

INDUSTRIAL PIPE SUPPORTS CATALOGUE



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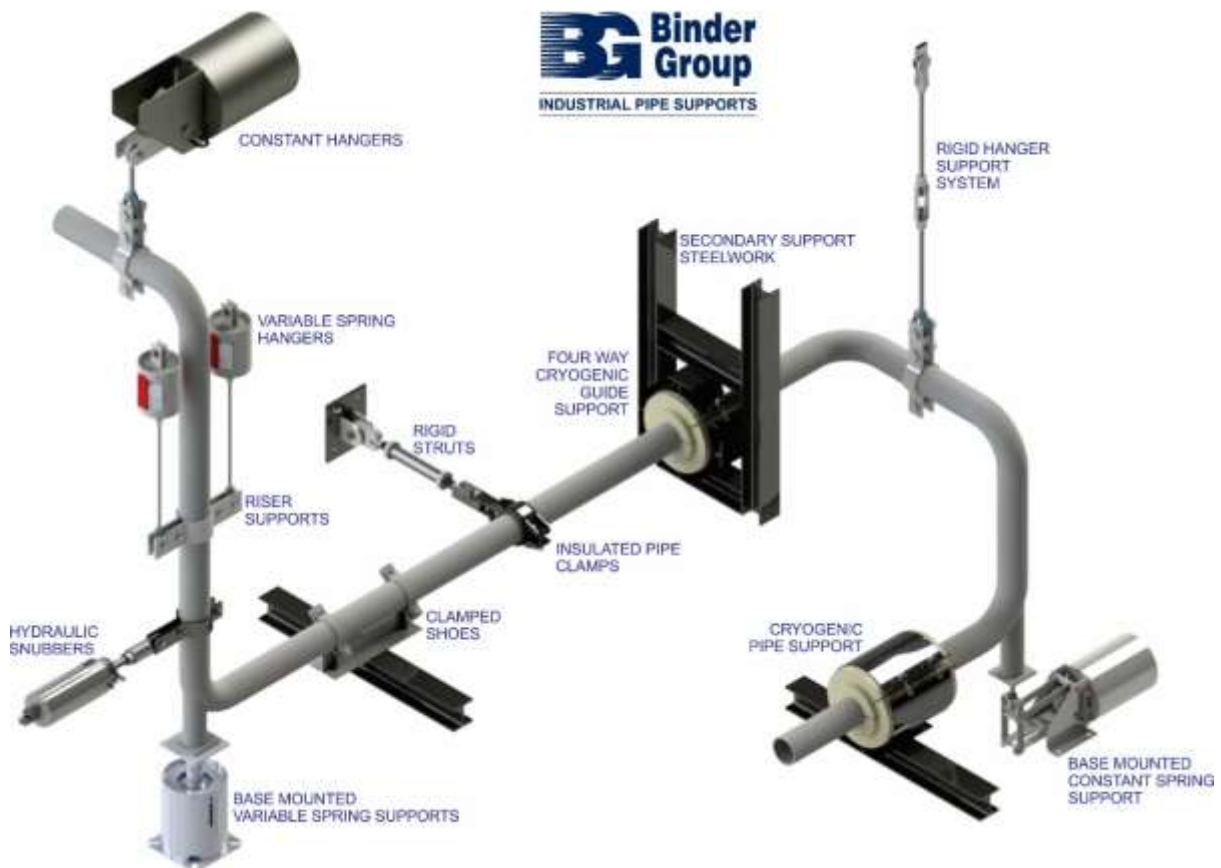
PIPE SUPPORT SOLUTIONS

TABLE OF CONTENTS

1.	INTRODUCTION	4
2.	QUALITY MANAGEMENT CERTIFICATE	5
3.	PIPE SUPPORT SPECIFICATIONS AND STANDARDS	6
3.1	SCOPE	6
3.2	DEFINITIONS	6
3.3	MATERIALS	7
4.	BINDER CLIENTS	8
5.	BINDER GROUP MARKETS	9
6.	QUICK REFERENCE GUIDE	10
6.1	RIGID HANGER SUPPORTS.....	11
6.2	PIPE SADDLES SHOES & STOPS.....	13
6.3	VARIABLE LOAD SUPPORTS.....	14
6.4	CONSTANT LOAD SUPPORTS.....	14
6.5	DYNAMIC RESTRAINTS	15
6.6	CRYOGENIC SUPPORTS.....	15
7.	RIGID HANGER SUPPORTS	16
7.1	BG100 LIGHT DUTY 2-BOLT CLAMP	17
7.2	BG170 MEDIUM DUTY 2 BOLT PIPE CLAMP	18
7.3	BG50 HEAVY DUTY 2-BOLT PIPE CLAMP	19
7.4	BG140 INSULATED 2-BOLT PIPE CLAMP	20
7.5	BG141 INSULATED 2-BOLT PIPE CLAMP	21
7.6	BG101 LIGHT DUTY 3-BOLT PIPE CLAMP.....	22
7.7	BG171 MEDIUM DUTY 3 BOLT PIPE CLAMP FOR STEEL PIPE	23
7.8	BG75 HEAVY DUTY 3-BOLT PIPE CLAMP	24
7.9	BG172 HIGH TEMPERATURE 3 BOLT PIPE CLAMP.....	25
7.10	BG173 ALLOY PIPE CLAMP - VERY HIGH TEMPERATURE.....	26
7.11	BG145 INSULATED 3-BOLT PIPE CLAMP	27
7.12	BG146 INSULATED 3-BOLT PIPE CLAMP	28
7.13	BG174 RISER SUPPORT – LOW TEMPERATURE	29
7.14	BG175 RISER SUPPORT – HIGH TEMPERATURE	30
7.15	BG174 & BG175 MAXIMUM LOADS & ITEM WEIGHTS	31
7.16	BG176 ALLOY RISER SUPPORT - VERY HIGH TEMPERATURE	32
7.17	BG108 CLEVIS CLAMP.....	33
7.18	BG222 BEAM CLAMP.....	34
7.19	BG202 ALL THREAD ROD	35
7.20	BG203 THREADED DROP ROD – RH/LH	36
7.21	BG204 FORGED WELDLESS EYE NUT	37
7.22	BG205 SPADE END AND ROD	38
7.23	BG206 HEXAGONAL CONNECTOR.....	39
7.24	BG209 FORGED CLEVIS AND PIN	40
7.25	BG210 FORGED TURNBUCKLE	41
7.26	BG216 PIPE WELDING LUG.....	42
7.27	BG225 WELDING LUG.....	43
7.28	BG219 WELDED BEAM ATTACHMENT	44
7.29	BG220 WELDED BEAM ATTACHMENT – WITH LOAD PIN	45
7.30	BG214 HEMISPHERICAL WASHER	46
7.31	BG215 HEMISPHERICAL CUP	47
7.32	BG217 PLATE WASHER.....	48
7.33	BG245 STANDARD TRAPEZE.....	49

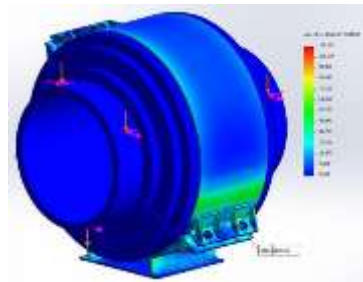
7.34	RIGID HANGER SUPPORTS – TYPICAL EXAMPLES	50
8.	PIPE SADDLES.....	51
8.1	BG177 SADDLE GUIDE	52
8.2	BG178 SADDLE CLAMP	53
8.3	BG160 INSULATED PIPE SADDLE	54
8.4	BG161 INSULATED PIPE SADDLE	55
8.5	BG162 INSULATED PIPE SADDLE	56
8.6	BG180 U-BOLT GUIDE	57
8.7	BG181 U-BOLT CLAMP	58
8.8	BG150 INSULATED U-BOLT CLAMP	59
8.9	BG151 INSULATED U-BOLT CLAMP	60
8.10	BG190 INSULATED U-BOLT CLAMP	61
8.11	BG192 INSULATED U-BOLT CLAMP	62
8.12	BG152 INSULATED U-BOLT GUIDE	63
8.13	BG153 INSULATED U-BOLT GUIDE	64
8.14	BG154 INSULATED U-BOLT GUIDE (WITH TEFLON).....	65
8.15	BG155 INSULATED U-BOLT GUIDE (WITH TEFLON).....	66
8.16	BG510 WELDED PIPE SHOE	67
8.17	BG515 CLAMPED PIPE SHOE	68
8.18	BG517 COMPACT PIPE SHOE.....	69
8.19	BG518 COMPACT WELDED PIPE SHOE.....	70
8.20	BG156 INSULATED PIPE SHOE	71
8.21	BG157 INSULATED PIPE SHOE	72
8.22	BG400 INSULATED PIPE SHOE	73
8.23	BG550 SLIDE PLATES	74
8.24	BG515 & BG 550 TYPICAL EXAMPLE PIPE SHOE WITH SLIDE PLATES.....	75
8.25	BG135 & BG136 ADJUSTABLE PIPE STANDS.....	76
8.26	BG555 STANDARD LINE STOPS.....	77
8.27	BG560 STANDARD PIPE GUIDES.....	78
8.28	BG570 STANDARD SHOE GUIDES.....	79
8.29	BG580 STANDARD SHOE GUIDES.....	80
9.	VARIABLE LOAD SPRING SUPPORTS	81
9.1	BV35, BV70, BV140, BV210. VARIABLE LOAD SPRING SUPPORTS.....	82
9.2	VARIABLE LOAD SPRING SUPPORTS – SELECTION.....	85
9.3	VARIABLE LOAD SPRING SUPPORTS – SELECTION.....	86
9.4	VARIABLE LOAD SPRING SUPPORTS – PART ID TABLE	87
9.5	VARIABLE LOAD SPRING SUPPORTS – DIAGRAMS	89
9.6	BV35 VARIABLE LOAD SPRING SUPPORT – TABLE OF DIMENSIONS	90
9.7	BV70 VARIABLE LOAD SPRING SUPPORT – TABLE OF DIMENSIONS	91
9.8	BV140 VARIABLE LOAD SPRING SUPPORT – TABLE OF DIMENSIONS	92
9.9	BV210 VARIABLE LOAD SPRING SUPPORT – TABLE OF DIMENSIONS	93
9.10	VARIABLE LOAD SPRING SUPPORTS – TYPICAL EXAMPLES	94
9.11	VARIABLE LOAD SPRING SUPPORTS – QUOTATION REQUEST FORM (FM220).....	96
10.	CONSTANT LOAD SPRING SUPPORTS	97
10.1	BC50, BC51, BC52, BC53, BC54, BC55 – CONSTANT LOAD SUPPORTS - DESCRIPTION	98
10.2	BC50, BC51, BC52, BC53, BC54, BC55 – CONSTANT LOAD SUPPORTS – AVAILABLE TYPES.....	101
10.3	BC50, BC51, BC52, BC53, BC54, BC55 – CONSTANT LOAD SUPPORTS – SELECTION TABLE	102
10.4	BC50, BC51, BC52, BC53, BC54, BC55 – CONSTANT LOAD SUPPORTS – SELECTION TABLE	104
10.5	BC50 CONSTANT LOAD SUPPORTS – DIMENSIONAL DETAIL	106
10.6	BC51 CONSTANT LOAD SUPPORTS – DIMENSIONAL DETAIL	111
10.7	BC52 CONSTANT LOAD SUPPORTS – DIMENSIONAL DETAIL	117
10.8	BC53 CONSTANT LOAD SUPPORTS – DIMENSIONAL DETAIL	122
10.9	BC54 CONSTANT LOAD SUPPORTS – DIMENSIONAL DETAIL	127

10.10	BC55 CONSTANT LOAD SUPPORTS – DIMENSIONAL DETAIL	131
10.11	CONSTANT LOAD SUPPORTS – TYPICAL EXAMPLES	135
10.12	CONSTANT LOAD SUPPORTS – QUOTATION REQUEST FORM (FM219)	137
11.	DYNAMIC RESTRAINTS	138
11.1	BG310 HYDRAULIC SNUBBERS (SHOCK ARRESTORS)	139
11.2	BG315 END ATTACHMENT FOR HYDRAULIC SNUBBERS	141
11.3	BG320 PIPE CLAMP FOR HYDRAULIC SNUBBER – LOW TEMPERATURE	142
11.4	BG321 PIPE CLAMP FOR HYDRAULIC SNUBBER – HIGH TEMPERATURE	143
11.5	BG322 PIPE CLAMP FOR HYDRAULIC SNUBBER – VERY HIGH TEMPERATURE	144
11.6	BG350 RIGID STRUTS	145
11.7	BG355 END ATTACHMENT FOR RIGID STRUT & SWAY BRACE	146
11.8	BG340 SWAY BRACE	147
12.	HF PUF CRYOGENIC PIPE SHOES & TRUNNION SUPPORTS	148
12.1	BG600, BG601, BG602, BG603 HD PUF CRYOGENIC PIPE SHOE	149
12.2	BG615 STANDARD COLD SHOE	154
12.3	BG620 TRUNNION COLD SUPPORT	156
13.	LINE PIPE DATA	157
13.1	CARBON STEEL LINB PIPE - DIMENSIONS	157
13.2	CARBON STEEL LINE PIPE – WEIGHTS	158



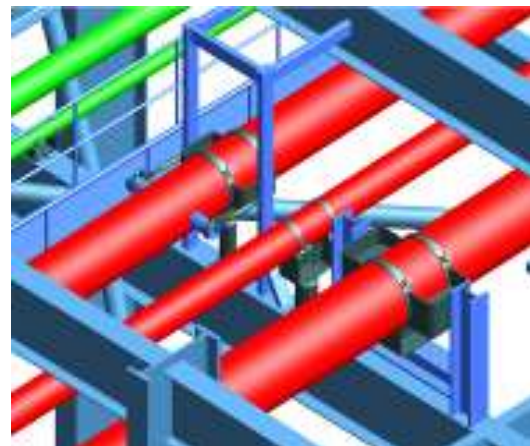
1. INTRODUCTION

Since 1982 Binder Group (Binder) is a specialist in the design and manufacture of proprietary and custom-built pipe suspension solutions. Binder has an international footprint that services global markets with facilities in Australia, Indonesia, Singapore and sales offices and agents in all global markets. Over its long-established history, Binder has and continues to improve its product and service offering successfully executing hundreds of projects in over 40 countries globally.



Binder pipe support systems are engineered in Australia using the latest design software and testing techniques and manufactured in Indonesia in accordance with international design codes under a stringent quality management system. Offering a comprehensive range, Binder differentiates itself from competitors by supplying specialist supports such as spring hangers, snubbers and cryogenic supports.

Additionally, Binder undertakes the design and manufacture of pipe supports to customer's own requirements when provided with design parameters such as; load, temperature and movement as provided by the relevant engineering design house or EPC.



Customer support and service has and always will remain high on the Binder list of priorities. Throughout the history of the company Binder has formed strong customer partnerships that ensured specific project requirements are understood and implemented with efficiency and accuracy.

To remain internationally competitive, Binder recognizes the importance of building a reputation for quality at an affordable price. Repeatable quality is paramount and the emphasis on meeting ISO 9001 standards has resulted in the company being awarded on going work on many prestigious pipe support contracts worldwide.



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When compiling the information in this publication, Binder Group has taken every effort to ensure accuracy. However, no responsibility will be taken for any errors, omissions or inaccuracies arising in this publication whether arising from negligence or otherwise or any consequences arising there from.

2. QUALITY MANAGEMENT CERTIFICATE



3. PIPE SUPPORT SPECIFICATIONS AND STANDARDS

3.1 SCOPE

Binder Group design and manufacture pipe supports to the following standards:

- American Standard MSS-SP-58 Pipe Hangers and Supports.
- ASME B31.1 Power Piping.
- ASME B31.3 Process Piping.
- British Standard BS3974 Parts I, II and III Pipe Supports.

3.2 DEFINITIONS

To help with the understanding of pipe supports, below are some definitions.

Pipe Clamp	A bolted pipe attachment which clamps around the pipe to connect the pipe to the remainder of a pipe hanger assembly.
3 Bolt Pipe Clamp	A pipe clamp normally used for horizontal insulated piping, which utilizes clamping bolts to attach the clamp to the pipe and a separate load bolt to transfer the piping weight to the remainder of the pipe hanger assembly from a point outside the insulation.
Pipe Shoe	Normally a tee section attached to the pipe or a pipe clamp to transmit the load or forces to the adjacent structure.
U-Bolt	A U-shaped rod with threaded ends, that fits around a pipe and is attached to a supporting member.
Hanger	A device for suspending a pipeline from a fixed point, and for maintaining the pipeline at a predetermined level, while allowing limited axial and lateral movement.
Spring Hanger	A type of pipe hanger, designed to adjust itself to changes in position of the pipeline, such as thermal expansion and subsidence.
BOP	Bottom of Pipe.

3.3 MATERIALS

The preferred materials and surface finishes from which the components of pipe support assemblies shall be manufactured are given in Table 1 and 2.

Other materials may be used if they have equal or higher physical properties. Please refer to table 1 and 2 for material and finishing standards.

Please refer to the individual catalogue pages for specific load and temperature ratings of our pipe supports.

Table 1 Schedule of Component Detail

Component	Material	Material Standard
Pipe Clamps, Saddles, Riser Supports and Line Stops.	Carbon Steel Boiler Plate Alloy Steel Stainless Steel Stainless Steel	ASTM A36 or JIS SS400 ASTM A516 GR 70 ASTM A387 Gr 11 or Gr 22 ASTM A240 Gr.316 ASTM A240 Gr.304
U Bolts	Carbon Steel Stainless Steel	ASTM A36 or JIS SS400 ASTM A276 Gr.316
All Thread Rods.	Carbon Steel	ASTM A36 or JIS SS400
Load Pins and Threaded Rod.	Carbon Steel	ASTM A36 or JIS SS400
Clamp Bolts and Load Bolts.	Carbon Steel Carbon Steel Alloy Steel Stainless Steel	ASTM A307 Gr B JIS Gr 8.8 ASTM A193 Gr B16 ASTM A320M B8M Cl.1
Nuts	Carbon Steel Carbon Steel Alloy Steel Stainless Steel	ASTM A563 Gr A JIS Gr 8 ASTM A194 Gr 4 ASTM A194M B8MA
Forgings	Forged Steel	ASTM A29 C1035
Distance Pieces (spacers)	Carbon Steel	ASTM A53 Gr B

Table 2 Schedule of Component Surface Finishes

Surface Finish	Material Standard
Hot Dipped Galvanised (HDG)	ASTM A123
Zinc Plating	ASTM F1135

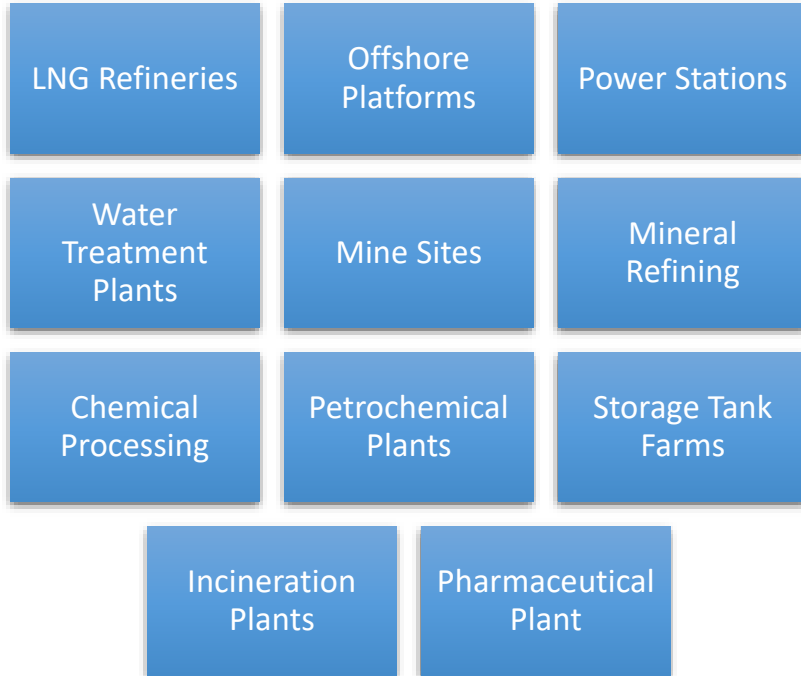
4. BINDER CLIENTS



- Industries Covered**
- ▲ Oil & Gas
 - ▲ LNG
 - ▲ Power Generation Plants
 - ▲ Petrochemical/ Industrial
 - ▲ Other Including: Pharmaceutical, Water Treatment Plants, Incineration, Gas to Liquid Plants (GTL), Mining & Mineral Resource Plants,



5. BINDER GROUP MARKETS



























6. QUICK REFERENCE GUIDE

SECTION	SUPPORT TYPE	PAGE
SECTION 0	RIGID HANGER SUPPORTS	10
SECTION 6.2	PIPE SADDLES, UBOLTS, SHOES & STOPS	13
SECTION 6.3	VARIABLE LOAD SUPPORTS	14
SECTION 6.4	CONSTANT LOAD SUPPORTS	14
SECTION 6.5	DYNAMIC RESTRAINTS	15
SECTION 6.6	CRYOGENIC SUPPORTS	15























6.1 RIGID HANGER SUPPORTS










2 BOLT CLAMPS					
Model	BG100	BG170	BG50	BG140	BG141
TYPE	Light Duty	Medium Duty	Heavy Duty	Insulated For SS, Duplex or S/Duplex Pipes	Insulated for Cupro Nickel Cu/Ni Pipes
PAGE	Page 17	Page 18	Page 19	Page 20	Page 21
3 BOLT CLAMPS					
Model	BG101	BG171	BG75	BG172	
TYPE	Light Duty	Medium Duty	Heavy Duty	High Temperature	
PAGE	Page 22	Page 23	Page 24	Page 25	
3 BOLT CLAMPS					
Model	BG173	BG145	BG146		
Type	Very High Temperature	Insulated for S.Steel, Duplex of S.Duplex Pipes	Insulated for Cupro Nickel Cu/Ni Pipes		
PAGE	Page 26	Page 27	Page 28		
RISER SUPPORTS					
Model	BG174	BG175	BG176		
TYPE	Low Temperature	High Temperature	Alloy Very High Temperature		
PAGE	Page 29	Page 30	Page 32		
HANGERS AND ATTACHEMENTS					
Model	BG108	BG222			
TYPE	Clevis Clamp	Beam Clamp			
PAGE	Page 33	Page 34			
THREADED COMPNNENTS AND FORGINGS					
Model	BG202	BG203	BG204	BG205	
TYPE	All Thread Rod	Threaded Drop Rod	Forged Weldless Eye Nut	Spade End & Rod	
PAGE	Page 35	Page 36	Page 37	Page 38	
THREADED COMPNNENTS AND FORGINGS					
Model	BG206	BG209	BG210		
TYPE	Hexagonal Connector	Forged Clevis & Pin	Forged Turnbuckle		
PAGE	Page 39	Page 40	Page 41		

ANCILLIARY COMPONNETS				
Model	BG216	BG225	BG219	BG220
TYPE	Pipe Welded Lug	Welded Lug	Welded Beam Attachment	Welded Beam Attachment with Load Pin
PAGE	Page 42	Page 43	Page 44	Page 45
ANCILLIARY COMPONNETS				
Model	BG214	BG215	BG217	BG245
TYPE	Hemispherical Washer	Hemispherical Cup	Plate Washer	Standard Trapeze
PAGE	Page 46	Page 47	Page 48	Page 49







6.2 PIPE SADDLES SHOES & STOPS

<p>PIPE SADDLES</p> <p>Model</p> <p>TYPE</p> <p>PAGE</p>	 BG177 Saddle Guides Page 52	 BG178 Saddle Clamps Page 53	 BG160 Insulated Pipe Saddles for Stainless Steel, Duplex or Super Duplex Pipes Page 54	 BG161 Insulated Pipe Saddles for Cupro Nickel Cu/Ni Pipes Page 55	 BG162 Insulated Pipe Saddles For FRP Pipes Page 56
<p>U-BOLTS</p> <p>Model</p> <p>TYPE</p> <p>PAGE</p> <p>U-BOLTS</p> <p>Model</p> <p>Type</p> <p>PAGE</p>	 BG180 Heavy Duty U-Bolt Guides Page 57	 BG181 Heavy Duty U-Bolt Clamps Page 58	 BG150 Insulated U Bolt Clamps For Stainless Steel, Duplex or Super Duplex Pipes Page 59	 BG151 Insulated U Bolt Clamps For Cupro Nickel Cu/Ni Pipes Page 60	 BG152 Insulated U Bolt Guide For Stainless Steel, Duplex or Super Duplex Pipes Page 61
<p>PIPE SHOES AND SLIDE PLATES</p> <p>Model</p> <p>TYPE</p> <p>PAGE</p> <p>Model</p> <p>TYPE</p> <p>PAGE</p>	 BG510 Standard Welded Pipe Shoes Page 67	 BG515 Standard Clamped Pipe Shoes Page 68	 BG517 Compact Pipe Shoes Page 69	 BG518 Compact Welded Pipe Shoes Page 70	 BG156 Insulated Pipe Shoes for Stainless Steel Duplex or Super Duplex Pipes Page 71
<p>LINE STOPS AND GUIDES</p> <p>Model</p> <p>TYPE</p> <p>PAGE</p>	 BG555 Standard Line Stops Page 77	 BG560 Standard Pipe Guides Page 78	 BG570 Standard Shoe Guides Page 79	 BG580 Standard Shoe Guides Page 80	 BG157 Insulated Pipe Shoes for Cupro Nickel Cu/Ni Pipes Page 72









6.3 VARIABLE LOAD SUPPORTS

VARIABLE LOAD SPRING SUPPORTS					
Model	Type A	Type B	Type C	Type D	
TYPE					
PAGE	Page 82	Page 82	Page 82	Page 82	Page
VARIABLE LOAD SPRING SUPPORTS					
Model	Type E	Type F	Type G	Type H	Type K
TYPE					
PAGE	Page 82	Page 82	Page 82	Page 82	Page 82

6.4 CONSTANT LOAD SUPPORTS







CONSTANT LOAD SPRING SUPPORTS			
Model	BC50	BC51	BC52
TYPE	Types J, K, L, M, & O	Types R, S, T, U, V, ...W, X & Y	Types X, Y & Z
PAGE	Page 98	Page 98	Page 98
CONSTANT LOAD SPRING SUPPORTS			
Model	BC53	BC54	BC55
TYPE			
PAGE	Page 98	Page 98	Page 98

6.5 DYNAMIC RESTRAINTS

























HYDRAULIC SNUBBERS & ATTACHMENTS					
	Model BG310 HYDRAULIC SNUBBER	Model BG315 END ATTACHMENT FOR HYDRAULIC SNUBBER	Model BG320 SNUBBER CLAMP LOW TEMPERATURE	Model BG321 SNUBBER CLAMP HIGH TEMPERATURE	Model BG322 SNUBBER CLAMP VERY HIGH TEMPERATURE
	PAGE Page139	PAGE Page 141	PAGE Page 142	PAGE Page 143	PAGE Page 144
RIGID STRUTS, SWAY BRACE ATTACHMENTS					
	Model BG350 RIGID STRUT	Model BG355 END ATTACHMENT FOR RIGID STRUT	Model BG340 SWAY BRACE		
	PAGE Page 145	PAGE Page 146	PAGE Page 147		

NOTE: SNUBBER CLAMPS ARE NOT COMPATIBLE WITH RIGID STRUTS OR SWAY BRACES

6.6 CRYOGENIC SUPPORTS

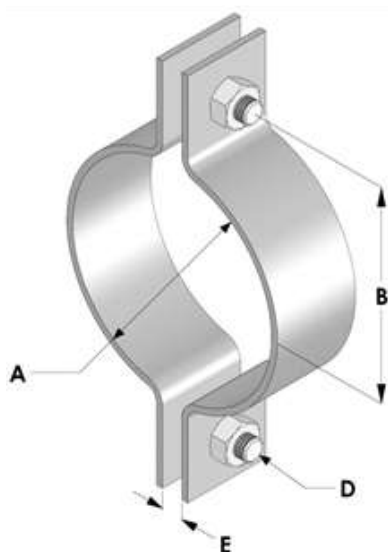
HD PUF CRYOGENIC PIPE SHOE				
	Model BG600	Model BG601	Model BG602	Model BG603
	PAGE Page 149	PAGE Page 149	PAGE Page 149	PAGE Page 149
				
	Model BG615	Model BG620		
	PAGE Page 154	PAGE Page 156		

7. RIGID HANGER SUPPORTS

2 BOLT CLAMPS					
Model	BG100	BG170	BG50	BG140	BG141
TYPE	Light Duty	Medium Duty	Heavy Duty	Insulated For SS, Duplex or S/Duplex Pipes	Insulated for Cupro Nickel Cu/Ni Pipes
PAGE	Page 17	Page 18	Page 19	Page 20	Page 21
3 BOLT CLAMPS					
Model	BG101	BG171	BG75	BG172	
TYPE	Light Duty	Medium Duty	Heavy Duty	High Temperature	
PAGE	Page 22	Page 23	Page 24	Page 25	
3 BOLT CLAMPS					
Model	BG173	BG145	BG146		
Type	Very High Temperature	Insulated for S.Steel, Duplex of S.Duplex Pipes	Insulated for Cupro Nickel Cu/Ni Pipes		
PAGE	Page 26	Page 27	Page 28		
RISER SUPPORTS					
Model	BG174	BG175	BG176		
TYPE	Low Temperature	High Temperature	Alloy Very High Temperature		
PAGE	Page 29	Page 30	Page 32		
HANGERS AND ATTACHEMENTS					
Model	BG108	BG222			
TYPE	Clevis Clamp	Beam Clamp			
PAGE	Page 33	Page 34			
THREADED COMPPONENTS AND FORGINGS					
Model	BG202	BG203	BG204	BG205	
TYPE	All Thread Rod	Threaded Drop Rod	Forged Weldless Eye Nut	Spade End & Rod	
PAGE	Page 35	Page 36	Page 37	Page 38	
THREADED COMPPONENTS AND FORGINGS					
Model	BG206	BG209	BG210		
TYPE	Hexagonal Connector	Forged Clevis & Pin	Forged Turnbuckle		
PAGE	Page 39	Page 40	Page 41		

7.1 BG100 LIGHT DUTY 2-BOLT CLAMP

Temperature Range – Up to 343°C (up to 200°C if HDG)



When ordering, please quote the Part No. for required pipe size and surface finish.

	Material
Clamp & Fasteners	Carbon Steel
	Surface Finish
Clamp & Fasteners	Hot Dipped Galvanised or Mill

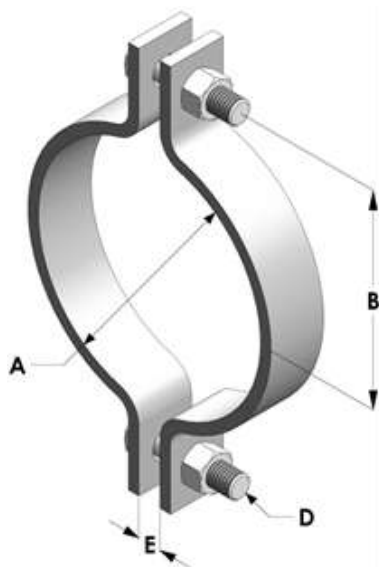
General Notes

- Spacer and Lock Nut supplied upon request.
- Please refer to page 6 for material standards and specifications.

Pipe Size		Description	(B)	Spacing (E)	Clamp & Load Bolt (D)	Max. Load	Item Weight	Part No.	
Nominal Size	Pipe O/D (A)							HDG	Mill
NB	mm							mm	mm
15	21.3	15NB Light Duty 2 Bolt Clamp	28	6	M6	100	0.12	100001	100023
20	26.7	20NB Light Duty 2 Bolt Clamp	33	6	M6	100	0.14	100002	100024
25	33.4	25NB Light Duty 2 Bolt Clamp	35	6	M6	100	0.14	100003	100025
32	42.2	32NB Light Duty 2 Bolt Clamp	44	10	M10	225	0.28	100004	100026
40	48.3	40NB Light Duty 2 Bolt Clamp	49	10	M10	225	0.30	100005	100027
50	60.3	50NB Light Duty 2 Bolt Clamp	50	10	M10	225	0.32	100006	100028
65	76.1	65NB Light Duty 2 Bolt Clamp	58	10	M10	225	0.44	100007	100029
80	88.9	80NB Light Duty 2 Bolt Clamp	68	10	M10	225	0.49	100008	100030
100	114.3	100NB Light Duty 2 Bolt Clamp	80	12	M12	250	0.60	100009	100031
125	141.3	125NB Light Duty 2 Bolt Clamp	98	12	M12	280	1.09	100010	100032
150	168.3	150NB Light Duty 2 Bolt Clamp	113	12	M12	280	1.24	100011	100033
200	219.1	200NB Light Duty 2 Bolt Clamp	140	16	M16	450	2.34	100012	100034
225	244.5	225NB Light Duty 2 Bolt Clamp	160	16	M16	450	2.65	100013	100035
250	273.0	250NB Light Duty 2 Bolt Clamp	175	16	M16	450	2.87	100014	100036
300	323.9	300NB Light Duty 2 Bolt Clamp	210	20	M20	900	5.55	100015	100037
350	355.6	350NB Light Duty 2 Bolt Clamp	230	24	M24	1,010	8.24	100016	100038
400	406.4	400NB Light Duty 2 Bolt Clamp	265	24	M24	1,200	10.65	100017	100039
450	457.2	450NB Light Duty 2 Bolt Clamp	310	24	M24	1,350	18.56	100018	100040
500	508.0	500NB Light Duty 2 Bolt Clamp	335	24	M24	1,350	20.07	100019	100041
600	609.6	600NB Light Duty 2 Bolt Clamp	390	24	M24	1,350	23.30	100020	100042
750	762.0	750NB Light Duty 2 Bolt Clamp	465	30	M30	2,700	47.32	100021	100043
900	914.4	900NB Light Duty 2 Bolt Clamp	560	30	M30	2,700	69.40	100022	100044

7.2 BG170 MEDIUM DUTY 2 BOLT PIPE CLAMP

Temperature Range – Up to 343°C (up to 200°C if HDG)



When ordering, please quote the Part No. for required pipe size and surface finish.

	Material
Clamp & Fasteners	Carbon Steel
	Surface Finish
Clamp & Fasteners	Hot Dipped Galvanised or Mill

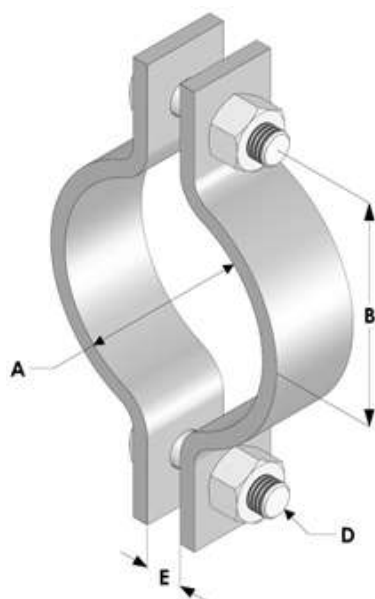
General Notes

- Spacer and Lock Nut supplied upon request.
- Please refer to page 6 for material standards and specifications

Pipe Size		Description	(B)	Spacing (E)	Clamp & Load Bolt (D)	Max Load.	Item Weight	Part No.	
Nominal Size	Pipe O/D (A)							HDG	Mill
NB	mm							mm	mm
15	21.3	15NB Medium Duty 2 Bolt Pipe Clamp	33	10	M10	280	0.43	170001	170023
20	26.7	20NB Medium Duty 2 Bolt Pipe Clamp	35	10	M10	280	0.45	170002	170024
25	33.4	25NB Medium Duty 2 Bolt Pipe Clamp	38	10	M10	280	0.48	170003	170025
32	42.2	32NB Medium Duty 2 Bolt Pipe Clamp	45	12	M12	280	0.61	170004	170026
40	48.3	40NB Medium Duty 2 Bolt Pipe Clamp	48	12	M12	280	0.64	170005	170027
50	60.3	50NB Medium Duty 2 Bolt Pipe Clamp	53	12	M12	280	0.69	170006	170028
65	76.1	65NB Medium Duty 2 Bolt Pipe Clamp	78	16	M16	450	1.54	170007	170029
80	88.9	80NB Medium Duty 2 Bolt Pipe Clamp	83	16	M16	450	1.62	170008	170030
100	114.3	100NB Medium Duty 2 Bolt Pipe Clamp	95	16	M16	450	1.82	170009	170031
125	141.3	125NB Medium Duty 2 Bolt Pipe Clamp	108	16	M16	450	2.02	170010	170032
150	168.3	150NB Medium Duty 2 Bolt Pipe Clamp	123	16	M16	450	2.25	170011	170033
175	193.7	175NB Medium Duty 2 Bolt Pipe Clamp	140	16	M16	900	3.70	170012	170034
200	219.1	200NB Medium Duty 2 Bolt Pipe Clamp	153	16	M16	900	4.01	170013	170035
225	244.5	225NB Medium Duty 2 Bolt Pipe Clamp	170	20	M20	1,350	6.02	170014	170036
250	273.0	250NB Medium Duty 2 Bolt Pipe Clamp	183	20	M20	1,350	6.43	170015	170037
300	323.9	300NB Medium Duty 2 Bolt Pipe Clamp	228	24	M24	1,800	12.48	170016	170038
350	355.6	350NB Medium Duty 2 Bolt Pipe Clamp	250	30	M30	2,250	14.88	170017	170039
400	406.4	400NB Medium Duty 2 Bolt Pipe Clamp	288	30	M30	2,700	20.13	170018	170040
450	457.2	450NB Medium Duty 2 Bolt Pipe Clamp	318	36	M36	3,600	31.22	170019	170041
500	508.0	500NB Medium Duty 2 Bolt Pipe Clamp	358	36	M36	4,500	46.72	170020	170042
550	559.0	550NB Medium Duty 2 Bolt Pipe Clamp	383	36	M36	4,500	49.86	170021	170043
600	609.6	600NB Medium Duty 2 Bolt Pipe Clamp	415	42	M42	5,900	71.06	170022	170044

7.3 BG50 HEAVY DUTY 2-BOLT PIPE CLAMP

Temperature Range – Up to 400°C



When ordering, please quote the Part No. for required pipe size and surface finish.

	Material
Clamp, Fasteners	Carbon Steel
	Surface Finish
Clamp, Fasteners	Hot Dipped Galvanised or Mill

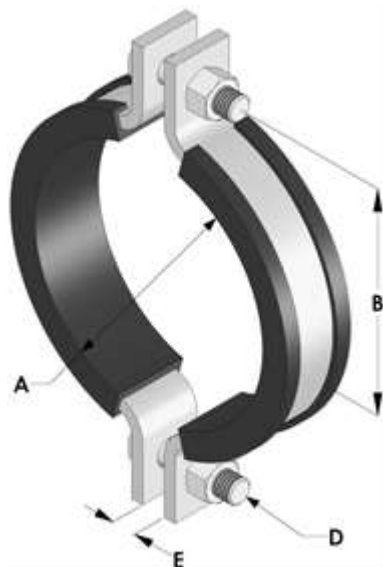
General Notes

- Sizes 40NB to 400NB are supplied with bolts (metric thread).
- Sizes 450NB and larger are supplied with studs (imperial thread).
- Studs supplied with 4 nuts per stud.
- Spacer and Lock Nut supplied upon request.
- Hot Dip Galvanised suitable up to 200°C.
- Please refer to page 6 for material standards and specifications.

Pipe Size		Description	(B)	Spacing (E)	Clamp & Load Bolt (D)	Item Weight	Max Load		Part No.	
Nominal Size	Pipe O/D (A)						Up to 340°C	Up To 400°C	HDG	Mill
NB	mm						kg	kg		
40	48.3	40NB Heavy Duty 2 Bolt Clamp	50	16	M12	0.72	500	400	050001	050020
50	60.3	50NB Heavy Duty 2 Bolt Clamp	60	16	M12	0.82	500	400	050002	050021
65	76.1	65NB Heavy Duty 2 Bolt Clamp	70	20	M16	1.13	500	400	050003	050022
80	88.9	80NB Heavy Duty 2 Bolt Clamp	80	25	M20	2.17	1,500	1,350	050004	050023
100	114.3	100NB Heavy Duty 2 Bolt Clamp	95	28	M24	3.40	1,550	1,420	050005	050024
150	168.3	150NB Heavy Duty 2 Bolt Clamp	130	28	M24	6.13	2,205	1,950	050006	050025
200	219.1	200NB Heavy Duty 2 Bolt Clamp	165	28	M24	7.13	2,205	1,950	050007	050026
250	273.1	250NB Heavy Duty 2 Bolt Clamp	205	32	M30	11.71	2,720	2,430	050008	050027
300	323.9	300NB Heavy Duty 2 Bolt Clamp	235	40	M36	21.00	3,940	3,510	050009	050028
350	355.6	350NB Heavy Duty 2 Bolt Clamp	255	40	M36	28.37	4,130	3,670	050010	050029
400	406.4	400NB Heavy Duty 2 Bolt Clamp	280	40	M36	30.63	4,130	3,670	050011	050030
450	457.2	450NB Heavy Duty 2 Bolt Clamp	360	75	1 7/8"	57.51	6,250	5,590	050012	050031
500	508.0	500NB Heavy Duty 2 Bolt Clamp	400	75	1 7/8"	66.79	6,930	6,200	050013	050032
600	609.6	600NB Heavy Duty 2 Bolt Clamp	460	80	2 1/4"	91.95	7,390	6,600	050014	050033
700	711.2	700NB Heavy Duty 2 Bolt Clamp	510	80	2 1/4"	131.91	8,160	6,750	050015	050034
750	762.0	750NB Heavy Duty 2 Bolt Clamp	560	90	2 1/2"	160.10	9,290	6,900	050016	050035
800	812.8	800NB Heavy Duty 2 Bolt Clamp	590	90	2 1/2"	189.29	10,770	7,650	050017	050036
850	863.6	850NB Heavy Duty 2 Bolt Clamp	625	90	2 1/2"	244.76	11,330	9,020	050018	050037
900	914.4	900NB Heavy Duty 2 Bolt Clamp	660	90	3"	267.95	12,700	9,760	050019	050038

7.4 BG140 INSULATED 2-BOLT PIPE CLAMP

For Stainless Steel, Duplex or Super Duplex Pipes
Temperature Range – From -35°C to 100°C



When ordering, please quote the Part No. for required pipe size and material.

			Material	
Clamp & Fasteners	Carbon Steel	Stainless Steel		
Insulator	Neoprene Compound			
			Surface Finish	
			Carbon Steel	Stainless Steel
Clamp & Fasteners	Hot Dipped Galvanised	Mill		

General Notes

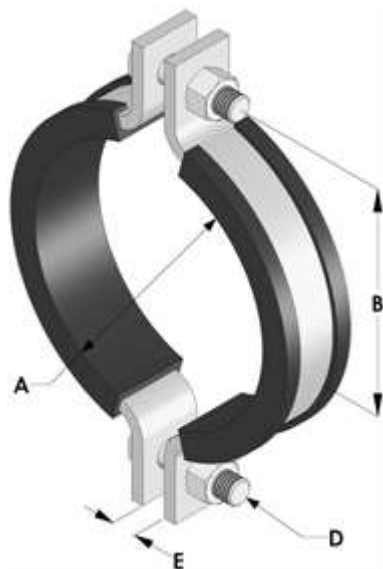
- Insulator profile has added self-extinguishing fire retardants and suitable for hydrocarbon installations such as oil and gas.
- Please refer to page 6 for material standards and specifications.

Pipe Size		Description	(B)	Spacing (E)	Clamp & Load Bolt (D)	Max. Load	Item Weight	Part No.	
Nominal Size	Pipe O/D (A)							Carbon Steel	Stainless Steel
NB	mm							mm	mm
15	21.3	15NB Insulated 2 Bolt Clamp	39	10	M10	280	0.44	140001	140019
20	26.7	20NB Insulated 2 Bolt Clamp	41	10	M10	280	0.47	140002	140020
25	33.4	25NB Insulated 2 Bolt Clamp	44	10	M10	280	0.49	140003	140021
32	42.2	32NB Insulated 2 Bolt Clamp	51	12	M12	280	0.62	140004	140022
40	48.3	40NB Insulated 2 Bolt Clamp	54	12	M12	280	0.65	140005	140023
50	60.3	50NB Insulated 2 Bolt Clamp	59	12	M12	280	0.70	140006	140024
65	76.1	65NB Insulated 2 Bolt Clamp	84	16	M16	450	1.57	140007	140025
80	88.9	80NB Insulated 2 Bolt Clamp	89	16	M16	450	1.65	140008	140026
100	114.3	100NB Insulated 2 Bolt Clamp	95	16	M16	450	1.85	140009	140027
150	168.3	150NB Insulated 2 Bolt Clamp	123	16	M16	450	2.28	140010	140028
200	219.1	200NB Insulated 2 Bolt Clamp	159	16	M16	900	4.07	140011	140029
250	273.0	250NB Insulated 2 Bolt Clamp	189	20	M20	1,350	6.51	140012	140030
300	323.9	300NB Insulated 2 Bolt Clamp	234	24	M24	1,800	12.60	140013	140031
350	355.6	350NB Insulated 2 Bolt Clamp	256	30	M30	2,250	14.98	140014	140032
400	406.4	400NB Insulated 2 Bolt Clamp	288	30	M30	2,700	20.25	140015	140033
450	457.2	450NB Insulated 2 Bolt Clamp	324	36	M36	3,600	31.39	140016	140034
500	508.0	500NB Insulated 2 Bolt Clamp	364	36	M36	4,500	43.79	140017	140035
600	609.6	600NB Insulated 2 Bolt Clamp	421	42	M42	5,900	71.38	140018	140036

7.5 BG141 INSULATED 2-BOLT PIPE CLAMP

For Cupro-Nickel Cu/Ni Pipes

Temperature Range – From -35°C to 100°C



When ordering, please quote the Part No. for required pipe size and material.

		Material	
Clamp & Fasteners		Carbon Steel	Stainless Steel
Insulator		Neoprene Compound	
		Surface Finish	
		Carbon Steel	Stainless Steel
Clamp & Fasteners		Hot Dipped Galvanised	Mill

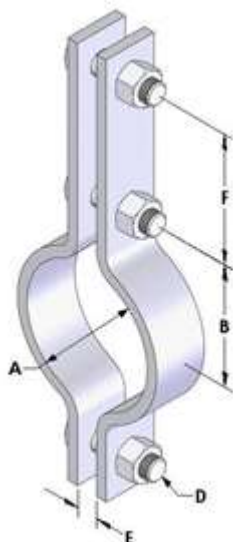
General Notes

- Insulator profile has added self-extinguishing fire retardants and suitable for hydrocarbon installations such as oil and gas.
- Please refer to page 6 for material standards and specifications.

Pipe Size		Description	(B)	Spacing (E)	Clamp & Load Bolt (D)	Max. Load	Item Weight	Part No.	
Nominal Size	Pipe O/D (A)							Carbon Steel	Stainless Steel
NB	mm							mm	mm
15	16.0	15NB Insulated 2 Bolt Clamp	32	10	M10	280	0.44	141001	141015
20	25.0	20NB Insulated 2 Bolt Clamp	38	10	M10	280	0.47	141002	141016
25	30.0	25NB Insulated 2 Bolt Clamp	42	10	M10	280	0.49	141003	141017
32	38.0	32NB Insulated 2 Bolt Clamp	48	12	M12	280	0.62	141004	141018
40	44.5	40NB Insulated 2 Bolt Clamp	50	12	M12	280	0.65	141005	141019
50	57.0	50NB Insulated 2 Bolt Clamp	58	12	M12	280	0.70	141006	141020
65	76.1	65NB Insulated 2 Bolt Clamp	78	16	M16	450	1.57	141007	141021
80	89.0	80NB Insulated 2 Bolt Clamp	83	16	M16	450	1.65	141008	141022
100	108.0	100NB Insulated 2 Bolt Clamp	93	16	M16	450	1.85	141009	141023
150	159.0	150NB Insulated 2 Bolt Clamp	118	16	M16	450	2.28	141010	141024
200	219.0	200NB Insulated 2 Bolt Clamp	153	16	M16	450	4.07	141011	141025
250	267.0	250NB Insulated 2 Bolt Clamp	183	20	M20	900	6.51	141012	141026
300	323.9	300NB Insulated 2 Bolt Clamp	228	24	M24	900	12.60	141013	141027
350	368.0	350NB Insulated 2 Bolt Clamp	255	30	M30	1,350	14.98	141014	141028

7.6 BG101 LIGHT DUTY 3-BOLT PIPE CLAMP

Temperature Range – Up to 343°C (up to 200°C if HDG)



When ordering, please quote the Part No. for required pipe size and surface finish.

	Material
Clamp & Fasteners	Carbon Steel
	Surface Finish
Clamp & Fasteners	Hot Dipped Galvanised or Mill

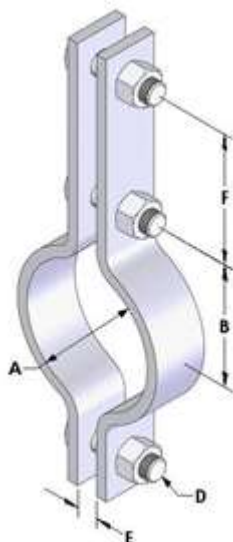
General Notes

- Please refer to page 6 for material standards and specifications.
- Spacer and Lock Nut supplied upon request.

Pipe Size		Description	(B)	(F)	Spacing (E)	Clamp & Load Bolt (D)	Max Load	Item Weight	Part No.	
Nominal Size	Pipe O/D (A)								HDG	Mill
NB	mm								mm	mm
15	21.3	15NB Light Duty 3 Bolt Clamp	28	60	6	M6	100	0.20	101001	101023
20	26.7	20NB Light Duty 3 Bolt Clamp	33	60	6	M6	100	0.22	101002	101024
25	33.4	25NB Light Duty 3 Bolt Clamp	35	60	6	M6	100	0.22	101003	101025
32	42.2	32NB Light Duty 3 Bolt Clamp	44	60	10	M10	225	0.42	101004	101026
40	48.3	40NB Light Duty 3 Bolt Clamp	49	60	10	M10	225	0.44	101005	101027
50	60.3	50NB Light Duty 3 Bolt Clamp	50	60	10	M10	225	0.45	101006	101028
65	76.1	65NB Light Duty 3 Bolt Clamp	58	60	10	M10	225	0.59	101007	101029
80	88.9	80NB Light Duty 3 Bolt Clamp	68	60	10	M10	225	0.64	101008	101030
100	114.3	100NB Light Duty 3 Bolt Clamp	80	60	12	M12	250	0.78	101009	101031
125	141.3	125NB Light Duty 3 Bolt Clamp	98	60	12	M12	280	1.20	101010	101032
150	168.3	150NB Light Duty 3 Bolt Clamp	113	80	12	M12	280	1.56	101011	101033
200	219.1	200NB Light Duty 3 Bolt Clamp	140	90	16	M16	450	2.92	101012	101034
225	244.5	225NB Light Duty 3 Bolt Clamp	160	90	16	M16	450	3.10	101013	101035
250	273.0	250NB Light Duty 3 Bolt Clamp	175	90	16	M16	450	3.46	101014	101036
300	323.9	300NB Light Duty 3 Bolt Clamp	210	90	20	M20	900	6.63	101015	101037
350	355.6	350NB Light Duty 3 Bolt Clamp	230	90	24	M24	1,010	9.70	101016	101038
400	406.4	400NB Light Duty 3 Bolt Clamp	265	90	24	M24	1,200	12.19	101017	101039
450	457.2	450NB Light Duty 3 Bolt Clamp	310	90	24	M24	1,350	20.98	101018	101040
500	508.0	500NB Light Duty 3 Bolt Clamp	335	90	24	M24	1,350	22.48	101019	101041
600	609.6	600NB Light Duty 3 Bolt Clamp	390	90	24	M24	1,350	25.71	101020	101042
750	762.0	750NB Light Duty 3 Bolt Clamp	465	100	30	M30	2,700	51.64	101021	101043
900	914.4	900NB Light Duty 3 Bolt Clamp	560	100	30	M30	2,700	74.57	101022	101044

7.7 BG171 MEDIUM DUTY 3 BOLT PIPE CLAMP FOR STEEL PIPE

Temperature Range – Up to 400°C



When ordering, please quote the Part No. for required pipe size and surface finish.

	Material
Clamp & Fasteners.	Carbon Steel
	Surface Finish
Clamp & Fasteners.	Hot Dipped Galvanised or Mill

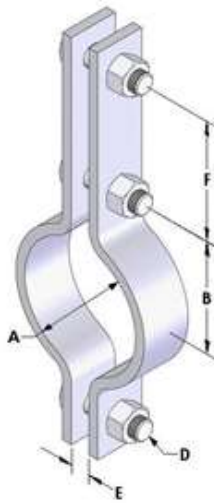
General Notes

- Spacer and Lock Nut supplied upon request.
- Hot Dip Galvanised suitable up to 200°C.
- Please refer to page 6 for material standards and specifications.

Pipe Size		Description	(B)	(F)	Spacing (E)	Clamp & Load Bolt (D)	Max Load	Item Weight	Part No.	
Nominal Size	Pipe O/D (A)								mm	mm
NB	mm				mm	mm	mm	mm	kg	kg
15	21.3	15NB Medium Duty 3 Bolt Clamp	33	70	10	M10	280	0.72	171001	171023
20	26.9	20NB Medium Duty 3 Bolt Clamp	35	70	10	M10	280	0.74	171002	171024
25	33.7	25NB Medium Duty 3 Bolt Clamp	38	70	10	M10	280	0.76	171003	171025
32	42.4	32NB Medium Duty 3 Bolt Clamp	45	70	12	M12	280	0.92	171004	171026
40	48.3	40NB Medium Duty 3 Bolt Clamp	48	80	12	M12	280	1.00	171005	171027
50	60.3	50NB Medium Duty 3 Bolt Clamp	53	80	12	M12	280	1.03	171006	171028
65	76.1	65NB Medium Duty 3 Bolt Clamp	78	90	16	M16	450	2.21	171007	171039
80	88.9	80NB Medium Duty 3 Bolt Clamp	83	90	16	M16	450	2.32	171008	171030
100	114.3	100NB Medium Duty 3 Bolt Clamp	95	90	16	M16	450	2.51	171009	171031
125	141.3	125NB Medium Duty 3 Bolt Clamp	108	90	16	M16	450	2.71	171010	171032
150	168.3	150NB Medium Duty 3 Bolt Clamp	123	90	16	M16	450	2.94	171011	171033
175	193.7	175NB Medium Duty 3 Bolt Clamp	144	90	20	M20	900	2.25	171012	171034
200	219.1	200NB Medium Duty 3 Bolt Clamp	158	90	20	M20	900	5.64	171013	171035
225	244.5	225NB Medium Duty 3 Bolt Clamp	183	90	20	M20	1,350	6.40	171014	171036
250	273.1	250NB Medium Duty 3 Bolt Clamp	195	90	20	M20	1,350	12.15	171015	171037
300	323.9	300NB Medium Duty 3 Bolt Clamp	238	90	24	M24	1,800	17.93	171016	171038
350	355.6	350NB Medium Duty 3 Bolt Clamp	263	90	30	M30	2,250	21.50	171017	171039
400	406.4	400NB Medium Duty 3 Bolt Clamp	300	90	30	M30	2,700	41.57	171018	171040
450	457.2	450NB Medium Duty 3 Bolt Clamp	330	90	36	M36	3,600	49.33	171019	171041
500	508.0	500NB Medium Duty 3 Bolt Clamp	370	100	36	M36	4,500	65.12	171020	171042
550	559	550NB Medium Duty 3 Bolt Clamp	395	100	36	M36	4,500	52.34	171021	171043
600	609.6	600NB Medium Duty 3 Bolt Clamp	440	100	42	M42	5,900	78.92	171022	171044

7.8 BG75 HEAVY DUTY 3-BOLT PIPE CLAMP

Temperature Range – Up to 400°C



When ordering, please quote the Part No. for required pipe size and surface finish.

Material	
Clamp, Fasteners	Carbon Steel
Surface Finish	
Clamp, Fasteners	Hot Dipped Galvanised or Mill

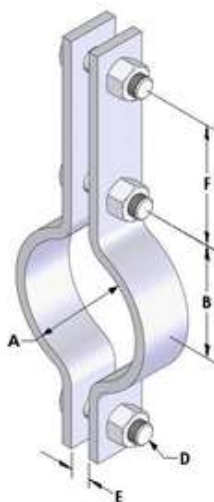
General Notes

- Sizes 40NB to 350NB are supplied with bolts (metric thread).
- Sizes 400NB and larger are supplied with studs (imperial thread).
- Studs supplied with 4 nuts per stud.
- Spacer and Lock Nut supplied upon request.
- Hot Dip Galvanised suitable up to 200°C.
- Please refer to page 6 for material standards and specifications.

Pipe Size		Description	(B)	(F)	Spacing (E)	Clamp & Load Bolt (D)	Item Weight	Max. Load		Part No.	
Nominal Size	Pipe O/D (A)							Up to 340°C	Up to 400°C	HDG	Mill
NB	mm							kg	kg	mm	mm
15	21.3	15NB Heavy Duty 3 Bolt Clamp	33	108	16	M12	1.0	300	200	075001	075025
20	26.9	20NB Heavy Duty 3 Bolt Clamp	35	110	16	M12	1.0	300	200	075002	075026
25	33.7	25NB Heavy Duty 3 Bolt Clamp	38	113	16	M12	1.1	300	200	075003	075027
32	42.4	32NB Heavy Duty 3 Bolt Clamp	45	120	16	M12	1.2	400	350	075004	075028
40	48.3	40NB Heavy Duty 3 Bolt Clamp	60	135	16	M12	1.4	550	400	075005	075029
50	60.3	50NB Heavy Duty 3 Bolt Clamp	63	138	16	M12	1.4	550	400	075006	075030
65	76.1	65NB Heavy Duty 3 Bolt Clamp	75	165	25	M20	4.0	550	400	075007	075031
80	88.9	80NB Heavy Duty 3 Bolt Clamp	82	172	25	M20	4.1	550	400	075008	075032
100	114.3	100NB Heavy Duty 3 Bolt Clamp	115	95	45	M24	6.1	1,500	1,360	075009	075033
125	141.3	125NB Heavy Duty 3 Bolt Clamp	122	95	45	M24	6.4	1,500	1,360	075010	075034
150	168.3	150NB Heavy Duty 3 Bolt Clamp	130	95	45	M24	6.6	1,550	1,420	075011	075035
200	219.1	200NB Heavy Duty 3 Bolt Clamp	165	95	50	M30	10.4	2,175	1,940	075012	075036
250	273.0	250NB Heavy Duty 3 Bolt Clamp	195	95	60	M30	14.9	2,450	2,230	075013	075037
300	323.9	300NB Heavy Duty 3 Bolt Clamp	225	100	65	M36	24.9	3,175	2,830	075014	075038
350	355.6	350NB Heavy Duty 3 Bolt Clamp	260	100	65	M36	31.5	4,300	3,850	075015	075039
400	406.4	400NB Heavy Duty 3 Bolt Clamp	290	105	75	1 5/8"	41.9	4,535	4,050	075016	075040
450	457.2	450NB Heavy Duty 3 Bolt Clamp	325	190	90	1 7/8"	63.5	6,250	5,590	075017	075041
500	508.0	500NB Heavy Duty 3 Bolt Clamp	360	190	90	1 7/8"	68.5	6,950	6,200	075018	075042
600	609.6	600NB Heavy Duty 3 Bolt Clamp	410	190	90	1 7/8"	88.9	7,400	6,600	075019	075043
700	711.2	700NB Heavy Duty 3 Bolt Clamp	470	210	100	2 1/4"	134.5	8,160	6,750	075020	075044
750	762.0	750NB Heavy Duty 3 Bolt Clamp	500	210	110	2 1/4"	142.2	9,300	6,900	075021	075045
800	812.8	800NB Heavy Duty 3 Bolt Clamp	540	230	110	2 1/2"	194.3	10,770	7,650	075022	075046
850	863.6	850NB Heavy Duty 3 Bolt Clamp	585	230	110	2 1/2"	252.4	11,330	9,020	075023	075047
900	914.4	900NB Heavy Duty 3 Bolt Clamp	640	230	115	2 3/4"	277.5	12,700	9,760	075024	075048

7.9 BG172 HIGH TEMPERATURE 3 BOLT PIPE CLAMP

Temperature Range – Up to 470°C



When ordering, please quote the Part No. for required pipe size and surface finish.

	Material
Clamp, Fasteners	Boiler Plate
	Surface Finish
Clamp, Fasteners	Mill

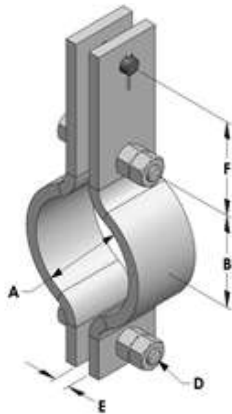
General Notes

- Spacer and Lock Nut supplied upon request.
- Please refer to page 6 for material standards and specifications.

