



hales[®]
Tooling Components and Industrial Supplies

PRESS TOOLING SUPPLIES

EDITION 3

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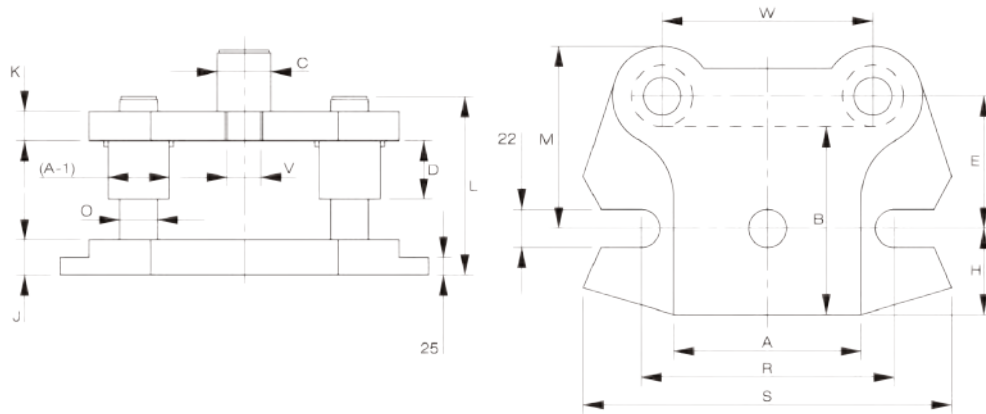
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MATERIALS

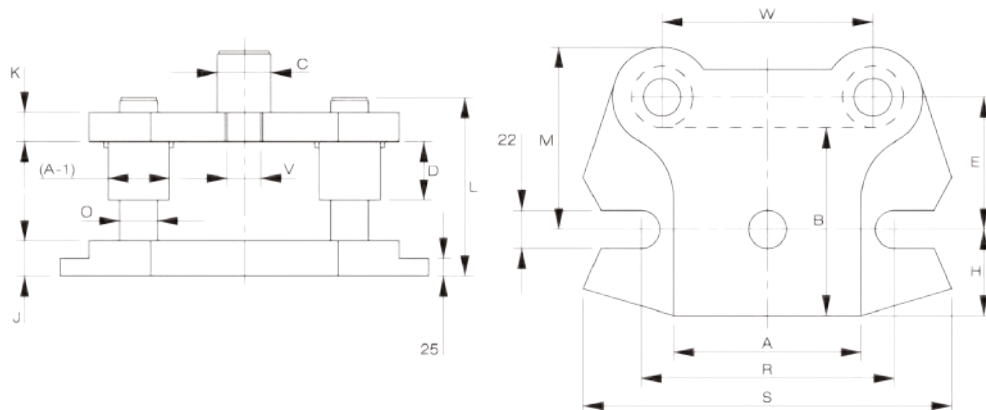
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ACCESSORIES

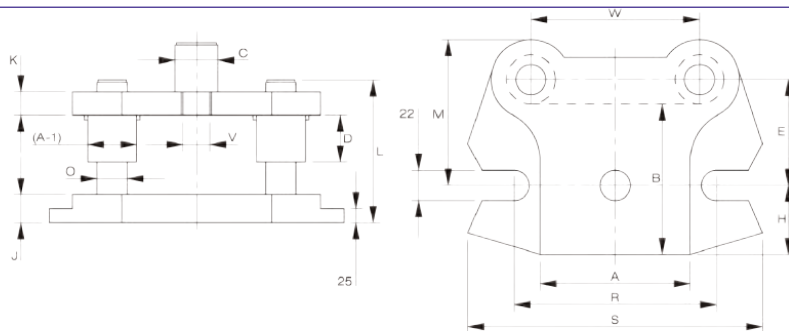
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Product Code	Die Area		Shank Dia	Pin Length	General Dimensions											BSF
	A	B	C	L	W	E	H	J	K	M	O	A-1	R	S	D	V
	Inches				Millimetres											Inches
HRPS-33A	3	3	1 1/4	4 1/2	76.2	55.5	38.1	22.2	22.2	84.1	0.7355	28.63	152.4	203	44.47	3/4
HRPS-44A	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	0.9855	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	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	57.15	1 1/4
HRPS-75A	7	5	2	5 3/4	177.8	84.1	63.5	38.5	30.5	119	0.9855	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	0.9855	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	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	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	323.8	57.15	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	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	0.9855	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	0.9855	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	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	60.33	1 1/4
HRPS-126A	12	6	2	5 3/4	304.8	100	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	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	38.5	30.5	195.3	1.2355	53.97	374.6	425.4	60.33	1 1/4

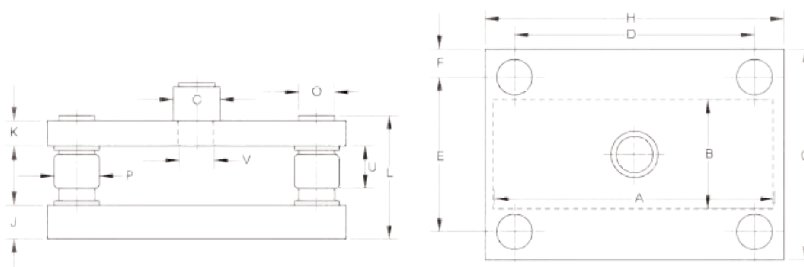


Product Code	Die Area		Shank Dia	Pin Length	General Dimensions											BSF
	A	B	C	L	W	E	H	J	K	M	O	A-1	R	S	D	V
	Inches				Millimetres											Inches
HRPS-146A	14	6	2	5 3/4	355.6	100	76.2	38.5	30.5	141.3	1.2355	53.97	425.4	476.2	60.33	1 1/4
HRPS-146B	14	6	2	6 1/2	355.6	100	76.2	48.5	30.5	141.3	1.2355	53.97	425.4	476.2	60.33	1 1/4
HRPS-148A	14	8	2	5 3/4	355.6	125.4	101.6	38.5	30.5	166.7	1.2355	53.97	425.4	476.2	60.33	1 1/4
HRPS-148B	14	8	2	6 1/2	355.6	125.4	101.6	48.5	30.5	166.7	1.2355	53.97	425.4	476.2	60.33	1 1/4
HRPS-1410A	14	10	2	5 3/4	355.6	157.1	127	38.5	38.5	206.3	1.4855	60	431.8	482.6	69.85	1 1/4
HRPS-1410B	14	10	2	6 1/2	355.6	157.1	127	48.5	38.5	206.3	1.4855	60	431.8	482.6	69.85	1 1/4
HRPS-1414A	14	14	2	5 3/4	355.6	207.6	177.8	38.5	38.5	258.4	1.4855	60	389.2	457.2	69.85	1 1/4
HRPS-1612A	16	12	2	8 1/2	406.4	182.6	152.4	38.5	38.5	233.4	1.4855	60	440	508	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	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	490.8	558.8	69.85	1 1/4
HRPS-1814A	18	14	2	8 1/2	457.2	208	177.8	38.5	38.5	265.1	1.4855	60	502.9	571.5	69.85	1 1/4
HRPS-1814B	18	14	2	10	457.2	208	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	76.18	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	161.9	127	38.5	38.5	219.1	1.4855	60	554.3	622.3	69.85	1 1/4
HRPS-2214A	22	14	2	8 1/2	558	212.7	177.8	38.5	38.5	269.9	1.7355	66.68	604.5	673.1	76.18	1 1/4
HRPS-2214B	22	14	2	10	558	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	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	655.9	732.9	69.85	1 1/4
HRPS-2412A	24	12	2	8 1/2	609.8	152.4	244.5	38.5	38.5	609.6	1.7355	66.68	655.3	732.9	76.18	1 1/4
HRPS-2412B	24	12	2	10	609.8	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	111.1	76.2	38.5	38.5	168.3	1.4855	60	808.3	876.3	69.85	1 1/4
HRPS-309B	30	9	2	10	762	149.2	114.3	48.5	48.5	206.4	1.7355	66.68	808.3	876.3	76.18	1 1/4

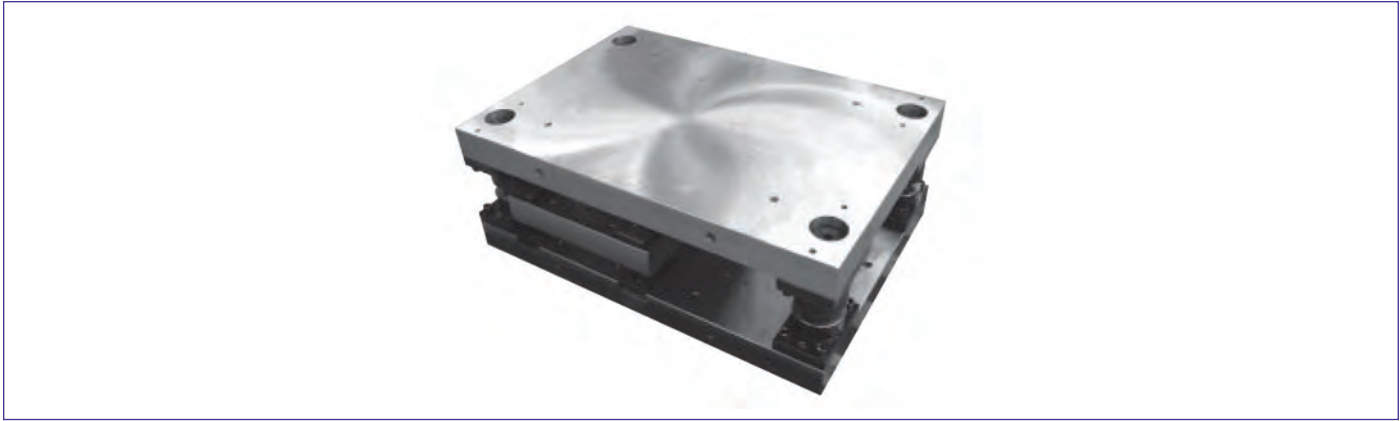


Product Code	Die Area		Shank Dia	Pin Length	General Dimensions											BSF
	A	B	C	L	W	E	H	J	K	M	O	A-1	R	S	D	V
	Inches				Millimetres											Inches
HRRS-58A	5	8	2	5 3/4	142.9	122.2	101.6	38.5	30.5	157.1	0.9855	44.45	212.7	263.5	57.15	1 1/4
HRRS-710A	7	10	2	5 3/4	225.4	134.9	127	38.5	30.5	176.2	1.2355	53.97	246.7	298.4	60.33	1 1/4
HRRS-710B	7	10	2	6 1/2	225.4	134.9	127	48.5	30.5	176.2	1.2355	53.97	246.7	298.4	60.33	1 1/4

Four Pillar Steel Die Set

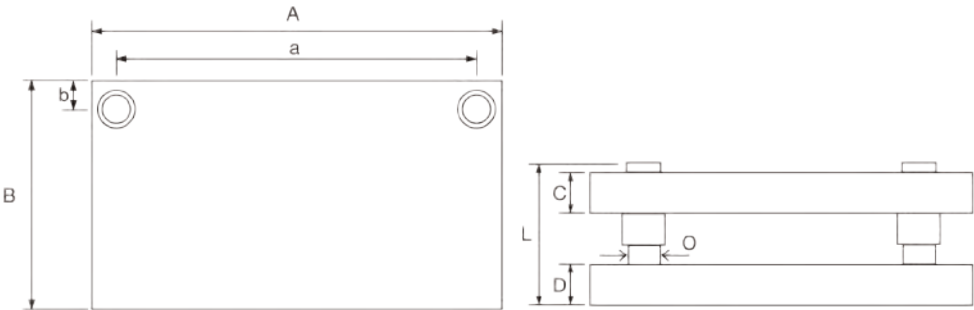


Product Code	Die Area		Shank Dia	General Dimensions								Pin Dia	Bush	BSF
	A	B	C	L	D	E	G	H	J	K	P	O	U	V
	Inches			Millimetres								Inches		
H4PS-106A	10	5 1/2	2	5 3/4	235	187.3	276	323.9	40	40	44.45	0.9855	57.17	1 1/4
H4PS-126A	12	5 1/2	2	5 3/4	279.4	193.7	289	374.7	40	40	53.97	1.2355	60.33	1 1/4
H4PS-128A	12	7 1/2	2	5 3/4	279.4	244.5	340	374.7	40	40	53.97	1.2355	60.33	1 1/4
H4PS-146A	14	5 1/2	2	5 3/4	330.2	193.7	289	425.5	40	40	53.97	1.2355	60.33	1 1/4
H4PS-1410A	14	9 1/2	2	5 3/4	330.2	295.3	390	425.5	40	40	53.97	1.2355	60.33	1 1/4
H4PS-166A	16	5 1/2	2	5 3/4	381	193.7	289	476.3	40	40	53.97	1.2355	60.33	1 1/4
H4PS-168A	16	7 1/2	2	5 3/4	381	257.2	340	476.3	40	40	53.97	1.2355	60.33	1 1/4

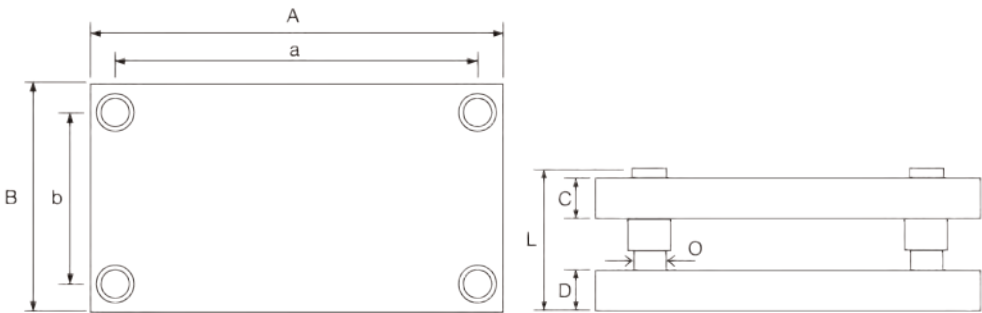


The following options are available on request:

- 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

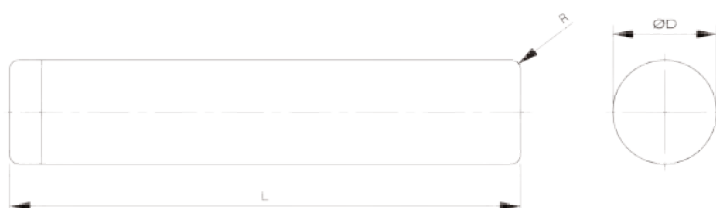


Hales Standard Die Set Press Fit Pins

Materials: Deep core strength case hardened materials

Compatible with HB Bush (Page 9)

HRB Bush (Page 10)



Tolerance	
D	+0
	-0.0002"

Product Code	D	L
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

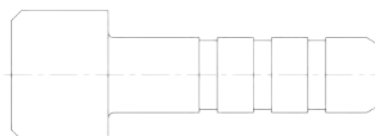
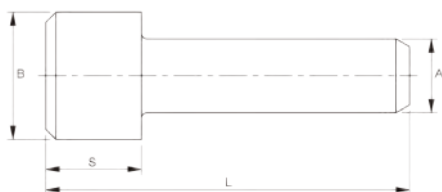
Product Code	D	L
HP12-534	1.4855	5 3/4
HP12-6	1.4855	6
HP12-612	1.4855	6 1/2
HP12-634	1.4855	6 3/4
HP12-7	1.4855	7
HP12-712	1.4855	7 1/2
HP12-8	1.4855	8
HP12-812	1.4855	8 1/2
HP12-912	1.4855	9 1/2
HP12-10	1.4855	10
HP12-12	1.4855	12
HP134-10	1.7355	10
HP134-12	1.7355	12



Hales Line Ream Stepped Pin

- Compatible with HB Bush (Page 9)

Materials: Deep core strength case hardened materials



Note:

This style from EPH 38-175 to larger sizes

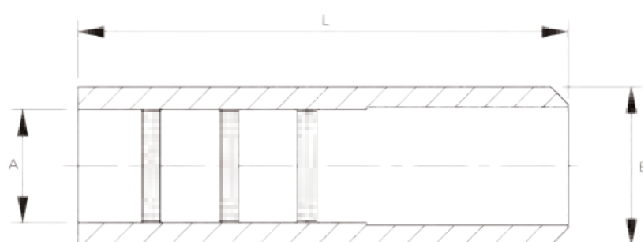
Product Code	A	B	S	L
EPH-20:80	18.68	28.63	25	82
EPH-20:100	18.68	28.63	25	100
EPH-20:125	18.68	28.63	25	125
EPH-20:175	18.68	28.63	25	175
EPH-25:100	25.03	38.15	38	100
EPH-25:125	25.03	38.15	38	125
EPH-25:150	25.03	38.15	38	150
EPH-25:175	25.03	38.15	38	175
EPH-25:200	25.03	38.15	38	200
EPH-32:100	31.38	44.5	45	100
EPH-32:125	31.38	44.5	45	125
EPH-32:150	31.38	44.5	45	150
EPH-32:175	31.38	44.5	45	175
EPH-32:200	31.38	44.5	45	200
EPH-32:215	31.38	44.5	45	215
EPH-32:225	31.38	44.5	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	250
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 Oil-less Press Fit Bush

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

Materials: High carbon chrome bearing steel with solid lubricant



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

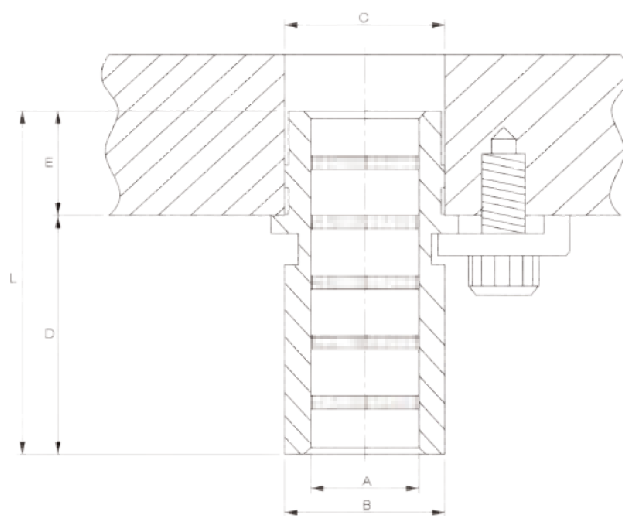
Product Code	A	B	L
HB034-218	0.7356	1.1271	2 1/8
HB034-258	0.7356	1.1271	2 5/8
HB1-3	0.9856	1.5021	3
HB1-312	0.9856	1.5021	3 1/2
HB14-3	1.2356	1.7521	3
HB14-312	1.2356	1.7521	3 1/2
HB14-438	1.2356	1.7521	4 3/8
HB12-312	1.4856	2.0021	3 1/2
HB12-438	1.4856	2.0021	4 3/8
HB12-514	1.4856	2.0021	5 1/4
HB134-412	1.7356	2.5021	4 1/2
HB134-514	1.7356	2.5021	5 1/4



Hales Standard Die Set Oil-less Demountable Guide Bushes

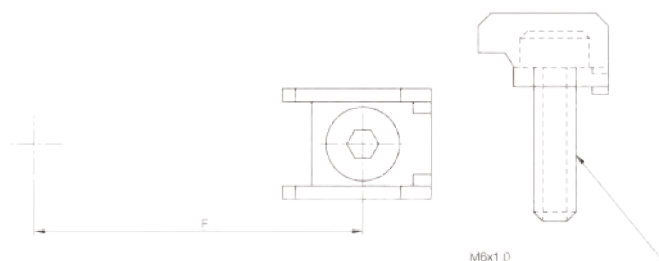
Hales self lubricating die components offer industry standard, maintenance free performance resulting in overall cost savings and operational safety. These bushes are standard components in all Hales die sets. 3 x Toe Clamps included.

Materials: Deep core strength case hardened material with solid lubricant.



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

Product Code	A	B	C	D	E	L	F
HRB 2532	25.037	44.45	38.1	31.75	22.25	54	27.4
HRB 2560	25.037	44.45	38.1	57.15	22.25	79.4	27.4
HRB 3238	31.387	53.97	44.45	38.1	28.58	66.7	32.1
HRB 3261	31.387	53.97	44.45	60.33	28.58	88.9	32.1
HRB 3838	37.737	60	50.8	38.1	34.93	73	35.3
HRB 3870	37.737	60	50.8	69.85	34.93	104.8	35.3
HRB 3890	37.737	60	50.8	88.9	34.93	123.8	35.3
HRB 4576	44.087	66.68	57.15	76.18	41.30	117.5	38.5



Product Code	Description
HRBTC	Toe Clamp



Hales Oil-less Bolt on Pin and Bush Assemblies

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

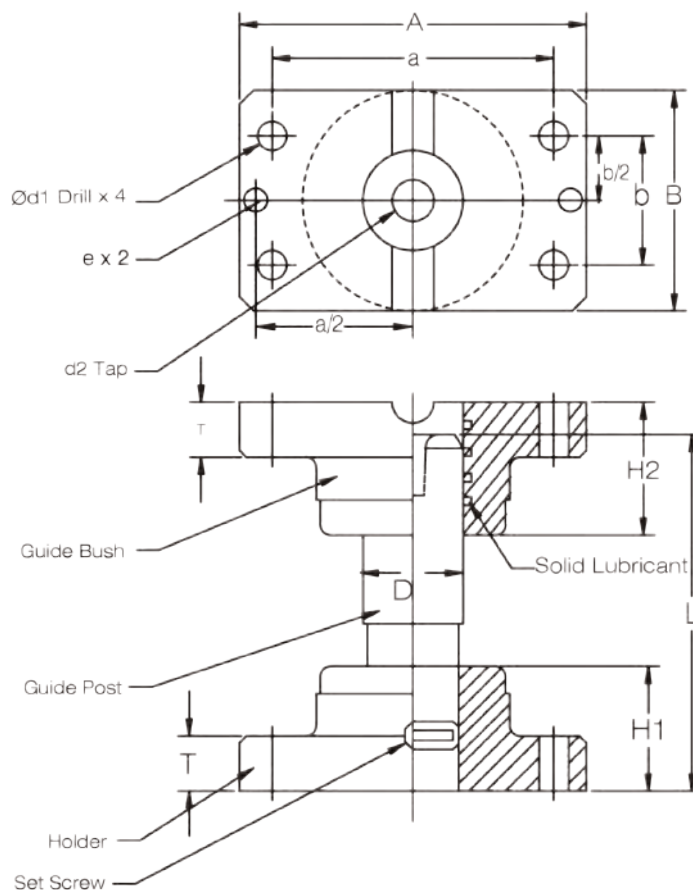
Please note: Dowels and screws are included in assembly.

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	H1	H2	a	b	T	ød1	e=H7	H7	screw 8pcs	dowel 4pcs
PSGR25-100	25	100	84	48	30	45	66	30	20	9	8.0	$+0.015_0$	M8x35	8x30
PSGR25-120		120												
PSGR32-120	32	120	100	58	40	50	76	36	20	11	8.0	$+0.015_0$	M10x40	8x30
PSGR32-140		140												
PSGR32-160		160												
PSGR38-120	38	120	130	75	50	60	100	44	25	11	10.0	$+0.015_0$	M10x45	10x40
PSGR38-140		140												
PSGR38-160		160												
PSGR38-180		180												
PSGR50-160	50	160	155	90	65	85	125	60	25	14	10.0	$+0.015_0$	M12x50	10x40
PSGR50-200		200												
PSGR50-250		250												
PSGR50-300		300												
PSGR60-200	60	200	190	120	75	100	150	80	30	18	13.0	$+0.018_0$	M16x60	13x50
PSGR60-250		250												
PSGR60-300		300												



Hales Bolt on Ball Bearing Pin and Bush Assemblies

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

Perfect precision alignment.

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

Please note: Dowels and screws are included in assembly.

Materials:

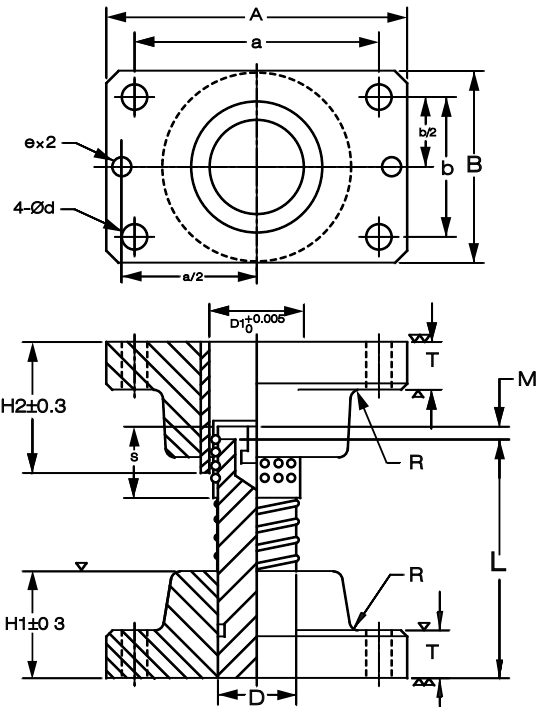
Guide post - Deep core strength case hardened materials

Holder - Automotive high alloyed iron

Guide bush - Automotive high alloyed iron with solid lubricant.

