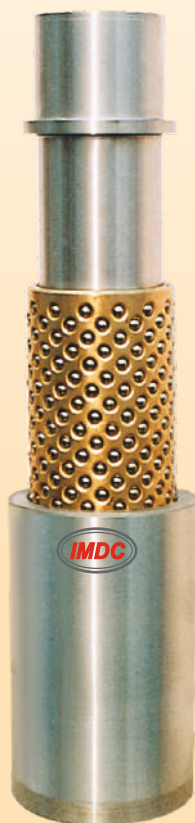
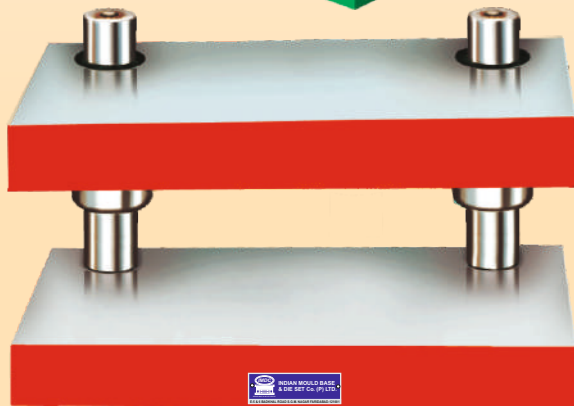
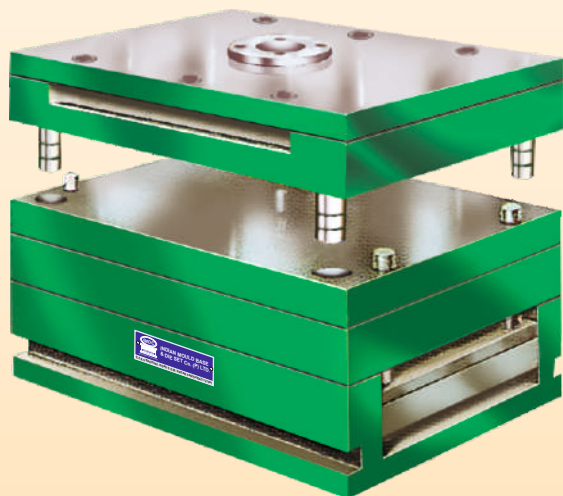
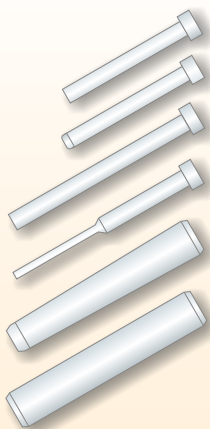


CATALOGUE

- **MOULD BASES AND ACCESSORIES**
- **DIESETS AND ACCESSORIES**
- **BALL CAGES**
- **EJECTOR PINS, PUNCHES, DWEL PINS**
- **ENGINEERING REFERENCE BOOK**



**INDIAN MOULD BASE & DIE SET
COMPANY PVT. LTD.**



INTRODUCTION

Production in our Mould bases & Die set division is concentrated entirely on precision highly quality mould bases for plastic and die Casting dies, and die sets for press Tools in a wide range of types and sizes.

We can offer different variations of our standard models as per catalogue, but should none of these meet your requirements, we will make special set for you to suit your exact needs. We make a special point of ensuring that material used is of the highest quality, the most suitable for each application. For example all plates are made of High quality mild steel, however core and cavity plates of mould bases can be ordered in En 8, En 9, En19, En 24, En 31, P 20, HDS, material also. Pillar bushes, guide pins return pins are made of good alloy steel duly hardened and ground.

All plates are well ground and jig bored for guide pillar, bushes. Return pins and ejector plate guiding pins for perfect alignment and perpendicularity. Two sides of core and cavity plates are milled or ground to make perfect squareness between them, for taking reference for further working.

We also offer spare parts for Mould bases & Die sets such as guide pillars, bushes, return pins and ejector pins etc. as per our catalogue or your drawing.

Our aim is to provide the best possible service to our mould base and die set users, not only in quality and accuracy but in early delivery as well.

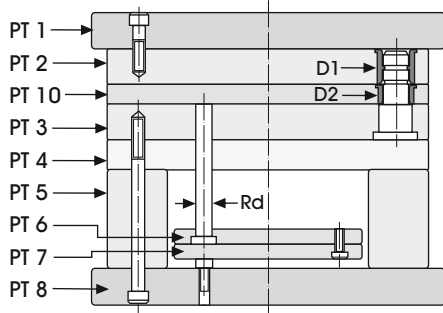
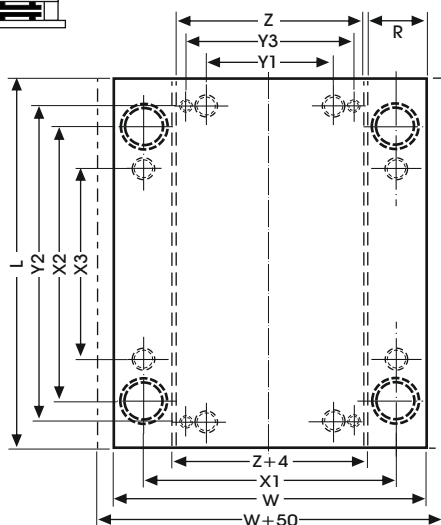
TABLE OF CONTENTS

	PAGE No.
 MOULD BASES SECTION	
SIDE GATE SYSTEM MOULD BASES	4 - 9
THREE PLATE TYPE MOULD BASES	10 - 13
PIN POINT GATE MOULD BASES	14 - 23
DIE CASTING MOULD BASES	24
ACCESSORIES FOR MOULD BASES	25 - 26
STEEPED EJECTOR PINS & EJECTOR PINS	27 - 28
DOWEL PINS CYLINDRICAL & TAPER	29 - 30
 DIE SET SECTION	
CAST IRON REAR PILLAR DIE SETS	32
CAST IRON CENTRE PILLAR DIE SETS	33
CAST IRON DIAGONAL PILLAR DIE SETS	34
CAST IRON FOUR PILLAR DIE SETS	35
ALL STEEL REAR PILLAR DIE SETS	36
ALL STEEL CENTRE PILLAR DIE SETS	37
ALL STEEL DIAGONAL PILLAR DIE SETS	38
ALL STEEL FOUR PILLAR DIE SETS	39
ALL STEEL THREE PLATED CENTRE PILLAR DIE SETS	40
ALL STEEL THREE PLATED DIAGONAL PILLAR DIE SETS	41
ALL STEEL THREE PLATED FOUR PILLAR DIE SETS	42
ACCESSORIES FOR DIE SETS	43 - 47
PIERCING PUNCHES	48
 ENGINEERING REFERENCE BOOK SECTION	
PLASTIC MOULDS	50 - 51
DIE CASTING DIES	52
SHEET CUTTING DIES	53 - 54
GENERAL ENGINEERING DATA	55 - 62
ALLOY STEEL & OTHER MATERIALS	63 - 80

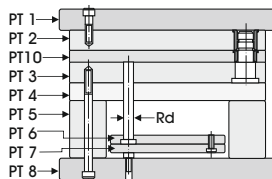
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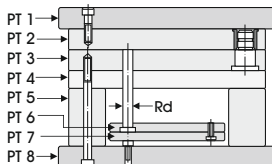
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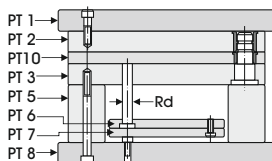
MODELS



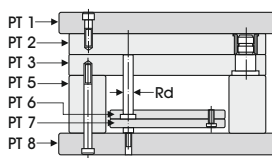
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SP-B



SP-C



SP-D

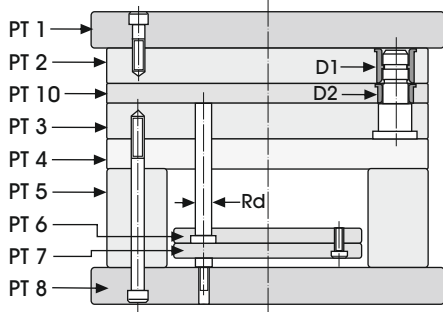
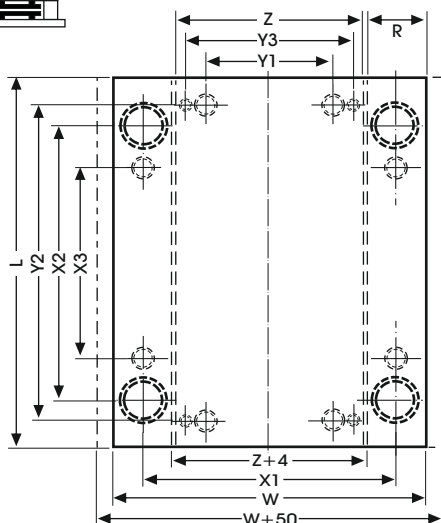
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SIDE GATE SYSTEM MOULD BASES

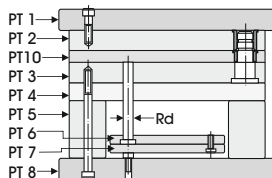
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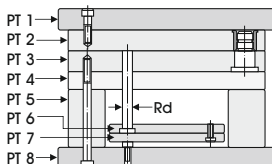
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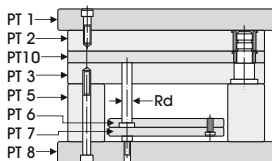
MODELS



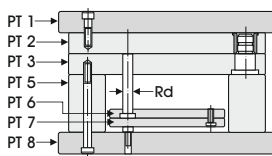
SP-A



SP-B



SP-C



SP-D

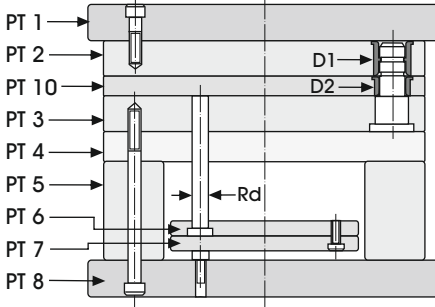
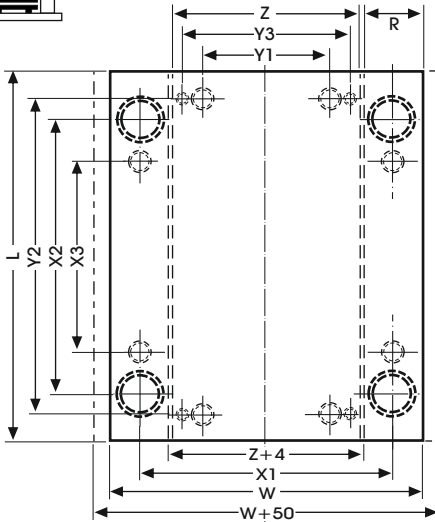
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SP-A 2540	246	396	200	350	284	94	368	132	150	46	14	32/24	26	86	36	66, 86, 106	16	26	26	M12 M8
SP-B 2540	"	"	"	"	"	"	"	"	"	"	"	"	"	"	36		"	"	-	"
SP-C 2540	"	"	"	"	"	"	"	"	"	"	"	"	"	"	-		"	"	26	"
SP-D 2540	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		"	"	-	"
SP-A 2550	246	496	200	450	384	94	468	132	150	46	14	32/24	26	86	36	66, 86, 106	16	26	26	M12 M8
SP-B 2550	"	"	"	"	"	"	"	"	"	"	"	"	"	"	36		"	"	-	"
SP-C 2550	"	"	"	"	"	"	"	"	"	"	"	"	"	"	26, 36, 46, 56, 66, 76, 86, 96, 106		"	"	26	"
SP-D 2550	"	"	"	"	"	"	"	"	"	"	"	"	"	"	-		"	"	-	"
SP-A 3030	296	296	250	250	184	144	268	182	200	46	14	32/24	26	86	46	66, 86, 106	16	26	32	M12 M8
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SP-D 3030	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		"	"	-	"
SP-A 3035	296	346	250	300	234	144	318	182	200	46	14	32/24	26	86	46	66, 86, 106	16	26	32	M12 M8
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SP-C 3035	"	"	"	"	"	"	"	"	"	"	"	"	"	"	-		"	"	32	"
SP-D 3035	"	"	"	"	"	"	"	"	"	"	"	"	"	"	26, 36, 46, 56, 66, 76, 86, 96, 106		"	"	-	"

SIDE GATE SYSTEM MOULD BASES

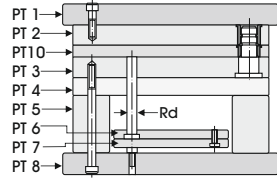
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SP-A 3045	296	446	250	400	334	144	418	182	200	46	14	32/24	26	106	46				16	26	32	M12	M8	
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SP-A 3550	346	496	300	450	384	186	468	230	250	46	14	32/24	26	106	46				16	26	32	M16	M10	
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SP-A 3560	346	596	300	550	484	186	568	230	250	46	14	32/24	26	106	46				16	26	32	M16	M10	
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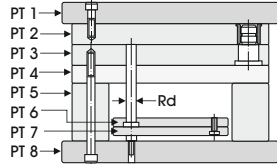
SIDE GATE SYSTEM MOULD BASES



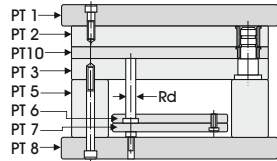
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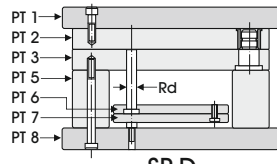
SP-A



SP-B



SP-C



SP-D

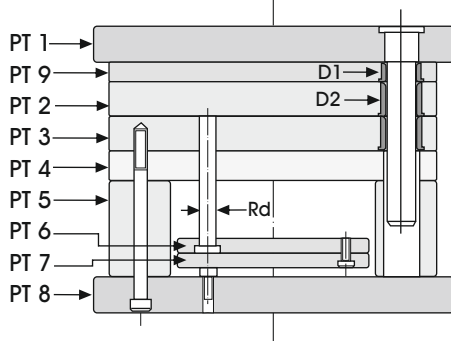
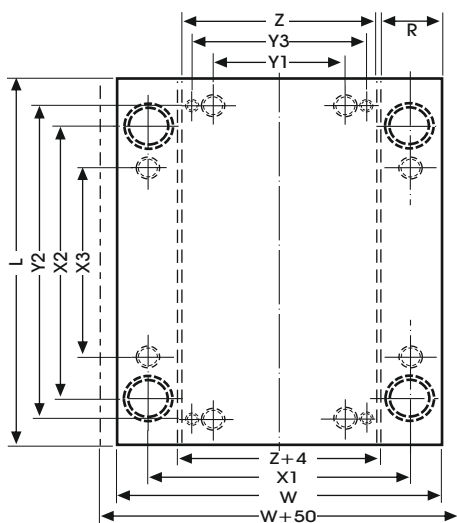
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SIDE GATE SYSTEM MOULD BASES

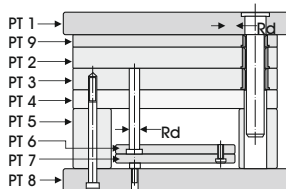
IMDC CODE	W	L	X1	X2	X3	Y1	Y2	Y3	Z	R	Rd	D1/D2	PT1	PT2	PT	PT	PT	PT	PT	PT	SCREWS	
																					SMB	EPL
SP-A 4570	446	696	390	640	550	256	660	306	328	56	18	42/34	36	166	56	86, 106, 120, 146, 166	86, 106, 126	16	26	36	M16	M10
SP-B 4570	??	??	??	??	??	??	??	??	??	??	??	??	??		56			??	??	-	??	??
SP-C 4570	??	??	??	??	??	??	??	??	??	??	??	??	??		-			??	??	36	??	??
SP-D 4570	??	??	??	??	??	??	??	??	??	??	??	??	??		-			??	??	-	??	??
SP-A 5050	496	496	440	440	350	306	460	356	378	56	18	42/34	36	166	56	86, 106, 120, 146, 166	86, 106, 126	16	26	36	M16	M10
SP-B 5050	??	??	??	??	??	??	??	??	??	??	??	??	??		56			??	??	-	??	??
SP-C 5050	??	??	??	??	??	??	??	??	??	??	??	??	??		-			??	??	36	??	??
SP-D 5050	??	??	??	??	??	??	??	??	??	??	??	??	??		-			??	??	-	??	??
SP-A 5055	496	546	440	490	400	306	510	356	378	56	18	42/34	36	166	56	86, 106, 120, 146, 166	86, 106, 126	16	26	36	M16	M10
SP-B 5055	??	??	??	??	??	??	??	??	??	??	??	??	??		56			??	??	-	??	??
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SP-D 5055	??	??	??	??	??	??	??	??	??	??	??	??	??		-			??	??	-	??	??
SP-A 5060	496	596	440	540	450	306	560	356	378	56	18	42/34	36	166	56	86, 106, 120, 146, 166	86, 106, 126	16	26	36	M16	M10
SP-B 5060	??	??	??	??	??	??	??	??	??	??	??	??	??		56			??	??	-	??	??
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SP-A 5070	496	696	440	640	550	306	660	356	378	56	18	42/34	36	166	56	86, 106, 120, 146, 166	86, 106, 126	16	26	36	M16	M10
SP-B 5070	??	??	??	??	??	??	??	??	??	??	??	??	??		56			??	??	-	??	??
SP-C 5070	??	??	??	??	??	??	??	??	??	??	??	??	??		-			??	??	36	??	??
SP-D 5070	??	??	??	??	??	??	??	??	??	??	??	??	??		-			??	??	-	??	??
SP-A 5555	546	546	490	490	400	356	510	406	428	56	18	42/34	36	166	56	86, 106, 120, 146, 166	86, 106, 126	16	26	36	M16	M10
SP-B 5555	??	??	??	??	??	??	??	??	??	??	??	??	??		56			??	??	-	??	??
SP-C 5555	??	??	??	??	??	??	??	??	??	??	??	??	??		-			??	??	36	??	??
SP-D 5555	??	??	??	??	??	??	??	??	??	??	??	??	??		-			??	??	-	??	??
SP-A 5560	546	596	490	540	450	356	560	406	428	56	18	42/34	36	166	56	86, 106, 120, 146, 166	86, 106, 126	16	26	36	M16	M12
SP-B 5560	??	??	??	??	??	??	??	??	??	??	??	??	??		56			??	??	-	??	??
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SP-D 5560	??	??	??	??	??	??	??	??	??	??	??	??	??		-			??	??	-	??	??
SP-A 5570	546	696	490	640	550	356	660	406	428	56	18	42/34	36	166	56	86, 106, 120, 146, 166	86, 106, 126	16	26	36	M16	M12
SP-B 5570	??	??	??	??	??	??	??	??	??	??	??	??	??		56			??	??	-	??	??
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SP-D 5570	??	??	??	??	??	??	??	??	??	??	??	??	??		-			??	??	-	??	??
SP-A 6060	596	596	532	532	434	390	560	440	462	64	18	50/42	36	166	56	86, 106, 120, 146, 166	86, 106, 126	16	26	36	M16	M12
SP-B 6060	??	??	??	??	??	??	??	??	??	??	??	??	??		56			??	??	-	??	??
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SP-A 6070	596	696	532	632	534	390	660	440	462	64	18	50/42	36	166	56	86, 106, 120, 146, 166	86, 106, 126	16	26	36	M16	M12
SP-B 6070	??	??	??	??	??	??	??	??	??	??	??	??	??		56			??	??	-	??	??
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SP-D 6070	??	??	??	??	??	??	??	??	??	??	??	??	??		-			??	??	-	??	??
SP-A 6080	596	796	532	732	634	390	760	440	462	64	18	50/42	36	166	56	86, 106, 120, 146, 166	86, 106, 126	16	26	36	M16	M12
SP-B 6080	??	??	??	??	??	??	??	??	??	??	??	??	??		56			??	??	-	??	??
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SP-D 6080	??	??	??	??	??	??	??	??	??	??	??	??	??		-			??	??	-	??	??
SP-A 6090	596	896	532	832	734	390	860	440	462	64	18	50/42	36	166	56	86, 106, 120, 146, 166	86, 106, 126	16	26	36	M16	M12
SP-B 6090	??	??	??	??	??	??	??	??	??	??	??	??	??		56			??	??	-	??	??
SP-C 6090	??	??	??	??	??	??	??	??	??	??	??	??	??		-			??	??	36	??	??
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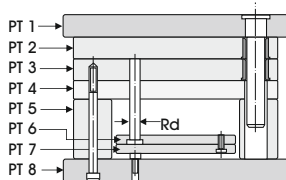
THREE PLATE TYPE MOULD BASES



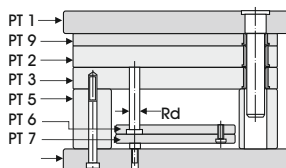
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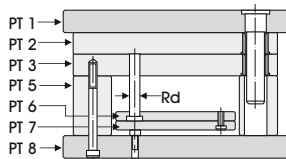
TP-A



TP-B



TP-C



TP-D

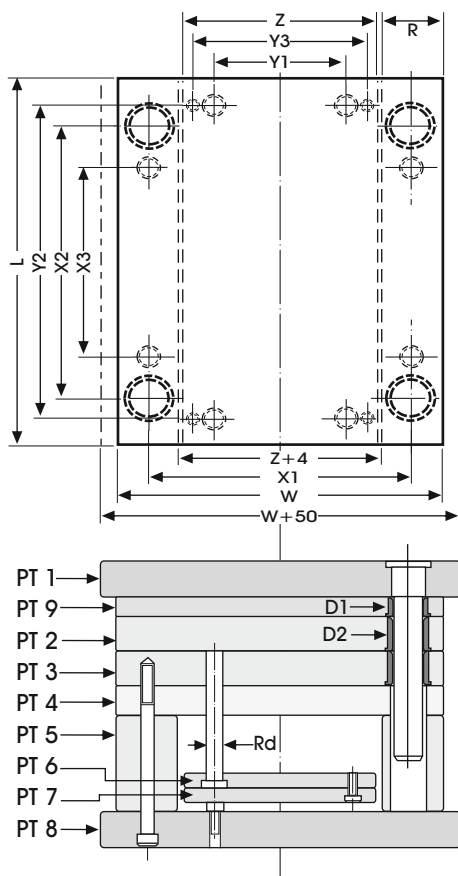
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THREE PLATE TYPE MOULD BASES

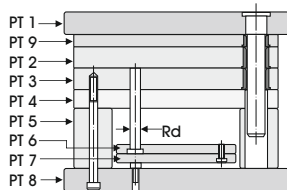
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TP-A 2020	196	196	158	158	108	97	168	58	120	36	12	28/20	26	26, 36, 46, 56, 66, 76	36	66, 86, 106		12	16	22	M10	M6
TP-B 2020	33	33	33	33	33	33	33	33	33	33	33	33	33		36			33	33	-		
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TP-D 2020	33	33	33	33	33	33	33	33	33	33	33	33	33		-			33	33	-		
TP-A 2025	196	246	158	208	148	97	218	58	120	36	12	28/20	26	26, 36, 46, 56, 66, 76	36	66, 86, 106		12	16	22	M10	M6
TP-B 2025	33	33	33	33	33	33	33	33	33	33	33	33	33		36			33	33	-		
TP-C 2025	33	33	33	33	33	33	33	33	33	33	33	33	33		-			33	33	22		
TP-D 2025	33	33	33	33	33	33	33	33	33	33	33	33	33		-			33	33	-		
TP-A 2030	196	296	158	258	198	97	268	58	120	36	12	28/20	26	26, 36, 46, 56, 66, 76	36	66, 86, 106		12	16	22	M12	M8
TP-B 2030	33	33	33	33	33	33	33	33	33	33	33	33	33		36			33	33	-		
TP-C 2030	33	33	33	33	33	33	33	33	33	33	33	33	33		-			33	33	22		
TP-D 2030	33	33	33	33	33	33	33	33	33	33	33	33	33		-			33	33	-		
TP-A 2035	196	346	158	308	248	97	318	58	120	36	12	28/20	26	26, 36, 46, 56, 66, 76	36	66, 86, 106		12	16	22	M12	M8
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TP-A 2040	196	396	158	358	298	97	368	58	120	36	12	28/20	26	26, 36, 46, 56, 66, 76	36	66, 86, 106		12	16	22	M12	M8
TP-B 2040	33	33	33	33	33	33	33	33	33	33	33	33	33		36			33	33	-		
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TP-D 2040	33	33	33	33	33	33	33	33	33	33	33	33	33		-			33	33	-		
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TP-D 2225	33	33	33	33	33	33	33	33	33	33	33	33	33		-			33	33	-		
TP-A 2525	246	246	200	200	134	94	218	132	150	46	14	32/24	26	26, 36, 46, 56, 66, 76, 86	36	66, 86, 106		16	26	26	M12	M8
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TP-D 2525	33	33	33	33	33	33	33	33	33	33	33	33	33		-			33	33	-		
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TP-D 2530	33	33	33	33	33	33	33	33	33	33	33	33	33		-			33	33	-		
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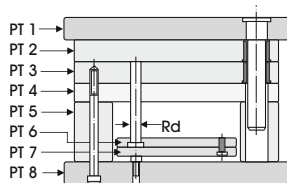
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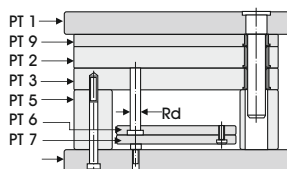
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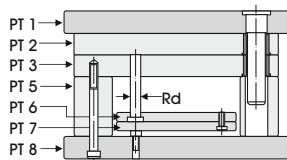
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TP-B



TP-C



TP-D

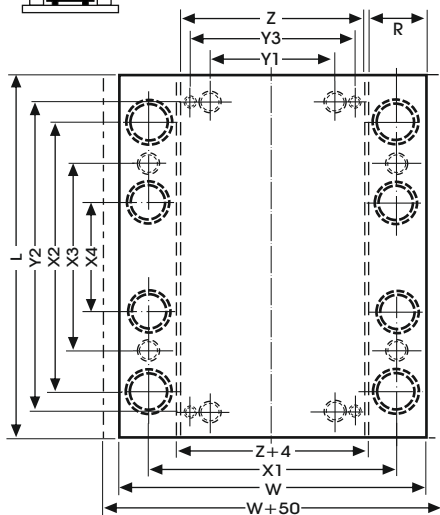
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TP-A 2550	246	496	200	450	384	94	468	132	150	46	14	32/24	26	26, 36, 46, 56, 66, 76, 86	36		16	26	26	M12 M8
TP-B 2550	22	22	22	22	22	22	22	22	22	22	22	22	22	26, 36, 46, 56, 66, 76, 86	36		22	22	-	22
TP-C 2550	22	22	22	22	22	22	22	22	22	22	22	22	22	26, 36, 46, 56, 66, 76, 86	-	106	22	22	26	22
TP-D 2550	22	22	22	22	22	22	22	22	22	22	22	22	22	26, 36, 46, 56, 66, 76, 86, 96, 106	-	106	22	22	-	22
TP-A 3030	296	296	250	250	184	144	268	182	200	46	14	32/24	26	26, 36, 46, 56, 66, 76, 86, 96, 106	46	66, 86, 106	16	26	32	M12 M8
TP-B 3030	22	22	22	22	22	22	22	22	22	22	22	22	22	26, 36, 46, 56, 66, 76, 86, 96, 106	46		22	22	-	22
TP-C 3030	22	22	22	22	22	22	22	22	22	22	22	22	22	26, 36, 46, 56, 66, 76, 86, 96, 106	-		22	32		22
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THREE PLATE TYPE MOULD BASES

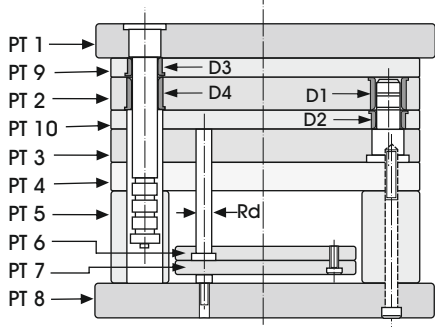
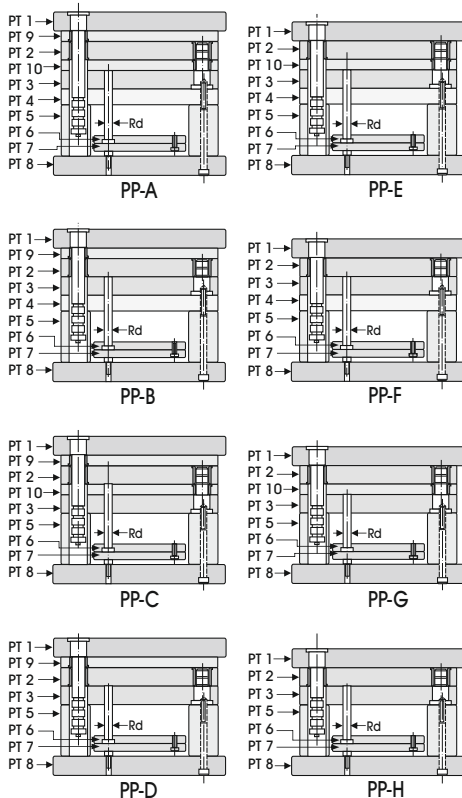
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TP-B 3035	??	??	??	??	??	??	??	??	??	??	??	??	??		46		??	??	-	??
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TP-D 3035	??	??	??	??	??	??	??	??	??	??	??	??	??		-		??	??	-	??
TP-A 3040	296	396	250	350	284	144	368	182	200	46	14	32/24	26	26, 36, 46, 56, 66, 76, 86, 96, 106	46	66, 86, 106	16	26	32	M12 M8
TP-B 3040	??	??	??	??	??	??	??	??	??	??	??	??	??		46		??	??	-	??
TP-C 3040	??	??	??	??	??	??	??	??	??	??	??	??	??		-		??	??	32	??
TP-D 3040	??	??	??	??	??	??	??	??	??	??	??	??	??		-		??	??	-	??
TP-A 3045	296	446	250	400	334	144	418	182	200	46	14	32/24	26	26, 36, 46, 56, 66, 76, 86, 96, 106	46	66, 86, 106	16	26	32	M12 M8
TP-B 3045	??	??	??	??	??	??	??	??	??	??	??	??	??		46		??	??	-	??
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TP-D 3045	??	??	??	??	??	??	??	??	??	??	??	??	??		-		??	??	-	??
TP-A 3050	296	496	250	450	384	144	468	182	200	46	14	32/24	26	26, 36, 46, 56, 66, 76, 86, 96, 106	46	66, 86, 106	16	26	32	M12 M8
TP-B 3050	??	??	??	??	??	??	??	??	??	??	??	??	??		46		??	??	-	??
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TP-A 3060	296	596	250	550	484	144	568	182	200	46	14	32/24	26	26, 36, 46, 56, 66, 76, 86, 96, 106	46	66, 86, 106	16	26	32	M12 M8
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TP-B 3535	??	??	??	??	??	??	??	??	??	??	??	??	??		46		??	??	-	??
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TP-A 3540	346	396	300	350	284	186	368	230	250	46	14	32/24	26	26, 36, 46, 56, 66, 76, 86, 96, 106	46	66, 86, 106	16	26	32	M16 M10
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TP-A 3545	346	446	300	400	334	186	418	230	250	46	14	32/24	26	26, 36, 46, 56, 66, 76, 86, 96, 106	46	66, 86, 106	16	26	36	M16 M10
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TP-A 3560	346	596	300	550	484	186	568	230	250	46	14	32/24	26	26, 36, 46, 56, 66, 76, 86, 96, 106	46	66, 86, 106	16	26	36	M16 M10
TP-B 3560	??	??	??	??	??	??	??	??	??	??	??	??	??		46		??	??	-	??
TP-C 3560	??	??	??	??	??	??	??	??	??	??	??	??	??		-		??	??	36	??
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PIN POINT GATE MOULD BASES