Pipe Size		Description	(B)	(F)	Spacing (E)	Clamp & Load Bolt (D)	Max Load	Item Weight	Part No.
Nominal Size	Pipe O/D (A)								
NB	mm				mm	mm	kg	kg	
15	21.3	15NB High Temperature 3 Bolt Clamp	33	70	10	M10	280	0.80	172001
20	26.7	20NB High Temperature 3 Bolt Clamp	35	70	10	M10	280	0.82	172002
25	33.4	25NB High Temperature 3 Bolt Clamp	48	60	10	M10	280	1.22	172003
32	42.2	32NB High Temperature 3 Bolt Clamp	50	60	12	M12	280	1.30	172004
40	48.3	40NB High Temperature 3 Bolt Clamp	58	75	12	M12	280	1.49	172005
50	60.3	50NB High Temperature 3 Bolt Clamp	63	80	12	M12	280	1.55	172006
65	76.1	65NB High Temperature 3 Bolt Clamp	78	90	16	M16	450	2.21	172007
80	88.9	80NB High Temperature 3 Bolt Clamp	83	95	16	M16	450	2.33	172008
100	114.3	100NB High Temperature 3 Bolt Clamp	100	90	16	M16	450	3.57	172009
125	141.3	125NB High Temperature 3 Bolt Clamp	113	90	16	M16	450	3.87	172010
150	168.3	150NB High Temperature 3 Bolt Clamp	128	90	16	M16	450	4.21	172011
175	193.7	175NB High Temperature 3 Bolt Clamp	158	75	20	M20	900	9.69	172012
200	219.1	200NB High Temperature 3 Bolt Clamp	170	80	20	M20	900	10.39	172013
225	244.5	225NB High Temperature 3 Bolt Clamp	195	70	20	M20	1,350	13.67	172014
250	273.0	250NB High Temperature 3 Bolt Clamp	208	80	20	M20	1,350	14.63	172015
300	323.9	300NB High Temperature 3 Bolt Clamp	253	65	24	M24	1,800	32.18	172016
350	355.6	350NB High Temperature 3 Bolt Clamp	275	70	30	M30	2,250	47.19	172017
400	406.4	400NB High Temperature 3 Bolt Clamp	313	70	30	M30	2,700	65.36	172018
450	457.2	450NB High Temperature 3 Bolt Clamp	355	85	36	M36	3,600	93.73	172019
500	508.0	500NB High Temperature 3 Bolt Clamp	408	85	36	M36	4,500	109.53	172020
550	558.5	550NB High Temperature 3 Bolt Clamp	433	85	36	M36	4,500	116.07	172021
600	609.6	600NB High Temperature 3 Bolt Clamp	478	95	42	M42	5,900	145.75	172022

7.10 BG173 ALLOY PIPE CLAMP - VERY HIGH TEMPERATURE

Temperature Range – Up to 570°C



When ordering, please quote the Part No. for required pipe size and surface finish.

	Material
Clamp & Fasteners	Alloy Steel
Load Pin	Stainless Steel
	Surface Finish
Clamp, Fasteners & Load Pin	Mill

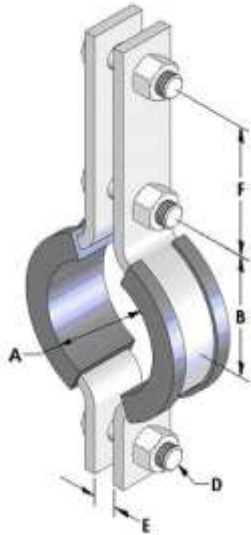
General Notes

- Sizes 350NB and larger have two size types, Medium (M) and Heavy (H)
- Please refer to page 6 for material standards and specifications.

Pipe Size		Description	(B)	(F)	Spacing (E)	Clamp & Load Pin (D)	Max Load up to 540°C	Max Load 540°C / 570°C	Item Weight	Part No.
Nominal Size	Pipe O/D (A)									
NB	mm									
15	21.3	15NB Alloy Pipe Clamp Very High Temp.	43	65	12	M12	450	375	1.33	173001
20	26.7	20NB Alloy Pipe Clamp Very High Temp.	45	65	12	M12	450	375	1.40	173002
25	33.4	25NB Alloy Pipe Clamp Very High Temp.	53	65	12	M12	450	375	1.45	173003
32	42.2	32NB Alloy Pipe Clamp Very High Temp.	53	65	12	M12	450	375	1.47	173004
40	48.3	40NB Alloy Pipe Clamp Very High Temp.	58	75	16	M16	900	750	2.98	173005
50	60.3	50NB Alloy Pipe Clamp Very High Temp.	65	75	16	M16	900	750	3.20	173006
65	76.1	65NB Alloy Pipe Clamp Very High Temp.	78	75	16	M16	900	750	3.50	173007
80	88.9	80NB Alloy Pipe Clamp Very High Temp.	83	100	16	M16	900	750	3.88	173008
100	114.3	100NB Alloy Pipe Clamp Very High Temp.	98	100	16	M16	900	750	5.66	173009
125	141.3	125NB Alloy Pipe Clamp Very High Temp.	118	100	20	M20	1,350	1,130	7.75	173010
150	168.3	150NB Alloy Pipe Clamp Very High Temp.	138	100	24	M24	1,800	1,500	12.56	173011
175	193.7	175NB Alloy Pipe Clamp Very High Temp.	163	100	24	M24	1,800	1,500	20.08	173012
200	219.1	200NB Alloy Pipe Clamp Very High Temp.	180	100	24	M24	1,800	1,500	21.56	173013
225	244.5	225NB Alloy Pipe Clamp Very High Temp.	193	100	24	M24	1,800	1,500	22.82	173014
250	273.0	250NB Alloy Pipe Clamp Very High Temp.	218	100	24	M24	1,800	1,500	30.13	173015
300	323.9	300NB Alloy Pipe Clamp Very High Temp.	250	115	30	M30	2,700	2,260	43.43	173016
350	355.6	350NB (M) Alloy Pipe Clamp Very High Temp.	293	115	30	M30	2,700	2,260	48.19	173017
350	355.6	350NB (H) Alloy Pipe Clamp Very High Temp.	293	115	42	M42	5,900	4,950	77.69	173018
400	406.4	400NB (M) Alloy Pipe Clamp Very High Temp.	313	115	30	M30	3,600	2,260	59.59	173019
400	406.4	400NB (H) Alloy Pipe Clamp Very High Temp.	323	115	42	M42	5,900	4,950	98.93	173020
450	457.2	450NB (M) Alloy Pipe Clamp Very High Temp.	345	115	30	M30	3,600	3,020	75.85	173021
450	457.2	450NB (H) Alloy Pipe Clamp Very High Temp.	355	115	42	M42	5,900	4,950	113.33	173022
500	508.0	500NB (M) Alloy Pipe Clamp Very High Temp.	373	115	30	M30	3,600	3,020	92.17	173023
500	508.0	500NB (H) Alloy Pipe Clamp Very High Temp.	383	115	42	M42	5,900	4,950	135.47	173024
550	558.8	550NB (M) Alloy Pipe Clamp Very High Temp.	400	115	30	M30	3,600	3,020	118.07	173025
550	558.8	550NB (H) Alloy Pipe Clamp Very High Temp.	410	115	42	M42	5,900	4,950	143.63	173026
600	609.6	600NB (M) Alloy Pipe Clamp Very High Temp.	423	115	30	M30	3,600	3,020	128.59	173027
600	609.6	600NB (H) Alloy Pipe Clamp Very High Temp.	433	115	42	M42	5,900	4,950	184.75	173028

7.11 BG145 INSULATED 3-BOLT PIPE CLAMP

For Stainless Steel, Duplex or Super Duplex Pipes
Temperature Range -From -35°C to 100°C



When ordering, please quote the Part No. for required pipe size and material.

		Material	
Clamp & Fasteners		Carbon Steel	Stainless Steel
Insulator		Neoprene Compound	
		Surface Finish	
		Carbon Steel	Stainless Steel
Clamp & Fasteners		Hot Dipped Galvanised	Mill

General Notes

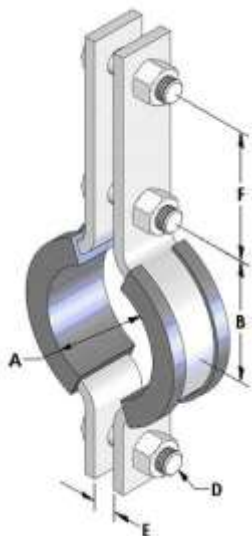
- Insulator profile has added self-extinguishing fire retardants and is suitable for hydrocarbon installations such as oil and gas.
- Spacer and Lock Nut supplied upon request.
- Please refer to page 6 for material standards and specifications.

Pipe Size		Description	(B)	(F)	Spacing (E)	Clamp & Load Bolt (D)	Max Load	Item Weight	Part No.	
Nominal Size	Pipe O/D (A)								Carbon Steel	Stainless Steel
NB	mm								mm	mm
15	21.3	15NB Insulated 3 Bolt Clamp	39	70	10	M10	280	0.73	145001	145019
20	26.7	20NB Insulated 3 Bolt Clamp	41	70	10	M10	280	0.75	145002	145020
25	33.4	25NB Insulated 3 Bolt Clamp	44	70	10	M10	280	0.78	145003	145021
32	42.2	32NB Insulated 3 Bolt Clamp	51	70	12	M12	280	0.94	145004	145022
40	48.3	40NB Insulated 3 Bolt Clamp	54	85	12	M12	280	1.02	145005	145023
50	60.3	50NB Insulated 3 Bolt Clamp	59	80	12	M12	280	1.05	145006	145024
65	76.1	65NB Insulated 3 Bolt Clamp	84	90	16	M16	450	2.24	145007	145025
80	88.9	80NB Insulated 3 Bolt Clamp	89	95	16	M16	450	2.35	145008	145026
100	114.3	100NB Insulated 3 Bolt Clamp	95	95	16	M16	450	2.55	145009	145027
150	168.3	150NB Insulated 3 Bolt Clamp	123	95	16	M16	450	2.98	145010	145028
200	219.1	200NB Insulated 3 Bolt Clamp	159	95	20	M20	900	5.60	145011	145029
250	273.0	250NB Insulated 3 Bolt Clamp	195	90	20	M20	1,350	12.25	145012	145030
300	323.9	300NB Insulated 3 Bolt Clamp	238	75	24	M24	1,800	18.06	145013	145031
350	355.6	350NB Insulated 3 Bolt Clamp	263	80	30	M30	2,250	21.64	145014	145032
400	406.4	400NB Insulated 3 Bolt Clamp	300	75	30	M30	2,700	41.85	145015	145033
450	457.2	450NB Insulated 3 Bolt Clamp	330	85	36	M36	3,600	49.57	145016	145034
500	508.0	500NB Insulated 3 Bolt Clamp	370	85	36	M36	4,500	63.37	145017	145035
600	609.6	600NB Insulated 3 Bolt Clamp	440	95	42	M42	5,900	87.89	145018	145036

7.12 BG146 INSULATED 3-BOLT PIPE CLAMP

For Cupro-Nickel Cu/Ni Pipes

Temperature Range -From -35°C to 100°C



When ordering, please quote the Part No. for required pipe size and material.

	Material	
	Carbon Steel	Stainless Steel
Clamp & Fasteners	Carbon Steel	Stainless Steel
Insulator	Neoprene Compound	
	Surface Finish	
	Carbon Steel	Stainless Steel
Clamp & Fasteners	Hot Dipped Galvanised	Mill

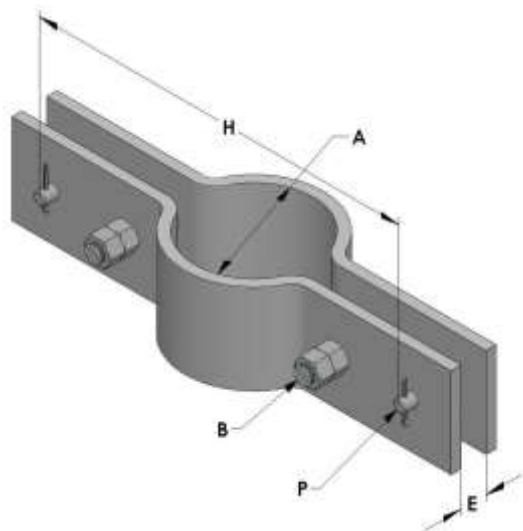
General Notes

- Insulator profile has added self-extinguishing fire retardants and is suitable for hydrocarbon installations such as oil and gas.
- Spacer and Lock Nut supplied upon request.
- Please refer to page 6 for material standards and specifications.

Pipe Size		Description	(B)	(F)	Spacing (E)	Clamp & Load Bolt (D)	Max Load	Item Weight	Part No.	
Nominal Size	Pipe O/D (A)								Carbon Steel	Stainless Steel
NB	mm								mm	mm
10	16.0	15NB Insulated 3 Bolt Clamp	32	70	10	M10	280	0.73	146001	146015
20	25.0	20NB Insulated 3 Bolt Clamp	38	70	10	M10	280	0.75	146002	146016
25	30.0	25NB Insulated 3 Bolt Clamp	42	70	10	M10	280	0.78	146003	146017
32	38.0	32NB Insulated 3 Bolt Clamp	48	70	12	M12	280	0.94	146004	146018
40	44.5	40NB Insulated 3 Bolt Clamp	50	85	12	M12	280	1.02	146005	146019
50	57.0	50NB Insulated 3 Bolt Clamp	58	80	12	M12	280	1.05	146006	146020
65	76.1	65NB Insulated 3 Bolt Clamp	78	90	16	M16	450	2.24	146007	146021
80	89.0	80NB Insulated 3 Bolt Clamp	83	95	16	M16	450	2.35	146008	146022
100	108.0	100NB Insulated 3 Bolt Clamp	93	95	16	M16	450	2.55	146009	146023
150	159.0	150NB Insulated 3 Bolt Clamp	118	95	16	M16	450	2.98	146010	146024
200	219.0	200NB Insulated 3 Bolt Clamp	160	95	20	M20	900	5.60	146011	146025
250	267.0	250NB Insulated 3 Bolt Clamp	193	90	20	M20	1,350	12.25	146012	146026
300	323.9	300NB Insulated 3 Bolt Clamp	238	75	24	M24	1,800	18.06	146013	146027
350	368.0	350NB Insulated 3 Bolt Clamp	265	80	30	M30	2,250	21.64	146014	146028

7.13 BG174 RISER SUPPORT – LOW TEMPERATURE

Temperature Range – Up to 343°C (up to 200°C if HDG)



When ordering, please quote the Part No. for required pipe size and surface finish and quote dimension 'H'.

For MAX and MIN dimension 'H' please refer to the maximum load table on Page 31.

e.g. 1 x 174015/H400

	Material
Support, Bolts, Nuts & Spacers	Carbon Steel
	Finish
Support, Bolts, Nuts & Spacers	Hot Dipped Galvanised or Mill

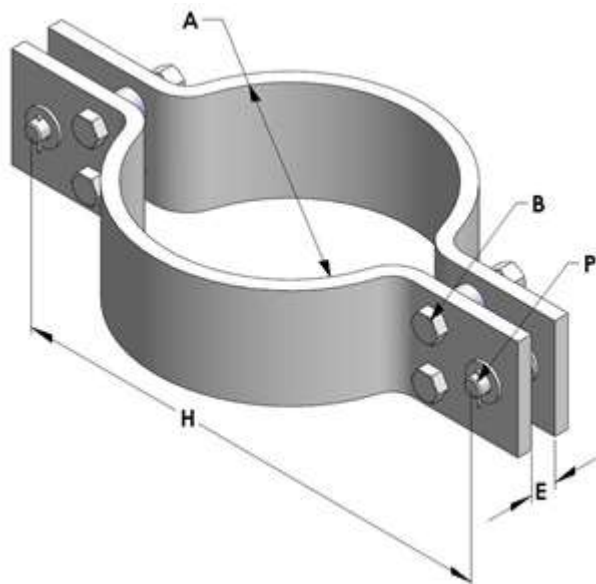
General Notes

- Riser supports are not designed to “clamp” the pipe.
- 4 x Shear lugs (not included) are required to be welded to pipe.
- Lugs to be located at 450 from clamp axis.
- Please refer to page 6 for material standards and specifications.

Pipe Size		Description	Support ID (A)	Spacing (E)	Clamp Bolt (B)	Load Pin (P)	Part No.	
Nominal Size	Outside Diameter						HDG	Mill
NB	mm		mm	mm	mm	mm		
100	114.3	100NB Low Temp Riser Support	118	25	M12	12	174001	174015
125	141.3	125NB Low Temp Riser Support	144	25	M12	12	174002	174016
150	168.3	150NB Low Temp Riser Support	172	25	M20	20	174003	174017
175	193.7	175NB Low Temp Riser Support	198	25	M24	20	174004	174018
200	219.1	200NB Low Temp Riser Support	224	25	M24	20	174005	174019
225	244.5	225NB Low Temp Riser Support	248	31	M24	20	174006	174020
250	273.1	250NB Low Temp Riser Support	278	31	M24	20	174007	174021
300	323.9	300NB Low Temp Riser Support	330	31	M24	24	174008	174022
350	355.6	350NB Low Temp Riser Support	362	35	M24	24	174009	174023
400	406.4	400NB Low Temp Riser Support	412	35	M24	24	174010	174024
450	457.2	450NB Low Temp Riser Support	464	35	M24	30	174011	174025
500	508.0	500NB Low Temp Riser Support	516	35	M24	30	174012	174026
550	558.8	550NB Low Temp Riser Support	566	35	M24	30	174013	174027
600	609.6	600NB Low Temp Riser Support	618	41	M30	30	174014	174028

7.14 BG175 RISER SUPPORT – HIGH TEMPERATURE

Temperature Range – Up to 400°C



When ordering, please quote the Part No. for required pipe size and surface finish and quote dimension 'H'.

For MAX and MIN dimension 'H' please refer to the maximum load table on Page 31.

e.g. 1 x 175015/H400.

Boiler Plate	
Support	Boiler Plate
Bolts, Nuts & Spacers	Carbon Steel
Finish	
Support	Mill
Fasteners	Plain

General Notes

- Riser supports are not designed to “clamp” the pipe.
- 4 x Shear lugs (not included) are required to be welded to pipe.
- Lugs to be located at 45° from clamp axis.
- Please refer to page 6 for material standards and ...specifications.

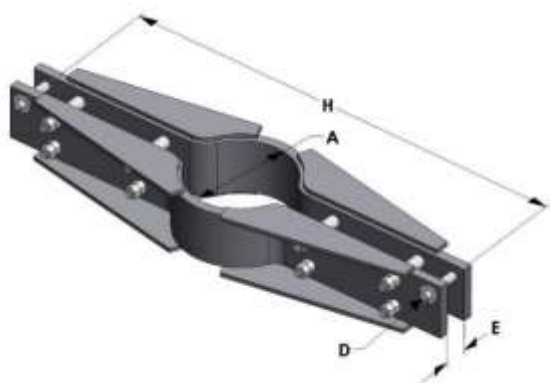
Pipe Size		Description	Support ID (A)	Spacing (E)	Support Bolt (B)	Load Pin (P)	Part No.
Nominal Size	Outside Diameter						
NB	mm						
100	114.3	100NB High Temperature Riser Support	118	25	M12	12	175001
125	141.3	125NB High Temperature Riser Support	144	25	M12	12	175002
150	168.3	150NB High Temperature Riser Support	172	25	M20	20	175003
175	193.7	175NB High Temperature Riser Support	198	25	M24	20	175004
200	219.1	200NB High Temperature Riser Support	224	25	M24	20	175005
225	244.5	225NB High Temperature Riser Support	248	31	M24	20	175006
250	273.0	250NB High Temperature Riser Support	278	31	M24	20	175007
300	323.9	300NB High Temperature Riser Support	330	31	M24	24	175008
350	355.6	350NB High Temperature Riser Support	362	35	M24	24	175009
400	406.4	400NB High Temperature Riser Support	412	35	M24	24	175010
450	457.2	450NB High Temperature Riser Support	464	35	M24	30	175011
500	508.0	500NB High Temperature Riser Support	516	35	M24	30	175012
550	558.8	550NB High Temperature Riser Support	566	35	M24	30	175013
600	609.6	600NB High Temperature Riser Support	618	41	M30	30	175014

7.15 BG174 & BG175 MAXIMUM LOADS & ITEM WEIGHTS

Pipe Nominal Size	Riser Supports Maximum Loads & Item Weights														
	H	mm	360	380	400	420	440	460	480	500	520	540	560		
100	Max Load	kg	800	760	720	680	640	600	560	520	480	440	400		
	Item Weight	kg	7.00	7.28	7.56	7.84	8.12	8.40	8.68	8.96	9.24	9.52	9.80		
	H	mm	390	410	430	450	470	490	510	530	550	570	590		
125	Max Load	kg	810	765	730	695	665	630	595	565	525	495	460		
	Item Weight	kg	9.00	9.32	9.64	9.96	10.28	10.60	10.92	11.24	11.56	11.88	12.20		
	H	mm	445	465	485	505	525	545	565	585	605	625	645		
150	Max Load	kg	1,060	1,045	1,030	990	940	900	860	820	780	740	715		
	Item Weight	kg	14.00	14.50	15.00	15.50	16.00	16.50	17.00	17.50	18.00	18.50	19.50		
	H	mm	465	485	505	525	545	565	585	605	625	645	665		
175	Max Load	kg	1,050	1,005	965	920	885	845	810	775	735	695	665		
	Item Weight	kg	15.00	15.50	16.00	16.50	17.00	17.50	18.00	18.50	19.00	19.50	20.00		
	H	mm	490	510	530	550	570	590	610	630	650	670	690		
200	Max Load	kg	1,000	940	900	865	830	795	760	725	690	650	615		
	Item Weight	kg	16.00	16.50	17.00	17.50	18.00	18.50	19.00	19.50	20.00	20.50	21.00		
	H	mm	540	560	580	600	620	640	660	680	700	720	740		
225	Max Load	kg	1,400	1,355	1,305	1,260	1,210	1,160	1,115	1,070	1,020	975	925		
	Item Weight	kg	21.00	21.66	22.32	22.98	23.64	24.30	24.96	25.62	26.28	26.94	27.60		
	H	mm	585	605	625	645	665	685	705	725	745	765	785		
250	Max Load	kg	1,200	1,155	1,105	1,055	1,010	960	910	865	815	765	725		
	Item Weight	kg	23.00	23.66	24.32	24.98	25.64	26.30	26.96	27.62	28.28	28.94	29.60		
	H	mm	655	675	695	715	735	755	775	795	815	835	855		
300	Max Load	kg	1,700	1,650	1,600	1,550	1,500	1,450	1,400	1,350	1,300	1,250	1,200		
	Item Weight	kg	34.00	34.82	35.64	36.46	37.28	38.10	38.92	39.74	40.56	41.38	42.20		
	H	mm	660	680	700	720	740	760	780	800	820	840	860	880	900
350	Max Load	kg	2,225	2,180	2,132	2,080	2,030	1,972	1,920	1,870	1,820	1,760	1,710	1,660	1,600
	Item Weight	kg	44.00	44.94	45.88	46.82	47.76	48.70	49.64	50.58	51.52	52.46	53.40	54.34	55.28
	H	mm	755	775	795	815	835	855	875	895	915	935	955	975	995
400	Max Load	kg	2,000	1,950	1,900	1,840	1,780	1,725	1,670	1,615	1,570	1,500	1,440	1,390	1,320
	Item Weight	kg	50.00	50.94	51.88	52.82	53.76	54.70	55.64	56.58	57.52	58.46	59.40	60.34	61.28
	H	mm	825	845	865	885	905	925	945	965	985	1,005	1,025	1,045	1,065
450	Max Load	kg	2,700	2,660	2,610	2,560	2,510	2,460	2,405	2,360	2,310	2,260	2,210	2,160	2,100
	Item Weight	kg	66.00	67.18	68.36	69.54	70.72	71.90	73.08	74.26	75.44	76.62	77.80	78.98	80.16
	H	mm	910	930	950	970	990	1,010	1,030	1,050	1,070	1,090	1,110	1,130	1,150
500	Max Load	kg	3,000	2,960	2,915	2,860	2,815	2,760	2,715	2,660	2,615	2,560	2,515	2,460	2,400
	Item Weight	kg	88.00	89.42	90.84	92.26	93.68	95.10	96.52	97.94	99.36	100.78	102.20	103.62	105.04
	H	mm	935	955	975	995	1,015	1,035	1,055	1,075	1,095	1,115	1,135	1,155	1,175
550	Max Load	kg	2,800	2,760	2,710	2,660	2,610	2,580	2,516	2,460	2,415	2,360	2,310	2,260	2,200
	Item Weight	kg	92.00	93.42	94.84	96.26	97.68	99.10	100.52	101.94	103.36	104.78	106.20	107.62	109.04
	H	mm	985	1,005	1,025	1,045	1,065	1,085	1,105	1,125	1,145	1,165	1,185	1,205	1,225
600	Max Load	kg	3,200	3,160	3,115	3,060	3,010	2,960	2,910	2,860	2,815	2,760	2,710	2,660	2,600
	Item Weight	kg	110	111.58	113.16	114.74	116.32	117.90	119.48	121.06	122.64	124.22	125.80	127.38	128.96
	H	mm	985	1,005	1,025	1,045	1,065	1,085	1,105	1,125	1,145	1,165	1,185	1,205	1,225

7.16 BG176 ALLOY RISER SUPPORT - VERY HIGH TEMPERATURE

Temperature Range – Up to 570°C



When ordering, please quote the Part ID. for required pipe size.

	Material
Support & Fasteners	Alloy Steel
Spacers	Carbon Steel
	Surface Finish
Support	Mill
Fasteners	Plain

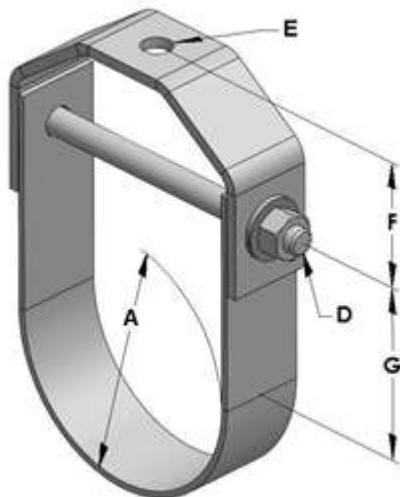
General Notes

- Two size types for 350NB and larger, Medium (M) and Heavy (H).
- Riser supports are not designed to “clamp” the pipe.
- 4 x Shear lugs (not included) are required to be welded to pipe.
- Lugs to be located at 45° from pipe axis.
- Where the size of Eye Nut (BG204) or Spade End (BG205) is less than dimension ‘E’, washers are to be used to ensure these items are centrally located.
- For supports requiring M42 drop rod and Eye Nut, Dim ‘E’ shall be increased to 73mm.
- Please refer to page 6 for material standards and specifications.

Pipe Size		Description	Support ID (A)	Spacing (E)	Dimension		Max Load	Item Weight	Part No.
Nominal Size	Outside Diameter				(D)	(H)			
NB	mm				mm	mm			
200	219.1	200NB Alloy Riser Support Very High Temp	225	65	24	1,065	1,900	76	176001
225	244.5	225NB Alloy Riser Support Very High Temp	250	65	24	1,065	1,900	78	176002
250	273.0	250NB Alloy Riser Support Very High Temp	279	65	24	1,220	1,900	84	176003
300	323.9	300NB Alloy Riser Support Very High Temp	330	65	30	1,220	3,050	142	176004
350	355.6	350NB (M) Alloy Riser Support Very High Temp	362	65	30	1,220	3,050	150	176005
350	355.6	350NB (H) Alloy Riser Support Very High Temp	362	65	42	1,370	6,100	234	176006
400	406.4	400NB (M) Alloy Riser Support Very High Temp	413	65	30	1,370	3,050	185	176007
400	406.4	400NB (H) Alloy Riser Support Very High Temp	413	65	42	1,370	6,100	270	176008
450	457	450NB (M) Alloy Riser Support Very High Temp	470	65	36	1,370	3,810	220	176009
450	457	450NB (H) Alloy Riser Support Very High Temp	470	65	42	1,370	6,100	300	176010
500	508	500NB (M) Alloy Riser Support Very High Temp	521	65	36	1,525	3,810	240	176011
500	508	500NB (H) Alloy Riser Support Very High Temp	521	65	42	1,525	6,100	330	176012
550	559	550NB (M) Alloy Riser Support Very High Temp	572	65	36	1,525	3,810	245	176013
550	559	550NB (H) Alloy Riser Support Very High Temp	572	65	42	1,525	6,100	360	176014
600	610	600NB (M) Alloy Riser Support Very High Temp	622	65	36	1,525	3,810	240	176015
600	610	600NB (H) Alloy Riser Support Very High Temp	622	65	42	1,525	6,100	370	176016

7.17 BG108 CLEVIS CLAMP

Temperature Range – Up to 343°C (up to 200°C if HDG)



When ordering, please quote the Part No. for required pipe size and surface finish.

Material	
Clamp & Fasteners	Carbon Steel
Surface Finish	
Clamp & Fasteners	Hot Dipped Galvanised or Mill

General Notes

- Please refer to page 6 for material standards and specifications.

Pipe Size		Description	Hole Diameter (E)	(G)	(F)	Clamp Bolt/Stud (D)	Max Load	Item Weight	Part No.	
Nominal Size	Pipe O/D (A)								HDG	Mill
NB	mm								mm	mm
15	21.3	15NB Clevis Clamp	8	22	38	M8	250	0.14	108001	108020
20	26.7	20NB Clevis Clamp	8	23	41	M8	250	0.16	108002	108021
25	33.4	25NB Clevis Clamp	8	29	36	M8	250	0.17	108003	108022
32	42.2	32NB Clevis Clamp	12	41	31	M10	270	0.30	108004	108023
40	48.3	40NB Clevis Clamp	12	44	32	M10	270	0.31	108005	108024
50	60.3	50NB Clevis Clamp	12	50	32	M10	270	0.36	108006	108025
65	76.1	65NB Clevis Clamp	14	62	43	M12	500	0.69	108007	108026
80	88.9	80NB Clevis Clamp	14	68	42	M12	500	0.76	108008	108027
100	114.3	100NB Clevis Clamp	14	81	59	M12	630	0.94	108009	108028
125	141.3	125NB Clevis Clamp	18	95	63	M16	630	1.50	108010	108029
150	168.3	150NB Clevis Clamp	18	116	67	M16	850	2.55	108011	108030
200	219.1	200NB Clevis Clamp	18	142	73	M16	900	3.75	108012	108031
250	273.0	250NB Clevis Clamp	22	179	79	M20	1,625	4.80	108013	108032
300	323.9	300NB Clevis Clamp	22	202	81	M20	1,700	7.56	108014	108033
350	355.6	350NB Clevis Clamp	26	218	87	M20	1,900	10.99	108015	108034
400	406.4	400NB Clevis Clamp	26	251	85	M24	2,050	12.21	108016	108035
450	457.2	450NB Clevis Clamp	26	278	112	M24	2,150	15.67	108017	108036
500	508.0	500NB Clevis Clamp	32	302	138	M24	2,150	23.09	108018	108037
600	609.6	600NB Clevis Clamp	32	353	142	M24	2,150	26.72	108019	108038

7.18 BG222 BEAM CLAMP

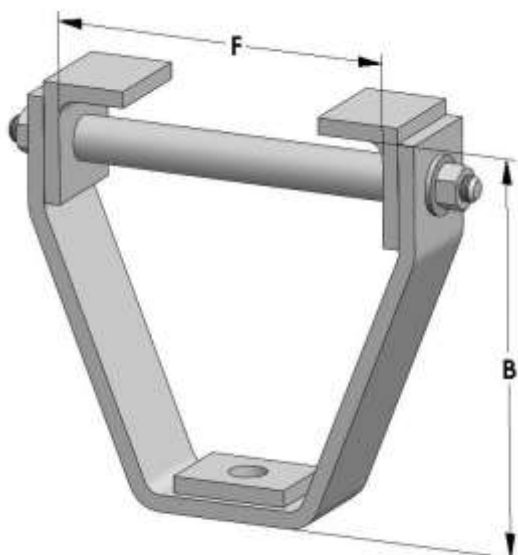
When ordering, please quote:

1. Part No.
2. Beam size.

Beam size examples are: 200UB22. (Australian Standard)

W12x14 (American

Standard)



Material	
Clamp, Spacer Threaded Rod, Nut & Washer	Carbon Steel
Surface Finish	
Clamp, Spacer Threaded Rod, Nut & Washer	Hot Dipped Galvanised or Mill

General Notes

- Mill finish suitable up to 340°C
- If beam size is unknown, please quote the supporting beams width and thickness.
- This support is not adjustable, made to suit the nominated beam size only
- Hot Dip Galvanised suitable up to 200°C.
- Dimension “B” may vary. Contact Binder Group for confirmation on actual length.
- Please refer to page 6 for material standards and specifications.

To Suit Drop Rod Size	Description	(B) See Notes	Max Beam Width (F)	Max Load up to 340°C	Item Weight	Part No.	
		mm	mm	kg	kg	HDG	Mill
M12	M12 Beam Clamp	179	203	360	0.47	222001	222009
M16	M16 Beam Clamp	180	203	530	0.47	222002	222010
M20	M20 Beam Clamp	192	203	1,010	0.73	222003	222011
M24	M24 Beam Clamp	214	254	1,580	1.32	222004	222012
M30	M30 Beam Clamp	228	254	2,280	3.14	222005	222013
M36	M36 Beam Clamp	260	254	3,650	3.73	222006	222014
M42	M42 Beam Clamp	300	254	5,340	9.61	222007	222015
M48	M48 Beam Clamp	333	254	7,400	11.86	222008	222016

7.19 BG202 ALL THREAD ROD

When ordering, please quote:

1. Part No.
2. Required length (Dimension M). e.g. 202010 - 600mm



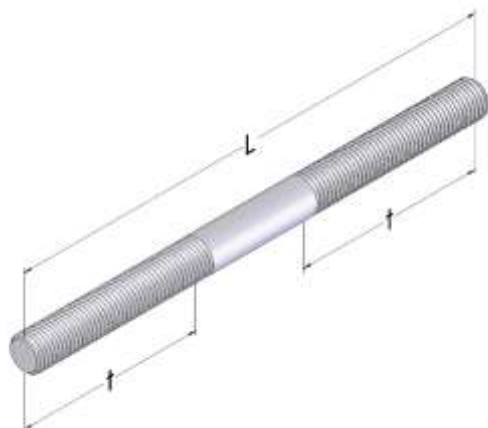
Material
Carbon Steel
Surface Finish
Hot Dipped Galvanised, Zinc Plated, or Mill

General Notes

- Supplied in right hand thread.
- Hot Dip Galvanised suitable up to 200°C.
- Please refer to page 6 for material standards and specifications.

Description	Maximum Load up to 340°C	Weight	Surface Finish	Max Available Length (M)	Part No.
	kg	kg/m			
M08 All Thread Rod	150	0.39	Plain	3.0	202001
			Zinc	3.0	202002
			HDG	3.0	202003
M10 All Thread Rod	280	0.65	Plain	3.0	202004
			Zinc	3.0	202005
			HDG	3.0	202006
M12 All Thread Rod	510	0.92	Plain	3.0	202007
			Zinc	3.0	202008
			HDG	3.0	202009
M16 All Thread Rod	850	1.62	Plain	3.0	202010
			Zinc	3.0	202011
			HDG	3.0	202012
M20 All Thread Rod	1,300	2.50	Plain	3.0	202013
			Zinc	3.0	202014
			HDG	3.0	202015
M24 All Thread Rod	2,250	3.62	Plain	3.0	202016
			Zinc	3.0	202017
			HDG	3.0	202018
M30 All Thread Rod	3,700	5.58	Plain	3.0	202019
			Zinc	3.0	202020
			HDG	3.0	202021
M36 All Thread Rod	5,400	8.05	Plain	3.0	202022
			Zinc	3.0	202023
			HDG	3.0	202024
M42 All Thread Rod	7,400	10.95	Plain	3.0	202025
			Zinc	3.0	202026
			HDG	3.0	202027
M48 All Thread Rod	9,800	14.26	Plain	3.0	202028
			Zinc	3.0	202029
			HDG	3.0	202030
M56 All Thread Rod	13,500	19.43	Plain	1.0	202031
			Zinc	1.0	202032
			HDG	1.0	202033
M64 All Thread Rod	17,800	25.34	Plain	1.0	202034
			Zinc	1.0	202035
			HDG	1.0	202036

7.20 BG203 THREADED DROP ROD – RH/LH



When ordering, please quote:

1. Part No.
2. Required length (Dimension L).

e.g. 203010-600mm

Material
Carbon Steel
Surface Finish
Hot Dipped Galvanised, Zinc Plated or Plain

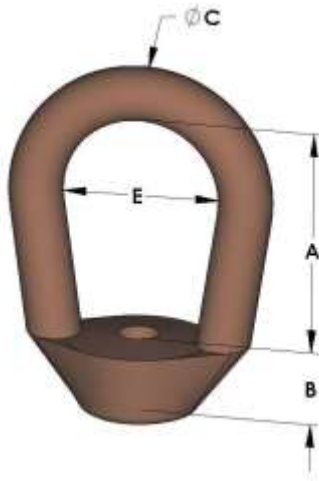
General Notes

- Maximum recommended length: 1,400mm
- Thread lengths are equal length at each end.
- BG202 all thread rod is recommended when the required rod length is below the minimum rod length 'L'.
- Hot Dip Galvanised suitable up to 200°C.
- Please refer to page 6 for material standards and specifications.

Description	Maximum Load up to 340°C	Weight	Thread Lengths 't' (mm)	Minimum Rod Length 'L' (mm)	Surface Finish	Part No.
	kg	kg/m				
M10 Threaded Drop Rod RH/LH	280	0.65	100	300	Plain	203001
					Zinc	203002
					HDG	203003
M12 Threaded Drop Rod RH/LH	510	0.92	120	340	Plain	203004
					Zinc	203005
					HDG	203006
M16 Threaded Drop Rod RH/LH	850	1.62	130	360	Plain	203007
					Zinc	203008
					HDG	203009
M20 Threaded Drop Rod RH/LH	1,300	2.50	140	380	Plain	203010
					Zinc	203011
					HDG	203012
M24 Threaded Drop Rod RH/LH	2,250	3.62	150	400	Plain	203013
					Zinc	203014
					HDG	203015
M30 Threaded Drop Rod RH/LH	3,700	5.58	160	420	Plain	203016
					Zinc	203017
					HDG	203018
M36 Threaded Drop Rod RH/LH	5,400	8.05	170	440	Plain	203019
					Zinc	203020
					HDG	203021
M42 Threaded Drop Rod RH/LH	7,400	10.95	190	480	Plain	203022
					Zinc	203023
					HDG	203024
M48 Threaded Drop Rod RH/LH	9,800	14.26	200	500	Plain	203025
					Zinc	203026
					HDG	203027
M56 Threaded Drop Rod RH/LH	13,500	19.43	220	540	Plain	203028
					Zinc	203029
					HDG	203030
M64 Threaded Drop Rod RH/LH	17,800	25.34	240	580	Plain	203031
					Zinc	203032
					HDG	203033

7.21 BG204 FORGED WELDLESS EYE NUT

When ordering, please quote Part No. for required thread size and surface finish.



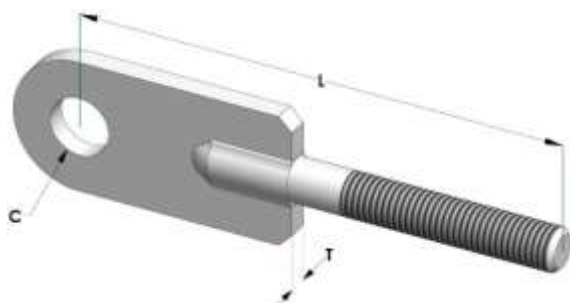
Material	
Forged Carbon Steel	Stainless Steel Gr.316
Surface Finish	
Hot Dipped Galvanised or Plain	Electro-Polished

General Notes

- Supplied with a Right-Hand Thread.
- Carbon Steel grades with Hot Dipped Galvanised coating are tapped oversize for assembly with galvanised threaded rod.
- Please refer to page 6 for material standards and specifications.
- Load Ratings are applicable to all material grades.

Description	(A)	(B)	(C)	(E)	Maximum Load up to 340°C kg	Item Weight kg	Part No.		
	mm	mm	mm	mm			Plain	HDG	SS 316
M10 Forged Eye Nut	50	20	13	38	544	0.2	204001	204020	204040
M12 Forged Eye Nut	50	20	13	38	998	0.3	204002	204021	204041
M16 Forged Eye Nut	50	20	13	38	1,678	0.3	204003	204022	204042
M20 Forged Eye Nut	64	28	19	47	2,495	0.8	204004	204023	204043
M24 Forged Eye Nut	64	28	19	47	4,536	1.0	204005	204024	204044
M30 Forged Eye Nut	84	35	26	62	7,257	1.6	204006	204025	204045
M36 Forged Eye Nut	84	35	26	62	10,206	1.6	204007	204026	204046
M42 Forged Eye Nut	154	62	38	98	13,834	7.9	204008	204027	204047
M48 Forged Eye Nut	154	62	38	98	18,144	7.9	204009	204028	204048
M56 Forged Eye Nut	155	64	38	102	21,772	8.0	204010	204029	204049
M64 Forged Eye Nut	155	64	38	102	23,677	8.0	204011	204030	204050
M72 Forged Eye Nut	155	64	38	102	23,677	8.0	204012	204031	204051

7.22 BG205 SPADE END AND ROD



When ordering, please quote:

1. Part Number.
2. Dimension "L".

e.g. 205003-750mm

Material
Carbon Steel
Surface Finish
Hot Dipped Galvanised or Zinc Plated

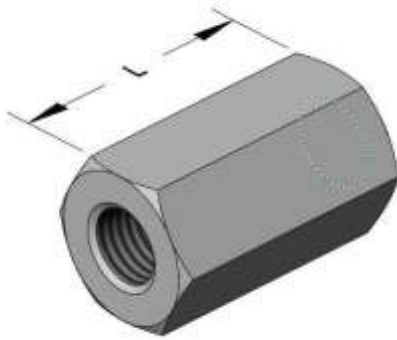
General Notes

- Supplied with a Right-Hand thread.
- M6 & M8 sizes only available with a Zinc Plated finish.
- Thread length: 150mm. Please inform Binder if a longer thread length is required.
- Maximum recommended length in Table: due to galvanising limitations.
- BG205's are recommended when BG204 & BG202 are not suitable.
- Please refer to page 6 for material standards and specifications.

Description	Hole Diameter (C)	(T)	Max Load up to 350°C	Weight per meter	Max Recom. Length (L)	Part No.	
	mm	mm	kg	kg	mm	HDG	Zinc
M6 Spade End and Rod	10	6	109	0.28	1,400	-	205016
M8 Spade End and Rod	12	6	150	0.45	1,400	-	205017
M10 Spade End and Rod	14	6	269	0.66	1,400	205003	205018
M12 Spade End and Rod	18	6	510	1.01	1,400	205004	205019
M16 Spade End and Rod	22	8	850	1.82	1,400	205005	205020
M20 Spade End and Rod	26	16	1,300	2.98	1,400	205006	205021
M24 Spade End and Rod	32	16	2,250	4.40	1,400	205007	205022
M30 Spade End and Rod	38	25	3,700	6.85	1,400	205008	205023
M36 Spade End and Rod	46	25	5,400	10.25	1,400	205009	205024
M42 Spade End and Rod	52	25	7,400	14.61	1,400	205010	205025
M48 Spade End and Rod	60	25	9,174	18.50	1,400	205011	205026
M56 Spade End and Rod	68	36	12,037	25.81	1,000	205012	205027
M64 Spade End and Rod	76	32	16,310	35.07	1,000	205013	205028
M72 Spade End and Rod	84	32	21,660	50.67	1,000	205014	205029
M80 Spade End and Rod	94	40	26,595	64.34	1,000	205015	205030

7.23 BG206 HEXAGONAL CONNECTOR

When ordering, please quote Part No. for required thread size and surface finish.



Material
Carbon Steel
Surface Finish
Hot Dipped galvanised or Zinc Plated

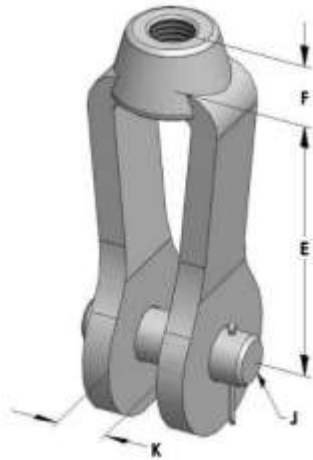
General Notes

- Thread Type = Right Hand Threaded.
- Galvanised items are tapped oversize for assembly with galvanised threads.
- M6 and M8 sizes only available in a zinc plated finish.
- Other sizes and lengths are made on request.
- Please refer to page 6 for material standards and specifications.

Description	(L)	Max Load 100°C	Item Weight	Part No.	
	mm			kg	kg
M6 Hexagonal Connector	25	100	0.01	-	206013
M8 Hexagonal Connector	25	150	0.02	-	206014
M10 Hexagonal Connector	40	230	0.05	206003	206015
M12 Hexagonal Connector	40	430	0.07	206004	206016
M16 Hexagonal Connector	50	690	0.13	206005	206017
M20 Hexagonal Connector	50	1,030	0.21	206006	206018
M24 Hexagonal Connector	50	1,880	0.30	206007	206019
M30 Hexagonal Connector	60	2,360	0.60	206008	206020
M36 Hexagonal Connector	70	3,050	1.00	206009	206021
M42 Hexagonal Connector	100	6,000	2.01	206010	206022
M48 Hexagonal Connector	120	7,500	3.23	206011	206023
M56 Hexagonal Connector	140	10,000	4.73	206012	206024

7.24 BG209 FORGED CLEVIS AND PIN

When ordering, please quote the Part No. for required thread size and surface finish.



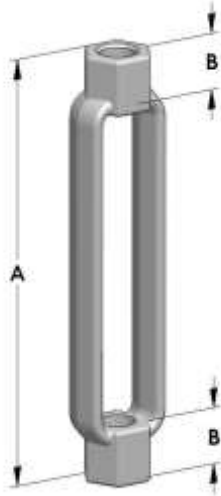
Material	
Clevis	Forged Carbon Steel
Load Pin	Carbon Steel
Surface Finish	
Clevis & Load Pin	Hot Dipped Galvanised or Plain

General Notes

- Thread Type = Right Hand Threaded.
- Galvanised products are tapped oversize for assembly with galvanised threaded rod.
- Please refer to page 6 for material standards and specifications.

Description	(E)	(F)	Gap (K)	Load Pin Diameter (J)	Max Load up to 340°C	Item Weight	Part No.	
	mm	mm	mm	mm	kg	kg	HDG	Plain
M10 Forged Clevis and Pin	90	16	16	10	1,588	0.49	209001	209014
M12 Forged Clevis and Pin	90	16	16	12	1,588	0.50	209002	209015
M16 Forged Clevis and Pin	90	16	16	16	1,588	0.51	209003	209016
M20 Forged Clevis and Pin	102	29	20	20	3,402	1.00	209004	209017
M24 Forged Clevis and Pin	129	32	24	24	6,804	2.25	209005	209018
M30 Forged Clevis and Pin	129	32	32	30	6,804	2.32	209006	209019
M36 Forged Clevis and Pin	152	38	38	36	8,164	3.48	209007	209020
M42 Forged Clevis and Pin	152	44	45	42	9,525	4.34	209008	209021
M48 Forged Clevis and Pin	178	57	65	48	17,009	8.26	209009	209022
M56 Forged Clevis and Pin	203	70	65	56	24,494	13.31	209010	209023
M64 Forged Clevis and Pin	229	76	69	64	31,071	19.73	209011	209024
M72 Forged Clevis and Pin	229	76	69	76	31,071	20.58	209012	209025
M80 Forged Clevis and Pin	257	102	103	80	61,235	43.73	209013	209026

7.25 BG210 FORGED TURNBUCKLE



When ordering, please quote the Part No. for required size and surface finish.

Material
Forged Carbon Steel
Surface Finish
Hot Dipped Galvanised or Plain

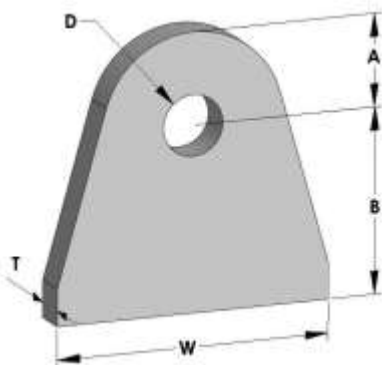
General Notes

- Galvanised items are tapped oversize for assembly with galvanised threaded rods.
- Typically, RH/LH (Right Hand/Left Hand) threaded items are selected when used in a rigid hanger assembly, purely for ease of adjustment.
- Please refer to page 6 for material standards and specifications.

Description	(A)	(B)	Max Load up to 340°C	Item Weight	Part No.	
	mm	mm			kg	kg
M10 Forged Turnbuckle RH/LH	185	15	540	0.30	210001	210014
M12 Forged Turnbuckle RH/LH	195	21	1,000	0.32	210002	210015
M16 Forged Turnbuckle RH/LH	204	25	1,590	0.50	210003	210016
M20 Forged Turnbuckle RH/LH	209	27	2,360	0.68	210004	210017
M24 Forged Turnbuckle RH/LH	228	36	4,540	1.51	210005	210018
M30 Forged Turnbuckle RH/LH	255	45	6,890	2.59	210006	210019
M36 Forged Turnbuckle RH/LH	295	55	9,710	3.63	210007	210020
M42 Forged Turnbuckle RH/LH	330	63	12,700	7.11	210008	210021
M48 Forged Turnbuckle RH/LH	355	78	16,780	7.11	210009	210022
M56 Forged Turnbuckle RH/LH	355	78	27,220	11.69	210010	210023
M64 Forged Turnbuckle RH/LH	343	98	27,215	10.54	210011	210024
M72 Forged Turnbuckle RH/LH	374	111	36,015	17.91	210012	210025
M80 Forged Turnbuckle RH/LH	429	138	47,173	27.44	210013	210026
M10 Forged Turnbuckle RH/RH	185	15	540	0.30	210050	210027
M12 Forged Turnbuckle RH/RH	195	21	1,000	0.32	210051	210028
M16 Forged Turnbuckle RH/RH	204	25	1,590	0.50	210052	210029
M20 Forged Turnbuckle RH/RH	209	27	2,360	0.68	210053	210030
M24 Forged Turnbuckle RH/RH	228	36	4,540	1.51	210054	210031
M30 Forged Turnbuckle RH/RH	255	45	6,890	2.59	210055	210032
M36 Forged Turnbuckle RH/RH	295	55	9,710	3.63	210056	210033
M42 Forged Turnbuckle RH/RH	330	63	12,700	7.11	210057	210034
M48 Forged Turnbuckle RH/RH	355	78	16,780	7.11	210058	210035
M56 Forged Turnbuckle RH/RH	355	78	27,220	11.69	210059	210036
M64 Forged Turnbuckle RH/RH	343	98	27,215	10.54	210060	210037
M72 Forged Turnbuckle RH/RH	374	111	36,015	17.91	210061	210038
M80 Forged Turnbuckle RH/RH	429	138	47,173	27.44	210062	210039

7.26 BG216 PIPE WELDING LUG

When ordering, please quote the Part No. for required size and material.



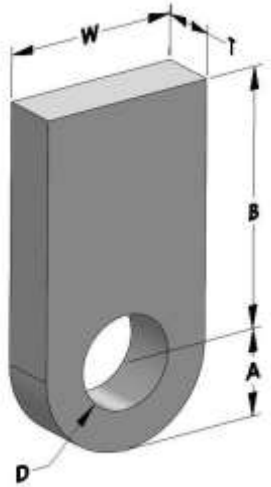
Material	Max Operating Temperature
Carbon Steel	343°C
Boiler Plate	470°C
Alloy Steel	570°C
Stainless Steel	650°C
Surface Finish	
Mill Finish	

General Notes

- Lug to be welded to pipe must be of the same material grade as parent pipe.
- Please refer to page 6 for material standards and specifications.

To Suit Drop Rod Size	Description	(A) mm	(B) mm	Diameter (D) mm	WxT mm	Max Load up to 343°C kg	Item Weight kg	Material Types			
								Carbon Steel	Boiler Plate	Stainless Steel	Chrome Molly
								Part No.	Part No.	Part No.	Part No.
M12	M12 Pipe Welding Lug	23	48	14	70x10	612	0.28	216001	216013	216025	216037
M16	M16 Pipe Welding Lug	28	58	18	85x12	1,020	0.50	216002	216014	216026	216038
M20	M20 Pipe Welding Lug	35	70	22	105x12	1,560	0.75	216003	216015	216027	216039
M24	M24 Pipe Welding Lug	40	80	26	120x16	2,700	1.30	216004	216016	216028	216040
M30	M30 Pipe Welding Lug	50	100	32	150x16	3,390	2.02	216005	216017	216029	216041
M36	M36 Pipe Welding Lug	58	118	38	175x25	6,330	4.35	216006	216018	216030	216042
M42	M42 Pipe Welding Lug	68	138	44	205x25	8,544	5.94	216007	216019	216031	216043
M48	M48 Pipe Welding Lug	75	150	50	225x32	11,262	9.14	216008	216020	216032	216044
M56	M56 Pipe Welding Lug	88	178	58	265x32	14,802	12.67	216009	216021	216033	216045
M64	M64 Pipe Welding Lug	100	200	66	300x36	18,228	18.19	216010	216022	216034	216046
M72	M72 Pipe Welding Lug	113	228	77	340x40	23,640	26.04	216011	216023	216035	216047
M80	M80 Pipe Welding Lug	125	250	82	365x40	28,560	31.00	216012	216024	216036	216048

7.27 BG225 WELDING LUG



When ordering, please quote the Part No. for required size and finish.

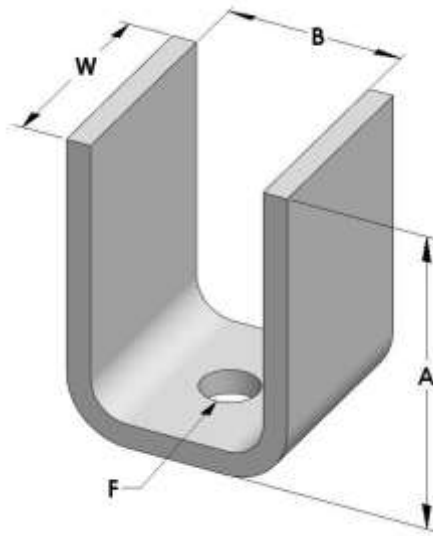
Material
Carbon Steel
Surface Finish
Hot Dipped Galvanised or Mill

General Notes

- Typically used with a BG209 – Forged Clevis and Pin.
- Please refer to page 6 for material standards and specifications.

To Suit Drop Rod Size	Description	(A)	(B)	Diameter (D)	W & T	Max load up to 343°C	Item Weight	Part No.	
		mm	mm	mm	mm	kg	kg	Carbon Steel	
								HDG	Mill
M10	BG225 M10 Welding Lug	25	75	14	50x6	380	0.21	225001	225014
M12	BG225 M12 Welding Lug	25	75	18	50x6	520	0.21	225002	225015
M16	BG225 M16 Welding Lug	25	75	22	50x10	820	0.34	225003	225016
M20	BG225 M20 Welding Lug	25	75	27	50x16	1,230	0.52	225004	225017
M24	BG225 M24 Welding Lug	38	75	32	75x16	2,250	0.88	225005	225018
M30	BG225 M30 Welding Lug	50	100	39	100x16	3,630	1.59	225006	225019
M36	BG225 M36 Welding Lug	63	110	45	125x20	5,270	2.85	225007	225020
M42	BG225 M42 Welding Lug	63	110	51	125x25	7,200	3.48	225008	225021
M48	BG225 M48 Welding Lug	75	110	60	150x25	9,350	4.39	225009	225022
M56	BG225 M56 Welding Lug	75	110	68	150x32	10,430	5.42	225010	225023
M64	BG225 M64 Welding Lug	100	110	76	200x32	15,200	8.28	225011	225024
M72	BG225 M72 Welding Lug	125	200	84	250x36	22,740	19.38	225012	225025
M80	BG225 M80 Welding Lug	138	220	94	275x40	28,600	25.98	225013	225026

7.28 BG219 WELDED BEAM ATTACHMENT



When ordering, please quote the Part No. for required size and surface finish.

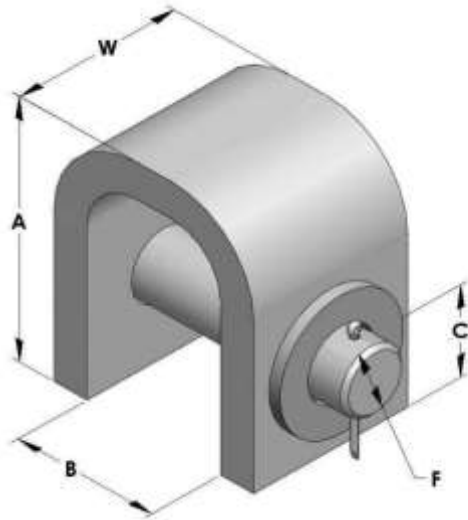
Material
Carbon Steel
Surface Finish
Hot Dipped Galvanised or Mill

General Notes

- Hot Dipped Galvanised suitable up to 200°C
- Mill finish suitable up to 343°C
- Please refer to page 6 for material standards and specifications.

To Suit Drop Rod Size	Description	(A)	(B)	Hole Diameter (F)	(W)	Max Load up to 343°C	Item Weight	Part No.	
		mm	mm	mm	mm	kg	kg	HDG	Mill
M10	M10 Welded Beam Attachment	75	43	12	50	276	0.42	219001	219014
M12	M12 Welded Beam Attachment	75	43	14	50	513	0.42	219002	219015
M16	M16 Welded Beam Attachment	75	55	18	50	820	0.58	219003	219016
M20	M20 Welded Beam Attachment	80	70	22	65	1,230	1.05	219004	219017
M24	M24 Welded Beam Attachment	115	95	26	75	2,250	2.72	219005	219018
M30	M30 Welded Beam Attachment	120	106	32	75	2,825	2.88	219006	219019
M36	M36 Welded Beam Attachment	165	130	38	130	5,276	8.46	219007	219020
M42	M42 Welded Beam Attachment	195	140	46	130	7,124	9.79	219008	219021
M48	M48 Welded Beam Attachment	210	152	52	150	9,392	12.25	219009	219022
M56	M56 Welded Beam Attachment	240	163	60	150	12,340	13.80	219010	219023
M64	M64 Welded Beam Attachment	250	175	68	150	15,200	14.42	219011	219024
M72	M72 Welded Beam Attachment	275	203	76	180	17,055	24.04	219012	219025
M80	M80 Welded Beam Attachment	300	214	84	200	21,450	28.99	219013	219026

7.29 BG220 WELDED BEAM ATTACHMENT – WITH LOAD PIN



When ordering, please quote the Part No. for required size and surface finish.

	Material
Attachment, Load Pin & Washers	Carbon Steel
	Surface Finish
Attachment, Load Pin & Washers	Hot Dipped Galvanised or Mill

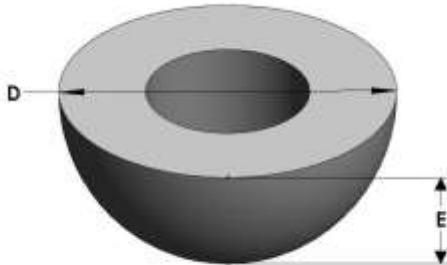
General Notes

- Hot Dip Galvanised suitable up to 200°C
- Mill finish suitable up to 343°C.
- Please refer to page 6 for material standards and specifications.

To Suit Drop Rod Size	Description	(A)	(B)	(C)	Load Pin Diameter (F)	(W)	Max Load up to 343°C	Item Weight	Part No.	
		mm	mm	mm	mm	mm	kg	kg	HDG	Mill
M10	M10 Welded Beam Attachment	75	36	25	12	50	276	0.47	220001	220014
M12	M12 Welded Beam Attachment	75	36	25	16	50	513	0.47	220002	220015
M16	M16 Welded Beam Attachment	75	42	25	20	50	820	0.73	220003	220016
M20	M20 Welded Beam Attachment	80	50	30	24	65	1,230	1.32	220004	220017
M24	M24 Welded Beam Attachment	115	65	35	30	75	2,250	3.14	220005	220018
M30	M30 Welded Beam Attachment	120	75	45	36	75	2,825	3.73	220006	220019
M36	M36 Welded Beam Attachment	165	95	65	42	130	5,276	9.61	220007	220020
M42	M42 Welded Beam Attachment	195	105	70	48	130	7,124	11.86	220008	220021
M48	M48 Welded Beam Attachment	210	115	85	56	150	9,392	15.30	220009	220022
M56	M56 Welded Beam Attachment	240	125	90	65	150	12,340	18.43	220010	220023
M64	M64 Welded Beam Attachment	250	135	95	75	150	15,200	21.08	220011	220024

7.30 BG214 HEMISPHERICAL WASHER

When ordering, please quote the Part No. for required size and surface finish.



Material
Carbon Steel
Surface Finish
Hot Dipped Galvanised or Mill

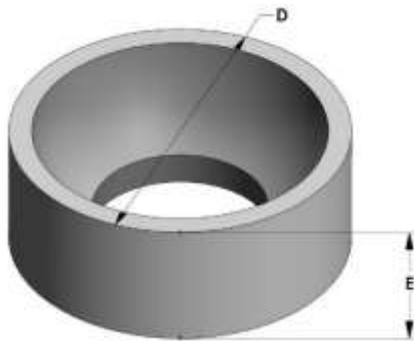
General Notes

- Typically used with the BG215 - Hemispherical Cup.
- Used to cater for alignment at odd angles, not for swinging pipes.
- Please refer to page 6 for material standards and specifications.