M: Movable range of stopper

Please note: 60 Dia has fixed stopper



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	M8 x 35	8x30
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	M10 x 40	8x30
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	M10 x 45	10x40
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	M12 x 50	10x40
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	M16 x 60	13x50
PSRBB60-240		240															
PSRBB60-260		260															
PSRBB60-300		300															

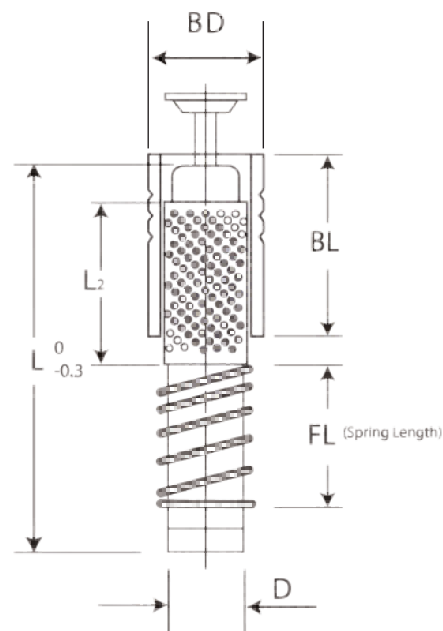


Ball Bearing Pins and Bushes offer distinct advantages:

- The difficulty of assembly and disassembly of die sets is eliminated
- Lubrication problems are almost entirely eliminated
- Perfect alignment reduces wear and increases die life

Ordering Example

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



FULL RANGE																				
Code	D	L														BL	FL	L2	BD	
PPS	20	100	110	120	130	140	150	160	170	180						L50	40-140	50	37	
	22			120	130	140	150	160	170	180						L50	40-140	50	40	
																L60		60	40	
	25			120	130	140	150	160	170	180						L60	40-150	60	45	
																L80		75	45	
	28					140	150	160	170	180	190	200				L60	50-150	60	50	
																L80		75	50	
	32							160	170	180	190	200	220	240		L80	70-190	75	55	
																L100		90	55	
	38										180	190	200	220	240	260	L80	80-190	75	64
																L100	90		64	
	45										180	190	200	220	240	260	L100	80-190	90	74
																L120	110		74	
50												200	220	240	260	L100	80-190	90	83	
															L120	110		83		

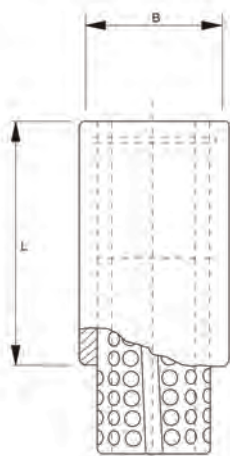
STOCKED SIZES	
Product Code	Description
PPS25-16-L8-15	25 X 160 Ball Bearing Assembly
PPS25-18-L8-15	25 X 180 Ball Bearing Assembly
PPS32-18-L10-19	32 X 180 Ball Bearing Assembly
PPS32-20-L10-19	32 X 200 Ball Bearing Assembly
PPS38-20-L10-19	38 X 200 Ball Bearing Assembly
PPS38-24-L10-19	38 X 240 Ball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



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 that it eliminates any foreign bodies entering the sensitive ball cage area causing damage.

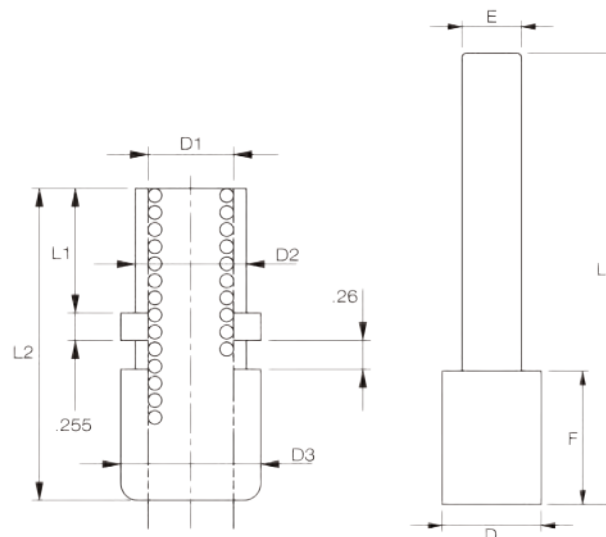
Product Code	B	L
EBB1x3.43	1.9855	3.43
EBB1x4.43	1.9855	4.43
EBB1.25x3.93	2.235	3.93
EBB1.25x4.93	2.235	4.93
EBB1.5x4.18	2.485	4.18
EBB1.5x5.18	2.485	5.18
EBB1.75x4.43	2.985	4.43
EBB1.75x5.43	2.985	5.43
EBB2x5	3.235	5
EBB2x6	3.235	6



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



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



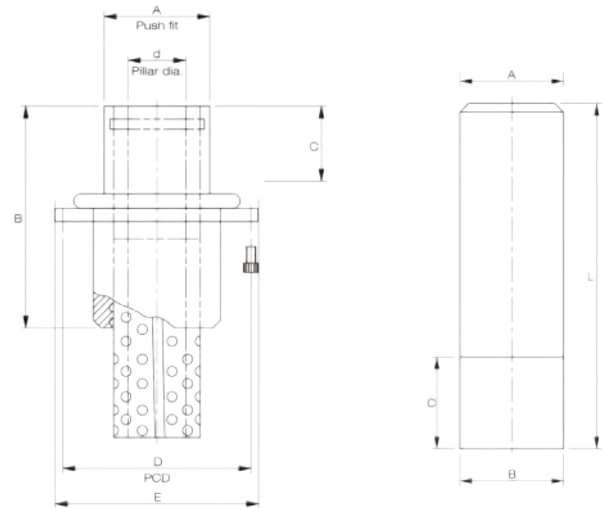
Product Code	D (+.0000-.0002)	E	F	L
A1-1x4.5	0.9855	0.9	1.25	4.5
A1-1x5.75	0.9855	0.9	1.25	5.75
A1-1x7	0.9855	0.9	1.25	7
A1-1x7.5	0.9855	0.9	1.25	7.5
A1-1x8	0.9855	0.9	1.25	8
A1-1.25X5.75	1.2355	1.15	1.5	5.75
A1-1.25X6.5	1.2355	1.15	1.5	6.5
A1-1.25X7	1.2355	1.15	1.5	7
A1-1.25X7.5	1.2355	1.15	1.5	7.5
A1-1.25X8	1.2355	1.15	1.5	8
A1-1.25X8.5	1.2355	1.15	1.5	8.5
A1-1.5X6	1.4855	1.4	1.5	6
A1-1.5X6.5	1.4855	1.4	1.5	6.5
A1-1.5X7	1.4855	1.4	1.5	7
A1-1.5X7.5	1.4855	1.4	1.5	7.5
A1-1.5X8	1.4855	1.4	1.5	8
A1-1.5X8.5	1.4855	1.4	1.5	8.5
A1-1.5X9.5	1.4855	1.4	1.5	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	3.937
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.

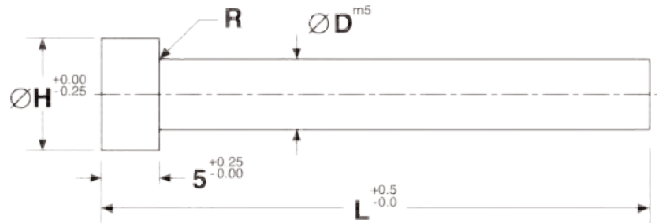


Product Code	d	A	B	C	D	E
EXBB 0.750	0.75	1.125	2.937	0.937	2	2.375
EXBB 1.00	1	1.5	3.437	1.218	2.312	2.687
EXBB 1.25-S	1.25	1.75	3.937	1.218	2.656	3
EXBB 1.250	1.25	1.75	3.937	1.687	2.656	3
EXBB 1.500	1.5	2	4.187	1.875	2.968	3.437

Product Code	A	B	C	L
EXP0.75 X 5.5	0.75	0.7355	1.25	5.5
EXP1 X 6	1	0.9855	1.5	6
EXP1 X 6.5	1	0.9855	1.5	6.5
EXP1 X 7.5	1	0.9855	1.5	7.5
EXP1.25 X 6	1.25	1.2355	2	6
EXP1.25 X 6.5	1.25	1.2355	2	6.5
EXP1.25 X 7.5	1.25	1.2355	2	7.5
EXP1.25 X 8.5	1.25	1.2355	2	8.5
EXP1.50 X 7.5	1.5	1.4855	2	7.5
EXP1.50 X 8.5	1.5	1.4855	2	8.5
EXP1.50 X 9.5	1.5	1.4855	2	9.5



Materials: M2, 64 +/- 2 Hrc Triple Tempered (HSS)
Head Hardness: 50 +/- 5 Hrc.

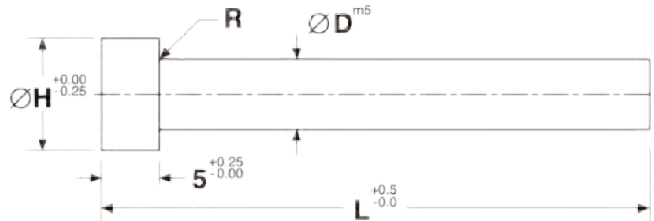


D	H	HSS - Metric				
		72	100	120	150	160
2	5		HGPSB-02100-M2			
2.5	5.5		HGPSB-025100-M2			
3	6	HGPSB-03072-M2	HGPSB-03100-M2			
3.5	6.5		HGPSB-035100-M2			
4	7	HGPSB-04072-M2	HGPSB-04100-M2			
4.5	7.5		HGPSB-045100-M2			
5	8	HGPSB-05072-M2	HGPSB-05100-M2			
5.5	8.5		HGPSB-055100-M2			
6	9	HGPSB-06072-M2	HGPSB-06100-M2	HGPSB-06120-M2		
6.5	9.5		HGPSB-065100-M2			
7	10	HGPSB-07072-M2	HGPSB-07100-M2			
7.5	10.5		HGPSB-075100-M2			
8	11	HGPSB-08072-M2	HGPSB-08100-M2	HGPSB-08120-M2	HGPSB-08150-M2	HGPSB-08160-M2
9	12	HGPSB-09072-M2	HGPSB-09100-M2	HGPSB-09120-M2		
10	13	HGPSB-10072-M2	HGPSB-10100-M2	HGPSB-10120-M2		HGPSB-10160-M2
11	14	HGPSB-11072-M2	HGPSB-11100-M2			
12	15	HGPSB-12072-M2	HGPSB-12100-M2	HGPSB-12120-M2		HGPSB-12160-M2
13	16	HGPSB-13072-M2	HGPSB-13100-M2	HGPSB-13120-M2	HGPSB-13150-M2	HGPSB-13160-M2
14	17	HGPSB-14072-M2	HGPSB-14100-M2			
16	19	HGPSB-16072-M2	HGPSB-16100-M2	HGPSB-16120-M2		HGPSB-16160-M2
20	23	HGPSB-20072-M2	HGPSB-20100-M2	HGPSB-20120-M2		HGPSB-20160-M2
25	28	HGPSB-25072-M2	HGPSB-25100-M2	HGPSB-25120-M2		
32	35		HGPSB-32100-M2			

D	H (mm)	HSS - Imperial			
		72	100	120	130
1/8	5	HGPSBI-18-072-M2	HGPSBI-18-100-M2		
5/32	6	HGPSBI-532-072-M2	HGPSBI-532-100-M2		
3/16	8	HGPSBI-316-072-M2	HGPSBI-316-100-M2		
1/4	9	HGPSBI-14-072-M2	HGPSBI-14-100-M2		
5/16	11	HGPSBI-516-072-M2	HGPSBI-516-100-M2		
3/8	13	HGPSBI-38-072-M2	HGPSBI-38-100-M2	HGPSBI-38-120-M2	
1/2	16	HGPSBI-12-072-M2	HGPSBI-12-100-M2		HGPSBI-12-130-M2
5/8	19		HGPSBI-58-100-M2		
3/4	22		HGPSBI-34-100-M2		



Materials: Tool Steel, 62 +/- 2 Hrc Triple Tempered (A2)
Head Hardness: 40 +/- 5 Hrc.



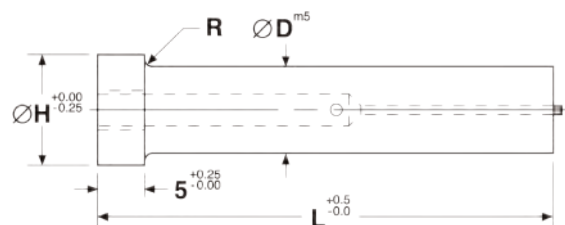
D	H	A2 - Metric		
		72	100	120
3	6	HGPSB-03072-A2	HGPSB-03100-A2	
4	7	HGPSB-04072-A2	HGPSB-04100-A2	
5	8	HGPSB-05072-A2	HGPSB-05100-A2	
6	9	HGPSB-06072-A2	HGPSB-06100-A2	
7	10	HGPSB-07072-A2	HGPSB-07100-A2	
8	11	HGPSB-08072-A2	HGPSB-08100-A2	HGPSB-08120-A2
9	12	HGPSB-09072-A2	HGPSB-09100-A2	
10	13	HGPSB-10072-A2	HGPSB-10100-A2	HGPSB-10120-A2
11	14	HGPSB-11072-A2	HGPSB-11100-A2	
12	15	HGPSB-12072-A2	HGPSB-12100-A2	HGPSB-12120-A2
13	16	HGPSB-13072-A2	HGPSB-13100-A2	HGPSB-13120-A2
14	17	HGPSB-14072-A2	HGPSB-14100-A2	
16	19	HGPSB-16072-A2	HGPSB-16100-A2	HGPSB-16120-A2
20	23	HGPSB-20072-A2	HGPSB-20100-A2	HGPSB-20120-A2
25	28	HGPSB-25072-A2	HGPSB-25100-A2	
32	35		HGPSB-32100-A2	

D	H (mm)	A2 - Imperial	
		72	100
1/8	5	HGPSBI-18-072-A2	
5/32	6	HGPSBI-532-072-A2	HGPSBI-532-100-A2
3/16	8		HGPSBI-316-100-A2
1/4	9		HGPSBI-14-100-A2
3/8	13	HGPSBI-38-072-A2	
5/8	19		HGPSBI-58-100-A2
3/4	22		HGPSBI-34-100-A2



Materials: M2, 64 +/- 2 Hrc Triple Tempered (HSS)

Head Hardness: 50 +/- 5 Hrc.

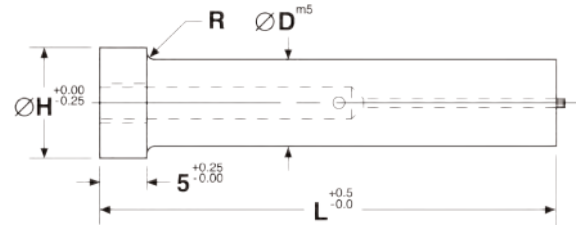


D	H	HSS - Metric			
		56	63	71	80
5	8	HGESB-05056-M2	HGESB-05063-M2	HGESB-05071-M2	HGESB-05080-M2
6	9	HGESB-06056-M2	HGESB-06063-M2	HGESB-06071-M2	HGESB-06080-M2
8	11	HGESB-08056-M2	HGESB-08063-M2	HGESB-08071-M2	HGESB-08080-M2
10	13	HGESB-10056-M2	HGESB-10063-M2	HGESB-10071-M2	HGESB-10080-M2
12	15	HGESB-12056-M2	HGESB-12063-M2	HGESB-12071-M2	HGESB-12080-M2
13	16	HGESB-13056-M2	HGESB-13063-M2	HGESB-13071-M2	HGESB-13080-M2
14	17	HGESB-14056-M2	HGESB-14063-M2	HGESB-14071-M2	HGESB-14080-M2
16	19	HGESB-16056-M2	HGESB-16063-M2	HGESB-16071-M2	HGESB-16080-M2
20	23	HGESB-20056-M2	HGESB-20063-M2	HGESB-20071-M2	HGESB-20080-M2
25	28			HGESB-25071-M2	HGESB-25080-M2
32	35				HGESB-32080-M2

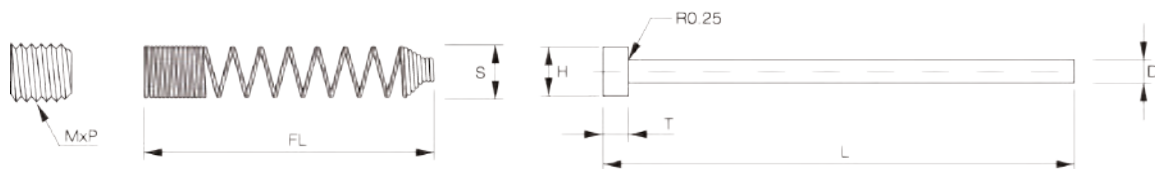
D	H	HSS - Metric		
		90	100	120
5	8	HGESB-05090-M2	HGESB-05100-M2	
6	9	HGESB-06090-M2	HGESB-06100-M2	
7	10		HGESB-07100-M2	
8	11	HGESB-08090-M2	HGESB-08100-M2	
10	13	HGESB-10090-M2	HGESB-10100-M2	
12	15	HGESB-12090-M2	HGESB-12100-M2	HGESB-12120-M2
13	16	HGESB-13090-M2	HGESB-13100-M2	
14	17	HGESB-14090-M2	HGESB-14100-M2	
16	19	HGESB-16090-M2	HGESB-16100-M2	HGESB-16120-M2
20	23	HGESB-20090-M2	HGESB-20100-M2	
25	28		HGESB-25100-M2	
32	35		HGESB-32100-M2	



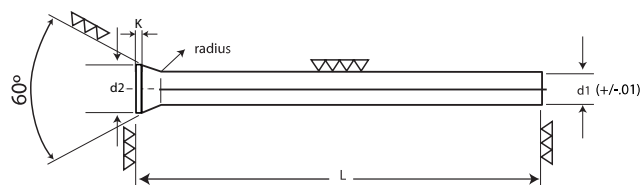
Materials: Tool Steel, 62 +/- 2 Hrc Triple Tempered (A2)
Head Hardness: 40 +/- 5 Hrc.



D	H	A2 - Metric					
		56	63	71	80	90	100
5	8	HGESB-05056-A2	HGESB-05063-A2	HGESB-05071-A2	HGESB-05080-A2	HGESB-05090-A2	HGESB-05100-A2
6	9	HGESB-06056-A2	HGESB-06063-A2	HGESB-06071-A2	HGESB-06080-A2	HGESB-06090-A2	HGESB-06100-A2
8	11	HGESB-08056-A2	HGESB-08063-A2	HGESB-08071-A2	HGESB-08080-A2	HGESB-08090-A2	HGESB-08100-A2
10	13	HGESB-10056-A2	HGESB-10063-A2	HGESB-10071-A2	HGESB-10080-A2	HGESB-10090-A2	HGESB-10100-A2
12	15	HGESB-12056-A2	HGESB-12063-A2	HGESB-12071-A2	HGESB-12080-A2	HGESB-12090-A2	HGESB-12100-A2
13	16	HGESB-13056-A2	HGESB-13063-A2	HGESB-13071-A2	HGESB-13080-A2	HGESB-13090-A2	HGESB-13100-A2
16	19	HGESB-16056-A2	HGESB-16063-A2	HGESB-16071-A2	HGESB-16080-A2	HGESB-16090-A2	HGESB-16100-A2
20	23	HGESB-20056-A2	HGESB-20063-A2	HGESB-20071-A2	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	2	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	6.6	101.6

**Materials: (HSS) M2, Tungsten High Speed Steel**

Shank Hardness: 64 +/- 2 Hrc

Head Hardness: 50 +/- 5 Hrc.

DIA d1	d2 +/- 0.1	K +0.2 R-3	HSS		
			70	80	100
0.50	0.9	0.2	DF-0050-070-M2		
0.55	1.0	0.2	DF-0055-070-M2		
0.60	1.1	0.2	DF-0060-070-M2		
0.65	1.2	0.2	DF-0065-070-M2		
0.70	1.3	0.2	DF-0070-070-M2		
0.75	1.3	0.2	DF-0075-070-M2		
0.80	1.4	0.4	DF-0080-070-M2		
0.85	1.4	0.4	DF-0085-070-M2		
0.90	1.6	0.4	DF-0090-070-M2		
0.95	1.6	0.4	DF-0095-070-M2		
1.00	1.8	0.5	DF-0100-070-M2	DF-0100-080-M2	DF-0100-100-M2
1.05	1.8	0.5	DF-0105-070-M2		
1.10	1.8	0.5	DF-0110-070-M2	DF-0110-080-M2	DF-0110-100-M2
1.15	2.0	0.5	DF-0115-070-M2		
1.20	2.0	0.5	DF-0120-070-M2	DF-0120-080-M2	DF-0120-100-M2
1.25	2.0	0.5	DF-0125-070-M2	DF-0125-080-M2	DF-0125-100-M2
1.30	2.0	0.5	DF-0130-070-M2	DF-0130-080-M2	DF-0130-100-M2
1.35	2.2	0.5	DF-0135-070-M2		
1.40	2.2	0.5	DF-0140-070-M2	DF-0140-080-M2	DF-0140-100-M2
1.45	2.2	0.5	DF-0145-070-M2		
1.50	2.2	0.5	DF-0150-070-M2	DF-0150-080-M2	DF-0150-100-M2
1.55	2.5	0.5	DF-0155-070-M2		
1.60	2.5	0.5	DF-0160-070-M2	DF-0160-080-M2	DF-0160-100-M2
1.65	2.5	0.5	DF-0165-070-M2		
1.70	2.5	0.5	DF-0170-070-M2	DF-0170-080-M2	DF-0170-100-M2
1.75	2.8	0.5	DF-0175-070-M2	DF-0175-080-M2	DF-0175-100-M2
1.80	2.8	0.5	DF-0180-070-M2	DF-0180-080-M2	DF-0180-100-M2
1.85	2.8	0.5	DF-0185-070-M2		
1.90	2.8	0.5	DF-0190-070-M2	DF-0190-080-M2	DF-0190-100-M2
1.95	3.0	0.5	DF-0195-070-M2		
2.00	3.0	0.5	DF-0200-070-M2	DF-0200-080-M2	DF-0200-100-M2
2.05	3.2	0.5	DF-0205-070-M2		
2.10	3.2	0.5	DF-0210-070-M2	DF-0210-080-M2	DF-0210-100-M2
2.15	3.2	0.5	DF-0215-070-M2		
2.20	3.2	0.5	DF-0220-070-M2	DF-0220-080-M2	DF-0220-100-M2
2.25	3.5	0.5	DF-0225-070-M2	DF-0225-080-M2	DF-0225-100-M2
2.30	3.5	0.5	DF-0230-070-M2	DF-0230-080-M2	DF-0230-100-M2
2.35	3.5	0.5	DF-0235-070-M2		
2.40	3.5	0.5	DF-0240-070-M2	DF-0240-080-M2	DF-0240-100-M2
2.45	3.5	0.5	DF-0245-070-M2		
2.50	3.5	0.5	DF-0250-070-M2	DF-0250-080-M2	DF-0250-100-M2
2.55	4.0	0.5	DF-0255-070-M2		
2.60	4.0	0.5	DF-0260-070-M2	DF-0260-080-M2	DF-0260-100-M2
2.65	4.0	0.5	DF-0265-070-M2		
2.70	4.0	0.5	DF-0270-070-M2	DF-0270-080-M2	DF-0270-100-M2
2.75	4.0	0.5	DF-0275-070-M2	DF-0275-080-M2	DF-0275-100-M2
2.80	4.0	0.5	DF-0280-070-M2	DF-0280-080-M2	DF-0280-100-M2
2.85	4.0	0.5	DF-0285-070-M2		
2.90	4.0	0.5	DF-0290-070-M2	DF-0290-080-M2	DF-0290-100-M2
2.95	4.0	0.5	DF-0295-070-M2		
3.00	4.5	0.5	DF-0300-070-M2	DF-0300-080-M2	DF-0300-100-M2
3.05	4.5	0.5	DF-0305-070-M2		

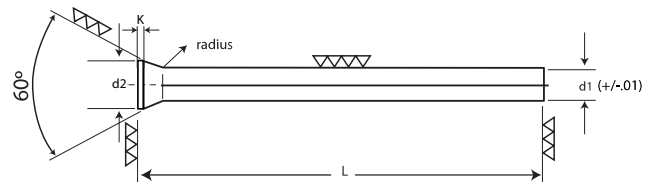
Materials: (A2) 12% Chromium Tool Steel

Shank Hardness: 62 +/- 2 Hrc

Head Hardness: 40 +/- 5 Hrc.

DIA d1	d2 +/- 0.1	K +0.2 R-3	A2		
			70	80	100
0.55	1.0	0.2	DF-0055-070-A2		
0.60	1.1	0.2	DF-0060-070-A2		
0.65	1.2	0.2	DF-0065-070-A2		
0.70	1.3	0.2	DF-0070-070-A2		
0.75	1.3	0.2	DF-0075-070-A2		
0.80	1.4	0.4	DF-0080-070-A2		
0.85	1.4	0.4	DF-0085-070-A2		
0.90	1.6	0.4	DF-0090-070-A2		
0.95	1.6	0.4	DF-0095-070-A2		
1.00	1.8	0.5	DF-0100-070-A2	DF-0100-080-A2	DF-0100-100-A2
1.05	1.8	0.5	DF-0105-070-A2		
1.10	1.8	0.5	DF-0110-070-A2	DF-0110-080-A2	DF-0110-100-A2
1.15	2.0	0.5	DF-0115-070-A2		
1.20	2.0	0.5	DF-0120-070-A2	DF-0120-080-A2	DF-0120-100-A2
1.25	2.0	0.5	DF-0125-070-A2	DF-0125-080-A2	DF-0125-100-A2
1.30	2.0	0.5	DF-0130-070-A2	DF-0130-080-A2	DF-0130-100-A2
1.35	2.2	0.5	DF-0135-070-A2		
1.40	2.2	0.5	DF-0140-070-A2	DF-0140-080-A2	DF-0140-100-A2
1.45	2.2	0.5	DF-0145-070-A2		
1.50	2.2	0.5	DF-0150-070-A2	DF-0150-080-A2	DF-0150-100-A2
1.55	2.5	0.5	DF-0155-070-A2		
1.60	2.5	0.5	DF-0160-070-A2	DF-0160-080-A2	DF-0160-100-A2
1.65	2.5	0.5	DF-0165-070-A2	DF-0165-080-A2	
1.70	2.5	0.5	DF-0170-070-A2	DF-0170-080-A2	DF-0170-100-A2
1.75	2.8	0.5	DF-0175-070-A2	DF-0175-080-A2	DF-0175-100-A2
1.80	2.8	0.5	DF-0180-070-A2	DF-0180-080-A2	DF-0180-100-A2
1.85	2.8	0.5	DF-0185-070-A2		
1.90	2.8	0.5	DF-0190-070-A2	DF-0190-080-A2	DF-0190-100-A2
1.95	3.0	0.5	DF-0195-070-A2		
2.00	3.0	0.5	DF-0200-070-A2	DF-0200-080-A2	DF-0200-100-A2
2.05	3.2	0.5	DF-0205-070-A2		
2.10	3.2	0.5	DF-0210-070-A2	DF-0210-080-A2	DF-0210-100-A2
2.15	3.2	0.5	DF-0215-070-A2		
2.20	3.2	0.5	DF-0220-070-A2	DF-0220-080-A2	
2.25	3.5	0.5	DF-0225-070-A2	DF-0225-080-A2	DF-0225-100-A2
2.30	3.5	0.5	DF-0230-070-A2	DF-0230-080-A2	DF-0230-100-A2
2.35	3.5	0.5	DF-0235-070-A2		
2.40	3.5	0.5	DF-0240-070-A2	DF-0240-080-A2	DF-0240-100-A2
2.45	3.5	0.5	DF-0245-070-A2		
2.50	3.5	0.5	DF-0250-070-A2	DF-0250-080-A2	DF-0250-100-A2
2.55	4.0	0.5	DF-0255-070-A2		
2.60	4.0	0.5	DF-0260-070-A2	DF-0260-080-A2	DF-0260-100-A2
2.65	4.0	0.5	DF-0265-070-A2		
2.70	4.0	0.5	DF-0270-070-A2	DF-0270-080-A2	DF-0270-100-A2
2.75	4.0	0.5	DF-0275-070-A2	DF-0275-080-A2	DF-0275-100-A2
2.80	4.0	0.5	DF-0280-070-A2	DF-0280-080-A2	DF-0280-100-A2
2.85	4.0	0.5	DF-0285-070-A2		
2.90	4.0	0.5	DF-0290-070-A2	DF-0290-080-A2	DF-0290-100-A2
2.95	4.0	0.5	DF-0295-070-A2		
3.00	4.5	0.5	DF-0300-070-A2	DF-0300-080-A2	DF-0300-100-A2

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Materials: (HSS) M2, Tungsten High Speed Steel

Shank Hardness: 64 +/- 2 Hrc

Head Hardness: 50 +/- 5 Hrc.

