

PRESS TOOLING COMPONENTS

1

DIESETS

6

PINS AND BUSHES

16

PUNCHES & DIES

42

SPRINGS

70

FASTENERS

85

MATERIALS

96

ACCESSORIES

DIESETS

Rear Pillar Steel Diesets	1 - 2
Reverse Rear Pillar Steel Diesets	3
4 Pillar Steel Diesets	4
Custom Diesets	5

PINS AND BUSHES

Standard Dieset Press Fit Pin	6
Line Ream Stepped Pin	7
Oil-less Press Fit Bush	8
Standard Dieset Oil-Less Demountable Guide Bushes	9
Oil-less Bolt-on Pin and Bush Assemblies	10
Bolt-on Ball Bearing Pin and Bush Assemblies	11
PPS Ball Bearing Pin and Bush	12
EBB Ball Bearing Pin and Bush	13
A1 Ball Bearing Pin and Bush	14
Exacta Ball Bearing Pin and Bush	15

PUNCHES AND DIES

Blank Punches - HSS	16
Blank Punches - A2	17
Shedder Punch - Blank - HSS	18
Shedder Punch - Blank - A2	19
Ejector Kit	20
Form D - Precision Punches with Conical Head	21 - 26
Through Hardened Ejector Pins - DIN	27 - 28
DIN Die Button - Form B - (Headed)	29 - 33
DIN Die Button - Form A - (Headless)	34 - 37
Peerless Retainer Shoulder	38
Peerless Retainer Shoulder Form	39
Special Punches & Dies Made to Order	40 - 41

SPRINGS

Die Springs - Medium Duty	42 - 44
Die Springs - Medium / Heavy Duty	45 - 47
Die Springs - Heavy Duty	48 - 50
Die Springs - Extra Heavy Duty	51 - 52
Compression Springs	53 - 65
Gas Springs	66 - 69

FASTENERS

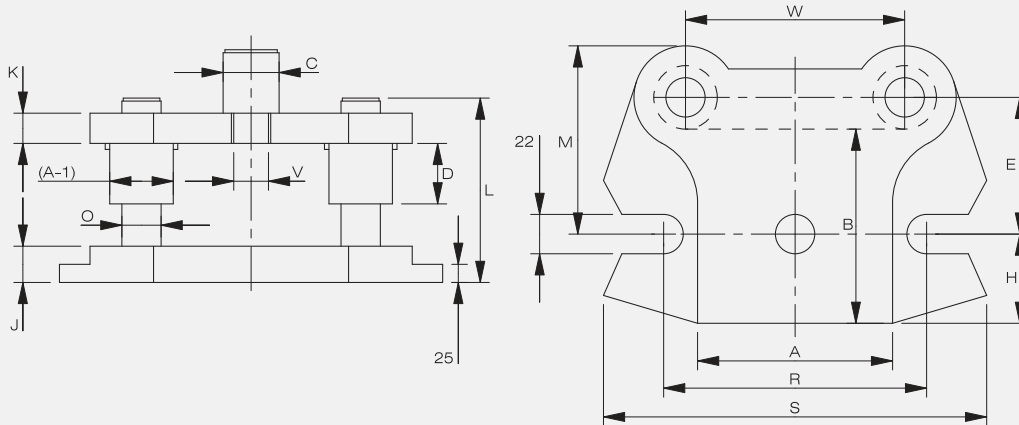
Socket Head Cap Screws (Metric)	70 - 72
Socket Head Cap Screws (Imperial)	73 - 74
Socket Shoulder Screws (Metric)	75
Socket Shoulder Screws (Imperial)	76
Socket Head Countersunk Screws (Metric)	77
Socket Head Countersunk Screws (Imperial)	78
Socket Set Screws (Metric)	79
Socket Set Screws (Imperial)	80
BSPT Pressure Plugs	80
Standard Dowel Pins (Metric)	81
Standard Dowel Pins (Imperial)	82
Tapped Dowel Pins (Metric)	83
Ball Catches	84
Pin Plungers	84

MATERIALS

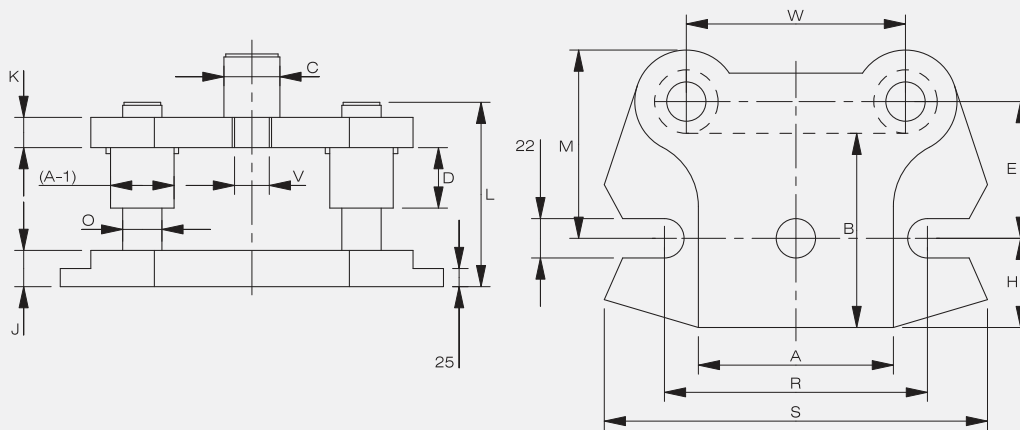
Precision Ground Flat Stock (Gauge Plate)	85 - 89
Surface Ground Mild Steel Bar	90 - 92
Silver Steel (Metric)	93
Silver Steel (Imperial)	94
Steel Shim in a Can	95
Silver Steel	95
Urethane	49

ACCESSORIES

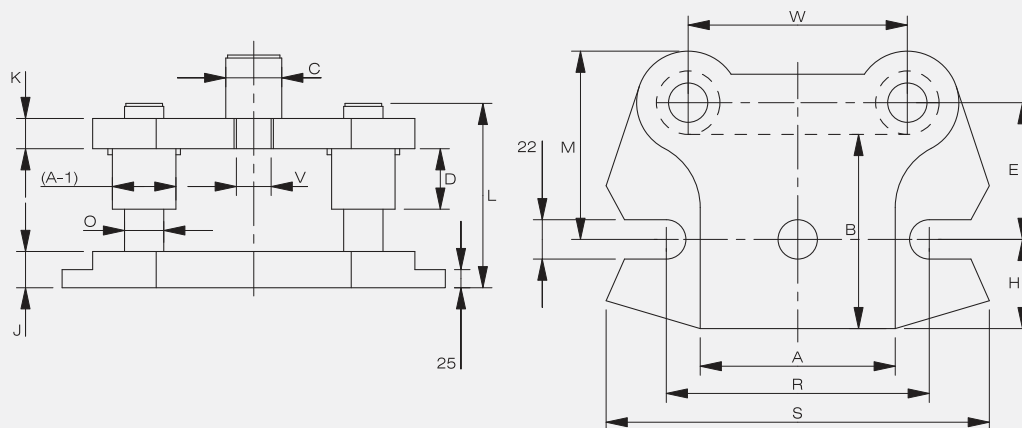
Precision Drill Guides (Headed)	96 - 99
Precision Drill Guides (Headless)	100 - 103
Vertical Toggle Clamps	104 - 106
Push - Pull Clamps	106 - 108
Horizontal Toggle Clamps	109 - 111
Lifting Eye Bolts - Grade 4	112
Lifting Eye Bolts - Grade 10 Swivel Eyebolts	113
Eye Bolts - Double Swivel Ring - DSR	114
Eye Bolts - Double Swivel Ring - DSS	115
Clamping Kits	116



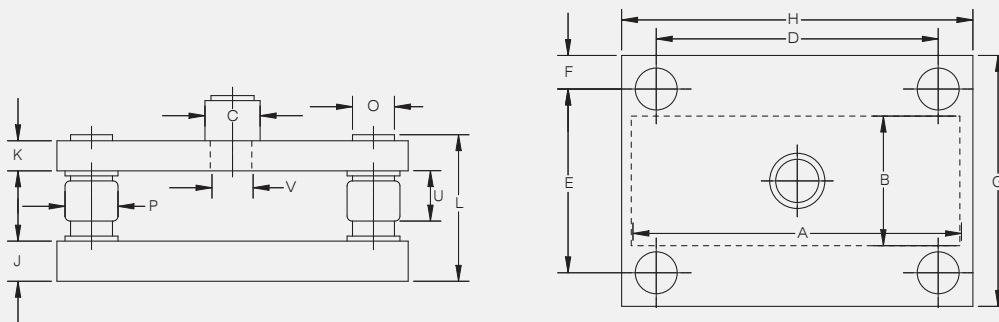
Product Code	DIE AREA		SHANK DIA.	PIN LENGTH	GENERAL DIMENSIONS											BSF
	A	B			W	E	H	J	K	M	O	A-1	R	S	D	V
HRPS-33A	3	3	1 1/4	4 1/2	76.2	55.5	38.1	22.2	22.2	84.1	0.7355	28.63	152.4	203	44.47	3/4
HRPS-44A	4	4	1 1/2	4 1/2	101.6	68.2	50.8	35	30.5	96.8	0.7355	28.63	171.4	222.2	44.47	1
HRPS-55A	5	5	2	5 3/4	127	84.1	63.5	38.5	30.5	119.0	0.9855	44.45	196.8	247.6	57.15	1 1/4
HRPS-64A	6	4	2	5 3/4	152.4	71.4	50.8	38.5	30.5	106.3	0.9855	44.45	222.2	273.0	57.15	1 1/4
HRPS-66A	6	6	2	5 3/4	152.4	96.8	76.2	38.5	30.5	131.7	0.9855	44.45	222.2	273.0	57.15	1 1/4
HRPS-75A	7	5	2	5 3/4	177.8	84.1	63.5	38.5	30.5	119.0	0.9855	44.45	247.6	298.4	57.15	1 1/4
HRPS-75B	7	5	2	6 1/2	177.8	84.1	63.5	48.5	30.5	119.0	0.9855	44.45	247.6	298.4	57.15	1 1/4
HRPS-86A	8	6	2	5 3/4	203.2	96.8	76.2	38.5	30.5	131.7	0.9855	44.45	273.0	323.8	57.15	1 1/4
HRPS-86B	8	6	2	6 1/2	203.2	96.8	76.2	48.5	30.5	131.7	0.9855	44.45	273.0	323.8	57.15	1 1/4
HRPS-88A	8	8	2	5 3/4	203.2	122.2	101.6	38.5	30.5	157.1	0.9855	44.45	273.0	323.8	31.75	1 1/4
HRPS-88B	8	8	2	6 1/2	203.2	122.2	101.6	48.5	30.5	157.1	0.9855	44.45	273.0	323.8	57.15	1 1/4
HRPS-95A	9	5	2	5 3/4	228.6	84.1	63.5	38.5	30.5	119.0	0.9855	44.45	297.2	349.2	57.15	1 1/4
HRPS-95B	9	5	2	6 1/2	228.6	84.1	63.5	48.5	30.5	119.0	0.9855	44.45	297.2	349.2	57.15	1 1/4
HRPS-97A	9	7	2	5 3/4	228.6	109.5	88.9	38.5	30.5	144.4	0.9855	44.45	297.2	349.2	57.15	1 1/4
HRPS-97B	9	7	2	6 1/2	228.6	109.5	88.9	48.5	30.5	144.4	0.9855	44.45	297.2	349.2	57.15	1 1/4
HRPS-106A	10	6	2	5 3/4	254.0	96.8	76.2	38.5	30.5	131.7	0.9855	44.45	323.8	374.6	57.15	1 1/4
HRPS-106B	10	6	2	6 1/2	254.0	96.8	76.2	48.5	30.5	131.7	0.9855	44.45	323.8	374.6	57.15	1 1/4
HRPS-118A	11	8	2	5 3/4	279.4	125.4	101.6	38.5	30.5	166.7	1.2355	53.97	349.2	400.0	60.33	1 1/4
HRPS-118B	11	8	2	6 1/2	279.4	125.4	101.6	48.5	30.5	166.7	1.2355	53.97	349.2	400.0	60.33	1 1/4
HRPS-126A	12	6	2	5 3/4	304.8	100.0	76.2	38.5	30.5	141.3	1.2355	53.97	374.6	425.4	60.33	1 1/4
HRPS-126B	12	6	2	6 1/2	304.8	100.0	76.2	48.5	30.5	141.3	1.2355	53.97	374.6	425.4	60.33	1 1/4
HRPS-128A	12	8	2	5 3/4	304.8	125.4	101.6	38.5	30.5	166.7	1.2355	53.97	374.6	425.4	60.33	1 1/4
HRPS-128B	12	8	2	6 1/2	304.8	125.4	101.6	48.5	30.5	166.7	1.2355	53.97	374.6	425.4	60.33	1 1/4
HRPS-1210A	12	10	2	5 3/4	304.8	154.0	127.0	38.5	30.5	195.3	1.2355	53.97	374.6	425.4	60.33	1 1/4



Product Code	DIE AREA		SHANK DIA.	PIN LENGTH	GENERAL DIMENSIONS											BSF
	A	B			W	E	H	J	K	M	O	A-1	R	S	D	
HRPS-1612A	16	12	2	8 1/2	355.6	182.6	152.4	38.5	38.5	233.4	1.4855	60.00	440.0	508.0	69.85	1 1/4
HRPS-187B	18	7	2	10	457.2	119.1	88.9	48.5	48.5	169.9	1.4855	60.00	490.8	558.8	69.85	1 1/4
HRPS-189B	18	9	2	10	457.2	144.5	144.3	48.5	48.5	195.3	1.4855	60.00	490.8	558.8	69.85	1 1/4
HRPS-1814A	18	14	2	8 1/2	457.2	208.0	177.8	38.5	38.5	265.1	1.4855	60.00	502.9	571.5	69.85	1 1/4
HRPS-1814B	18	14	2	10	457.2	208.0	177.8	48.5	48.5	265.1	1.7355	66.68	502.9	571.5	76.18	1 1/4
HRPS-1818A	18	18	2	8 1/2	457.2	228.6	177.8	38.5	38.5	320.7	1.7355	66.68	503.5	571.5	69.85	1 1/4
HRPS-1818B	18	18	2	10	457.2	228.6	177.8	48.5	48.5	320.7	1.7355	66.68	503.5	571.5	76.18	1 1/4
HRPS-2010A	20	10	2	8 1/2	508.0	161.9	127.0	38.5	38.5	219.1	1.4855	60.0	554.3	622.3	69.85	1 1/4
HRPS-2214A	22	14	2	8 1/2	558.0	212.7	177.8	38.5	38.5	269.9	1.7355	66.68	604.5	673.1	69.85	1 1/4
HRPS-2214B	22	14	2	10	558.0	212.7	177.8	48.5	48.5	269.9	1.7355	66.68	604.5	673.1	76.18	1 1/4
HRPS-246A	24	6	2	8 1/2	609.8	111.1	76.2	38.5	38.5	168.3	1.4855	60.0	655.9	732.9	69.85	1 1/4
HRPS-246B	24	6	2	10	609.8	111.1	76.2	48.5	48.5	168.3	1.7355	66.68	655.9	732.9	76.18	1 1/4
HRPS-249A	24	9	2	8 1/2	609.8	149.2	114.3	38.5	38.5	206.4	1.4855	60.0	655.9	732.9	69.85	1 1/4
HRPS-2412A	24	12	2	8 1/2	187.3	152.4	244.5	38.5	38.5	609.6	1.7355	66.68	655.3	732.9	69.85	1 1/4
HRPS-2412B	24	12	2	10	187.3	152.4	244.5	48.5	48.5	609.6	1.7355	66.68	655.3	732.9	76.18	1 1/4
HRPS-306A	30	6	2	8 1/2	762.0	111.1	76.2	38.5	38.5	168.3	1.4855	60.0	808.3	876.3	69.85	1 1/4
HRPS-309B	30	9	2	10	762.0	149.2	114.3	48.5	48.5	206.4	1.7355	66.68	808.3	876.3	76.18	1 1/4



Product Code	DIE AREA		SHANK DIA.	PIN LENGTH	GENERAL DIMENSIONS											BSF
	A	B			W	E	H	J	K	M	O	A-1	R	S	D	V
HRRS-58A	5	8	2	5 3/4	142.9	122.2	101.6	38.5	30.5	157.1	0.9855	44.45	212.7	263.5	57.17	1 1/4
HRRS-710A	7	10	2	5 3/4	225.4	134.9	127.0	38.5	30.5	176.2	1.2355	53.97	246.7	298.4	60.33	1 1/4
HRRS-710B	7	10	2	6 1/2	225.4	134.9	127.0	48.5	30.5	176.2	1.2355	60.00	246.7	298.4	60.33	1 1/4

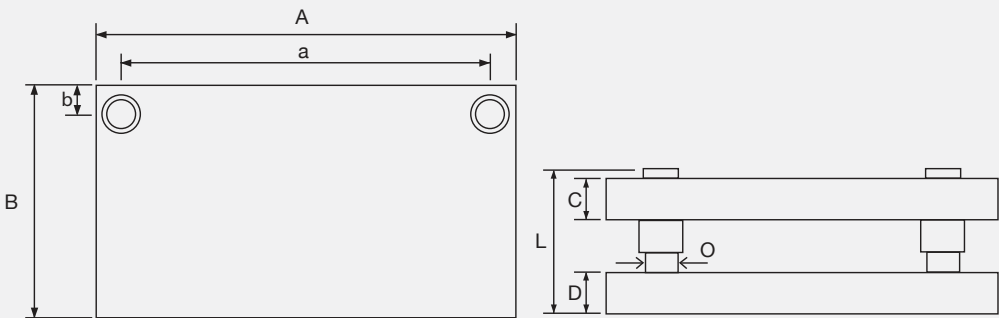


Product Code	DIE AREA		SHANK DIA.	GENERAL DIMENSIONS								PIN DIA.	BUSH	BSF
	A	B		L	D	E	G	H	J	K	P			
H4PS-1062	10	5 1/2	2	5 3/4	235.0	187.3	276.0	323.9	40.0	40.0	44.45	0.9855	57.17	1 1/4
H4PS-1262	12	5 1/2	2	5 3/4	279.4	193.7	289.0	374.7	40.0	40.0	53.97	1.2355	60.33	1 1/4
H4PS-1282	12	7 1/2	2	5 3/4	279.4	244.5	340.0	374.4	40.0	40.0	53.97	1.2355	60.33	1 1/4
H4PS-1462	14	5 1/2	2	5 3/4	330.2	193.7	289.0	425.5	40.0	40.0	53.97	1.2355	60.33	1 1/4
H4PS-14102	14	9 1/2	2	5 3/4	330.2	295.3	390.0	425.5	40.0	40.0	53.97	1.2355	60.33	1 1/4
H4PS-1662	16	5 1/2	2	5 3/4	381.0	193.7	289.0	222.3	40.0	40.0	53.97	1.2355	60.33	1 1/4
H4PS-1682	16	7 1/2	2	5 3/4	381.0	257.2	340.0	476.3	40.0	40.0	53.97	1.2355	60.33	1 1/4

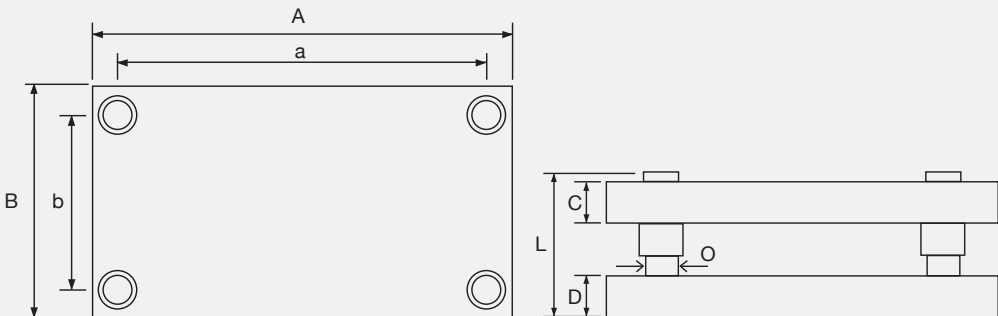


The following options are available on request:

- Ball Bearing Bushings
- Drilling and Tapping (Detailed drawing required)
- Pocketing (Detailed drawing required)



2 Pillar							
A	B	C	D	a	b	L	O

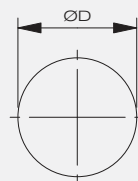
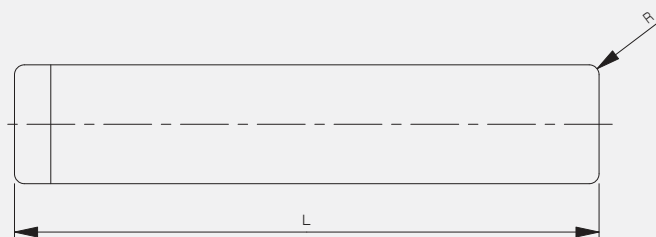


4 Pillar							
A	B	C	D	a	b	L	O



Hales Standard Die Set Pins

Hales self-lubricating die components offer industry self-lubricating, maintenance-free performance resulting in overall cost savings and operational safety.



Tolerance	
D =	+0
	-0.0002"

Materials: High Carbon Chrome Bearing Steel

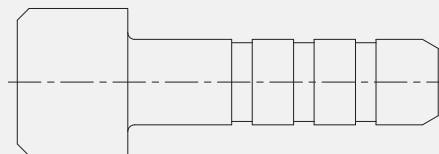
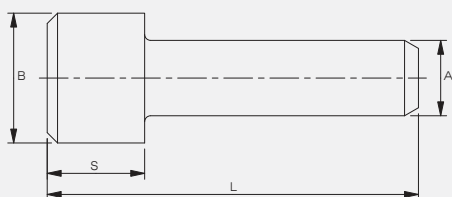
Product Code	D	L
HP034-314	0.7355	3 1/4
HP034-412	0.7355	4 1/2
HP034-512	0.7355	5 1/2
HP034-7	0.7355	7
HP034-8	0.7355	8
HP1-412	0.9855	4 1/2
HP1-514	0.9855	5 1/4
HP1-534	0.9855	5 3/4
HP1-612	0.9855	6 1/2
HP1-7	0.9855	7
HP1-712	0.9855	7 1/2
HP1-8	0.9855	8
HP1-9	0.9855	9
HP1-912	0.9855	9 1/2
HP1-10	0.9855	10
HP14-514	1.2355	5 1/4
HP14-534	1.2355	5 3/4
HP14-612	1.2355	6 1/2
HP14-7	1.2355	7
HP14-712	1.2355	7 1/2
HP14-8	1.2355	8
HP14-812	1.2355	8 1/2
HP14-9	1.2355	9
HP14-912	1.2355	9 1/2
HP14-10	1.2355	10
HP14-11	1.2355	11
HP14-12	1.2355	12

Product Code	D	L
HP12-534	1.4855	5 3/4
HP12-6	1.4855	6
HP12-612	1.4855	6 1/2
HP12-634	1.4855	6 3/4
HP12-7	1.4855	7
HP12-712	1.4855	7 1/2
HP12-8	1.4855	8
HP12-812	1.4855	8 1/2
HP12-912	1.4855	9 1/2
HP12-10	1.4855	10
HP12-12	1.4855	12
HP134-10	1.7355	10
HP134-12	1.7355	12



- No Step boring
- No jig boring
- Just Drill and ream.
- Use radial drill.
- Suited to HB Bush.(page 8)

Materials: High Carbon Chrome Bearing Steel



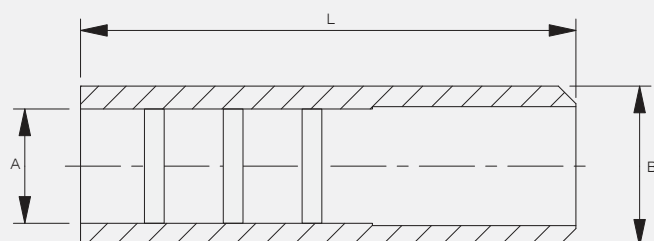
* Note: This style from EPH
38-175 to larger sizes

Product Code	A	B	S	L
EPH-20:80	18.68	28.63	25	82
EPH-20:100	18.68	28.63	25	100
EPH-20:125	18.68	28.63	25	125
EPH-20:175	18.68	28.63	25	175
EPH-25:100	25.03	38.15	38	100
EPH-25:125	25.03	38.15	38	125
EPH-25:150	25.03	38.15	38	150
EPH-25:175	25.03	38.15	38	175
EPH-25:200	25.03	38.15	38	200
EPH-32:100	31.38	44.50	45	100
EPH-32:125	31.38	44.50	45	125
EPH-32:150	31.38	44.50	45	150
EPH-32:175	31.38	44.50	45	175
EPH-32:200	31.38	44.50	45	200
EPH-32:215	31.38	44.50	45	215
EPH-32:225	31.38	44.50	45	225
EPH-38:175	37.73	50.85	50	175
EPH-38:200	37.73	50.85	50	200
EPH-38:225	37.73	50.85	50	225
EPH-38:250	37.73	50.85	50	255
EPH-45:225	44.09	63.55	63	225
EPH-45:250	44.09	63.55	63	250
EPH-45:280	44.09	63.55	63	280
EPH-45:305	44.09	63.55	63	305



Hales self-lubricating die components offer industry self-lubricating, maintenance-free performance resulting in overall cost savings and operational safety.

Hales Standard Die Set Guide Bush



Tolerance	
A =	+0.0003
	-0
B =	+0.0003
	-0

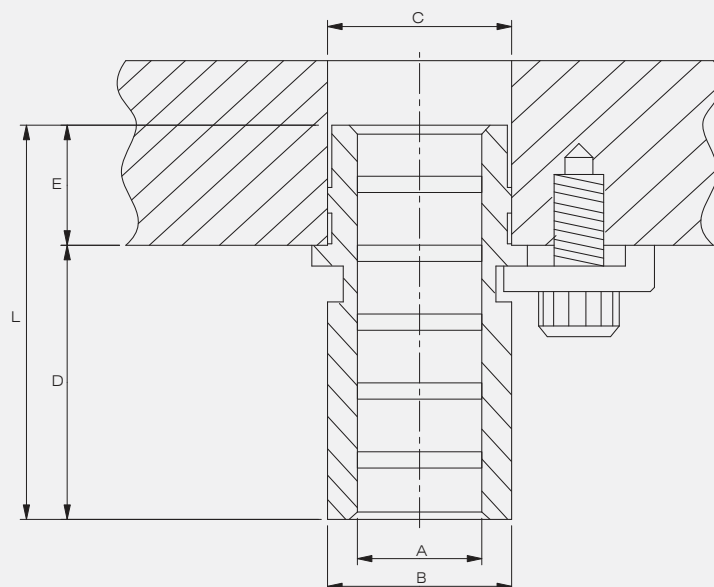
Materials:

High Carbon Chrome Bearing Steel With Solid Lubricant

Product Code	A	B	L
HB034-218	0.7355	1.1271	2 1/2
HB034-258	0.7355	1.1271	2 5/8
HB1-3	0.9855	1.5021	3
HB1-312	0.9855	1.5021	3 1/2
HB14-3	1.2356	1.7521	3
HB14-312	1.2356	1.7521	3 1/2
HB14-438	1.2356	1.7521	4 3/8
HB12-312	1.4856	2.0021	3 1/2
HB12-438	1.4856	2.0021	4 3/8
HB12-514	1.4856	2.0021	5 1/4
HB134-412	1.7356	2.5021	4 1/2
HB134-514	1.7356	2.5021	5 1/4



These bushes are a standard component in all Hales die-sets.

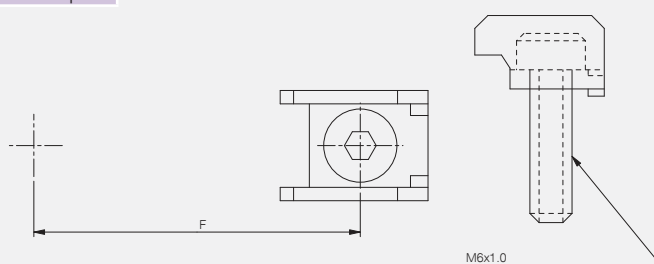


Tolerance	
A =	+0.008
	-0
C =	+0.000
	-0.013

Materials: Deep Core Strength Case Hardened Material With Solid Lubricant

Product Code	A	B	C	D	E	L	F
HRB 2532	25.037	44.45	38.10	31.75	22.25	54.00	27.40
HRB 2560	25.037	44.45	38.10	57.15	22.25	79.40	27.40
HRB 3238	31.387	53.97	44.45	38.10	28.58	66.70	32.10
HRB 3261	31.387	53.97	44.45	60.33	28.58	88.90	32.10
HRB 3838	37.737	60.00	50.80	38.10	34.93	73.00	35.30
HRB 3870	37.737	60.00	50.80	69.85	34.93	104.80	35.30
HRB 3890	37.737	60.00	50.80	88.90	34.93	123.80	35.30
HRB 4576	44.087	66.68	57.15	76.18	41.30	117.50	38.50

Product Code	Description
HRBTC	Toe Clamp





When assembling, two dowel pins are to be fitted in guide bush and holder.

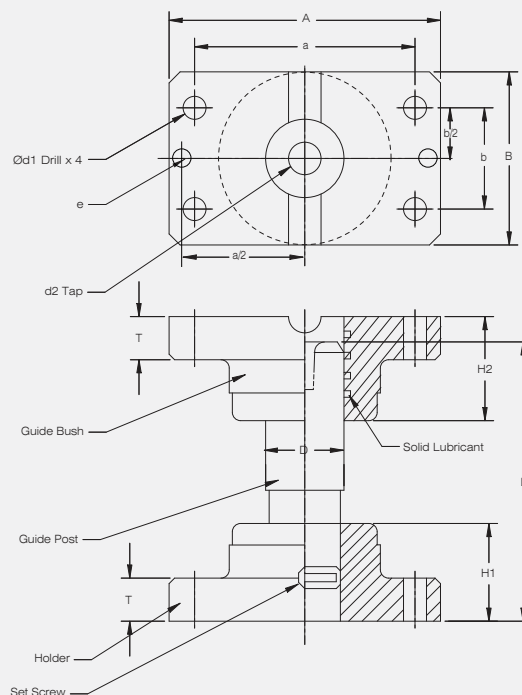
Please note: dowels and screws are included in assembly

Materials:

Guide Post: Deep core strength, case hardened materials.

Holder: Automotive high alloyed iron.

Guide Bush: Automotive high alloyed iron with solid lubricant.



Product Code	øD	L	A	B	H ₁	H ₂	a	b	T	ød ₁	eH7	screw 8pcs	dowel 4pcs
P-SGR25-80	25	80	84	48	30	45	66	30	20	9	+0.015 8.0	M8x35	8x30
P-SGR25-100		100											
P-SGR25-120		120											
P-SGR32-120	32	120	100	58	40	50	76	36	20	11	+0.015 8.0	M10x40	8x30
P-SGR32-140		140											
P-SGR32-160		160											
P-SGR38-120	38	120	130	75	50	60	100	44	25	11	+0.015 10.0	M10x45	10x40
P-SGR38-140		140											
P-SGR38-160		160											
P-SGR38-180		180											
P-SGR50-160	50	160	155	90	65	85	125	60	25	14	+0.015 10.0	M12x50	10x40
P-SGR50-200		200											
P-SGR50-250		250											
P-SGR50-300		300											
P-SGR60-200	60	200	190	120	75	100	150	80	30	18	+0.018 13.0	M16x60	13x50
P-SGR60-250		250											
P-SGR60-300		300											
P-SGR80-250	80	250	230	150	100	130	180	110	35	22	+0.018 16.0	M20x75	16x60
P-SGR80-300		300											
P-SGR80-350		350											



Light smooth action.

Helical design of cage and plunger design allows cage to freely rotate over the entire peripheral surface.

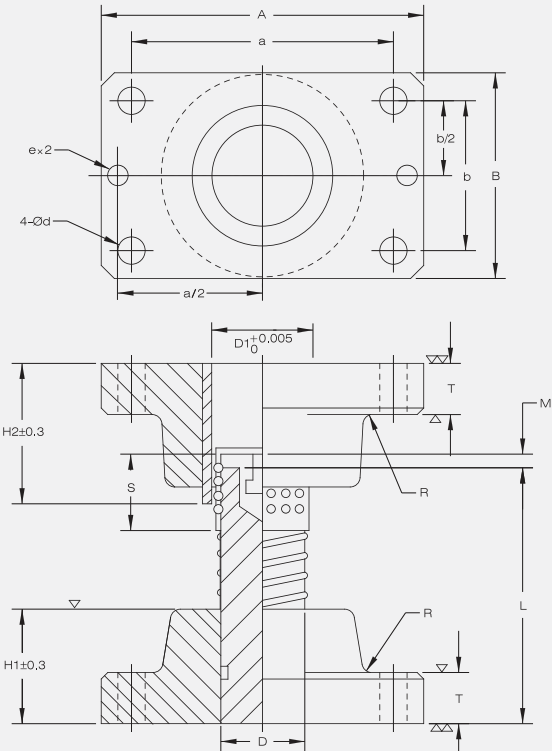
Lubrication problems are almost entirely eliminated.
Perfect precision alignment.

M: Movable range of stopper

Please Note: 60 Dia has fixed stopper

When assembling, two dowel pins are to be fitted in guide bush and holder.

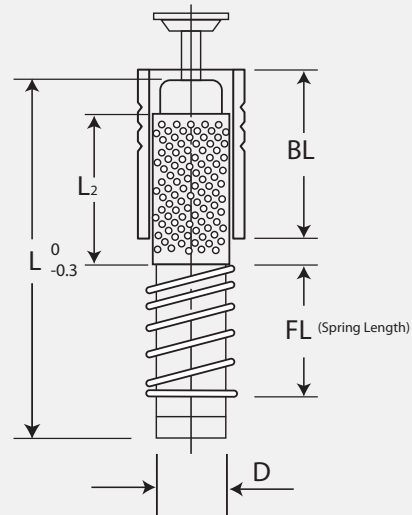
Please note: dowels and screws are included in assembly



Product Code	øD	L	D1	A	B	a	b	d	H1	H2	T	S	M	e=H7	H7	screw 8pcs	dowel 4pcs
PSRBB25-120	25	120	31	84	48	66	30	9	30	50	20	50	0 - 20	8	$+0.015_0$	8ø - 35	8ø - 30
PSRBB25-140		140															
PSRBB25-160		160															
PSRBB25-180		180															
PSRBB32-120	32	120	40	100	58	76	36	11	40	60	20	60	0 - 25	8	$+0.015_0$	10ø - 45	8ø - 30
PSRBB32-140		140															
PSRBB32-160		160															
PSRBB32-180		180															
PSRBB38-160	38	160	48	130	75	100	44	11	50	70	25	70	0 - 29	10	$+0.015_0$	10ø - 45	10ø - 40
PSRBB38-180		180															
PSRBB38-200		200															
PSRBB38-240		240															
PSRBB50-180	50	180	60	155	90	125	60	14	65	90	25	90	0 - 42	10	$+0.015_0$	12ø - 50	10ø - 40
PSRBB50-200		200															
PSRBB50-240		240															
PSRBB50-260		260															
PSRBB50-300		300															
PSRBB60-200	60	200	70	190	120	150	80	18	75	100	30	100	0 - 59	13	$+0.018_0$	16ø - 60	13ø - 50
PSRBB60-240		240															
PSRBB60-260		260															
PSRBB60-300		300															



Ball Bearing Pins And Bushes Offer Distinct Advantages
 Difficulty of assembly and disassembly of diesets are eliminated.
 Lubrication problems are almost entirely eliminated.
 Perfect alignment increases die life.



Code	D	L														BL	FL	L2
PPS	20	100	110	120	130	140	150	160	170	180						L50	40 - 140	50
	22			120	130	140	150	160	170	180						L50 L60	40 - 140	50 60
	25			120	130	140	150	160	170	180						L60 L80	40 - 150	60 75
	28					140	150	160	170	180	190	200				L60 L80	50 - 150	60 75
	32							160	170	180	190	200	220	240		L80 L100	70 - 190	75 90
	38									180	190	200	220	240	260	L80 L100	80 - 190	75 90
	45									180	190	200	220	240	260	L100 L120	80 - 190	90 110
	60											200	220	240	260	L100 L120	80 - 190	90 110

Product Code	Decription
PPS25-16-L8-15	25 X 160 Ball Bearing Assembly
PPS25-18-L8-15	25 X 180 Ball Bearing Assembly
PPS32-18-L10-19	32 X 180 Ball Bearing Assembly
PPS32-20-L10-19	32 X 200 Ball Bearing Assembly
PPS38-20-L10-19	38 X 200 Ball Bearing Assembly
PPS38-24-L10-19	38 X 240 Ball Bearing Assembly

Ordering Example

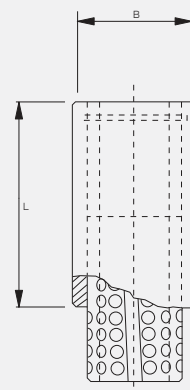
	Code No.	L	BL	FL
	PPS22	-- 120 --	L50	-- 40
Ordering Code	PPS22	12	L5	4



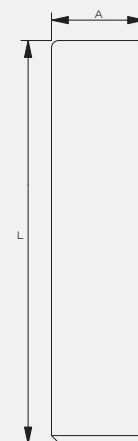
The EBB bush and cage is designed to be fitted inside the top bolster as the ball cage is captive inside the bush.

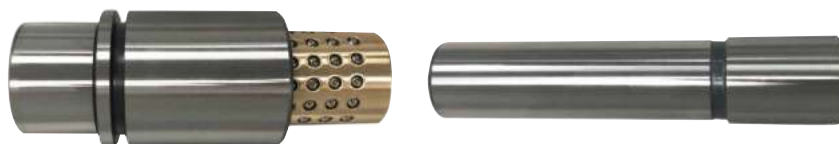
The advantage of this design is to eliminate any foreign bodies entering the sensitive ball cage area causing damage.

Product Code	B	L
EBB1x3.43	1.9855	3.43
EBB1x4.43	1.9855	4.43
EBB1.25x3.93	2.235	3.93
EBB1.25x4.93	2.235	4.93
EBB1.5x4.18	2.485	4.18
EBB1.5x5.18	2.485	5.18
EBB1.75x4.43	2.985	4.43
EBB1.75x5.43	2.985	5.43
EBB2x5	3.235	5.00
EBB2x6	3.235	6.00



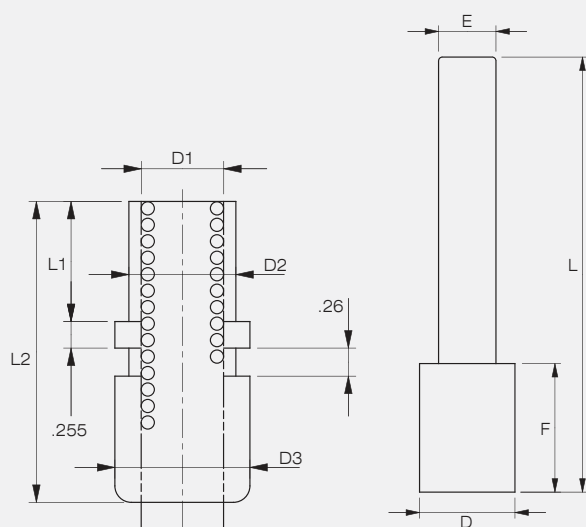
Product Code	A	L
EBP1x4.5	0.9855	4.5
EBP1x5.25	0.9855	5.25
EBP1x5.75	0.9855	5.75
EBP1x6.5	0.9855	6.5
EBP1x7	0.9855	7
EBP1x7.5	0.9855	7.5
EBP1x8	0.9855	8
EBP1x8.5	0.9855	8.5
EBP1x9	0.9855	9
EBP1x10	0.9855	10
EBP1.25x5.25	1.2355	5.25
EBP1.25x5.75	1.2355	5.75
EBP1.25x6.5	1.2355	6.5
EBP1.25x7	1.2355	7
EBP1.25x7.5	1.2355	7.5
EBP1.25x8	1.2355	8
EBP1.25x8.5	1.2355	8.5
EBP1.25x10.00	1.2355	10
EBP1.5x6	1.4855	6
EBP1.5x6.75	1.4855	6.75
EBP1.5x7.5	1.4855	7.5
EBP1.5x8.5	1.4855	8.5
EBP1.5x10	1.4855	10
EBP1.5x11	1.4855	11
EBP1.5x12	1.4855	12
EBP1.75x7.5	1.7355	7.5
EBP1.75x8.5	1.7355	8.5
EBP1.75x9.5	1.7355	9.5
EBP1.75x10	1.7355	10
EBP1.75x11	1.7355	11
EBP1.75x12	1.7355	12
EBP2x7.5	1.9855	7.5
EBP2x8.5	1.9855	8.5
EBP2x9.5	1.9855	9.5
EBP2x10	1.9855	10
EBP2x11	1.9855	11
EBP2x12	1.9855	12





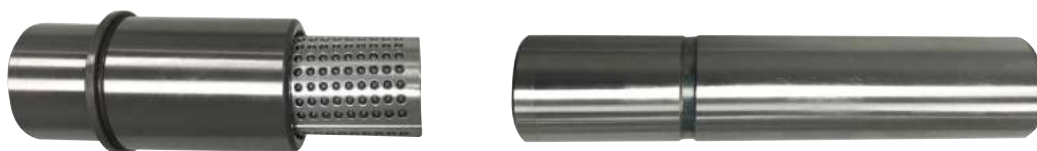
Ball cage is designed to circulate around pin and bush, giving even wear and longer life.

A1 Series can be fitted into Hales standard die set without any modification.

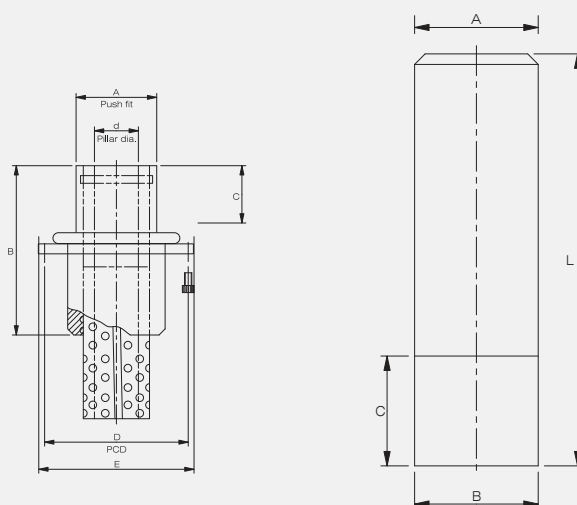


Product Code	D (+.0000 -.0002)	E (+.0000 -.0002)	F +.020	L (+.030 -.000)
A1-1x4.5	0.9855	0.900	1.250	4.5
A1-1x5.75	0.9855	0.900	1.250	5.75
A1-1x7	0.9855	0.900	1.250	7
A1-1x7.5	0.9855	0.900	1.250	7.5
A1-1x8	0.9855	0.900	1.250	8
A1-1.25X5.75	1.2355	1.150	1.500	5.75
A1-1.25X6.5	1.2355	1.150	1.500	6.5
A1-1.25X7	1.2355	1.150	1.500	7
A1-1.25X7.5	1.2355	1.150	1.500	7.5
A1-1.25X8	1.2355	1.150	1.500	8
A1-1.25X8.5	1.2355	1.150	1.500	8.5
A1-1.5X6	1.4855	1.400	1.500	6
A1-1.5X6.5	1.4855	1.400	1.500	6.5
A1-1.5X7	1.4855	1.400	1.500	7
A1-1.5X7.5	1.4855	1.400	1.500	7.5
A1-1.5X8	1.4855	1.400	1.500	8
A1-1.5X8.5	1.4855	1.400	1.500	8.5
A1-1.5X9.5	1.4855	1.400	1.500	9.5

Product Code	Description	D1	D2		D3	L1	L2
			Hole +0 +.0010	Bush +.0002 +0			
A1-1BUSH	A1 Series 1Bush/Retainer	1.274	1.500		1.875	1.218	3.437
A1-1.25 BUSH	A1 Series 1 1/4Bush/Retain	1.524	1.750		2.125	1.218	3.437
A1-1.5 BUSH	A1 Series 1 1/2 Bush/Retain	1.774	2.000		2.375	1.437	4.187

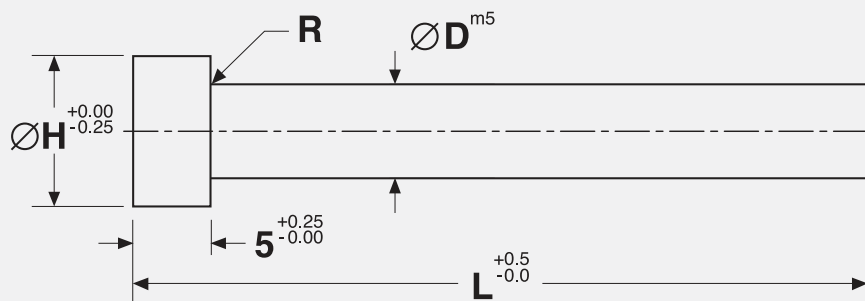


Preloaded for high precision applications.
Captive ball cage.
Recommended for high-speed operations.
Flanged mounting.
Spiro-helical ball pattern for extended life.



Product Code	d	A	B	C	D	E
EXBB 0.750	0.750	1.125	2.937	0.937	2.000	2.375
EXBB 1.00	1.000	1.5000	3.437	1.218	2.312	2.687
EXBB 1.25-S	1.2500	1.7500	3.937	1.218	2.656	3.000
EXBB 1.250	1.2500	1.7500	3.937	1.687	2.656	3.000
EXBB 1.500	1.5000	2.000	4.187	1.875	2.968	3.437

Product Code	A	B	C	L
EXP0.75 X 5.5	0.750	0.7355	1.250	5.5
EXP1 X 6	1.000	0.9855	1.500	6
EXP1 X 6.5	1.000	0.9855	1.500	6.5
EXP1 X 7.5	1.000	0.9855	1.500	7.5
EXP1.25 X 6	1.250	1.2355	2.000	6
EXP1.25 X 6.5	1.250	1.2355	2.000	6.5
EXP1.25 X 7.5	1.250	1.2355	2.000	7.5
EXP1.25 X 8.5	1.250	1.2355	2.000	8.5
EXP1.50 X 7.5	1.500	1.4855	2.000	7.5
EXP1.50 X 8.5	1.500	1.4855	2.000	8.5
EXP1.50 X 9.5	1.500	1.4855	2.000	9.5

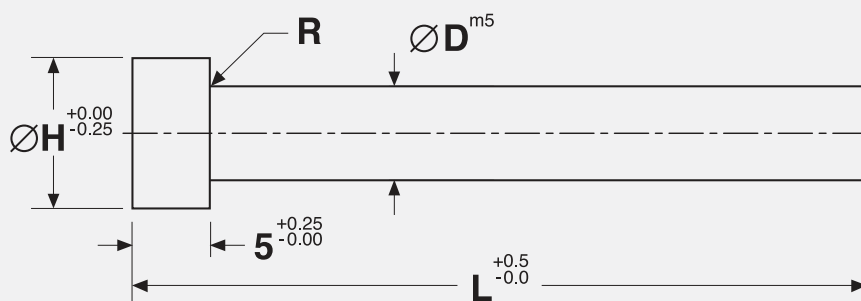


Materials: M2, R/c 61-63 Triple Tempered (HSS)

Head Hardness: R/c 40-55

D	H	HSS - Metric				
		72	100	120	150	160
2.00	5.00		HGPSB-02100-M2			
2.50	5.50		HGPSB-025100-M2			
3.00	6.00	HGPSB-03072-M2	HGPSB-03100-M2			
3.50	6.50		HGPSB-035100-M2			
4.00	7.00	HGPSB-04072-M2	HGPSB-04100-M2			
4.50	7.50		HGPSB-045100-M2			
5.00	8.00	HGPSB-05072-M2	HGPSB-05100-M2			
5.50	8.50		HGPSB-055100-M2			
6.00	9.00	HGPSB-06072-M2	HGPSB-06100-M2	HGPSB-06120-M2		
6.50	9.50		HGPSB-065100-M2			
7.00	10.00	HGPSB-07072-M2	HGPSB-07100-M2			
7.50	10.50		HGPSB-075100-M2			
8.00	11.00	HGPSB-08072-M2	HGPSB-08100-M2	HGPSB-08120-M2	HGPSB-08150-M2	HGPSB-08160-M2
9.00	12.00	HGPSB-09072-M2	HGPSB-09100-M2	HGPSB-09120-M2		
10.00	13.00	HGPSB-10072-M2	HGPSB-10100-M2	HGPSB-10120-M2		HGPSB-10160-M2
11.00	14.00	HGPSB-11072-M2	HGPSB-11100-M2			
12.00	15.00	HGPSB-12072-M2	HGPSB-12100-M2	HGPSB-12120-M2		HGPSB-12160-M2
13.00	16.00	HGPSB-13072-M2	HGPSB-13100-M2	HGPSB-13120-M2	HGPSB-13150-M2	HGPSB-13160-M2
14.00	17.00	HGPSB-14072-M2	HGPSB-14100-M2			
16.00	19.00	HGPSB-16072-M2	HGPSB-16100-M2	HGPSB-16120-M2		HGPSB-16160-M2
20.00	23.00	HGPSB-20072-M2	HGPSB-20100-M2	HGPSB-20120-M2		HGPSB-20160-M2
25.00	28.00	HGPSB-25072-M2	HGPSB-25100-M2	HGPSB-25120-M2		
32.00	35.00		HGPSB-32100-M2			

D	H	HSS - Imperial			
		72	100	120	130
1/2	3 1/2	HGPSBI-12-072-M2	HGPSBI-12-100-M2		HGPSBI-12-130-M2
1/4	3 1/4	HGPSBI-14-072-M2	HGPSBI-14-100-M2		
1/8	3 1/8	HGPSBI-18-072-M2	HGPSBI-18-100-M2		
3/16	3 1/5	HGPSBI-316-072-M2	HGPSBI-316-100-M2		
3/4	3 3/4		HGPSBI-34-100-M2		
3/8	3 3/8	HGPSBI-38-072-M2	HGPSBI-38-100-M2	HGPSBI-38-120-M2	
5/16	3 1/3	HGPSBI-516-072-M2	HGPSBI-516-100-M2		
5/32	3 1/6	HGPSBI-532-072-M2	HGPSBI-532-100-M2		
5/8	3 5/8		HGPSBI-58-100-M2		

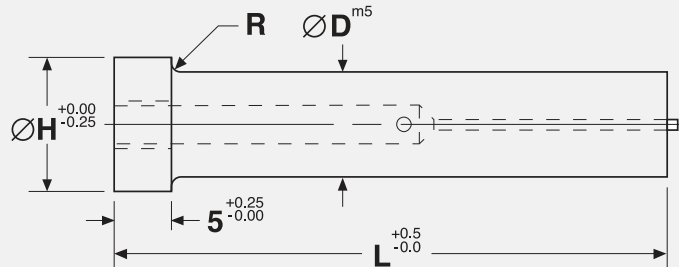


Materials: Tool Steel, R/c 61-63 Triple Tempered (A2)

Head Hardness: R/c 40-55

D	H	A2 - Metric				
		52	63	72	100	120
3.00	6.00			HGPSB-03072-A2	HGPSB-03100-A2	
4.00	7.00			HGPSB-04072-A2	HGPSB-04100-A2	
5.00	8.00			HGPSB-05072-A2	HGPSB-05100-A2	
6.00	9.00			HGPSB-06072-A2	HGPSB-06100-A2	
6.40	9.50		HGPSB-064063-A2			
7.00	10.00			HGPSB-07072-A2	HGPSB-07100-A2	
8.00	11.00			HGPSB-08072-A2	HGPSB-08100-A2	HGPSB-08120-A2
9.00	12.00	HGPSB-09052-A2		HGPSB-09072-A2	HGPSB-09100-A2	
10.00	13.00			HGPSB-10072-A2	HGPSB-10100-A2	HGPSB-10120-A2
11.00	14.00			HGPSB-11072-A2	HGPSB-11100-A2	
12.00	15.00			HGPSB-12072-A2	HGPSB-12100-A2	HGPSB-12120-A2
13.00	16.00			HGPSB-13072-A2	HGPSB-13100-A2	HGPSB-13120-A2
14.00	17.00			HGPSB-14072-A2	HGPSB-14100-A2	
16.00	19.00			HGPSB-16072-A2	HGPSB-16100-A2	HGPSB-16120-A2
20.00	23.00			HGPSB-20072-A2	HGPSB-20100-A2	HGPSB-20120-A2
25.00	28.00			HGPSB-25072-A2	HGPSB-25100-A2	
32.00	35.00				HGPSB-32100-A2	

D	H	A2 - Imperial		
		72	100	120
1/4	3 1/4		HGPSBI-14-100-A2	
1/8	3 1/8	HGPSBI-18-072-A2		
3/16	3 1/5		HGPSBI-316-100-A2	
3/4	3 3/4		HGPSBI-34-100-A2	
3/8	3 3/8	HGPSBI-38-072-A2		
5/16	3 1/3	HGPSBI-516-072-A2		
5/32	3 1/6	HGPSBI-532-072-A2		
5/8	3 5/8		HGPSBI-58-100-A2	
3/16	3 1/5		HGPSBI-316-100-A2	
3/4	3 3/4			HGPSBI-34-120-A2
3/8	3 3/8	HGPSBI-38-72-A2	HGPSBI-38-100-A2	HGPSBI-38-120-A2
5/16	3 1/3	HGPSBI-516-072-A2	HGPSBI-516-100-A2	
5/32	3 1/6	HGPSBI-532-072-A2	HGPSBI-532-100-A2	
5/8	3 5/8		HGPSBI-58-100-A2	

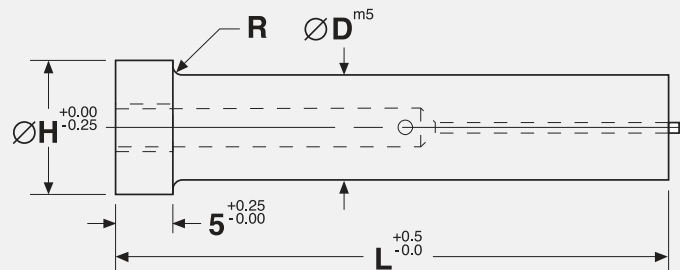


Materials: M2, R/c 61-63 Triple Tempered (HSS)

Head Hardness: R/c 40-55

D	H	HSS - Metric			
		56	63	71	80
5.00	8.00	HGESB-05056-M2	HGESB-05063-M2	HGESB-05071-M2	HGESB-05080-M2
6.00	9.00	HGESB-06056-M2	HGESB-06063-M2	HGESB-06071-M2	HGESB-06080-M2
8.00	11.00	HGESB-08056-M2	HGESB-08063-M2	HGESB-08071-M2	HGESB-08080-M2
10.00	13.00	HGESB-10056-M2	HGESB-10063-M2	HGESB-10071-M2	HGESB-10080-M2
12.00	15.00	HGESB-12056-M2	HGESB-12063-M2	HGESB-12071-M2	HGESB-12080-M2
13.00	16.00	HGESB-13056-M2	HGESB-13063-M2	HGESB-13071-M2	HGESB-13080-M2
14.00	17.00	HGESB-14056-M2	HGESB-14063-M2	HGESB-14071-M2	HGESB-14080-M2
16.00	19.00	HGESB-16056-M2	HGESB-16063-M2	HGESB-16071-M2	HGESB-16080-M2
20.00	23.00	HGESB-20056-M2	HGESB-20063-M2	HGESB-20071-M2	HGESB-20080-M2
25.00	28.00			HGESB-25071-M2	HGESB-25080-M2
32.00	35.00				HGESB-32080-M2

D	H	HSS - Metric		
		90	100	120
5.00	8.00	HGESB-05090-M2	HGESB-05100-M2	
6.00	9.00	HGESB-06090-M2	HGESB-05100-M2	
7.00	10.00		HGESB-07100-M2	
8.00	11.00	HGESB-08090-M2	HGESB-05100-M2	
10.00	13.00	HGESB-10090-M2	HGESB-10100-M2	
12.00	15.00	HGESB-12090-M2	HGESB-12100-M2	HGESB-12120-M2
13.00	16.00	HGESB-13090-M2	HGESB-13100-M2	
14.00	17.00	HGESB-14090-M2	HGESB-14100-M2	
16.00	19.00	HGESB-16090-M2	HGESB-16100-M2	HGESB-16120-M2
20.00	23.00	HGESB-20090-M2	HGESB-20100-M2	
25.00	28.00		HGESB-25100-M2	
32.00	35.00		HGESB-32100-M2	

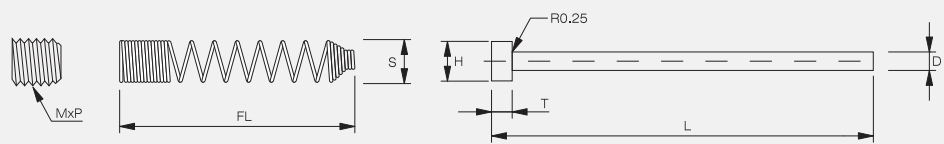


Materials: Tool Steel, R/c 61-63 Triple Tempered (A2)

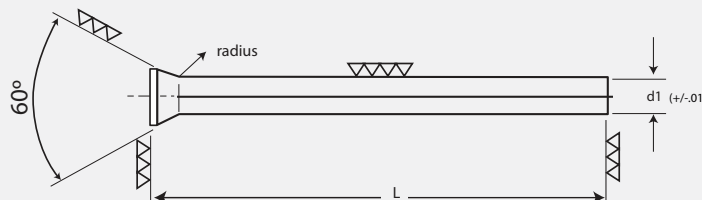
Head Hardness: R/c 40-55

D	H	A2 - Metric		
		56	63	71
5.00	8.00	HGESB-05056-A2	HGESB-05063-A2	HGESB-05071-A2
6.00	9.00	HGESB-06056-A2	HGESB-06063-A2	HGESB-06071-A2
8.00	11.00	HGESB-08056-A2	HGESB-08063-A2	HGESB-08071-A2
10.00	13.00	HGESB-10056-A2	HGESB-10063-A2	HGESB-10071-A2
12.00	15.00	HGESB-12056-A2	HGESB-12063-A2	HGESB-12071-A2
13.00	16.00	HGESB-13056-A2	HGESB-13063-A2	HGESB-13071-A2
16.00	19.00	HGESB-16056-A2	HGESB-16063-A2	HGESB-16071-A2
20.00	23.00	HGESB-20056-A2	HGESB-20063-A2	HGESB-20071-A2

D	H	A2 - Metric		
		80	90	100
5.00	8.00	HGESB-05080-A2	HGESB-05090-A2	HGESB-05100-A2
6.00	9.00	HGESB-06080-A2	HGESB-06090-A2	HGESB-05100-A2
8.00	11.00	HGESB-08080-A2	HGESB-08090-A2	HGESB-05100-A2
10.00	13.00	HGESB-10080-A2	HGESB-10090-A2	HGESB-10100-A2
12.00	15.00	HGESB-12080-A2	HGESB-12090-A2	HGESB-12100-A2
13.00	16.00	HGESB-13080-A2	HGESB-13090-A2	HGESB-13100-A2
16.00	19.00	HGESB-16080-A2	HGESB-16090-A2	HGESB-16100-A2
20.00	23.00	HGESB-20080-A2	HGESB-20090-A2	HGESB-20100-A2



Product Code	MXP	D	L	H	T	S	FL
E2AM	M2.5XP0.45	0.51	28.2	1.2	0.79	1.95	63.5
E3M	M3XP0.5	0.69	35.0	2.0	1.19	2.54	63.5
E4M	M4XP0.7	1.04	49.3	2.4	1.58	3.35	76.2
E6M	M5XP0.8	1.47	49.3	3.2	1.58	4.14	101.6
E9M	M6XP10	2.26	56.4	3.9	2.38	5.03	101.6
E12M	M8XP10	3.00	56.4	4.7	2.38	6.60	101.6



Materials: (HSS) M2 Tungsten High Speed Steel.