To Suit Drop Rod Size	Description	Dia (D)	(E)	Item Weight kg	Part No.	
		mm	mm		HDG	Mill
M6	M6 Hemispherical Washer	20	9	0.01	214001	214015
M10	M10 Hemispherical Washer	26	12	0.03	214002	214016
M12	M12 Hemispherical Washer	30	13	0.04	214003	214017
M16	M16 Hemispherical Washer	36	16	0.06	214004	214018
M20	M20 Hemispherical Washer	46	20	0.14	214005	214019
M24	M24 Hemispherical Washer	57	25	0.27	214006	214020
M30	M30 Hemispherical Washer	68	30	0.44	214007	214021
M36	M36 Hemispherical Washer	80	35	0.69	214008	214022
M42	M42 Hemispherical Washer	88	38	0.87	214009	214023
M48	M48 Hemispherical Washer	100	43	1.29	214010	214024
M56	M56 Hemispherical Washer	110	46	1.62	214011	214025
M64	M64 Hemispherical Washer	120	49	2.44	214012	214026
M72	M72 Hemispherical Washer	135	56	2.41	214013	214027
M80	M80 Hemispherical Washer	150	62	3.92	214014	214028

7.31 BG215 HEMISPHERICAL CUP

When ordering, please quote the Part No. for required size and surface finish.



Material
Carbon Steel
Surface Finish
Hot Dipped Galvanised or Mill

General Notes

- Typically used with the BG214 - Hemispherical Washer.
- Please refer to page 6 for material standards and specifications.

To Suit Drop Rod Size	Description	Diameter (D)	Height (E)	Item Weight	Part No.	
		mm	mm		kg	HDG
M6	M6 Hemispherical Cup	25	9	0.01	215001	215015
M10	M10 Hemispherical Cup	32	10	0.03	215002	215016
M12	M12 Hemispherical Cup	35	13	0.04	215003	215017
M16	M16 Hemispherical Cup	42	16	0.06	215004	215018
M20	M20 Hemispherical Cup	54	20	0.14	215005	215019
M24	M24 Hemispherical Cup	67	25	0.27	215006	215020
M30	M30 Hemispherical Cup	76	30	0.44	215007	215021
M36	M36 Hemispherical Cup	100	35	0.69	215008	215022
M42	M42 Hemispherical Cup	102	38	0.87	215009	215023
M48	M48 Hemispherical Cup	120	40	1.29	215010	215024
M56	M56 Hemispherical Cup	130	45	1.62	215011	215025
M64	M64 Hemispherical Cup	150	50	2.44	215012	215026
M72	M72 Hemispherical Cup	165	55	2.41	215013	215027
M80	M80 Hemispherical Cup	180	60	3.92	215014	215028

7.32 BG217 PLATE WASHER



When ordering, please quote the Part ID. for required size and surface finish.

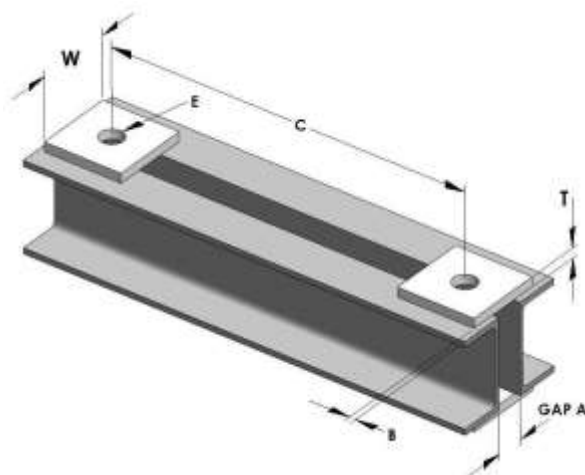
Material
Carbon Steel
Surface Finish
Hot Dipped Galvanised or Mill

General Notes

- Please refer to page 6 for material standards and specifications.

Description	To Suit Drop Rod Size	Dimension		Item Weight	Part No.	
		A	T		HDG	Mill
		mm	mm	kg		
M06 Plate Washer	M6	40	5	0.06	217001	217014
M08 Plate Washer	M8	40	5	0.06	217002	217015
M10 Plate Washer	M10	40	5	0.06	217003	217016
M12 Plate Washer	M12	40	5	0.06	217004	217017
M16 Plate Washer	M16	50	6	0.11	217005	217018
M20 Plate Washer	M20	75	10	0.41	217006	217019
M24 Plate Washer	M24	100	12	0.88	217007	217020
M30 Plate Washer	M30	100	16	1.14	217008	217021
M36 Plate Washer	M36	150	16	2.66	217009	217022
M42 Plate Washer	M42	150	20	3.26	217010	217023
M48 Plate Washer	M48	150	20	3.19	217011	217024
M56 Plate Washer	M56	150	20	3.08	217012	217025
M64 Plate Washer	M64	200	32	9.10	217013	217026

7.33 BG245 STANDARD TRAPEZE



When ordering, please quote:

1. Part Number.
2. Dimension C.
3. Drop Rod Diameter.

e.g. 245001/500/M24

Material
Carbon Steel
Surface Finish
Hot Dipped Galvanised or Mill

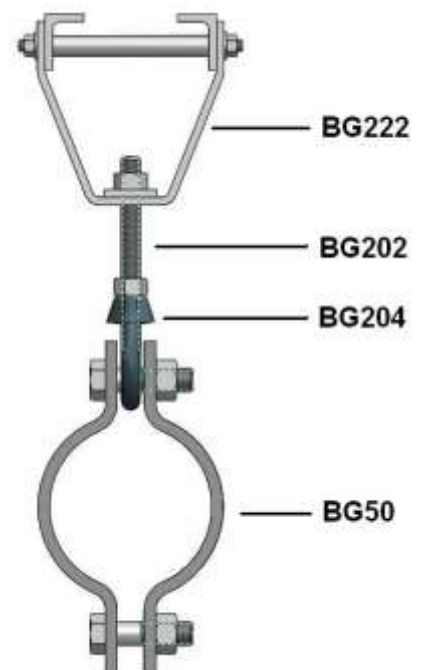
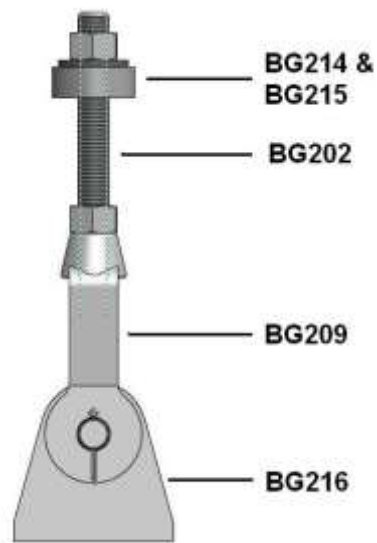
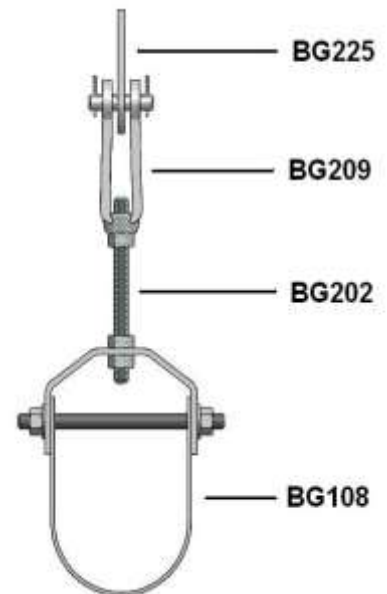
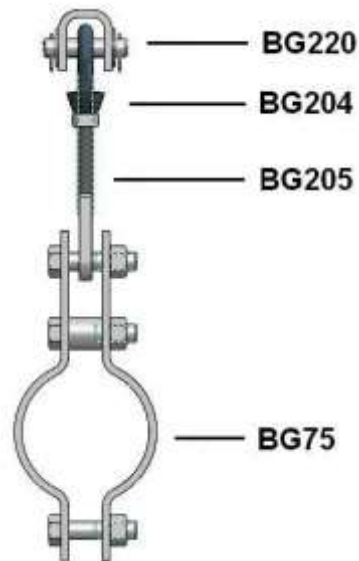
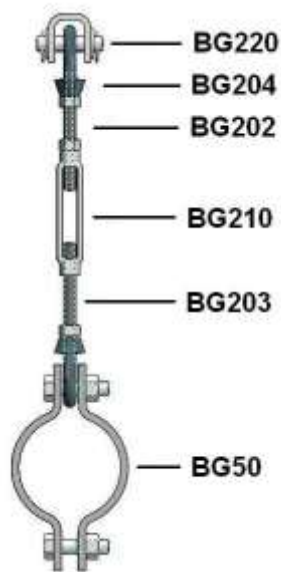
General Notes

- Hot Dip Galvanised suitable up to 200°C
- Please refer to page 6 for material standards and specifications.






















Description	Max Rod Dia	MAXIMUM LOAD FOR VARIOUS ROD CENTRES (C)								Item weight	Part No.	
		300mm	400mm	500mm	600mm	700mm	900mm	1,200mm	1,500mm		HDG	Mill
		kg	kg	kg	kg	kg	kg	kg	kg		kg/m	
Trapeze – Size 1	M30	4,000	3,000	2,400	2,100	1,800	1,400	1,000	815	12	245001	245008
Trapeze – Size 2	M42	6,900	5,200	4,000	3,300	2,900	2,300	1,700	1,300	17	245002	245009
Trapeze – Size 3	M48	10,500	8,100	6,500	5,400	4,600	3,600	2,700	2,100	24	245003	245010
Trapeze – Size 4	M48	17,300	13,500	10,900	9,000	7,700	6,000	4,400	3,600	34	245004	245011
Trapeze – Size 5	M56	-	21,200	17,600	14,600	12,500	9,700	7,300	5,800	46	245005	245012
Trapeze – Size 6	M64	-	-	29,000	24,200	20,800	16,200	12,100	9,600	75	245006	245013
Trapeze – Size 7	M80	-	-	-	38,700	33,200	25,900	19,300	15,400	114	245007	245014

Drop Rod Diameter	Gap A	W	T	B	Max. Load per Rods (PAIR)
mm	mm	mm	mm	mm	Kg
M10	16	75	6	10	560
M12	16	75	6	10	1,020
M16	21	75	10	10	1,700
M20	26	100	10	10	2,600
M24	36	100	12	10	4,500
M30	38	100	16	10	7,400
M36	48	130	16	10	10,800
M42	57	130	20	20	14,800
M48	64	130	20	20	19,600
M56	70	150	20	20	27,000
M64	76	200	30	20	35,600
M72	83	200	30	20	45,500
M80	90	250	30	20	57,200

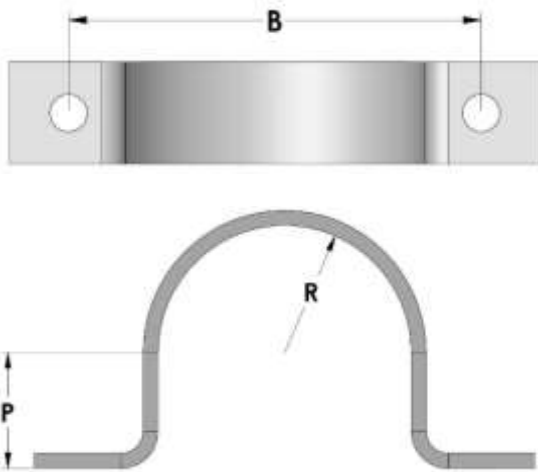
7.34 RIGID HANGER SUPPORTS – TYPICAL EXAMPLES



8. PIPE SADDLES

PIPE SADDLES					
Model	BG177	BG178	BG160	BG161	BG162
TYPE	Saddle Guides	Saddle Clamps	Insulated Pipe Saddles for Stainless Steel, Duplex or Super Duplex Pipes	Insulated Pipe Saddles for Cupro Nickel Cu/Ni Pipes	Insulated Pipe Saddles For FRP Pipes
PAGE	Page 52	Page 53	Page 54	Page 55	Page 56
U-BOLTS					
Model	BG180	BG181	BG150	BG151	
TYPE	Heavy Duty U-Bolt Guides	Heavy Duty U-Bolt Clamps	Insulated U Bolt Clamps For Stainless Steel, Duplex or Super Duplex Pipes	Insulated U Bolt Clamps For Cupro Nickel Cu/Ni Pipes	
PAGE	Page 57	Page 58	Page 59	Page 60	
U-BOLTS					
Model	BG152	BG153	BG154	BG155	
Type	Insulated U Bolt Guide For Stainless Steel, Duplex or Super Duplex Pipes	Insulated U Bolt Guide For Cupro Nickel Cu/Ni Pipes	Insulated U Bolt Guide With Teflon For Stainless Steel, Duplex or Super Duplex Pipes	Insulated U Bolt Clamp With Teflon For Cupro Nickel Cu/Ni Pipes	
PAGE	Page 61	Page 64	Page 65	Page 66	
PIPE SHOES AND SLIDE PLATES					
Model	BG510	BG515	BG517	BG518	
TYPE	Standard Welded Pipe Shoes	Standard Clamped Pipe Shoes	Compact Pipe Shoes	Compact Welded Pipe Shoes	
PAGE	Page 67	Page 68	Page 69	Page 70	
Model	BG156	BG157	BG400	BG550	BG135 AND 136
TYPE	Insulated Pipe Shoes for Stainless Steel Duplex or Super Duplex Pipes	Insulated Pipe Shoes for Cupro Nickel Cu/Ni Pipes	Clamped Hot Pipe Shoes	Standard Teflon & Steel Base Plates	Adjustable Pipe Stands
PAGE	Page 71	Page 72	Page 73	Page 74	Page 75
LINE STOPS AND GUIDES					
Model	BG555	BG560	BG570	BG580	
TYPE	Standard Line Stops	Standard Pipe Guides	Standard Shoe Guides	Standard Shoe Guides	
PAGE	Page 77	Page 78	Page 79	Page 80	

8.1 BG177 SADDLE GUIDE



When ordering, please quote Part No. for required size and surface finish.

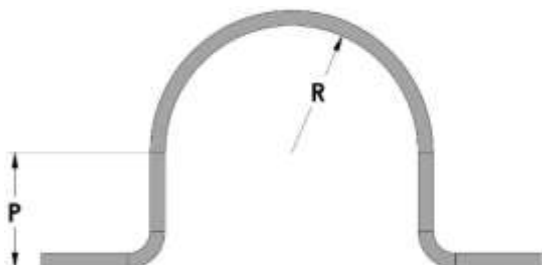
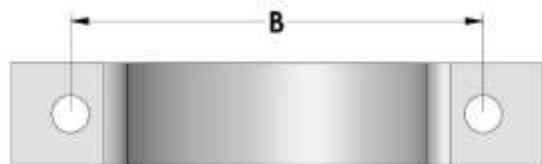
Material
Carbon Steel
Surface Finish
Hot Dipped Galvanised or Mill

General Notes

- Bolts are not included.
- Items up to 550NB come with 2 x Bolt Holes.
- Items 600NB and above come with 4 x Bolt Holes.
- Maximum Loads shown are for Lateral Loads only.
- Dimension P = Centre of pipe to underside of saddle.
- Hot Dip Galvanised suitable up to 200°C
- Please refer to page 6 for material standards and specifications.

Pipe Size		Description	Saddle Guide Dimensions					Max Load up to 340°C	Item Weight	Part No.	
Nominal Size	Outside Diameter		(P)	(R)	(B)	Hole Diameter	Surface Finish				
mm	mm		mm	mm	mm	mm	HDG			Mill	
15	21.3	15NB Saddle Guide	10	14	106	12	40	0.33	177001	177030	
20	26.9	20NB Saddle Guide	13	17	110	12	40	0.35	177002	177031	
25	33.7	25NB Saddle Guide	15	21	114	12	55	0.37	177003	177032	
32	42.4	32NB Saddle Guide	20	25	128	15	55	0.54	177004	177033	
40	48.3	40NB Saddle Guide	23	28	158	15	80	0.75	177005	177034	
50	60.3	50NB Saddle Guide	29	34	162	15	80	0.75	177006	177035	
65	76.1	65NB Saddle Guide	36	43	178	19	116	1.42	177007	177036	
80	88.9	80NB Saddle Guide	43	49	198	19	116	1.59	177008	177037	
100	114.3	100NB Saddle Guide	55	62	216	19	116	1.81	177009	177038	
125	139.7	125NB Saddle Guide	69	75	238	24	127	2.20	177010	177039	
150	168.3	150NB Saddle Guide	82	89	272	24	127	3.09	177011	177040	
175	193.7	175NB Saddle Guide	95	102	324	24	127	4.80	177012	177041	
200	219.1	200NB Saddle Guide	108	115	352	24	143	5.93	177013	177042	
225	244.5	225NB Saddle Guide	124	124	380	24	143	6.20	177014	177043	
250	273	250NB Saddle Guide	138	138	410	24	143	7.01	177015	177044	
300	323.9	300NB Saddle Guide	163	164	460	24	143	8.08	177016	177045	
350	355.6	350NB Saddle Guide	179	180	490	24	143	8.65	177017	177046	
400	406.4	400NB Saddle Guide	204	205	550	28	143	9.99	177018	177047	
450	457	450NB Saddle Guide	229	231	600	28	143	11.08	177019	177048	
500	508	500NB Saddle Guide	255	256	650	28	163	12.24	177020	177049	
550	559	550NB Saddle Guide	280	282	700	28	163	13.24	177021	177050	
600	610	600NB Saddle Guide	306	308	750	24	163	22.03	177022	177051	
650	660	650NB Saddle Guide	331	333	800	24	163	23.64	177023	177052	
700	711	700NB Saddle Guide	357	358	850	24	163	25.36	177024	177053	
750	762	750NB Saddle Guide	381	385	900	24	163	27.02	177025	177054	
800	813	800NB Saddle Guide	409	410	980	28	204	47.14	177026	177055	
850	864	850NB Saddle Guide	435	435	1030	28	204	49.84	177027	177056	
900	914	900NB Saddle Guide	460	460	1080	28	204	52.52	177028	177057	
1000	1016	1000NB Saddle Guide	511	511	1180	28	204	58.21	177029	177058	

8.2 BG178 SADDLE CLAMP



When ordering, please quote Part No. for required size and surface finish.

Material
Carbon Steel
Surface Finish
Hot Dipped Galvanised or Mill

General Notes

- Bolts are not included.
- Items up to 550NB come with 2 x Bolt Holes.
- Items 600NB and above come with 4 x Bolt Holes.
- Maximum Loads shown are for Lateral Loads only.
- Dimension P = Centre of pipe to underside of saddle.
- Hot Dip Galvanised suitable up to 200°C
- Please refer to page 6 for material standards and specifications.

Pipe Size		Description	Saddle Clamp Dimensions				Load & Weight		Part No.	
Nominal Size	Outside Diameter		(P)	(R)	(B)	Hole Diameter	Max. Load up to 340°C	Item Weight	Surface Finish	
NB	mm				mm	mm	kg	kg	HDG	Mill
15	21.3	15NB Saddle Clamp	8	11	102	12	40	0.62	178001	178014
20	26.9	20NB Saddle Clamp	11	14	106	12	40	0.66	178002	178015
25	33.7	25NB Saddle Clamp	14	18	110	12	55	0.68	178003	178016
32	42.4	32NB Saddle Clamp	18	22	124	15	55	0.70	178004	178017
40	48.3	40NB Saddle Clamp	21	25	154	15	80	0.72	178005	178018
50	60.3	50NB Saddle Clamp	27	31	158	15	80	0.78	178006	178019
65	76.1	65NB Saddle Clamp	32	40	170	19	116	1.34	178007	178020
80	88.9	80NB Saddle Clamp	39	46	190	19	116	1.50	178008	178021
100	114.3	100NB Saddle Clamp	51	59	208	19	116	1.73	178009	178022
125	139.7	125NB Saddle Clamp	64	72	230	24	127	2.47	178010	178023
150	168.3	150NB Saddle Clamp	78	86	264	24	127	2.99	178011	178024
175	193.7	175NB Saddle Clamp	91	99	320	24	127	5.23	178012	178025
200	219.1	200NB Saddle Clamp	103	112	344	24	143	5.76	178013	178026
225	244.5	225NB Saddle Clamp	115	124	380	24	143	6.29	178027	178043
250	273	250NB Saddle Clamp	129	139	410	24	143	6.89	178028	178044
300	323.9	300NB Saddle Clamp	154	164	460	24	143	7.94	178029	178045
350	355.6	350NB Saddle Clamp	170	180	490	24	143	8.59	178030	178046
400	406.4	400NB Saddle Clamp	195	205	550	28	143	9.77	178031	178047
450	457	450NB Saddle Clamp	220	231	600	28	143	11.08	178032	178048
500	508	500NB Saddle Clamp	246	256	650	28	163	11.88	178033	178049
550	559	550NB Saddle Clamp	271	282	710	28	163	12.98	178034	178050
600	610	600NB Saddle Clamp	296	308	760	24	163	21.48	178035	178051
650	660	650NB Saddle Clamp	321	333	810	24	163	23.08	178036	178052
700	711	700NB Saddle Clamp	347	358	860	24	163	24.71	178037	178053
750	762	750NB Saddle Clamp	371	385	920	24	163	26.57	178038	178054
800	813	800NB Saddle Clamp	395	410	990	28	204	45.76	178039	178055
850	864	850NB Saddle Clamp	421	435	1040	28	204	48.61	178040	178056
900	914	900NB Saddle Clamp	446	460	1090	28	204	51.01	178041	178057
1000	1016	1000NB Saddle Clamp	497	511	1200	28	204	56.21	178042	178058

8.3 BG160 INSULATED PIPE SADDLE

For Stainless Steel, Duplex or Super Duplex Pipes
Temperature Range -From -35°C to 100°C



When ordering, please quote the Part ID for required pipe size and material.

		Material	
Saddle, Bolts & Nuts	Carbon Steel	Stainless Steel	
Base	Tufnol – Bear Brand		
Insulator	Neoprene Compound		
		Surface Finish	
Saddle	Hot Dipped	Mill	
Fasteners	Galvanised	Plain	

General Notes

- Insulator profile has self-extinguishing fire retardants and suitable for hydrocarbon installations such as oil and gas.
- 10mm thick Tufnol insulating base prevents possible electrolytic action between pipe and supporting steelwork.
- 600NB Saddle is supplied with 2 fasteners per side.
- Bolt length to suit support structure of 12mm.
- Please refer to page 6 for material standards and specifications

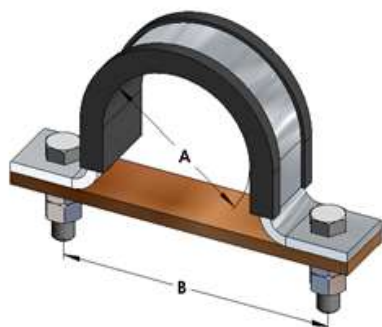
Pipe Size		Description	Hole Details		Item Weight	Material	
Nominal Size	Outside Diameter (A)		Bolt Size	Centres (B)		Carbon Steel	Stainless Steel
NB	mm		mm	mm	kg		
15	21.3	15NB Insulated Pipe Saddle	M10	100	0.36	160001	160019
20	26.9	20NB Insulated Pipe Saddle	M10	110	0.39	160002	160020
25	33.7	25NB Insulated Pipe Saddle	M10	120	0.43	160003	160021
32	42.4	32NB Insulated Pipe Saddle	M12	130	0.48	160004	160022
40	48.3	40NB Insulated Pipe Saddle	M12	130	0.49	160005	160023
50	60.3	50NB Insulated Pipe Saddle	M12	134	0.77	160006	160024
65	76.1	65NB Insulated Pipe Saddle	M16	160	0.95	160007	160025
80	88.9	80NB Insulated Pipe Saddle	M16	174	1.33	160008	160026
100	114.3	100NB Insulated Pipe Saddle	M16	206	1.58	160009	160027
150	168.3	150NB Insulated Pipe Saddle	M20	276	3.45	160010	160028
200	219.1	200NB Insulated Pipe Saddle	M20	356	5.20	160011	160029
250	273.0	250NB Insulated Pipe Saddle	M20	410	7.47	160012	160030
300	323.9	300NB Insulated Pipe Saddle	M20	460	8.61	160013	160031
350	355.6	350NB Insulated Pipe Saddle	M20	490	9.32	160014	160032
400	406.4	400NB Insulated Pipe Saddle	M24	550	10.64	160015	160033
450	457.0	450NB Insulated Pipe Saddle	M24	600	11.77	160016	160034
500	508.0	500NB Insulated Pipe Saddle	M24	650	12.90	160017	160035
600	610.0	600NB Insulated Pipe Saddle	M20 x 2	750	23.29	160018	160036

8.4 BG161 INSULATED PIPE SADDLE

For Cupro-Nickel Cu/Ni Pipes

Temperature Range -From -35°C to 100°C

When ordering, please quote the Part No. for required pipe size and material.



Material		
Saddle, Bolts & Nuts	Carbon Steel	Stainless Steel
Base	Tufnol – Bear Brand	
Insulator	Neoprene Compound	
Surface Finish		
Saddle	Hot Dipped	Mill
Fasteners	Galvanised	Plain

General Notes

- Insulator profile has self-extinguishing fire retardants and is suitable for hydrocarbon installations such as oil and gas.
- 10mm thick Tufnol insulating base prevents possible electrolytic action between pipe and supporting steelwork.
- Bolt length to suit support structure of 12mm.
- Please refer to page 6 for material standards and specifications.

Pipe Size		Description	Hole Details		Item Weight	Part No.	
Nominal Size	Outside Diameter (A)		Bolt Size	Centres (B)		Carbon Steel	Stainless Steel
NB	mm		mm	mm	kg		
10	16.0	15NB Insulated Pipe Saddle	M10	100	0.34	161001	161015
20	25.0	20NB Insulated Pipe Saddle	M10	110	0.39	161002	161016
25	30.0	25NB Insulated Pipe Saddle	M10	120	0.42	161003	161017
32	38.0	32NB Insulated Pipe Saddle	M12	130	0.47	161004	161018
40	44.5	40NB Insulated Pipe Saddle	M12	130	0.48	161005	161019
50	57.0	50NB Insulated Pipe Saddle	M12	134	0.75	161006	161020
65	76.1	65NB Insulated Pipe Saddle	M16	160	0.95	161007	161021
80	88.9	80NB Insulated Pipe Saddle	M16	176	1.33	161008	161022
100	108.0	100NB Insulated Pipe Saddle	M16	206	1.55	161009	161023
150	159.0	150NB Insulated Pipe Saddle	M20	276	3.37	161010	161024
200	219.1	200NB Insulated Pipe Saddle	M20	356	4.37	161011	161025
250	267.0	250NB Insulated Pipe Saddle	M20	410	7.40	161012	161026
300	323.0	300NB Insulated Pipe Saddle	M20	460	8.61	161013	161027
350	368.0	350NB Insulated Pipe Saddle	M20	510	9.47	161014	161028

8.5 BG162 INSULATED PIPE SADDLE

For FRP Pipes

Temperature Range -From -35°C to 100°C

When ordering, please quote the Part No. for required pipe size.



Material	
Saddle, Bolts & Nuts	Stainless Steel
Base	Cork & Neoprene Composite
Insulator	Neoprene Compound
Surface Finish	
Saddle	Mill
Fasteners	Plain

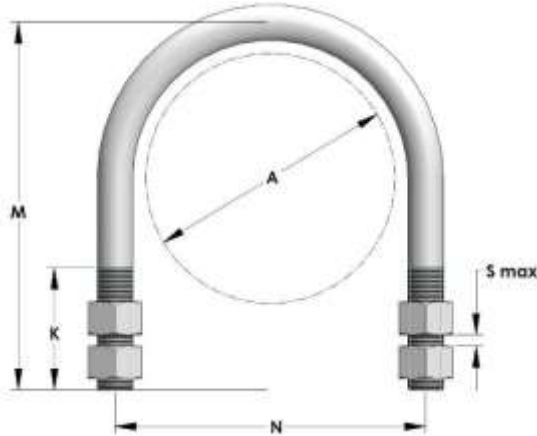
General Notes

- Insulator profile has self-extinguishing fire retardants and suitable for hydrocarbon installations such as oil and gas.
- Insulating base is 10mm thick cork and neoprene composite.
- Bolt length to suit support structure of 12mm.
- Please refer to page 6 for material standards and specifications.

Pipe Size		Description	Hole Details		Item Weight Kg	Part No. Mill
Nominal Size	Outside Diameter (A)		Bolt Size	Centres (B)		
NB	mm		mm	mm		
25	33.6	25NB Insulated Pipe Saddle	M10	120	0.59	162001
40	49.0	40NB Insulated Pipe Saddle	M12	130	0.65	162002
50	61.3	50NB Insulated Pipe Saddle	M12	138	1.15	162003
80	90.0	80NB Insulated Pipe Saddle	M16	174	1.53	162004
100	115.6	100NB Insulated Pipe Saddle	M16	206	1.85	162005
150	169.8	150NB Insulated Pipe Saddle	M20	276	3.70	162006
200	222.8	200NB Insulated Pipe Saddle	M20	356	4.67	162007
250	280.1	250NB Insulated Pipe Saddle	M20	412	8.05	162008

8.6 BG180 U-BOLT GUIDE

When ordering, please quote the Part No. for required pipe size and material.



		Material		
U Bolt	Carbon Steel	Stainless Steel		
Nuts				
		Surface Finish		
U Bolt	Hot Dipped Galvanised (refer to General Notes)		Mill/Plain	
Nuts				

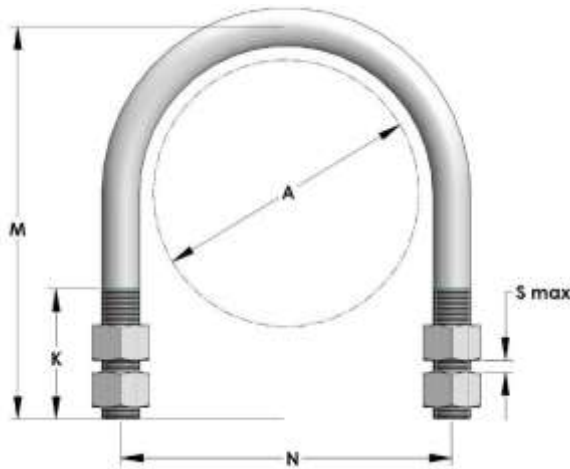
General Notes

- Item supplied with 4 hex nuts.
- M8 - Carbon Steel U-bolts supplied in a Zinc Plated finish.
- Please refer to page 6 for material standards and specifications.

Pipe Size		Description	Thread Size	Centres (N)	(M)	Thread Length (K)	(S _{max})	Item Weight	Part No.	
Nominal Size	Outside Diameter (A)								Carbon Steel	Stainless Steel
NB	mm									
15	21.3	15NB U-Bolt Guide	M8	40	50	25	10	0.07	180001	180023
20	26.7	20NB U-Bolt Guide	M8	45	55	25	10	0.08	180002	180024
25	33.4	25NB U-Bolt Guide	M8	50	60	30	10	0.08	180003	180025
32	42.2	32NB U-Bolt Guide	M8	60	70	30	10	0.09	180004	180026
40	48.3	40NB U-Bolt Guide	M10	65	85	40	16	0.18	180005	180027
50	60.3	50NB U-Bolt Guide	M10	80	100	40	16	0.20	180006	180028
65	76.1	65NB U-Bolt Guide	M12	95	120	50	19	0.33	180007	180029
80	88.9	80NB U-Bolt Guide	M16	110	140	55	19	0.67	180008	180030
100	114.3	100NB U-Bolt Guide	M16	140	165	55	19	0.78	180009	180031
125	141.3	125NB U-Bolt Guide	M16	165	190	55	19	0.89	180010	180032
150	168.3	150NB U-Bolt Guide	M20	195	225	65	19	1.65	180011	180033
175	193.7	175NB U-Bolt Guide	M20	220	250	65	19	1.81	180012	180034
200	219.1	200NB U-Bolt Guide	M20	250	275	65	19	1.98	180013	180035
225	244.5	225NB U-Bolt Guide	M20	275	300	65	19	2.14	180014	180036
250	273.0	250NB U-Bolt Guide	M20	305	335	75	22	2.36	180015	180037
300	323.9	300NB U-Bolt Guide	M20	355	385	75	22	2.68	180016	180038
350	355.6	350NB U-Bolt Guide	M24	390	425	80	22	4.28	180017	180039
400	406.4	400NB U-Bolt Guide	M24	440	475	80	22	4.75	180018	180040
450	457.2	450NB U-Bolt Guide	M24	495	525	80	22	5.23	180019	180041
500	508.0	500NB U-Bolt Guide	M24	545	575	80	22	5.70	180020	180042
550	559.0	550NB U-Bolt Guide	M24	595	625	80	22	6.17	180021	180043
600	609.6	600NB U-Bolt Guide	M24	645	675	80	22	6.63	180022	180044

8.7 BG181 U-BOLT CLAMP

When ordering, please quote the Part No. for required pipe size and material.



		Material	
U Bolt	Nuts	Carbon Steel	Stainless Steel
		Surface Finish	
U Bolt	Nuts	Hot Dipped Galvanised (refer to General Notes)	Mill/Plain

General Notes

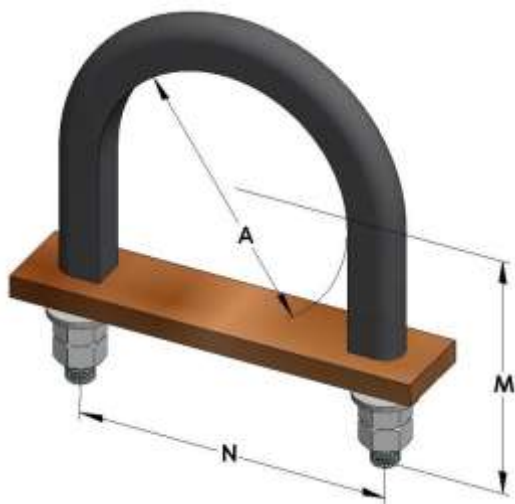
- Item supplied with 4 hex nuts.
- Maximum Loads for Lateral Loads only.
- M8 - Carbon Steel U-bolts supplied in a Zinc Plated finish.
- Please refer to page 6 for material standards and specifications.

Pipe Size		Description	Thread Size	Centres (N)	(M)	Thread Length (K)	S (MAX)	Max. Load up to 340°C	Item Weight	Part No.	
Nominal Size	Outside Diameter (A)									Carbon Steel	Stainless Steel
NB	mm										
15	21.3	15NB U-Bolt Clamp	M8	30	50	25	7	0.68	0.07	181001	181030
20	26.7	20NB U-Bolt Clamp	M8	35	60	25	10	0.54	0.08	181002	181031
25	33.4	25NB U-Bolt Clamp	M8	45	65	25	10	0.43	0.08	181003	181032
32	42.2	32NB U-Bolt Clamp	M8	55	75	25	10	0.34	0.09	181004	181033
40	48.3	40NB U-Bolt Clamp	M10	60	90	35	16	0.60	0.18	181005	181034
50	60.3	50NB U-Bolt Clamp	M10	75	100	35	16	0.48	0.20	181006	181035
65	76.1	65NB U-Bolt Clamp	M12	90	130	45	19	0.70	0.34	181007	181036
80	88.9	80NB U-Bolt Clamp	M16	105	150	50	19	0.58	0.70	181008	181037
100	114.3	100NB U-Bolt Clamp	M16	135	175	50	19	1.17	0.81	181009	181038
125	141.3	125NB U-Bolt Clamp	M16	160	200	50	19	0.94	0.91	181010	181039
150	168.3	150NB U-Bolt Clamp	M20	190	235	55	19	1.52	1.69	181011	181040
175	193.7	175NB U-Bolt Clamp	M20	215	270	55	19	1.32	1.85	181012	181041
200	219.1	200NB U-Bolt Clamp	M20	245	295	55	19	1.17	2.07	181013	181042
225	244.5	225NB U-Bolt Clamp	M20	266	315	60	19	1.05	2.18	181014	181043
250	273.0	250NB U-Bolt Clamp	M20	300	350	60	22	0.94	2.43	181015	181044
300	323.9	300NB U-Bolt Clamp	M20	350	400	60	22	0.79	2.75	181016	181045
350	355.6	350NB U-Bolt Clamp	M24	385	440	65	22	1.25	4.38	181017	181046
400	406.4	400NB U-Bolt Clamp	M24	435	500	65	22	1.09	4.92	181018	181047
450	457.2	450NB U-Bolt Clamp	M24	485	540	70	22	0.97	5.32	181019	181048
500	508.0	500NB U-Bolt Clamp	M24	540	600	70	22	0.87	5.87	181020	181049
550	559.0	550NB U-Bolt Clamp	M24	584	650	70	22	0.73	6.34	181021	181050
600	609.6	600NB U-Bolt Clamp	M24	640	700	70	22	0.67	6.81	181022	181051
650	660.4	650NB U-Bolt Clamp	M24	690	740	70	24	0.62	7.20	181023	181052
700	711.2	700NB U-Bolt Clamp	M30	750	810	80	24	1.18	12.49	181024	181053
750	762	750NB U-Bolt Clamp	M30	800	860	80	24	1.10	13.22	181025	181054
800	812.8	800NB U-Bolt Clamp	M30	850	910	80	24	1.04	13.95	181026	181055
850	863.6	850NB U-Bolt Clamp	M30	900	960	80	24	0.98	14.68	181027	181056
900	914.4	900NB U-Bolt Clamp	M30	950	1010	80	24	0.93	15.41	181028	181057
1000	1016.0	1000NB U-Bolt Clamp	M30	1050	1060	80	24	1.56	24.94	181029	181058

8.8 BG150 INSULATED U-BOLT CLAMP

For Stainless Steel, Duplex or Super Duplex Pipes
Temperature Range -From -35°C to 100°C

When ordering, please quote the Part No. for required pipe size and material.



Material		
U Bolt	Carbon Steel	Stainless Steel
Nuts		
Base	Cork & Neoprene Composite	
Insulator	Neoprene Compound	
Surface Finish		
U Bolt	Hot Dipped Galvanised (Refer to General Notes)	Mill/Plain
Fasteners		

General Notes

- Insulator profile has self-extinguishing fire retardants and is suitable for hydrocarbon installations such as oil and gas.
- Base is a 10mm thick cork and neoprene composite.
- Item supplied with 4 hex nuts & 2 flat washers.
- M6 - Carbon Steel U-bolts supplied in a Zinc Plated finish.
- Please refer to page 6 for material standards and specifications.

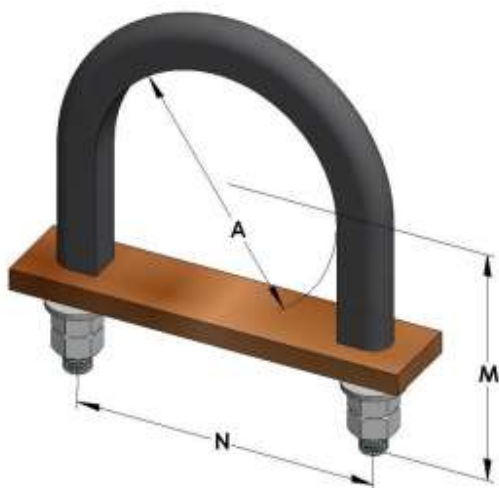
Pipe		Description	U-Bolt				Item Weight	Part No.	
Nominal Size	Outside Diameter		Thread Size	(A)	Centres(N)	(M)		Carbon Steel	Stainless Steel
NB	mm		mm	mm	mm	mm	kg		
15	21.3	15NB Insulated U-Bolt Clamp	M6	21	37	60	0.05	150001	150015
20	26.9	20NB Insulated U-Bolt Clamp	M6	27	43	65	0.06	150002	150016
25	33.7	25NB Insulated U-Bolt Clamp	M6	35	51	65	0.06	150003	150017
32	42.4	32NB Insulated U-Bolt Clamp	M10	43	69	77	0.21	150004	150018
40	48.3	40NB Insulated U-Bolt Clamp	M10	49	75	80	0.22	150005	150019
50	60.3	50NB Insulated U-Bolt Clamp	M10	61	87	90	0.25	150006	150020
65	76.1	65NB Insulated U-Bolt Clamp	M12	76	102	95	0.38	150007	150021
80	88.9	80NB Insulated U-Bolt Clamp	M12	89	115	100	0.41	150008	150022
100	114.3	100NB Insulated U-Bolt Clamp	M12	115	141	110	0.46	150009	150023
150	168.3	150NB Insulated U-Bolt Clamp	M16	168	210	180	1.23	150010	150024
200	219.1	200NB Insulated U-Bolt Clamp	M16	220	262	199	1.43	150011	150025
250	273.0	250NB Insulated U-Bolt Clamp	M16	273	315	230	1.70	150012	150026
300	323.9	300NB Insulated U-Bolt Clamp	M16	325	366	255	1.88	150013	150027
350	355.6	350NB Insulated U-Bolt Clamp	M16	357	399	300	2.20	150014	150028

8.9 BG151 INSULATED U-BOLT CLAMP

For Cupro-Nickel Cu/Ni Pipes

Temperature Range -From -35°C to 100°C

When ordering, please quote the Part No. for required pipe size and material.



		Material	
U Bolt	Nuts	Carbon Steel	Stainless Steel
Base		Cork & Neoprene Composite	
Insulator	Neoprene Compound		
		Surface Finish	
U Bolt	Fasteners	Hot Dipped Galvanised	Mill/Plain
		(Refer to General Notes)	

General Notes

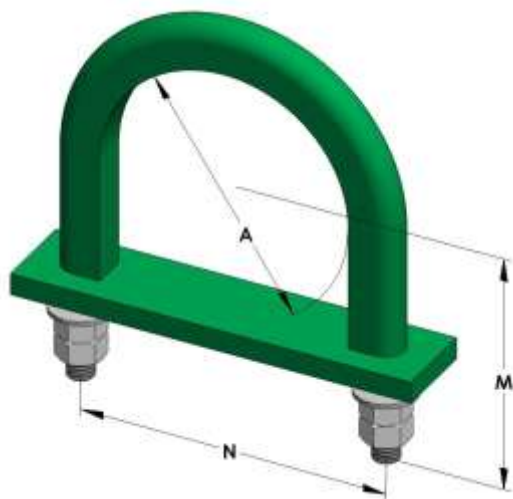
- Insulator profile has self-extinguishing fire retardants and is suitable for hydrocarbon installations such as oil and gas.
- Base is a 10mm thick cork and neoprene composite.
- Item supplied with 4 hex nuts & 2 flat washers.
- M6 - Carbon Steel U-bolts supplied in a Zinc Plated finish.
- Please refer to page 6 for material standards and specifications.

Pipe Size		Description	U-Bolt				Item Weight	Part No.	
Nominal Size	Outside Diameter		Thread Size	(A)	Centres (N)	(M)		Carbon Steel	Stainless Steel
NB	mm		mm	mm	mm	mm	kg		
10	16.0	15NB Insulated U-Bolt Clamp	M6	16	32	60	0.05	151001	151015
20	25.0	20NB Insulated U-Bolt Clamp	M6	25	41	65	0.06	151002	151016
25	30.0	25NB Insulated U-Bolt Clamp	M6	30	46	65	0.06	151003	151017
32	38.0	32NB Insulated U-Bolt Clamp	M10	38	64	77	0.21	151004	151018
40	44.5	40NB Insulated U-Bolt Clamp	M10	45	71	80	0.22	151005	151019
50	57.0	50NB Insulated U-Bolt Clamp	M10	57	83	90	0.25	151006	151020
65	76.1	65NB Insulated U-Bolt Clamp	M12	76	102	95	0.38	151007	151021
80	88.9	80NB Insulated U-Bolt Clamp	M12	89	115	100	0.41	151008	151022
100	108.0	100NB Insulated U-Bolt Clamp	M12	108	134	110	0.46	151009	151023
150	159.0	150NB Insulated U-Bolt Clamp	M16	159	201	180	1.23	151010	151024
200	219.1	200NB Insulated U-Bolt Clamp	M16	220	262	199	1.43	151011	151025
250	267.0	250NB Insulated U-Bolt Clamp	M16	268	310	230	1.70	151012	151026
300	323.9	300NB Insulated U-Bolt Clamp	M16	324	366	255	1.88	151013	151027
350	368.0	350NB Insulated U-Bolt Clamp	M16	369	411	300	2.20	151014	151028

8.10 BG190 INSULATED U-BOLT CLAMP

Low to High Temperatures

Temperature Range -From -70°C to 200°C



When ordering, please quote the Part No. for required pipe size and material.

Material	
U Bolt & Fasteners	Stainless Steel Gr.316
Base	Vibro 700 (Silicone base)
Insulator	Vibro 700 (Silicone base)
Surface Finish	
U Bolt & Fasteners	Mill

General Notes

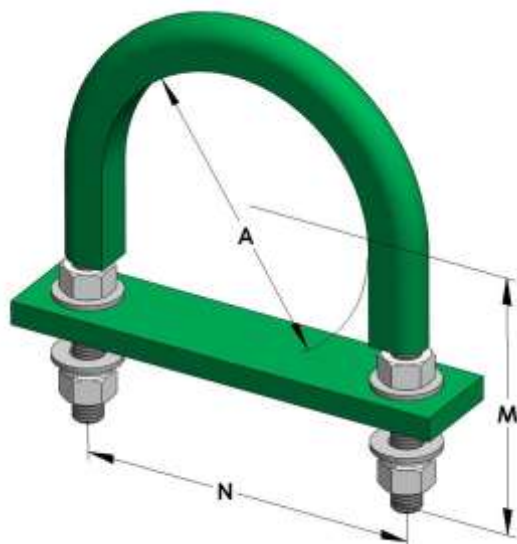
- Vibro 700 is a high performance Silicone material designed to give excellent flexibility and resilience at both high and low temperatures.
- Vibro 700 is also fire retardant with low toxic smoke emission, resistance to seawater, dilute acids and alkaline solutions.
- Base is 10 mm thick.
- Item supplied with 2 x Hex Nuts & 2 x Lock Nuts.

Pipe		Description	U-Bolt				Item Weight	Part No.
Nominal Size	Outside Diameter		Thread Size	(A)	Centres (N)	(M)		
NB	mm		mm	mm	mm	mm	kg	Stainless Steel
15	21.3	15NB Insulated U-Bolt Clamp	M6	21	37	60	0.05	190001
20	26.9	20NB Insulated U-Bolt Clamp	M6	27	43	65	0.06	190002
25	33.7	25NB Insulated U-Bolt Clamp	M6	35	51	65	0.06	190003
32	42.4	32NB Insulated U-Bolt Clamp	M10	43	69	77	0.21	190004
40	48.3	40NB Insulated U-Bolt Clamp	M10	49	75	80	0.22	190005
50	60.3	50NB Insulated U-Bolt Clamp	M10	61	87	90	0.25	190006
65	76.1	65NB Insulated U-Bolt Clamp	M12	76	102	95	0.38	190007
80	88.9	80NB Insulated U-Bolt Clamp	M12	89	115	100	0.41	190008
100	114.3	100NB Insulated U-Bolt Clamp	M12	115	141	110	0.46	190009
150	168.3	190NB Insulated U-Bolt Clamp	M16	168	210	180	1.23	190010
200	219.1	200NB Insulated U-Bolt Clamp	M16	220	262	199	1.43	190011
250	273.0	250NB Insulated U-Bolt Clamp	M20	273	324	230	1.70	190012
300	323.9	300NB Insulated U-Bolt Clamp	M20	325	375	255	1.88	190013

8.11 BG192 INSULATED U-BOLT CLAMP

Low to High Temperatures

Temperature Range -From -70°C to 200°C



When ordering, please quote the Part No. for required pipe size and material.

Material	
U Bolt & Fasteners	Stainless Steel Gr.316
Base	Vibro 700 (Silicone base)
Insulator	Vibro 700 (Silicone base)
Surface Finish	
U Bolt & Fasteners	Mill

General Notes

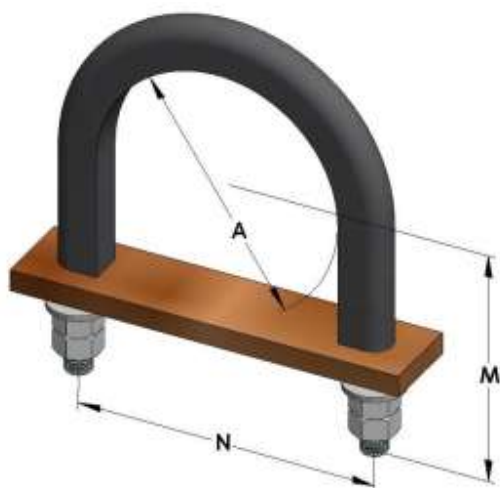
- Vibro 700 is a high performance Silicone material designed to give excellent flexibility and resilience at both high and low temperatures.
- Vibro 700 is also fire retardant with low toxic smoke emission, resistance to seawater, dilute acids and alkaline solutions.
- Base is 10 mm thick.
- Item supplied with 4 x Hex Nuts & 4 x Washers.

Pipe Size		Description	U-Bolt				Item Weight kg	Part No.
Nominal Size	Outside Diameter		Thread Size	(A)	Centres (N)	(M)		
NB	mm		mm	mm	mm	mm		
15	21.3	15NB Insulated U-Bolt Guide	M6	23	37	60	0.08	192001
20	26.9	20NB Insulated U-Bolt Guide	M6	29	43	65	0.08	192002
25	33.7	25NB Insulated U-Bolt Guide	M6	36	50	65	0.10	192003
32	42.4	32NB Insulated U-Bolt Guide	M10	45	69	80	0.27	192004
40	48.3	40NB Insulated U-Bolt Guide	M10	52	75	80	0.29	192005
50	60.3	50NB Insulated U-Bolt Guide	M10	64	87	90	0.38	192006
65	76.1	65NB Insulated U-Bolt Guide	M12	79	102	95	0.49	192007
80	88.9	80NB Insulated U-Bolt Guide	M12	92	115	100	0.45	192008
100	114.3	100NB Insulated U-Bolt Guide	M12	118	141	110	0.45	192009
150	168.3	150NB Insulated U-Bolt Guide	M16	172	210	180	1.59	192010
200	219.1	200NB Insulated U-Bolt Guide	M16	224	262	200	1.79	192011
250	273.0	250NB Insulated U-Bolt Guide	M20	278	324	235	1.90	192012
300	323.9	300NB Insulated U-Bolt Guide	M20	329	375	265	2.10	192013

8.12 BG152 INSULATED U-BOLT GUIDE

For Stainless Steel, Duplex or Super Duplex Pipes
Temperature Range -From -35°C to 100°C

When ordering, please quote the Part No. for required pipe size and material.



		Material	
U Bolt	Nuts	Carbon Steel	Stainless Steel
Base		Cork & Neoprene Composite	
Insulator	Neoprene Compound		
		Surface Finish	
U Bolt	Fasteners	Hot Dipped Galvanised	Mill/Plain
		(Refer to General Notes)	

General Notes

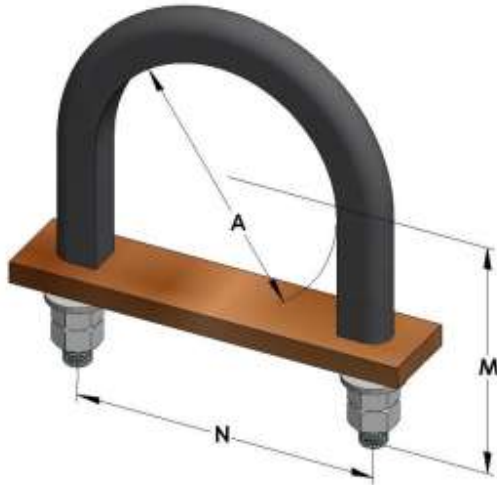
- Insulator profile has self-extinguishing fire retardants and is suitable for hydrocarbon installations such as oil and gas.
- Base is a 10mm thick cork and neoprene composite.
- Item supplied with 4 hex nuts, 2 flat washers and 2 spring washers.
- M6 - Carbon Steel U-bolts supplied in a Zinc Plated finish.
- Please refer to page 6 for material standards and specifications.

Pipe Size		Description	U-Bolt				Item Weight	Part No.	
Nominal Size	Outside Diameter		Thread Size	(A)	Centres (N)	(M)		Carbon Steel	Stainless Steel
NB	mm		mm	mm	mm	mm	kg		
15	21.3	15NB Insulated U-Bolt Guide	M6	23	37	60	0.08	152001	152015
20	26.9	20NB Insulated U-Bolt Guide	M6	29	43	65	0.08	152002	152016
25	33.7	25NB Insulated U-Bolt Guide	M6	37	51	65	0.09	152003	152017
32	42.4	32NB Insulated U-Bolt Guide	M10	46	69	77	0.25	152004	152018
40	48.3	40NB Insulated U-Bolt Guide	M10	52	75	80	0.27	152005	152019
50	60.3	50NB Insulated U-Bolt Guide	M10	64	87	90	0.31	152006	152020
65	76.1	65NB Insulated U-Bolt Guide	M12	79	102	95	0.44	152007	152021
80	88.9	80NB Insulated U-Bolt Guide	M12	92	115	100	0.48	152008	152022
100	114.3	100NB Insulated U-Bolt Guide	M12	118	141	110	0.55	152009	152023
150	168.3	150NB Insulated U-Bolt Guide	M16	172	210	180	1.53	152010	152024
200	219.1	200NB Insulated U-Bolt Guide	M16	224	262	199	1.82	152011	152025
250	273.0	250NB Insulated U-Bolt Guide	M16	276	315	230	2.27	152012	152026
300	323.9	300NB Insulated U-Bolt Guide	M16	328	366	255	2.60	152013	152027
350	355.6	350NB Insulated U-Bolt Guide	M16	361	399	300	3.07	152014	152028

8.13 BG153 INSULATED U-BOLT GUIDE

For Cupro-Nickel Cu/Ni Pipes
Temperature Range -From -35°C to 100°C

When ordering, please quote the Part No. for required pipe size and material.



		Material	
U Bolt		Carbon Steel	Stainless Steel
Nuts			
Base		Cork & Neoprene Composite	
Insulator		Neoprene Compound	
		Surface Finish	
U Bolt		Hot Dipped Galvanised (Refer to General Notes)	Mill/Plain
Fasteners			

General Notes

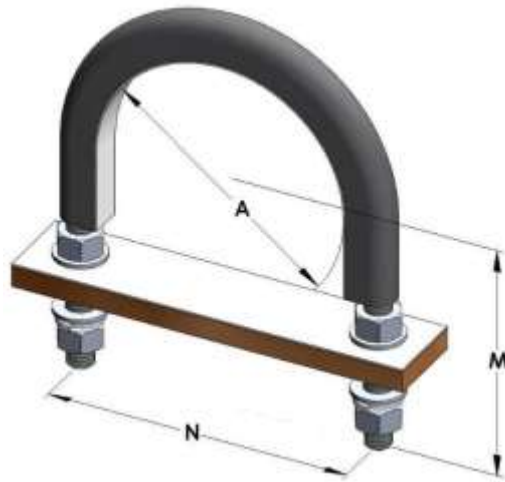
- Insulator profile has self-extinguishing fire retardants and is suitable for hydrocarbon installations such as oil and gas.
- Base is a 10mm thick cork and neoprene composite.
- Item supplied with 4 hex nuts, 2 flat washers and 2 spring washers.
- M6 - Carbon Steel U-bolts supplied in a Zinc Plated finish.
- Please refer to page 6 for material standards and specifications.

Pipe Size		Description	U-Bolt				Item Weight	Part No.	
Nominal Size	Outside Diameter		Thread Size	(A)	Centres (N)	(M)		Carbon Steel	Stainless Steel
NB	mm		mm	mm	mm	mm	kg		
10	16.0	15NB Insulated U-Bolt Guide	M6	18	32	60	0.08	153001	153015
20	25.0	20NB Insulated U-Bolt Guide	M6	27	41	65	0.08	153002	153016
25	30.0	25NB Insulated U-Bolt Guide	M6	32	46	65	0.09	153003	153017
32	38.0	32NB Insulated U-Bolt Guide	M10	41	64	77	0.25	153004	153018
40	44.5	40NB Insulated U-Bolt Guide	M10	48	71	80	0.27	153005	153019
50	57.0	50NB Insulated U-Bolt Guide	M10	60	83	90	0.31	153006	153020
65	76.1	65NB Insulated U-Bolt Guide	M12	80	102	95	0.44	153007	153021
80	88.9	80NB Insulated U-Bolt Guide	M12	93	115	100	0.48	153008	153022
100	108.0	100NB Insulated U-Bolt Guide	M12	112	134	110	0.55	153009	153023
150	159.0	150NB Insulated U-Bolt Guide	M16	163	201	180	1.53	153010	153024
200	219.1	200NB Insulated U-Bolt Guide	M16	224	262	199	1.82	153011	153025
250	267.0	250NB Insulated U-Bolt Guide	M16	272	310	230	2.27	153012	153026
300	323.9	300NB Insulated U-Bolt Guide	M16	328	366	255	2.60	153013	153027
350	368.0	350NB Insulated U-Bolt Guide	M16	373	411	300	3.07	153014	153028

8.14 BG154 INSULATED U-BOLT GUIDE (WITH TEFLON)

For Stainless Steel, Duplex or Super Duplex Pipes
Temperature Range -From -35°C to 100°C

When ordering, please quote the Part No. for required pipe size and material.



Material		
U Bolt	Carbon Steel	Stainless Steel
Nuts		
Base	Cork & Neoprene Composite with Teflon Strip	
Insulator	Neoprene Compound with Teflon Strip	
Surface Finish		
U Bolt	Hot Dipped Galvanised (Refer to General Notes)	Mill/Plain
Fasteners		

General Notes

- Insulator profile has self-extinguishing fire retardants and is suitable for hydrocarbon installations such as oil and gas.
- Base has 10mm thick cork and neoprene composite.
- 1mm Teflon is bonded to Base and Insulator.
- Item supplied with 4 hex nuts, 4 flat washers and 2 spring washers.
- M6 - Carbon Steel U-bolts supplied in a Zinc Plated finish.
- Please refer to page 6 for material standards and specifications.

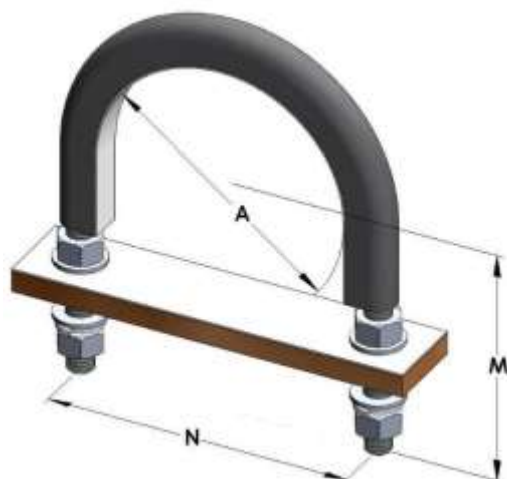
Pipe Size		Description	U-Bolt				Item Weight	Part No.	
Nominal Size	Outside Diameter		Thread Size	(A)	Centres (N)	(M)		Carbon Steel	Stainless Steel
NB	mm		mm	mm	mm	mm	kg		
15	21.3	15NB Insulated U-Bolt Guide	M6	21	38	60	0.09	154001	154015
20	26.9	20NB Insulated U-Bolt Guide	M6	27	43	65	0.09	154002	154016
25	33.4	25NB Insulated U-Bolt Guide	M6	35	51	65	0.10	154003	154017
32	42.4	32NB Insulated U-Bolt Guide	M10	44	69	77	0.26	154004	154018
40	48.3	40NB Insulated U-Bolt Guide	M10	50	75	80	0.28	154005	154019
50	60.3	50NB Insulated U-Bolt Guide	M10	62	87	90	0.32	154006	154020
65	76.1	65NB Insulated U-Bolt Guide	M12	77	102	95	0.44	154007	154021
80	88.9	80NB Insulated U-Bolt Guide	M12	91	115	100	0.49	154008	154022
100	114.3	100NB Insulated U-Bolt Guide	M12	117	141	110	0.56	154009	154023
150	168.3	150NB Insulated U-Bolt Guide	M16	170	210	180	1.54	154010	154024
200	219.1	200NB Insulated U-Bolt Guide	M16	222	262	199	1.83	154011	154025
250	273.0	250NB Insulated U-Bolt Guide	M16	274	315	230	2.28	154012	154026
300	323.9	300NB Insulated U-Bolt Guide	M16	326	366	255	2.61	154013	154027
350	355.6	350NB Insulated U-Bolt Guide	M16	359	399	300	3.07	154014	154028

8.15 BG155 INSULATED U-BOLT GUIDE (WITH TEFLON)

For Cupro-Nickel Cu/Ni Pipes

Temperature Range -From -35°C to 100°C

When ordering, please quote the Part No. for required pipe size and material.



		Material	
U Bolt		Carbon Steel	Stainless Steel
Nuts			
Base		Cork & Neoprene Composite with Teflon Strip	
Insulator		Neoprene Compound with Teflon Strip	
		Surface Finish	
U Bolt		Hot Dipped Galvanised (Refer to General Notes)	Mill/Plain
Fasteners			

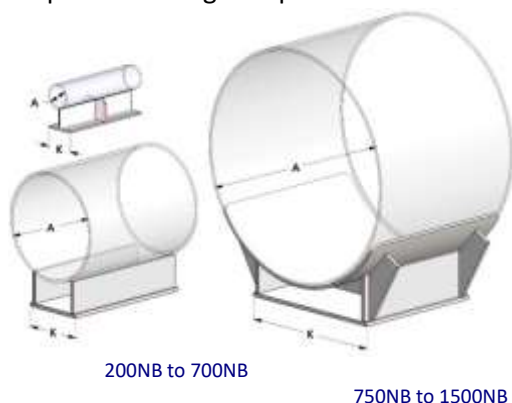
General Notes

- Insulator profile has self-extinguishing fire retardants and is suitable for hydrocarbon installations such as oil and gas.
- Base has 10 mm thick cork and neoprene composite.
- 1mm Teflon is bonded to Base and Insulator.
- Item supplied with 4 hex nuts, 4 flat washers and 2 spring washers.
- M6 - Carbon Steel U bolts will be supplied in a Zinc Plated finish.
- Please refer to page 6 for material standards and specifications.

