323.9	1540	350	283	M24	15	250	20	1620	1760	520	13233	23650	74.45	22



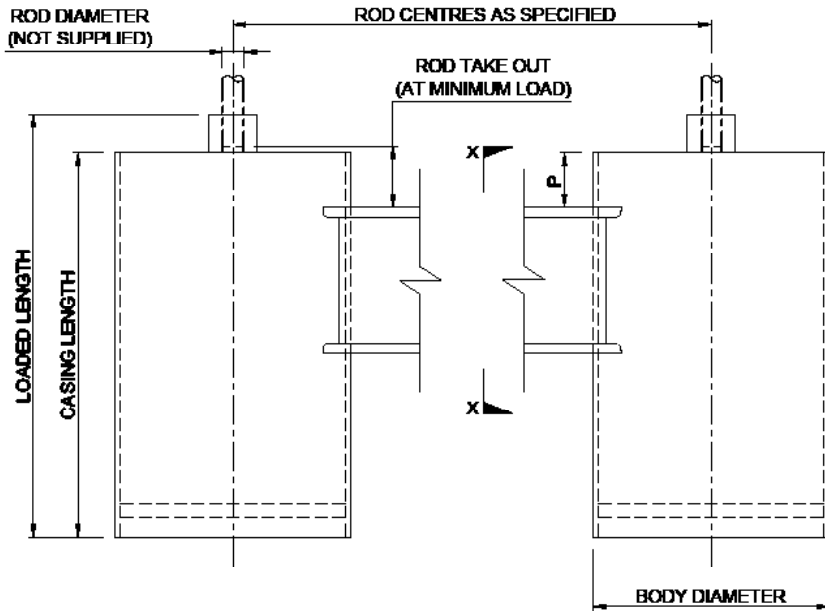
VS35-G (35mm travel) - Variable spring support



SIZE	LOAD RANGE KN		SPRING RATE	BODY DIAM	CASING LENGTH	P	G	ROD DIAM	ROD TAKE OUT AT MIN LOAD	LOADED LENGTH		UNIT WT KGS APPROX	LOAD RANGE KG		SPRING RATE	SIZE
	MIN	MAX	KN							MIN	MAX		MIN	MAX	KG	
0	2.21	4.07	0.05	114.3	130	50	20	M12	25	224	259	13	22.5	41.5	0.53	0
1	3.29	5.88	0.07	114.3	140	50	20	M12	20	224	259	13	33.5	60	0.75	1
2	4.22	7.55	0.09	114.3	150	50	20	M12	25	245	280	13	43	77	0.96	2
3	5.49	9.71	0.12	168.3	140	50	20	M12	25	230	265	13	56	99	1.25	3
4	7.36	13.14	0.16	168.3	150	50	20	M12	25	245	280	15	75	134	1.60	4
5	9.91	17.55	0.22	168.3	160	50	20	M12	20	250	285	15	101	179	2.20	5
6	13.04	23.34	0.29	168.3	170	50	30	M16	35	255	290	20	133	238	3.00	6
7	17.46	31.19	0.39	168.3	180	50	30	M16	20	255	290	20	178	318	4.00	7
8	23.34	41.68	0.53	168.3	190	50	30	M16	20	260	295	25	238	425	5.40	8
9	31.09	55.70	0.70	219.1	200	50	30	M20	25	280	315	45	317	568	7.10	9
10	40.50	72.57	0.90	219.1	220	50	30	M20	15	270	305	50	413	740	9.20	10
11	52.96	94.64	1.19	219.1	180	50	30	M20	35	275	310	45	540	965	12.10	11
12	70.12	125.24	1.57	219.1	200	70	30	M24	20	290	325	50	715	1277	16.00	12
13	93.17	166.92	2.10	219.1	230	70	30	M30	40	325	360	60	950	1702	21.40	13
14	124.55	222.62	2.80	219.1	240	70	30	M30	50	340	375	60	1270	2270	28.60	14
15	168.09	300.49	3.79	273.1	270	70	60	M30	15	370	405	80	1714	3064	38.60	15
16	233.41	417.48	5.26	273.1	300	70	60	M36	15	390	425	90	2380	4257	53.60	16
17	311.37	556.55	7.00	273.1	310	70	60	M42	20	430	465	100	3175	5675	71.40	17
18	414.54	740.72	9.32	323.9	311	70	60	M48	20	400	435	220	4227	7553	95.00	18
19	550.66	997.08	12.40	323.9	330	80	60	M56	20	420	455	240	5615	10167	126.42	19
20	732.09	1308.25	16.48	323.9	400	80	80	M64	15	490	525	300	7465	13340	168.00	20
21	973.05	1739.27	21.89	323.9	420	80	80	M72	10	490	525	380	9922	17735	223.20	21
22	1297.76	2319.36	29.21	323.9	540	80	80	M80	10	610	645	450	13233	23650	297.80	22



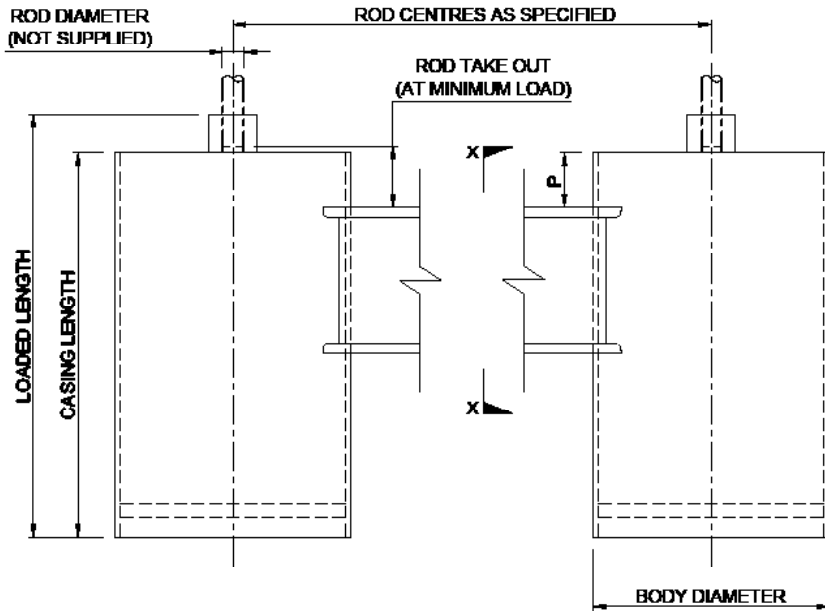
VS70-G (70mm travel) - Variable spring support



SIZE	LOAD RANGE KN		SPRING RATE	BODY DIAM	CASING LENGTH	P	G	ROD DIAM	ROD TAKE OUT AT MIN LOAD	LOADED LENGTH		UNIT WT.KGS APPROX	LOAD RANGE KG		SPRING RATE	SIZE
	MIN	MAX	KN							MIN	MAX		MIN	MAX	KG	
0	2.21	4.07	0.03	114.3	180	50	20	M12	20	255	325	15	22.5	41.5	0.27	0
1	3.29	5.88	0.04	114.3	200	50	20	M12	20	272	342	15	33.5	60	0.38	1
2	4.22	7.55	0.05	114.3	220	50	20	M12	25	290	360	15	43	77	0.48	2
3	5.49	9.71	0.06	168.3	190	50	20	M12	25	270	340	18	56	99	0.63	3
4	7.36	13.14	0.08	168.3	210	50	20	M12	25	280	350	18	75	134	0.80	4
5	9.91	17.55	0.11	168.3	230	50	20	M12	20	300	370	18	101	179	1.10	5
6	13.04	23.34	0.15	168.3	230	50	30	M16	35	325	395	28	133	238	1.50	6
7	17.46	31.19	0.20	168.3	260	50	30	M16	20	340	410	28	178	318	2.00	7
8	23.34	41.68	0.26	168.3	270	50	30	M16	20	350	420	30	238	425	2.70	8
9	31.09	55.70	0.35	219.1	275	50	30	M20	40	370	440	55	317	568	3.55	9
10	40.50	72.57	0.45	219.1	310	50	30	M20	60	400	470	60	413	740	4.60	10
11	52.96	94.64	0.59	219.1	250	50	30	M20	90	375	445	60	540	965	6.05	11
12	70.12	125.24	0.78	219.1	270	70	30	M24	60	340	410	60	715	1277	8.00	12
13	93.17	166.92	1.05	219.1	340	70	30	M30	70	440	510	80	950	1702	10.70	13
14	124.55	222.62	1.40	219.1	340	70	30	M30	80	450	520	80	1270	2270	14.30	14
15	168.09	300.49	1.89	273.1	360	70	60	M30	100	470	540	100	1714	3064	19.30	15
16	233.41	417.48	2.63	273.1	420	70	60	M36	80	530	600	120	2380	4257	26.80	16
17	311.37	556.55	3.50	273.1	470	70	60	M42	70	580	650	140	3175	5675	35.70	17
18	414.54	740.72	4.66	323.9	430	70	60	M48	70	520	590	280	4227	7553	47.50	18
19	550.66	997.08	6.20	323.9	490	80	60	M56	80	590	660	320	5615	10167	63.21	19
20	732.09	1308.25	8.24	323.9	575	80	80	M64	80	680	750	420	7465	13340	84.00	20
21	973.05	1739.27	10.94	323.9	650	80	80	M72	40	750	820	540	9922	17735	111.60	21
22	1297.76	2319.36	14.60	323.9	820	80	80	M80	30	990	1060	670	13233	23650	148.90	22