DIA d1	d2 +/- 0.1	κ +0.2 R-3	HSS		
			70	80	100
3.10	4.5	0.5	DF-0310-070-M2	DF-0310-080-M2	DF-0310-100-M2
3.15	4.5	0.5	DF-0315-070-M2		
3.20	4.5	0.5	DF-0320-070-M2	DF-0320-080-M2	DF-0320-100-M2
3.25	4.5	0.5	DF-0325-070-M2	DF-0325-080-M2	DF-0325-100-M2
3.30	4.5	0.5	DF-0330-070-M2	DF-0330-080-M2	DF-0330-100-M2
3.35	4.5	0.5	DF-0335-070-M2		
3.40	4.5	0.5	DF-0340-070-M2	DF-0340-080-M2	DF-0340-100-M2
3.45	4.5	0.5	DF-0345-070-M2		
3.50	5.0	0.5	DF-0350-070-M2	DF-0350-080-M2	DF-0350-100-M2
3.55	5.0	0.5	DF-0355-070-M2		
3.60	5.0	0.5	DF-0360-070-M2	DF-0360-080-M2	DF-0360-100-M2
3.65	5.0	0.5	DF-0365-070-M2	DF-0365-080-M2	
3.70	5.0	0.5	DF-0370-070-M2	DF-0370-080-M2	DF-0370-100-M2
3.75	5.0	0.5	DF-0375-070-M2	DF-0375-080-M2	DF-0375-100-M2
3.80	5.0	0.5	DF-0380-070-M2	DF-0380-080-M2	DF-0380-100-M2
3.85	5.0	0.5	DF-0385-070-M2		
3.90	5.0	0.5	DF-0390-070-M2	DF-0380-080-M2	DF-0390-100-M2
3.95	5.0	0.5	DF-0395-070-M2	DF-0395-080-M2	
4.00	5.5	0.5	DF-0400-070-M2	DF-0400-080-M2	DF-0400-100-M2
4.05	5.5	0.5	DF-0405-070-M2		
4.10	5.5	0.5	DF-0410-070-M2	DF-0410-080-M2	DF-0410-100-M2
4.15	5.5	0.5	DF-0415-070-M2		
4.20	5.5	0.5	DF-0420-070-M2	DF-0420-080-M2	DF-0420-100-M2
4.25	5.5	0.5	DF-0425-070-M2	DF-0425-080-M2	DF-0425-100-M2
4.30	5.5	0.5	DF-0430-070-M2	DF-0430-080-M2	DF-0430-100-M2
4.35	5.5	0.5	DF-0435-070-M2		
4.40	5.5	0.5	DF-0440-070-M2	DF-0440-080-M2	DF-0440-100-M2
4.45	5.5	0.5	DF-0445-070-M2		
4.50	6.0	0.5	DF-0450-070-M2	DF-0450-080-M2	DF-0450-100-M2
4.55	6.0	0.5	DF-0455-070-M2		
4.60	6.0	0.5	DF-0460-070-M2	DF-0460-080-M2	DF-0460-100-M2
4.65	6.0	0.5	DF-0465-070-M2		
4.70	6.0	0.5	DF-0470-070-M2	DF-0470-080-M2	DF-0470-100-M2
4.75	6.0	0.5	DF-0475-070-M2	DF-0475-080-M2	DF-0475-100-M2
4.80	6.0	0.5	DF-0480-070-M2	DF-0480-080-M2	DF-0480-100-M2
4.85	6.0	0.5	DF-0485-070-M2		
4.90	6.0	0.5	DF-0490-070-M2	DF-0490-080-M2	DF-0490-100-M2
4.95	6.0	0.5	DF-0495-070-M2		
5.00	6.5	0.5	DF-0500-070-M2	DF-0500-080-M2	DF-0500-100-M2
5.05	6.5	0.5	DF-0505-070-M2		
5.10	6.5	0.5	DF-0510-070-M2	DF-0510-080-M2	DF-0510-100-M2
5.15	6.5	0.5	DF-0515-070-M2		
5.20	6.5	0.5	DF-0520-070-M2	DF-0520-080-M2	DF-0520-100-M2
5.25	6.5	0.5	DF-0525-070-M2	DF-0525-080-M2	DF-0525-100-M2
5.30	6.5	0.5	DF-0530-070-M2	DF-0530-080-M2	DF-0530-100-M2
5.35	6.5	0.5	DF-0535-070-M2		
5.40	6.5	0.5	DF-0540-070-M2	DF-0540-080-M2	DF-0540-100-M2
5.45	6.5	0.5	DF-0545-070-M2		
5.50	7.0	0.5	DF-0550-070-M2	DF-0550-080-M2	DF-0550-100-M2
5.55	7.0	0.5	DF-0555-070-M2		
5.60	7.0	0.5	DF-0560-070-M2	DF-0560-080-M2	DF-0560-100-M2
5.65	7.0	0.5	DF-0565-070-M2		

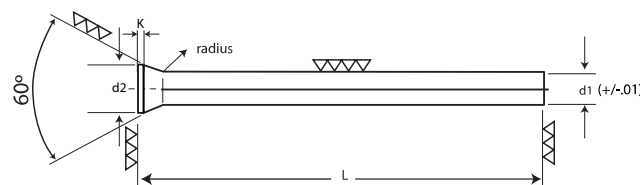
Materials: (A2) 12% Chromium Tool Steel

Shank Hardness: 62 +/- 2 Hrc

Head Hardness: 40 +/- 5 Hrc.

DIA d1	d2 +/- 0.1	κ +0.2 R-3	A2		
			70	80	100
3.10	4.5	0.5	DF-0310-070-A2	DF-0310-080-A2	DF-0310-100-A2
3.20	4.5	0.5	DF-0320-070-A2	DF-0320-080-A2	DF-0320-100-A2
3.25	4.5	0.5	DF-0325-070-A2	DF-0325-080-A2	DF-0325-100-A2
3.30	4.5	0.5	DF-0330-070-A2	DF-0330-080-A2	DF-0330-100-A2
3.40	4.5	0.5	DF-0340-070-A2	DF-0340-080-A2	DF-0340-100-A2
3.50	5.0	0.5	DF-0350-070-A2	DF-0350-080-A2	DF-0350-100-A2
3.60	5.0	0.5	DF-0360-070-A2	DF-0360-080-A2	DF-0360-100-A2
3.65	5.0	0.5	DF-0365-070-A2	DF-0365-080-A2	
3.70	5.0	0.5	DF-0370-070-A2	DF-0370-080-A2	DF-0370-100-A2
3.75	5.0	0.5	DF-0375-070-A2	DF-0375-080-A2	DF-0375-100-A2
3.80	5.0	0.5	DF-0380-070-A2	DF-0380-080-A2	DF-0380-100-A2
3.90	5.0	0.5	DF-0390-070-A2	DF-0390-080-A2	DF-0390-100-A2
3.95	5.0	0.5	DF-0395-070-A2	DF-0395-080-A2	
4.00	5.5	0.5	DF-0400-070-A2	DF-0400-080-A2	DF-0400-100-A2
4.10	5.5	0.5	DF-0410-070-A2	DF-0410-080-A2	DF-0410-100-A2
4.20	5.5	0.5	DF-0420-070-A2	DF-0420-080-A2	DF-0420-100-A2
4.25	5.5	0.5	DF-0425-070-A2	DF-0425-080-A2	DF-0425-100-A2
4.30	5.5	0.5	DF-0430-070-A2	DF-0430-080-A2	DF-0430-100-A2
4.40	5.5	0.5	DF-0440-070-A2	DF-0440-080-A2	DF-0440-100-A2
4.50	6.0	0.5	DF-0450-070-A2	DF-0450-080-A2	DF-0450-100-A2
4.60	6.0	0.5	DF-0460-070-A2	DF-0460-080-A2	DF-0460-100-A2
4.70	6.0	0.5	DF-0470-070-A2	DF-0470-080-A2	DF-0470-100-A2
4.75	6.0	0.5	DF-0475-070-A2	DF-0475-080-A2	DF-0475-100-A2
4.80	6.0	0.5	DF-0480-070-A2	DF-0480-080-A2	DF-0480-100-A2
4.90	6.0	0.5	DF-0490-070-A2	DF-0490-080-A2	DF-0490-100-A2
5.00	6.5	0.5	DF-0500-070-A2	DF-0500-080-A2	DF-0500-100-A2
5.10	6.5	0.5	DF-0510-070-A2	DF-0510-080-A2	DF-0510-100-A2
5.20	6.5	0.5	DF-0520-070-A2	DF-0520-080-A2	DF-0520-100-A2
5.25	6.5	0.5	DF-0525-070-A2	DF-0525-080-A2	DF-0525-100-A2
5.30	6.5	0.5	DF-0530-070-A2	DF-0530-080-A2	DF-0530-100-A2
5.40	6.5	0.5	DF-0540-070-A2	DF-0540-080-A2	DF-0540-100-A2
5.50	7.0	0.5	DF-0550-070-A2	DF-0550-080-A2	DF-0550-100-A2
5.60	7.0	0.5	DF-0560-070-A2	DF-0560-080-A2	

Continued next page

**Materials: (HSS) M2, Tungsten High Speed Steel**

Shank Hardness: 64 +/- 2 Hrc

Head Hardness: 50 +/- 5 Hrc.

DIA d1	d2 +/- 0.1	K +0.2 R-3	HSS		
			70	80	100
5.70	7.0	0.5	DF-0570-070-M2	DF-0570-080-M2	DF-0570-100-M2
5.75	7.0	0.5	DF-0575-070-M2		DF-0575-100-M2
5.80	7.0	0.5	DF-0580-070-M2	DF-0580-080-M2	DF-0580-100-M2
5.85	7.0	0.5	DF-0585-070-M2		
5.90	7.0	0.5	DF-0590-070-M2	DF-0590-080-M2	DF-0590-100-M2
5.95	7.0	0.5	DF-0595-070-M2		
6.00	8.0	0.5	DF-0600-070-M2	DF-0600-080-M2	DF-0600-100-M2
6.10	8.0	0.5	DF-0610-070-M2	DF-0610-080-M2	DF-0610-100-M2
6.20	8.0	0.5	DF-0620-070-M2	DF-0620-080-M2	DF-0620-100-M2
6.25	8.0	0.5	DF-0625-070-M2	DF-0625-080-M2	DF-0625-100-M2
6.30	8.0	0.5	DF-0630-070-M2	DF-0630-080-M2	DF-0630-100-M2
6.40	8.0	0.5	DF-0640-070-M2	DF-0640-080-M2	DF-0640-100-M2
6.50	9.0	1.0	DF-0650-070-M2	DF-0650-080-M2	DF-0650-100-M2
6.60	9.0	1.0	DF-0660-070-M2	DF-0660-080-M2	DF-0660-100-M2
6.70	9.0	1.0	DF-0670-070-M2	DF-0670-080-M2	DF-0670-100-M2
6.75	9.0	1.0	DF-0675-070-M2	DF-0675-080-M2	DF-0675-100-M2
6.80	9.0	1.0	DF-0680-070-M2	DF-0680-080-M2	DF-0680-100-M2
6.90	9.0	1.0	DF-0690-070-M2	DF-0690-080-M2	DF-0690-100-M2
7.00	9.0	1.0	DF-0700-070-M2	DF-0700-080-M2	DF-0700-100-M2
7.10	9.0	1.0	DF-0710-070-M2	DF-0710-080-M2	DF-0710-100-M2
7.20	9.0	1.0	DF-0720-070-M2	DF-0720-080-M2	DF-0720-100-M2
7.25	9.0	1.0	DF-0725-070-M2	DF-0725-080-M2	DF-0725-100-M2
7.30	9.0	1.0	DF-0730-070-M2	DF-0730-080-M2	DF-0730-100-M2
7.40	9.0	1.0	DF-0740-070-M2	DF-0740-080-M2	DF-0740-100-M2
7.50	10	1.0	DF-0750-070-M2	DF-0750-080-M2	DF-0750-100-M2
7.60	10	1.0	DF-0760-070-M2	DF-0760-080-M2	DF-0760-100-M2
7.70	10	1.0	DF-0770-070-M2	DF-0770-080-M2	DF-0770-100-M2
7.75	10	1.0	DF-0775-070-M2	DF-0775-080-M2	DF-0775-100-M2
7.80	10	1.0	DF-0780-070-M2	DF-0780-080-M2	DF-0780-100-M2
7.90	10	1.0	DF-0790-070-M2	DF-0790-080-M2	DF-0790-100-M2
8.00	10	1.0	DF-0800-070-M2	DF-0800-080-M2	DF-0800-100-M2
8.10	10	1.0	DF-0810-070-M2	DF-0810-080-M2	DF-0810-100-M2
8.20	10	1.0	DF-0820-070-M2	DF-0820-080-M2	DF-0820-100-M2
8.25	10	1.0	DF-0825-070-M2	DF-0825-080-M2	DF-0825-100-M2
8.30	10	1.0	DF-0830-070-M2	DF-0830-080-M2	DF-0830-100-M2
8.40	10	1.0	DF-0840-070-M2	DF-0840-080-M2	DF-0840-100-M2
8.50	11	1.0	DF-0850-070-M2	DF-0850-080-M2	DF-0850-100-M2
8.60	11	1.0	DF-0860-070-M2	DF-0860-080-M2	DF-0860-100-M2
8.70	11	1.0	DF-0870-070-M2	DF-0870-080-M2	DF-0870-100-M2
8.75	11	1.0	DF-0875-070-M2	DF-0875-080-M2	DF-0875-100-M2
8.80	11	1.0	DF-0880-070-M2	DF-0880-080-M2	DF-0880-100-M2
8.90	11	1.0	DF-0890-070-M2	DF-0890-080-M2	DF-0890-100-M2
9.00	11	1.0	DF-0900-070-M2	DF-0900-080-M2	DF-0900-100-M2
9.10	11	1.0	DF-0910-070-M2	DF-0910-080-M2	DF-0910-100-M2
9.20	11	1.0	DF-0920-070-M2	DF-0920-080-M2	DF-0920-100-M2
9.25	11	1.0	DF-0925-070-M2	DF-0925-080-M2	DF-0925-100-M2
9.30	11	1.0	DF-0930-070-M2	DF-0930-080-M2	DF-0930-100-M2
9.40	11	1.0	DF-0940-070-M2	DF-0940-080-M2	DF-0940-100-M2
9.50	12	1.0	DF-0950-070-M2	DF-0950-080-M2	DF-0950-100-M2
9.60	12	1.0	DF-0960-070-M2	DF-0960-080-M2	DF-0960-100-M2
9.70	12	1.0	DF-0970-070-M2	DF-0970-080-M2	DF-0970-100-M2
9.75	12	1.0	DF-0975-070-M2	DF-0975-080-M2	DF-0975-100-M2

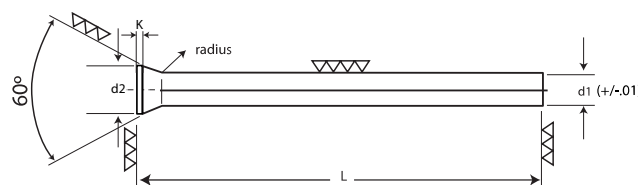
Materials: (A2) 12% Chromium Tool Steel

Shank Hardness: 62 +/- 2 Hrc

Head Hardness: 40 +/- 5 Hrc.

DIA d1	d2 +/- 0.1	K +0.2 R-3	A2		
			70	80	100
5.70	7.0	0.5	DF-0570-070-A2	DF-0570-080-A2	DF-0570-100-A2
5.75	7.0	0.5	DF-0575-070-A2	DF-0575-080-A2	DF-0575-100-A2
5.80	7.0	0.5	DF-0580-070-A2	DF-0580-080-A2	DF-0580-100-A2
5.90	7.0	0.5	DF-0590-070-A2	DF-0590-080-A2	DF-0590-100-A2
6.00	8.0	0.5	DF-0600-070-A2	DF-0600-080-A2	DF-0600-100-A2
6.10	8.0	0.5	DF-0610-070-A2	DF-0610-080-A2	DF-0610-100-A2
6.20	8.0	0.5	DF-0620-070-A2	DF-0620-080-A2	DF-0620-100-A2
6.25	8.0	0.5	DF-0625-070-A2	DF-0625-080-A2	DF-0625-100-A2
6.30	8.0	0.5	DF-0630-070-A2	DF-0630-080-A2	DF-0630-100-A2
6.40	8.0	0.5	DF-0640-070-A2	DF-0640-080-A2	DF-0640-100-A2
6.50	9.0	1.0	DF-0650-070-A2	DF-0650-080-A2	
6.60	9.0	1.0	DF-0660-070-A2	DF-0660-080-A2	DF-0660-100-A2
6.70	9.0	1.0	DF-0670-070-A2	DF-0670-080-A2	DF-0670-100-A2
6.75	9.0	1.0	DF-0675-070-A2	DF-0675-080-A2	DF-0675-100-A2
6.80	9.0	1.0	DF-0680-070-A2	DF-0680-080-A2	DF-0680-100-A2
6.90	9.0	1.0	DF-0690-070-A2	DF-0690-080-A2	DF-0690-100-A2
7.00	9.0	1.0	DF-0700-070-A2	DF-0700-080-A2	DF-0700-100-A2
7.10	9.0	1.0	DF-0710-070-A2	DF-0710-080-A2	DF-0710-100-A2
7.20	9.0	1.0	DF-0720-070-A2	DF-0720-080-A2	DF-0720-100-A2
7.25	9.0	1.0	DF-0725-070-A2	DF-0725-080-A2	DF-0725-100-A2
7.30	9.0	1.0	DF-0730-070-A2	DF-0730-080-A2	DF-0730-100-A2
7.40	9.0	1.0	DF-0740-070-A2	DF-0740-080-A2	DF-0740-100-A2
7.50	10	1.0	DF-0750-070-A2	DF-0750-080-A2	DF-0750-100-A2
7.60	10	1.0	DF-0760-070-A2	DF-0760-080-A2	DF-0760-100-A2
7.70	10	1.0	DF-0770-070-A2	DF-0770-080-A2	DF-0770-100-A2
7.75	10	1.0	DF-0775-070-A2	DF-0775-080-A2	DF-0775-100-A2
7.80	10	1.0	DF-0780-070-A2	DF-0780-080-A2	DF-0780-100-A2
7.90	10	1.0	DF-0790-070-A2	DF-0790-080-A2	DF-0790-100-A2
8.00	10	1.0	DF-0800-070-A2	DF-0800-080-A2	DF-0800-100-A2
8.10	10	1.0	DF-0810-070-A2	DF-0810-080-A2	DF-0810-100-A2
8.20	10	1.0	DF-0820-070-A2	DF-0820-080-A2	DF-0820-100-A2
8.25	10	1.0	DF-0825-070-A2	DF-0825-080-A2	DF-0825-100-A2
8.30	10	1.0	DF-0830-070-A2	DF-0830-080-A2	DF-0830-100-A2
8.40	10	1.0	DF-0840-070-A2	DF-0840-080-A2	DF-0840-100-A2
8.50	11	1.0	DF-0850-070-A2	DF-0850-080-A2	DF-0850-100-A2
8.60	11	1.0	DF-0860-070-A2	DF-0860-080-A2	DF-0860-100-A2
8.70	11	1.0	DF-0870-070-A2	DF-0870-080-A2	DF-0870-100-A2
8.75	11	1.0	DF-0875-070-A2	DF-0875-080-A2	DF-0875-100-A2
8.80	11	1.0	DF-0880-070-A2	DF-0880-080-A2	DF-0880-100-A2
8.90	11	1.0	DF-0890-070-A2	DF-0890-080-A2	DF-0890-100-A2
9.00	11	1.0	DF-0900-070-A2	DF-0900-080-A2	DF-0900-100-A2
9.10	11	1.0	DF-0910-070-A2	DF-0910-080-A2	DF-0910-100-A2
9.20	11	1.0	DF-0920-070-A2	DF-0920-080-A2	DF-0920-100-A2
9.25	11	1.0	DF-0925-070-A2	DF-0925-080-A2	DF-0925-100-A2
9.30	11	1.0	DF-0930-070-A2	DF-0930-080-A2	DF-0930-100-A2
9.40	11	1.0	DF-0940-070-A2	DF-0940-080-A2	DF-0940-100-A2
9.50	12	1.0	DF-0950-070-A2	DF-0950-080-A2	DF-0950-100-A2
9.60	12	1.0	DF-0960-070-A2	DF-0960-080-A2	DF-0960-100-A2
9.70	12	1.0	DF-0970-070-A2	DF-0970-080-A2	DF-0970-100-A2
9.75	12	1.0	DF-0975-070-A2	DF-0975-080-A2	DF-0975-100-A2

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Materials: (HSS) M2, Tungsten High Speed Steel

Shank Hardness: 64 +/- 2 Hrc

Head Hardness: 50 +/- 5 Hrc.

DIA d1	d2 +/- 0.1	κ +0.2 R-3	HSS		
			70	80	100
9.80	12	1.0	DF-0980-070-M2	DF-0980-080-M2	DF-0980-100-M2
9.90	12	1.0	DF-0990-070-M2	DF-0990-080-M2	DF-0990-100-M2
10.00	12	1.0	DF-1000-070-M2	DF-1000-080-M2	DF-1000-100-M2
10.10	12	1.0	DF-1010-070-M2	DF-1010-080-M2	DF-1010-100-M2
10.20	12	1.0	DF-1020-070-M2	DF-1020-080-M2	DF-1020-100-M2
10.25	12	1.0	DF-1025-070-M2	DF-1025-080-M2	DF-1025-100-M2
10.30	12	1.0	DF-1030-070-M2	DF-1030-080-M2	DF-1030-100-M2
10.40	12	1.0	DF-1040-070-M2	DF-1040-080-M2	DF-1040-100-M2
10.50	13	1.0	DF-1050-070-M2	DF-1050-080-M2	DF-1050-100-M2
10.60	13	1.0	DF-1060-070-M2	DF-1060-080-M2	DF-1060-100-M2
10.70	13	1.0	DF-1070-070-M2	DF-1070-080-M2	DF-1070-100-M2
10.75	13	1.0	DF-1075-070-M2	DF-1075-080-M2	DF-1075-100-M2
10.80	13	1.0	DF-1080-070-M2	DF-1080-080-M2	DF-1080-100-M2
10.90	13	1.0	DF-1090-070-M2	DF-1090-080-M2	DF-1090-100-M2
11.00	13	1.0	DF-1100-070-M2	DF-1100-080-M2	DF-1100-100-M2
11.10	13	1.0	DF-1110-070-M2	DF-1110-080-M2	DF-1110-100-M2
11.20	13	1.0	DF-1120-070-M2	DF-1120-080-M2	DF-1120-100-M2
11.25	13	1.0	DF-1125-070-M2	DF-1125-080-M2	DF-1125-100-M2
11.30	13	1.0	DF-1130-070-M2	DF-1130-080-M2	DF-1130-100-M2
11.40	13	1.0	DF-1140-070-M2	DF-1140-080-M2	DF-1140-100-M2
11.50	14	1.0	DF-1150-070-M2	DF-1150-080-M2	DF-1150-100-M2
11.60	14	1.0	DF-1160-070-M2	DF-1160-080-M2	DF-1160-100-M2
11.70	14	1.0	DF-1170-070-M2	DF-1170-080-M2	DF-1170-100-M2
11.75	14	1.0	DF-1175-070-M2	DF-1175-080-M2	DF-1175-100-M2
11.80	14	1.0	DF-1180-070-M2	DF-1180-080-M2	DF-1180-100-M2
11.90	14	1.0	DF-1190-070-M2	DF-1190-080-M2	DF-1190-100-M2
12.00	14	1.0	DF-1200-070-M2	DF-1200-080-M2	DF-1200-100-M2
12.10	14	1.0	DF-1210-070-M2	DF-1210-080-M2	DF-1210-100-M2
12.20	14	1.0	DF-1220-070-M2	DF-1220-080-M2	DF-1220-100-M2
12.25	14	1.0	DF-1225-070-M2	DF-1225-080-M2	DF-1225-100-M2
12.30	14	1.0	DF-1230-070-M2	DF-1230-080-M2	DF-1230-100-M2
12.40	14	1.0	DF-1240-070-M2	DF-1240-080-M2	DF-1240-100-M2
12.50	15	1.0	DF-1250-070-M2	DF-1250-080-M2	DF-1250-100-M2
12.60	15	1.0	DF-1260-070-M2	DF-1260-080-M2	DF-1260-100-M2
12.70	15	1.0	DF-1270-070-M2	DF-1270-080-M2	DF-1270-100-M2
12.75	15	1.0	DF-1275-070-M2	DF-1275-080-M2	DF-1275-100-M2
12.80	15	1.0	DF-1280-070-M2	DF-1280-080-M2	DF-1280-100-M2
12.90	15	1.0	DF-1290-070-M2	DF-1290-080-M2	DF-1290-100-M2
13.00	15	1.0	DF-1300-070-M2	DF-1300-080-M2	DF-1300-100-M2
13.50	16	1.0	DF-1350-070-M2	DF-1350-080-M2	DF-1350-100-M2
14.00	16	1.0	DF-1400-070-M2	DF-1400-080-M2	DF-1400-100-M2
14.50	17	1.0	DF-1450-070-M2	DF-1450-080-M2	DF-1450-100-M2
14.80	17	1.0	DF-1480-070-M2	DF-1480-080-M2	DF-1480-100-M2
15.00	17	1.0	DF-1500-070-M2	DF-1500-080-M2	DF-1500-100-M2
15.50	18	1.0	DF-1550-070-M2	DF-1550-080-M2	DF-1550-100-M2
16.00	18	1.0	DF-1600-070-M2	DF-1600-080-M2	DF-1600-100-M2
16.50	19	1.0	DF-1650-070-M2	DF-1650-080-M2	DF-1650-100-M2
17.00	19	1.0	DF-1700-070-M2	DF-1700-080-M2	DF-1700-100-M2
17.50	20	1.0	DF-1750-070-M2	DF-1750-080-M2	DF-1750-100-M2
18.00	20	1.0	DF-1800-070-M2	DF-1800-080-M2	DF-1800-100-M2
18.50	21	1.0	DF-1850-070-M2	DF-1850-080-M2	DF-1850-100-M2
19.00	21	1.0	DF-1900-070-M2	DF-1900-080-M2	DF-1900-100-M2

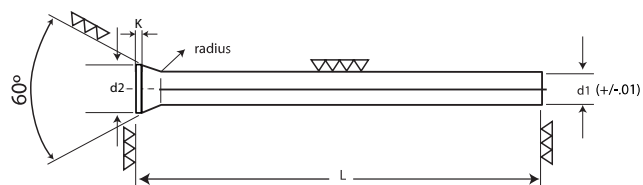
Materials: (A2) 12% Chromium Tool Steel

Shank Hardness: 62 +/- 2 Hrc

Head Hardness: 40 +/- 5 Hrc.