Shank Hardness: 64 +/- 2 Hrc

Head Hardness: 50 +/- 5 Hrc

Materials: (A2) 12% Chromium Tool Steel

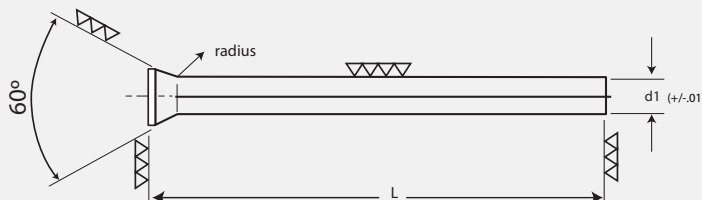
Shank Hardness: 64 +/- 2 Hrc

Head Hardness: 45 +/- 5 Hrc

Dia. d1	HSS		
	70	80	100
0.50	DF-0050-070-M2		
0.55	DF-0055-070-M2		
0.60	DF-0060-070-M2		
0.65	DF-0065-070-M2		
0.70	DF-0070-070-M2		
0.75	DF-0075-070-M2		
0.80	DF-0080-070-M2		
0.85	DF-0085-070-M2		
0.90	DF-0090-070-M2		
0.95	DF-0095-070-M2		
1.00	DF-0100-070-M2	DF-0100-080-M2	DF-0100-100-M2
1.05	DF-0105-070-M2		
1.10	DF-0110-070-M2	DF-0110-080-M2	DF-0110-100-M2
1.15	DF-0115-070-M2		
1.20	DF-0120-070-M2	DF-0120-080-M2	DF-0120-100-M2
1.25	DF-0125-070-M2	DF-0125-080-M2	DF-0125-100-M2
1.30	DF-0130-070-M2	DF-0130-080-M2	DF-0130-100-M2
1.35	DF-0135-070-M2		
1.40	DF-0140-070-M2	DF-0140-080-M2	DF-0140-100-M2
1.45	DF-0145-070-M2		
1.50	DF-0150-070-M2	DF-0150-080-M2	DF-0150-100-M2
1.55	DF-0155-070-M2		
1.60	DF-0160-070-M2	DF-0160-080-M2	DF-0160-100-M2
1.65	DF-0165-070-M2		
1.70	DF-0170-070-M2	DF-0170-080-M2	DF-0170-100-M2
1.75	DF-0175-070-M2	DF-0175-080-M2	DF-0175-100-M2
1.80	DF-0180-070-M2	DF-0180-080-M2	DF-0180-100-M2
1.85	DF-0185-070-M2		
1.90	DF-0190-070-M2	DF-0190-080-M2	DF-0190-100-M2
1.95	DF-0195-070-M2		
2.00	DF-0200-070-M2	DF-0200-080-M2	DF-0200-100-M2
2.05	DF-0205-070-M2		
2.10	DF-0210-070-M2	DF-0210-080-M2	DF-0210-100-M2
2.15	DF-0215-070-M2		
2.20	DF-0220-070-M2	DF-0220-080-M2	DF-0220-100-M2
2.25	DF-0225-070-M2	DF-0225-080-M2	DF-0225-100-M2
2.30	DF-0230-070-M2	DF-0230-080-M2	DF-0230-100-M2
2.35	DF-0235-070-M2		
2.40	DF-0240-070-M2	DF-0240-080-M2	DF-0240-100-M2
2.45	DF-0245-070-M2		
2.50	DF-0250-070-M2	DF-0250-080-M2	DF-0250-100-M2
2.55	DF-0255-070-M2		

Dia. d1	A2		
	70	80	100
0.55	DF-0055-070-A2		
0.60	DF-0060-070-A2		
0.65	DF-0065-070-A2		
0.70	DF-0070-070-A2		
0.75	DF-0075-070-A2		
0.80	DF-0080-070-A2		
0.85	DF-0085-070-A2		
0.90	DF-0090-070-A2		
0.95	DF-0095-070-A2		
1.00	DF-0100-070-A2	DF-0100-080-A2	DF-0100-100-A2
1.05	DF-0105-070-A2		
1.10	DF-0110-070-A2	DF-0110-080-A2	DF-0110-100-A2
1.15	DF-0115-070-A2		
1.20	DF-0120-070-A2	DF-0120-080-A2	DF-0120-100-A2
1.25	DF-0125-070-A2	DF-0125-080-A2	DF-0125-100-A2
1.30	DF-0130-070-A2	DF-0130-080-A2	DF-0130-100-A2
1.35	DF-0135-070-A2		
1.40	DF-0140-070-A2	DF-0140-080-A2	DF-0140-100-A2
1.45	DF-0145-070-A2		
1.50	DF-0150-070-A2	DF-0150-080-A2	DF-0150-100-A2
1.55	DF-0155-070-A2		
1.60	DF-0160-070-A2	DF-0160-080-A2	DF-0160-100-A2
1.65	DF-0165-070-A2	DF-0165-080-A2	
1.70	DF-0170-070-A2	DF-0170-080-A2	DF-0170-100-A2
1.75	DF-0175-070-A2	DF-0175-080-A2	DF-0175-100-A2
1.80	DF-0180-070-A2	DF-0180-080-A2	DF-0180-100-A2
1.85	DF-0185-070-A2		
1.90	DF-0190-070-A2	DF-0190-080-A2	DF-0190-100-A2
1.95	DF-0195-070-A2		
2.00	DF-0200-070-A2	DF-0200-080-A2	DF-0200-100-A2
2.05	DF-0205-070-A2		
2.10	DF-0210-070-A2	DF-0210-080-A2	DF-0210-100-A2
2.15	DF-0215-070-A2		
2.20	DF-0220-070-A2	DF-0220-080-A2	
2.25	DF-0225-070-A2	DF-0225-080-A2	DF-0225-100-A2
2.30	DF-0230-070-A2	DF-0230-080-A2	DF-0230-100-A2
2.35	DF-0235-070-A2		
2.40	DF-0240-070-A2	DF-0240-080-A2	DF-0240-100-A2
2.45	DF-0245-070-A2		
2.50	DF-0250-070-A2	DF-0250-080-A2	DF-0250-100-A2
2.55	DF-0255-070-A2		

Continues next page.



Materials: (HSS) M2 Tungsten High Speed Steel.

Shank Hardness: 64 +/- 2 Hrc

Head Hardness: 50 +/- 5 Hrc

Dia. d1	HSS		
	70	80	100
2.60	DF-0260-070-M2	DF-0260-080-M2	DF-0260-100-M2
2.65	DF-0265-070-M2		
2.70	DF-0270-070-M2	DF-0270-080-M2	DF-0270-100-M2
2.75	DF-0275-070-M2	DF-0275-080-M2	DF-0275-100-M2
2.80	DF-0280-070-M2	DF-0280-080-M2	DF-0280-100-M2
2.85	DF-0285-070-M2		
2.90	DF-0290-070-M2	DF-0290-080-M2	DF-0290-100-M2
2.95	DF-0295-070-M2		
3.00	DF-0300-070-M2	DF-0300-080-M2	DF-0300-100-M2
3.05	DF-0305-070-M2		
3.10	DF-0310-070-M2	DF-0310-080-M2	DF-0310-100-M2
3.15	DF-0315-070-M2		
3.20	DF-0320-070-M2	DF-0320-080-M2	DF-0320-100-M2
3.25	DF-0325-070-M2	DF-0325-080-M2	DF-0325-100-M2
3.30	DF-0330-070-M2	DF-0330-080-M2	DF-0330-100-M2
3.35	DF-0335-070-M2		
3.40	DF-0340-070-M2	DF-0340-080-M2	DF-0340-100-M2
3.45	DF-0345-070-M2		
3.50	DF-0350-070-M2	DF-0350-080-M2	DF-0350-100-M2
3.55	DF-0355-070-M2		
3.60	DF-0360-070-M2	DF-0360-080-M2	DF-0360-100-M2
3.65	DF-0365-070-M2	DF-0365-080-M2	
3.70	DF-0370-070-M2	DF-0370-080-M2	DF-0370-100-M2
3.75	DF-0375-070-M2	DF-0375-080-M2	DF-0375-100-M2
3.80	DF-0380-070-M2	DF-0380-080-M2	DF-0380-100-M2
3.85	DF-0385-070-M2		
3.90	DF-0390-070-M2	DF-0380-080-M2	DF-0390-100-M2
3.95	DF-0395-070-M2	DF-0395-080-M2	
4.00	DF-0400-070-M2	DF-0400-080-M2	DF-0400-100-M2
4.05	DF-0405-070-M2		
4.10	DF-0410-070-M2	DF-0410-080-M2	DF-0410-100-M2
4.15	DF-0415-070-M2		
4.20	DF-0420-070-M2	DF-0420-080-M2	DF-0420-100-M2
4.25	DF-0425-070-M2	DF-0425-080-M2	DF-0425-100-M2
4.30	DF-0430-070-M2	DF-0430-080-M2	DF-0430-100-M2
4.35	DF-0435-070-M2		
4.40	DF-0440-070-M2	DF-0440-080-M2	DF-0440-100-M2
4.45	DF-0445-070-M2		
4.50	DF-0450-070-M2	DF-0450-080-M2	DF-0450-100-M2
4.55	DF-0455-070-M2		
4.60	DF-0460-070-M2	DF-0460-080-M2	DF-0460-100-M2
4.65	DF-0465-070-M2		

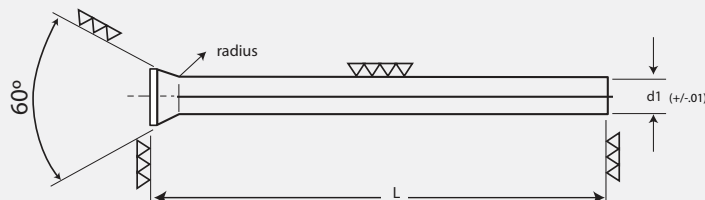
Materials: (A2) 12% Chromium Tool Steel

Shank Hardness: 64 +/- 2 Hrc

Head Hardness: 45 +/- 5 Hrc

Dia. d1	A2		
	70	80	100
2.60	DF-0260-070-A2	DF-0260-080-A2	DF-0260-100-A2
2.65	DF-0265-070-A2		
2.70	DF-0270-070-A2	DF-0270-080-A2	DF-0270-100-A2
2.75	DF-0275-070-A2	DF-0275-080-A2	DF-0275-100-A2
2.80	DF-0280-070-A2	DF-0280-080-A2	DF-0280-100-A2
2.85	DF-0285-070-A2		
2.90	DF-0290-070-A2	DF-0290-080-A2	DF-0290-100-A2
2.95	DF-0295-070-A2		
3.00	DF-0300-070-A2	DF-0300-080-A2	DF-0300-100-A2
3.10	DF-0310-070-A2	DF-0310-080-A2	DF-0310-100-A2
3.20	DF-0320-070-A2	DF-0320-080-A2	DF-0320-100-A2
3.25	DF-0325-070-A2	DF-0325-080-A2	DF-0325-100-A2
3.30	DF-0330-070-A2	DF-0330-080-A2	DF-0330-100-A2
3.40	DF-0340-070-A2	DF-0340-080-A2	DF-0340-100-A2
3.50	DF-0350-070-A2	DF-0350-080-A2	DF-0350-100-A2
3.60	DF-0360-070-A2	DF-0360-080-A2	DF-0360-100-A2
3.65	DF-0365-070-A2	DF-0365-080-A2	
3.70	DF-0370-070-A2	DF-0370-080-A2	DF-0370-100-A2
3.75	DF-0375-070-A2	DF-0375-080-A2	DF-0375-100-A2
3.80	DF-0380-070-A2	DF-0380-080-A2	DF-0380-100-A2
3.90	DF-0390-070-A2	DF-0390-080-A2	DF-0390-100-A2
3.95	DF-0395-070-A2	DF-0395-080-A2	
4.00	DF-0400-070-A2	DF-0400-080-A2	DF-0400-100-A2
4.10	DF-0410-070-A2	DF-0410-080-A2	DF-0410-100-A2
4.20	DF-0420-070-A2	DF-0420-080-A2	DF-0420-100-A2
4.25	DF-0425-070-A2	DF-0425-080-A2	DF-0425-100-A2
4.30	DF-0430-070-A2	DF-0430-080-A2	DF-0430-100-A2
4.40	DF-0440-070-A2	DF-0440-080-A2	DF-0440-100-A2
4.50	DF-0450-070-A2	DF-0450-080-A2	DF-0450-100-A2
4.60	DF-0460-070-A2	DF-0460-080-A2	DF-0460-100-A2

Continues next page.



Materials: (HSS) M2 Tungsten High Speed Steel.

Shank Hardness: 64 +/- 2 Hrc

Head Hardness: 50 +/- 5 Hrc

Dia. d1	HSS		
	70	80	100
4.70	DF-0470-070-M2	DF-0470-080-M2	DF-0470-100-M2
4.75	DF-0475-070-M2	DF-0475-080-M2	DF-0475-100-M2
4.80	DF-0480-070-M2	DF-0480-080-M2	DF-0480-100-M2
4.85	DF-0485-070-M2		
4.90	DF-0490-070-M2	DF-0490-080-M2	DF-0490-100-M2
4.95	DF-0495-070-M2		
5.00	DF-0500-070-M2	DF-0500-080-M2	DF-0500-100-M2
5.05	DF-0505-070-M2		
5.10	DF-0510-070-M2	DF-0510-080-M2	DF-0510-100-M2
5.15	DF-0515-070-M2		
5.20	DF-0520-070-M2	DF-0520-080-M2	DF-0520-100-M2
5.25	DF-0525-070-M2	DF-0525-080-M2	DF-0525-100-M2
5.30	DF-0530-070-M2	DF-0530-080-M2	DF-0530-100-M2
5.35	DF-0535-070-M2		
5.40	DF-0540-070-M2	DF-0540-080-M2	DF-0540-100-M2
5.45	DF-0545-070-M2		
5.50	DF-0550-070-M2	DF-0550-080-M2	DF-0550-100-M2
5.55	DF-0555-070-M2		
5.60	DF-0560-070-M2	DF-0560-080-M2	DF-0560-100-M2
5.65	DF-0565-070-M2		
5.70	DF-0570-070-M2	DF-0570-080-M2	DF-0570-100-M2
5.75	DF-0575-070-M2		DF-0575-100-M2
5.80	DF-0580-070-M2	DF-0580-080-M2	DF-0580-100-M2
5.85	DF-0585-070-M2		
5.90	DF-0590-070-M2	DF-0590-080-M2	DF-0590-100-M2
5.95	DF-0595-070-M2		
6.00	DF-0600-070-M2	DF-0600-080-M2	DF-0600-100-M2
6.10	DF-0610-070-M2	DF-0610-080-M2	DF-0610-100-M2
6.20	DF-0620-070-M2	DF-0620-080-M2	DF-0620-100-M2
6.25	DF-0625-070-M2	DF-0625-080-M2	DF-0625-100-M2
6.30	DF-0630-070-M2	DF-0630-080-M2	DF-0630-100-M2
6.40	DF-0640-070-M2	DF-0640-080-M2	DF-0640-100-M2
6.50	DF-0650-070-M2	DF-0650-080-M2	DF-0650-100-M2
6.60	DF-0660-070-M2	DF-0660-080-M2	DF-0660-100-M2
6.70	DF-0670-070-M2	DF-0670-080-M2	DF-0670-100-M2
6.75	DF-0675-070-M2	DF-0675-080-M2	DF-0675-100-M2
6.80	DF-0680-070-M2	DF-0680-080-M2	DF-0680-100-M2
6.90	DF-0690-070-M2	DF-0690-080-M2	DF-0690-100-M2
7.00	DF-0700-070-M2	DF-0700-080-M2	DF-0700-100-M2
7.10	DF-0710-070-M2	DF-0710-080-M2	DF-0710-100-M2

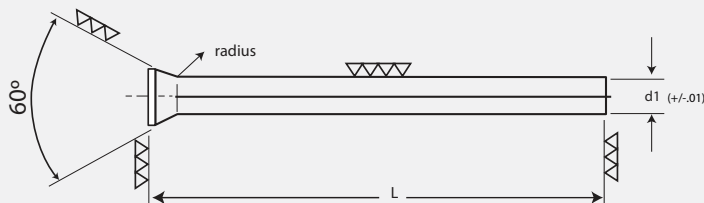
Materials: (A2) 12% Chromium Tool Steel

Shank Hardness: 64 +/- 2 Hrc

Head Hardness: 45 +/- 5 Hrc

Dia. d1	A2		
	70	80	100
4.70	DF-0470-070-A2	DF-0470-080-A2	DF-0470-100-A2
4.75	DF-0475-070-A2	DF-0475-080-A2	DF-0475-100-A2
4.80	DF-0480-070-A2	DF-0480-080-A2	DF-0480-100-A2
4.90	DF-0490-070-A2	DF-0490-080-A2	DF-0490-100-A2
5.00	DF-0500-070-A2	DF-0500-080-A2	DF-0500-100-A2
5.10	DF-0510-070-A2	DF-0510-080-A2	DF-0510-100-A2
5.20	DF-0520-070-A2	DF-0520-080-A2	DF-0520-100-A2
5.25	DF-0525-070-A2	DF-0525-080-A2	DF-0525-100-A2
5.30	DF-0530-070-A2	DF-0530-080-A2	DF-0530-100-A2
5.40	DF-0540-070-A2	DF-0540-080-A2	DF-0540-100-A2
5.50	DF-0550-070-A2	DF-0550-080-A2	DF-0550-100-A2
5.60	DF-0560-070-A2	DF-0560-080-A2	
5.70	DF-0570-070-A2	DF-0570-080-A2	DF-0570-100-A2
5.75	DF-0575-070-A2	DF-0575-080-A2	DF-0575-100-A2
5.80	DF-0580-070-A2	DF-0580-080-A2	DF-0580-100-A2
5.90	DF-0590-070-A2	DF-0590-080-A2	DF-0590-100-A2
6.00	DF-0600-070-A2	DF-0600-080-A2	DF-0600-100-A2
6.10	DF-0610-070-A2	DF-0610-080-A2	DF-0610-100-A2
6.20	DF-0620-070-A2	DF-0620-080-A2	DF-0620-100-A2
6.25	DF-0625-070-A2	DF-0625-080-A2	DF-0625-100-A2
6.30	DF-0630-070-A2	DF-0630-080-A2	DF-0630-100-A2
6.40	DF-0640-070-A2	DF-0640-080-A2	DF-0640-100-A2
6.50	DF-0650-070-A2	DF-0650-080-A2	
6.60	DF-0660-070-A2	DF-0660-080-A2	DF-0660-100-A2
6.70	DF-0670-070-A2	DF-0670-080-A2	DF-0670-100-A2
6.75	DF-0675-070-A2	DF-0675-080-A2	DF-0675-100-A2
6.80	DF-0680-070-A2	DF-0680-080-A2	DF-0680-100-A2
6.90	DF-0690-070-A2	DF-0690-080-A2	DF-0690-100-A2
7.00	DF-0700-070-A2	DF-0700-080-A2	DF-0700-100-A2
7.10	DF-0710-070-A2	DF-0710-080-A2	DF-0710-100-A2

Continues next page.



Materials: (HSS) M2 Tungsten High Speed Steel.

Shank Hardness: 64 +/- 2 Hrc

Head Hardness: 50 +/- 5 Hrc

Dia. d1	HSS		
	70	80	100
7.20	DF-0720-070-M2	DF-0720-080-M2	DF-0720-100-M2
7.25	DF-0725-070-M2	DF-0725-080-M2	DF-0725-100-M2
7.30	DF-0730-070-M2	DF-0730-080-M2	DF-0730-100-M2
7.40	DF-0740-070-M2	DF-0740-080-M2	DF-0740-100-M2
7.50	DF-0750-070-M2	DF-0750-080-M2	DF-0750-100-M2
7.60	DF-0760-070-M2	DF-0760-080-M2	DF-0760-100-M2
7.70	DF-0770-070-M2	DF-0770-080-M2	DF-0770-100-M2
7.75	DF-0775-070-M2	DF-0775-080-M2	DF-0775-100-M2
7.80	DF-0780-070-M2	DF-0780-080-M2	DF-0780-100-M2
7.90	DF-0790-070-M2	DF-0790-080-M2	DF-0790-100-M2
8.00	DF-0800-070-M2	DF-0800-080-M2	DF-0800-100-M2
8.10	DF-0810-070-M2	DF-0810-080-M2	DF-0810-100-M2
8.20	DF-0820-070-M2	DF-0820-080-M2	DF-0820-100-M2
8.25	DF-0825-070-M2	DF-0825-080-M2	DF-0825-100-M2
8.30	DF-0830-070-M2	DF-0830-080-M2	DF-0830-100-M2
8.40	DF-0840-070-M2	DF-0840-080-M2	DF-0840-100-M2
8.50	DF-0850-070-M2	DF-0850-080-M2	DF-0850-100-M2
8.60	DF-0860-070-M2	DF-0860-080-M2	DF-0860-100-M2
8.70	DF-0870-070-M2	DF-0870-080-M2	DF-0870-100-M2
8.75	DF-0875-070-M2	DF-0875-080-M2	DF-0875-100-M2
8.80	DF-0880-070-M2	DF-0880-080-M2	DF-0880-100-M2
8.90	DF-0890-070-M2	DF-0890-080-M2	DF-0890-100-M2
9.00	DF-0900-070-M2	DF-0900-080-M2	DF-0900-100-M2
9.10	DF-0910-070-M2	DF-0910-080-M2	DF-0910-100-M2
9.20	DF-0920-070-M2	DF-0920-080-M2	DF-0920-100-M2
9.25	DF-0925-070-M2	DF-0925-080-M2	DF-0925-100-M2
9.30	DF-0930-070-M2	DF-0930-080-M2	DF-0930-100-M2
9.40	DF-0940-070-M2	DF-0940-080-M2	DF-0940-100-M2
9.50	DF-0950-070-M2	DF-0950-080-M2	DF-0950-100-M2
9.60	DF-0960-070-M2	DF-0960-080-M2	DF-0960-100-M2
9.70	DF-0970-070-M2	DF-0970-080-M2	DF-0970-100-M2
9.75	DF-0975-070-M2	DF-0975-080-M2	DF-0975-100-M2
9.80	DF-0980-070-M2	DF-0980-080-M2	DF-0980-100-M2
9.90	DF-0990-070-M2	DF-0990-080-M2	DF-0990-100-M2
10.00	DF-1000-070-M2	DF-1000-080-M2	DF-1000-100-M2
10.10	DF-1010-070-M2	DF-1010-080-M2	DF-1010-100-M2
10.20	DF-1020-070-M2	DF-1020-080-M2	DF-1020-100-M2
10.25	DF-1025-070-M2	DF-1025-080-M2	DF-1025-100-M2
10.30	DF-1030-070-M2	DF-1030-080-M2	DF-1030-100-M2
10.40	DF-1040-070-M2	DF-1040-080-M2	DF-1040-100-M2
10.50	DF-1050-070-M2	DF-1050-080-M2	DF-1050-100-M2

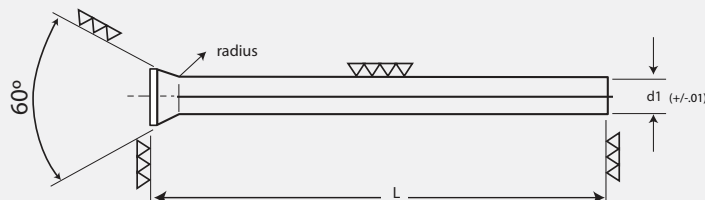
Materials: (A2) 12% Chromium Tool Steel

Shank Hardness: 64 +/- 2 Hrc

Head Hardness: 45 +/- 5 Hrc

Dia. d1	A2		
	70	80	100
7.20	DF-0720-070-A2	DF-0720-080-A2	DF-0720-100-A2
7.25	DF-0725-070-A2	DF-0725-080-A2	DF-0725-100-A2
7.30	DF-0730-070-A2	DF-0730-080-A2	DF-0730-100-A2
7.40	DF-0740-070-A2	DF-0740-080-A2	DF-0740-100-A2
7.50	DF-0750-070-A2	DF-0750-080-A2	DF-0750-100-A2
7.60	DF-0760-070-A2	DF-0760-080-A2	DF-0760-100-A2
7.70	DF-0770-070-A2	DF-0770-080-A2	DF-0770-100-A2
7.75	DF-0775-070-A2	DF-0775-080-A2	DF-0775-100-A2
7.80	DF-0780-070-A2	DF-0780-080-A2	DF-0780-100-A2
7.90	DF-0790-070-A2	DF-0790-080-A2	DF-0790-100-A2
8.00	DF-0800-070-A2	DF-0800-080-A2	DF-0800-100-A2
8.10	DF-0810-070-A2	DF-0810-080-A2	DF-0810-100-A2
8.20	DF-0820-070-A2	DF-0820-080-A2	DF-0820-100-A2
8.25	DF-0825-070-A2	DF-0825-080-A2	DF-0825-100-A2
8.30	DF-0830-070-A2	DF-0830-080-A2	DF-0830-100-A2
8.40	DF-0840-070-A2	DF-0840-080-A2	DF-0840-100-A2
8.50	DF-0850-070-A2	DF-0850-080-A2	DF-0850-100-A2
8.60	DF-0860-070-A2	DF-0860-080-A2	DF-0860-100-A2
8.70	DF-0870-070-A2	DF-0870-080-A2	DF-0870-100-A2
8.75	DF-0875-070-A2	DF-0875-080-A2	DF-0875-100-A2
8.80	DF-0880-070-A2	DF-0880-080-A2	DF-0880-100-A2
8.90	DF-0890-070-A2	DF-0890-080-A2	DF-0890-100-A2
9.00	DF-0900-070-A2	DF-0900-080-A2	DF-0900-100-A2
9.10	DF-0910-070-A2	DF-0910-080-A2	DF-0910-100-A2
9.20	DF-0920-070-A2	DF-0920-080-A2	DF-0920-100-A2
9.25	DF-0925-070-A2	DF-0925-080-A2	DF-0925-100-A2
9.30	DF-0930-070-A2	DF-0930-080-A2	DF-0930-100-A2
9.40	DF-0940-070-A2	DF-0940-080-A2	DF-0940-100-A2
9.50	DF-0950-070-A2	DF-0950-080-A2	DF-0950-100-A2
9.60	DF-0960-070-A2	DF-0960-080-A2	DF-0960-100-A2
9.70	DF-0970-070-A2	DF-0970-080-A2	DF-0970-100-A2
9.75	DF-0975-070-A2	DF-0975-080-A2	DF-0975-100-A2
9.80	DF-0980-070-A2	DF-0980-080-A2	DF-0980-100-A2
9.90		DF-0990-080-A2	DF-0990-100-A2
10.00	DF-1000-070-A2	DF-1000-080-A2	DF-1000-100-A2
10.10	DF-1010-070-A2	DF-1010-080-A2	DF-1010-100-A2
10.20	DF-1020-070-A2	DF-1020-080-A2	DF-1020-100-A2
10.25	DF-1025-070-A2	DF-1025-080-A2	DF-1025-100-A2
10.30	DF-1030-070-A2	DF-1030-080-A2	DF-1030-100-A2
10.40	DF-1040-070-A2	DF-1040-080-A2	DF-1040-100-A2
10.50	DF-1050-070-A2	DF-1050-080-A2	DF-1050-100-A2

Continues next page.



Materials: (HSS) M2 Tungsten High Speed Steel.

Shank Hardness: 64 +/- 2 Hrc

Head Hardness: 50 +/- 5 Hrc

Dia. d1	HSS		
	70	80	100
10.60	DF-1060-070-M2	DF-1060-080-M2	DF-1060-100-M2
10.70	DF-1070-070-M2	DF-1070-080-M2	DF-1070-100-M2
10.75	DF-1075-070-M2	DF-1075-080-M2	DF-1075-100-M2
10.80	DF-1080-070-M2	DF-1080-080-M2	DF-1080-100-M2
10.90	DF-1090-070-M2	DF-1090-080-M2	DF-1090-100-M2
11.00	DF-1100-070-M2	DF-1100-080-M2	DF-1100-100-M2
11.10	DF-1110-070-M2	DF-1110-080-M2	DF-1110-100-M2
11.20	DF-1120-070-M2	DF-1120-080-M2	DF-1120-100-M2
11.25	DF-1125-070-M2	DF-1125-080-M2	DF-1125-100-M2
11.30	DF-1130-070-M2	DF-1130-080-M2	DF-1130-100-M2
11.40	DF-1140-070-M2	DF-1140-080-M2	DF-1140-100-M2
11.50	DF-1150-070-M2	DF-1150-080-M2	DF-1150-100-M2
11.60	DF-1160-070-M2	DF-1160-080-M2	DF-1160-100-M2
11.70	DF-1170-070-M2	DF-1170-080-M2	DF-1170-100-M2
11.75	DF-1175-070-M2	DF-1175-080-M2	DF-1175-100-M2
11.80	DF-1180-070-M2	DF-1180-080-M2	DF-1180-100-M2
11.90	DF-1190-070-M2	DF-1190-080-M2	DF-1190-100-M2
12.00	DF-1200-070-M2	DF-1200-080-M2	DF-1200-100-M2
12.10	DF-1210-070-M2	DF-1210-080-M2	DF-1210-100-M2
12.20	DF-1220-070-M2	DF-1220-080-M2	DF-1220-100-M2
12.25	DF-1225-070-M2	DF-1225-080-M2	DF-1225-100-M2
12.30	DF-1230-070-M2	DF-1230-080-M2	DF-1230-100-M2
12.40	DF-1240-070-M2	DF-1240-080-M2	DF-1240-100-M2
12.50	DF-1250-070-M2	DF-1250-080-M2	DF-1250-100-M2
12.60	DF-1260-070-M2	DF-1260-080-M2	DF-1260-100-M2
12.70	DF-1270-070-M2	DF-1270-080-M2	DF-1270-100-M2
12.75	DF-1275-070-M2	DF-1275-080-M2	DF-1275-100-M2
12.80	DF-1280-070-M2	DF-1280-080-M2	DF-1280-100-M2
12.90	DF-1290-070-M2	DF-1290-080-M2	DF-1290-100-M2
13.00	DF-1300-070-M2	DF-1300-080-M2	DF-1300-100-M2
13.50	DF-1350-070-M2	DF-1350-080-M2	DF-1350-100-M2
14.00	DF-1400-070-M2	DF-1400-080-M2	DF-1400-100-M2
14.50	DF-1450-070-M2	DF-1450-080-M2	DF-1450-100-M2
14.80	DF-1480-070-M2	DF-1480-080-M2	DF-1480-100-M2

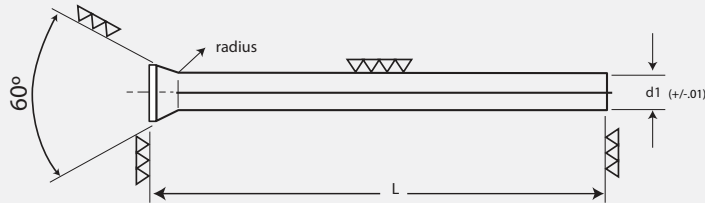
Materials: (A2) 12% Chromium Tool Steel

Shank Hardness: 64 +/- 2 Hrc

Head Hardness: 45 +/- 5 Hrc

Dia. d1	A2		
	70	80	100
10.60	DF-1060-070-A2	DF-1060-080-A2	DF-1060-100-A2
10.70	DF-1070-070-A2	DF-1070-080-A2	DF-1070-100-A2
10.75	DF-1075-070-A2	DF-1075-080-A2	DF-1075-100-A2
10.80	DF-1080-070-A2	DF-1080-080-A2	DF-1080-100-A2
10.90	DF-1090-070-A2	DF-1090-080-A2	DF-1090-100-A2
11.00	DF-1100-070-A2	DF-1100-080-A2	DF-1100-100-A2
11.10	DF-1110-070-A2	DF-1110-080-A2	DF-1110-100-A2
11.20	DF-1120-070-A2	DF-1120-080-A2	DF-1120-100-A2
11.25	DF-1125-070-A2	DF-1125-080-A2	DF-1125-100-A2
11.30	DF-1130-070-A2	DF-1130-080-A2	DF-1130-100-A2
11.40	DF-1140-070-A2	DF-1140-080-A2	DF-1140-100-A2
11.50	DF-1150-070-A2	DF-1150-080-A2	DF-1150-100-A2
11.60	DF-1160-070-A2	DF-1160-080-A2	DF-1160-100-A2
11.70	DF-1170-070-A2	DF-1170-080-A2	DF-1170-100-A2
11.75	DF-1175-070-A2	DF-1175-080-A2	DF-1175-100-A2
11.80	DF-1180-070-A2	DF-1180-080-A2	DF-1180-100-A2
11.90	DF-1190-070-A2	DF-1190-080-A2	DF-1190-100-A2
12.00	DF-1200-070-A2	DF-1200-080-A2	DF-1200-100-A2
12.10	DF-1210-070-A2	DF-1210-080-A2	DF-1210-100-A2
12.20	DF-1220-070-A2	DF-1220-080-A2	DF-1220-100-A2
12.25	DF-1225-070-A2	DF-1225-080-A2	DF-1225-100-A2
12.30	DF-1230-070-A2	DF-1230-080-A2	DF-1230-100-A2
12.40	DF-1240-070-A2	DF-1240-080-A2	DF-1240-100-A2
12.50	DF-1250-070-A2	DF-1250-080-A2	DF-1250-100-A2
12.60	DF-1260-070-A2	DF-1260-080-A2	DF-1260-100-A2
12.70	DF-1270-070-A2		
12.75	DF-1275-070-A2	DF-1275-080-A2	DF-1275-100-A2
12.80	DF-1280-070-A2	DF-1280-080-A2	DF-1280-100-A2
12.90	DF-1290-070-A2	DF-1290-080-A2	DF-1290-100-A2
13.00	DF-1300-070-A2	DF-1300-080-A2	DF-1300-100-A2
13.50	DF-1350-070-A2	DF-1350-080-A2	DF-1350-100-A2
14.00	DF-1400-070-A2	DF-1400-080-A2	DF-1400-100-A2
14.50	DF-1450-070-A2	DF-1450-080-A2	DF-1450-100-A2

Continues next page.



Materials: (HSS) M2 Tungsten High Speed Steel.

Shank Hardness: 64 +/- 2 Hrc

Head Hardness: 50 +/- 5 Hrc

Dia. d1	HSS		
	70	80	100
15.00	DF-1500-070-M2	DF-1500-080-M2	DF-1500-100-M2
15.50	DF-1550-070-M2	DF-1550-080-M2	DF-1550-100-M2
16.00	DF-1600-070-M2	DF-1600-080-M2	DF-1600-100-M2
16.50	DF-1650-070-M2	DF-1650-080-M2	DF-1650-100-M2
17.00	DF-1700-070-M2	DF-1700-080-M2	DF-1700-100-M2
17.50	DF-1750-070-M2	DF-1750-080-M2	DF-1750-100-M2
18.00	DF-1800-070-M2	DF-1800-080-M2	DF-1800-100-M2
18.50	DF-1850-070-M2	DF-1850-080-M2	DF-1850-100-M2
19.00	DF-1900-070-M2	DF-1900-080-M2	DF-1900-100-M2
19.50	DF-1950-070-M2	DF-1950-080-M2	DF-1950-100-M2
20.00	DF-2000-070-M2	DF-2000-080-M2	DF-2000-100-M2
21.00	DF-2100-070-M2	DF-2100-080-M2	DF-2100-100-M2
22.00	DF-2200-070-M2	DF-2200-080-M2	DF-2200-100-M2
23.00	DF-2300-070-M2	DF-2300-080-M2	DF-2300-100-M2
24.00	DF-2400-070-M2	DF-2400-080-M2	DF-2400-100-M2
25.00	DF-2500-070-M2	DF-2500-080-M2	DF-2500-100-M2

Materials: (A2) 12% Chromium Tool Steel

Shank Hardness: 64 +/- 2 Hrc

Head Hardness: 45 +/- 5 Hrc

Dia. d1	A2		
	70	80	100
15.00	DF-1500-070-A2	DF-1500-080-A2	DF-1500-100-A2
15.50	DF-1550-070-A2	DF-1550-080-A2	DF-1550-100-A2
16.00	DF-1600-070-A2	DF-1600-080-A2	DF-1600-100-A2
16.50	DF-1650-070-A2	DF-1650-080-A2	DF-1650-100-A2
17.00	DF-1700-070-A2	DF-1700-080-A2	DF-1700-100-A2
17.50	DF-1750-070-A2	DF-1750-080-A2	DF-1750-100-A2
18.00	DF-1800-070-A2	DF-1800-080-A2	DF-1800-100-A2
18.50	DF-1850-070-A2	DF-1850-080-A2	DF-1850-100-A2
19.00	DF-1900-070-A2	DF-1900-080-A2	DF-1900-100-A2
19.50	DF-1950-070-A2	DF-1950-080-A2	DF-1950-100-A2
20.00	DF-2000-070-A2	DF-2000-080-A2	DF-2000-100-A2
21.00	DF-2100-070-A2	DF-2100-080-A2	DF-2100-100-A2
22.00	DF-2200-070-A2	DF-2200-080-A2	DF-2200-100-A2
23.00	DF-2300-070-A2	DF-2300-080-A2	DF-2300-100-A2
24.00	DF-2400-070-A2	DF-2400-080-A2	DF-2400-100-A2
25.00	DF-2500-070-A2	DF-2500-080-A2	DF-2500-100-A2

**Material:**

1.2067 Hardened Steel

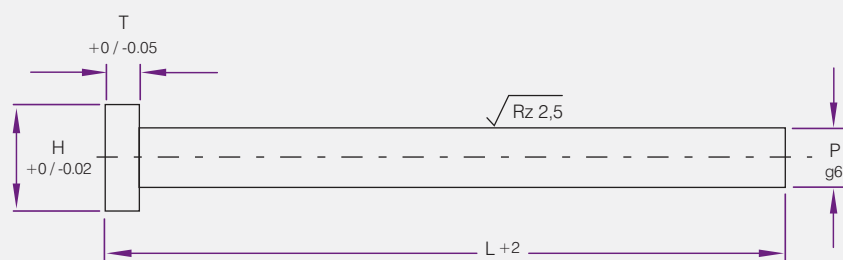
Standard:

DIN1530-AH / ISO6751

Hardness:

Head = HRC45+/- 5

Shaft = HRC60+/-2 Through Hardened



P	H	T	Product Code				
			L 100	L 125	L 160	L 200	L 250
1.0	2.5	1.2	HED0100100		HED0100160		
1.2	2.5	1.2	HED0120100				
1.5	3	1.5	HED0150100	HED0150125	HED0150160		HED0150250
1.6	3	1.5	HED0160100		HED0160160		
2.0	4	2	HED0200100	HED0200125	HED0200160	HED0200200	HED0200250
2.2	4	2	HED0220100	HED0220125			HED0220250
2.5	5	2	HED0250100	HED0250125	HED0250160	HED0250200	HED0250250
2.7	5	2	HED0270100	HED0270125	HED0270160	HED0270200	HED0270250
3.0	6	3	HED0300100		HED0300160	HED0300200	HED0300250
3.2	6	3		HED0320125	HED0320160	HED0320200	HED0320250
3.5	7	3	HED0350100	HED0350125	HED0350160	HED0350200	HED0350250
3.7	7	3	HED0370100	HED0370125	HED0370160	HED0370200	HED0370250
4.0	8	3	HED0400100	HED0400125	HED0400160	HED0400200	HED0400250
4.2	8	3	HED0420100	HED0420125	HED0420160	HED0420200	HED0420250
4.5	8	3	HED0450100		HED0450160	HED0450200	HED0450250
5.0	10	3	HED0500100	HED0500125	HED0500160	HED0500200	HED0500250
5.2	10	3			HED0520160		HED0520250
5.5	10	3	HED0550100	HED0550125	HED0550160	HED0550200	HED0550250
6.0	12	5	HED0600100	HED0600125	HED0600160	HED0600200	HED0600250
6.2	12	5		HED0620125			
6.5	12	5	HED0650100	HED0650125	HED0650160	HED0650200	HED0650250
7.0	12	5	HED0700100			HED0700200	HED0700250
7.5	12	5	HED0750100	HED0750125	HED0750160	HED0750200	HED0750250
8.0	14	5	HED0800100	HED0800125	HED0800160	HED0800200	HED0800250
8.2	14	5	HED0820100	HED0820125		HED0820200	
8.5	14	5	HED0850100	HED0850125	HED0850160	HED0850200	HED0850250
9.0	14	5	HED0900100		HED0900160	HED0900200	HED0900250
10.0	16	5	HED1000100	HED1000125	HED1000160	HED1000200	HED1000250
10.2	16	5	HED1020100			HED1020200	
10.5	16	5	HED1050100	HED1050125	HED1050160	HED1050200	HED1050250
11.0	16	5	HED1100100		HED1100160	HED1100200	HED1100250
12.0	20	7	HED1200100	HED1200125	HED1200160	HED1200200	HED1200250
12.2	20	7		HED1220125		HED1220200	
12.5	20	7	HED1250100	HED1250125	HED1250160	HED1250200	HED1250250
13.0	20	7					HED1300250
14.0	22	7	HED1400100		HED1400160	HED1400200	HED1400250
16.0	22	7	HED1600100	HED1600125	HED1600160	HED1600200	HED1600250
18.0	24	7	HED1800100	HED1800125	HED1800160	HED1800200	HED1800250
20.0	26	8	HED2000100	HED2000125	HED2000160	HED2000200	HED2000250
25.0	32	10			HED2500160	HED2500200	HED2500250
32.0	40	10				HED3200200	HED3200250

Continues next page.

**Material:**

1.2067 Hardened Steel

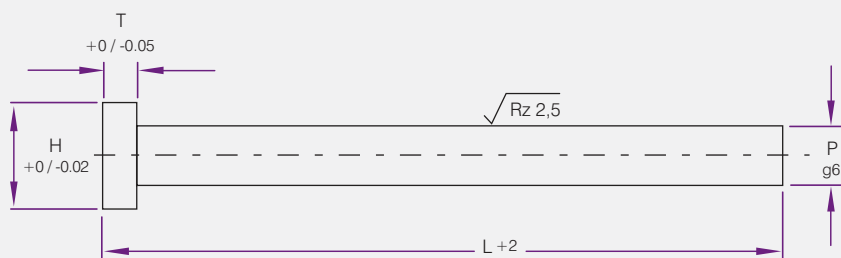
Standard:

DIN1530-AH / ISO6751

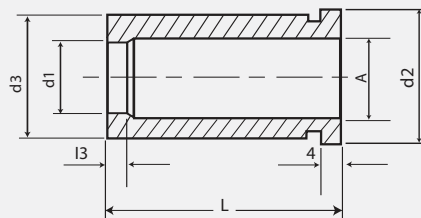
Hardness:

Head = HRC45+/- 5

Shaft = HRC60+/-2 Through Hardened



P	H	T	Product Code			
			L 315	L 400	L 500	L 630
2.0	4	2	HED0200315			
2.2	4	2	HED0220315			
2.5	5	2	HED0250315			
2.7	5	2	HED0270315			
3.0	6	3	HED0300315	HED0300400		
3.2	6	3	HED0320315	HED0320400		
3.5	7	3	HED0350315	HED0350400		
3.7	7	3	HED0370315	HED0370400		
4.0	8	3	HED0400315	HED0400400	HED0400500	
4.2	8	3	HED0420315	HED0420400	HED0420500	
4.5	8	3	HED0450315	HED0450400	HED0450500	
5.0	10	3	HED0500315	HED0500400	HED0500500	
5.2	10	3	HED0520315	HED0520400	HED0520500	
5.5	10	3	HED0550315	HED0550400	HED0550500	
6.0	12	5	HED0600315	HED0600400	HED0600500	HED0600630
6.2	12	5		HED0620400	HED0620500	HED0620630
6.5	12	5	HED0650315	HED0650400	HED0650500	HED0650630
7.0	12	5	HED0700315	HED0700400	HED0700500	HED0700630
7.5	12	5	HED0750315	HED0750400	HED0750500	HED0750630
8.0	14	5	HED0800315	HED0800400	HED0800500	HED0800630
8.2	14	5		HED0820400	HED0820500	HED0820630
8.5	14	5	HED0850315	HED0850400	HED0850500	HED0850630
9.0	14	5	HED0900315	HED0900400	HED0900500	HED0900630
10.0	16	5	HED1000315	HED1000400	HED1000500	HED1000630
10.2	16	5		HED1020400	HED1020500	HED1020630
10.5	16	5	HED1050315	HED1050400	HED1050500	HED1050630
11.0	16	5	HED1100315	HED1100400	HED1100500	HED1100630
12.0	20	7	HED1200315	HED1200400	HED1200500	HED1200630
12.2	20	7		HED1220400	HED1220500	HED1220630
12.5	20	7	HED1250315	HED1250400	HED1250500	HED1250630
14.0	22	7	HED1400315	HED1400400	HED1400500	HED1400630
16.0	22	7	HED1600315	HED1600400	HED1600500	HED1600630
18.0	24	7	HED1800315	HED1800400	HED1800500	HED1800630
20.0	26	8	HED2000315	HED2000400	HED2000500	HED2000630
25.0	32	10	HED2500315	HED2500400	HED2500500	HED2500630
32.0	40	10	HED3200315	HED3200400	HED3200500	HED3200630



Materials: (HSS) M2 Tungsten High Speed Steel.