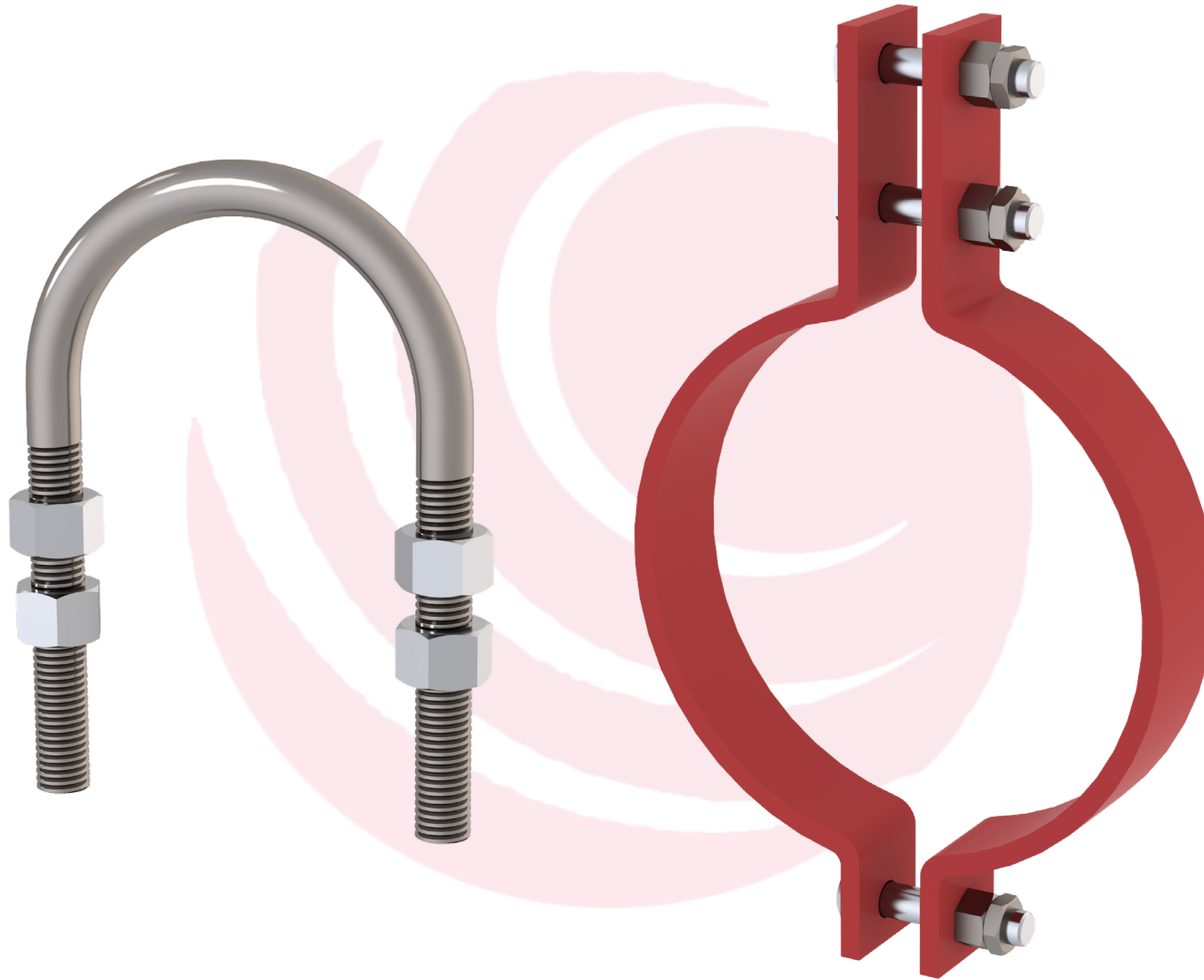


VS140-G (140mm travel) - Variable spring support



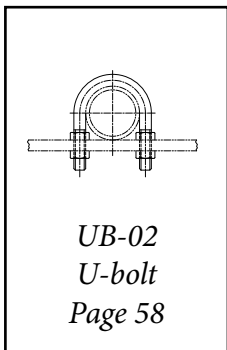
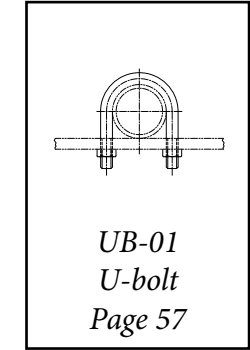
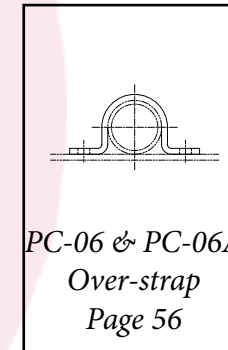
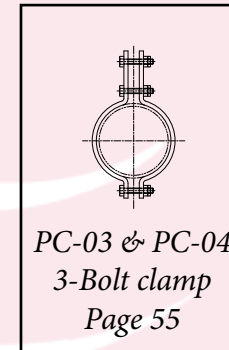
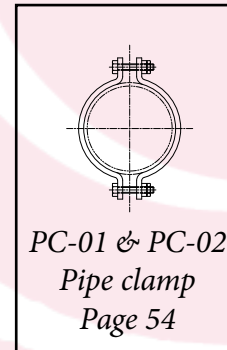
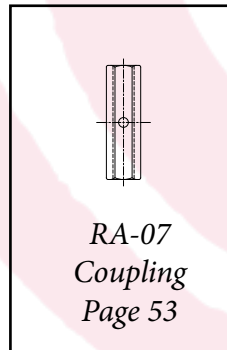
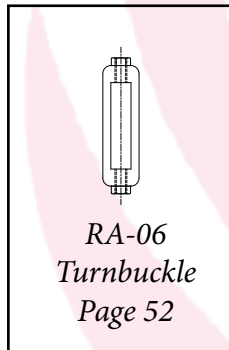
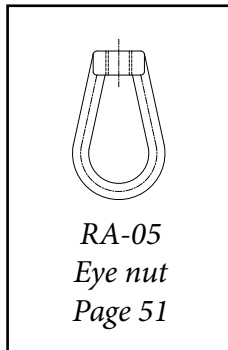
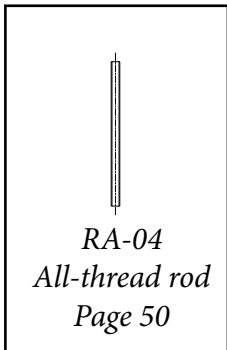
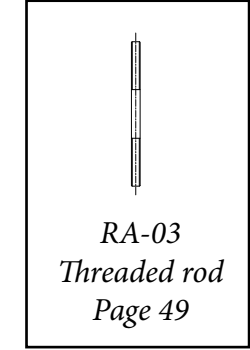
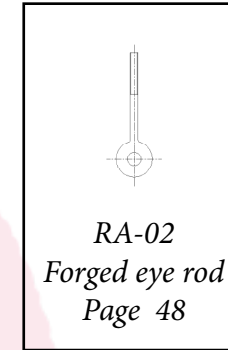
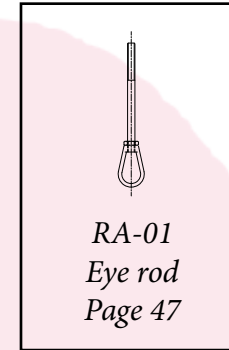
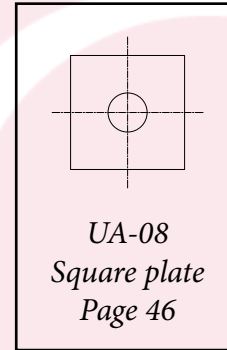
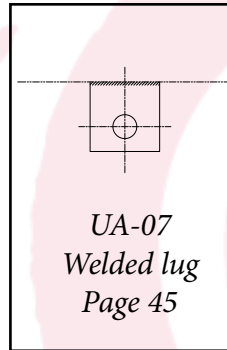
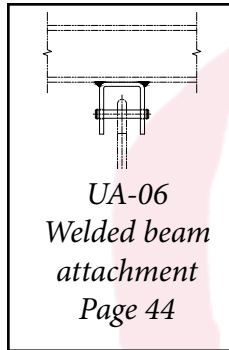
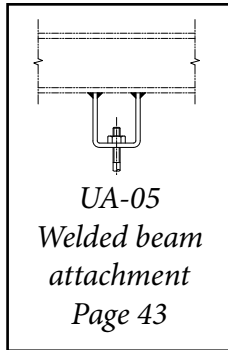
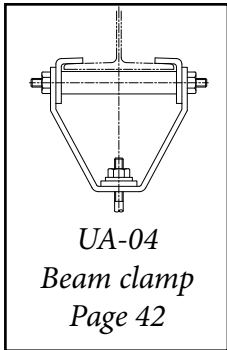
SIZE	LOAD RANGE KN		SPRING RATE	BODY DIAM	CASING LENGTH	P	G	ROD DIAM	ROD TAKE OUT AT MIN LOAD	LOADED LENGTH		UNIT WT KGS APPROX	LOAD RANGE KG		SPRING RATE	SIZE
	MIN	MAX	KN							MIN	MAX		MIN	MAX	KG	
0	2.21	4.07	0.01	114.3	330	50	20	M12	20	400	540	16	22.5	41.5	0.13	0
1	3.29	5.88	0.02	114.3	360	50	20	M12	20	440	580	16	33.5	60	0.19	1
2	4.22	7.55	0.02	114.3	400	50	20	M12	25	470	610	16	43	77	0.24	2
3	5.49	9.71	0.03	168.3	350	50	20	M12	40	420	560	23	56	99	0.31	3
4	7.36	13.14	0.04	168.3	385	50	20	M12	40	460	600	23	75	134	0.40	4
5	9.91	17.55	0.05	168.3	420	50	20	M12	40	500	640	25	101	179	0.55	5
6	13.04	23.34	0.07	168.3	420	50	30	M16	40	510	650	40	133	238	0.75	6
7	17.46	31.19	0.10	168.3	470	50	30	M16	40	570	710	45	178	318	1.00	7