DIA d1	d2 +/- 0.1	κ +0.2 R-3	A2		
			70	80	100
9.80	12	1.0	DF-0980-070-A2	DF-0980-080-A2	DF-0980-100-A2
9.90	12	1.0		DF-0990-080-A2	DF-0990-100-A2
10.00	12	1.0	DF-1000-070-A2	DF-1000-080-A2	DF-1000-100-A2
10.10	12	1.0	DF-1010-070-A2	DF-1010-080-A2	DF-1010-100-A2
10.20	12	1.0	DF-1020-070-A2	DF-1020-080-A2	DF-1020-100-A2
10.25	12	1.0	DF-1025-070-A2	DF-1025-080-A2	DF-1025-100-A2
10.30	12	1.0	DF-1030-070-A2	DF-1030-080-A2	DF-1030-100-A2
10.40	12	1.0	DF-1040-070-A2	DF-1040-080-A2	DF-1040-100-A2
10.50	13	1.0	DF-1050-070-A2	DF-1050-080-A2	DF-1050-100-A2
10.60	13	1.0	DF-1060-070-A2	DF-1060-080-A2	DF-1060-100-A2
10.70	13	1.0	DF-1070-070-A2	DF-1070-080-A2	DF-1070-100-A2
10.75	13	1.0	DF-1075-070-A2	DF-1075-080-A2	DF-1075-100-A2
10.80	13	1.0	DF-1080-070-A2	DF-1080-080-A2	DF-1080-100-A2
10.90	13	1.0	DF-1090-070-A2	DF-1090-080-A2	DF-1090-100-A2
11.00	13	1.0	DF-1100-070-A2	DF-1100-080-A2	DF-1100-100-A2
11.10	13	1.0	DF-1110-070-A2	DF-1110-080-A2	DF-1110-100-A2
11.20	13	1.0	DF-1120-070-A2	DF-1120-080-A2	DF-1120-100-A2
11.25	13	1.0	DF-1125-070-A2	DF-1125-080-A2	DF-1125-100-A2
11.30	13	1.0	DF-1130-070-A2	DF-1130-080-A2	DF-1130-100-A2
11.40	13	1.0	DF-1140-070-A2	DF-1140-080-A2	DF-1140-100-A2
11.50	14	1.0	DF-1150-070-A2	DF-1150-080-A2	DF-1150-100-A2
11.60	14	1.0	DF-1160-070-A2	DF-1160-080-A2	DF-1160-100-A2
11.70	14	1.0	DF-1170-070-A2	DF-1170-080-A2	DF-1170-100-A2
11.75	14	1.0	DF-1175-070-A2	DF-1175-080-A2	DF-1175-100-A2
11.80	14	1.0	DF-1180-070-A2	DF-1180-080-A2	DF-1180-100-A2
11.90	14	1.0	DF-1190-070-A2	DF-1190-080-A2	DF-1190-100-A2
12.00	14	1.0	DF-1200-070-A2	DF-1200-080-A2	DF-1200-100-A2
12.10	14	1.0	DF-1210-070-A2	DF-1210-080-A2	DF-1210-100-A2
12.20	14	1.0	DF-1220-070-A2	DF-1220-080-A2	DF-1220-100-A2
12.25	14	1.0	DF-1225-070-A2	DF-1225-080-A2	DF-1225-100-A2
12.30	14	1.0	DF-1230-070-A2	DF-1230-080-A2	DF-1230-100-A2
12.40	14	1.0	DF-1240-070-A2	DF-1240-080-A2	DF-1240-100-A2
12.50	15	1.0	DF-1250-070-A2	DF-1250-080-A2	DF-1250-100-A2
12.60	15	1.0	DF-1260-070-A2	DF-1260-080-A2	DF-1260-100-A2
12.70	15	1.0	DF-1270-070-A2		
12.75	15	1.0	DF-1275-070-A2	DF-1275-080-A2	DF-1275-100-A2
12.80	15	1.0	DF-1280-070-A2	DF-1280-080-A2	DF-1280-100-A2
12.90	15	1.0	DF-1290-070-A2	DF-1290-080-A2	DF-1290-100-A2
13.00	15	1.0	DF-1300-070-A2	DF-1300-080-A2	DF-1300-100-A2
13.50	16	1.0	DF-1350-070-A2	DF-1350-080-A2	DF-1350-100-A2
14.00	16	1.0	DF-1400-070-A2	DF-1400-080-A2	DF-1400-100-A2
14.50	17	1.0	DF-1450-070-A2	DF-1450-080-A2	DF-1450-100-A2
15.00	17	1.0	DF-1500-070-A2	DF-1500-080-A2	DF-1500-100-A2
15.50	18	1.0	DF-1550-070-A2	DF-1550-080-A2	DF-1550-100-A2
16.00	18	1.0	DF-1600-070-A2	DF-1600-080-A2	DF-1600-100-A2
16.50	19	1.0	DF-1650-070-A2	DF-1650-080-A2	DF-1650-100-A2
17.00	19	1.0	DF-1700-070-A2	DF-1700-080-A2	DF-1700-100-A2
17.50	20	1.0	DF-1750-070-A2	DF-1750-080-A2	DF-1750-100-A2
18.00	20	1.0	DF-1800-070-A2	DF-1800-080-A2	DF-1800-100-A2
18.50	21	1.0	DF-1850-070-A2	DF-1850-080-A2	DF-1850-100-A2
19.00	21	1.0	DF-1900-070-A2	DF-1900-080-A2	DF-1900-100-A2

Continued next page

**Materials: (HSS) M2, Tungsten High Speed Steel**

Shank Hardness: 64 +/- 2 Hrc

Head Hardness: 50 +/- 5 Hrc.

DIA d1	d2 +/- 0.1	K +0.2 R-3	HSS		
			70	80	100
19.50	22	1.0	DF-1950-070-M2	DF-1950-080-M2	DF-1950-100-M2
20.00	22	1.0	DF-2000-070-M2	DF-2000-080-M2	DF-2000-100-M2
21.00	23	1.0	DF-2100-070-M2	DF-2100-080-M2	DF-2100-100-M2
22.00	24	1.0	DF-2200-070-M2	DF-2200-080-M2	DF-2200-100-M2
23.00	25	1.0	DF-2300-070-M2	DF-2300-080-M2	DF-2300-100-M2
24.00	26	1.0	DF-2400-070-M2	DF-2400-080-M2	DF-2400-100-M2
25.00	27	1.0	DF-2500-070-M2	DF-2500-080-M2	DF-2500-100-M2

Materials: (A2) 12% Chromium Tool Steel

Shank Hardness: 62 +/- 2 Hrc

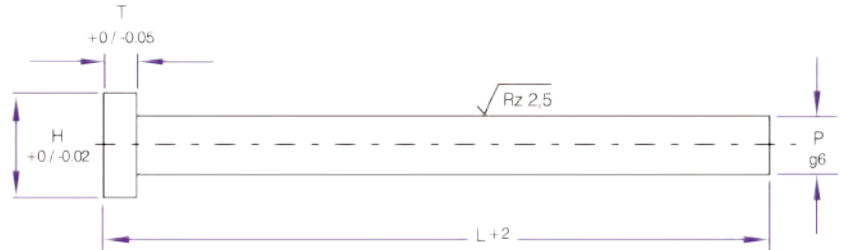
Head Hardness: 40 +/- 5 Hrc.

DIA d1	d2 +/- 0.1	K +0.2 R-3	A2		
			70	80	100
19.50	22	1.0	DF-1950-070-A2	DF-1950-080-A2	DF-1950-100-A2
20.00	22	1.0	DF-2000-070-A2	DF-2000-080-A2	DF-2000-100-A2
21.00	23	1.0	DF-2100-070-A2	DF-2100-080-A2	DF-2100-100-A2
22.00	24	1.0	DF-2200-070-A2	DF-2200-080-A2	DF-2200-100-A2
23.00	25	1.0	DF-2300-070-A2	DF-2300-080-A2	DF-2300-100-A2
24.00	26	1.0	DF-2400-070-A2	DF-2400-080-A2	DF-2400-100-A2
25.00	27	1.0	DF-2500-070-A2	DF-2500-080-A2	DF-2500-100-A2





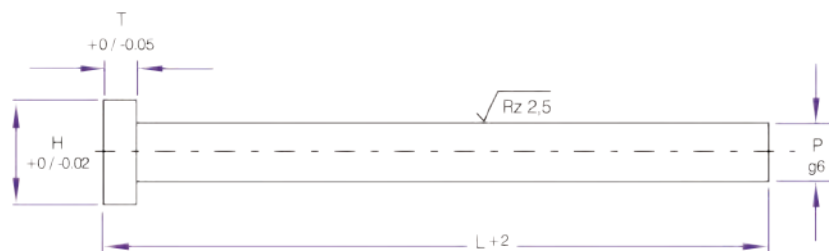
Material: 1.2067 Hardened Steel
 Standard: DIN 1530-AH / ISO6751
 Head: 45 +/- 5 Hrc.
 Shaft: 60 +/- 2 Hrc. Through Hardened



P	H	T	Product Code				
			L100	L125	L160	L200	L250
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



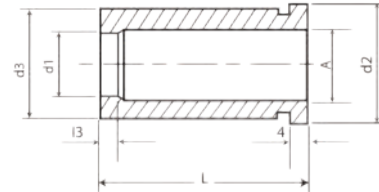
Material: 1.2067 Hardened Steel
 Standard: DIN 1530-AH / ISO6751
 Head: 45 +/- 5 Hrc.
 Shaft: 60 +/- 2 Hrc. Through Hardened



P	H	T	Product Code			
			L315	L400	L500	L630
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



Tolerance
d1 = H8
d3 = k6



Material: (HSS) M2 Tungsten High Speed Steel
Shank Hardness: 64 +/- 2 Hrc.
Head Hardness: 50 +/- 5 Hrc.

Material: (A2) 12% Chromium Tool Steel
Shank Hardness: 62 +/- 2 Hrc.
Head Hardness: 45 +/- 5 Hrc.

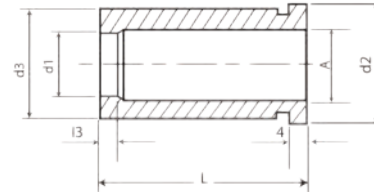
DIA d1	DIA d3	d2	A	I3	HSS	
					20	28
1.00	6	8	2.5	2	DIB-0100-20-M2	DIB-0100-28-M2
1.05	6	8	2.5	2	DIB-0105-20-M2	
1.10	6	8	2.5	2	DIB-0110-20-M2	DIB-0110-28-M2
1.20	6	8	2.5	2	DIB-0120-20-M2	DIB-0120-28-M2
1.30	6	8	2.5	2	DIB-0130-20-M2	DIB-0130-28-M2
1.40	6	8	2.5	2	DIB-0140-20-M2	DIB-0140-28-M2
1.50	6	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
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

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-0120-20-A2	DIB-0120-28-A2
1.30	6	8	2.5	2	DIB-0130-20-A2	DIB-0130-28-A2
1.40	6	8	2.5	2	DIB-0140-20-A2	DIB-0140-28-A2
1.50	6	8	2.5	2	DIB-0150-20-A2	DIB-0150-28-A2
1.60	6	8	2.5	2	DIB-0160-20-A2	DIB-0160-28-A2
1.70	6	8	2.5	2	DIB-0170-20-A2	DIB-0170-28-A2
1.75	6	8	2.5	2	DIB-0175-20-A2	DIB-0175-28-A2
1.80	6	8	2.5	2	DIB-0180-20-A2	DIB-0180-28-A2
1.90	7	9	3.5	3	DIB-0190-20-A2	DIB-0190-28-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-A2	DIB-0340-28-A2
3.50	8	10	4.5	4	DIB-0350-20-A2	DIB-0350-28-A2
3.60	8	10	4.5	4	DIB-0360-20-A2	DIB-0360-28-A2
3.70	8	10	4.5	4	DIB-0370-20-A2	DIB-0370-28-A2
3.75	8	10	4.5	4	DIB-0375-20-A2	DIB-0375-28-A2
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
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

Continued next page



Tolerance
d1 = H8
d3 = k6



Material: (HSS) M2 Tungsten High Speed Steel
Shank Hardness: 64 +/- 2 Hrc.
Head Hardness: 50 +/- 5 Hrc.

Material: (A2) 12% Chromium Tool Steel
Shank Hardness: 62 +/- 2 Hrc.
Head Hardness: 45 +/- 5 Hrc.

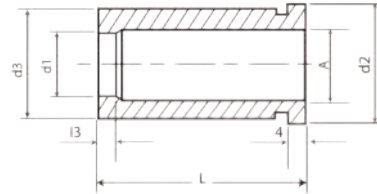
DIA d1	DIA d3	d2	A	I3	HSS	
					20	28
5.10	12	14	6.5	4	DIB-0510-20-M2	DIB-0510-28-M2
5.20	12	14	6.5	4	DIB-0520-20-M2	DIB-0520-28-M2
5.25	12	14	6.5	4	DIB-0525-20-M2	
5.30	12	14	6.5	4	DIB-0530-20-M2	DIB-0530-28-M2
5.40	12	14	6.5	4	DIB-0540-20-M2	DIB-0540-28-M2
5.50	12	14	6.5	4	DIB-0550-20-M2	DIB-0550-28-M2
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
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

DIA d1	DIA d3	d2	A	I3	A2	
					20	28
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
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

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Tolerance
d1 = H8
d3 = k6



Material: (HSS) M2 Tungsten High Speed Steel
Shank Hardness: 64 +/- 2 Hrc.
Head Hardness: 50 +/- 5 Hrc.

Material: (A2) 12% Chromium Tool Steel
Shank Hardness: 62 +/- 2 Hrc.
Head Hardness: 45 +/- 5 Hrc.

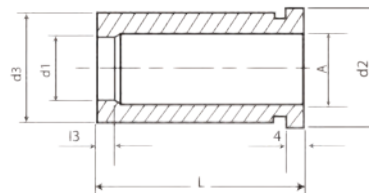
DIA d1	DIA d3	d2	A	I3	HSS	
					20	28
9.25	18	20	9.5	4	DIB-0925-20-M2	
9.30	18	20	9.5	4	DIB-0930-20-M2	DIB-0930-28-M2
9.40	18	20	9.5	4	DIB-0940-20-M2	DIB-0940-28-M2
9.50	18	20	9.5	4	DIB-0950-20-M2	DIB-0950-28-M2
9.60	18	20	9.5	4	DIB-0960-20-M2	DIB-0960-28-M2
9.70	18	20	9.5	4	DIB-0970-20-M2	DIB-0970-28-M2
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
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
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

DIA d1	DIA d3	d2	A	I3	A2	
					20	28
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
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
13.80	26	28	14	4		DIB-1380-28-A2
13.90	26	28	14	4		DIB-1390-28-A2

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Tolerance
d1 = H8
d3 = k6



Material: (HSS) M2 Tungsten High Speed Steel
Shank Hardness: 64 +/- 2 Hrc.
Head Hardness: 50 +/- 5 Hrc.

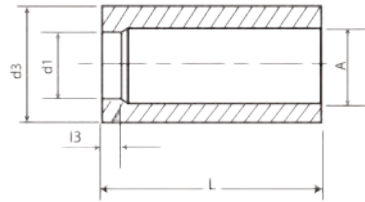
Material: (A2) 12% Chromium Tool Steel
Shank Hardness: 62 +/- 2 Hrc.
Head Hardness: 45 +/- 5 Hrc.

DIA d1	DIA d3	d2	A	l3	HSS	
					20	28
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

DIA d1	DIA d3	d2	A	l3	A2	
					20	28
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



Tolerance
d1 = H8
d3 = n6



Material: (HSS) M2 Tungsten High Speed Steel
Shank Hardness: 64 +/- 2 Hrc.
Head Hardness: 50 +/- 5 Hrc.

Material: (A2) 12% Chromium Tool Steel
Shank Hardness: 62 +/- 2 Hrc.
Head Hardness: 45 +/- 5 Hrc.

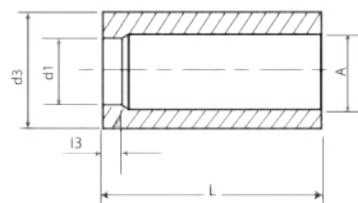
DIA d1	DIA d3	A	I3	HSS	
				20	28
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1.05	6	2.5	2	DIA-0105-20-M2	
1.10	6	2.5	2	DIA-0110-20-M2	DIA-0110-28-M2
1.20	6	2.5	2	DIA-0120-20-M2	DIA-0120-28-M2
1.30	6	2.5	2	DIA-0130-20-M2	DIA-0130-28-M2
1.40	6	2.5	2	DIA-0140-20-M2	DIA-0140-28-M2
1.50	6	2.5	2	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
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

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	
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	

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Tolerance
d1 = H8
d3 = n6



Material: (HSS) M2 Tungsten High Speed Steel
Shank Hardness: 64 +/- 2 Hrc.
Head Hardness: 50 +/- 5 Hrc.

Material: (A2) 12% Chromium Tool Steel
Shank Hardness: 62 +/- 2 Hrc.
Head Hardness: 45 +/- 5 Hrc.

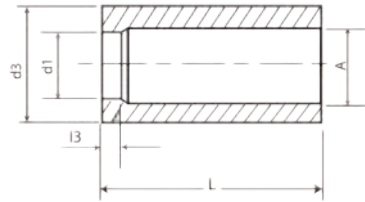
DIA d1	DIA d3	A	I3	HSS	
				20	28
5.10	12	6.5	4	DIA-0510-20-M2	DIA-0510-28-M2
5.20	12	6.5	4	DIA-0520-20-M2	DIA-0520-28-M2
5.25	12	6.5	4	DIA-0525-20-M2	
5.30	12	6.5	4	DIA-0530-20-M2	DIA-0530-28-M2
5.40	12	6.5	4	DIA-0540-20-M2	DIA-0540-28-M2
5.50	12	6.5	4	DIA-0550-20-M2	DIA-0550-28-M2
5.60	12	6.5	4	DIA-0560-20-M2	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
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

DIA d1	DIA d3	A	I3	A2	
				28	
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-0770-28A2	
7.80	15	7.5	4	DIA-0790-28-A2	
7.90	15	7.5	4	DIA-0790-28-A2	
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	

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Tolerance
d1 = H8
d3 = n6



Material: (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
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
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

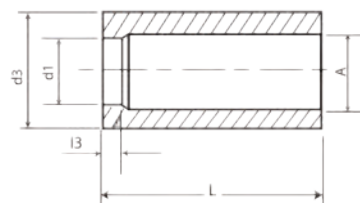
Material: (A2) 12% Chromium Tool Steel
Shank Hardness: 62 +/- 2 Hrc.
Head Hardness: 45 +/- 5 Hrc.

DIA d1	DIA d3	A	I3	A2	
				28	
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	
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	

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Tolerance
d1 = H8
d3 = n6



Material: (HSS) M2 Tungsten High Speed Steel

Shank Hardness: 64 +/- 2 Hrc.

Head Hardness: 50 +/- 5 Hrc.

Material: (A2) 12% Chromium Tool Steel

Shank Hardness: 62 +/- 2 Hrc.

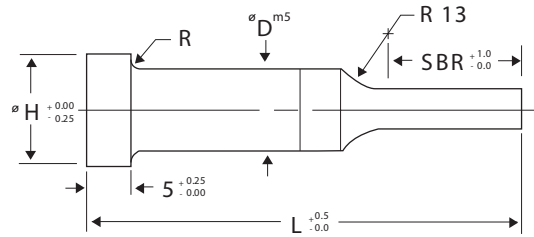
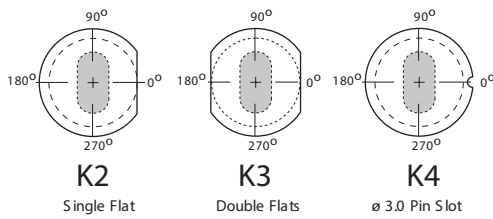
Head Hardness: 45 +/- 5 Hrc.

DIA d1	DIA d3	A	I3	HSS	
				20	28
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

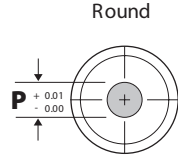
DIA d1	DIA d3	A	I3	A2	
				28	
14.00	26	14	4	DIA-1400-28-A2	
14.10	26	16	4	DIA-1410-28-A2	
14.20	26	16	4	DIA-1420-28-A2	
14.30	26	16	4	DIA-1430-28-A2	
14.40	26	16	4	DIA-1440-28-A2	
14.50	26	16	4	DIA-1450-28-A2	
14.60	26	16	4	DIA-1460-28-A2	
14.70	26	16	4	DIA-1470-28-A2	
14.80	26	16	4	DIA-1480-28-A2	
14.90	26	16	4	DIA-1490-28-A2	
15.00	26	16	4	DIA-1500-28-A2	
16.10	26	16	4		

R =  O =  S =  H = 

Key-Flats in Die Position

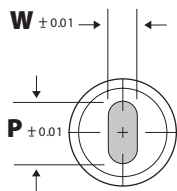


HGPSR



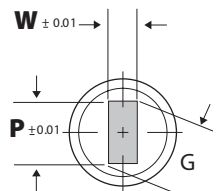
GPSO

Oblong



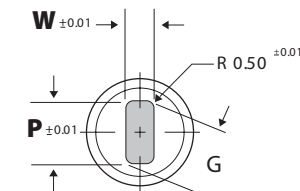
GPSS

Square/rect


Diagonal "G" = $\sqrt{P^2 + W^2}$

GPSH

High production


 $G = \sqrt{(P-1.0)^2 + (W-1.0)^2} + 1.0$

Ordering Example

HGPSR 13-13-71-M2 P10.1

HGPSO 20-19-80 M2 P18.2 W9.5 K2

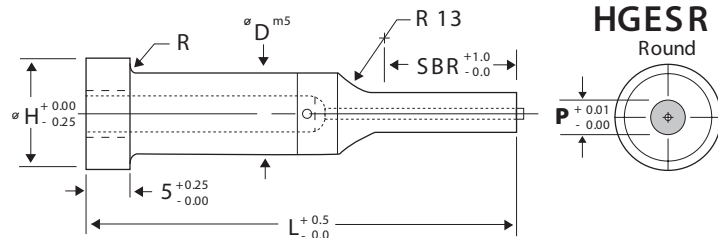
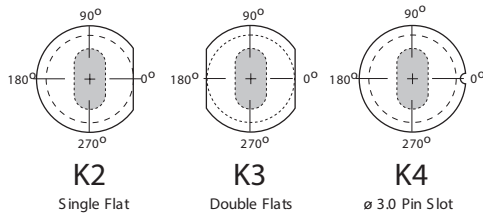
A2 = R/c 59-61 double tempered
M2 = R/c 61-63 triple tempered
Heads drawn to Rc 40-55

Round P to D	0.01	
Shape P & W to D	0.02	

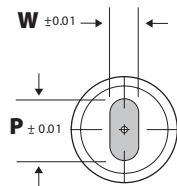
Type	D	Point length SBR						Overall Length							Round P min.	Shape W min.	Head Dia. H
		8	10	13	19	25	32	50	56	63	71	80	90	100			
HGPS_	4	8	10					50	56	63					0.8	0.8	7
HGPS_	5	8	10	13				50	56	63	71				1.3	1.3	8
HGPS_	6	8	10	13				50	56	63	71	80			1.4	1.4	9
HGPS_	8	8	10	13				50	56	63	71	80			1.5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

R =  O =  S =  H = 

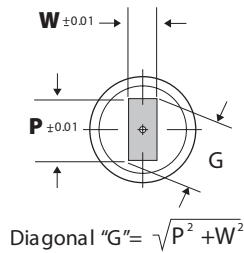
Key-Flats in Die Position

**HGESO**

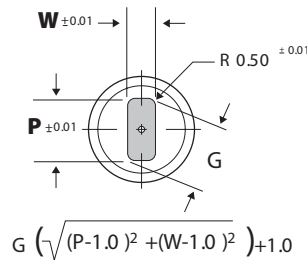
Oblong

**HGESS**

Square/rect

**HGESH**

High production



Ordering Example

HGERS 13-13-71-M2 P10.1

HGESO20-19-80 M2 P18.2 W9.5 K2

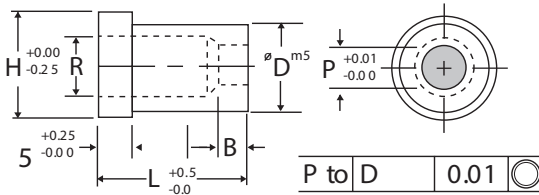
A2 = R/c 59-61 double tempered
 M2 = R/c 61-63 triple tempered
 Heads drawn to Rc 40-55

Round P to D	0.01	
Shape P & W to D	0.02	

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			
HGES_	5	8	10	13				50	56	63	71				1.9	1.9	8
HGES_	6	8	10	13				50	56	63	71	80			2	2	9
HGES_	8	8	10	13				50	56	63	71	80			2.9	2.9	11
HGES_	10		10	13	19			50	56	63	71	80	90	100	4	4	13
HGES_	13		10	13	19			50	56	63	71	80	90	100	4	4	16
HGES_	16			13	19	25		50	56	63	71	80	90	100	5.7	5.7	19
HGES_	20			13	19	25			56	63	71	80	90	100	5.7	5.7	24
HGES_	25			13	19	25			56	63	71	80	90	100	5.7	5.7	29
HGES_	32				19	25	32				71	80	90	100	9.9	9.9	36
HGES_	40				19	25	32					80	90	100	12	12	45
HGES_	45					25	32					80	90	100	14	14	50
HGES_	50					25	32					80	90	100	16	16	55
HGES_	56					25	32					80	90	100	18	18	61
HGES_	63					25	32					80	90	100	20	20	68