Pipe Size		Description	U-Bolt				Item Weight	Part No.	
Nominal Size	Outside Diameter		Thread Size	(A)	Centres (N)	(M)		Carbon Steel	Stainless Steel
NB	mm		mm	mm	mm	mm	kg		
10	16.0	15NB Insulated U-Bolt Guide	M6	16	32	60	0.09	155001	155015
20	25.0	20NB Insulated U-Bolt Guide	M6	25	41	65	0.09	155002	155016
25	30.0	25NB Insulated U-Bolt Guide	M6	30	46	65	0.10	155003	155017
32	38.0	32NB Insulated U-Bolt Guide	M10	39	64	77	0.26	155004	155018
40	44.5	40NB Insulated U-Bolt Guide	M10	46	71	80	0.28	155005	155019
50	57.0	50NB Insulated U-Bolt Guide	M10	58	83	90	0.32	155006	155020
65	76.1	65NB Insulated U-Bolt Guide	M12	77	102	95	0.44	155007	155021
80	88.9	80NB Insulated U-Bolt Guide	M12	90	115	100	0.49	155008	155022
100	108.0	100NB Insulated U-Bolt Guide	M12	109	134	110	0.56	155009	155023
150	159.0	150NB Insulated U-Bolt Guide	M16	161	201	180	1.54	155010	155024
200	219.1	200NB Insulated U-Bolt Guide	M16	222	262	199	1.83	155011	155025
250	267.0	250NB Insulated U-Bolt Guide	M16	270	310	230	2.28	155012	155026
300	323.9	300NB Insulated U-Bolt Guide	M16	326	366	255	2.61	155013	155027
350	368.0	350NB Insulated U-Bolt Guide	M16	371	411	300	3.07	155014	155028

8.16 BG510 WELDED PIPE SHOE

Temperature Range – Up to 400°C



When ordering, please quote the Part No. for required size and surface finish.

Material
Carbon Steel
Surface Finish
Hot Dipped Galvanised or Mill

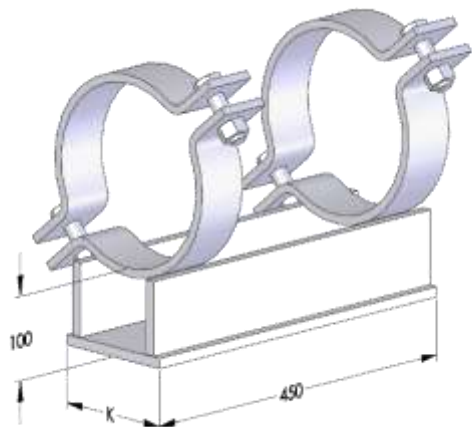
General Notes

- Height of pipe shoe: 100mm from underside of pipe shoe to bottom of pipe. Shoe length 450mm.
- Pipe Shoe design varies with pipe size.
- Hot Dip Galvanised suitable up to 200°C
- Please refer to page 6 for material standards and specifications.

Pipe Size (A)	Description	Dim (K)	Item Weight	Item No.	
		mm	kg	HDG	Mill
25	25NB Standard Welded Pipe Shoe	133	5.84	510001	510034
32	32NB Standard Welded Pipe Shoe	133	5.84	510002	510035
40	40NB Standard Welded Pipe Shoe	133	5.84	510003	510036
50	50NB Standard Welded Pipe Shoe	133	5.84	510004	510037
65	65NB Standard Welded Pipe Shoe	133	5.84	510005	510038
80	80NB Standard Welded Pipe Shoe	133	5.84	510006	510039
100	100NB Standard Welded Pipe Shoe	133	8.08	510007	510040
150	150NB Standard Welded Pipe Shoe	133	8.25	510008	510041
200	200NB Standard Welded Pipe Shoe	150	15.79	510009	510042
250	250NB Standard Welded Pipe Shoe	150	15.59	510010	510043
300	300NB Standard Welded Pipe Shoe	200	18.43	510011	510044
350	350NB Standard Welded Pipe Shoe	200	18.26	510012	510045
400	400NB Standard Welded Pipe Shoe	250	22.21	510013	510046
450	450NB Standard Welded Pipe Shoe	300	25.25	510014	510047
500	500NB Standard Welded Pipe Shoe	350	28.37	510015	510048
600	600NB Standard Welded Pipe Shoe	400	30.95	510016	510049
700	700NB Standard Welded Pipe Shoe	400	30.19	510017	510050
750	750NB Standard Welded Pipe Shoe	500	79.10	510018	510051
800	800NB Standard Welded Pipe Shoe	500	81.13	510019	510052
850	850NB Standard Welded Pipe Shoe	550	87.67	510020	510053
900	900NB Standard Welded Pipe Shoe	550	89.57	510021	510054
950	950NB Standard Welded Pipe Shoe	600	96.22	510022	510055
1000	1000NB Standard Welded Pipe Shoe	600	98.04	510023	510056
1050	1050NB Standard Welded Pipe Shoe	650	104.78	510024	510057
1100	1100NB Standard Welded Pipe Shoe	650	106.46	510025	510058
1150	1150NB Standard Welded Pipe Shoe	650	108.11	510026	510059
1200	1200NB Standard Welded Pipe Shoe	700	114.95	510027	510060
1250	1250NB Standard Welded Pipe Shoe	750	121.86	510028	510061
1300	1300NB Standard Welded Pipe Shoe	750	123.36	510029	510062
1350	1350NB Standard Welded Pipe Shoe	800	130.37	510030	510063
1400	1400NB Standard Welded Pipe Shoe	850	137.53	510031	510064
1450	1450NB Standard Welded Pipe Shoe	850	138.95	510032	510065
1500	1500NB Standard Welded Pipe Shoe	900	146.13	510033	510066

8.17 BG515 CLAMPED PIPE SHOE

Temperature Range – Up to 400°C



When ordering, please quote the Part No. for required size and surface finish.

	Material
Shoe & Fasteners	Carbon Steel
	Surface Finish
Shoe & Fasteners	Hot Dipped Galvanised or Mill/Plain

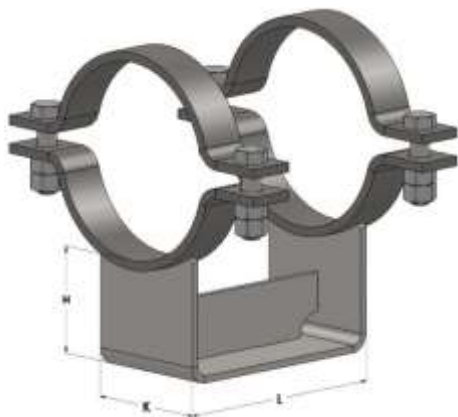
General Notes

- Dimension 100mm shown is from underside of pipe shoe to bottom of pipe (BOP).
- The BG515 is not designed to withstand high Axial/Lateral loads or act as a line stop.
- Special Clamped Pipe Shoes can be designed and manufactured to customer requirements.
- Hot Dip Galvanised suitable up to 200°C
- Refer to BG550 for Slide Plate details.
- Please refer to page 6 for material standards and specifications.

Pipe NB	Description	Base Width (K)	Max Vertical Load	Item Weight	Part No.	
		mm	kN	kg	HDG	Mill
25	25NB Standard Clamped Pipe Shoe	133	11.5	6.13	515001	515026
32	32NB Standard Clamped Pipe Shoe	133	11.5	6.20	515002	515027
40	40NB Standard Clamped Pipe Shoe	133	11.5	6.24	515003	515028
50	50NB Standard Clamped Pipe Shoe	133	14.4	7.38	515004	515029
65	65NB Standard Clamped Pipe Shoe	133	14.4	7.63	515005	515030
80	80NB Standard Clamped Pipe Shoe	133	14.4	7.81	515006	515031
100	100NB Standard Clamped Pipe Shoe	133	14.4	9.79	515007	515032
150	150NB Standard Clamped Pipe Shoe	133	23.4	14.23	515008	515033
200	200NB Standard Clamped Pipe Shoe	150	93.6	24.09	515009	515034
250	250NB Standard Clamped Pipe Shoe	150	93.6	32.89	515010	515035
300	300NB Standard Clamped Pipe Shoe	200	93.6	38.51	515011	515036
350	350NB Standard Clamped Pipe Shoe	200	93.6	39.83	515012	515037
400	400NB Standard Clamped Pipe Shoe	250	93.6	45.92	515013	515038
450	450NB Standard Clamped Pipe Shoe	300	93.6	60.04	515014	515039
500	500NB Standard Clamped Pipe Shoe	350	93.6	67.74	515015	515040
600	600NB Standard Clamped Pipe Shoe	400	108.0	83.50	515016	515041
650	650NB Standard Clamped Pipe Shoe	400	187.2	144.50	515017	515042
700	700NB Standard Clamped Pipe Shoe	400	187.2	150.70	515018	515043
750	750NB Standard Clamped Pipe Shoe	500	324.0	188.71	515019	515044
800	800NB Standard Clamped Pipe Shoe	500	324.0	241.82	515020	515045
850	850NB Standard Clamped Pipe Shoe	500	324.0	251.19	515021	515046
900	900NB Standard Clamped Pipe Shoe	550	324.0	262.64	515022	515047
950	950NB Standard Clamped Pipe Shoe	550	324.0	284.44	515023	515048
1000	1000NB Standard Clamped Pipe Shoe	550	324.0	293.74	515024	515049
1050	1050NB Standard Clamped Pipe Shoe	650	324.0	310.32	515025	515050

8.18 BG517 COMPACT PIPE SHOE

When ordering, please quote the Part No. for required size and material grade.



Material	Max Operating Temperature	Surface Finish
Carbon Steel	200°C	Hot Dipped Galvanised
Boiler Plate	470°C	Mill
Alloy Steel	570°C	Mill
Stainless Steel	650°C	Pickle & Passivate

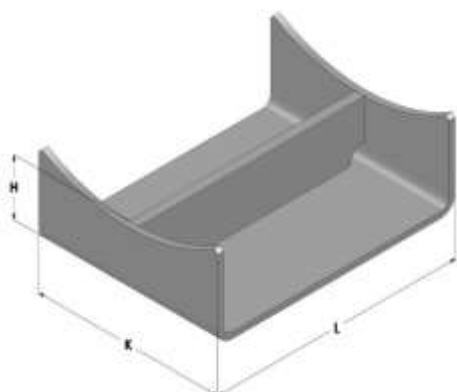
General Notes

- Shorter and narrower design to the BG515 pipe shoe.
- Style of Shoe base may vary to picture.
- Please refer to page 6 for material standards and specifications.

Pipe NB	Description	Shoe Width (K)	Shoe Length (L)	Dim (H)	Max Vertical Load	Item Weight	Part No.			
		mm	mm	mm	kN	kg	CS	BP	ALLOY	SS
25	25NB Compact Pipe Shoe	40	100	50	4.5	1.2	517001	517020	517039	517058
32	32NB Compact Pipe Shoe	40	100	50	4.5	1.5	517002	517021	517040	517059
40	40NB Compact Pipe Shoe	40	100	50	4.5	1.6	517003	517022	517041	517060
50	50NB Compact Pipe Shoe	40	100	50	4.7	1.7	517004	517023	517042	517061
65	65NB Compact Pipe Shoe	50	150	50	6.2	3.5	517005	517024	517043	517062
80	80NB Compact Pipe Shoe	65	150	50	7.4	3.7	517006	517025	517044	517063
100	100NB Compact Pipe Shoe	65	150	100	7.4	4.5	517007	517026	517045	517064
150	150NB Compact Pipe Shoe	110	200	100	20.0	8.1	517008	517027	517046	517065
200	200NB Compact Pipe Shoe	130	250	100	24.0	11.2	517009	517028	517047	517066
250	250NB Compact Pipe Shoe	150	250	100	43.0	18.6	517010	517029	517048	517067
300	300NB Compact Pipe Shoe	180	300	100	44.0	31.8	517011	517030	517049	517068
350	350NB Compact Pipe Shoe	200	300	100	58.5	39.1	517012	517031	517050	517069
400	400NB Compact Pipe Shoe	250	300	100	75.0	39.6	517013	517032	517051	517070
450	450NB Compact Pipe Shoe	250	300	100	80.0	50.7	517014	517033	517052	517071
500	500NB Compact Pipe Shoe	250	350	100	80.0	60.5	517015	517034	517053	517072
600	600NB Compact Pipe Shoe	300	400	100	88.0	79.0	517016	517035	517054	517073
650	650NB Compact Pipe Shoe	300	400	100	102.0	140.3	517017	517036	517055	517074
700	700NB Compact Pipe Shoe	300	400	100	130.0	146.7	517018	517037	517056	517075
750	750NB Compact Pipe Shoe	300	400	100	190.0	157.4	517019	517038	517057	517076

8.19 BG518 COMPACT WELDED PIPE SHOE

When ordering, please quote the Part No. for required size and material grade.



Material	Max Operating Temperature	Surface Finish
Carbon Steel	200°C	Hot Dipped Galvanised
Boiler Plate	470°C	Mill
Alloy Steel	570°C	Mill
Stainless Steel	650°C	Pickle & Passivate

General Notes

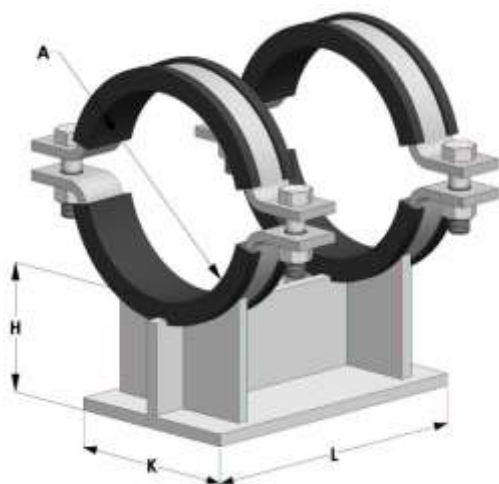
- Shorter and narrower design to the BG510 Welded pipe shoe.
- Please refer to page 6 for material standards and specifications.

Pipe NB	Description	Shoe Width (K)	Shoe Length (L)	Dim (H)	Max Vertical Load	Item Weight	Part No.			
		mm	mm	mm	kN	kg	CS	BP	ALLOY	SS
25	25NB Compact Welded Pipe Shoe	40	100	50	4.5	0.29	518001	518020	518039	518058
32	32NB Compact Welded Pipe Shoe	40	100	50	4.5	0.29	518002	518021	518040	518059
40	40NB Compact Welded Pipe Shoe	40	100	50	4.5	0.29	518003	518022	518041	518060
50	50NB Compact Welded Pipe Shoe	40	100	50	4.7	0.29	518004	518023	518042	518061
65	65NB Compact Welded Pipe Shoe	50	150	50	6.2	0.46	518005	518024	518043	518062
80	80NB Compact Welded Pipe Shoe	65	150	50	7.4	0.60	518006	518025	518044	518063
100	100NB Compact Welded Pipe Shoe	65	150	100	7.4	1.01	518007	518026	518045	518064
150	150NB Compact Welded Pipe Shoe	110	200	100	20.0	2.81	518008	518027	518046	518065
200	200NB Compact Welded Pipe Shoe	130	250	100	24.0	3.71	518009	518028	518047	518066
250	250NB Compact Welded Pipe Shoe	150	250	100	43.0	6.55	518010	518029	518048	518067
300	300NB Compact Welded Pipe Shoe	180	300	100	44.0	8.65	518011	518030	518049	518068
350	350NB Compact Welded Pipe Shoe	200	300	100	58.5	11.08	518012	518031	518050	518069
400	400NB Compact Welded Pipe Shoe	250	300	100	75.0	13.47	518013	518032	518051	518070
450	450NB Compact Welded Pipe Shoe	250	300	100	80.0	13.39	518014	518033	518052	518071
500	500NB Compact Welded Pipe Shoe	250	350	100	80.0	19.19	518015	518034	518053	518072
600	600NB Compact Welded Pipe Shoe	300	400	100	88.0	24.94	518016	518035	518054	518073
650	650NB Compact Welded Pipe Shoe	300	400	100	102.0	24.85	518017	518036	518055	518074
700	700NB Compact Welded Pipe Shoe	300	400	100	130.0	24.78	518018	518037	518056	518075
750	750NB Compact Welded Pipe Shoe	300	400	100	190.0	29.82	518019	518038	518057	518076

8.20 BG156 INSULATED PIPE SHOE

For Stainless Steel, Duplex or Super Duplex Pipes
Temperature Range -From -35°C to 100°C

When ordering, please quote the Part No. for required pipe size and material.



Material		
Shoe & Fasteners	Carbon Steel	Stainless Steel
Insulator	Neoprene Compound	
Surface Finish		
Shoe	Hot Dipped Galvanised	Pickle & Passivate
Fasteners		Plain

General Notes

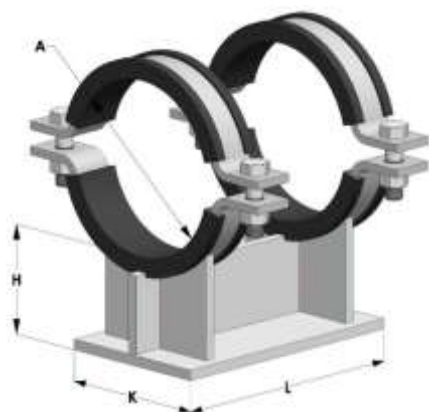
- This BG156 Insulated Pipe Shoe uses the BG140 pipe clamp.
- Dimension 'H' is 100mm. From underside of pipe shoe to bottom of pipe.
- Insulator profile has self-extinguishing fire retardants and is suitable for hydrocarbon installations such as oil and gas.
- Please refer to page 6 for material standards and specifications.

Pipe Size		Description	Base Width (K)	Base Length (L)	Item Weight	Part No.	
Nominal Size	Outside Diameter (A)					Carbon Steel	Stainless Steel
NB	mm		mm	mm	kg		
15	21.3	15NB Insulated Pipe Shoe	75	200	3.50	156001	156019
20	26.9	20NB Insulated Pipe Shoe	75	200	3.50	156002	156020
25	33.7	25NB Insulated Pipe Shoe	75	200	3.50	156003	156021
32	42.4	32NB Insulated Pipe Shoe	100	200	4.60	156004	156022
40	48.3	40NB Insulated Pipe Shoe	100	200	4.60	156005	156023
50	60.3	50NB Insulated Pipe Shoe	100	200	4.60	156006	156024
65	76.1	65NB Insulated Pipe Shoe	100	200	5.80	156007	156025
80	88.9	80NB Insulated Pipe Shoe	100	250	6.90	156008	156026
100	114.3	100NB Insulated Pipe Shoe	100	250	6.90	156009	156027
150	168.3	150NB Insulated Pipe Shoe	150	250	9.30	156010	156028
200	219.1	200NB Insulated Pipe Shoe	150	300	12.00	156011	156029
250	273.0	250NB Insulated Pipe Shoe	200	300	16.10	156012	156030
300	323.9	300NB Insulated Pipe Shoe	200	400	27.00	156013	156031
350	355.6	350NB Insulated Pipe Shoe	200	400	33.10	156014	156032
400	406.4	400NB Insulated Pipe Shoe	250	400	43.00	156015	156033
450	457.0	450NB Insulated Pipe Shoe	250	400	55.40	156016	156034
500	508.0	500NB Insulated Pipe Shoe	300	400	76.20	156017	156035
600	610.0	600NB Insulated Pipe Shoe	300	400	94.60	156018	156036

8.21 BG157 INSULATED PIPE SHOE

For Cupro-Nickel Cu/Ni Pipes

Temperature Range -From -35°C to 100°C



When ordering, please quote the Part No. for required pipe size and material.

		Material	
Shoe & Fasteners	Carbon Steel	Stainless Steel	
Insulator	Neoprene Compound		
		Surface Finish	
Shoe	Hot Dipped Galvanised	Pickle & Passivate	
Fasteners		Plain	

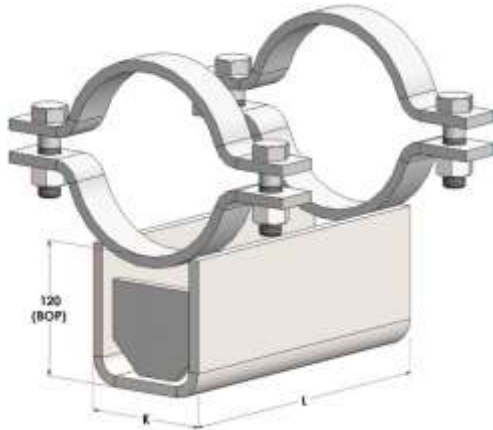
General Notes

- The BG157 Insulated Pipe Shoe uses the BG140 pipe clamp.
- Dimension 'H' is 100mm. From underside of pipe shoe to bottom of pipe.
- Insulator profile has self-extinguishing fire retardants and is suitable for hydrocarbon installations such as oil and gas.
- Please refer to page 6 for material standards and specifications.

Pipe Size		Description	Base Width (K)	Base Length (L)	Item Weight	Part No.	
Nominal Size	Outside Diameter (A)					Carbon Steel	Stainless Steel
NB	mm					mm	mm
15	16.0	15NB Insulated Pipe Shoe	75	200	3.50	157001	157015
20	25.0	20NB Insulated Pipe Shoe	75	200	3.50	157002	157016
25	30.0	25NB Insulated Pipe Shoe	75	200	3.50	157003	157017
32	38.0	32NB Insulated Pipe Shoe	100	200	4.60	157004	157018
40	44.5	40NB Insulated Pipe Shoe	100	200	4.60	157005	157019
50	57.0	50NB Insulated Pipe Shoe	100	200	4.60	157006	157020
65	76.1	65NB Insulated Pipe Shoe	100	200	5.80	157007	157021
80	88.9	80NB Insulated Pipe Shoe	100	250	6.90	157008	157022
100	108.0	100NB Insulated Pipe Shoe	100	250	6.90	157009	157023
150	159.0	150NB Insulated Pipe Shoe	150	250	9.30	157010	157024
200	219.0	200NB Insulated Pipe Shoe	150	300	12.00	157011	157025
250	267.0	250NB Insulated Pipe Shoe	200	300	16.10	157012	157026
300	323.9	300NB Insulated Pipe Shoe	200	400	27.00	157013	157027
350	368.0	350NB Insulated Pipe Shoe	200	400	33.10	157014	157028

8.22 BG400 INSULATED PIPE SHOE

FOR INSULATION UP TO 100mm THICK



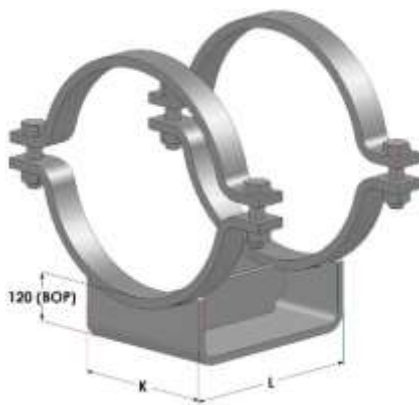
When ordering, please quote the Part No. for required size and material grade.

Material	Max Operating Temperature	Surface Finish
Carbon Steel	200°C	Hot Dipped Galvanised
Boiler Plate	470°C	Mill
Alloy Steel	570°C	Mill
Stainless Steel	650°C	Pickle & Passivate

General Notes

- Please refer to page 6 for material standards and specifications.

Pipe NB	Description	Width (K)	Length (L)	Item Weight	Part No.			
		mm	mm	kg	CS	BP	AS	SS
65	65NB Clamped Hot Pipe Shoe	62	200	4.45	400001	400017	400033	400049
80	80NB Clamped Hot Pipe Shoe	62	200	4.65	400002	400018	400034	400050
90	90NB Clamped Hot Pipe Shoe	62	200	4.95	400003	400019	400035	400051
100	100NB Clamped Hot Pipe Shoe	62	200	5.62	400004	400020	400036	400052
125	125NB Clamped Hot Pipe Shoe	120	300	6.55	400005	400021	400037	400053
150	150NB Clamped Hot Pipe Shoe	120	300	14.45	400006	400022	400038	400054
175	175NB Clamped Hot Pipe Shoe	120	300	15.25	400007	400023	400039	400055
200	200NB Clamped Hot Pipe Shoe	120	300	15.54	400008	400024	400040	400056
225	225NB Clamped Hot Pipe Shoe	120	300	16.05	400009	400025	400041	400057
250	250NB Clamped Hot Pipe Shoe	174	300	23.85	400010	400026	400042	400058
300	300NB Clamped Hot Pipe Shoe	174	300	24.28	400011	400027	400043	400059



Pipe NB	Description	Width (K)	Length (L)	Item Weight	Part No.			
		mm	mm	kg	CS	BP	AS	SS
350	350NB Clamped Hot Pipe Shoe	215	300	33.63	400012	400028	400044	400060
400	400NB Clamped Hot Pipe Shoe	230	300	35.83	400013	400029	400045	400061
450	450NB Clamped Hot Pipe Shoe	245	300	41.41	400014	400030	400046	400062
500	500NB Clamped Hot Pipe Shoe	280	300	45.85	400015	400031	400047	400063
600	600NB Clamped Hot Pipe Shoe	330	300	77.52	400016	400032	400048	400064

8.23 BG550 SLIDE PLATES

For use with BG515 clamped pipe shoe

When ordering, please quote the Part No. for required size

	Material
Low Friction Plate	3mm Stainless Steel
Low Friction Pad	3mm PTFE (Teflon 25% Glass)
Base Plate	3mm Carbon Steel
	Surface Finish
Low Friction Plate	Mill (2B)
Base Plate	Mill

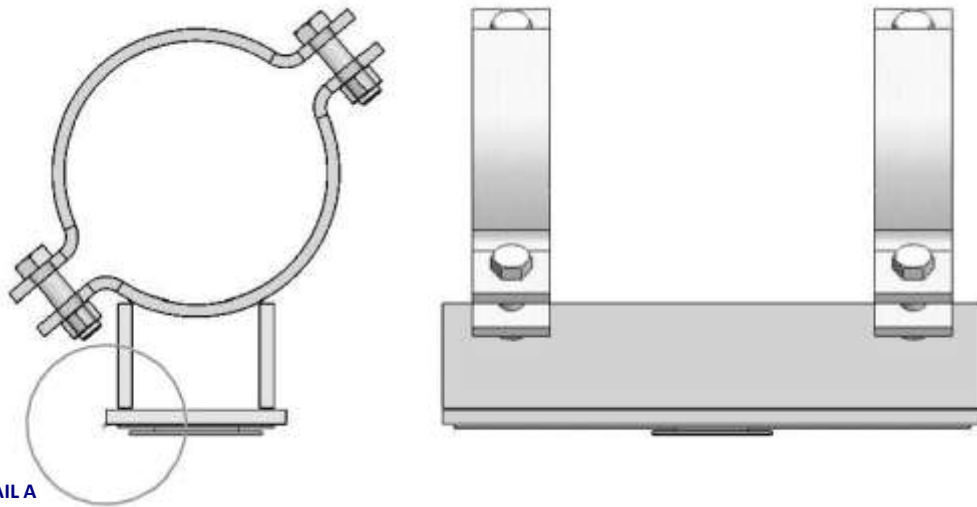
General Notes

- BG550 Slide plate is intended for use with BG515 standard pipe shoe.
- Low Friction plate is welded to underside of pipe shoe.
- Low Friction Pad is bonded to Base Plate.
- PTFE is generally 15mm less all round than the Base Plate.
- PTFE to be covered with damp cloth while Base Plate is stitch welded to supporting steel.
- Surface finish recommended to be applied to Base Plate once welded to supporting steel.
- Alternative sizes can be made on request.
- BG550 temperature rating: 135°C.
- Both Low Friction Plate & Pad must be protected from damage during storage on site and PTFE is not to be exposed to UV rays.
- Refer to page 75 for an example of our slide plates.
- Please refer to page 6 for material standards and specifications.

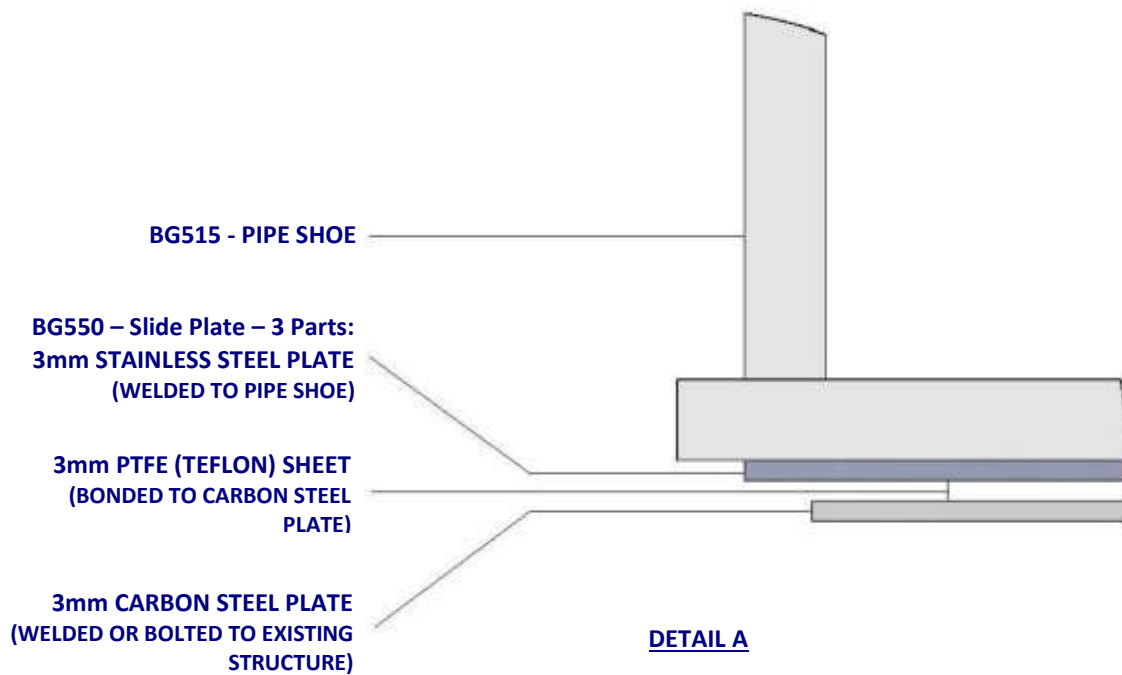


Description	Load capacity	Base Plate Dimensions		Item Weight	Part No.
		Length	Width		
	kg	mm	mm	kg	
Slide Plate for 25NB to 150NB BG515 Clamped Pipe Shoe	2,880	100	100	1.5	550001
Slide Plate for 200NB & 250NB BG515 Clamped Pipe Shoe	3,360	110	100	1.7	550002
Slide Plate for 300NB & 350NB BG515 Clamped Pipe Shoe	5,780	125	125	2.4	550003
Slide Plate for 400NB BG515 Clamped Pipe Shoe	8,000	140	140	3.0	550004
Slide Plate for 450NB BG515 Clamped Pipe Shoe	8,800	150	140	3.6	550005
Slide Plate for 500NB BG515 Clamped Pipe Shoe	9,600	160	140	4.1	550006
Slide Plate for 600NB to 700NB BG515 Clamped Pipe Shoe	21,420	355	125	5.3	550007
Slide Plate for 750NB to 850NB BG515 Clamped Pipe Shoe	37,720	450	155	7.0	550008
Slide Plate for 900NB to 1000NB BG515 Clamped Pipe Shoe	41,860	495	155	7.7	550009
Slide Plate for 1050NB BG515 Clamped Pipe Shoe	49,920	520	170	9.1	550010

8.24 BG515 & BG 550 TYPICAL EXAMPLE PIPE SHOE WITH SLIDE PLATES

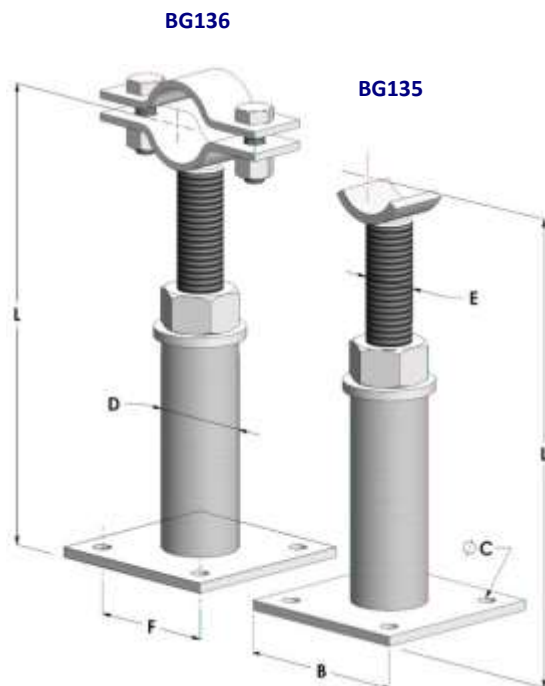


SEE DETAIL A



8.25 BG135 & BG136 ADJUSTABLE PIPE STANDS

- BG135 WITH CRADLE
- BG136 WITH CLAMP



When ordering, please quote the Part No. for required size and dimension 'L'.

Material	Max Operating Temperature	Surface Finish
Carbon Steel	200°C	Hot Dipped Galvanised

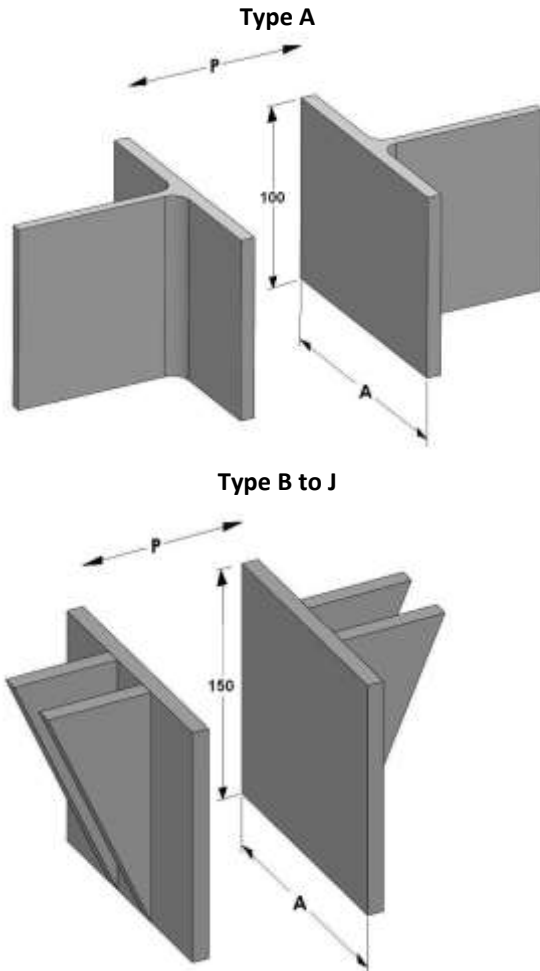
General Notes

- Designed to support a vertical load only.
- Client to supply dimension 'L'. (Base Plate to Centre of Pipe).
- Vertical adjustment achieved by adjusting nut.
- When the required height is achieved, the nut is to be tack welded to pipe cap.
- Not suitable for supporting pipes with axial or lateral movement or for pipe sizes above 600NB.
- Available adjustment ± 75 mm from nominated dimension L. e.g. 50NB pipe stand cannot be adjusted from 370mm to 1750mm.

Pipe Size		Description	Base Plate (B)	Hole Dia (C)	Pipe Size (D)	Rod Size (E)	Hole Spacing (F)	Dim (L) (mm)		Part No.	
Nominal Size	Outside Diameter (A)							max	min	BG135	BG136
NB	mm							mm	mm	NB	
50	60.3	50NB Adjustable Pipe Stand	150	14	50	M36	108	1,750	370	135001	136001
65	76.1	65NB Adjustable Pipe Stand	150	14	50	M36	108	1,750	380	135002	136002
80	88.9	80NB Adjustable Pipe Stand	175	18	80	M48	121	1,750	390	135003	136003
100	114.3	100NB Adjustable Pipe Stand	175	18	80	M48	121	1,750	410	135004	136004
150	168.3	150NB Adjustable Pipe Stand	200	22	80	M48	134	1,750	440	135005	136005
200	219.1	200NB Adjustable Pipe Stand	250	22	80	M48	184	1,750	470	135006	136006
250	273.0	250NB Adjustable Pipe Stand	250	22	80	M48	184	1,400	500	135007	136007
300	323.9	300NB Adjustable Pipe Stand	250	22	100	M56	184	1,400	530	135008	136008
350	355.6	350NB Adjustable Pipe Stand	300	26	100	M56	222	1,400	600	135009	136009
400	406.4	400NB Adjustable Pipe Stand	300	26	100	M56	222	1,400	630	135010	136010
450	457.0	450NB Adjustable Pipe Stand	350	32	150	M72	254	1,400	690	135011	136011
500	508.0	500NB Adjustable Pipe Stand	350	32	150	M72	254	1,400	720	135012	136012
600	610.0	600NB Adjustable Pipe Stand	350	32	150	M72	254	1,400	790	135013	136013

8.26 BG555 STANDARD LINE STOPS

Temperature range - Up to 400°C



When ordering, please quote the Part No. for required type.

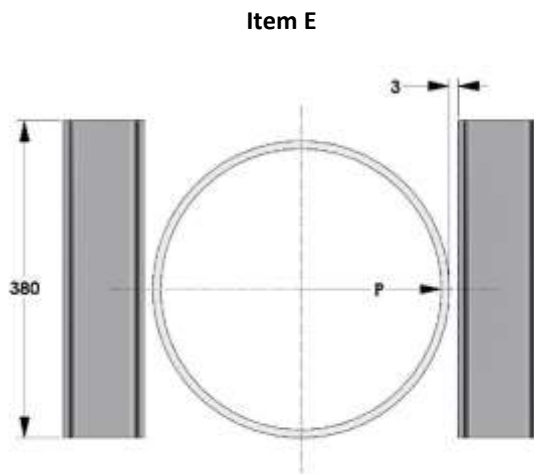
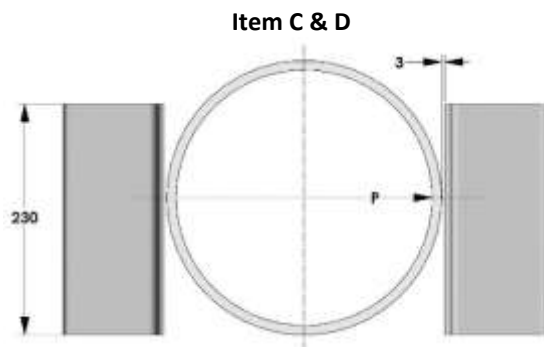
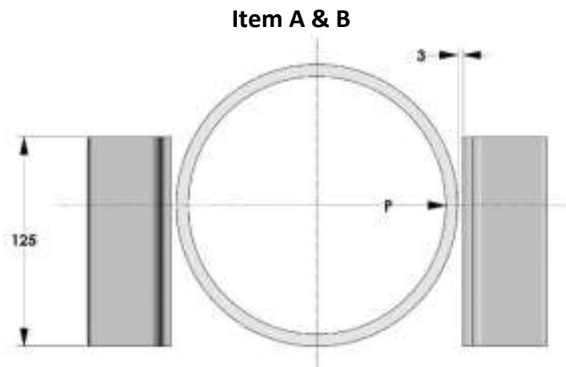
Material	
Types A to J	Carbon Steel
Surface Finish	
Types A to J	Mill Finish

General Notes

- Member section, Type A is supplied as a “half” Universal Beam.
- BG555 is designed to be welded to the underside of a pipe shoe. With supporting steelwork running between the two BG555’s.
- Other finish options are available, such as painted and HDG.
- QTY of 2 standard line pipe stops supplied per Part No.
- Please refer to page 6 for material standards and specifications.

Type	Description	Pipeline Size	Dim A	Max Load P	Member Size	Part No.
		NB	mm	kg		
A	Standard Line Stops Type A	25 to 150	133	4,386	200UB 25.4	555001
B	Standard Line Stops Type B	200 to 350	150	4,896	10mm Plate	555002
C	Standard Line Stops Type C	400	200	4,896	10mm Plate	555003
D	Standard Line Stops Type D	450 to 500	250	4,886	10mm Plate	555004
E	Standard Line Stops Type E	600 to 650	300	4,886	10mm Plate	555005
F	Standard Line Stops Type F	700 to 800	450	8,874	10mm Plate	555006
G	Standard Line Stops Type G	850 to 900	500	8,874	10mm Plate	555007
H	Standard Line Stops Type H	950 to 1000	550	8,874	10mm Plate	555008
J	Standard Line Stops Type J	1050 to 1500	600	8,874	10mm Plate	555009

8.27 BG560 STANDARD PIPE GUIDES



When ordering, please quote the Part No. for required type.

	Material
Types A to E	Carbon Steel
	Surface Finish
Types A to E	Mill Finish

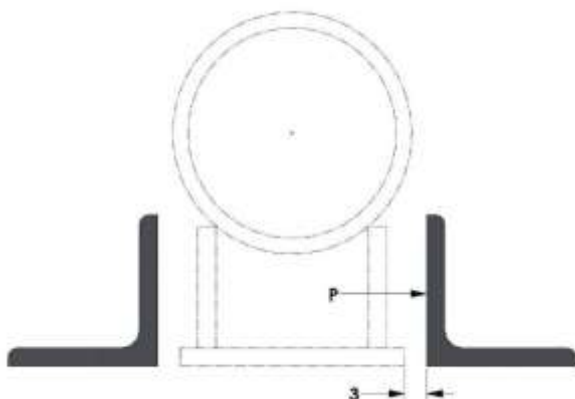
General Notes

- For stainless steel pipes, a 3mm stainless steel (Gr.304) shim plate is recommended to be welded to the guides.
- Other finish options are available, such as painted and HDG.
- Standard Pipe Guides are supplied in pairs.
- Please refer to page 6 for material standards and specifications.

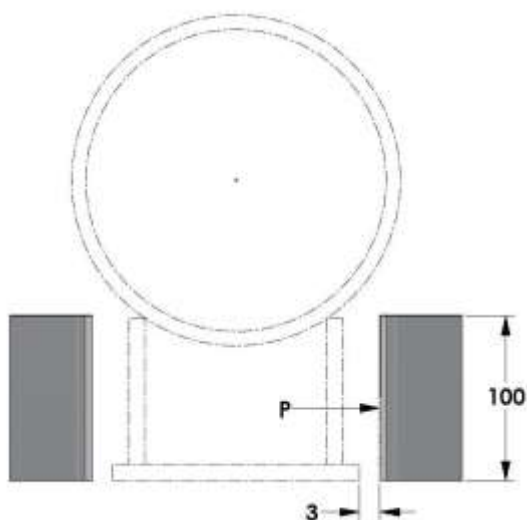
Type	Description	Pipeline Size	Max Load P	Member Size	Part No.
		NB	kg		
A	Standard Shoe Guide Type A	25 to 150	227	50 x 50 x 6 EA	560001
B	Standard Shoe Guide Type B	25 to 150	336	75 x 75 x 8 EA	560002
C	Standard Shoe Guide Type C	200 to 300	867	100 x 100 x 6 EA	560003
D	Standard Shoe Guide Type D	200 to 300	1,000	125 x 125 x 8 EA	560004
E	Standard Shoe Guide Type E	350 to 700	918	100UC15	560005

8.28 BG570 STANDARD SHOE GUIDES

LINE SIZE RANGE 25NB to 200NB



LINE SIZE RANGE 250NB to 700NB



When ordering, please quote the Part No. for required type.

	Material
Type F to P	Carbon Steel
	Surface Finish
Type A to E	Mill Finish

General Notes

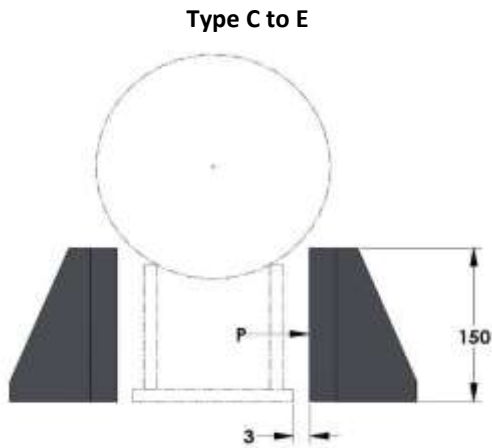
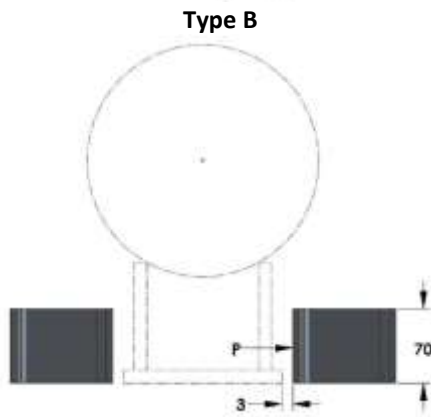
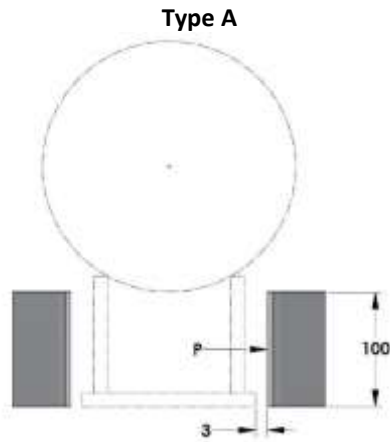
- For stainless steel pipe shoes, a 3mm stainless steel shim plate is recommended to be welded to the guides.
- Other finish options are available, such as painted and HDG.
- Standard Shoe Guides are supplied in pairs.
- Please refer to page 6 for material standards and specifications.

Type	Description	Pipeline Size	Max Load P	Member Size	Part No.
		NB	kg		
F	Standard Shoe Guide Type F	25 to 80	680	50 x 50 x 6EA	570001
G	Standard Shoe Guide Type G	100	1,050	50 x 50 x 6EA	570002
H	Standard Shoe Guide Type H	150	1,090	50 x 50 x 6EA	570003
J	Standard Shoe Guide Type J	200	2,140	50 x 50 x 6EA	570004
K	Standard Shoe Guide Type K	250	2,140	100 x 50PFC	570005
L	Standard Shoe Guide Type L	300 to 350	3,570	100 x 50PFC	570006
M	Standard Shoe Guide Type M	400	3,870	100 x 50PFC	570007
N	Standard Shoe Guide Type N	450 to 500	3,870	100 x 50PFC	570008
P	Standard Shoe Guide Type P	600 to 700	3,870	100 x 50PFC	570009

8.29 BG580 STANDARD SHOE GUIDES

For Large Diameter Pipes or Trunnions

When ordering, please quote the Part No. for required type.












Material	
Type A to E	Carbon Steel
Surface Finish	
Type A to E	Mill Finish

General Notes

- For stainless steel pipe shoes, a 3mm stainless steel Gr.304) shim plate is recommended to be welded to the guides.
- Other finish options are available, such as painted and HDG.
- QTY of 2 standard shoe guides supplied per Part No.
- Please refer to page 6 for material standards and specifications.

Type	Description	Member Width	Member Size	Max Load P (kg)	Part No.
A	Standard Shoe Guide Type A	100	100 x 50PFC	3,870	580001
B	Standard Shoe Guide Type B	99	100UC15	8,870	580002
C	Standard Shoe Guide Type C	330	25mm Plate	13,250	580003
D	Standard Shoe Guide Type D	435	25mm Plate	16,300	580004
E	Standard Shoe Guide Type E	475	25mm Plate	28,000	580005

9. VARIABLE LOAD SPRING SUPPORTS

VARIABLE LOAD SPRING SUPPORTS					
Model	Type A	Type B	Type C	Type D	
TYPE					
PAGE	Page 82	Page 82	Page 82	Page 82	Page
VARIABLE LOAD SPRING SUPPORTS					
Model	Type E	Type F	Type G	Type H	Type K
TYPE					
PAGE	Page 82	Page 82	Page 82	Page 82	Page 82

9.1 BV35, BV70, BV140, BV210. VARIABLE LOAD SPRING SUPPORTS

GENERAL

Variable load spring supports are used for supporting pipe work, vessels, columns and pipe connections to large tanks, that are subject to thermal movement and/or subsidence.

They are used when it is not possible to use rigid hangers and Constant load spring supports would be uneconomical.

For small vertical movements, up to about 75mm the variable load spring support is recommended. The Binder Group manufactures four basic travel range units. These are BV35, BV70, BV140 and BV210 and have a maximum working range of 35mm, 70mm, 140mm and 210mm respectively.

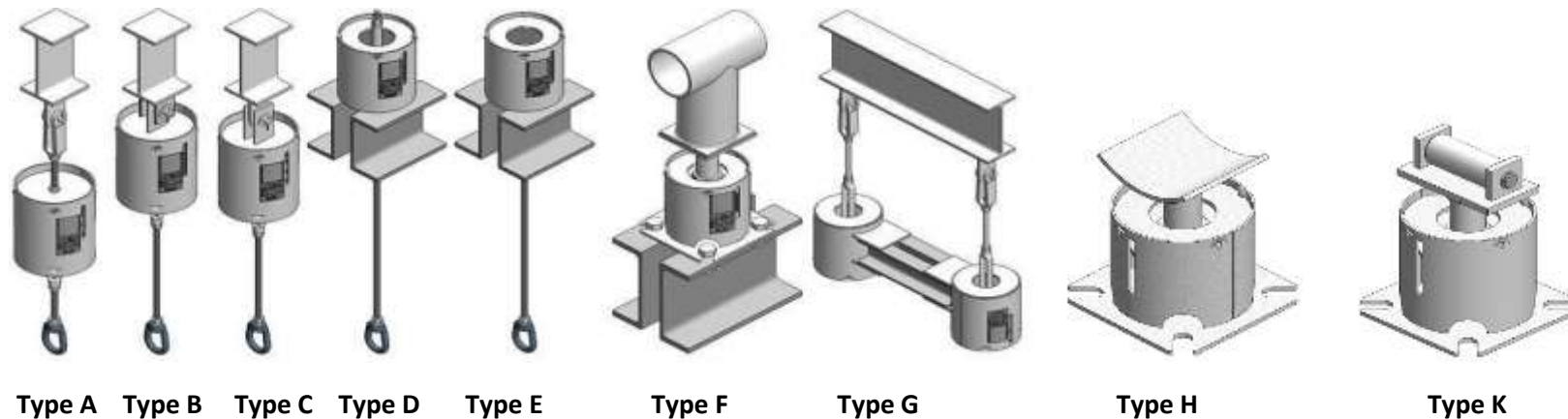
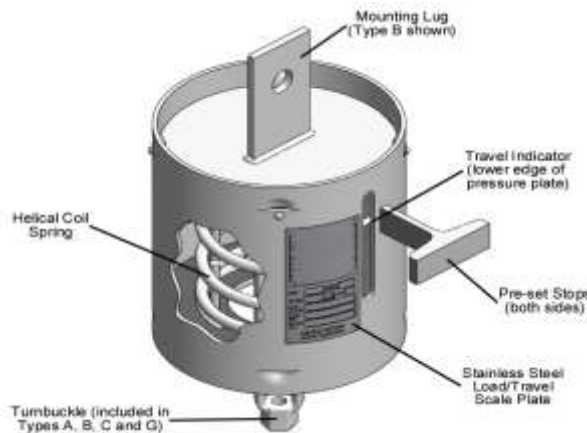
This full travel may be used provided the necessary calculations are carried out to ensure that the pipe work and nozzle connections can withstand the large changes that occur during pipe movement.

Most international standards advise a maximum load variation of 25%, it is therefore recommended to select a variable effort spring support on this basis. Care should always be taken to ensure that the selected unit has sufficient travel available to permit the free vertical movement of the pipe when moving from the cold to hot position.

In keeping with generally accepted practice, we recommend that the pipe load is correctly supported when the pipe is in its normal working position. This ensures that no abnormal or excessive forces, due to out of balance supporting effort, is transferred to the pipe work in its stressed working condition.

STANDARD DESIGN

- All units are easily adjusted, Types A, B, C and G being supplied with a Turnbuckle built into the unit. Type F, H & K units use a threaded load tube with a guided load column.
- Carbon Steel construction with Stainless Steel scale plate.
- Ideally suited for highly corrosive environments such as Offshore and Refining installations. Standard design allows surface protection system on all internal and external surfaces limiting potential corrosion.
- Scale plate fitted with a Hot/Operating (Red) and Cold/Pre-Set (Blue) indicators.



BV35, BV70, BV140, BV210. VARIABLE LOAD SPRING SUPPORTS (.....continued)

STANDARD DESIGN

- Compact design saving headroom, this is particularly important in Offshore applications where space is a premium.
- Load indicator visible from both sides of the unit.
- Spring pressure plate ensures the coil is always centred in the can.
- Every size has a reserve of travel at the upper and lower limits.
- Type F units supplied inclusive of load flange.
- Pre-Set Stops - The Binder units are supplied as standard with Pre-Set travel stops locking the unit in the cold position.
- Low maintenance design.

CORROSION PROTECTION

- Standard finish is Hot Dip Galvanised to ASTM A153.
- For offshore or highly corrosive environments, the units are available in the Binder Paint System 1.
- Units are blast cleaned to AS1627 Part 4 Class 2.5, followed by a 3-coat epoxy paint system to 275-micron DFT. Final colour is Binder Blue (AS27000 B23). Other colours available.
- Helical spring coils are acrylic painted for Standard HDG units.
- Neoprene coated coils are available as an option.

OPTIONAL FEATURES

- If the unit is to be subject to a hydrostatic test load, this should be nominated at the time of ordering and a factory fitted hydrostatic test stop will be installed. Hydrostatic test stop allows up to twice the normal load to be applied during the test.
- Lifting lugs may be fitted if requested at time of order.
- Multi-Locks may be supplied if requested at time of order. These allow the support to be “locked” within the load range.
- Client nominated corrosion protection systems are available if required.
- Type F units can be provided with a low friction PTFE slide plate mounted on the load flange

SPECIFICATION

- Binder Group Spring Supports conform to the requirements of the following international specifications:
 - British Standard BS 3974.
 - MSS SP 58.
 - ASME B31.1
 - ASME B31.3

QUALITY ASSURANCE & QUALITY CONTROL

- Binder Group maintains a quality system that conforms to Australian Standard AS/NZS ISO 9002.
- Inspection & Test Plans and Quality Plans are available for all orders if required. These should be nominated by the client at time of inquiry or order.
- Quality and Spring unit performance reports are available for all units manufactured and supplied by Binder Group.

WHEN ORDERING

When ordering please nominate:

- Support model, size and type. Typically, BV70-F-15. Then go to Page 84 and Page 85 to select the corresponding Part Number. If in doubt, our Engineers will be happy to assist in selection.
- To help our Engineers select the correct size, please supply Hot (or Cold) load (kg or kN), movement (mm) and direction of movement up or down (+ or -).
- Whether hydrostatic stops are required and if so hydrostatic load.
- Corrosion protection system required.
- Support identification reference for inclusion on the scale plate.

BV35, BV70, BV140, BV210. VARIABLE LOAD SPRING SUPPORTS (.....continued)

TYPE SELECTION

The type of spring support to be used is normally determined by the physical characteristics of the structure to which the spring assembly will be attached, as shown by the typical applications.

METHOD OF SELECTION

To select the correct spring hanger size, it is necessary to know the actual load which the spring is to support (inclusive of pipe weight, insulation, contents and ancillary equipment). Also, the magnitude and direction of the pipe line movement from the cold to the hot position. The cold load (pre-set load) is calculated by adding up movement) or subtracting (down movement) the product of the spring rate times the movement to the hot load, e.g.:

- Cold Load (MVT.UP) = Hot Load + (MVT. x Spring Rate).
- Cold Load (MVT.DN) = Hot Load - (MVT. x Spring Rate).

USING THE SELECTION TABLE (EITHER N or kg)

1. Select the actual support load in the body of the table.
2. Check that the support travel can be accommodated within the recommended working range of the unit size selected by reading the table up or down, dependent on the pipe movement direction. It should be noted that the chart must be read opposite from the direction of the pipe movement.
3. If the movement can be accommodated, then by using 25% as the maximum load change cold to hot the travel series can be established.

$$\text{Variability (\% Load Change)} = \frac{\text{Movement x Spring Rate x 100}}{\text{Hot Load}}$$

EXAMPLE:-

Hot Load = 10789 N.

Pipe Movement 20 mm down cold to hot.

Maximum variation from cold to hot load = 25 %.

USING THE NEWTON SELECTION TABLE

Enter table at 10789 N. This is located in size 12 column. Since the pipe movement is down, move up the column for a distance of 20 mm. This travel is acceptable for all travel series, therefore unit size 12 is selected.

CHECK VARIABILITY

$$\text{Variability (\% Load Change)} = \frac{\text{Movement x Spring Rate x 100}}{\text{Hot Load}}$$

From lower chart select spring rate for BV35,
Size 12 = 157.6 N/mm

$$V = \frac{20 \times 157.6 \times 100}{10789} = 29.2 \%$$

This would NOT be recommended.

Now select spring rate for BV70, Size 12 = 78.8 N/mm

$$V = \frac{20 \times 78.8 \times 100}{10789} = 14.6 \%$$

This is acceptable.

UNIT SELECTED WOULD BE BV70 SIZE 12

Preset Load = Hot Load - (Movement x Spring Rate)

Preset Load = 10789 - (20 x 78.8) = 9213 N

Unit to be ordered would be BV70 Size 12.

Preset Load = 9213 N. Hot Load = 10789 N.

CALCULATING THE ROD TAKE OUT FOR A HANGING TYPE SUPPORT

Having selected the support type, series and size, the next step is to calculate the rod take out. Note that the rod take out dimension listed in the various tables is given for specific types, the dimension is always given at the minimum load position. To calculate the rod take out for example BV70-A-16 Preset Load = 33861 N

At the intersection of a horizontal line from size column to a vertical line down from column headed rod take out type A – we obtain a rod take out of 390 mm. This is at the minimum load position. To this dimension we must add the amount of pre-compression from the minimum load position to the preset load position.

Return now to size selection table. Enter the body of the table where the load of 33861 N reads in the Size 16 column, moving horizontally to the left to read the amount of precompression required for a series BV70 spring. In this example the precompression is 40 mm. The rod take out = 390 + 40 = 430 mm. Other loads are treated in a similar manner. Intermediate precompression dimensions are obtained by linear interpolation.

TO CALCULATE LOADED LENGTH 'X' FOR 'F' TYPE BASE MOUNTED SUPPORT

Having selected the support type, series and size, the next step is to calculate the loaded length. Note that the loaded length dimension listed in the various tables is given as minimum and maximum.

The maximum figure should be used for calculation purposes.

EXAMPLE:-

Calculate the loaded length for BV140-F-10, preset load = 5414N.

At the intersection of a horizontal line from “hanger size” column to a vertical line down from column headed “Loaded Length X, Type Fmax.” - we obtain a height of 778mm. This is at the minimum load position. From this dimension, we must subtract the amount of precompression from the minimum load position to the preset load position. Refer now to size selection table, and enter the body of the table where the load of 5414N reads in the size 10 column and moving horizontally to the left to read the amount of precompression required for a series BV140 spring. In this example the precompression is 60mm. Therefore, the loaded length = 778 - 60 = 718mm. Other loads are treated in a similar manner. Intermediate precompression dimensions are obtained by linear interpolation.

CAUTIONARY NOTE FOR BASE MOUNTED TYPE

BV35 and BV70 all sizes.

Lateral loads on Base Mounted Supports shall be limited to **25%** of the **maximum working load**. Where higher loads are envisaged, consideration shall be given to the fitting of PTFE. slider pads or rollers (Type 'K').

BV140 all sizes. Lateral loads on Base Mounted Supports shall be limited to **15%** of the **maximum working load**. Where higher loads are envisaged, consideration shall be given to the fitting of PTFE. slider pads or rollers (Type 'K').

9.2 VARIABLE LOAD SPRING SUPPORTS – SELECTION

Loads in Newtons. Travel in mm.