8	23.34	41.68	0.13	168.3	500	50	30	M16	40	580	720	55	238	425	1.35	8
9	31.09	55.70	0.17	219.1	500	50	30	M20	40	590	730	85	317	568	1.78	9
10	40.50	72.57	0.23	219.1	560	50	30	M20	60	650	790	100	413	740	2.30	10
11	52.96	94.64	0.30	219.1	450	50	30	M20	60	550	690	85	540	965	3.03	11
12	70.12	125.24	0.39	219.1	490	70	30	M24	60	550	690	100	715	1277	4.00	12
13	93.17	166.92	0.52	219.1	620	70	30	M30	60	720	860	130	950	1702	5.35	13
14	124.55	222.62	0.70	219.1	620	70	30	M30	60	730	870	140	1270	2270	7.15	14
15	168.09	300.49	0.95	273.1	640	70	60	M30	80	750	890	160	1714	3064	9.65	15
16	233.41	417.48	1.31	273.1	760	70	60	M36	80	870	1010	210	2380	4257	13.40	16
17	311.37	556.55	1.75	273.1	860	70	60	M42	80	990	1130	250	3175	5675	17.85	17
18	414.54	740.72	2.33	323.9	795	70	60	M48	80	900	1040	450	4227	7553	23.75	18
19	550.66	997.08	3.10	323.9	910	80	60	M56	100	1040	1180	530	5615	10167	31.60	19
20	732.09	1308.25	4.12	323.9	1080	80	80	M64	100	1200	1340	700	7465	13340	42.00	20
21	973.05	1739.27	5.47	323.9	1240	80	80	M72	100	1320	1460	860	9922	17735	55.80	21
22	1297.76	2319.36	7.30	323.9	1550	80	80	M80	100	1630	1770	1140	13233	23650	74.45	22

Ancillaries



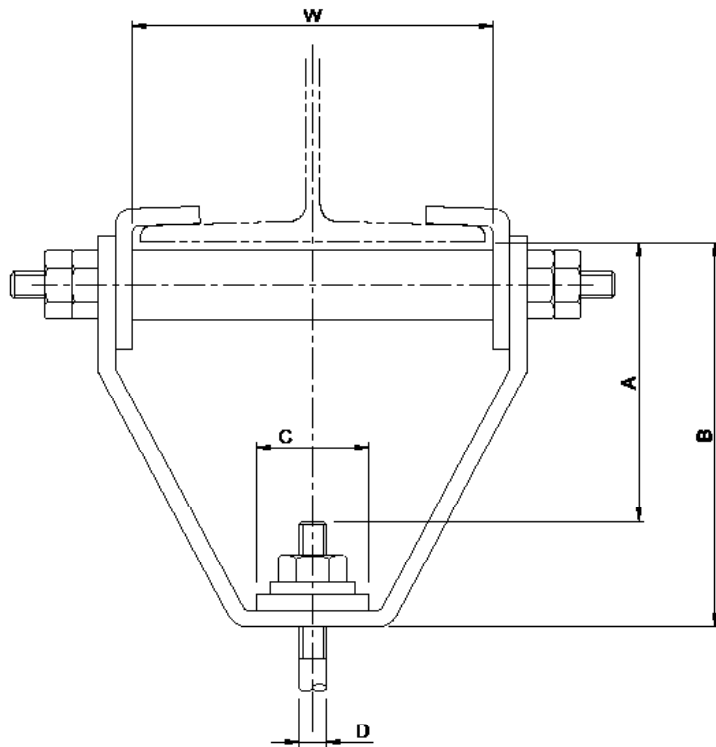


Ancillary pictorial index





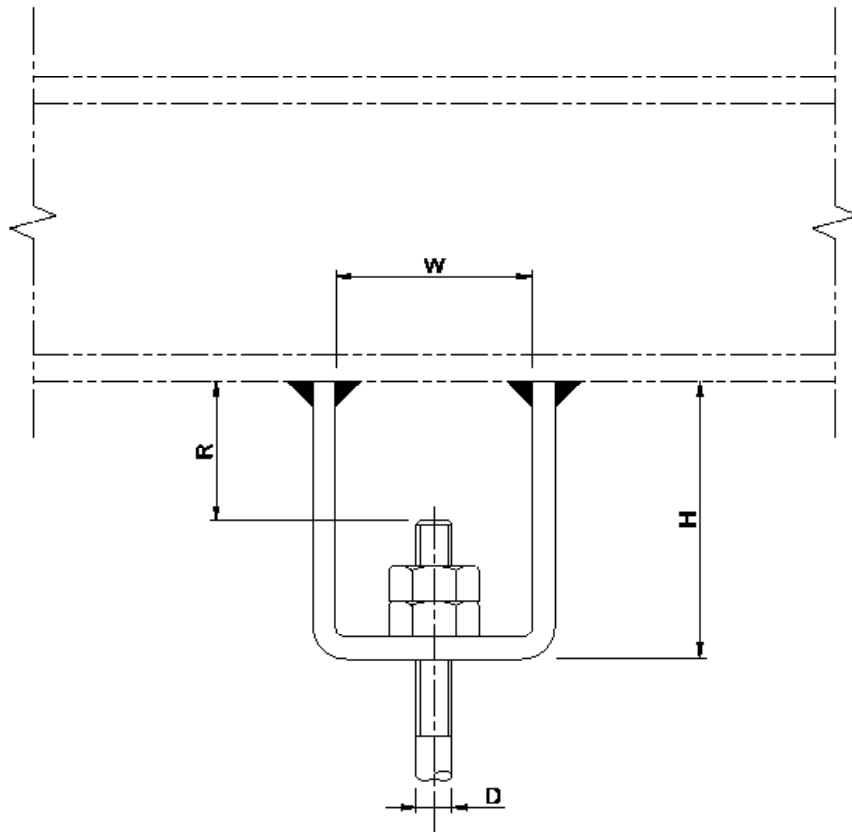
UA-04 - Beam clamp



Size	W	A	B	C	D Max	MATERIAL SIZE	MAX LOAD KGS
1	S P E C I F Y	80	180	50	M10	50X8	360
2		80	180	60	M12	50X8	530
3		80	200	70	M16	50X10	1000
4		80	220	90	M20	60X15	1600
5		80	220	90	M24	80X15	2300
6		100	260	90	M30	90X15	3700
7		120	300	90	M36	100X20	5400
8		120	330	100	M42	130X25	7400