R =  O =  S =  H = 

HGBSR Round



Ordering Example

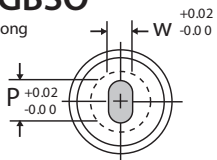
HGBSR 13-28 A2 P4.5

A2 = R/c 59-61 double tempered

Type	D	L and B	Overall Length L							Point Range P	Max. R	Head Dia. H
			20	22	25	28	30	32	35			
HGBSR	10	4	20	22	25	28	30	32	35	1.5 - 5.0	5.8	13
HGBSR	13	5	20	22	25	28	30	32	35	3.0 - 7.2	8	16
HGBSR	16	5	20	22	25	28	30	32	35	5.0 - 8.8	9.5	19
HGBSR	20	5	20	22	25	28	30	32	35	7.0 - 11.0	11.9	24
HGBSR	22	6	20	22	25	28	30	32	35	9.0 - 13.8	14.7	26
HGBSR	25	6	20	22	25	28	30	32	35	11.0 - 16.5	17.4	29
HGBSR	32	6	20	22	25	28	30	32	35	13.0 - 19.8	20.6	36
HGBSR	38	8	20	22	25	28	30	32	35	16.0 - 26.0	27	42

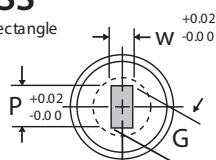
HGBSO

Oblong



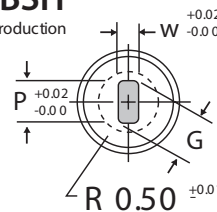
HGBSS

Square/Rectangle



HGBSH

High production



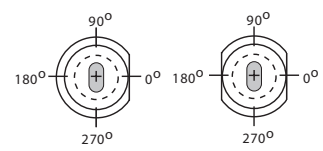
P & W to D 0.02 

Diagonal "G" = $\sqrt{P^2 + W^2}$

$G = (\sqrt{(P-1.0)^2 + (W-1.0)^2}) + 1.0$

HGBSO 16-20 A2 P6.9 W4.3 K2

Key-Flats in Die Position

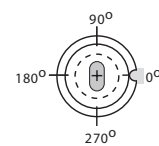


K2

single flat

K3

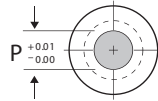
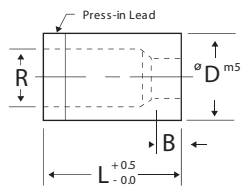
double flat



K4

3.0 diameter pin slot

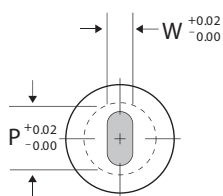
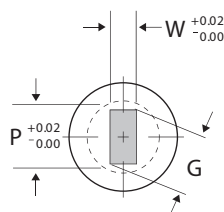
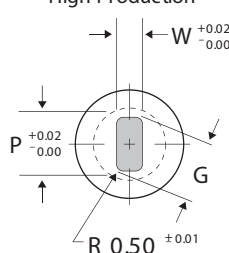
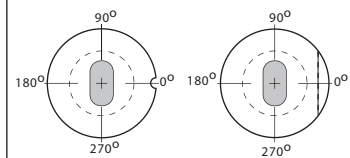
Type	D	L and B	Overall Length L							Min. W	Min. P/G	Max.R	Head Dia. H
			20	22	25	28	30	32	35				
HGBS_	10	4	20	22	25	28	30	32	35	1.2	5	5.8	13
HGBS_	13	5	20	22	25	28	30	32	35	2	7.2	8	16
HGBS_	16	5	20	22	25	28	30	32	35	2.4	8.8	9.5	19
HGBS_	20	5	20	22	25	28	30	32	35	3.2	11	11.9	24
HGBS_	22	6	20	22	25	28	30	32	35	4	13.8	14.7	26
HGBS_	25	6	20	22	25	28	30	32	35	4.8	16.5	17.4	29
HGBS_	32	6	20	22	25	28	30	32	35	5.5	19.8	20.6	36
HGBS_	38	8	20	22	25	28	30	32	35	6.4	26	27	42

R = ○ O =  S =  H = **HGBPR**
RoundP to D 0.01 **Ordering Example**

HGBPR 13-28 A2 P4.5

A2 = R/c 59-61 double tempered

Type	D	L and B		Overall Length L							Point Range P	Max. R
				20	22	25	28	30	32	35		
HGBPR	8	4	8	20	22	25	28	30	32	35	1.5 - 3.2	4
HGBPR	10	4	8	20	22	25	28	30	32	35	1.5 - 5.0	5.8
HGBPR	13	5	8	20	22	25	28	30	32	35	3 - 7.2	8
HGBPR	16	5	8	20	22	25	28	30	32	35	5 - 8.8	9.5
HGBPR	20	6	12	20	22	25	28	30	32	35	7.0 - 11.0	11.9
HGBPR	22	6	12	20	22	25	28	30	32	35	9.0 - 13.8	14.7
HGBPR	25	6	12	20	22	25	28	30	32	35	11.0 - 16.5	17.4
HGBPR	32	8	12	20	22	25	28	30	32	35	13.0 - 19.8	20.6
HGBPR	38	8	12	20	22	25	28	30	32	35	16.0 - 26.0	27

HGBPO
Oblong**HGBPS**
Square/Rectangle**HGBPH**
High ProductionP & W to D 0.02 Diagonal "G" = $\sqrt{P^2 + W^2}$ $G = (\sqrt{(P - 1.0)^2 + (W - 1.0)^2}) + 1.0$ **Key-Flats in Die Position**

K0

ø 3.0 Pin Slot

K2

Single Flat

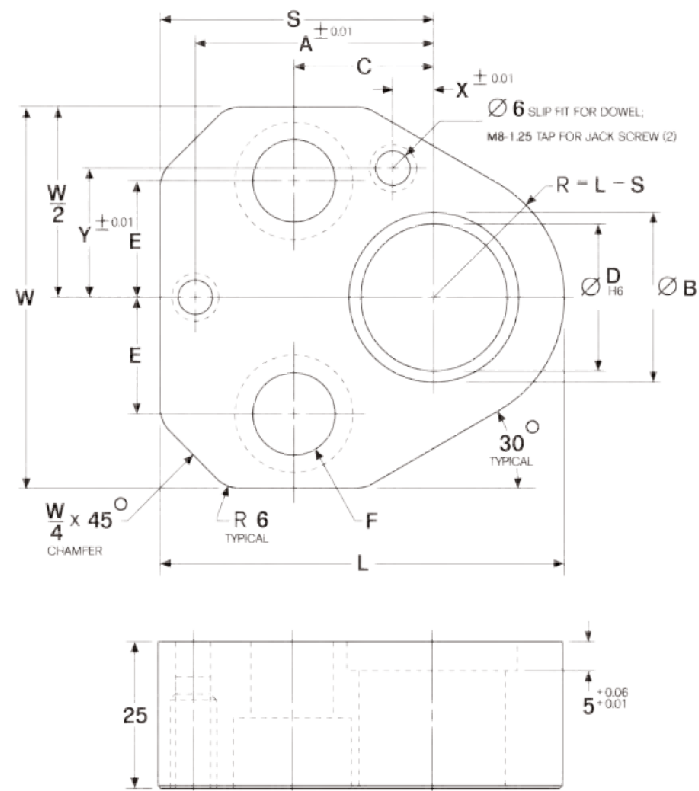
HGBPO16-20 A2 P6.9 W4.3 K2

Type	D	L and B		Overall Length L							Min. W	Min. P/G	Max.R
				20	22	25	28	30	32	35			
HGBP_	10	4	8	20	22	25	28	30	32	35	1.2	5	5.8
HGBP_	13	5	8	20	22	25	28	30	32	35	2	7.2	8
HGBP_	16	5	8	20	22	25	28	30	32	35	2.4	8.8	9.5
HGBP_	20	6	12	20	22	25	28	30	32	35	3.2	11	11.9
HGBP_	22	6	12	20	22	25	28	30	32	35	4	13.8	14.7
HGBP_	25	6	12	20	22	25	28	30	32	35	4.8	16.5	17.4
HGBP_	32	8	12	20	22	25	28	30	32	35	5.5	19.8	20.6
HGBP_	38	8	12	20	22	25	28	30	32	35	6.4	26	27



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.



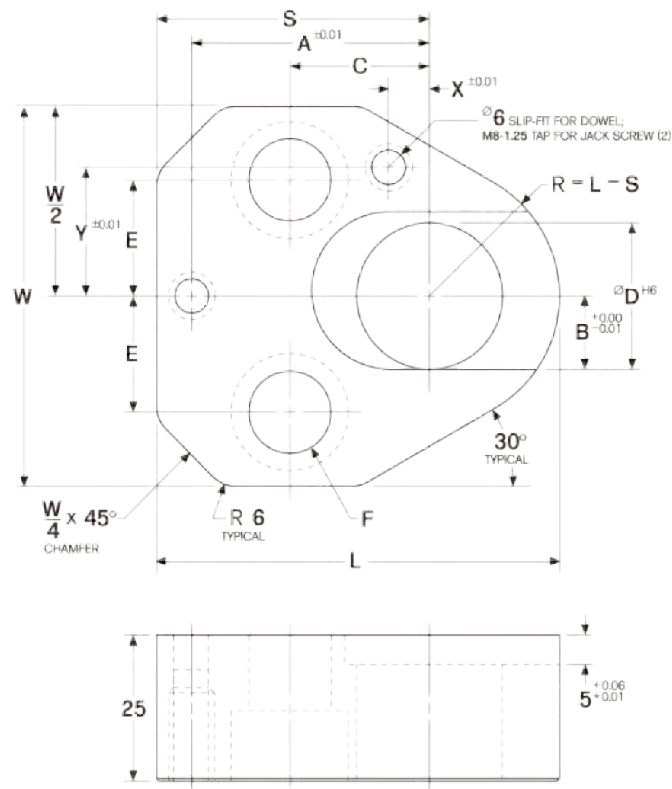
Product Code	D	W	L	B	S	A	C	E	X	Y	F
PRSR10	10	41.0	43.5	14.0	34.0	26.924	19.05	11.12	7.5	9.0	M8
PRSR13	13	48.5	49.6	17.0	37.0	29.972	19.05	14.27	6.5	12.0	M8
PRSR16	16	51.7	52.7	20.0	38.6	31.750	19.05	15.87	6.0	13.5	M8
PRSR20	20	56.8	59.3	24.0	41.9	33.528	19.05	17.47	5.0	16.5	M10
PRSR25	25	64.5	68.9	29.0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

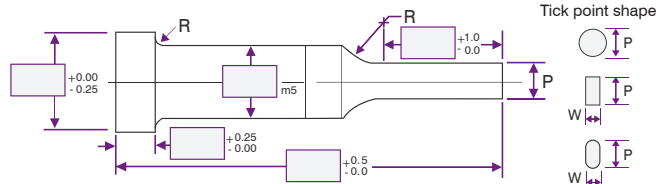
A Speedy Solution for Round Punches and Pilots: (Dowels are finished and retainer ready for CNC mounting.
Counterbore is sized to accept shoulder/headed punches.
Also, the dowel holes are tapped for easy removal in confined spaces.



Product Code	D	W	L	B	S	A	C	E	X	Y	F
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=
----	----	------

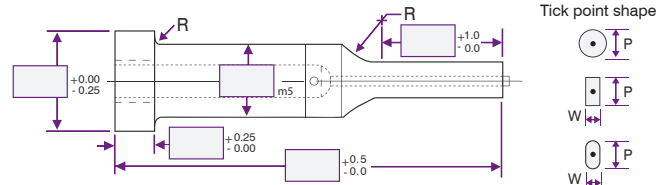
P=	W=	Qty=
----	----	------

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

Please tick the material required below

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

Ejector Punch



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

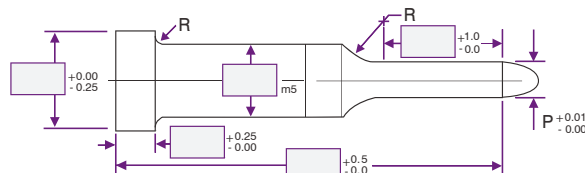
P=	W=	Qty=
----	----	------

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

Please tick the material required below

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

Parabolic Pilot



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

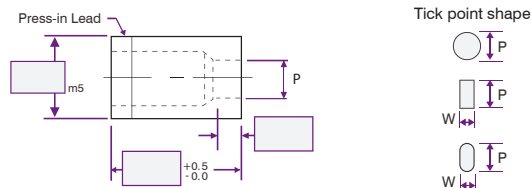
P=	Qty=
----	------

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

Please tick the material required below

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

Die Button Press Fit



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

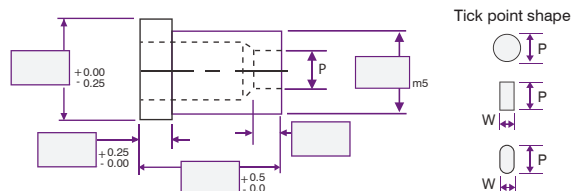
P=	W=	Qty=
----	----	------

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

Please tick the material required below

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

Die Button Shoulder



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

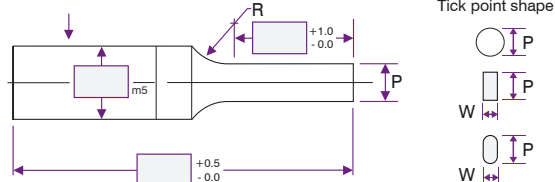
P=	W=	Qty=
----	----	------

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

Please tick the material required below

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

Headless Punch



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

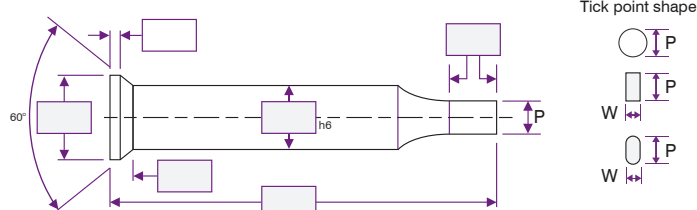
P=	W=	Qty=
----	----	------

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

Please tick the material required below

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

D-Form Punch



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

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

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

Please tick the material required below

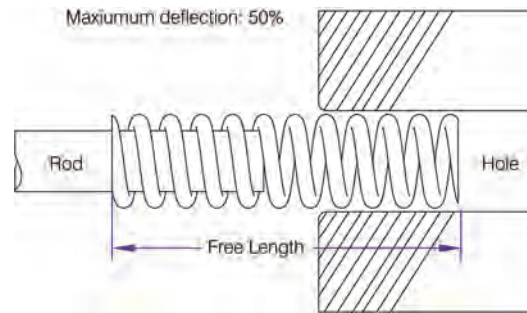
MAT Type	☐ HSS	☐ Toolsteel
----------	------------------------------	------------------------------------

Metric	Imperial	Inch	Gauge	Metric	Imperial	Inch	Gauge	Metric	Imperial	Inch	Gauge	Metric	Imperial	Inch	Gauge
0.010		0.0004		2.500		0.0984		5.953	15/64	0.2344		10.490		0.4130	Z
0.100		0.0039		2.527		0.0995	39	6.000		0.2362		10.500		0.4134	
0.150		0.0059	97	2.578		0.1015	38	6.045		0.2380	B	10.716	27/64	0.4219	
0.160		0.0063	96	2.642		0.1040	37	6.100		0.2402		10.800		0.4252	
0.170		0.0067	95	2.705		0.1065	36	6.147		0.2420	C	11.000		0.4331	
0.180		0.0071	94	2.778	7/64	0.1094		6.200		0.2441		11.112	7/16	0.4375	
0.190		0.0075	93	2.794		0.1100	35	6.248		0.2460	D	11.200		0.4409	
0.200		0.0079	92	2.819		0.1110	34	6.300		0.2480		11.500		0.4528	
0.210		0.0083	91	2.870		0.1130	33	6.350	1/4	0.2500	E	11.509	29/64	0.4531	
0.220		0.0087	90	2.946		0.1160	32	6.400		0.2520		11.800		0.4646	
0.230		0.0091	89	3.000		0.1181		6.500		0.2559		11.906	15/32	0.4688	
0.240		0.0094	88	3.048		0.1200	31	6.528		0.2570	F	12.000		0.4724	
0.254		0.0100	87	3.100		0.1220		6.600		0.2598		12.200		0.4803	
0.270		0.0106	86	3.175	1/8	0.1250		6.629		0.2610	G	12.303	31/64	0.4844	
0.280		0.0110	85	3.200		0.1260		6.700		0.2638		12.500		0.4921	
0.290		0.0114	84	3.264		0.1285	30	6.747	17/64	0.2656		12.700	1/2	0.5000	
0.300		0.0118		3.300		0.1299		6.756		0.2660	H	12.800		0.5039	
0.305		0.0120	83	3.400		0.1339		6.800		0.2677		13.000		0.5118	
0.317		0.0125	82	3.454		0.1360	29	6.900		0.2717		13.097	33/64	0.5156	
0.330		0.0130	81	3.500		0.1378		6.909		0.2720	I	13.494	17/32	0.5313	
0.343		0.0135	80	3.569		0.1405	28	7.000		0.2756		13.500		0.5315	
0.368		0.0145	79	3.572	9/64	0.1406		7.036		0.2770	J	13.891	35/64	0.5469	
0.397	1/64	0.0156		3.600		0.1417		7.100		0.2795		14.000		0.5512	
0.400		0.0157		3.658		0.1440	27	7.137		0.2810	K	14.288	9/16	0.5625	
0.406		0.0160	78	3.700		0.1457		7.144	9/32	0.2813		14.500		0.5709	
0.457		0.0180	77	3.734		0.1470	26	7.200		0.2835		14.684	37/64	0.5781	
0.500		0.0197		3.797		0.1495	25	7.300		0.2874		15.000		0.5906	
0.508		0.0200	76	3.800		0.1496		7.366		0.2900	L	15.081	19/32	0.5938	
0.533		0.0210	75	3.861		0.1520	24	7.400		0.2913		15.478	39/64	0.6094	
0.572		0.0225	74	3.900		0.1535		7.493		0.2950	M	15.500		0.6102	
0.600		0.0236		3.912		0.1540	23	7.500		0.2953		15.875	5/8	0.6250	
0.610		0.0240	73	3.969	5/32	0.1563		7.541	19/64	0.2969		16.000		0.6299	
0.635		0.0250	72	3.988		0.1570	22	7.600		0.2992		16.272	41/64	0.6406	
0.660		0.0260	71	4.000		0.1575		7.671		0.3020	N	16.500		0.6496	
0.700		0.0276		4.039		0.1590	21	7.700		0.3031		16.669	21/32	0.6563	
0.711		0.0280	70	4.089		0.1610	20	7.800		0.3071		17.000		0.6693	
0.742		0.0292	69	4.100		0.1614		7.900		0.3110		17.066	43/64	0.6719	
0.787		0.0310	68	4.200		0.1654		7.938	5/16	0.3125		17.462	11/16	0.6875	
0.794	1/32	0.0313		4.216		0.1660	19	8.000		0.3150		17.500		0.6890	
0.800		0.0315		4.300		0.1693		8.026		0.3160	O	17.859	45/64	0.7031	
0.813		0.0320	67	4.305		0.1695	18	8.100		0.3189		18.000		0.7087	
0.838		0.0330	66	4.366	11/64	0.1719		8.200		0.3228		18.256	23/32	0.7188	
0.889		0.0350	65	4.394		0.1730	17	8.204		0.3230	P	18.500		0.7283	
0.900		0.0354		4.400		0.1732		8.300		0.3268		18.653	47/64	0.7344	
0.914		0.0360	64	4.496		0.1770	16	8.334	21/64	0.3281		19.000		0.7480	
0.940		0.0370	63	4.500		0.1772		8.400		0.3307		19.050	3/4	0.7500	
0.965		0.0380	62	4.572		0.1800	15	8.433		0.3320	Q	19.447	49/64	0.7656	
0.991		0.0390	61	4.600		0.1811		8.500		0.3346		19.500		0.7677	
1.000		0.0394		4.623		0.1820	14	8.600		0.3386		19.844	25/32	0.7813	
1.016		0.0400	60	4.700		0.1850	13	8.611		0.3390	R	20.000		0.7874	
1.041		0.0410	59	4.762	3/16	0.1875		8.700		0.3425		20.241	51/64	0.7969	
1.067		0.0420	58	4.800		0.1890	12	8.731	11/32	0.3438		20.500		0.8071	
1.092		0.0430	57	4.851		0.1910	11	8.800		0.3465		20.638	13/16	0.8125	
1.181		0.0465	56	4.900		0.1929		8.839		0.3480	S	21.000		0.8268	
1.191	3/64	0.0469		4.915		0.1935	10	8.900		0.3504		21.034	53/64	0.8281	
1.321		0.0520	55	4.978		0.1960	9	9.000		0.3543		21.431	27/32	0.8438	
1.397		0.0550	54	5.000		0.1969		9.093		0.3580	T	21.500		0.8465	
1.500		0.0591		5.055		0.1990	8	9.100		0.3583		21.828	55/64	0.8594	
1.511		0.0595	53	5.100		0.2008		9.128	23/64	0.3594		22.000		0.8661	
1.588	1/16	0.0625		5.105		0.2010	7	9.200		0.3622		22.225	7/8	0.8750	
1.613		0.0635	52	5.159	13/64	0.2031		9.300		0.3661		22.500		0.8858	
1.702		0.0670	51	5.182		0.2040	6	9.347		0.3680	U	22.622	57/64	0.8906	
1.778		0.0700	50	5.200		0.2047		9.400		0.3701		23.000		0.9055	
1.854		0.0730	49	5.220		0.2055	5	9.500		0.3740		23.019	29/32	0.9063	
1.900		0.0748		5.300		0.2087		9.525	3/8	0.3750		23.416	59/64	0.9219	
1.930		0.0760	48	5.309		0.2090	4	9.576		0.3770	V	23.500		0.9252	
1.984	5/64	0.0781		5.400		0.2126		9.600		0.3780		23.812	15/16	0.9375	
1.994		0.0785	47	5.410		0.2130	3	9.700		0.3819		24.000		0.9449	
2.000		0.0787		5.500		0.2165		9.800		0.3858		24.209	61/64	0.9531	
2.057		0.0810	46	5.556	7/32	0.2188		9.804		0.3860	W	24.500		0.9646	
2.083		0.0820	45	5.600		0.2205		9.900		0.3898		24.606	31/32	0.9688	
2.184		0.0860	44	5.613		0.2210	2	9.922	25/64	0.3906		25.000		0.9843	
2.261		0.0890	43	5.700		0.2244		10.000		0.3937		25.003	63/64	0.9844	
2.375		0.0935	42	5.791		0.2280	1	10.084		0.3970	X	25.400	1	1.0000	
2.381	3/32	0.0938		5.800		0.2283		10.200		0.4016					
2.438		0.0960	41	5.900		0.2323		10.262		0.4040	Y				
2.489		0.0980	40	5.944		0.2340	A	10.319	13/32	0.4063					



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.
3/8" 10mm	3/16" 4.5mm	DRM0308	25	1	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
Wire 0.89 x 0.070		DRM0312	38	1.5	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	2.8	28	1.000	22	0.800	14	0.500	35	1.248
		DRM0320	64	2.5	2.4	30	1.250	24	1.000	15	0.625	38	1.581
		DRM0324	76	3	1.8	27	1.500	22	1.200	14	0.750	35	1.931
		DRM0396	305	12	0.6	36	6.000	29	4.800	18	3.000	48	7.961

1/2" 13mm	9/32" 7mm	DRM0408	25	1	10	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	1.5	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	6.4	64	1.000	51	0.800	32	0.500	79	1.234
		DRM0420	64	2.5	5.2	65	1.250	52	1.000	33	0.625	81	1.550
		DRM0424	76	3	4	60	1.500	48	1.200	30	0.750	76	1.891
		DRM0428	89	3.5	3	53	1.750	42	1.400	26	0.875	67	2.233
		DRM0436	115	4.5	2.5	53	2.125	45	1.800	28	1.125	71	2.850
		DRM0496	305	12	0.8	48	6.000	38	4.800	24	3.000	56	6.931
Wire 0.52 x 0.093													

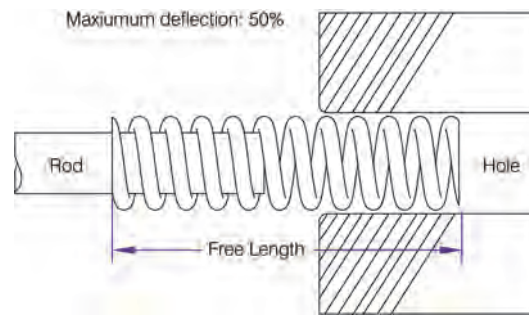
5/8" 16mm	11/32" 8.5mm	DRM0508	25	1	13		0.500	52	0.400	33	0.250	55	0.420
		DRM0510	32	1.25	12.8		0.625	64	0.500	40	0.312	79	0.617
		DRM0512	38	1.5	10.8	81	0.750	65	0.600	41	0.375	88	0.815
		DRM0514	44	1.75	9.6	84	0.875	67	0.700	42	0.437	93	0.969
		DRM0516	51	2	8.8	88	1.000	70	0.800	44	0.500	102	1.157
		DRM0520	64	2.5	6	75	1.250	60	1.000	38	0.625	87	1.445
		DRM0524	76	3	5.6	84	1.500	67	1.200	42	0.750	103	1.840
		DRM0528	89	3.5	4.8	84	1.750	67	1.400	42	0.875	104	2.159
		DRM0532	102	4	4.4	88	2.000	70	1.600	44	1.000	113	2.576
Wire 0.69 x 0.109		DRM0596	305	12	1.4	84	6.000	67	1.800	42	3.000	109	7.782

3/4" 19mm	3/8" 9.5mm	DRM0608	25	1	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	1.5	20	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	14.4	144	1.000	115	0.800	72	0.500	167	1.162
		DRM0620	64	2.5	12	150	1.250	120	1.000	75	0.625	177	1.474
		DRM0624	76	3	9.6	144	1.500	115	1.200	72	0.750	171	1.784
		DRM0628	89	3.5	8	140	1.750	112	1.400	70	0.875	168	2.094
Wire 0.75 x 0.165	DRM0632	102	4	7.2	144	2.000	115	1.600	72	1.000	173	2.404	
	DRM0636	115	4.5	6.4	144	2.250	115	1.800	72	1.125	174	2.714	
	DRM0640	127	5	5.6	140	2.500	112	2.000	70	1.250	169	3.024	
	DRM0644	139	5.5	4.8	132	2.750	106	2.200	66	1.375	160	3.334	
	DRM0648	152	6	4	120	3.000	96	2.400	60	1.500	146	3.644	
	DRM0696	305	12	2.4	144	6.000	115	4.800	72	3.000	177	7.364	