Shank Hardness: 64 +/- 2 Hrc

Head Hardness: 50 +/- 5 Hrc

Dia. d1	Dia d3	d2	A	I3	HSS	
					20	28
1.00	6	8	2.5	2	DIB-0100-20-M2	DIB-0100-28-M2
1.05	6	8	2.5	2	DIB-0105-20-M2	
1.10	6	8	2.5	2	DIB-0110-20-M2	DIB-0110-28-M2
1.20	6	8	2.5	2	DIB-0120-20-M2	DIB-0120-28-M2
1.30	6	8	2.5	2	DIB-0130-20-M2	DIB-0130-28-M2
1.40	6	8	2.5	2	DIB-0140-20-M2	DIB-0140-28-M2
1.50	6	8	2.5	2	DIB-0150-20-M2	DIB-0150-28-M2
1.60	6	8	2.5	2	DIB-0160-20-M2	DIB-0160-28-M2
1.70	6	8	2.5	2	DIB-0170-20-M2	DIB-0170-28-M2
1.75	6	8	2.5	2	DIB-0175-20-M2	DIB-0175-28-M2
1.80	6	8	2.5	2	DIB-0180-20-M2	DIB-0180-28-M2
1.90	6	8	2.5	2	DIB-0190-20-M2	DIB-0190-28-M2
2.00	6	8	2.5	2	DIB-0200-20-M2	DIB-0200-28-M2
2.10	7	9	3.5	3	DIB-0210-20-M2	DIB-0210-28-M2
2.20	7	9	3.5	3	DIB-0220-20-M2	DIB-0220-28-M2
2.25	7	9	3.5	3	DIB-0225-20-M2	DIB-0225-28-M2
2.30	7	9	3.5	3	DIB-0230-20-M2	DIB-0230-28-M2
2.40	7	9	3.5	3	DIB-0240-20-M2	DIB-0240-28-M2
2.50	7	9	3.5	3	DIB-0250-20-M2	DIB-0250-28-M2
2.60	7	9	3.5	3	DIB-0260-20-M2	DIB-0260-28-M2
2.70	7	9	3.5	3	DIB-0270-20-M2	DIB-0270-28-M2
2.75	7	9	3.5	3	DIB-0275-20-M2	DIB-0275-28-M2
2.80	7	9	3.5	3	DIB-0280-20-M2	DIB-0280-28-M2
2.90	7	9	3.5	3	DIB-0290-20-M2	DIB-0290-28-M2
3.00	7	9	3.5	3	DIB-0300-20-M2	DIB-0300-28-M2
3.05	7	9	3.5	3	DIB-0305-20-M2	DIB-0305-28-M2
3.10	8	10	4.5	4	DIB-0310-20-M2	DIB-0310-28-M2
3.20	8	10	4.5	4	DIB-0320-20-M2	DIB-0320-28-M2
3.25	8	10	4.5	4	DIB-0325-20-M2	DIB-0325-28-M2
3.30	8	10	4.5	4	DIB-0330-20-M2	DIB-0330-28-M2
3.40	8	10	4.5	4	DIB-0340-20-M2	DIB-0340-28-M2
3.50	8	10	4.5	4	DIB-0350-20-M2	DIB-0350-28-M2
3.60	8	10	4.5	4	DIB-0360-20-M2	DIB-0360-28-M2
3.70	8	10	4.5	4	DIB-0370-20-M2	DIB-0370-28-M2
3.75	8	10	4.5	4	DIB-0375-20-M2	DIB-0375-28-M2
3.80	8	10	4.5	4	DIB-0380-20-M2	DIB-0380-28-M2
3.90	8	10	4.5	4	DIB-0390-20-M2	DIB-0390-28-M2

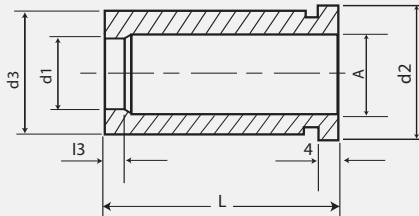
Materials: (A2) 12% Chromium Tool Steel

Shank Hardness: 64 +/- 2 Hrc

Head Hardness: 45 +/- 5 Hrc

Dia. d1	Dia d3	d2	A	I3	A2	
					20	28
1.00	6	8	2.5	2	DIB-0100-20-A2	DIB-0100-28-A2
1.05	6	8	2.5	2	DIB-0105-20-A2	DIB-0105-28-A2
1.10	6	8	2.5	2	DIB-0110-20-A2	DIB-0110-28-A2
1.20	6	8	2.5	2	DIB-0110-20-A2	DIB-0110-28-A2
1.30	6	8	2.5	2	DIB-0120-20-A2	DIB-0120-28-A2
1.40	6	8	2.5	2	DIB-0130-20-A2	DIB-0130-28-A2
1.50	6	8	2.5	2	DIB-0140-20-A2	DIB-0140-28-A2
1.60	6	8	2.5	2	DIB-0150-20-A2	DIB-0150-28-A2
1.70	6	8	2.5	2	DIB-0160-20-A2	DIB-0160-28-A2
1.75	6	8	2.5	2	DIB-0170-20-A2	DIB-0170-28-A2
1.80	6	8	2.5	2	DIB-0175-20-A2	DIB-0175-28-A2
1.90	7	9	3.5	3	DIB-0180-20-A2	DIB-0180-28-A2
2.00	7	9	3.5	3	DIB-0200-20-A2	DIB-0200-28-A2
2.10	7	9	3.5	3	DIB-0210-20-A2	DIB-0210-28-A2
2.20	7	9	3.5	3	DIB-0220-20-A2	DIB-0220-28-A2
2.25	7	9	3.5	3	DIB-0225-20-A2	DIB-0225-28-A2
2.30	7	9	3.5	3	DIB-0230-20-A2	DIB-0230-28-A2
2.40	7	9	3.5	3	DIB-0240-20-A2	DIB-0240-28-A2
2.50	7	9	3.5	3	DIB-0250-20-A2	DIB-0250-28-A2
2.60	7	9	3.5	3	DIB-0260-20-A2	DIB-0260-28-A2
2.70	7	9	3.5	3	DIB-0270-20-A2	DIB-0270-28-A2
2.75	7	9	3.5	3	DIB-0275-20-A2	DIB-0275-28-A2
2.80	7	9	3.5	3	DIB-0280-20-A2	DIB-0280-28-A2
2.90	7	9	3.5	3	DIB-0290-20-A2	DIB-0290-28-A2
3.00	7	9	3.5	3	DIB-0300-20-A2	DIB-0300-28-A2
3.05	7	9	3.5	3	DIB-0305-20-A2	DIB-0305-28-A2
3.10	7	9	3.5	3	DIB-0310-20-A2	DIB-0310-28-A2
3.20	7	9	3.5	3	DIB-0320-20-A2	DIB-0320-28-A2
3.25	7	9	3.5	3	DIB-0325-20-A2	DIB-0325-28-A2
3.30	7	9	3.5	3	DIB-0330-20-A2	DIB-0330-28-A2
3.40	8	10	4.5	4	DIB-0340-20-M2	DIB-0340-28-M2
3.50	8	10	4.5	4	DIB-0350-20-M2	DIB-0350-28-M2
3.60	8	10	4.5	4	DIB-0360-20-M2	DIB-0360-28-M2
3.70	8	10	4.5	4	DIB-0370-20-M2	DIB-0370-28-M2
3.75	8	10	4.5	4	DIB-0375-20-M2	DIB-0375-28-M2
3.80	8	10	4.5	4		DIB-0380-28-M2
3.90	8	10	4.5	4	DIB-0390-20-M2	DIB-0390-28-M2

Continues next page.



Materials: (HSS) M2 Tungsten High Speed Steel.

Shank Hardness: 64 +/- 2 Hrc

Head Hardness: 50 +/- 5 Hrc

Dia. d1	Dia d3	d2	A	l3	HSS	
					20	28
4.00	8	10	4.5	4	DIB-0400-20-M2	DIB-0400-28-M2
4.10	10	12	5.5	4	DIB-0410-20-M2	DIB-0410-28-M2
4.20	10	12	5.5	4	DIB-0420-20-M2	DIB-0420-28-M2
4.25	10	12	5.5	4	DIB-0425-20-M2	
4.30	10	12	5.5	4	DIB-0430-20-M2	DIB-0430-28-M2
4.40	10	12	5.5	4	DIB-0440-20-M2	DIB-0440-28-M2
4.50	10	12	5.5	4	DIB-0450-20-M2	DIB-0450-28-M2
4.60	10	12	5.5	4	DIB-0460-20-M2	DIB-0460-28-M2
4.70	10	12	5.5	4	DIB-0470-20-M2	DIB-0470-28-M2
4.75	10	12	5.5	4	DIB-0475-20-M2	
4.80	10	12	5.5	4	DIB-0480-20-M2	DIB-0480-28-M2
4.90	10	12	5.5	4	DIB-0490-20-M2	DIB-0490-28-M2
5.00	12	14	6.5	4	DIB-0500-20-M2	DIB-0500-28-M2
5.10	12	14	6.5	4	DIB-0510-20-M2	DIB-0510-28-M2
5.20	12	14	6.5	4	DIB-0520-20-M2	DIB-0520-28-M2
5.25	12	14	6.5	4	DIB-0525-20-M2	
5.30	12	14	6.5	4	DIB-0530-20-M2	DIB-0530-28-M2
5.40	12	14	6.5	4	DIB-0540-20-M2	DIB-0540-28-M2
5.50	12	14	6.5	4	DIB-0550-20-M2	DIB-0550-28-M2
5.60	12	14	6.5	4	DIB-0560-20-M2	DIB-0560-28-M2
5.70	12	14	6.5	4	DIB-0570-20-M2	DIB-0570-28-M2
5.75	12	14	6.5	4	DIB-0575-20-M2	
5.80	12	14	6.5	4	DIB-0580-20-M2	DIB-0580-28-M2
5.90	12	14	6.5	4	DIB-0590-20-M2	DIB-0590-28-M2
6.00	12	14	6.5	4	DIB-0600-20-M2	DIB-0600-28-M2
6.10	15	17	7.5	4	DIB-0610-20-M2	DIB-0610-28-M2
6.20	15	17	7.5	4	DIB-0620-20-M2	DIB-0620-28-M2
6.25	15	17	7.5	4	DIB-0625-20-M2	
6.30	15	17	7.5	4	DIB-0630-20-M2	DIB-0630-28-M2
6.40	15	17	7.5	4	DIB-0640-20-M2	DIB-0640-28-M2

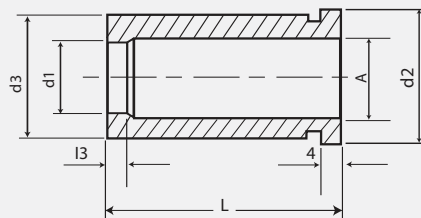
Materials: (A2) 12% Chromium Tool Steel

Shank Hardness: 64 +/- 2 Hrc

Head Hardness: 45 +/- 5 Hrc

Dia. d1	Dia d3	d2	A	l3	A2	
					20	28
4.00	8	10	4.5	4	DIB-0400-20-A2	DIB-0400-28-A2
4.10	10	12	5.5	4	DIB-0410-20-A2	DIB-0410-28-A2
4.20	10	12	5.5	4		DIB-0420-28-A2
4.30	10	12	5.5	4	DIB-0430-20-A2	DIB-0430-28-A2
4.40	10	12	5.5	4	DIB-0440-20-A2	DIB-0440-28-A2
4.50	10	12	5.5	4	DIB-0450-20-A2	DIB-0450-28-A2
4.60	10	12	5.5	4	DIB-0460-20-A2	DIB-0460-28-A2
4.70	10	12	5.5	4	DIB-0470-20-A2	DIB-0470-28-A2
4.75	10	12	5.5	4		DIB-0475-20-A2
4.80	10	12	5.5	4		DIB-0480-28-A2
4.90	10	12	5.5	4		DIB-0490-28-A2
5.00	12	14	6.5	4		DIB-0500-28-A2
5.10	12	14	6.5	4		DIB-0510-28-A2
5.20	12	14	6.5	4		DIB-0520-28-A2
5.25	12	14	6.5	4		DIB-0525-20-A2
5.30	12	14	6.5	4		DIB-0530-28-A2
5.40	12	14	6.5	4		DIB-0540-28-A2
5.50	12	14	6.5	4		DIB-0550-28-A2
5.60	12	14	6.5	4	DIB-0560-20-A2	DIB-0560-28-A2
5.70	12	14	6.5	4		DIB-0570-28-A2
5.75	12	14	6.5	4		DIB-0575-28-A2
5.80	12	14	6.5	4		DIB-0580-28-A2
5.90	12	14	6.5	4		DIB-0590-28-A2
6.00	12	14	6.5	4		DIB-0600-28-A2
6.10	15	17	7.5	4	DIB-0610-20-A2	DIB-0610-28-A2
6.20	15	17	7.5	4		DIB-0620-28-A2
6.30	15	17	7.5	4		DIB-0630-28-A2
6.40	15	17	7.5	4		DIB-0640-28-A2

Continues next page.



Materials: (HSS) M2 Tungsten High Speed Steel.

Shank Hardness: 64 +/- 2 Hrc

Head Hardness: 50 +/- 5 Hrc

Materials: (A2) 12% Chromium Tool Steel

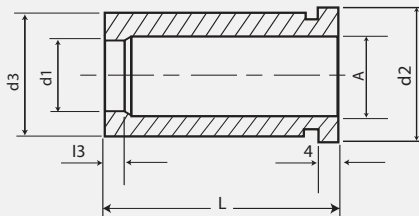
Shank Hardness: 64 +/- 2 Hrc

Head Hardness: 45 +/- 5 Hrc

Dia. d1	Dia d3	d2	A	l3	HSS	
					20	28
6.50	15	17	7.5	4	DIB-0650-20-M2	DIB-0650-28-M2
6.60	15	17	7.5	4	DIB-0660-20-M2	DIB-0660-28-M2
6.70	15	17	7.5	4	DIB-0670-20-M2	DIB-0670-28-M2
6.75	15	17	7.5	4	DIB-0675-20-M2	
6.80	15	17	7.5	4	DIB-0680-20-M2	DIB-0680-28-M2
6.90	15	17	7.5	4	DIB-0690-20-M2	DIB-0690-28-M2
7.00	15	17	7.5	4	DIB-0700-20-M2	DIB-0700-28-M2
7.10	15	17	7.5	4	DIB-0710-20-M2	DIB-0710-28-M2
7.20	15	17	7.5	4	DIB-0720-20-M2	DIB-0720-28-M2
7.25	15	17	7.5	4	DIB-0725-20-M2	
7.30	15	17	7.5	4	DIB-0730-20-M2	DIB-0730-28-M2
7.40	15	17	7.5	4	DIB-0740-20-M2	DIB-0740-28-M2
7.50	15	17	7.5	4	DIB-0750-20-M2	DIB-0750-28-M2
7.60	15	17	7.5	4	DIB-0760-20-M2	DIB-0760-28-M2
7.70	15	17	7.5	4	DIB-0770-20-M2	DIB-0770-28-M2
7.75	15	17	7.5	4	DIB-0775-20-M2	
7.80	15	17	7.5	4	DIB-0780-20-M2	DIB-0780-28-M2
7.90	15	17	7.5	4	DIB-0790-20-M2	DIB-0790-28-M2
8.00	15	17	7.5	4	DIB-0800-20-M2	DIB-0800-28-M2
8.10	18	20	9.5	4	DIB-0810-20-M2	DIB-0810-28-M2
8.20	18	20	9.5	4	DIB-0820-20-M2	DIB-0820-28-M2
8.25	18	20	9.5	4	DIB-0825-20-M2	
8.30	18	20	9.5	4	DIB-0830-20-M2	DIB-0830-28-M2
8.40	18	20	9.5	4	DIB-0840-20-M2	DIB-0840-28-M2
8.50	18	20	9.5	4	DIB-0850-20-M2	DIB-0850-28-M2
8.60	18	20	9.5	4	DIB-0860-20-M2	DIB-0860-28-M2
8.70	18	20	9.5	4	DIB-0870-20-M2	DIB-0870-28-M2
8.75	18	20	9.5	4	DIB-0875-20-M2	
8.80	18	20	9.5	4	DIB-0880-20-M2	DIB-0880-28-M2
8.90	18	20	9.5	4	DIB-0890-20-M2	DIB-0890-28-M2
9.00	18	20	9.5	4	DIB-0900-20-M2	DIB-0900-28-M2
9.10	18	20	9.5	4	DIB-0910-20-M2	DIB-0910-28-M2
9.20	18	20	9.5	4	DIB-0920-20-M2	DIB-0920-28-M2
9.25	18	20	9.5	4	DIB-0925-20-M2	
9.30	18	20	9.5	4	DIB-0930-20-M2	DIB-0930-28-M2
9.40	18	20	9.5	4	DIB-0940-20-M2	DIB-0940-28-M2
9.50	18	20	9.5	4	DIB-0950-20-M2	DIB-0950-28-M2
9.60	18	20	9.5	4	DIB-0960-20-M2	DIB-0960-28-M2
9.70	18	20	9.5	4	DIB-0970-20-M2	DIB-0970-28-M2
9.75	18	20	9.5	4	DIB-0975-20-M2	
9.80	18	20	9.5	4	DIB-0980-20-M2	DIB-0980-28-M2

Dia. d1	Dia d3	d2	A	l3	A2	
					20	28
6.50	15	17	7.5	4		DIB-0650-28-A2
6.60	15	17	7.5	4	DIB-0660-20-A2	DIB-0660-28-A2
6.70	15	17	7.5	4		DIB-0670-28-A2
6.75	15	17	7.5	4		
6.80	15	17	7.5	4		DIB-0690-28-M2
6.90	15	17	7.5	4		DIB-0690-28-M2
7.00	15	17	7.5	4		DIB-0700-28-A2
7.10	15	17	7.5	4	DIB-0710-20-A2	DIB-0710-28-A2
7.20	15	17	7.5	4		DIB-0720-28-A2
7.30	15	17	7.5	4		DIB-0730-28-A2
7.40	15	17	7.5	4		DIB-0740-28-A2
7.50	15	17	7.5	4		DIB-0750-28-A2
7.60	15	17	7.5	4	DIB-0760-20-A2	DIB-0760-28-A2
7.70	15	17	7.5	4		DIB-0770-28A2
7.80	15	17	7.5	4		DIB-0790-28-A2
7.90	15	17	7.5	4		DIB-0790-28-A2
8.00	15	17	7.5	4		DIB-0800-28-A2
8.10	18	20	9.5	4	DIB-0810-20-A2	DIB-0810-28-A2
8.20	18	20	9.5	4		DIB-0820-28-A2
8.30	18	20	9.5	4		DIB-0830-28-A2
8.40	18	20	9.5	4		DIB-0840-28-A2
8.50	18	20	9.5	4		DIB-0850-28-A2
8.60	18	20	9.5	4	DIB-0860-20-A2	DIB-0860-28-A2
8.70	18	20	9.5	4		DIB-0870-28-A2
8.80	18	20	9.5	4		DIB-0880-28-A2
8.90	18	20	9.5	4		DIB-0890-28-A2
9.00	18	20	9.5	4		DIB-0900-28-A2
9.10	18	20	9.5	4	DIB-0910-20-A2	DIB-0910-28-A2
9.20	18	20	9.5	4		DIB-0920-28-A2
9.30	18	20	9.5	4	DIB-0930-20-A2	DIB-0930-28-A2
9.40	18	20	9.5	4	DIB-0940-20-A2	DIB-0940-28-A2
9.50	18	20	9.5	4	DIB-0950-20-A2	DIB-0950-28-A2
9.60	18	20	9.5	4	DIB-0960-20-A2	DIB-0960-28-A2
9.70	18	20	9.5	4		DIB-0970-28-A2
9.80	18	20	9.5	4		DIB-0980-28-A2

Continues next page.



Materials: (HSS) M2 Tungsten High Speed Steel.

Shank Hardness: 64 +/- 2 Hrc

Head Hardness: 50 +/- 5 Hrc

Dia. d1	Dia d3	d2	A	I3	HSS	
					20	28
9.90	18	20	9.5	4	DIB-0990-20-M2	DIB-0990-28-M2
10.00	18	20	9.5	4	DIB-1000-20-M2	DIB-1000-28-M2
10.10	22	24	12	4	DIB-1010-20-M2	DIB-1010-28-M2
10.20	22	24	12	4	DIB-1020-20-M2	DIB-1020-28-M2
10.25	22	24	12	4		DIB-1025-28-M2
10.30	22	24	12	4	DIB-1030-20-M2	DIB-1030-28-M2
10.40	22	24	12	4	DIB-1040-20-M2	DIB-1040-28-M2
10.50	22	24	12	4	DIB-1050-20-M2	DIB-1050-28-M2
10.60	22	24	12	4	DIB-1060-20-M2	DIB-1060-28-M2
10.70	22	24	12	4	DIB-1070-20-M2	DIB-1070-28-M2
10.80	22	24	12	4	DIB-1080-20-M2	DIB-1080-28-M2
10.90	22	24	12	4	DIB-1090-20-M2	DIB-1090-28-M2
11.00	22	24	12	4	DIB-1100-20-M2	DIB-1100-28-M2
11.10	22	24	12	4	DIB-1110-20-M2	DIB-1110-28-M2
11.20	22	24	12	4	DIB-1120-20-M2	DIB-1120-28-M2
11.30	22	24	12	4	DIB-1130-20-M2	DIB-1130-28-M2
11.40	22	24	12	4	DIB-1140-20-M2	DIB-1140-28-M2
11.50	22	24	12	4	DIB-1150-20-M2	DIB-1150-28-M2
11.60	22	24	12	4	DIB-1160-20-M2	DIB-1160-28-M2
11.70	22	24	12	4	DIB-1170-20-M2	DIB-1170-28-M2
11.80	22	24	12	4	DIB-1180-20-M2	DIB-1180-28-M2
11.90	22	24	12	4	DIB-1190-20-M2	DIB-1190-28-M2
12.00	22	24	12	4	DIB-1200-20-M2	DIB-1200-28-M2
12.10	26	28	14	4	DIB-1210-20-M2	DIB-1210-28-M2
12.20	26	28	14	4	DIB-1220-20-M2	DIB-1220-28-M2
12.30	26	28	14	4	DIB-1230-20-M2	DIB-1230-28-M2
12.40	26	28	14	4	DIB-1240-20-M2	DIB-1240-28-M2
12.50	26	28	14	4	DIB-1250-20-M2	DIB-1250-28-M2
12.60	26	28	14	4	DIB-1260-20-M2	DIB-1260-28-M2
12.70	26	28	14	4	DIB-1270-20-M2	DIB-1270-28-M2
12.80	26	28	14	4	DIB-1280-20-M2	DIB-1280-28-M2
12.90	26	28	14	4	DIB-1290-20-M2	DIB-1290-28-M2
13.00	26	28	14	4	DIB-1300-20-M2	DIB-1300-28-M2
13.10	26	28	14	4	DIB-1310-20-M2	DIB-1310-28-M2
13.20	26	28	14	4	DIB-1320-20-M2	DIB-1320-28-M2
13.30	26	28	14	4	DIB-1330-20-M2	DIB-1330-28-M2
13.40	26	28	14	4	DIB-1340-20-M2	DIB-1340-28-M2
13.50	26	28	14	4	DIB-1350-20-M2	DIB-1350-28-M2
13.60	26	28	14	4	DIB-1360-20-M2	DIB-1360-28-M2
13.70	26	28	14	4	DIB-1370-20-M2	DIB-1370-28-M2

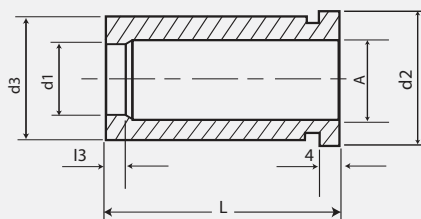
Materials: (A2) 12% Chromium Tool Steel

Shank Hardness: 64 +/- 2 Hrc

Head Hardness: 45 +/- 5 Hrc

Dia. d1	Dia d3	d2	A	I3	A2	
					20	28
9.90	18	20	9.5	4		DIB-0990-28-A2
10.00	18	20	9.5	4		DIB-1000-28-A2
10.10	22	24	12	4	DIB-1010-20-A2	DIB-1010-28-A2
10.20	22	24	12	4		DIB-1020-28-A2
10.30	22	24	12	4		DIB-1030-28-A2
10.40	22	24	12	4		DIB-1040-28-A2
10.50	22	24	12	4		DIB-1050-28-A2
10.60	22	24	12	4	DIB-1060-28-A2	DIB-1060-28-A2
10.70	22	24	12	4		DIB-1070-28-A2
10.80	22	24	12	4		DIB-1080-28-A2
10.90	22	24	12	4		DIB-1090-28-A2
11.00	22	24	12	4		DIB-1100-28-A2
11.10	22	24	12	4	DIB-1110-20-A2	DIB-1110-28-A2
11.20	22	24	12	4		DIB-1120-28-A2
11.30	22	24	12	4		DIB-1130-28-A2
11.40	22	24	12	4	DIB-1140-20-A2	DIB-1140-28-A2
11.50	22	24	12	4		DIB-1150-28-A2
11.60	22	24	12	4	DIB-1160-20-A2	DIB-1160-28-A2
11.70	22	24	12	4		DIB-1170-28-A2
11.80	22	24	12	4		DIB-1180-28-A2
11.90	22	24	12	4		DIB-1190-28-A2
12.00	22	24	12	4		DIB-1200-28-A2
12.10	26	28	14	4	DIB-1210-20-A2	DIB-1210-28-A2
12.20	26	28	14	4		DIB-1220-28-A2
12.30	26	28	14	4		DIB-1230-28-A2
12.40	26	28	14	4		DIB-1240-28-A2
12.50	26	28	14	4		DIB-1250-28-A2
12.60	26	28	14	4	DIB-1260-20-A2	DIB-1260-28-A2
12.70	26	28	14	4		DIB-1270-28-A2
12.80	26	28	14	4		DIB-1280-28-A2
12.90	26	28	14	4		DIB-1290-28-A2
13.00	26	28	14	4		DIB-1300-28-A2
13.10	26	28	14	4	DIB-1310-20-A2	DIB-1310-28-A2
13.20	26	28	14	4		DIB-1320-28-A2
13.30	26	28	14	4		DIB-1330-28-A2
13.40	26	28	14	4		DIB-1340-28-A2
13.50	26	28	14	4		DIB-1350-28-A2
13.60	26	28	14	4		DIB-1360-28-A2
13.70	26	28	14	4		DIB-1370-28-A2

Continues next page.



Materials: (HSS) M2 Tungsten High Speed Steel.

Shank Hardness: 64 +/- 2 Hrc

Head Hardness: 50 +/- 5 Hrc

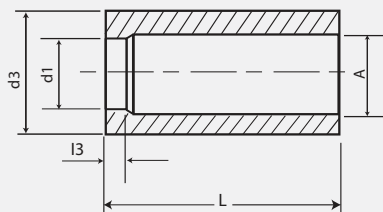
Dia. d1	Dia d3	d2	A	l3	HSS	
					20	28
13.80	26	28	14	4	DIB-1380-20-M2	DIB-1380-28-M2
13.90	26	28	14	4	DIB-1390-20-M2	DIB-1390-28-M2
14.00	26	28	14	4	DIB-1400-20-M2	DIB-1400-28-M2
14.10	26	28	16	4	DIB-1410-20-M2	DIB-1410-28-M2
14.20	26	28	16	4	DIB-1420-20-M2	DIB-1420-28-M2
14.30	26	28	16	4	DIB-1430-20-M2	DIB-1430-28-M2
14.40	26	28	16	4	DIB-1440-20-M2	DIB-1440-28-M2
14.50	26	28	16	4	DIB-1450-20-M2	DIB-1450-28-M2
14.60	26	28	16	4	DIB-1460-20-M2	DIB-1460-28-M2
14.70	26	28	16	4	DIB-1470-20-M2	DIB-1470-28-M2
14.80	26	28	16	4	DIB-1480-20-M2	DIB-1480-28-M2
14.90	26	28	16	4	DIB-1490-20-M2	DIB-1490-28-M2
15.00	26	28	16	4	DIB-1500-20-M2	DIB-1500-28-M2
16.10	26	28	16	4		DIB-1610-28-M2

Materials: (A2) 12% Chromium Tool Steel

Shank Hardness: 64 +/- 2 Hrc

Head Hardness: 45 +/- 5 Hrc

Dia. d1	Dia d3	d2	A	l3	A2	
					20	28
13.80	26	28	14	4		DIB-1380-28-A2
13.90	26	28	14	4		DIB-1390-28-A2
14.00	26	28	14	4		DIB-1400-28-A2
14.10	26	28	16	4		DIB-1410-28-A2
14.20	26	28	16	4	DIB-1420-20-A2	DIB-1420-28-A2
14.30	26	28	16	4	DIB-1430-20-A2	DIB-1430-28-A2
14.40	26	28	16	4	DIB-1440-20-A2	DIB-1440-28-A2
14.50	26	28	16	4	DIB-1450-20-A2	DIB-1450-28-A2
14.60	26	28	16	4	DIB-1460-20-A2	DIB-1460-28-A2
14.70	26	28	16	4	DIB-1470-20-A2	DIB-1470-28-A2
14.80	26	28	16	4	DIB-1480-20-A2	DIB-1480-28-A2
14.90	26	28	16	4	DIB-1490-20-A2	DIB-1490-28-A2
15.00	26	28	16	4	DIB-1500-20-A2	DIB-1500-28-A2
16.10	26	28	16	4		



Materials: (HSS) M2 Tungsten High Speed Steel.

Shank Hardness: 64 +/- 2 Hrc

Head Hardness: 50 +/- 5 Hrc

Dia. d1	Dia d3	A	I3	HSS	
				20	28
1.00	6	2.5	2	DIA-0100-20-M2	DIA-0100-28-M2
1.05	6	2.5	2	DIA-0105-20-M2	
1.10	6	2.5	2	DIA-0110-20-M2	DIA-0110-28-M2
1.20	6	2.5	2	DIA-0120-20-M2	DIA-0120-28-M2
1.30	6	2.5	2	DIA-0130-20-M2	DIA-0130-28-M2
1.40	6	2.5	2	DIA-0140-20-M2	DIA-0140-28-M2
1.50	6	2.5	2	DIA-0150-20-M2	DIA-0150-28-M2
1.60	6	2.5	2	DIA-0160-20-M2	DIA-0160-28-M2
1.70	6	2.5	2	DIA-0170-20-M2	DIA-0170-28-M2
1.75	6	2.5	2	DIA-0175-20-M2	DIA-0175-28-M2
1.80	6	2.5	2	DIA-0180-20-M2	DIA-0180-28-M2
1.90	6	2.5	2	DIA-0190-20-M2	DIA-0190-28-M2
2.00	6	2.5	2	DIA-0200-20-M2	DIA-0200-28-M2
2.10	7	3.5	3	DIA-0210-20-M2	DIA-0210-28-M2
2.20	7	3.5	3	DIA-0220-20-M2	DIA-0220-28-M2
2.25	7	3.5	3	DIA-0225-20-M2	DIA-0225-28-M2
2.30	7	3.5	3	DIA-0230-20-M2	DIA-0230-28-M2
2.40	7	3.5	3	DIA-0240-20-M2	DIA-0240-28-M2
2.50	7	3.5	3	DIA-0250-20-M2	DIA-0250-28-M2
2.60	7	3.5	3	DIA-0260-20-M2	DIA-0260-28-M2
2.70	7	3.5	3	DIA-0270-20-M2	DIA-0270-28-M2
2.75	7	3.5	3	DIA-0275-20-M2	DIA-0275-28-M2
2.80	7	3.5	3	DIA-0280-20-M2	DIA-0280-28-M2
2.90	7	3.5	3	DIA-0290-20-M2	DIA-0290-28-M2
3.00	7	3.5	3	DIA-0300-20-M2	DIA-0300-28-M2
3.05	7	3.5	3	DIA-0305-20-M2	DIA-0305-28-M2
3.10	8	4.5	4	DIA-0310-20-M2	DIA-0310-28-M2
3.20	8	4.5	4	DIA-0320-20-M2	DIA-0320-28-M2
3.25	8	4.5	4	DIA-0325-20-M2	
3.30	8	4.5	4	DIA-0330-20-M2	DIA-0330-28-M2
3.40	8	4.5	4	DIA-0340-20-M2	DIA-0340-28-M2
3.50	8	4.5	4	DIA-0350-20-M2	DIA-0350-28-M2
3.60	8	4.5	4	DIA-0360-20-M2	DIA-0360-28-M2
3.70	8	4.5	4	DIA-0370-20-M2	DIA-0370-28-M2
3.75	8	4.5	4	DIA-0375-20-M2	DIA-0375-28-M2
3.80	8	4.5	4	DIA-0380-20-M2	DIA-0380-28-M2
3.90	8	4.5	4	DIA-0390-20-M2	DIA-0390-28-M2
4.00	8	4.5	4	DIA-0400-20-M2	DIA-0400-28-M2
4.10	10	5.5	4	DIA-0410-20-M2	DIA-0410-28-M2
4.20	10	5.5	4	DIA-0420-20-M2	DIA-0420-28-M2
4.25	10	5.5	4	DIA-0425-20-M2	
4.30	10	5.5	4	DIA-0430-20-M2	DIA-0430-28-M2
4.40	10	5.5	4	DIA-0440-20-M2	DIA-0440-28-M2

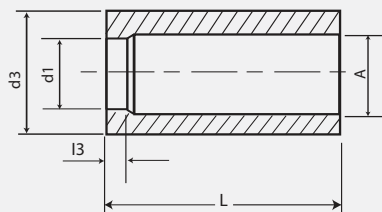
Materials: (A2) 12% Chromium Tool Steel

Shank Hardness: 64 +/- 2 Hrc

Head Hardness: 45 +/- 5 Hrc

Dia. d1	Dia d3	A	I3	A2	
				28	
1.00	6	2.5	2	DIA-0100-28-A2	
1.05	6	2.5	2	DIA-0105-28-A2	
1.10	6	2.5	2	DIA-0110-28-A2	
1.20	6	2.5	2	DIA-0110-28-A2	
1.30	6	2.5	2	DIA-0120-28-A2	
1.40	6	2.5	2	DIA-0130-28-A2	
1.50	6	2.5	2	DIA-0140-28-A2	
1.60	6	2.5	2	DIA-0150-28-A2	
1.70	6	2.5	2	DIA-0160-28-A2	
1.75	6	2.5	2	DIA-0170-28-A2	
1.80	6	2.5	2	DIA-0175-28-A2	
1.90	7	2.5	2	DIA-0180-28-A2	
2.00	7	2.5	2	DIA-0200-28-A2	
2.10	7	3.5	3	DIA-0210-28-A2	
2.20	7	3.5	3	DIA-0220-28-A2	
2.25	7	3.5	3	DIA-0225-28-A2	
2.30	7	3.5	3	DIA-0230-28-A2	
2.40	7	3.5	3	DIA-0240-28-A2	
2.50	7	3.5	3	DIA-0250-28-A2	
2.60	7	3.5	3	DIA-0260-28-A2	
2.70	7	3.5	3	DIA-0270-28-A2	
2.75	7	3.5	3	DIA-0275-28-A2	
2.80	7	3.5	3	DIA-0280-28-A2	
2.90	7	3.5	3	DIA-0290-28-A2	
3.00	7	3.5	3	DIA-0300-28-A2	
3.05	7	3.5	3	DIA-0305-28-A2	
3.10	7	3.5	3	DIA-0310-28-A2	
3.20	7	3.5	3	DIA-0320-28-A2	
3.25	7	3.5	3	DIA-0325-28-A2	
3.30	7	3.5	3	DIA-0330-28-A2	
3.40	8	4.5	4	DIA-0340-28-M2	
3.50	8	4.5	4	DIA-0350-28-M2	
3.60	8	4.5	4	DIA-0360-28-M2	
3.70	8	4.5	4	DIA-0370-28-M2	
3.75	8	4.5	4	DIA-0375-28-M2	
3.80	8	4.5	4	DIA-0380-28-M2	
3.90	8	4.5	4	DIA-0390-28-M2	
4.00	8	4.5	4	DIA-0400-28-A2	
4.10	10	5.5	4	DIA-0410-28-A2	
4.20	10	5.5	4	DIA-0420-28-A2	
4.30	10	5.5	4	DIA-0430-28-A2	
4.40	10	5.5	4	DIA-0440-28-A2	

Continues next page.



Materials: (HSS) M2 Tungsten High Speed Steel.

Shank Hardness: 64 +/- 2 Hrc

Head Hardness: 50 +/- 5 Hrc

Dia. d1	Dia d3	A	I3	HSS	
				20	28
4.50	10	5.5	4	DIA-0450-20-M2	DIA-0450-28-M2
4.60	10	5.5	4	DIA-0460-20-M2	DIA-0460-28-M2
4.70	10	5.5	4	DIA-0470-20-M2	DIA-0470-28-M2
4.75	10	5.5	4	DIA-0475-20-M2	
4.80	10	5.5	4	DIA-0480-20-M2	DIA-0480-28-M2
4.90	10	5.5	4	DIA-0490-20-M2	DIA-0490-28-M2
5.00	12	6.5	4	DIA-0500-20-M2	DIA-0500-28-M2
5.10	12	6.5	4	DIA-0510-20-M2	DIA-0510-28-M2
5.20	12	6.5	4	DIA-0520-20-M2	DIA-0520-28-M2
5.25	12	6.5	4	DIA-0525-20-M2	
5.30	12	6.5	4	DIA-0530-20-M2	DIA-0530-28-M2
5.40	12	6.5	4	DIA-0540-20-M2	DIA-0540-28-M2
5.50	12	6.5	4	DIA-0550-20-M2	DIA-0550-28-M2
5.60	12	6.5	4	DIA-0560-20-M2	DIA-0560-28-M2
5.70	12	6.5	4	DIA-0570-20-M2	DIA-0570-28-M2
5.75	12	6.5	4	DIA-0575-20-M2	
5.80	12	6.5	4	DIA-0580-20-M2	DIA-0580-28-M2
5.90	12	6.5	4	DIA-0590-20-M2	DIA-0590-28-M2
6.00	12	6.5	4	DIA-0600-20-M2	DIA-0600-28-M2
6.10	15	7.5	4	DIA-0610-20-M2	DIA-0610-28-M2
6.20	15	7.5	4	DIA-0620-20-M2	DIA-0620-28-M2
6.25	15	7.5	4	DIA-0625-20-M2	
6.30	15	7.5	4	DIA-0630-20-M2	DIA-0630-28-M2
6.40	15	7.5	4	DIA-0640-20-M2	DIA-0640-28-M2
6.50	15	7.5	4	DIA-0650-20-M2	DIA-0650-28-M2
6.60	15	7.5	4	DIA-0660-20-M2	DIA-0660-28-M2
6.70	15	7.5	4	DIA-0670-20-M2	DIA-0670-28-M2
6.75	15	7.5	4	DIA-0675-20-M2	
6.80	15	7.5	4	DIA-0680-20-M2	DIA-0680-28-M2
6.90	15	7.5	4	DIA-0690-20-M2	DIA-0690-28-M2
7.00	15	7.5	4	DIA-0700-20-M2	DIA-0700-28-M2
7.10	15	7.5	4	DIA-0710-20-M2	DIA-0710-28-M2
7.20	15	7.5	4	DIA-0720-20-M2	DIA-0720-28-M2
7.25	15	7.5	4	DIA-0725-20-M2	
7.30	15	7.5	4	DIA-0730-20-M2	DIA-0730-28-M2
7.40	15	7.5	4	DIA-0740-20-M2	DIA-0740-28-M2
7.50	15	7.5	4	DIA-0750-20-M2	DIA-0750-28-M2
7.60	15	7.5	4	DIA-0760-20-M2	DIA-0760-28-M2
7.70	15	7.5	4	DIA-0770-20-M2	DIA-0770-28-M2
7.75	15	7.5	4	DIA-0775-20-M2	
7.80	15	7.5	4	DIA-0780-20-M2	DIA-0780-28-M2
7.90	15	7.5	4	DIA-0790-20-M2	DIA-0790-28-M2

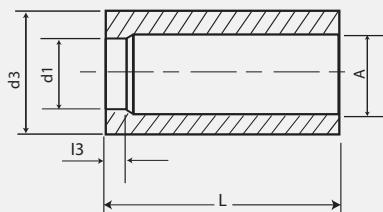
Materials: (A2) 12% Chromium Tool Steel

Shank Hardness: 64 +/- 2 Hrc

Head Hardness: 45 +/- 5 Hrc

Dia. d1	Dia d3	A	I3	A2	
				28	
4.50	10	5.5	4	DIA-0450-28-A2	
4.60	10	5.5	4	DIA-0460-28-A2	
4.70	10	5.5	4	DIA-0470-28-A2	
4.75	10	5.5	4	DIA-0475-20-A2	
4.80	10	5.5	4	DIA-0480-28-A2	
4.90	10	5.5	4	DIA-0490-28-A2	
5.00	12	6.5	4	DIA-0500-28-A2	
5.10	12	6.5	4	DIA-0510-28-A2	
5.20	12	6.5	4	DIA-0520-28-A2	
5.25	12	6.5	4	DIA-0525-20-A2	
5.30	12	6.5	4	DIA-0530-28-A2	
5.40	12	6.5	4	DIA-0540-28-A2	
5.50	12	6.5	4	DIA-0550-28-A2	
5.60	12	6.5	4	DIA-0560-28-A2	
5.70	12	6.5	4	DIA-0570-28-A2	
5.75	12	6.5	4	DIA-0575-28-A2	
5.80	12	6.5	4	DIA-0580-28-A2	
5.90	12	6.5	4	DIA-0590-28-A2	
6.00	12	6.5	4	DIA-0600-28-A2	
6.10	15	7.5	4	DIA-0610-28-A2	
6.20	15	7.5	4	DIA-0620-28-A2	
6.30	15	7.5	4	DIA-0630-28-A2	
6.40	15	7.5	4	DIA-0640-28-A2	
6.50	15	7.5	4	DIA-0650-28-A2	
6.60	15	7.5	4	DIA-0660-28-A2	
6.70	15	7.5	4	DIA-0670-28-A2	
6.80	15	7.5	4	DIA-0690-28-M2	
6.90	15	7.5	4	DIA-0690-28-M2	
7.00	15	7.5	4	DIA-0700-28-A2	
7.10	15	7.5	4	DIA-0710-28-A2	
7.20	15	7.5	4	DIA-0720-28-A2	
7.30	15	7.5	4	DIA-0730-28-A2	
7.40	15	7.5	4	DIA-0740-28-A2	
7.50	15	7.5	4	DIA-0750-28-A2	
7.60	15	7.5	4	DIA-0760-28-A2	
7.70	15	7.5	4	DIA-0770-28-A2	
7.80	15	7.5	4	DIA-0790-28-A2	
7.90	15	7.5	4	DIA-0790-28-A2	

Continues next page.



Materials: (HSS) M2 Tungsten High Speed Steel.

Shank Hardness: 64 +/- 2 Hrc

Head Hardness: 50 +/- 5 Hrc

Materials: (A2) 12% Chromium Tool Steel

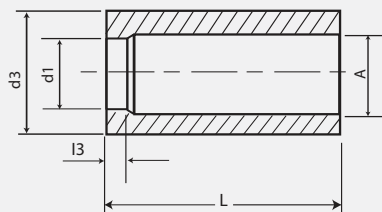
Shank Hardness: 64 +/- 2 Hrc

Head Hardness: 45 +/- 5 Hrc

Dia. d1	Dia d3	A	I3	HSS	
				20	28
8.00	15	7.5	4	DIA-0800-20-M2	DIA-0800-28-M2
8.10	18	9.5	4	DIA-0810-20-M2	DIA-0810-28-M2
8.20	18	9.5	4	DIA-0820-20-M2	DIA-0820-28-M2
8.25	18	9.5	4	DIA-0825-20-M2	
8.30	18	9.5	4	DIA-0830-20-M2	DIA-0830-28-M2
8.40	18	9.5	4	DIA-0840-20-M2	DIA-0840-28-M2
8.50	18	9.5	4	DIA-0850-20-M2	DIA-0850-28-M2
8.60	18	9.5	4	DIA-0860-20-M2	DIA-0860-28-M2
8.70	18	9.5	4	DIA-0870-20-M2	DIA-0870-28-M2
8.75	18	9.5	4	DIA-0875-20-M2	
8.80	18	9.5	4	DIA-0880-20-M2	DIA-0880-28-M2
8.90	18	9.5	4	DIA-0890-20-M2	DIA-0890-28-M2
9.00	18	9.5	4	DIA-0900-20-M2	DIA-0900-28-M2
9.10	18	9.5	4	DIA-0910-20-M2	DIA-0910-28-M2
9.20	18	9.5	4	DIA-0920-20-M2	DIA-0920-28-M2
9.25	18	9.5	4	DIA-0925-20-M2	
9.30	18	9.5	4	DIA-0930-20-M2	DIA-0930-28-M2
9.40	18	9.5	4	DIA-0940-20-M2	DIA-0940-28-M2
9.50	18	9.5	4	DIA-0950-20-M2	DIA-0950-28-M2
9.60	18	9.5	4	DIA-0960-20-M2	DIA-0960-28-M2
9.70	18	9.5	4	DIA-0970-20-M2	DIA-0970-28-M2
9.75	18	9.5	4	DIA-0975-20-M2	
9.80	18	9.5	4	DIA-0980-20-M2	DIA-0980-28-M2
9.90	18	9.5	4	DIA-0990-20-M2	DIA-0990-28-M2
10.00	18	9.5	4	DIA-1000-20-M2	DIA-1000-28-M2
10.10	22	12	4	DIA-1010-20-M2	DIA-1010-28-M2
10.20	22	12	4	DIA-1020-20-M2	DIA-1020-28-M2
10.25	22	12	4		DIA-1025-28-M2
10.30	22	12	4	DIA-1030-20-M2	DIA-1030-28-M2
10.40	22	12	4	DIA-1040-20-M2	DIA-1040-28-M2
10.50	22	12	4	DIA-1050-20-M2	DIA-1050-28-M2
10.60	22	12	4	DIA-1060-20-M2	DIA-1060-28-M2
10.70	22	12	4	DIA-1070-20-M2	DIA-1070-28-M2
10.80	22	12	4	DIA-1080-20-M2	DIA-1080-28-M2
10.90	22	12	4	DIA-1090-20-M2	DIA-1090-28-M2
11.00	22	12	4	DIA-1100-20-M2	DIA-1100-28-M2
11.10	22	12	4	DIA-1110-20-M2	DIA-1110-28-M2
11.20	22	12	4	DIA-1120-20-M2	DIA-1120-28-M2
11.30	22	12	4	DIA-1130-20-M2	DIA-1130-28-M2
11.40	22	12	4	DIA-1140-20-M2	DIA-1140-28-M2
11.50	22	12	4	DIA-1150-20-M2	DIA-1150-28-M2
11.60	22	12	4	DIA-1160-20-M2	DIA-1160-28-M2

Dia. d1	Dia d3	A	I3	A2	
				28	
8.00	15	7.5	4	DIA-0800-28-A2	
8.10	18	9.5	4	DIA-0810-28-A2	
8.20	18	9.5	4	DIA-0820-28-A2	
8.30	18	9.5	4	DIA-0830-28-A2	
8.40	18	9.5	4	DIA-0840-28-A2	
8.50	18	9.5	4	DIA-0850-28-A2	
8.60	18	9.5	4	DIA-0860-28-A2	
8.70	18	9.5	4	DIA-0870-28-A2	
8.80	18	9.5	4	DIA-0880-28-A2	
8.90	18	9.5	4	DIA-0890-28-A2	
9.00	18	9.5	4	DIA-0900-28-A2	
9.10	18	9.5	4	DIA-0910-28-A2	
9.20	18	9.5	4	DIA-0920-28-A2	
9.30	18	9.5	4	DIA-0930-28-A2	
9.40	18	9.5	4	DIA-0940-28-A2	
9.50	18	9.5	4	DIA-0950-28-A2	
9.60	18	9.5	4	DIA-0960-28-A2	
9.70	18	9.5	4	DIA-0970-28-A2	
9.80	18	9.5	4	DIA-0980-28-A2	
9.90	18	9.5	4	DIA-0990-28-A2	
10.00	18	9.5	4	DIA-1000-28-A2	
10.10	22	12	4	DIA-1010-28-A2	
10.20	22	12	4	DIA-1020-28-A2	
10.30	22	12	4	DIA-1030-28-A2	
10.40	22	12	4	DIA-1040-28-A2	
10.50	22	12	4	DIA-1050-28-A2	
10.60	22	12	4	DIA-1060-28-A2	
10.70	22	12	4	DIA-1070-28-A2	
10.80	22	12	4	DIA-1080-28-A2	
10.90	22	12	4	DIA-1090-28-A2	
11.00	22	12	4	DIA-1100-28-A2	
11.10	22	12	4	DIA-1110-28-A2	
11.20	22	12	4	DIA-1120-28-A2	
11.30	22	12	4	DIA-1130-28-A2	
11.40	22	12	4	DIA-1140-28-A2	
11.50	22	12	4	DIA-1150-28-A2	
11.60	22	12	4	DIA-1160-28-A2	

Continues next page.



Materials: (HSS) M2 Tungsten High Speed Steel.

Shank Hardness: 64 +/- 2 Hrc

Head Hardness: 50 +/- 5 Hrc

Dia. d1	Dia d3	A	I3	HSS	
				20	28
11.70	22	12	4	DIA-1170-20-M2	DIA-1170-28-M2
11.80	22	12	4	DIA-1180-20-M2	DIA-1180-28-M2
11.90	22	12	4	DIA-1190-20-M2	DIA-1190-28-M2
12.00	22	12	4	DIA-1200-20-M2	DIA-1200-28-M2
12.10	26	14	4	DIA-1210-20-M2	DIA-1210-28-M2
12.20	26	14	4	DIA-1220-20-M2	DIA-1220-28-M2
12.30	26	14	4	DIA-1230-20-M2	DIA-1230-28-M2
12.40	26	14	4	DIA-1240-20-M2	DIA-1240-28-M2
12.50	26	14	4	DIA-1250-20-M2	DIA-1250-28-M2
12.60	26	14	4	DIA-1260-20-M2	DIA-1260-28-M2
12.70	26	14	4	DIA-1270-20-M2	DIA-1270-28-M2
12.80	26	14	4	DIA-1280-20-M2	DIA-1280-28-M2
12.90	26	14	4	DIA-1290-20-M2	DIA-1290-28-M2
13.00	26	14	4	DIA-1300-20-M2	DIA-1300-28-M2
13.10	26	14	4	DIA-1310-20-M2	DIA-1310-28-M2
13.20	26	14	4	DIA-1320-20-M2	DIA-1320-28-M2
13.30	26	14	4	DIA-1330-20-M2	DIA-1330-28-M2
13.40	26	14	4	DIA-1340-20-M2	DIA-1340-28-M2
13.50	26	14	4	DIA-1350-20-M2	DIA-1350-28-M2
13.60	26	14	4	DIA-1360-20-M2	DIA-1360-28-M2
13.70	26	14	4	DIA-1370-20-M2	DIA-1370-28-M2
13.80	26	14	4	DIA-1380-20-M2	DIA-1380-28-M2
13.90	26	14	4	DIA-1390-20-M2	DIA-1390-28-M2
14.00	26	14	4	DIA-1400-20-M2	DIA-1400-28-M2
14.10	26	16	4	DIA-1410-20-M2	DIA-1410-28-M2
14.20	26	16	4	DIA-1420-20-M2	DIA-1420-28-M2
14.30	26	16	4	DIA-1430-20-M2	DIA-1430-28-M2
14.40	26	16	4	DIA-1440-20-M2	DIA-1440-28-M2
14.50	26	16	4	DIA-1450-20-M2	DIA-1450-28-M2
14.60	26	16	4	DIA-1460-20-M2	DIA-1460-28-M2
14.70	26	16	4	DIA-1470-20-M2	DIA-1470-28-M2
14.80	26	16	4	DIA-1480-20-M2	DIA-1480-28-M2
14.90	26	16	4	DIA-1490-20-M2	DIA-1490-28-M2
15.00	26	16	4	DIA-1500-20-M2	DIA-1500-28-M2
16.10	26	16	4		DIA-1610-28-M2

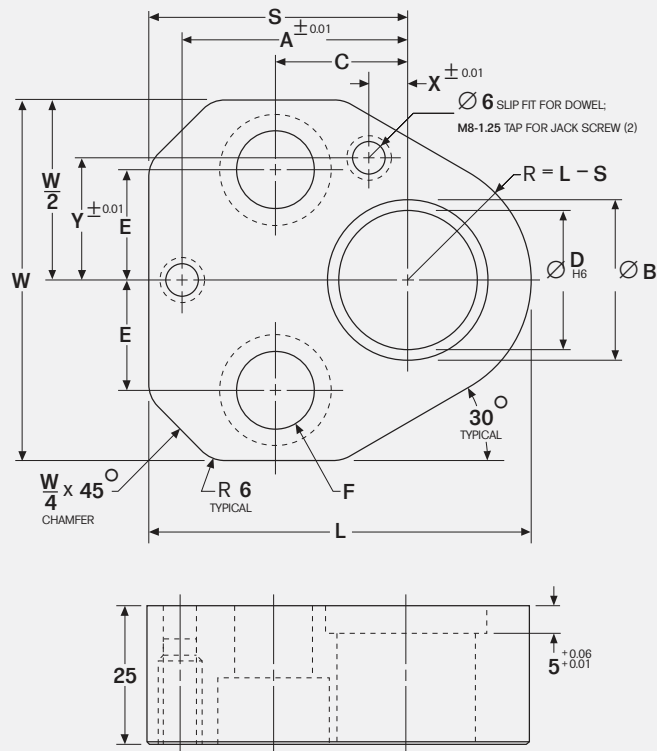
Materials: (A2) 12% Chromium Tool Steel

Shank Hardness: 64 +/- 2 Hrc

Head Hardness: 45 +/- 5 Hrc

Dia. d1	Dia d3	A	I3	A2	
				28	
11.70	22	12	4	DIA-1170-28-A2	
11.80	22	12	4	DIA-1180-28-A2	
11.90	22	12	4	DIA-1190-28-A2	
12.00	22	12	4	DIA-1200-28-A2	
12.10	26	14	4	DIA-1210-28-A2	
12.20	26	14	4	DIA-1220-28-A2	
12.30	26	14	4	DIA-1230-28-A2	
12.40	26	14	4	DIA-1240-28-A2	
12.50	26	14	4	DIA-1250-28-A2	
12.60	26	14	4	DIA-1260-28-A2	
12.70	26	14	4	DIA-1270-28-A2	
12.80	26	14	4	DIA-1280-28-A2	
12.90	26	14	4	DIA-1290-28-A2	
13.00	26	14	4	DIA-1300-28-A2	
13.10	26	14	4	DIA-1310-28-A2	
13.20	26	14	4	DIA-1320-28-A2	
13.30	26	14	4	DIA-1330-28-A2	
13.40	26	14	4	DIA-1340-28-A2	
13.50	26	14	4	DIA-1350-28-A2	
13.60	26	14	4	DIA-1360-28-A2	
13.70	26	14	4	DIA-1370-28-A2	
13.80	26	14	4	DIA-1380-28-A2	
13.90	26	14	4	DIA-1390-28-A2	
14.00	26	14	4	DIA-1400-28-A2	
14.10	26	16	4	DIA-1410-28-A2	
14.20	26	16	4	DIA-1420-28-A2	
14.30	26	16	4	DIA-1430-28-A2	
14.40	26	16	4	DIA-1440-28-A2	
14.50	26	16	4	DIA-1450-28-A2	
14.60	26	16	4	DIA-1460-28-A2	
14.70	26	16	4	DIA-1470-28-A2	
14.80	26	16	4	DIA-1480-28-A2	
14.90	26	16	4	DIA-1490-28-A2	
15.00	26	16	4	DIA-1500-28-A2	
16.10	26	16	4		

Continues next page.