MODELS



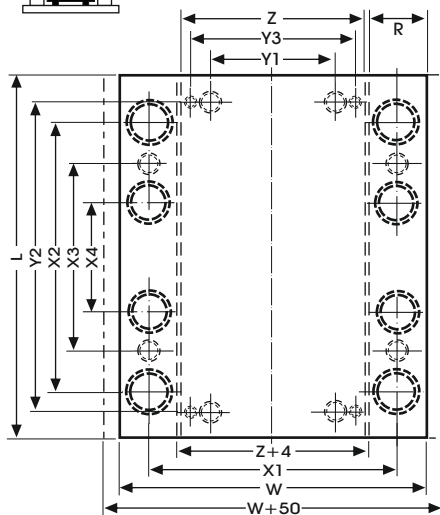
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PP-A 2025	196	246	158	208	148	88	97	218	58	120	36	12	28/20	26	26, 36, 46, 56, 66, 76	36	66, 86, 106	12	16	22	22	M10	M6
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PP-H 2025	35	35	35	35	35	35	35	35	35	35	35	35	35	35		-		35	35	-	-	35	
PP-A 2030	196	296	158	258	198	138	97	268	58	120	36	12	28/20	26	26, 36, 46, 56, 66, 76	36	66, 86, 106	12	16	22	22	M12	M8
PP-B 2030	35	35	35	35	35	35	35	35	35	35	35	35	35	35		36		35	35	22	-	35	
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PIN POINT GATE MOULD BASES

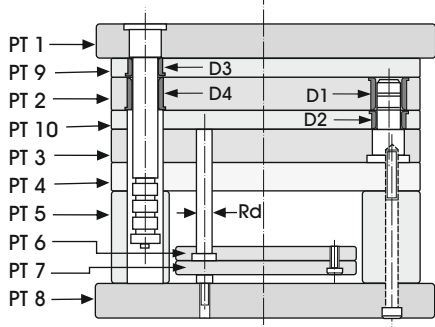
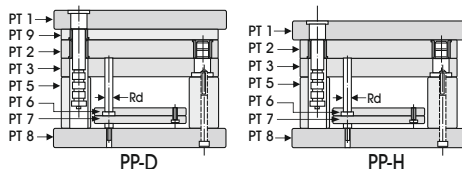
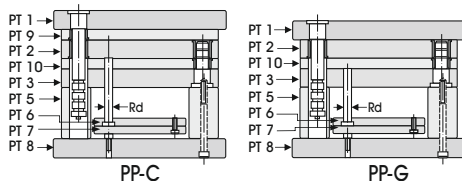
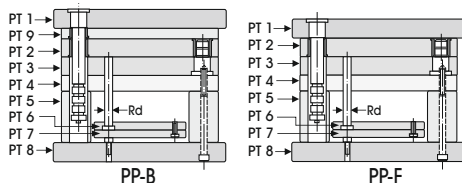
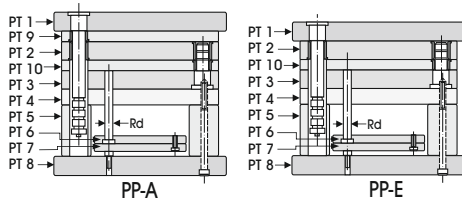
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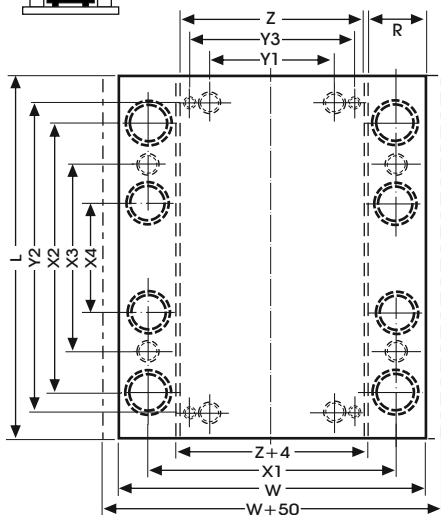
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PIN POINT GATE MOULD BASES

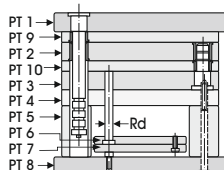
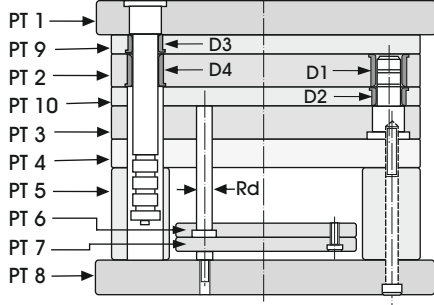
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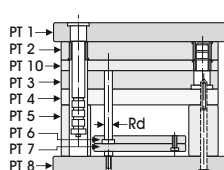
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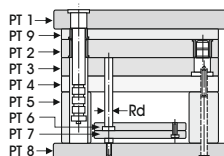
MODELS



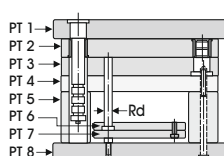
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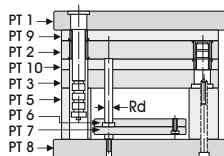
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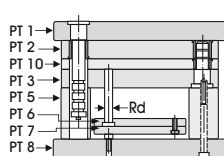
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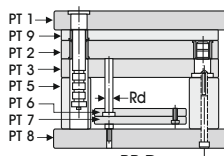
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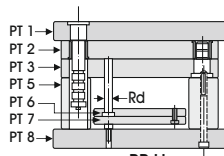
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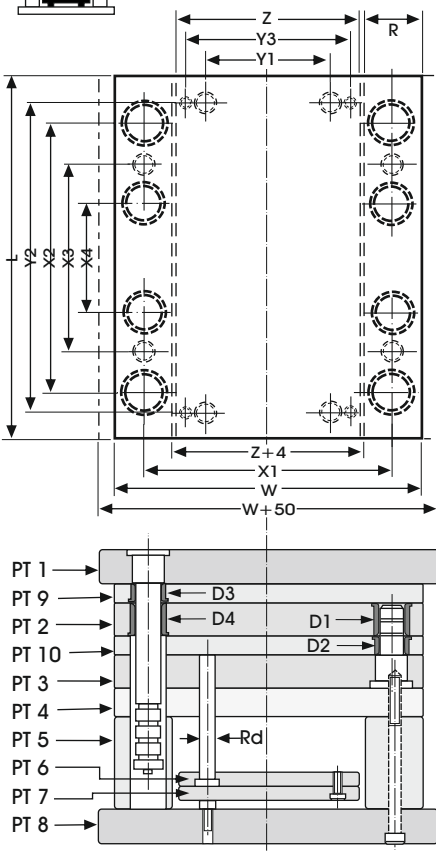
IMDC 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PIN POINT GATE MOULD BASES

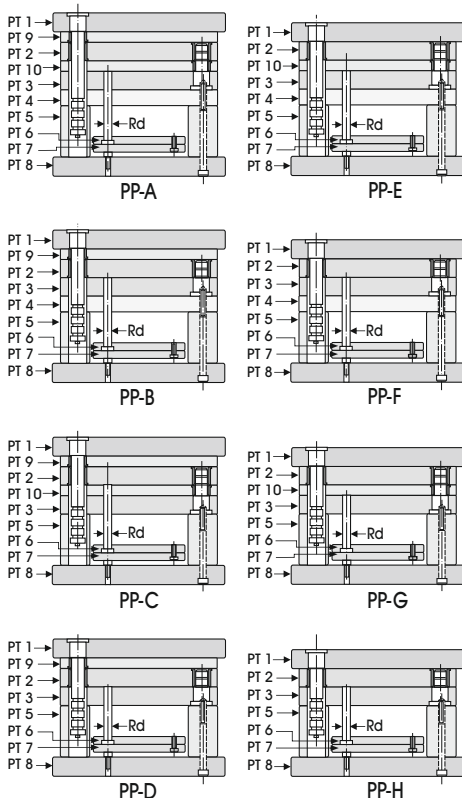
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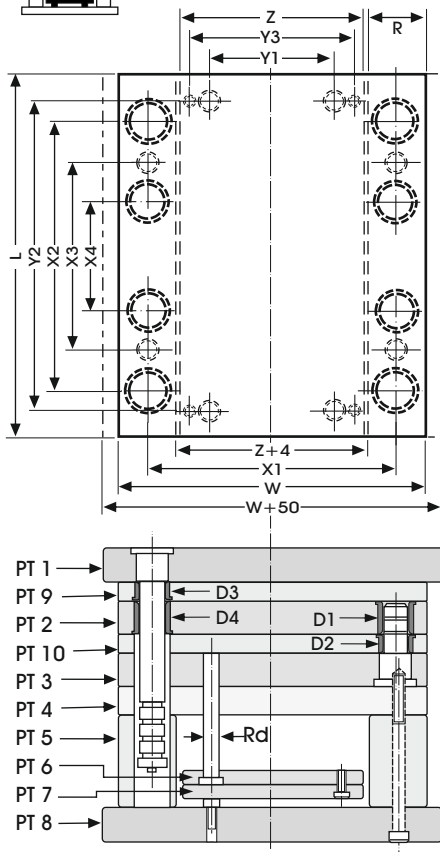
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PP-F 4060	38	59	34	54	45	36	20	56	25	27	5	1	4	3		56		-	-	38			
PP-G 4060	38	59	34	54	45	36	20	56	25	27	5	1	4	3		-		-	36	38			
PP-H 4060	38	59	34	54	45	36	20	56	25	27	5	1	4	3		-		-	-	38			
PP-A 4545	446	446	390	390	300	210	256	410	306	328	56	18	42/34	36	56	36, 46, 56, 66, 76, 86	86, 126	16	26	36	36	M16	M10
PP-B 4545	44	44	39	39	30	21	25	41	30	32	5	1	4	3	56			36	-	38			
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PP-D 4545	44	44	39	39	30	21	25	41	30	32	5	1	4	3	-			36	-	38			
PP-E 4545	44	44	39	39	30	21	25	41	30	32	5	1	4	3	56			-	36	38			
PP-F 4545	44	44	39	39	30	21	25	41	30	32	5	1	4	3	56			-	-	38			
PP-G 4545	44	44	39	39	30	21	25	41	30	32	5	1	4	3	-			-	36	38			
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PIN POINT GATE MOULD BASES

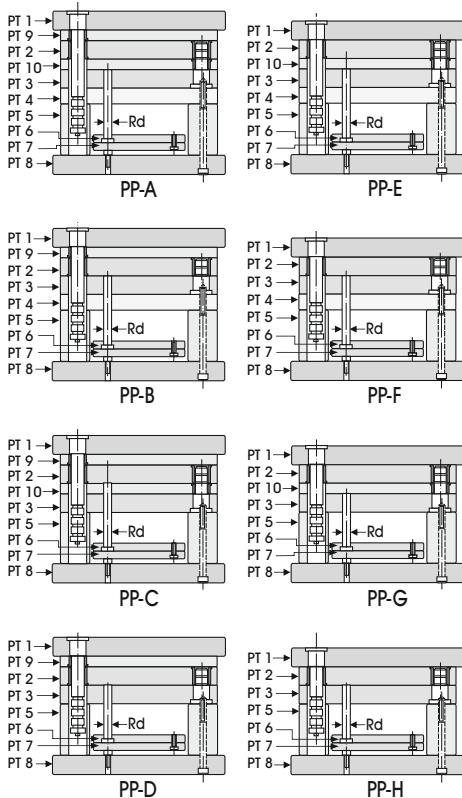
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																							SMB	EPL
PP-A 4550	446	496	390	440	350	260	256	460	306	328	56	18	42/34	36		56			16	26	36	36	M16	M10
PP-B 4550	55	55	55	55	55	55	55	55	55	55	55	55	55	55		56			55	55	36	-		55
PP-C 4550	55	55	55	55	55	55	55	55	55	55	55	55	55	55		-			55	55	36	36		55
PP-D 4550	55	55	55	55	55	55	55	55	55	55	55	55	55	55		-			55	55	36	-		55
PP-E 4550	55	55	55	55	55	55	55	55	55	55	55	55	55	55		56			55	55	-	36		55
PP-F 4550	55	55	55	55	55	55	55	55	55	55	55	55	55	55		56			55	55	-	-		55
PP-G 4550	55	55	55	55	55	55	55	55	55	55	55	55	55	55		-			55	55	-	36		55
PP-H 4550	55	55	55	55	55	55	55	55	55	55	55	55	55	55		-			55	55	-	-		55
PP-A 4560	446	596	390	540	450	360	256	560	306	328	56	18	42/34	36		56			16	26	36	36	M16	M10
PP-B 4560	55	55	55	55	55	55	55	55	55	55	55	55	55	55		56			55	55	36	-		55
PP-C 4560	55	55	55	55	55	55	55	55	55	55	55	55	55	55		-			55	55	36	36		55
PP-D 4560	55	55	55	55	55	55	55	55	55	55	55	55	55	55		-			55	55	36	-		55
PP-E 4560	55	55	55	55	55	55	55	55	55	55	55	55	55	55		56			55	55	-	36		55
PP-F 4560	55	55	55	55	55	55	55	55	55	55	55	55	55	55		56			55	55	-	-		55
PP-G 4560	55	55	55	55	55	55	55	55	55	55	55	55	55	55		-			55	55	-	36		55
PP-H 4560	55	55	55	55	55	55	55	55	55	55	55	55	55	55		-			55	55	-	-		55
PP-A 4570	446	696	390	640	550	460	256	660	306	328	56	18	42/34	36		56			16	26	36	36	M16	M10
PP-B 4570	55	55	55	55	55	55	55	55	55	55	55	55	55	55		56			55	55	36	-		55
PP-C 4570	55	55	55	55	55	55	55	55	55	55	55	55	55	55		-			55	55	36	36		55
PP-D 4570	55	55	55	55	55	55	55	55	55	55	55	55	55	55		-			55	55	36	-		55
PP-E 4570	55	55	55	55	55	55	55	55	55	55	55	55	55	55		56			55	55	-	36		55
PP-F 4570	55	55	55	55	55	55	55	55	55	55	55	55	55	55		56			55	55	-	-		55
PP-G 4570	55	55	55	55	55	55	55	55	55	55	55	55	55	55		-			55	55	-	36		55
PP-H 4570	55	55	55	55	55	55	55	55	55	55	55	55	55	55		-			55	55	-	-		55
PP-A 5050	496	496	440	440	350	260	306	460	356	380	56	18	42/34	36		56			16	26	36	36	M16	M10
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PP-E 5050	55	55	55	55	55	55	55	55	55	55	55	55	55	55		56			55	55	-	36		55
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PP-B 5055	55	55	55	55	55	55	55	55	55	55	55	55	55	55		56			55	55	36	-		55
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PP-D 5060	55	55	55	55	55	55	55	55	55	55	55	55	55	55		-			55	55	36	-		55
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PP-G 5060	55	55	55	55	55	55	55	55	55	55	55	55	55	55		-			55	55	-	36		55
PP-H 5060	55	55	55	55	55	55	55	55	55	55	55	55	55	55		-			55	55	-	-		55



PIN POINT GATE MOULD BASES



MODELS



IMDC CODE	W	L	X1	X2	X3	X4	Y1	Y2	Y3	Z	R	Rd	D1/D2	PT1	PT2	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT
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PIN POINT GATE MOULD BASES

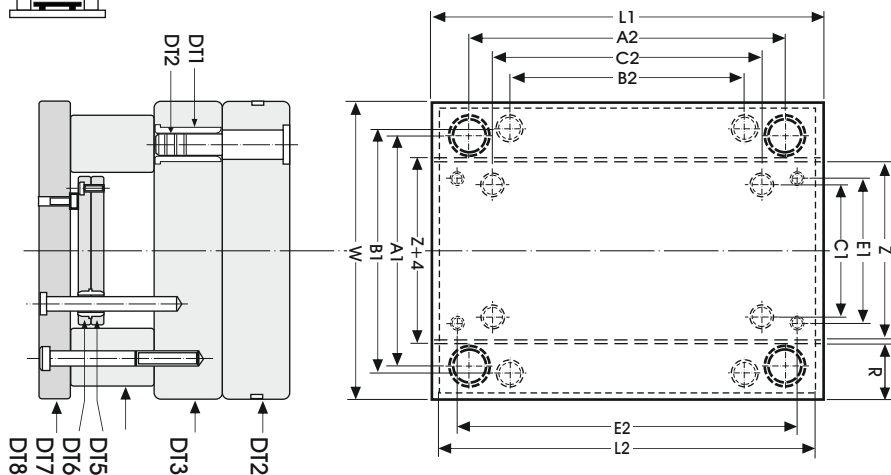
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																						SMB	EPL
PP-A 5560	546	596	490	540	450	360	356	560	406	428	56	18	42/34	36	36, 46, 56, 66, 76, 86, 96, 106, 120, 146, 166	56	86, 106, 126	16	26	36	36	M16	M12
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PP-C 5560	55	55	55	55	55	55	55	55	55	55	55	55	55	55		-		55	55	36	36	55	
PP-D 5560	55	55	55	55	55	55	55	55	55	55	55	55	55	55		-		55	55	36	-	55	
PP-E 5560	55	55	55	55	55	55	55	55	55	55	55	55	55	55		56		55	55	-	36	55	
PP-F 5560	55	55	55	55	55	55	55	55	55	55	55	55	55	55		56		55	55	-	-	55	
PP-G 5560	55	55	55	55	55	55	55	55	55	55	55	55	55	55		-		55	55	-	36	55	
PP-H 5560	55	55	55	55	55	55	55	55	55	55	55	55	55	55		-		55	55	-	-	55	
PP-A 5570	546	696	490	640	550	460	356	660	406	428	56	18	42/34	36	56	16	26	36	36	M16	M12		
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PP-E 5570	55	55	55	55	55	55	55	55	55	55	55	55	55	55	56	55	55	-	36	55			
PP-F 5570	55	55	55	55	55	55	55	55	55	55	55	55	55	55	56	55	55	-	-	55			
PP-G 5570	55	55	55	55	55	55	55	55	55	55	55	55	55	55	-	55	55	-	36	55			
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PP-A 6060	596	596	532	532	434	336	390	560	440	462	64	18	50/42	36	56	16	26	36	36	M16	M12		
PP-B 6060	55	55	55	55	55	55	55	55	55	55	55	55	55	55	56	55	55	36	-	55			
PP-C 6060	55	55	55	55	55	55	55	55	55	55	55	55	55	55	-	55	55	36	36	55			
PP-D 6060	55	55	55	55	55	55	55	55	55	55	55	55	55	55	-	55	55	36	-	55			
PP-E 6060	55	55	55	55	55	55	55	55	55	55	55	55	55	55	56	55	55	-	36	55			
PP-F 6060	55	55	55	55	55	55	55	55	55	55	55	55	55	55	56	55	55	-	-	55			
PP-G 6060	55	55	55	55	55	55	55	55	55	55	55	55	55	55	-	55	55	-	36	55			
PP-H 6060	55	55	55	55	55	55	55	55	55	55	55	55	55	55	-	55	55	-	-	55			
PP-A 6070	596	696	532	632	534	436	390	660	440	462	64	18	50/42	36	56	16	26	36	36	M16	M12		
PP-B 6070	55	55	55	55	55	55	55	55	55	55	55	55	55	55	56	55	55	36	-	55			
PP-C 6070	55	55	55	55	55	55	55	55	55	55	55	55	55	55	-	55	55	36	36	55			
PP-D 6070	55	55	55	55	55	55	55	55	55	55	55	55	55	55	-	55	55	36	-	55			
PP-E 6070	55	55	55	55	55	55	55	55	55	55	55	55	55	55	56	55	55	-	36	55			
PP-F 6070	55	55	55	55	55	55	55	55	55	55	55	55	55	55	56	55	55	-	-	55			
PP-G 6070	55	55	55	55	55	55	55	55	55	55	55	55	55	55	-	55	55	-	36	55			
PP-H 6070	55	55	55	55	55	55	55	55	55	55	55	55	55	55	-	55	55	-	-	55			
PP-A 6080	596	796	532	732	634	536	390	760	440	462	64	18	50/42	36	56	16	26	36	36	M16	M12		
PP-B 6080	55	55	55	55	55	55	55	55	55	55	55	55	55	55	56	55	55	36	-	55			
PP-C 6080	55	55	55	55	55	55	55	55	55	55	55	55	55	55	-	55	55	36	36	55			
PP-D 6080	55	55	55	55	55	55	55	55	55	55	55	55	55	55	-	55	55	36	-	55			
PP-E 6080	55	55	55	55	55	55	55	55	55	55	55	55	55	55	56	55	55	-	36	55			
PP-F 6080	55	55	55	55	55	55	55	55	55	55	55	55	55	55	56	55	55	-	-	55			
PP-G 6080	55	55	55	55	55	55	55	55	55	55	55	55	55	55	-	55	55	-	36	55			
PP-H 6080	55	55	55	55	55	55	55	55	55	55	55	55	55	55	-	55	55	-	-	55			
PP-A 6090	596	896	532	832	734	636	390	860	440	462	64	18	50/42	36	56	16	26	36	36	M16	M12		
PP-B 6090	55	55	55	55	55	55	55	55	55	55	55	55	55	55	56	55	55	36	-	55			
PP-C 6090	55	55	55	55	55	55	55	55	55	55	55	55	55	55	-	55	55	36	36	55			
PP-D 6090	55	55	55	55	55	55	55	55	55	55	55	55	55	55	-	55	55	36	-	55			
PP-E 6090	55	55	55	55	55	55	55	55	55	55	55	55	55	55	56	55	55	-	36	55			
PP-F 6090	55	55	55	55	55	55	55	55	55	55	55	55	55	55	56	55	55	-	-	55			
PP-G 6090	55	55	55	55	55	55	55	55	55	55	55	55	55	55	-	55	55	-	36	55			
PP-H 6090	55	55	55	55	55	55	55	55	55	55	55	55	55	55	-	55	55	-	-	55			

36, 46, 56, 66, 76, 86, 96, 106, 120, 146, 166

86, 106, 126



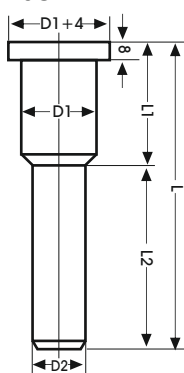
MOULD BASES FOR DIE CASTING DIES



IMDC CODE	W	L1	A1	A2	B1	B2	C1	C2	E1	E2	Z	L2	R	d1/d2	D1/D2	DT2	DT5	DT6	DT7	DT8	SCREWS	
																					SMB	EPL
D-2525	246	246	186	186	170	94	80	116	100	168	120	196	46	20/28	32/24			16	26	26	M12	M8
D-2530	246	296	186	236	170	144	80	166	100	218	120	246	46	20/28	32/24			16	26	26	M12	M8
D-2535	246	346	186	286	170	194	80	216	100	268	120	296	46	20/28	32/24			16	26	26	M12	M8
D-2540	246	396	186	336	170	244	80	266	100	318	120	346	46	20/28	32/24			16	26	26	M12	M8
D-3030	296	296	216	216	210	114	110	166	130	218	150	246	56	20/28	42/34			16	26	36	M12	M8
D-3040	296	396	216	316	210	214	110	266	130	318	150	346	56	20/28	42/34			16	26	36	M12	M8
D-3050	296	496	216	416	210	314	110	366	130	418	150	446	56	20/28	42/34			16	26	36	M12	M8
D-3535	346	346	266	266	250	160	130	206	156	260	180	296	66	24/32	42/34			16	26	36	M16	M10
D-3540	346	396	266	316	250	210	130	256	156	310	180	346	66	24/32	42/34			16	26	36	M16	M10
D-3550	346	496	266	416	250	310	130	356	156	410	180	446	66	24/32	42/34			16	26	36	M16	M10
D-4040	396	396	296	296	296	186	180	251	206	310	230	346	66	24/32	50/42			26	36	36	M16	M10
D-4050	396	496	296	396	296	286	180	351	206	410	230	446	66	24/32	50/42			26	36	36	M16	M10
D-4060	396	596	296	496	296	386	180	451	206	510	230	546	66	24/32	50/42			26	36	36	M16	M10
D-4545	446	446	346	346	346	236	210	296	236	360	260	396	76	24/32	50/42			26	36	36	M16	M10
D-4550	446	496	346	396	346	286	210	346	236	410	260	446	76	24/32	50/42			26	36	36	M16	M10
D-4560	446	596	346	496	346	386	210	446	236	510	260	546	76	24/32	50/42			26	36	36	M16	M10
D-5050	496	496	376	376	396	256	250	336	286	410	310	446	76	34/42	60/50			26	36	46	M20	M12
D-5060	496	596	376	476	396	356	250	436	286	510	310	546	76	34/42	60/50			26	36	46	M20	M12
D-5070	496	696	376	576	396	456	250	536	286	610	310	646	76	34/42	60/50			26	36	46	M20	M12
D-5080	496	796	376	676	396	556	250	636	286	710	310	746	76	34/42	60/50			26	36	46	M20	M12
D-5555	546	546	426	426	446	306	280	386	316	460	340	496	86	34/42	60/50			26	36	46	M20	M12
D-5560	546	596	426	476	446	356	280	400	316	510	340	546	86	34/42	60/50			26	36	46	M20	M12
D-5570	546	696	426	576	446	456	280	500	316	610	340	646	86	34/42	60/50			26	36	46	M20	M12
D-5580	546	796	426	676	446	556	280	600	316	710	340	746	86	34/42	60/50			26	36	46	M20	M12
D-6060	596	596	476	476	496	356	310	436	346	510	370	546	96	34/42	60/50			26	46	46	M20	M12
D-6070	596	696	476	576	496	456	310	536	346	610	370	646	96	34/42	60/50			26	46	46	M20	M12
D-6080	596	796	476	676	496	556	310	636	346	710	370	746	96	34/42	60/50			26	46	46	M20	M12
D-6090	596	896	476	776	496	656	310	736	346	810	370	846	96	34/42	60/50			26	46	46	M20	M12

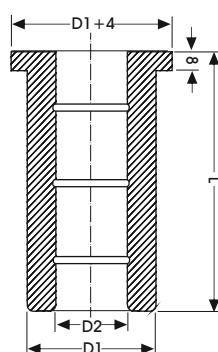
ACCESSORIES FOR MOULD BASE

GUID PILLAR



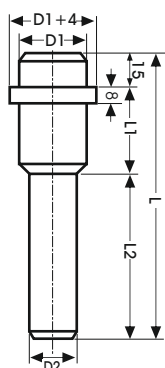
IMDC CODE	D1	D2	L1	L2	L
GPM 1B	16	10	15-45	13-43	28-88
GPM 2B	18	12	15-45	13-43	28-88
GPM 3B	24	16	15-45	13-43	28-88
GPM 4B	28	20	25-75	23-73	48-148
GPM 5B	32	24	25-105	23-103	48-208
GPM 6B	42	34	35-165	33-163	68-328
GPM 7B	50	42	35-165	33-163	68-328
GPM 8B	60	50	95-205	93-203	188-408

GUIDE BUSH



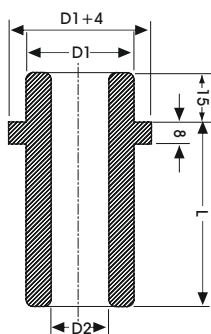
IMDC CODE	D1	D2	L
GBM 1B	16	10	15-45
GBM 2B	18	12	15-45
GBM 3B	24	16	15-45
GBM 4B	28	20	25-75
GBM 5B	32	24	25-105
GBM 6B	42	34	35-165
GBM 7B	50	42	35-165
GBM 8B	60	50	95-205

COMPOUND GUIDE PILLAR



IMDC CODE	D1	D2	L1	L2	L
CPM 1B	16	10	15-45	13-43	43-103
CPM 2B	18	12	15-45	13-43	43-103
CPM 3B	24	16	15-45	13-43	43-103
CPM 4B	28	20	25-75	23-73	63-163
CPM 5B	32	24	25-85	23-83	63-163
CPM 6B	42	34	35-145	33-143	83-303
CPM 7B	50	42	35-165	33-163	83-340

COMPOUND GUIDE BUSH

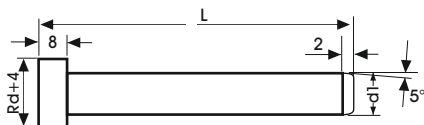


IMDC CODE	D1	D2	L
CBM 1B	16	10	25-55
CBM 2B	18	12	25-55
CBM 3B	24	16	25-55
CBM 4B	28	20	35-85
CBM 5B	32	24	35-95
CBM 6B	42	34	45-155
CBM 7B	50	42	45-175



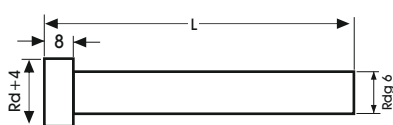
ACCESSORIES FOR MOULD BASE

SUB GUIDE PILLAR



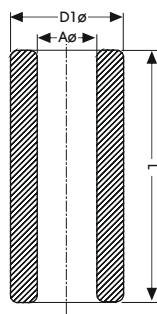
IMDC CODE	d1	L
SPM 1B	16	75-95
SPM 2B	20	100-172
SPM 3B	24	100-212
SPM 4B	34	120-242

RETURN PIN



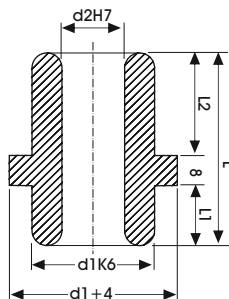
IMDC CODE	Rd Ø	L
RP 1B	8Ø	75,100,125,150
RP 2B	10Ø	75,100,125,150,175
RP 3B	12Ø	100,125,150,200
RP 4B	14Ø	125,150,175,200,225
RP 5B	18Ø	150,175,200,225,250

LOCATING SLEEVE



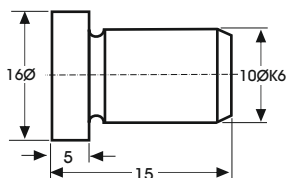
IMDC CODE	D1	A Ø	L
LSM 1B	16	11Ø	25-55
LSM 2B	18	13Ø	25-55
LSM 3B	24	17Ø	25-55
LSM 4B	28	21Ø	35-85
LSM 5B	32	25Ø	35-95
LSM 6B	42	35Ø	45-155
LSM 7B	50	43Ø	45-175

SUB GUIDE BUSH



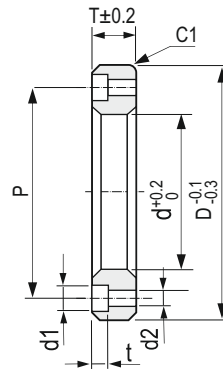
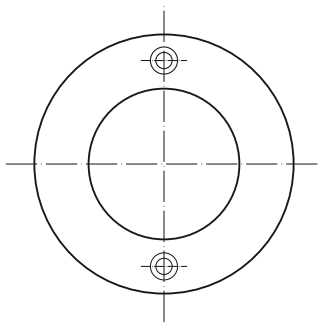
IMDC CODE	d1	d2	L1	L2	L
SBM 1B	24	16	9	11	28
SBM 2B	24	16	11	15	34
SBM 3B	28	20	15	25	48
SBM 4B	32	24	15	25	48
SBM 5B	32	24	25	35	68
SBM 6B	42	24	25	35	68
SBM 7B	42	34	25	45	78