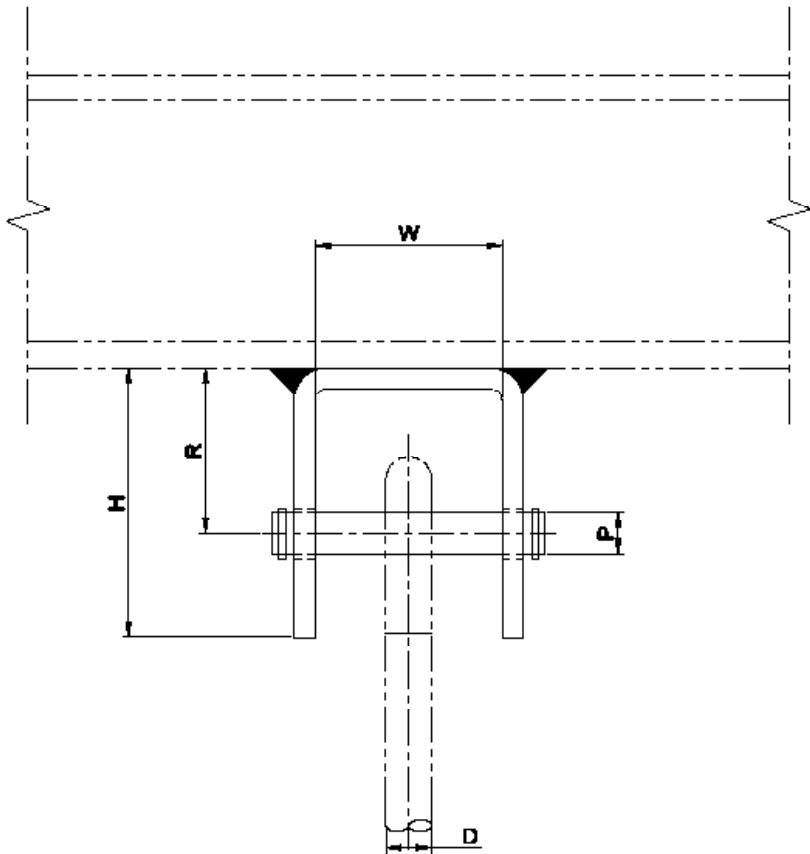
UA-05 - Welded beam attachment



Size	H	MATERIAL SIZE	W	'R' ROD TAKE OUT	'D' ROD DIA	MAX LOAD KGS
1	80	50X6	50	30	M10	380
2	80	50X6	50	30	M12	560
3	90	80X10	60	30	M16	1000
4	90	80X10	70	30	M20	1700
5	120	100X12	80	40	M24	2400
6	120	100X15	110	40	M30	3800
7	170	150X15	120	60	M36	5500
8	200	150X20	140	70	M42	7500
9	210	150X25	180	70	M48	9900
10	240	180X25	190	85	M56	13600
11	250	180X30	220	85	M64	18000
12	260	200X30	230	85	M72	22800



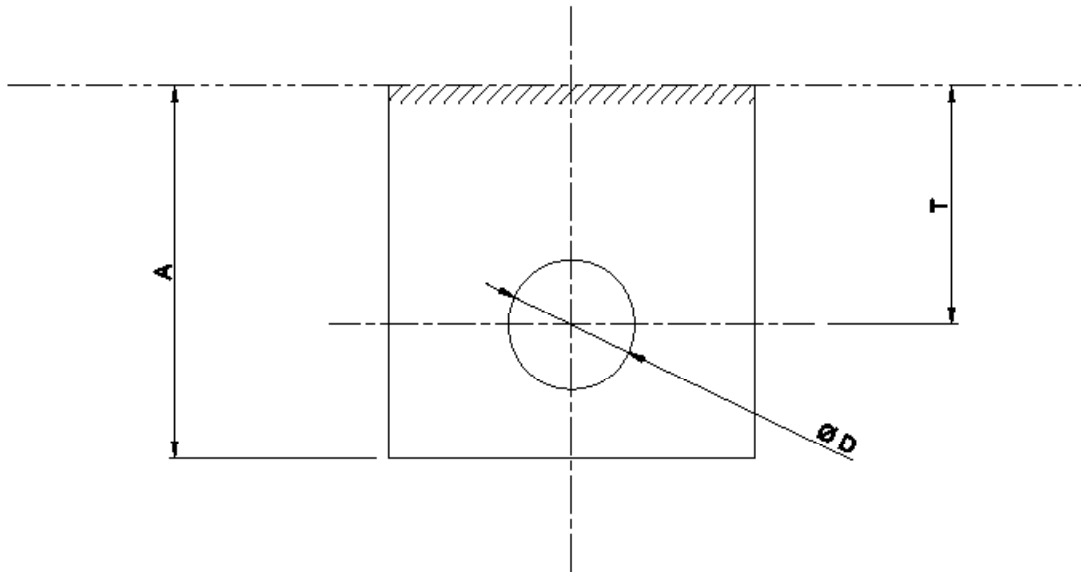
UA-06 - Welded beam attachment



SIZE	H	MATERIAL SIZE	'R' ROD TAKE OUT	W	'D' ROD DIA	P' PIN DIA	MAX LOAD KGS
1	50	50X6	30	50	M10	10	380
2	70	50X6	40	50	M12	12	560
3	70	80X10	50	50	M16	16	1000
4	90	80X10	60	50	M20	20	1700
5	110	80X10	70	50	M24	24	2400
6	130	100X12	80	50	M30	30	3800
7	160	130X15	100	70	M36	36	5500
8	180	130X15	110	90	M42	42	7500
9	210	150X20	130	90	M48	48	9900
10	240	180X20	150	100	M56	56	13600
11	260-	200X20	160	120	M64	64	18000
12	280	220X25	180	120	M72	72	22800
13	300	250X25	200	130	M80	80	28600
14	340	300X30	220	140	M90	90	36000
15	380	300X40	260	150	M100	100	44700



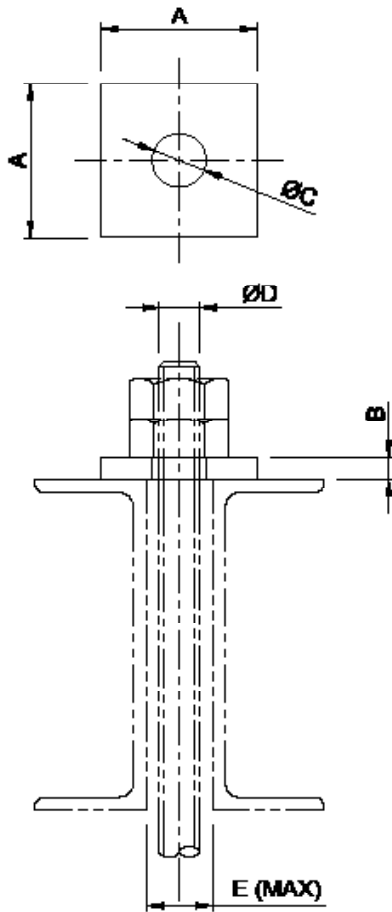
UA-07 - Welded lug



SIZE	A	MATERIAL SIZE	'D' BOLT DIA	'T' TAKE OUT	MAX LOAD KGS
1	60	50X6	M10	30	380
2	70	50X6	M12	40	560
3	80	50X6	M16	50	1100
4	90	80X10	M20	60	1650
5	120	80X10	M24	80	2400
6	140	100X12	M30	90	3800
7	180	130X15	M36	110	5500
8	200	130X15	M42	130	7500
9	240	150X20	M48	150	9900
10	260	180X20	M56	170	13600
11	300	200X20	M64	200	17900
12	330	220X25	M72	220	22800
13	340	250X25	M80	240	28600
14	390	300X30	M90	270	36000
15	420	300X40	M100	300	44700