	Travel Range (mm)				SIZE																						
	BV 210	BV 140	BV 70	BV 35	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Over travel ↑					196	292	375	468	652	873	1,161	1,548	2,073	2,764	3,293	4,698	6,218	8,291	11,054	14,923	20,726	27,635	36,799	48,869	64,987	86,359	115,171
					212	314	404	523	701	939	1,249	1,665	2,230	2,974	3,866	5,055	6,91	9,211	11,895	16,058	22,302	29,737	39,544	52,589	69,916	92,927	123,929
					217	322	413	535	717	961	1,287	1,704	2,283	3,044	3,957	5,174	6,848	9,131	12,175	16,436	22,828	30,437	40,526	53,829	71,563	95,116	126,849
Min Working Load ↓	0	0	0	0	222	329	423	547	734	983	1,308	1,744	2,335	3,114	4,048	5,293	7,006	9,341	12,455	16,814	23,353	31,138	41,457	55,069	73,209	97,305	129,768
	6	4	2	1	228	337	432	559	750	1,005	1,337	1,783	2,388	3,184	4,138	5,412	7,164	9,551	12,735	17,193	23,879	31,838	42,389	56,309	74,855	99,494	132,687
	12	8	4	2	233	344	441	574	767	1,027	1,367	1,822	2,440	3,254	4,230	5,532	7,321	9,762	13,015	17,571	24,404	32,539	43,321	57,549	76,501	101,683	135,607
	18	12	6	3	238	351	451	584	783	1,049	1,396	1,861	2,493	3,324	4,321	5,651	7,479	9,972	13,296	17,950	24,929	33,239	44,252	58,789	78,147	103,872	138,526
	24	16	8	4	243	359	460	596	800	1,071	1,426	1,901	2,545	3,394	4,412	5,770	7,636	10,182	13,576	18,327	24,455	33,940	45,184	60,209	79,974	106,061	141,445
	30	20	10	5	249	366	470	608	816	1,093	1,455	1,940	2,598	3,464	4,503	5,889	7,794	10,392	13,856	18,706	25,980	34,640	46,116	61,268	81,440	108,250	144,365
	36	24	12	6	254	373	479	621	833	1,115	1,484	1,979	2,651	3,534	4,594	6,008	7,952	10,602	14,136	19,084	26,505	35,341	47,047	62,508	83,086	110,439	147,284
	42	28	14	7	259	381	489	633	849	1,138	1,514	2,018	2,703	3,604	4,685	6,127	8,109	10,812	14,416	19,462	27,031	36,041	47,979	63,748	84,372	112,628	150,204
	48	32	16	8	264	388	498	645	866	1,160	1,543	2,058	2,756	3,674	4,776	6,246	8,267	11,022	14,697	19,840	27,556	36,742	48,911	64,988	86,378	114,818	153,123
	54	36	18	9	270	395	508	657	882	1,182	1,573	2,097	2,808	3,744	4,867	6,365	8,424	11,233	14,977	20,219	28,082	37,442	49,842	66,228	88,025	117,007	156,024
	60	40	20	10	275	403	517	670	899	1,204	1,602	2,136	2,861	3,814	4,959	6,484	8,582	11,533	15,257	20,597	28,607	38,143	50,774	67,468	89,671	119,196	158,926
	66	44	22	11	280	410	527	682	915	1,226	1,631	2,175	2,913	3,884	5,050	6,603	8,740	11,653	15,537	20,975	29,132	38,843	51,706	68,708	91,317	121,385	161,881
	72	48	24	12	285	417	536	694	931	1,248	1,661	2,214	2,966	3,954	5,141	6,722	8,897	11,863	15,817	21,354	29,658	39,544	52,638	69,948	92,963	123,574	164,800
	78	52	26	13	291	425	546	706	948	1,270	1,690	2,254	3,018	4,024	5,233	6,842	9,055	12,073	16,098	21,732	30,183	40,244	53,569	71,188	94,609	125,763	167,720
	84	56	28	14	296	432	555	719	964	1,292	1,720	2,283	3,071	4,094	5,323	6,961	9,213	12,253	16,378	22,110	30,708	40,945	54,501	72,428	96,256	127,852	170,639
	90	60	30	15	301	438	564	731	981	1,314	1,749	2,332	3,123	4,165	5,414	7,080	9,370	12,494	16,658	22,488	31,234	41,645	55,433	73,667	97,902	130,141	173,558
	96	64	32	16	306	446	574	743	997	1,336	1,779	2,371	3,176	4,235	5,555	7,199	9,528	12,704	16,938	22,867	31,759	42,346	56,364	74,907	99,548	132,330	176,478
	102	68	34	17	312	454	583	756	1,014	1,358	1,808	2,411	3,228	4,305	5,596	7,318	9,685	12,914	17,218	23,245	32,285	43,046	57,296	76,147	101,194	134,519	179,397
	108	72	36	18	317	462	593	768	1,030	1,380	1,837	2,450	3,281	4,375	5,687	7,437	9,843	13,124	17,499	23,623	32,810	43,747	58,228	77,387	102,840	136,708	182,317
	114	76	38	19	322	469	602	780	1,047	1,402	1,867	2,489	3,334	4,445	5,778	7,556	10,001	13,334	17,779	24,001	33,335	44,447	59,159	78,627	104,486	138,897	185,236
	120	80	40	20	327	476	612	792	1,063	1,424	1,896	2,528	3,386	4,515	5,869	7,675	10,158	13,544	18,059	24,380	33,861	45,148	60,091	79,867	106,133	141,087	188,155
	126	84	42	21	333	484	621	805	1,080	1,446	1,926	2,567	3,439	4,585	5,960	7,794	10,316	13,754	18,339	24,758	34,386	45,862	61,023	81,107	107,779	143,276	191,075
	132	88	44	22	338	491	631	817	1,096	1,469	1,955	2,607	3,491	4,655	6,051	7,913	10,473	13,965	18,619	25,136	34,912	46,549	61,954	82,347	109,425	145,465	193,994
	138	92	46	23	343	498	640	829	1,113	1,491	1,984	2,646	3,544	4,725	6,142	8,032	10,631	14,175	18,900	25,515	35,437	47,249	62,886	83,587	111,071	147,654	196,913
	144	96	48	24	348	506	650	841	1,129	1,513	2,014	2,685	3,596	4,795	6,233	8,151	10,789	14,385	19,180	25,893	35,962	47,950	63,818	84,827	112,717	149,846	199,833
	150	100	50	25	354	513	659	854	1,146	1,535	2,043	2,724	3,649	4,865	6,325	8,271	10,946	14,595	19,460	26,271	36,488	48,650	64,749	86,066	114,364	152,032	202,753
	156	104	52	26	359	520	668	866	1,162	1,557	2,073	2,764	3,701	4,935	6,416	8,390	11,104	14,805	19,740	26,649	37,013	49,351	65,681	87,306	116,010	154,221	205,671
162	108	54	27	364	528	678	878	1,178	1,579	2,102	2,803	3,754	5,005	6,507	8,509	11,262	15,015	20,202	27,028	37,538	50,051	66,613	88,546	117,656	156,410	208,591	
168	112	56	28	370	535	687	890	1,195	1,601	2,132	2,842	3,806	5,075	6,598	8,628	11,419	15,226	20,301	27,406	38,064	50,752	67,544	89,786	119,302	158,599	211,510	
174	116	58	29	375	542	697	903	1,211	1,623	2,161	2,881	3,859	5,145	6,689	8,747	11,577	15,436	20,581	27,784	38,589	51,452	68,476	91,026	120,948	160,788	214,430	
180	120	60	30	380	550	706	915	1,228	1,645	2,190	2,921	3,911	5,215	6,780	8,866	11,734	15,646	20,861	28,162	39,115	52,153	69,408	92,266	122,595	162,977	217,349	
186	124	62	31	385	557	716	927	1,244	1,667	2,220	2,960	3,964	5,285	6,871	8,985	11,892	15,856	21,141	28,541	39,640	52,853	70,339	93,506	124,241	165,166	220,268	
192	128	64	32	391	564	725	939	1,261	1,689	2,249	3,000	4,017	5,355	6,962	9,104	12,050	16,066	21,422	28,919	40,165	53,554	71,271	94,746	125,887	167,356	223,188	
198	132	66	33	396	572	735	952	1,277	1,711	2,279	3,039	4,069	5,425	7,053	9,223	12,207	16,276	21,702	29,297	40,691	54,254	72,203	95,986	127,533	169,545	226,107	
204	136	68	34	401	579	744	964	1,294	1,733	2,308	3,077	4,122	5,495	7,144	9,342	12,365	16,486	21,982	29,676	41,216	54,955	72,334	97,226	129,179	171,734	229,026	
210	140	70	35	406	587	754	976	1,310	1,755	2,338	3,117	4,174	5,566	7,235	9,461	12,522	16,697	22,262	30,054	41,741	55,655	74,066	98,465	130,826	173,923	231,946	
Over travel ↓					412	594	763	968	1,327	1,777	2,367	3,156	4,227	5,636	7,326	9,580	12,680	16,907	22,542	30,432	42,267	56,356	74,998	99,705	132,472	176,112	234,865
					417	601	772	1,001																			



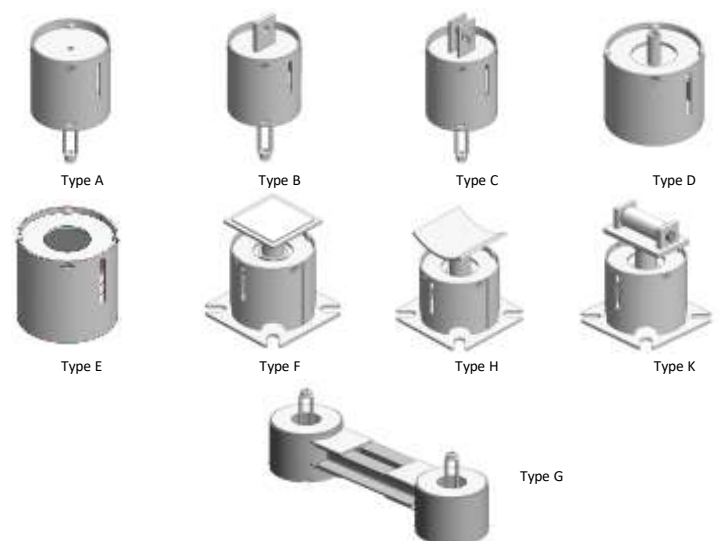
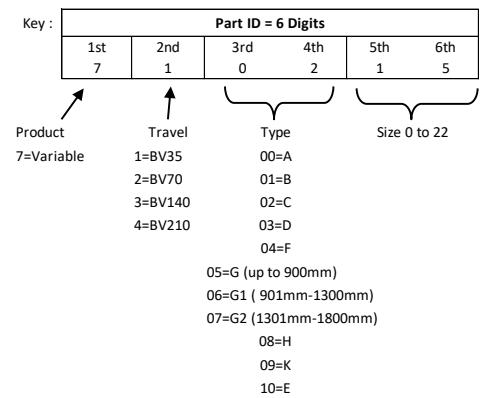
9.3 VARIABLE LOAD SPRING SUPPORTS – SELECTION

Loads in Kg. Travel in mm.

Travel Range (mm)					SIZE																						
	BV 210	BV 140	BV 70	BV 35	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Over travel	30	20	10	5	20.0	29.8	38.2	47.7	66.5	89.0	118.3	157.8	211.3	281.8	335.7	478.9	633.8	845.2	1,126.8	1,521.2	2,112.7	2,817.0	3,751.2	4,981.5	6,624.6	8,803.2	11,740.2
					21.6	32.0	41.2	53.3	71.5	95.7	127.3	169.7	227.3	303.2	394.1	515.3	70.4	909.4	1,212.5	1,636.9	2,273.4	3,031.3	4,031.0	5,360.8	7,127.0	9,472.7	12,632.9
					22.1	32.8	42.1	54.5	73.1	98.0	131.2	173.7	232.7	310.3	403.4	527.4	698.1	930.8	1,241.1	1,675.4	2,327.0	3,102.7	4,131.1	5,487.2	7,294.9	9,695.8	12,930.6
Min Working Load	0	0	0	0	22.6	33.5	43.1	55.8	74.8	100.2	133.3	177.8	238.0	317.4	412.6	539.6	714.2	952.2	1,269.6	1,714.0	2,380.5	3,174.1	4,226.0	5,613.6	7,462.7	9,919.0	13,228.1
	6	4	2	1	23.2	34.4	44.0	57.0	76.5	102.4	136.3	181.8	243.4	324.6	421.8	551.7	730.3	973.6	1,298.2	1,752.6	2,434.1	3,245.5	4,321.0	5,740.0	7,630.5	10,142.1	13,525.7
Recommended Working Range of Springs	12	8	4	2	23.8	35.1	45.0	58.3	78.2	104.7	139.3	185.7	248.7	331.7	431.2	563.9	746.3	995.1	1,326.7	1,791.1	2,487.7	3,316.9	4,416.0	5,866.4	7,798.3	10,365.2	13,823.3
	18	12	6	3	24.3	35.8	46.0	59.5	79.8	106.9	142.3	189.7	254.1	338.8	440.5	576.0	762.4	1,016.5	1,355.4	1,829.8	2,541.2	3,388.3	4,510.9	5,992.8	7,966.1	10,588.4	14,120.9
Max Working Load	24	16	8	4	24.8	36.6	46.9	60.8	81.5	109.2	145.4	193.8	259.4	346.0	449.7	588.2	778.4	1,037.9	1,383.9	1,868.2	2,492.9	3,459.7	4,605.9	6,119.2	8,152.3	10,811.5	14,418.5
	30	20	10	5	25.4	37.3	47.9	62.0	83.2	111.4	148.3	197.8	264.8	353.1	459.0	600.3	794.5	1,059.3	1,412.4	1,906.8	2,648.3	3,531.1	4,700.9	6,245.5	8,301.7	11,034.7	14,716.1
Over travel	36	24	12	6	25.9	38.0	48.8	63.3	84.9	113.7	151.3	201.7	270.2	360.2	468.3	612.4	810.6	1,080.7	1,441.0	1,945.4	2,701.8	3,602.5	4,795.8	6,371.9	8,469.5	11,257.8	15,013.7
	42	28	14	7	26.4	38.8	49.8	64.5	86.5	116.0	154.3	205.7	275.5	367.4	477.6	624.6	826.6	1,102.1	1,469.5	1,983.9	2,755.5	3,673.9	4,890.8	6,498.3	8,600.6	11,480.9	15,311.3
Min Working Load	48	32	16	8	26.9	39.6	50.8	65.7	88.3	118.2	157.3	209.8	280.9	374.5	486.9	636.8	842.7	1,123.5	1,498.2	2,022.4	2,809.0	3,745.4	4,985.8	6,624.7	8,805.1	11,704.2	15,608.9
	54	36	18	9	27.5	40.3	51.8	67.0	89.9	120.5	160.3	213.8	286.2	381.7	496.1	648.8	858.7	1,145.1	1,526.7	2,061.1	2,862.6	3,816.7	5,080.7	6,751.1	8,973.0	11,927.3	15,904.6
Recommended Working Range of Springs	60	40	20	10	28.0	41.1	52.7	68.3	91.6	122.7	163.3	217.7	291.6	388.8	505.5	661.0	874.8	1,175.6	1,555.2	2,099.6	2,916.1	3,888.2	5,175.7	6,877.5	9,140.8	12,150.5	16,200.4
	66	44	22	11	28.5	41.8	53.7	69.5	93.3	125.0	166.3	221.7	296.9	395.9	514.8	673.1	890.9	1,187.9	1,583.8	2,138.1	2,969.6	3,959.5	5,270.7	7,003.9	9,308.6	12,373.6	16,501.6
Max Working Load	72	48	24	12	29.1	42.5	54.6	70.7	94.9	127.2	169.3	225.7	302.3	403.1	524.1	685.2	906.9	1,209.3	1,612.3	2,176.8	3,023.2	4,031.0	5,365.7	7,130.3	9,476.4	12,596.7	16,799.2
	78	52	26	13	29.7	43.3	55.7	72.0	96.6	129.5	172.3	229.8	307.6	410.2	542.6	697.5	923.0	1,230.7	1,641.0	2,215.3	3,076.8	4,102.3	5,460.7	7,256.7	9,644.1	12,819.9	17,096.8
Recommended Working Range of Springs	84	56	28	14	30.2	44.0	56.6	73.3	98.3	131.7	175.3	233.7	313.0	417.3	542.6	709.6	939.1	1,252.1	1,669.5	2,253.8	3,130.3	4,173.8	5,555.7	7,383.1	9,812.0	13,043.0	17,394.4
	90	60	30	15	30.7	44.6	57.5	74.5	100.0	133.9	178.3	237.7	318.3	424.6	551.9	721.7	955.1	1,273.6	1,698.1	2,292.4	3,183.9	4,245.2	5,650.7	7,509.4	9,979.8	13,262.2	17,691.9
Max Working Load	96	64	32	16	31.2	45.5	58.5	75.7	101.6	136.2	181.3	241.7	323.8	431.7	566.3	733.8	971.3	1,295.0	1,726.6	2,331.0	3,237.4	4,316.6	5,745.6	7,635.8	10,147.6	13,489.3	17,989.6
	102	68	34	17	31.8	46.3	59.4	77.1	103.4	138.4	184.3	245.8	329.1	438.8	570.4	746.0	987.3	1,316.4	1,755.1	2,369.5	3,291.0	4,388.0	5,840.6	7,762.2	10,315.4	13,712.4	18,287.2
Recommended Working Range of Springs	108	72	36	18	32.3	47.1	60.4	78.3	105.0	140.7	187.3	249.7	334.5	446.0	579.7	758.1	1,003.4	1,337.8	1,783.8	2,408.1	3,344.5	4,459.4	5,935.6	7,888.6	10,483.2	13,935.6	18,584.8
	114	76	38	19	32.8	47.8	61.4	79.5	106.7	142.9	190.3	253.7	339.9	453.1	589.0	770.2	1,019.5	1,359.2	1,812.3	2,446.6	3,398.1	4,530.8	6,030.5	8,015.0	10,651.0	14,158.7	18,882.4
Max Working Load	120	80	40	20	33.3	48.5	62.4	80.7	108.4	145.2	193.3	257.7	345.2	460.2	598.3	782.4	1,035.5	1,380.6	1,840.9	2,485.2	3,451.7	4,602.2	6,125.5	8,141.4	10,818.9	14,382.0	19,179.9
	126	84	42	21	33.9	49.3	63.3	82.1	110.1	147.4	196.3	261.7	350.6	467.4	607.5	794.5	1,051.6	1,402.0	1,869.4	2,523.8	3,505.2	4,675.0	6,220.5	8,267.8	10,986.6	14,605.1	19,477.6
Recommended Working Range of Springs	132	88	44	22	34.5	50.1	64.3	83.3	111.7	149.7	199.3	265.7	355.9	474.5	616.8	806.6	1,067.6	1,423.5	1,898.0	2,562.3	3,558.8	4,745.1	6,315.4	8,394.2	11,154.4	14,828.2	19,775.1
	138	92	46	23	35.0	50.8	65.2	84.5	113.5	152.0	202.2	269.7	361.3	481.7	626.1	818.8	1,083.7	1,445.0	1,926.6	2,600.9	3,612.3	4,816.4	6,410.4	8,520.6	11,322.2	15,051.4	20,072.7
Max Working Load	144	96	48	24	35.5	51.6	66.3	85.7	115.1	154.2	205.3	273.7	366.6	488.8	635.4	830.9	1,099.8	1,466.4	1,955.1	2,639.4	3,665.9	4,887.9	6,505.4	8,647.0	11,490.0	15,274.8	20,370.3
	150	100	50	25	36.1	52.3	67.2	87.1	116.8	156.5	208.3	277.7	372.0	495.9	644.8	843.1	1,115.8	1,487.8	1,983.7	2,678.0	3,719.5	4,959.2	6,600.3	8,773.3	11,657.9	15,497.7	20,668.0
Recommended Working Range of Springs	156	104	52	26	36.6	53.0	68.1	88.3	118.5	158.7	211.3	281.8	377.3	503.1	654.0	855.2	1,131.9	1,509.2	2,012.2	2,716.5	3,773.0	5,030.7	6,695.3	8,899.7	11,825.7	15,720.8	20,965.4
	162	108	54	27	37.1	53.8	69.1	89.5	120.1	161.0	214.3	285.7	382.7	510.2	663.3	867.4	1,148.0	1,530.6	2,040.8	2,755.1	3,826.5	5,102.0	6,790.3	9,026.1	11,993.5	15,943.9	21,263.1
Max Working Load	168	112	56	28	37.7	54.5	70.0	90.7	121.8	163.2	217.3	289.7	388.0	517.3	672.6	879.5	1,164.0	1,552.1	2,069.4	2,793.7	3,880.1	5,173.5	6,885.2	9,152.5	12,161.3	16,167.1	21,560.7
	174	116	58	29	38.2	55.2	71.0	92.0	123.4	165.4	220.3	293.7	393.4	524.5	681.9	891.6	1,180.1	1,573.5	2,098.0	2,832.2	3,933.6	5,244.9	6,980.2	9,278.9	12,329.1	16,390.2	22,439.3
Recommended Working Range of Springs	180	120	60	30	38.7	56.1	72.0	93.3	125.2	167.7	223.2	297.8	398.7	531.6	691.1	903.8	1,196.1	1,594.9	2,126.5	2,870.7	3,987.3	5,316.3	7,075.2	9,405.3	12,496.9	16,613.4	22,155.9
	186	124	62	31	39.2	56.8	73.0	94.5	126.8	169.9	226.3	301.7	404.1	538.7	700.4	915.9	1,212.2	1,616.3	2,155.0	2,909.4	4,040.8	5,387.7	7,170.1	9,531.7	12,664.7	16,836.5	22,453.4
Max Working Load	192	128	64	32	39.9	57.5	73.9	95.7	128.5	172.2	229.3	305.8	409.5	545.9	709.7	928.0	1,228.3	1,637.7	2,183.7	2,947.9	4,094.3	5,459.1	7,265.1	9,658.1	12,832.5	17,059.7	22,751.1
	198	132	66	33	40.4	58.3	74.9	97.0	130.2	174.4	232.3	309.8	414.8	553.0	719.0	940.2	1,244.3	1,659.1	2,212.2	2,986.4	4,147.9	5,530.5	7,360.1	9,784.5	13,000.3	17,282.9	23,048.6
Recommended Working Range of Springs	204	136	68	34	40.9	59.0	75.8	98.3	131.9	176.7	235.3	313.7	420.2	560.1	728.2	952.3	1,260.4	1,680.5	2,240.8	3,025.1	4,201.4	5,601.9	7,353.1	9,910.9	13,168.1	17,506.0	23,346.2
	210	140	70	35	41.4	59.8	76.9	99.5	133.5	178.9	238.3	317.7	425.5	567.4	737.5	964.4	1,276.5	1,702.0	2,269.3	3,063.6	4,254.9	5,673.3	7,550.1	10,037.2	13,336.0	17,729.2	23,643.8
Over travel	30	20	10	5	42.0	60.6	77.8	98.7	135.3	181.1	241.3	321.7	430.9	574.5	746.8	976.6	1,292.6	1,723.4	2,297.9	3,102.1	4,308.6	5,744.8	7,645.1	10,163.6	13,503.8	17,952.3	23,941.4
					42.5	61.3	78.7	102.0	136.9	183.4	244.2	325.7	436.2	581.7	756.1	988.8											

9.4 VARIABLE LOAD SPRING SUPPORTS – PART ID TABLE

		Size																						
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Type A	BV 35	710000	710001	710002	710003	710004	710005	710006	710007	710008	710009	710010	710011	710012	710013	710014	710015	710016	710017	710018	710019	710020	710021	710022
	BV 70	720000	720001	720002	720003	720004	720005	720006	720007	720008	720009	720010	720011	720012	720013	720014	720015	720016	720017	720018	720019	720020	720021	720022
	BV 140	730000	730001	730002	730003	730004	730005	730006	730007	730008	730009	730010	730011	730012	730013	730014	730015	730016	730017	730018	730019	730020	730021	730022
	BV 210	740000	740001	740002	740003	740004	740005	740006	740007	740008	740009	740010	740011	740012	740013	740014	740015	740016	740017	740018	740019	740020	740021	740022
Type B	BV 35	710100	710101	710102	710103	710104	710105	710106	710107	710108	710109	710110	710111	710112	710113	710114	710115	710116	710117	710118	710119	710120	710121	710122
	BV 70	720100	720101	720102	720103	720104	720105	720106	720107	720108	720109	720110	720111	720112	720113	720114	720115	720116	720117	720118	720119	720120	720121	720122
	BV 140	730100	730101	730102	730103	730104	730105	730106	730107	730108	730109	730110	730111	730112	730113	730114	730115	730116	730117	730118	730119	730120	730121	730122
	BV 210	740100	740101	740102	740103	740104	740105	740106	740107	740108	740109	740110	740111	740112	740113	740114	740115	740116	740117	740118	740119	740120	740121	740122
Type C	BV 35	710200	710201	710202	710203	710204	710205	710206	710207	710208	710209	710210	710211	710212	710213	710214	710215	710216	710217	710218	710219	710220	710221	710222
	BV 70	720200	720201	720202	720203	720204	720205	720206	720207	720208	720209	720210	720211	720212	720213	720214	720215	720216	720217	720218	720219	720220	720221	720222
	BV 140	730200	730201	730202	730203	730204	730205	730206	730207	730208	730209	730210	730211	730212	730213	730214	730215	730216	730217	730218	730219	730220	730221	730222
	BV 210	740200	740201	740202	740203	740204	740205	740206	740207	740208	740209	740210	740211	740212	740213	740214	740215	740216	740217	740218	740219	740220	740221	740222
Type D	BV 35	710300	710301	710302	710303	710304	710305	710306	710307	710308	710309	710310	710311	710312	710313	710314	710315	710316	710317	710318	710319	710320	710321	710322
	BV 70	720300	720301	720302	720303	720304	720305	720306	720307	720308	720309	720310	720311	720312	720313	720314	720315	720316	720317	720318	720319	720320	720321	720322
	BV 140	730300	730301	730302	730303	730304	730305	730306	730307	730308	730309	730310	730311	730312	730313	730314	730315	730316	730317	730318	730319	730320	730321	730322
	BV 210	740300	740301	740302	740303	740304	740305	740306	740307	740308	740309	740310	740311	740312	740313	740314	740315	740316	740317	740318	740319	740320	740321	740322



Notes :

- G Type units available in three width ranges. Please supply rod centre dimension with order.
- F Type units. Client to advise if a PTFE slide plate is required. (See cautionary note Page 91)

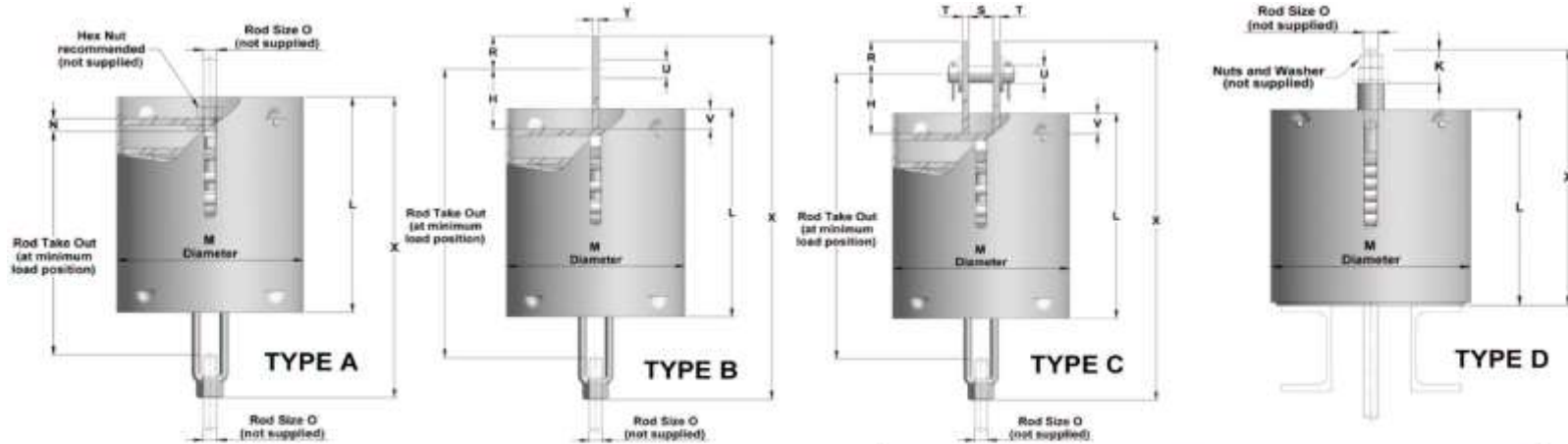
Ordering Information

Please select Part ID from table for required Variable Type and Size, and specify required surface finish.

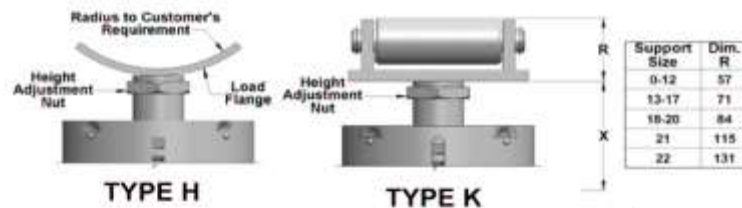
VARIABLE LOAD SPRING SUPPORTS – PART ID TABLE (Continued)

		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
		Size																						
Type E	BV 35	711000	711001	711002	711003	711004	711005	711006	711007	711008	711009	711010	711011	711012	711013	711014	711015	711016	711017	711018	711019	711020	711021	711022
	BV 70	721000	721001	721002	721003	721004	721005	721006	721007	721008	721009	721010	721011	721012	721013	721014	721015	721016	721017	721018	721019	721020	721021	721022
	BV 140	731000	731001	731002	731003	731004	731005	731006	731007	731008	731009	731010	731011	731012	731013	731014	731015	731016	731017	731018	731019	731020	731021	731022
	BV 210	741000	741001	741002	741003	741004	741005	741006	741007	741008	741009	741010	741011	741012	741013	741014	741015	741016	741017	741018	741019	741020	741021	741022
Type F	BV 35	710400	710401	710402	710403	710404	710405	710406	710407	710408	710409	710410	710411	710412	710413	710414	710415	710416	710417	710418	710419	710420	710421	710422
	BV 70	720400	720401	720402	720403	720404	720405	720406	720407	720408	720409	720410	720411	720412	720413	720414	720415	720416	720417	720418	720419	720420	720421	720422
	BV 140	730400	730401	730402	730403	730404	730405	730406	730407	730408	730409	730410	730411	730412	730413	730414	730415	730416	730417	730418	730419	730420	730421	730422
	BV 210	740400	740401	740402	740403	740404	740405	740406	740407	740408	740409	740410	740411	740412	740413	740414	740415	740416	740417	740418	740419	740420	740421	740422
Type G = For rod centres upto 900mm / light duty beam																								
Type G	BV 35	710500	710501	710502	710503	710504	710505	710506	710507	710508	710509	710510	710511	710512	710513	710514	710515	710516	710517	710518	710519	710520	710521	710522
	BV 70	720500	720501	720502	720503	720504	720505	720506	720507	720508	720509	720510	720511	720512	720513	720514	720515	720516	720517	720518	720519	720520	720521	720522
	BV 140	730500	730501	730502	730503	730504	730505	730506	730507	730508	730509	730510	730511	730512	730513	730514	730515	730516	730517	730518	730519	730520	730521	730522
	BV 210	740500	740501	740502	740503	740504	740505	740506	740507	740508	740509	740510	740511	740512	740513	740514	740515	740516	740517	740518	740519	740520	740521	740522
Type G1 = For rod centres between 901mm and 1300mm / medium duty beam																								
Type G1	BV 35	710600	710601	710602	710603	710604	710605	710606	710607	710608	710609	710610	710611	710612	710613	710614	710615	710616	710617	710618	710619	710620	710621	710622
	BV 70	720600	720601	720602	720603	720604	720605	720606	720607	720608	720609	720610	720611	720612	720613	720614	720615	720616	720617	720618	720619	720620	720621	720622
	BV 140	730600	730601	730602	730603	730604	730605	730606	730607	730608	730609	730610	730611	730612	730613	730614	730615	730616	730617	730618	730619	730620	730621	730622
	BV 210	740600	740601	740602	740603	740604	740605	740606	740607	740608	740609	740610	740611	740612	740613	740614	740615	740616	740617	740618	740619	740620	740621	740622
Type G2 = For rod centres between 1301mm and 1800mm / heavy duty beam																								
Type G2	BV 35	710700	710701	710702	710703	710704	710705	710706	710707	710708	710709	710710	710711	710712	710713	710714	710715	710716	710717	710718	710719	710720	710721	710722
	BV 70	720700	720701	720702	720703	720704	720705	720706	720707	720708	720709	720710	720711	720712	720713	720714	720715	720716	720717	720718	720719	720720	720721	720722
	BV 140	730700	730701	730702	730703	730704	730705	730706	730707	730708	730709	730710	730711	730712	730713	730714	730715	730716	730717	730718	730719	730720	730721	730722
	BV 210	740700	740701	740702	740703	740704	740705	740706	740707	740708	740709	740710	740711	740712	740713	740714	740715	740716	740717	740718	740719	740720	740721	740722
Type H	BV 35	710800	710801	710802	710803	710804	710805	710806	710807	710808	710809	710810	710811	710812	710813	710814	710815	710816	710817	710818	710819	710820	710821	710822
	BV 70	720800	720801	720802	720803	720804	720805	720806	720807	720808	720809	720810	720811	720812	720813	720814	720815	720816	720817	720818	720819	720820	720821	720822
	BV 140	730800	730801	730802	730803	730804	730805	730806	730807	730808	730809	730810	730811	730812	730813	730814	730815	730816	730817	730818	730819	730820	730821	730822
	BV 210	740800	740801	740802	740803	740804	740805	740806	740807	740808	740809	740810	740811	740812	740813	740814	740815	740816	740817	740818	740819	740820	740821	740822
Type K	BV 35	710900	710901	710902	710903	710904	710905	710906	710907	710908	710909	710910	710911	710912	710913	710914	710915	710916	710917	710918	710919	710920	710921	710922
	BV 70	720900	720901	720902	720903	720904	720905	720906	720907	720908	720909	720910	720911	720912	720913	720914	720915	720916	720917	720918	720919	720920	720921	720922
	BV 140	730900	730901	730902	730903	730904	730905	730906	730907	730908	730909	730910	730911	730912	730913	730914	730915	730916	730917	730918	730919	730920	730921	730922
	BV 210	740900	740901	740902	740903	740904	740905	740906	740907	740908	740909	740910	740911	740912	740913	740914	740915	740916	740917	740918	740919	740920	740921	740922

9.5 VARIABLE LOAD SPRING SUPPORTS – DIAGRAMS

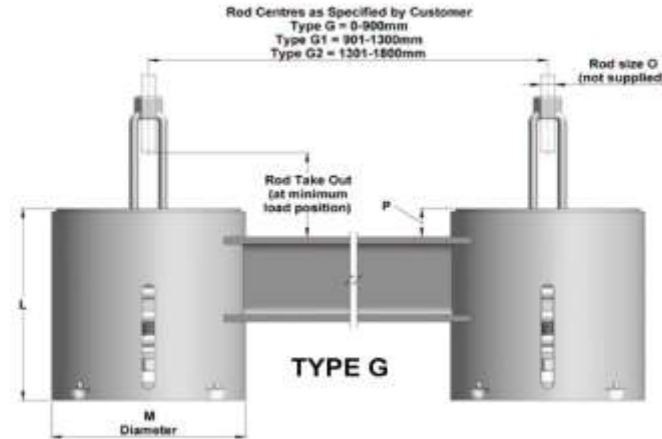
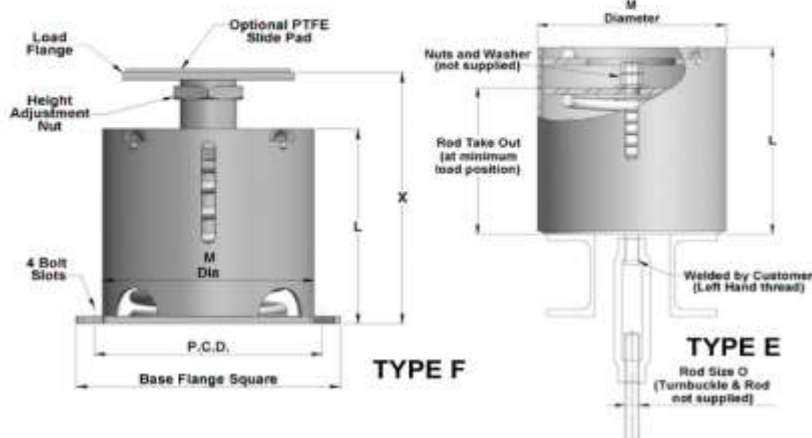


GENERAL NOTE:
 Sizes 0-17 are manufactured utilising the dimpled casing construction.
 Sizes 18-22 are manufactured as a totally welded unit.



SITE ADJUSTMENT:
 TYPES A, B, C & G $\pm 75\text{mm}$
 TYPES F, H & K $\pm 25\text{mm}$

NOTE:
 When using Type G the working load must be halved to select hanger size. Add weight of hanger assembly when calculating load to be supported.



Rod Centres as Specified by Customer
 Type G = 0-900mm
 Type G1 = 901-1300mm
 Type G2 = 1301-1800mm

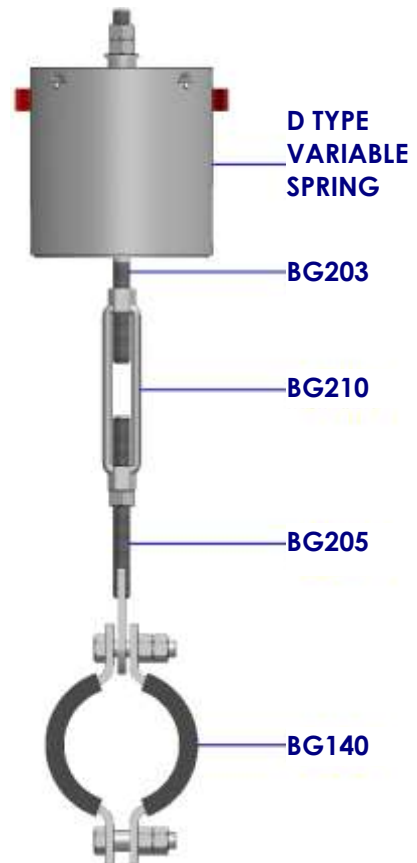
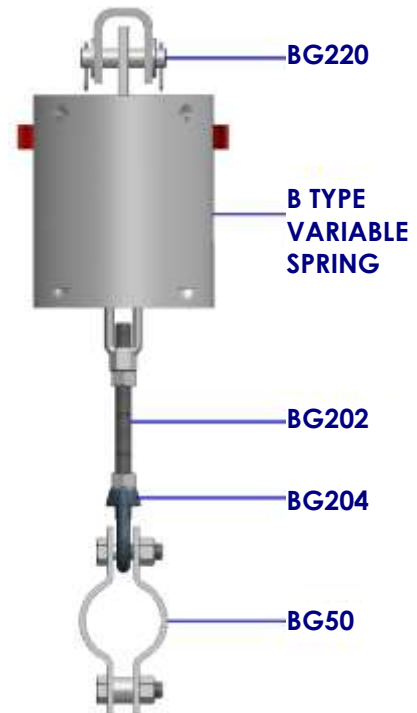
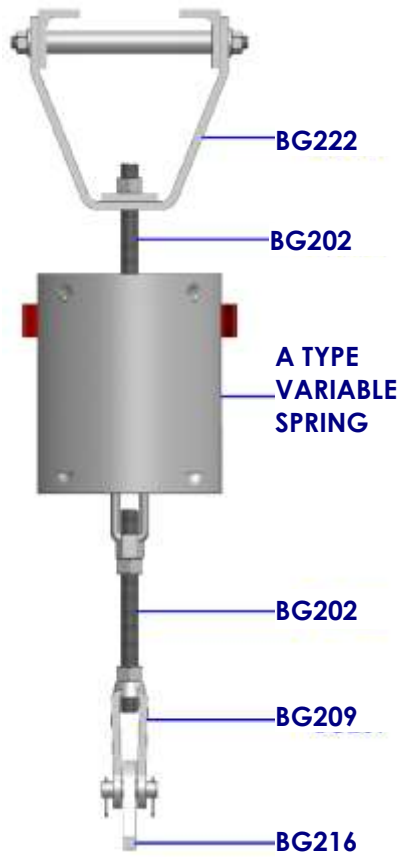
9.7 BV70 VARIABLE LOAD SPRING SUPPORT – TABLE OF DIMENSIONS

SPRING SIZE	ROD SIZE	CASING DIA	CASING LENGTH 'L'						ROD TAKE OUT				THRD DEPTH TYPE A	TYPES B & C						TYPE F						TYPE G			LOADED LENGTH 'X'												WEIGHT (APPROX) kgs			
			TYPES			TYPES			DIMENSIONS						BASE FLANGE SQUARE	PCD BASE FLANGE	BASE FLANGE BOLTS	BASE FLANGE THICK	LOAD FLANGE SQUARE	LOAD FLANGE THICK	SPACE BETWEEN CHANNEL 'W'	P	BEAM SECTION			TYPE A		TYPE B & C		TYPE D			TYPE F		TYPES									
			A,B,&C	D, E & G	F	A	B & C	E	G	N	U	H		R									S	T	V	900MM ROD CENTRES	1300MM ROD CENTRES	1800MM ROD CENTRES	MIN	MAX	MIN	MAX	MIN	MAX	K	MIN	MAX	A,B,C	D,E	F	G			
			O	M																																								
0	M12	114	220	190	180	182	252	150	52	12	18	64	32	22	6	20	150	160	M16	6	130	6	16	38	75 PFC	75 PFC	75 PFC	284	354	354	424	204	274	24	233	303	5	4	6	17				
1	M12	114	240	210	197	202	272	167	52	12	18	64	32	22	6	20	150	160	M16	6	130	6	16	38	75 PFC	75 PFC	75 PFC	304	374	374	444	221	291	24	255	325	6	5	6	18				
2	M12	114	260	230	216	220	290	186	50	12	18	64	32	22	6	20	150	160	M16	6	130	6	16	38	75 PFC	75 PFC	75 PFC	322	392	392	462	240	310	24	274	344	7	5	7	20				
3	M12	160	235	205	192	199	269	162	67	12	18	64	32	22	6	20	200	197	M20	6	130	6	20	51	75 PFC	75 PFC	75 PFC	301	371	371	441	216	286	24	252	322	7	6	8	21				
4	M12	160	255	225	208	211	280	178	59	12	18	64	32	22	6	20	200	197	M20	6	130	6	20	51	75 PFC	75 PFC	75 PFC	313	383	382	452	232	302	24	268	338	7	7	9	22				
5	M12	160	270	240	226	235	305	196	68	12	18	64	32	22	6	20	200	197	M20	6	130	6	20	51	75 PFC	75 PFC	75 PFC	337	407	407	477	250	320	24	285	355	8	7	9	22				
6	M16	180	280	253	232	232	306	200	59	16	22	68	32	27	10	20	220	203	M20	8	150	10	25	51	75 PFC	75 PFC	75 PFC	342	412	412	482	263	333	33	294	364	13	10	14	31				
7	M16	180	305	278	256	255	329	224	57	16	22	68	32	27	10	20	220	203	M20	8	150	10	25	51	75 PFC	75 PFC	75 PFC	365	435	435	505	287	357	33	320	390	14	11	15	33				
8	M16	180	320	293	268	268	342	236	55	16	22	68	32	27	10	20	220	203	M20	8	150	10	25	51	75 PFC	75 PFC	75 PFC	378	448	448	518	299	369	33	331	401	15	13	17	35				
9	M20	240	330	298	273	265	360	241	81	20	26	87	35	32	10	25	260	268	M20	8	180	12	32	76	75 PFC	75 PFC	100 PFC	387	457	472	542	330	400	39	347	417	29	22	27	64				
10	M20	240	360	328	305	298	393	273	84	20	26	87	35	32	10	25	260	268	M20	8	180	12	32	76	75 PFC	75 PFC	100 PFC	420	490	505	575	362	432	39	379	449	27	23	28	59				
11	M20	240	305	273	249	271	366	217	112	20	26	87	35	37	10	25	260	268	M20	8	180	12	32	76	75 PFC	75 PFC	100 PFC	393	463	478	548	306	376	39	323	393	26	21	26	56				
12	M24	240	335	303	271	232	339	233	81	32	32	91	35	41	12	25	260	268	M20	8	180	12	38	102	100 PFC	100 PFC	125 PFC	376	446	461	531	330	400	47	339	409	31	25	30	66				
13	M30	240	395	363	336	303	436	298	92	32	38	117	49	46	12	25	260	268	M20	8	180	12	38	102	100 PFC	100 PFC	125 PFC	450	520	575	645	405	475	57	404	474	37	30	44	78				
14	M30	240	400	368	339	310	442	301	94	32	38	117	49	46	12	25	260	268	M20	8	180	12	38	102	100 PFC	100 PFC	125 PFC	457	527	581	651	408	478	57	407	477	40	33	47	85				
15	M30	250	415	390	355	344	481	306	117	36	38	127	49	51	12	25	265	278	M20	10	200	16	45	102	150 PFC	150 PFC	200 PFC	495	565	620	690	418	488	57	417	487	51	43	57	118				
16	M36	250	480	455	414	390	537	365	98	36	46	131	74	60	20	25	265	278	M20	10	200	16	45	102	150 PFC	150 PFC	200 PFC	547	617	707	777	488	558	68	475	545	64	53	68	141				
17	M42	250	545	520	466	452	599	417	95	36	50	131	74	67	20	25	265	278	M20	10	200	16	45	102	150 PFC	150 PFC	200 PFC	627	697	787	857	547	617	75	528	598	73	59	75	160				
18	M48	320	480	480	422	443	570	395	95	45	60	127	80	73	20	-5	350	400	M24	12	250	20	60	102	200 PFC	250 PFC	300 PFC	594	664	761	831	550	620	85	523	593	131	114	126	275				
19	M56	320	545	545	480	520	659	453	100	50	68	139	80	79	20	-5	350	400	M24	12	250	20	67	102	200 PFC	250 PFC	300 PFC	709	779	883	953	622	692	99	580	650	159	136	147	324				
20	M64	320	640	640	567	598	744	535	98	57	78	146	102	86	25	-5	350	400	M24	12	250	20	73	102	200 PFC	250 PFC	300 PFC	802	872	998	1068	717	787	112	663	733	196	163	173	378				
21	M72	320	735	735	648	1006	1157	623	414	68	84	150	102	92	25	-10	350	400	M24	16	250	20	79	102	300 PFC	300 PFC	380 PFC	1230	1300	1425	1495	800	870	126	733	803	270	207	216	522				
22	M80	320	900	900	807	1203	1366	778	446	68	94	163	102	98	25	-10	350	400	M24	16	250	20	86	102	300 PFC	300 PFC	380 PFC	1444	1514	1651	1721	967	1037	138	887	957	327	247	258	648				

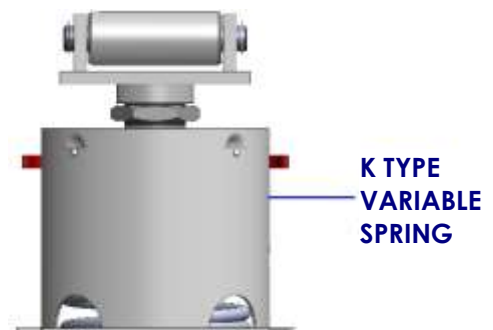
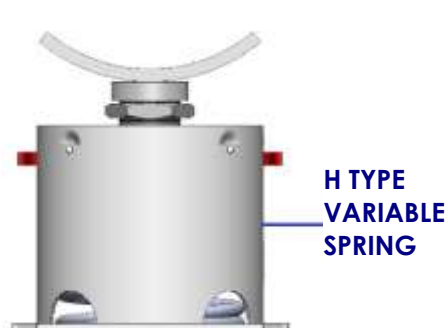
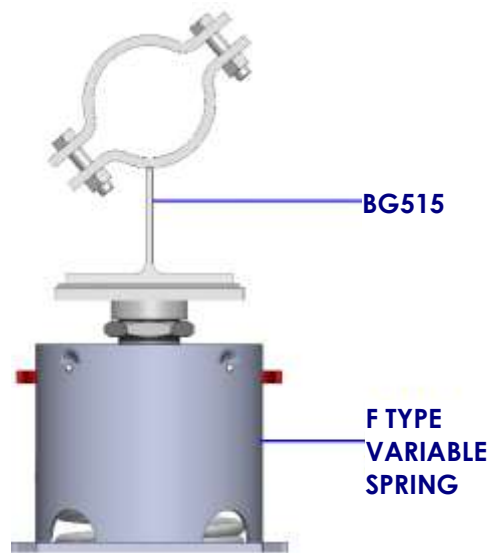
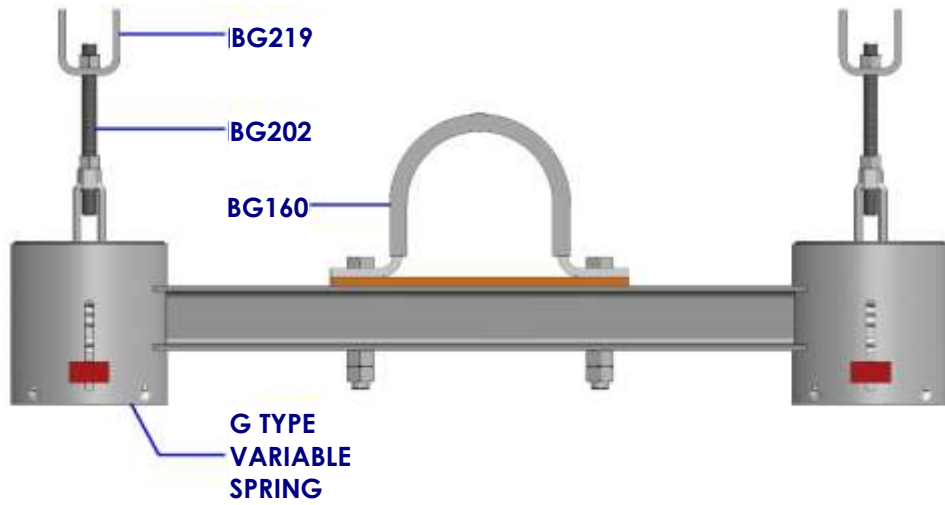
9.8 BV140 VARIABLE LOAD SPRING SUPPORT – TABLE OF DIMENSIONS

SPRING SIZE	ROD SIZE	CASING DIA	CASING LENGTH 'L'			ROD TAKE OUT				THRO DEPTH TYPE A	TYPES B & C					TYPE F					TYPE G			LOADED LENGTH 'X'								WEIGHT (APPROX) kgs								
			TYPES			TYPES					DIMENSIONS					BASE FLANGE SQUARE	PCD BASE FLANGE	BASE FLANGE BOLTS	BASE FLANGE THICK	LOAD FLANGE SQUARE	LOAD FLANGE THICK	SPACE BETWEEN CHANNEL 'W'	P	BEAM SECTION			TYPE A		TYPE B & C		TYPE D		TYPE F		TYPES					
			O	M	A,B,&C	D, E & G	F	A	B & C		E	G	N	U	H									R	S	T	V	900MM ROD CENTRES	1300MM ROD CENTRES	1800MM ROD CENTRES	MIN	MAX	MIN	MAX	MIN	MAX	K	MIN	MAX	A,B,C
0	M12	114	370	340	328	328	398	294	48	12	18	64	32	22	6	20	150	160	M16	6	130	6	16	38	75 PFC	75 PFC	75 PFC	430	570	500	640	357	497	24	380	520	7	6	9	22
1	M12	114	405	375	362	371	441	328	56	12	18	64	32	22	6	20	150	160	M16	6	130	6	16	38	75 PFC	75 PFC	75 PFC	473	613	543	683	392	532	24	423	563	8	7	10	24
2	M12	114	445	415	400	410	480	366	55	12	18	64	32	22	6	20	150	160	M16	6	130	6	16	38	75 PFC	75 PFC	75 PFC	512	652	582	722	430	570	24	461	601	9	8	11	27
3	M12	160	400	370	353	362	432	318	65	12	18	64	32	22	6	20	200	197	M20	6	130	6	20	51	75 PFC	75 PFC	75 PFC	464	604	534	674	383	523	24	415	555	10	9	12	28
4	M12	160	430	400	385	397	467	350	70	12	18	64	32	22	6	20	200	197	M20	6	130	6	20	51	75 PFC	75 PFC	75 PFC	499	639	569	709	415	555	24	447	587	11	10	13	29
5	M12	160	465	435	420	430	500	386	68	12	18	64	32	22	6	20	200	197	M20	6	130	6	20	51	75 PFC	75 PFC	75 PFC	532	672	602	742	450	590	24	482	622	11	10	14	30
6	M16	180	470	443	422	424	498	386	62	16	22	68	32	27	10	20	220	203	M20	8	150	10	25	51	75 PFC	75 PFC	75 PFC	534	674	604	744	459	599	33	489	629	18	16	21	43
7	M16	180	520	493	470	484	558	434	71	16	22	68	32	27	10	20	220	203	M20	8	150	10	25	51	75 PFC	75 PFC	75 PFC	594	734	664	804	507	647	33	538	678	20	17	23	46
8	M16	180	540	513	494	490	564	458	57	16	22	68	32	27	10	20	220	203	M20	8	150	10	25	51	75 PFC	75 PFC	75 PFC	600	740	670	810	531	671	33	562	702	22	20	25	51
9	M20	240	555	523	496	489	584	460	80	20	26	87	35	32	10	25	260	268	M20	8	180	12	32	76	75 PFC	75 PFC	100 PFC	611	751	696	836	564	704	39	576	716	37	32	40	80
10	M20	240	615	583	560	553	648	524	84	20	26	87	35	32	10	25	260	268	M20	8	180	12	32	76	75 PFC	75 PFC	100 PFC	675	815	760	900	627	767	39	638	778	40	36	43	86
11	M20	240	505	473	448	449	544	412	90	20	26	87	35	37	10	25	260	268	M20	8	180	12	32	76	75 PFC	75 PFC	100 PFC	571	711	656	796	516	656	39	527	667	37	36	40	79
12	M24	240	545	513	486	435	542	444	74	32	32	91	35	41	12	25	260	268	M20	8	180	12	38	102	100 PFC	100 PFC	125 PFC	579	719	664	804	556	696	47	559	699	44	39	46	95
13	M30	240	675	643	616	589	722	574	98	32	38	117	49	46	12	25	260	268	M20	8	180	12	38	102	100 PFC	100 PFC	125 PFC	736	876	861	1001	695	835	57	689	829	56	50	70	117
14	M30	240	685	653	622	601	744	580	100	32	38	117	49	46	12	25	260	268	M20	8	180	12	38	102	100 PFC	100 PFC	125 PFC	748	888	883	1023	702	842	57	696	836	63	58	77	131
15	M30	250	695	670	635	613	750	586	106	36	38	127	49	51	12	25	265	278	M20	10	200	16	45	102	150 PFC	150 PFC	200 PFC	764	904	889	1029	714	854	57	702	842	79	69	92	175
16	M36	250	815	790	752	730	877	704	102	36	46	131	74	60	20	25	265	278	M20	10	200	16	45	102	150 PFC	150 PFC	200 PFC	887	1027	1047	1187	842	982	68	819	959	101	91	113	219
17	M42	250	930	905	857	853	1000	808	111	36	50	131	74	67	20	25	265	278	M20	10	200	16	45	102	150 PFC	150 PFC	200 PFC	1028	1168	1188	1328	954	1094	75	924	1064	117	100	125	253
18	M48	320	860	860	787	828	955	760	99	45	60	127	80	73	20	-5	350	400	M24	12	250	20	60	102	200 PFC	250 PFC	300 PFC	979	1119	1146	1286	935	1075	85	897	1037	211	186	201	436
19	M56	320	975	975	903	971	1110	876	121	50	68	139	80	79	20	-5	350	400	M24	12	250	20	67	102	200 PFC	250 PFC	300 PFC	1160	1300	1334	1474	1065	1205	99	1011	1151	264	230	245	521
20	M64	320	1114	1155	1072	1155	1260	1040	99	57	78	146	102	86	25	-5	350	400	M24	12	250	20	73	102	200 PFC	250 PFC	300 PFC	1359	1499	1514	1654	1242	1382	112	1177	1317	324	275	289	653
21	M72	320	1325	1325	1231	1686	1836	1206	503	68	84	150	102	92	25	-10	350	400	M24	16	250	20	79	102	300 PFC	300 PFC	380 PFC	1910	2050	2104	2244	1377	1517	126	1299	1439	443	355	368	868
22	M80	320	1650	1650	1540	2046	2209	1516	539	68	94	163	102	98	25	-10	350	400	M24	16	250	20	86	102	300 PFC	300 PFC	380 PFC	2287	2427	2494	2634	1699	1839	138	1607	1747	551	434	449	937

9.10 VARIABLE LOAD SPRING SUPPORTS – TYPICAL EXAMPLES



VARIABLE LOAD SPRING SUPPORTS – TYPICAL EXAMPLES (CONTINUED)



9.11 VARIABLE LOAD SPRING SUPPORTS – QUOTATION REQUEST FORM (FM220)

CUSTOMER DETAILS

Customer Name		Phone No.	
Project Reference		Fax No.	
Contact		Email	
BPG No. (Binder Use only)		Date	

INFORMATION REQUIRED FOR QUOTATION ("COLD" means Non-operating, "HOT" means Operating)

A Variable Effort Model, Type, Size and Finish e.g. 730202 HDG is required to be nominated by the Customer. OR the Customer shall nominate a Model, Type and Finish, and BINDER determine the size based on customers specific Load and Travel requirements :

Supply Cold Load and Travel – Hot load calculated (Travel is always Cold to Hot)

"COLD"	_____ (Kg)	VERTICAL TRAVEL (Y)	(mm)	_____ Up	_____ Down
LOAD	or _____ (N)	HORIZONTAL (X)	(mm)	_____ +ve	_____ -ve
	or _____ (lbs)	HORIZONTAL (Z)	(mm)	_____ +ve	_____ -ve

OR Supply Hot Load and Travel – Cold load calculated

"HOT"	_____ (Kg)	VERTICAL TRAVEL (Y)	(mm)	_____ Up	_____ Down
LOAD	or _____ (N)	HORIZONTAL (X)	(mm)	_____ +ve	_____ -ve
	or _____ (lbs)	HORIZONTAL (Z)	(mm)	_____ +ve	_____ -ve

HYDROSTATIC TEST LOAD _____ (Kg)

PTFE SLIDE Only available on F Type load flange. Load flange is square.

TO BE HOT INSTALLED Spring will be set to Hot Load, Travel will still be shown as Cold to Hot

Support Type (A, B, C, D, F ..etc) _____ PREFERRED SPRING RATE _____ N/mm _____ kg/mm

SURFACE FINISH (Select Required Finishes)

Variable Unit (Casing, Turnbuckle etc)

<input type="checkbox"/>	HDG (Standard)
<input type="checkbox"/>	Paint – Binder System 1
<input type="checkbox"/>	Blast and Prime
<input type="checkbox"/>	Client paint spec: _____
<input type="checkbox"/>	Top Coat Color: _____

Spring Coil

<input type="checkbox"/>	Acrylic Paint (Standard)
<input type="checkbox"/>	Neprene Coating
<input type="checkbox"/>	Other : _____

Threaded Load Tube on F, H and K Types (Painting not recommended)

<input type="checkbox"/>	HDG
<input type="checkbox"/>	Zinc Plated
<input type="checkbox"/>	Other (Please specify): _____

PAINT

<input type="checkbox"/>	Paint Spec Number:.....
<input type="checkbox"/>	Amount of Coats:.....
<input type="checkbox"/>	Top Coat Colour:.....







INFORMATION REQUIRED FOR VARIABLE EFFORT SUPPORT 'HANGER ASSEMBLY'

Envelope for Hanger Assembly

- Bottom of Support Steel Elevation 1: _____ mm
 - Pipe Centreline Elevation 2: _____ mm Or Length of Drop Rod: _____ mm
- Pipe Size: _____ NB Clamp Finish _____ (HDG/Paint/Mill)
 Pipe Operating Temp: _____ °C Hanger Components Finish _____ (HDG/Mill)
 Insulation Thickness: _____ mm **Locknuts are usually supplied 1 per forging**

NOTE : Variable Effort Supports can be manufactured without load and travel data, as long as exact model and finishes are specified, but spring will not be factory pre-set. Binder cannot take any responsibility for spring's suitability where Client does not provide loads and travels.

10. CONSTANT LOAD SPRING SUPPORTS

CONSTANT LOAD SPRING SUPPORTS				
	Model TYPE PAGE	BC50 Types J, K, L, M, & O Page 98	BC51 Types R, S, T, U, V, ...W, X & Y Page 98	Page 98
	CONSTANT LOAD SPRING SUPPORTS			
Model TYPE PAGE	BC53 Page 98	BC54 Page 98	BC55 Page 98	

10.1 BC50, BC51, BC52, BC53, BC54, BC55 – CONSTANT LOAD SUPPORTS - DESCRIPTION

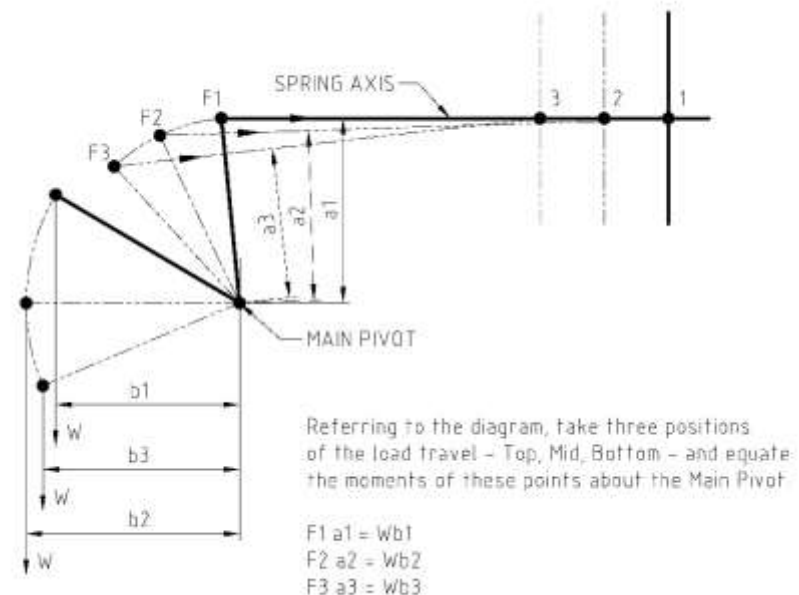
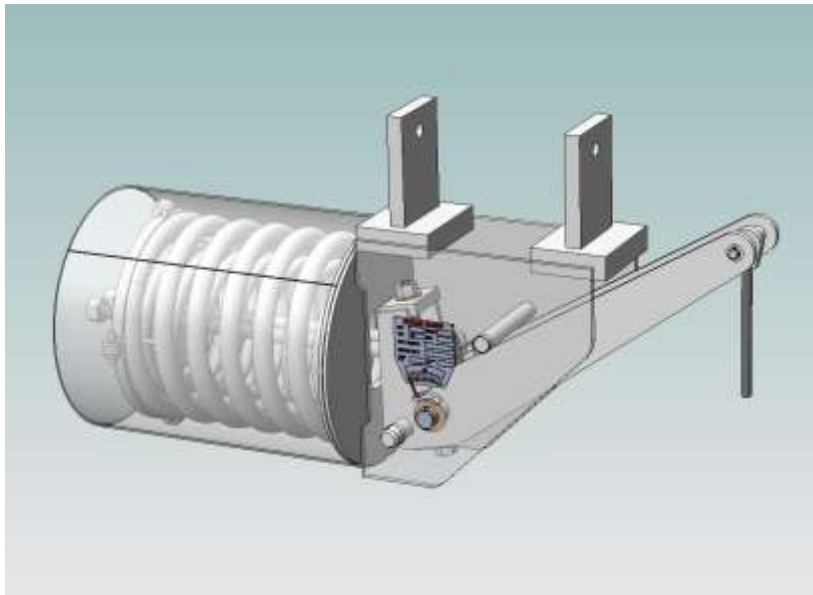
The Constant Load Spring Supports (Constant Supports) are manufactured by the Binder Group has been designed to provide a constant supporting force through the total travel of the unit. The simplified unit construction, together with the established principle of a compression spring working in conjunction with a bell crank lever, achieves a mathematically perfect counter-balancing of spring and load moments about the main pivot point.