STOP BUTTON

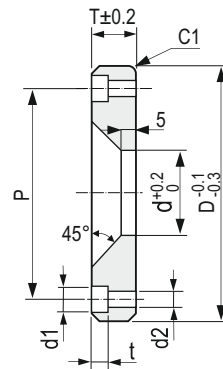
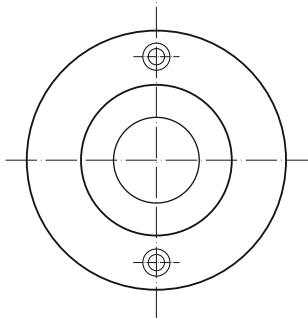


LOCATING RING - A, B TYPE

A TYPE



B TYPE



A TYPE

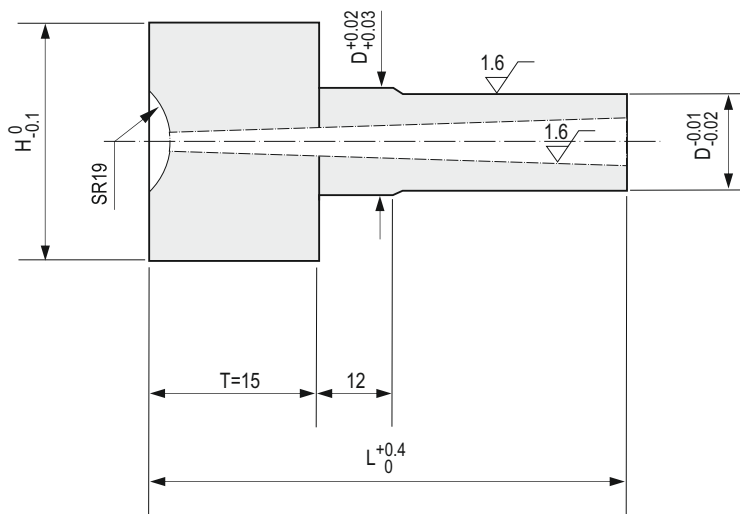
IMDC CODE	D	T	P	t	d1	d2	d
LRA-60	60	15	48	4.5	7.5	5	35
LRA-100	100	15	85	7	11	7	70
LRA-120	120	15	105	7	11	7	90
LRA-150	150	20	130	9	15	9	110

B TYPE

IMDC CODE	D	T	P	t	d1	d2	d
LRB-100	100	15	85	7	11	7	35 / 50
LRB-120	120	15	105	7	11	7	35 / 50

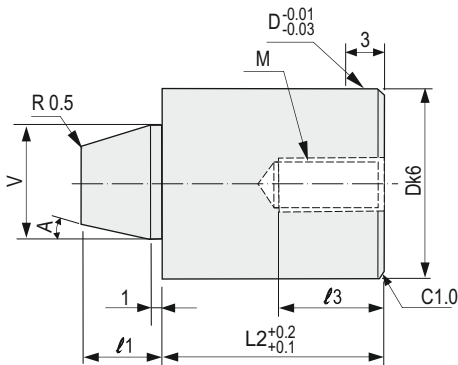
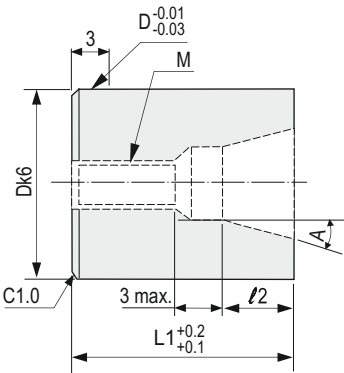
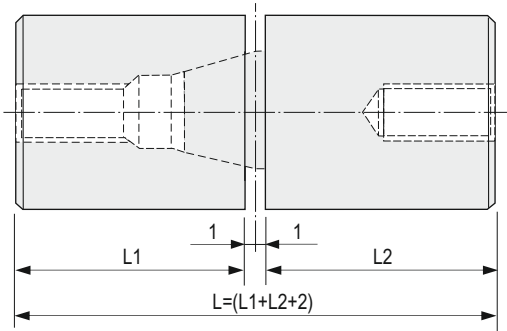


SPRUE BUSH



IMDC CODE	D	H	T	L											
				50	60	70	80	90	100	110	120	130	140	150	
SPB-12	12	25	15	75	84	96	108	114	126	144	180				
SPB-16	16	35		84	90	105	120	126	135	150	195	225	270	375	
SPB-20	20			84	90	105	120	126	135	150	195	225	270	375	

TAPER INTERLOCKS (ROUND)



IMDC CODE	A	D k6	V	L	L1	L2	l1	l2	l3	M
TL-13	5°	13	8.5	30	14	14	6	5	10	M4
TL-16		16	10	30	14	14	6	5	10	M5
TL-20		20	13	40	19	19	9	8	12	M6
TL-25		25	16	50	24	24	12	11	16	M8
TL-30		30	20	60	29	29	15	14	20	N10
TL-32		32	20	60	29	29	15	14	20	M10
TL-35		35	24	70	34	34	18	17	24	M12
TL-42		42	30	80	39	39	24	23	24	M12

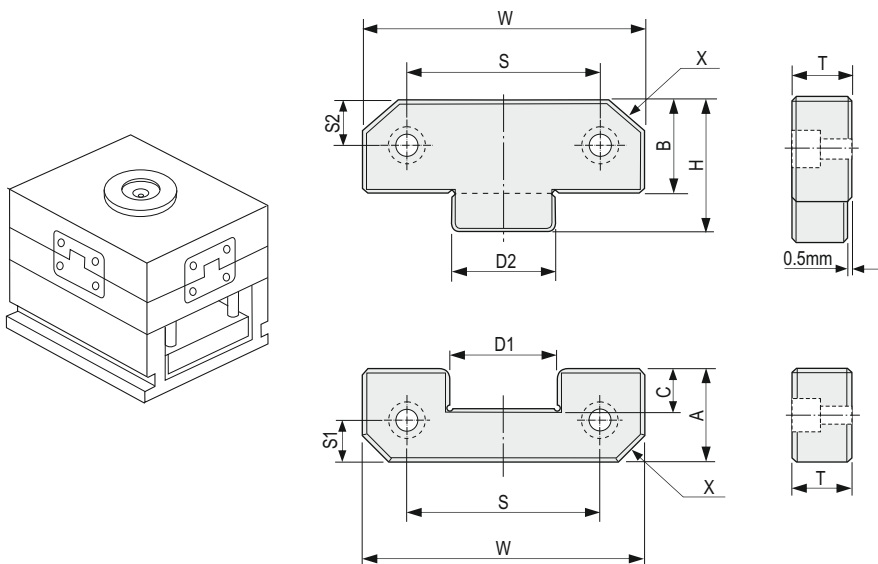


STRAIGHT SIDE INTERLOCKS

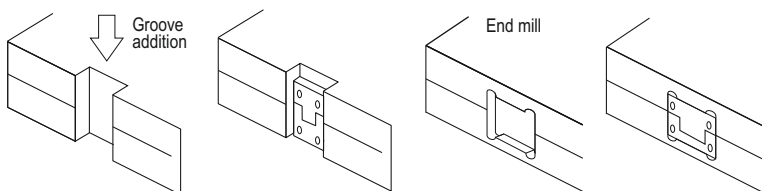
Suites best for positioning in precision molds.
It can perform positioning before core pins are inlayed

Notes

Having side  and side  in contact when mold is closed may cause damage.
Please leave a space of about 1mm.



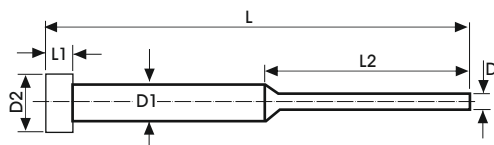
Example



IMDC CODE	W 0 -0.01	T	A	B	C	D1 +0.010 +0.005	D2 0 -0.005	H	S	S1	S2	X	SHCS
GPL38	38	13	22	22	8.5	12	12	30	22	7	7	5	M6
GPL50	50	16	21.5	21.5	9.5	17	17	30	34	11	11	5	M6
GPL75	75	19	36	36	15	25	25	50	50	18	18	8	M10
GPL100	100	19	45	45	21	35	35	65	70	22	22	10	M10
GPL125	125	25	45	45	21	45	45	65	84	22	22	10	M10

ACCESSORIES FOR MOULDS

STEPPED EJECTOR PINS



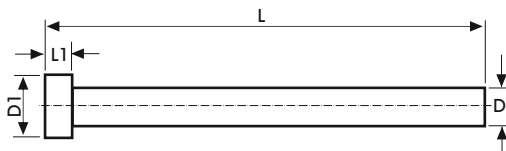
IMDC CODE	WORKING DIA			HEAD			BODY DIA D1	TOTAL LENGTH L
	DIA D	x	LENGTH L2	DIA D2	x	LENGTH L1		
EPS 1.5 X 100	1.5	x	50	6	x	3	3	100
EPS 1.5 X 125	1.5	x	75	6	x	3	3	125
EPS 1.5 X 150	1.5	x	85	6	x	3	3	150
EPS 1.5 X 200	1.5	x	125	6	x	3	3	200
EPS 2.0 X 100	2.0	x	50	6	x	3	3	100
EPS 2.0 X 125	2.0	x	75	6	x	3	3	125
EPS 2.0 X 150	2.0	x	85	6	x	3	3	150
EPS 2.0 X 200	2.0	x	125	6	x	3	3	200
EPS 2.5 X 100	2.5	x	50	6	x	3	3	100
EPS 2.5 X 125	2.5	x	75	6	x	3	3	125
EPS 2.5 X 150	2.5	x	85	6	x	3	3	150
EPS 2.5 X 200	2.5	x	125	6	x	3	3	200
EPS 3.0 X 125	3.0	x	75	8	x	5	4	125
EPS 3.0 X 150	3.0	x	100	8	x	5	4	150
EPS 3.0 X 200	3.0	x	125	8	x	5	4	200
EPS 3.0 X 250	3.0	x	125	8	x	5	4	250
EPS 3.5 X 125	3.5	x	75	10	x	6	5	125
EPS 3.5 X 150	3.5	x	100	10	x	6	5	150
EPS 3.5 X 200	3.5	x	125	10	x	6	5	200
EPS 3.5 X 250	3.5	x	125	10	x	6	5	250
EPS 4.0 X 125	4.0	x	75	10	x	6	6	125
EPS 4.0 X 150	4.0	x	100	10	x	6	6	150
EPS 4.0 X 200	4.0	x	125	10	x	6	6	200
EPS 4.0 X 250	4.0	x	125	10	x	6	6	250
EPS 4.5 X 125	4.5	x	75	10	x	6	7	125
EPS 4.5 X 150	4.5	x	100	10	x	6	7	150
EPS 4.5 X 200	4.5	x	125	10	x	6	7	200
EPS 4.5 X 250	4.5	x	125	10	x	6	7	250
EPS 5.0 X 125	5.0	x	75	12	x	6	8	125
EPS 5.0 X 150	5.0	x	100	12	x	6	8	150
EPS 5.0 X 200	5.0	x	125	12	x	6	8	200
EPS 5.0 X 250	5.0	x	125	12	x	6	8	250

Material:HDS HRD-45-48HRC



ACCESSORIES FOR MOULDS

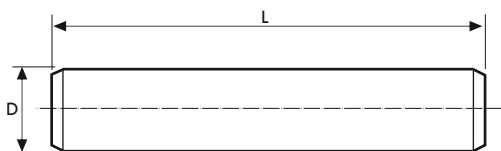
EJECTOR PINS



IMDC CODE	BODY DIA D'	DIA D1	HEAD x LENGTH L1	TOTAL LENGTH L
EP 2 X 100	2	4	x 3	100
EP 2 X 125	2	4	x 3	125
EP 2 X 150	2	4	x 3	150
EP 3 X 100	3	6	x 3	100
EP 3 X 125	3	6	x 3	125
EP 3 X 150	3	6	x 3	150
EP 3 X 200	3	6	x 3	200
EP 4 X 100	4	8	x 5	100
EP 4 X 125	4	8	x 5	125
EP 4 X 150	4	8	x 5	150
EP 4 X 200	4	8	x 5	200
EP 5 X 100	5	10	x 5	100
EP 5 X 125	5	10	x 5	125
EP 5 X 150	5	10	x 5	150
EP 5 X 200	5	10	x 5	200
EP 6 X 100	6	10	x 6	100
EP 6 X 125	6	10	x 6	125
EP 6 X 150	6	10	x 6	150
EP 6 X 200	6	10	x 6	200
EP 8 X 100	8	12	x 6	100
EP 8 X 125	8	12	x 6	125
EP 8 X 150	8	12	x 6	150
EP 8 X 200	8	12	x 6	200
EP 8 X 250	8	12	x 6	250
EP 10 X 100	10	14	x 6	100
EP 10 X 125	10	14	x 6	125
EP 10 X 150	10	14	x 6	150
EP 10 X 200	10	14	x 6	200
EP 10 X 250	10	14	x 6	250
EP 12 X 100	12	16	x 6	100
EP 12 X 125	12	16	x 6	125
EP 12 X 150	12	16	x 6	150
EP 12 X 200	12	16	x 6	200
EP 12 X 250	12	16	x 6	250

ACCESSORIES FOR MOULDS & DIES

CYLINDER DOWEL PINS



DIA D'	LENGTH L	DIA D'	LENGTH L	DIA D'	LENGTH L	DIA D'	LENGTH L
2.5	8/10/12	5	30	8	75	16	25
2.5	14	5	35	8	80	16	30
2.5	16	5	40	8	90	16	35
2.5	18	5	45	8	100	16	40
2.5	20	5	50	10	20	16	45
2.5	22	5	55	10	22	16	50
2.5	25	5	60	10	25	16	55
2.5	30	5	70	10	30	16	60
3	8	5	80	10	35	16	65
3	10	6	14	10	40	16	70
3	12	6	16	10	45	16	75
3	14	6	20	10	50	16	80
3	16	6	25	10	55	16	85
3	18	6	30	10	60	16	90
3	20	6	35	10	65	16	100
3	22	6	40	10	70	16	120
3	25	6	45	10	75	16	140
3	30	6	50	10	80	16	160
3	35	6	55	10	90	20	30
3	40	6	60	10	100	20	35
4	10	6	65	10	120	20	40
4	12	6	70	12	25	20	45
4	14	6	75	12	30	20	50
4	16	6	80	12	35	20	55
4	20	8	16	12	40	20	60
4	25	8	20	12	45	20	65
4	30	8	25	12	50	20	70
4	35	8	30	12	55	20	75
4	40	8	35	12	60	20	80
4	45	8	40	12	65	20	90
4	50	8	45	12	70	20	100
5	12	8	50	12	75	20	120
5	14	8	55	12	80	20	140
5	16	8	60	12	90	20	160
5	20	8	65	12	100		
5	25	8	70	12	120		

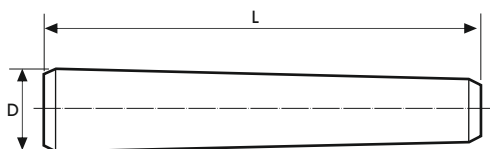
Cat code DPS: DOWEL PINS (SOFT)-As per IS: 22333 Material C-40/En-8/9

Cat code DPH: DOWEL PINS (HARD)-As per above or IS: 6689 in hardened condition, Material silver steel/En-31.



ACCESSORIES FOR MOULDS & DIES

TAPER DOWELS PINS



DIA D'	LENGTH L	DIA D'	LENGTH L	DIA D'	LENGTH L	DIA D'	LENGTH L
3	14	6	25	10	55	16	70
3	16	6	30	10	60	16	75
3	18	6	35	10	65	16	80
3	20	6	40	10	70	16	90
3	25	6	45	10	75	16	100
3	30	6	50	10	80	16	110
3	35	6	55	10	90	16	120
3	40	6	60	10	100	16	130
3	45	6	65	12	25	16	140
3	50	6	70	12	30	16	150
4	16	6	75	12	35	16	160
4	20	6	80	12	40	16	170
4	25	6	85	12	45	16	180
4	30	6	90	12	50	16	190
4	35	6	100	12	55	16	200
4	40	8	20	12	60	20	40
4	45	8	25	12	65	20	50
4	50	8	30	12	70	20	60
4	55	8	35	12	75	20	70
4	60	8	40	12	80	20	80
4	65	8	45	12	90	20	90
4	70	8	50	12	100	20	100
4	80	8	55	12	110	20	110
5	20	8	60	12	120	20	120
5	25	8	65	12	130	20	130
5	30	8	70	12	140	20	140
5	35	8	75	12	150	20	150
5	40	8	80	16	25	20	160
5	45	8	90	16	30	20	170
5	50	8	100	16	35	20	180
5	55	10	25	16	40	20	190
5	60	10	30	16	45	20	200
5	65	10	35	16	50		
5	70	10	40	16	55		
5	80	10	45	16	60		
6	20	10	50	16	65		

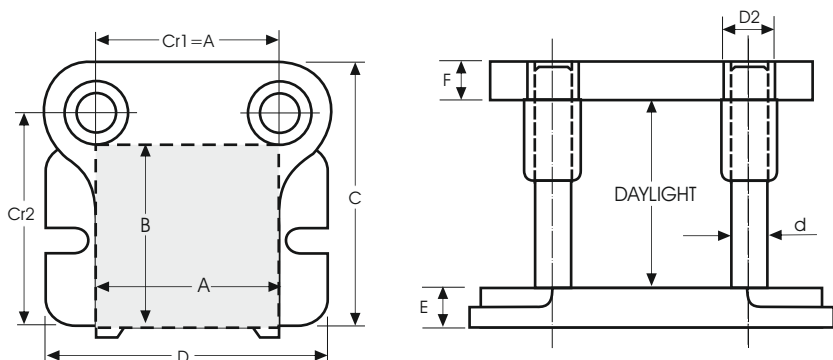
Cat code TPS: TAPER PINS (SOFT) As per IS: 6688-1072 Material C-40/En-89

Cat code TPH: TAPER PINS (HARD) As per above (1.50), in hardened condition, Material silver steel/En-31.

DIE SET SECTION



CAST IRON REAR PILLAR DIE SETS



RECTANGULAR

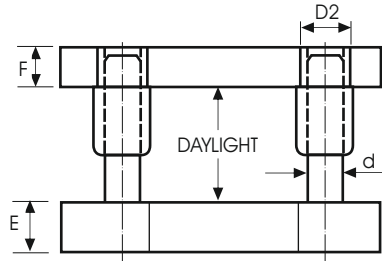
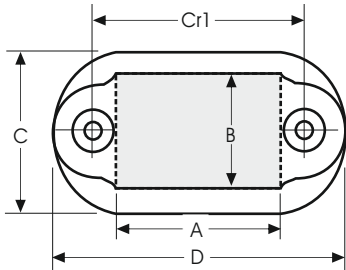
IMDC CODE	DIE SPACE	PLATE SIZE	PLATE THICKNESS	C.D. OF PILLARS Cr2	PILLAR / BUSH	
	A x B	C x D	E - F		Without Ball Cage d/D2	With Ball Cage d/D2
CRR 1B	75 x 55	100 x 135	20 - 15	75	16/24	14/31
CRR 2B	100 x 75	125 x 175	20 - 20	97	22/30	19/38
CRR 3B	125 x 100	150 x 205	30 - 25	123	25/35	22/40
CRR 4B	150 x 115	170 x 230	35 - 30	138	28/38	25/44
CRR 5B	175 x 125	185 x 280	40 - 35	150	28/38	25/44
CRR 6B	175 x 75	125 x 255	30 - 25	97	25/35	19/38
CRR 7B	200 x 85	140 x 280	35 - 30	108	28/38	22/40
CRR 8B	225 x 100	160 x 330	40 - 35	125	30/40	25/44
CRR 9B	225 x 175	240 x 330	45 - 40	205	36/50	32/52
CRR 10B	300 x 125	190 x 400	45 - 40	152	30/40	28/48
CRR 11B	300 x 225	300 x 405	50 - 45	255	40/52	32/52
CRR 12B	400 x 225	300 x 510	50 - 45	256	40/52	36/58
CRR 13B	400 x 300	375 x 510	55 - 50	332	40/52	36/58
CRR 14B	450 x 175	265 x 560	50 - 45	208	45/62	40/60
CRR 15B	450 x 350	445 x 560	65 - 55	390	45/62	40/60

SQUARE

IMDC CODE	DIE SPACE	PLATE SIZE	PLATE THICKNESS	C.D. OF PILLARS Cr2	PILLAR / BUSH	
	A x B	C x D	E - F		Without Ball Cage d/D2	With Ball Cage d/D2
CRS 1B	75 x 75	120 x 125	25 - 20	94	16/24	14/31
CRS 2B	100 x 100	150 x 160	30 - 25	122	25/35	19/38
CRS 3B	125 x 125	190 x 200	35 - 30	150	28/38	25/44
CRS 4B	162 x 162	235 x 258	35 - 30	196	36/50	30/52
CRS 5B	200 x 200	280 x 300	40 - 35	237	40/52	36/58
CRS 6B	225 x 225	305 x 325	45 - 40	262	40/52	36/58
CRS 7B	250 x 250	330 x 350	45 - 40	282	40/52	36/58
CRS 8B	285 x 285	365 x 385	50 - 45	320	45/62	40/60
CRS 9B	310 x 310	390 x 410	50 - 45	343	45/62	40/60
CRS 10B	350 x 350	430 x 450	55 - 50	385	50/64	45/68

STANDARD DAY LIGHT = 100mm

CAST IRON CENTRE PILLAR DIE SETS



RECTANGULAR

IMDC CODE	DIE SPACE	PLATE SIZE	PLATE THICKNESS	C.D. OF PILLARS Cr2	PILLAR / BUSH	
	A x B	C x D	E - F		Without Ball Cage d/D2	With Ball Cage d/D2
CCR 1B	75 x 40	60 x 155	20 - 15	110	16/24,18/24	14/31,15/31
CCR 2B	90 x 60	110 x 190	25 - 20	130	22/30,24/35	19/38,20/38
CCR 3B	100 x 70	120 x 200	25 - 25	140	22/30,24/35	19/38,20/38
CCR 4B	120 x 80	125 x 225	30 - 25	165	24/35,25/35	22/40,24/44
CCR 5B	130 x 90	135 x 235	30 - 25	175	24/35,25/35	22/40,24/44
CCR 6B	140 x 100	160 x 245	35 - 30	185	24/35,25/35	22/40,24/44
CCR 7B	160 x 115	175 x 275	35 - 30	210	28/38,30/40	24/44,25/44
CCR 8B	175 x 125	185 x 295	40 - 35	225	30/40,32/43	24/44,25/44
CCR 9B	200 x 150	210 x 330	40 - 35	255	36/50,38/50	28/48,30/52
CCR 10B	225 x 175	235 x 355	45 - 40	280	36/50,38/50	30/52,32/52
CCR 11B	250 x 200	260 x 395	50 - 40	310	36/50,38/50	30/52,32/52
CCR 12B	300 x 200	260 x 435	50 - 40	360	36/50,38/50	30/52,32/52
CCR 13B	300 x 225	285 x 435	55 - 40	360	36/50,38/50	30/52,32/52
CCR 14B	300 x 250	310 x 435	55 - 45	360	36/50,38/50	30/52,32/52
CCR 15B	350 x 250	310 x 495	65 - 55	415	38/50,40/52	36/58,38/58
CCR 16B	400 x 545	310 x 550	65 - 55	465	38/50,40/52	36/58,38/58

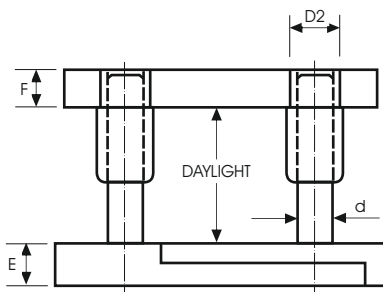
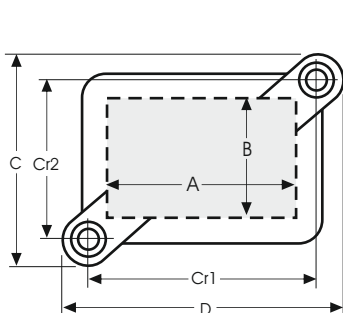
SQUARE

IMDC CODE	DIE SPACE	PLATE SIZE	PLATE THICKNESS	C.D. OF PILLARS Cr2	PILLAR / BUSH	
	A x B	C x D	E - F		Without Ball Cage d/D2	With Ball Cage d/D2
CCS 1B	75 x 75	125 x 155	20 - 20	110	16/24,18/24	14/31,15/31
CCS 2B	90 x 90	145 x 190	25 - 25	130	22/30,24/35	19/38,20/38
CCS 3B	100 x 100	110 x 200	30 - 25	140	24/35,25/35	19/38,20/38
CCS 4B	120 x 120	175 x 225	30 - 25	165	24/35,25/35	22/40,24/44
CCS 5B	130 x 130	185 x 235	35 - 30	175	24/35,25/35	22/40,24/44
CCS 6B	140 x 140	195 x 245	35 - 30	185	28/38,30/40	22/40,24/44
CCS 7B	160 x 160	220 x 275	40 - 35	210	28/38,30/40	24/44,25/44
CCS 8B	175 x 175	235 x 295	40 - 35	225	30/40,32/43	24/44,25/44
CCS 9B	200 x 200	260 x 330	45 - 40	260	36/50,38/50	28/48,30/52
CCS 10B	225 x 225	285 x 355	45 - 40	285	38/50,40/52	30/52,32/52
CCS 11B	250 x 250	310 x 395	50 - 40	310	38/50,42/52	36/58,38/58

STANDARD DAY LIGHT = 100mm



CAST IRON DIAGONAL PILLAR DIE SETS



RECTANGULAR

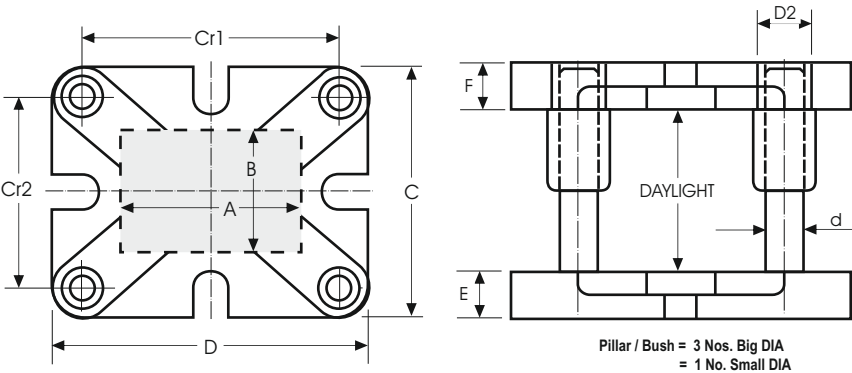
IMDC CODE	DIE SPACE	PLATE SIZE	PLATE THICKNESS	C.D. OF PILLARS		PILLAR / BUSH	
	A x B	C x D	E - F	Cr1	Cr2	Without Ball Cage d/D2	With Ball Cage d/D2
CDR 1B	75 x 50	135 x 155	25 - 25	110	85	16/24,18/24	14/31,15/31
CDR 2B	100 x 70	165 x 195	30 - 25	140	110	22/30,24/35	19/38,20/38
CDR 3B	115 x 75	170 x 210	30 - 25	155	115	22/30,24/35	19/38,20/38
CDR 4B	135 x 90	185 x 230	30 - 25	175	130	22/30,24/35	19/38,20/38
CDR 5B	150 x 100	205 x 255	35 - 30	195	145	24/35,25/35	22/40,24/44
CDR 6B	170 x 115	230 x 285	40 - 35	220	165	28/38,30/40	24/44,25/44
CDR 7B	215 x 140	270 x 345	45 - 40	270	195	30/40,32/43	28/48,30/52
CDR 8B	255 x 175	315 x 395	45 - 40	315	235	36/50,38/50	30/52,32/52
CDR 9B	305 x 190	330 x 445	50 - 45	365	250	38/50,40/52	30/52,32/52
CDR 10B	330 x 215	355 x 470	55 - 50	390	275	38/50,40/52	36/58,38/58
CDR 11B	400 x 250	395 x 545	60 - 50	465	315	45/62,48/62	38/58,40/60
CDR 12B	445 x 305	450 x 590	65 - 50	510	370	45/62,48/62	38/58,40/60

SQUARE

IMDC CODE	DIE SPACE	PLATE SIZE	PLATE THICKNESS	C.D. OF PILLARS		PILLAR / BUSH	
	A x B	C x D	E - F	Cr1	Cr2	Without Ball Cage d/D2	With Ball Cage d/D2
CDS 1B	60 x 60	140 x 140	25 - 25	95		16/24,18/24	14/31,15/31
CDS 2B	85 x 85	170 x 160	30 - 25	123		22/30,24/35	16/34,18/34
CDS 3B	100 x 100	195 x 200	30 - 25	143		22/30,24/35	19/38,20/38
CDS 4B	115 x 115	210 x 210	30 - 25	158		22/30,24/35	19/38,20/38
CDS 5B	135 x 135	230 x 230	35 - 30	178		24/35,25/35	19/38,20/38
CDS 6B	150 x 150	255 x 255	40 - 35	195		28/38,30/40	22/40,24/44
CDS 7B	175 x 175	290 x 290	40 - 35	225		30/40,32/43	24/44,25/44
CDS 8B	200 x 200	330 x 330	45 - 40	256		30/40,32/43	28/48,30/52
CDS 9B	225 x 225	355 x 355	45 - 40	283		36/50,38/50	30/52,32/52
CDS 10B	250 x 250	390 x 390	50 - 45	312		38/50,40/52	36/58,38/58
CDS 11B	280 x 280	420 x 420	55 - 50	342		38/50,40/52	36/58,38/58
CDS 12B	380 x 380	530 x 530	65 - 50	446		45/62,48/62	38/58,40/60

STANDARD DAY LIGHT = 100mm

CAST IRON FOUR PILLAR DIE SETS



RECTANGULAR

IMDC CODE	DIE SPACE	PLATE SIZE	PLATE THICKNESS	C.D. OF PILLARS		PILLAR / BUSH	
	A x B	C x D	E - F	Cr1	Cr2	Without Ball Cage d/D2	With Ball Cage d/D2
CFR 1B	125 x 100	205 x 225	30 - 30	166	141	24/35,25/35	22/40,24/44
CFR 2B	150 x 125	230 x 250	35 - 35	191	165	24/35,25/35	22/40,24/44
CFR 3B	175 x 135	250 x 285	35 - 35	220	180	28/38,30/40	24/44,25/44
CFR 4B	190 x 150	265 x 310	35 - 35	235	195	30/40,32/43	24/44,25/44
CFR 5B	210 x 170	295 x 335	40 - 40	258	218	36/50,38/50	28/48,30/52
CFR 6B	235 x 185	325 x 275	40 - 40	290	240	36/50,38/50	30/48,32/52
CFR 7B	250 x 200	340 x 390	40 - 40	305	255	38/50,40/52	30/48,32/52
CFR 8B	275 x 225	365 x 415	40 - 40	330	280	38/50,40/52	36/58,38/58
CFR 9B	300 x 250	400 x 450	45 - 45	360	310	38/50,40/52	38/58,40/60
CFR 10B	325 x 275	425 x 475	45 - 45	385	335	45/62,48/62	38/58,40/60
CFR 11B	350 x 300	360 x 510	50 - 50	415	365	45/62,48/62	45/68,48/68
CFR 12B	375 x 325	485 x 535	55 - 55	440	380	48/62,50/64	45/68,48/68
CFR 13B	400 x 350	525 x 575	60 - 60	472	422	48/62,50/64	45/68,48/68