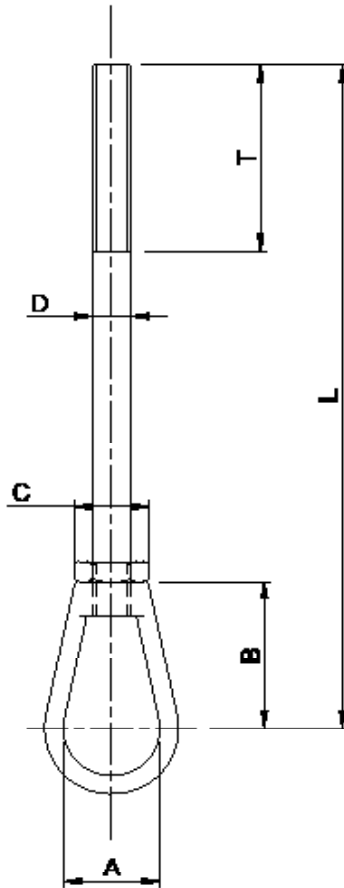
UA-08 Square plate



Size	A	B	C	D	E (MAX)
1	80	6	12	M10	15
2	80	6	14	M12	18
3	80	10	18	M16	22
4	100	10	22	M20	26
5	100	12	26	M24	32
6	100	15	32	M30	38
7	130	15	40	M36	48
8	130	20	46	M42	54
9	130	20	52	M48	64
10	150	20	60	M56	70
11	200	30	68	M64	78
12	200	30	76	M72	92
13	250	30	84	M80	110
14	300	40	94	M90	120
15	300	40	104	M100	140



RA-01 - Eye rod

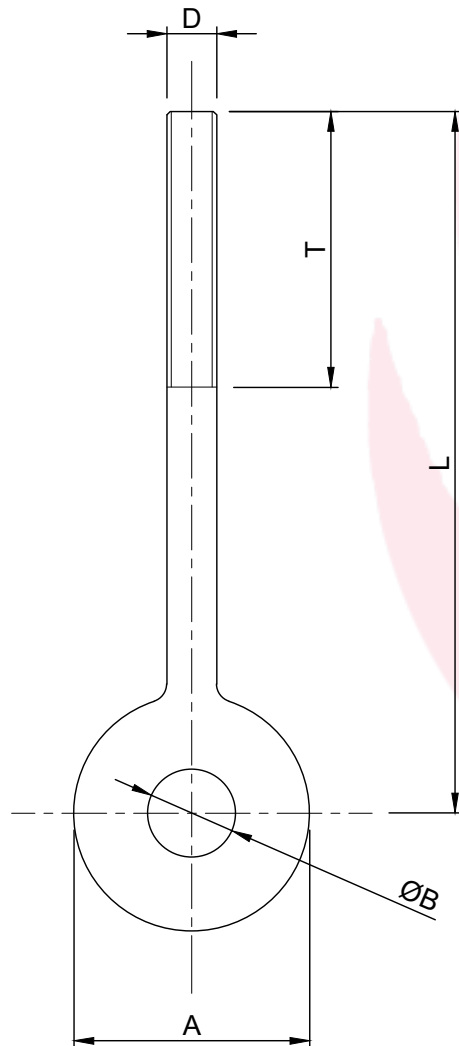


D	A	B	C	T	L	MAX LOAD Kg
M8	25	45	32	50	S P E C I F Y	230
M10	25	45	32	60		360
M12	30	46	38	60		530
M16	30	46	38	80		1010
M18	40	68	45	80		1290
M20	40	68	45	80		1580
M22	50	84	50	80		1930
M24	50	84	50	100		2280
M30	75	83	70	100		3650
M33	75	83	70	100		4490
M36	75	83	70	150		5340
M42	100	100	80	150		7400

When ordering specify rod diameter & Dimension 'L'



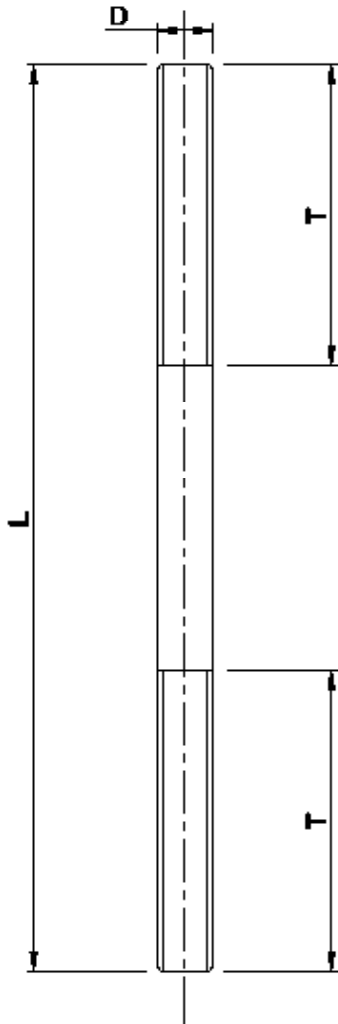
RA-02 - Forged eye rod



D	A	B	T	L	LOAD MAX kg
M8	30	14	50	S P E C I F Y	230
M10	36	16	60		360
M12	46	18	60		530
M16	54	22	80		1010
M20	64	26	80		1580
M24	78	30	100		2280
M30	94	36	100		3650
M36	108	42	150		5340
M42	124	48	150		7400



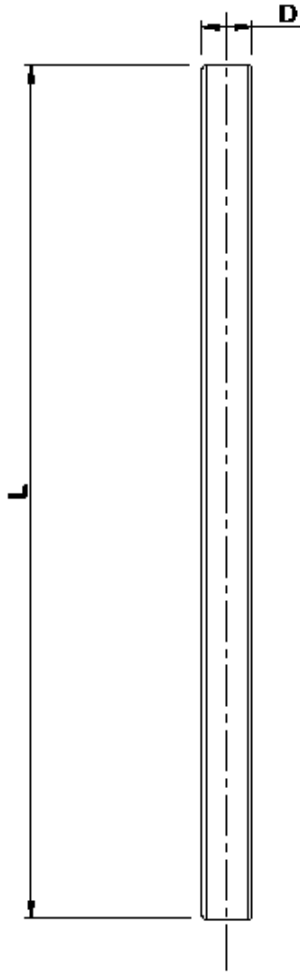
RA-03 - Threaded rod



D	T	L	MAX LOAD kg
M10	60	S P E C I F Y	380
M12	60		560
M16	80		1040
M20	80		1630
M24	100		2360
M30	100		3750
M36	150		5460
M42	150		7480
M48	200		9820
M56	200		13560
M64	250		17900
M72	250		22740
M80	250		28600
M90	260		36000



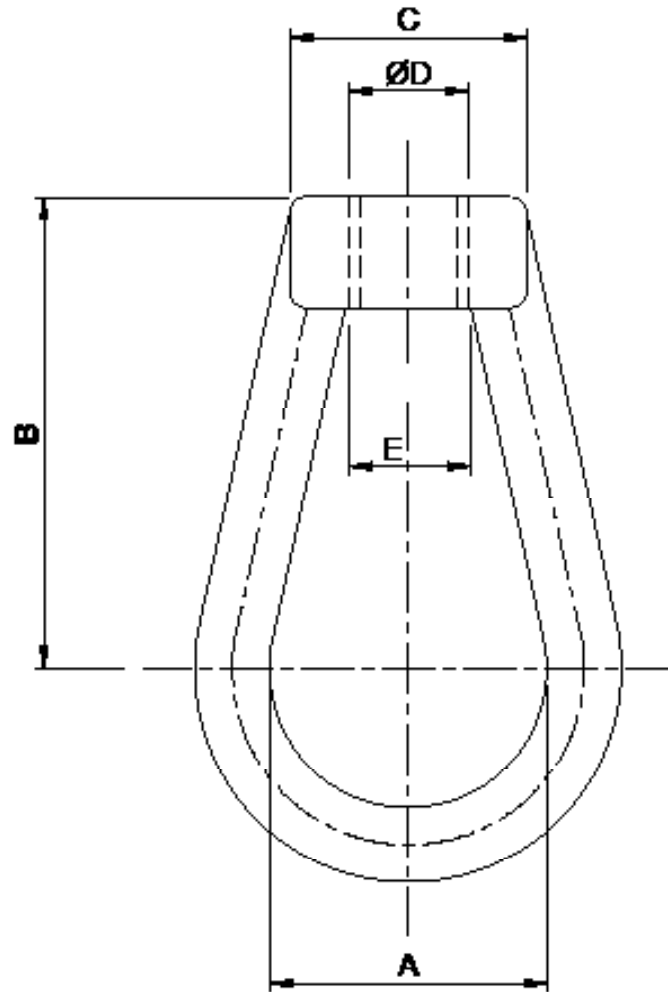
RA-04 - All-thread rod



D	L	MAX LOAD kg
M6	S P E C I F Y	135
M8		240
M10		380
M12		560
M16		1040
M20		1630
M24		2360
M30		3750
M36		5460
M42		7480
M48		9820
M56		13560
M64		17900
M72		22740
M80		28600
M90	36000	