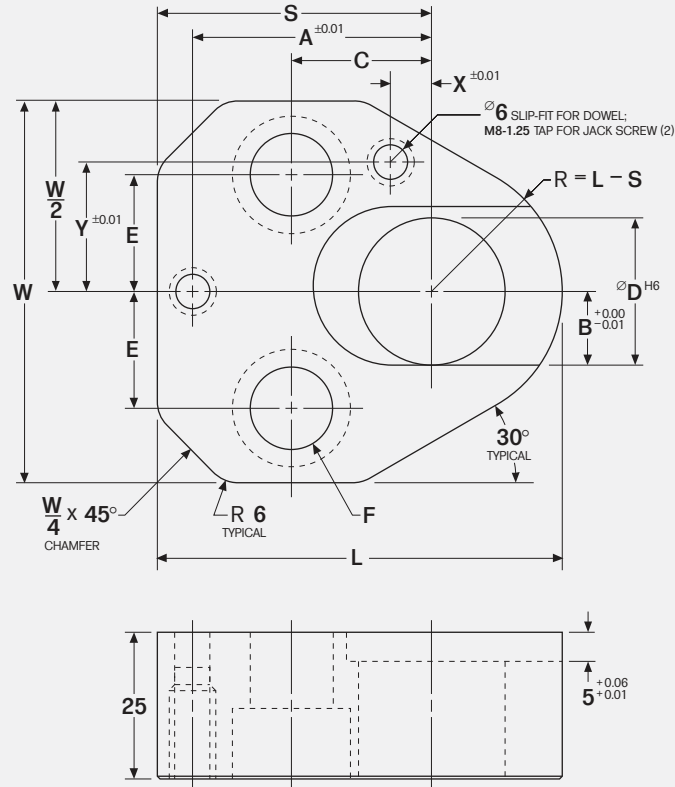
Retainer Set Includes:

- 2 Socket head cap screws.
- 2 Vented and tapped dowels

A Speedy Solution for Round Punches and Pilots.

Dowels are finished, and retainer ready for CNC mounting.
Counterbore is sized to accept shoulder/headed punches.
Also, the dowel holes are tapped for easy removal in confined spaces.

Product Code	D	W	L	B	S	A	C	E	X	Y	F
PRSR10	10	41.0	43.5	14.0	34.0	26.924	19.05	11.12	7.5	9.0	M8
PRSR13	13	48.5	49.6	17.0	37.0	29.972	19.05	14.27	6.5	12.0	M8
PRSR16	16	51.7	52.7	20.0	38.6	31.750	19.05	15.87	6.0	13.5	M8
PRSR20	20	56.8	59.3	24.0	41.9	33.528	19.05	17.47	5.0	16.5	M10
PRSR25	25	64.5	68.9	29.0	46.7	40.640	23.82	19.84	7.0	22.0	M12
PRSR32	32	64.5	68.9	36.0	46.7	40.640	23.82	19.84	7.0	22.0	M12

**Retainer Set Includes:**

- 2 Socket head cap screws.
- 2 Vented and tapped dowels

The Fastest, Least Expensive Way to Mount Shaped and Form-Pointed Punches.

A standard K2 key flat orients the shape inside the retainer.

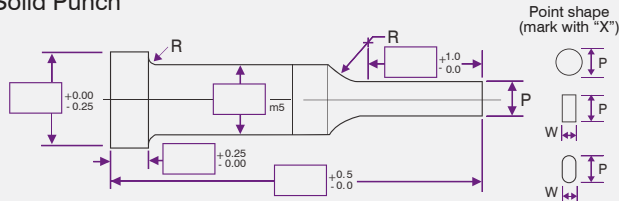
Just place two round dowel holes in your die shoe, and you are ready to locate complex shaped punches.

Dowels are finished, and dowel holes are slip-fit sized. Retainer is ready for CNC mounting.

Product Code	D	W	L	B	S	A	C	E	X	Y	F
PRSF10	10	41.0	43.5	5.0	34.0	26.924	19.05	11.12	7.5	9.0	M8
PRSF13	13	48.5	49.6	6.5	37.0	29.972	19.05	14.27	6.5	12.0	M8
PRSF16	16	51.7	52.7	8.0	38.6	31.750	19.05	15.87	6.0	13.5	M8
PRSF20	20	56.8	59.3	10.0	41.9	33.528	19.05	17.47	5.0	16.5	M10
PRSF25	25	64.5	68.9	12.5	46.7	40.640	23.82	19.84	7.0	22.0	M12
PRSF32	32	64.5	68.9	16.0	46.7	40.640	23.82	19.84	7.0	22.0	M12

IMPORTANT: Please make sure all dimension boxes are filled in.

Solid Punch



P=	W=	Qty=
----	----	------

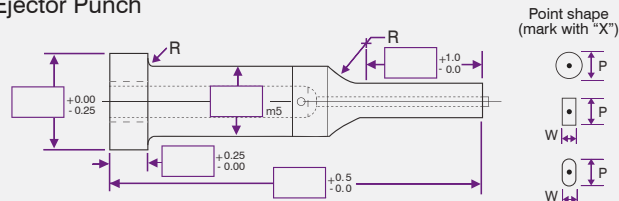
P=	W=	Qty=
----	----	------

P=	W=	Qty=
----	----	------

Material required below (mark with "X")

MAT Type	☐ HSS	☐ Toolsteel
----------	------------------------------	------------------------------------

Ejector Punch



P=	W=	Qty=
----	----	------

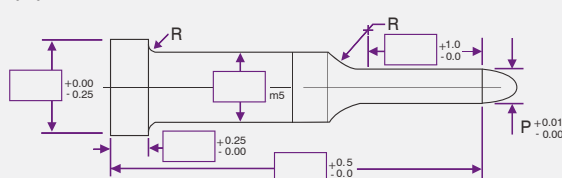
P=	W=	Qty=
----	----	------

P=	W=	Qty=
----	----	------

Material required below (mark with "X")

MAT Type	☐ HSS	☐ Toolsteel
----------	------------------------------	------------------------------------

Parabolic Pilot



P=	Qty=
----	------

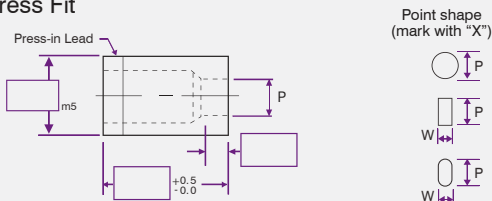
P=	Qty=
----	------

P=	Qty=
----	------

Material required below (mark with "X")

MAT Type	☐ HSS	☐ Toolsteel
----------	------------------------------	------------------------------------

Die Button Press Fit



P=	W=	Qty=
----	----	------

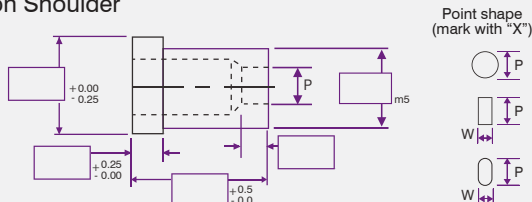
P=	W=	Qty=
----	----	------

P=	W=	Qty=
----	----	------

Material required below (mark with "X")

MAT Type	☐ HSS	☐ Toolsteel
----------	------------------------------	------------------------------------

Die Button Shoulder



P=	W=	Qty=
----	----	------

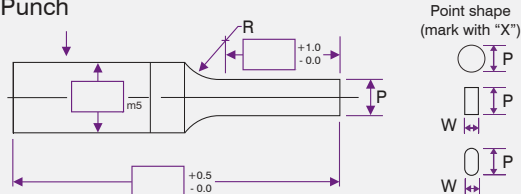
P=	W=	Qty=
----	----	------

P=	W=	Qty=
----	----	------

Material required below (mark with "X")

MAT Type	☐ HSS	☐ Toolsteel
----------	------------------------------	------------------------------------

Headless Punch



P=	W=	Qty=
----	----	------

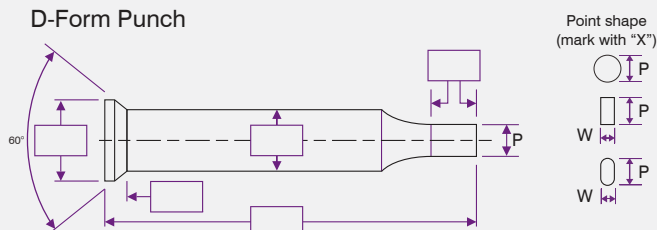
P=	W=	Qty=
----	----	------

P=	W=	Qty=
----	----	------

Material required below (mark with "X")

MAT Type	☐ HSS	☐ Toolsteel
----------	------------------------------	------------------------------------

D-Form Punch



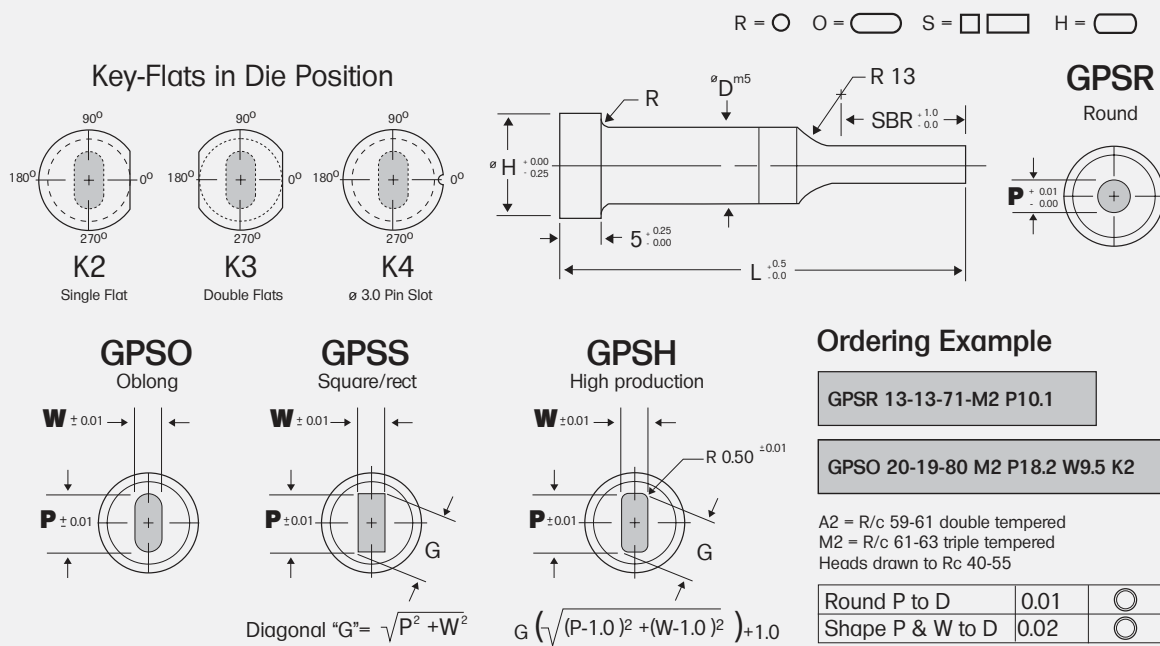
P=	W=	Qty=
----	----	------

P=	W=	Qty=
----	----	------

P=	W=	Qty=
----	----	------

Material required below (mark with "X")

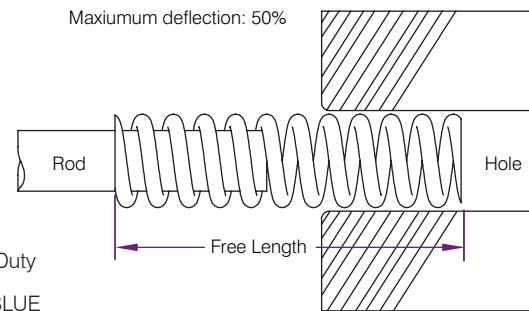
MAT Type	☐ HSS	☐ Toolsteel
----------	------------------------------	------------------------------------



Type	D	Point Length SBR						Overall Length							Round P min.	Shape W min.	Head Dia. H
		8	10	13	19	25	32	50	56	63	71	80	90	100			
GPS_	4	8	10					50	56	63					0.8	0.8	7
GPS_	5	8	10	13				50	56	63	71				1.3	1.3	8
GPS_	6	8	10	13				50	56	63	71	80			1.4	1.4	9
GPS_	8	8	10	13				50	56	63	71	80			1.5	1.5	11
GPS_	10		10	13				50	56	63	71	80	90	100	1.9	1.9	13
GPS_	13		10	13	19			50	56	63	71	80	90	100	3.1	3.1	16
GPS_	16			13	19	25		50	56	63	71	80	90	100	5.7	5.7	19
GPS_	20			13	19	25			56	63	71	80	90	100	5.7	5.7	24
GPS_	25			13	19	25			56	63	71	80	90	100	5.7	5.7	29
GPS_	32				19	25					71	80	90	100	9.9	9.9	36
GPS_	40				19	25	32				71	80	90	100	12.0	12.0	45
GPS_	45					25	32					80	90	100	14.0	14.0	50
GPS_	50					25	32					80	90	100	16.0	16.0	55
GPS_	56					25	32					80	90	100	18.0	18.0	61
GPS_	63					25	32					80	90	100	20.0	20.0	68

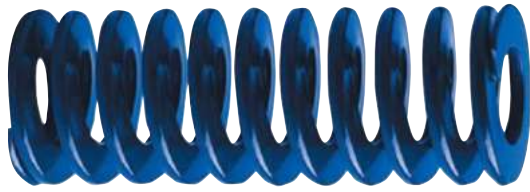


Silicone Chrome Die Springs



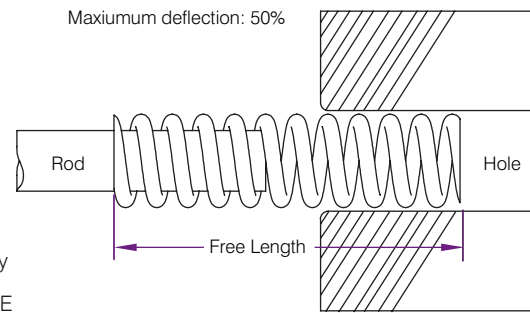
Hole Dia.	Rod Dia.	Product Code	Free Length		lb at 1/10" Defl	Maximum Deflection 50% of Free Length		Deflection for Average life 40% of Free Length		Deflection for Long life 25% of Free Length		Total Travel to Solid		
			mm	in		Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.	
3/8 10mm	3/16 4.5mm	DRM0308	25	1.00	5.6	28	0.500	23	0.400	14	0.250	31	0.545	
		DRM0310	32	1.25	4.8	30	0.625	24	0.500	15	0.312	35	0.735	
		DRM0312	38	1.50	3.8	29	0.750	23	0.600	14	0.375	34	0.906	
		DRM0314	44	1.75	3.4	30	0.875	24	0.700	15	0.437	36	1.053	
		DRM0316	51	2.00	2.8	28	1.000	22	0.800	14	0.500	35	1.248	
		DRM0320	64	2.50	2.4	30	1.250	24	1.000	15	0.625	38	1.581	
		DRM0324	76	3.00	1.8	27	1.500	22	1.200	14	0.750	35	1.931	
		DRM0396	305	12.00	0.6	36	6.000	29	4.800	18	3.000	48	7.961	
1/2 13mm	9/32 7mm	DRM0408	25	1.00	10.0	50	0.500	40	0.400	25	0.250	58	0.578	
		DRM0410	32	1.25	9.2	58	0.625	46	0.500	29	0.312	66	0.722	
		DRM0412	38	1.50	7.6	57	0.750	46	0.600	29	0.375	68	0.893	
		DRM0414	44	1.75	6.8	60	0.875	48	0.700	30	0.437	71	1.048	
		DRM0416	51	2.00	6.4	64	1.000	51	0.800	32	0.500	79	1.234	
		DRM0420	64	2.50	5.2	65	1.250	52	1.000	33	0.625	81	1.550	
		DRM0424	76	3.00	4.0	60	1.500	48	1.200	30	0.750	76	1.891	
		DRM0428	89	3.50	3.0	53	1.750	42	1.400	26	0.875	67	2.233	
Wire 0.52 x 0.093	DRM0436	115	4.50	2.5	53	2.125	45	1.800	28	1.125	71	2.850		
	DRM0496	305	12.00	0.8	48	6.000	38	4.800	24	3.000	56	6.931		
	5/8 16mm	11/32 8.5mm	DRM0508	25	1.00	13.0		0.500	52	0.400	33	0.250	55	0.420
			DRM0510	32	1.25	12.8		0.625	64	0.500	40	0.312	79	0.617
			DRM0512	38	1.50	10.8	81	0.750	65	0.600	41	0.375	88	0.815
			DRM0514	44	1.75	9.6	84	0.875	67	0.700	42	0.437	93	0.969
			DRM0516	51	2.00	8.8	88	1.000	70	0.800	44	0.500	102	1.157
			DRM0520	64	2.50	6.0	75	1.250	60	1.000	38	0.625	87	1.445
DRM0524			76	3.00	5.6	84	1.500	67	1.200	42	0.750	103	1.840	
DRM0528			89	3.50	4.8	84	1.750	67	1.400	42	0.875	104	2.159	
Wire 0.69 x 0.109	DRM0532	102	4.00	4.4	88	2.000	70	1.600	44	1.000	113	2.576		
	DRM0596	305	12.00	1.4	84	6.000	67	1.800	42	3.000	109	7.782		
	3/4 19mm	3/8 9.5mm	DRM0608	25	1.00	31.2	156	0.500	125	0.400	78	0.250	170	0.544
			DRM0610	32	1.25	25.6	160	0.625	128	0.500	80	0.312	179	0.699
			DRM0612	38	1.50	20.0	150	0.750	120	0.600	75	0.375	171	0.854
			DRM0614	44	1.75	17.6	154	0.875	123	0.700	77	0.437	176	1.000
			DRM0616	51	2.00	14.4	144	1.000	115	0.800	72	0.500	167	1.162
			DRM0620	64	2.50	12.0	150	1.250	120	1.000	75	0.625	177	1.474
DRM0624			76	3.00	9.6	144	1.500	115	1.200	72	0.750	171	1.784	
DRM0628			89	3.50	8.0	140	1.750	112	1.400	70	0.875	168	2.094	
Wire 0.75 x 0.165	DRM0632	102	4.00	7.2	144	2.000	115	1.600	72	1.000	173	2.404		
	DRM0636	115	4.50	6.4	144	2.250	115	1.800	72	1.125	174	2.714		
	DRM0640	127	5.00	5.6	140	2.500	112	2.000	70	1.250	169	3.024		
	DRM0644	139	5.50	4.8	132	2.750	106	2.200	66	1.375	160	3.334		
	DRM0648	152	6.00	4.0	120	3.000	96	2.400	60	1.500	146	3.644		
	DRM0696	305	12.00	2.4	144	6.000	115	4.800	72	3.000	177	7.364		

Continues next page.



Silicone Chrome Die Springs
Raymond

Medium Duty
Colour - BLUE

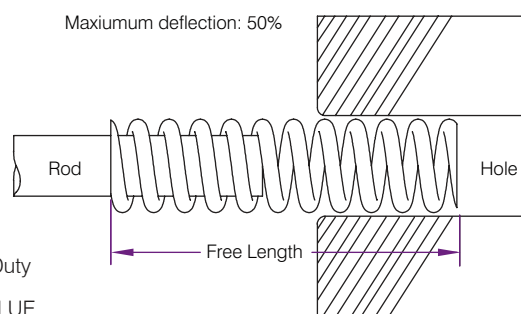


Hole Dia.	Rod Dia.	Product Code	Free Length		lb at 1/10" Defl.	Maximum Deflection 50% of Free Length		Deflection for Average life 40% of Free Length		Deflection for Long life 25% of Free Length		Total Travel to Solid	
			mm	in		Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.
1 26mm	1/2 12.5mm	DRM0808	25	1.00	53.6		0.500	214	0.400	134	0.250	264	0.493
		DRM0810	32	1.25	43.6		0.625	218	0.500	136	0.312	272	0.624
		DRM0812	38	1.50	33.6	252	0.750	202	0.600	126	0.375	274	0.816
		DRM0814	44	1.75	28.8	248	0.875	202	0.700	126	0.437	272	0.944
		DRM0816	51	2.00	23.2	232	1.000	186	0.800	116	0.500	258	1.114
		DRM0820	64	2.50	20.0	250	1.250	200	1.000	125	0.625	282	1.411
		DRM0824	76	3.00	15.2	228	1.500	182	1.200	114	0.750	260	1.708
		DRM0828	89	3.50	12.8	224	1.750	80	1.400	112	0.875	266	2.082
		DRM0832	102	4.00	12.0	240	2.000	192	1.600	120	1.000	276	2.303
		DRM0836	115	4.50	10.4	234	2.250	187	1.800	117	1.125	271	2.601
		DRM0840	127	5.00	9.6	240	2.500	192	2.000	120	1.250	278	2.898
		DRM0844	139	5.50	8.8	242	2.750	194	2.200	121	1.375	281	3.195
		DRM0848	152	6.00	8.0	240	3.000	192	2.400	120	1.500	279	3.493
		DRM0856	178	7.00	7.2	252	3.500	202	2.800	126	1.750	294	4.086
		DRM0864	203	8.00	5.6	224	4.000	180	3.200	112	2.000	262	4.682
1 1/4 32mm	5/8 15.5mm	DRM0896	305	12.00	4.0	240	6.000	192	4.800	120	3.000	282	7.062
		DRM1012	38	1.50	49.6	372	0.750	298	0.600	186	0.375	399	0.804
		DRM1014	44	1.75	42.4	371	0.875	296	0.700	185	0.437	402	0.947
		DRM1016	51	2.00	35.2	352	1.000	282	0.800	176	0.500	398	1.130
		DRM1020	64	2.50	28.8	360	1.250	288	1.000	180	0.625	419	1.456
		DRM1024	76	3.00	24.0	360	1.500	288	1.200	180	0.750	428	1.782
		DRM1028	89	3.50	20.0	350	1.750	280	1.400	175	0.875	422	2.108
		DRM1032	102	4.00	17.6	352	2.000	282	1.600	176	1.000	428	2.434
		DRM1036	115	4.50	16.0	360	2.500	288	1.800	180	1.125	442	2.760
		DRM1040	127	5.00	13.6	340	2.500	272	2.000	170	1.250	420	3.086
		DRM1044	139	5.50	12.8	352	2.750	282	2.200	176	1.375	437	3.412
		DRM1048	152	6.00	12.0	360	3.000	288	2.400	180	1.500	449	3.738
		DRM1056	178	7.00	10.4	364	3.500	291	2.800	182	1.750	457	4.390
		DRM1064	203	8.00	8.8	352	4.000	282	3.200	176	2.000	444	5.042
		DRM1080	254	10.00	7.2	360	5.000	288	4.000	180	2.500	457	6.346
		DRM1096	305	12.00	5.6	336	6.000	269	4.800	168	3.000	428	7.650

Continues next page.



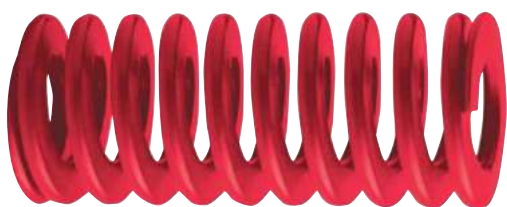
Silicone Chrome Die Springs
Raymond



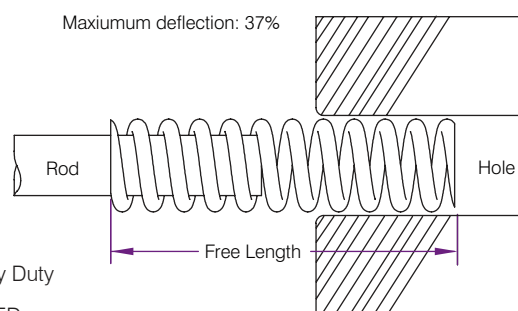
Medium Duty
Colour - BLUE

Hole Dia.	Rod Dia.	Product Code	Free Length		lb at 1/10" Defl	Maximum Deflection 50% of Free Length		Deflection for Average life 40% of Free Length		Deflection for Long life 25% of Free Length		Total Travel to Solid	
			mm	in		Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.
1 1/2 38mm	3/4 19mm	DRM1216	51	2.00	44.8	448	1.000	358	0.800	224	0.500	500	1.116
		DRM1220	64	2.50	36.8	460	1.250	368	1.000	230	0.625	532	1.446
		DRM1224	76	3.00	33.6	504	1.500	403	1.200	252	0.750	597	1.776
		DRM1228	89	3.50	26.4	462	1.750	370	1.400	231	0.875	547	2.072
		DRM1232	102	4.00	21.6	432	2.000	346	1.600	216	1.000	526	2.436
		DRM1236	115	4.50	20.8	468	2.250	374	1.800	234	1.125	575	2.766
		DRM1240	127	5.00	20.0	500	2.500	400	2.000	250	1.250	619	3.096
		DRM1244	139	5.50	16.8	462	2.750	370	2.200	231	1.375	576	3.426
		DRM1248	152	6.00	14.4	432	3.000	346	2.400	216	1.500	540	3.756
		DRM1256	178	7.00	13.6	476	3.500	381	2.800	238	1.750	601	4.416
		DRM1264	203	8.00	12.8	512	4.000	410	3.200	256	2.000	650	5.076
		DRM1280	254	10.00	8.8	440	5.000	352	4.000	220	2.500	563	6.396
		DRM1296	305	12.00	8.0	480	6.000	384	4.800	240	3.000	606	7.580
2 51mm	1 29mm	DRM1620	64	2.50	89.6	1120	1.250	896	1.000	560	0.625	1179	1.316
		DRM1624	76	3.00	76.8	1152	1.500	922	1.200	576	0.750	1243	1.619
		DRM1628	89	3.50	64.8	1134	1.750	907	1.400	567	0.875	1245	1.922
		DRM1632	102	4.00	55.2	1104	2.000	883	1.600	552	1.000	1228	2.224
		DRM1636	115	4.50	47.2	1062	2.250	850	1.800	531	1.125	1193	2.527
		DRM1640	127	5.00	41.6	1040	2.500	832	2.000	520	1.250	1177	2.830
		DRM1644	139	5.50	39.2	1078	2.750	862	2.200	539	1.375	1228	3.132
		DRM1648	152	6.00	35.2	1056	3.000	845	2.400	528	1.500	1209	3.435
		DRM1656	178	7.00	31.2	1092	3.500	874	2.800	546	1.750	1260	4.040
		DRM1664	203	8.00	25.6	1024	4.000	819	3.200	512	2.000	1189	4.645
		DRM1680	254	10.00	20.8	1040	5.000	832	4.000	520	2.500	1218	5.857
		DRM1696	305	12.00	16.8	1008	6.000	806	4.800	504	3.000	1187	7.067

Continues next page.



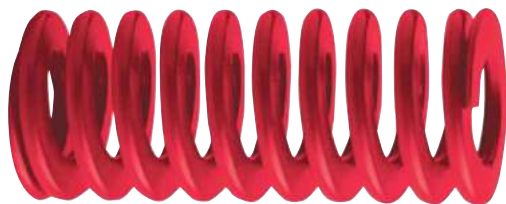
Silicone Chrome Die Springs
Raymond



Medium/Heavy Duty
Colour - RED

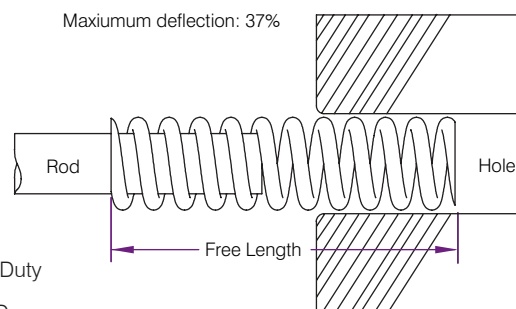
Hole Dia.	Rod Dia.	Product Code	Free Length		lb at 1/10" Defl	Maximum Deflection 37% of Free Length		Deflection for Average life 25% of Free Length		Deflection for Long life 20% of Free Length		Total Travel to Solid	
			mm	in.		Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.
3/8 10mm	3/16 4.5mm	DRMH0308	25	1.00	9.0	33	0.370	23	0.250	17	0.200	41	0.456
		DRMH0310	32	1.25	74.3	34	0.462	23	0.312	18	0.250	45	0.611
		DRMH0312	38	1.50	6.7	37	0.555	25	0.375	20	0.300	54	0.802
		DRMH0314	44	1.75	5.8	35	0.647	25	0.437	20	0.250	52	0.922
		DRMH0316	51	2.00	5.0	37	0.740	25	0.500	20	0.400	53	1.054
		DRMH0320	64	2.50	4.2	39	0.925	26	0.625	21	0.500	56	1.341
		DRMH0324	76	3.00	3.0	33	1.110	23	0.750	18	0.600	48	1.605
		DRMH0396	305	12.00	0.9	40	4.440	27	3.000	22	2.400	62	7.081
1/2 13mm	9/32 7mm	DRMH0408	25	1.00	16.8	62	0.370	42	0.250	34	0.200	84	0.499
		DRMH0410	32	1.25	13.9	64	0.462	43	0.312	35	0.250	90	0.647
		DRMH0412	38	1.50	12.0	67	0.555	45	0.375	36	0.300	97	0.811
		DRMH0414	44	1.75	10.4	67	0.647	45	0.437	36	0.350	100	0.962
		DRMH0416	51	2.00	8.7	64	0.740	44	0.500	35	0.400	96	1.108
		DRMH0420	64	2.50	6.8	63	0.925	43	0.625	34	0.500	95	1.404
		DRMH0424	76	3.00	2.7	63	1.110	43	0.750	34	0.600	98	1.717
		DRMH0428	89	3.50	4.7	61	1.295	41	0.875	33	0.700	94	1.998
5/8 16mm	11/32 8.5mm	DRMH0496	3.5	12.00	1.2	53	4.440	36	3.000	29	2.400	79	6.616
		DRMH0508	25	1.00	27.7	102	0.370	69	0.250	55	0.200	106	0.383
		DRMH0510	32	1.25	20.8	96	0.462	65	0.312	52	0.250	104	0.498
		DRMH0512	38	1.50	19.0	105	0.555	71	0.375	57	0.300	126	0.664
		DRMH0514	44	1.75	16.8	109	0.647	73	0.437	59	0.350	141	0.837
		DRMH0516	51	2.00	14.8	110	0.740	74	0.500	59	0.400	148	0.997
		DRMH0520	64	2.50	11.5	106	0.925	72	0.625	58	0.500	143	1.246
		DRMH0524	76	3.00	10.0	111	1.110	75	0.750	60	0.600	156	1.558
3/4 19mm	3/8 9.5mm	DRMH0528	89	3.50	8.5	110	1.295	74	0.875	60	0.700	155	1.828
		DRMH0532	102	4.00	7.6	112	1.482	76	1.000	61	0.800	166	2.182
		DRMH0596	305	12.00	2.7	120	4.440	81	3.000	65	2.400	184	6.817
		DRMH0608	25	1.00	57.6	213	0.370	144	0.250	115	0.200	259	0.450
		DRMH0610	32	1.25	44.8	207	0.462	140	0.361	112	0.250	265	0.592
		DRMH0612	38	1.50	32.0	178	0.555	120	0.375	96	0.300	235	0.735
		DRMH0614	44	1.75	28.8	186	0.647	126	0.437	101	0.350	252	0.874
		DRMH0616	51	2.00	24.8	184	0.740	124	0.500	99	0.400	253	1.020
		DRMH0620	64	2.50	19.2	178	0.925	120	0.625	96	0.500	251	1.305
		DRMH0624	76	3.00	14.4	160	1.110	108	0.750	86	0.600	229	1.590
		DRMH0628	89	3.50	12.8	166	1.295	112	0.875	90	0.700	240	1.875
		DRMH0632	102	4.00	12.0	178	1.480	120	1.000	96	0.800	259	2.160
		DRMH0636	115	4.50	11.2	186	1.665	136	1.125	101	0.900	274	2.445
		DRMH0640	127	5.00	10.4	192	1.850	130	1.250	104	1.000	286	2.753
		DRMH0644	139	5.50	9.6	195	2.035	132	1.375	106	1.100	289	3.014
		DRMH0648	152	6.00	8.0	178	2.220	120	1.500	96	1.200	264	3.300
		DRMH0696	305	12.00	3.6	160	4.440	108	3.000	86	2.400	232	6.455

Continues next page.



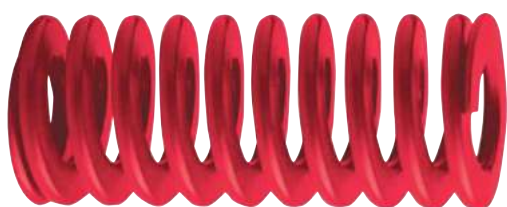
Silicone Chrome Die Springs
Raymond

Medium/Heavy Duty
Colour - RED



Hole Dia.	Rod Dia.	Product Code	Free Length		lb at 1/10" Defl	Maximum Deflection 37% of Free Length		Deflection for Average life 25% of Free Length		Deflection for Long life 20% of Free Length		Total Travel to Solid	
			mm	in.		Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.
1 26mm	1/2 12.5mm	DRMH0808	25	1.00	72.0	266	0.370	180	0.250	144	0.200	297	0.412
		DRMH0810	32	1.25	62.4	288	0.462	195	0.312	156	0.250	300	0.481
		DRMH0812	38	1.50	49.6	275	0.555	186	0.375	149	0.300	350	0.706
		DRMH0814	44	1.75	44.0	285	0.647	192	0.437	154	0.350	364	0.828
		DRMH0816	51	2.00	36.8	272	0.740	184	0.500	147	0.400	368	1.000
		DRMH0820	64	2.50	28.8	266	0.925	180	0.625	144	0.500	373	1.295
		DRMH0824	76	3.00	23.2	258	1.110	174	0.750	139	0.600	369	1.589
		DRMH0828	89	3.50	21.6	280	1.295	189	0.875	151	0.700	407	1.883
		DRMH0832	102	4.00	18.4	272	1.480	184	1.000	147	0.800	401	2.179
		DRMH0836	115	4.50	15.2	253	1.665	171	1.125	137	0.900	376	2.471
		DRMH0840	127	5.00	14.4	266	1.850	180	1.250	144	1.000	398	2.766
		DRMH0844	139	5.50	12.8	260	2.035	176	1.375	141	1.100	377	2.942
		DRMH0848	152	6.00	11.2	249	2.220	168	1.500	134	1.200	362	3.236
		DRMH0856	178	7.00	9.6	249	2.590	168	1.750	134	1.400	367	3.825
		DRMH0864	203	8.00	8.8	260	2.960	176	2.000	141	1.600	388	4.413
1 1/4 32mm	5/8 15.5mm	DRMH0896	305	12.00	5.6	249	4.440	168	3.000	134	2.400	379	6.767
		DRMH1012	38	1.50	114.4	635	0.555	429	0.375	343	0.300	752	0.657
		DRMH1014	44	1.75	100.8	652	0.647	440	0.437	353	0.350	790	0.784
		DRMH1016	51	2.00	86.4	639	0.740	432	0.500	346	0.400	792	0.917
		DRMH1020	64	2.50	62.4	577	0.925	390	0.625	312	0.500	734	1.176
		DRMH1024	76	3.00	51.2	568	1.110	384	0.750	307	0.600	735	1.435
		DRMH1028	89	3.50	44.0	570	1.295	385	0.875	308	0.700	745	1.694
		DRMH1032	102	4.00	36.8	545	1.480	368	1.000	294	0.800	719	1.954
		DRMH1036	115	4.50	32.0	533	1.665	360	1.125	288	0.900	708	2.213
		DRMH1040	127	5.00	27.2	503	1.850	340	1.250	272	1.000	672	2.472
		DRMH1044	139	5.50	26.4	537	2.035	363	1.375	290	1.100	720	2.731
		DRMH1048	152	6.00	23.2	515	2.220	348	1.500	278	1.200	712	3.071
		DRMH1056	178	7.00	20.0	518	2.590	350	1.750	280	1.400	702	3.509
		DRMH1064	203	8.00	18.4	545	2.960	368	2.000	294	1.600	741	4.028
		DRMH1080	254	10.00	12.8	474	3.700	320	2.500	256	2.000	648	5.065
		DRMH1096	305	12.00	11.2	497	4.440	336	3.000	269	2.400	683	6.102

Continues next page.

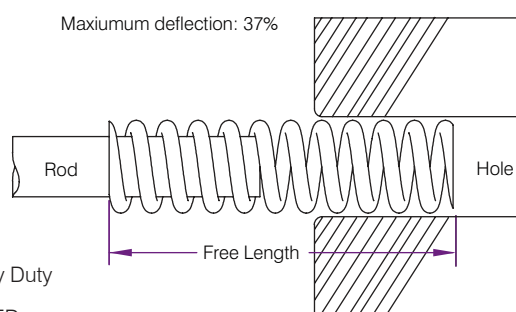


Silicone Chrome Die Springs

Raymond

Medium/Heavy Duty

Colour - RED

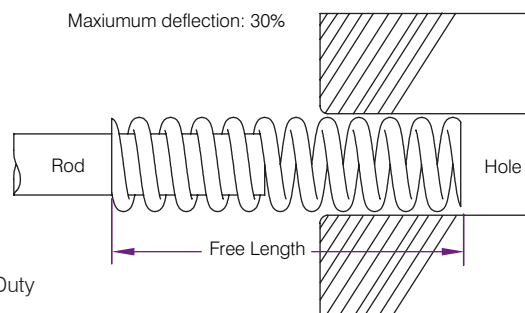


Hole Dia.	Rod Dia.	Product Code	Free Length		lb at 1/10" Defl	Maximum Deflection 37% of Free Length		Deflection for Average life 25% of Free Length		Deflection for Long life 20% of Free Length		Total Travel to Solid	
			mm	in		Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.
1 1/2 38mm	3/4 19mm	DRMH1216	51	2.00	108.0	799	0.740	540	0.500	432	0.400	966	0.894
		DRMH1220	64	2.50	85.6	792	0.925	535	0.625	428	0.500	988	1.154
		DRMH1224	76	3.00	62.4	693	1.100	468	0.750	374	0.600	882	1.414
		DRMH1228	89	3.50	52.8	684	1.295	462	0.875	370	0.700	883	1.673
		DRMH1232	102	4.00	48.0	710	1.480	480	1.000	384	0.800	928	1.933
		DRMH1236	115	4.50	43.2	719	1.665	486	1.125	389	0.900	947	2.192
		DRMH1240	127	5.00	36.8	681	1.850	460	1.250	368	1.000	902	2.452
		DRMH1244	139	5.50	34.4	700	2.035	473	1.375	378	1.100	933	2.712
		DRMH1248	152	6.00	30.4	675	2.220	456	1.500	365	1.200	903	2.971
		DRMH1256	178	7.00	26.4	684	2.590	462	1.750	370	1.400	934	3.359
		DRMH1264	203	8.00	20.8	616	2.960	416	2.000	333	1.600	844	4.058
		DRMH1280	254	10.00	17.6	651	3.700	440	2.500	352	2.000	907	5.154
		DRMH1296	305	12.00	14.4	639	4.440	432	3.000	346	2.400	883	6.135
2 51mm	1 25mm	DRMH1620	64	2.50	118.4	1095	0.925	740	0.625	592	0.500	1326	1.120
		DRMH1624	76	3.00	96.0	1066	1.110	720	0.750	576	0.600	1334	1.390
		DRMH1628	89	3.50	80.0	1036	1.295	700	0.875	560	0.700	1328	1.660
		DRMH1632	102	4.00	66.4	983	1.480	664	1.000	531	0.800	1282	1.930
		DRMH1636	115	4.50	60.0	999	1.665	675	1.125	540	0.900	1320	2.200
		DRMH1640	127	5.00	56.0	1036	1.850	700	1.250	560	1.000	1383	2.470
		DRMH1644	139	5.50	50.4	1026	2.035	693	1.375	554	1.100	1381	2.740
		DRMH1648	152	6.00	47.2	1048	2.220	708	1.500	566	1.220	1421	3.010
		DRMH1656	178	7.00	40.0	1036	2.590	700	1.750	560	1.400	1420	3.550
		DRMH1664	203	8.00	35.2	1042	2.960	704	2.000	563	1.600	1440	4.090
		DRMH1680	254	10.00	24.0	888	3.700	600	2.500	480	2.000	1241	5.170
		DRMH1696	305	12.00	22.4	995	4.440	672	3.000	538	2.400	1400	6.250

Continues next page.



Silicone Chrome Die Springs
Raymond



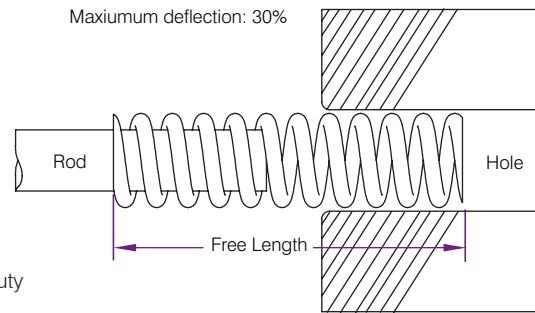
Heavy Duty
Colour - GOLD

Hole Dia.	Rod Dia.	Product Code	Free Length		lb at 1/10" Defl	Maximum Deflection 30% of Free Length		Deflection for Average life 20% of Free Length		Deflection for Long life 15% of Free Length		Total Travel to Solid	
			mm	in		Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.
3/8 10mm	3/16 4.5mm	DRH0308	25	1.00	12.4	37	0.300	25	0.200	18	0.150	44	0.354
		DRH0310	32	1.25	9.8	37	0.375	25	0.250	18	0.187	45	0.463
		DRH0312	38	1.50	9.6	43	0.450	29	0.300	22	0.225	55	0.573
		DRH0314	44	1.75	8.4	44	0.525	29	0.350	22	0.262	58	0.686
		DRH0316	51	2.00	7.2	43	0.600	29	0.400	22	0.300	57	0.792
		DRH0320	64	2.50	6.0	45	0.750	30	0.500	23	0.375	66	1.011
		DRH0324	76	3.00	4.2	38	0.900	25	0.600	19	0.450	51	1.216
		DRH0396	305	12.00	1.2	43	3.600	29	2.400	22	1.800	70	5.818
1/2 13mm	9/32 7mm	DRH0408	25	1.00	23.6	71	0.300	47	0.200	35	0.150	107	0.455
		DRH0410	32	1.25	18.6	70	0.375	47	0.250	35	0.187	109	0.587
		DRH0412	38	1.50	16.4	74	0.450	49	0.300	37	0.225	121	0.737
		DRH0414	44	1.75	13.8	72	0.525	48	0.350	36	0.262	116	0.844
		DRH0416	51	2.00	11.0	66	0.600	44	0.400	33	0.300	110	1.000
		DRH0420	64	2.50	8.4	63	0.750	42	0.500	32	0.375	106	1.264
		DRH0424	76	3.00	7.4	67	0.900	44	0.600	33	0.450	113	1.528
		DRH0428	89	3.50	6.4	67	1.050	45	0.700	34	0.525	116	1.810
5/8 16mm	11/32 8.5mm	DRH0508	25	1.00	42.4	127	0.300	85	0.200	64	0.150	151	0.357
		DRH0510	32	1.25	29.6	111	0.375	74	0.250	55	0.187	140	0.474
		DRH0512	38	1.50	27.2	122	0.450	82	0.300	61	0.225	165	0.606
		DRH0514	44	1.75	24.0	126	0.525	84	0.350	63	0.262	175	0.730
		DRH0516	51	2.00	20.8	125	0.600	83	0.400	62	0.300	179	0.860
		DRH0520	64	2.50	17.0	128	0.750	85	0.500	64	0.375	190	1.118
		DRH0524	76	3.00	14.4	130	0.900	86	0.600	65	0.450	198	1.375
		DRH0528	89	3.50	12.2	128	1.050	85	0.700	64	0.525	199	1.633
		DRH0532	102	4.00	10.8	130	1.200	86	0.800	65	0.600	204	1.890
		DRH0596	305	12.00	4.0	144	3.600	96	2.400	72	1.800	201	5.016
3/4 19mm	3/8 9.5mm	DRH0608	25	1.00	108.0	324	0.300	216	0.200	162	0.150	324	0.300
		DRH0610	32	1.25	86.8	326	0.375	217	0.250	162	0.187	353	0.407
		DRH0612	38	1.50	65.6	295	0.450	197	0.300	148	0.225	337	0.514
		DRH0614	44	1.75	60.0	315	0.525	210	0.350	157	0.262	361	0.601
		DRH0616	51	2.00	49.6	298	0.600	198	0.400	149	0.300	361	0.728
		DRH0620	64	2.50	37.6	282	0.750	188	0.500	141	0.375	354	0.924
		DRH0624	76	3.00	31.2	281	0.900	187	0.600	140	0.450	361	1.156
		DRH0628	89	3.50	26.4	277	1.050	185	0.700	139	0.525	361	1.369
		DRH0632	102	4.00	23.2	278	1.200	186	0.800	139	0.600	367	1.583
		DRH0636	115	4.50	20.0	270	1.350	180	0.900	135	0.675	359	1.797
		DRH0640	127	5.00	17.6	264	1.500	176	1.000	132	0.750	354	2.011
		DRH0646	139	5.50	16.0	264	1.650	176	1.100	132	0.825	356	2.225
		DRH0648	152	6.00	14.4	259	1.800	173	1.200	130	0.900	351	2.438
		DRH0696	305	12.00	7.2	259	3.600	173	2.400	130	1.800	382	5.300

Continues next page.



Silicone Chrome Die Springs
Raymond



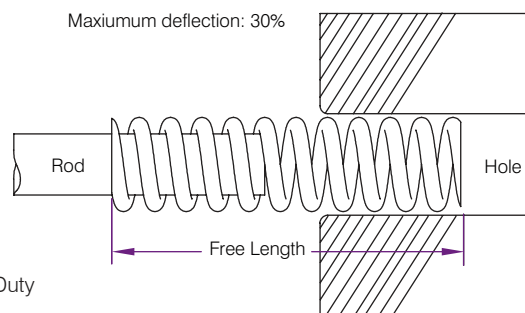
Heavy Duty
Colour - GOLD

Hole Dia.	Rod Dia.	Product Code	Free Length		lb at 1/10" Defl	Maximum Deflection 30% of Free Length		Deflection for Average life 20% of Free Length		Deflection for Long life 15% of Free Length		Total Travel to Solid	
			mm	in		Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.
1 26mm	1/2 12.5mm	DRH0808	25	1.00	208.0		0.270	416	0.200	312	0.150	614	0.295
		DRH0810	32	1.25	171.2		0.380	428	0.250	320	0.187	540	0.315
		DRH0812	38	1.50	118.4	533	0.450	355	0.300	266	0.225	598	0.505
		DRH0814	44	1.75	104.0	546	0.525	364	0.350	272	0.262	655	0.630
		DRH0816	51	2.00	84.0	504	0.600	336	0.400	252	0.300	600	0.714
		DRH0820	64	2.50	68.0	510	0.750	340	0.500	255	0.375	628	0.924
		DRH0824	76	3.00	54.4	490	0.900	326	0.600	245	0.450	617	1.134
		DRH0828	89	3.50	45.6	479	1.050	319	0.700	239	0.525	612	1.343
		DRH0832	102	4.00	40.0	480	1.200	320	0.800	240	0.600	621	1.553
		DRH0836	115	4.50	35.2	475	1.350	317	0.900	238	0.675	621	1.763
		DRH0840	127	5.00	31.2	468	1.500	312	1.000	234	0.750	615	1.972
		DRH0844	139	5.50	28.8	475	1.650	317	1.100	238	0.825	628	2.182
		DRH0848	152	6.00	25.6	461	1.800	307	1.200	230	0.900	612	2.392
		DRH0856	178	7.00	22.4	470	2.100	314	1.400	235	1.050	630	2.811
		DRH0864	203	8.00	19.2	461	2.400	307	1.600	230	1.200	620	3.230
		DRH0896	305	12.00	12.0	432	3.600	288	2.400	216	1.800	589	4.908
1 1/4 32mm	5/8 15.5mm	DRH1012	38	1.50	212.0	954	0.450	636	0.300	477	0.225	954	0.450
		DRH1014	44	1.75	181.6	953	0.525	636	0.350	476	0.262	1017	0.560
		DRH1016	51	2.00	149.6	898	0.600	598	0.400	449	0.300	950	0.635
		DRH1018	64	2.50	117.6	882	0.750	588	0.500	441	0.375	964	0.820
		DRH1020	76	3.00	95.2	857	0.900	571	0.600	428	0.450	957	1.005
		DRH1024	89	3.50	75.2	790	1.050	526	0.700	395	0.525	895	1.190
		DRH1028	102	4.00	66.4	797	1.200	531	0.800	398	0.600	913	1.375
		DRH1032	115	4.50	58.4	788	1.350	526	0.900	394	0.675	911	1.560
		DRH1036	127	5.00	49.6	744	1.500	496	1.000	372	0.750	866	1.745
		DRH1040	139	5.50	47.2	779	1.650	519	1.100	389	0.828	911	1.930
		DRH1048	152	6.00	42.4	763	1.800	509	1.200	382	0.900	897	2.115
		DRH1056	178	7.00	36.8	773	2.100	515	1.400	386	1.050	914	2.485
		DRH1064	203	8.00	32.8	787	2.400	525	1.600	394	1.200	936	2.855
		DRH1080	254	10.00	25.6	768	3.000	512	2.000	384	1.500	920	3.595
		DRH1096	305	12.00	20.8	749	3.600	499	2.400	374	1.800	902	4.335

Continues next page.



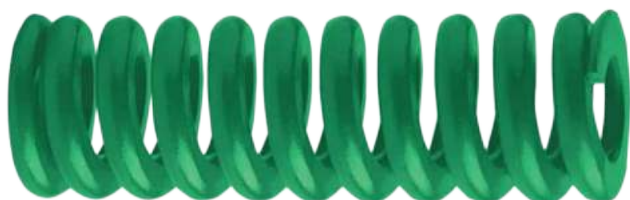
Silicone Chrome Die Springs
Raymond



Heavy Duty
Colour - GOLD

Hole Dia.	Rod Dia.	Product Code	Free Length		lb at 1/10" Defl	Maximum Deflection 30% of Free Length		Deflection for Average life 20% of Free Length		Deflection for Long life 15% of Free Length		Total Travel to Solid	
			mm	in		Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.
1 1/2 38mm	3/4 19mm	DRH1216	51	2.00	190.4	1142	0.600	762	0.400	571	0.300	1346	0.707
		DRH1220	64	2.50	148.8	1116	0.750	744	0.500	558	0.375	1446	0.972
		DRH1224	76	3.00	122.4	1102	0.900	734	0.600	551	0.450	1443	1.179
		DRH1228	89	3.50	106.4	1117	1.050	745	0.700	559	0.525	1535	1.443
		DRH1232	102	4.00	91.2	1094	1.200	730	0.800	547	0.600	1505	1.650
		DRH1236	115	4.50	78.4	1058	1.350	706	0.900	529	0.675	1478	1.885
		DRH1240	127	5.00	71.2	1068	1.500	712	1.000	534	0.750	1509	2.120
		DRH1244	139	5.50	64.0	1056	1.650	704	1.100	528	0.825	1508	2.357
		DRH1248	152	6.00	58.4	1051	1.800	701	1.200	526	0.900	1514	2.592
		DRH1256	178	7.00	49.6	1042	2.100	694	1.400	521	1.050	1520	3.064
		DRH1264	203	8.00	43.2	1037	2.400	691	1.600	518	1.200	1527	3.535
		DRH1280	254	10.00	34.4	1032	3.000	688	2.000	516	1.500	1540	4.477
		DRH1296	305	12.00	28.8	1037	3.600	691	2.400	518	1.800	1561	5.420
2 51mm	1 26mm	DRH1620	64	2.50	220.0	1650	0.750	1100	0.500	825	0.375	1982	0.901
		DRH1624	76	3.00	185.6	1670	0.900	1114	0.600	835	0.450	2189	1.147
		DRH1628	89	3.50	160.0	1680	1.050	1220	0.700	840	0.525	2227	1.392
		DRH1632	102	4.00	133.6	1603	1.200	1069	0.800	802	0.600	2188	1.638
		DRH1636	115	4.50	117.6	1588	1.350	1058	0.900	794	0.675	2216	1.884
		DRH1640	127	5.00	104.0	1560	1.500	1040	1.000	780	0.750	2214	2.129
		DRH1644	139	5.50	92.8	1531	1.650	1021	1.100	766	0.825	2204	2.375
		DRH1648	152	6.00	83.2	1498	1.800	998	1.200	749	0.900	2181	2.621
		DRH1656	178	7.00	73.6	1546	2.100	1030	1.400	773	1.050	2290	3.112
		DRH1664	203	8.00	64.0	1536	2.400	1024	1.600	768	1.200	2306	3.603
		DRH1680	254	10.00	48.8	1464	3.000	976	2.000	732	1.500	2238	4.586
		DRH1696	305	12.00	40.0	1440	3.600	960	2.400	720	1.800	2227	5.568

Continues next page.