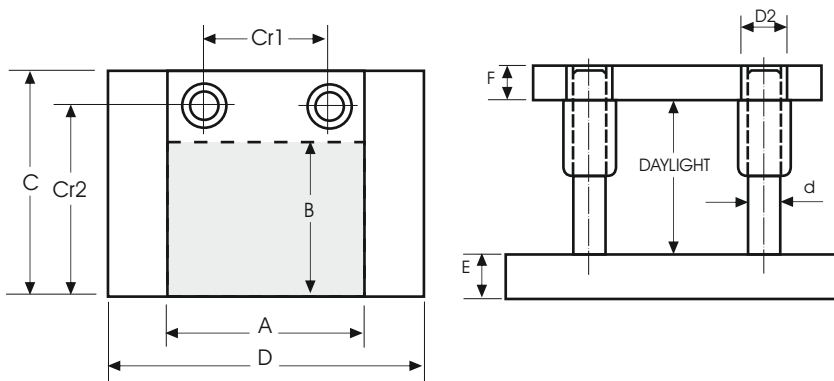
SQUARE

IMDC CODE	DIE SPACE	PLATE SIZE	PLATE THICKNESS	C.D. OF PILLARS	PILLAR / BUSH	
	A x B	C x D	E - F	Cr2	Without Ball Cage d/D2	With Ball Cage d/D2
CFS 1B	175 x 175	280 x 280	30 - 30	220	24/35,25/35	22/40,24/44
CFS 2B	200 x 200	320 x 320	35 - 35	249	30/40,32/43	24/44,25/44
CFS 3B	225 x 225	350 x 350	35 - 35	283	36/50,38/50	28/48,30/52
CFS 4B	250 x 250	385 x 385	40 - 40	308	36/50,38/50	30/52,32/52
CFS 5B	275 x 275	415 x 415	45 - 45	337	38/50,40/52	36/58,38/58
CFS 6B	300 x 300	450 x 450	45 - 45	366	38/50,40/52	38/58,40/60
CFS 7B	350 x 350	510 x 510	50 - 50	421	45/62,48/62	45/68,48/68
CFS 8B	400 x 400	565 x 565	60 - 60	478	48/62,50/64	48/68,50/72

STANDARD DAY LIGHT = 100mm



ALL STEEL REAR PILLAR DIE SETS



RECTANGULAR

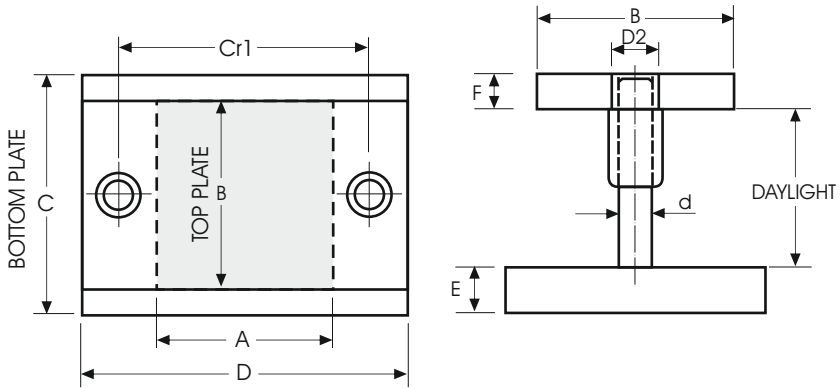
IMDC CODE	DIE SPACE		PLATE SIZE			PLATE THICKNESS		C.D. OF		PILLAR / BUSH						
			TOP		BOTTOM			PILLARS		Without Ball Cage	With Ball Cage					
	A	x	B	A	x	C	E	-	F	Cr1	Cr2	d/D2	d/D2			
SRR 1B	85	x	55	85	x	100	115	x	100	20	-	15	40	75	16/24	14/31
SRR 2B	100	x	75	100	x	120	140	x	120	20	-	20	47	97	22/30	19/38
SRR 3B	125	x	100	125	x	150	165	x	150	30	-	25	70	123	25/35	22/40
SRR 4B	150	x	115	150	x	170	200	x	170	35	-	30	90	138	28/38	25/44
SRR 5B	175	x	125	175	x	185	225	x	185	40	-	35	110	150	28/38	25/44
SRR 6B	175	x	75	175	x	125	225	x	125	30	-	25	110	97	25/35	19/38
SRR 7B	200	x	85	200	x	140	250	x	140	35	-	30	140	108	28/38	22/40
SRR 8B	225	x	100	225	x	160	275	x	160	40	-	35	140	125	30/40	25/44
SRR 9B	225	x	175	225	x	240	275	x	240	45	-	40	150	205	36/50	32/52
SRR 10B	300	x	125	300	x	190	350	x	190	45	-	40	225	152	30/40	28/48
SRR 11B	300	x	225	300	x	300	350	x	300	50	-	45	225	255	40/52	32/52
SRR 12B	400	x	225	400	x	300	460	x	300	50	-	45	315	256	40/52	36/58
SRR 13B	400	x	300	400	x	375	460	x	375	55	-	50	315	332	40/52	36/58
SRR 14B	450	x	175	450	x	265	520	x	265	50	-	45	360	208	45/62	40/60
SRR 15B	450	x	350	450	x	445	520	x	445	65	-	55	360	390	45/62	40/60

SQUARE

IMDC CODE	DIE SPACE			PLATE SIZE			PLATE THICKNESS	C.D. OF PILLARS Cr1 & Cr2	PILLAR / BUSH						
	A	x	B	TOP		BOTTOM			Without Ball Cage d/D2	With Ball Cage d/D2					
				A	x	C					D	x	C		
SRS 1B	75	x	75	85	x	115	115	x	115	25	-	20	94	16/24	14/31
SRS 2B	100	x	100	100	x	150	140	x	150	30	-	25	122	25/35	19/38
SRS 3B	125	x	125	125	x	190	165	x	190	35	-	30	150	28/38	25/44
SRS 4B	162	x	162	162	x	235	210	x	235	35	-	30	196	36/50	30/52
SRS 5B	200	x	200	200	x	280	250	x	280	40	-	35	237	40/52	36/58
SRS 6B	225	x	225	225	x	305	285	x	305	45	-	40	262	40/52	36/58
SRS 7B	250	x	250	250	x	330	310	x	330	45	-	40	282	40/52	36/58
SRS 8B	285	x	285	285	x	365	345	x	365	50	-	45	320	45/62	40/60
SRS 9B	310	x	310	310	x	390	370	x	390	50	-	45	343	45/62	40/60
SRS 10B	350	x	350	350	x	430	410	x	430	55	-	50	385	50/64	45/68

STANDARD DAY LIGHT = 100mm

ALL STEEL CENTRE PILLAR DIE SETS



RECTANGULAR

IMDC CODE	DIE SPACE		PLATE SIZE		PLATE THICKNESS	C.D. OF PILLARS		PILLAR / BUSH	
								Without Ball Cage	With Ball Cage
	A x B	B x D	TOP B x D	BOTTOM C x D	E - F	Cr1	Cr2	d/D2	d/D2
SCR 1B	75 x 40	40 x 155	60 x 155	60 x 155	20 - 15	110		16/24,18/24	14/31,15/31
SCR 2B	90 x 60	60 x 190	110 x 190	110 x 190	25 - 20	130		22/30,24/35	19/38,20/38
SCR 3B	100 x 70	70 x 200	120 x 200	120 x 200	25 - 25	140		22/30,24/35	19/38,20/38
SCR 4B	120 x 80	80 x 225	125 x 225	125 x 225	30 - 25	165		24/35,25/35	22/40,24/44
SCR 5B	130 x 90	90 x 235	135 x 235	135 x 235	30 - 25	175		24/35,25/35	22/40,24/44
SCR 6B	140 x 100	100 x 245	160 x 245	160 x 245	35 - 30	185		24/35,25/35	22/40,24/44
SCR 7B	160 x 115	115 x 275	175 x 275	175 x 275	35 - 30	210		28/38,30/40	24/44,25/44
SCR 8B	175 x 125	125 x 295	185 x 295	185 x 295	40 - 35	225		30/40,32/43	24/44,25/44
SCR 9B	200 x 150	150 x 330	210 x 330	210 x 330	40 - 35	255		36/50,38/50	28/48,30/52
SCR 10B	225 x 175	175 x 355	235 x 355	235 x 355	45 - 40	280		36/50,38/50	30/52,32/52
SCR 11B	250 x 200	200 x 395	260 x 395	260 x 395	50 - 40	310		36/50,38/50	30/52,32/52
SCR 12B	300 x 200	200 x 435	260 x 435	260 x 435	50 - 40	360		36/50,38/50	30/52,32/52
SCR 13B	300 x 225	225 x 435	285 x 435	285 x 435	55 - 40	360		36/50,38/50	30/52,32/52
SCR 14B	300 x 250	250 x 435	310 x 435	310 x 435	55 - 40	360		36/50,38/50	30/52,32/52
SCR 15B	350 x 250	250 x 495	310 x 495	310 x 495	60 - 45	415		38/50,40/52	36/58,38/58
SCR 16B	400 x 250	250 x 545	310 x 545	310 x 545	60 - 45	465		38/50,40/52	36/58,38/58

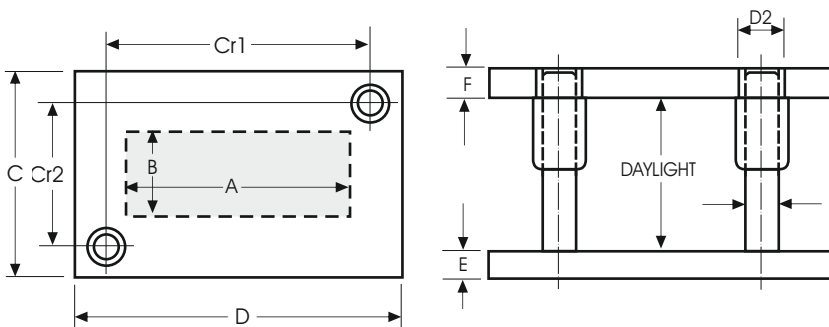
SQUARE

IMDC CODE	DIE SPACE		PLATE SIZE		PLATE THICKNESS	C.D. OF PILLARS		PILLAR / BUSH	
								Without Ball Cage	With Ball Cage
	A x B	B x D	TOP B x D	BOTTOM C x D	E - F	Cr1		d/D2	d/D2
SCS 1B	75 x 75	75 x 155	115 x 155	115 x 155	20 - 20	110		16/24,18/24	14/31,15/31
SCS 2B	90 x 90	90 x 190	130 x 190	130 x 190	25 - 25	130		22/30,24/35	19/38,20/38
SCS 3B	100 x 100	100 x 200	150 x 200	150 x 200	30 - 25	140		24/35,25/35	19/38,20/38
SCS 4B	120 x 120	120 x 225	170 x 225	170 x 225	30 - 25	165		24/35,25/35	22/40,24/44
SCS 5B	130 x 130	130 x 235	180 x 235	180 x 235	35 - 30	175		24/35,25/35	22/40,24/44
SCS 6B	140 x 140	140 x 245	190 x 245	190 x 245	35 - 30	185		28/38,30/40	22/40,24/44
SCS 7B	160 x 160	160 x 275	210 x 275	210 x 275	40 - 35	210		28/38,30/40	24/44,25/44
SCS 8B	175 x 175	175 x 295	235 x 295	235 x 295	40 - 35	225		30/40,32/43	24/44,25/44
SCS 9B	200 x 200	200 x 330	260 x 330	260 x 330	45 - 40	260		36/50,38/50	28/48,30/52
SCS 10B	225 x 225	225 x 355	285 x 355	285 x 355	45 - 40	285		38/50,40/52	30/52,32/52
SCS 11B	250 x 250	250 x 395	310 x 395	310 x 395	50 - 40	310		38/50,40/52	36/58,38/58

STANDARD DAY LIGHT = 100mm



ALL STEEL DIAGONAL PILLAR DIE SETS



RECTANGULAR

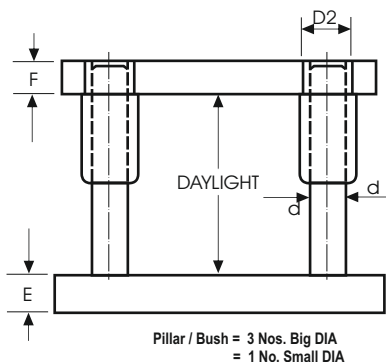
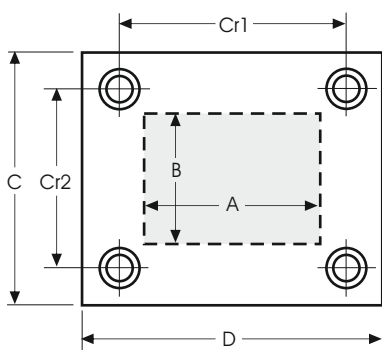
IMDC CODE	DIE SPACE	PLATE SIZE	PLATE THICKNESS	C.D. OF PILLARS		PILLAR / BUSH	
	A x B	C x D	E - F	Cr1	Cr2	Without Ball Cage d/D2	With Ball Cage d/D2
SDR 1B	75 x 50	135 x 155	25 - 25	110	85	16/24,18/24	14/31,15/31
SDR 2B	100 x 70	165 x 195	30 - 25	140	110	22/30,24/35	19/38,20/38
SDR 3B	115 x 75	170 x 210	30 - 25	155	115	22/30,24/35	19/38,20/38
SDR 4B	135 x 90	185 x 230	30 - 25	175	130	22/30,24/35	19/38,20/38
SDR 5B	150 x 100	205 x 255	35 - 30	195	145	24/35,25/35	22/40,24/44
SDR 6B	170 x 115	230 x 285	40 - 35	220	165	28/38,30/40	24/44,25/44
SDR 7B	215 x 140	270 x 345	45 - 40	270	195	30/40,32/43	28/48,30/52
SDR 8B	255 x 175	315 x 395	45 - 40	315	235	36/50,38/50	30/52,32/52
SDR 9B	305 x 190	330 x 445	50 - 45	365	250	38/50,40/52	30/52,32/52
SDR 10B	330 x 115	355 x 470	55 - 50	390	275	38/50,40/52	36/58,38/58
SDR 11B	400 x 250	395 x 545	60 - 50	465	315	45/62,48/62	38/58,40/60
SDR 12B	445 x 305	450 x 590	65 - 50	510	370	45/62,48/62	38/58,40/60

SQUARE

IMDC CODE	DIE SPACE	PLATE SIZE	PLATE THICKNESS	C.D. OF PILLARS	PILLAR / BUSH	
	A x B	C x D	E - F	Cr2	Without Ball Cage d/D2	With Ball Cage d/D2
SDS 1B	60 x 60	140 x 140	25 - 25	95	16/24,18/24	14/31,15/31
SDS 2B	85 x 85	170 x 170	30 - 25	123	22/30,24/35	16/34,18/34
SDS 3B	100 x 100	195 x 195	30 - 25	143	22/30,24/35	19/38,20/38
SDS 4B	115 x 115	210 x 210	30 - 25	158	22/30,24/35	19/38,20/38
SDS 5B	135 x 135	230 x 230	35 - 30	178	24/35,25/35	19/38,20/38
SDS 6B	150 x 150	255 x 255	40 - 35	195	28/38,30/40	22/40,24/44
SDS 7B	175 x 175	290 x 290	40 - 35	225	30/40,32/43	24/44,25/44
SDS 8B	200 x 200	330 x 330	45 - 40	256	30/40,32/43	28/48,30/52
SDS 9B	225 x 225	355 x 355	45 - 40	283	36/50,38/50	30/52,32/52
SDS 10B	250 x 250	390 x 390	50 - 45	312	38/50,40/52	36/58,38/58
SDS 11B	280 x 280	420 x 420	55 - 50	342	38/50,40/52	36/58,38/58
SDS 12B	380 x 380	530 x 530	65 - 50	446	45/62,48/62	38/58,40/60

STANDARD DAY LIGHT = 100mm

ALL STEEL FOUR PILLAR DIE SETS



RECTANGULAR

IMDC CODE	DIE SPACE	PLATE SIZE	PLATE THICKNESS	C.D. OF PILLARS		PILLAR / BUSH	
	A x B	C x D	E - F	Cr1	Cr2	Without Ball Cage d/D2	With Ball Cage d/D2
SFR 1B	120 x 100	205 x 225	30 - 30	166	141	24/35,25/35	22/40,24/44
SFR 2B	150 x 125	230 x 250	35 - 35	191	165	24/35,25/35	22/40,24/44
SFR 3B	175 x 135	250 x 285	35 - 35	220	180	28/38,30/40	24/44,25/44
SFR 4B	190 x 150	265 x 310	35 - 35	235	195	30/40,32/43	24/44,25/44
SFR 5B	210 x 170	295 x 335	40 - 40	258	218	36/50,38/50	28/48,30/52
SFR 6B	235 x 185	325 x 275	40 - 40	290	240	36/50,38/50	30/48,32/52
SFR 7B	250 x 200	340 x 390	40 - 40	305	255	38/50,40/52	30/48,32/52
SFR 8B	275 x 225	365 x 415	40 - 40	330	280	38/50,40/52	36/58,38/58
SFR 9B	300 x 250	400 x 450	45 - 45	360	310	38/50,40/52	38/58,40/60
SFR 10B	325 x 275	425 x 475	45 - 45	385	335	45/62,48/62	38/58,40/60
SFR 11B	350 x 300	460 x 510	50 - 50	415	365	45/62,48/62	45/68,48/68
SFR 12B	375 x 325	485 x 535	55 - 55	440	380	48/62,50/64	45/68,48/68
SFR 13B	400 x 350	525 x 575	60 - 60	472	422	48/62,50/64	45/68,48/68
SFR 14B	450 x 350	525 x 625	60 - 60	522	422	48/62,50/64	45/68,48/68
SFR 15B	525 x 350	525 x 700	70 - 65	597	422	48/60,50/64	45/68,48/68
SFR 16B	625 x 350	525 x 800	80 - 70	697	422	48/62,50/64	45/68,48/68

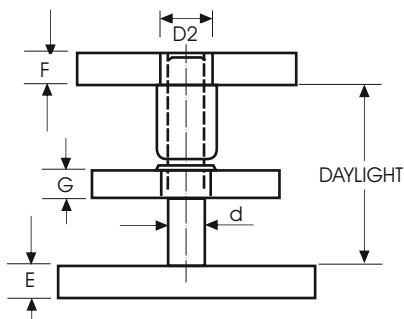
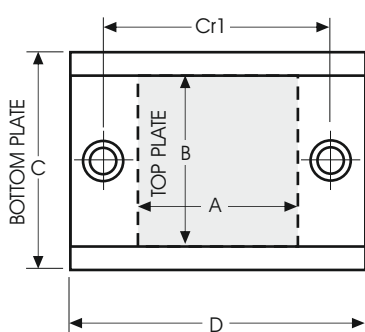
SQUARE

IMDC CODE	DIE SPACE	PLATE SIZE	PLATE THICKNESS	C.D. OF PILLARS	PILLAR / BUSH	
	A x B	C x D	E - F	Cr2	Without Ball Cage d/D2	With Ball Cage d/D2
CFS 1B	175 x 175	280 x 280	30 - 30	220	24/35,25/35	22/40,24/44
CFS 2B	200 x 200	320 x 320	35 - 35	249	30/40,32/43	24/44,25/44
CFS 3B	225 x 225	350 x 350	35 - 35	283	36/50,38/50	28/48,30/52
CFS 4B	250 x 250	385 x 385	40 - 40	308	36/50,38/50	30/52,32/52
CFS 5B	275 x 275	415 x 415	45 - 45	337	38/50,40/52	36/58,38/58
CFS 6B	300 x 300	450 x 450	45 - 45	366	38/50,40/52	38/58,40/60
CFS 7B	350 x 350	510 x 510	50 - 50	421	45/62,48/62	45/68,48/68
CFS 8B	400 x 400	565 x 565	60 - 60	478	48/62,50/64	48/68,50/72

STANDARD DAY LIGHT = 100mm



ALL STEEL THREE PLATED CENTRE PILLAR DIE SETS



RECTANGULAR

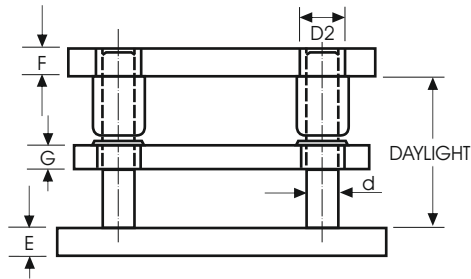
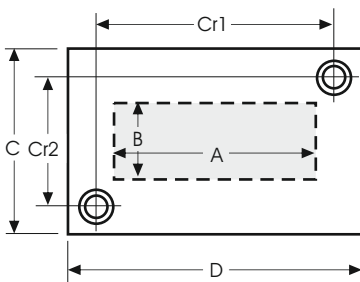
IMDC CODE	DIE SPACE			PLATE SIZE			PLATE THICKNESS			C.D. OF PILLARS Cr1	PILLAR / BUSH	
											Without Ball Cage d/D2	With Ball Cage d/D2
	A	x	B	B	x	C	C	x	D	E	F	G
TCR 1B	75	x	40	40	x	155	60	x	155	20	15	15
TCR 2B	90	x	60	60	x	190	110	x	190	25	20	20
TCR 3B	100	x	70	70	x	200	120	x	200	25	25	25
TCR 4B	120	x	80	80	x	225	125	x	225	30	25	25
TCR 5B	130	x	90	90	x	235	135	x	235	30	25	25
TCR 6B	140	x	100	100	x	245	160	x	245	35	30	30
TCR 7B	160	x	115	115	x	275	175	x	275	35	30	30
TCR 8B	175	x	125	125	x	295	185	x	295	40	35	35
TCR 9B	200	x	150	150	x	330	210	x	330	40	35	35
TCR 10B	225	x	175	175	x	355	235	x	355	45	40	35
TCR 11B	250	x	200	200	x	395	260	x	395	50	40	35
TCR 12B	300	x	200	200	x	435	260	x	435	50	40	35
TCR 13B	300	x	225	225	x	435	285	x	435	55	40	35
TCR 14B	300	x	250	250	x	435	310	x	435	55	40	35
TCR 15B	350	x	250	250	x	495	310	x	495	60	45	40
TCR 16B	400	x	250	250	x	545	310	x	545	60	45	40

SQUARE

IMDC CODE	DIE SPACE			PLATE SIZE			PLATE THICKNESS			C.D. OF PILLARS Cr1	PILLAR / BUSH	
											Without Ball Cage d/D2	With Ball Cage d/D2
	A	x	B	B	x	D	C	x	D	E	F	G
TCS 1B	75	x	75	75	x	155	115	x	155	20	20	20
TCS 2B	90	x	90	90	x	190	130	x	190	25	25	25
TCS 3B	100	x	100	100	x	200	150	x	200	30	25	25
TCS 4B	120	x	120	120	x	225	170	x	225	30	25	25
TCS 5B	130	x	130	130	x	235	180	x	235	35	30	30
TCS 6B	140	x	140	140	x	245	190	x	245	35	30	30
TCS 7B	160	x	160	160	x	275	210	x	275	40	35	30
TCS 8B	175	x	175	175	x	295	235	x	295	40	35	35
TCS 9B	200	x	200	200	x	330	260	x	330	45	40	35
TCS 10B	225	x	225	225	x	355	285	x	355	45	40	35
TCS 11B	250	x	250	250	x	395	310	x	395	50	40	35

STANDARD DAY LIGHT = 100mm

ALL STEEL THREE PLATED DIAGONAL PILLAR DIE SETS



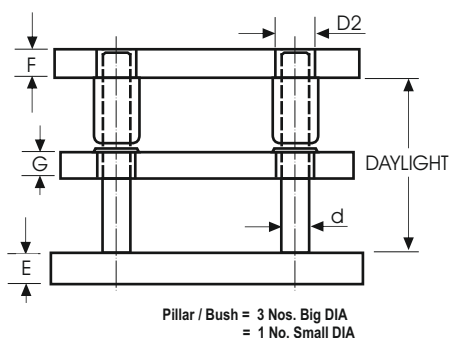
RECTANGULAR

IMDC CODE	DIE SPACE A x B	PLATE SIZE C x D	PLATE THICKNESS			C.D. OF PILLARS		PILLAR / BUSH	
			E	F	G	Cr1	Cr2	Without Ball Cage d/D2	With Ball Cage d/D2
TDR 1B	75 x 50	135 x 155	25	25	25	110	85	16/24,18/24	14/31,15/31
TDR 2B	100 x 70	165 x 195	30	25	25	140	110	22/30,24/35	19/38,20/38
TDR 3B	115 x 75	170 x 210	30	25	25	155	115	22/30,24/35	19/38,20/38
TDR 4B	135 x 90	185 x 230	30	25	25	175	130	22/30,24/35	19/38,20/38
TDR 5B	150 x 100	205 x 255	35	30	30	195	145	24/35,25/35	22/40,24/44
TDR 6B	170 x 115	230 x 285	40	35	35	220	165	28/38,30/40	24/44,25/44
TDR 7B	215 x 140	270 x 345	45	40	35	270	195	30/40,32/43	28/48,30/52
TDR 8B	255 x 175	315 x 395	45	40	35	315	235	36/50,38/50	30/52,32/52
TDR 9B	305 x 190	330 x 445	50	45	35	365	250	38/50,40/52	30/52,32/52
TDR 10B	330 x 215	355 x 470	55	50	40	390	275	38/50,40/52	36/58,38/58
TDR 11B	400 x 250	395 x 545	60	50	40	465	315	45/62,48/62	38/58,40/60
TDR 12B	445 x 305	450 x 590	65	60	40	510	370	45/62,48/62	38/58,40/60

SQUARE

IMDC CODE	DIE SPACE A x B	PLATE SIZE C x D	PLATE THICKNESS			C.D. OF PILLARS		PILLAR / BUSH	
			E	F	G	Cr1/Cr2		Without Ball Cage d/D2	With Ball Cage d/D2
TDS 1B	60 x 60	140 x 140	25	25	25	95		16/24,18/24	14/31,15/31
TDS 2B	85 x 85	170 x 170	30	25	25	123		22/30,24/35	16/34,18/34
TDS 3B	100 x 100	195 x 195	30	25	25	143		22/30,24/35	19/38,20/38
TDS 4B	115 x 115	210 x 210	30	25	25	158		22/30,24/35	19/38,20/38
TDS 5B	135 x 135	230 x 230	35	30	30	178		24/35,25/35	19/38,20/38
TDS 6B	150 x 150	255 x 255	40	35	30	195		28/38,30/40	22/40,24/44
TDS 7B	175 x 175	290 x 290	40	35	30	225		30/40,32/43	24/44,25/44
TDS 8B	200 x 200	330 x 330	45	40	30	256		30/40,32/43	28/48,30/52
TDS 9B	225 x 225	355 x 355	45	40	35	283		36/50,38/50	30/52,32/52
TDS 10B	250 x 250	390 x 390	50	45	40	312		38/50,40/52	36/58,38/58
TDS 11B	280 x 280	420 x 420	55	50	40	342		38/50,40/52	36/58,38/58
TDS 12B	380 x 380	530 x 530	65	50	40	446		45/62,48/62	38/58,40/60

STANDARD DAY LIGHT = 100mm



RECTANGULAR

IMDC CODE	DIE SPACE			PLATE SIZE			PLATE THICKNESS			C.D. OF PILLARS		PILLAR / BUSH	
	A	x	B	C	x	D	E	F	G	Cr1	Cr2	Without	With
												Ball d/D2	Cage d/D2
TFR 1B	125	x	100	205	x	225	30	30	25	166	141	24/35,25/35	22/40,24/44
TFR 2B	150	x	120	230	x	250	35	35	25	191	165	24/35,25/35	22/40,24/44
TFR 3B	175	x	135	250	x	285	35	35	35	220	180	28/38,30/40	24/44,25/44
TFR 4B	190	x	150	265	x	310	35	35	35	235	195	30/40,32/43	24/44,25/44
TFR 5B	210	x	170	295	x	335	40	40	35	258	218	36/50,38/50	28/48,30/52
TFR 6B	235	x	185	325	x	275	40	40	35	290	240	36/50,38/50	30/48,32/52
TFR 7B	250	x	200	340	x	390	40	40	35	305	255	38/50,40/52	30/48,32/52
TFR 8B	275	x	225	365	x	415	40	40	35	330	280	38/50,40/52	36/58,38/58
TFR 9B	300	x	250	400	x	450	45	45	40	360	310	38/50,40/52	38/58,40/60
TFR 10B	325	x	275	425	x	475	45	45	40	385	335	45/62,48/62	38/58,40/60
TFR 11B	350	x	300	460	x	510	50	50	40	415	365	45/62,48/62	45/68,48/68
TFR 12B	375	x	325	485	x	535	55	55	40	440	380	48/62,50/64	45/68,48/68
TFR 13B	400	x	350	525	x	575	60	60	45	472	422	48/62,50/64	45/68,48/68
TFR 14B	450	x	350	525	x	625	60	60	45	522	422	48/62,50/64	45/68,48/68
TFR 15B	525	x	350	525	x	700	70	65	45	597	422	48/62,50/64	45/68,48/68
TFR 16B	625	x	350	525	x	800	80	70	45	697	422	48/62,50/64	45/68,48/68

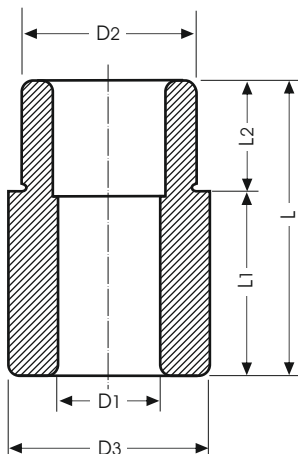
SQUARE

IMDC CODE	DIE SPACE		PLATE SIZE			PLATE THICKNESS			C.D. OF PILLARS Cr1/Cr2	PILLAR / BUSH	
	A	x B	C	x D	E	F	G	Without Ball Cage d/D2		With Ball Cage d/D2	
TFS 1B	175	x 175	280	x 280	30	30	25	220	24/35,25/35	22/40,24/44	
TFS 2B	200	x 200	320	x 320	35	35	30	249	30/40,32/43	24/44,25/44	
TFS 3B	225	x 225	350	x 350	35	35	30	283	36/50,38/50	28/48,30/52	
TFS 4B	250	x 250	385	x 385	40	40	35	308	36/50,38/50	30/52,32/52	
TFS 5B	275	x 275	415	x 415	45	45	35	337	38/50,40/52	36/58,38/58	
TFS 6B	300	x 300	450	x 450	45	45	35	366	38/50,40/52	38/58,40/60	
TFS 7B	350	x 350	510	x 510	50	50	40	421	45/62,48/62	45/68,48/68	
TFS 8B	400	x 400	565	x 565	60	60	40	478	48/62,50/64	48/68,50/72	