Silicone Chrome Die Springs
Raymond

Medium Duty
Colour - BLUE



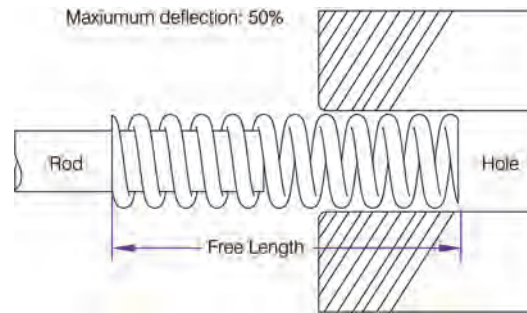
Hole Dia.	Rod Dia.	Product Code	Free Length		lb at 1/10" Defl	Maximum Deflection 50% of Free Length		Deflection for Average life 40% of Free Length		Deflection for Long life 25% of Free Length		Total Travel to Solid	
			mm	in		Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.
1" 25mm	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
		DRM0896	305	12.00	4.0	240	6.000	192	4.800	120	3.000	282	7.062
1 1/4" 32mm	5/8" 15.5mm	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

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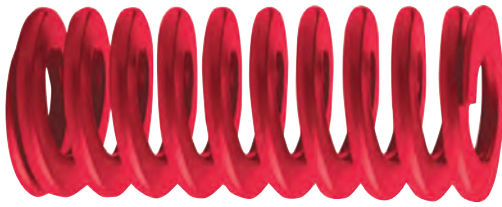


Silicone Chrome Die Springs
Raymond

Medium Duty
Colour - BLUE

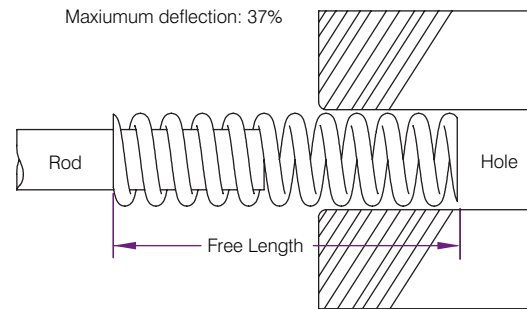


Hole Dia.	Rod Dia.	Product Code	Free Length		lb at 1/10" Defl	Maximum Deflection 50% of Free Length		Deflection for Average life 40% of Free Length		Deflection for Long life 25% of Free Length		Total Travel to Solid	
			mm	in		Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.
1 1/2" 38mm	3/4" 19mm	DRM1216	51	2.00	44.8	448	1.00	358	0.800	224	0.500	500	1.116
		DRM1220	64	2.50	36.8	460	1.25	368	1.000	230	0.625	532	1.446
		DRM1224	76	3.00	33.6	504	1.50	403	1.200	252	0.750	597	1.776
		DRM1228	89	3.50	26.4	462	1.75	370	1.400	231	0.875	547	2.072
		DRM1232	102	4.00	21.6	432	2.00	346	1.600	216	1.000	526	2.436
		DRM1236	115	4.50	20.8	468	2.25	374	1.800	234	1.125	575	2.766
		DRM1240	127	5.00	20	500	2.50	400	2.000	250	1.250	619	3.096
		DRM1244	139	5.50	16.8	462	2.75	370	2.200	231	1.375	576	3.426
		DRM1248	152	6.00	14.4	432	3.00	346	2.400	216	1.500	540	3.756
		DRM1256	178	7.00	13.6	476	3.50	381	2.800	238	1.750	601	4.416
		DRM1264	203	8.00	12.8	512	4.00	410	3.200	256	2.000	650	5.076
		DRM1280	254	10.00	8.8	440	5.00	352	4.000	220	2.500	563	6.396
		DRM1296	305	12.00	8	480	6.00	384	4.800	240	3.000	606	7.580
2" 51mm	1" 25mm	DRM1620	64	2.50	89.6	1120	1.25	896	1.000	560	0.625	1179	1.316
		DRM1624	76	3.00	76.8	1152	1.50	922	1.200	576	0.750	1243	1.619
		DRM1628	89	3.50	64.8	1134	1.75	907	1.400	567	0.875	1245	1.922
		DRM1632	102	4.00	55.2	1104	2.00	883	1.600	552	1.000	1228	2.224
		DRM1636	115	4.50	47.2	1062	2.25	850	1.800	531	1.125	1193	2.527
		DRM1640	127	5.00	41.6	1040	2.50	832	2.000	520	1.250	1177	2.830
		DRM1644	139	5.50	39.2	1078	2.75	862	2.200	539	1.375	1228	3.132
		DRM1648	152	6.00	35.2	1056	3.00	845	2.400	528	1.500	1209	3.435
		DRM1656	178	7.00	31.2	1092	3.50	874	2.800	546	1.750	1260	4.040
		DRM1664	203	8.00	25.6	1024	4.00	819	3.200	512	2.000	1189	4.645
		DRM1680	254	10.00	20.8	1040	5.00	832	4.000	520	2.500	1218	5.857
		DRM1696	305	12.00	16.8	1008	6.00	806	4.800	504	3.000	1187	7.067



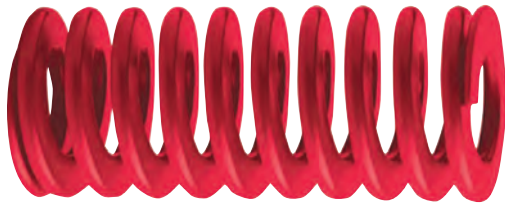
Silicone Chrome Die Springs
Raymond

Medium/Heavy Duty
Colour - RED



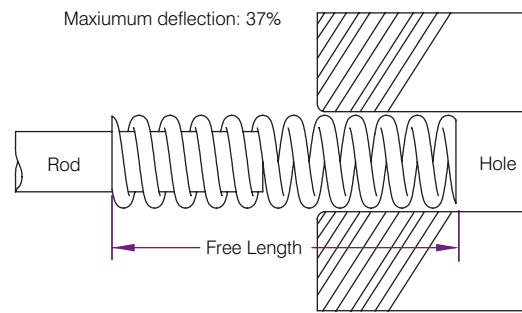
Hole Dia.	Rod Dia.	Product Code	Free Length		lb at 1/10" Defl	Maximum Deflection 37% of Free Length		Deflection for Average life 25% of Free Length		Deflection for Long life 20% of Free Length		Total Travel to Solid	
			mm	in		Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.
3/8" 10mm	3/16" 4.5mm	DRHM0308	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
Wire 0.93 x 0.156	Wire 0.93 x 0.156	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

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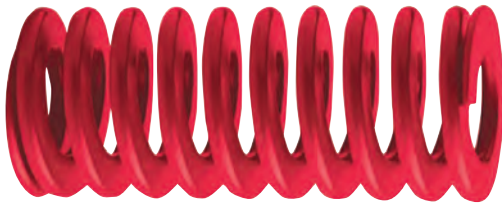
Silicone Chrome Die Springs
Raymond

Medium/Heavy Duty
Colour - RED



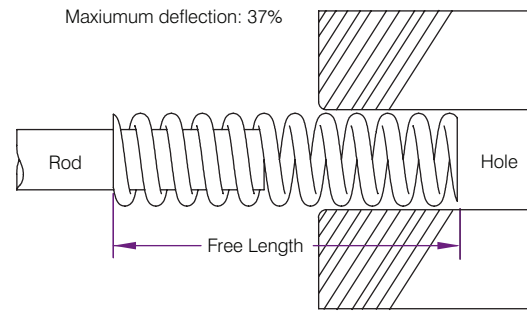
Hole Dia.	Rod Dia.	Product Code	Free Length		lb at 1/10" Defl	Maximum Deflection 37% of Free Length		Deflection for Average life 25% of Free Length		Deflection for Long life 20% of Free Length		Total Travel to Solid	
			mm	in		Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.
1" 25mm	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
		DRMH0896	305	12.00	5.6	249	4.440	168	3.000	134	2.400	379	6.767
1 1/4" 32mm	5/8 15.8mm	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

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Silicone Chrome Die Springs
Raymond

Medium/Heavy Duty
Colour - RED

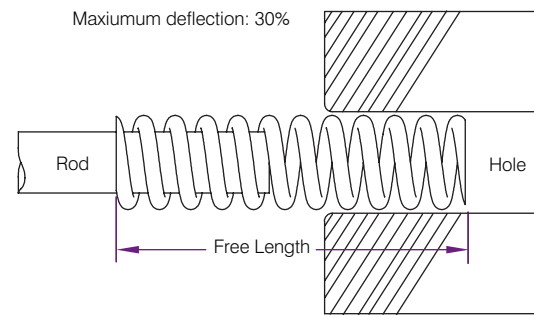


Hole Dia.	Rod Dia.	Product Code	Free Length		lb at 1/10" Defl	Maximum Deflection 37% of Free Length		Deflection for Average life 25% of Free Length		Deflection for Long life 20% of Free Length		Total Travel to Solid	
			mm	in		Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.	Pressure Pounds	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



Silicone Chrome Die Springs
Raymond

Heavy Duty
Colour - GOLD



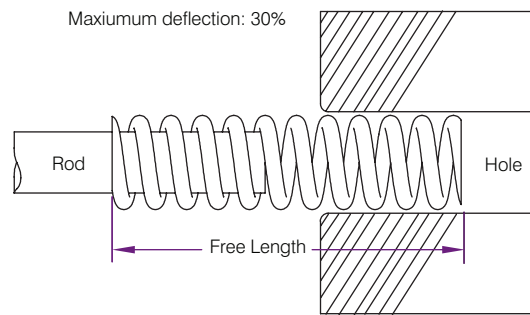
Hole Dia.	Rod Dia.	Product Code	Free Length		lb at 1/10" Defl	Maximum Deflection 30% of Free Length		Deflection for Average life 20% of Free Length		Deflection for Long life 15% of Free Length		Total Travel to Solid	
			mm	in		Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.	Pressure Pounds	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
		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
3/4" 19mm	3/8" 9.5mm	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

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Silicone Chrome Die Springs
Raymond

Heavy Duty
Colour - GOLD



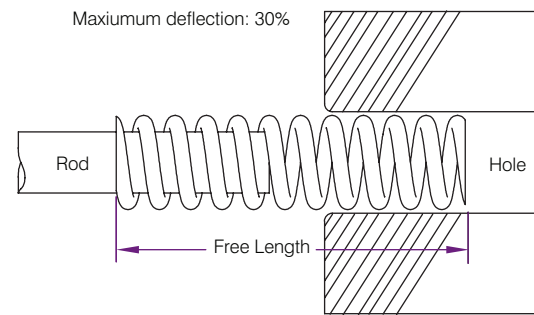
Hole Dia.	Rod Dia.	Product Code	Free Length		lb at 1/10" Defl	Maximum Deflection 30% of Free Length		Deflection for Average life 20% of Free Length		Deflection for Long life 15% of Free Length		Total Travel to Solid	
			mm	in		Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.
1" 25mm	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
		DRH1020	64	2.50	117.6	882	0.750	588	0.500	441	0.375	964	0.820
		DRH1024	76	3.00	95.2	857	0.900	571	0.600	428	0.450	957	1.005
		DRH1028	89	3.50	75.2	790	1.050	526	0.700	395	0.525	895	1.190
		DRH1032	102	4.00	66.4	797	1.200	531	0.800	398	0.600	913	1.375
		DRH1036	115	4.50	58.4	788	1.350	526	0.900	394	0.675	911	1.560
		DRH1040	127	5.00	49.6	744	1.500	496	1.000	372	0.750	866	1.745
		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

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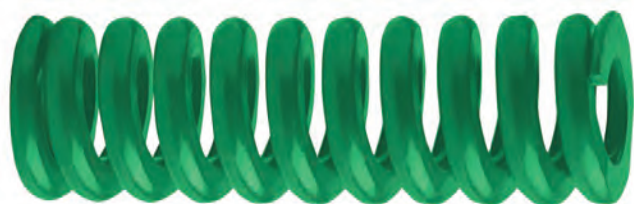
Silicone Chrome Die Springs
Raymond

Heavy Duty
Colour - GOLD



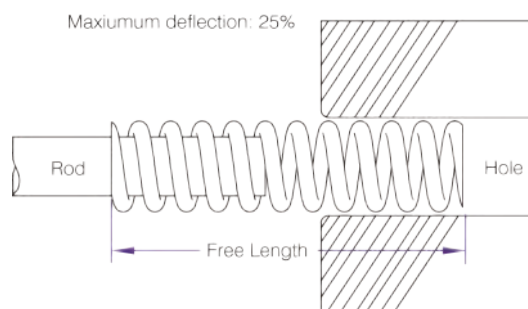
Hole Dia.	Rod Dia.	Product Code	Free Length		lb at 1/10" Defl	Maximum Deflection 30% of Free Length		Deflection for Average life 20% of Free Length		Deflection for Long life 15% of Free Length		Total Travel to Solid	
			mm	in		Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.	Pressure Pounds	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" 25mm	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

Die Springs Extra Heavy Duty



Silicone Chrome Die Springs
Raymond

Extra Heavy Duty
Colour - GREEN



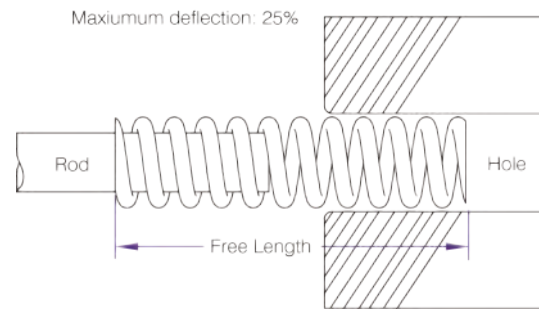
Hole Dia.	Rod Dia.	Product Code	Free Length		lb at 1/10" Defl	Maximum Deflection 25% of Free Length		Deflection for Average life 20% of Free Length		Deflection for Long life 15% of Free Length		Total Travel to Solid	
			mm	in		Pressure Pounds	Length of Defl.	Pressure Pounds	Length of Defl.	Pressure Pounds	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	195	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
		DRX0648	152	6	19.5	292.5	1.500	234	1.200	176	0.900	380	1.850
1" 25mm	1/2" 12.5mm	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

Continued 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
		DRX1264	203	8	80.8	1616	2.000	1293	1.600	970	1.200	2199	2.721
2" 51mm	1" 25mm	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

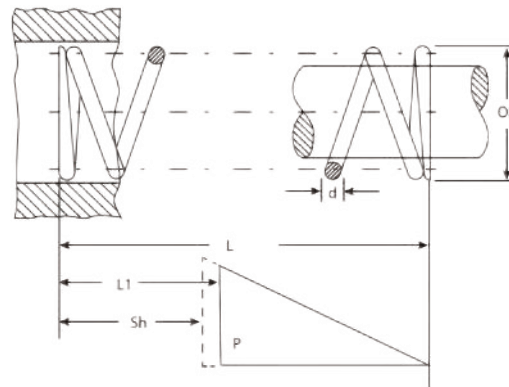


SPEC compression springs provide design engineers, draughtsmen, production and maintenance departments with precision-engineered springs in an economical and time saving way.

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.



ProductCode	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	mm	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
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

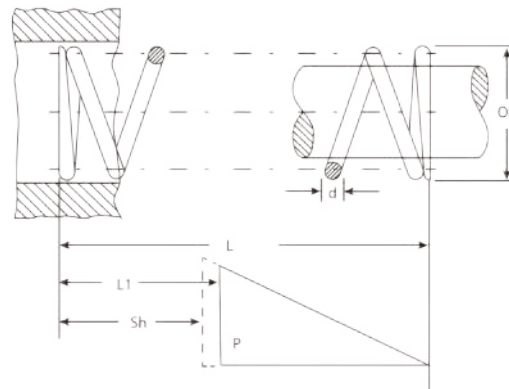


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ProductCode	Outside Dia. (OD)	Wire Dia (d).	Free Length (L) Approx.	Load Length (L1)	Solid Height (Sh) Approx.	Load (P) at L1	Spring Rate (R)
	mm	mm	mm	mm	mm	mm	mm
C0180-020-0500	4.57	0.51	12.70	6.68	4.47	10.19	1.70
C0180-020-0750	4.57	0.51	19.05	9.75	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
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

ProductCode	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	mm	mm
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
C0240-032-0500	6.10	0.81	12.70	7.95	5.89	30.65	6.44
C0240-032-0750	6.10	0.81	19.05	11.05	8.51	30.65	3.84
C0240-032-1000	6.10	0.81	25.40	14.40	10.95	30.65	2.78
C0240-032-1500	6.10	0.81	31.75	17.75	13.36	30.65	2.19
C0240-032-2000	6.10	0.81	38.10	21.11	15.65	30.65	1.80
C0240-035-0500	6.10	0.89	12.70	8.33	7.26	37.10	8.49
C0240-035-0750	6.10	0.89	19.05	12.14	9.93	37.10	5.37
C0240-035-1000	6.10	0.89	25.40	15.95	12.60	37.10	3.92
C0240-035-1500	6.10	0.89	38.10	23.57	17.93	37.10	2.56
C0240-035-2000	6.10	0.89	50.80	31.19	23.27	37.10	1.89
C0240-040-0500	6.10	1.02	12.70	9.12	8.53	53.51	14.93
C0240-040-0750	6.10	1.02	19.05	13.34	11.79	53.51	9.36
C0240-040-1000	6.10	1.02	25.40	17.55	15.04	53.51	6.83
C0240-040-1500	6.10	1.02	38.10	25.98	21.56	53.51	4.41
C0240-040-2000	6.10	1.02	50.80	34.42	28.09	53.51	3.27
C0240-045-1000	6.10	1.14	25.40	19.30	16.94	71.93	11.78
C0240-045-1500	6.10	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
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

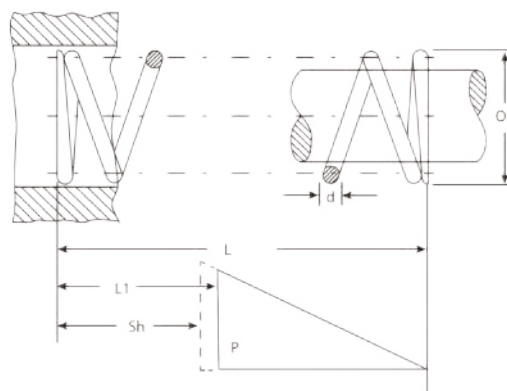


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	mm	mm	mm	mm	mm	mm	mm
C0300-035-1000	7.62	0.89	25.40	13.54	9.40	31.85	2.68
C0300-040-0500	7.62	1.02	12.70	8.05	6.99	43.81	9.43
C0300-040-0750	7.62	1.02	19.05	11.66	9.35	43.81	5.92
C0300-040-1000	7.62	1.02	25.40	15.24	11.68	43.81	4.31
C0300-040-1250	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
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

ProductCode	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	mm	mm
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
C0390047-2000	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
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
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

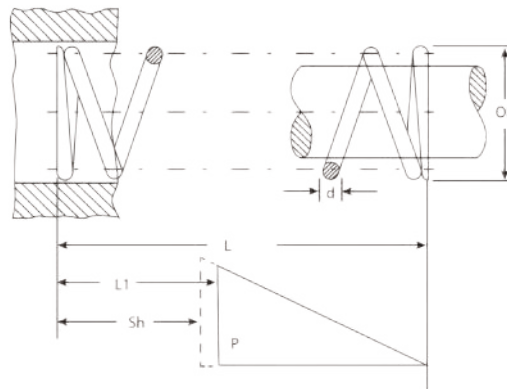


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	mm	mm	mm	mm	mm	mm	mm
C0480-051-2000	12.19	1.30	50.80	26.09	16.28	55.65	2.26
C0480-051-2500	12.19	1.30	63.50	32.28	19.56	55.65	1.79
C0480-051-3000	12.19	1.30	76.20	38.48	22.83	55.65	1.47
C0480-055-0500	12.19	1.40	12.70	6.99	6.25	72.06	12.60
C0480-055-1000	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
C0480-0632750	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
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
C0600-081-1250	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

ProductCode	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	mm	mm
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
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
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

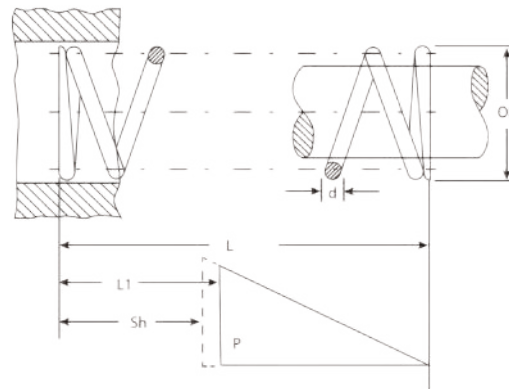


SPEC compression springs provide design engineers, draughtsmen, production and maintenance departments with precision-engineered springs in an economical and time saving way.

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.



ProductCode	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	mm	mm
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
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

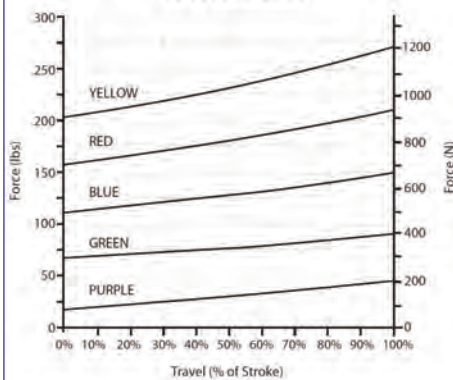
ProductCode	Outside Dia. (OD)	Wire Dia (d).	Free Length (L) Approx.	Load Length (L1)	Solid Height (Sh) Approx.	Load (P) at L1	Spring Rate (R)
	mm	mm	mm	mm	mm	mm	mm
C1225-148-1500	31.12	3.76	38.10	27.31	22.56	298.03	27.58
C1225-148-2000	31.12	3.76	50.80	35.51	28.04	298.03	19.50
C1225-148-3000	31.12	3.76	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	101.60	68.38	49.91	298.03	8.96
C1225-148-4500	31.12	3.76	114.30	76.61	55.37	298.03	7.89
C1225-148-5000	31.12	3.76	127.00	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
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	49.20	3.76	76.20	42.27	23.34	193.14	5.69
C1937-148-4000	49.20	3.76	101.60	55.12	28.50	193.14	4.15
C1937-148-5000	49.20	3.76	127.00	67.95	33.63	193.14	3.27
C1937-162-2000	49.20	4.12	50.80	30.78	20.57	248.21	12.39
C1937-162-3000	49.20	4.12	76.20	44.25	26.72	248.21	7.75
C1937-162-4000	49.20	4.12	101.60	57.71	32.84	248.21	5.65
C1937-162-5000	49.20	4.12	127.00	71.15	38.99	248.21	4.45
C1937-177-4000	49.20	4.50	101.60	60.53	37.62	317.11	7.72
C1937-177-5000	49.20	4.50	127.00	74.68	44.86	317.11	6.06
C1937-177-6000	49.20	4.50	152.40	88.82	52.10	317.11	4.99
C1937-207-4500	49.20	5.26	114.30	73.99	51.92	488.10	12.09
C1937-207-5000	49.20	5.26	127.00	81.76	56.64	488.10	10.78
C1937-207-5500	49.20	5.26	139.70	89.51	61.39	488.10	9.71
C1937-207-6000	49.20	5.26	152.40	97.28	66.14	488.10	8.86



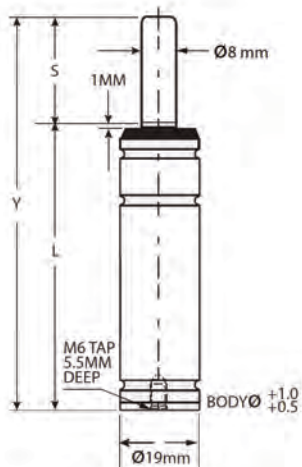
Product Specifications

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



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

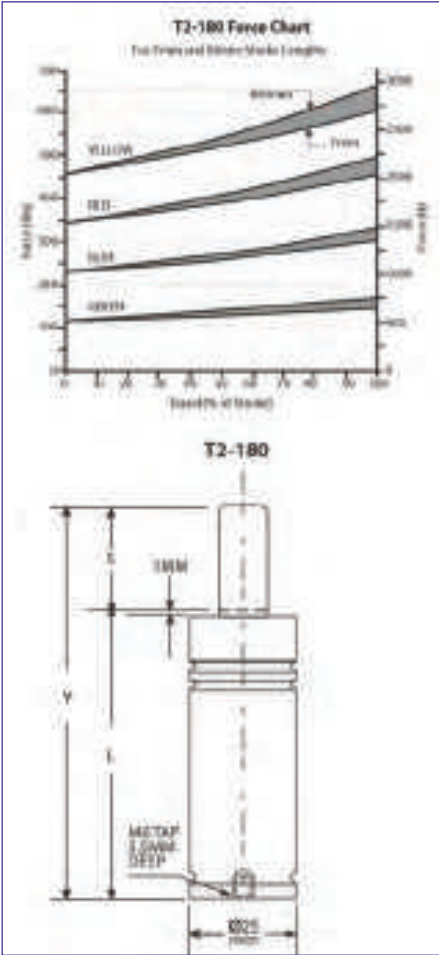
T2-90 Dimensional Information

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.