With modular fixed spring housings of substantial construction, the unit can be installed in many arrangements.

The spring housing itself prevents the ingress of foreign bodies such as construction debris, thus reducing the danger of damage or restriction of the unit's function.

The Constant support is based on a simple mechanical principle pictured below.

In order to produce a Constant Supporting Force the load moment about the Main Pivot must be counter-balanced by an equal spring moment throughout the travel range.



BC50, BC51, BC52, BC53, BC54, BC55 – CONSTANT LOAD SPRING SUPPORTS – DESCRIPTION (CONTINUED)

Standard Range

Constant Supports are constructed to accommodate loads between 12 kg and 45700 kg with a standard range of travels from 40mm to 410mm in 10mm increments.

Constant Supports are manufactured having a deviation of ± 5 per cent of the specified load. Upper and lower travel stops are incorporated in all units to prevent excessive over travel. All supports are fitted with a clearly visible travel scale.

Special Range

We can manufacture Special Constant Supports designed to suit customer's specific requirements, i.e. higher loads, travels and configurations other than those indicated in the standard range.

Load Adjustment

Although the supports are preset to the customer's specified load and travel, it is sometimes necessary to adjust this preset load to accommodate minor variations in actual site conditions. A simple operation of turning the load adjuster screw in the appropriate direction to increase or decrease the load is all that is necessary. The amount of adjustment is shown on the adjacent scale calibrated in 2 percent divisions, the maximum adjustment being ± 20 percent of the mean load.

Presetting

All Constant Supports are fitted with preset pins which are painted red. These pins are factory positioned within the unit to suit the customer's specified installation condition. On completion of installation and prior to the removal for the pins, the pipework system can be hydrostatically tested or acid cleaned without further deflection of the spring assembly. The preset pins must be removed before commissioning the system (refer to installation instructions).

Our standard presetting pins will enable loads of up to twice the capacity of the support to be taken during the hydraulic testing period.

Should it be necessary to carry loads in excess of this, we must be notified at time of ordering to ensure the supports are designed with adequate safety margins.

Infinitely Variable Travel Locking Mechanism – Multi-Lock.

The Constant Support may be fitted with an infinitely variable locking device (within the travel limits of the unit) that will lock the support thus preventing upward and downward movement for temporary conditions of underload or overload.

The multi-lock is only incorporated when specified by the client, and is painted red.

The multi-lock should always be positioned at the extreme of the adjustment before the pipework system is commissioned.

Selection

To select a Constant Support, first calculate the load and travel which the support is to accommodate.

It is then good practice to add overtravel to the calculated travel.

Recommended overtravel:

- Add 25mm for travels up to 125mm
- For travels in excess of 125mm add 20 percent of the calculated travel.

This should then be rounded up to the next whole 10mm increment giving the total travel thus enabling a standard support to be selected.

To determine the correct constant support please refer to the selection table and select support frame size to accommodate the calculated load and the total travel. It should be noted that the travel given in the table is the total travel, this being the maximum vertical travel the unit will accommodate.

When selecting vertical constants (Fig. BC51 only) these should always be selected from the right-hand side of the heavy line.

Example

Actual Load -	10Kn
Actual Movement-	92.5 mm
Total Travel	= 92.5 + 25, rounded up to the next whole 10mm increment = 120mm

Using kN Selection Table

Locate Total Travel column of 120mm, and follow down column for next load up from 10 kN. This reads 10.41 kN. Next, move horizontally to the left under column headed 'Constant Support Size'. In this example the selected unit would be size 22.

BC50, BC51, BC52, BC53, BC54, BC55 – CONSTANT LOAD SPRING SUPPORTS – DESCRIPTION (CONTINUED)

Surface Finish

Standard units are Hot Dip Galvanised to ASTM A153 and supplied with Zinc plated fasteners, threaded components and ancillary components.

We also offer the Binder Paint System 1 specification for general onshore and offshore use. Units are blast cleaned to AS1627 Part 4 Class 2.5, followed by a three coat Epoxy paint system to 275 micron min DFT. Final colour is Binder Blue (AS2700 B23), other colours are available on request. Zinc plated fasteners and components are used to complete the units.

Other finishes to Customers' requirements are available on request.

Maintenance

P.T.F.E dry bearings are used on all pivoting points and are totally enclosed, no maintenance or lubrication is required.

Information Required When Ordering

Although we can quote prices based on the Constant type and size, additional information is necessary for manufacture. This is because each Constant Support is manufactured for a specific load and travel requirement. The following additional information is required :-

Constant Type (BC50 through BC55). Size (1 to 66). Mounting Type (L to O)

Part ID from Selection chart & Mounting Type can be used to identify Type, Size and Mounting e.g.

850012/J = BC50 Size 12 J Type Mounting

- Actual travel
- Travel Direction (Up/Down)
- Operating Load
- Hydro Test Load
- Surface Finish Specification (if not standard)
- Quantity required
- Drop Rod Size and Thread form if not standard (standard metric coarse).

Alternatively, the Constant Load Spring Support – Request For Quotation Form (On Page 137) can be completed and sent to us for Quoting and Manufacture.

Installation Instructions

1.0 Attachment to supporting Steelwork

- 1.1 The Constant Support Units are attached to the supporting steelwork by means of welding or bolting. (See data sheets for details.)

2.0 Connection and Loading of constant Support Units

- 2.1 In the case of Constant Support Units fig.nos.BC50-BC51-BC52-BC53 utilizing sling rods, these should be connected between the equipment support attachment and the support unit connector (turnbuckle or yoke). The load is transferred from the temporary installation condition to the Constant Support Unit by adjustment of the turnbuckle or yoke arrangement. The correct load setting is attained by adjusting the turnbuckle or yoke arrangement until the preset pin is easily removed.
- 2.2 In the case of Constant Support Units fig. No.s BC54 and BC55 where the equipment is supported from below, the Constant Support unit is positioned between the equipment support bracket and supporting steelwork, differences in height are accommodated using the height adjustment nut. The load is transferred from the temporary installation condition to the Constant Support Unit by further adjustment of the height adjusting nut. The correct load setting is attained by rotation of the height adjusting nut until the preset pin is easily removed.

3.0 Pre-Commissioning

- 3.1 The red painted preset pins should normally remain in position for any pre-commissioning overload conditions, but must be removed prior to operation and stored for future use.

4.0 Load Adjustment

- 4.1 In the event that the load is greater or lesser than the load for which the unit is calibrated, it will be necessary to make use of the load adjustment facility. The load adjuster allows for an increase or decrease of load carrying capacity of plus or minus 20 percent of the mean load. Rotating the load adjuster nut in the appropriate direction will increase or decrease the load accordingly. The load adjustment scale is calibrated in 2 percent divisions.

5.0 Operating

- 5.1 Prior to start up the following checks must be carried out.
 - All preset pins are removed and stored.
 - The unit travel indicator is set at the correct cold setting.
- 5.2 During normal running operation, a check should be made to ensure that the unit travel indicator is at the correct hot position.
- 5.3 A periodic check during the first few months of operation should be made to ensure the equipment movement is within the travel range of the unit. Minor site adjustments may be necessary during this period.

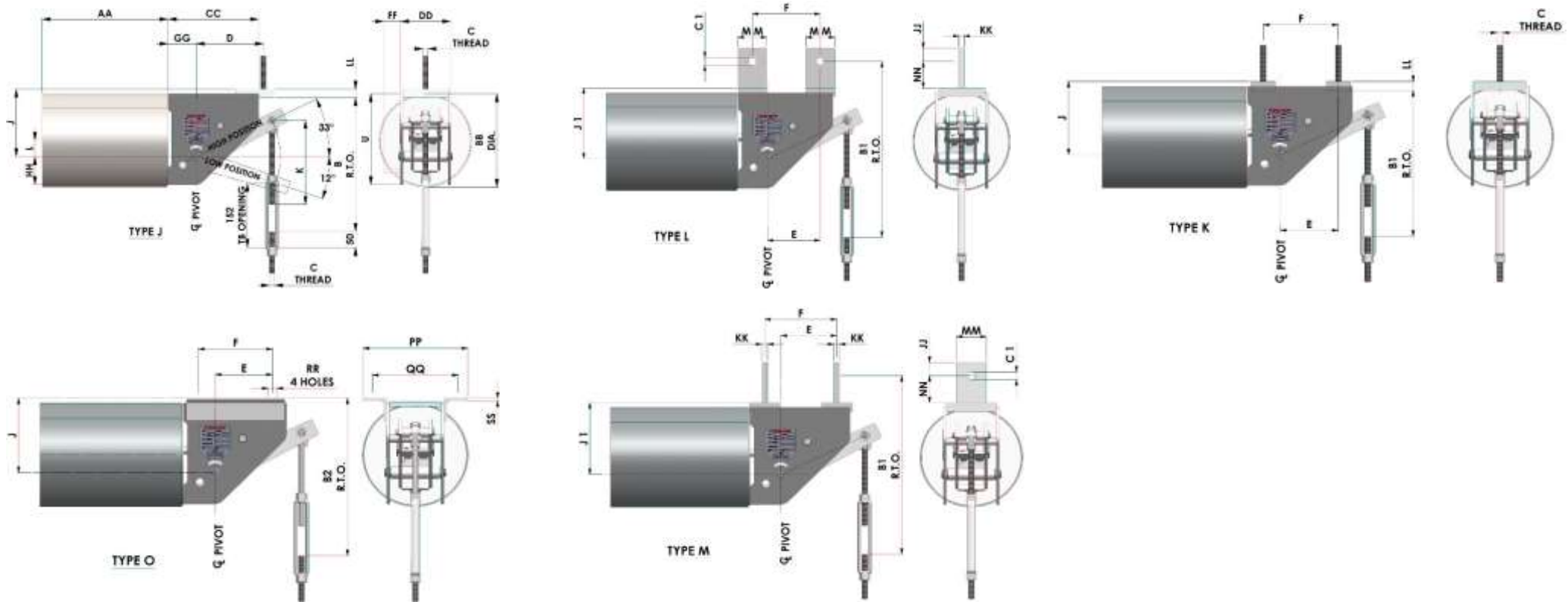
10.2 BC50, BC51, BC52, BC53, BC54, BC55 – CONSTANT LOAD SUPPORTS – AVAILABLE TYPES



10.5 BC50 CONSTANT LOAD SUPPORTS – DIMENSIONAL DETAIL

ROD TAKE OUT IS CALCULATED WHEN LOAD ARM IN IN HIGH POSITION.

FOR UP TRAVEL, ROD TAKE OUT EQUALS TOTAL UP TRAVEL PLUS B, B1, OR B2.



BC50 CONSTANT LOAD SPRING SUPPORTS – DIMENSIONAL DETAIL (CONTINUED)

Sizes 1 to 6											
Travel	A	B	B1	B2	C	D	E	F	J1	J	K
40	54	359	455	375	12	40	105	140	130	130	200
50	67	352	448	368	12	50	105	140	130	130	200
60	80	345	441	361	12	60	105	140	130	130	200
70	94	337	433	353	12	70	105	140	130	130	200
80	107	330	426	346	12	80	105	140	130	130	200
90	120	323	419	339	12	90	105	140	130	130	200
100	134	315	411	331	12	100	105	140	130	130	200
110	147	308	404	324	12	110	105	140	130	130	200
120	160	301	397	317	12	120	105	140	130	130	200
130	174	293	389	310	12	130	105	140	130	130	200
140	187	286	382	303	12	140	105	140	130	130	200
150	200	279	375	296	12	150	105	140	130	130	200
160	214	272	368	289	12	160	105	140	130	170	200
170	227	265	361	282	12	170	105	140	130	170	200
180	240	258	354	275	12	180	105	140	130	170	200
190	254	251	347	268	12	190	105	140	130	170	200
200	267	244	340	261	12	200	105	140	130	170	200
210	280	237	333	254	12	210	105	140	130	170	200

Sizes 7 to 12											
Travel	A	B	B1	B2	C	D	E	F	J1	J	K
40	54	385	465	405	20	50	120	155	160	160	200
50	67	378	458	398	16	60	120	155	160	160	200
60	80	371	450	391	16	75	120	155	160	160	200
70	94	363	443	383	16	85	120	155	160	160	200
80	107	356	436	376	12	85	120	155	160	160	200
90	120	349	429	369	12	100	120	155	160	160	200
100	134	341	421	361	12	115	120	155	160	160	200
110	147	334	414	354	12	125	120	155	160	160	200
120	160	327	407	347	12	125	120	155	160	160	200
130	174	319	399	340	12	135	120	155	160	160	200
140	187	312	392	332	12	150	120	155	160	160	200
150	200	305	385	326	12	160	120	155	160	160	200
160	214	297	377	318	12	160	120	155	160	160	200
170	227	290	370	311	12	160	120	155	160	160	200
180	240	283	363	304	12	160	120	155	160	180	200
190	254	275	355	296	12	160	120	155	160	180	200
200	267	268	348	289	12	160	120	155	160	180	200
210	280	261	341	282	12	160	120	155	160	180	200

Sizes 13 to 18											
Travel	A	B	B1	B2	C	D	E	F	J1	J	K
60	80	413	500	446	20	70	155	190	205	215	200
70	94	406	493	438	20	80	155	190	205	215	200
80	107	399	485	431	20	80	155	190	205	215	200
90	120	392	478	424	16	90	155	190	205	215	200
100	134	384	471	416	16	105	155	190	205	215	200
110	147	377	463	409	16	115	155	190	205	215	200
120	160	370	456	402	16	115	155	190	205	215	200
130	174	362	449	394	16	130	155	190	205	215	200
140	187	355	441	387	16	140	155	190	205	215	200
150	200	348	434	380	16	155	155	190	205	215	200
160	214	340	427	373	12	155	155	190	205	215	200
170	227	333	419	366	12	155	155	190	205	215	200
180	240	326	412	358	12	155	155	190	205	215	200
190	254	318	405	351	12	155	155	190	205	215	200
200	267	311	397	344	12	155	155	190	205	215	200
210	280	304	390	337	12	155	155	190	205	215	200
220	294	296	383	329	12	155	155	190	205	215	200
230	307	289	375	322	12	155	155	190	205	215	200
240	320	282	368	315	12	155	155	190	205	215	200
250	334	274	361	307	12	155	155	190	205	215	200
260	347	268	354	300	12	155	155	190	205	215	200

Sizes 19 to 26											
Travel	A	B	B1	B2	C	D	E	F	J1	J	K
60	80	493	640	526	30	50	190	240	245	245	250
70	94	486	633	518	30	60	190	240	245	245	250
80	107	479	626	510	30	60	190	240	245	245	250
90	120	472	619	502	24	75	190	240	245	245	200
100	134	464	612	494	24	90	190	240	245	245	200
110	147	457	605	486	24	100	190	240	245	245	200
120	160	450	598	478	20	100	190	240	245	245	200
130	174	442	591	470	20	113	190	240	245	245	200
140	187	435	584	462	20	125	190	240	245	245	200
150	200	428	577	454	20	140	190	240	245	245	200
160	214	420	570	446	20	140	190	240	245	245	200
170	227	413	563	438	20	140	190	240	245	245	200
180	240	406	556	430	16	140	190	240	245	245	200
190	254	398	549	422	16	140	190	240	245	245	200
200	267	391	542	414	16	140	190	240	245	245	200
210	280	384	535	406	16	140	190	240	245	245	200
220	294	376	528	398	16	140	190	240	245	245	200
230	307	369	521	390	16	140	190	240	245	245	200
240	320	362	514	382	16	140	190	240	245	245	200
250	334	354	507	374	16	140	190	240	245	245	200
260	347	347	500	366	16	140	190	240	245	245	200
270	360	340	493	358	16	140	190	240	245	245	200
280	374	332	486	350	16	140	190	240	245	245	200
290	387	325	479	342	16	140	190	240	245	245	200
300	400	318	472	334	16	140	190	240	245	245	200
310	414	310	465	326	16	140	190	240	245	295	200
320	427	303	458	318	16	140	190	240	245	295	200
330	440	296	451	310	12	140	190	240	245	295	200
340	454	289	444	302	12	140	190	240	245	295	200
350	467	282	437	294	12	140	190	240	245	295	200
360	480	275	430	286	12	140	190	240	245	295	200

BC50 CONSTANT LOAD SPRING SUPPORTS – DIMENSIONAL DETAIL (CONTINUED)

Sizes 27 to 33											
Travel	A	B	B1	B2	C	D	E	F	J1	J	K
70	94	542	653	578	36	75	235	300	305	305	250
80	107	535	646	571	36	75	235	300	305	305	250
90	120	528	639	564	36	90	235	300	305	305	250
100	134	520	631	556	36	100	235	300	305	305	250
110	147	513	624	549	30	115	235	300	305	305	250
120	160	506	617	542	30	115	235	300	305	305	250
130	174	498	609	534	30	125	235	300	305	305	250
140	187	491	602	527	30	140	235	300	305	305	250
150	200	484	595	520	30	155	235	300	305	305	250
160	214	476	587	513	30		235	300	305	305	250
170	227	419	530	455	24		235	300	305	305	200
180	240	412	523	449	24		235	300	305	305	200
190	254	404	515	441	24		235	300	305	305	200
200	267	397	508	434	24		235	300	305	305	200
210	280	390	501	427	24		235	300	305	305	200
220	294	382	493	419	24		235	300	305	305	200
230	307	375	487	412	24		235	300	305	305	200
240	320	369	480	405	20		235	300	305	305	200
250	334	361	472	397	20		235	300	305	305	200
260	347	354	465	390	20		235	300	305	305	200
270	360	347	458	383	20		235	300	305	305	200
280	374	339	450	375	20		235	300	305	305	200
290	387	332	443	368	20		235	300	305	305	200
300	400	325	436	361	20		235	300	305	305	200
310	414	317	428	354	20		235	300	305	305	200
320	427	310	421	346	20		235	300	305	305	200
330	440	303	414	340	20		235	300	305	305	200
340	454	295	406	332	20		235	300	305	305	200
350	467	288	399	325	20		235	300	305	305	200
360	480	282	392	318	20		235	300	305	305	200

Sizes 34 to 39											
Travel	A	B	B1	B2	C	D	E	F	J1	J	K
90	120	644	779	684	48		290	365	370	370	300
100	134	631	746	671	42		290	365	370	370	300
110	147	624	739	664	42		290	365	370	370	300
120	160	617	731	657	42		290	365	370	370	300
130	174	609	724	649	42		290	365	370	370	300
140	187	552	667	592	36		290	365	370	370	250
150	200	545	659	585	36		290	365	370	370	250
160	214	537	652	576	36		290	365	370	370	250
170	227	530	645	571	36		290	365	370	370	250
180	240	523	637	563	36		290	365	370	370	250
190	254	516	631	556	30		290	365	370	370	250
200	267	509	624	549	30		290	365	370	370	250
210	280	502	616	542	30		290	365	370	370	250
220	294	494	609	534	30		290	365	370	370	250
230	307	487	602	527	30		290	365	370	370	250
240	320	480	594	520	30		290	365	370	370	250
250	334	472	587	512	30		290	365	370	370	250
260	347	465	580	505	30		290	365	370	370	250
270	360	458	572	498	30		290	365	370	370	250
280	374	450	565	490	30		290	365	370	370	250
290	387	443	558	483	30		290	365	370	370	250
300	400	436	551	476	30		290	365	370	370	250
310	414	429	544	469	24		290	365	370	370	200
320	427	422	537	462	24		290	365	370	370	200
330	440	415	530	455	24		290	365	370	370	200
340	454	408	523	448	24		290	365	370	370	200
350	467	401	516	441	24		290	365	370	370	200
360	480	394	509	434	24		290	365	370	370	200
370	494	387	502	427	24		290	365	370	370	200
380	507	380	495	420	24		290	365	370	370	200
390	520	373	488	413	24		290	365	370	370	200
400	534	366	481	406	24		290	365	370	370	200
410	547	359	474	399	24		290	365	370	370	200

Sizes 40 to 47											
Travel	A	B	B1	B2	C	D	E	F	J1	J	K
110	147	691	841	741	56		355	455	450	450	305
120	160	684	834	734	56		355	455	450	450	305
130	174	676	826	727	56		355	455	450	450	305
140	187	670	820	720	56		355	455	450	450	305
150	200	670	810	720	48		355	455	450	450	300
160	214	662	802	713	48		355	455	450	450	300
170	227	655	795	706	48		355	455	450	450	300
180	240	648	788	699	48		355	455	450	450	300
190	254	641	781	691	48		355	455	450	450	300
200	267	629	769	679	42		355	455	450	450	300
210	280	622	762	672	42		355	455	450	450	300
220	294	614	754	664	42		355	455	450	450	300
230	307	607	747	657	42		355	455	450	450	300
240	320	600	740	650	42		355	455	450	450	300
250	334	592	732	642	42		355	455	450	450	300
260	347	585	725	635	42		355	455	450	450	300
270	360	528	668	578	36		355	455	450	450	250
280	374	520	660	570	36		355	455	450	450	250
290	387	513	653	563	36		355	455	450	450	250
300	400	506	646	556	36		355	455	450	450	250
310	414	498	638	549	36		355	455	450	450	250
320	427	491	631	541	36		355	455	450	450	250
330	440	484	624	534	36		355	455	450	450	250
340	454	476	616	527	36		355	455	450	450	250
350	467	469	609	520	36		355	455	450	450	250
360	480	462	602	513	36		355	455	450	450	250
370	494	455	595	505	36		355	455	450	450	250
380	507	448	588	498	30		355	455	450	450	250
390	520	441	581	491	30		355	455	450	450	250
400	534	433	573	483	30		355	455	450	450	250
410	547	426	566	476	30		355	455	450	450	250

Sizes 48 to 50											
Travel	A	B	B1	B2	C	D	E	F	J1	J	K
110	147	784	984	844	80		340	480	545	545	305
120	160	768	968	828	72		340	480	545	545	305
130	174	760	961	820	72		340	480	545	545	305
140	187	753	953	813	72		340	480	545	545	305
150	200	743	943	803	64		340	480	545	545	305
160	214	735	936	795	64		340	480	545	545	305
170	227	728	928	788	64		340	480	545	545	305
180	240	721	921	781	64		340	480	545	545	305
190	254	713	913	773	64		340	480	545	545	305
200	267	711	911	771	56		340	480	545	545	305
210	280	704	904	764	56		340	480	545	545	305
220	294	696	897	756	56		340	480	545	545	305
230	307	689	889	749	56		340	480	545	545	305
240	320	682	882	742	56		340	480	545	545	305
250	334	674	875	735	56		340	480	545	545	305
260	347	668	868	728	56		340	480	545	545	305
270	360	668	868	728	48		340	480	545	545	300
280	374	660	861	721	48		340	480	545	545	300
290	387	653	853	714	48		340	480	545	545	300
300	400	646	846	707	48		340	480	545	545	300
310	414	638	839	699	48		340	480	545	545	300
320	427	631	831	692	48		340	480	545	545	300
330	440	624	824	685	48		340	480	545	545</	

BC50 CONSTANT LOAD SPRING SUPPORTS – DIMENSIONAL DETAIL (CONTINUED)

Sizes 51 to 54											
Travel	A	B	B1	B2	C	D	E	F	J1	J	K
110	147	774	984	844	80		340	480	545	545	305
120	160	758	968	828	72		340	480	545	545	305
130	174	750	961	820	72		340	480	545	545	305
140	187	743	953	813	72		340	480	545	545	305
150	200	733	943	803	64		340	480	545	545	305
160	214	725	936	795	64		340	480	545	545	305
170	227	718	928	788	64		340	480	545	545	305
180	240	711	921	781	64		340	480	545	545	305
190	254	703	913	773	64		340	480	545	545	305
200	267	701	911	771	56		340	480	545	545	305
210	280	694	904	764	56		340	480	545	545	305
220	294	686	897	756	56		340	480	545	545	305
230	307	679	889	749	56		340	480	545	545	305
240	320	672	882	742	56		340	480	545	545	305
250	334	664	875	735	56		340	480	545	545	305
260	347	658	868	728	56		340	480	545	545	305
270	360	658	868	728	48		340	480	545	545	300
280	374	650	861	721	48		340	480	545	545	300
290	387	643	853	714	48		340	480	545	545	300
300	400	636	846	707	48		340	480	545	545	300
310	414	628	839	699	48		340	480	545	545	300
320	427	621	831	692	48		340	480	545	545	300
330	440	614	824	685	48		340	480	545	545	300
340	454	606	817	677	48		340	480	545	545	300
350	467	600	810	670	48		340	480	545	545	300
360	480	588	798	658	42		340	480	545	545	300
370	494	580	791	650	42		340	480	545	545	300
380	507	573	783	643	42		340	480	545	545	300
390	520	566	776	636	42		340	480	545	545	300
400	534	558	769	628	42		340	480	545	545	300
410	547	551	761	621	42		340	480	545	545	300

Sizes 55 to 58											
Travel	A	B	B1	B2	C	D	E	F	J1	J	K
120	160	757	977	837	90		340	480	545	545	305
130	174	750	970	830	80		340	480	545	545	305
140	187	743	963	823	80		340	480	545	545	305
150	200	735	955	815	80		340	480	545	545	305
160	214	718	938	798	72		340	480	545	545	305
170	227	711	931	791	72		340	480	545	545	305
180	240	704	924	784	72		340	480	545	545	305
190	254	697	917	777	72		340	480	545	545	305
200	267	686	906	766	64		340	480	545	545	305
210	280	679	899	759	64		340	480	545	545	305
220	294	671	891	752	64		340	480	545	545	305
230	307	664	884	744	64		340	480	545	545	305
240	320	657	877	737	64		340	480	545	545	305
250	334	650	870	730	64		340	480	545	545	305
260	347	648	868	728	56		340	480	545	545	305
270	360	641	861	720	56		340	480	545	545	305
280	374	633	853	713	56		340	480	545	545	305
290	387	626	846	706	56		340	480	545	545	305
300	400	619	839	699	56		340	480	545	545	305
310	414	611	831	691	56		340	480	545	545	305
320	427	604	824	684	56		340	480	545	545	305
330	440	597	817	677	56		340	480	545	545	305
340	454	589	809	669	56		340	480	545	545	305
350	467	582	802	662	56		340	480	545	545	305
360	480	583	803	663	48		340	480	545	545	300
370	494	575	795	655	48		340	480	545	545	300
380	507	568	788	648	48		340	480	545	545	300
390	520	561	781	641	48		340	480	545	545	300
400	534	553	773	634	48		340	480	545	545	300
410	547	546	766	626	48		340	480	545	545	300

Sizes 59 to 62											
Travel	A	B	B1	B2	C	D	E	F	J1	J	K
150	200	790	1020	870	80		380	560	580	580	305
160	214	782	1012	863	80		380	560	580	580	305
170	227	775	1005	856	80		380	560	580	580	305
180	240	769	999	849	80		380	560	580	580	305
190	254	752	982	832	72		380	560	580	580	305
200	267	745	975	824	72		380	560	580	580	305
210	280	738	968	817	72		380	560	580	580	305
220	294	730	960	810	72		380	560	580	580	305
230	307	723	953	803	72		380	560	580	580	305
240	320	712	942	792	64		380	560	580	580	305
250	334	704	934	785	64		380	560	580	580	305
260	347	697	927	778	64		380	560	580	580	305
270	360	690	920	770	64		380	560	580	580	305
280	374	682	912	763	64		380	560	580	580	305
290	387	675	905	755	64		380	560	580	580	305
300	400	668	898	748	64		380	560	580	580	305
310	414	661	891	741	64		380	560	580	580	305
320	427	659	889	739	56		380	560	580	580	305
330	440	652	882	732	56		380	560	580	580	305
340	454	644	874	725	56		380	560	580	580	305
350	467	637	867	717	56		380	560	580	580	305
360	480	630	860	710	56		380	560	580	580	305
370	494	622	852	702	56		380	560	580	580	305
380	507	615	845	694	56		380	560	580	580	305
390	520	608	838	687	56		380	560	580	580	305
400	534	600	830	680	56		380	560	580	580	305
410	547	594	823	672	56		380	560	580	580	305

Sizes 63 to 66											
Travel	A	B	B1	B2	C	D	E	F	J1	J	K
150	200	790	1020	870	90		380	560	580	580	305
160	214	782	1012	863	90		380	560	580	580	305
170	227	776	1005	856	90		380	560	580	580	305
180	240	759	999	849	80		380	560	580	580	305
190	254	751	991	832	80		380	560	580	580	305
200	267	744	984	824	80		380	560	580	580	305
210	280	737	977	817	80		380	560	580	580	305
220	294	730	961	810	80		380	560	580	580	305
230	307	719	953	803	72		380	560	580	580	305
240	320	712	946	792	72		380	560	580	580	305
250	334	704	938	785	72		380	560	580	580	305
260	347	697	931	778	72		380	560	580	580	305
270	360	690	924	770	72		380	560	580	580	305
280	374	683	916	763	72		380	560	580	580	305
290	387	676	906	755	64		380	560	580	580	305
300	400	669	899	748	64		380	560	580	580	305
310	414	661	891	741	64		380	560	580	580	305
320	427	654	884	739	64		380	560	580	580	305
330	440	647	877	732	64		380	560	580	580	305
340	454	639	869	725	64		380	560	580	580	305
350	467	632	862	717	64		380	560	580	580	305
360	480	625	855	710	64		380	560	580	580	305
370	494	618	848	702	64		380	560	580	580	305
380	507	615	845	694	56		380	560	580	580	305
390	520	608	838	687	56		380	560	580	580	305
400	534	601	830	680	56		380	560	580	580	305
410	547	594	823	672	56		380	560	580	580	305

BC50 CONSTANT LOAD SPRING SUPPORTS – DIMENSIONAL DETAIL (CONTINUED)

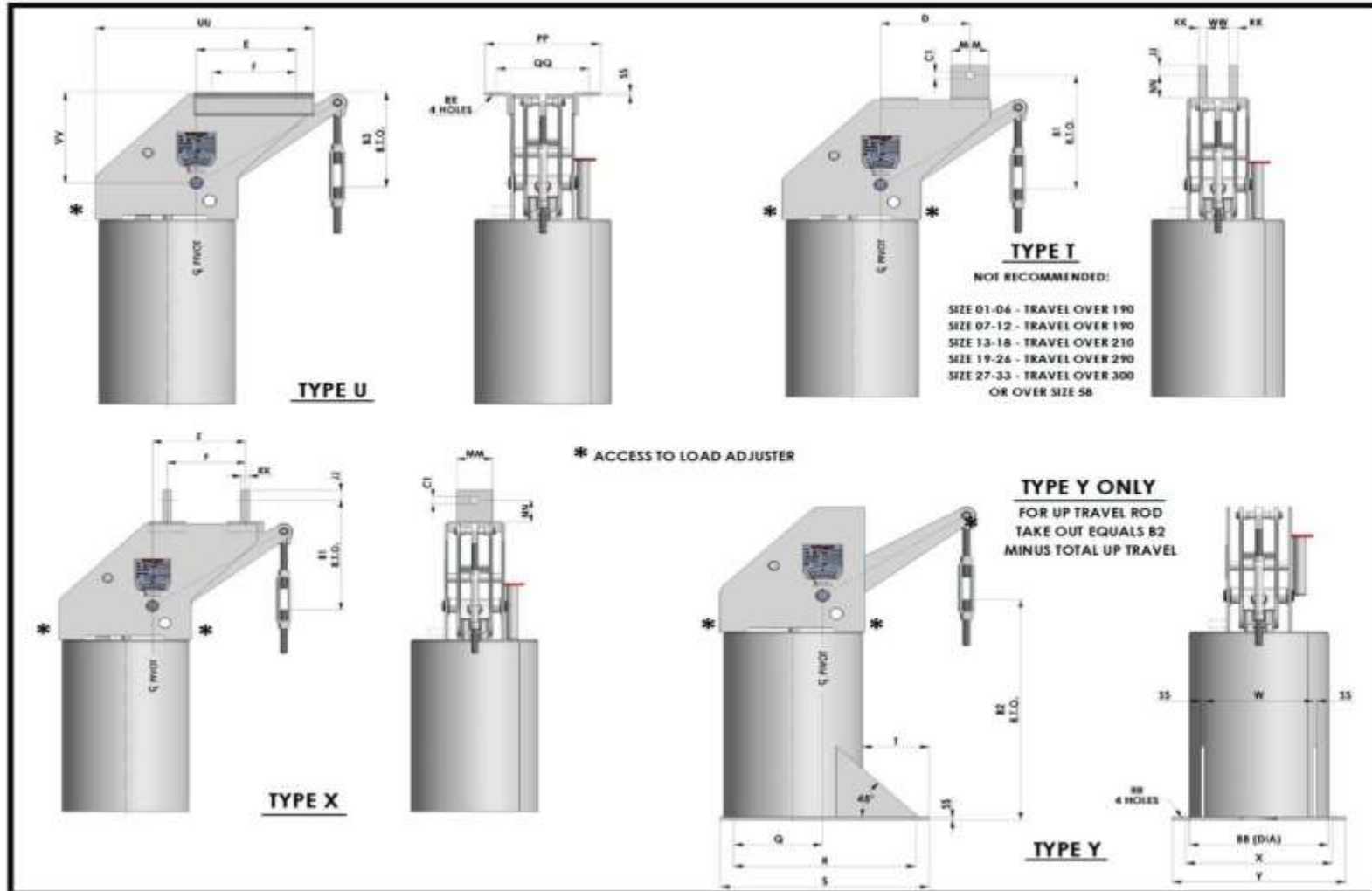
Constant Support Sizes 1 to 66											
Size	1-6	7-12	13-18	19-26	27-33	34-39	40-47	48-50	51-54	55-58	59-66
AA	250	300	350	400	600	750	1100	1265	1265	1265	1620
BB	150	220	295	330	390	440	525	525	525	525	640
CC	180	215	270	325	405	495	685	685	685	685	760
DD	115	120	135	150	180	225	280	345	345	345	455
FF	135	140	160	175	215	270	330	405	405	405	560
GG	55	65	75	95	115	145	198	250	250	250	280
HH	55	65	75	95	115	145	180	190	190	190	215
KK	10	12	12	20	25	25	30	40	40	40	40
LL	15	20	30	30	35	40	50	60	70	80	80
MM	40	50	70	80	100	130	150	200	200	200	200
NN	80	60	65	115	75	75	90	140	140	140	150
PP	215	220	255	280	320	425	480	745	745	745	855
QQ	165	180	205	220	265	335	395	520	520	520	685
RR	14	18	22	22	22	27	33	45	45	45	51
SS	6	6	8	8	10	10	15	20	20	20	25
LL	33	38	55	66	83	100	Table	182	182	182	Table
U	180	215	270	325	405	495	610	710	710	710	760

Dimensions For "C" Thread													
Size	M16	M20	M24	M30	M36	M42	M48	M56	M64	M72	M80	M90	M100
JJ	30	30	35	45	50	60	70	75	100	95	110	120	130
C1	22	26	32	39	45	51	59	67	75	85	95	105	105

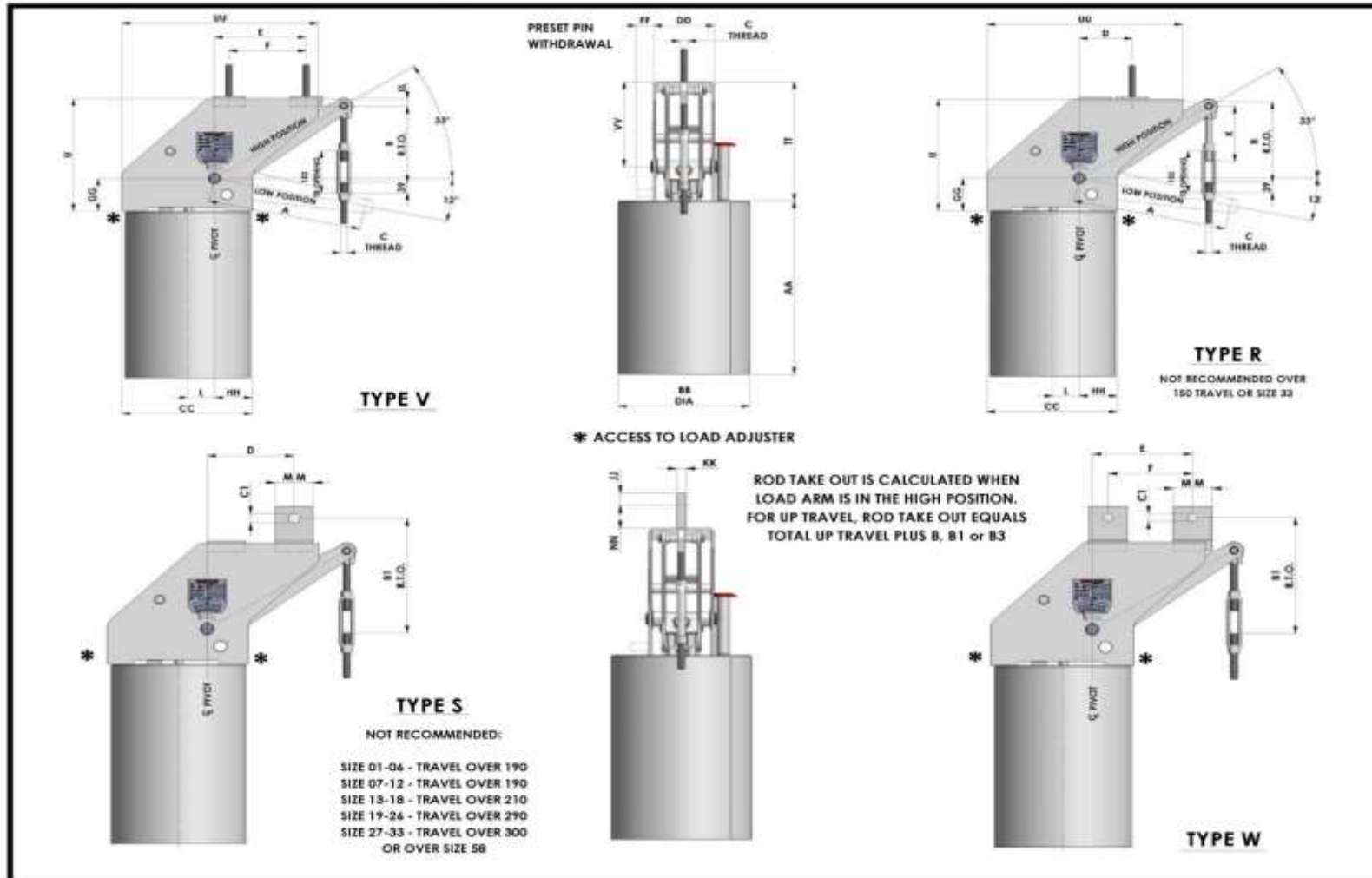
L Dimension										
Size	40-44	45-47	59	60	61	62	63	64	65	66
L	121	165	188	193	197	203	207	211	216	220

Note: TYPE J not recommended over 150mm travel or size 33.

10.6 BC51 CONSTANT LOAD SUPPORTS – DIMENSIONAL DETAIL



BC51 CONSTANT LOAD SPRING SUPPORTS – DIMENSIONAL DETAIL (CONTINUED)



BC51 CONSTANT LOAD SPRING SUPPORTS – DIMENSIONAL DETAIL (CONTINUED)

Sizes 1 to 6										
Travel	A	B	B1	B2	B3	C	D	E	F	K
60	80	389	445	80	405	12	64	150	130	200
70	94	381	438	88	397	12	64	150	130	200
80	107	374	431	95	390	12	86	150	130	200
90	120	367	423	102	383	12	97	150	130	200
100	134	359	416	110	375	12	107	150	130	200
110	147	352	409	117	368	12	118	150	130	200
120	160	345	401	124	361	12	128	150	130	200
130	174	337	394	132	353	12	140	150	130	200
140	187	330	387	139	346	12	150	150	130	200
150	200	323	379	146	339	12	161	150	130	200
160	214	315	372	154	331	12	172	150	130	200
170	227	308	365	161	324	12	182	150	130	200
180	240	301	357	168	317	12	193	150	130	200
190	254	293	350	176	309	12	203	150	130	200
200	267	286	343	183	302	12	150	130	200	
210	280	280	337	190	295	12	150	130	200	

Sizes 7 to 12										
Travel	A	B	B1	B2	B3	C	D	E	F	K
										200
										200
										200
90	120	369	429	164	389	12	96	155	125	200
100	134	361	421	172	381	12	107	155	125	200
110	147	354	414	179	374	12	117	155	125	200
120	160	347	407	186	367	12	128	155	125	200
130	174	339	399	194	359	12	139	155	125	200
140	187	332	392	201	352	12	150	155	125	200
150	200	325	385	208	345	12	160	155	125	200
160	214	317	377	216	337	12	171	155	125	200
170	227	310	370	223	330	12	181	155	125	200
180	240	303	363	230	323	12	192	155	125	200
190	254	295	355	238	315	12	204	155	125	200
200	267	288	348	245	308	12	155	125	200	
210	280	280	342	252	301	12	155	125	200	

Sizes 13 to 18										
Travel	A	B	B1	B2	B3	C	D	E	F	K
100	134	397	476	233	426	16	105	225	195	200
110	147	390	469	240	419	16	116	225	195	200
120	160	383	462	247	412	16	126	225	195	200
130	174	375	454	255	404	16	138	225	195	200
140	187	368	447	262	397	16	148	225	195	200
150	200	361	440	269	390	16	158	225	195	200
160	214	353	432	277	382	12	169	225	195	200
170	227	346	425	284	375	12	179	225	195	200
180	240	339	418	291	368	12	189	225	195	200
190	254	331	410	299	360	12	200	225	195	200
200	267	324	403	306	353	12	211	225	195	200
210	280	317	396	313	346	12	221	225	195	200
220	294	309	388	321	338	12	225	225	195	200
230	307	302	381	328	331	12	225	225	195	200
240	320	295	374	335	324	12	225	225	195	200
250	334	287	367	343	316	12	225	225	195	200
260	347	281	360	349	309	12	225	225	195	200

Sizes 19 to 26										
Travel	A	B	B1	B2	B3	C	D	E	F	K
120	160	465	562	316	497	20	129	260	220	200
130	174	457	554	324	489	20	141	260	220	200
140	187	450	547	331	482	20	152	260	220	200
150	200	443	540	338	475	20	162	260	220	200
160	214	435	532	346	467	20	173	260	220	200
170	227	428	525	353	460	20	184	260	220	200
180	240	421	518	360	453	16	195	260	220	200
190	254	413	510	368	445	16	206	260	220	200
200	267	406	503	375	438	16	217	260	220	200
210	280	399	496	382	431	16	227	260	220	200
220	294	391	488	390	423	16	239	260	220	200
230	307	384	481	397	416	16	249	260	220	200
240	320	377	474	404	409	16	259	260	220	200
250	334	369	466	412	401	16	271	260	220	200
260	347	362	459	419	394	16	282	260	220	200
270	360	355	452	426	387	16	292	260	220	200
280	374	347	444	434	379	16	304	260	220	200
290	387	340	437	441	372	16	315	260	220	200
300	400	333	430	448	365	16	260	220	200	
310	414	325	422	456	357	16	260	220	200	
320	427	319	416	462	351	16	260	220	200	
330	440	312	409	469	344	12	260	220	200	
340	454	304	401	477	336	12	260	220	200	
350	467	297	394	484	329	12	260	220	200	
360	480	291	388	490	323	12	260	220	200	

BC51 CONSTANT LOAD SPRING SUPPORTS – DIMENSIONAL DETAIL (CONTINUED)

Sizes 51 to 54										
Travel	A	B	B1	B2	B3	C	D	E	F	K
170	227	618	828	1280	688	64	186	460	365	305
180	240	611	821	1287	681	64	197	460	365	305
190	254	603	813	1295	673	64	209	460	365	305
200	267	601	811	1297	671	56	220	460	365	305
210	280	594	804	1304	664	56	231	460	365	305
220	294	586	796	1312	656	56	242	460	365	305
230	307	579	789	1319	649	56	252	460	365	305
240	320	572	782	1326	642	56	263	460	365	305
250	334	564	774	1334	634	56	275	460	365	305
260	347	558	768	1340	628	56	285	460	365	305
270	360	558	768	1340	628	48	296	460	365	300
280	374	550	760	1348	621	48	308	460	365	300
290	387	543	753	1355	614	48	318	460	365	300
300	400	536	746	1362	607	48	328	460	365	300
310	414	528	738	1370	599	48	340	460	365	300
320	427	521	731	1377	592	48	351	460	365	300
330	440	514	724	1384	585	48	362	460	365	300
340	454	507	716	1392	577	48	373	460	365	300
350	467	500	710	1398	570	48	384	460	365	300
360	480	488	698	1410	558	48	395	460	365	300
370	494	480	690	1418	550	48	406	460	365	300
380	507	473	683	1425	543	48	416	460	365	300
390	520	466	676	1432	536	48	427	460	365	300
400	534	458	668	1440	528	48	439	460	365	300
410	547	451	661	1447	521	48	450	460	365	300

Sizes 55 to 58										
Travel	A	B	B1	B2	B3	C	D	E	F	K
180	240	604	831	1287	684	72	197	460	365	305
190	254	597	824	1291	677	72	209	460	365	305
200	267	586	806	1302	666	64	220	460	365	305
210	280	579	799	1309	659	64	231	460	365	305
220	294	571	791	1317	652	64	242	460	365	305
230	307	564	784	1324	644	64	252	460	365	305
240	320	557	777	1331	637	64	263	460	365	305
250	334	550	770	1338	630	64	275	460	365	305
260	347	548	768	1340	628	56	285	460	365	305
270	360	541	761	1347	621	56	296	460	365	305
280	374	533	753	1355	614	56	308	460	365	305
290	387	526	746	1362	606	56	318	460	365	305
300	400	519	739	1369	599	56	328	460	365	305
310	414	511	731	1377	592	56	340	460	365	305
320	427	504	724	1384	584	56	351	460	365	305
330	440	497	717	1391	577	56	362	460	365	305
340	454	489	709	1399	570	56	373	460	365	305
350	467	482	702	1406	562	56	384	460	365	305
360	480	483	703	1405	563	48	395	460	365	300
370	494	475	695	1413	556	48	406	460	365	300
380	507	468	688	1420	548	48	416	460	365	300
390	520	461	681	1427	541	48	427	460	365	300
400	534	453	673	1435	534	48	439	460	365	300
410	547	446	666	1442	526	48	450	460	365	300

Sizes 59 to 62										
Travel	A	B	B1	B2	B3	C	D	E	F	K
180	240	749	979	1661	829	80	-	430	500	305
190	254	732	962	1678	812	72	-	430	500	305
200	267	725	955	1685	804	72	-	430	500	305
210	280	718	948	1692	797	72	-	430	500	305
220	294	710	940	1700	790	72	-	430	500	305
230	307	703	933	1707	783	72	-	430	500	305
240	320	692	922	1718	772	64	-	430	500	305
250	334	684	914	1726	765	64	-	430	500	305
260	347	677	907	1733	757	64	-	430	500	305
270	360	670	900	1740	750	64	-	430	500	305
280	374	662	892	1748	743	64	-	430	500	305
290	387	655	885	1755	735	64	-	430	500	305
300	400	648	878	1762	728	64	-	430	500	305
310	414	641	871	1769	721	64	-	430	500	305
320	427	639	869	1771	719	56	-	430	500	305
330	440	632	862	1778	712	56	-	430	500	305
340	454	624	854	1786	705	56	-	430	500	305
350	467	617	847	1793	697	56	-	430	500	305
360	480	610	840	1800	690	56	-	430	500	305
370	494	602	832	1808	683	56	-	430	500	305
380	507	595	825	1815	675	56	-	430	500	305
390	520	588	818	1822	668	56	-	430	500	305
400	534	580	810	1830	661	56	-	430	500	305
410	547	574	804	1836	653	56	-	430	500	305

Sizes 63 to 66										
Travel	A	B	B1	B2	B3	C	D	E	F	K
180	240	749	979	1661	829	80	-	430	500	305
190	254	741	971	1669	821	80	-	430	500	305
200	267	734	964	1676	814	80	-	430	500	305
210	280	727	957	1683	807	80	-	430	500	305
220	294	719	949	1691	799	80	-	430	500	305
230	307	703	933	1707	783	72	-	430	500	305
240	320	696	926	1714	776	72	-	430	500	305
250	334	688	918	1722	768	72	-	430	500	305
260	347	681	911	1729	761	72	-	430	500	305
270	360	674	904	1736	754	72	-	430	500	305
280	374	663	893	1747	743	64	-	430	500	305
290	387	656	886	1754	736	64	-	430	500	305
300	400	649	879	1761	729	64	-	430	500	305
310	414	641	871	1769	721	64	-	430	500	305
320	427	634	864	1776	714	64	-	430	500	305
330	440	627	857	1783	707	64	-	430	500	305
340	454	619	849	1791	699	64	-	430	500	305
350	467	612	842	1798	692	64	-	430	500	305
360	480	605	835	1805	685	64	-	430	500	305
370	494	598	828	1812	678	64	-	430	500	305
380	507	595	825	1815	675	56	-	430	500	305
390	520	588	818	1822	668	56	-	430	500	305
400	534	580	810	1830	661	56	-	430	500	305
410	547	574	804	1836	653	56	-	430	500	305

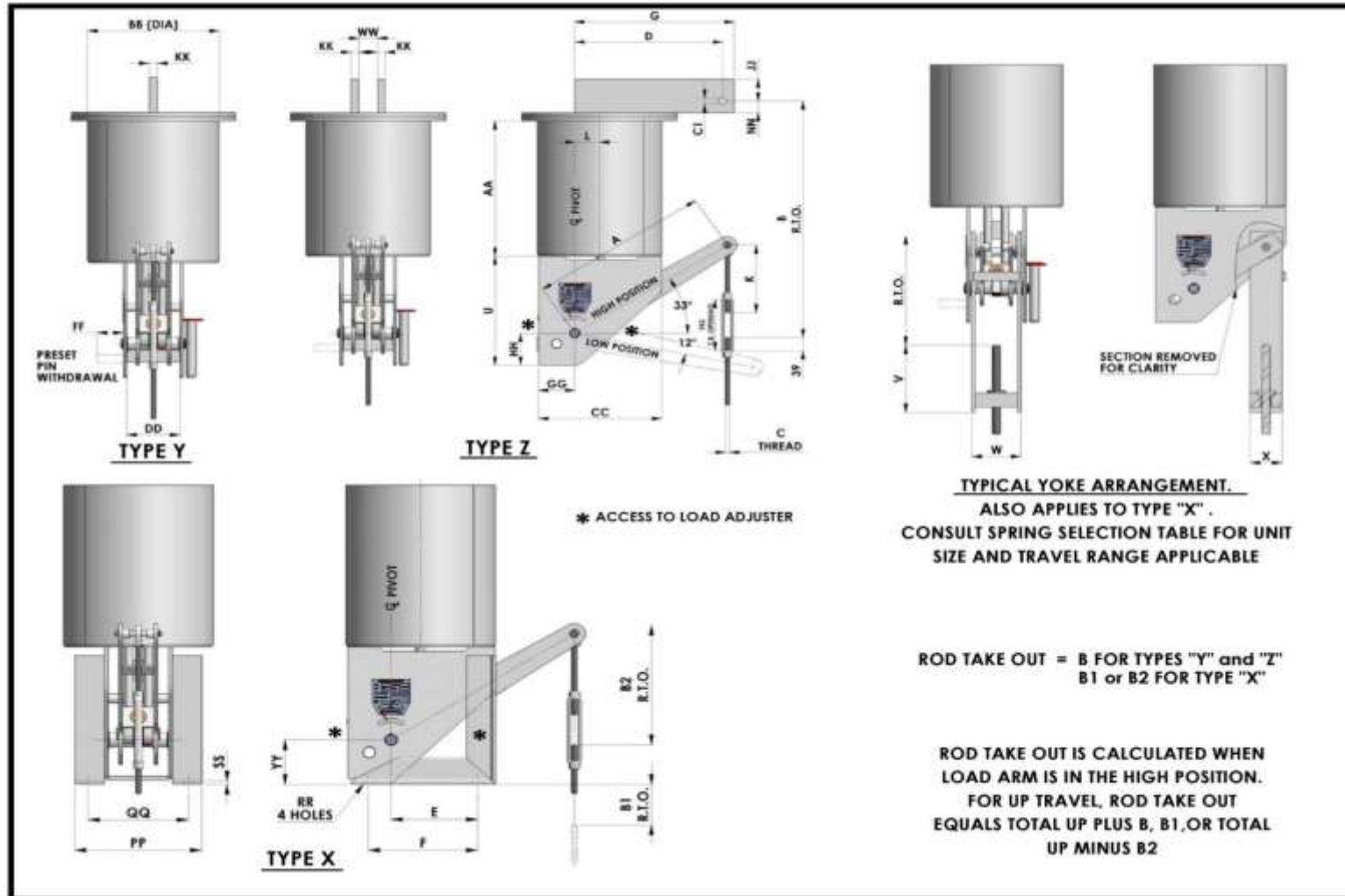
BC51 CONSTANT LOAD SPRING SUPPORTS – DIMENSIONAL DETAIL (CONTINUED)

Sizes 1 to 66											
Size	1-6	7-12	13-18	19-26	27-33	34-39	40-47	48-50	51-54	55-58	59-66
AA	250	300	350	400	600	750	1100	1265	1265	1265	1620
BB	150	220	295	330	390	440	525	525	525	525	640
CC	180	215	270	325	405	495	610	711	711	711	760
DD	115	120	135	150	180	225	280	345	345	345	455
FF	135	140	160	175	215	270	330	405	405	405	560
GG	55	65	75	95	115	145	198	250	250	250	280
HH	55	65	75	95	115	145	180	190	190	190	215
KK	10	12	12	20	25	25	30	40	40	40	40
LL	15	20	30	30	35	40	50	60	70	80	80
MM	40	50	70	80	100	130	150	200	200	200	200
NN	40	40	50	65	75	75	90	140	140	140	150
PP	215	220	255	280	320	425	480	745	745	745	855
QQ	165	180	205	220	265	335	395	520	520	520	685
RR	14	18	22	22	22	27	33	45	45	45	51
SS	6	6	8	8	10	10	15	20	20	20	25
TT	230	245	300	405	410	565	625	695	695	695	860
UU	295	330	455	550	615	815	945	1080	1080	1080	1100
VV	175	180	225	310	295	420	445	445	445	445	580
WW	35	35	50	50	65	75	90	110	110	110	120
L	33	38	55	66	83	100	Table	182	182	182	Table
Q	100	130	190	215	255	285	360	455	504	475	-
R	180	255	370	395	510	510	740	830	830	830	-
S	220	305	420	460	585	610	840	930	930	930	-
T	80	100	170	180	230	240	360	360	360	360	-
U	225	240	290	390	400	540	610	680	680	680	820
W	102	127	203	254	305	305	381	381	381	381	-
X	170	230	280	355	410	460	560	560	560	560	-
Y	210	280	330	420	485	560	660	660	660	660	-

Dimensions For "C" Thread													
Size	M12	M16	M20	M24	M30	M36	M42	M48	M56	M64	M72	M80	M90
JJ	25	25	30	35	40	50	60	65	80	85	100	110	120
C1	18	22	26	32	39	45	51	59	67	75	85	95	105

L Dimension										
Size	40-44	45-47	59	60	61	62	63	64	65	66
L	121	165	188	193	197	203	207	211	216	220

10.7 BC52 CONSTANT LOAD SUPPORTS – DIMENSIONAL DETAIL



BC52 CONSTANT LOAD SPRING SUPPORTS – DIMENSIONAL DETAIL (CONTINUED)

Sizes 1 to 6										
Travel	A	B	B1	B2	C	D	E	F	G	K
40	54	623	132	-	12	42	105	140	105	-
50	67	616	125	-	12	53	105	140	105	-
60	80	609	118	-	12	64	105	140	105	-
70	94	601	110	-	12	76	105	140	110	-
80	107	594	103	-	12	86	105	140	115	-
90	120	587	96	-	12	97	105	140	130	-
100	134	579	88	-	12	107	105	140	130	-
110	147	620	129	-	12	118	105	140	140	200
120	160	613	122	-	12	128	105	140	155	200
130	174	605	114	-	12	140	105	140	160	200
140	187	598	107	-	12	150	105	140	175	200
150	200	591	100	-	12	161	105	140	180	200
160	214	583	92	-	12	172	105	140	195	200
170	227	576	85	-	12	182	105	140	210	200
180	240	569	78	-	12	193	105	140	215	200
190	254	561	70	-	12	203	105	140	230	200
200	267	554	63	-	12	214	105	140	235	200
210	280	548	57	-	12	225	105	140	250	200

Sizes 7 To 12										
Travel	A	B	B1	B2	C	D	E	F	G	K
40	54	701	116	-	20	41	120	155	150	-
50	67	694	109	-	16	52	120	155	150	-
60	80	687	102	-	16	63	120	155	150	-
70	94	679	94	-	16	75	120	155	150	-
80	107	672	87	-	12	85	120	155	150	-
90	120	665	80	-	12	96	120	155	150	-
100	134	657	72	-	12	107	120	155	150	-
110	147	650	65	-	12	117	120	155	150	-
120	160	643	58	-	12	128	120	155	160	-
130	174	684	99	-	12	139	120	155	170	200
140	187	677	92	-	12	150	120	155	180	200
150	200	670	85	-	12	160	120	155	190	200
160	214	662	77	-	12	171	120	155	200	200
170	227	655	70	-	12	181	120	155	215	200
180	240	648	63	-	12	192	120	155	220	200
190	254	640	55	-	12	204	120	155	235	200
200	267	633	48	-	12	214	120	155	245	200
210	280	627	42	-	12	225	120	155	255	200

Sizes 13 to 18										
Travel	A	B	B1	B2	C	D	E	F	G	K
60	80	792	91	-	20	63	155	190	200	-
70	94	784	83	-	20	75	155	190	200	-
80	107	778	77	-	20	85	155	190	200	-
90	120	771	70	-	16	95	155	190	200	-
100	134	763	62	-	16	105	155	190	200	-
110	147	756	55	-	16	116	155	190	200	-
120	160	749	48	-	16	126	155	190	200	-
130	174	741	40	-	16	138	155	190	200	-
140	187	734	33	-	16	148	155	190	200	-
150	200	727	26	-	12	158	155	190	200	-
160	214	768	67	-	12	169	155	190	200	200
170	227	761	60	-	12	179	155	190	215	200
180	240	754	53	-	12	189	155	190	220	200
190	254	746	45	-	12	200	155	190	230	200
200	267	739	38	-	12	211	155	190	240	200
210	280	732	31	-	12	221	155	190	255	200
220	294	724	23	-	12	232	155	190	265	200
230	307	717	16	-	12	242	155	190	275	200
240	320	710	9	-	12	253	155	190	285	200
250	334	702	2	-	12	264	155	190	295	200
260	347	696	-	5	12	274	155	190	305	200

Sizes 19 to 26										
Travel	A	B	B1	B2	C	D	E	F	G	K
70	94	942	114	-	30	76	190	240	230	-
80	107	935	107	-	24	87	190	240	230	-
90	120	928	100	-	24	97	190	240	230	-
100	134	920	92	-	24	108	190	240	230	-
110	147	913	85	-	24	119	190	240	230	-
120	160	906	78	-	20	129	190	240	230	-
130	174	898	70	-	20	141	190	240	230	-
140	187	891	63	-	20	152	190	240	230	-
150	200	884	56	-	20	162	190	240	230	-
160	214	876	48	-	20	173	190	240	230	-
170	227	869	41	-	20	184	190	240	230	-
180	240	862	34	-	16	195	190	240	230	-
190	254	854	26	-	16	206	190	240	230	200
200	267	847	19	-	16	217	190	240	245	200
210	280	840	12	-	16	227	190	240	255	200
220	294	832	4	-	16	239	190	240	270	200
230	307	825	-	3	16	249	190	240	280	200
240	320	818	-	10	16	259	190	240	290	200
250	334	810	-	18	16	271	190	240	300	200
260	347	803	-	25	16	282	190	240	310	200
270	360	796	-	32	16	292	190	240	320	200
280	374	788	-	40	16	304	190	240	335	200
290	387	781	-	47	16	315	190	240	345	200
300	400	774	-	54	16	324	190	240	355	200
310	414	766	-	62	16	336	190	240	365	200
320	427	759	-	69	16	347	190	240	375	200
330	440	752	-	76	12	357	190	240	385	200
340	454	744	-	84	12	369	190	240	400	200
350	467	737	-	91	12	380	190	240	410	200
360	480	731	-	97	12	390	190	240	420	200

BC52 CONSTANT LOAD SPRING SUPPORTS – DIMENSIONAL DETAIL (CONTINUED)