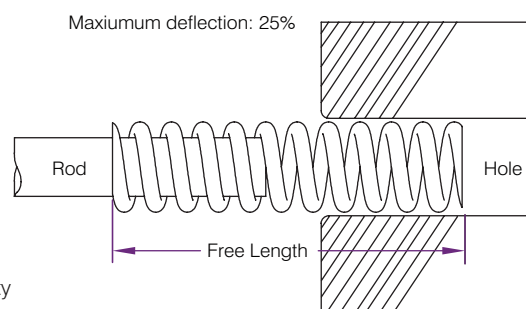


Silicone Chrome Die Springs

Raymond

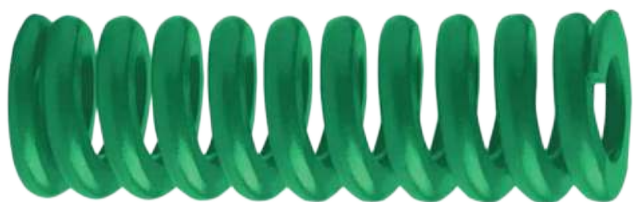
Extra Heavy Duty

Colour - GREEN



Hole Dia.	Rod Dia.	Product Code	Free Length		lb at 1/10" Defl	Maximum Deflection 25% of Free Length		Deflection for Average life 20% of Free Length		Deflection for Long life 15% of Free Length		Total Travel to Solid	
			mm	in.		Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.
3/8 10mm	3/16 4.5mm	DRX0308	25	1	22	55	0.250	44	0.200	33	0.150	56	0.275
		DRX0310	32	1.25	17	53.2	0.312	43	0.250	32	0.187	54	0.350
		DRX0312	38	1.5	14.5	54.4	0.375	43	0.300	32	0.225	57	0.440
		DRX0314	44	1.75	11.5	50.4	0.437	39	0.350	29	0.262	55	0.480
		DRX0316	51	2	10	50	0.500	40	0.400	30	0.300	54	0.600
		DRX0320	64	2.5	8	50	0.625	40	0.500	30	0.375	55	0.770
		DRX0324	76	3	6.5	48.8	0.750	39	0.600	29	0.450	55	0.920
		DRX0396	305	12	1.5	45	3.000	36	2.400	27	1.800	58	3.850
1/2 13mm	9/32 7mm	DRX0408	25	1	32	80	0.250	64	0.200	48	0.150	103	0.295
		DRX0410	32	1.25	24	75.1	0.312	60	0.250	45	0.187	97	0.360
		DRX0412	38	1.5	20	75	0.375	60	0.300	45	0.225	103	0.470
		DRX0414	44	1.75	17	74.5	0.437	60	0.350	45	0.262	99	0.530
		DRX0416	51	2	14	70	0.500	56	0.400	42	0.300	126	0.680
		DRX0420	64	2.5	11.5	71.9	0.625	56	0.500	42	0.375	102	0.800
		DRX0424	76	3	9	67.5	0.750	54	0.600	41	0.450	102	0.980
5/8 16mm	11/32 8.5mm	DRX0508	25	1	63	157.5	0.250	126	0.200	95	0.150	208	0.280
		DRX0510	32	1.25	47	147.1	0.312	117	0.250	88	0.187	187	0.340
		DRX0512	38	1.5	38	142.5	0.375	114	0.300	86	0.225	184	0.420
		DRX0514	44	1.75	32	140.2	0.437	112	0.350	84	0.262	181	0.490
		DRX0516	51	2	29	145	0.500	116	0.400	87	0.300	180	0.560
		DRX0520	64	2.5	22	137.5	0.625	110	0.500	83	0.375	1.95	0.780
		DRX0524	76	3	18	135	0.750	108	0.600	81	0.450	200	0.980
3/4 19mm	3/8 9.5mm	DRX0608	25	1	140	350	0.250	280	0.200	210	0.150	335	0.215
		DRX0610	32	1.25	110	344.3	0.312	275	0.250	206	0.187	340	0.300
		DRX0612	38	1.5	89	333.8	0.375	268	0.300	200	0.225	420	0.460
		DRX0614	44	1.75	75	328.5	0.437	264	0.350	198	0.262	350	0.460
		DRX0616	51	2	63.5	317.5	0.500	254	0.400	190	0.300	330	0.510
		DRX0620	64	2.5	50	312.5	0.625	250	0.500	188	0.375	355	0.710
		DRX0624	76	3	40.5	303.7	0.750	243	0.600	182	0.450	345	0.840
		DRX0628	89	3.5	34.5	301.9	0.875	242	0.700	181	0.525	360	1.040
		DRX0632	102	4	30	300	1.000	240	0.800	180	0.600	360	1.200
1 26mm	1/2 12.5mm	DRX0648	152	6.	19.5	292.5	1.500	234	1.200	176	0.900	380	1.850
		DRX0812	38	1.5	184.8	693	0.375	555	0.300	416	0.225	632	0.342
		DRX0816	51	2	116	580	0.500	464	0.400	348	0.300	567	0.489
		DRX0820	64	2.5	89.6	560	0.625	448	0.500	336	0.375	571	0.637
		DRX0824	76	3	73.6	552	0.750	442	0.600	331	0.450	615	0.835
		DRX0828	89	3.5	62.4	546	0.875	437	0.700	328	0.525	613	0.982
		DRX0832	102	4	55.2	552	1.000	442	0.800	331	0.600	651	1.180
		DRX0840	127	5	43.2	540	1.375	432	1.000	324	0.750	659	1.526
		DRX0848	152	6	36	540	1.500	432	1.200	324	0.900	674	1.871

Continues next page.

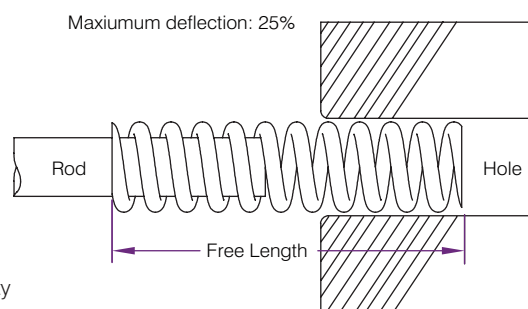


Silicone Chrome Die Springs

Raymond

Extra Heavy Duty

Colour - GREEN



Hole Dia.	Rod Dia.	Product Code	Free Length		lb at 1/10" Defl	Maximum Deflection 25% of Free Length		Deflection for Average life 20% of Free Length		Deflection for Long life 15% of Free Length		Total Travel to Solid	
			mm	in.		Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.
1 1/4 32mm	5/8 15.5mm	DRX1016	51	2	192	960	0.500	768	0.400	577	0.300	1002	0.522
		DRX1020	64	2.5	144	900	0.625	720	0.500	540	0.375	1045	0.726
		DRX1024	76	3	118.4	888	0.750	710	0.600	533	0.450	1102	0.931
		DRX1028	89	3.5	100.8	882	0.875	706	0.700	530	0.525	1144	1.135
		DRX1032	102	4	84	840	1.000	673	0.800	505	0.600	1075	1.280
		DRX1036	115	4.5	78.4	882	1.125	706	0.900	529	0.675	1164	1.485
		DRX1040	127	5	68	850	1.375	680	1.000	510	0.750	1149	1.689
		DRX1048	152	6	56	840	1.500	672	1.200	504	0.900	1142	2.039
1 1/2 38mm	3/4 19mm	DRX1216	51	2	376	1880	0.500	1505	0.400	1128	0.300	1950	0.495
		DRX1220	64	2.5	294.4	1840	0.625	1472	0.500	1104	0.375	1840	0.625
		DRX1224	76	3	231.2	1734	0.750	1387	0.600	1040	0.450	1896	0.820
		DRX1228	89	3.5	196	1715	0.875	1372	0.700	1029	0.525	1911	0.975
		DRX1232	102	4	171.2	1712	1.000	1370	0.800	1027	0.600	2001	1.169
		DRX1236	115	4.5	148	1665	1.125	1332	0.900	999	0.675	2017	1.363
		DRX1240	127	5	136	1700	1.375	1360	1.000	1020	0.750	2118	1.557
		DRX1248	152	6	110.4	1656	1.500	1325	1.200	994	0.900	2147	1.945
2 51mm	1 25mm	DRX1264	203	8	80.8	1616	2.000	1293	1.600	970	1.200	2199	2.721
		DRX1620	64	2.5	381.6	2385	0.625	1908	0.500	1431	0.375	2851	0.747
		DRX1624	76	3	312	2340	0.750	1872	0.600	1404	0.450	2702	0.866
		DRX1628	89	3.5	254.4	2226	0.875	1781	0.700	1336	0.525	2310	0.908
		DRX1632	102	4	220	2200	1.000	1760	0.800	1320	0.600	2691	1.223
		DRX1636	115	4.5	188.8	2124	1.125	1700	0.900	1274	0.675	2622	1.389
		DRX1640	127	5	172.8	2164	1.250	1728	1.000	1296	0.750	2428	1.405
		DRX1648	152	6	141.6	2124	1.500	1700	1.200	1275	0.900	2280	1.610
		DRX1664	203	8	100	2000	2.000	1600	1.600	1200	1.200	2234	2.234
		DRX1680	254	10	84	2100	2.500	1680	2.000	1260	1.500	2448	2.914
		DRX1696	305	12	71.2	2136	3.000	1710	2.410	1282	1.800	3184	4.472



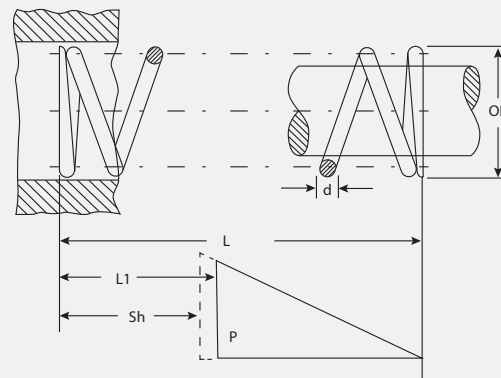
SPEC compression springs provide design engineers, draughtsmen, production and maintenance departments with precision-engineered springs in an economical and time saving way.

The SPEC service saves time and therefore money as design work and calculations are no longer required.

- Music wire ex-stock
- Stainless available upon request

Hales Australia is the official distributor for the SPEC Spring Range.

A complete spring catalogue is available upon request



Product Code	Outside Dia (OD)	Wire Dia (d)	Free Length (L), Approx.	Load Length (L1)	Solid Height (Sh) Approx.	Load (P) at L1	Spring Rate (R)
	mm	mm	mm	mm	mm	N	N/mm
C0120-014-0310	3.05	0.36	7.87	4.24	2.97	5.47	1.51
C0120-014-0500	3.05	0.36	12.70	6.68	4.27	5.47	0.91
C0120-014-0750	3.05	0.36	19.05	9.78	5.97	5.47	0.60
C0120-014-1000	3.05	0.36	25.40	12.90	7.65	5.47	0.44
C0120-014-1250	3.05	0.36	31.75	16.05	9.35	5.47	0.35
C0120-014-1500	3.05	0.36	38.10	19.71	11.02	5.47	0.30
C0120-016-0500	3.05	0.41	12.70	7.11	5.28	8.18	1.45
C0120-016-1250	3.05	0.41	31.75	17.15	11.76	8.18	0.56
C0120-016-1500	3.05	0.41	38.10	21.41	13.82	8.18	0.49
C0120-018-0500	3.05	0.46	12.70	7.75	6.30	11.39	2.29
C0120-018-0750	3.05	0.46	19.05	11.38	9.12	11.39	1.49
C0120-018-1250	3.05	0.46	31.75	19.00	14.20	11.39	0.89
C0120-018-1500	3.05	0.46	38.10	22.61	16.84	11.39	0.74
C0120-020-0500	3.05	0.51	12.70	8.59	7.24	14.72	3.57
C0120-020-0750	3.05	0.51	19.05	12.70	10.34	14.72	2.31
C0120-020-1000	3.05	0.51	25.40	16.81	13.46	14.72	1.72
C0120-020-1250	3.05	0.51	31.75	20.93	16.56	14.72	1.37
C0120-020-1500	3.05	0.51	38.10	25.02	19.66	14.72	1.12
C0120-022-0500	3.05	0.56	12.70	9.04	8.10	19.93	5.45
C0120-022-0750	3.05	0.56	19.05	13.41	11.71	19.93	3.54
C0120-022-1000	3.05	0.56	25.40	17.65	15.24	19.93	2.57
C0120-022-1250	3.05	0.56	31.75	22.02	18.77	19.93	2.05
C0148-023-0440	3.76	0.58	11.18	7.37	6.22	17.97	4.71
C0148-023-1000	3.76	0.58	25.40	16.15	12.57	17.97	1.94
C0180-012-1500	4.57	0.30	38.10	15.24	4.37	2.40	0.11
C0180-014-0500	4.57	0.36	12.70	5.33	2.54	3.74	0.51
C0180-014-0750	4.57	0.36	19.05	7.82	3.30	3.74	0.33
C0180-014-1000	4.57	0.36	25.40	10.16	4.09	3.74	0.25
C0180-014-1250	4.57	0.36	31.75	12.34	4.85	3.74	0.19
C0180-014-1500	4.57	0.36	38.10	14.40	5.64	3.74	0.16
C0180-016-0500	4.57	0.41	12.70	5.21	3.15	5.56	0.74
C0180-016-0750	4.57	0.41	19.05	7.62	4.24	5.56	0.49
C0180-016-1000	4.57	0.41	25.40	10.97	5.18	5.56	0.39
C0180-016-1250	4.57	0.41	31.75	13.08	6.22	5.56	0.30
C0180-016-1500	4.57	0.41	38.10	15.42	7.24	5.56	0.25

Continues next page.



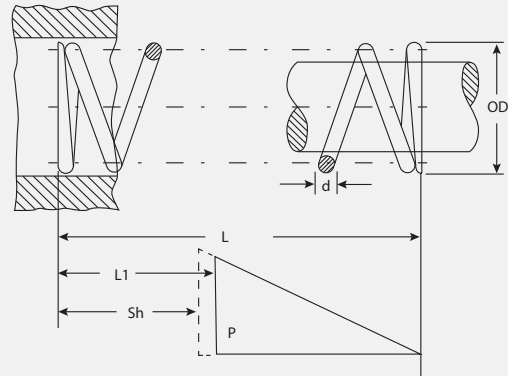
SPEC compression springs provide design engineers, draughtsmen, production and maintenance departments with precision-engineered springs in an economical and time saving way.

The SPEC service saves time and therefore money as design work and calculations are no longer required.

- Music wire ex-stock
- Stainless available upon request

Hales Australia is the official distributor for the SPEC Spring Range.

A complete spring catalogue is available upon request



Product Code	Outside Dia (OD)	Wire Dia (d)	Free Length (L), Approx.	Load Length (L1)	Solid Height (Sh) Approx.	Load (P) at L1	Spring Rate (R)
	mm	mm	mm	mm	mm	N	N/mm
C0180-018-0500	4.57	0.46	12.70	6.07	3.66	7.83	1.17
C0180-018-0750	4.57	0.46	19.05	8.20	5.26	7.83	0.72
C0180-018-1000	4.57	0.46	25.40	11.43	6.40	7.83	0.56
C0180-018-1250	4.57	0.46	31.75	14.55	7.70	7.83	0.46
C0180-018-1500	4.57	0.46	38.10	16.81	9.02	7.83	0.37
C0180-018-1750	4.57	0.46	44.45	19.61	10.31	7.83	0.32
C0180-020-0500	4.57	0.51	12.70	6.68	4.47	10.19	1.70
C0180-020-0750	4.57	0.51	19.05	9.75	6.07	10.19	1.10
C0180-020-1000	4.57	0.51	25.40	12.83	7.67	10.19	0.81
C0180-020-1500	4.57	0.51	38.10	18.72	10.90	10.19	0.53
C0180-020-1750	4.57	0.51	44.45	22.05	12.50	10.19	0.46
C0180-022-0500	4.57	0.56	12.70	7.11	4.88	13.92	2.49
C0180-022-0750	4.57	0.56	19.05	9.88	7.11	13.92	1.52
C0180-022-1000	4.57	0.56	25.40	13.16	9.02	13.92	1.14
C0180-022-1250	4.57	0.56	31.75	16.46	10.92	13.92	0.91
C0180-022-1500	4.57	0.56	38.10	19.61	12.85	13.92	0.75
C0180-024-0250	4.57	0.61	6.35	4.06	3.63	16.95	7.40
C0180-024-0310	4.57	0.61	7.87	4.90	4.17	16.95	5.71
C0180-024-0380	4.57	0.61	9.65	5.89	4.80	16.95	4.50
C0180-024-0440	4.57	0.61	11.18	6.73	5.33	16.95	3.82
C0180-024-0500	4.57	0.61	12.70	7.57	5.89	16.95	3.31
C0180-024-0560	4.57	0.61	14.22	8.41	6.43	16.95	2.92
C0180-024-0620	4.57	0.61	15.75	9.27	6.96	16.95	2.61
C0180-024-0750	4.57	0.61	19.05	11.10	8.13	16.95	2.14
C0180-024-0880	4.57	0.61	22.35	12.93	9.30	16.95	1.80
C0180-024-1000	4.57	0.61	25.40	14.61	10.36	16.95	1.58
C0180-024-1120	4.57	0.61	28.45	16.28	11.43	16.95	1.40
C0180-024-1250	4.57	0.61	31.75	18.11	12.60	16.95	1.24
C0180-024-1500	4.57	0.61	38.10	21.64	14.86	16.95	1.03
C0180-024-1750	4.57	0.61	44.45	25.15	17.09	16.95	0.88
C0180-024-2000	4.57	0.61	50.80	28.68	19.33	16.95	0.77
C0180-026-0500	4.57	0.66	12.70	7.92	6.27	22.37	4.69
C0180-026-0750	4.57	0.66	19.05	11.56	8.94	22.37	2.98
C0180-026-1000	4.57	0.66	25.40	14.94	11.71	22.37	2.14
C0180-026-1250	4.57	0.66	31.75	18.57	14.27	22.37	1.70
C0180-026-1500	4.57	0.66	38.10	22.12	16.84	22.37	1.40
C0180-026-2000	4.57	0.66	50.80	29.13	21.97	22.37	1.03

Continues next page.



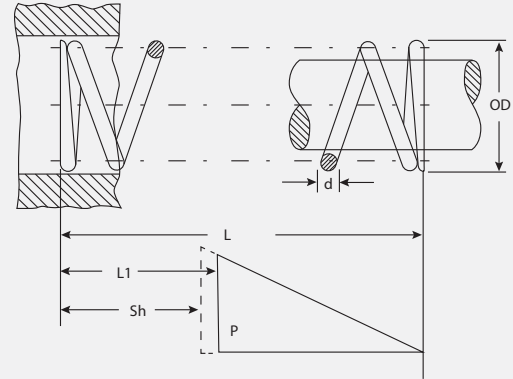
SPEC compression springs provide design engineers, draughtsmen, production and maintenance departments with precision-engineered springs in an economical and time saving way.

The SPEC service saves time and therefore money as design work and calculations are no longer required.

- Music wire ex-stock
- Stainless available upon request

Hales Australia is the official distributor for the SPEC Spring Range.

A complete spring catalogue is available upon request



Product Code	Outside Dia (OD)	Wire Dia (d)	Free Length (L), Approx.	Load Length (L1)	Solid Height (Sh) Approx.	Load (P) at L1	Spring Rate (R)
	mm	mm	mm	mm	mm	N	N/mm
C0180-032-0500	4.57	0.81	12.70	9.25	8.10	39.28	11.36
C0180-032-0750	4.57	0.81	19.05	13.61	11.58	39.28	7.23
C0180-032-1000	4.57	0.81	25.40	17.78	15.44	39.28	5.15
C0180-032-1250	4.57	0.81	31.75	21.92	19.00	39.28	3.99
C0180-032-1500	4.57	0.81	38.10	26.16	22.48	39.28	3.29
C0180-032-2000	4.57	0.81	50.80	34.77	29.46	39.28	2.45
C0210-018-0750	5.33	0.46	19.05	7.49	4.34	6.67	0.58
C0210-018-1500	5.33	0.46	38.10	14.38	7.47	6.67	0.28
C0210-018-1750	5.33	0.46	44.45	17.25	8.48	6.67	0.25
C0210-018-2000	5.33	0.46	50.80	19.00	9.53	6.67	0.21
C0210-022-0250	5.33	0.56	6.35	3.56	2.87	11.52	4.13
C0210-022-1500	5.33	0.56	38.10	18.16	10.13	11.52	0.58
C0210-026-1500	5.33	0.66	38.10	20.68	13.54	18.42	1.05
C0240-020-0500	6.10	0.51	12.70	5.82	3.23	7.78	1.12
C0240-020-1000	6.10	0.51	25.40	11.02	5.08	7.78	0.54
C0240-020-1500	6.10	0.51	38.10	15.88	6.93	7.78	0.35
C0240-020-2000	6.10	0.51	50.80	21.16	8.79	7.78	0.26
C0240-022-1000	6.10	0.56	25.40	10.95	5.99	10.63	0.74
C0240-024-0500	6.10	0.61	12.70	6.45	4.27	12.99	2.08
C0240-024-0750	6.10	0.61	19.05	9.35	5.61	12.99	1.33
C0240-024-1000	6.10	0.61	25.40	12.24	6.96	12.99	0.98
C0240-024-1500	6.10	0.61	38.10	18.03	9.63	12.99	0.65
C0240-024-2000	6.10	0.61	50.80	23.34	12.32	12.99	0.47
C0240-026-0500	6.10	0.66	12.70	7.09	4.29	17.13	3.05
C0240-026-0560	6.10	0.66	14.22	7.57	4.78	17.13	2.57
C0240-026-0750	6.10	0.66	19.05	9.25	6.25	17.13	1.75
C0240-026-1000	6.10	0.66	25.40	12.19	7.95	17.13	1.30
C0240-026-1500	6.10	0.66	38.10	18.14	11.10	17.13	0.86
C0240-026-2000	6.10	0.66	50.80	23.65	14.25	17.13	0.63
C0240-029-0500	6.10	0.74	12.70	7.32	5.61	22.02	4.08
C0240-029-0750	6.10	0.74	19.05	10.62	7.57	22.02	2.61
C0240-029-1000	6.10	0.74	25.40	13.92	9.50	22.02	1.93
C0240-029-1120	6.10	0.74	28.45	15.49	10.41	22.02	1.70
C0240-029-1500	6.10	0.74	38.10	20.52	13.36	22.02	1.26
C0240-029-1750	6.10	0.74	44.45	23.83	15.29	22.02	1.07
C0240-029-2000	6.10	0.74	50.80	27.13	17.22	22.02	0.93

Continues next page.



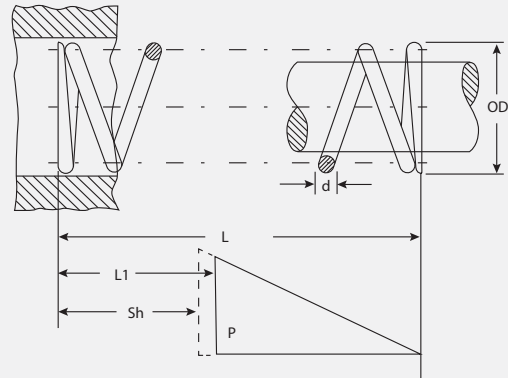
SPEC compression springs provide design engineers, draughtsmen, production and maintenance departments with precision-engineered springs in an economical and time saving way.

The SPEC service saves time and therefore money as design work and calculations are no longer required.

- Music wire ex-stock
- Stainless available upon request

Hales Australia is the official distributor for the SPEC Spring Range.

A complete spring catalogue is available upon request



Product Code	Outside Dia (OD)	Wire Dia (d)	Free Length (L), Approx.	Load Length (L1)	Solid Height (Sh) Approx.	Load (P) at L1	Spring Rate (R)
	mm	mm	mm	mm	mm	N	N/mm
C0240-032-0500	6.1	0.81	12.70	7.95	5.89	30.65	6.44
C0240-032-0750	6.1	0.81	19.05	11.05	8.51	30.65	3.84
C0240-032-1000	6.1	0.81	25.40	14.40	10.95	30.65	2.78
C0240-032-1250	6.1	0.81	31.75	17.75	13.36	30.65	2.19
C0240-032-1500	6.1	0.81	38.10	21.11	15.65	30.65	1.80
C0240-032-2000	6.1	0.81	50.80	27.76	20.24	30.65	1.33
C0240-035-0500	6.1	0.89	12.70	8.33	7.26	37.10	8.49
C0240-035-0750	6.1	0.89	19.05	12.14	9.93	37.10	5.37
C0240-035-1000	6.1	0.89	25.40	15.95	12.60	37.10	3.92
C0240-035-1500	6.1	0.89	38.10	23.57	17.93	37.10	2.56
C0240-035-2000	6.1	0.89	50.80	31.19	23.27	37.10	1.89
C0240-040-0500	6.1	1.02	12.70	9.12	8.53	53.51	14.93
C0240-040-0750	6.1	1.02	19.05	13.34	11.79	53.51	9.36
C0240-040-1000	6.1	1.02	25.40	17.55	15.04	53.51	6.83
C0240-040-1500	6.1	1.02	38.10	25.98	21.56	53.51	4.41
C0240-040-2000	6.1	1.02	50.80	34.42	28.09	53.51	3.27
C0240-045-1000	6.1	1.14	25.40	19.30	16.94	71.93	11.78
C0240-045-1500	6.1	1.14	38.10	28.65	24.36	71.93	7.60
C0300-022-0500	7.62	0.56	12.70	5.21	2.77	8.59	1.16
C0300-022-0750	7.62	0.56	19.05	7.06	3.61	8.59	0.72
C0300-022-1000	7.62	0.56	25.40	10.08	4.45	8.59	0.56
C0300-022-1500	7.62	0.56	38.10	14.76	5.89	8.59	0.37
C0300-022-1750	7.62	0.56	44.45	17.22	6.63	8.59	0.32
C0300-022-2000	7.62	0.56	50.80	18.11	7.34	8.59	0.26
C0300-022-2500	7.62	0.56	63.50	25.78	8.48	8.59	0.23
C0300-026-0500	7.62	0.66	12.70	5.56	3.63	13.88	1.94
C0300-026-0750	7.62	0.66	19.05	8.33	4.62	13.88	1.30
C0300-026-1000	7.62	0.66	25.40	9.93	5.94	13.88	0.89
C0300-026-1500	7.62	0.66	38.10	15.47	7.95	13.88	0.61
C0300-026-2000	7.62	0.66	50.80	20.32	10.01	13.88	0.46
C0300-026-2500	7.62	0.66	63.50	27.56	11.56	13.88	0.39

Continues next page.



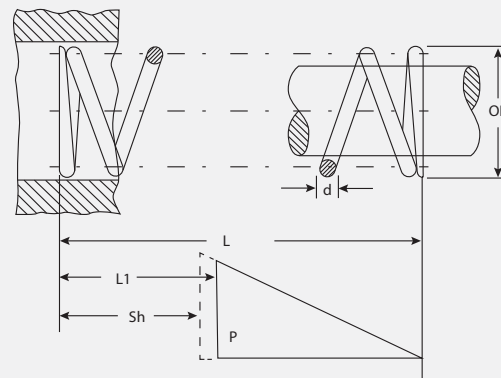
SPEC compression springs provide design engineers, draughtsmen, production and maintenance departments with precision-engineered springs in an economical and time saving way.

The SPEC service saves time and therefore money as design work and calculations are no longer required.

- Music wire ex-stock
- Stainless available upon request

Hales Australia is the official distributor for the SPEC Spring Range.

A complete spring catalogue is available upon request



Product Code	Outside Dia (OD)	Wire Dia (d)	Free Length (L), Approx.	Load Length (L1)	Solid Height (Sh) Approx.	Load (P) at L1	Spring Rate (R)
	mm	mm	mm	mm	mm	N	N/mm
C0300-030-1750	7.62	0.76	44.45	21.26	11.61	19.66	0.84
C0300-032-0500	7.62	0.81	12.70	6.68	4.83	24.87	4.13
C0300-032-0750	7.62	0.81	19.05	9.50	6.48	24.87	2.61
C0300-032-1000	7.62	0.81	25.40	11.94	8.28	24.87	1.86
C0300-032-1500	7.62	0.81	38.10	18.11	11.43	24.87	1.24
C0300-032-2000	7.62	0.81	50.80	24.00	14.55	24.87	0.93
C0300-032-2500	7.62	0.81	63.50	31.32	16.66	24.87	0.77
C0300-035-1000	7.62	0.89	25.40	13.54	9.40	31.85	2.68
C0300-040-0500	7.62	1.02	12.70	8.05	6.99	43.81	9.43
C0300-040-0750	7.62	1.02	19.05	11.66	9.35	43.81	5.92
C0300-040-1000	7.62	1.02	25.40	15.24	11.68	43.81	4.31
C0300-040-1250	7.62	1.02	31.75	18.82	14.05	43.81	3.40
C0300-040-1500	7.62	1.02	38.10	22.40	16.38	43.81	2.80
C0300-040-2000	7.62	1.02	50.80	29.59	21.08	43.81	2.07
C0300-040-2500	7.62	1.02	63.50	36.78	25.78	43.81	1.65
C0300-049-0500	7.62	1.25	12.70	9.27	8.33	79.98	23.28
C0300-049-0750	7.62	1.25	19.05	13.49	11.68	79.98	14.35
C0300-049-1000	7.62	1.25	25.40	17.70	14.73	79.98	10.38
C0300-049-1250	7.62	1.25	31.75	21.89	17.78	79.98	8.12
C0300-049-1500	7.62	1.25	38.10	26.11	20.85	79.98	6.67
C0300-049-2000	7.62	1.25	50.80	34.54	26.95	79.98	4.92
C0300-049-2500	7.62	1.25	63.50	42.98	33.05	79.98	3.90
C0300-049-3000	7.62	1.25	76.20	51.41	39.14	79.98	3.22
C0360-026-0500	9.14	0.66	12.70	5.46	2.97	11.65	1.61
C0360-026-0750	9.14	0.66	19.05	8.20	3.63	11.65	1.07
C0360-026-1000	9.14	0.66	25.40	9.12	4.60	11.65	0.72
C0360-026-1500	9.14	0.66	38.10	14.33	6.15	11.65	0.49
C0360-026-2000	9.14	0.66	50.80	21.18	7.57	11.65	0.37
C0360-032-0500	9.14	0.81	12.70	6.02	4.04	21.00	3.13
C0360-032-0750	9.14	0.81	19.05	9.02	5.05	21.00	2.08
C0360-032-1000	9.14	0.81	25.40	11.35	6.27	21.00	1.49
C0360-032-1500	9.14	0.81	38.10	16.03	8.74	21.00	0.95
C0360-032-2000	9.14	0.81	50.80	20.83	11.02	21.00	0.70
C0360-032-2500	9.14	0.81	63.50	28.27	12.65	21.00	0.60

Continues next page.



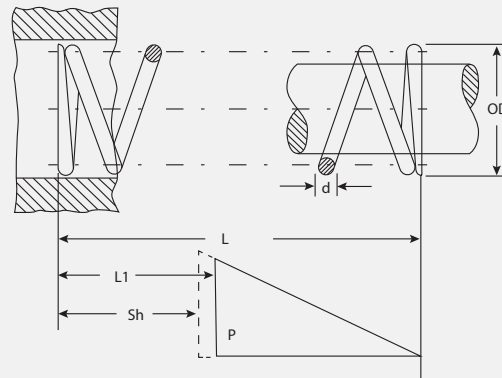
SPEC compression springs provide design engineers, draughtsmen, production and maintenance departments with precision-engineered springs in an economical and time saving way.

The SPEC service saves time and therefore money as design work and calculations are no longer required.

- Music wire ex-stock
- Stainless available upon request

Hales Australia is the official distributor for the SPEC Spring Range.

A complete spring catalogue is available upon request



Product Code	Outside Dia (OD)	Wire Dia (d)	Free Length (L), Approx.	Load Length (L1)	Solid Height (Sh) Approx.	Load (P) at L1	Spring Rate (R)
	mm	mm	mm	mm	mm	N	N/mm
C0360-035-0500	9.14	0.89	12.70	6.73	4.95	25.49	4.27
C0360-035-0750	9.14	0.89	19.05	9.63	6.27	25.49	2.70
C0360-035-1000	9.14	0.89	25.40	12.52	7.62	25.49	1.98
C0360-035-1500	9.14	0.89	38.10	18.29	10.26	25.49	1.28
C0360-035-2000	9.14	0.89	50.80	24.05	12.93	25.49	0.95
C0360-035-2500	9.14	0.89	63.50	29.82	15.60	25.49	0.75
C0360-038-0500	9.14	0.97	12.70	7.01	5.05	33.94	5.97
C0360-038-0750	9.14	0.97	19.05	9.73	6.76	33.94	3.64
C0360-038-1000	9.14	0.97	25.40	12.47	8.43	33.94	2.63
C0360-038-1500	9.14	0.97	38.10	17.91	11.81	33.94	1.68
C0360-038-2000	9.14	0.97	50.80	23.88	14.91	33.94	1.26
C0360-038-2500	9.14	0.97	63.50	29.49	18.06	33.94	0.10
C0360-040-0500	9.14	1.02	12.70	7.34	5.94	37.01	6.90
C0360-040-0750	9.14	1.02	19.05	10.49	7.67	37.01	4.32
C0360-040-1000	9.14	1.02	25.40	13.64	9.40	37.01	3.15
C0360-040-1500	9.14	1.02	38.10	19.96	12.83	37.01	2.05
C0360-040-2000	9.14	1.02	50.80	26.29	16.28	37.01	1.51
C0360-040-2500	9.14	1.02	63.50	32.59	19.74	37.01	1.19
C0360-049-0500	9.14	1.25	12.70	8.71	7.44	64.72	16.19
C0360-049-0750	9.14	1.25	19.05	12.57	9.75	64.72	9.98
C0360-049-1000	9.14	1.25	25.40	16.43	12.04	64.72	7.21
C0360-049-1250	9.14	1.25	31.75	20.29	14.35	64.72	5.65
C0360-049-1500	9.14	1.25	38.10	24.18	16.66	64.72	4.64
C0360-049-2000	9.14	1.25	50.80	31.90	21.26	64.72	3.43
C0360-049-2500	9.14	1.25	63.50	39.65	25.88	64.72	2.71
C0360-049-3500	9.14	1.25	88.90	55.09	35.10	64.72	1.91
C0360-055-1500	9.14	1.40	38.10	25.83	19.74	89.58	7.30
C0360-055-2000	9.14	1.40	50.80	34.11	25.32	89.58	5.37
C0390-047-2000	9.91	1.19	50.80	28.02	18.97	53.82	2.36
C0420-035-0750	10.67	0.89	19.05	8.99	5.36	22.02	2.19
C0420-035-1000	10.67	0.89	25.40	11.63	6.35	22.02	1.59
C0420-035-1500	10.67	0.89	38.10	16.94	8.33	22.02	1.03

Continues next page.



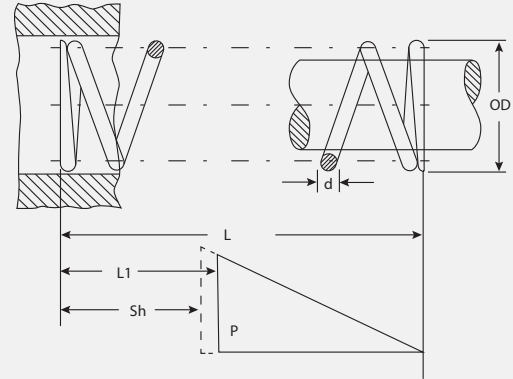
SPEC compression springs provide design engineers, draughtsmen, production and maintenance departments with precision-engineered springs in an economical and time saving way.

The SPEC service saves time and therefore money as design work and calculations are no longer required.

- Music wire ex-stock
- Stainless available upon request

Hales Australia is the official distributor for the SPEC Spring Range.

A complete spring catalogue is available upon request



Product Code	Outside Dia (OD)	Wire Dia (d)	Free Length (L), Approx.	Load Length (L1)	Solid Height (Sh) Approx.	Load (P) at L1	Spring Rate (R)
	mm	mm	mm	mm	mm	N	N/mm
C0420-038-0750	10.67	0.97	19.05	7.49	5.66	29.36	2.54
C0420-038-1000	10.67	0.97	25.40	10.16	6.83	29.36	1.93
C0420-038-1500	10.67	0.97	38.10	14.73	9.45	29.36	1.26
C0420-038-2000	10.67	0.97	50.80	23.29	11.58	29.36	1.07
C0420-038-2500	10.67	0.97	63.50	28.85	13.51	29.36	0.84
C0420-042-0750	10.67	1.07	19.05	8.76	6.30	39.59	3.85
C0420-042-1000	10.67	1.07	25.40	11.30	7.87	39.59	2.80
C0420-042-1500	10.67	1.07	38.10	16.51	10.90	39.59	1.84
C0420-042-2000	10.67	1.07	50.80	22.89	14.17	39.59	1.42
C0420-042-2500	10.67	1.07	63.50	30.71	16.00	39.59	1.21
C0420-048-1000	10.67	1.22	25.40	14.17	10.34	53.25	4.74
C0420-048-1500	10.67	1.22	38.10	20.65	14.02	53.25	3.05
C0420-048-2000	10.67	1.22	50.80	27.13	17.73	53.25	2.26
C0420-055-1000	10.67	1.40	25.40	15.24	11.53	80.07	7.88
C0420-055-1500	10.67	1.40	38.10	22.35	16.38	80.07	5.08
C0420-055-2000	10.67	1.40	50.80	29.34	21.97	80.07	3.73
C0420-055-2500	10.67	1.40	63.50	36.32	26.67	80.07	2.94
C0420-063-0500	10.67	1.60	12.70	9.17	8.76	112.85	31.87
C0420-063-0750	10.67	1.60	19.05	13.16	12.09	112.85	19.11
C0420-063-1000	10.67	1.60	25.40	17.15	15.01	112.85	13.63
C0420-063-1500	10.67	1.60	38.10	25.10	20.85	112.85	8.68
C0420-063-2000	10.67	1.60	50.80	33.07	26.72	112.85	6.35
C0420-063-2250	10.67	1.60	57.15	37.06	29.64	112.85	5.62
C0420-063-2500	10.67	1.60	63.50	41.05	32.56	112.85	5.02
C0455-039-1500	11.56	0.99	38.10	17.32	8.99	27.62	1.33
C0480-035-1000	12.19	0.89	25.40	8.94	5.66	20.86	1.26
C0480-035-1500	12.19	0.89	38.10	12.78	7.29	20.86	0.82
C0480-035-2000	12.19	0.89	50.80	16.64	8.92	20.86	0.61
C0480-035-2500	12.19	0.89	63.50	20.96	10.52	20.86	0.49
C0480-035-3000	12.19	0.89	76.20	24.33	12.14	20.86	0.40
C0480-038-0500	12.19	0.97	12.70	5.08	3.66	26.69	3.50
C0480-038-1000	12.19	0.97	25.40	9.40	5.59	26.69	1.66
C0480-038-1500	12.19	0.97	38.10	12.70	7.75	26.69	1.05
C0480-038-2000	12.19	0.97	50.80	19.20	9.86	26.69	0.84
C0480-038-2500	12.19	0.97	63.50	27.05	10.90	26.69	0.74
C0480-038-3000	12.19	0.97	76.20	32.26	12.55	26.69	0.61

Continues next page.



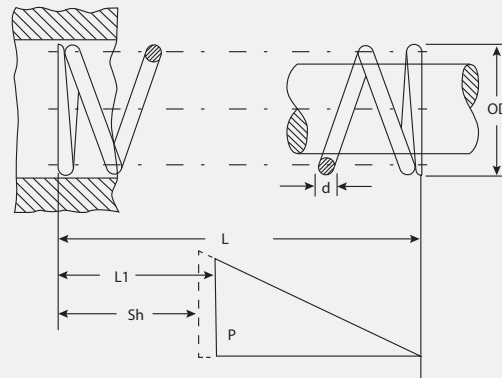
SPEC compression springs provide design engineers, draughtsmen, production and maintenance departments with precision-engineered springs in an economical and time saving way.

The SPEC service saves time and therefore money as design work and calculations are no longer required.

- Music wire ex-stock
- Stainless available upon request

Hales Australia is the official distributor for the SPEC Spring Range.

A complete spring catalogue is available upon request



Product Code	Outside Dia (OD)	Wire Dia (d)	Free Length (L), Approx.	Load Length (L1)	Solid Height (Sh) Approx.	Load (P) at L1	Spring Rate (R)
	mm	mm	mm	mm	mm	N	N/mm
C0480-042-0500	12.19	1.07	12.70	5.59	4.24	34.70	4.90
C0480-042-1000	12.19	1.07	25.40	10.16	6.68	34.70	2.28
C0480-042-1500	12.19	1.07	38.10	14.73	9.09	34.70	1.49
C0480-042-2000	12.19	1.07	50.80	21.23	11.73	34.70	1.17
C0480-042-2500	12.19	1.07	63.50	28.58	13.21	34.70	1.00
C0480-042-3000	12.19	1.07	76.20	34.04	15.29	34.70	0.82
C0480-051-0500	12.19	1.30	12.70	7.52	6.48	55.65	10.73
C0480-051-1000	12.19	1.30	25.40	13.72	9.75	55.65	4.76
C0480-051-1500	12.19	1.30	38.10	19.91	13.03	55.65	3.06
C0480-051-2000	12.19	1.30	50.80	26.09	16.28	55.65	2.26
C0480-051-2500	12.19	1.30	63.50	32.28	19.56	55.65	1.79
C0480-051-3000	12.19	1.30	76.20	38.48	22.83	55.65	1.47
C0480-055-0500	12.19	1.40	12.70	6.99	6.25	72.06	12.60
C0480-055-1000	12.19	1.40	25.40	13.59	9.93	72.06	6.13
C0480-055-1500	12.19	1.40	38.10	19.43	14.15	72.06	3.85
C0480-055-2000	12.19	1.40	50.80	26.31	18.42	72.06	2.94
C0480-055-2500	12.19	1.40	63.50	32.56	22.20	72.06	2.33
C0480-055-3000	12.19	1.40	76.20	40.56	24.92	72.06	2.01
C0480-063-0500	12.19	1.60	12.70	7.82	7.52	102.31	21.00
C0480-063-0750	12.19	1.60	19.05	11.56	9.86	102.31	13.65
C0480-063-1000	12.19	1.60	25.40	15.11	12.32	102.31	9.98
C0480-063-1500	12.19	1.60	38.10	22.73	16.89	102.31	6.65
C0480-063-2000	12.19	1.60	50.80	29.87	22.73	102.31	4.88
C0480-063-2250	12.19	1.60	57.15	33.40	25.12	102.31	4.31
C0480-063-2500	12.19	1.60	63.50	36.96	27.51	102.31	3.85
C0480-063-2750	12.19	1.60	69.85	40.56	29.90	102.31	3.48
C0480-063-3000	12.19	1.60	76.20	44.12	32.28	102.31	3.19
C0480-072-2000	12.19	1.83	50.80	33.99	26.70	144.48	8.58
C0600-049-1000	15.24	1.25	25.40	12.22	7.54	37.37	2.84
C0600-049-1500	15.24	1.25	38.10	17.60	9.65	37.37	1.82
C0600-049-2000	15.24	1.25	50.80	23.01	11.76	37.37	1.35
C0600-049-2500	15.24	1.25	63.50	28.40	13.87	37.37	1.07
C0600-049-3000	15.24	1.25	76.20	33.78	15.98	37.37	0.88

Continues next page.



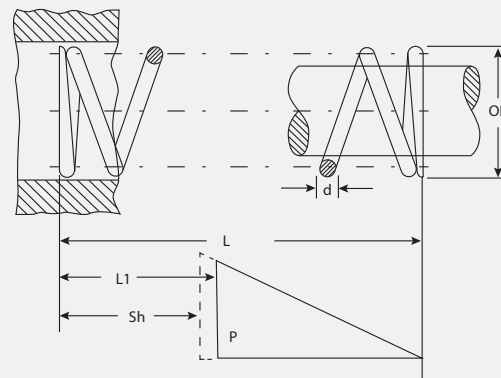
SPEC compression springs provide design engineers, draughtsmen, production and maintenance departments with precision-engineered springs in an economical and time saving way.

The SPEC service saves time and therefore money as design work and calculations are no longer required.

- Music wire ex-stock
- Stainless available upon request

Hales Australia is the official distributor for the SPEC Spring Range.

A complete spring catalogue is available upon request



Product Code	Outside Dia (OD)	Wire Dia (d)	Free Length (L), Approx.	Load Length (L1)	Solid Height (Sh) Approx.	Load (P) at L1	Spring Rate (R)
	mm	mm	mm	mm	mm	N	N/mm
C0600-055-1000	15.24	1.40	25.40	12.70	7.72	53.38	4.20
C0600-055-1500	15.24	1.40	38.10	17.78	10.67	53.38	2.63
C0600-055-2000	15.24	1.40	50.80	23.83	14.27	53.38	1.98
C0600-055-2500	15.24	1.40	63.50	29.26	16.94	53.38	1.56
C0600-055-3000	15.24	1.40	76.20	36.17	19.10	53.38	1.33
C0600-063-1000	15.24	1.60	25.40	13.34	9.60	80.07	6.65
C0600-063-1500	15.24	1.60	38.10	19.05	13.36	80.07	4.20
C0600-063-2000	15.24	1.60	50.80	25.40	17.78	80.07	3.15
C0600-063-2500	15.24	1.60	63.50	31.29	21.23	80.07	2.49
C0600-063-3000	15.24	1.60	76.20	39.57	23.55	80.07	2.19
C0600-072-1000	15.24	1.83	25.40	14.35	12.75	106.76	9.63
C0600-072-1500	15.24	1.83	38.10	21.08	17.55	106.76	6.30
C0600-072-2000	15.24	1.83	50.80	28.96	21.54	106.76	4.90
C0600-072-2500	15.24	1.83	63.50	37.11	26.24	106.76	4.04
C0600-072-3000	15.24	1.83	76.20	44.25	30.63	106.76	3.34
C0600-081-2500	15.24	2.06	63.50	43.56	28.04	145.41	7.30
C0600-085-3000	15.24	2.16	76.20	53.31	34.90	167.34	7.30
C0720-055-1000	18.29	1.40	25.40	11.68	6.30	43.37	3.24
C0720-055-1500	18.29	1.40	38.10	16.00	8.46	43.37	2.01
C0720-055-2000	18.29	1.40	50.80	20.83	10.44	43.37	1.48
C0720-055-2500	18.29	1.40	63.50	27.81	13.18	43.37	1.20
C0720-055-3000	18.29	1.40	76.20	33.07	15.06	43.37	0.99
C0720-063-1000	18.29	1.60	25.40	10.67	8.74	62.28	4.20
C0720-063-1500	18.29	1.60	38.10	14.48	12.07	62.28	2.63
C0720-063-2000	18.29	1.60	50.80	18.54	15.29	62.28	1.93
C0720-063-2500	18.29	1.60	63.50	30.58	16.61	62.28	1.89
C0720-063-3000	18.29	1.60	76.20	36.25	19.08	62.28	1.56
C0720-072-1000	18.29	1.83	25.40	12.70	10.08	93.41	7.35
C0720-072-1500	18.29	1.83	38.10	17.78	14.07	93.41	4.55
C0720-072-2000	18.29	1.83	50.80	24.13	17.20	93.41	3.50
C0720-072-2500	18.29	1.83	63.50	32.39	20.70	93.41	2.99
C0720-072-3000	18.29	1.83	76.20	38.38	23.93	93.41	2.47
C0720-072-3500	18.29	1.83	88.90	44.42	27.15	93.41	2.10
C0720-072-4000	18.29	1.83	101.60	51.18	30.02	93.41	1.86

Continues next page.



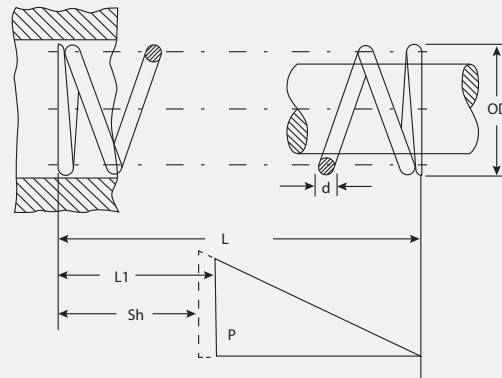
SPEC compression springs provide design engineers, draughtsmen, production and maintenance departments with precision-engineered springs in an economical and time saving way.

The SPEC service saves time and therefore money as design work and calculations are no longer required.

- Music wire ex-stock
- Stainless available upon request

Hales Australia is the official distributor for the SPEC Spring Range.

A complete spring catalogue is available upon request



Product Code	Outside Dia (OD)	Wire Dia (d)	Free Length (L), Approx.	Load Length (L1)	Solid Height (Sh) Approx.	Load (P) at L1	Spring Rate (R)
	mm	mm	mm	mm	mm	N	N/mm
C0720-081-1000	18.29	2.06	25.40	15.34	12.90	127.75	12.71
C0720-081-1500	18.29	2.06	38.10	22.05	16.89	127.75	7.96
C0720-081-2000	18.29	2.06	50.80	28.75	20.90	127.75	5.79
C0720-081-2500	18.29	2.06	63.50	35.46	24.92	127.75	4.55
C0720-081-3000	18.29	2.06	76.20	42.16	28.93	127.75	3.75
C0720-081-3500	18.29	2.06	88.90	48.87	32.94	127.75	3.19
C0720-081-4000	18.29	2.06	101.60	55.52	36.96	127.75	2.78
C0720-085-3500	18.29	2.16	88.90	53.64	32.61	149.42	4.24
C0720-112-3000	18.29	2.85	76.20	56.29	40.77	309.55	15.54
C0720-112-3500	18.29	2.85	88.90	65.41	46.58	309.55	13.18
C0850-068-4000	21.59	1.73	101.60	52.83	23.80	48.66	1.00
C0850-074-1000	21.59	1.88	25.40	15.11	9.75	61.65	5.99
C0850-074-2000	21.59	1.88	50.80	28.45	15.70	61.65	2.77
C0850-074-3000	21.59	1.88	76.20	41.78	21.64	61.65	1.79
C0850-081-1500	21.59	2.06	38.10	22.86	14.55	79.31	5.20
C0850-081-2000	21.59	2.06	50.80	29.87	18.08	79.31	3.78
C0850-081-2500	21.59	2.06	63.50	36.88	21.59	79.31	2.98
C0850-081-3000	21.59	2.06	76.20	43.89	25.12	79.31	2.45
C0850-092-1500	21.59	2.34	38.10	24.56	17.42	112.94	8.35
C0850-092-2000	21.59	2.34	50.80	32.13	21.84	112.94	6.04
C0850-092-2500	21.59	2.34	63.50	39.67	26.24	112.94	4.74
C0850-092-3000	21.59	2.34	76.20	47.24	30.66	112.94	3.90
C0850-098-1500	21.59	2.49	38.10	25.48	18.97	134.51	10.64
C0850-098-2000	21.59	2.49	50.80	33.32	23.88	134.51	7.70
C0850-098-2500	21.59	2.49	63.50	41.20	28.75	134.51	6.02
C0850-098-3000	21.59	2.49	76.20	49.05	33.66	134.51	4.95
C0850-098-3500	21.59	2.49	88.90	56.90	38.53	134.51	4.20
C0975-092-1000	24.77	2.34	25.40	16.10	11.58	99.24	10.68
C0975-092-1250	24.77	2.34	31.75	19.61	13.34	99.24	8.17
C0975-092-1500	24.77	2.34	38.10	23.11	15.09	99.24	6.62
C0975-092-2000	24.77	2.34	50.80	30.12	18.59	99.24	4.80
C0975-092-3000	24.77	2.34	76.20	44.12	25.63	99.24	3.10
C0975-092-3500	24.77	2.34	88.90	51.13	29.13	99.24	2.63
C0975-092-4000	24.77	2.34	101.60	58.14	32.66	99.24	2.28

Continues next page.



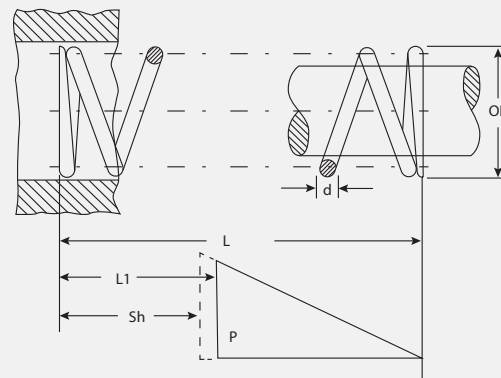
SPEC compression springs provide design engineers, draughtsmen, production and maintenance departments with precision-engineered springs in an economical and time saving way.

The SPEC service saves time and therefore money as design work and calculations are no longer required.

- Music wire ex-stock
- Stainless available upon request

Hales Australia is the official distributor for the SPEC Spring Range.