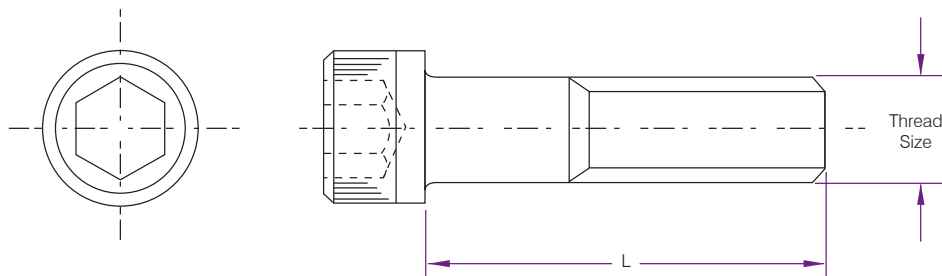
Product Specifications	
Pressure Medium	Nitrogen Gas
Charging Pressure Range	Max.: 180 bar / 2610 psi Min.: 25 bar / 360 psi
Force Increase By Temperature	±0.3 % / °C
Max. Charging Pressure (bar at 20°C)	180
Min. Operating Temperature	0°C
Max. Operating Temperature	80°C
Max. Stroke / Minute	80-100 at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



T2-180 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 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

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



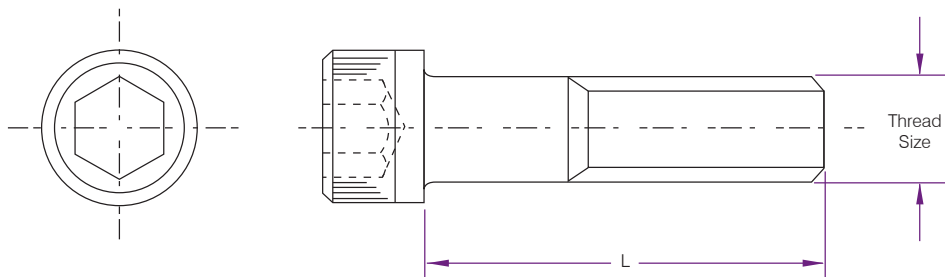
METRIC						
Length	M2	M3	M4	M5	M6	M8
5		UCAP3M05	UCAP4M05			
6		UCAP3M06	UCAP4M06	UCAP5M06		
8		UCAP3M08	UCAP4M08	UCAP5M08	UCAP6M08	
10		UCAP3M10	UCAP4M10	UCAP5M10	UCAP6M10	UCAP8M10
12	UCAP2M12	UCAP3M12	UCAP4M12	UCAP5M12	UCAP6M12	UCAP8M12
16		UCAP3M16	UCAP4M16	UCAP5M16	UCAP6M16	UCAP8M16
20		UCAP3M20	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
90				UCAP5M90	UCAP6M90	UCAP8M90
100					UCAP6M100	UCAP8M100
110					UCAP6M110	UCAP8M110
120					UCAP6M120	UCAP8M120
130						UCAP8M130
140					UCAP6M140	UCAP8M140
150						UCAP8M150
160						UCAP8M160
180						UCAP8M180

[More Sizes next page](#)

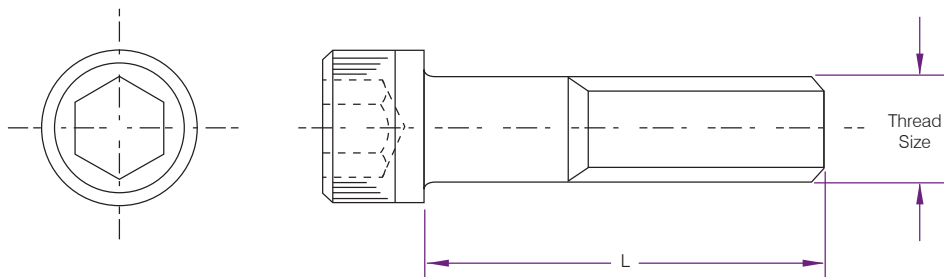


METRIC					
Length	M10	M12	M14	M16	M18
10	UCAP10M10				
12	UCAP10M12	UCAP12M12			
16	UCAP10M16	UCAP12M16			
20	UCAP10M20	UCAP12M20			
25	UCAP10M25	UCAP12M25	UCAP14M25	UCAP16M25	
30	UCAP10M30	UCAP12M30	UCAP14M30	UCAP16M30	
35	UCAP10M35	UCAP12M35	UCAP14M35	UCAP16M35	
40	UCAP10M40	UCAP12M40	UCAP14M40	UCAP16M40	
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	UCAP10M90	UCAP12M90	UCAP14M90	UCAP16M90	
100	UCAP10M100	UCAP12M100	UCAP14M100	UCAP16M100	
110	UCAP10M110	UCAP12M110	UCAP14M110	UCAP16M110	
120	UCAP10M120	UCAP12M120	UCAP14M120	UCAP16M120	
130	UCAP10M130	UCAP12M130	UCAP14M130	UCAP16M130	
140	UCAP10M140	UCAP12M140	UCAP14M140	UCAP16M140	
150	UCAP10M150	UCAP12M150	UCAP14M150	UCAP16M150	
160	UCAP10M160	UCAP12M160	UCAP14M160	UCAP16M160	
170	UCAP10M170	UCAP12M170	UCAP14M170	UCAP16M170	
180	UCAP10M180	UCAP12M180	UCAP14M180	UCAP16M180	
190	UCAP10M190	UCAP12M190	UCAP14M190	UCAP16M190	
200	UCAP10M200	UCAP12M200	UCAP14M200	UCAP16M200	
220		UCAP12M220	UCAP14M220	UCAP16M220	
230		UCAP12M230	UCAP14M230		
240		UCAP12M240		UCAP16M240	
250		UCAP12M250	UCAP14M250	UCAP16M250	
260				UCAP16M260	
300			UCAP14M300	UCAP16M300	
320			UCAP14M320		
340			UCAP14M2340		

[More Sizes next page](#)

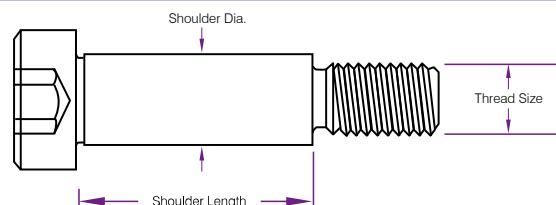


METRIC						
Length	M20	M22	M24	M27	M30	M36
30	UCAP20M30					
35	UCAP20M35					
40	UCAP20M40		UCAP24M40			
45	UCAP20M45		UCAP24M45			
50	UCAP20M50		UCAP24M50			
55	UCAP20M55		UCAP24M55			
60	UCAP20M60		UCAP24M60			
65	UCAP20M65		UCAP24M65			
70	UCAP20M70		UCAP24M70			
75	UCAP20M75		UCAP24M75			
80	UCAP20M80		UCAP24M80	UCAP27M80	UCAP30M80	UCAP36M80
90	UCAP20M90		UCAP24M90	UCAP27M90	UCAP30M90	UCAP36M90
100	UCAP20M100		UCAP24M100	UCAP27M100	UCAP30M100	UCAP36M100
110	UCAP20M110	UCAP22M110	UCAP24M110	UCAP27M110	UCAP30M110	UCAP36M110
120	UCAP20M120		UCAP24M120	UCAP27M120	UCAP30M120	UCAP36M120
130	UCAP20M130	UCAP22M130	UCAP24M130		UCAP30M130	UCAP36M130
140	UCAP20M140		UCAP24M140	UCAP27M140	UCAP30M140	UCAP36M140
150	UCAP20M150		UCAP24M150	UCAP27M150	UCAP30M150	UCAP36M150
160	UCAP20M160		UCAP24M160		UCAP30M160	
180	UCAP20M180		UCAP24M180	UCAP27M180	UCAP30M180	UCAP36M180
200	UCAP20M200		UCAP24M200	UCAP27M200	UCAP30M200	UCAP36M200
220	UCAP20M220		UCAP24M220		UCAP30M220	
240	UCAP20M240		UCAP24M240		UCAP30M240	UCAP36M240
260	UCAP20M260		UCAP24M260		UCAP30M260	UCAP36M260
280	UCAP20M280		UCAP24M280		UCAP30M280	UCAP36M280
300	UCAP20M300		UCAP24M300		UCAP30M300	UCAP36M300
320			UCAP24M320		UCAP30M320	
340			UCAP24M340		UCAP30M340	
360					UCAP30M360	



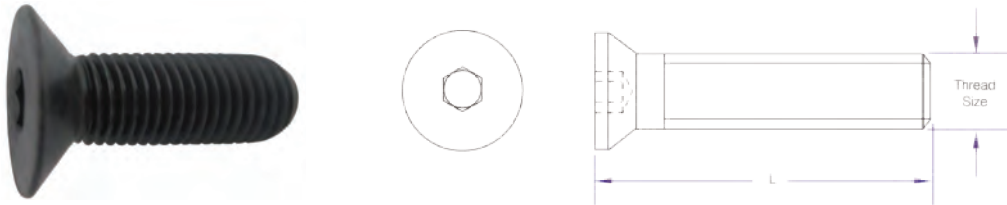
IMPERIAL									
Length	1/8	3/16	1/4	5/16	3/8	1/2	5/8	3/4	1"
1/4		UCAP31614	UCAP1414						
3/8	UCAP1838	UCAP31638	UCAP1438	UCAP51638					
1/2	UCAP1812	UCAP31612	UCAP1412	UCAP51612	UCAP3812		UCAP5812	UCAP3412	
5/8		UCAP31658	UCAP1458	UCAP51658	UCAP3858	UCAP1258			
3/4	UCAP1834	UCAP31634	UCAP1434	UCAP51634	UCAP3834	UCAP1234			
7/8			UCAP1478	UCAP51678					
1	UCAP181	UCAP3161	UCAP141	UCAP5161	UCAP381	UCAP121	UCAP581		
1 1/4		UCAP316114	UCAP14114	UCAP516114	UCAP38114	UCAP12114	UCAP58114	UCAP34114	
1 1/2		UCAP316112	UCAP14112	UCAP51614	UCAP38112	UCAP12112	UCAP58112	UCAP34112	UCAP1112
1 3/4		UCAP316134	UCAP14134	UCAP516134	UCAP38134	UCAP12134	UCAP58134	UCAP34134	
2		UCAP3162	UCAP142	UCAP5162	UCAP382	UCAP122	UCAP582	UCAP342	UCAP12
2 1/4			UCAP14214	UCAP516214	UCAP38214	UCAP12214	UCAP58214	UCAP34214	
2 1/2		UCAP316212	UCAP14212	UCAP516212	UCAP38212	UCAP12212	UCAP58212	UCAP34212	UCAP1212
2 3/4			UCAP14234	UCAP516234	UCAP38234	UCAP12234			
3			UCAP143	UCAP5163	UCAP383	UCAP123	UCAP583	UCAP343	UCAP13
3 1/4			UCAP14314	UCAP516314	UCAP38314	UCAP12314			
3 1/2			UCAP14312	UCAP516312	UCAP38312	UCAP12312	UCAP58312	UCAP34312	UCAP1312
4			UCAP144	UCAP5164	UCAP384	UCAP124	UCAP584	UCAP344	UCAP14
4 1/2				UCAP516412	UCAP38412	UCAP12412	UCAP58412	UCAP34412	
5					UCAP385	UCAP125	UCAP585	UCAP345	UCAP15
5 1/2					UCAP38512	UCAP12512	UCAP58512	UCAP34512	
6					UCAP386	UCAP126	UCAP586	UCAP346	UCAP16
6 1/2						UCAP12612	UCAP58612	UCAP34612	
7						UCAP127	UCAP587	UCAP347	UCAP17
8						UCAP128	UCAP588	UCAP348	UCAP18
9								UCAP349	UCAP19

[More Sizes next page](#)



METRIC							
Shoulder Length	Shoulder Dia. (Thread Size)						
	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			

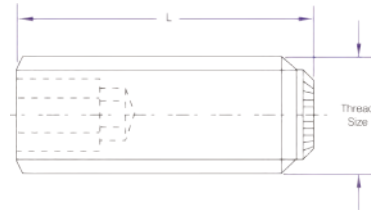
IMPERIAL						
Shoulder Length	Shoulder Dia. (Thread Size)					
	1/4 (3/16)	5/16 (1/4)	3/8 (5/16)	1/2 (3/8)	5/8 (1/2)	3/4 (5/8)
3/8	USS1438	USS51638				
1/2	USS1412	USS51612	USS3812	USS1212		
5/8		USS51658	USS3858	USS1258		
3/4	USS1434	USS51634	USS3834	USS1234		
1	USS141	USS5161	USS381	USS121		
1 1/4	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	M10	M12	M16	M20	M24
6	UCS3M06									
8	UCS3M08	UCS4M08	UCS5M08							
10	UCS3M10	UCS4M10	UCS5M10	UCS6M10	UCS8M10					
12	UCS3M12	UCS4M12	UCS5M12	UCS6M12	UCS8M12	UCS10M12				
16	UCS3M16	UCS4M16	UCS5M16	UCS6M16	UCS8M16	UCS10M16	UCS12M16			
20	UCS3M20	UCS4M20	UCS5M20	UCS6M20	UCS8M20	UCS10M20				
25	UCS3M25	UCS4M25	UCS5M25	UCS6M25	UCS8M25	UCS10M25	UCS12M25			
30	UCS3M30	UCS4M30	UCS5M30	UCS6M30	UCS8M30	UCS10M30	UCS12M30	UCS16M30		
35		UCS4M35	UCS5M35	UCS6M35	UCS8M35	UCS10M35	UCS12M35	UCS16M35	UCS20M35	
40		UCS4M40	UCS5M40	UCS6M40	UCS8M40	UCS10M40	UCS12M40	UCS16M40		
45			UCS5M45	UCS6M45	UCS8M45	UCS10M45	UCS12M45	UCS16M45	UCS20M45	
50			UCS5M50	UCS6M50	UCS8M50	UCS10M50	UCS12M50	UCS16M50		
55					UCS8M55	UCS10M55	UCS12M55	UCS16M55	UCS20M55	
60					UCS8M60	UCS10M60	UCS12M60	UCS16M60	UCS20M60	UCS24M60
70					UCS8M70	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	UCS24M120
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	M3	M4	M5	M6	M8
3	USET3M03				
4	USET3M04	USET4M04			
5	USET3M05	USET4M05	USET5M05		
6	USET3M06	USET4M06	USET5M06	USET6M06	
8	USET3M08	USET4M08	USET5M08	USET6M08	USET8M08
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	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

IMPERIAL							
Length	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



IMPERIAL		
Size	Short Arm	Long Arm
1.5	UMWS015	UMWL015
2	UMWS02	UMWL02
2.5	UMWS025	UMWL025
3	UMWS03	UMWL03
4	UMWS04	UMWL04
5	UMWS05	UMWL05
6	UMWS06	UMWL06
8	UMWS08	UMWL08
10	UMWS10	UMWL10
12	UMWS12	UMWL12
14	UMWS14	UMWL14
17	UMWS17	UMWL17
19	UMWS19	UMWL19



IMPERIAL		
Size	Short Arm	Long Arm
1/16	UWS04	UWL04
5/64	UWS05	UWL05
3/32	UWS06	UWL06
7/64	UWS07	UWL07
1/8	UWS08	UWL08
9/64	UWS09	UWL09
5/32	UWS10	UWL10
3/16	UWS12	UWL12
7/32	UWS14	UWL14
1/4	UWS16	UWL16
5/16	UWS20	UWL20
3/8	UWS24	UWL24
7/16	UWS28	UWL28
1/2	UWS32	UWL32
9/16	UWS36	UWL36
5/8	UWS40	UWL40



Product Code	Description
BONDHUS-HEX-METRIC	9 PCS SET (LONG): 1.5, 2, 2.5, 3, 4, 5, 6, 8, 10MM
BONDHUS-HEX-IMPERIAL	13 PCS SET (LONG): 0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8"
BONDHUS-B-END-METRIC	9 PCS SET: 1.5, 2, 2.5, 3, 4, 5, 6, 8, 10MM
BONDHUS-B-END-IMPERIAL	13 PCS SET: 0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8"
BONDHUS-T-HANDLE-METRIC	8 PCS SET WITH STAND: 2, 2.5, 3, 4, 5, 6, 8, 10MM



METRIC (Thread Size)							
Length	6mm (M4)	8mm (M5)	10mm (M5)	12mm (M6)	13mm (M8)	16mm (M8)	20mm (M10)
20	UDT6M20	UDT8M20					
24	UDT6M24						
25		UDT8M25	UDT10M25				
30	UDT6M30	UDT8M30	UDT10M30	UDT12M30			
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

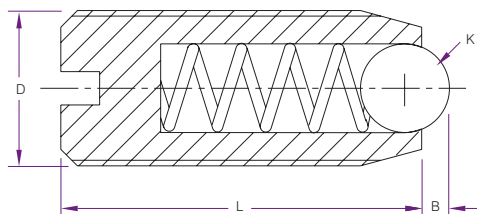


METRIC									
Length	M3	M4	M5	M6	M8	M10	M12	M16	M20
10	UD3M10	UD4M10							
12	UD3M12	UD4M12	UD5M12	UD6M12					
15		UD4M15							
16	UD3M16		UD5M16	UD6M16	UD8M16				
18	UD3M18								
20	UD3M20	UD4M20	UD5M20	UD6M20	UD8M20	UD10M20	UD12M20		
25	UD3M25	UD4M25	UD5M25	UD6M25	UD8M25	UD10M25	UD12M25		
30	UD3M30	UD4M30	UD5M30	UD6M30	UD8M30	UD10M30	UD12M30		
35		UD4M35	UD5M35	UD6M35	UD8M35		UD12M35		
40		UD4M40	UD5M40	UD6M40	UD8M40	UD10M40	UD12M40	UD16M40	
50		UD4M50	UD5M50	UD6M50	UD8M50	UD10M50	UD12M50	UD16M50	UD20M50
60				UD6M60	UD8M60	UD10M60	UD12M60	UD16M60	UD20M60
70				UD6M70	UD8M70	UD10M70	UD12M70	UD16M70	UD20M70
80						UD10M80	UD12M80	UD16M80	UD20M80
90							UD12M90	UD16M90	
100						UD10M100	UD12M100	UD16M100	UD20M100
120									UD20M120

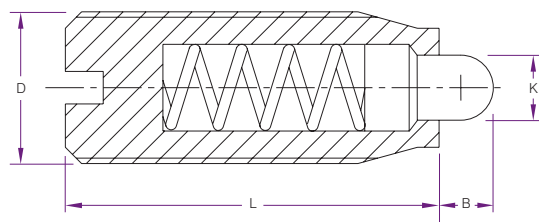
Standard Dowel Pins - Imperial



IMPERIAL						
Length	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	UD31658				
3/4	UD1834	UD31634	UD1434	UD51634	UD3834	UD1234
1	UD181	UD3161	UD141	UD5161	UD381	UD121
1 1/4	UD18114	UD16114	UD14114	UD516114	UD38114	UD12114
1 1/2	UD18112	UD316112	UD14112	UD516112	UD38112	UD12112
1 3/4	UD18134	UD16134	UD14134	UD516134	UD38134	UD12134
2	UD182	UD3162	UD142	UD5162	UD382	UD122
2 1/4			UD14214	UD516214	UD38214	UD12214
2 1/2			UD14212	UD16212	UD38212	
3				UD5163	UD383	UD123
3 1/2						UD12312
4						UD124



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
RBM04	M4	1.5	1.5	15
RBM05	M5	2.4	2.3	18
RBM06	M6	2.7	2.5	20
RBM08	M8	3.5	3	22
RBM10	M10	4	3	22
RBM12	M12	6	4	28
RBM16	M16	7.5	5	32

Gauge Plate



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

Nominal chemical composition

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

O1 is a medium alloyed oil hardening steel with excellent cutting force and toughness.

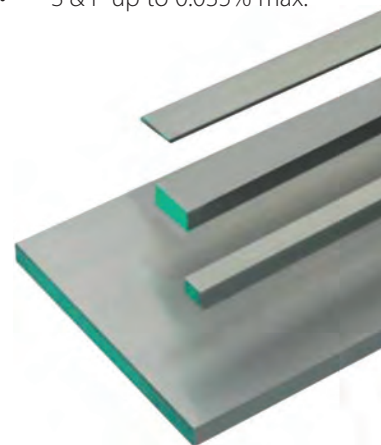
The excellent dimensional stability reduces distortion and the possibility of cracking during heat treatment.

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.



MATERIALS

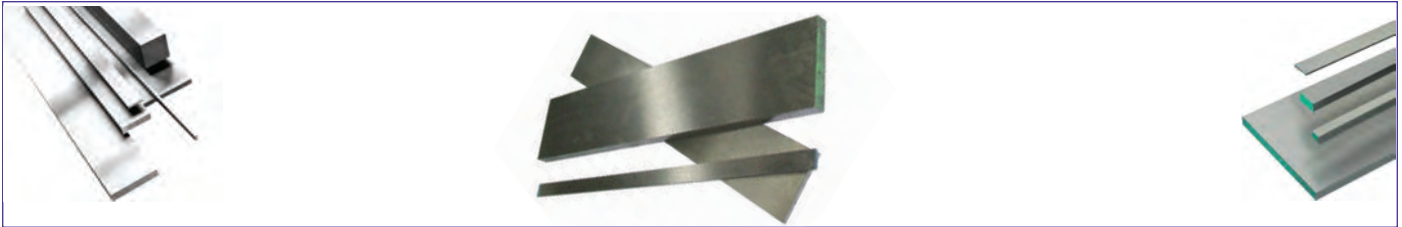
Gauge Plate



Part Number	Description	Part Number	Description	Part Number	Description
GM01010	1 X 10 X 500 Gauge Plate	GM01075	1 X 75 X 500 Gauge Plate	GM015015M	1.5 X 15 X 1000 Gauge Plate
GM01010M	1 X 10 X 1000 Gauge Plate	GM01075M	1 X 75 X 1000 Gauge Plate	GM015020	1.5 X 20 X 500 Gauge Plate
GM01015	1 X 15 X 500 Gauge Plate	GM01080	1 X 80 X 500 Gauge Plate	GM015025	1.5 X 25 X 500 Gauge Plate
GM01020	1 X 20 X 500 Gauge Plate	GM01100	1 X 100 X 500 Gauge Plate	GM015025M	1.5 X 25 X 1000 Gauge Plate
GM01020M	1 X 20 X 1000 Gauge Plate	GM01100M	1 X 100 X 1000 Gauge Plate	GM015030	1.5 X 30 X 500 Gauge Plate
GM01025	1 X 25 X 500 Gauge Plate	GM01125	1 X 125 X 500 Gauge Plate	GM015030M	1.5 X 30 X 1000 Gauge Plate
GM01030	1 X 30 X 500 Gauge Plate	GM01125M	1 X 125 X 1000 Gauge Plate	GM015040	1.5 X 40 X 500 Gauge Plate
GM01030M	1 X 30 X 1000 Gauge Plate	GM01150	1 X 150 X 500 Gauge Plate	GM015050	1.5 X 50 X 500 Gauge Plate
GM01040	1 X 40 X 500 Gauge Plate	GM01150M	1 X 150 X 1000 Gauge Plate	GM015050M	1.5 X 50 X 1000 Gauge Plate
GM01040M	1 X 40 X 1000 Gauge Plate	GM01200	1 X 200 X 500 Gauge Plate	GM015060	1.5 X 60 X 500 Gauge Plate
GM01050	1 X 50 X 500 Gauge Plate	GM01250	1 X 250 X 500 Gauge Plate	GM015060M	1.5 X 60 X 1000 Gauge Plate
GM01050M	1 X 50 X 1000 Gauge Plate	GM01300	1 X 300 X 500 Gauge Plate	GM015075	1.5 X 75 X 500 Gauge Plate
GM01060	1 X 60 X 500 Gauge Plate	GM015010	1.5 X 10 X 500 Gauge Plate	GM015075M	1.5 X 75 X 1000 Gauge Plate
GM01060M	1 X 60 X 1000 Gauge Plate	GM015015	1.5 X 15 X 500 Gauge Plate	GM015080	1.5 X 80 X 500 Gauge Plate