Sizes 27 to 33										
Travel	A	B	B1	B2	C	D	E	F	G	K
80	107	1212	87	-	36	88	235	300	275	-
90	120	1205	80	-	36	99	235	300	275	-
100	134	1197	72	-	36	109	235	300	275	-
110	147	1190	65	-	30	120	235	300	275	-
120	160	1183	58	-	30	131	235	300	275	-
130	174	1175	50	-	30	142	235	300	275	-
140	187	1168	43	-	30	153	235	300	275	-
150	200	1161	36	-	30	164	235	300	275	-
160	214	1153	28	-	30	175	235	300	275	-
170	227	1146	21	-	24	185	235	300	275	-
180	240	1139	14	-	24	196	235	300	275	-
190	254	1131	7	-	24	208	235	300	275	-
200	267	1125	0	0	24	219	235	300	275	-
210	280	1117	-	8	24	230	235	300	275	200
220	294	1109	-	16	24	241	235	300	275	200
230	307	1102	-	23	24	251	235	300	285	200
240	320	1095	-	30	20	262	235	300	295	200
250	334	1087	-	38	20	273	235	300	310	200
260	347	1080	-	45	20	284	235	300	315	200
270	360	1073	-	52	20	295	235	300	330	200
280	374	1065	-	60	20	306	235	300	335	200
290	387	1058	-	67	20	317	235	300	345	200
300	400	1051	-	74	20	327	235	300	355	200
310	414	1043	-	82	20	339	235	300	370	200
320	427	1036	-	89	20	350	235	300	380	200
330	440	1029	-	96	20	361	235	300	390	200
340	454	1021	-	104	20	372	235	300	395	200
350	467	1014	-	111	20	383	235	300	415	200
360	480	1008	-	117	20	394	235	300	420	200

Sizes 34 to 39										
Travel	A	B	B1	B2	C	D	E	F	G	K
100	134	1429	57	-	42	110	290	365	345	-
110	147	1422	50	-	42	121	290	365	345	-
120	160	1415	43	-	42	131	290	365	345	-
130	174	1407	35	-	42	143	290	365	345	-
140	187	1400	28	-	36	154	290	365	345	-
150	200	1393	21	-	36	165	290	365	345	-
160	214	1385	13	-	36	176	290	365	345	-
170	227	1378	6	-	36	187	290	365	345	-
180	240	1371	-	1	36	197	290	365	345	-
190	254	1364	-	8	30	209	290	365	345	-
200	267	1357	-	15	30	220	290	365	345	-
210	280	1350	-	22	30	230	290	365	345	-
220	294	1342	-	30	30	242	290	365	345	-
230	307	1335	-	37	30	252	290	365	345	-
240	320	1328	-	44	30	262	290	365	345	-
250	334	1320	-	52	30	274	290	365	345	-
260	347	1312	-	60	30	285	290	365	355	250
270	360	1305	-	67	30	296	290	365	360	250
280	374	1297	-	75	30	307	290	365	370	250
290	387	1290	-	82	30	318	290	365	380	250
300	400	1282	-	90	30	328	290	365	390	250
310	414	1274	-	98	24	340	290	365	405	200
320	427	1266	-	106	24	351	290	365	415	200
330	440	1258	-	114	24	361	290	365	420	200
340	454	1250	-	122	24	373	290	365	430	200
350	467	1242	-	130	24	384	290	365	445	200
360	480	1234	-	138	24	394	290	365	455	200
370	494	1226	-	146	24	405	290	365	465	200
380	507	1218	-	154	24	416	290	365	485	200
390	520	1210	-	162	24	427	290	365	485	200
400	534	1202	-	170	24	439	290	365	500	200
410	547	1194	-	178	24	449	290	365	515	200

Sizes 40 to 47										
Travel	A	B	B1	B2	C	D	E	F	G	K
120	160	1940	48	-	56	132	355	455	395	-
130	174	1932	40	-	56	144	355	455	395	-
140	187	1925	33	-	56	154	355	455	395	-
150	200	1908	26	-	48	165	355	455	395	-
160	214	1900	18	-	48	176	355	455	395	-
170	227	1893	11	-	48	187	355	455	395	-
180	240	1886	4	-	48	198	355	455	395	-
190	254	1879	-	3	48	210	355	455	395	-
200	267	1872	-	10	42	220	355	455	395	-
210	280	1865	-	17	42	231	355	455	395	-
220	294	1857	-	25	42	243	355	455	395	-
230	307	1850	-	32	42	253	355	455	395	-
240	320	1843	-	39	42	264	355	455	395	-
250	334	1835	-	47	42	275	355	455	395	-
260	347	1828	-	54	42	286	355	455	395	-
270	360	1821	-	61	36	297	355	455	395	-
280	374	1813	-	69	36	308	355	455	395	-
290	387	1806	-	76	36	319	355	455	395	-
300	400	1799	-	83	36	329	355	455	395	-
310	414	1791	-	91	36	341	355	455	405	-
320	427	1784	-	98	36	352	355	455	415	-
330	440	1776	-	106	36	363	355	455	425	250
340	454	1768	-	114	36	375	355	455	435	250
350	467	1761	-	121	36	386	355	455	450	250
360	480	1754	-	128	36	396	355	455	455	250
370	494	1747	-	135	36	407	355	455	465	250
380	507	1740	-	142	30	418	355	455	485	250
390	520	1733	-	149	30	429	355	455	495	250
400	534	1725	-	157	30	441	355	455	500	250
410	547	1718	-	164	30	451	355	455	515	250

Sizes 48 to 50										
Travel	A	B	B1	B2	C	D	E	F	G	K
150	200	2220	-	69	64	164	340	480	465	-
160	214	2212	-	77	64	175	340	480	465	-
170	227	2205	-	84	64	186	340	480	465	-
180	240	2198	-	91	64	197	340	480	465	-
190	254	2191	-	98	64	209	340	480	465	-
200	267	2184	-	105	56	220	340	480	465	-
210	280	2177	-	112	56	231	340	480	465	-
220	294	2169	-	120	56	242	340	480	465	-
230	307	2162	-	127	56	252	340	480	465	-
240	320	2155	-	134	56	263	340	480	465	-
250	334	2147	-	142	56	275	340	480	465	-
260	347	2140	-	149	56	285	340	480	465	-
270	360	2133	-	156	48	296	340	480	465	-
280	374	2125	-	164	48	308	340	480	465	-
290	387	2118	-	171	48	318	340	480	465	-
300	400	2111	-	178	48	328	340	480	465	-
310	414	2103	-	186	48	340	340	480	465	-
320	427	2096	-	193	48	351	340	480	465	-
330	440	2089	-	200	48	362	340	480	465	-
340	454	2081	-	208	48	373	340	480	465	-
350	467	2075	-	214	48	384	340	480	475	-
360	480	2068	-	221	42	395	340	480	485	-
370	494	2060	-	229	42	406	340	480	495	-
380	507	2053	-	236	42	416	340	480	520	-
390	520	2046	-	243	42	427	340	480	525	-
400	534	2038	-	251	42	439	340	480	535	-
410	547	2031	-	258	42	450	340	480	545	-

BC52 CONSTANT LOAD SPRING SUPPORTS – DIMENSIONAL DETAIL (CONTINUED)

Sizes 51 to 54										
Travel	A	B	B1	B2	C	D	E	F	G	K
150	200	2205	-	69	64	164	340	480	465	-
160	214	2197	-	77	64	175	340	480	465	-
170	227	2190	-	84	64	186	340	480	465	-
180	240	2183	-	91	64	197	340	480	465	-
190	254	2176	-	98	64	209	340	480	465	-
200	267	2169	-	105	56	220	340	480	465	-
210	280	2162	-	112	56	231	340	480	465	-
220	294	2154	-	120	56	242	340	480	465	-
230	307	2147	-	127	56	252	340	480	465	-
240	320	2140	-	134	56	263	340	480	465	-
250	334	2132	-	142	56	275	340	480	465	-
260	347	2125	-	149	56	285	340	480	465	-
270	360	2118	-	156	48	296	340	480	465	-
280	374	2110	-	164	48	308	340	480	465	-
290	387	2103	-	171	48	318	340	480	465	-
300	400	2096	-	178	48	328	340	480	465	-
310	414	2088	-	186	48	340	340	480	465	-
320	427	2081	-	193	48	351	340	480	465	-
330	440	2074	-	200	48	362	340	480	465	-
340	454	2066	-	208	48	373	340	480	465	-
350	467	2060	-	214	48	384	340	480	465	-
360	480	2053	-	221	42	395	340	480	475	-
370	494	2045	-	229	42	406	340	480	485	-
380	507	2038	-	236	42	416	340	480	495	-
390	520	2031	-	243	42	427	340	480	520	-
400	534	2023	-	251	42	439	340	480	525	-
410	547	2016	-	258	42	450	340	480	535	-

Sizes 55 to 58										
Travel	A	B	B1	B2	C	D	E	F	G	K
170	227	2205	-	69	72	186	340	480	545	-
180	240	2198	-	76	72	197	340	480	465	-
190	254	2191	-	83	72	209	340	480	465	-
200	267	2184	-	90	64	220	340	480	465	-
210	280	2177	-	97	64	231	340	480	465	-
220	294	2169	-	105	64	242	340	480	465	-
230	307	2162	-	112	64	252	340	480	465	-
240	320	2155	-	119	64	263	340	480	465	-
250	334	2147	-	127	64	275	340	480	465	-
260	347	2140	-	134	56	285	340	480	465	-
270	360	2133	-	141	56	296	340	480	465	-
280	374	2125	-	149	56	308	340	480	465	-
290	387	2118	-	156	56	318	340	480	465	-
300	400	2111	-	163	56	328	340	480	465	-
310	414	2103	-	171	56	340	340	480	465	-
320	427	2096	-	178	56	351	340	480	465	-
330	440	2089	-	185	56	362	340	480	465	-
340	454	2081	-	193	56	373	340	480	465	-
350	467	2075	-	199	56	384	340	480	475	-
360	480	2068	-	206	48	395	340	480	485	-
370	494	2060	-	214	48	406	340	480	495	-
380	507	2053	-	221	48	416	340	480	520	-
390	520	2046	-	228	48	427	340	480	525	-
400	534	2038	-	236	48	439	340	480	535	-
410	547	2031	-	243	48	450	340	480	545	-

Sizes 59 to 62										
Travel	A	B	B1	B2	C	D	E	F	G	K
180	240	2629	-	71	80	197	380	560	530	-
190	254	2622	-	78	72	209	380	560	530	-
200	267	2614	-	85	72	220	380	560	530	-
210	280	2607	-	92	72	231	380	560	530	-
220	294	2600	-	100	72	242	380	560	530	-
230	307	2593	-	107	72	252	380	560	530	-
240	320	2586	-	114	64	263	380	560	530	-
250	334	2579	-	122	64	275	380	560	530	-
260	347	2571	-	129	64	285	380	560	530	-
270	360	2564	-	136	64	296	380	560	530	-
280	374	2557	-	144	64	308	380	560	530	-
290	387	2549	-	151	64	318	380	560	530	-
300	400	2542	-	158	64	328	380	560	530	-
310	414	2535	-	165	64	340	380	560	530	-
320	427	2527	-	173	56	351	380	560	530	-
330	440	2520	-	180	56	362	380	560	530	-
340	454	2513	-	188	56	373	380	560	530	-
350	467	2505	-	195	56	384	380	560	530	-
360	480	2498	-	202	56	395	380	560	530	-
370	494	2491	-	210	56	406	380	560	530	-
380	507	2483	-	217	56	416	380	560	530	-
390	520	2476	-	224	56	427	380	560	530	-
400	534	2469	-	232	56	439	380	560	530	-
410	547	2462	-	238	56	450	380	560	530	-

Sizes 63 to 66										
Travel	A	B	B1	B2	C	D	E	F	G	K
180	240	2629	-	71	80	197	380	560	530	-
190	254	2621	-	79	80	209	380	560	530	-
200	267	2614	-	86	80	220	380	560	530	-
210	280	2607	-	93	80	231	380	560	530	-
220	294	2600	-	100	80	242	380	560	530	-
230	307	2593	-	107	72	252	380	560	530	-
240	320	2586	-	114	72	263	380	560	530	-
250	334	2578	-	122	72	275	380	560	530	-
260	347	2571	-	129	72	285	380	560	530	-
270	360	2564	-	136	72	296	380	560	530	-
280	374	2556	-	144	72	308	380	560	530	-
290	387	2549	-	151	64	318	380	560	530	-
300	400	2542	-	158	64	328	380	560	530	-
310	414	2534	-	166	64	340	380	560	530	-
320	427	2527	-	173	64	351	380	560	530	-
330	440	2520	-	180	64	362	380	560	530	-
340	454	2512	-	188	64	373	380	560	530	-
350	467	2505	-	195	64	384	380	560	530	-
360	480	2498	-	202	64	395	380	560	530	-
370	494	2491	-	209	64	406	380	560	530	-
380	507	2484	-	216	56	416	380	560	530	-
390	520	2477	-	223	56	427	380	560	530	-
400	534	2469	-	231	56	439	380	560	530	-
410	547	2462	-	238	56	450	380	560	530	-

BC52 CONSTANT LOAD SPRING SUPPORTS – DIMENSIONAL DETAIL (CONTINUED)

Constant Support Sizes 1 to 66											
Size	1-6	7-12	13-18	19-26	27-33	34-39	40-47	48-50	51-54	55-58	59-66
AA	250	300	350	400	600	750	1100	1265	1265	1265	1620
BB	150	220	295	330	390	440	525	525	525	525	640
CC	180	215	270	325	405	495	610	710	710	710	760
DD	115	120	135	150	180	225	280	345	345	345	455
FF	135	140	160	175	215	270	330	405	405	405	560
GG	55	65	75	95	115	145	180	250	250	250	280
HH	55	65	75	95	115	145	180	190	190	190	215
KK	10	12	12	20	25	25	30	40	40	40	40
NN	40	40	50	65	75	75	90	140	140	140	150
PP	215	220	255	270	320	425	480	745	745	745	855
QQ	165	180	205	220	265	335	395	520	520	520	685
RR	14	18	22	22	22	27	33	45	45	45	51
SS	6	6	8	8	10	10	15	20	20	20	25
WW	35	35	50	50	65	75	90	110	110	110	120
YY	65	80	90	110	130	155	190	320	320	320	320
L	33	38	55	66	83	100	Table	182	182	182	Table
U	180	215	270	325	405	495	610	685	685	685	760
V	125	155	170	190	205	225	245	275	290	290	340
WW	95	102	112	123	153	190	231	288	288	288	290
X	40	50	65	80	90	110	130	150	160	160	220

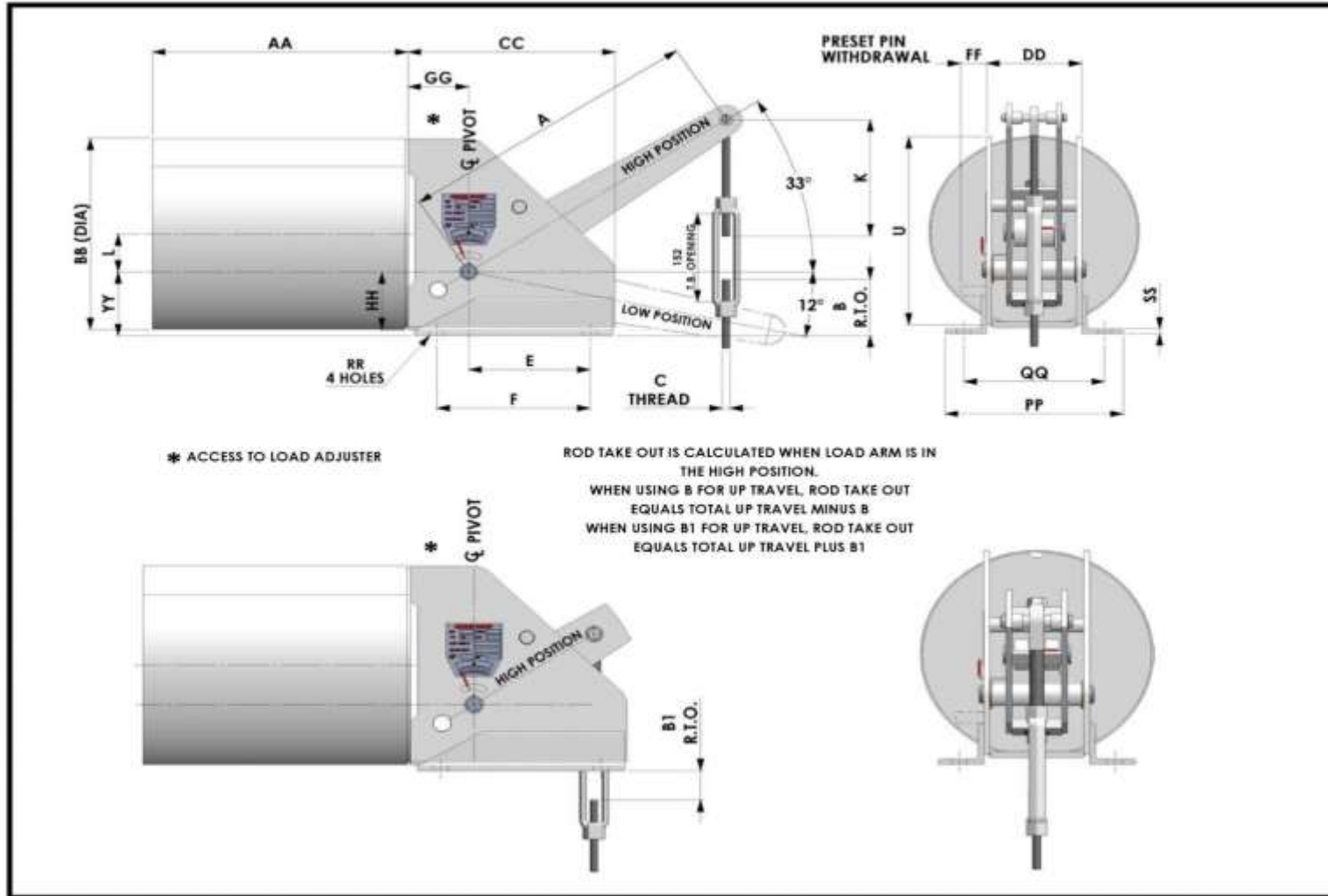
Dimensions For "C" Thread													
Size	M12	M16	M20	M24	M30	M36	M42	M48	M56	M64	M72	M80	M90
JJ	25	25	30	35	40	50	60	65	80	85	100	110	120
C1	18	22	26	32	39	45	51	59	67	75	85	95	105

L Dimension											
Size	40-44	45-47	59	60	61	62	63	64	65	66	
L	121	165	188	193	197	203	207	211	216	220	

YOKE Table	
Size	Travels
1-6	40-100
7-12	40-120
13-18	60-150
19-26	70-180
27-33	80-200
34-39	100-250
40-47	120-320
48-54	150-410
55-58	170-410
59-66	180-410

Note: Units are supplied with Yokes for the Travels indicated in table (right)
All other Travel units are supplied with Drop Rods and Turnbuckles.

10.8 BC53 CONSTANT LOAD SUPPORTS – DIMENSIONAL DETAIL



BC53 CONSTANT LOAD SPRING SUPPORTS – DIMENSIONAL DETAIL (CONTINUED)

Sizes 1 to 6							
Travel	A	B1	B	C	E	F	K
40	54	180	-	12	105	140	200
50	67	173	-	12	105	140	200
60	80	166	-	12	105	140	200
70	94	159	-	12	105	140	200
80	107	151	-	12	105	140	200
90	120	144	-	12	105	140	200
100	134	137	-	12	105	140	200
110	147	129	-	12	105	140	200
120	160	122	-	12	105	140	200
130	174	115	-	12	105	140	200
140	187	107	-	12	105	140	200
150	200	100	-	12	105	140	200
160	214	93	-	12	105	140	200
170	227	85	-	12	105	140	200
180	240	78	-	12	105	140	200
190	254	71	-	12	105	140	200
200	267	63	-	12	105	140	200
210	280	57	-	12	105	140	200

Sizes 7 to 12							
Travel	A	B1	B	C	E	F	K
40	54	165	-	20	120	155	200
50	67	158	-	16	120	155	200
60	80	151	-	16	120	155	200
70	94	143	-	16	120	155	200
80	107	136	-	12	120	155	200
90	120	129	-	12	120	155	200
100	134	121	-	12	120	155	200
110	147	114	-	12	120	155	200
120	160	107	-	12	120	155	200
130	174	99	-	12	120	155	200
140	187	92	-	12	120	155	200
150	200	85	-	12	120	155	200
160	214	77	-	12	120	155	200
170	227	70	-	12	120	155	200
180	240	63	-	12	120	155	200
190	254	55	-	12	120	155	200
200	267	48	-	12	120	155	200
210	280	42	-	12	120	155	200

Sizes 13 to 18							
Travel	A	B1	B	C	E	F	K
60	80	130	-	20	155	190	200
70	94	122	-	20	155	190	200
80	107	116	-	20	155	190	200
90	120	109	-	16	155	190	200
100	134	101	-	16	155	190	200
110	147	94	-	16	155	190	200
120	160	87	-	16	155	190	200
130	174	79	-	16	155	190	200
140	187	72	-	16	155	190	200
150	200	65	-	16	155	190	200
160	214	57	-	12	155	190	200
170	227	50	-	12	155	190	200
180	240	43	-	12	155	190	200
190	254	35	-	12	155	190	200
200	267	28	-	12	155	190	200
210	280	21	-	12	155	190	200
220	294	14	-	12	155	190	200
230	307	7	-	12	155	190	200
240	320	0	0	12	155	190	200
250	334	-	8	12	155	190	200
260	347	-	15	12	155	190	200

Sizes 19 to 26							
Travel	A	B1	B	C	E	F	K
60	80	170	-	30	190	240	250
70	94	163	-	30	190	240	250
80	107	106	-	24	190	240	200
90	120	99	-	24	190	240	200
100	134	91	-	24	190	240	200
110	147	84	-	24	190	240	200
120	160	77	-	20	190	240	200
130	174	69	-	20	190	240	200
140	187	62	-	20	190	240	200
150	200	55	-	20	190	240	200
160	214	47	-	20	190	240	200
170	227	40	-	20	190	240	200
180	240	33	-	16	190	240	200
190	254	25	-	16	190	240	200
200	267	18	-	16	190	240	200
210	280	11	-	16	190	240	200
220	294	4	-	16	190	240	200
230	307	-	3	16	190	240	200
240	320	-	10	16	190	240	200
250	334	-	18	16	190	240	200
260	347	-	25	16	190	240	200
270	360	-	32	16	190	240	200
280	374	-	40	16	190	240	200
290	387	-	47	16	190	240	200
300	400	-	54	16	190	240	200
310	414	-	62	16	190	240	200
320	427	-	69	16	190	240	200
330	440	-	76	12	190	240	200
340	454	-	84	12	190	240	200
350	467	-	91	12	190	240	200
360	480	-	97	12	190	240	200

BC53 CONSTANT LOAD SPRING SUPPORTS – DIMENSIONAL DETAIL (CONTINUED)

Sizes 27 to 33							
Travel	A	B1	B	C	E	F	K
70	94	143	-	36	235	300	250
80	107	136	-	36	235	300	250
90	120	129	-	36	235	300	250
100	134	121	-	36	235	300	250
110	147	114	-	30	235	300	250
120	160	107	-	30	235	300	250
130	174	100	-	30	235	300	250
140	187	92	-	30	235	300	250
150	200	85	-	30	235	300	250
160	214	77	-	30	235	300	250
170	227	20	-	24	235	300	200
180	240	13	-	24	235	300	200
190	254	6	-	24	235	300	200
200	267	-	1	24	235	300	200
210	280	-	8	24	235	300	200
220	294	-	16	24	235	300	200
230	307	-	23	24	235	300	200
240	320	-	30	20	235	300	200
250	334	-	38	20	235	300	200
260	347	-	45	20	235	300	200
270	360	-	52	20	235	300	200
280	374	-	60	20	235	300	200
290	387	-	67	20	235	300	200
300	400	-	74	20	235	300	200
310	414	-	82	20	235	300	200
320	427	-	89	20	235	300	200
330	440	-	96	20	235	300	200
340	454	-	104	20	235	300	200
350	467	-	111	20	235	300	200
360	480	-	117	20	235	300	200

Sizes 34 to 39							
Travel	A	B1	B	C	E	F	K
90	120	154	-	48	290	365	300
100	134	146	-	42	290	365	300
110	147	138	-	42	290	365	300
120	160	131	-	42	290	365	300
130	174	124	-	42	290	365	300
140	187	67	-	36	290	365	250
150	200	60	-	36	290	365	250
160	214	53	-	36	290	365	250
170	227	45	-	36	290	365	250
180	240	38	-	36	290	365	250
190	254	31	-	30	290	365	250
200	267	23	-	30	290	365	250
210	280	16	-	30	290	365	250
220	294	9	-	30	290	365	250
230	307	2	-	30	290	365	250
240	320	-	5	30	290	365	250
250	334	-	12	30	290	365	250
260	347	-	20	30	290	365	250
270	360	-	27	30	290	365	250
280	374	-	34	30	290	365	250
290	387	-	42	30	290	365	250
300	400	-	49	30	290	365	250
310	414	-	106	24	290	365	200
320	427	-	114	24	290	365	200
330	440	-	121	24	290	365	200
340	454	-	128	24	290	365	200
350	467	-	136	24	290	365	200
360	480	-	143	24	290	365	200
370	494	-	150	24	290	365	200
380	507	-	158	24	290	365	200
390	520	-	165	24	290	365	200
400	534	-	172	24	290	365	200
410	547	-	179	24	290	365	200

Sizes 40 to 47							
Travel	A	B1	B	C	E	F	K
110	147	101	-	56	355	455	305
120	160	94	-	56	355	455	305
130	174	86	-	56	355	455	305
140	187	80	-	56	355	455	305
150	200	80	-	48	355	455	300
160	214	72	-	48	355	455	300
170	227	65	-	48	355	455	300
180	240	58	-	48	355	455	300
190	254	51	-	48	355	455	300
200	267	39	-	42	355	455	300
210	280	32	-	42	355	455	300
220	294	24	-	42	355	455	300
230	307	17	-	42	355	455	300
240	320	10	-	42	355	455	300
250	334	2	-	42	355	455	300
260	347	-	5	42	355	455	300
270	360	-	62	36	355	455	250
280	374	-	70	36	355	455	250
290	387	-	77	36	355	455	250
300	400	-	84	36	355	455	250
310	414	-	92	36	355	455	250
320	427	-	99	36	355	455	250
330	440	-	106	36	355	455	250
340	454	-	114	36	355	455	250
350	467	-	121	36	355	455	250
360	480	-	128	36	355	455	250
370	494	-	135	36	355	455	250
380	507	-	142	30	355	455	250
390	520	-	149	30	355	455	250
400	534	-	157	30	355	455	250
410	547	-	164	30	355	455	250

Sizes 48 to 50							
Travel	A	B1	B	C	E	F	K
110	147	-	21	80	340	480	305
120	160	-	37	72	340	480	305
130	174	-	45	72	340	480	305
140	187	-	52	72	340	480	305
150	200	-	62	64	340	480	305
160	214	-	70	64	340	480	305
170	227	-	77	64	340	480	305
180	240	-	84	64	340	480	305
190	254	-	92	64	340	480	305
200	267	-	94	56	340	480	305
210	280	-	101	56	340	480	305
220	294	-	109	56	340	480	305
230	307	-	116	56	340	480	305
240	320	-	123	56	340	480	305
250	334	-	131	56	340	480	305
260	347	-	137	56	340	480	305
270	360	-	137	48	340	480	300
280	374	-	144	48	340	480	300
290	387	-	151	48	340	480	300
300	400	-	158	48	340	480	300
310	414	-	166	48	340	480	300
320	427	-	173	48	340	480	300
330	440	-	180	48	340	480	300
340	454	-	188	48	340	480	300
350	467	-	195	48	340	480	300
360	480	-	207	42	340	480	300
370	494	-	215	42	340	480	300
380	507	-	222	42	340	480	300
390	520	-	229	42	340	480	300
400	534	-	237	42	340	480	300
410	547	-	244	42	340	480	300

BC53 CONSTANT LOAD SPRING SUPPORTS – DIMENSIONAL DETAIL (CONTINUED)

Sizes 55 to 58							
Travel	A	B1	B	C	E	F	K
120	160	-	28	90	340	480	305
130	174	-	35	80	340	480	305
140	187	-	42	80	340	480	305
150	200	-	50	80	340	480	305
160	214	-	67	72	340	480	305
170	227	-	74	72	340	480	305
180	240	-	81	72	340	480	305
190	254	-	88	72	340	480	305
200	267	-	99	64	340	480	305
210	280	-	106	64	340	480	305
220	294	-	113	64	340	480	305
230	307	-	121	64	340	480	305
240	320	-	128	64	340	480	305
250	334	-	135	64	340	480	305
260	347	-	137	56	340	480	305
270	360	-	144	56	340	480	305
280	374	-	151	56	340	480	305
290	387	-	159	56	340	480	305
300	400	-	166	56	340	480	305
310	414	-	173	56	340	480	305
320	427	-	181	56	340	480	305
330	440	-	188	56	340	480	305
340	454	-	195	56	340	480	305
350	467	-	203	56	340	480	305
360	480	-	202	48	340	480	300
370	494	-	209	48	340	480	300
380	507	-	217	48	340	480	300
390	520	-	224	48	340	480	300
400	534	-	231	48	340	480	300
410	547	-	239	48	340	480	300

Sizes 59 to 62							
Travel	A	B1	B	C	E	F	K
150	200	-	93	80	380	560	305
160	214	-	86	80	380	560	305
170	227	-	79	80	380	560	305
180	240	-	71	80	380	560	305
190	254	-	88	72	380	560	305
200	267	-	95	72	380	560	305
210	280	-	102	72	380	560	305
220	294	-	110	72	380	560	305
230	307	-	117	72	380	560	305
240	320	-	128	64	380	560	305
250	334	-	136	64	380	560	305
260	347	-	143	64	380	560	305
270	360	-	150	64	380	560	305
280	374	-	158	64	380	560	305
290	387	-	165	64	380	560	305
300	400	-	172	64	380	560	305
310	414	-	179	64	380	560	305
320	427	-	181	56	380	560	305
330	440	-	188	56	380	560	305
340	454	-	196	56	380	560	305
350	467	-	203	56	380	560	305
360	480	-	210	56	380	560	305
370	494	-	218	56	380	560	305
380	507	-	225	56	380	560	305
390	520	-	232	56	380	560	305
400	534	-	240	56	380	560	305
410	547	-	247	56	380	560	305

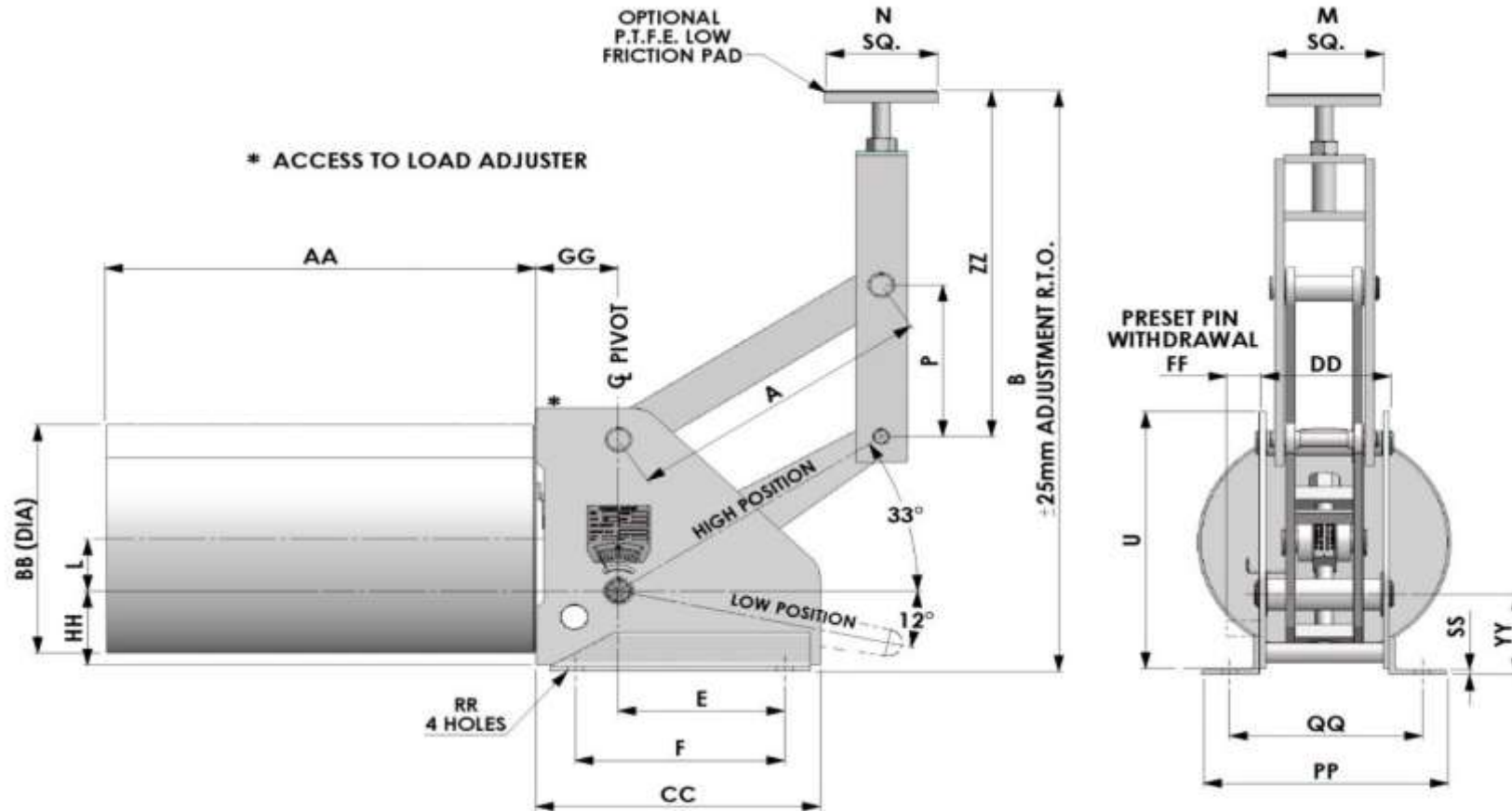
Sizes 63 to 66							
Travel	A	B1	B	C	E	F	K
150	200	-	50	90	380	560	305
160	214	-	58	90	380	560	305
170	227	-	65	90	380	560	305
180	240	-	71	80	380	560	305
190	254	-	79	80	380	560	305
200	267	-	86	80	380	560	305
210	280	-	93	80	380	560	305
220	294	-	101	80	380	560	305
230	307	-	117	72	380	560	305
240	320	-	124	72	380	560	305
250	334	-	132	72	380	560	305
260	347	-	139	72	380	560	305
270	360	-	146	72	380	560	305
280	374	-	154	72	380	560	305
290	387	-	164	64	380	560	305
300	400	-	171	64	380	560	305
310	414	-	179	64	380	560	305
320	427	-	186	64	380	560	305
330	440	-	193	64	380	560	305
340	454	-	201	64	380	560	305
350	467	-	208	64	380	560	305
360	480	-	215	64	380	560	305
370	494	-	222	64	380	560	305
380	507	-	225	56	380	560	305
390	520	-	232	56	380	560	305
400	534	-	240	56	380	560	305
410	547	-	246	56	380	560	305

BC53 CONSTANT LOAD SPRING SUPPORTS – DIMENSIONAL DETAIL (CONTINUED)

Constant Support Sizes 1 to 66											
Size	1-6	7-12	13-18	19-26	27-33	34-39	40-47	48-50	51-54	55-58	59-66
AA	250	300	350	400	600	750	1100	1265	1265	1265	1620
BB	150	220	295	330	390	440	525	525	525	525	640
CC	180	215	270	325	405	495	610	685	685	685	685
DD	115	120	135	150	180	225	280	345	345	345	455
FF	135	140	160	175	215	270	330	405	405	405	560
GG	55	65	75	95	115	145	198	250	250	250	280
HH	55	65	75	95	115	145	180	190	190	190	215
PP	215	220	255	270	320	425	480	745	745	745	855
QQ	165	180	205	220	265	335	395	520	520	520	685
RR	14	18	22	22	22	27	33	45	45	45	51
SS	6	6	8	8	10	10	15	20	20	20	25
YY	65	80	100	110	130	155	190	320	320	320	320
L	33	38	55	66	83	100	Table	182	182	182	Table
U	180	215	270	325	405	495	610	710	710	710	760

L Dimension										
Size	40-44	45-47	59	60	61	62	63	64	65	66
L	121	165	188	193	197	203	207	211	216	220

10.9 BC54 CONSTANT LOAD SUPPORTS – DIMENSIONAL DETAIL



*HEIGHT B CALCULATED WHEN
 LOAD ARM IS IN HIGH POSITION.
 *FOR UP TRAVEL, INSTALLED HEIGHT
 EQUALS B MINUS UP TRAVEL

BC54 CONSTANT LOAD SPRING SUPPORTS – DIMENSIONAL DETAIL (CONTINUED)

Sizes 1 to 6		
Travel	A	B
40	54	333
50	67	340
60	80	347
70	94	355
80	107	362
90	120	369
100	134	377
110	147	384
120	160	391
130	174	399
140	187	406
150	200	413
160	214	421
170	227	428
180	240	435
190	254	443
200	267	450
210	280	456

Sizes 7 to 12		
Travel	A	B
40	54	365
50	67	372
60	80	379
70	94	387
80	107	394
90	120	401
100	134	409
110	147	416
120	160	423
130	174	431
140	187	438
150	200	445
160	214	453
170	227	460
180	240	467
190	254	475
200	267	482
210	280	490

Sizes 13 to 18		
Travel	A	B
60	80	481
70	94	489
80	107	496
90	120	503
100	134	511
110	147	518
120	160	525
130	174	533
140	187	540
150	200	547
160	214	555
170	227	562
180	240	569
190	254	577
200	267	584
210	280	591
220	294	599
230	307	606
240	320	613
250	334	621
260	347	628

Sizes 19 to 26		
Travel	A	B
60	80	558
70	94	566
80	107	573
90	120	580
100	134	588
110	147	595
120	160	602
130	174	610
140	187	617
150	200	624
160	214	632
170	227	639
180	240	646
190	254	654
200	267	661
210	280	668
220	294	676
230	307	683
240	320	690
250	334	698
260	347	705
270	360	712
280	374	720
290	387	727
300	400	734
310	414	742
320	427	749
330	440	756
340	454	764
350	467	771
360	480	778

Sizes 27 to 33		
Travel	A	B
70	94	701
80	107	708
90	120	715
100	134	723
110	147	730
120	160	737
130	174	745
140	187	752
150	200	759
160	214	767
170	227	774
180	240	781
190	254	789
200	267	796
210	280	803
220	294	811
230	307	818
240	320	825
250	334	833
260	347	840
270	360	847
280	374	855
290	387	862
300	400	869
310	414	877
320	427	884
330	440	891
340	454	899
350	467	906
360	480	912

BC54 CONSTANT LOAD SPRING SUPPORTS – DIMENSIONAL DETAIL (CONTINUED)

Sizes 34 to 39		
Travel	A	B
90	120	909
100	134	917
110	147	924
120	160	931
130	174	939
140	187	946
150	200	953
160	214	961
170	227	968
180	240	975
190	254	983
200	267	990
210	280	997
220	294	1005
230	307	1012
240	320	1019
250	334	1027
260	347	1034
270	360	1041
280	374	1049
290	387	1056
300	400	1063
310	414	1071
320	427	1078
330	440	1085
340	454	1093
350	467	1100
360	480	1107
370	494	1115
380	507	1122
390	520	1129
400	534	1137
410	547	1144

Sizes 40 to 47		
Travel	A	B
110	147	1026
120	160	1033
130	174	1041
140	187	1048
150	200	1055
160	214	1063
170	227	1070
180	240	1077
190	254	1085
200	267	1092
210	280	1099
220	294	1107
230	307	1114
240	320	1121
250	334	1129
260	347	1136
270	360	1143
280	374	1151
290	387	1158
300	400	1165
310	414	1173
320	427	1180
330	440	1187
340	454	1195
350	467	1202
360	480	1209
370	494	1217
380	507	1224
390	520	1231
400	534	1239
410	547	1246

Sizes 48 to 58		
Travel	A	B
110	147	1440
120	160	1447
130	174	1455
140	187	1462
150	200	1469
160	214	1477
170	227	1484
180	240	1491
190	254	1499
200	267	1506
210	280	1513
220	294	1521
230	307	1528
240	320	1535
250	334	1543
260	347	1550
270	360	1557
280	374	1565
290	387	1572
300	400	1579
310	414	1587
320	427	1594
330	440	1601
340	454	1609
350	467	1616
360	480	1623
370	494	1631
380	507	1638
390	520	1645
400	534	1653
410	547	1660

Sizes 59 to 66		
Travel	A	B
150	200	1629
160	214	1637
170	227	1644
180	240	1651
190	254	1659
200	267	1666
210	280	1673
220	294	1681
230	307	1688
240	320	1695
250	334	1703
260	347	1710
270	360	1717
280	374	1725
290	387	1732
300	400	1739
310	414	1747
320	427	1754
330	440	1761
340	454	1769
350	467	1776
360	480	1783
370	494	1791
380	507	1798
390	520	1805
400	534	1813
410	547	1820

BC54 CONSTANT LOAD SPRING SUPPORTS – DIMENSIONAL DETAIL (CONTINUED)

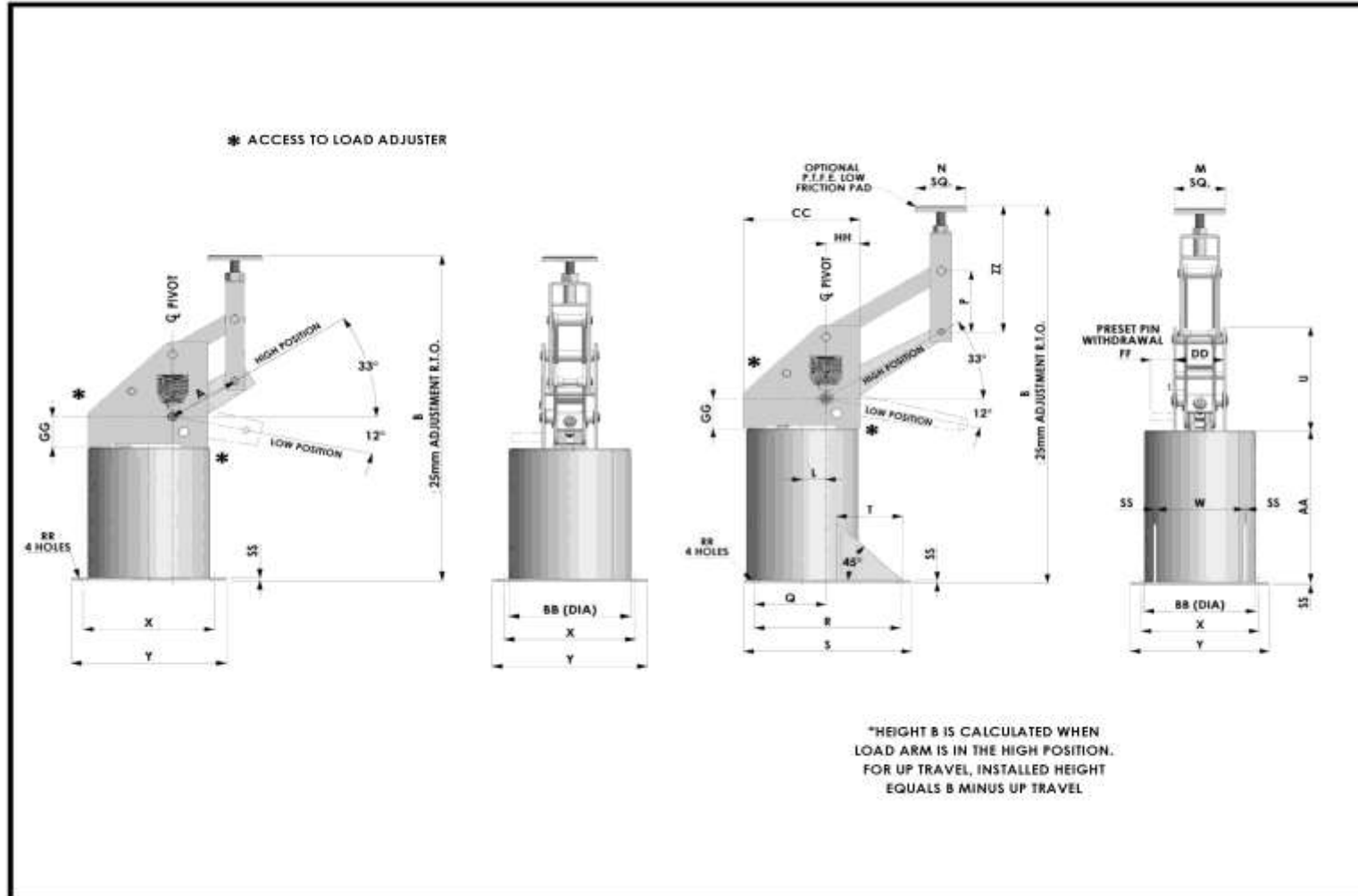
Constant Support Sizes 1 to 66									
Travel	1-6	7-12	13-18	19-26	27-33	34-39	40-47	48-58	59-66
AA	250	300	350	400	600	750	1100	1205	1605
BB	152	222	297	330	390	440	525	525	640
CC	178	216	267	324	406	495	610	686	760
DD	115	120	135	150	180	225	280	345	455
FF	135	140	160	175	215	270	330	405	560
GG	54	67	76	95	118	143	198	248	280
HH	54	67	76	95	118	143	178	191	235
PP	215	220	255	270	320	425	480	745	855
QQ	165	180	205	220	265	335	395	520	685
RR	14	18	22	22	22	27	33	45	51
SS	6	6	8	8	10	10	15	20	26
YY	65	80	100	110	130	155	190	320	320
ZZ	239	283	338	405	521	690	758	1040	1200
E	105	120	155	190	235	290	355	340	380
F	140	155	190	240	300	365	455	480	560
L	33	38	55	66	83	100	Table	182	Table
M	80	100	130	150	180	200	230	294	394
N	75	95	120	145	175	195	225	300	400
P	106	128	160	190	241	292	399	500	573
U	178	216	267	324	406	495	610	760	870

L Dimension										
Size	40-44	45-47	59	60	61	62	63	64	65	66
L	121	165	188	193	197	203	207	211	216	220

Please note that Rod Take Out does not include the height of the P.T.F.E. Low friction Pad

10.10 BC55 CONSTANT LOAD SUPPORTS – DIMENSIONAL DETAIL

CONSTANT EFFORT SUPPORTS BC55



BC55 CONSTANT LOAD SPRING SUPPORTS – DIMENSIONAL DETAIL (CONTINUED)

Sizes 1 to 6			
Travel	A	B	Q
40	54	578	118
50	67	585	118
60	80	592	118
70	94	600	118
80	107	607	118
90	120	614	118
100	134	622	118
110	147	629	118
120	160	636	118
130	174	644	118
140	187	651	118
150	200	658	118
160	214	666	97
170	227	673	97
180	240	680	97
190	254	688	97
200	267	695	97
210	280	702	97

Sizes 7 to 12			
Travel	A	B	Q
40	54	685	153
50	67	692	153
60	80	699	153
70	94	707	153
80	107	714	153
90	120	721	153
100	134	729	153
110	147	736	153
120	160	743	153
130	174	751	153
140	187	758	153
150	200	765	153
160	214	773	126
170	227	780	126
180	240	787	126
190	254	795	126
200	267	802	126
210	280	808	126

Sizes 13 to 18			
Travel	A	B	Q
60	80	815	205
70	94	823	205
80	107	830	205
90	120	837	205
100	134	845	205
110	147	852	205
120	160	859	205
130	174	867	205
140	187	874	205
150	200	881	205
160	214	889	195
170	227	896	195
180	240	903	195
190	254	911	195
200	267	918	195
210	280	925	195
220	294	933	195
230	307	940	195
240	320	947	195
250	334	955	195
260	347	962	195

Sizes 19 to 26			
Travel	A	B	Q
60	80	951	243
70	94	959	243
80	107	966	243
90	120	973	243
100	134	981	243
110	147	988	243
120	160	995	243
130	174	1003	243
140	187	1010	243
150	200	1017	243
160	214	1025	208
170	227	1032	208
180	240	1039	208
190	254	1047	208
200	267	1054	208
210	280	1061	208
220	294	1069	208
230	307	1076	208
240	320	1083	208
250	334	1091	208
260	347	1098	208
270	360	1105	208
280	374	1113	208
290	387	1120	208
300	400	1127	208
310	414	1135	208
320	427	1142	208
330	440	1149	208
340	454	1157	208
350	467	1164	208
360	480	1171	208

Sizes 27 to 33			
Travel	A	B	Q
70	94	1299	288
80	107	1306	288
90	120	1313	288
100	134	1321	288
110	147	1328	288
120	160	1335	288
130	174	1343	288
140	187	1350	288
150	200	1357	288
160	214	1365	249
170	227	1372	249
180	240	1379	249
190	254	1387	249
200	267	1394	249
210	280	1401	249
220	294	1409	249
230	307	1416	249
240	320	1423	249
250	334	1431	249
260	347	1438	249
270	360	1445	249
280	374	1453	249
290	387	1460	249
300	400	1467	249
310	414	1475	249
320	427	1482	249
330	440	1489	249
340	454	1497	249
350	467	1504	249
360	480	1511	249

BC55 CONSTANT LOAD SPRING SUPPORTS – DIMENSIONAL DETAIL (CONTINUED)

Sizes 34 to 39			
Travel	A	B	Q
90	120	1657	330
100	134	1665	330
110	147	1672	330
120	160	1679	330
130	174	1687	330
140	187	1694	330
150	200	1701	330
160	214	1709	277
170	227	1716	277
180	240	1723	277
190	254	1731	277
200	267	1738	277
210	280	1745	277
220	294	1753	277
230	307	1760	277
240	320	1767	277
250	334	1775	277
260	347	1782	277
270	360	1789	277
280	374	1797	277
290	387	1804	277
300	400	1811	277
310	414	1819	277
320	427	1826	277
330	440	1833	277
340	454	1841	277
350	467	1848	277
360	480	1855	277
370	494	1863	277
380	507	1870	277
390	520	1877	277
400	534	1885	277
410	547	1892	277

Sizes 40 to 47			
Travel	A	B	Q
110	147	2150	Table
120	160	2157	Table
130	174	2165	Table
140	187	2172	Table
150	200	2179	Table
160	214	2187	Table
170	227	2194	Table
180	240	2201	Table
190	254	2209	Table
200	267	2216	Table
210	280	2223	Table
220	294	2231	Table
230	307	2238	Table
240	320	2245	Table
250	334	2253	Table
260	347	2260	Table
270	360	2267	Table
280	374	2275	Table
290	387	2282	Table
300	400	2289	Table
310	414	2297	Table
320	427	2304	Table
330	440	2311	Table
340	454	2319	Table
350	467	2326	Table
360	480	2333	Table
370	494	2341	Table
380	507	2348	Table
390	520	2355	Table
400	534	2363	Table
410	547	2370	Table

Sizes 48 to 58			
Travel	A	B	Q
110	147	2643	488
120	160	2650	488
130	174	2658	488
140	187	2665	488
150	200	2672	488
160	214	2680	459
170	227	2687	459
180	240	2694	459
190	254	2702	459
200	267	2709	459
210	280	2716	459
220	294	2724	459
230	307	2731	459
240	320	2738	459
250	334	2746	459
260	347	2753	459
270	360	2760	459
280	374	2768	459
290	387	2775	459
300	400	2782	459
310	414	2790	459
320	427	2797	459
330	440	2804	459
340	454	2812	459
350	467	2819	459
360	480	2826	459
370	494	2834	459
380	507	2841	459
390	520	2848	459
400	534	2856	459
410	547	2863	459

Sizes 59 to 66			
Travel	A	B	Q
150	200	3219	Table
160	214	3227	Table
170	227	3234	Table
180	240	3241	Table
190	254	3249	Table
200	267	3256	Table
210	280	3263	Table
220	294	3271	Table
230	307	3278	Table
240	320	3285	Table
250	334	3293	Table
260	347	3300	Table
270	360	3307	Table
280	374	3315	Table
290	387	3322	Table
300	400	3329	Table
310	414	3337	Table
320	427	3344	Table
330	440	3351	Table
340	454	3359	Table
350	467	3366	Table
360	480	3373	Table
370	494	3381	Table
380	507	3388	Table
390	520	3395	Table
400	534	3403	Table
410	547	3410	Table

BC55 CONSTANT LOAD SPRING SUPPORTS – DIMENSIONAL DETAIL (CONTINUED)

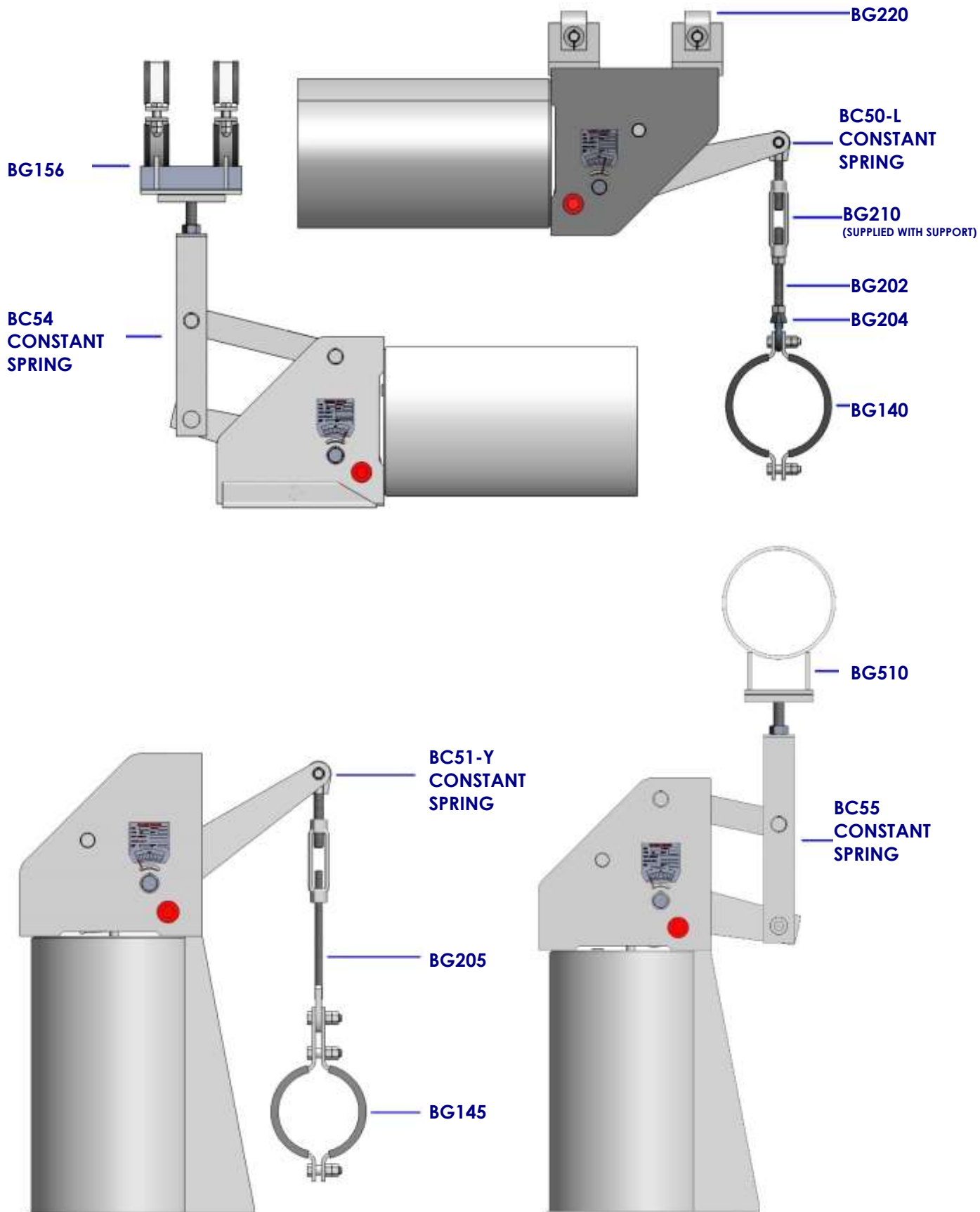
Constant Support Sizes 1 to 66									
Travel	1-6	7-12	13-18	19-26	27-33	34-39	40-47	48-58	59-66
AA	250	300	350	400	650	750	1100	1205	1605
BB	150	220	295	330	390	440	525	525	640
CC	180	215	270	325	405	495	610	686	760
DD	115	120	135	150	180	225	280	345	455
FF	135	140	160	175	215	270	330	405	560
GG	54	67	76	95	118	143	198	248	280
HH	55	65	75	95	115	145	180	191	235
RR	14	18	22	22	22	27	33	45	51
SS	6	6	8	8	10	10	15	20	26
ZZ	239	283	338	405	521	690	758	1040	1200
L	33	38	55	66	83	100	Table	182	Table
M	80	100	130	150	180	200	230	294	394
N	75	95	120	145	175	195	225	300	400
P	106	128	160	190	241	292	399	500	573
R	180	255	370	395	510	510	740	830	900
S	220	305	420	460	585	610	840	930	1030
T	80	100	170	180	230	240	360	389	422
U	178	216	267	324	406	495	640	820	915
W	102	127	203	254	305	305	381	305	405
X	170	230	280	355	410	460	560	580	660
Y	210	280	330	420	485	560	660	730	810

L Dimension										
Size	40-44	45-47	59	60	61	62	63	64	65	66
L	121	165	188	193	197	203	207	211	216	220

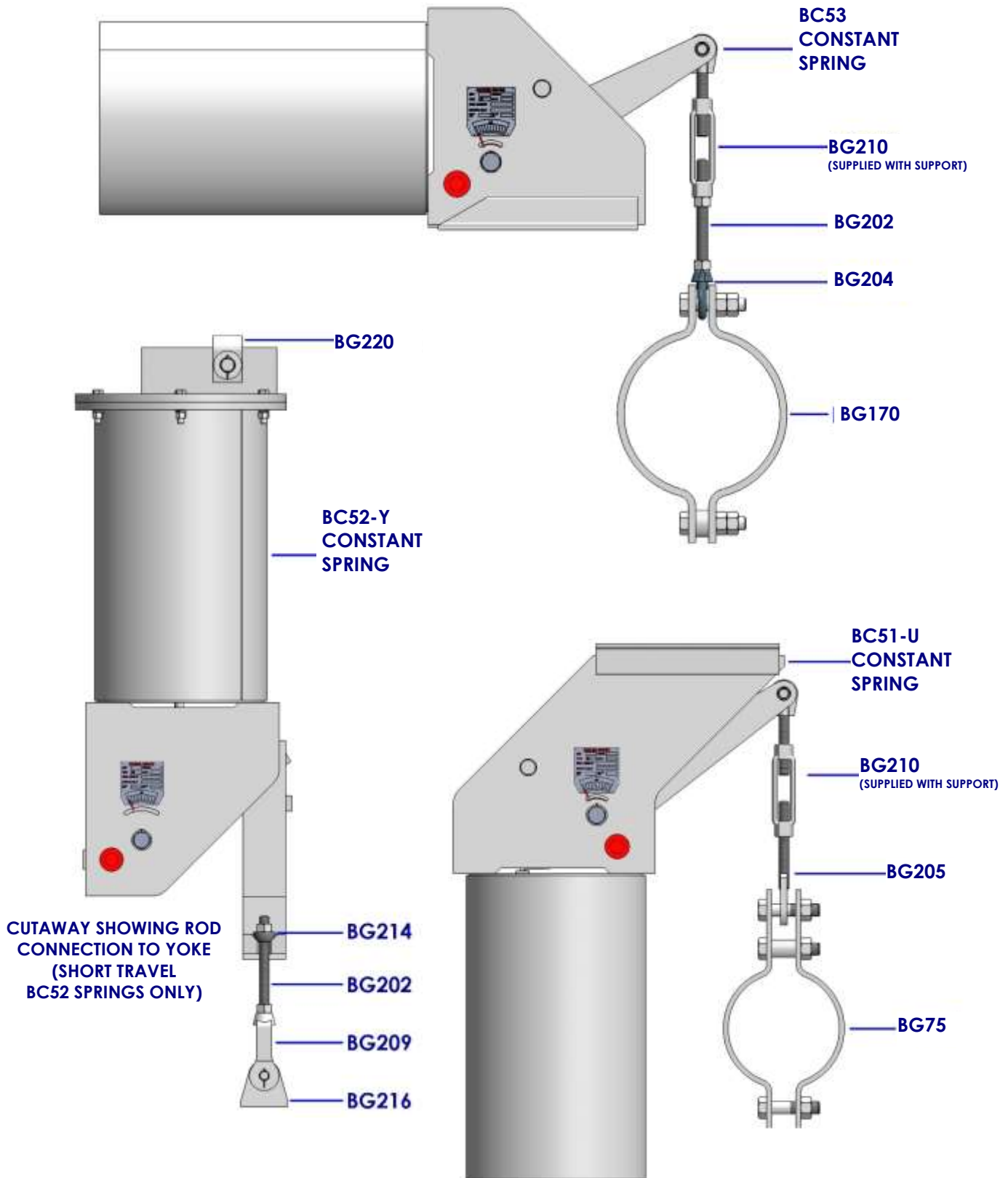
Q Dimension										
Travel	40-44	45-47	59	60	61	62	63	64	65	66
150 and Under	401	445	528	533	537	543	547	551	556	560
Over 150	445	394	483	488	492	498	502	506	511	515

Please note that Rod Take Out does not include the height of the P.T.F.E. Low friction Pad

10.11 CONSTANT LOAD SUPPORTS – TYPICAL EXAMPLES



CONSTANT LOAD SPRING SUPPORTS – TYPICAL EXAMPLES (CONTINUED)



10.12 CONSTANT LOAD SUPPORTS – QUOTATION REQUEST FORM (FM219)

CUSTOMER DETAILS

Customer Name		Phone No.	
Project Reference		Fax No.	
Contact		Email	
BPG No. (Binder Use only)		Date	

INFORMATION REQUIRED FOR QUOTATION ("COLD" means Non-operating, "HOT" means Operating)

A Constant Effort model, mounting Type, Size and Finish e.g. 850010/M HDG is required for a budget quotation OR the Customer shall nominate a model, Type and Finish, and BINDER determine the size based on customers specific Load and Travel requirements :

LOAD	_____ (Kg)	ACTUAL TRAVEL	_____ (mm)	_____ Up	_____ Down
	or _____ (N)		_____ (Inches)	_____ Up	_____ Down
	or _____ (lbs)	Or			
		TOTAL / MAX TRAVEL	_____ (mm)	_____ Up	_____ Down
			_____ (mm)	_____ Up	_____ Down
Support Type (BC50, 51, 52 etc)	_____	Mounting Type (L, M etc.)	_____	_____	_____

(Total Travel adds 25mm / 20% travel allowance to Actual Travel, Max Travel assumes no allowance)

SURFACE FINISH (Select Required Finishes)

Constant Unit (Casing, Leverarms etc)

Spring Coil

<input type="checkbox"/>	HDG (Standard)	
<input type="checkbox"/>	Paint – Binder system 1	
<input type="checkbox"/>	Client paint spec :	_____
<input type="checkbox"/>	None	
<input type="checkbox"/>	Other (Please specify):	_____

<input type="checkbox"/>	Acrylic Paint (Standard)
<input type="checkbox"/>	Neoprene Coating
<input type="checkbox"/>	Other :

Threaded Internal Items (Tension Rods etc)

Lever Arm & Trunnion Pins : SS Grade 316 (Standard)

<input type="checkbox"/>	Zinc Plated (Standard)	
<input type="checkbox"/>	HDG	
<input type="checkbox"/>	Other (Please specify):	_____

<input type="checkbox"/>	PAINT
<input type="checkbox"/>	Paint Spec Number:.....
<input type="checkbox"/>	Amount of Coats:.....
<input type="checkbox"/>	Top Coat Colour:.....