STANDARD DAY LIGHT = 100mm

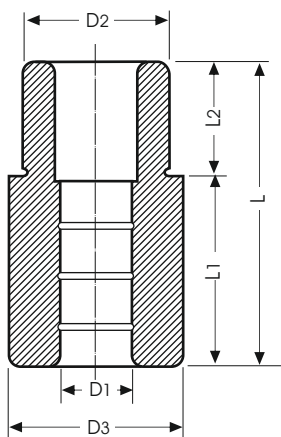
ACCESSORIES FOR DIE SETS

GUID BUSH FOR BALL CAGE SET



IMDC CODE	Nom.Pin d $\varnothing$	D1	D2	D3	L1	L2	L
SB 1B	14	20	31	35	40	25	65
SB 2B	15	21	31	35	40	25	65
SB 3B	16	24	34	38	40	30	70
SB 4B	18	26	34	38	40	30	70
SB 5B	19	27	38	43	45	30	75
SB 6B	20	28	38	43	45	30	75
SB 7B	22	30	40	45	50	35	85
SB 8B	24	32	44	45	50	35	85
SB 9B	25	33	44	49	50	35	85
SB 10B	28	36	48	54	60	40	100
SB 11B	30	38	52	58	60	40	100
SB 12B	32	40	52	58	60	40	100
SB 13B	36	44	58	62	60	45	105
SB 14B	38	46	58	62	60	45	105
SB 15B	40	48	60	66	65	50	115
SB 16B	45	53	68	71	65	50	115
SB 17B	48	56	68	71	65	50	115
SB 18B	50	60	72	78	70	50	120

GUID BUSH FOR PLAIN PILLAR SET

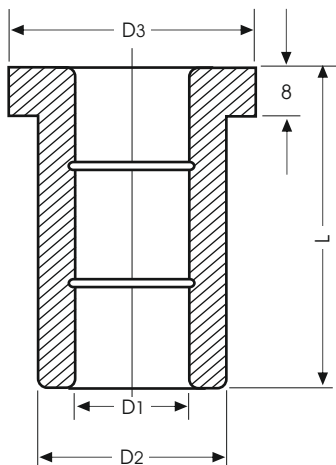


IMDC CODE	Nom.Pin d $\varnothing$	D1	D2	D3	L1	L2	L
GB 1B	14	14	22	26	40	20	60
GB 2B	15	15	22	26	40	20	60
GB 3B	16	16	24	29	40	20	60
GB 4B	18	18	24	29	40	20	60
GB 5B	19	19	28	31	45	25	70
GB 6B	20	20	28	31	45	25	70
GB 7B	22	22	30	35	50	25	75
GB 8B	24	24	35	39	50	30	80
GB 9B	25	25	35	39	50	30	80
GB 10B	28	28	38	43	60	35	95
GB 11B	30	30	40	44	60	40	100
GB 12B	32	32	43	48	60	40	100
GB 13B	36	36	50	53	60	40	100
GB 14B	38	38	50	53	60	40	100
GB 15B	40	40	52	57	65	45	110
GB 16B	45	45	62	64	65	50	115
GB 17B	48	48	64	70	70	50	120
GB 18B	50	50	64	70	70	50	120



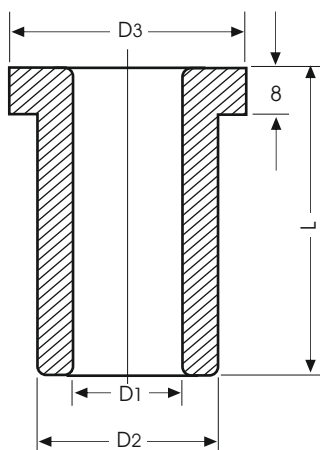
ACCESSORIES FOR DIE SETS

STRIPPER BUSH



IMDC CODE	Nom.Pin dØ	D1	D2	D3	L
ST 1B	14	14	22	26	22,27
ST 2B	15	15	22	26	22,27
ST 3B	16	16	24	29	22,27,32
ST 4B	18	18	24	29	22,27,32
ST 5B	19	19	28	31	27,32
ST 6B	20	20	28	31	27,32
ST 7B	22	22	30	35	27,32
ST 8B	24	24	35	39	32,37
ST 9B	25	25	35	39	32,37
ST 10B	28	28	38	43	37,42
ST 11B	30	30	40	44	37,42
ST 12B	32	32	43	48	37,42
ST 13B	36	36	50	53	37,42
ST 14B	38	38	50	53	37,42
ST 15B	40	40	52	57	42,47,52
ST 16B	45	45	62	64	47,52,57
ST 17B	48	48	64	70	62,67
ST 18B	50	50	64	70	62,67

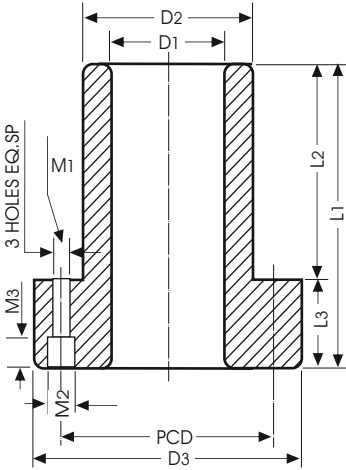
STRIPPER BUSH (BALL CAGE)



IMDC CODE	Nom.Pin dØ	D1	D2	D3	L
STB 1B	14	20	31	35	22,27,32
STB 2B	15	21	31	35	22,27,32
STB 3B	16	24	34	38	22,32
STB 4B	18	26	34	38	22,32
STB 5B	19	27	38	43	32,37,42
STB 6B	20	28	38	43	32,37,42
STB 7B	22	30	40	45	37,42
STB 8B	24	32	44	49	37,42,47
STB 9B	25	33	44	49	37,42,47
STB 10B	28	36	48	54	42,47
STB 11B	30	38	52	58	42,47
STB 12B	32	40	52	58	42,47,52
STB 13B	36	44	58	62	42,47,52
STB 14B	38	46	58	62	42,47,52
STB 15B	40	48	60	66	42,47,52
STB 16B	45	53	68	71	47
STB 17B	48	56	68	71	47
STB 18B	50	60	72	78	47,52

ACCESSORIES FOR DIE SETS

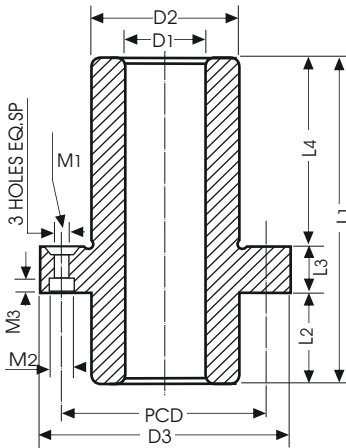
GUIDE BUSH FOR BALL CAGE SET



IMDC CODE	Nom.Pin d Ø	D1 Ø	D2 Ø	D3 Ø	L1	L2	L3	M1 Ø	M2 Ø	M3	P.C.D.
CB 1B	14	20	31	55	30	20	10	4.2	8.5	4.5	42
CB 2B	15	21	31	55	30	20	10	4.2	8.5	4.5	42
CB 3B	16	24	34	56	30	20	10	4.2	8.5	4.5	45
CB 4B	18	26	34	56	30	20	10	4.2	8.5	4.5	45
CB 5B	19	27	38	58	35	25	10	4.2	8.5	4.5	48
CB 6B	20	28	38	58	35	25	10	4.2	8.5	4.5	48
CB 7B	22	30	40	60	35	25	10	4.2	8.5	4.5	51
CB 8B	24	32	44	64	40	30	10	4.2	8.5	4.5	55
CB 9B	25	33	44	64	40	30	10	4.2	8.5	4.5	55
CB 10B	28	36	48	70	45	35	10	4.2	8.5	4.5	59
CB 11B	30	38	52	74	52	40	12	6.2	10.5	6.5	64
CB 12B	32	40	52	74	52	40	12	6.2	10.5	6.5	64
CB 13B	36	44	58	80	52	40	12	6.2	10.5	6.5	69
CB 14B	38	46	58	80	52	40	12	6.2	10.5	6.5	69
CB 15B	40	48	60	84	52	40	12	6.2	10.5	6.5	70
CB 16B	45	53	68	90	65	50	15	6.2	10.5	6.5	79
CB 17B	48	56	68	90	65	50	15	6.2	10.5	6.5	79
CB 18B	50	60	72	95	65	50	15	6.2	10.5	6.5	84

NOTE: This type is recommended where space is limited and further operation on bore is not required
The bush is secured with a wringing fit screwed to the bolster

GUIDE BUSH FOR BALL CAGE SET



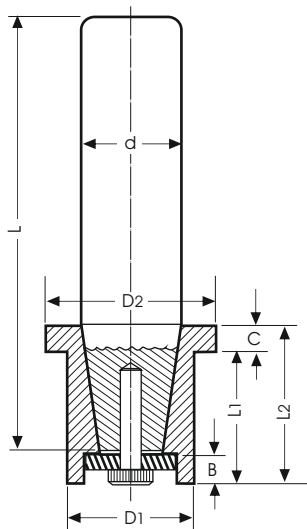
IMDC CODE	Nom.Pin d Ø	D1 Ø	D2 Ø	D3 Ø	L1	L2	L3	L4	M1 Ø	M2 Ø	M3	P.C.D.
SCB 1B	14	20	31	55	60	20	10	30	4.2	8.5	4.5	42
SCB 2B	15	21	31	55	60	20	10	30	4.2	8.5	4.5	42
SCB 3B	16	24	34	56	60	20	10	30	4.2	8.5	4.5	45
SCB 4B	18	26	34	56	60	20	10	30	4.2	8.5	4.5	42
SCB 5B	19	27	38	58	70	25	10	35	4.2	8.5	4.5	48
SCB 6B	20	28	38	58	70	25	10	35	4.2	8.5	4.5	48
SCB 7B	22	30	40	60	70	25	10	35	4.2	8.5	4.5	51
SCB 8B	24	32	44	64	70	25	10	35	4.2	8.5	4.5	51
SCB 9B	25	33	44	64	80	30	10	40	4.2	8.5	4.5	55
SCB 10B	28	36	48	70	80	30	10	40	4.2	8.5	4.5	59
SCB 11B	30	38	52	74	102	40	12	50	6.2	10.5	6.5	64
SCB 12B	32	40	52	74	102	40	12	50	6.2	10.5	6.5	64
SCB 13B	36	44	58	80	102	40	12	50	6.2	10.5	6.5	69
SCB 14B	38	46	58	80	102	40	12	50	6.2	10.5	6.5	69
SCB 15B	40	48	60	84	102	40	12	50	6.2	10.5	6.5	70
SCB 16B	45	53	68	90	110	45	15	50	6.2	10.5	6.5	79
SCB 17B	48	56	68	90	110	45	15	50	6.2	10.5	6.5	79
SCB 18B	50	60	72	95	110	45	15	50	6.2	10.5	6.5	84

NOTE: The Bushes are ideally suited where longer stroke is used and longer guide length is necessary.



ACCESSORIES FOR DIE SETS

DETTACHABLE PILLAR ASSEMBLY

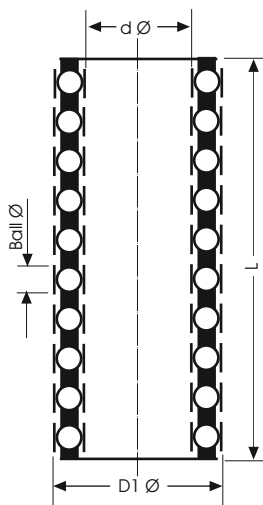


IMDC CODE	PIN dØ	D1 Ø	D2 Ø	B	C	L1	L2	L-LENGTHS
DP 1B	14	22	26	8	4	30	34	100,125,140
DP 2B	15	22	26	8	4	30	34	100,125,140
DP 3B	16	24	29	8	4	35	39	100,125,140,160
DP 4B	18	24	29	8	4	35	39	100,125,140,160
DP 5B	19	28	31	10	5	35	40	100,125,140,160
DP 6B	20	28	31	10	5	35	40	100,125,140,160
DP 7B	22	30	35	10	5	35	40	100,125,140,160,180
DP 8B	24	35	39	13	5	40	45	100,125,140,160,180
DP 9B	25	35	39	13	5	40	45	100,125,140,160,180
DP 10B	28	38	43	13	5	40	45	140,160,180,200,225,250
DP 11B	30	40	44	13	6	45	51	140,160,180,200,225,250
DP 12B	32	43	48	15	6	45	51	170,180,200,225,250,270,300
DP 13B	36	50	53	15	6	45	51	170,180,200,225,250,270,300
DP 14B	38	50	53	15	6	45	51	170,180,200,225,250,270,300
DP 15B	40	52	57	15	6	50	56	170,180,200,225,250,270,300
DP 16B	45	62	64	18	8	50	58	170,180,200,225,250,270,300,325,350
DP 17B	48	64	70	18	8	55	63	170,180,200,225,250,270,300,325,350
DP 18B	50	64	70	18	8	55	63	170,180,200,225,250,270,300,325,350

NOTE: While Ordering, specify Cat-No. and PILLAR LENGTH 'L'

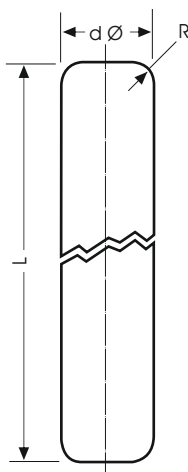
ACCESSORIES FOR DIE SETS

BALL CAGE



Ball cages are made with precision steel balls. They are arranged in close helical form for easy axial movement

GUIDE PILLAR



IMDC CODE	NOM.PIN dØ	D1Ø	BALL Ø	L-LENGTHS
BC 1B	14	20	3	40,50
BC 2B	15	21	3	40,50
BC 3B	16	22	3	40,50
BC 4B	18	26	4	40,50
BC 5B	19	27	4	54,74
BC 6B	20	28	4	54,74
BC 7B	22	30	4	54,74
BC 8B	24	32	4	54,74
BC 9B	25	33	4	54,74,85
BC 10B	28	36	4	54,74,85
BC 11B	30	38	4	58,88,103
BC 12B	32	40	4	58,85,100
BC 13B	36	44	4	58,85,100
BC 14B	38	46	4	58,85,100
BC 15B	40	48	4	85,105,125
BC 16B	45	53	4	85,105,125
BC 17B	48	58	5	85,105,125
BC 18B	50	60	5	85,105,125

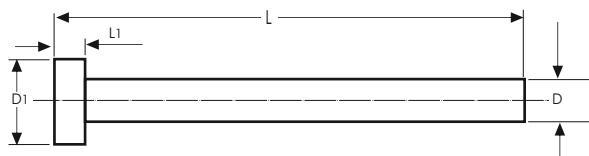
IMDC CODE	dØ	R	L-LENGTHS
GP 1B	14	4	100,125,140,160
GP 2B	15	4	100,125,140,160
GP 3B	16	4	100,125,140,160
GP 4B	18	4	100,125,140,160
GP 5B	19	4	100,125,140,160,180
GP 6B	20	4	100,125,140,160,180
GP 7B	22	4	100,125,140,160,180
GP 8B	24	4	100,125,140,160,180
GP 9B	25	5	140,160,180,200,225,250
GP 10B	28	5	140,160,180,200,225,250
GP 11B	30	5	170,180,200,225,250,270,300
GP 12B	32	5	170,180,200,225,250,270,300
GP 13B	36	5	170,180,200,225,250,270,300
GP 14B	38	5	170,180,200,225,250,270,300
GP 15B	40	5	170,180,200,225,250,270,300,325,350
GP 16B	45	5	170,180,200,225,250,270,300,325,350
GP 17B	48	5	170,180,200,225,250,270,300,325,350
GP 18B	50	5	170,180,200,225,250,270,300,325,350

NOTE: (1) While Ordering, specify Cat-No. and LENGTH 'L'
(2) Standard Ball Cages are made of aluminium alloy, but in special order they can be made of brass.

NOTE: (1) While Ordering, specify Cat-No. and LENGTH 'L'



PIERCING PUNCH WITH HEAD



MATERIAL HSS

BODY DIA DIA 'D'	HEAD		TOTAL		
	DIA D1	LENGTH L1	LENGTH L		
1.00 - 1.30	2.0	2.5	50	-	-
1.40 - 1.50	2.2	2.5	50	-	-
1.60 - 2.20	3.2	2.5	50	-	-
2.30 - 2.50	3.5	4.0	50	70	-
2.60 - 2.90	4.0	4.0	50	70	-
3.00 - 3.40	4.5	4.0	50	70	100
3.50 - 3.90	5.0	4.0	50	70	100

MATERIAL HC-HCr

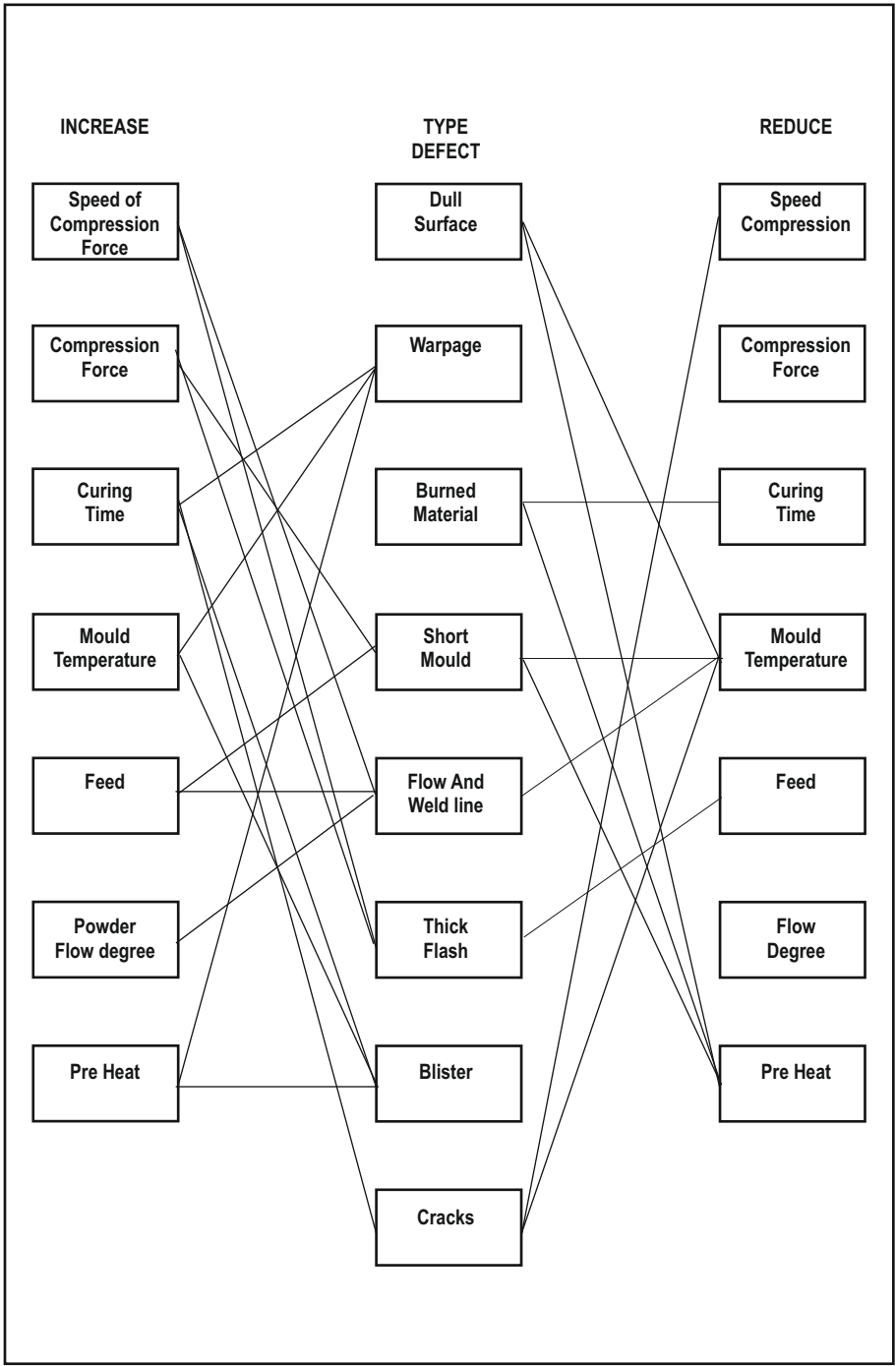
BODY DIA DIA 'D'	HEAD		TOTAL		
	DIA D1	LENGTH L1	LENGTH L		
4.00 - 4.40	5.5	5.0	50	70	100
4.50 - 4.90	6.0	5.0	50	70	100
5.00 - 5.40	6.5	5.0	50	70	100
5.50 - 5.90	7.0	5.0	50	70	100
6.00 - 6.40	8.0	6.0	50	70	100
6.50 - 7.40	9.0	6.0	50	70	100
7.50 - 8.40	10.0	6.0	-	70	100
8.50 - 9.40	11.0	6.0	-	70	100
9.50 - 10.40	12.0	6.0	-	70	100
10.50 - 11.40	15.5	6.0	-	-	100
11.50 - 13.00	15.5	6.0	-	-	100
13.10 - 14.00	16.0	6.0	-	-	100
14.10 - 16.00	19.0	6.0	-	-	100

ENGINEERING REFERENCE BOOK SECTION

COMMON INJECTION MOULDING FAULTS & REMEDIES

POSSIBLE REMEDIES	POSSIBLE FAULTS
Increase injection pressure	Material dribbles out between sprue and nozzle
Decrease injection pressure	The mould has not been completely filled
Increase cylinder temperature	Screw does not return
Decrease cylinder temperature	Sink marks in moulded parts
Increase holding pressure time	Burning in moulded parts
Decrease holding pressure time	Moulded parts show matt areas
Increase nozzle temperature	Flash on moulded parts
Nozzle seal or nozzle blocked	Inferior surface finish parts (gloss)
Nozzle seal is jammed	Flaking
Increase screw rotation speed	Moulded parts sticking in cavities
Decrease screw rotation speed	Tearing of the sprue
Nozzle seal or nozzle loose	Wrapping of the moulded parts
Wrong type of nozzle seal	Discolouration at the sprue
Inject with rotating screw	Flow seams
Increase moulding locking force	Brittleness of the moulded parts
Injection pressure starts early	Wavy condition of the surface
Decrease injection speed	Worm lines in the moulded part
Increase injection speed	Material temperature too high (Burning)
Increase screw back pressure	Streaking formation and mark in moulded parts
Decrease screw back pressure	Voids, i.e air bubbles in moulded parts
Increase nozzle orifice	
Increase mould temperature	
Decrease mould temperature	
Polish mould and round of edges	
Moulds require maintenance	
Polish sprues, runners and channels	
Sprues and runners should be increased	
Introduce mould venting	
Introduce cold slug pocket	
Pre dry material	
Material is contaminated	
Hopper is empty or throat blocked	
Metering is insufficient	
Use mould release agent	
Check on nozzle setting	
Check on nozzle / sprue brush radiuses	
Temperature too high, increase nozzle contact time	
Decrease cylinder temp. At intake zone(except nylon)	
Bridging in hopper / vent attachment	
Check for equal filling (mult- cavity tools)	
Introduce air ejector	
Increase cooling and pause times	
Decrease cooling and pause time	

TROUBLE SHOOTING DIAGRAM (COMPRESSOIN MOULDING)

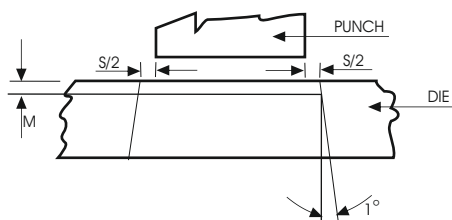


DIE CASTING FAULTS & REMEDIES

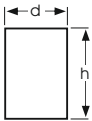
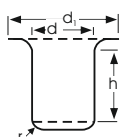
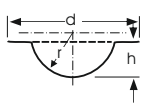
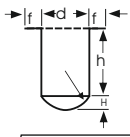
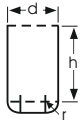
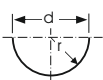
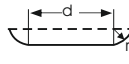
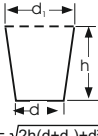
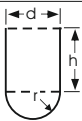
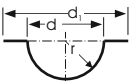
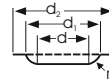
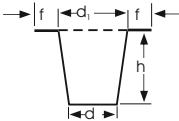
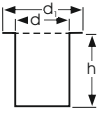
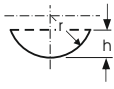
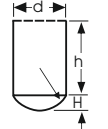
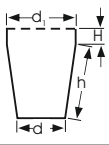
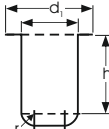
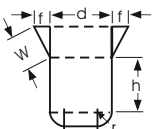
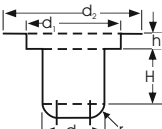
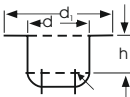
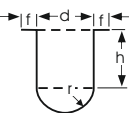
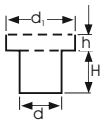
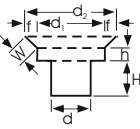
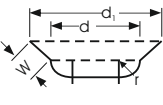
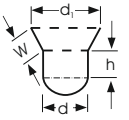
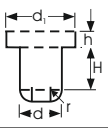
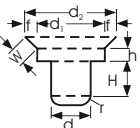
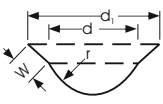
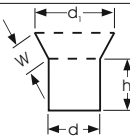
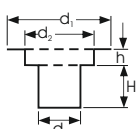
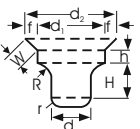
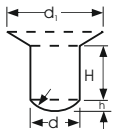
S.No.	Defect	Cause	Rectification
1.	Scratches and marks On the castings	Unevenness of cavity will be reproduced on the casting. Soldering of alloy on die steel. Too less taper.	Cleaning and Polishing of die. See soldering defect. Remove possible undercuts or increase taper.
2.	Soldering	Hot metal hits direct to die walls. Low hardness.	Reduce metal temperature. Change direction of metal flow. Increases hardness of insert. Replace inserts with more suitable die steel.
3.	Poor cavity filling	Too less metal in sleeve. Low injection pressure or slow plunger speed Low metal and/or die temperature. Trapped air in cavity.	
4.	Hard spots in castings	oxides enclosed in molten metal. Segregation of alloy elements. Low metal temperature.	Clean metal with flux. Check metal composition. Increase metal temperature.
5.	Flow marks	Spraying of metal with high injection speed. Low injection pressure On thick gating. Uneven die temperature.	
6.	Cold shuts	various metal streams cool too much before they meet again. Trapped air prevents proper fusion Oxides film develops at the ends Of metal stream which makes fusion difficult. Low injection pressure	Change of gating direction. Increase injection pressure. Increase die temperature . Increase die temperature. Improve air venting.
7.	Spongy structure on casting	oxide enclosed in metal. Metal mixed with lubrication.	Clean alloy with flux. Change and apply less lubrication
8.	Shrink holes	metal Solidifies in some sections much earlier than in others. Less injection pressure.	Change position of gates .Improve on die cooling. Increase Injection Pressure.
9.	Shrink cracks	Internal stresses are greater then strength of casting while cooling. Delayed injection or core pulling	Adjust working speed. Change component design (avoid sharp corners etc.) Control die and metal temperature.
10.	Surface depressions	Local overheating on dia sub surface porosity.	Adjust die and metal temperature. Change gating position. Increase pressure.
11.	Blow holes	Air trapped in cavity. Gas enclosed in alloy. Oversize sleeve for Small casting.	Improve air venting. Change direction of metal flow. Reduce injection Speed. Clean metal with flux.
12.	Fine porosity	Lubrication mixed with metal and develops gas. Air is trapped into the metal when injected with high Velocity	Keep die clean. Use little lubrication. Clean molten alloy. Reduce injection speed.