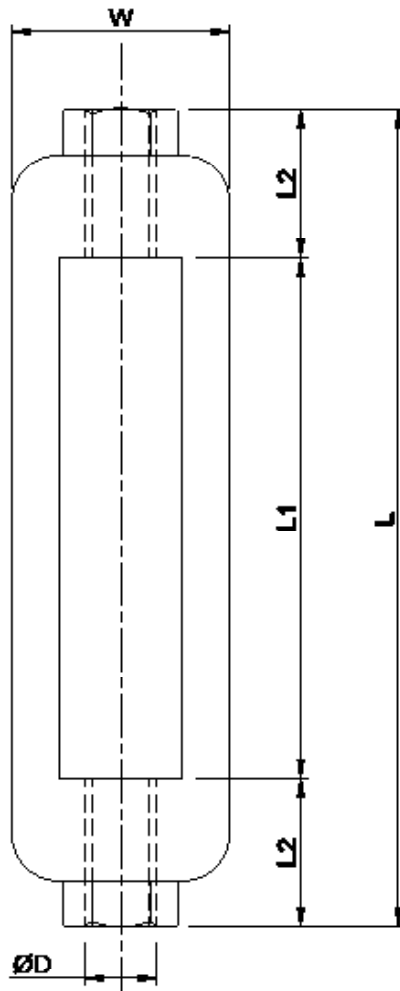
RA-05 Eye nut



D' ROD DIA	A	B	C	E	MAX LOAD KGS
M8	25	45	32	18	230
M10	25	45	32	18	360
M12	30	46	38	20	530
M16	30	46	58	20	1010
M18	40	68	45	25	1290
M20	40	68	45	25	1580
M22	50	84	50	30	1930
M24	50	84	50	30	2280
M30	75	83	70	46	3650
M33	75	83	70	46	4490
M36	75	83	70	46	5340
M42	100	100	80	59	7400



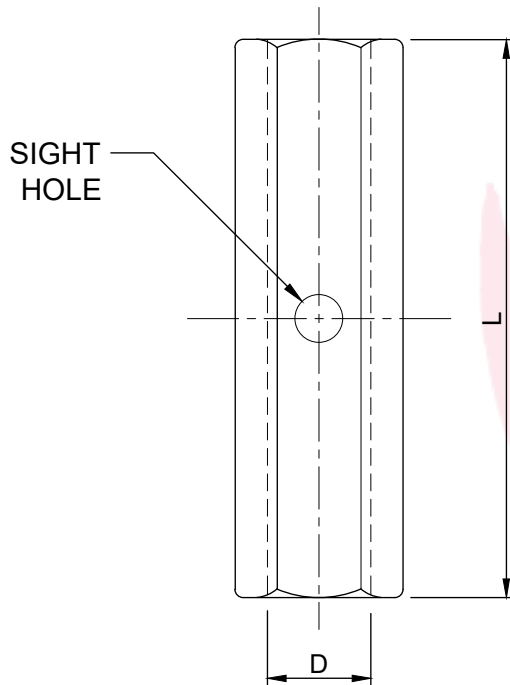
RA-06 Turnbuckle



D	L	L1	L2	W	MAX LOAD kg
M10	184	150	17	28	380
M12	190	150	20	31	560
M16	202	150	26	41	1040
M20	214	150	32	49	1630
M24	228	150	39	59	2360
M30	256	150	53	67	3750
M36	276	150	63	85	5460
M42	276	150	63	85	7480



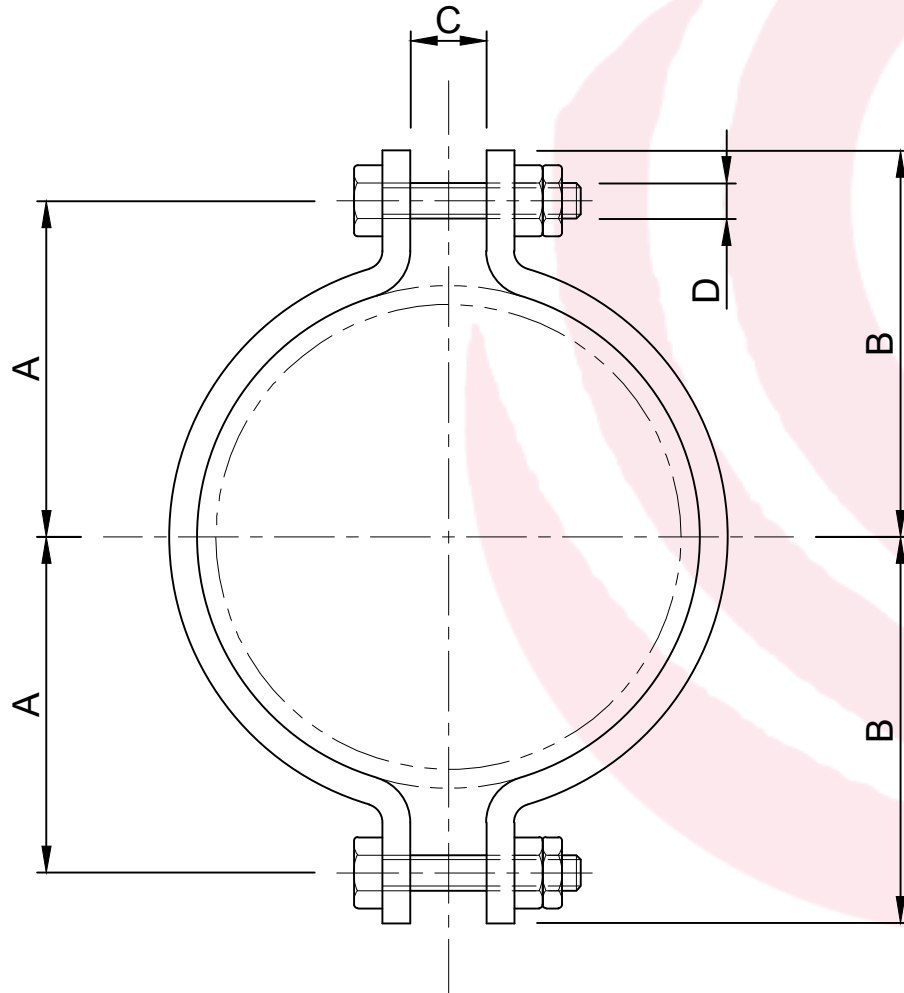
RA-07 Coupling



Size 'D'	M10	M12	M16	M20	M24	M30	M36	M42	M48	M56	M64	M72	M80	M90
L	45	45	55	55	70	75	110	120	130	150	175	200	225	225
Max load (Kg)	380	560	1040	1630	2360	3750	5460	7480	9820	13560	17900	22740	28600	36000