INFORMATION REQUIRED FOR CONSTANT EFFORT SUPPORT 'HANGER ASSEMBLY'

Envelope for Hanger Assembly

Bottom of Support Steel
 Pipe Centreline or Length of Drop Rod
 Pipe Size NB
 Pipe Operating Temperature
 Insulation Thickness









FURTHER INFORMATION REQUIRED FOR MANUFACTURE

All of above information plus :

HYDROSTATIC LOAD (if applicable) _____ (If the hydrostatic load exceeds 2 x the springs max load, spring is to be replaced during testing of the line by rigid support).

NOTE : Constant Effort Supports CANNOT be manufactured without load and travel data, as loads and travels affect the lever arm size and preset pin location. Therefore load and travel data MUST BE SUPPLIED AT TIME OF ORDER if not provided for quoting.

11. DYNAMIC RESTRAINTS

HYDRAULIC SNUBBERS & ATTACHMENTS					
Model	BG310 HYDRAULIC SNUBBER	BG315 END ATTACHMENT FOR HYDRAULIC SNUBBER	BG320 SNUBBER CLAMP LOW TEMPERATURE	BG321 SNUBBER CLAMP HIGH TEMPERATURE	BG322 SNUBBER CLAMP VERY HIGH TEMPERATURE
TYPE					
PAGE	Page 139	Page 141	Page 142	Page 143	Page 144
RIGID STRUTS, SWAY BRACE ATTACHMENTS					
Model	BG350 RIGID STRUT	BG355 END ATTACHMENT FOR RIGID STRUT			BG340 SWAY BRACE
TYPE					
PAGE	Page 145	Page 146			Page 147
NOTE: SNUBBER CLAMPS ARE NOT COMPATABLE WITH RIGID STRUTS OR SWAY BRACES					

11.1 BG310 HYDRAULIC SNUBBERS (SHOCK ARRESTORS)

Introduction

The purpose of Hydraulic Snubbers or Shock Arrestors is to allow slow movement due to thermal expansion while protecting piping systems and equipment from accidental damage arising from abnormal loading or movement conditions, due to a shock force or vibration such as experienced during seismic disturbance.



Typical applications include control of :

- Seismic disturbance
- Pipe or equipment mechanical failure
- Fluid surge
- Water hammer

The major advantages of the Binder Hydraulic Snubber are:

The oil reservoir is contained inside the cylinder casing of the Snubber to reduce the number of sealed connections thus eliminating the possibility of oil leakage.

With the unique design of a built-in accumulator, the volume difference in the hydraulic chambers can be self-adjusted without any moving parts, thus significantly eliminating the possibility of mechanical problems and oil leakage.

As part of the valve mechanism, a leakage plug is provided to release air bubbles generated from the fluid inside the hydraulic chamber by being effected by radiation or other environmental conditions. Any kind of hydraulic fluid can generate bubbles of air throughout the service period of the Snubber. Bubbles must be removed from the pressure chamber to maintain the required stiffness of the unit.

Units are factory preset to the design stroke position, enabling the assembly to be installed without complex site work.

High Durable metallic seals are used in the Snubbers.

A colour coded stroke indicator provides easy in service inspection of the Snubbers

Design Characteristics

Seals are durable against 1.5 times the inner pressure level.

A spherical bearing is fitted to each end part of the Snubber assembly allowing a maximum of 15 degrees angular offset.

Drag force (frictional resistance) throughout the overall stroke range is less than 2% of the rated load or 50kg, whichever is the greater at the input velocity of 1mm/sec.

Bleed rate (release rate) under a lateral loading mode is 0.5mm/sec.

The Snubbers can generate the required vibration control force between the input frequency range of 1 Hz to 33Hz.

Snubber units are designed for a minimum expected life of 20,000 cycles.

Peak to peak dynamic stiffness (Spring Rate) of each size-stroke of the Snubber main unit is:

	Dynamic Spring Rate (kg/mm)	
	160 or less	161 – 250 mm
BG310 – 300kg	250 or over	150 or over
BG310 – 600kg	450 or over	300 or over
BG310 – 1,000kg	650 or over	450 or over
BG310 – 3,000kg	1500 or over	1000 or over
BG310 – 6,000kg	3000 or over	2000 or over
BG310 – 10,000kg	5000 or over	3000 or over
BG310 – 16,000kg	7000 or over	4500 or over
BG310 – 25,000kg	8000 or over	6500 or over

Snubbers maintain their normal performance through a temperature range of -15°C and +60°C.

Recommended regular maintenance service (replacement of sealing parts, etc.) for the units is once every 10 years.

Snubber for use in radiation affected areas are available on request.

Assemblies:



The hydraulic Snubber can be supplied as an assembly incorporating the specially designed Binder Pipe Clamps (BG320, BG321 & BG322) and BG315 End attachments.

Finish:

Surface preparation - SSPC-SP-3

Prime Coat – Synthetic resin primer Min DFT 30µmm

Top Coat – Aluminium Paint Min DFT 30µmm

Other finishes are not available.

BG310 HYDRAULIC SNUBBERS (SHOCK ARRESTORS) (CONTINUED)

Ordering:

Please quote Part ID number from the tables below for the required load capacity and stroke (Snubber size).

There are two types available.

- FA – Fixed Assemble. See Table 1
- EA – Extendable Assembly. See Table 2.

The Extendable Assembly is supplied with a connecting pipe; this is cut on site to the correct length and then welded to the junction column.

When selecting the unit, 50mm reserve travel should be added to the design travel:

i.e. 55mm design travel + 50mm Reserve = 105mm therefore a size 160 unit is required.

Note: 'L' dimension refers to the Snubber unit in mid travel.

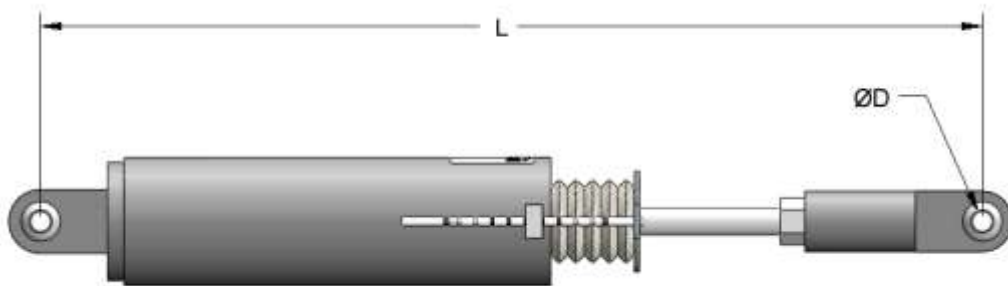


Table 1

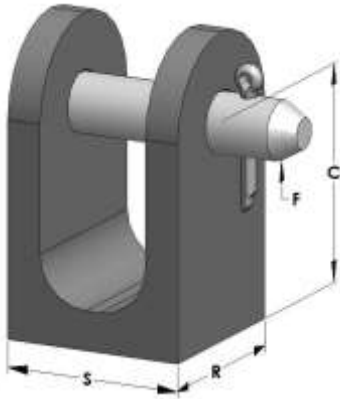
Description / Size (Fixed Assembly)	Part ID			Max Force (kg)	ØD	L		
	Snubber Size					Stroke		
	100	160	250			100	160	250
BG310 Hydraulic Snubber (FA) 300kg	310001	310009	310017	300	12	563	653	788
BG310 Hydraulic Snubber (FA) 600kg	310002	310010	310018	600	12	573	663	798
BG310 Hydraulic Snubber (FA) 1,000kg	310003	310011	310019	1000	15	580	670	805
BG310 Hydraulic Snubber (FA) 3,000kg	310004	310012	310020	3000	17	671	761	896
BG310 Hydraulic Snubber (FA) 6,000kg	310005	310013	310021	6000	25	749	839	974
BG310 Hydraulic Snubber (FA) 10,000kg	310006	310014	310022	10000	30	817	907	1042
BG310 Hydraulic Snubber (FA) 16,000kg	310007	310015	310023	16000	40	905	995	1130
BG310 Hydraulic Snubber (FA) 25,000kg	310008	310016	310024	25000	50	991	1081	1216

Table 2

Description / Size (Extendable Assembly)	Part ID			Max Force (kg)	ØD	L (Min)			L (Max)		
	Snubber Size					Stroke			Stroke		
	100	160	250			100	160	250	100	160	250
BG310 Hydraulic Snubber (EA) 300kg	310025	310033	310041	300	12	642	732	867	1340	1340	1340
BG310 Hydraulic Snubber (EA) 600kg	310026	310034	310042	600	12	659	749	884	1567	1567	1567
BG310 Hydraulic Snubber (EA) 1,000kg	310027	310035	310043	1000	15	683	773	908	1861	1861	1861
BG310 Hydraulic Snubber (EA) 3,000kg	310028	310036	310044	3000	17	811	901	1036	2187	2187	2187
BG310 Hydraulic Snubber (EA) 6,000kg	310029	310037	310045	6000	25	906	996	1131	2441	2441	2441
BG310 Hydraulic Snubber (EA) 10,000kg	310030	310038	310046	10000	30	1002	1092	1227	2784	2784	2784
BG310 Hydraulic Snubber (EA) 16,000kg	310031	310039	310047	16000	40	1130	1220	1355	3418	3418	3418
BG310 Hydraulic Snubber (EA) 25,000kg	310032	310040	310048	25000	50	1256	1346	1481	3950	3950	3950

11.2 BG315 END ATTACHMENT FOR HYDRAULIC SNUBBERS

When ordering, please quote Part No. for required End Attachment size.



		Material
End Attachment		Forged Carbon Steel
Load Pin		Carbon Steel
		Surface Finish
End Attachment		Painted
Load Pin		Zinc Plated

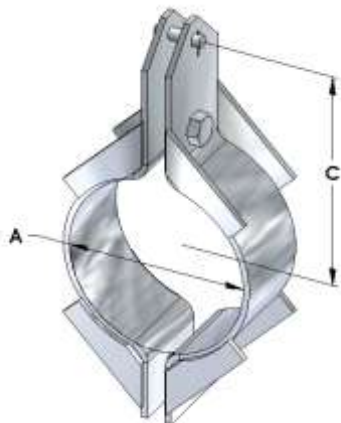
General Notes

- For use with BG310 – Hydraulic Snubbers.
- Only available in a painted finish (2 coats).
- Please refer to page 6 for material standards and specifications.

Description	(C)	Load Pin Ø (F)	(R)	(S)	Part No.
	mm	mm	mm	mm	
End Attachment – 300kg Hydraulic Snubber	44	12	36	37	315001
End Attachment – 600kg Hydraulic Snubber	44	12	36	37	315002
End Attachment – 1,000kg Hydraulic Snubber	56	15	50	51	315003
End Attachment – 3,000kg Hydraulic Snubber	66	17	60	61	315004
End Attachment – 6,000kg Hydraulic Snubber	83	25	75	75	315005
End Attachment – 1,0000kg Hydraulic Snubber	99	30	90	90	315006
End Attachment – 16,000kg Hydraulic Snubber	116	40	110	110	315007
End Attachment – 25,000kg Hydraulic Snubber	150	50	145	145	315008

11.3 BG320 PIPE CLAMP FOR HYDRAULIC SNUBBER – LOW TEMPERATURE

Temperature Range – Up to 200°C



When ordering, please quote the Part No. for required Snubber Load and pipe size.

		Material
Clamp, Bolting & Load Pin		Carbon Steel
		Surface Finish
Clamp & Bolting		Hot Dipped Galvanised
Load Pin		Zinc Plated

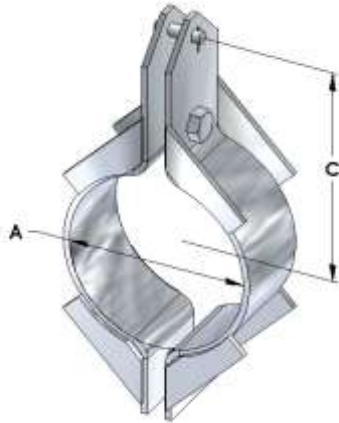
General Notes

- BG320 designed to suit the BG310. If required to suit the BG350 – Rigid Strut, please inform the Binder Group, as a modified load pin is required.
- Please refer to page 6 for material standards and specifications.

BG320 Hydraulic Snubber Reference															
Description	BG320 Pipe Clamp. Max Load: 600kg		BG320 Pipe Clamp. Max Load: 1,000kg		BG320 Pipe Clamp. Max Load: 3,000kg		BG320 Pipe Clamp. Max Load: 6,000kg		BG320 Pipe Clamp. Max Load: 10,000kg		BG320 Pipe Clamp. Max Load: 16,000kg		BG320 Pipe Clamp. Max Load: 25,000kg		
	Pipe Size NB (A)	(C)	Part No.	(C)	Part No.	(C)	Part No.	(C)	Part No.	(C)	Part No.	(C)	Part No.	(C)	Part No.
40	160	320001	160	320012	175	320037									
50	170	320002	170	320013	190	320038									
65	190	320003	190	320014	205	320039									
80	200	320004	200	320015	210	320040	210	320062							
90	205	320005	205	320016	220	320041	220	320063							
100	215	320006	215	320017	230	320042	230	320064							
125	235	320007	235	320018	245	320043	245	320065							
150	245	320008	245	320019	260	320044	260	320066	280	320084	290	320102			
200	280	320009	280	320020	295	320045	295	320067	315	320085	325	320103			
250	310	320010	310	320021	325	320046	325	320068	345	320086	350	320104	375	320120	
300	335	320011	335	320022	350	320047	350	320069	370	320087	375	320105	400	320121	
350			365	320023	380	320048	380	320070	400	320088	400	320106	430	320122	
400			390	320024	405	320049	405	320071	425	320089	430	320107	455	320123	
450			415	320025	430	320050	430	320072	450	320090	460	320108	485	320124	
500			440	320026	455	320051	455	320073	475	320091	485	320109	510	320125	
550			475	320027	500	320052	500	320074	510	320092	520	320110	545	320126	
600			500	320028	525	320053	525	320075	535	320093	545	320111	570	320127	
650			530	320029	550	320054	550	320076	565	320094	570	320112	595	320128	
700			555	320030	575	320055	575	320077	590	320095	595	320113	620	320129	
750			580	320031	600	320056	600	320078	615	320096	620	320114	645	320130	
800			605	320032	625	320057	625	320079	640	320097	645	320115	670	320131	
850			630	320033	660	320058	650	320080	665	320098	670	320116	695	320132	
900			655	320034	680	320059	680	320081	690	320099	695	320117	720	320133	
1000			710	320035	730	320060	730	320082	745	320100	750	320118	780	320134	
1100			760	320036	785	320061	785	320083	795	320101	800	320119	830	320135	

11.4 BG321 PIPE CLAMP FOR HYDRAULIC SNUBBER – HIGH TEMPERATURE

Temperature Range – Up to 450°C



When ordering, please quote the Part No. for required Snubber Load and pipe size.

	Material
Fastener & Load Pin	Boiler Plate
	Surface Finish
Clamp & Bolting	Mill Finish
Load Pin	Zinc Plated

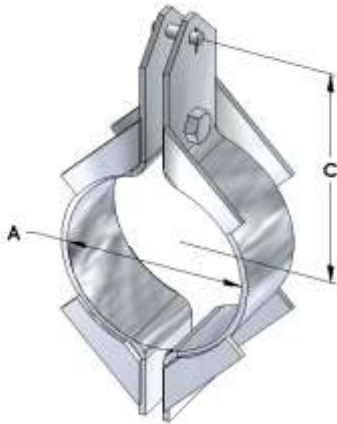
General Notes

- BG321 designed to suit the BG310. If required to suit the BG350 – Rigid Strut, please inform the Binder Group, a modified load pin is required.
- Please refer to page 6 for material standards and specifications

BG321 Hydraulic Snubber Reference														
Description	BG321 Pipe Clamp. Max Load: 600kg		BG321 Pipe Clamp. Max Load: 1,000kg		BG321 Pipe Clamp. Max Load: 3,000kg		BG321 Pipe Clamp. Max Load: 6,000kg		BG321 Pipe Clamp. Max Load: 10,000kg		BG321 Pipe Clamp. Max Load: 16,000kg		BG321 Pipe Clamp. Max Load: 25,000kg	
	Pipe Size NB (A)	(C)	Part No.	(C)	Part No.	(C)	Part No.	(C)	Part No.	(C)	Part No.	(C)	Part No.	(C)
40	160	321001	160	321012	175	321037								
50	170	321002	170	321013	190	321038								
65	190	321003	190	321014	205	321039								
80	200	321004	200	321015	210	321040	210	321062						
90	205	321005	205	321016	220	321041	220	321063						
100	215	321006	215	321017	230	321042	230	321064						
125	235	321007	235	321018	245	321043	245	321065						
150	245	321008	245	321019	260	321044	260	321066	280	321084	290	321102		
200	280	321009	280	321020	295	321045	295	321067	315	321085	325	321103		
250	310	321010	310	321021	325	321046	325	321068	345	321086	350	321104	375	321120
300	335	321011	335	321022	350	321047	350	321069	370	321087	375	321105	400	321121
350			365	321023	380	321048	380	321070	400	321088	400	321106	430	321122
400			390	321024	405	321049	405	321071	425	321089	430	321107	455	321123
450			415	321025	430	321050	430	321072	450	321090	460	321108	485	321124
500			440	321026	455	321051	455	321073	475	321091	485	321109	510	321125
550			475	321027	500	321052	500	321074	510	321092	520	321110	545	321126
600			500	321028	525	321053	525	321075	535	321093	545	321111	570	321127
650			530	321029	550	321054	550	321076	565	321094	570	321112	595	321128
700			555	321030	575	321055	575	321077	590	321095	595	321113	620	321129
750			580	321031	600	321056	600	321078	615	321096	620	321114	645	321130
800			605	321032	625	321057	625	321079	640	321097	645	321115	670	321131
850			630	321033	660	321058	650	321080	665	321098	670	321116	695	321132
900			655	321034	680	321059	680	321081	690	321099	695	321117	720	321133
1000			710	321035	730	321060	730	321082	745	321100	750	321118	780	321134
1100			760	321036	785	321061	785	321083	795	321101	800	321119	830	321135

11.5 BG322 PIPE CLAMP FOR HYDRAULIC SNUBBER – VERY HIGH TEMPERATURE

Temperature Range – Up to 570°C



When ordering, please quote the Part No. for required Snubber Load and pipe size.

Material	
Clamp & Bolting	Alloy Steel
Surface Finish	
Clamp & Bolting	Mill Finish
Load Pin	Zinc Plated

General Notes

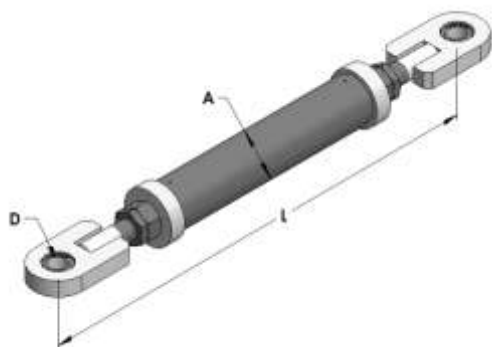
- BG322 designed to suit the BG310. If required to suit the BG350 – Rigid Strut, please inform the Binder Group, a modified load pin is required.
- Please refer to page 6 for material standards and specifications

BG322 Hydraulic Snubber Reference														
Description	BG322 Pipe Clamp. Max Load: 600kg		BG322 Pipe Clamp. Max Load: 1,000kg		BG322 Pipe Clamp. Max Load: 3,000kg		BG322 Pipe Clamp. Max Load: 6,000kg		BG322 Pipe Clamp. Max Load: 10,000kg		BG322 Pipe Clamp. Max Load: 16,000kg		BG322 Pipe Clamp. Max Load: 25,000kg	
	Pipe Size NB (A)	(C)	Part No.	(C)	Part No.	(C)	Part No.	(C)	Part No.	(C)	Part No.	(C)	Part No.	(C)
40	200	322001	200	322012	215	322037								
50	210	322002	210	322013	230	322038								
65	230	322003	230	322014	245	322039								
80	240	322004	240	322015	250	322040	250	322062						
90	245	322005	245	322016	260	322041	260	322063						
100	255	322006	255	322017	270	322042	270	322064						
125	275	322007	275	322018	285	322043	285	322065						
150	305	322008	295	322019	320	322044	320	322066	330	322084	350	322102		
200	340	322009	330	322020	355	322045	355	322067	365	322085	385	322103		
250	370	322010	365	322021	385	322046	385	322068	390	322086	410	322104	435	322120
300	395	322011	395	322022	410	322047	410	322069	430	322087	435	322105	460	322121
350			415	322023	440	322048	440	322070	450	322088	460	322106	490	322122
400			440	322024	465	322049	465	322071	475	322089	490	322107	515	322123
450			475	322025	490	322050	490	322072	510	322090	520	322108	545	322124
500			500	322026	515	322051	515	322073	535	322091	545	322109	570	322125
550			525	322027	560	322052	560	322074	560	322092	580	322110	605	322126
600			550	322028	585	322053	585	322075	585	322093	605	322111	630	322127
650			605	322029	610	322054	610	322076	620	322094	630	322112	655	322128
700			610	322030	635	322055	635	322077	645	322095	655	322113	680	322129
750			635	322031	660	322056	660	322078	670	322096	680	322114	705	322130
800			665	322032	685	322057	685	322079	700	322097	705	322115	730	322131
850			690	322033	720	322058	710	322080	725	322098	730	322116	755	322132
900			715	322034	740	322059	740	322081	750	322099	755	322117	780	322133
1000			770	322035	790	322060	790	322082	805	322100	810	322118	840	322134
1100			820	322036	845	322061	845	322083	855	322101	860	322119	890	322135

11.6 BG350 RIGID STRUTS

Introduction

Rigid Struts are a rigid connection between a piping system and supporting structure. They offer a pivot connection, allowing a small angular displacement (+/- 7 degrees) whilst maintaining a rigid connection in both compression and tension. This allows a pipe movement due to thermal expansion in singular direction.



When Ordering please quote Part No. for required load and centre dimension 'L'

	Material
Strut Body & Ends	Carbon Steel
	Surface Finish
Strut Body	Hot Dipped Galvanised
Ends	Zinc Plated

General Notes

- Please refer to page 6 for material standards and specifications.

Description	PIPE SIZE (A)	Fixing Dimensions		Maximum Load (kg)	Part No.
		Hole Diameter (D)	Minimum Centres (L) (Maximum = 3,000mm)		
BG350 Rigid Strut 500kg	32NB Sch 40	20	551	500	350001
BG350 Rigid Strut 1,000kg	40NB Sch 40	25	608	1,000	350002
BG350 Rigid Strut 2,000kg	50NB Sch 40	30	650	2,000	350003
BG350 Rigid Strut 4,000kg	65 NB Sch 40	30	675	4,000	350004
BG350 Rigid Strut 6,000kg	80NB Sch 40	35	725	6,000	350005
BG350 Rigid Strut 8,000kg	80NB Sch 40	40	812	8,000	350006
BG350 Rigid Strut 10,000kg	100NB Sch 40	45	873	10,000	350007
BG350 Rigid Strut 15,000kg	100NB Sch 40	50	938	15,000	350008
BG350 Rigid Strut 25,000kg	150NB Sch 40	60	1124	25,000	350009
BG350 Rigid Strut 60,000kg	200NB Sch 80	70	1470	60,000	350010

Construction

Rigid Struts are manufactured from thick walled pipe with threaded end connection plates welded to the pipe in left and right handed threads to facilitate installation.

End Connections

The end connections are fitted with captive, self-aligning spherical bearings to allow some angular displacement (+/- 7°) and connection to Binder pipe clamps and BG355 End attachments.

Accurately machined load pins as supplied with BG355 end attachments should be used to prevent vibration.

Right and left hand threaded shafts provide the facility for on-site installation and adjustment to the operational length.

Load Capacity

Compressive and Tensile loads up to 60,000 kg can be accommodated within the standard design range.

Strut Length

Rigid Struts are available from 550mm to 3000mm in length (load Pin centres). With an allowable site adjustment of +/- 75mm. Clients must nominate the desired load pin centre dimension 'L'.

Installation

End Attachments should be fully seal welded to support structure. Threaded end connections are then adjusted to the required length (+/-75mm) and connected to pipe clamps or opposite structure. Sight holes are located at each end of the Strut to check full thread engagement.

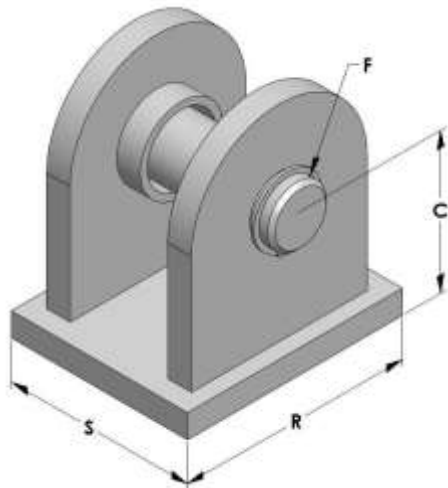
Final assembly is accomplished by tightening the two lock nuts on each end of the Strut. BG355 End Attachments must be ordered separately.

Finish

Standard Finish is HDG with Zinc plated end connectors. Other Finishes are available on request.

11.7 BG355 END ATTACHMENT FOR RIGID STRUT & SWAY BRACE

When ordering, please quote the Part No. for required load.



Material	
Plate & Load Pin	Carbon Steel
Surface Finish	
Plate	Hot Dipped Galvanised
Load Pin	Zinc Plated

General Notes

- Load pin held in by circlips.
- For use with BG350 Rigid Struts and BG340 Sway Braces.
- Table below shows the size of End Attachment required to match the size of BG340 - Sway Brace.
- Please refer to page 6 for material standards and specifications.

Description	Pin ØF	C	Length (R)	Width (S)	Size of Sway Brace	Part No.
	mm	mm	mm	mm		
End Attachment – for 500kg Rigid Strut	20	46	80	82	-	355001
End Attachment – for 1,000kg Rigid Strut	25	60	95	90	1	355002
End Attachment – for 2,000kg Rigid Strut	30	72	110	90	2, 3 & 4	355003
End Attachment – for 4,000kg Rigid Strut	30	72	110	90	-	355004
End Attachment – for 6,000kg Rigid Strut	35	82	125	100	5 & 6	355005
End Attachment – for 8,000kg Rigid Strut	40	82	144	98	-	355006
End Attachment – for 10,000kg Rigid Strut	45	92	165	104	-	355007
End Attachment – for 15,000kg Rigid Strut	50	106	180	130	-	355008
End Attachment – for 25,000kg Rigid Strut	60	120	210	150	-	355009
End Attachment – for 60,000kg Rigid Strut	70	145	310	180	-	355010

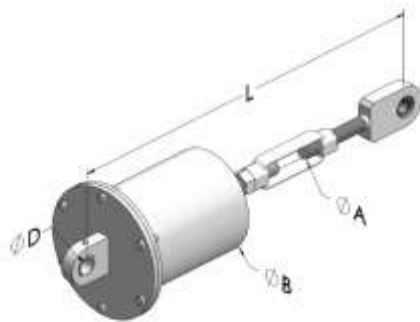
11.8 BG340 SWAY BRACE

Introduction

The sway brace is a device used to control pipe vibration and shock loads in a piping system. Vibration is controlled by exerting an equal and opposite force to that which caused the movement, returning the pipe to its normal operating position.

This is accomplished by using a spring coil of an appropriate spring rate that is connected to the pipe via a rod and turnbuckle assembly as shown in the image below.

Because of its design using a factory pre-adjusted single coil, the unit allows for +/- 75mm movement along the axis.









When Ordering please quote Part ID number for required Size and surface finish.

		Material	
Body & Threaded shaft	Carbon Steel		
		Surface Finish	
Body	Hot Dipped Galvanised	Binder System 1	
Threaded shaft	Zinc Plated		

General Notes

- Please refer to page 6 for material standards and specifications.

12. HF PUF CRYOGENIC PIPE SHOES & TRUNNION SUPPORTS

HD PUF CRYOGENIC PIPE SHOE					
	Model TYPE PAGE	BG600 Page 149	BG601 Page 149	BG602 Page 149	BG603 Page 149
					
	Model TYPE PAGE	BG615 Page 154	BG620 Page 156		

12.1 BG600, BG601, BG602, BG603 HD PUF CRYOGENIC PIPE SHOE

(High Density Polyurethane Foam)

GENERAL

All Binder HD PUF cradles are manufactured from “NON-CFC” polyurethanes which are classified as self-extinguishing with a 90% retention of weight when tested in accordance with BS4735 and ASTM D-3014 respectively.

HD PUF Material Data

The following are typical values, based on average nominal densities. Other densities are available on request.

Pipe Size	(in)	Less than 8"	8" to 24"	over 24"
Nominal Density	(kg/m ³)	160	240	320
Ultimate Compressive (Core Density)	(kPa)	2000	4000	7000
Strength at 20°C (ASTM D1621 min)	(psi)	290	580	1015
OR				
Ultimate Compressive (Average Density)	(kPa)	2000	3500	6300
Strength at 20°C (ASTM D1621 min)	(psi)	290	507	913
Design Stress (5:1 Safety Factor Under Cold Service Conditions)	(KPa)	735	1150	2035
	(psi)	107	167	295
Thermal Conductivity @ -160°C	(W/m.K)	0.022	0.027	0.035
Minimum Percentage of closed cells		90% per ASTM D-2856		
Maximum leachable halides content		30 ppm		
Application Temperature		-196°C to 100°C -321°F to 212°F		
Fire Resistive Properties		BS4735 / BS EN ISO 3582 Self – extinguishing Burn 30mm). ASTM D-3014 - 90% retention of weight		(Extent of)
Linear coefficient of thermal expansion/contraction (BS 4370)		70 x 10 ⁻⁶ per °C		

HD PUF Cradle construction

The Standard Binder HD PUF pipe support is a single/multi-layer (depending on pipe size) monolithically moulded high density polyurethane cradle in two 180° sections without longitudinal or circumferential seams. Where the line insulation thickness exceeds 60mm a step is provided at each end to prevent a direct vapour path to the insulated surface. (Shiplap Joint)

All Binder HD PUF support cradles are moulded under rigidly controlled temperature and humidity conditions and over packing is used to ensure complete filling of the mould and to produce sharp square corners for “no gap” joining to the line insulation.

Binder HD PUF supports are clamped to the pipe. Specific Disc Spring washer configurations and bolts are used to accommodate the shrinkage of the pipe during plant operation.

Binder supports are sized to match the outside diameter of the mating line insulation. Standard Binder HD PUF supports are sized in accordance with ASTM C-585.

Binder HD PUF supports are shipped with a factory installed weather/vapour barrier mastic layer to all exposed surface of the PUF. The weather/vapour barrier mastic is fire retarded and has a vapour permeance of not more than 0.02 perms

BEARING PLATE ASSEMBLIES

Full 360° Bearing plate assemblies are manufactured with formed ears or welded lugs to accept bolts and nuts.

MARKING

Major components will be clearly marked with pipe support or mark number.

PACKING

All HD PUF supports will be individually wrapped and sealed in moisture proof plastic packages. They will be suitably crated or otherwise to avoid mechanical damage to PUF and steel components.

RECOMMENDED FIELD INSTALLATION INSTRUCTIONS

- Trial fit the shoe and trim where required to overcome any excessive ovality in the pipe. Shoe must be kept moisture free at all times.
- Installation of the shoe is to be performed in a dry environment and all necessary steps must be taken to ensure that the pipe/shoe interface remains dry.
- First, lower support assembly is placed in position under the pipe and then the upper assembly. Check for least gap between the pipe and HD PUF, due to eccentricity of pipe. A minimum 60 degree contact area is required to ensure even distribution of clamping force. A layer of glass wool shall be applied to the longitudinal faces of each layer of the lower support. Now the upper HD PUF cradle assembly will be placed on the pipe. The gaps between the upper and lower bolting lugs shall be equalized on both sides of the support.
- The bolts and correct number of Disc Springs are installed based on the loads to avoid slipping, and to accommodate the possible shrinkage.

Care is to be taken throughout the installation and curing activities to avoid damage to the insulation or the protective seals. The support assembly is to be kept dry throughout the whole of the fitting operation.



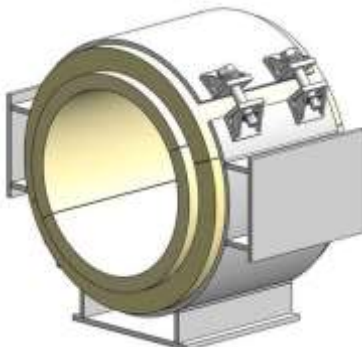
BG600

1. The BG600 standard HD PUF Shoe is fitted with Disc Spring Washers on each bolt which ensures that the cradle is adequately clamped even after shrinkage has occurred due to the cryogenic operating temperature of the supported pipe.
2. The clamping force is calculated so that the cradle will not rotate or slip axially on the pipe as the base experiences frictional resistance when the shoe is free to slide (un-guided) on the support structure.
3. The frictional resistance is a result of the Vertical Design Load of the pipe and the shoe's Self Weight.
4. A PTFE Slide Plate is recommended for larger diameter supports to reduce the sliding resistance and hence the clamping force required to prevent rotation.
5. This design is applicable to 100NB pipe and greater sizes. For pipe size 80NB and lesser please see Page 151



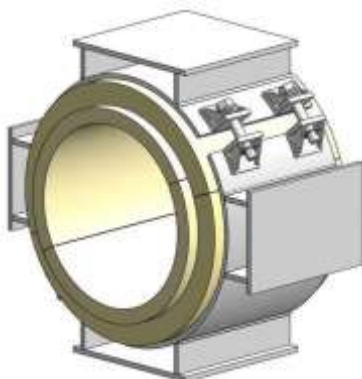
BG601

1. The BG601 HD PUF Shoe is similar to the BG600 except it has an extra base attached to the top cradle to prevent the pipe lifting up during operation.
2. For small up-lift forces, the BG600 can be used instead with hold-downs acting at the shoe base; however, this may result in higher clamping forces to prevent rotational slippage and will require calculations to be carried out as needed.



BG602

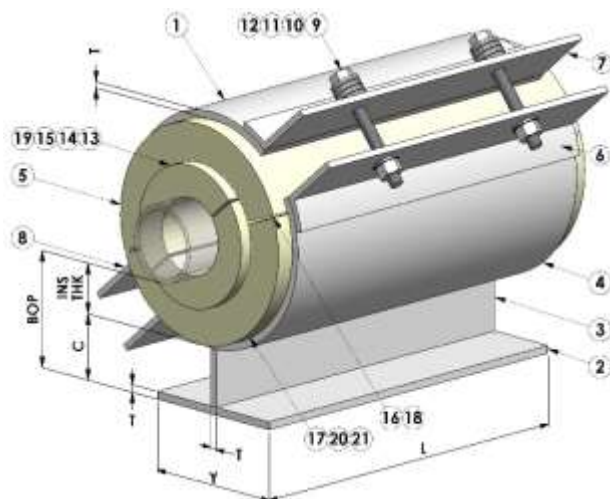
1. The BG602 HD PUF Shoe is similar to the BG600 except it has guide bases attached to each side to resist large lateral forces.
2. The effect of the guide bases mounted at the pipe centreline level is such that the shoe can handle large lateral loading without the need for high clamping forces to resist slippage.
3. For small lateral forces, the BG600 can be used instead with guides acting at the shoe base; however, this will result in higher clamping forces to prevent rotational slippage and will require calculations to be carried out as needed.



BG603

1. The BG603 HD PUF Shoe has both the upper base of the BG601 and the guide bases of the BG602 to resist large up-lift and lateral forces.
2. As with the BG602, effect of the guide bases mounted at the pipe centreline level is such that the shoe can handle large lateral loading without the need for high clamping forces to resist slipping.
3. For small lateral and up-lift forces, the BG600 can be used with hold-down guides acting at the shoe base; however, this will result in higher clamping forces to prevent rotational slippage and will require calculations to be carried out as needed.

BG600, BG601, BG602, BG603 HD PUF CRYOGENIC PIPE SHOE (DESIGN & MATERIAL INFO)



Surface	Material		Specification	
		Steelwork	ASTM A123	HDG
		Nuts & Bolts	ASTM A153	HDG
	Washers & Disc Springs	Plain		

General Notes: -

- Total Insulation thickness is determined by the required operating temperature. Please refer to the insulation thickness v operating temperature table.
- Disc springs and bolting arrangements are calculated using design loads to prevent axial and rotational slippage. Bolting torques for installation are provided.
- Please provide vertical and lateral design loads if they exceed the design loads shown in design data table.
- Insulation is available in the following colour coded densities of 160, 240 and 320kg/m³ dependant on load requirements.
- Please contact Binder Group for pipe shoes requiring lateral, vertical or axial restraint.
- Standard batch traceability complete with type 2.2 material certificates
- Pipe Shoes are welded to AWS D1.1 pre-qualified procedures
- BG550 type Teflon slide plates recommended for supports size 24" (600NB) and above. Please order separately.
- Alternative corrosion protection finishes available on request.

Ordering Information

When ordering please specify the following: -

- Type – Pipe Size – Insulation Thickness – Density.
- i.e. BG600 – 10 – 150– 160

Materials	Item No.	Description	Material
	1,2,3,4,6,7,8	Steelwork (Cradle)	ASTM A36/SS400
	5	HD PUF	High Density Polyurethane Foam
	9	Bolting (Stud)	ASTM A193 Gr. B7
	10	Nuts	ASTM A194 Gr. 2H
	11	Flat Washer	Stainless Steel Gr.304
	12	Disc Springs	Stainless Steel Gr.301
	13	Vapour Barrier Tape	Sliion Tape No. 9830
	14	Vapour Barrier Primary (Bottom Overlap 50)	Aluminium Mylar Foil 3 Layer 12 Polyester Film, 25 Aluminium Foil, 12 Polyester Film,
	15	Adhesive HD PUF to Vap. Barrier	Foster 85-75
	16	Mastic Cut Edge	Foster 60-90
	17	Metal Protection Shield (Aluminized Steel)	A463 T2 300 ASTM
	18	Joint Seal (Gap Cut Edge Top-Bottom HD PUF)	Textrafine 9000
	19	Adhesive HD PUF to HD PUF	Foster 81-84
20	Adhesive Vapour Barrier to Metal Protection Shield	3M 4323/Vitro Bond	
21	Adhesive Metal Protection Shield to Cradle Steel (Bottom)	3M 4323/Vitro Bond	

BG600, BG601, BG602, BG603 HD PUF CRYOGENIC PIPE SHOE (SUSTAINABLE LOADS)

Note: Load Data below is applicable to HD PUF and vertical loading only. Please contact Binder Group for more details.

Density: 160 kg/m³
 Design Bearing Arc: 60 deg
 Design Stress: 0.735 Mpa

NPS Inch	Nom.	HD PUF Cradle Length			
		150mm	300mm	450mm	600mm
		kN	kN	kN	kN
0.5	12.5	1.4	2.7	4.1	5.4
0.75	20	1.6	3.1	4.7	6.3
1	25	2.0	3.9	5.9	7.9
1.5	40	2.8	5.7	8.5	11.4
2	50	3.6	7.1	10.7	14.2
2.5	65	4.3	8.6	12.9	17.2
3	80	5.2	10.5	15.7	20.9
4	100	6.7	13.5	20.2	26.9
5	125	8.3	16.6	25.0	33.3
6	150	9.9	19.8	29.7	39.6
8	200	12.9	25.8	38.7	51.6

Density: 240 kg/m³
 Design Bearing Arc: 60 deg
 Design Stress: 1.15 Mpa

NPS Inch	Nom.	HD PUF Cradle Length			
		150mm	300mm	450mm	600mm
		kN	kN	kN	kN
0.5	12.5	2.1	4.2	6.4	8.5
0.75	20	2.5	4.9	7.4	9.8
1	25	3.1	6.1	9.2	12.3
1.5	40	4.4	8.9	13.3	17.8
2	50	5.5	11.1	16.6	22.2
2.5	65	6.7	13.4	20.1	26.8
3	80	8.2	16.3	24.5	32.7
4	100	10.5	21.0	31.5	42.0
5	125	13.0	26.0	39.0	52.0
6	150	15.5	30.9	46.4	61.9
8	200	20.1	40.3	60.4	80.6
10	250	25.1	50.2	75.3	100.4
12	300	29.8	59.5	89.3	119.1
14	350	32.7	65.4	98.1	130.8
16	400	37.4	74.7	112.1	149.4
18	450	42.0	84.0	126.0	168.0
20	500	46.7	93.4	140.1	186.8
22	550	51.4	102.8	154.2	205.5
24	600	56.1	112.1	168.2	224.3

Layering Configuration	
Total Insulation Thickness (mm)	Layering Thicknesses (mm)
25	25
30	30
35	35
40	40
45	45
50	50
55	25/30
60	30/30
65	30/35
70	30/40
75	30/45
80	40/40
85	45/40
90	50/40
95	55/40
100	60/40
105	65/40
110	70/40
115	75/40
120	40/40/40
125	40/45/40
130	40/50/40
135	40/55/40
140	40/60/40
145	40/65/40
150	40/70/40
155	50/50/55
160	50/50/60
165	50/50/65
170	50/60/60
175	50/60/65
180	60/60/60
185	60/60/65
190	60/60/70
195	60/65/70
200	60/65/75
205	75/65/65
210	75/65/70
215	75/65/75
220	75/70/75

BG600, BG601, BG602, BG603 HD PUF CRYOGENIC PIPE SHOE (SUSTAINABLE LOADS)

Density: 320 kg/m³
 Design Bearing Arc: 60 deg
 Design Stress: 2.035 Mpa

**Note: Load Data below is applicable to HD PUF and vertical loading only.
 Please contact Binder Group for more details.**

NPS Inch	Nom.	HD PUF Cradle Length			
		150mm	300mm	450mm	600mm
		kN	kN	kN	kN
0.5	12.5	3.8	7.5	11.3	15.0
0.75	20	4.3	8.7	13.0	17.4
1	25	5.4	10.9	16.3	21.7
1.5	40	7.8	15.7	23.5	31.4
2	50	9.8	19.6	29.4	39.2
2.5	65	11.9	23.7	35.6	47.4
3	80	14.4	28.9	43.3	57.8
4	100	18.6	37.1	55.7	74.3
5	125	23.0	45.9	68.9	91.8
6	150	27.3	54.7	82.0	109.4
8	200	35.6	71.2	106.8	142.4
10	250	44.4	88.8	133.1	177.5
12	300	52.6	105.3	157.9	210.5
14	350	57.8	115.6	173.3	231.1
16	400	66.0	132.1	198.1	264.1
18	450	74.3	148.5	222.8	297.0
20	500	82.5	165.1	247.6	330.2
22	550	90.8	181.7	272.5	363.3
24	600	99.1	198.2	297.4	396.5
26	650	107.2	214.5	321.7	429.0
28	700	115.5	231.1	346.6	462.1
30	750	123.8	247.6	371.5	495.3
36	900	148.5	297.0	445.6	594.1
40	100	165.1	330.2	495.3	660.4
42	1050	173.4	346.8	520.1	693.5
48	1200	198.1	396.2	594.2	792.3
54	1350	222.9	445.9	668.8	891.8
60	1500	247.6	495.3	742.9	990.5
72	1800	297.2	594.4	891.6	1188.8

12.2 BG615 STANDARD COLD SHOE

FOR COLD UNINSULATED PIPE

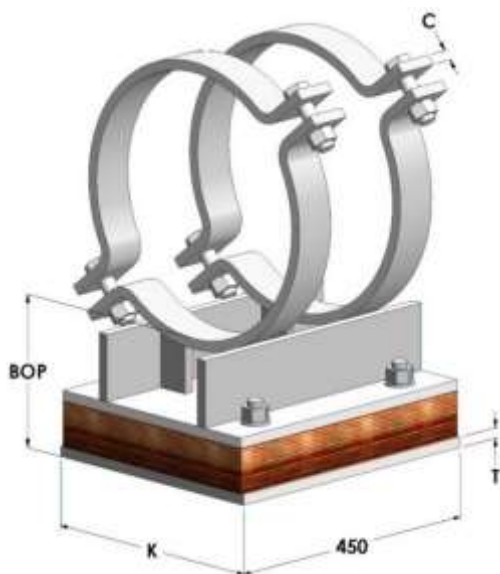
For line sizes up to 150NB

When ordering, please quote the Part No. for required size.

General Notes

1. Insulation Block thickness is 70mm standard.
2. BOP dimension includes shoe height, insulation block and carbon steel base plate.
3. Insulation Block is compressed laminated wood with Marine Varnish coating.
4. Please contact Binder Group for pipe shoes requiring lateral, vertical and axial restraints.
5. Standard batch traceability complete with type 2.2 material certificates.
6. Pipe Shoes are welded to AWS D1.1 pre-qualified procedures.
7. Alternative corrosion protection finishes available on request.
8. As an alternative material to Permali, DuroStone or Micarta are also available.

	Item No.	Description	Specification	Material
Materials	1	Upper Shoe	ASTM A240	SS 304
	2	Clamp Spacers	ASTM A312	SS 304
	3	Bolts	ASTM A193 B8M Class 1	SS 316
	4	Nuts	ASTM A194 8M	SS 316
	5	Flat Washer	ASTM A240	SS 304
	6	Insulation block	DIN7707 Gr.20227	Compressed Laminated Wood
	7	Base Plate (Including Studs)	ASTM A36	CS
	8	Nuts	ASTM A193 Gr.2H	CS
	9	Flat Washer	ASTM A36	CS



For line sizes 200NB to 1050NB

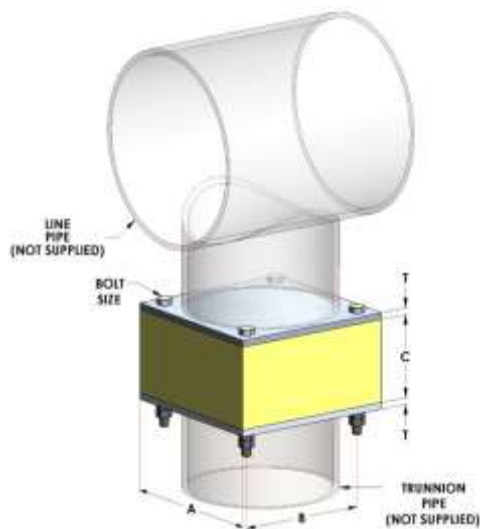
	Material	Specification	
Surface Finish	Upper Shoe	ASTM A967	Pickle & Passivated
	Spacers, Nuts, Bolts & Washers	-	Mill
	Insulation Block	-	Marine Varnish
	Base Plate, Nuts, Studs & Washers	ASTM A123	HDG

BG615 STANDARD COLD SHOE (DIMENSIONAL DETAILS)

BG615 - Dimensional Details							
Nominal Size (NB)	BOP (mm)	Dim K (mm)	Clamp Thickness C (mm)	Clamp Bolt (mm)	Plate Thickness T (mm)	Base Bolt (mm)	Part No.
25	150	135	5	8	10	M16	615001
40	150	135	5	8	10	M16	615002
50	150	135	8	12	10	M16	615003
80	150	135	8	12	10	M16	615004
100	150	135	10	16	10	M16	615005
150	150	135	10	20	10	M16	615006
200	200	200	10	20	10	M20	615007
250	200	200	16	24	16	M20	615008
300	200	320	16	24	16	M20	615009
350	200	320	16	24	16	M20	615010
400	200	370	16	24	16	M20	615011
450	200	400	20	30	20	M24	615012
500	200	450	20	30	20	M24	615013
600	200	550	20	30	20	M24	615014
650	200	550	20	42	20	M24	615015
700	200	550	20	42	20	M24	615016
750	200	550	20	42	20	M24	615017
800	200	550	25	48	20	M24	615018
850	200	650	25	48	20	M24	615019
900	200	650	25	48	25	M24	615020
950	200	650	25	56	25	M24	615021
1000	200	650	25	56	25	M24	615022
1050	200	750	25	56	25	M24	615023

12.3 BG620 TRUNNION COLD SUPPORT

When ordering, please quote the Part No. for required size.



Material	Max Operating Temperatures	Compressive Strength	Surface Finish
HD PUF	-196°C to 100°C	14 Mpa	Natural
DuroStone	-200°C to 155°C	250 Mpa	Natural
Permal	-200°C to 90°C	240 Mpa	Lacquered
Stainless Steel	650°C	-	Mill

General Notes

- Bolting – ASTM A193 B8M Class 2
- Standard batch traceability complete with type 2.2 material certificates
- Alternate corrosion protection finishes available on request.

Line Pipe Size	Description	Base Plate (A)	Hole Spacing (B)	Insulation Thickness (C)	Bolt Size	Plate Thickness (T)	Item Weight	Part No.		
								HD PUF	Dura Stone	Permal
NB		mm	mm	mm	mm	mm	kg			
50 to 80	Trunion Cold Support	200	130	100	M12	12	10.07	620001	620015	620029
100 to 125	Trunion Cold Support	220	170	100	M12	12	11.07	620002	620016	620030
200	Trunion Cold Support	270	210	150	M16	12	15.48	620003	620017	620031
250	Trunion Cold Support	270	210	150	M16	12	15.48	620004	620018	620032
300	Trunion Cold Support	270	210	150	M16	12	11.19	620005	620019	620033
350 to 400	Trunion Cold Support	300	240	150	M16	12	10.14	620006	620020	620034
450	Trunion Cold Support	350	285	150	M16	12	12.55	620007	620021	620035
500	Trunion Cold Support	450	370	150	M20	16	37.53	620008	620022	620036
550 to 600	Trunion Cold Support	450	370	150	M20	16	27.21	620009	620023	620037
650	Trunion Cold Support	700	550	150	M24	20	119.44	620010	620024	620038
700 to 900	Trunion Cold Support	700	550	150	M24	20	119.44	620011	620025	620039
950 to 1250	Trunion Cold Support	950	750	150	M24	20	207.14	620012	620026	620040
1300 to 1650	Trunion Cold Support	1100	900	150	M24	25	233.51	620013	620027	620041
1700 to 1900	Trunion Cold Support	1450	1250	150	M24	25	452.60	620014	620028	620042

Line Pipe Size	Trunion Pipe Size	Max Vertical Load		
		HD PUF	Duro Stone	Permal
NB		kN		
50 to 80	40NB to 50NB	104	1,857	1,783
100 to 125	80NB to 100NB	107	1,907	1,831
200	150NB	142	2,533	2,431
250	150NB	142	2,533	2,431
300	200NB	99	1,760	1,689
350 to 400	250NB	88	1,571	1,508
450	300NB	112	2,005	1,925

Line Pipe Size	Trunion Pipe Size	Max Vertical Load		
		HD PUF	Duro Stone	Permal
NB		kN		
500	350NB	289	5,159	4,953
550 to 600	400NB	204	3,639	3,494
650	500NB	804	14,366	13,791
700 to 900	500NB	804	14,366	13,791
950 to 1250	700NB	1,415	25,273	24,262
1300 to 1650	950NB	1,340	23,931	22,974
1700 to 1900	1200NB	2,618	46,752	44,882

13. LINE PIPE DATA

13.1 CARBON STEEL LINB PIPE - DIMENSIONS

NOMINAL WALL THICKNESS FOR WELDED & SEAMLESS STEEL PIPE ASME B36.10 - All dimensions are in millimetres (mm)															
DN	NPS	O.D	STAN- DARD	EXTRA STRONG	XX STRONG	SCHED.	SCHED.	SCHED.	SCHED.	SCHED.	SCHED.	SCHED.	SCHED.	SCHED.	SCHED.
						10	20	30	40	60	80	100	120	140	160
6	1/8	10.3	1.73	2.41	-	-	-	-	Std. W.T	-	X.S	-	-	-	-
8	1/4	13.7	2.24	3.02	-	-	-	-	Std.W.T.	-	X.S	-	-	-	-
10	3/8	17.1	2.31	3.20	-	-	-	-	Std. W.T	-	X.S	-	-	-	-
15	1/2	21.3	2.77	3.73	7.47	-	-	-	Std. W.T	-	X.S	-	-	-	4.78
20	3/4	26.7	2.87	3.91	7.82	-	-	-	Std. W.T	-	X.S	-	-	-	5.56
25	1	33.4	3.38	4.55	9.09	-	-	-	Std. W.T	-	X.S	-	-	-	6.35
32	1-1/4	42.2	3.56	4.85	9.70	-	-	-	Std. W.T	-	X.S	-	-	-	6.35
40	1-1/2	48.3	3.68	5.08	10.15	-	-	-	Std. W.T	-	X.S	-	-	-	7.14
50	2	60.3	3.91	5.54	11.07	-	-	-	Std. W.T	-	X.S	-	-	-	8.74
65	2-1/2	76.1	5.16	7.01	14.02	-	-	-	Std. W.T	-	X.S	-	-	-	9.53
80	3	88.9	5.49	7.62	15.24	-	-	-	Std. W.T	-	X.S	-	-	-	11.13
90	3-1/2	101.6	5.74	8.08	-	-	-	-	Std. W.T	-	X.S	-	-	-	-
100	4	114.3	6.02	8.56	17.12	-	-	-	Std. W.T	-	X.S	-	11.13	-	13.49
125	5	141.3	6.55	9.53	19.05	-	-	-	Std. W.T	-	X.S	-	12.70	-	15.88
150	6	168.3	7.11	10.97	21.95	-	-	-	Std. W.T	-	X.S	-	14.27	-	18.26
200	8	219.1	8.18	12.70	22.23	-	6.35	7.04	Std. W.T	10.31	X.S	15.09	18.26	20.62	23.01
250	10	273.1	9.27	12.70	25.40	-	6.35	7.80	Std. W.T	XS	15.09	18.26	21.44	XXS	28.58
300	12	323.9	9.53	12.70	25.40	-	6.35	8.38	10.31	14.27	17.48	21.44	XXS	28.85	33.32
350	14	355.6	9.53	12.70	-	6.35	7.92	Std.W.T.	11.13	15.09	19.05	23.83	27.79	31.75	35.71
400	16	406.4	9.53	12.70	-	6.35	7.92	Std.W.T.	X.S	16.66	21.44	26.19	30.96	36.53	40.49
450	18	457	9.53	12.70	-	6.35	7.92	11.13	14.27	19.05	23.83	29.36	34.93	39.67	45.24
500	20	508	9.53	12.70	-	6.35	Std.W.T.	X.S	15.09	20.62	26.19	32.54	38.10	44.45	50.01
550	22	559	9.53	12.70	-	6.35	Std.W.T.	X.S		22.23	28.58	34.93	41.28	47.63	53.98
600	24	610	9.53	12.70	-	6.35	Std.W.T.	14.27	17.48	24.61	30.96	38.89	46.02	52.37	59.54
650	26	660	9.53	12.70	-	7.92	X.S								
700	28	711	9.53	12.70	-	7.92	X.S	15.88							
750	30	762	9.53	12.70	-	7.92	X.S	15.88							
800	32	813	9.53	12.70	-	7.92	X.S	15.88	17.48						
850	34	864	9.53	12.70	-	7.92	X.S	15.88	17.48						
900	36	914	9.53	12.70	-	7.92	X.S	15.88	19.05						
1050	38	1067	9.53	12.70	-	-	-	-	-	-	-	-	-	-	-

General Notes

- Nominal Sizes Shown.

Standards:

- DN: SI Metric.
- NPS: ANSI.

13.2 CARBON STEEL LINE PIPE – WEIGHTS

WELDED & SEAMLESS STEEL PIPE TO ASME B36.10M All Weights are in kg/m

NOMINAL SIZE DN	NPS	O.D	SCHED. 10	SCHED. 20	SCHED. 30	SCHED. 40	STANDARD	SCHED. 60	SCHED. 80	EXTRA STRONG	SCHED. 100	SCHED. 120	SCHED. 140	SCHED. 160	XX STRONG
6	1/8	10.3	0.28	-	0.32	0.37	0.37	-	0.47	0.47	-	-	-	-	-
8	1/4	13.7	0.49	-	0.54	0.63	0.63	-	0.80	0.80	-	-	-	-	-
10	3/8	17.1	0.63	-	0.70	0.84	0.84	-	1.10	1.10	-	-	-	-	-
15	1/2	21.3	1.00	-	1.12	1.27	1.27	-	1.62	1.62	-	-	-	1.95	2.55
20	3/4	26.7	1.28	-	1.44	1.69	1.69	-	2.20	2.20	-	-	-	2.90	3.64
25	1	33.4	2.09	-	2.18	2.50	2.50	-	3.24	3.24	-	-	-	4.24	5.45
32	1-1/4	42.2	2.70	-	2.87	3.39	3.39	-	4.47	4.47	-	-	-	5.61	7.77
40	1-1/2	48.3	3.11	-	3.53	4.05	4.05	-	5.41	5.41	-	-	-	7.25	9.56
50	2	60.3	3.93	-	4.48	5.44	5.44	-	7.48	7.48	-	-	-	11.11	13.44
65	2-1/2	76.1	5.26	-	8.04	8.63	8.63	-	11.41	11.41	-	-	-	14.92	20.39
80	3	88.9	6.45	-	9.92	11.29	11.29	-	15.27	15.27	-	-	-	21.35	27.67
90	3-1/2	101.6	7.40	-	11.41	13.57	13.57	-	18.63	18.63	-	-	-	-	-
100	4	114.3	8.36	-	12.91	16.07	16.07	-	22.32	22.32	-	28.32	-	33.54	41.03
125	5	141.3	11.57	-	-	21.77	21.77	-	30.97	30.97	-	40.28	-	49.11	57.43
150	6	168.3	13.84	-	-	28.26	28.26	-	42.56	42.56	-	54.20	-	67.56	79.22
200	8	219.1	19.96	33.31	36.81	42.55	42.55	53.08	64.65	64.64	75.92	90.44	100.92	111.27	107.92
250	10	273.1	27.78	41.77	51.03	60.31	60.31	81.55	96.01	81.55	114.75	133.06	155.15	172.33	155.15
300	12	323.9	36.00	49.73	65.20	79.73	73.88	108.96	132.08	186.97	159.91	186.97	208.14	238.76	186.97
350	14	355.6	54.59	67.90	81.33	94.55	81.33	126.70	158.10	107.10	194.96	224.65	253.56	281.70	-
400	16	406.4	62.64	77.83	93.27	123.50	93.27	160.12	203.53	123.30	245.56	286.64	333.19	365.35	-
450	18	457	70.57	87.71	122.38	155.80	105.16	205.74	254.55	139.15	309.62	363.56	408.26	459.37	-
500	20	508	78.55	117.15	155.12	183.42	117.15	247.83	311.17	155.12	381.53	441.49	508.11	564.81	-
550	22	559	86.54	129.13	171.09	-	129.13	294.25	373.83	171.09	451.42	527.05	600.63	672.26	-
600	24	610	94.53	141.12	209.64	255.41	141.12	355.26	442.08	187.06	547.71	640.03	720.15	808.22	-
650	26	660	127.36	202.72	-	-	152.87	-	-	202.72	-	-	-	-	-
700	28	711	137.32	218.69	271.21	-	164.85	-	-	218.69	-	-	-	-	-
750	30	762	147.28	234.67	292.18	-	176.84	-	-	234.67	-	-	-	-	-
800	32	813	157.24	250.64	312.15	342.91	188.82	-	-	250.64	-	-	-	-	-
850	34	864	167.20	266.61	332.12	364.90	200.31	-	-	266.61	-	-	-	-	-
900	36	914	176.96	282.27	351.70	420.42	212.56	-	-	282.27	-	-	-	-	-
1050	38	1067	-	-	-	-	248.52	-	-	330.19	-	-	-	-	-

General Notes

- All weights are theoretical and approximate.