CUTTING CLEARENCE IN SHEET METAL DIES

SHEET	TOTAL CLEARENCE "S" IN mm for			
THICKNESS IN MM	BRASS & SOFT STEEL	MIDDLE HARD STEEL	HARD STEEL	ALUMINIUM
0.25	0.01	0.015	0.02	0.02
0.5	0.025	0.03	0.035	0.05
0.75	0.04	0.045	0.05	0.07
1.0	0.05	0.06	0.07	0.10
1.25	0.06	0.075	0.09	0.12
1.5	0.075	0.09	0.10	0.15
1.75	0.09	0.1	0.12	0.17
2.0	0.10	0.12	0.14	0.20
2.25	0.11	0.14	0.16	0.22
2.5	0.13	0.15	0.18	0.25
2.8	0.14	0.17	0.20	0.28
3.0	0.15	0.18	0.21	0.30
3.3	0.17	0.20	0.23	0.33
3.5	0.18	0.21	0.25	0.35
3.8	0.19	0.23	0.27	0.38
4.0	0.20	0.24	0.28	0.40
4.3	0.22	0.26	0.30	0.43
4.5	0.23	0.27	0.32	0.45
4.8	0.24	0.29	0.34	0.48
5.0	0.25	0.30	0.36	0.50



TO CALCULATE BLANK DIAMETERS

 $D = \sqrt{d^2 + 4dh}$ for square corners	 $D = \sqrt{d_1^2 + 4d(h + 0.57R + 0.57r)}$	 $D = \sqrt{d^2 + 4h^2}$	 $D = \sqrt{(d + 2f)^2 + 4(H^2 + dh)}$
 $D = \sqrt{d^2 + 4d(h + 0.57r)}$ for round corners	 $D = 2.828r$	 $D = \sqrt{6.283rd + 8r^2 + d^2}$	 $D = \sqrt{2h(d + d_1) + d^2}$
 $D = \sqrt{d^2 + 4d(h + d/4)}$; also $D = 1.414 \sqrt{d^2 + 2dh}$	 $D = \sqrt{d^2 + d_1^2}$	 $D = \sqrt{6.283rd + 8r^2 + d^2 + (d_2^2 - d^2)}$	 $D = \sqrt{2h(d + d_1) + d^2 + (d_1^2 - d^2)}$
 $D = \sqrt{d^2 + 4dh}$	 $D = \sqrt{8rh}$	 $D = \sqrt{d^2 + 4(H^2 + dh)}$	 $D = \sqrt{d^2 + 2[h(d + d_1) + 2d, H]}$
 $D = \sqrt{(d + 2f)^2 + 4d(h + 0.57r)}$	 $D = \sqrt{d^2 + 4d(h + 0.57r) + 4w(d + f)}$	 $D = \sqrt{d_2^2 + 4d(H + 0.57r) + 4d, h}$	 $D = \sqrt{d^2 + 4d(0.57r + h) - 0.57r^2}$
 $D = \sqrt{(d + 2f)^2 + 4d(h + d/4)}$	 $D = \sqrt{d_1^2 + 4(dH + d, h)}$	 $D = \sqrt{d_1^2 + 4(dH + d, h) + 4w(d, f)}$	 $D = \sqrt{d^2 + 2.28rd + 2w(d + d_1) - 0.57r^2}$
 $D = \sqrt{1.414d^2 + 2dh + w(d + d_1)}$	 $D = \sqrt{d_1^2 + 4d(H + 0.57R) + 4d, h}$	 $D = \sqrt{d_1^2 + 4[d(H + 0.57r) + d, h] + 4w(d, f)}$	 $D = \sqrt{d^2 + 4h^2 + 2w(d + d_1)}$
 $D = \sqrt{d^2 + 4dh + 2w(d + d_1)}$	 $D = \sqrt{d_2^2 + 4(dH + d, h)}$	 $D = \sqrt{d_1^2 + 4[d(H + 0.57r + 0.57R) + d, h] + 4w(d, f)}$	 $D = \sqrt{d^2 + 4[h^2 + dH + 0.5(d + d_1)]}$

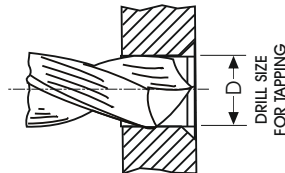
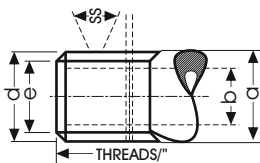
THREAD SIZE COMPARISON

METRIC PRODUCTS							UNIFIED INCH PRODUCTS					B.S. INCH PRODUCTS				
SIZE	THREAD PITCH & T.P.I				Major Dia.		SIZE	T.P.I		Major Dia	SIZE	T.P.I		Major Dia	T.P.I	Major Dia.
	COARSE		FINE					UNC	UNF			inch	BSW			
	PITCH mm	T.P.I	PITCH mm	T.P.I	mm	inch										
M3	0.50	51	-	-	3.00	0.118	#5	40	44	0.125	1/8	40	-	0.125		
M4 M5	0.70	36	-	-	4.00	0.157	#6	32	40	0.138	5BA				43.1	0.126
							#8	32	36	0.164	4BA				38.5	0.142
	0.80	32	-	-	5.00	0.197	#10	24	32	0.190	3BA				34.8	0.161
M6											3/16	24	32	0.187		
											2BA				31.3	0.185
											1BA				28.2	0.209
M8	1.0	25	-	-	6.00	0.236	1/4	20	28	0.250	1/4	20	26	0.250	25.4	0.236
M10											OBA					
	1.25	20	1.00	25	8.00	0.315	5/16	18	24	0.313	5/16	18	22	0.313		
	1.50	17	1.25	20	10.00	0.394	3/8	16	24	0.375	3/8	16	20	0.375		
M12											7/16	14	18	0.438		
	1.75	14.50	1.25	20	12.00	0.472	1/2	13	20	0.500	1/2	12	16	0.500		
	2.00	12.50	1.50	17	14.00	0.551										
M16	2.00	12.50	1.50	17	16.00	0.630	5/8	11	18	0.625	5/8	11	14	0.625		
(M18)	2.50	10	1.50	17	18.00	0.709										
M20	2.50	10	1.50	17	20.00	0.787	3/4	10	16	0.750	3/4	10	12	0.750		
(M22)	2.50	10	1.50	17	22.00	0.866	7/8	9	14	0.875	7/8	9	11	0.875		
M24	3.00	8.5	2.00	13	24.00	0.945	1	8	12	1.000	1	8	10	1.000		
							1 1/8	7	12	1.125	1 1/8	7	9	1.125		
(M27)	3.00	8.50	2.00	13	27.00	1.063										
M30	3.50	7.25	2.00	13	30.00	1.181	1 1/4	7	12	1.250	1 1/4	7	9	1.250		
(M33)	3.50	7.25	2.00	13	33.00	1.299										
M36	4.00	6.40	3.00	8.5	36.00	1.417	1 1/2	6	12	1.500	1 1/2	6	8	1.500		
(M39)	4.00	6.40	3.00	8.5	39.00	1.535										
M42	4.50	5.60	3.00	8.5	42.00	1.653										

Note: Size in brackets are non-preferred standards.

BSP THREADS

DESCRIPTION	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	7/8"	1"	1 1/8"	1 1/4"	1 3/8"	1 1/2"	1 3/4"	2"	2 1/2"
a	10	13.5	17	21.5	23.5	27	30.5	34	-	42.5	-	48.5	54.5	60	70
b	6.6	9.4	12.9	16.2	18.2	21.6	25.3	27.4		36		41.6	47.4	53.2	68.5
d	9.7	13.16	16.66	20.96	22.9	26.4	30.2	33.2	37.9	41.9	44.3	47.8	53.7	59.6	75.2
E	8.75	11.45	14.95	18.63	20.59	24.12	27.88	30.29	34.94	38.95	41.37	44.85	50.79	56.66	72.23
h=pitch	0.90	1.34	1.34	1.81	1.81	1.81	1.81	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31
Threads/"	28	19	19	14	14	14	14	11	11	11	11	11	11	11	11
Dfor (steel)	9	12	15.5	19.2	21.1	24.7	28.5	31.2	35.6	39.6	42.1	45.6	51.5	57.3	73
Dfor (C.I.)	8.8	11.7	15.2	19.0	21	24.5	28.3	31.0	35.5	39.5	42	45.5	51.4	57.2	72.8



TAP & CLEAR DRILL SIZES

Desig. No .	BRITISH ASSOCIATION THREAD		Size of Tap Inches	BRITISH STANDARD WHITWORTH THREAD		BRITISH STANDARD FINE THREAD		METRIC THREADS.		
	Tap Drill Sizes	Clear Drill Sizes		Tap Drill Sizes	Clear Drill Sizes	Tap Drill Sizes	Clear Drill Sizes	Tap Drill Sizes	Tap Drill Sizes	
0	5.1mm	5mm	1/8	2.55mm	2.5mm	3.25mm	--	M 1	0.75	M 6
1	4.5mm	4.45mm	3/16	3.7mm	3.65mm	4.85mm	5/32"	M 1.2	0.95	M 7
2	4mm	5/32"	7/32				4.65mm	M 1.4	1.10	M 8
3	3.45mm	3.4mm	1/4	5.1mm	5mm	6.5mm	5.3mm	M 1.7	1.35	M 9
4	3mm	2.95mm	5/16	6.5mm	6.4mm	8.1mm	6.75mm	M 2	1.60	M 10
5	2.65mm	2.6mm	3/8	5/16"	7.9mm	9.7mm	8.25mm	M 2.3	1.90	M 12
6	2.3mm	2.25mm	7/16	9.25mm	9.2mm	11.3mm	9.7mm	M 2.6	2.15	M 14
7	2.05mm	2mm	1/2	10.5mm	10.4mm	13mm	7/16"	M 3	2.40	M 16
8	1.8mm	1.75mm	9/16	12.1mm	12mm	14mm	14mm	M 3.5	2.90	M 18
9	1.55mm	1.5mm	5/8	13.88mm	17/32"	16.25mm	16/75mm	M 4	3.25	M 20
10	1.4mm	1.35mm	3/4	41/64"	16.25mm	19.25mm	25/32"	M 4.5	3.75	M 22
11	1.2mm	3/64"	7/8	19.25mm	3/4"	57/64"	25/32"	M 5	4.10	M 24
12	1.05mm	1mm	1	22mm	55/64"	57/64"	22.75mm	M 5.5	4.60	M 27
13	0.975mm	0.95mm	1 1/8	24.75mm	21/32"	1-9/64"	25.5mm			
14	1/32"	0.775mm	1 1/4	27.8mm	27.8mm	1-1/764"	28.75mm			
15	0.7mm	0.675mm	1 3/8	33.5mm	1-5/16"	1-33/64"	31.5mm			
16	0.6mm	0.575mm	1 1/2	39mm	1-17/32"	1-49/64"	34.5mm			
			1 3/4	44.5mm	1-3/4"	2-1/64"				
			2							

Note: Two Size of tap drills given are near the max. Minor Dia. Of the internal screw thread

CUTTING OILS

Material	Speed Meter/Min.	Cutting Oil	Material	Speed Meter/Min.	Cutting Oil
Machining AISI 1100 Series	18/30	Soluble or Sulphur Base Oil	Aluminium Bronze	18/24	Soluble Oil
Low Carbon (upto 0.25%)	12/24	"	Grade 8-12	15/21	"
Annealed Med. C.0.3 to 0.6%C	9/18	Sulphur Base Oil	Grade 16-18	9/15	" or light base Oil
Heat-treated 0.3 to 0.6%C	7/15	Chlorinated Sulphur Base Oil	Grade 20-24	15/60	Dry or Soluble Oil
Tool High C. & High Sp. Steel	7/15	"	Brass	15/30	Mineral Oil with Lard or Lt. Base oil
Stainless	1.5/10	"	Cast Iron	9/18	Soluble Oil
Titanium	6/12	Light base Oil	Copper (90%Plus)	10/18	Light base Oil
Tobin Bronze	24/30	Kerosene & Lard Oil	Malleable Iron	9/18	Sulphur Base Oil
Zinc-Die Castings	18/45	Kerosene & Light Oil\	Manganese Bronze	6/12	Light Base Oil
Aluminium	15/60		Monel Metal	24/30	" or Mineral Oil with Lard
			Naval Brass	9/18	
			Phosphor Bronze		

COMPARATIVE HARDNESS SCALES FOR STEEL

ROCKWELL C-SCALE HARDNESS number	Brinell Hardness Number 10 mm Ball 3000 Kg. Load				Rockwell Hardness Number		Rockwell Superficial Hardness Number Superficial Brale Penetrator			SHORE SCLEROSCOPE HARDNESS NUMBER
	DIAMOND PYRAMID HARDNESS NUMBER VICKERS	STANDARD BALL	HUL TIGREN BALL	TUNGSTEN CARBIDE BALL	A-SCALE 60 Kg. LOAD Brale penetrator	D-SCALE 1000 Kg. LOAD Brale Penetrator	15-N SCALE 15 Kg. LOAD	30-N SCALE 30 Kg. LOAD	45-N SCALE 45 Kg. LOAD	
68	940	-	-	-	85.6	76.9	99.2	84.4	75.4	97
67	900	-	-	-	85.0	76.1	92.9	83.6	74.2	95
66	865	-	-	-	84.5	75.4	92.5	82.8	73.3	92
65	832	-	-	739	83.9	74.5	92.2	81.9	72.0	91
64	800	-	-	722	83.4	73.8	91.8	81.1	71.0	88
63	772	-	-	705	82.8	73.0	91.4	80.1	69.9	87
62	746	-	-	688	82.3	72.2	91.1	79.3	68.8	85
61	720	-	-	670	81.8	71.5	90.7	78.4	67.7	83
60	697	-	643	654	81.2	70.7	90.2	77.5	66.6	81
59	674	-	599	634	80.7	69.9	89.9	76.6	65.5	80
58	653	-	587	615	80.1	69.2	89.3	75.7	64.4	78
57	633	-	575	595	79.6	68.5	88.9	74.8	63.2	76
56	613	-	561	577	79.0	67.7	88.3	73.9	62.0	75
55	595	-	546	560	78.5	66.9	87.9	73.0	60.9	74
54	577	-	534	543	78.0	66.1	87.4	72.0	59.8	72
53	560	-	519	525	77.4	65.4	86.9	71.2	58.6	71
52	544	500	508	512	76.8	64.6	86.4	70.2	57.4	69
51	528	487	494	496	76.3	63.8	85.9	69.4	56.1	68
50	513	475	481	481	75.9	63.1	85.5	68.5	55.0	67
49	498	464	469	469	75.2	62.1	85.0	67.6	53.8	66
48	484	451	455	455	74.7	61.4	84.5	66.7	52.5	64
47	471	442	443	443	74.1	60.8	83.9	65.8	51.4	63
46	458	432	432	432	73.6	60.0	83.5	64.8	50.3	62
45	446	421	421	421	73.1	59.2	83.0	64.0	49.0	60
44	434	409	409	409	72.5	58.5	82.5	63.1	47.8	58
43	423	400	400	400	72.0	57.7	82.0	62.2	46.7	57
42	412	390	390	390	71.5	56.9	81.5	61.3	45.5	56
41	402	381	381	381	70.9	56.2	80.9	60.4	44.3	55
40	392	371	371	371	70.4	55.4	80.4	59.5	43.1	54
39	382	362	362	362	69.9	54.6	79.9	58.6	41.9	52
38	372	353	353	353	69.4	53.8	79.4	57.7	40.8	51
37	363	344	344	344	68.9	53.1	78.8	56.8	39.6	50
36	354	336	336	336	68.4	52.3	78.3	55.9	38.4	49
35	345	327	327	327	67.9	51.5	77.7	55.0	37.2	48
34	336	319	319	319	67.4	50.8	77.2	54.2	36.1	47
33	327	311	311	311	66.8	50.0	76.0	53.3	34.9	46
32	318	301	301	301	66.3	49.2	76.1	52.1	33.7	44
31	310	294	294	294	65.8	48.4	75.6	51.3	32.5	43
30	302	286	286	286	65.3	47.7	75.0	50.4	31.3	42
29	294	279	279	279	64.7	47.0	74.5	49.5	30.1	41
28	286	271	271	271	64.3	46.1	73.9	48.6	28.9	41
27	279	264	264	264	63.8	45.0	73.3	47.7	27.8	40
26	272	258	258	258	63.3	44.6	72.8	46.8	26.7	38
25	266	253	253	253	62.8	43.8	72.2	45.9	25.5	38
24	260	247	247	247	62.4	43.1	71.6	45.0	24.3	37
23	254	243	243	243	62.0	42.1	71.0	44.0	23.1	36
22	248	237	237	237	61.5	41.6	70.5	43.2	22.0	35
21	243	231	231	231	61.0	40.9	69.9	42.3	20.7	35
20	238	226	226	226	60.5	40.1	69.4	41.5	19.6	34
18	230	219	219	219	-	-	-	-	-	33
16	222	212	212	212	-	-	-	-	-	32
14	213	203	203	203	-	-	-	-	-	31
12	204	194	194	194	-	-	-	-	-	29
10	196	187	187	187	-	-	-	-	-	28
8	188	179	179	179	-	-	-	-	-	27
6	180	171	171	171	-	-	-	-	-	26
4	173	165	165	165	-	-	-	-	-	25
2	166	158	158	158	-	-	-	-	-	24
0	160	152	152	152	-	-	-	-	-	24

CONVERSION OF GAUGE TO INCH AND MM WITH APPROXIMATE WEIGHT OF STEEL SHEET

Size	inch	MM	Kg/Sq.Ft.	Kg/Sq.Metre
1/2 "	.500	12.700	9.340	100.440
7/16"	.437	11.112	8.172	87.887
3/8	.375	9.525	7.005	75.329
5/16	.313	7.937	5.837	62.776
1G	.300	7.620	5.603	60.261
2G	.276	7.010	5.155	55.442
3G	.252	6.400	4.707	50.623
4G	.232	5.892	4.333	46.604
5G	.212	5.384	3.982	42.586
6G	.192	4.876	3.586	38.568
7G	.176	4.470	3.287	35.355
8G	.160	4.064	2.988	32.137
9G	.144	3.657	2.690	28.925
10G	.128	3.267	2.391	25.712
11G	.116	2.946	2.166	23.300
12G	.104	2.641	1.942	20.888
13G	.092	2.336	1.718	18.481
14G	.080	2.032	1.495	16.069
15G	.072	1.828	1.345	14.462
16G	.064	1.625	1.195	12.856
17G	.056	1.422	1.046	11.250
18G	.048	1.219	0.896	9.638
19G	.040	1.016	0.747	8.032
20G	.036	0.914	0.672	7.231
21G	.032	0.812	0.598	6.426
22G	.028	0.711	0.523	5.625
23G	.024	0.609	0.448	4.819
24G	.022	0.558	0.411	4.419
25G	.020	0.508	0.373	4.013
26G	.018	0.457	0.336	3.613
27G	.0164	0.416	0.306	3.291
28G	.0148	0.375	0.277	2.974
29G	.0136	0.345	0.254	2.729
30G	.0124	0.314	0.232	2.490

DENSITY OF COMMON MATERIALS

MATERIAL	DENSITY	UNIT
Aluminium	2.6	g/cm ³
Pig Iron	7.88	g/cm ³
Cast Iron	7.25	g/cm ³
Steel	7.85	g/cm ³
High speed steel	8.1-8.9	g/cm ³
Copper	8.8-9.0	g/cm ³
Brass	8.5	g/cm ³
Bronze	8.5	g/cm ³
Zinc	6.9-7.2	g/cm ³
Solder	7.4	g/cm ³

SHAFT TOLERANCES

SHAFTS Diameter Steps	a11	c8	c9	d8	d9	d11	e7	e8	e9	f6	f7	18	g5	g5	h5	h6	h7	h8	h9	h10	h11	js5	js6	js7	k5	k6	k7	m5	m6	m7	n6	n7	p6	p7	r6	r7	s6	s7
1-3	-270	-60	-60	-20	-20	-14	-14	-14	-6	-6	-6	-2	-2	0	0	0	0	0	0	0	0	+2	+3	+5	+4	+6	+10	+6	+8	+14	+10	+14	+12	+16	+16	+20	+20	+24
	-330	-74	-85	-34	-45	-80	-24	-28	-39	-12	-16	-20	-6	-8	-4	-6	-10	-14	-25	-40	-60	-2	-3	-5	0	0	0	+2	+2	+4	+4	+6	+6	+10	+10	+14	+14	
3-6	-270	-70	-70	-30	-30	-20	-20	-20	-10	-10	-10	-4	-4	0	0	0	0	0	0	0	0	+2.5	+4	+6	+6	+9	+13	+9	+12	+16	+16	+20	+20	+24	+23	+27	+27	+31
	-345	-88	-100	-48	-60	-105	-32	-38	-50	-18	-22	-28	-9	-12	-5	-8	-12	-18	-30	-48	-75	-2.5	-4	-6	+1	+1	+4	+4	+8	+8	+12	+12	+15	+15	+19	+19	+1	
6-10	-280	-80	-80	-40	-40	-25	-25	-25	-13	-13	-13	-5	-5	0	0	0	0	0	0	0	0	+3	+4.5	+7.5	+7	+10	+16	+12	+15	+21	+19	+25	+24	+30	+28	+34	+32	+38
	-370	-102	-116	-62	-76	-130	-40	-47	-61	-22	-28	-35	-11	-14	-6	-9	-15	-22	-36	-58	-90	-3	-4.5	-7.5	+1	+1	+6	+6	+10	+10	+15	+15	+19	+19	+23	+23	+23	
10-18	-290	-95	-95	-50	-50	-32	-32	-32	-16	-16	-16	-6	-6	0	0	0	0	0	0	0	0	+4	+5.5	+9	+9	+12	+19	+15	+18	+25	+23	+30	+29	+36	+34	+41	+39	+46
	-400	-122	-138	-77	-93	-160	-50	-59	-75	-27	-34	-43	-14	-17	-8	-11	-18	-27	-43	-70	-110	-4	-5.5	-9	+1	+1	+7	+7	+12	+12	+18	+18	+23	+23	+28	+28	+28	
18-30	-300	-110	-110	-65	-65	-40	-40	-40	-20	-20	-20	-7	-7	0	0	0	0	0	0	0	0	+4.5	+6.4	+10.5	+11	+15	+23	+17	+21	+29	+28	+36	+35	+43	+41	+49	+48	+56
	-430	-143	-162	-98	-117	-195	-61	-73	-92	-33	-41	-53	-16	-20	-9	-13	-21	-33	-52	-84	-130	-4.5	-6.5	-10.5	+2	+2	+8	+8	+8	+15	+15	+22	+22	+28	+28	+35	+35	
30-50	*	*	*	-80	-80	-50	-50	-50	-25	-25	-25	-9	-9	0	0	0	0	0	0	0	0	+5.5	+8	+12.5	+13	+18	+27	+20	+25	+34	+33	+42	+42	+51	+50	+59	+59	+68
	*	*	*	-199	-142	-240	-75	-89	-112	-41	-50	-64	-20	-25	-11	-16	-25	-39	-62	-100	-160	-5.5	-8	-12.5	+2	+2	+2	+9	+9	+9	+17	+17	+26	+26	+34	+34	+43	+43
50-80	*	*	*	-100	-100	-60	-60	-60	-30	-30	-30	-10	-10	0	0	0	0	0	0	0	0	+6.5	+9.5	+15	+15	+21	+32	+24	+30	+41	+39	+50	+51	+62	*	*	*	
	*	*	*	-146	-174	-290	-90	-106	-134	-49	-60	-76	-23	-29	-13	-19	-30	-46	-74	-120	-190	-6.5	-9.5	-15	+2	+2	+2	+11	+11	+11	+20	+20	+32	+32	*	*	*	
80-120	*	*	*	-120	-120	-120	-72	-72	-72	-36	-36	-12	-12	0	0	0	0	0	0	0	0	+7.5	+11	+17.5	+18	+25	+38	+28	+35	+48	+45	+58	+59	+72	*	*	*	
	*	*	*	-174	-207	-340	-107	-126	-159	-58	-71	-90	-27	-34	-15	-22	-35	-54	-87	-140	-220	-7.5	-11	-17.5	+3	+3	+3	+13	+13	+13	+23	+23	+37	+37	*	*	*	
120-180	*	*	*	-145	-145	-145	-85	-85	-85	-43	-43	-14	-14	0	0	0	0	0	0	0	0	+9	+12.5	+20	+21	+28	+43	+33	+40	+55	+52	+67	+68	+83	*	*	*	
	*	*	*	-208	-245	-395	-125	-148	-185	-68	-83	-106	-32	-39	-18	-25	-40	63	-100	-160	-250	-9	-12.5	-20	+3	+3	+3	+15	+15	+15	+27	+27	+43	+43	*	*	*	
180-250	*	*	*	-170	-170	-100	-100	-100	-50	-50	-50	-15	-15	0	0	0	0	0	0	0	0	+10	+14.5	+23	+24	+33	+50	+37	+46	+63	+60	+77	+79	+96	*	*	*	
	*	*	*	-242	-285	-460	-146	-172	-215	-79	-96	-122	-35	-44	-20	-29	-46	-72	-115	-185	-290	-10	-14.5	-23	+4	+4	+4	+17	+17	+17	+31	+31	+50	+50	*	*	*	
250-315	*	*	*	-190	-190	-190	-110	-110	-110	-56	-56	-17	-17	0	0	0	0	0	0	0	0	+11.5	+16	+26	+27	+36	+56	+43	+52	+72	+66	+86	+88	+108	*	*	*	
	*	*	*	-271	-320	-510	-162	-191	-240	-88	-108	-137	-40	-49	-23	-32	-52	-81	-130	-210	-320	-11.5	-16	-26	+4	+4	+4	+20	+20	+20	+34	+34	+56	+56	*	*	*	
315-400	*	*	*	-210	-210	-210	-125	-125	-125	-62	-62	-18	-18	0	0	0	0	0	0	0	0	+12.5	+18	+28.5	+29	+40	+61	+46	+57	+78	+73	+94	+98	+119	*	*	*	
	*	*	*	-299	-350	-570	-182	-214	-265	-98	-119	-151	-43	-54	-25	-36	-57	-89	-140	-230	-360	-12.5	-18	-28.5	+4	+4	+4	+21	+21	+21	+37	+37	+62	+62	*	*	*	
400-500	*	*	*	-230	-230	-230	-135	-135	-135	-68	-68	-20	-20	0	0	0	0	0	0	0	0	+13.5	+20	+31	+32	+45	+68	+50	+63	+86	+80	+103	+108	+131	*	*	*	
	*	*	*	-327	-385	-630	-198	-232	-290	-108	-131	-165	-47	-60	-27	-40	-63	-97	-155	-250	-400	-13.5	-20	-31	+5	+5	+5	+23	+23	+23	+40	+40	+68	+68	*	*	*	

Value of Tolerances generally conform to IS : 919-1963 and IS : 2709-1964

HOLE TOLERANCES

Hole Diameter Steps	Tolerance Grade for Fit																																		
	A11	B9	B11	C9	C11	D9	D10	D11	E8	E9	F7	F8	G6	G7	H5	H6	H7	H8	H9	H11	Js6	Js7	K6	K7	M5	M6	N6	N7	P6	P7	P9	R7	S7		
1-3	+330	+165	+200	+85	+120	+45	+60	+80	+28	+39	+16	+20	+8	+12	+4	+6	+10	+14	+25	+60	+3	+5	0	0	-2	-2	-4	-4	-6	-6	-6	-10	-14	H7	c8
	+270	+140	+140	+60	+60	+20	+20	+20	+14	+14	+6	+6	+2	+2	0	0	0	0	0	0	-3	-5	-6	-10	-8	-12	-10	-14	-12	-16	-31	-20	-24	H8	c9
	+345	+170	+215	+100	+145	+60	+78	+105	+38	+50	+22	+28	+12	+16	+5	+8	+12	+18	+30	+75	+4	+6	+2	+3	-1	0	-5	-4	-9	-8	-12	-11	-15	H7	d8
3-6	+270	+140	+140	+70	+70	+30	+30	+30	+20	+20	+10	+10	+4	+4	0	0	0	0	0	0	4	-6	-6	-9	-9	-12	-13	-16	-17	-20	-42	-23	-27	H8	d9
	+370	+186	+240	+116	+170	+76	+98	+130	+47	+61	+28	+35	+14	+20	+6	+9	+15	+22	+36	+90	+4.5	+7.5	+2	+5	-3	0	-7	-4	-12	-9	-15	-13	-17	H6	e7
6-10	+280	+150	+80	+40	+40	+40	+40	+25	+25	+13	+3	+5	+5	0	0	0	0	0	0	-0	-4.5	-7.5	-7	-10	-12	-15	-16	-19	-21	-24	-51	-28	-32	H7	e8
	+400	+193	+260	+138	+205	+93	+120	+160	+59	+75	+34	+43	+17	+24	+8	+11	+18	+27	+43	+110	+5.5	+9	+2	+6	4	0	-9	-5	-15	-11	-18	-16	-21	H7	f7
10-18	+290	+150	+150	+95	+50	+50	+50	+32	+32	+16	+6	+6	0	0	0	0	0	0	0	0	-5.5	-9	-9	-12	-15	-18	-20	-23	-26	-61	-29	-34	-39	H6	g5
	+430	+212	+290	+162	+240	+117	+149	+195	+73	+92	+41	+53	+20	+28	+9	+13	+21	+33	+52	+130	+6.5	+10.5	+2	+6	4	0	-11	-7	-18	-14	-22	-20	-27	H7	g6
18-30	+300	+160	+160	+110	+110	+65	+65	+65	+40	+40	+20	+20	+7	+7	0	0	0	0	0	0	-6.5	-10.5	-11	-15	-17	-21	-24	-28	-31	-35	-74	-41	-48	Transition Fit	
	*	*	*	*	*	+142	+180	+240	+89	+112	+50	+64	+25	+34	+11	+16	+25	+39	+62	+160	+8	+12.5	+3	+7	4	0	-12	-8	-21	-17	-26	-25	-34	H6	j5
30-50	*	*	*	*	*	+80	+80	+80	+50	+50	+25	+25	+9	+9	0	0	0	0	0	0	-8	-12.5	-13	-18	-20	-25	-28	-33	-37	-42	-88	-50	-59	H7	j6
	*	*	*	*	*	+174	+220	+290	+16	+134	+60	+76	+29	+40	+13	+19	+30	+46	+74	+190	+9.5	+15	+4	+9	-5	0	-14	-9	-26	-21	-32	*	*	H7	j7
50-80	*	*	*	*	*	+100	+100	+100	+60	+60	+30	+30	+10	+10	0	0	0	0	0	0	-9.5	-15	-15	-21	-24	-30	-33	-39	-45	-51	-106	*	*	H6	m5
	*	*	*	*	*	+207	+260	+340	+326	+159	+71	+90	+34	+47	+15	+22	+35	+54	+87	+220	+11	+17.5	+4	+10	-6	0	-16	-10	-30	-24	-37	*	*	H7	m6
80-120	*	*	*	*	*	+120	+120	+120	+72	+72	+36	+36	+12	+12	0	0	0	0	0	0	-11	-17.5	-18	-25	-28	-35	-38	-45	-52	-59	-124	*	*	H7	n6
	*	*	*	*	*	+245	+305	+395	+148	+185	+83	+106	+39	+54	+18	+25	+40	+63	+100	+250	+12.5	+20	+4	+12	-8	0	-20	-12	-36	-28	-43	*	*	H8	n7
120-180	*	*	*	*	*	+145	+145	+145	+85	+85	+43	+43	+14	+14	0	0	0	0	0	0	-12.5	-20	-21	-28	-33	-40	-45	-52	-61	-68	-143	*	*	H8	p7
	*	*	*	*	*	+285	+355	+460	+172	+215	+96	+122	+44	+61	+20	+29	+46	+72	+115	+290	+14.5	+23	+5	+13	-8	0	-22	-14	-41	-33	-50	*	*	H8	r7
180-250	*	*	*	*	*	+170	+170	+170	+100	+100	+50	+50	+15	+15	0	0	0	0	0	0	-14.5	-23	-24	-33	-37	-46	-51	-60	-70	-79	-165	*	*	H6	p5
	*	*	*	*	*	+320	+400	+510	+191	+240	+108	+137	+49	+69	+23	+32	+52	+81	+130	+320	+16	+26	+5	+16	-9	0	-25	-14	-47	-36	-56	*	*	H7	p6
250-315	*	*	*	*	*	+190	+190	+190	+110	+110	+56	+56	+17	+17	0	0	0	0	0	0	-16	-26	-27	-36	-41	-52	-57	-66	-79	-88	-186	*	*	H7	r5
	*	*	*	*	*	+350	+440	+570	+214	+265	+119	+151	+54	+75	+25	+36	+57	+89	+140	+360	+18	+28.5	+7	+17	-10	0	-26	-16	-51	-41	-62	*	*	H7	s5
315-400	*	*	*	*	*	+210	+210	+210	+125	+125	+62	+62	+18	+18	0	0	0	0	0	0	-18	-28.5	-29	-40	-46	-57	-62	-73	-87	-98	-202	*	*	H8	s7
	*	*	*	*	*	+385	+480	+630	+232	+290	+131	+165	+60	+83	+27	+40	+63	+97	+155	+400	+20	+31	+8	+18	-10	0	-27	-17	-55	-45	-68	*	*	H6	u5
400-500	*	*	*	*	*	+230	+230	+230	+135	+135	+68	+68	+20	+20	0	0	0	0	0	0	-20	-31	-32	-45	-50	-63	-67	-80	-95	-103	-223	*	*	H7	u6
																																H8	u7		

Value of Tolerances generally conform to IS : 919-1963 and IS : 2709-1964

INCHES AND MILLIMETER EQUIVALENTS

Inches	0	1	2	3	4	5	6	7	8	9	10	11
0	0.0	25.4	50.8	76.2	101.6	127.0	152.4	177.8	203.2	228.6	254.0	279.4
1/16	1.6	27.0	52.4	77.8	103.2	128.6	154.0	179.3	204.8	230.2	255.6	281.0
1/8	3.2	28.6	54.0	79.4	104.8	130.2	155.6	181.0	206.4	231.8	257.2	282.6
3/16	4.8	30.2	55.6	81.0	106.4	131.8	157.2	182.6	208.0	233.4	258.8	284.2
1/4	6.4	31.7	57.1	82.5	108.0	133.4	158.8	184.2	209.6	235.0	260.4	285.7
5/16	7.9	33.3	58.7	84.1	109.5	134.9	160.3	185.7	211.1	236.5	261.9	287.3
3/8	9.5	34.9	60.3	85.7	111.1	136.5	161.9	187.3	212.7	238.1	263.5	288.9
7/16	11.1	36.5	61.9	87.3	112.7	138.1	163.5	188.9	214.3	239.7	265.1	290.5
1/2	12.7	38.1	63.5	88.3	114.3	139.7	165.1	190.5	215.8	241.3	266.7	292.1
9/16	14.3	39.7	65.1	90.5	115.9	141.3	166.7	192.1	217.5	242.9	268.3	293.7
5/8	15.9	41.3	66.7	92.1	117.5	142.9	168.3	193.7	219.1	244.5	269.9	295.3
11/16	17.5	42.9	68.3	93.7	119.1	144.5	169.9	195.3	220.7	246.1	271.5	296.9
3/4	19.1	44.4	69.8	95.2	120.7	146.1	171.5	196.9	222.3	247.7	273.1	298.4
13/16	20.6	46.0	71.4	96.8	122.2	147.6	173.0	198.4	223.8	249.2	274.6	300.0
7/8	22.2	47.6	73.0	98.4	123.8	149.2	174.6	200.0	225.4	250.8	276.2	---
15/16	23.8	49.2	74.6	100.0	125.4	150.8	176.2	201.6	227.0	252.4	277.8	---

Weight of Flat Steel Bars weight in Kgs. Per Lineal Foot.