A complete spring catalogue is available upon request



Product Code	Outside Dia (OD)	Wire Dia (d)	Free Length (L), Approx.	Load Length (L1)	Solid Height (Sh) Approx.	Load (P) at L1	Spring Rate (R)
	mm	mm	mm	mm	mm	N	N/mm
C0975-096-1000	24.77	2.44	25.40	16.48	12.22	111.69	12.51
C0975-096-1250	24.77	2.44	31.75	20.07	14.12	111.69	9.56
C0975-096-1500	24.77	2.44	38.10	23.65	16.03	111.69	7.74
C0975-096-2000	24.77	2.44	50.80	30.84	19.81	111.69	5.58
C0975-096-2500	24.77	2.44	63.50	38.02	23.62	111.69	4.38
C0975-096-3000	24.77	2.44	76.20	45.19	27.41	111.69	3.61
C0975-096-3500	24.77	2.44	88.90	52.37	31.19	111.69	3.06
C0975-105-1000	24.77	2.67	25.40	17.30	13.67	143.19	17.68
C0975-105-1500	24.77	2.67	38.10	24.87	18.11	143.19	10.82
C0975-105-2000	24.77	2.67	50.80	32.46	22.56	143.19	7.81
C0975-105-2500	24.77	2.67	63.50	40.03	26.97	143.19	6.09
C0975-105-3000	24.77	2.67	76.20	47.60	31.42	143.19	5.01
C0975-105-3500	24.77	2.67	88.90	55.19	35.84	143.19	4.25
C0975-105-4000	24.77	2.67	101.60	62.76	40.28	143.19	3.69
C0975-112-1500	24.77	2.85	38.10	25.81	19.71	171.17	13.91
C0975-112-2000	24.77	2.85	50.80	33.71	24.64	171.17	9.99
C0975-112-2500	24.77	2.85	63.50	41.58	29.57	171.17	7.81
C0975-112-3000	24.77	2.85	76.20	49.45	34.49	171.17	6.41
C0975-112-3500	24.77	2.85	88.90	57.35	39.45	171.17	5.43
C0975-125-1250	24.77	3.18	31.75	23.24	19.61	231.49	27.20
C0975-125-1500	24.77	3.18	38.10	27.46	22.53	231.49	21.75
C0975-125-2000	24.77	3.18	50.80	35.92	28.37	231.49	15.54
C0975-125-2500	24.77	3.18	63.50	44.35	34.21	231.49	12.09
C0975-125-3000	24.77	3.18	76.20	52.81	40.06	231.49	9.89
C0975-125-3500	24.77	3.18	88.90	61.24	45.90	231.49	8.37
C0975-125-4000	24.77	3.18	101.60	69.70	51.74	231.49	7.25
C0975-135-4000	24.77	3.43	101.60	73.53	55.96	286.73	10.20
C1225-096-1500	31.12	2.44	38.10	21.62	12.75	89.85	5.44
C1225-096-2000	31.12	2.44	50.80	28.02	15.29	89.85	3.94
C1225-096-2500	31.12	2.44	63.50	34.42	17.83	89.85	3.08
C1225-096-3000	31.12	2.44	76.20	40.82	20.37	89.85	2.54
C1225-096-3500	31.12	2.44	88.90	47.22	22.91	89.85	2.15
C1225-096-4000	31.12	2.44	101.60	53.62	25.45	89.85	1.87
C1225-096-4500	31.12	2.44	114.30	60.02	27.99	89.85	1.66
C1225-096-5000	31.12	2.44	127.00	66.42	30.53	89.85	1.49

Continues next page.



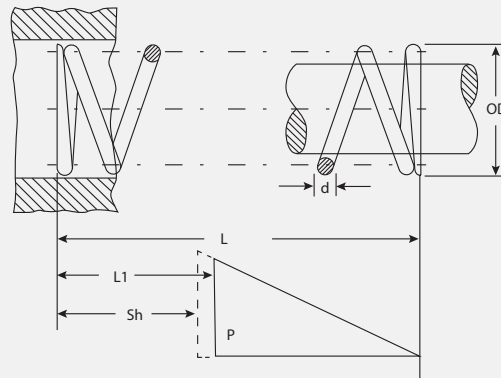
SPEC compression springs provide design engineers, draughtsmen, production and maintenance departments with precision-engineered springs in an economical and time saving way.

The SPEC service saves time and therefore money as design work and calculations are no longer required.

- Music wire ex-stock
- Stainless available upon request

Hales Australia is the official distributor for the SPEC Spring Range.

A complete spring catalogue is available upon request



Product Code	Outside Dia (OD)	Wire Dia (d)	Free Length (L), Approx.	Load Length (L1)	Solid Height (Sh) Approx.	Load (P) at L1	Spring Rate (R)
	mm	mm	mm	mm	mm	N	N/mm
C1225-112-1000	31.12	2.85	25.40	16.46	12.40	138.03	15.44
C1225-112-1500	31.12	2.85	38.10	23.39	15.82	138.03	9.38
C1225-112-2000	31.12	2.85	50.80	30.35	19.23	138.03	6.74
C1225-112-2500	31.12	2.85	63.50	37.29	22.63	138.03	5.27
C1225-112-3000	31.12	2.85	76.20	44.22	26.06	138.03	4.31
C1225-112-3500	31.12	2.85	88.90	51.16	29.46	138.03	3.66
C1225-112-4000	31.12	2.85	101.60	58.12	32.87	138.03	3.17
C1225-125-1250	31.12	3.18	31.75	21.16	16.23	187.14	17.64
C1225-125-1500	31.12	3.18	38.10	24.84	18.31	187.14	14.11
C1225-125-2000	31.12	3.18	50.80	32.26	22.48	187.14	10.08
C1225-125-2500	31.12	3.18	63.50	39.65	26.62	187.14	7.84
C1225-125-3000	31.12	3.18	76.20	47.04	30.78	187.14	6.42
C1225-125-4000	31.12	3.18	101.60	61.85	39.09	187.14	4.71
C1225-125-5000	31.12	3.18	127.00	76.66	47.37	187.14	3.71
C1225-135-1500	31.12	3.43	38.10	25.93	20.19	231.44	19.02
C1225-135-2000	31.12	3.43	50.80	33.71	24.94	231.44	13.53
C1225-135-3000	31.12	3.43	76.20	49.23	34.39	231.44	8.58
C1225-135-3500	31.12	3.43	88.90	56.97	39.12	231.44	7.25
C1225-148-1500	31.12	3.76	38.10	27.31	22.56	298.03	27.58
C1225-148-2000	31.12	3.76	50.80	35.51	28.04	298.03	19.50
C1225-148-3000	31.12	3.76	76.20	51.94	38.96	298.03	12.29
C1225-148-3500	31.12	3.76	88.90	60.17	44.42	298.03	10.36
C1225-148-4000	31.12	3.76	101.6	68.38	49.91	298.03	8.96
C1225-148-4500	31.12	3.76	114.3	76.61	55.37	298.03	7.89
C1225-148-5000	31.12	3.76	127.0	84.81	60.83	298.03	7.05
C1460-112-2000	37.08	2.85	50.80	28.32	15.98	116.68	5.18
C1460-112-3000	37.08	2.85	76.20	41.07	20.96	116.68	3.33
C1460-125-1500	37.08	3.18	38.10	23.19	15.65	158.40	10.62
C1460-125-2000	37.08	3.18	50.80	29.95	18.75	158.40	7.60
C1460-125-3000	37.08	3.18	76.20	43.41	24.92	158.40	4.83
C1460-125-4000	37.08	3.18	101.60	56.90	31.09	158.40	3.54
C1460-135-2000	37.08	3.43	50.80	31.19	20.90	196.12	9.99
C1460-135-3000	37.08	3.43	76.20	45.26	28.02	196.12	6.34
C1460-135-4000	37.08	3.43	101.60	59.33	35.38	196.12	4.64
C1460-148-2000	37.08	3.76	50.80	32.82	23.70	252.93	14.05
C1460-148-3000	37.08	3.76	76.20	47.68	32.08	252.93	8.86
C1460-148-4000	37.08	3.76	101.60	62.53	40.46	252.93	6.48

Continues next page.



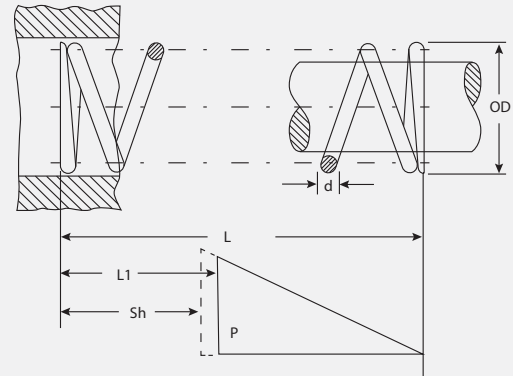
SPEC compression springs provide design engineers, draughtsmen, production and maintenance departments with precision-engineered springs in an economical and time saving way.

The SPEC service saves time and therefore money as design work and calculations are no longer required.

- Music wire ex-stock
- Stainless available upon request

Hales Australia is the official distributor for the SPEC Spring Range.

A complete spring catalogue is available upon request



Product Code	Outside Dia (OD)	Wire Dia (d)	Free Length (L), Approx.	Load Length (L1)	Solid Height (Sh) Approx.	Load (P) at L1	Spring Rate (R)
	mm	mm	mm	mm	mm	N	N/mm
C1460-162-2000	37.08	4.12	50.80	34.54	26.64	324.45	19.95
C1460-162-3000	37.08	4.12	76.20	50.24	36.40	324.45	12.50
C1460-162-4000	37.08	4.12	101.60	65.94	46.15	324.45	9.10
C1460-162-5000	37.08	4.12	127.00	81.64	55.91	324.45	7.14
C1687-135-2000	42.85	3.43	50.80	29.49	18.14	170.81	8.02
C1687-135-3000	42.85	3.43	76.20	42.57	23.67	170.81	5.08
C1687-135-4000	42.85	3.43	101.60	55.65	29.21	170.81	3.71
C1687-135-5000	42.85	3.43	127.00	68.73	34.75	170.81	2.92
C1687-148-2000	42.85	3.76	50.80	30.94	20.62	220.50	11.10
C1687-148-3000	42.85	3.76	76.20	44.65	27.20	220.50	6.98
C1687-148-4000	42.85	3.76	101.60	58.39	33.81	220.50	5.09
C1687-148-5000	42.85	3.76	127.00	72.14	40.39	220.50	4.01
C1687-162-2000	42.85	4.12	50.80	32.49	23.32	283.13	15.44
C1687-162-3000	42.85	4.12	76.20	46.94	31.06	283.13	9.68
C1687-162-4000	42.85	4.12	101.60	61.42	38.84	283.13	7.04
C1687-162-5000	42.85	4.12	127.00	75.87	46.61	283.13	5.53
C1687-177-2000	42.85	4.50	50.80	34.11	26.14	361.46	21.65
C1687-177-3000	42.85	4.50	76.20	49.38	35.18	361.46	13.46
C1687-177-4000	42.85	4.50	101.60	64.64	44.22	361.46	9.77
C1687-177-5000	42.85	4.50	127.00	79.91	53.29	361.46	7.67
C1687-192-2000	42.85	4.88	50.80	35.69	28.88	451.94	29.91
C1687-192-3000	42.85	4.88	76.20	51.74	39.19	451.94	18.48
C1687-192-4000	42.85	4.88	101.60	67.79	49.53	451.94	13.37
C1687-192-5000	42.85	4.88	127.00	83.87	59.84	451.94	10.47
C1937-148-3000	49.2	3.76	76.20	42.27	23.34	193.14	5.69
C1937-148-4000	49.2	3.76	101.60	55.12	28.50	193.14	4.15
C1937-148-5000	49.2	3.76	127.00	67.95	33.63	193.14	3.27
C1937-162-2000	49.2	4.12	50.80	30.78	20.57	248.21	12.39
C1937-162-3000	49.2	4.12	76.20	44.25	26.72	248.21	7.75
C1937-162-4000	49.2	4.12	101.60	57.71	32.84	248.21	5.65
C1937-162-5000	49.2	4.12	127.00	71.15	38.99	248.21	4.45
C1937-177-4000	49.2	4.50	101.60	60.53	37.62	317.11	7.72
C1937-177-5000	49.2	4.50	127.00	74.68	44.86	317.11	6.06
C1937-177-6000	49.2	4.50	152.40	88.82	52.10	317.11	4.99
C1937-207-4500	49.2	5.26	114.30	73.99	51.92	488.10	12.09
C1937-207-5000	49.2	5.26	127.00	81.76	56.64	488.10	10.78
C1937-207-5500	49.2	5.26	139.70	89.51	61.39	488.10	9.71
C1937-207-6000	49.2	5.26	152.40	97.28	66.14	488.10	8.86

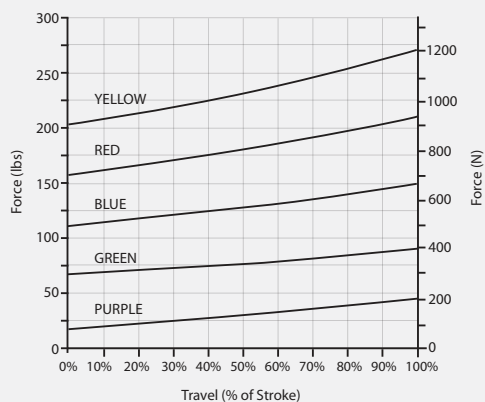
Continues next page.



Product Specifications

Pressure Medium	Nitrogen Gas
Charging Pressure Range	Max.: 180 bar / 2610 psi Min.: 18 bar / 260 psi
Force Increase By Temperature	±0.3 % / °C
Max. Charging Pressure (bar at 20°C)	180
Min. Operating Temperature	0°C
Max. Operating Temperature	80°C
Max. Stroke / Minute	100-150 at 20°C
Max. Piston Rod Velocity	96 m/min.
Max. Utilised Stroke	100%
Repair Kit	Not Repairable
Inlet Valve	4018112

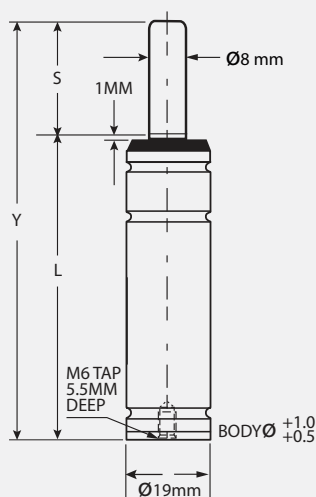
T2-90 Force Chart



T2-90 Contact Force

Colour	Charge Pressure		Contact Force	
	bar	psi	N	lbs
YELLOW	180	2610	905	203
RED	140	2030	704	158
BLUE	100	1450	503	113
GREEN	60	870	302	68
PURPLE	18	260	89	20
BLACK*	18-180	260-2610	89-905	20-203

T2-90



T2-90 Dimensional Information

Product Code	Stroke Lengths		Y		L	
	mm	inch	mm	inch	mm	inch
T2-90X7	7	0.28	56	2.20	49	1.93
T2-90X10	10	0.39	62	2.44	52	2.05
T2-90X15	15	0.59	72	2.83	57	2.24
T2-90X25	25	0.98	92	3.62	67	2.64
T2-90X38	38.1	1.50	118.2	4.65	80.1	3.15
T2-90X50	50	1.97	142	5.59	92	3.62
T2-90X63	63.5	2.50	169	6.65	105.5	4.15
T2-90X80	80	3.15	205	8.07	125	4.92
T2-90X100	100	3.94	245	9.65	145	5.71
T2-90X125	125	4.92	295	11.61	170	6.69

*Custom Pressure: Please specify charging pressure or contact force required.



All gas springs shipped at maximum charge pressure unless otherwise specified.

Note:

Hyson products recommends that T2 Gas Springs are backed up at all times.

Stroke Length of 25mm or greater should be base or flange mounted

All dimensions are nominal. Data shown are typical. Actual data for any particular unit may vary.

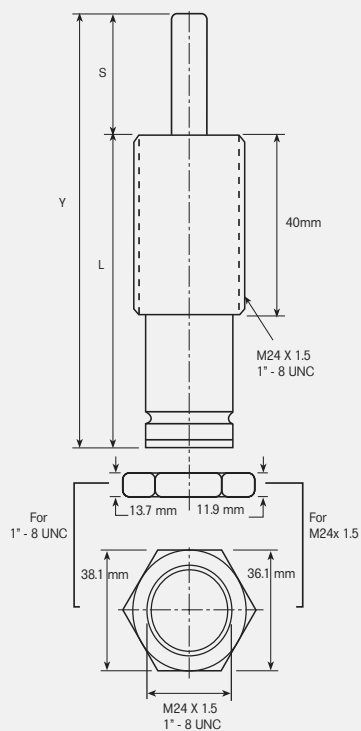


Installation Tool for T2-90 Order No. 503497

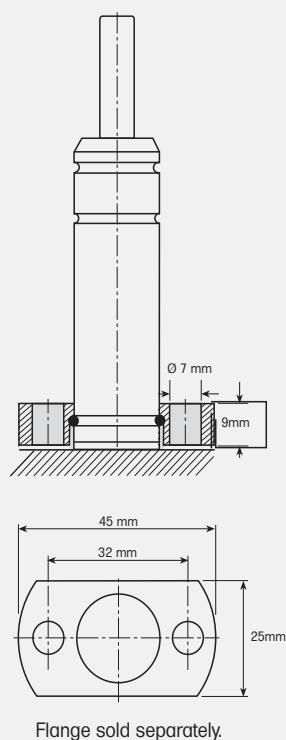
T2-90 Ordering Options

T2-90X50	-	TE	-	Red
Model X Stroke		Mount		Color
See Dimensional Information Chart		TE TM		Yellow Red Blue Green Purple Black

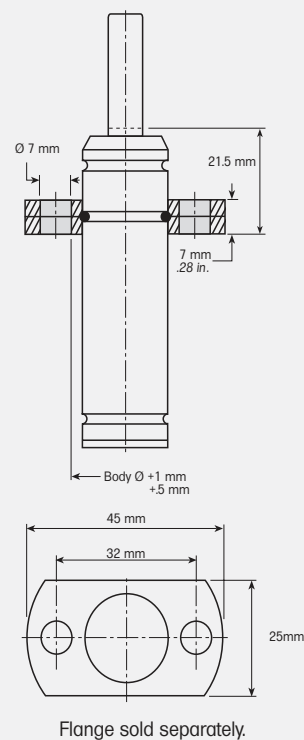
Threaded Body Mount TE-TM



Range Mount T2-90-FM



Top Mount T2-90-FCR



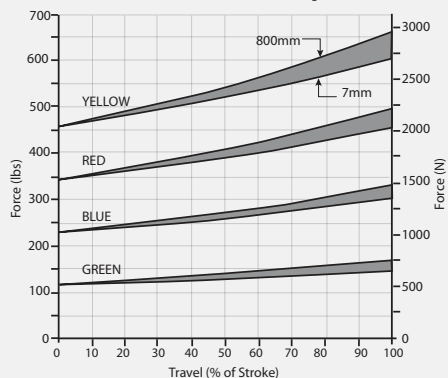


Product Specifications

Pressure Medium	Nitrogen Gas
Charging Pressure Range	Max.: 180 bar / 2610 psi Min.: 25 bar / 360 psi
Force Increase By Temperature	$\pm 0.3 \% / ^\circ\text{C}$
Max. Charging Pressure (bar at 20°C)	180
Min. Operating Temperature	0°C
Max. Operating Temperature	80°C
Max. Stroke / Minute	80-100 at 20°C
Max. Piston Rod Velocity	96 m/min.
Max. Utilised Stroke	100%
Repair Kit	T2SK2-180
Inlet Valve	4018112

T2-180 Force Chart

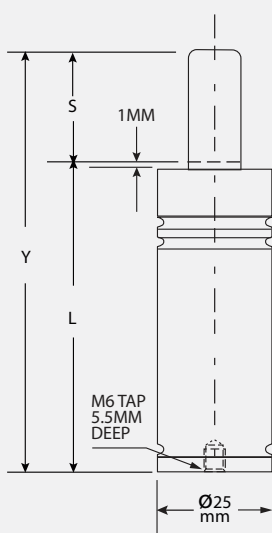
For 7mm and 80mm Stroke Lengths



T2-180 Contact Force

Colour	Charge Pressure		Contact Force	
	bar	psi	N	lbs
YELLOW	180	2610	2036	458
RED	135	1960	1527	343
BLUE	90	1305	1018	229
GREEN	45	655	509	114
BLACK*	25-180	363-2610	280-2036	63-458

T2-180



T2-180 Dimensional Information

Product Code	Stroke Lengths		Y		L	
	mm	inch	mm	inch	mm	inch
T2-180X7	7	0.28	56	2.20	49	1.93
T2-180X10	10	0.39	62	2.44	52	2.05
T2-180X12.7	12.7	0.50	67.4	2.65	54.7	2.15
T2-180X15	15	0.59	72	2.83	57	2.24
T2-180X16	16	0.63	74	2.91	58	2.28
T2-180X25	25	0.98	92	3.62	67	2.64
T2-180X38	38.1	1.50	118.2	4.65	80.1	3.15
T2-180X50	50	1.97	142	5.59	92	3.62
T2-180X63	63.5	2.50	172	6.65	108.5	4.15
T2-180X75	75	2.95	195	7.68	120	4.72
T2-180X80	80	3.15	205	8.07	125	4.92
T2-180X100	100	3.94	245	9.65	145	5.71
T2-180X125	125	4.92	295	11.61	170	6.69



All gas springs shipped at maximum charge pressure unless otherwise specified.

Note:
Hyson products recommends that T2 Gas Springs are backed up at all times.

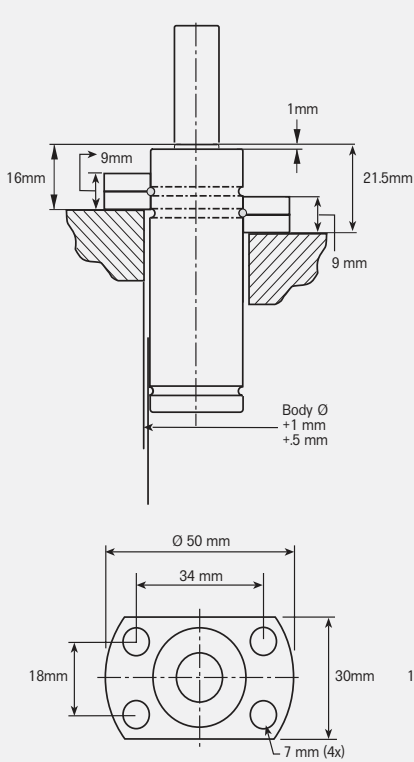
Stroke Length of 25mm or greater should be base or flange mounted

All dimensions are nominal. Data shown are typical.
Actual data for any particular unit may vary.

T2-180
Ordering Options

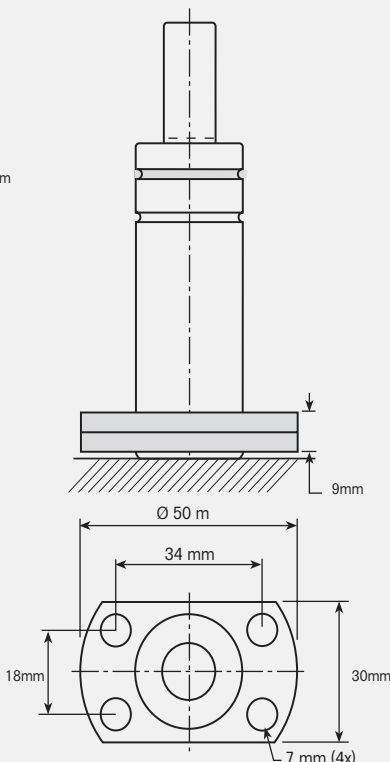
T2-180X100	-	Blue
ModelX Stroke		Color
See Dimensional Information Chart		Yellow Red Blue Green Black

Top Mount
T2-180-FCR



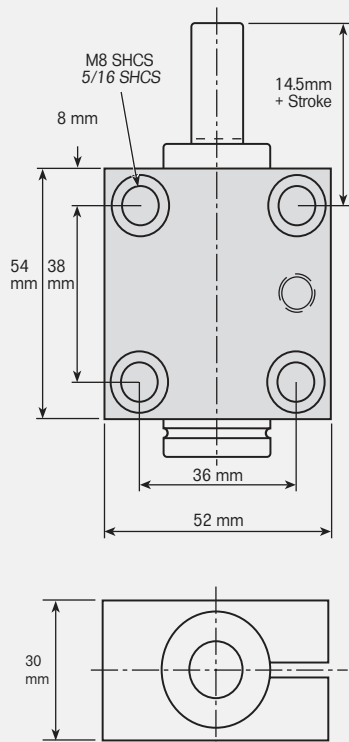
Flange sold separately.

Bottom Mount
T2-180-FCR



Flange sold separately.

Side Mount
T2-180-SM



Flange sold separately.



METRIC						
Length	M2	M3	M4	M5	M6	M8
5		UCAP3M05	UCAP4M05			
6		UCAP3M06	UCAP4M06	UCAP5M06		
8		UCAP3M08	UCAP4M08	UCAP5M08	UCAP6M08	
10		UCAP3M10	UCAP4M10	UCAP5M10	UCAP6M10	UCAP8M10
12	UCAP2M12	UCAP3M12	UCAP4M12	UCAP5M12	UCAP6M12	UCAP8M12
16		UCAP3M16	UCAP4M16	UCAP5M16	UCAP6M16	UCAP8M16
20		UCAP3M20	UCAP4M20	UCAP5M20	UCAP6M20	UCAP8M20
25		UCAP3M25	UCAP4M25	UCAP5M25	UCAP6M25	UCAP8M25
30		UCAP3M30	UCAP4M30	UCAP5M30	UCAP6M30	UCAP8M30
35		UCAP3M35	UCAP4M35	UCAP5M35	UCAP6M35	UCAP8M35
40			UCAP4M40	UCAP5M40	UCAP6M40	UCAP8M40
45			UCAP4M45	UCAP5M45	UCAP6M45	UCAP8M45
50			UCAP4M50	UCAP5M50	UCAP6M50	UCAP8M50
55				UCAP5M55	UCAP6M55	UCAP8M55
60				UCAP5M60	UCAP6M60	UCAP8M60
65				UCAP5M65	UCAP6M65	UCAP8M65
70				UCAP5M70	UCAP6M70	UCAP8M70
75					UCAP6M75	UCAP8M75
80				UCAP5M80	UCAP6M80	UCAP8M80
85						
90				UCAP5M90	UCAP6M90	UCAP8M90
95						
100					UCAP6M100	UCAP8M100
110					UCAP6M110	UCAP8M110
120					UCAP6M120	UCAP8M120
130						UCAP8M130
140					UCAP6M140	UCAP8M140
150						UCAP8M150
160						UCAP8M160
180						UCAP8M180
200						

More sizes available next page.



METRIC					
Length	M10	M12	M14	M16	M18
10	UCAP10M10				
12	UCAP10M12	UCAP12M12			
16	UCAP10M16	UCAP12M16			
20	UCAP10M20	UCAP12M20			
25	UCAP10M25	UCAP12M25	UCAP14M25	UCAP16M25	
30	UCAP10M30	UCAP12M30	UCAP14M30	UCAP16M30	
35	UCAP10M35	UCAP12M35	UCAP14M35	UCAP16M35	
40	UCAP10M40	UCAP12M40	UCAP14M40	UCAP16M40	
45	UCAP10M45	UCAP12M45	UCAP14M45	UCAP16M45	
50	UCAP10M50	UCAP12M50	UCAP14M50	UCAP16M50	UCAP18M50
55	UCAP10M55	UCAP12M55	UCAP14M55	UCAP16M55	
60	UCAP10M60	UCAP12M60	UCAP14M60	UCAP16M60	
65	UCAP10M65	UCAP12M65	UCAP14M65	UCAP16M65	
70	UCAP10M70	UCAP12M70	UCAP14M70	UCAP16M70	
75	UCAP10M75	UCAP12M75	UCAP14M75	UCAP16M75	
80	UCAP10M80	UCAP12M80	UCAP14M80	UCAP16M80	
90	UCAP10M85	UCAP12M90	UCAP14M90	UCAP16M90	
100	UCAP10M90	UCAP12M100	UCAP14M100	UCAP16M100	
110	UCAP10M95	UCAP12M110	UCAP14M110	UCAP16M110	
120	UCAP10M100	UCAP12M120	UCAP14M120	UCAP16M120	
130	UCAP10M110	UCAP12M130	UCAP14M130	UCAP16M130	
140	UCAP10M120	UCAP12M140	UCAP14M140	UCAP16M140	
150	UCAP10M130	UCAP12M150	UCAP14M150	UCAP16M150	
160	UCAP10M140	UCAP12M160	UCAP14M160	UCAP16M160	
170	UCAP10M150	UCAP12M170	UCAP14M170	UCAP16M170	
180	UCAP10M160	UCAP12M180	UCAP14M180	UCAP16M180	
190	UCAP10M180	UCAP12M200	UCAP14M190	UCAP16M190	
200	UCAP10M200	UCAP12M220	UCAP14M200	UCAP16M200	
220		UCAP12M240	UCAP14M220	UCAP16M220	
230		UCAP12M250	UCAP14M230		
240		UCAP12M240		UCAP16M240	
250		UCAP12M250	UCAP14M250	UCAP16M250	
260				UCAP16M260	
280					
300			UCAP14M220	UCAP16M300	
320			UCAP14M240		
340			UCAP14M250		

Continues next page



METRIC						
Length	M20	M22	M24	M27	M30	M36
12						
16						
20						
25						
30	UCAP20M30					
35	UCAP20M35					
40	UCAP20M40		UCAP24M40			
45	UCAP20M45		UCAP24M45			
50	UCAP20M50		UCAP24M50			
55	UCAP20M55		UCAP24M55			
60	UCAP20M60		UCAP24M60			
65	UCAP20M65		UCAP24M65			
70	UCAP20M70		UCAP24M70			
75	UCAP20M75		UCAP24M75			
80	UCAP20M80		UCAP24M80	UCAP27M80	UCAP27M80	UCAP36M80
90	UCAP20M90		UCAP24M90	UCAP27M90	UCAP27M90	UCAP36M90
100	UCAP20M100		UCAP24M100	UCAP27M100	UCAP27M100	UCAP36M100
110	UCAP20M110	UCAP22M110	UCAP24M110	UCAP27M110	UCAP27M110	UCAP36M110
120	UCAP20M120		UCAP24M120	UCAP27M120	UCAP27M120	UCAP36M120
130	UCAP20M130	UCAP22M130	UCAP24M130		UCAP27M130	UCAP36M130
140	UCAP20M140		UCAP24M140	UCAP27M140	UCAP27M140	UCAP36M140
150	UCAP20M150		UCAP24M150	UCAP27M150	UCAP27M150	UCAP36M150
160	UCAP20M160		UCAP24M160		UCAP27M160	
170						
180	UCAP20M180		UCAP24M180	UCAP27M180	UCAP27M180	UCAP36M180
190						
200	UCAP20M200		UCAP24M200	UCAP27M200	UCAP27M200	UCAP36M200
220	UCAP20M220		UCAP24M220		UCAP27M220	
230						
240	UCAP20M240		UCAP24M240		UCAP27M240	UCAP36M240
250						
260	UCAP20M260		UCAP24M260		UCAP27M260	UCAP36M260
280	UCAP20M280		UCAP24M280		UCAP27M280	UCAP36M280
300	UCAP20M300		UCAP24M300		UCAP27M300	UCAP36M300
320			UCAP24M320		UCAP27M320	
340			UCAP24M340		UCAP27M340	
360					UCAP27M360	



Some sizes available in Threads: UNC, UNF, BSF Sizes: 7/16, 7/8, 1 1/4, 1 1/2 also available

IMPERIAL					
Length	1/8	3/16	1/4	5/16	3/8
3/8	UCAP1838	UCAP31638	UCAP1438	UCAP51638	
1/2	UCAP1812	UCAP31612	UCAP1412	UCAP51612	UCAP3812
5/8		UCAP31658	UCAP1458	UCAP51658	UCAP3858
1/4		UCAP31614	UCAP1414		
3/4	UCAP1834	UCAP31634	UCAP1434	UCAP51634	UCAP3834
7/8			UCAP1478	UCAP51678	
1	UCAP181	UCAP3161	UCAP141	UCAP5161	UCAP381
1 1/4		UCAP316114	UCAP14114	UCAP516114	UCAP38114
1 1/2		UCAP316112	UCAP14112	UCAP51614	UCAP38112
1 3/4		UCAP316134	UCAP14134	UCAP516134	UCAP38134
2		UCAP3162	UCAP142	UCAP5162	UCAP382
2 1/4			UCAP14214	UCAP516214	UCAP38214
2 1/2		UCAP316212	UCAP14212	UCAP516212	UCAP38212
2 3/4			UCAP14234	UCAP516234	UCAP38234
3			UCAP143	UCAP5163	UCAP383
3 1/4			UCAP14314	UCAP516314	UCAP38314
3 1/2			UCAP14312	UCAP516312	UCAP38312
4			UCAP144	UCAP5164	UCAP384
4 1/2				UCAP516412	UCAP38412
5					UCAP385
5 1/2					UCAP38512
6					UCAP386

Continues next page



Some sizes available in Threads: UNC, UNF, BSF Sizes: 7/16, 7/8, 1 1/4, 1 1/2 also available

IMPERIAL				
Length	1/2	5/8	3/4	1"
1/2		UCAP1258	UCAP1234	
5/8	UCAP1258			
3/4	UCAP1234			
1	UCAP121	UCAP581		
1 1/4	UCAP12114	UCAP58114	UCAP34114	
1 1/2	UCAP12112	UCAP58112	UCAP34112	UCAP1112
1 3/4	UCAP12134	UCAP58134	UCAP34134	
2	UCAP122	UCAP582	UCAP342	UCAP12
2 1/4	UCAP12214	UCAP58214	UCAP34214	
2 1/2	UCAP12212	UCAP58212	UCAP34212	UCAP1212
2 3/4	UCAP12234			
3	UCAP123	UCAP583	UCAP343	UCAP13
3 1/4	UCAP12314			
3 1/2	UCAP12312	UCAP58312	UCAP34312	UCAP1312
4	UCAP124	UCAP584	UCAP344	UCAP14
4 1/2	UCAP12412	UCAP58412	UCAP34412	
5	UCAP125	UCAP585	UCAP345	UCAP15
5 1/2	UCAP12512	UCAP58512	UCAP34512	
6	UCAP126	UCAP586	UCAP346	UCAP16
6 1/2	UCAP12612	UCAP58612	UCAP34612	
7	UCAP127	UCAP587	UCAP347	UCAP17
8	UCAP128	UCAP588	UCAP348	UCAP18
9			UCAP349	UCAP19



METRIC							
Length	Shoulder Dia.,(Thread Dia.)						
	6mm (M5)	8mm (M6)	10mm (M8)	12mm (M10)	16mm (M12)	20mm (M16)	24mm (M20)
10	USS6M10						
12	USS6M12	USS8M12	USS10M12				
16	USS6M16	USS8M16	USS10M16	USS12M16			
20	USS6M20	USS8M20	USS10M20	USS12M20	USS16M20		
25	USS6M25	USS8M25	USS10M25	USS12M25			
30	USS6M30	USS8M30	USS10M30	USS12M30	USS16M30		
35		USS8M35					
40	USS6M40	USS8M40	USS10M40	USS12M40	USS16M40	USS20M40	
50	USS6M50	USS8M50	USS10M50	USS12M50	USS16M50	USS20M50	USS24M50
60	USS6M60	USS8M60	USS10M60	USS12M60	USS16M60	USS20M60	USS24M60
70		USS8M70	USS10M70	USS12M70	USS16M70	USS20M70	USS24M70
80		USS8M80	USS10M80	USS12M80	USS16M80	USS20M80	USS24M80
90				USS12M90	USS16M90	USS20M90	USS24M90
100				USS12M100	USS16M100	USS20M100	USS24M100
120				USS12M120	USS16M120	USS20M120	USS24M120
140				USS12M140			



IMPERIAL						
Length	Thread BSW, UNC					
	1/4	5/16	3/8	1/2	5/8	3/4
3/8	USS1438	USS51638				
1/2	USS1412	USS51612	USS3812	USS1212		
5/8		USS51658	USS3858	USS1258		
3/4	USS1434	USS51634	USS3834	USS1234		
1	USS141	USS5161	USS381	USS121		
1 1/4	USS14114	USS516114	USS38114	USS12114	USS58114	
1 1/2	USS14112	USS516112	USS38112	USS12112	USS58112	USS34112
1 3/4		USS516134	USS38134	USS12134	USS58134	USS34134
2	USS142	USS5162	USS382	USS122	USS582	USS342
2 1/4		USS516214	USS38214	USS12214	USS58214	USS34214
2 1/2		USS516212	USS38212	USS12212	USS58212	USS34212
2 3/4			USS38234	USS12234	USS58234	USS34234
3			USS383	USS123	USS583	USS343
3 1/4			USS38314	USS12314		
3 1/2			USS38312	USS12312	USS58312	USS34312
4			USS384	USS124	USS584	USS344
4 1/2				USS12412	USS58412	USS34412
4 1/4				USS34414		
5				USS125	USS585	USS345
6						USS346



METRIC					
Length	M3	M4	M5	M6	M8
6	UCS3M06				
8	UCS3M08	UCS4M08	UCS5M8		
10	UCS3M10	UCS4M10	UCS5M10	UCS6M10	UCS8M10
12	UCS3M12	UCS4M12	UCS5M12	UCS6M12	UCS8M12
16	UCS3M16	UCS4M16	UCS5M16	UCS6M16	UCS8M16
20	UCS3M20	UCS4M20	UCS5M20	UCS6M20	UCS8M20
25	UCS3M25	UCS4M25	UCS5M25	UCS6M25	UCS8M25
30	UCS3M30	UCS4M30	UCS5M30	UCS6M30	UCS8M30
35		UCS4M35	UCS5M35	UCS6M35	UCS8M35
40		UCS4M40	UCS5M40	UCS6M40	UCS8M40
45			UCS5M45	UCS6M45	UCS8M45
50			UCS5M50	UCS6M50	UCS8M50
55					UCS8M55
60					UCS8M60
70					UCS8M70

METRIC					
Length	M10	M12	M16	M20	M24
6					
8					
10					
12	UCS10M12				
16	UCS10M16	UCS12M20			
20	UCS10M20				
25	UCS10M25	UCS12M25			
30	UCS10M30	UCS12M30	UCS16M30		
35	UCS10M35	UCS12M35	UCS16M35	UCS20M35	
40	UCS10M40	UCS12M40	UCS16M40		
45	UCS10M45	UCS12M45	UCS16M45	UCS20M45	
50	UCS10M50	UCS12M50	UCS16M50		
55	UCS10M55	UCS12M55	UCS16M55	UCS20M55	
60	UCS10M60	UCS12M60	UCS16M60	UCS20M60	UCS24M60
70	UCS10M70	UCS12M70	UCS16M70	UCS20M70	UCS24M70
80	UCS10M80	UCS12M80	UCS16M80	UCS20M80	UCS24M80
90	UCS10M90	UCS12M90	UCS16M90	UCS20M90	UCS24M90
100	UCS10M100	UCS12M100	UCS16M100	UCS20M100	UCS24M100
120			UCS16M120	UCS20M120	UCS24M124
140			UCS16M140	UCS20M140	UCS24M140
160			UCS16M160		



IMPERIAL						
Length	3/16	1/4	5/16	3/8	1/2	5/8
3/8	UCS31638	UCS1438				
1/2	UCS31612	UCS1412	UCS51612	UCS3812		
5/8	UCS31658	UCS1458	UCS51658	UCS3858		
3/4	UCS31634	UCS1434	UCS51634	UCS3834	UCS1234	
1	UCS3161	UCS141	UCS5161	UCS381	UCS121	UCS581
1 1/4	UCS316114	UCS14114	UCS516114	UCS38114	UCS12114	
1 1/2	UCS316112	UCS14112	UCS516112	UCS38112	UCS12112	UCS58112
1 3/4		UCS14134	UCS516134	UCS38134	UCS12134	UCS58134
2		UCS142	UCS5162	UCS382	UCS122	UCS582
2 1/2		UCS14212	UCS516212	UCS38212	UCS12212	UCS58212
3				UCS383	UCS123	UCS583
3 1/2						UCS58312
4						UCS584

Knurled cup point



METRIC					
Length	Shoulder Dia.,(Thread Dia.)				
	M3	M4	M5	M6	M8
3	USET3M03				
4	USET3M04	USET4M4			
5	USET3M05	USET4M5	USET5M5		
6	USET3M06	USET4M6	USET5M6	USET6M6	
8	USET3M08	USET4M8	USET5M8	USET6M8	USET8M8
10	USET3M10	USET4M10	USET5M10	USET6M10	USET8M10
12	USET3M12	USET4M12	USET5M12	USET6M12	USET8M12
16	USET3M16	USET4M16	USET5M16	USET6M16	USET8M16
20		USET4M20	USET5M20	USET6M20	USET8M20
25		USET4M25	USET5M25	USET6M25	USET8M25
30			USET5M30	USET6M30	USET8M30
35				USET6M35	USET8M35
40				USET6M40	USET8M40
45				USET6M45	USET8M45
50				USET6M50	USET8M50

METRIC					
Length	Shoulder Dia.,(Thread Dia.)				
	M10	M12	M16	M20	M24
10	USET10M10				
12	USET10M12	USET12M12			
16	USET10M16	USET12M16	USET16M16		
20	USET10M20	USET12M20	USET16M20	USET20M20	
25	USET10M25	USET12M25	USET16M25	USET20M25	USET24M25
30	USET10M30	USET12M30	USET16M30	USET20M30	USET24M30
35	USET10M35	USET12M35	USET16M35	USET20M35	USET24M35
40	USET10M40	USET12M40	USET16M40	USET20M40	USET24M40
45	USET10M45	USET12M45	USET16M45		
50	USET10M50	USET12M50	USET16M50	USET20M50	USET24M50
60		USET12M60	USET16M60	USET20M60	USET24M60

Knurled cup point



IMPERIAL							
Length	Thread BSW, UNC						
	3/16	1/4	5/16	3/8	1/2	5/8	3/4
3/16	USET316316						
1/4	USET31614	USET1414	USET51614				
5/16		USET14516	USET516516	USET38516			
3/8		USET1438	USET51638	USET3838			
1/2	USET31612	USET1412	USET51612	USET3812	USET1212		
5/8			USET51658	USET3858	USET1258	USET5858	
3/4		USET1434		USET3834	USET1234	USET5834	USET3434
7/8					USET1278		
1		USET141	USET5161	USET381	USET121	USET581	USET341
1 1/4					USET12114	USET58114	
1 1/2			USET516112	USET38112	USET12112	USET58112	USET34112
1 3/4						USET58134	
2					USET122	USET582	USET342
2 1/2					USET12212		USET34212



Steel pressure plugs, BSPT Brass

Product Code	Thread Size	Height
UPLUG18	1/8	0.382
UPLUG14	1/4	0.503
UPLUG38	3/8	0.559
UPLUG12	1/2	0.691
UPLUG58	5/8	0.731
UPLUG34	3/4	0.815
UPLUG1	1	0.998



METRIC							
Length	M1.5	M2	M3	M4	M5	M6	M8
5	UD1.5M5						
6	UD1.5M6						
8	UD1.5M8			UD4M8			
10	UD1.5M10		UD3M10	UD4M10			
12	UD1.5M12		UD3M12	UD4M12	UD5M12	UD6M12	
15				UD4M15			
16			UD3M16		UD5M16	UD6M16	UD8M16
18			UD3M18				
20			UD3M20	UD4M20	UD5M20	UD6M20	UD8M20
24		UD2M24	UD3M24	UD4M24	UD5M24		
25			UD3M25	UD4M25	UD5M25	UD6M25	UD8M25
28		UD2M28	UD3M28		UD5M28		
30			UD3M30	UD4M30	UD5M30	UD6M30	UD8M30
32							
35				UD4M35	UD5M35	UD6M35	UD8M35
36				UD4M36	UD5M36		
40				UD4M40	UD5M40	UD6M40	UD8M40
45							
50				UD4M50	UD5M50	UD6M50	UD8M50
55							UD8M55
60						UD6M55	UD8M60
70						UD6M60	UD8M70

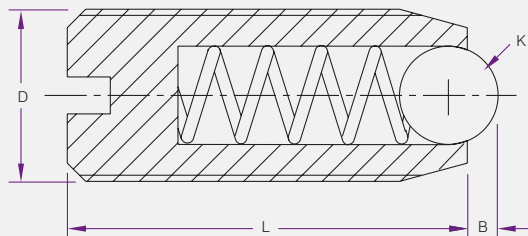
METRIC						
Length	M10	M12	M13	M16	M20	M22
20	UD10M20	UD12M20				
24	UD10M24	UD12M24				
25	UD10M25	UD12M25				
28	UD10M28	UD12M28				
30	UD10M30	UD12M30				
32	UD10M32	UD12M32	UD13M32			
35		UD12M35				
36						
40	UD10M40	UD12M40	UD13M40	UD16M40		
45		UD12M45				
50	UD10M50	UD12M50		UD16M50	UD20M50	
55		UD12M55				
60	UD10M60	UD12M60		UD16M60	UD20M60	
70	UD10M70	UD12M70		UD16M70	UD20M70	UD22M70
80	UD10M80	UD12M80	UD13M80	UD16M80	UD20M80	
90		UD12M90		UD16M90		
100	UD10M100	UD12M100	UD13M100	UD16M100	UD20M100	
120			UD13M120		UD20M120	



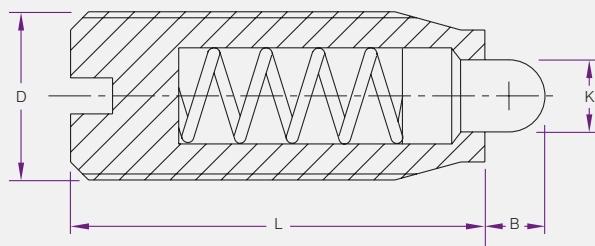
IMPERIAL						
Length	Thread BSW, UNC					
	1/8	3/16	1/4	5/16	3/8	1/2
3/8	UD1838					
1/2	UD1812	UD31612	UD1412	UD51612	UD3812	
5/8	UD1858	UD3165				
3/4	UD1834	UD31634	UD1434	UD51634	UD3834	UD1234
1	UD181	UD3161	UD141	UD5161	UD381	UD121
1 1/4	UD18114	UD316114	UD14114	UD516114	UD38114	UD12114
1 1/2	UD18112	UD316112	UD14112	UD516112	UD38112	UD12112
1 3/4	UD18134	UD316134	UD14134	UD516134	UD38134	UD12134
2	UD182	UD3162	UD142	UD5162	UD382	UD122
2 1/4			UD14214	UD516214	UD38214	UD12214
2 1/2			UD14212	UD516212	UD38212	
3				UD5163	UD383	UD123
3 1/2						UD12312
4						UD124



METRIC							
Length	M6	M8	M10	M12	M13	M16	M12
20	UDT6M20	UDT8M20					
24	UDT6M24						
25		UDT8M25	UDT10M25				
28			UDT10M28				
30	UDT6M30	UDT8M30	UDT10M30	UDT12M30			
32			UDT10M32	UDT12M32			
35	UDT6M35	UDT8M35					
36	UDT6M36	UDT8M36	UDT10M36				
40	UDT6M40	UDT8M40	UDT10M40	UDT12M40		UDT16M40	
45				UDT12M45		UDT16M45	
50	UDT6M50	UDT8M50	UDT10M50	UDT12M50	UDT13M50	UDT16M50	UDT20M50
55							
60		UDT8M60	UDT10M60	UDT12M60		UDT16M60	UDT20M60
70			UDT10M70	UDT12M70		UDT16M70	
80			UDT10M80	UDT12M80		UDT16M80	UDT20M80
90						UDT16M90	UDT20M90
100						UDT16M100	UDT20M100
120		UDT8M120					UDT20M120



Product Code	D	K	B	L
RAM04	M4	2.5	0.8	9.0
RAM05	M5	3.0	0.9	12
RAM06	M6	3.5	1.0	14
RAM08	M8	5.0	1.5	16
RAM10	M10	6.0	2.0	19
RAM12	M12	8.0	2.5	22
RAM16	M16	10	3.5	24



Product Code	D	K	B	L
RAM04	M4	1.5	1.5	15
RAM05	M5	2.4	2.3	18
RAM06	M6	2.7	2.5	20
RAM08	M8	3.5	3	22
RAM10	M10	4	3	22
RAM12	M12	6	4	28
RAM16	M16	7.5	5	32



Main characteristics and properties of the materials :

- High as quenched hardness
- Low dimensional movement or distortion after hardening
- Hardens from a relatively low hardening temperature
- Good machinability

Typical Applications:

- Blanking Dies
- Gauges
- Form Tools
- Taps
- Punches
- Dies
- Gauge Blocks
- Jigs & Fixtures

The nominal chemical composition is as follows:

- Carbon 0.95%
- Manganese 1.2%
- Chromium 0.50%
- Tungsten 0.50%
- Silicon 0.25%
- Vanadium 0.20%
- S & P up to 0.035% maximum

Q1 is a medium alloyed oil hardening steel with excellent cutting force and toughness, the excellent dimensional stability reduces distortion and the possibility of cracking during heat treatment.

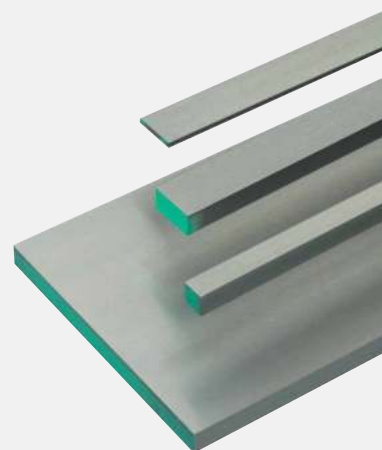
Supplied in the annealed condition, the precision tolerances minimise additional costly tool room machining.

Ground Flat Stock provides toolmakers with a decarburisation free surface, plus

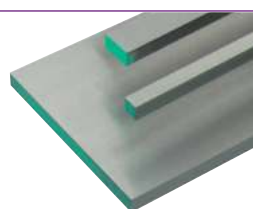
high wear resistance after heat treatment, making it ideal for a multitude of uses and applications: dies, press tools, punches, gauges, cams, jigs, machining knives and marking devices.

Hardness as supplied: 229 Brinall max Tensile Strength: 45 Tons / sq. in.

Hales stock a comprehensive range of metric Ground Flat Stock in 500mm lengths. 1 metre lengths also available.