Part Number	Description	Part Number	Description	Part Number	Description
GM015080M	1.5 X 80 X 1000 Gauge Plate	GM05250M	5 X 250 X 1000 Gauge Plate	GM08015M	8 X 15 X 1000 Gauge Plate
GM015100	1.5 X 100 X 500 Gauge Plate	GM05300	5 X 300 X 500 Gauge Plate	GM08020	8 X 20 X 500 Gauge Plate
GM015100M	1.5 X 100 X 1000 Gauge Plate	GM0600	6mm Sq X 500 Gauge Plate	GM08020M	8 X 20 X 1000 Gauge Plate
GM015125	1.5 X 125 X 500 Gauge Plate	GM06010	6 X 10 X 500 Gauge Plate	GM08025	8 X 25 X 500 Gauge Plate
GM015125M	1.5 X 125 X 1000 Gauge Plate	GM06010M	6 X 10 X 1000 Gauge Plate	GM08025M	8 X 25 X 1000 Gauge Plate
GM015150	1.5 X 150 X 500 Gauge Plate	GM06015	6 X 15 X 500 Gauge Plate	GM08030	8 X 30 X 500 Gauge Plate
GM015150M	1.5 X 150 X 1000 Gauge Plate	GM05250	5 X 250 X 500 Gauge Plate	GM08030M	8 X 30 X 1000 Gauge Plate
GM015200	1.5 X 200 X 500 Gauge Plate	GM05250M	5 X 250 X 1000 Gauge Plate	GM08040	8 X 40 X 500 Gauge Plate
GM015200M	1.5 X 200 X 1000 Gauge Plate	GM05300	5 X 300 X 500 Gauge Plate	GM08040M	8 X 40 X 1000 Gauge Plate
GM015250	1.5 X 250 X 500 Gauge Plate	GM0600	6mm Sq X 500 Gauge Plate	GM08050	8 X 50 X 500 Gauge Plate
GM015300	1.5 X 300 X 500 Gauge Plate	GM06010	6 X 10 X 500 Gauge Plate	GM08050M	8 X 50 X 1000 Gauge Plate
GM02010	2 X 10 X 500 Gauge Plate	GM06010M	6 X 10 X 1000 Gauge Plate	GM08060	8 X 60 X 500 Gauge Plate
GM02010M	2 X 10 X 1000 Gauge Plate	GM06015	6 X 15 X 500 Gauge Plate	GM08060M	8 X 60 X 1000 Gauge Plate
GM02015	2 X 15 X 500 Gauge Plate	GM06015M	6 X 15 X 1000 Gauge Plate	GM08075	8 X 75 X 500 Gauge Plate
GM02015M	2 X 15 X 1000 Gauge Plate	GM06020	6 X 20 X 500 Gauge Plate	GM08075M	8 X 75 X 1000 Gauge Plate
GM02020	2 X 20 X 500 Gauge Plate	GM06020M	6 X 20 X 1000 Gauge Plate	GM08080	8 X 80 X 500 Gauge Plate
GM02020M	2 X 20 X 1000 Gauge Plate	GM06025	6 X 25 X 500 Gauge Plate	GM08080M	8 X 80 X 1000 Gauge Plate
GM02025	2 X 25 X 500 Gauge Plate	GM06025M	6 X 25 X 1000 Gauge Plate	GM08100	8 X 100 X 500 Gauge Plate
GM02025M	2 X 25 X 1000 Gauge Plate	GM06030	6 X 30 X 500 Gauge Plate	GM08100M	8 X 100 X 1000 Gauge Plate
GM02030	2 X 30 X 500 Gauge Plate	GM06030M	6 X 30 X 1000 Gauge Plate	GM08125	8 X 125 X 500 Gauge Plate
GM02030M	2 X 30 X 1000 Gauge Plate	GM06040	6 X 40 X 500 Gauge Plate	GM08125M	8 X 125 X 1000 Gauge Plate
GM02040	2 X 40 X 500 Gauge Plate	GM06040M	6 X 40 X 1000 Gauge Plate	GM08150	8 X 150 X 500 Gauge Plate
GM02040M	2 X 40 X 1000 Gauge Plate	GM06050	6 X 50 X 500 Gauge Plate	GM08150M	8 X 150 X 1000 Gauge Plate
GM02050	2 X 50 X 500 Gauge Plate	GM06050M	6 X 50 X 1000 Gauge Plate	GM08200	8 X 200 X 500 Gauge Plate
GM02050M	2 X 50 X 1000 Gauge Plate	GM06060	6 X 60 X 500 Gauge Plate	GM08200M	8 X 200 X 1000 Gauge Plate
GM02060	2 X 60 X 500 Gauge Plate	GM06060M	6 X 60 X 1000 Gauge Plate	GM08250	8 X 250 X 500 Gauge Plate
GM02060M	2 X 60 X 1000 Gauge Plate	GM06075	6 X 75 X 500 Gauge Plate	GM08250M	8 X 250 X 1000 Gauge Plate
GM02075	2 X 75 X 500 Gauge Plate	GM06075M	6 X 75 X 1000 Gauge Plate	GM08300	8 X 300 X 500 Gauge Plate
GM02075M	2 X 75 X 1000 Gauge Plate	GM06080	6 X 80 X 500 Gauge Plate	GM1000	10mmsq X 500 Gauge Plate
GM02080	2 X 80 X 500 Gauge Plate	GM06080M	6 X 80 X 1000 Gauge Plate	GM10015	10 X 15 X 500 Gauge Plate
GM02080M	2 X 80 X 1000 Gauge Plate	GM06100	6 X 100 X 500 Gauge Plate	GM10015M	10 X 15 X 1000 Gauge Plate
GM05075M	5 X 75 X 1000 Gauge Plate	GM06100M	6 X 100 X 1000 Gauge Plate	GM10020	10 X 20 X 500 Gauge Plate
GM05080	5 X 80 X 500 Gauge Plate	GM06125	6 X 125 X 500 Gauge Plate	GM10020M	10 X 20 X 1000 Gauge Plate
GM05080M	5 X 80 X 1000 Gauge Plate	GM06125M	6 X 125 X 1000 Gauge Plate	GM10025	10 X 25 X 500 Gauge Plate
GM05100	5 X 100 X 500 Gauge Plate	GM06150	6 X 150 X 500 Gauge Plate	GM10025M	10 X 25 X 1000 Gauge Plate
GM05100M	5 X 100 X 1000 Gauge Plate	GM06150M	6 X 150 X 1000 Gauge Plate	GM10030	10 X 30 X 500 Gauge Plate
GM05125	5 X 125 X 500 Gauge Plate	GM06200	6 X 200 X 500 Gauge Plate	GM10030M	10 X 30 X 1000 Gauge Plate
GM05125M	5 X 125 X 1000 Gauge Plate	GM06200M	6 X 200 X 1000 Gauge Plate	GM10040	10 X 40 X 500 Gauge Plate
GM05150	5 X 150 X 500 Gauge Plate	GM06250	6 X 250 X 500 Gauge Plate	GM10040M	10 X 40 X 1000 Gauge Plate
GM05150M	5 X 150 X 1000 Gauge Plate	GM06300	6 X 300 X 500 Gauge Plate	GM10050	10 X 50 X 500 Gauge Plate
GM05200	5 X 200 X 500 Gauge Plate	GM0800	8mmsq X 500 Gauge Plate	GM10050M	10 X 50 X 1000 Gauge Plate
GM05200M	5 X 200 X 1000 Gauge Plate	GM08010	8 X 10 X 500 Gauge Plate	GM10060	10 X 60 X 500 Gauge Plate
GM05250	5 X 250 X 500 Gauge Plate	GM08010M	8 X 10 X 1000 Gauge Plate	GM10060M	10 X 60 X 1000 Gauge Plate
GM05250	5 X 250 X 500 Gauge Plate	GM08015	8 X 15 X 500 Gauge Plate	GM10075	10 X 75 X 500 Gauge Plate



Part Number	Description	Part Number	Description	Part Number	Description
GM10075M	10 X 75 X 1000 Gauge Plate	GM15030M	15 X 30 X 1000 Gauge Plate	GM25040M	25 X 40 X 1000 Gauge Plate
GM10100	10 X 100 X 500 Gauge Plate	GM15040	15 X 40 X 500 Gauge Plate	GM25050	25 X 50 X 500 Gauge Plate
GM10100M	10 X 100 X 1000 Gauge Plate	GM15040M	15 X 40 X 1000 Gauge Plate	GM25050M	25 X 50 X 1000 Gauge Plate
GM10125	10 X 125 X 500 Gauge Plate	GM15050	15 X 50 X 500 Gauge Plate	GM25060	25 X 60 X 500 Gauge Plate
GM10125M	10 X 125 X 1000 Gauge Plate	GM15050M	15 X 50 X 1000 Gauge Plate	GM25075	25 X 75 X 500 Gauge Plate
GM10150	10 X 150 X 500 Gauge Plate	GM15060	15 X 60 X 500 Gauge Plate	GM25075M	25 X 75 X 1000 Gauge Plate
GM10150M	10 X 150 X 1000 Gauge Plate	GM15060M	15 X 60 X 1000 Gauge Plate	GM25080	25 X 80 X 500 Gauge Plate
GM10200	10 X 200 X 500 Gauge Plate	GM15075	15 X 75 X 500 Gauge Plate	GM25080M	25 X 80 X 1000 Gauge Plate
GM10200M	10 X 200 X 1000 Gauge Plate	GM15080	15 X 80 X 500 Gauge Plate	GM25100	25 X 100 X 500 Gauge Plate
GM10250	10 X 250 X 500 Gauge Plate	GM15100	15 X 100 X 500 Gauge Plate	GM25100M	25 X 100 X 1000 Gauge Plate
GM10300	10 X 300 X 500 Gauge Plate	GM15100M	15 X 100 X 1000 Gauge Plate	GM25125	25 X 125 X 500 Gauge Plate
GM1200	12mm Sq X 500 Gauge Plate	GM15125	15 X 125 X 500 Gauge Plate	GM25125M	25 X 125 X 1000 Gauge Plate
GM12015	12 X 15 X 500 Gauge Plate	GM15150	15 X 150 X 500 Gauge Plate	GM25150	25 X 150 X 500 Gauge Plate
GM12015M	12 X 15 X 1000 Gauge Plate	GM15150M	15 X 150 X 1000 Gauge Plate	GM25200	25 X 200 X 500 Gauge Plate
GM12020	12 X 20 X 500 Gauge Plate	GM15200	15 X 200 X 500 Gauge Plate	GM25250	25 X 250 X 500 Gauge Plate
GM12020M	12 X 20 X 1000 Gauge Plate	GM15250	15 X 250 X 500 Gauge Plate	GM25250M	25 X 250 X 1000 Gauge Plate
GM12025	12 X 25 X 500 Gauge Plate	GM15250M	15 X 250 X 1000 Gauge Plate	GM25300	25 X 300 X 500 Gauge Plate
GM12025M	12 X 25 X 1000 Gauge Plate	GM15300	15 X 300 X 500 Gauge Plate	GM25300M	25 X 300 X 1000 Gauge Plate
GM12030	12 X 30 X 500 Gauge Plate	GM2000	20mm sq X 500 Gauge Plate	GM3000	30mmsq X 500 Gauge Plate
GM12030M	12 X 30 X 1000 Gauge Plate	GM2000M	20mmsq X 1000 Gauge Plate	GM30040	30 X 40 X 500 Gauge Plate
GM12040	12 X 40 X 500 Gauge Plate	GM20025	20 X 25 X 500 Gauge Plate	GM30040M	30 X 40 X 1000 Gauge Plate
GM12040M	12 X 40 X 1000 Gauge Plate	GM20025M	20 X 25 X 1000 Gauge Plate	GM30050	30 X 50 X 500 Gauge Plate
GM12050	12 X 50 X 500 Gauge Plate	GM20030	20 X 30 X 500 Gauge Plate	GM30050M	30 X 50 X 1000 Gauge Plate
GM12050M	12 X 50 X 1000 Gauge Plate	GM20030M	20 X 30 X 1000 Gauge Plate	GM30060	30 X 60 X 500 Gauge Plate
GM12060	12 X 60 X 500 Gauge Plate	GM20040	20 X 40 X 500 Gauge Plate	GM30060M	30 X 60 X 1000 Gauge Plate
GM12060M	12 X 60 X 1000 Gauge Plate	GM20040M	20 X 40 X 1000 Gauge Plate	GM30075	30 X 75 X 500 Gauge Plate
GM12075	12 X 75 X 500 Gauge Plate	GM20050	20 X 50 X 500 Gauge Plate	GM30075M	30 X 75 X 1000 Gauge Plate
GM12080	12 X 80 X 500 Gauge Plate	GM20050M	20 X 50 X 1000 Gauge Plate	GM30080	30 X 80 X 500 Gauge Plate
GM12080M	12 X 80 X 1000 Gauge Plate	GM20060	20 X 60 X 500 Gauge Plate	GM30080M	30 X 80 X 1000 Gauge Plate
GM12100	12 X 100 X 500 Gauge Plate	GM20060M	20 X 60 X 1000 Gauge Plate	GM30100	30 X 100 X 500 Gauge Plate
GM12100M	12 X 100 X 1000 Gauge Plate	GM20075	20 X 75 X 500 Gauge Plate	GM30125	30 X 125 X 500 Gauge Plate
GM12125	12 X 125 X 500 Gauge Plate	GM20075M	20 X 75 X 1000 Gauge Plate	GM30125M	30 X 125 X 1000 Gauge Plate
GM12125M	12 X 125 X 1000 Gauge Plate	GM20080	20 X 80 X 500 Gauge Plate	GM30150	30 X 150 X 500 Gauge Plate
GM12150	12 X 150 X 500 Gauge Plate	GM20080M	20 X 80 X 1000 Gauge Plate	GM30150M	30 X 150 X 1000 Gauge Plate
GM12150M	12 X 150 X 1000 Gauge Plate	GM20100	20 X 100 X 500 Gauge Plate	GM30200	30 X 200 X 500 Gauge Plate
GM12200	12 X 200 X 500 Gauge Plate	GM20125	20 X 125 X 500 Gauge Plate	GM30200M	30 X 200 X 1000 Gauge Plate
GM12200M	12 X 200 X 1000 Gauge Plate	GM20150	20 X 150 X 500 Gauge Plate	GM30250	30 X 250 X 500 Gauge Plate
GM12250	12 X 250 X 500 Gauge Plate	GM20200	20 X 200 X 500 Gauge Plate	GM30250M	30 X 250 X 1000 Gauge Plate
GM12250M	12 X 250 X 1000 Gauge Plate	GM20250	20 X 250 X 500 Gauge Plate	GM30300	30 X 300 X 500 Gauge Plate
GM12300	12 X 300 X 500 Gauge Plate	GM20250M	20 X 250 X 1000 Gauge Plate	GM30300M	30 X 300 X 1000 Gauge Plate
GM1500	15mmsq X 500 Gauge Plate	GM20300	20 X 300 X 500 Gauge Plate	GM4000	40mmsq X 500 Gauge Plate
GM15020	15 X 20 X 500 Gauge Plate	GM2500	25mm Sq X 500 Gauge Plate	GM5000	50mmsq X 500 Gauge Plate
GM15020M	15 X 20 X 1000 Gauge Plate	GM25030	25 X 30 X 500 Gauge Plate		
GM15025	15 X 25 X 500 Gauge Plate	GM25030M	25 X 30 X 1000 Gauge Plate		
GM15030	15 X 30 X 500 Gauge Plate	GM25040	25 X 40 X 500 Gauge Plate		



METRIC Silver Steel Water Hardening		IMPERIAL Silver Steel Water Hardening	
Product Code	Rod Diameter	Product Code	Rod Diameter
SSM02	2mm Dia.	SS08	1/8 Dia.
SSM025	2.5mm Dia.	SS12	3/16 Dia.
SSM03	3mm Dia.	SS16	1/4 Dia.
SSM035	3.5mm Dia.	SS20	5/16 Dia.
SSM04	4mm Dia.	SS24	3/8 Dia.
SSM045	4.5mm Dia.	SS28	7/16 Dia.
SSM05	5mm Dia.	SS32	1/2 Dia.
SSM055	5.5mm Dia.	SS40	5/8 Dia.
SSM06	6mm Dia.	SS48	3/4 Dia.
SSM065	6.5mm Dia.	SS56	7/8 Dia.
SSM075	7.5mm Dia.	SS64	1" Dia.
SSM08	8mm Dia.	SS86	1.1/4" Dia.
SSM09	9mm Dia.		
SSM095	9.5mm Dia.		
SSM10	10mm Dia.		
SSM12	12mm Dia.		
SSM125	12.5mm Dia.		
SSM13	13mm Dia.		
SSM14	14mm Dia.		
SSM15	15mm Dia.		
SSM16	16mm Dia.		
SSM17	17mm Dia.		
SSM18	18mm Dia.		
SSM19	19mm Dia.		
SSM20	20mm Dia.		
SSM21	21mm Dia.		
SSM22	22mm Dia.		
SSM23	23mm Dia.		
SSM24	24mm Dia.		
SSM25	25mm Dia.		
SSM26	26mm Dia.		
SSM30	30mm Dia.		



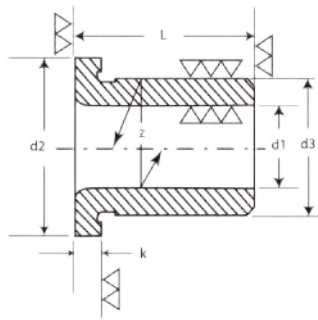
Product Code	Description (W x Thickness x L)	Product Code	Description (W x Thickness x L)	Product Code	Description (W x Thickness x L)
HSB506-050	50 X 6 stock bar 50cm	HSB10016-050	100 X 16 stock bar 50cm	HSB20030-100	200 X 30 stock bar 100cm
HSB506-100	50 X 6 stock bar 100cm	HSB10016-100	100 X 16 stock bar 100cm	HSB20040-050	200 X 40 stock bar 50cm
HSB5010-050	50 X 10 stock bar 50cm	HSB10020-050	100 X 20 stock bar 50cm	HSB20040-100	200 X 40 stock bar 100cm
HSB5010-100	50 X 10 stock bar 100cm	HSB10020-100	100 X 20 stock bar 100cm	HSB20050-050	200 X 50 stock bar 50cm
HSB5012-050	50 X 12 stock bar 50cm	HSB10025-050	100 X 25 stock bar 50cm	HSB20050-100	200 X 50 stock bar 100cm
HSB5012-100	50 X 12 stock bar 100cm	HSB10025-100	100 X 25 stock bar 100cm		
HSB5016-050	50 X 16 stock bar 50cm	HSB10032-050	100 X 32 stock bar 50cm	HSB25010-050	250 X 10 stock bar 50cm
HSB5016-100	50 X 16 stock bar 100cm	HSB10032-100	100 X 32 stock bar 100cm	HSB25010-100	250 X 10 stock bar 100cm
HSB5020-050	50 X 20 stock bar 50cm	HSB10040-050	100 X 40 stock bar 50cm	HSB25012-050	250 X 12 stock bar 50cm
HSB5020-100	50 X 20 stock bar 100cm	HSB10040-100	100 X 40 stock bar 100cm	HSB25012-100	250 X 12 stock bar 100cm
HSB5025-050	50 X 25 stock bar 50cm	HSB10050-050	100 X 50 stock bar 50cm	HSB25016-050	250 X 16 stock bar 50cm
HSB5025-100	50 X 25 stock bar 100cm	HSB10050-100	100 X 50 stock bar 100cm	HSB25016-100	250 X 16 stock bar 100cm
HSB5030-050	50 X 30 stock bar 50cm			HSB25020-050	250 X 20 stock bar 50cm
HSB5030-100	50 X 30 stock bar 100cm	HSB1506-050	150 X 6 stock bar 50cm	HSB25020-100	250 X 20 stock bar 100cm
HSB5040-050	50 X 40 stock bar 50cm	HSB15010-050	150 X 10 stock bar 50cm	HSB25025-050	250 X 25 stock bar 50cm
HSB5040-100	50 X 40 stock bar 100cm	HSB15010-100	150 X 10 stock bar 100cm	HSB25025-100	250 X 25 stock bar 100cm
HSB5050-050	50 X 50 stock bar 50cm	HSB15012-050	150 X 12 stock bar 50cm	HSB25030-050	250 X 30 stock bar 50cm
HSB5050-100	50 X 50 stock bar 100cm	HSB15012-100	150 X 12 stock bar 100cm	HSB25030-100	250 X 30 stock bar 100cm
		HSB15016-050	150 X 16 stock bar 50cm	HSB25040-050	250 X 40 stock bar 50cm
HSB7506-050	75 X 6 stock bar 50cm	HSB15016-100	150 X 16 stock bar 100cm	HSB25040-100	250 X 40 stock bar 100cm
HSB7512-050	75 X 12 stock bar 50cm	HSB15020-050	150 X 20 stock bar 50cm	HSB25050-050	250 X 50 stock bar 50cm
HSB7512-100	75 X 12 stock bar 100cm	HSB15020-100	150 X 20 stock bar 100cm	HSB25050-100	250 X 50 stock bar 100cm
HSB7516-050	75 X 16 stock bar 50cm	HSB15025-050	150 X 25 stock bar 50cm	HSB25060-050	250 X 60 stock bar 50cm
HSB7516-100	75 X 16 stock bar 100cm	HSB15025-100	150 X 25 stock bar 100cm	HSB25060-100	250 X 60 stock bar 100cm
HSB7520-050	75 X 20 stock bar 50cm	HSB15032-050	150 X 32 stock bar 50cm		
HSB7520-100	75 X 20 stock bar 100cm	HSB15032-100	150 X 32 stock bar 100cm	HSB30012-050	300 X 12 stock bar 50cm
HSB7525-050	75 X 25 stock bar 50cm	HSB15040-050	150 X 40 stock bar 50cm	HSB30012-100	300 X 12 stock bar 100cm
HSB7525-100	75 X 25 stock bar 100cm	HSB15040-100	150 X 40 stock bar 100cm	HSB30016-050	300 X 16 stock bar 50cm
HSB7530-050	75 X 30 stock bar 50cm	HSB15050-050	150 X 50 stock bar 50cm	HSB30016-100	300 X 16 stock bar 100cm
HSB7530-100	75 X 30 stock bar 100cm	HSB15050-100	150 X 50 stock bar 100cm	HSB30020-050	300 X 20 stock bar 50cm
HSB7540-050	75 X 40 stock bar 50cm			HSB30020-100	300 X 20 stock bar 100cm
HSB7540-100	75 X 40 stock bar 100cm	HSB20012-050	200 X 12 stock bar 50cm	HSB30025-050	300 X 25 stock bar 50cm
HSB7550-050	75 X 50 stock bar 50cm	HSB20012-100	200 X 12 stock bar 100cm	HSB30025-100	300 X 25 stock bar 100cm
HSB7550-100	75 X 50 stock bar 100cm	HSB20016-050	200 X 16 stock bar 50cm	HSB30030-050	300 X 30 stock bar 50cm
		HSB20016-100	200 X 16 stock bar 100cm	HSB30030-100	300 X 30 stock bar 100cm
HSB1006-050	100 X 6 stock bar 50cm	HSB20020-050	200 X 20 stock bar 50cm	HSB30040-050	300 X 40 stock bar 50cm
HSB1006-100	100 X 6 stock bar 100cm	HSB20020-100	200 X 20 stock bar 100cm	HSB30040-100	300 X 40 stock bar 100cm
HSB10010-050	100 X 10 stock bar 50cm	HSB20025-050	200 X 25 stock bar 50cm	HSB30050-050	300 X 50 stock bar 50cm
HSB10010-100	100 X 10 stock bar 100cm	HSB20025-100	200 X 25 stock bar 100cm	HSB30050-100	300 X 50 stock bar 100cm
HSB10012-050	100 X 12 stock bar 50cm	HSB20030-050	200 X 30 stock bar 50cm	HSB30060-050	300 X 60 stock bar 50cm
HSB10012-100	100 X 12 stock bar 100cm			HSB30060-100	300 X 60 stock bar 100cm



	Product Code	Diameter	Length
Urethane Shore A90	U006-L	6mm	1 Metre
	U010-L	10mm	1 Metre
	U012-L	12mm	1 Metre
	U015-L	15mm	1 Metre
	U020-L	20mm	1 Metre
	U022-L	22mm	1 Metre
	U025-L	25mm	1 Metre
	U032-L	32mm	1 Metre
	U035-L	35mm	1 Metre
	U040-L	40mm	1 Metre
	U045-L	45mm	1 Metre
	U050-L	50mm	1 Metre
	U060-L	60mm	1 Metre
	U070-L	70mm	1 Metre
	U100-L	100mm	1 Metre



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

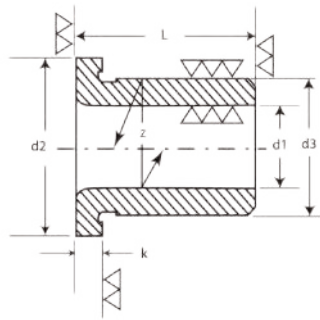


Materials: Case Hardened Steel
Hardness: 62 +/- 2 Hrc



d1 F7	d3 n6	d2	k	z	Product Code -Short	Short Length	Product Code -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
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

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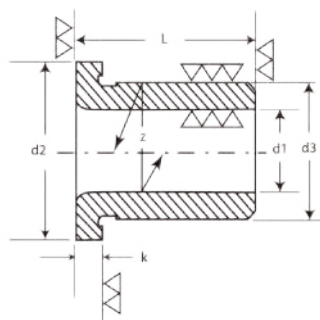


Materials: Case Hardened Steel
Hardness: 62 +/- 2 Hrc



d1 F7	d3 n6	d2	k	z	Product Code -Short	Short Length	Product Code -Long	Long Length
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
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

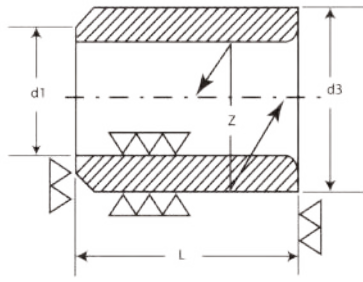
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Materials: Case Hardened Steel
Hardness: 62 +/- 2 Hrc



d1 F7	d3 n6	d2	k	z	Product Code -Short	Short Length	Product Code -Long	Long Length
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
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

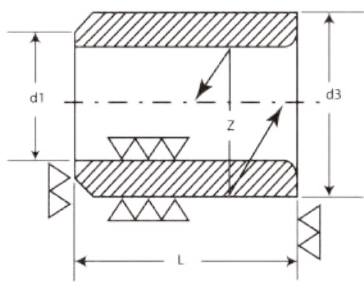


Materials: Case Hardened Steel
Hardness: 62 +/- 2 Hrc



d1 F7	d3 n6	z	Product Code -Short	Short Length	Product Code -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
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

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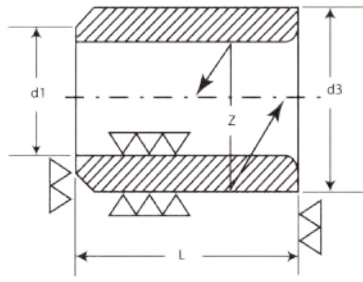


Materials: Case Hardened Steel
Hardness: 62 +/- 2 Hrc



d1 F7	d3 n6	z	Product Code -Short	Short Length	Product Code -Long	Long Length
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		
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

Continued next page



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



d1 F7	d3 n6	z	Product Code -Short	Short Length	Product Code -Long	Long Length
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
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

1 micron = 0.001mm / 25.4 micron = 0.001 inches

Designation	Application	up to 3mm	3mm - 6mm	6mm - 10 mm	10mm - 18mm	18mm - 30mm	30mm - 50mm
d9		-20	-30	-40	-50	-65	-80
		-45	-60	-76	-93	-117	-142
f7	Ground Surfaces	-6	-10	-13	-16	-20	-25
		-16	-22	-28	-34	-41	-50
F7	Drill guides-I.D.	+16	+22	+28	+34	+41	+50
		+7	+10	+13	+16	+20	+25
g5		-2	-4	-5	-6	-7	-9
		-6	-9	-11	-14	-16	-20
g6	Ejector Pins	-2	-4	-5	-6	-7	-9
		-8	-12	-14	-17	-20	-25
h4	Guide pins (die sets)	0	0	0	0	0	0
		-3	-4	-4	-5	-6	-7
h5		0	0	0	0	0	0
		-4	-5	-6	-8	-9	-11
h6	Punches D.C. F(pt)	0	0	0	0	0	0
		-6	-8	-9	-11	-13	-16
h7		0	0	0	0	0	0
		-10	-12	-15	-18	-21	-25
h9		0	0	0	0	0	0
		-25	-30	-36	-43	-52	-62
h11		0	0	0	0	0	0
		-60	-75	-90	-110	-210	-250
H5		+4	+5	+6	+8	+9	+11
		0	0	0	0	0	0
H7	Punch guides-I.D. Reamers	+10	+12	+15	+18	+21	+25
		0	0	0	0	0	0
H8	Die inserts or buttons-I.D.(A&B)	+14	+18	+22	+27	+33	+39
		0	0	0	0	0	0
j5		+2	+3	+4	+5	+5	+6
		-2	-2	-2	-3	-4	-5
j6		+4	+6	+7	+8	+9	+11
		-2	-2	-2	-3	-4	-5
j7		+7	+9	+10	+12	+13	+15
		-2	-3	-5	-6	-8	-10
k6	Die inserts O.D(B)	+10	+12	+15	+18		
		+1	+1	+2	+2		
m5		+7	+9	+12	+15	+17	+20
		+2	+4	+6	+7	+8	+9
m6	Punches E,F(shk) Dowels	+9	+12	+15	+18	+21	+25
		+2	+4	+6	+7	+8	+9
n6	Die inserts-O.D.(A) Guide Bushes-O.D.	+13	+16	+19	+23	+28	+32
		+6	+8	+10	+12	+15	+17
p6		+16	+20	+24	+29	+35	+42
		+9	+12	+15	+18	+22	+26
r6		+19	+23	+28	+34	+41	+50
		+12	+15	+19	+23	+28	+34
s5		+18	+24	+29	+36	+44	+54
		+14	+19	+23	+28	+35	+43
s6		+22	+27	+32	+39	+48	+59
		+15	+19	+23	+28	+35	+43

NOTES

[illegible]



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