PC-01 & PC-02 Pipe clamp



Light duty PC-01

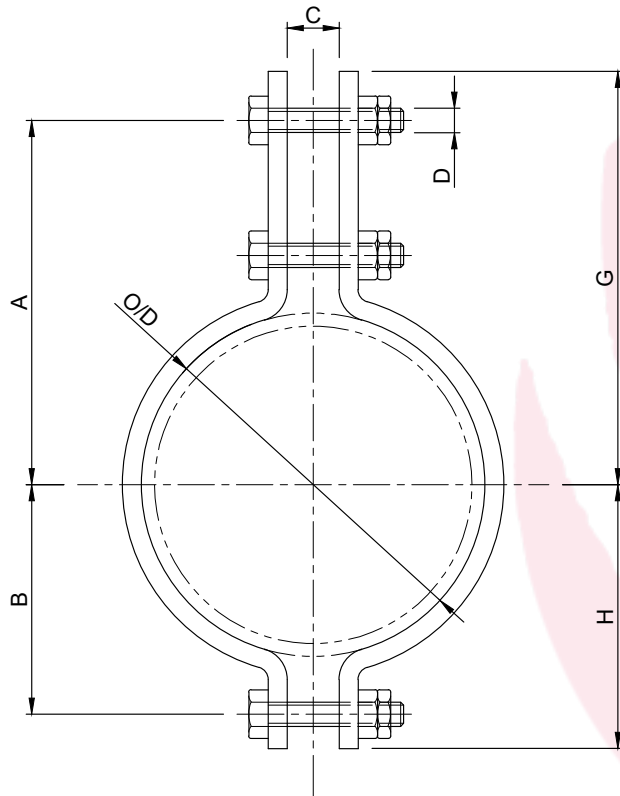
Heavy duty PC-02

PIPE SIZE	CLAMP ID	A	B	C	BOLT 'D'	MAT WxT	MAX LOAD KG	MAX LOAD KN
15	23	32	51	12	M10	25x3	225	2.205
20	28	32	51	12	M10	25x3	225	2.205
25	36	38	57	12	M10	25x3	225	2.205
32	44	44	63	12	M10	25x3	225	2.205
40	50	51	70	12	M10	30x6	365	3.577
50	62	57	76	16	M12	30x6	460	4.508
65	80	70	89	16	M12	30x6	460	4.508
80	92	76	96	16	M12	30x6	460	4.508
90	106	83	102	16	M12	30x6	460	4.508
100	118	95	119	20	M16	40x6	460	4.508
125	144	114	138	20	M16	40x6	460	4.508
150	172	127	157	24	M20	40x10	730	7.154
175	198	146	176	24	M20	40x10	730	7.154
200	224	259	189	24	M20	40x10	730	7.154
225	248	178	208	24	M20	40x10	730	7.154
250	278	190	226	27	M24	50x12	1100	10.78
300	330	216	252	27	M24	50x12	1100	10.78
350	362	235	271	27	M24	65x12	1100	10.78
400	412	260	296	27	M24	65x12	1100	10.78
450	464	298	334	27	M24	65x15	1400	13.72
500	516	324	360	27	M24	65x15	1400	13.72
550	566	357	402	34	M30	80x15	1400	13.72
600	618	387	432	34	M30	80x15	1400	13.72

PIPE SIZE	CLAMP ID	A	B	C	BOLT 'D'	MAT WxT	MAX LOAD KG	MAX LOAD KN
40	50	50	70	16	M12	40x6	500	4.9
50	62	58	85	16	M12	40x6	500	4.9
65	80	70	96	20	M16	40x6	500	4.9
80	92	85	115	24	M20	40x6	1500	14.7
90	106	90	120	24	M20	40x6	1500	14.7
100	118	96	132	27	M24	50x10	1600	15.68
125	144	115	151	27	M24	50x10	1600	15.68
150	172	135	170	27	M24	65x12	2200	21.56
175	198	145	180	27	M24	65x12	2200	21.56
200	224	160	196	27	M24	65x12	2200	21.56
225	248	180	216	27	M24	65x12	2200	21.56
250	278	200	245	34	M30	65x15	2800	27.44
300	330	235	280	34	M30	80x20	3900	38.22
350	362	255	309	40	M36	90x20	4200	41.16
400	412	280	334	40	M36	90x20	4200	41.16
450	464	305	359	40	M36	90x20	4200	41.16
500	516	330	384	40	M36	90x20	4200	41.16
550	566	370	424	40	M36	90x20	4200	41.16
600	618	395	449	40	M36	90x20	4200	41.16
650	670	440	494	40	M36	110x25	4800	47.04
700	720	466	520	40	M36	110x25	4800	47.04
750	773	492	546	40	M36	110x25	4800	47.04
800	824	516	572	40	M36	110x25	4800	47.04



PC-03 & PC-04 Pipe clamp



PC-03 and PC-04 PIPE CLAMPS LIGHT SERIES
DIMENSIONS IN mm

PIPE SIZE	A	B	C	D MIN	SECTION SIZE	G	H
15	92	32	12	12	30x6	110	50
20	95	38	12	12	30x6	113	56
25	97	44	12	12	30x6	115	62
32	102	46	12	12	30x6	120	64
40	103	54	25	12	30x6	121	68
50	127	67	25	12	30x6	149	76
65	140	76	25	12	50x8	162	89
80	152	82	25	12	50x8	175	99
90	159	82	25	12	50x8	181	104
100	165	100	25	16	50x10	194	129
125	178	114	25	16	50x10	206	142
150	216	135	38	20	65x10	254	173
175	230	150	38	20	65x10	268	188
200	241	163	38	20	65x10	279	201
225	265	180	38	20	65x12	303	218
250	279	192	38	20	65x12	317	230
300	305	220	38	20	65x12	343	258
350	330	243	51	24	80x15	378	291
400	356	273	51	24	80x15	403	320
450	381	300	51	24	80x15	429	348
500	406	329	51	24	80x20	457	380
550	432	365	51	24	100x20	489	422
600	457	390	51	24	100x20	514	447
650	559	431	51	30	130x25	622	494
700	585	457	51	30	130x25	648	520
750	610	482	51	30	130x25	673	545
800	647	508	51	30	130x25	710	571
900	699	560	51	30	130x25	762	623

FIG PC-03H and PC-04H PIPE CLAMPS HEAVY SERIES
DIMENSIONS IN mm

PIPE SIZE	A	B	C	D MIN	SECTION SIZE	G	H
150	229	143	44	30	100x12	279	193
175	241	158	44	30	110x12	291	208
200	254	172	44	30	110x12	305	223
225	305	198	51	36	100x20	359	258
250	305	214	51	36	100x20	359	268
300	330	240	51	36	100x20	384	294
350	356	262	57	42	110x20	419	325
400	381	292	57	42	110x20	444	355
450	406	317	57	42	110x20	469	380
500	457	353	57	42	130x25	521	417
550	483	393	57	42	150x30	559	469
600	508	418	57	42	150x30	584	494
650	581	443	57	42	150x30	657	519
700	610	472	57	42	150x30	686	548
750	635	497	57	42	150x30	711	573
800	661	525	57	42	150x30	737	601
900	711	575	57	42	150x30	787	651

Notes:

Dimension 'D' represents minimum diameter to accommodate chart loads shown.

Fig PC-03 and PC-03H clamp material is carbon steel.

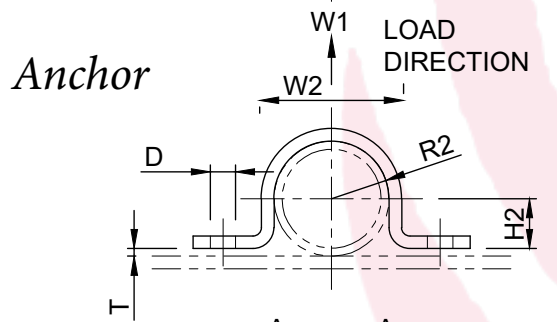
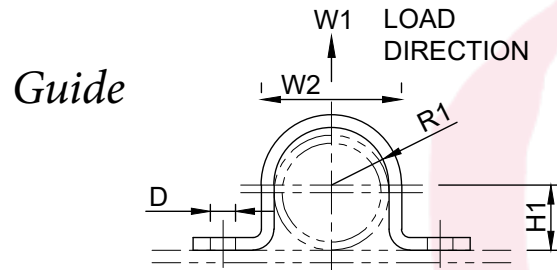
Fig PC-04 and PC-04H clamp material is alloy steel equivalent to pipe material.

LOAD CHART IN KGS

PIPE SIZE NB	40	50	65	80	90	100	125	150	175	200	225	250	300	350	400	450	500	550	600	650	700	750	800	900	
340C	PC-03	680	680	680	680	680	1135	1135	1270	1270	1270	1450	1450	1450	1950	1950	1950	2495	2720	2720	3530	3630	3630	3630	3630
	PC-03H								3630	3630	3630	4990	4990	4990	5760	5760	5760	6805	6805	6805	6805	6805	6805	6805	6805
400C	PC-03	635	635	635	635	635	1000	1000	1135	1135	1135	1315	1315	1315	1725	1725	1725	2220	2405	2405	3175	3175	3175	3175	3175
	PC-03H								3220	3220	3220	4445	4445	4445	5125	5125	5125	6805	6805	6805	6805	6805	6805	6805	6805
510C	PC-04	635	635	635	635	635	1045	1045	1180	1180	1180	1360	1360	1360	1770	1770	1770	2270	2495	2495	3265	3265	3265	3265	3265
	PC-04H								3310	3310	3310	4535	4535	4535	5260	5260	5260	6185	6185	6185	6185	6185	6185	6185	6185
538C	PC-04	455	455	455	455	455	725	725	815	815	815	950	950	950	1270	1270	1270	1450	1590	1590	2085	2085	2085	2085	2085
	PC-04H								2360	2360	2360	3265	3265	3265	3765	3765	3765	4810	5900	5900	5900	5900	5900	5900	5900
565C	PC-04	315	315	315	315	315	500	500	590	590	590	680	680	680	910	910	910	1135	1225	1225	1590	1590	1590	1590	1590
	PC-04H								1680	1680	1680	2270	2270	2270	2720	2720	2720	3400	4080	4080	4080	4080	4080	4080	4080