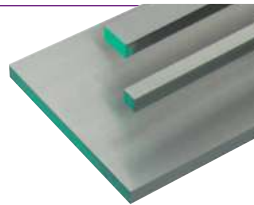


Gauge Plate



Part Number	Description
GM01010	1 X 10 X 500 Gauge Plate
GM01010M	1 X 10 X 1000 Gauge Plate
GM01015	1 X 15 x 500 Gauge Plate
GM01020	1 X 20 X 500 Gauge Plate
GM01020M	1 X 20 X 1000 Gauge Plate
GM01025	1 X 25 X 500 Gauge Plate
GM01030	1 X 30 X 500 Gauge Plate
GM01030M	1 X 30 X 1000 Gauge Plate
GM01040	1 X 40 X 500 Gauge Plate
GM01040M	1 X 40 X 1000 Gauge Plate
GM01050	1 X 50 X 500 Gauge Plate
GM01050M	1 X 50 X 1000 Gauge Plate

Part Number	Description
GM01060	1 X 60 X 500 Gauge Plate
GM01060M	1 X 60 X 1000 Gauge Plate
GM01075	1 X 75 X 500 Gauge Plate
GM01075M	1 X 75 X 1000 Gauge Plate
GM01080	1 X 80 X 500 Gauge Plate
GM01100	1 X 100 X 500 Gauge Plate
GM01100M	1 X 100 X 1000 Gauge Plate
GM01125	1 X 125 X 500 Gauge Plate
GM01125M	1 X 125 X 1000 Gauge Plate
GM01150	1 X 150 X 500 Gauge Plate
GM01150M	1 X 150 X 1000 Gauge Plate
GM01200	1 X 200 X 500 Gauge Plate



Part Number	Description
GM01250	1 X 250 X 500 Gauge Plate
GM01300	1 X 300 X 500 Gauge Plate
GM015010	1.5 X 10 X 500 Gauge Plate
GM015015	1.5 X 15 X 500 Gauge Plate
GM015015M	1.5 X 15 X 1000 Gauge Plate
GM015020	1.5 X 20 X 500 Gauge Plate
GM015025	1.5 X 25 X 500 Gauge Plate
GM015025M	1.5 X 25 X 1000 Gauge Plate
GM015030	1.5 X 30 X 500 Gauge Plate
GM015030M	1.5 X 30 X 1000 Gauge Plate
GM015040	1.5 X 40 X 500 Gauge Plate
GM015050	1.5 X 50 X 500 Gauge Plate
GM015050M	1.5 X 50 X 1000 Gauge Plate
GM015060	1.5 X 60 X 500 Gauge Plate
GM015060M	1.5 X 60 X 1000 Gauge Plate
GM015075	1.5 X 75 X 500 Gauge Plate
GM015075M	1.5 X 75 X 1000 Gauge Plate
GM015080	1.5 X 80 X 500 Gauge Plate
GM015080M	1.5 X 80 X 1000 Gauge Plate
GM015100	1.5 X 100 X 500 Gauge Plate
GM015100M	1.5 X 100 X 1000 Gauge Plate
GM015125	1.5 X 125 X 500 Gauge Plate
GM015125M	1.5 X 125 X 1000 Gauge Plate
GM015150	1.5 X 150 X 500 Gauge Plate
GM015150M	1.5 X 150 X 1000 Gauge Plate
GM015200	1.5 X 200 X 500 Gauge Plate
GM015200M	1.5 X 200 X 1000 Gauge Plate
GM015250	1.5 X 250 X 500 Gauge Plate
GM015300	1.5 X 300 X 500 Gauge Plate
GM02010	2 X 10 X 500 Gauge Plate
GM02010M	2 X 10 X 1000 Gauge Plate
GM02015	2 X 15 X 500 Gauge Plate
GM02015M	2 X 15 X 1000 Gauge Plate
GM02020	2 X 20 X 500 Gauge Plate
GM02020M	2 X 20 X 1000 Gauge Plate
GM02025	2 X 25 X 500 Gauge Plate
GM02025M	2 X 25 X 1000 Gauge Plate
GM02030	2 X 30 X 500 Gauge Plate
GM02030M	2 X 30 X 1000 Gauge Plate
GM02040	2 X 40 X 500 Gauge Plate
GM02040M	2 X 40 X 1000 Gauge Plate
GM02050	2 X 50 X 500 Gauge Plate
GM02050M	2 X 50 X 1000 Gauge Plate
GM02060	2 X 60 X 500 Gauge Plate
GM02060M	2 X 60 X 1000 Gauge Plate
GM02075	2 X 75 X 500 Gauge Plate
GM02075M	2 X 75 X 1000 Gauge Plate
GM02080	2 X 80 X 500 Gauge Plate
GM02080M	2 X 80 X 1000 Gauge Plate

Part Number	Description
GM02100	2 X 100 X 500 Gauge Plate
GM02100M	2 X 100 X 1000 Gauge Plate
GM02125	2 X 125 X 500 Gauge Plate
GM02125M	2 X 125 X 1000 Gauge Plate
GM02150	2 X 150 X 500 Gauge Plate
GM02150M	2 X 150 X 1000 Gauge Plate
GM02200	2 X 200 X 500 Gauge Plate
GM02200M	2 X 200 X 1000 Gauge Plate
GM02250	2 X 250 X 500 Gauge Plate
GM02250M	2 X 250 X 1000 Gauge Plate
GM02300	2 X 300 X 500 Gauge Plate
GM02300M	2 X 300 X 1000 Gauge Plate
GM0300	3mmsq X 500 Gauge Plate
GM03010	3 X 10 X 500 Gauge Plate
GM03010M	3 X 10 X 1000 Gauge Plate
GM03012	3 X 12 X 500 Gauge Plate
GM03012M	3 X 12 X 1000 Gauge Plate
GM03015	3 X 15 X 500 Gauge Plate
GM03015M	3 X 15 X 1000 Gauge Plate
GM03020	3 X 20 X 500 Gauge Plate
GM03020M	3 X 20 X 1000 Gauge Plate
GM03025	3 X 25 X 500 Gauge Plate
GM03025M	3 X 25 X 1000 Gauge Plate
GM03030	3 X 30 X 500 Gauge Plate
GM03030M	3 X 30 X 1000 Gauge Plate
GM03040	3 X 40 X 500 Gauge Plate
GM03040M	3 X 40 X 1000 Gauge Plate
GM03050	3 X 50 X 500 Gauge Plate
GM03050M	3 X 50 X 1000 Gauge Plate
GM03060	3 X 60 X 500 Gauge Plate
GM03060M	3 X 60 X 1000 Gauge Plate
GM03070	3 X 70 X 500 Gauge Plate
GM03075	3 X 75 X 500 Gauge Plate
GM03075M	3 X 75 X 1000 Gauge Plate
GM03080M	3 X 80 X 1000 Gauge Plate
GM03100	3 X 100 X 500 Gauge Plate
GM03100M	3 X 100 X 1000 Gauge Plate
GM03125	3 X 125 X 500 Gauge Plate
GM03125M	3 X 125 X 1000 Gauge Plate
GM03150	3 X 150 X 500 Gauge Plate
GM03150M	3 X 150 X 1000 Gauge Plate
GM03200	3 X 200 X 500 Gauge Plate
GM03200M	3 X 200 X 1000 Gauge Plate
GM03250	3 X 250 X 500 Gauge Plate



Part Number	Description
GM03300	3 X 300 X 500 Gauge Plate
GM03300M	3 X 300 X 1000 Gauge Plate
GM0400	4mmsq X 500 Gauge Plate
GM04010	4 X 10 X 500 Gauge Plate
GM04010M	4 X 10 X 1000 Gauge Plate
GM04015	4 X 15 X 500 Gauge Plate
GM04015M	4 X 15 X 1000 Gauge Plate
GM04020	4 X 20 X 500 Gauge Plate
GM04020M	4 X 20 X 1000 Gauge Plate
GM04025	4 X 25 X 500 Gauge Plate
GM04025M	4 X 25 X 1000 Gauge Plate
GM04030	4 X 30 X 500 Gauge Plate
GM04030M	4 X 30 X 1000 Gauge Plate
GM04040	4 X 40 X 500 Gauge Plate
GM04040M	4 X 40 X 1000 Gauge Plate
GM04050	4 X 50 X 500 Gauge Plate
GM04050M	4 X 50 X 1000 Gauge Plate
GM04060	4 X 60 X 500 Gauge Plate
GM04060M	4 X 60 X 1000 Gauge Plate
GM04075	4 X 75 X 500 Gauge Plate
GM04075M	4 X 75 X 1000 Gauge Plate
GM04080	4 X 80 X 500 Gauge Plate
GM04100	4 X 100 X 500 Gauge Plate
GM04100M	4 X 100 X 1000 Gauge Plate
GM04125	4 X 125 X 500 Gauge Plate
GM04125M	4 X 125 X 1000 Gauge Plate
GM04150	4 X 150 X 500 Gauge Plate
GM04150M	4 X 150 X 1000 Gauge Plate
GM04200	4 X 200 X 500 Gauge Plate
GM04200M	4 X 200 X 1000 Gauge Plate
GM04250	4 X 250 X 500 Gauge Plate
GM04250M	4 X 250 X 1000 Gauge Plate
GM04300	4 X 300 X 500 Gauge Plate
GM04300M	4 X 300 X 1000 Gauge Plate
GM0500	5mmsq X 500 Gauge Plate
GM05010	5 X 10 X 500 Gauge Plate
GM05010M	5 X 10 X 1000 Gauge Plate
GM05015	5 X 15 X 500 Gauge Plate
GM05020	5 X 20 X 500 Gauge Plate
GM05020M	5 X 20 X 1000 Gauge Plate
GM05025	5 X 25 X 500 Gauge Plate
GM05025M	5 X 25 X 1000 Gauge Plate
GM05030	5 X 30 X 500 Gauge Plate
GM05030M	5 X 30 X 1000 Gauge Plate
GM05040	5 X 40 X 500 Gauge Plate
GM05040M	5 X 40 X 1000 Gauge Plate
GM05050	5 X 50 X 500 Gauge Plate
GM05050M	5 X 50 X 1000 Gauge Plate
GM05060	5 X 60 X 500 Gauge Plate
GM05060M	5 X 60 X 1000 Gauge Plate
GM05075	5 X 75 X 500 Gauge Plate

Part Number	Description
GM05075M	5 X 75 X 1000 Gauge Plate
GM05080	5 X 80 X 500 Gauge Plate
GM05080M	5 X 80 X 1000 Gauge Plate
GM05100	5 X 100 X 500 Gauge Plate
GM05100M	5 X 100 X 1000 Gauge Plate
GM05125	5 X 125 X 500 Gauge Plate
GM05125M	5 X 125 X 1000 Gauge Plate
GM05150	5 X 150 X 500 Gauge Plate
GM05150M	5 X 150 X 1000 Gauge Plate
GM05200	5 X 200 X 500 Gauge Plate
GM05200M	5 X 200 X 1000 Gauge Plate
GM05250	5 X 250 X 500 Gauge Plate
GM05250M	5 X 250 X 1000 Gauge Plate
GM05300	5 X 300 X 500 Gauge Plate
GM0600	6mm Sq X 500 Gauge Plate
GM06010	6 X 10 X 500 Gauge Plate
GM06010M	6 X 10 X 1000 Gauge Plate
GM06015	6 X 15 X 500 Gauge Plate
GM06015M	6 X 15 X 1000 Gauge Plate
GM06020	6 X 20 X 500 Gauge Plate
GM06020M	6 X 20 X 1000 Gauge Plate
GM06025	6 X 25 X 500 Gauge Plate
GM06025M	6 X 25 X 1000 Gauge Plate
GM06030	6 X 30 X 500 Gauge Plate
GM06030M	6 X 30 X 1000 Gauge Plate
GM06040	6 X 40 X 500 Gauge Plate
GM06040M	6 X 40 X 1000 Gauge Plate
GM06050	6 X 50 X 500 Gauge Plate
GM06050M	6 X 50 X 1000 Gauge Plate
GM06060	6 X 60 X 500 Gauge Plate
GM06060M	6 X 60 X 1000 Gauge Plate
GM06075	6 X 75 X 500 Gauge Plate
GM06075M	6 X 75 X 1000 Gauge Plate
GM06080	6 X 80 X 500 Gauge Plate
GM06080M	6 X 80 X 1000 Gauge Plate
GM06100	6 X 100 X 500 Gauge Plate
GM06100M	6 X 100 X 1000 Gauge Plate
GM06125	6 X 125 X 500 Gauge Plate
GM06125M	6 X 125 X 1000 Gauge Plate
GM06150	6 X 150 X 500 Gauge Plate
GM06150M	6 X 150 X 1000 Gauge Plate
GM06200	6 X 200 X 500 Gauge Plate
GM06200M	6 X 200 X 1000 Gauge Plate



Part Number	Description
GM06250	6 X 250 X 500 Gauge Plate
GM06300	6 X 300 X 500 Gauge Plate
GM0800	8mmsq X 500 Gauge Plate
GM08010	8 X 10 X 500 Gauge Plate
GM08010M	8 X 10 X 1000 Gauge Plate
GM08015	8 X 15 X 500 Gauge Plate
GM08015M	8 X 15 X 1000 Gauge Plate
GM08020	8 X 20 X 500 Gauge Plate
GM08020M	8 X 20 X 1000 Gauge Plate
GM08025	8 X 25 X 500 Gauge Plate
GM08025M	8 X 25 X 1000 Gauge Plate
GM08030	8 X 30 X 500 Gauge Plate
GM08030M	8 X 30 X 1000 Gauge Plate
GM08040	8 X 40 X 500 Gauge Plate
GM08040M	8 X 40 X 1000 Gauge Plate
GM08050	8 X 50 X 500 Gauge Plate
GM08050M	8 X 50 X 1000 Gauge Plate
GM08060	8 X 60 X 500 Gauge Plate
GM08060M	8 X 60 X 1000 Gauge Plate
GM08075	8 X 75 X 500 Gauge Plate
GM08075M	8 X 75 X 1000 Gauge Plate
GM08080	8 X 80 X 500 Gauge Plate
GM08080M	8 X 80 X 1000 Gauge Plate
GM08100	8 X 100 X 500 Gauge Plate
GM08100M	8 X 100 X 1000 Gauge Plate
GM08125	8 X 125 X 500 Gauge Plate
GM08125M	8 X 125 X 1000 Gauge Plate
GM08150	8 X 150 X 500 Gauge Plate
GM08150M	8 X 150 X 1000 Gauge Plate
GM08200	8 X 200 X 500 Gauge Plate
GM08200M	8 X 200 X 1000 Gauge Plate
GM08250	8 X 250 X 500 Gauge Plate
GM08250M	8 X 250 X 1000 Gauge Plate
GM08300	8 X 300 X 500 Gauge Plate
GM1000	10mmsq X 500 Gauge Plate
GM10015	10 X 15 X 500 Gauge Plate
GM10015M	10 X 15 X 1000 Gauge Plate
GM10020	10 X 20 X 500 Gauge Plate
GM10020M	10 X 20 X 1000 Gauge Plate
GM10025	10 X 25 X 500 Gauge Plate
GM10025M	10 X 25 X 1000 Gauge Plate
GM10030	10 X 30 X 500 Gauge Plate
GM10030M	10 X 30 X 1000 Gauge Plate
GM10040	10 X 40 X 500 Gauge Plate
GM10040M	10 X 40 X 1000 Gauge Plate
GM10050	10 X 50 X 500 Gauge Plate
GM10050M	10 X 50 X 1000 Gauge Plate
GM10060	10 X 60 X 500 Gauge Plate
GM10060M	10 X 60 X 1000 Gauge Plate

Part Number	Description
GM10075	10 X 75 X 500 Gauge Plate
GM10075M	10 X 75 X 1000 Gauge Plate
GM10100	10 X 100 X 500 Gauge Plate
GM10100M	10 X 100 X 1000 Gauge Plate
GM10125	10 X 125 X 500 Gauge Plate
GM10125M	10 X 125 X 1000 Gauge Plate
GM10150	10 X 150 X 500 Gauge Plate
GM10150M	10 X 150 X 1000 Gauge Plate
GM10200	10 X 200 X 500 Gauge Plate
GM10200M	10 X 200 X 1000 Gauge Plate
GM10250	10 X 250 X 500 Gauge Plate
GM10300	10 X 300 X 500 Gauge Plate
GM1200	12mm Sq X 500 Gauge Plate
GM12015	12 X 15 X 500 Gauge Plate
GM12015M	12 X 15 X 1000 Gauge Plate
GM12020	12 X 20 X 500 Gauge Plate
GM12020M	12 X 20 X 1000 Gauge Plate
GM12025	12 X 25 X 500 Gauge Plate
GM12025M	12 X 25 X 1000 Gauge Plate
GM12030	12 X 30 X 500 Gauge Plate
GM12030M	12 X 30 X 1000 Gauge Plate
GM12040	12 X 40 X 500 Gauge Plate
GM12040M	12 X 40 X 1000 Gauge Plate
GM12050	12 X 50 X 500 Gauge Plate
GM12050M	12 X 50 X 1000 Gauge Plate
GM12060	12 X 60 X 500 Gauge Plate
GM12060M	12 X 60 X 1000 Gauge Plate
GM12075	12 X 75 X 500 Gauge Plate
GM12080	12 X 80 X 500 Gauge Plate
GM12080M	12 X 80 X 1000 Gauge Plate
GM12100	12 X 100 X 500 Gauge Plate
GM12100M	12 X 100 X 1000 Gauge Plate
GM12125	12 X 125 X 500 Gauge Plate
GM12125M	12 X 125 X 1000 Gauge Plate
GM12150	12 X 150 X 500 Gauge Plate
GM12150M	12 X 150 X 1000 Gauge Plate
GM12200	12 X 200 X 500 Gauge Plate
GM12200M	12 X 200 X 1000 Gauge Plate
GM12250	12 X 250 X 500 Gauge Plate



Part Number	Description
GM12250M	12 X 250 X 1000 Gauge Plate
GM12300	12 X 300 X 500 Gauge Plate
GM1500	15mmsq X 500 Gauge Plate
GM15020	15 X 20 X 500 Gauge Plate
GM15020M	15 X 20 X 1000 Gauge Plate
GM15025	15 X 25 X 500 Gauge Plate
GM15030	15 X 30 X 500 Gauge Plate
GM15030M	15 X 30 X 1000 Gauge Plate
GM15040	15 X 40 X 500 Gauge Plate
GM15040M	15 X 40 X 1000 Gauge Plate
GM15050	15 X 50 X 500 Gauge Plate
GM15050M	15 X 50 X 1000 Gauge Plate
GM15060	15 X 60 X 500 Gauge Plate
GM15060M	15 X 60 X 1000 Gauge Plate
GM15075	15 X 75 X 500 Gauge Plate
GM15080	15 X 80 X 500 Gauge Plate
GM15100	15 X 100 X 500 Gauge Plate
GM15100M	15 X 100 X 1000 Gauge Plate
GM15125	15 X 125 X 500 Gauge Plate
GM15150	15 X 150 X 500 Gauge Plate
GM15150M	15 X 150 X 1000 Gauge Plate
GM15200	15 X 200 X 500 Gauge Plate
GM15250	15 X 250 X 500 Gauge Plate
GM15250M	15 X 250 X 1000 Gauge Plate
GM15300	15 X 300 X 500 Gauge Plate
GM2000	20mm sq X 500 Gauge Plate
GM2000M	20mmsq X 1000 Gauge Plate
GM20025	20 X 25 X 500 Gauge Plate
GM20025M	20 X 25 X 1000 Gauge Plate
GM20030	20 X 30 X 500 Gauge Plate
GM20030M	20 X 30 X 1000 Gauge Plate
GM20040	20 X 40 X 500 Gauge Plate
GM20040M	20 X 40 X 1000 Gauge Plate
GM20050	20 X 50 X 500 Gauge Plate
GM20050M	20 X 50 X 1000 Gauge Plate
GM20060	20 X 60 X 500 Gauge Plate
GM20060M	20 X 60 X 1000 Gauge Plate
GM20075	20 X 75 X 500 Gauge Plate
GM20075M	20 X 75 X 1000 Gauge Plate
GM20080	20 X 80 X 500 Gauge Plate
GM20080M	20 X 80 X 1000 Gauge Plate
GM20100	20 X 100 X 500 Gauge Plate
GM20125	20 X 125 X 500 Gauge Plate
GM20150	20 X 150 X 500 Gauge Plate
GM20200	20 X 200 X 500 Gauge Plate
GM20250	20 X 250 X 500 Gauge Plate

Part Number	Description
GM20250M	20 X 250 X 1000 Gauge Plate
GM20300	20 X 300 X 500 Gauge Plate
GM2500	25mm Sq X 500 Gauge Plate
GM25030	25 X 30 X 500 Gauge Plate
GM25030M	25 X 30 X 1000 Gauge Plate
GM25040	25 X 40 X 500 Gauge Plate
GM25040M	25 X 40 X 1000 Gauge Plate
GM25050	25 X 50 X 500 Gauge Plate
GM25050M	25 X 50 X 1000 Gauge Plate
GM25060	25 X 60 X 500 Gauge Plate
GM25075	25 X 75 X 500 Gauge Plate
GM25075M	25 X 75 X 1000 Gauge Plate
GM25080	25 X 80 X 500 Gauge Plate
GM25080M	25 X 80 X 1000 Gauge Plate
GM25100	25 X 100 X 500 Gauge Plate
GM25100M	25 X 100 X 1000 Gauge Plate
GM25125	25 X 125 X 500 Gauge Plate
GM25125M	25 X 125 X 1000 Gauge Plate
GM25150	25 X 150 X 500 Gauge Plate
GM25200	25 X 200 X 500 Gauge Plate
GM25250	25 X 250 X 500 Gauge Plate
GM25250M	25 X 250 X 1000 Gauge Plate
GM25300	25 X 300 X 500 Gauge Plate
GM25300M	25 X 300 X 1000 Gauge Plate
GM3000	30mmsq X 500 Gauge Plate
GM30040	30 X 40 X 500 Gauge Plate
GM30040M	30 X 40 X 1000 Gauge Plate
GM30050	30 X 50 X 500 Gauge Plate
GM30050M	30 X 50 X 1000 Gauge Plate
GM30060	30 X 60 X 500 Gauge Plate
GM30060M	30 X 60 X 1000 Gauge Plate
GM30075	30 X 75 X 500 Gauge Plate
GM30075M	30 X 75 X 1000 Gauge Plate
GM30080	30 X 80 X 500 Gauge Plate
GM30080M	30 X 80 X 1000 Gauge Plate
GM30100	30 X 100 X 500 Gauge Plate
GM30125	30 X 125 X 500 Gauge Plate
GM30125M	30 X 125 X 1000 Gauge Plate
GM30150	30 X 150 X 500 Gauge Plate
GM30150M	30 X 150 X 1000 Gauge Plate
GM30200	30 X 200 X 500 Gauge Plate
GM30200M	30 X 200 X 1000 Gauge Plate
GM30250	30 X 250 X 500 Gauge Plate
GM30250M	30 X 250 X 1000 Gauge Plate
GM30300	30 X 300 X 500 Gauge Plate
GM30300M	30 X 300 X 1000 Gauge Plate
GM4000	40mmsq X 500 Gauge Plate
GM5000	50mmsq X 500 Gauge Plate



Product Code	Description
HSB10010-050	100 x 10 STOCK BAR 50CM
HSB10010-100	100 X 10 STOCK BAR 100CM
HSB10012-050	100 x 12 STOCK BAR 50CM
HSB10012-100	100 X 12 STOCK BAR 100CM
HSB10016-050	100 X 16 STOCK BAR 50CM
HSB10016-100	100 X 16 STOCK BAR 100CM
HSB10020-050	100 x 20 STOCK BAR 50CM
HSB10020-100	100 X 20 STOCK BAR 100CM
HSB10025-050	100 X 25 STOCK BAR 50CM
HSB10025-100	100 X 25 STOCK BAR 100CM
HSB10032-050	100 X 32 STOCK BAR 50CM
HSB10032-100	100 X 32 STOCK BAR 100CM
HSB10040-050	100 X 40 STOCK BAR 50CM
HSB10040-100	100 x 40 STOCK BAR 100CM
HSB10050-050	100 X 50 STOCK BAR 50CM
HSB10050-100	100 X 50 STOCK BAR 100CM
HSB1006-050	100 X 6 STOCK BAR 50CM
HSB1006-100	100 X 6 STOCK BAR 100CM
HSB13006-050	130 X 6 STOCK BAR 50CM
HSB13006-100	130 X 6 STOCK BAR 100CM
HSB13010-050	130 X 10 STOCK BAR 50CM
HSB13010-100	130 X 10 STOCK BAR 100CM
HSB13012-050	130 X 12 STOCK BAR 50CM
HSB13012-100	130 X 12 STOCK BAR 100CM
HSB13016-050	130 X 16 STOCK BAR 50CM
HSB13016-100	130 X 16 STOCK BAR 100CM
HSB13020-050	130 X 20 STOCK BAR 50CM
HSB13020-100	130 X 20 STOCK BAR 100CM
HSB13025-050	130 X 25 STOCK BAR 50CM
HSB13025-100	130 X 25 STOCK BAR 100CM
HSB13030-050	130 X 30 STOCK BAR 50CM
HSB13030-100	130 X 30 STOCK BAR 100CM
HSB13040-050	130 x 40 STOCK BAR 50CM
HSB13040-100	130 X 40 STOCK BAR 100CM
HSB13050-050	130 X 50 STOCK BAR 50CM
HSB13050-100	130 X 50 STOCK BAR 100CM
HSB15010-050	150 X 10 STOCK BAR 50CM
HSB15010-100	150 X 10 STOCK BAR 100CM
HSB15012-050	150 X 12 STOCK BAR 50CM
HSB15012-100	150 X 12 STOCK BAR 100CM
HSB15016-050	150 X 16 STOCK BAR 50CM
HSB15016-100	150 X 16 STOCK BAR 100CM
HSB15020-050	150 X 20 STOCK BAR 50CM
HSB15020-100	150 X 20 STOCK BAR 100CM
HSB15025-050	150 X 25 STOCK BAR 50CM
HSB15025-100	150 X 25 STOCK BAR 100CM
HSB15032-050	150 X 32 STOCK BAR 50CM
HSB15032-100	150 X 35 STOCK BAR 100CM
HSB15040-050	150 X 40 STOCK BAR 50CM
HSB15040-100	150 X 40 STOCK BAR 100CM
HSB15050-050	150 X 50 STOCK BAR 50CM
HSB15050-100	150 X 50 STOCK BAR 100CM

Product Code	Description
HSB1506-050	150 X 6 STOCK BAR 50CM
HSB1506-100	150 X 6 STOCK BAR 100CM
HSB18012-050	180 X 12 STOCK BAR 50CM
HSB18012-100	180 X 12 STOCK BAR 100CM
HSB18020-050	180 X 20 STOCK BAR 50CM
HSB18020-100	180 X 20 STOCK BAR 100CM
HSB18025-050	180 X 25 STOCK BAR 50CM
HSB18025-100	180 X 25 STOCK BAR 100CM
HSB18030-050	180 X 30 STOCK BAR 50CM
HSB18030-100	180 X 30 STOCK BAR 100CM
HSB18040-050	180 X 40 STOCK BAR 50CM
HSB18050-050	180 X 50 STOCK BAR 50CM
HSB18050-100	180 X 50 STOCK BAR 100CM
HSB18060-050	180 X 60 STOCK BAR 50CM
HSB20012-050	200 X 12 STOCK BAR 50CM
HSB20012-100	200 X 12 STOCK BAR 100CM
HSB20016-050	200 X 16 STOCK BAR 50CM
HSB20016-100	200 X 16 STOCK BAR 100CM
HSB20020-050	200 X 20 STOCK BAR 50CM
HSB20020-100	200 X 20 STOCK BAR 100CM
HSB20025-050	200 X 25 STOCK BAR 50CM
HSB20025-100	200 X 25 STOCK BAR 100CM
HSB20030-050	200 X 30 STOCK BAR 50CM
HSB20030-100	200 X 30 STOCK BAR 100CM
HSB20040-050	200 X 40 STOCK BAR 50CM
HSB20040-100	200 X 40 STOCK BAR 100CM
HSB20050-050	200 X 50 STOCK BAR 50CM
HSB20050-100	200 X 50 STOCK BAR 100CM
HSB25010-050	250 X 10 STOCK BAR 50CM
HSB25010-100	250 X 10 STOCK BAR 100CM
HSB25012-050	250 X 12 STOCK BAR 50CM
HSB25012-100	250 X 12 STOCK BAR 100CM
HSB25016-050	250 X 16 STOCK BAR 50CM
HSB25016-100	250 X 16 STOCK BAR 100CM
HSB25020-050	250 X 20 STOCK BAR 50CM
HSB25020-100	250 X 20 STOCK BAR 100CM
HSB25025-050	250 X 25 STOCK BAR 50CM
HSB25025-100	250 X 25 STOCK BAR 100CM
HSB25030-050	250 X 30 STOCK BAR 50CM
HSB25030-100	250 X 30 STOCK BAR 100CM
HSB25040-100	250 X 40 STOCK BAR 100CM
HSB25050-050	250 X 50 STOCK BAR 50CM
HSB25050-100	250 X 50 STOCK BAR 100CM
HSB25060-050	250 X 60 STOCK BAR 50CM
HSB25060-100	250 X 60 STOCK BAR 100CM
HSB30012-100	300 X 12 STOCK BAR 100CM
HSB30016-050	300 X 16 STOCK BAR 50CM
HSB30016-100	300 X 16 STOCK BAR 100CM
HSB30020-050	300 X 20 STOCK BAR 50CM
HSB30020-100	300 X 20 STOCK BAR 100CM
HSB30025-050	300 X 25 STOCK BAR 50CM
HSB30025-100	300 X 25 STOCK BAR 100CM



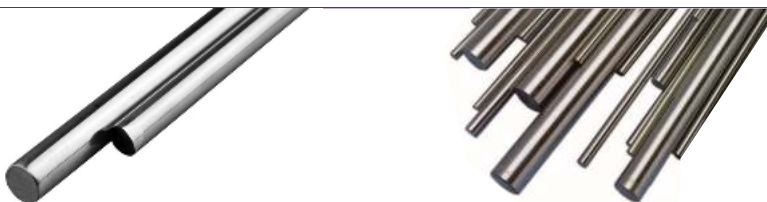
Product Code	Description
HSB10010-050	100 x 10 STOCK BAR 50CM
HSB10010-100	100 X 10 STOCK BAR 100CM
HSB10012-050	100 x 12 STOCK BAR 50CM
HSB10012-100	100 X 12 STOCK BAR 100CM
HSB10016-050	100 X 16 STOCK BAR 50CM
HSB10016-100	100 X 16 STOCK BAR 100CM
HSB10020-050	100 x 20 STOCK BAR 50CM
HSB10020-100	100 X 20 STOCK BAR 100CM
HSB10025-050	100 X 25 STOCK BAR 50CM
HSB10025-100	100 X 25 STOCK BAR 100CM
HSB10032-050	100 X 32 STOCK BAR 50CM
HSB10032-100	100 X 32 STOCK BAR 100CM
HSB10040-050	100 X 40 STOCK BAR 50CM
HSB10040-100	100 x 40 STOCK BAR 100CM
HSB10050-050	100 X 50 STOCK BAR 50CM
HSB10050-100	100 X 50 STOCK BAR 100CM
HSB1006-050	100 X 6 STOCK BAR 50CM
HSB1006-100	100 X 6 STOCK BAR 100CM
HSB13006-050	130 X 6 STOCK BAR 50CM
HSB13006-100	130 X 6 STOCK BAR 100CM
HSB13010-050	130 X 10 STOCK BAR 50CM
HSB13010-100	130 X 10 STOCK BAR 100CM
HSB13012-050	130 X 12 STOCK BAR 50CM
HSB13012-100	130 X 12 STOCK BAR 100CM
HSB13016-050	130 X 16 STOCK BAR 50CM
HSB13016-100	130 X 16 STOCK BAR 100CM
HSB13020-050	130 X 20 STOCK BAR 50CM
HSB13020-100	130 X 20 STOCK BAR 100CM
HSB13025-050	130 X 25 STOCK BAR 50CM
HSB13025-100	130 X 25 STOCK BAR 100CM
HSB13030-050	130 X 30 STOCK BAR 50CM
HSB13030-100	130 X 30 STOCK BAR 100CM
HSB13040-050	130 x 40 STOCK BAR 50CM
HSB13040-100	130 X 40 STOCK BAR 100CM
HSB13050-050	130 X 50 STOCK BAR 50CM
HSB13050-100	130 X 50 STOCK BAR 100CM
HSB15010-050	150 X 10 STOCK BAR 50CM
HSB15010-100	150 X 10 STOCK BAR 100CM
HSB15012-050	150 X 12 STOCK BAR 50CM
HSB15012-100	150 X 12 STOCK BAR 100CM
HSB15016-050	150 X 16 STOCK BAR 50CM
HSB15016-100	150 X 16 STOCK BAR 100CM
HSB15020-050	150 X 20 STOCK BAR 50CM
HSB15020-100	150 X 20 STOCK BAR 100CM
HSB15025-050	150 X 25 STOCK BAR 50CM
HSB15025-100	150 X 25 STOCK BAR 100CM
HSB15032-050	150 X 32 STOCK BAR 50CM
HSB15032-100	150 X 35 STOCK BAR 100CM
HSB15040-050	150 X 40 STOCK BAR 50CM
HSB15040-100	150 X 40 STOCK BAR 100CM
HSB15050-050	150 X 50 STOCK BAR 50CM
HSB15050-100	150 X 50 STOCK BAR 100CM

Product Code	Description
HSB1506-050	150 X 6 STOCK BAR 50CM
HSB1506-100	150 X 6 STOCK BAR 100CM
HSB18012-050	180 X 12 STOCK BAR 50CM
HSB18012-100	180 X 12 STOCK BAR 100CM
HSB18020-050	180 X 20 STOCK BAR 50CM
HSB18020-100	180 X 20 STOCK BAR 100CM
HSB18025-050	180 X 25 STOCK BAR 50CM
HSB18025-100	180 X 25 STOCK BAR 100CM
HSB18030-050	180 X 30 STOCK BAR 50CM
HSB18030-100	180 X 30 STOCK BAR 100CM
HSB18040-050	180 X 40 STOCK BAR 50CM
HSB18050-050	180 X 50 STOCK BAR 50CM
HSB18050-100	180 X 50 STOCK BAR 100CM
HSB18060-050	180 X 60 STOCK BAR 50CM
HSB20012-050	200 X 12 STOCK BAR 50CM
HSB20012-100	200 X 12 STOCK BAR 100CM
HSB20016-050	200 X 16 STOCK BAR 50CM
HSB20016-100	200 X 16 STOCK BAR 100CM
HSB20020-050	200 X 20 STOCK BAR 50CM
HSB20020-100	200 X 20 STOCK BAR 100CM
HSB20025-050	200 X 25 STOCK BAR 50CM
HSB20025-100	200 X 25 STOCK BAR 100CM
HSB20030-050	200 X 30 STOCK BAR 50CM
HSB20030-100	200 X 30 STOCK BAR 100CM
HSB20040-050	200 X 40 STOCK BAR 50CM
HSB20040-100	200 X 40 STOCK BAR 100CM
HSB20050-050	200 X 50 STOCK BAR 50CM
HSB20050-100	200 X 50 STOCK BAR 100CM
HSB25010-050	250 X 10 STOCK BAR 50CM
HSB25010-100	250 X 10 STOCK BAR 100CM
HSB25012-050	250 X 12 STOCK BAR 50CM
HSB25012-100	250 X 12 STOCK BAR 100CM
HSB25016-050	250 X 16 STOCK BAR 50CM
HSB25016-100	250 X 16 STOCK BAR 100CM
HSB25020-050	250 X 20 STOCK BAR 50CM
HSB25020-100	250 X 20 STOCK BAR 100CM
HSB25025-050	250 X 25 STOCK BAR 50CM
HSB25025-100	250 X 25 STOCK BAR 100CM
HSB25030-050	250 X 30 STOCK BAR 50CM
HSB25030-100	250 X 30 STOCK BAR 100CM
HSB25040-100	250 X 40 STOCK BAR 100CM
HSB25050-050	250 X 50 STOCK BAR 50CM
HSB25050-100	250 X 50 STOCK BAR 100CM
HSB25060-050	250 X 60 STOCK BAR 50CM
HSB25060-100	250 X 60 STOCK BAR 100CM
HSB30012-100	300 X 12 STOCK BAR 100CM
HSB30016-050	300 X 16 STOCK BAR 50CM
HSB30016-100	300 X 16 STOCK BAR 100CM
HSB30020-050	300 X 20 STOCK BAR 50CM
HSB30020-100	300 X 20 STOCK BAR 100CM



Product Code	Description
HSB30025-050	300 X 25 STOCK BAR 50CM
HSB30025-100	300 X 25 STOCK BAR 100CM
HSB30030-050	300 X 30 STOCK BAR 50CM
HSB30030-100	300 X 30 STOCK BAR 100CM
HSB30040-050	300 X 40 STOCK BAR 50CM
HSB30040-100	300 X 40 STOCK BAR 100CM
HSB30050-050	300 X 50 STOCK BAR 50CM
HSB30050-100	300 X 50 STOCK BAR 100CM
HSB30060-050	300 X 60 STOCK BAR 50CM
HSB30060-100	300 X 60 STOCK BAR 100CM
HSB5010-050	50 X 10 STOCK BAR 50CM
HSB5010-100	50 X 10 STOCK BAR 100CM
HSB5012-050	50 X 12 STOCK BAR 50CM
HSB5012-100	50 X 12 STOCK BAR 100CM
HSB5016-050	50 X 16 STOCK BAR 50CM
HSB5016-100	50 X 16 STOCK BAR 100CM
HSB5020-050	50 X 20 STOCK BAR 50CM
HSB5020-100	50 X 20 STOCK BAR 100CM
HSB5025-050	50 X 25 STOCK BAR 50CM
HSB5025-100	50 X 25 STOCK BAR 100CM
HSB5030-050	50 X 30 STOCK BAR 50CM
HSB5030-100	50 X 30 STOCK BAR 100CM
HSB5040-050	50 X 40 STOCK BAR 50CM
HSB5040-100	50 X 40 STOCK BAR 100CM
HSB5050-050	50 X 50 STOCK BAR 50CM
HSB5050-100	50 X 50 STOCK BAR 100CM
HSB506-050	50 X 6 STOCK BAR 50CM
HSB506-100	50 X 6 STOCK BAR 100CM
HSB6512-050	65 X 12 STOCK BAR 50CM
HSB6512-100	65 X 12 STOCK BAR 100CM
HSB6520-050	65 X 20 STOCK BAR 50CM
HSB6520-100	65 X 20 STOCK BAR 100CM

Product Code	Description
HSB7506-050	75 X 6 STOCK BAR 50CM
HSB7506-100	75 X 6 STOCK BAR 100CM
HSB7510-050	75 X 10 STOCK BAR 50CM
HSB7510-100	75 X 10 STOCK BAR 100CM
HSB7512-050	75 X 12 STOCK BAR 50CM
HSB7512-100	75 X 12 STOCK BAR 100CM
HSB7516-050	75 X 16 STOCK BAR 50CM
HSB7516-100	75 X 16 STOCK BAR 100CM
HSB7520-050	75 X 20 STOCK BAR 50CM
HSB7520-100	75 X 20 STOCK BAR 100CM
HSB7525-050	75 X 25 STOCK BAR 50CM
HSB7525-100	75 X 25 STOCK BAR 100CM
HSB7530-050	75 X 30 STOCK BAR 50CM
HSB7540-050	75 X 40 STOCK BAR 50CM
HSB7540-100	75 X 40 STOCK BAR 100CM
HSB7550-050	75 X 50 STOCK BAR 50CM
HSB7550-100	75 X 50 STOCK BAR 100CM
HSB9012-050	90 X 12 STOCK BAR 50CM
HSB9012-100	90 X 12 STOCK BAR 100CM



METRIC	
Product Code	Rod Dia.
SSM02	2mm Dia. Silver Steel Water Hardening
SSM025	2.5mm Dia. Silver Steel Water Hardening
SSM03	3mm Dia. Silver Steel Water Hardening
SSM035	3.5mm Dia. Silver Steel Water Hardening
SSM04	4mm Dia. Silver Steel Water Hardening
SSM045	4.5mm Dia. Silver Steel Water Hardening
SSM05	5mm Dia. Silver Steel Water Hardening
SSM055	5.5mm Dia. Silver Steel Water Hardening
SSM06	6mm Dia. Silver Steel Water Hardening
SSM065	6.5mm Dia. Silver Steel Water Hardening
SSM075	7.5mm Dia. Silver Steel Water Hardening
SSM08	8mm Dia. Silver Steel Water Hardening
SSM09	9mm Dia. Silver Steel Water Hardening
SSM095	9.5mm Dia. Silver Steel Water Hardening
SSM10	10mm Dia. Silver Steel Water Hardening
SSM12	12mm Dia. Silver Steel Water Hardening
SSM125	12.5mm Dia. Silver Steel Water Hardening
SSM13	13mm Dia. Silver Steel Water Hardening
SSM14	14mm Dia. Silver Steel Water Hardening
SSM15	15mm Dia. Silver Steel Water Hardening
SSM16	16mm Dia. Silver Steel Water Hardening
SSM17	17mm Dia. Silver Steel Water Hardening
SSM18	18mm Dia. Silver Steel Water Hardening
SSM19	19mm Dia. Silver Steel Water Hardening
SSM20	20mm Dia. Silver Steel Water Hardening
SSM21	21mm Dia. Silver Steel Water Hardening
SSM22	22mm Dia. Silver Steel Water Hardening
SSM23	23mm Dia. Silver Steel Water Hardening
SSM24	24mm Dia. Silver Steel Water Hardening
SSM25	25mm Dia. Silver Steel Water Hardening
SSM26	26mm Dia. Silver Steel Water Hardening
SSM30	30mm Dia. Silver Steel Water Hardening



IMPERIAL	
Product Code	Rod Dia.
SS08	1/8 Dia. Silver Steel Water Hardening
SS12	3/16 Dia. Silver Steel Water Hardening
SS16	1/4 Dia. Silver Steel Water Hardening
SS20	5/16 Dia. Silver Steel Water Hardening
SS24	3/8 Dia. Silver Steel Water Hardening
SS28	7/16 Dia. Silver Steel Water Hardening
SS32	1/2 Dia. Silver Steel Water Hardening
SS40	5/8 Dia. Silver Steel Water Hardening
SS48	3/4 Dia. Silver Steel Water Hardening
SS56	7/8 Dia. Silver Steel Water Hardening
SS64	1" Dia. Silver Steel Water Hardening
SS86	1.1/4" Dia. Silver Steel Water Hardening

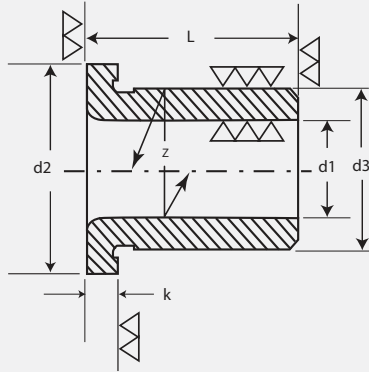


Product Code	Description
SHS001	0.001 SHIM STEEL 6 inch wide x 100 inch long
SHS002	0.002 SHIM STEEL 6 inch wide x 100 inch long
SHS003	0.003 SHIM STEEL 6 inch wide x 100 inch long
SHS004	0.004 SHIM STEEL 6 inch wide x 100 inch long
SHS005	0.005 SHIM STEEL 6 inch wide x 100 inch long
SHS006	0.006 SHIM STEEL 6 inch wide x 100 inch long
SHS008	0.008 SHIM STEEL 6 inch wide x 100 inch long
SHS010	0.010 SHIM STEEL 6 inch wide x 100 inch long
SHS012	0.012 SHIM STEEL 6 inch wide x 100 inch long
SHS015	0.015 SHIM STEEL 6 inch wide x 100 inch long
SHS020	0.020 SHIM STEEL 6 inch wide x 100 inch long
SHSA	ASSORTED SHIM 12 PACK incl. 6" X 12" X 12PCs of 0.001, 0.0015, 0.002, 0.003, 0.004, 0.005, 0.006, 0.007, 0.008, 0.010, 0.012, 0.015

Urethane Rods



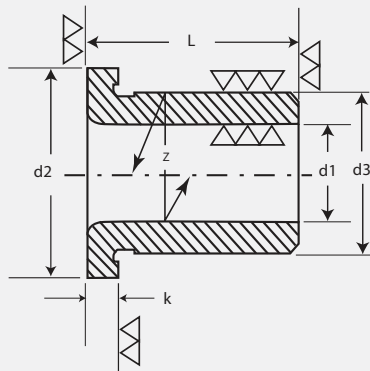
Product Code	Rod Dia.
U006-L	6mm
U010-L	10mm
U012-L	12mm
U015-L	15mm
U020-L	20mm
U022-L	22mm
U025-L	25mm
U032-L	32mm
U035-L	35mm
U040-L	40mm
U045-L	45mm
U050-L	50mm
U060	60mm
U075	75mm
U100	100mm
U070	70mm



Materials: Case Hardened Steel
Hardness: 62 +/- 2 Hrc

d1	d3	d2	k	z	Short	Short Length	Long	Long Length
0.4	3.0	6	2	0.01	DG172-004-3-6S	6	DG172-004-3-9L	9
0.5	3.0	6	2	0.01	DG172-005-3-6S	6	DG172-005-3-9L	9
0.6	3.0	6	2	0.01	DG172-006-3-6S	6	DG172-006-3-9L	9
0.7	3.0	6	2	0.01	DG172-007-3-6S	6	DG172-007-3-9L	9
0.8	3.0	6	2	0.01	DG172-008-3-6S	6	DG172-008-3-9L	9
0.9	3.0	6	2	0.01	DG172-009-3-6S	6	DG172-009-3-9L	9
1.0	3.0	6	2	0.01	DG172-010-3-6S	6	DG172-010-3-9L	9
1.1	4.0	7	2	0.01	DG172-011-4-6S	6	DG172-011-4-9L	9
1.2	4.0	7	2	0.01	DG172-012-4-6S	6	DG172-012-4-9L	9
1.3	4.0	7	2	0.01	DG172-013-4-6S	6	DG172-013-4-9L	9
1.4	4.0	7	2	0.01	DG172-014-4-6S	6	DG172-014-4-9L	9
1.5	4.0	7	2	0.01	DG172-015-4-6S	6	DG172-015-4-9L	9
1.6	4.0	7	2	0.01	DG172-016-4-6S	6	DG172-016-4-9L	9
1.7	4.0	7	2	0.01	DG172-017-4-6S	6	DG172-017-4-9L	9
1.8	4.0	7	2	0.01	DG172-018-4-6S	6	DG172-018-4-9L	9
1.9	5.0	8	2	0.01	DG172-019-5-6S	6	DG172-019-5-9L	9
2.0	5.0	8	2	0.01	DG172-020-5-6S	6	DG172-020-5-9L	9
2.1	5.0	8	2	0.01	DG172-021-5-6S	6	DG172-021-5-9L	9
2.2	5.0	8	2	0.01	DG172-022-5-6S	6	DG172-022-5-9L	9
2.3	5.0	8	2	0.01	DG172-023-5-6S	6	DG172-023-5-9L	9
2.4	5.0	8	2	0.01	DG172-024-5-6S	6	DG172-024-5-9L	9
2.5	5.0	8	2	0.01	DG172-025-5-6S	6	DG172-025-5-9L	9
2.6	5.0	8	2	0.01	DG172-026-5-6S	6	DG172-026-5-9L	9
2.7	6.0	10	2S/3L	0.01	DG172-027-6-8S	8	DG172-027-6-12L	12
2.8	6.0	10	2S/3L	0.01	DG172-028-6-8S	8	DG172-028-6-12L	12
2.9	6.0	10	2S/3L	0.01	DG172-029-6-8S	8	DG172-029-6-12L	12
3.0	6.0	10	2S/3L	0.01	DG172-030-6-8S	8	DG172-030-6-12L	12
3.1	6.0	10	2S/3L	0.01	DG172-031-6-8S	8	DG172-031-6-12L	12
3.2	6.0	10	2S/3L	0.01	DG172-032-6-8S	8	DG172-032-6-12L	12
3.3	6.0	10	2S/3L	0.01	DG172-033-6-8S	8	DG172-033-6-12L	12
3.4	7.0	11	2S/3L	0.01	DG172-034-7-8S	8	DG172-034-7-12L	12
3.5	7.0	11	2S/3L	0.01	DG172-035-7-8S	8	DG172-035-7-12L	12
3.6	7.0	11	2S/3L	0.01	DG172-036-7-8S	8	DG172-036-7-12L	12
3.7	7.0	11	2S/3L	0.01	DG172-037-7-8S	8	DG172-037-7-12L	12
3.8	7.0	11	2S/3L	0.01	DG172-038-7-8S	8	DG172-038-7-12L	12
3.9	7.0	11	2S/3L	0.01	DG172-039-7-8S	8	DG172-039-7-12L	12

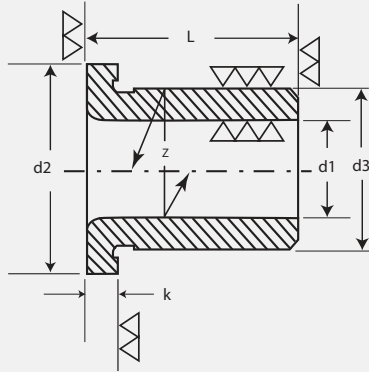
Continues next page.



Materials: Case Hardened Steel
Hardness: 62 +/- 2 Hrc

d1	d3	d2	k	z	Short	Short Length	Long	Long Length
4.0	7.0	11	2S/3L	0.01	DG172-040-7-8S	8	DG172-040-7-12L	12
4.0	8.0	12	2S/3L	0.01	DG172-040-8-8S	8		
4.1	8.0	12	2S/3L	0.01	DG172-041-8-8S	8	DG172-041-8-12L	12
4.2	8.0	12	2S/3L	0.01	DG172-042-8-8S	8	DG172-042-8-12L	12
4.3	8.0	12	2S/3L	0.01	DG172-043-8-8S	8	DG172-043-8-12L	12
4.4	8.0	12	2S/3L	0.01	DG172-044-8-8S	8	DG172-044-8-12L	12
4.5	8.0	12	2S/3L	0.01	DG172-045-8-8S	8	DG172-045-8-12L	12
4.6	8.0	12	2S/3L	0.01	DG172-046-8-8S	8	DG172-046-8-12L	12
4.7	8.0	12	2S/3L	0.01	DG172-047-8-8S	8	DG172-047-8-12L	12
4.8	8.0	12	2S/3L	0.01	DG172-048-8-8S	8	DG172-048-8-12L	12
4.9	8.0	12	2S/3L	0.01	DG172-049-8-8S	8	DG172-049-8-12L	12
5.0	8.0	12	2S/3L	0.01	DG172-050-8-8S	8	DG172-050-8-12L	12
5.1	10.0	14	3	0.02	DG172-051-10-10S	10	DG172-051-10-16L	16
5.2	10.0	14	3	0.02	DG172-052-10-10S	10	DG172-052-10-16L	16
5.3	10.0	14	3	0.02	DG172-053-10-10S	10	DG172-053-10-16L	16
5.4	10.0	14	3	0.02	DG172-054-10-10S	10	DG172-054-10-16L	16
5.5	10.0	14	3	0.02	DG172-055-10-10S	10	DG172-055-10-16L	16
5.6	10.0	14	3	0.02	DG172-056-10-10S	10	DG172-056-10-16L	16
5.7	10.0	14	3	0.02	DG172-057-10-10S	10	DG172-057-10-16L	16
5.8	10.0	14	3	0.02	DG172-058-10-10S	10	DG172-058-10-16L	16
6.0	10.0	14	3	0.02	DG172-060-10-10S	10	DG172-060-10-16L	16
6.1	12.0	16	3	0.02	DG172-061-12-10S	10	DG172-061-12-16L	16
6.2	12.0	16	3	0.02	DG172-062-12-10S	10	DG172-062-12-16L	16
6.3	12.0	16	3	0.02	DG172-063-12-10S	10	DG172-063-12-16L	16
6.4	12.0	16	3	0.02	DG172-064-12-10S	10	DG172-064-12-16L	16
6.5	12.0	16	3	0.02	DG172-065-12-10S	10	DG172-065-12-16L	16
6.6	12.0	16	3	0.02	DG172-066-12-10S	10	DG172-066-12-16L	16
6.7	12.0	16	3	0.02	DG172-067-12-10S	10	DG172-067-12-16L	16
6.8	12.0	16	3	0.02	DG172-068-12-10S	10	DG172-068-12-16L	16
6.9	12.0	16	3	0.02	DG172-069-12-10S	10	DG172-069-12-16L	16
7.0	12.0	16	3	0.02	DG172-070-12-10S	10	DG172-070-12-16L	16
7.1	12.0	16	3	0.02	DG172-071-12-10S	10	DG172-071-12-16L	16
7.2	12.0	16	3	0.02	DG172-072-12-10S	10	DG172-072-12-16L	16
7.3	12.0	16	3	0.02	DG172-073-12-10S	10	DG172-073-12-16L	16
7.4	12.0	16	3	0.02	DG172-074-12-10S	10	DG172-074-12-16L	16
7.5	12.0	16	3	0.02	DG172-075-12-10S	10	DG172-075-12-16L	16
7.6	12.0	16	3	0.02	DG172-076-12-10S	10	DG172-076-12-16L	16
7.7	12.0	16	3	0.02	DG172-077-12-10S	10	DG172-077-12-16L	16
7.8	12.0	16	3	0.02	DG172-078-12-10S	10	DG172-078-12-16L	16
7.9	12.0	16	3	0.02	DG172-079-12-10S	10	DG172-079-12-16L	16

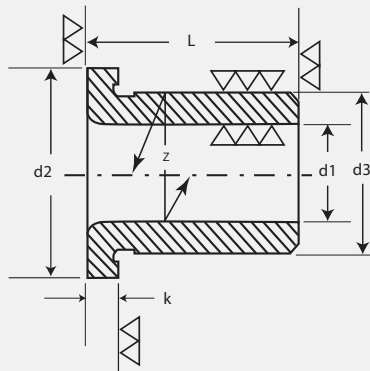
Continues next page.



Materials: Case Hardened Steel
Hardness: 62 +/- 2 Hrc

d1	d3	d2	k	z	Short	Short Length	Long	Long Length
8.0	12.0	16	3	0.02	DG172-080-12-10S	10	DG172-080-12-16L	16
8.0	15.0	19	4	0.02	DG172-080-15-12S	12	DG172-080-15-20L	20
8.1	15.0	19	4	0.02	DG172-081-15-12S	12	DG172-081-15-20L	20
8.2	15.0	19	4	0.02	DG172-082-15-12S	12	DG172-082-15-20L	20
8.3	15.0	19	4	0.02	DG172-083-15-12S	12	DG172-083-15-20L	20
8.4	15.0	19	4	0.02	DG172-084-15-12S	12	DG172-084-15-20L	20
8.5	15.0	19	4	0.02	DG172-085-15-12S	12	DG172-085-15-20L	20
8.6	15.0	19	4	0.02	DG172-086-15-12S	12	DG172-086-15-20L	20
8.7	15.0	19	4	0.02	DG172-087-15-12S	12	DG172-087-15-20L	20
8.8	15.0	19	4	0.02	DG172-088-15-12S	12	DG172-088-15-20L	20
8.9	15.0	19	4	0.02	DG172-089-15-12S	12	DG172-089-15-20L	20
9.0	15.0	19	4	0.02	DG172-090-15-12S	12	DG172-090-15-20L	20
9.1	15.0	19	4	0.02	DG172-091-15-12S	12	DG172-091-15-20L	20
9.2	15.0	19	4	0.02	DG172-092-15-12S	12	DG172-092-15-20L	20
9.3	15.0	19	4	0.02	DG172-093-15-12S	12	DG172-093-15-20L	20
9.4	15.0	19	4	0.02	DG172-094-15-12S	12	DG172-094-15-20L	20
9.5	15.0	19	4	0.02	DG172-095-15-12S	12	DG172-095-15-20L	20
9.6	15.0	19	4	0.02	DG172-096-15-12S	12	DG172-096-15-20L	20
9.7	15.0	19	4	0.02	DG172-097-15-12S	12	DG172-097-15-20L	20
9.8	15.0	19	4	0.02	DG172-098-15-12S	12	DG172-098-15-20L	20
9.9	15.0	19	4	0.02	DG172-099-15-12S	12	DG172-099-15-20L	20
10.0	15.0	19	4	0.02	DG172-100-15-12S	12	DG172-100-15-20L	20
10.1	18.0	22	4	0.02	DG172-101-18-12S	12	DG172-101-18-20L	20
10.2	18.0	22	4	0.02	DG172-102-18-12S	12	DG172-102-18-20L	20
10.3	18.0	22	4	0.02	DG172-103-18-12S	12	DG172-103-18-20L	20
10.4	18.0	22	4	0.02	DG172-104-18-12S	12	DG172-104-18-20L	20
10.5	18.0	22	4	0.02	DG172-105-18-12S	12	DG172-105-18-20L	20
10.6	18.0	22	4	0.02	DG172-106-18-12S	12	DG172-106-18-20L	20
10.7	18.0	22	4	0.02	DG172-107-18-12S	12	DG172-107-18-20L	20
10.8	18.0	22	4	0.02	DG172-108-18-12S	12	DG172-108-18-20L	20
10.9	18.0	22	4	0.02	DG172-109-18-12S	12	DG172-109-18-20L	20

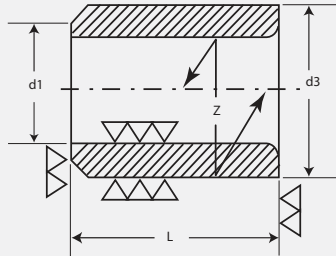
Continues next page.