Weight are based on a specific Gravity of 7.85

W I D T H

SIZE	1"	1 1/4 "	1 1/2 "	2"	2 1/2 "	3"	4"	5"	6"	7"	8"	9"	10"	12"
1/8"	0.190	0.240	0.290	0.386	0.481	0.576	0.772	0.962	1.150	1.352	1.545	1.738	1.932	2.318
1/4"	0.386	0.480	0.580	0.772	0.967	1.158	1.541	1.930	2.316	2.700	3.085	3.476	3.863	4.635
3/8"	0.580	0.721	0.867	1.158	1.448	1.740	2.315	2.900	3.470	4.050	4.630	5.220	5.800	6.950
1/2"	0.770	0.967	1.158	1.540	1.930	2.320	3.085	3.860	4.630	5.400	6.170	6.940	7.705	9.245
5/8"	0.967	1.208	1.448	1.930	2.410	2.900	3.860	4.830	5.790	6.750	7.710	8.677	9.644	11.580
3/4"	1.158	1.448	1.740	2.320	2.900	3.470	4.630	5.790	6.950	8.100	9.260	10.418	11.576	13.900
1"	1.542	1.930	2.320	3.085	3.860	4.630	6.170	7.710	9.260	10.800	12.340	13.890	15.420	18.520
1 1/4"	1.930	2.410	2.897	3.860	4.830	5.790	7.710	9.650	11.570	14.510	15.420	17.370	19.300	23.140
1 1/2"	2.320	2.897	3.470	4.630	5.790	6.950	9.260	11.580	13.920	16.210	18.530	20.850	23.140	27.840
2"	3.085	3.860	4.630	6.170	7.710	9.260	12.340	15.425	18.520	21.600	24.680	27.780	30.850	37.040
2 1/2"	3.860	4.830	5.790	7.710	9.650	11.580	15.440	19.300	23.160	27.020	30.880	34.740	38.600	46.320
3"	4.630	5.790	6.950	9.260	11.580	13.900	18.520	23.160	27.840	32.420	37.040	41.680	46.320	55.580
4"	6.170	7.710	9.260	12.340	15.440	18.520	24.700	30.880	37.040	43.220	49.400	55.580	61.760	74.080

For High Speed Steel 18% Wt. add 11%

For High Speed Steel 18% W+5% Co-add 12%

For High Speed Steel 6/5/2-add 4%

WEIGHT OF ROUND SQUARE AND HEXAGON STEEL BARS (INCH SIZE)

Weight in Kgs. Per Lineal Foot.

Weights are based on a Specific Gravity of 7.85

SIZE	ROUND	SQUARE	HEXAGON
1/16"	0.0045	0.0059	-
1/8"	0.0190	0.0241	0.0227
3/16"	0.0427	0.0545	0.0454
1/4"	0.0758	0.0963	0.0817
5/16"	0.1185	0.1512	0.1317
3/8"	0.1702	0.2170	0.1862
7/16"	0.2320	0.2956	0.2543
1/2"	0.3028	0.3859	0.3359
9/16"	0.3837	0.4887	0.4223
5/8"	0.4731	0.6026	0.5222
11/16"	0.5731	0.7300	0.6356
3/4"	0.6820	0.8688	0.7537
13/16"	0.8004	1.020	0.8808
7/8"	0.9279	1.182	1.022
15/16"	1.065	1.357	1.176
1"	1.210	1.542	1.335
1 1/8"	1.532	1.955	1.693
1 1/4"	1.894	2.410	2.088
1 3/8"	2.290	2.920	2.516
1 1/2"	2.720	3.470	3.010
1 5/8"	3.200	4.075	3.583
1 3/4"	3.710	4.130	4.386
1 7/8"	4.255*	5.425	4.703
2"	4.850	6.170	5.350
2 1/8"	5.470	6.970	6.040
2 1/4"	6.150	7.815	6.760
2 3/8"	6.830	8.700	7.550
2 1/2"	7.570	9.650	8.360
2 5/8"	8.350	10.630	9.210
2 3/4"	9.170	11.680	10.100

SIZE	ROUND	SQUARE	HEXAGON
2 7/8"	10.000	12.760	11.050
3"	10.900	13.900	12.030
3 1/4"	12.800	16.310	13.790
3 1/2"	14.840	18.910	16.390
3 3/4"	17.000	21.710	18.814
4"	19.380	24.700	21.406
4 1/4"	21.910	27.890	23.713
4 1/2"	24.560	31.270	27.095
4 3/4"	27.350	34.830	30.451
5"	30.300	38.590	33.451
5 1/4"	33.420	42.550	36.880
5 1/2"	36.670	46.670	40.475
5 3/4"	40.090	51.020	44.238
6"	43.600	55.580	48.170
6 1/4"	47.350	60.340	52.255
6 1/2"	51.200	65.290	56.523
6 3/4"	55.250	70.415	60.972
7"	59.400	75.730	65.558
7 1/4"	63.690	81.220	70.325
7 1/2"	68.210	86.895	75.275
7 3/4"	72.780	92.798	80.360
8"	77.500	98.880	85.625
8 1/2"	87.672	111.640	96.657
9"	99.760	125.168	108.370
9 1/2"	109.514	139.425	120.765
10"	121.300	154.496	133.794
10 1/2"	133.780	170.341	147.505
11"	146.700	186.957	161.897
11 1/2"	160.475	204.345	176.970
12"	174.600	222.460	192.678

NON FERROUS METAL ALLOYS

MATERIALS	NORMAL GRADE	CHEMICAL COMPOSITION					SPECIFICATION	TENSILE STRENGTH Tons/inch ²	BRINELL HARDNESS NUMBERS	APPLICATIONS
GUN METALS Commercial Gun Metal Leader Gun Metal Gun Metal	 85/5/5/5 87/7/3/3 88/10/2	Cu. Bal. Bal.	Sn. 4.0-6.0 6.0-8.0 9.5-10.5	Zn. 4.0-6.0 1.5-3.0 1.5-2.5	Pb. 4.0-6.0 2.5-3.5 1.0 max.	Ni 2.0 max. 2.0 max. 1.0 max.	 BSS 1400-LG2-C BSS 1400-LG4-C BSS 1400-GI-C	 13 16 17	 65-75 70-85 70-95	General purpose alloy & Superior to Commercial brass castings. Elbows, Pipes, Tapes, Corks and hydraulic fittings. Pumps, Valves, Tractor parts, Engine components and for Pressure light applications.
	BRONZES	Cu.	Sn.	Zn.	Pb.	P.	BSS 1400-LB2-C ISS 1385-PB2Z-3 ISS 28 PcuSn-7 ISS 28 PcuSn-10 BSS 1400-PB2-C DIN 1705-G-SiBz-14	12 9 11 13 14 16	68-85 55 60 70-100 75-110 85-115	Bearings for Mills, Railways, Oil & Rubber industry. Bearings & Bushings. Casting to withstand heavy loading viz. Bearing and Bushing for Aero engines, Diesel engines, Electrical generators, etc. Worm gears and worm wheels.
	ALUMINIUM BRONZE Aluminium Bronze	Cu. Bal.	Al. 8.5-10.5 8.8-10.0	Fe. 1.5-3.5 4.0-5.5	Ni. 1.0 max. 4.0-5.5	Mn. 1.0 max. 1.5 max.	BSS 1400-AB1-C BSS 1400-AB2-C	32 41	90-140 140-180	Corrosion resistance alloy having superior strength & generally used for Impellers
	BRASSES Commercial Brass High Tensile Brass/ Manganese Bronze High Tensile Brass/ Manganese Bronze	Cu. 55 min. 55 min.	Mg. 3.0 max. 5.5 min.	Al. 2.5 max. 4.0 max.	Fe. 0.7-2.0 1.5-3.25	Pb. 0.5 max. 0.2 max.	 BSS 1400-HTB1-C BSS 1400-HTB3-C	30 30	100-150 150-230	Bolts, Nuts, Furniture fittings etc. Corrosion resistance alloy with high strength & used generally for marine applications such as Ship Propellers.
ALUMINIUM Commercial Aluminium Aluminium Alloy LM-4 Aluminium Alloy LM-6 Aluminium Alloy LM-9	 92/3/5 880/12 890/12	Al. Manufactured out of Aluminium Scraps. Bal. Bal.	Cu. 2.0-4.0	Mg. 0.2-0.6	Si. 4.0-6.0 10.0-13.0 10.0-13.0	Mn. 0.3-0.7 0.3-0.7	 BSS 1490-LM4 BSS 1490-LM6 BSS 1490-LM9	 9 10 12	 70 55 70	 General purpose alloy for various uses and good casting properties. General purpose alloy for intricate casting and Corrosion resistance. Used for applications similar to LM 6 but has higher strength.
	TIN SOLDERS Grade Grade Grade	Sn. 60/40 50/50 40/60	Cu. 59.0-60.0 49.0-50.0 39.0-40.0	Pb. Bal. Bal. Bal.	 Bal. Bal.	 Bal. Bal.	BSS 219-K BSS 219-F BSS 219-G			Coppersmiths & Tin smiths bit soldering & Can end-seams Soldering. Blow Pipe soldering & Soldering of side seams on high speed Body forming machines.
	WHITE METAL Grade Grade Grade	Sn. Bal. 58.0-60.0 10.0-13.0	Sb. 7.25-7.75 9.00-11.0 12.0-15.0	Cu. 3.0-3.5 2.0-4.0 0.5-1.0	Pb. 0.35 max. Bal. Bal.	 Bal. Bal.	BSS 3332/1 BSS 3332/6 BSS 3332/7			Lining of high speed bearing such as petrol, engines, Diesel engines etc. Lining of medium speed bearing such as Centrifugal Pumps, Circular saws etc Lining of low speed bearing such as Pulp crumbers, concrete mixers etc.

MOST COMMONLY USED ALLOY STEELS

Steel Type	Quality	AISI	TYPICAL ANALYSIS IN %										Forging Temp °C	Annealing Temp °C	Hardning Temp °C°	Quenching Medium °C°	Tempering Temp	Hardness Rockwell
			C	Si	Mn	Cr	W	V	Co	Mo	Ni							
High Speed Steel	18% W	T1	0.75	0.40	0.40	4.30	18.0	1.0	...	...	...	1150-900	830-870	1240-1290	O.C.A.M	550-580	64-66	
	18% W+5%Co.	T4	0.80	0.40	0.40	4.30	18.0	1.60	5.0	0.80	...	1150-900	800-850	1250-1310	O.C.A.M	550-580	64-66	
	18% W+10%Co.	T5	0.75	0.40	0.40	4.30	18.0	1.60	9.5	0.80	...	1120-950	800-850	1280-1320	O.C.A.M	560-590	64-66	
	65/2	M2	0.80	0.40	0.40	4.30	6.5	2.00	...	5.00	...	1100-900	800-850	1190-1250	O.C.A.M	540-570	64-66	
Hot Work steel	9% W	H21	0.30	0.20	0.30	2.60	8.5	0.40	...	...	...	1100-900	740-780	1070-1150	O.C.A.M	600-680	42-50	
	5% Cr	H11	0.36	1.00	0.40	5.00	...	0.40	...	1.10	...	1100-900	800-830	980-1030	O.C.A	550-650	38-52	
	HCHC	D3	2.0	0.30	0.30	12.00	...	...	...	...	...	1050-850	800-850	920-980	O.C.A.M	100-350	58-65	
	Shrinkring Die Steel	D2	1.70	0.30	0.30	12.00	0.5	0.10	...	0.60	...	1050-850	800-850	970-990	O.C.A	100-350	58-65	
Pneumatic Steel	OHNS	01	0.95	...	1.00	0.50	0.5	0.10	...	...	...	1050-850	740-760	780-820	O.M	100-300	58-63	
	"	02	0.90	0.20	1.90	0.30	...	0.10	...	...	...	1050-850	690-710	780-830	O	100-300	58-64	
	"	E5300	1.00	0.40	1.00	1.00	...	0.10	...	0.10	...	1000-800	760-800	800-850	O.C.A	200Max.	58-61	
	Steel	S2	0.48	0.90	0.30	1.10	1.90	0.20	...	...	...	1050-850	720-740	900-950	O	150-400	50-57	
Shock Resisting Steel	V6N		0.90	...	...	...	...	0.20	...	...	0.70	...	1050-800	740-760	770-830	W	150-250	58-64
Stainless Steel	Magnetic	410	0.10	0.75	1.00	13.00	...	...	...	...	0.60	1050-1100	800-900	1000	O	700-750	BHN 139-229	
	Non-Magnetic	304	0.08	1.00	2.00	18.00	...	...	...	...	10.00	1050-1100		1100	Rapid Cooling		BHN 135-185	
Carbon Tool Steel		1095	0.90	0.20	0.40	...	...	...	...	...	...	1000-800	750-780	760-820	W	150-200	59-62	
	Constructional Steel	1040	0.35/ 0.45	0.10/ 0.35	0.60/ 0.90	...	S & P each 0.06 (Max.)	...	...	...	...	1100-850	650-700	820-850	O.W	530-670	BHN 179-229	
	EN-9	1055	0.45/ 0.60	0.10/ 0.35	0.80/ 1.20	...	S & P each 0.06 (Max.)	...	...	...	...	1050-850	650-700	800-940	O.W	530-670	BHN 201-277	
	EN-19	4140	0.35/ 0.45	0.10/ 0.35	0.50/ 0.80	0.90/ 1.50	S & P each 0.05 (Max.)	0.20/ 0.40	...	...	...	1050-850	680-720	820-850	O.W	530-670	BHN 201-415	
	EN-24	4340	0.35/ 0.45	0.10/ 0.35	0.45/ 0.70	0.90/ 1.40	S & P each 0.05 (Max.)	0.20/ 0.35	1.80	...	1.30/ 1.80	1050-850	650-700	820-850	O	530-670	BHN 201-415	
	EN-30B		0.35/ 0.35	0.10/ 0.40	1.10/ 1.40	1.10/ 1.40	S & P each 0.05 (Max.)	0.20/ 0.35	3.90/ 4.30	...	...	1100-850	580-630	810-830	OA	530-670	BHN 223-444	
	EN-31	5200	0.95/ 1.20	0.35/ 0.35	0.30/ 0.75	1.00/ 1.60	S & P each 0.025 (Max.)	0.20/ 0.35	...	...	...	1100-850	750-900	790-850	O.W	150-170	BHN 285-444	
	EN-36	3310	0.15	0.10/ 0.35	0.30/ 0.60	0.60/ 1.10	S & P each 0.05 (Max.)	0.20/ 0.35	3.00/ 3.75	...	...	1100-850	620-670	760-780	O	120-210	BHN	
	Spring steel	EN-45	0.50/ 0.60	1.50/ 2.00	0.70/ 1.00	0.70/ 0.80/ 1.20	S & P each 0.05 (Max.)	0.20/ 0.35	...	...	...	900-830	650-680	830-860	O	470-540	BHN 235	
	EN-47	6150	0.45/ 0.55	0.50/ 0.80	0.50/ 0.80	0.80/ 1.20	S & P each 0.05 (Max.)	0.20/ 0.35	...	...	...							
Case Hardening Steel	SAE	8620	0.18/ 0.23	0.20/ 0.35	0.70/ 0.90	0.40/ 0.60	S & P each 0.04 (Max.)	0.15/ 0.25	0.70	0.40/ 0.70	900-1150	Carburise 880-930 : Refine 850-880	780-820	OA	150-200			

NOTES :- O =Oil , CA = Compressed, M = martempering bath, W = water, α = Air

BRITISH STANDARD 970: 1955 for steels

En. No .	E.S.C Symbol	Type of Steel	Chemical Composition					Condition §	Limiting Ruling Section (Inches)	.2% P.S.	Mechanical Properties			
			C. %	SI. %	Mn. %	S. % Max.	P. % Max.				T.S. T/sq" Min.	El. % Min.	Izod Ft. lbs. Min.	Brinell No .
1A	-	Free cutting	.07/.15	/10	.90/1.20	.20/.30	.07	Cold drawn	{ 17/32 or less Over 17/32-1 1/2 " 1 1/2 -2 1/2 " 2 1/2 -4 4	-	32	10	-	-
1B	-	Free cutting	.07/.15	/10	1.0/1.40	.30/.60	.06	Other finishes		-	28	14	-	-
2	-	Mild- for cold Forming	/20	-	/80	.06	.06	Cold drawn	{ 17/32 or less Over 17/32-1 1/2 " 1 1/2 -2 1/2 " 2 1/2	-	27	10	-	-
2A	-	Mild- for cold Forming	/12	-	/50	.05	.05	Other finishes		-	25	12	-	-
2A/1	-	" "	/10	-	/50	.04	.04	As roller	6	-	23	12	-	-
2B	-	" "	/15	-	/50	.05	.05		} Supplied to composition only.	-	20	28	-	120 Max.
2C	-	" "	.15/.25	-	.60	.05	.05			-	23	24	-	-
2D	-	" "	.15/.30	-	.40/.70	.05	.05			-	23	24	-	-
2E	-	Cold forming (fully killed)	/15	10/.35	/50	.05	.05	As rolled		6	-	20	28	-
3	-	"20" carbon	/25	.05/.35	/1.00	.06	.06	As rolled	6	-	25/35	25	-	-
3A	-	" "	.15/.25	.05/.35	.40/.90	.06	.06	As rolled or normalised	6	-	28	25	-	-
3B	-	" "	/25	/35	/1.00	.06	.06	Cold drawn	6	-	28	17	-	-
3C	-	" "	.17/.23	.05/.35	1.00	.05	.05	As rolled or normalised	6	-	28	25	-	-
3D	-	(Higher tensile)	.15/.25	.05/.35	.60/1.00	.06	.06	Cold drawn	1 1/4 or less Over 1 1/4-2 1/2 2 1/2	-	35	15	--	-
4	-	"25" carbon	/30	.05/.35	/1.00	.06	.06	Normalised	6	-	30	15	-	-
4A	-	" "	/30	.05/.35	/1.00	.06	.06	Cold drawn	2 1/2 2	-	28/38 32/42	25 12	-	126/179 126/179

BRITISH STANDARD 970: 1955 for steels

En. No.	F.S.C Symbol	Type of Steel	Chemical Composition					Condition	Limiting Ruling Section (inches)	2% P.S.	Mechanical Properties			
			C. %	SI. %	Mn. %	S. % Max.	P. % Max.				T.S. T/sq" Min.	El. % Min.	Izod Ft. lbs. Min.	Brinell No.
5	Med.C	"30" Carbon	.25/.35	.05/.35	.60/1.00	.06	.06	Normalised Hardened and Tempered	$\left. \begin{matrix} 2\frac{1}{2} \\ 2\frac{1}{2} \\ 3/4 \\ 1/2 \end{matrix} \right\} P$ $\left. \begin{matrix} 2\frac{1}{2} \\ 3/4 \\ 1/2 \end{matrix} \right\} R$	-	32 35 40 45	25 22 20 20	20 20 20 40	143/193 152/207 179/229 201/225
5K	-	" "	.25/.35	.05/.35	.60/1.00	.05	.05	Hardened and tempered	$\left. \begin{matrix} 2\frac{1}{2} \\ 3/4 \\ 1/2 \end{matrix} \right\} P$ $\left. \begin{matrix} 2\frac{1}{2} \\ 3/4 \\ 1/2 \end{matrix} \right\} R$	20 26 30	35 40 45	22 20 20	20 20 40	152/207 179/229 201/255
5A	-	" "	.25/.30	.05/.35	.70/.90	.06	.06	}	}	Supplied to composition only.				
5B	-	" "	.28/.33	.05/.35	.70/.90	.06	.06							
5C	-	" "	.30/.35	.05/.35	.70/.90	.06	.06							
5D	-	" "	.25/.35	.05/.35	.60/1.00	.06	.06							
6	-	Bright carbon	/40*	.05/.35	.50/.90	.06	.06	Hardened and tempered and Cold Drawn	$\frac{1}{2}$ or less Over $\frac{1}{2}$ - $\frac{3}{4}$ " $\frac{3}{4}$ - $1\frac{1}{2}$ " $1\frac{1}{2}$ - $2\frac{1}{2}$	-	45 40 35 35	20 18 15 15	40 20 15 10	255 Max. 229 Max. 229 Max. 229 Max.
6K	-	" "	/40*	.05/.35	.50/.90	.05	.05	Bright	$\frac{3}{4}$ or less Over $\frac{3}{4}$ - $1\frac{1}{4}$ " $1\frac{1}{4}$ - $2\frac{1}{2}$ " $2\frac{1}{2}$	-	35/45 35/45 35/45 32/45	12 12 12 15	20 15 10 10	- - - -
6A	-	" "	/40*	.05/.35	.50/.90	.06	.06	Bright	Properties as for En.6 except zod which is not specified					
7	-	" (Semi-free Cutting)	.10/.30	.25	1.00/1.30	.10/.18	.06	Cold Drawn	$\frac{1}{2}$ or less Over $\frac{1}{2}$ - $\frac{3}{4}$ " $\frac{3}{4}$ - $1\frac{1}{2}$ " $1\frac{1}{2}$ - $2\frac{1}{2}$	-	40/50 35/45 35/45 35/45 30/40	15 15 15 15 12	- 20 15 10 10	- - - - -
7A	-	"15" Carbon	.12/.18	.25	1.0/1.5	.10/.18	.06	Normalised Cold Drawn	$\left. \begin{matrix} 6 \\ 3/4 \text{ or less} \\ \text{Over } 3/4 - 1\frac{1}{8} \\ 1\frac{1}{8} - 2\frac{1}{2} \end{matrix} \right\}$	-	28 35/45 35/45 30/40	25 15 15 15	- 20 15 10	- - - -

*/.35 1 cold drawn #Where specified.

BRITISH STANDARD 970: 1955 for steels

En. No .	E.S.C. Symbol	Type of Steel	Chemical Composition					Condition \$	Limiting Ruling Section (Inches)	2% P.S.	Mechanical Properties			
			C. %	Si. %	Mn. %	S. %	P. %				T.S. T/sq" Min.	El. % Min.	Izod Ft. lbs. Min.	Brinell No .
8	HTC	"40" Carbon Without grain Size control	.35/.45	.05/.35	.60/1.00	.06	.06	NGC 1 Normalised and Hardened and Tempered	6 2 1/2 7/8 } Q R	-	35 40 45	20 22 20	- 10 10	152/207 179/229 201/225
								NGC 2 Normalised and Cold drawn Hardened and Tempered and Cold drawn	6 2 1/2 7/8 } Q R	-	35 40 45	17 17 17	- - -	152/207 179/229 201/255
8	HTC	"40" Carbon Controlled grain (Mc Quad-E-H) Grain size of 5-8)	.35/.45	.05/.35	.60/1.00	.06	.06	GC 1 Normalised	4 6 2 1/2 7/8 } Q R	-	35 35 40 45 45	20 20 22 20 20	20 15 25 25 25	152/207 152/207 179/229 201/255 201/255
								GC 2 Normalised and Cold drawn Hardened and Tempered and Cold drawn	6 1 1/8 2 1/2 7/8 } Q R	-	35 40 40 40 45	17 17 17 17 17	+ 25 15 25 25 25	152/207 179/229 179/229 201/255 201/255
8A	-	"	.33/	.05/	.70/	.06	.06		}					
8B	-	"	.35/	.38/	.35/	.90	.06							
8C	-	"	.35/	.40/	.35/	.06	.06							
8D	-	"	.38/	.43/	.35/	.06	.06							
8E	-	"	.40/	.45/	.35/	.06	.06							
8F	-	"	.35/	.05/	.70/	.06	.06							
8G	-	"	.35/	.40/	.35/	1.10	.06							
8H	-	"40" Carbon for special Applications	.35/.45	.05/.35	.60/1.00	.05	.05	Normalised Hardened and Tempered	6 4 2 1/2 } Q R	17 17 25	35 35 40	20 20 22	10 15 25	152/207 152/207 179/229
8M	-	"40" Carbon (free cutting)	.35/.45	.25/	1.00 1.30	.12/ .20	.06	Normalised Hardened and Tempered Cold drawn	6 2 1/2 } Q R	- 25 30	35 40 45 38	20 22 20 12	- 25 40 40	152/207 179/229 201/255 229 Max.

En. 8A,B,C and D may be ordered as En. 8AM etc (Manganese 1.00/1.30 and Sulphur .12/ .20)

\$Where specified

+ .10 lbs.min. providing carbon does not exceed 0.40 %.

BRITISH STANDARD 970: 1955 for steels

En. No .	E.S.C Symbol	Type of Steel	Chemical Composition						Limiting Ruling Section (Inches)	2% P.S.	Mechanical Properties			
			C. %	Si. %	Mn. %	Ni. %	Cr. %	Mo. %			T.S. t/sq" Min.	El. % Min.	Izod FL lbs. Min.	Brinell No .
9	A.31	"55" Carbon	.50/.60	.05/.35	.50/.80	-	-	-	Norm. R S T C.W.	-	45 45 50 55 50/65	18 18 18 15 12	- - - - -	201/255 201/255 223/277 248/302 223/302
9K	-	" "	.50/.60	.05/.35	.50/.80	-	-	-	Norm. R S T C.W.	-	45 45 50 55 50/65	18 18 18 15 12	- - - - -	201/255 201/255 223/277 248/302 223/302
10	-	"55" Carbon 3/4 % Ni	.50/.60	.05/.35	.50/.80	.50/.80	-	-	-	Supplied to composition only.				
11	BCTB	"60" C-Cr.	.50/.70	.10/.35	.50/.80	-	.50/.80	-	T V	-	55 65	15 12	25 12	248/302 293/341
12	HTCN	1% Nickel	.30/.45	.10/.35	.10/.150	.60/.100	-	-	Norm. Q	-	35 35 40 40	20 20 22 22	15 20 25 35	152/207 152/207 179/229 179/229
12A	-	" "	.30/.35	.10/.35	.70/.90	.60/.100	-	-	-	Supplied to composition. Mechanical properties may be negotiated between the purchaser and the supplier				
12B	-	" "	.35/.40	.10/.35	.70/.90	.60/.100	-	-	-					
12C	-	" "	.40/.45	.10/.35	.70/.90	.60/.100	-	-	-					
13	Super tough C.20	Mn-Ni-Mo	.15/.25	.10/.35	1.40/1.80	.40/.70	-	.15/.35	Q		40	22	40	179/229
14A	Super tough B.20	C-Mn	.15/.25	.10/.35	1.30/1.70	.40	.25	-	Norm. Q R C.W.	-	35 40 40 45	20 20 20 15	15* 30 25 15	152/207 179/229 201/225 -
14A/1	-	C-Mn (For special purposes)	.23	.05/.35	1.2 Min.	Cu (opt.) /60	-	-	Norm.	21 19	35/41 33/39	18 18	- -	- -

En. 9,10,14A,14A/1: 0.6 Sulphur and Phosphorus
Reminder: .05 S. And P.
§ Q-V Oil hardened and tempered, except En. 14A: Oil or water hardened. Norm-Normalised. C.W.-Cold worked.
‡ Where specified. *30 for controlled grain steel.

BRITISH STANDARD 970: 1955 for steels

En. No .	E.S.C Symbol	Type of Steel	Chemical Composition						Limiting Ruling Section (Inches)	.2% P.S.	Mechanical Properties			
			C. %	Si. %	Mn. %	Ni. %	Cr. %	Mo. %			T.S. t/sq" Min.	El. % Min.	Izod Ft. lbs. Min.	Brinell No. .
14B	Supertough "B.25"	C-Mn	.20/.30	.10/.35	1.30/1.70	.40	-	-	Norm. Q R C.W.	-	38 26 30 45 45	20 20 20 20 15	15* 179/229 35 201/255 15	170/223 179/229 201/255 -
15	Supertough "B.35"	C-Mn (higher tensile)	.30/.40	.10/.35	1.30/1.70	-	-	-	Q R S	26 26 32 36	40 40 45 50	22 22 20 20	25 35 30 30	179/229 179/229 201/255 223/277
15A	-	C-Mn (higher tensile)	.30/.40	.05/.35	1.30/1.70	-	-	-	Q R S	-	40 45 50	22 20 20	25 25 25	179/229 201/255 223/277
15AM	-	C-Mn (Free cutting)	.30/.40	.125/.25	1.30/1.70	(S) .12/.20	(P) .06	-	R	-	45	20	25	201/255
15B	-	C-Mn (higher tensile)	.35/.40	.05/.35	1.10/1.30	-	-	-	Q R S T	-	40 45 50 55	22 20 20 18	25 25 25 25	179/229 201/255 223/277 248/302
16	Supertough "C.40"	Mn-Mo	.30/+ .40	.10/.35	1.30/1.80	-	-	.20/.35	R S T U V	32 36 41 46 50	45 50 55 60 65	22 20 20 17 16	40 40 40 35 35	201/255 223/227 248/302 269/321 293/341
16A	-	" "	.25/.30	.10/.35	1.30/1.80	-	-	.20/.35	-	Supplied to composition only.				
16B	-	" "	.30/.35	.10/.35	1.30/1.80	-	-	.20/.35	-					
16C	-	" "	.35/.40	.10/.35	1.30/1.80	-	-	.20/.35	-					
16M	-	Mn-Mo (Free cutting)	.30/.40	.125/.25	1.30/1.80	(S) .12/.20	(P) .05	.20/.35	-	Supplied to composition only.				

En. 16D, 25/.35 Carbon, water hardened for space. En. 14B, 15A, 16B, 16C: Sulphur and Phos. /06.
En. 15, 16, 16A, 16B, 16C: Sulphur and Phos. /05.
§ Q-V Oil hardened and tempered, except En. 14B: Oil hardened or water hardened
‡ Where specified. *30 for controlled grain steel.