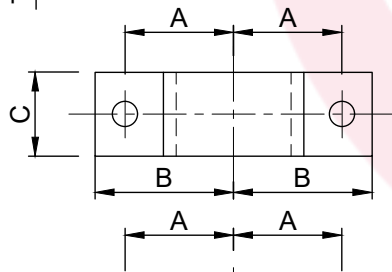


PC-06G & PC-06A Pipe clamp

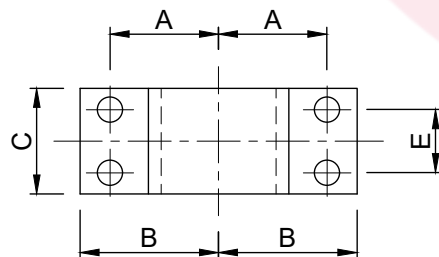


PIPE SIZE NB	A	B	MAT 'C'	HOLE DIA 'D'	E	GUIDE		ANCHOR			MAX LOAD KGS	
						R1	H1	T	R2	H2	W1	W2
15	45	60	40x6	12		11.5	11	2	11.5	8	252	400
20	45	60	40x6	12		14	14	2	14	11	252	400
25	50	70	40x6	12		18	17	2	18	15	252	400
32	55	80	40x8	14		22	22	2	22	19	370	410
40	60	85	40x8	14		25	25	2	25	22	370	410
50	70	100	40x8	14		31	31	2	31	28	370	410
65	85	130	50x10	18		40	38	2	40	36	530	420
80	99	140	50x10	18		46	45	3	46	41	530	420
100	106	150	50x10	18		59	58	3	59	54	530	420
125	140	180	60x15	26		72	70	3	72	67	1200	610
150	155	200	60x15	26		86	85	3	86	81	1200	610
200	180	230	60x15	26		112	110	4	112	105	1200	610
250	205	250	150x15	26	90	139	137	4	139	132	2730	665
300	230	280	150x15	26	90	165	163	5	165	157	2730	665
350	245	290	150x15	26	90	181	179	5	181	173	2730	665
400	285	330	200x20	26	140	206	205	5	206	198	2900	1180
450	310	360	200x20	26	140	232	230	5	232	223	2900	1180
500	335	380	200x20	26	140	258	256	5	258	249	2900	1180

Pipe OD
21.3 to 219.1

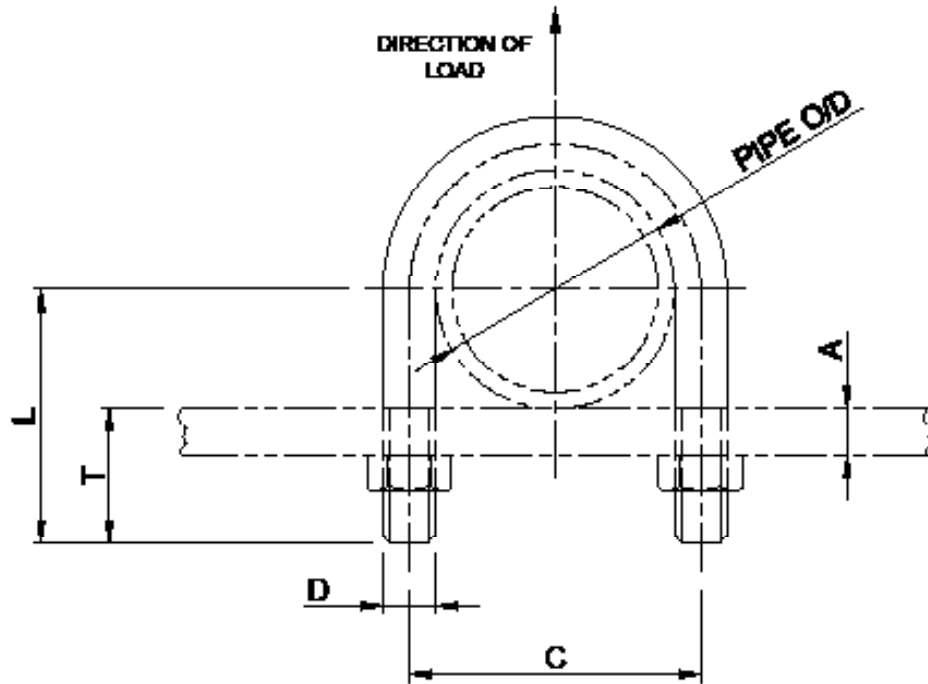


Pipe OD
273.0 to 508.0





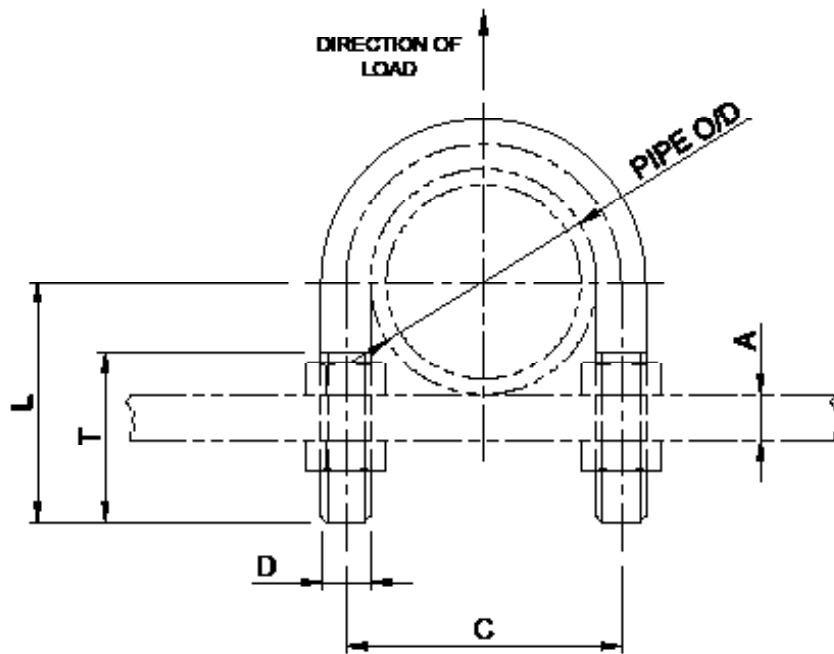
UB-01 U-bolt (Type 1)



PIPE SIZE NB	A	C	D	T	L	MAX LOAD KG	MAX LOAD KN
15	10	28	6	25	37	220	2.156
20	10	33	6	25	40	220	2.156
25	10	40	6	25	43	220	2.156
32	10	53	10	35	49	562	5.5076
40	16	60	10	35	56	562	5.5076
50	16	71	10	35	60	562	5.5076
65	20	89	12	40	78	1180	11.564
80	20	102	12	40	85	1180	11.564
90	20	116	12	40	90	1180	11.564
100	20	128	12	40	97	1180	11.564
125	20	152	12	40	110	1180	11.564
150	20	182	12	40	125	1180	11.564
200	20	236	16	40	154	1765	17.297
225	20	266	20	50	173	3580	35.084
250	22	294	20	50	185	3580	35.084
300	22	346	20	50	210	3580	35.084
350	24	376	20	55	230	3580	35.084
400	24	429	20	55	255	3580	35.084
450	24	483	24	55	280	4622	45.296
500	24	534	24	60	305	4622	45.296
550	24	585	24	60	335	4622	45.296
600	24	636	24	60	360	4622	45.296



UB-02 U-bolt (Type 2)



PIPE SIZE NB	A	C	D	T	L	MAX LOAD KG	MAX LOAD KN
15	10	30	6	56	65	220	2.156
20	10	35	6	60	68	220	2.156
25	10	42	6	65	70	220	2.156
32	10	54	10	65	74	562	5.5076
40	16	62	10	65	78	562	5.5076
50	16	74	10	65	84	562	5.5076
65	20	90	12	80	92	1180	11.564
80	20	106	12	80	100	1180	11.564
90	20	119	12	80	109	1180	11.564
100	20	128	12	80	114	1180	11.564
125	20	155	12	80	129	1180	11.564
150	20	189	16	100	154	1765	17.297
200	20	238	16	100	176	1765	17.297
225	20	269	20	110	187	3580	35.084
250	22	296	20	110	213	3580	35.084
300	22	348	20	110	246	3580	35.084
350	24	380	20	110	260	3580	35.084
400	24	432	20	110	285	3580	35.084
450	24	486	24	120	320	4622	45.296
500	24	537	24	120	345	4622	45.296
550	24	588	24	120	373	4622	45.296
600	24	639	24	120	400	4622	45.296