Materials: Case Hardened Steel
Hardness: 62 +/- 2 Hrc

d1	d3	d2	k	z	Short	Short Length	Long	Long Length
11.0	18.0	22	4	0.02	DG172-110-18-12S	12	DG172-110-18-20L	20
11.1	18.0	22	4	0.02	DG172-111-18-12S	12	DG172-111-18-20L	20
11.2	18.0	22	4	0.02	DG172-112-18-12S	12	DG172-112-18-20L	20
11.3	18.0	22	4	0.02	DG172-113-18-12S	12	DG172-113-18-20L	20
11.4	18.0	22	4	0.02	DG172-114-18-12S	12	DG172-114-18-20L	20
11.5	18.0	22	4	0.02	DG172-115-18-12S	12	DG172-115-18-20L	20
11.6	18.0	22	4	0.02	DG172-116-18-12S	12	DG172-116-18-20L	20
11.7	18.0	22	4	0.02	DG172-117-18-12S	12	DG172-117-18-20L	20
11.8	18.0	22	4	0.02	DG172-118-18-12S	12	DG172-118-18-20L	20
11.9	18.0	22	4	0.02	DG172-119-18-12S	12	DG172-119-18-20L	20
12.0	18.0	22	4	0.02	DG172-120-18-12S	12	DG172-120-18-20L	20
12.0	22.0	26	4	0.02	DG172-120-22-16S	16		
12.5	22.0	26	4	0.02	DG172-125-22-16S	16	DG172-125-22-28L	28
13.0	22.0	26	4	0.02	DG172-130-22-16S	16	DG172-130-22-28L	28
13.5	22.0	26	4	0.02	DG172-135-22-16S	16	DG172-135-22-28L	28
14.0	22.0	26	4	0.02	DG172-140-22-16S	16	DG172-140-22-28L	28
14.5	22.0	26	4	0.02	DG172-145-22-16S	16	DG172-145-22-28L	28
15.0	22.0	26	4	0.02	DG172-150-22-16S	16	DG172-150-22-28L	28
15.5	26.0	30	4	0.02	DG172-155-26-16S	16	DG172-155-26-28L	28
16.0	26.0	30	4	0.02	DG172-160-26-16S	16	DG172-160-26-28L	28
16.5	26.0	30	4	0.02	DG172-165-26-16S	16	DG172-165-26-28L	28
17.0	26.0	30	4	0.02	DG172-170-26-16S	16	DG172-170-26-28L	28
18.0	26.0	30	4	0.02	DG172-180-26-16S	16	DG172-180-26-28L	28
18.5	30.0	35	6	0.02	DG172-185-30-20S	20	DG172-185-30-36L	36
19.0	30.0	35	6	0.02	DG172-190-30-20S	20	DG172-190-30-36L	36
19.5	30.0	35	6	0.02	DG172-195-30-20S	20	DG172-195-30-36L	36
20.0	30.0	35	6	0.02	DG172-200-30-20S	20	DG172-200-30-36L	36
21.0	30.0	35	6	0.02	DG172-210-30-20S	20	DG172-210-30-36L	36
22.0	30.0	35	6	0.02	DG172-220-30-20S	20	DG172-220-30-36L	36
23.0	35.0	40	5	0.02	DG172-230-30-20S	20	DG172-230-30-36L	36
24.0	35.0	40	5	0.02	DG172-240-30-20S	20	DG172-240-30-36L	36
25.0	35.0	40	5	0.02	DG172-250-30-20S	20	DG172-250-30-36L	36
26.0	35.0	40	5	0.02	DG172-260-30-20S	20	DG172-260-30-36L	36
30.0	42.0	47	5	0.02	DG172-300-42-20S	20	DG172-300-42-36L	36
32.0	48.0	55	5	0.04	DG172-320-48-25S	25	DG172-320-48-45L	45
35.0	48.0	55	5	0.04			DG172-350-48-45L	45

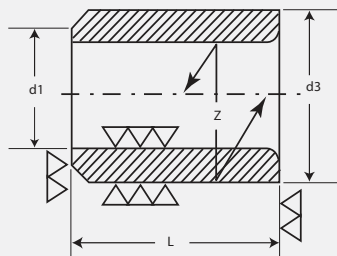
Continues next page.



Materials: Case Hardened Steel
Hardness: 62 +/- 2 Hrc

d1	d3	z	Short	Short Length	Long	Long Length
0.4	3.0	0.01			DG179-004-3-9L	9
0.5	3.0	0.01			DG179-005-3-9L	9
0.6	3.0	0.01			DG179-006-3-9L	9
0.7	3.0	0.01			DG179-007-3-9L	9
0.8	3.0	0.01	DG179-008-3-6S	6	DG179-008-3-9L	9
0.9	3.0	0.01	DG179-009-3-6S	6	DG179-009-3-9L	9
1.0	3.0	0.01	DG179-010-3-6S	6	DG179-010-3-9L	9
1.1	4.0	0.01			DG179-011-4-9L	9
1.2	4.0	0.01	DG179-012-4-6S	6	DG179-012-4-9L	9
1.5	4.0	0.01	DG179-015-4-6S	6	DG179-015-4-9L	9
1.6	4.0	0.01	DG179-016-4-6S	6	DG179-016-4-9L	9
1.7	4.0	0.01			DG179-017-4-9L	9
1.8	4.0	0.01			DG179-018-4-9L	9
1.9	5.0	0.01			DG179-019-5-9L	9
2.0	5.0	0.01	DG179-020-5-6S	6	DG179-020-5-9L	9
2.1	5.0	0.01			DG179-021-5-9L	9
2.2	5.0	0.01	DG179-022-5-6S	6	DG179-022-5-9L	9
2.3	5.0	0.01			DG179-023-5-9L	9
2.4	5.0	0.01	DG179-024-5-6S	6	DG179-024-5-9L	9
2.5	5.0	0.01	DG179-025-5-6S	6	DG179-025-5-9L	9
2.6	5.0	0.01	DG179-026-5-6S	6	DG179-026-5-9L	9
2.7	6.0	0.01	DG179-027-6-8S	8	DG179-027-6-12L	12
2.8	6.0	0.01	DG179-028-6-8S	8	DG179-028-6-12L	12
2.9	6.0	0.01	DG179-029-6-8S	8	DG179-029-6-12L	12
3.0	6.0	0.01	DG179-030-6-8S	8	DG179-030-6-12L	12
3.1	6.0	0.01	DG179-031-6-8S	8	DG179-031-6-12L	12
3.2	6.0	0.01	DG179-032-6-8S	8	DG179-032-6-12L	12
3.3	6.0	0.01	DG179-033-6-8S	8	DG179-033-6-12L	12
3.4	7.0	0.01	DG179-034-7-8S	8	DG179-034-7-12L	12
3.5	7.0	0.01	DG179-035-7-8S	8	DG179-035-7-12L	12
3.6	7.0	0.01	DG179-036-7-8S	8	DG179-036-7-12L	12
3.7	7.0	0.01	DG179-037-7-8S	8	DG179-037-7-12L	12
3.8	7.0	0.01	DG179-038-7-8S	8	DG179-038-7-12L	12
3.9	7.0	0.01			DG179-039-7-12L	12
4.0	7.0	0.01	DG179-040-7-8S	8	DG179-040-7-12L	12
4.1	8.0	0.01	DG179-041-8-8S	8	DG179-041-7-12L	12
4.2	8.0	0.01	DG179-042-8-8S	8	DG179-042-7-12L	12
4.3	8.0	0.01	DG179-043-8-8S	8	DG179-043-7-12L	12
4.4	8.0	0.01	DG179-044-8-8S	8	DG179-044-7-12L	12
4.5	8.0	0.01	DG179-045-8-8S	8	DG179-045-8-12L	12

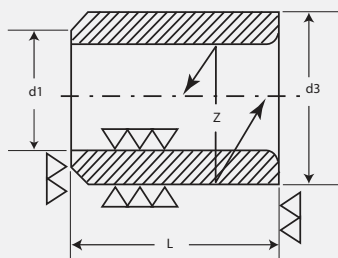
Continues next page.



Materials: Case Hardened Steel
Hardness: 62 +/- 2 Hrc

d1	d3	z	Short	Short Length	Long	Long Length
4.6	8.0	0.01	DG179-046-8-8S	8	DG179-046-8-12L	12
4.7	8.0	0.01			DG179-047-8-12L	12
4.8	8.0	0.01	DG179-048-8-8S	8	DG179-048-8-12L	12
4.9	8.0	0.01			DG179-049-8-12L	12
5.0	8.0	0.01	DG179-050-8-8S	8	DG179-050-8-12L	12
5.1	10.0	0.02	DG179-051-10-10S	10	DG179-051-10-16L	16
5.2	10.0	0.02	DG179-052-10-10S	10	DG179-052-10-16L	16
5.3	10.0	0.02	DG179-053-10-10S	10	DG179-053-10-16L	16
5.4	10.0	0.02	DG179-054-10-10S	10	DG179-054-10-16L	16
5.5	10.0	0.02	DG179-055-10-10S	10	DG179-055-10-16L	16
5.6	10.0	0.02	DG179-056-10-10S	10	DG179-056-10-16L	16
5.7	10.0	0.02			DG179-057-10-16L	16
5.8	10.0	0.02	DG179-058-10-10S	10	DG179-058-10-16L	16
5.9	10.0	0.02			DG179-059-10-16L	16
6.0	10.0	0.02	DG179-060-10-10S	10	DG179-060-10-16L	16
6.1	12.0	0.02	DG179-061-12-10S	10	DG179-061-10-16L	16
6.2	12.0	0.02	DG179-062-12-10S	10	DG179-062-10-16L	16
6.3	12.0	0.02	DG179-063-12-10S	10	DG179-063-10-16L	16
6.4	12.0	0.02	DG179-064-12-10S	10	DG179-064-10-16L	16
6.5	12.0	0.02	DG179-065-12-10S	10	DG179-065-10-16L	16
6.6	12.0	0.02	DG179-066-12-10S	10	DG179-066-10-16L	16
6.7	12.0	0.02	DG179-067-12-10S	10	DG179-067-10-16L	16
6.8	12.0	0.02	DG179-068-12-10S	10	DG179-068-10-16L	16
6.9	12.0	0.02	DG179-069-12-10S	10	DG179-069-10-16L	16
7.0	12.0	0.02	DG179-070-12-10S	10	DG179-070-10-16L	16
7.1	12.0	0.02	DG179-071-12-10S	10	DG179-071-10-16L	16
7.2	12.0	0.02	DG179-072-12-10S	10	DG179-072-10-16L	16
7.3	12.0	0.02	DG179-073-12-10S	10	DG179-073-10-16L	16
7.5	12.0	0.02	DG179-075-12-10S	10	DG179-075-10-16L	16
7.6	12.0	0.02	DG179-076-12-10S	10	DG179-076-10-16L	16
7.7	12.0	0.02			DG179-077-10-16L	16
7.8	12.0	0.02			DG179-078-10-16L	16
7.9	12.0	0.02	DG179-079-12-10S	10	DG179-079-10-16L	16
8.0	12.0	0.02	DG179-080-12-10S	10	DG179-080-10-16L	16
8.0	12.0	0.02	DG179-080-12-12S	12		
8.1	15.0	0.02	DG179-081-15-12S	12	DG179-081-15-20L	20
8.2	15.0	0.02	DG179-082-15-12S	12	DG179-082-15-20L	20
8.3	15.0	0.02	DG179-083-15-12S	12	DG179-083-15-20L	20
8.4	15.0	0.02			DG179-084-15-20L	20
8.5	15.0	0.02	DG179-085-15-12S	12		

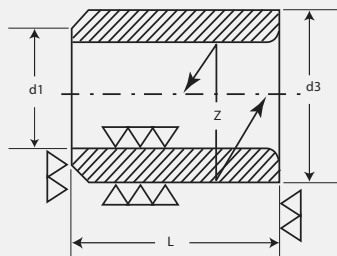
Continues next page.



Materials: Case Hardened Steel
Hardness: 62 +/- 2 Hrc

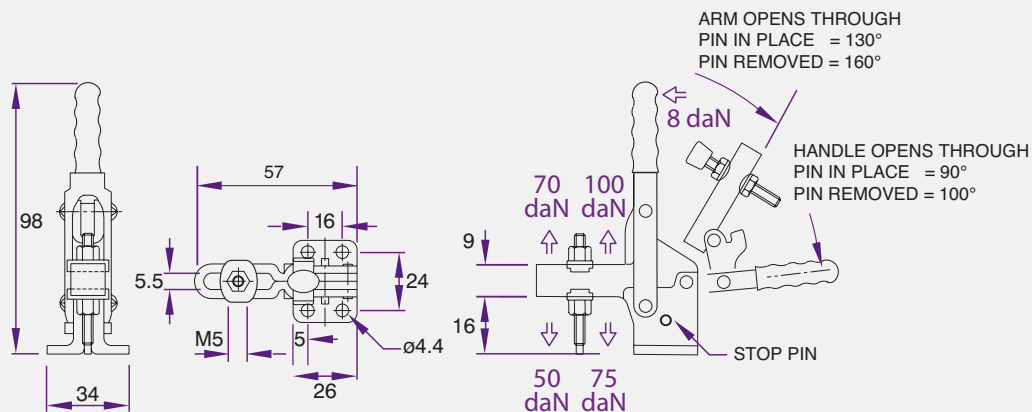
d1	d3	z	Short	Short Length	Long	Long Length
8.6	15.0	0.02			DG179-086-15-20L	20
8.7	15.0	0.02			DG179-087-15-20L	20
8.8	15.0	0.02			DG179-088-15-20L	20
8.9	15.0	0.02			DG179-089-15-20L	20
9.0	15.0	0.02			DG179-090-15-20L	20
9.1	15.0	0.02			DG179-091-15-20L	20
9.2	15.0	0.02			DG179-092-15-20L	20
9.3	15.0	0.02	DG179-093-15-12S	12	DG179-093-15-20L	20
9.4	15.0	0.02			DG179-094-15-20L	20
9.5	15.0	0.02	DG179-095-15-12S	12	DG179-095-15-20L	20
9.6	15.0	0.02	DG179-096-15-12S	12	DG179-096-15-20L	20
9.7	15.0	0.02	DG179-097-15-12S	12	DG179-097-15-20L	20
9.8	15.0	0.02			DG179-098-15-20L	20
9.9	15.0	0.02			DG179-099-15-20L	20
10.0	15.0	0.02	DG179-100-15-12S	12	DG179-100-15-20L	20
10.0	18.0	0.02	DG179-100-18-12S	12		
10.1	18.0	0.02	DG179-101-18-12S	12	DG179-101-18-20L	20
10.2	18.0	0.02			DG179-102-18-20L	20
10.3	18.0	0.02			DG179-103-18-20L	20
10.4	18.0	0.02			DG179-104-18-20L	20
10.5	18.0	0.02	DG179-105-18-12S	12	DG179-105-18-20L	20
10.6	18.0	0.02	DG179-106-18-12S	12	DG179-106-18-20L	20
10.7	18.0	0.02			DG179-107-18-20L	20
10.8	18.0	0.02			DG179-108-18-20L	20
10.9	18.0	0.02			DG179-109-18-20L	20
11.0	18.0	0.02	DG179-110-18-12S	12	DG179-110-18-20L	20
11.1	18.0	0.02			DG179-111-18-20L	20
11.2	18.0	0.02			DG179-112-18-20L	20
11.3	18.0	0.02			DG179-113-18-20L	20
11.4	18.0	0.02			DG179-114-18-20L	20
11.5	18.0	0.02	DG179-115-18-12S	12	DG179-115-18-20L	20
11.7	18.0	0.02			DG179-117-18-20L	20

Continues next page.

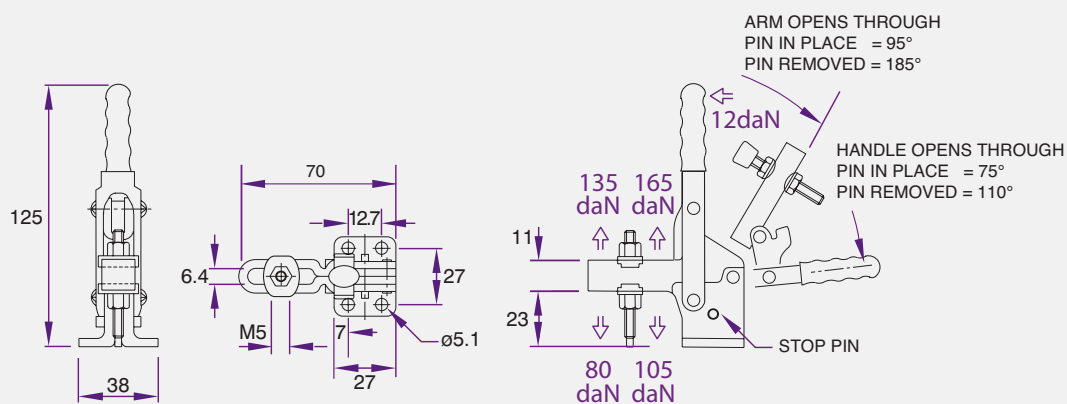


Materials: Case Hardened Steel
Hardness: 62 +/- 2 Hrc

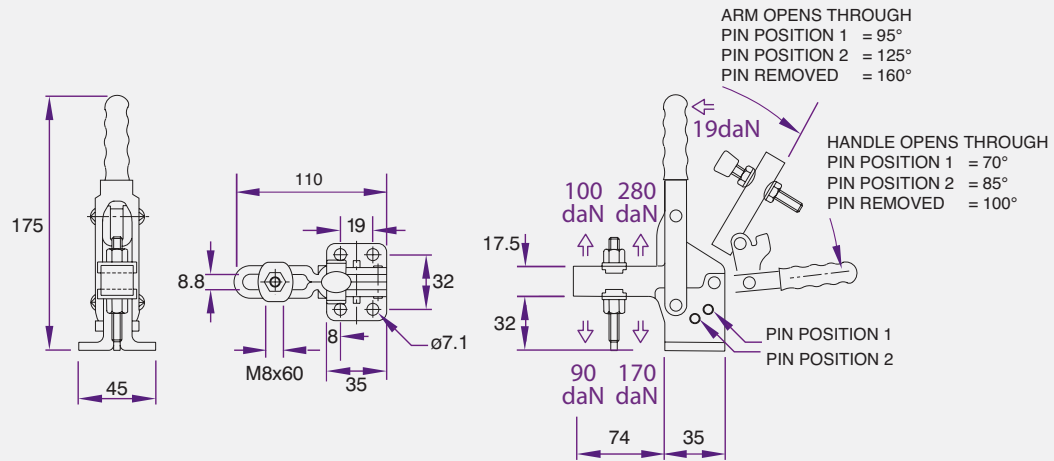
d1	d3	z	Short	Short Length	Long	Long Length
12.0	18.0	0.02	DG179-120-18-12S	12	DG179-120-18-20L	20
12.5	22.0	0.02	DG179-125-22-16S	16	DG179-125-22-22L	22
12.7	22.0	0.02	DG179-127-22-16S	16		
13.0	22.0	0.02	DG179-130-22-16S	16	DG179-130-22-22L	22
13.5	22.0	0.02	DG179-135-22-16S	16	DG179-135-22-22L	22
14.0	22.0	0.02	DG179-140-22-16S	16	DG179-140-22-22L	22
14.5	22.0	0.02	DG179-145-22-16S	16	DG179-145-22-22L	22
15.0	22.0	0.02	DG179-150-22-16S	16	DG179-150-22-22L	22
15.5	26.0	0.02	DG179-155-26-16S	16	DG179-155-26-22L	22
16.0	26.0	0.02	DG179-160-26-16S	16	DG179-160-26-22L	22
16.5	26.0	0.02	DG179-165-26-16S	16	DG179-165-26-22L	22
17.0	26.0	0.02	DG179-170-26-16S	16	DG179-170-26-22L	22
18.0	26.0	0.02	DG179-180-26-16S	16	DG179-180-26-22L	22
18.5	30.0	0.02	DG179-185-30-20S	20		
19.0	30.0	0.02	DG179-190-30-20S	20	DG179-190-30-36L	36
20.0	30.0	0.02	DG179-200-30-20S	20	DG179-200-30-36L	36
21.0	30.0	0.02			DG179-210-30-36L	36
22.0	30.0	0.02			DG179-220-30-36L	36
24.0	35.0	0.02	DG179-240-35-20S	20	DG179-240-35-36L	36
25.0	35.0	0.02	DG179-250-35-20S	20	DG179-250-35-36L	36
26.0	35.0	0.02	DG179-260-35-20S	20	DG179-260-35-36L	36
28.0	42.0	0.02	DG179-280-42-20S	20		36
30.0	42.0	0.02	DG179-300-42-20S	20	DG179-300-42-36L	36
32.0	48.0	0.04	DG179-320-48-25S	25	DG179-320-48-45L	45



Product Code	Holding Force	Weight	Pin Opening Angle - Arm		Pin Opening Angle - Handle	
			Pin in Place	Pin Removed	Pin in Place	Pin Removed
V75/2B	75 daN	0.05kg	130°	160°	90°	100°



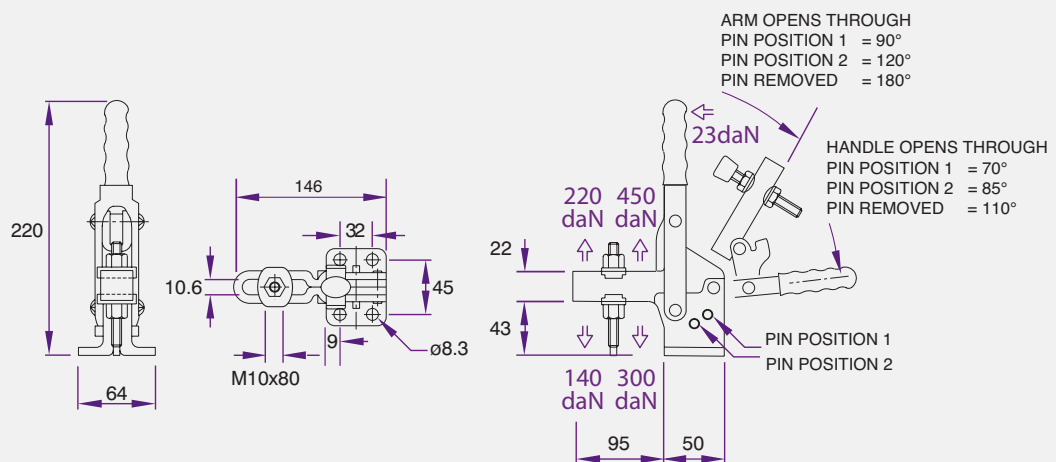
Product Code	Holding Force	Weight	Pin Opening Angle - Arm		Pin Opening Angle - Handle	
			Pin in Place	Pin Removed	Pin in Place	Pin Removed
V150/2B	150 daN	0.15kg	95°	185°	75°	110°



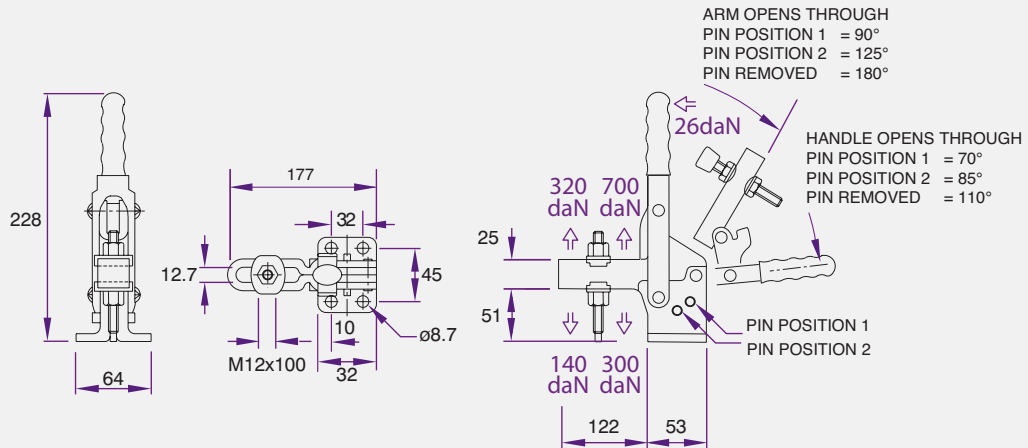
Product Code	Holding Force	Weight	Pin Opening Angle - Arm			Pin Opening Angle - Handle		
			Position 1	Position 2	Removed	Position 1	Position 2	Removed
V250/2B	250 daN	0.38kg	95°	125°	160°	70°	85°	100°

Vertical Toggle Clamps - V350

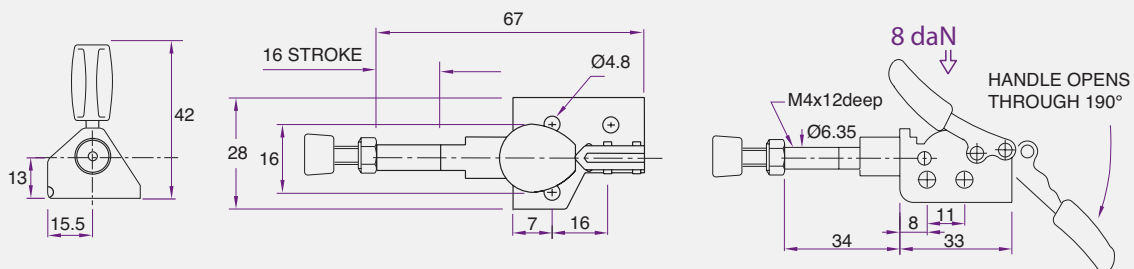
ACCESSORIES



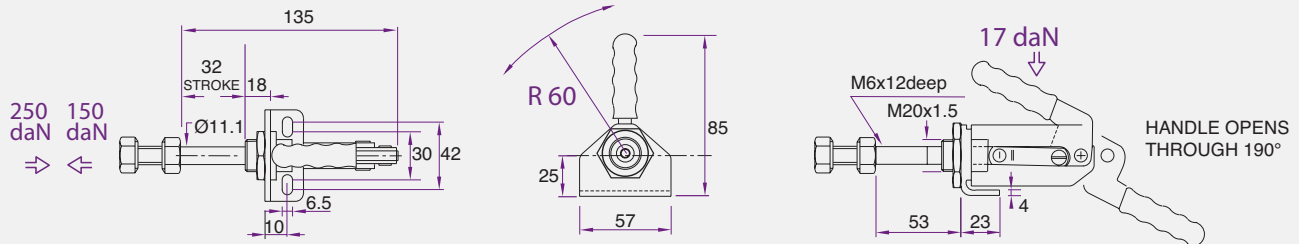
Product Code	Holding Force	Weight	Pin Opening Angle - Arm			Pin Opening Angle - Handle		
			Position 1	Position 2	Removed	Position 1	Position 2	Removed
V350/2B	350 daN	0.80kg	90°	120°	180°	70°	80°	110°



Product Code	Holding Force	Weight	Pin Opening Angle - Arm			Pin Opening Angle - Handle		
			Position 1	Position 2	Removed	Position 1	Position 2	Removed
V450/2B	450 daN	1.35KG	90°	125°	180°	70°	85°	110°



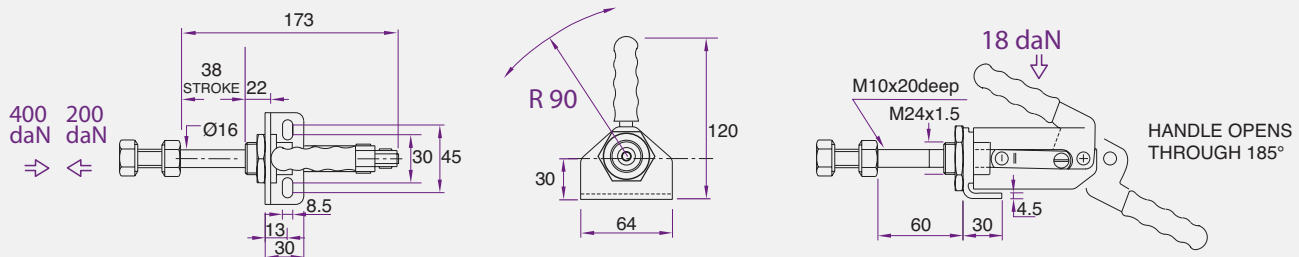
Product Code	Holding Force	Weight	Handle Opening Angle
P50	50 daN	0.05KG	190°



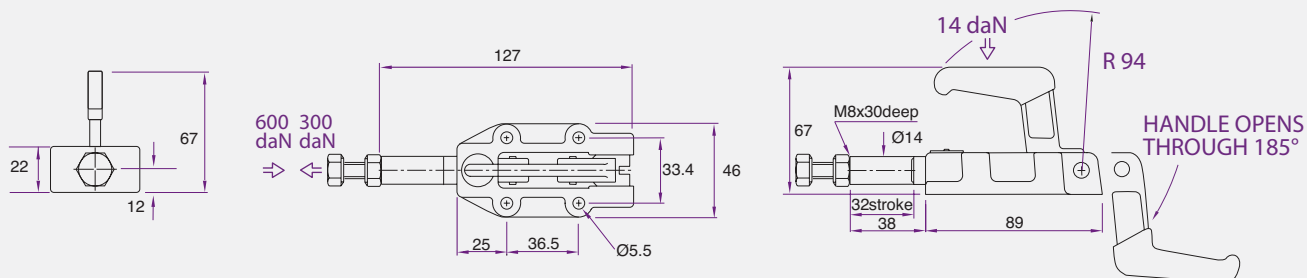
Product Code	Holding Force	Weight	Handle Opening Angle
P250	250 daN	0.30KG	190°

Push-Pull Clamps - P450

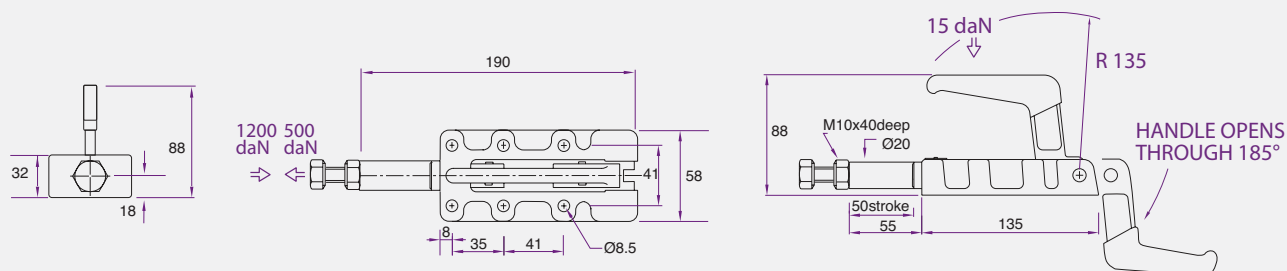
ACCESSORIES



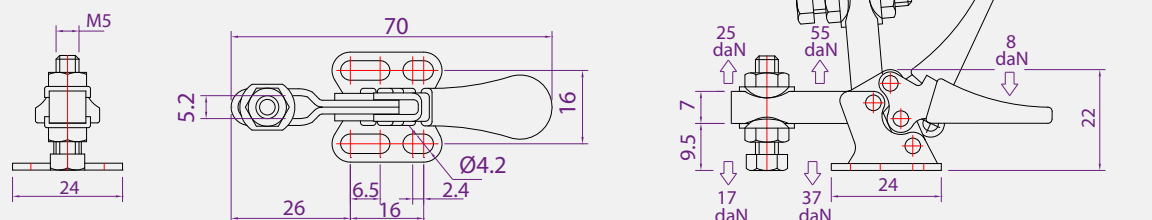
Product Code	Holding Force	Weight	Handle Opening Angle
P450	450 daN	0.75KG	185°



Product Code	Holding Force	Weight	Handle Opening Angle
P600	600 daN	0.45KG	185°



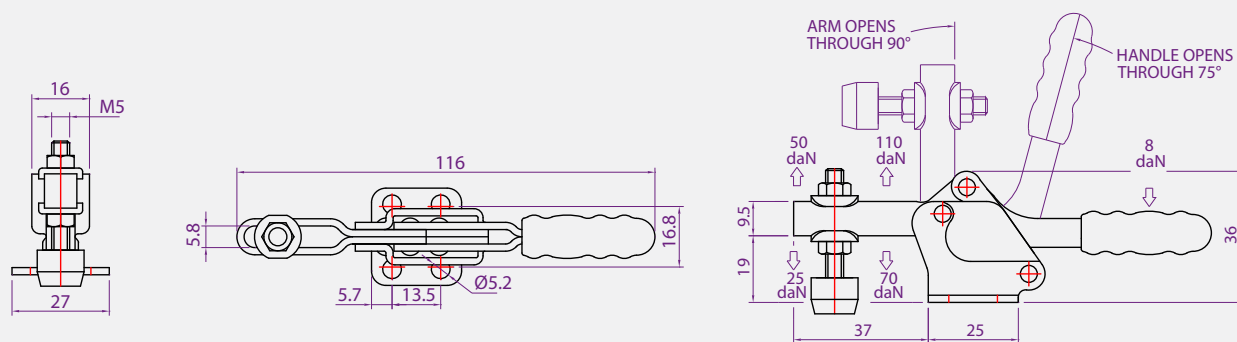
Product Code	Holding Force	Weight	Handle Opening Angle
P1200	1200 daN	1.35KG	185°



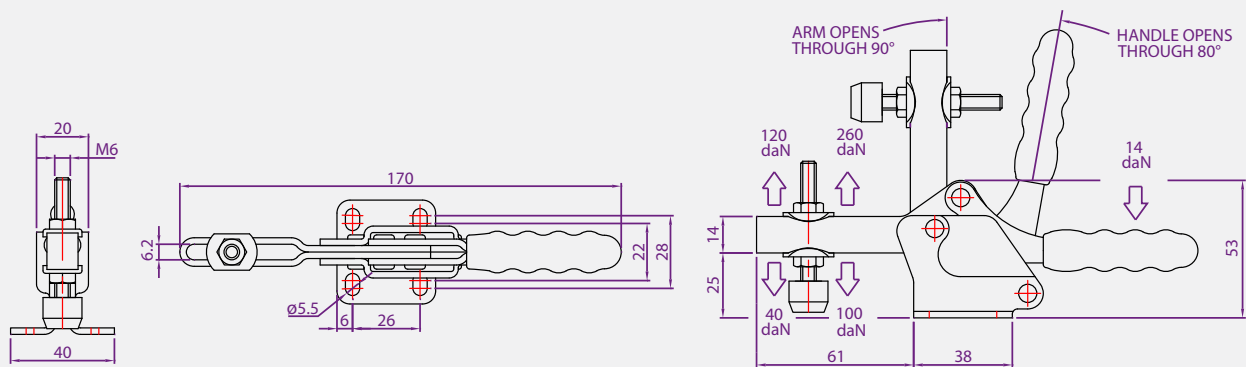
Product Code	Holding Force	Weight	Arm Opening Angle	Handle Opening Angle
H50/2B	50 daN	0.036KG	85°	65°

Horizontal Toggle Clamps - H75

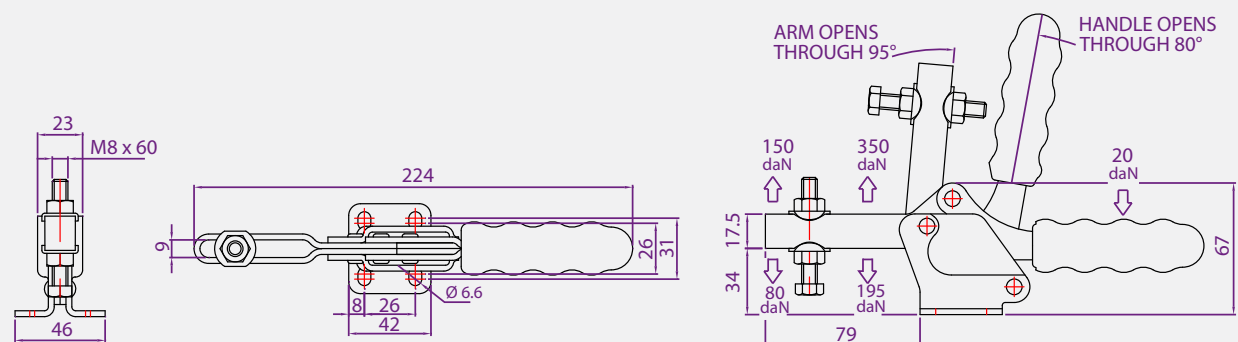
ACCESSORIES



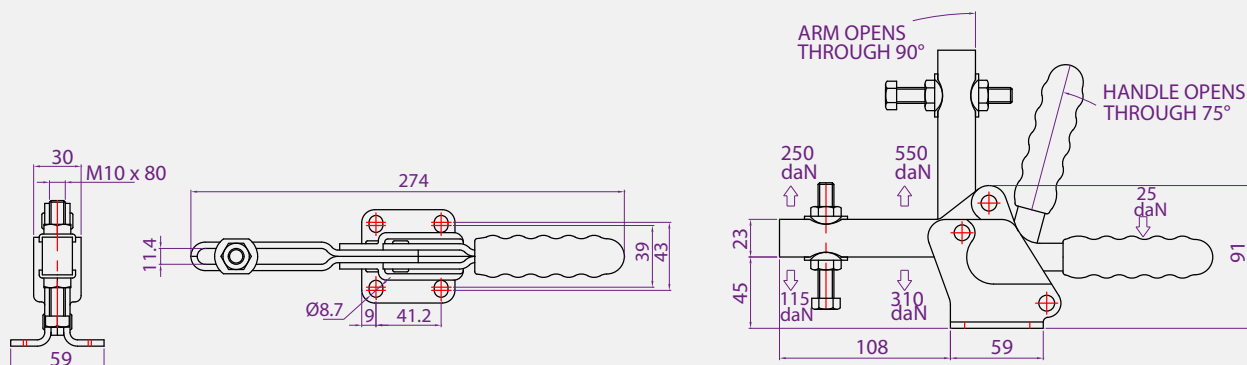
Product Code	Holding Force	Weight	Arm Opening Angle	Handle Opening Angle
H75/2B	75 daN	0.10KG	90°	75°



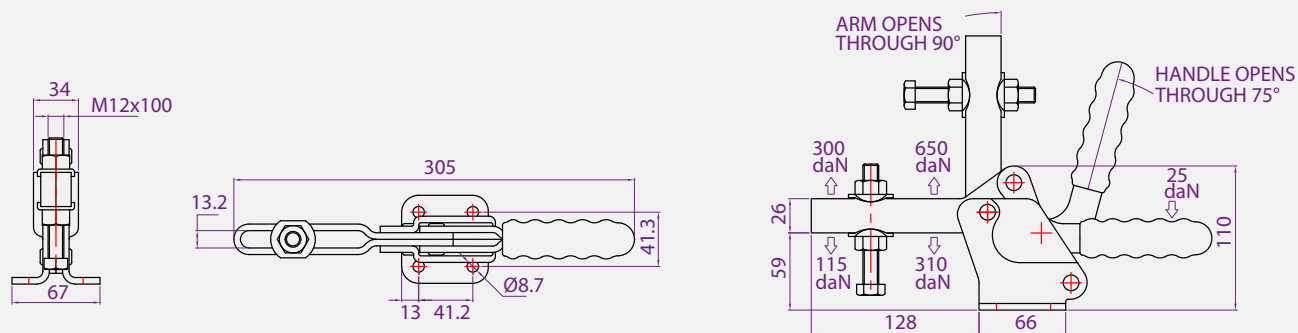
Product Code	Holding Force	Weight	Arm Opening Angle	Handle Opening Angle
H150/2B	150 daN	0.25KG	90°	80°



Product Code	Holding Force	Weight	Arm Opening Angle	Handle Opening Angle
H250/2B	250 daN	0.50KG	95°	80°



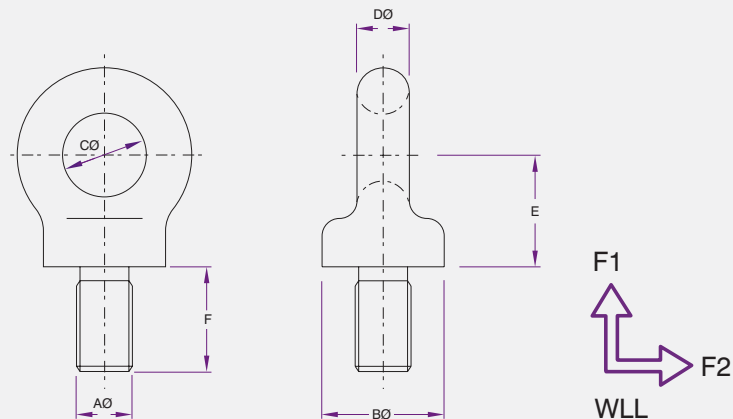
Product Code	Holding Force	Weight	Arm Opening Angle	Handle Opening Angle
H350/2B	350 daN	0.90KG	90°	75°



Product Code	Holding Force	Weight	Arm Opening Angle	Handle Opening Angle
H450/2B	450 daN	1.60KG	90°	75°



Manufactured using only heat certified Australian Steel

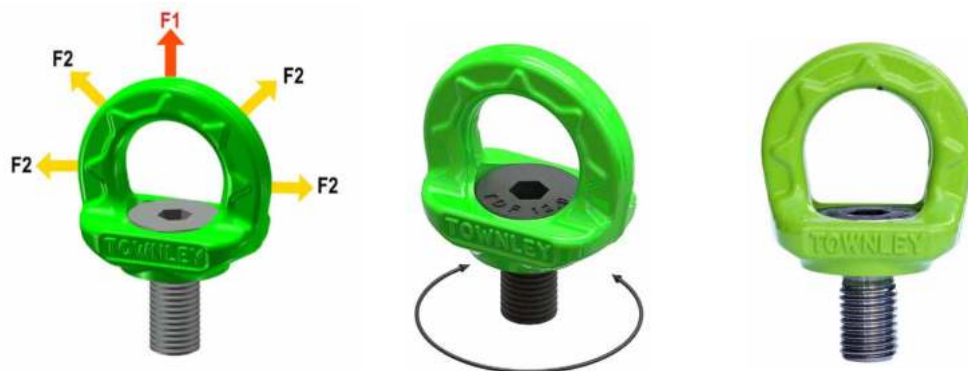


WLL (WORKING LOAD LIMIT)

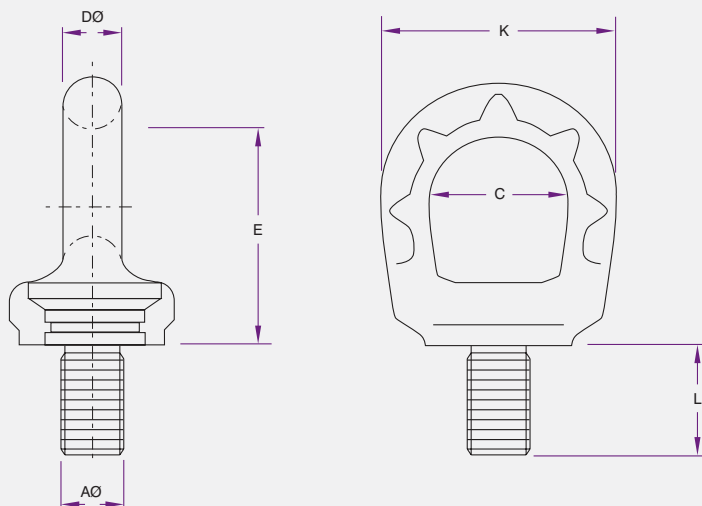
- Each eyebolt is clearly stamped with the permitted F2 WLL.
- F2 WLL - indicates safe use for non-axial lifts.
- F1 WLL - indicates loads which are in line with the axis of the threaded end of the eyebolt. F1 WLL allows up to four (4) times higher lifting capacity whilst maintaining a 6:1 design factor of safety

Metric									
Product Code	AØ	WLL F1 (t)	WLL F2 (t)	BØ	CØ	DØ	E	F	NET WEIGHT (KG)
EYE10	M10	0.25t	0.06t	21	14	9	19	17	0.06
EYE12	M12	0.4t	0.1t	28	18	11	24	21	0.15
EYE16	M16	0.8t	0.2t	35	23	14	31	27	0.28
EYE20	M20	1.6t	0.4t	42	30	16	35	38	0.46
EYE24	M24	2.5t	0.62t	57	38	22	48	42	1.10
EYE30	M30	4t	1t	71	49	27	65	52	2.10
EYE36	M36	6.3t	1.57t	87	53	35	73	64	3.70
EYE42	M42	8t	2t	102	66	40	90	76	6.30
Imperial									
Product Code	AØ	WLL F1 (t)	WLL F2 (t)	BØ	CØ	DØ	E	F	NET WEIGHT (KG)
EYEI24	3/8"	0.25	0.06	21	14	9	19	17	0.06
EYEI32	1/2"	0.4	0.1	28	18	11	24	21	0.15
EYEI40	5/8"	0.8	0.2	35	23	14	31	27	0.28
EYEI48	3/4"	1.6	0.4	42	30	16	35	38	0.46
EYEI56	7/8"	2	0.5	50	32	20	41	41	0.85
EYEI64	1"	2.5	0.62	57	38	22	48	42	1.10

More sizes available on request.



- Forged from high tensile alloy steel
- Tempered
- Electromagnetic crack detection to AS1171
- Hi-visibility powder coating to AS4506
- Manufactured exclusively from Australian Made Steel



WLL (WORKING LOAD LIMIT)

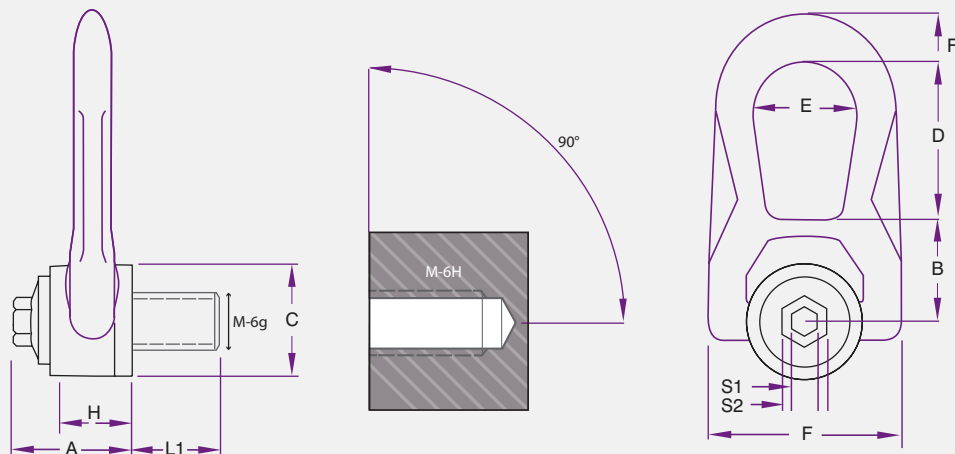
- Each eyebolt is clearly stamped with the permitted F2 WLL.
- F2 WLL - indicates safe use for non-axial lifts.
- F1 WLL - indicates loads which are in line with the axis of the threaded end of the eyebolt. F1 WLL allows up to four (4) times higher lifting capacity whilst maintaining a 4:1 design factor of safety

Product Code	AØ	Metric							TORQUE (Nm)	NET WEIGHT (KG)
		SF 5:1 WLL F1 (t)	SF 4:1 WLL F2 (t)	C	D	E	K	L		
EYE10-G10	M10	1t	0.4t	30	11	43	55	15	14	0.23
EYE12-G10	M12	2t	0.75t	30	11	43	55	18	22	0.23
EYE16-G10	M16	4t	1.5t	34	14	49	64	24	60	0.38
EYE20-G10	M20	6t	2.3t	39	16	56	69	30	105	0.60
EYE24-G10	M24	8t	3.2t	50	19	71	86	36	182	1.10

More sizes available on request.



- European Quality
- Higher working load limits
- Full double swivel action giving greater flexibility and functionality
- Customisation of thread types and bolt lengths available in Australia
- Easier to use in more applications
- Eliminates the issues of offset loading with other swivel lifting points

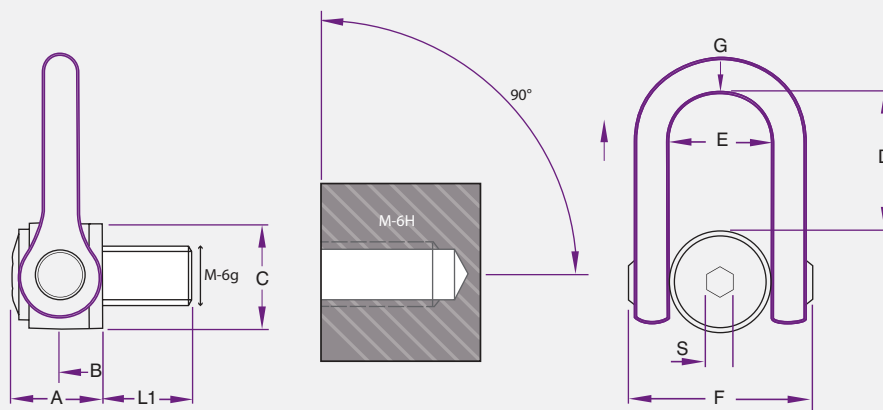


Metric																
Product Code	Dia.Ø	SF 5:1 WLL F1 (t)	SF 4:1 WLL F2 (t)	Standard L1(mm)	S1	S2	A	B	C	D	E	F	G	H	TORQUE (Nm)	NET WEIGHT (KG)
EYE08-DSR	M8 (x1.25)	0.40	0.50	15	8	16	33	30	30	38	27	14	53	9.5	6	0.3
EYE10-DSR	M10 (x1.5)	0.70	0.90	18	8	16	33	30	30	38	27	14	53	9.5	10	0.3
EYE12-DSR	M12 (x1.75)	1.05	1.30	21	8	16	33	30	30	38	27	14	53	9.5	15	0.3
EYE16-DSR	M16 (x2)	2.00	2.30	27	8	20	45	40	45	53	38	17	76	13	50	0.9
EYE20-DSR	M20 (x2.5)	2.50	2.50	30	8	20	45	40	45	53	38	17	76	13	100	0.9
EYE22-DSR	M22 (x2.5)	3.50	4.50	33	14	24	62	55	60	83	55	25	115	19	120	2.6
EYE24-DSR	M24 (x3)	4.40	5.50	36	14	24	62	55	60	83	55	25	115	19	160	2.6
EYE27-DSR	M27 (x3)	5.70	6.00	40	14	24	62	55	60	83	55	25	115	19	200	2.7
EYE30-DSR	M30 (x3.5)	6.00	6.30	45	14	24	62	55	60	83	55	25	115	19	250	2.7

More sizes available on request.

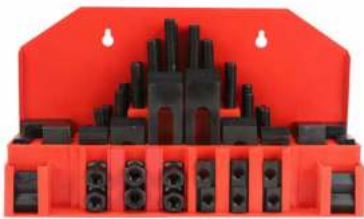


- European Quality
- Higher working load limits
- Full double swivel action giving greater flexibility and functionality
- Customisation of thread types and bolt lengths available in Australia
- Easier to use in more applications
- Eliminates the issues of offset loading with other swivel lifting points



Metric														
Product Code	Dia.Ø	SF 5:1 WLL F1 (t)	SF 4:1 WLL F2 (t)	Standard L1(mm)	S	A	B	C	D	E	F	G	TORQUE (Nm)	NET WEIGHT (KG)
EYE33-DSS	M33 (x3.5)	8.50	10.50	50	19	61	31	70	98	73	149	33	250	5.5
EYE36-DSS	M36 (x4)	11.00	12.00	54	19	61	31	70	98	73	149	33	320	5.5
EYE42-DSS	M42 (x4.5)	13.00	15.00	63	19	61	31	70	98	73	149	33	400	5.8
EYE48-DSS	M48 (x5)	17.00	20.00	68	19	79	38	90	123	91	182	45	600	11.0
EYE64-DSS	M64 (x6)	25.00	32.10	90	19	79	38	95	123	91	182	45	600	12.2

More sizes available on request.



Product Code	Description	Pack Qty
PK-104	1/2 Clamping Kit	52 pcs
PK-105	5/8 Clamping Kit	52 pcs
PKM12	12mm Clamping Kit	52 pcs
PKM16	16mm Clamping Kit	52 pcs