BRITISH STANDARD 970: 1955 for steels

En. No.	E.S.C Symbol	Type of Steel	Chemical Composition						Limiting Ruling Section (Inches)	2% P.S.	Mechanical Properties			
			C. %	Si. %	Mn. %	Ni. %	Cr. %	Mo. %			T.S. t/sq" Min.	El. % Min.	Izod Ft. lbs. Min.	Brinell No.
17	Supertough "C..40M"	Mn-Mo	.30/.40	.10/.35	1.30/1.80	-	-	.35/.55	R 6 S 6 T 4 U 2 1/2 V 1 1/8	32 36 41 46 50	45 50 55 60 65	22 20 18 17 16	40 40 40 35 35	201/255 223/277 248/302 269/321 293/341
18	CR	1%Cr.	.35/.45	.10/.35	.60/.95	-	.85/1.15	-	R 4 S 2 1/2 T 1 1/8	32 36 41	45 50 55	22 20 18	40 40 40	201/255 223/277 248/302
18A	-	1%Cr.	.27/.32	.10/.35	.65/.80	-	.85/1.15	-	} Supplied to composition only.					
18B	-	" "	.30/.35	.10/.35	.65/.80	-	.85/1.15	-						
18C	-	" "	.35/.38	.10/.35	.65/.80	-	.85/1.15	-						
18D	-	" "	.38/.43	.10/.35	.65/.80	-	.85/1.15	-						
19	CROMOL	1%Cr-Mo	.35/.45	.10/.35	.50/.80	-	.90/1.50	.20/.40	R 6 S 4 T 2 1/2 U 2 1/2 V 1 1/8 W 1 1/8 Y 1	32 36 41 46 50 55 64	45 50 55 60 65 70 80	22 20 18 17 16 15 10	40 40 40 35 35 30 10	201/255 223/277 248/302 269/341 293/321 311/375 368/415
19A	-	1%Cr-Mo	.35/.45	.10/.35	.50/.80	-	.90/1.20	.20/.35	R 6 S 4 T 2 1/2 U 1 1/8 V 7/8	32 36 41 46 50	45 50 55 60 65	22 20 18 17 16	40 40 40 35 35	201/255 223/277 248/302 269/321 293/341
19B	-	1%Cr-Mo	.35/.40	.10/.35	.50/.80	-	.90/1.20	.20/.35	} Supplied to composition only.					
19C	-	" "	.40/.45	.10/.35	.50/.80	-	.90/1.20	.20/.35						
20A	HCRS	1%Cr-Mo (High temp Bolcs)	.20/.30	.10/.35	.40/.70	-	.50/1.00	.50/.80	T 2 1/2 U 2 1/2 V 1 1/8	41 46 50	55 60 65	18 17 16	40 35 35	248/302 269/321 293/341

All specifications : .05 Sulphur and Phosphorus
§ All conditions- Oil hardened and tempered. except En. 20A: water hardening is recommended and En. 18-Oil hardened or water hardened
‡Where specified.

BRITISH STANDARD 970: 1955 for steels

En. No .	E.S.C Symbol	Type of Steel	Chemical Composition						Limiting Ruling Section (Inches)	Condition §	.2% P.S.	Mechanical Properties			
			C. %	Si. %	Mn. %	Ni. %	Cr. %	Mo. %				T.S. t/sq" Min.	El. % Min.	Izod Ft. lbs. Min.	Brinell No .
20B	HCRS.2	"	.35/.45	.10/.35	.40/.70	-	1.00/1.50	.50/.90	T U V		41 46 50	55 60 65	18 17 16	40 35 35	248/302 296/321 293/341
21	3NS	3% Ni.	.25/.35	.10/.35	.35/.75	2.75/3.25	/30	-	R S		32 36	45 50	22 20	40 40	201/255 223/277
21A	-	3%Ni Sheet. And strip	.20/.30	.10/.35	.60/	2.50/3.50		-	-		-	-	-	-	-
22	3 ½ NS	3 ½ % Ni	.35/.45	.10/.35	.50/.30	3.25/3.75	/30	-	S T		36 41	50 55	20 18	40 40	223/277 248/302
23	VNCA Super VNCA	3% Ni-Cr	.25/.35	.10/.35	.45/.70	2.75/3.50	.90/1.00	opt. /65	S T U V		36 41 46 50	50 55 60 65	20 18 17 16	40 40 35 35	223/277 248/302 269/321 293/341
24	VAGS	1 ½% Ni-Cr-Mo	.35/.45	.10/.35	.45/.70	1.30/1.80	.90/1.40	.20/.35	S T U V W X Y Z		36 41 46 50 55 59 64 80	50 55 60 65 70 75 80 100	20 18 17 16 15 14 14 8	40 40 35 35 30 25 22 8	223/277 248/302 269/321 293/341 311/375 341/388 363/415 444 Min.
25	VIBRAC ' V.30 "	2 ½% Ni-Cr-Mo	.27/.35	.10/.35	.50/.70	2.30/2.80	.50/.80	.40/.70	T U V W X Y Z		41 46 50 55 59 64 80	55 60 65 70 75 80 100	18 17 16 15 14 14 10	40 35 35 30 25 25 10	248/302 269/321 293/341 293/341 311/375 341/488 363/415 444 Min.

All specifications : .05 Sulphur and Phosphorus

§ All conditions: Oil hardened and tempered, except En. 21 - oil hardened or water hardened.

‡Where specified.

BRITISH STANDARD 970: 1955 for steels

En. No .	E.S.C Symbol	Type of Steel	Chemical Composition						Limiting Ruling Section (Inches)	Condition \$	Mechanical Properties			
			C. %	Si. %	Mn. %	Ni. %	Cr. %	Mo. %			T.S. t/sq" Min.	El. % Min.	Izod Fl. lbs. Min.	Brinell No .
26	VIBRAC "V.45"	2 1/2 % Ni-Cr-Mo (high carbon)	.36/ .44	.10/ .35	.50/ .70	2.30/ 2.00	.50/ .80	.40/ .70	6 6 4 4 6 4 6 4 6 4 4	U	60	17	35	269/321
										V	65	14	35	293/341
										W	70	13	30	311/375
										X	75	12	30	311/375
										Y	80	12	25	341/388
27	-	3% Ni-Cr-Mo							6 6 4 4 6 4 4	Z	100	10	10	444Min.
			.25/ .35	.10/ .35	.70	3.00/ 3.75	.50/ 1.30	.20/ .65		T	55	18	40	248/302
										U	60	17	35	269/321
										V	65	14	35	293/341
										W	70	15	30	311/375
28	-	3 1/2 % Ni-Cr-Mo	.25/ .40	.10/ .35	.70	3.00/ 4.50	.75/ 1.50	.20/ .65	6 6 4 4 6 4 6 4 6 4 4	U	60	17	35	269/321
										V	65	14	35	293/341
										W	70	15	30	311/375
										Y	80	14	25	363/415
										R	45	22	40	201/255
29 A	HYKRO	3% Cr-Mo	.15/ .25	.10/ .35	.65	.40	2.50/ 3.50	.30/ .70	6 6 4 4 6 4 6 4 6 4 4	S	50	20	40	223/277
										T	55	18	40	248/302
			.25/ .35	.10/ .35	.65	.40	2.50/ 3.50	.30/ .70		U	60	17	35	269/321
										V	65	16	35	293/341
										W	70	15	30	311/375
29 B	"	"							6 6 4 4 6 4 6 4 6 4 4	Y	80	14	25	363/415
										R	45	22	40	201/255
										S	50	20	40	223/277
										T	55	18	40	248/302
										U	60	17	35	269/321
30A	SHNC	4 1/4 % Ni-Cr	.26/ .34	.10/ .35	.40/ .60	3.90/ 4.30	1.10/ 1.40	-	6 6 4 4 6 4 6 4 6 4 4	V	65	16	35	293/341
										W	70	15	30	311/375
										Z	100	10	10	444Min.
										\$	100	10	10	444Min.
										\$	100	10	15	444Min.
30B	Super SHNC	4 1/4 % Ni-Cr-Mo	.26/ .34	.10/ .35	.40/ .60	3.90/ 4.30	1.10/ 1.40	.20/ .40	6 6 4 4 6 4 6 4 6 4 4	\$	100	10	15	444Min.
										\$	100	10	15	444Min.
										\$	100	10	15	444Min.
										\$	100	10	15	444Min.
										\$	100	10	15	444Min.
31	CRC	1% C-Cr	.90/ 1.20	.10/ .35	.30/ .75	-	1.00/ 1.60	-	6 6 4 4 6 4 6 4 6 4 4	-	100	10	10	444Min.
										-	100	10	10	444Min.
										-	100	10	10	444Min.
										-	100	10	10	444Min.
										-	100	10	10	444Min.

All specifications : .05 Sulphur and Phosphorus
 § All conditions- Oil hardened and tempered except En. 30A and 30B Air hardened upto 2 1/2 .
 † Where specified.

BRITISH STANDARD 970: 1955 for steels

En. No .	E.S.C Symbol	Type of Steel	Chemical Composition							Mechanical Properties			
			C. %	Si. %	Mn. %	Ni. %	Cr. %	Mo. %	T.S. t/sq ⁱⁿ Min.	El. % Min.	Izod Ft. lbs. Min.		
32A	CHMS	Carbon Case hardening	.15	.05/.35	.40/.70	-	-	-	-	32	20	40	
32B + 32C			.10/.18	.05/.35	.60/1.00	-	-	-	-	32	20	40	
32M			.10/.18	.05/.35	.90/1.20	-	(s) .10/.15	-	-	32	20	40.	
33	CH.3N	3% Ni Case hardening	.10/.15	.10/.35	.30/.60	2.75/3.50	.30	-	-	45	18	40	
34	CHNM. 45	2% Ni-Mo (Lower C) Case- hardening	.14/.20	.10/.35	.30/.60	1.50/2.00	-	.20/.30	-	45	18	40	
35	CHNM. 55	2% Ni-Mo (Higher C) Case- hardening	.20/.28	.10/.35	.30/.60	1.50/2.00	-	.20/.30	-	55	15	22	
35A	-	" "	.20/.25	.10/.35	.30/.60	1.50/2.00	-	.20/.30	Supplied to composition only.				
35B	-	" "	.23/.28	.10/.35	.30/.60	1.50/2.00	-	.20/.30					
36A	CHNM. 55	3% Ni-Cr Case- hardening	.15	.10/.35	.30/.60	3.00/3.75	.60/1.10	-	-	55	15	35	
36B	CHNM. 65	" "	.12/.18	.10/.35	.30/.60	3.00/3.75	.60/1.10	-	-	65	13	30	
36C		3% Ni-Cr-Mo Case- hardening	.12/.18	.10/.35	.30/.60	3.00/3.75	.60/1.10	.10/.25	-	65	13	30	
37	CH.5N	5% Ni case Hardening	.16	.10/.35	.45	4.50/5.20	.30	-	-	40	20	50	

† En. 32B-S .07max for machinability Remainder(except En. 32M):.05 Sulphur.
All specifications : .05 Phosphorus.

*On 1 1/8" dia. after Heat treatment except En.32A on 1/2 " dia.

BRITISH STANDARD 970: 1955 for steels

En. No .	E.S.C Symbol	Type of Steel	Chemical Composition							Condition \$	Limiting Ruling Section (Inches)	.2% P.S. \$	Mechanical Properties							
			C. %	Si. %	Mn. %	Ni. %	Cr. %	Mo. %	V %				T.S. t/sq" Min.	El. % Min.	Izod Ft. lbs. Min.	Brinell No .				
38	-	5 % Ni-Mo case-hardening	.16	.10/.35	.60	4.50/5.50	.30	.15/.30	-	-	-	On 11/8 dia. Bar after Heat Treatment	65	13	30	-				
39A	Super CHNC	4 ½ % Ni- Cr	.12/.18	.10/.35	.50	3.80 4.50	1.00/1.40	-	-	-	-	Test piece size	85	12	25	-				
39B		4 ½ % Ni. Cr-Mo Case-hardening	.12/.18	.10/.35	.50	3.80 4.50	1.00/1.40	.15/.35	-	-	-	Test piece size	85	12	25	-				
40A	HYKRO	3% Cr-Mo nitriding	.10/.20	.10/.35	.40/.65	.40	2.90/3.50	.40/.70	-	R	6	32	45	22	40	201/255				
40B		" "	.20/.30	.10/.35	.40/.65	.40	2.90/3.50	.40/.70	-	S	6	36	50	20	40	223/277				
40C	HYKRO "V"	3 % Cr-Mo-V nitriding (Higher tensile)	.30/.50	.10/.35	.40/.80	.40	2.50/3.50	.70/1.20	.10/.30	U	6	41	55	18	40	248/302				
41A	Nitralloy Grade 5	1 ½ % Cr-Al-Mo	.25/.35	.10/.45	.65	.40	1.40/1.80	.10/.25	(Al.) .90/1.30	} R S T	2 ½	\$	85	10	15	375/444				
41B	Nitralloy Grade 3	" "	.35/.45	.10/.45	.65	.40	1.40/1.80	.10/.25	.90/1.30		6	32	45	20	40	201/255				
42	-	Carbon spring (Oil hardening)	.70/.85	.10/.40	.55/.75	-	-	-	-	-	-	Supplied to composition only	55	17	35	248/302				
42 B	-	" "	.60/.70	.35	.55/.80	-	-	-	-	} Annealed steel wire see B.S. 1429	-	} Supplied to composition only	} Supplied to composition only							
42 C	-	" "	.70/.80	.35	.55/.80	-	-	-	-		4					36	50	19	40	223/277
42 D	-	" "	.80/.90	.35	.55/.80	-	-	-	-	2½	41					55	17	35	248/302	
42 E	-	" "	.60/.75	.35	.30/.60	-	-	-	-	} Cold rolled strip see B.S. 1449	-					-	-	-	-	
42 F	-	" "	.60/.75	.35	.60/.90	-	-	-	-		-					-	-	-	-	-
42 G	-	" "	.75/.90	.35	.30/.60	-	-	-	-		-					-	-	-	-	-
42 I	-	" "	.75/.90	.35	.60/.90	-	-	-	-	-	-					-	-	-	-	-

All specifications : .06 Sulphur and Phosphorus
\$ All conditions: Oil hardened and tempered.
‡ Where specified.

BRITISH STANDARD 970: 1955 for steels

En. No .	E.S.C Symbol	Type of Steel	Chemical Composition			Condition	Limiting Ruling Section inches	2% P.S. ‡	Mechanical Properties					
			C. %	Si. %	Mn. %				T.S. t/sq" Min.	El. % Min.	Izod Ft. lbs. Min.	Brinell No .		
43	-	Carbon spring (Water hardening)	.45/.60	.10/.40	.60/.80	-		Supplied to composition only.						
43A	"A" steel	"50" Carbon	.45/.55	.05/.35	.70/1.00	Normalised and Tempered Cold drawn } S	1 1/8	-	40	18	-	179/229		
43B	-	"45" Carbon	.45/.50	.05/.35	.70/1.00		2	28	45	18	-	201/255		
43C	-	"50" Carbon	.50/.55	.35	.70/1.00		1 1/8	31	50	18	-	223/277		
43D	-	"60" Carbon	.60/.65	.35	.60		2	-	45/60	12	-	201/277		
43E	-	"65" Carbon	.65/.70	.35	.70/.90	-	}	Supplied to composition only.						
43G	-	Carbon Sparing (Water hardening)	.45/.60	.35	.30/.60	-		}	Supplied to composition only.					
43J	-	" "	.45/.60	.35	.60/.90	-			See B.S. 1449	Supplied to composition only.				
44	-	Carbon Sparing (Higher carbon) (Oil hardening)	.90/1.20	.30	.45/.70	-			Supplied to composition only.					
44B	-	" "	.90/1.00	.35	.40/.70	-	Supplied to composition only.							
44C	-	" "	1.00/1.20	.35	.40/.70	Wire See B.S. 1429	}	Supplied to composition only.						
44D	-	" "	.90/1.05	.35	.30/.70	Cold rolled strip See B.S. 1449		Supplied to composition only.						
44E	-	" "	1.05/1.25	.35	.30/.70	-		Supplied to composition only.						
45	} Si-Mn	Si Mn spring (Oil hardening)	.50/.60	1.50/2.00	.70/1.00	-		}	Supplied to composition only.					
45A		" "	.55/.65	1.70/2.00	.70/1.00	-	Supplied to composition only.							
46	-	Si Mn spring (water hardening)	.35/.45	1.50/2.00	.70/1.00	-		Supplied to composition only.						

En. 43A,B,C,D,E:06 Sulphur and Phosphorus Remainder Sulphur and Phosphorus

‡ Where specified

BRITISH STANDARD 970: 1955 for steels

En. No .	E.S.C Symbol	Type of Steel	Chemical Composition								Condition	Limiting Ruling Section (Inches)	Mechanical Properties				
			C. %	Si. %	Mn. %	Ni. %	Cr. %	Mo. %	V	Others			.2% P.S.	T.S. t/sq" Min.	El. % Min.	Izod Ft. lbs. Min.	Brinell No .
47	Cr-V	1%Cr-V spring	.45/.55	.50/.80	.50/.80	-	.80/1.20	-	.15 Min.	-	-	-	Supplied to compositio only				
48	-	1% Cr spring	.45/.55	.10/.50	.50/.80	-	1.00/1.40	-	-	-	-	-	Supplied to compositio only				
48A	-	Si-Cr spring	.50/.60	1.35/1.65	.60/.90	-	.55/.85	-	-	-	-	-	Supplied to compositio only				
49 A	-	Carbon for Hard drawn Wire	.40/.85	.30	.40/1.00	-	-	-	-	-	-	-	} Supplied to composition only				
49 B	-	" "	.45/.85	.30	.40/1.00	-	-	-	-	-	See B.S. 1408	-					
49 C	-	" "	.55/.85	.30	.75	-	-	-	-	-	-	-					
49 D	-	" "	.65/.85	.30	.375	-	-	-	-	-	-	-					
50	-	Cr-V Valve spring	.40/.50	.10/.35	.50/.70	-	1.00/1.50	-	.15 Min.	-	See B.S. 1429	-	Supplied to composition only				
51	-	3% Ni valve	.25/.35	.10/.35	.35/.75	2.75/3.25	.30	-	-	-	Hardened and Tempered	-	-	11/8" dia. Test bar	-	40	229 Max
52	S.L.V †	Si-Cr valve	.40/.50	3.00/3.75	.30/.60	.580	7.50/9.50	-	-	-	Hardened and Tempered	-	-	-	-	-	255/293
53	-	Si-Cr valve	.55/.65	1.40/1.70	.30/.60	.50	5.75/6.75	-	-	-	Hardened and Tempered	-	-	11/8" dia. Test bar	-	-	235/285
54	} F.V.S. †	Ni-Cr-W valve	.35/.50	1.00/2.50	.150/.50	10.00	12.00/16.00	-	(W) 2.00/4.00	(Nb) -	Softened	-	-	-	-	15	302 Max
54 A		" "	.37/.47	1.00/2.00	.50/.80	13.00/15.00	40*/.60	2.20/3.00	.16/* .22	-	Softened	-	-	-	-	15	269 Max

†Supplied by Firth-Vickers Stainless Steel Ltd. Manufactured by English Steel Corporation Ltd.
En. 49C, 49DS, 50, 52, 04 Sulphur and Phosphorus.
En. 54, 54A, .1045 Sulphur and Phosphorus.
Remainder .05 Sulphur and Phosphorus.

*If specified.
En. 51: Water or oil hardened.
En. 52, 53: Oil or air hardened.

BRITISH STANDARD 970: 1955 for steels

En. No .	E.S.C Symbol	Type of Steel	Chemical Composition							Condition \$	Limiting Ruling Section (Inches)	.2% P.S.	Mechanical Properties			
			C. %	Si. %	Mn. %	Ni. %	Cr. %	Mo. %	V				T.S., t/sq" Min.	El. % Min.	Izod Ft. lbs. Min.	Brinell No .
56	H.R. CROWN MAX †	Cr. Ni-W Valve	.18/.45	1.00/2.50	/1.00	6.00/12.00	17.00/	(W) 2.00/4.00		Softened	-	-	1½" Dia test bar	-	20	302Max
56 A	F.I. †	Cr-rust-resisting	/12	/1.00	/1.00	/1.00	12.00/14.00	-	-	P	6	23	35	25	25	152/207
56 B	F.G. (L) †	" "	.12/	/1.00	/1.00	/1.00	12.00/	-	-	R	2 } 6	23 } 32	35 } 45	25 } 20	45 } 20	152/207 201/255
56 C	F.G. †	" "	.18/	/1.00	/1.00	/1.00	14.00/	-	-	S	2 } 4	32 } 36	45 } 50	20 } 16	25 } 10	201/255 223/277
56 D	F.H. †	" "	.25/	/1.00	/1.00	/1.00	14.00/	-	-	T	2 } 2	36 } 41	50 } 55	20 } 12	20 } 10	223/277 248/302
56 AM	F.C.I. †	Cr-rust-resisting (free machining)	.35				14.00		-	X	1⅛	59	75	8	-	341Min
56 BM	F.C.I. †		As above with Mn 1.5% max. 5/75% max. Zr. 6% max. Mo.6% max. Se. 6% max. Pb. 35% max.					Total 1% max.	-	P	6	-	35	20	25	152/207
56 CM	F.C.S. †								-	R	6	-	45	15	20	201/255
57	S.80 †	High tensile Cr-Ni Rust resisting	/25	.10/1.00	/1.00	1.00/3.00	15.50/20.00	-	-	S	4	-	50	12	-	223/277
58 A	F.S.T. †	Austenitic Cr-Ni Rust, acid and Heat-resisting	/16	.20/	/2.00	7.00/10.00	17.00/20.00	-	-	Softened	6	41	55	15	15	248 Min. 248 Min.
58 B	F.D.P †	" "	/15	.20/	/2.00	7.00/10.00	17.00/20.00	-	-	Ti < 4 xC	6	-	35	30	50	-
58 C	†	" "	/15	.20/	/2.00	9.00/12.00	17.00/20.00	-	-	Softened	6	-	35	30	50	-
58 D	D.D.Q †	" "	/16	.20/	/2.00	11.00/14.00	11.00/14.00	-	-	Softened	6	-	-	-	-	-

En. 58A and 58B :Ni + Cr not less than 25%. En.58D :Ni + Cr not less than 23%.
All specifications :.045 Sulphur and Phosphorus, except En. 56 AM, BM, DM :.75% Sulphur.
\$ Air hardened or oil hardened.
† Supplied by Firth-Vickers Stainless Steel Ltd. Manufactured by English Steel Corporation Ltd.
‡ Where specified.

BRITISH STANDARD 970: 1955 for steels

En. No .	E.S.C Symbol	Type of Steel	Chemical Composition							Condition \$	Limiting Ruling Section (Inches)	Mechanical Properties				
			C. %	Si. %	Mn. %	Ni. %	Cr. %	Mo. %	Others			.2% P.S.	T.S. t/sq" Min.	El. % Min.	Izod Ft. lbs. Min.	Brinell No .
58 E	F.S.L †	Austenitic Cr-Ni Rust, acid and Heat-resisting	/ .08	.20/	/2.00	8.00/ 11.00	17.50/ 20.00	-	-	Softened	6	35	30	50	-	
58 F	FG.B †	" "	/ .15	.20/	/2.00	7.00/ 10.00*	17.00/ 20.00*	-	Nb < 8 xC	Softened	6	35	30	50	-	
58 G	FG.B (T) †	" "	/ .15	.20/	/2.00	9.00/ 12.00	17.00/ 20.00	-	Nb < 8 xC	Softened	6	35	30	50	-	
58H	-	" "	/ .12	.20/	/2.00	8.00/ 12.00	17.00/ 20.00	1.50/ 2.50/	Ti and Nb opt	Softened	6	35	30	50	-	
58 J	F.M.B † F.M.B.Ti. †	" "	/ .12	.20/	/2.00	8.00/ 12.00	17.00/ 20.00	2.50/ 3.50/	Ti and Nb opt	Softened	6	35	30	50	-	
58 AM 58 BM	F.S.T.(FC)† E.M.S †	Free machining		(Composition agreed between purchaser and supplier)							-	-	-	-	-	
59	X.B. †	Cr.Ni.Si. Valve	.78/ .84	1.75/ 2.25	.20/ .60	1.15/ 1.65	19.00/ 20.50	-	-	\$	-	-	-	-	(Rock-well C. 47) VPN.480	
60	F.I. 17 †	Ferritic Cr Rust resisting	/ .12	/1.00	/1.00	/ .50	16.00/ 18.00	-	-	} Softened	-	-	-	-	-	
61	F.I. 20 †	" "	/ .12	/1.00	/1.00	/ .50	20.00/ 22.00	-	-		-	-	-	-	-	-
100	Super-Tough "D"	Low Alloy	.35/ .45	/ .50	1.20/ 1.50	.50/ 1.00	.30/ .60	.15/ .25	-	R S T U V	6 4 2½ 1¼ 11/8	45 50 55 60 65	22 20 18 17 16	40 40 40 35 35	201/255 225/277 248/302 269/321 293/341	

En 58: Sulphur and Phosphorus. En. 100: .05 Sulphur and Phosphorus.
*Ni + Cr not less than 25%.

Remainder: .045 Sulphur and Phosphorus.
† Supplied by Firth-Vickers Stainless Steels Ltd. Manufactured by English Steel Corporation Ltd.

\$ Air hardened or oil hardened. EN 100: Oil hardened and tempered.
‡ Where specified.

BRITISH STANDARD 970: 1955 for steels

En. No .	E.S.C Symbol	Type of Steel	Chemical Composition						Limiting Ruling Section (Inches)	.2% P.S. ‡	Mechanical Properties			
			C. %	Si. %	Mn. %	Ni. %	Cr. %	Mo. %			T.S. t/sq" Min.	El. % Min.	Izod Fl. lbs. Min.	Brinell No .
100A	-	Low alloy	.25/.30	.10/.50	1.20/.150	.50/1.00	.30/.60	.15/.25	-	} Supplied to composition only.				
100B	-	" "	.30/.35	.10/.50	1.20/.150	.50/1.00	.30/.60	.15/.25	-					
100C	-	" "	.35/.40	.10/.50	1.20/.150	.50/1.00	.30/.60	.15/.25	-					
100D	-	" "	.40/.45	.10/.50	1.20/.150	.50/1.00	.30/.60	.15/.25	-					
100E	-	" "	.25/.35	.10/.35	1.20/.150	.50/1.00	.30/.60	.15/.25	R	32	45	22	40	201/255
110	LNCM	Ni-Cr-Mo	.35/.45	.10/.35	.40/.80	1.20/1.60	.90/1.60	.10/.20	S	36	50	20	40	223/277
									T	41	55	18	40	248/302
									U	46	60	17	35	269/321
									V	50	65	16	35	293/341
									W	55	70	15	30	311/375
111	LNC	Ni-Cr	.30/.40	.10/.35	.60/.90	1.00/1.50	.45/.75	-	R	32	45	22	40	201/255
111A	-	Ni-Cr	.33/.38	.10/.35	.60/.90	1.00/1.50	.45/.75	-	S	36	50	20	40	223/277
									T	41	55	18	40	248/302
160	-	2% Ni-Mo	.35/.45	.10/.35	.30/.60	1.50/2.00	-	.20/.35	U	46	60	17	35	269/321
160A	-	2% Ni-Mo	.38/.43	.10/.35	.30/.60	1.50/2.00	-	.20/.35	-	Supplied to composition only.				

All specifications : .05 Sulphur and Phosphorus Remainder oil.
 § En.100E water hardened and tempered for space. En. 111,111A,160,160A, water or oil hardened and tempered.
 ‡ where specified. Hardened and tempered.

BRITISH STANDARD 970: 1955 for steels

En. No .	E.S.C Symbol	Type of Steel	Chemical Composition						Mechanical Properties			
			C. %	Si. %	Mn. %	Ni. %	Cr. %	Mo. %	T.S. t/sq ⁱⁿ Min.	El. % Min.	Izod Ft. lbs. Min.	
201	-	C-Mn Case- hardening	.18	.05/.35	1.10/ 1.50	-	-	-	-	40	20	40
202	-	C-Mn (semi free) Cutting)	.18	.05/.35	1.20/ 1.50	-	-	-	-	38	20	30
204	-	Low Cr Case- hardening	.12/.17	.10/.35	.30/.50	-	.30/.50	-	-	Supplied to composition only.		
207	-	Low Cr Case- hardening	.16/.21	.10/.35	.60/.80	-	.60/.80	-	-	Supplied to composition only.		
325	-	Low Ni-Cr-Mo Case- hardening	.22	.10/.35	.45/.65	1.50/ 2.00	.40/.60	.20/.30	-	55	15	30
351	CH.45D	½ % Ni-Cr Case- hardening	.20	.35	.60/ 1.00	.60/ 1.00	.40/.80	.10	-	45	18	30
352	CH.55B	1 % Ni-Cr Case- hardening	.20	.35	.50/ 1.00	.85/ 1.25	.60/ 1.00	.10	-	55	15	20
353	CH.65B	1 ¼ % Ni-Cr Case- hardening	.20	.35	.50/ 1.00	1.00/ 1.50	.75/ 1.25	.08/.15	-	65	12	20
354	CH.75B	1 ¼ % Ni-Cr Case- hardening	.20	.35	.50/ 1.00	1.50/ 2.00	.75/ 1.25	.10/.20	-	75	12	20
355	CH.85A	2% Ni-Cr Case- hardening (Low Cr.)	.20	.35	.40/ .70	1.80/ 2.20	1.40/ 1.70	.15/.25	-	85	12	25
361	CH.361	"15" Carbon Low alloy Case- hardening	.13/.17	.35	.70/ 1.00	.40/ .70	.55/ .80	.08/.15	-	45	18	25
362	CH.362	"20" Carbon Low alloy Case- hardening	.18/.23	.35	.70/ 1.00	.40/ .70	.55/ .80	.08/.15	-	55	15	15
363	CH.363	"25" Carbon Low alloy Case- hardening	.22/.26	.35	.70/ 1.00	.40/ .70	.55/ .80	.08/.15	-	65	-	-

En.202:10/18 Sulphur .05 Phosphorus. Remainder:.05 Sulphur and Phosphorus., § *On 1 ½ dia. Bar after Heat treatment except En.363 on section specified.

HOW TO ORDER STANDARD MOULD BASES

While placing your order, please furnish following details

Our Code	PT2/DT2 (Thickness)	PT3/DT3 (Thickness)	PT5/DT5 (Height)
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GUARANTEE

All mould bases and die sets manufactured by us are guaranteed against any defects due to inferior workmanship or material and if any of these prove defective, it shall be rectified or replaced at our discretion if returned in good condition within 30 days of receipt of the material or 45 days from the date of despatch, whichever is earlier. But they shall not form the subject of any claim for labour or other expenditure made upon them nor shall we be liable for any direct or indirect consequential loss or damages arising from any defects.

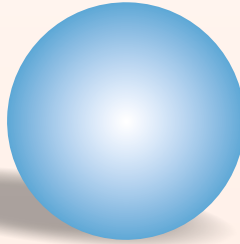
INSPECTION STANDARDS FOR MOULD BASES AND DIE SETS.

BEFORE ASSEMBLY

- Parallelism of individual plates,
Leaving small amount of run off
At corners being permissible -0.005mm for every 25mm length
- Squareness of Pillars and
Bushes with respect to plate -0.005mm for every 25mm length in both directions.

ON ASSEMBLY

- Alignment of pillar & Bush
Mould base or Die set moves freely on assembly without any detectable shake or deflections.
- Cumulative error of parallelism
On assembly -0.06mm upto 300mm length
-0.09mm above 300mm
- Clearance between
Pillars & Bushes -0.008 to 0.015 mm according to diameter of Pillars.
- Thickness of Core & Cavity plates -Plus or minus 0.5 mm
- Thickness of other plates -Plus 0.5 mm & min 1.5 mm



MOULD BASE & DIE SET PEOPLE

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