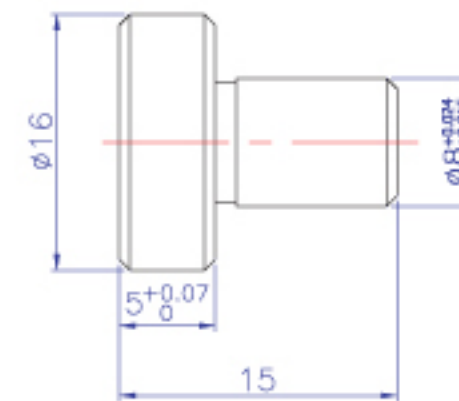
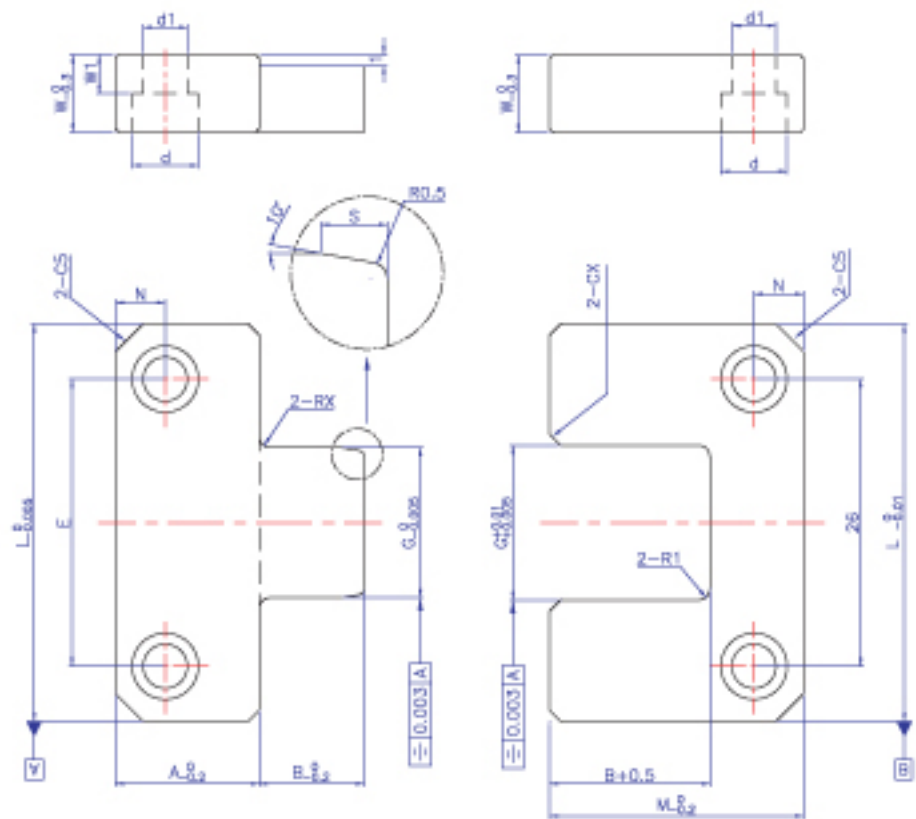

Parts : Taper pin & block set / Locating rings


Material:	JIS	SKD11
	AISI	D2
	DIN	1.2379
Hardness:	58 - 60 ° HRC	
Heat treatment:	High frequency induction	

D_{is}		d	L	E	F	MxI	Thread	A
13	+0.012	7	14	6	5	M4*10	M4	1° 3° 5° 10°
16	+0.001	10	14	6	5	M5*10	M5	
20	+0.015 +0.002	13	19	9	8	M6*12	M6	
25		16	24	12	11	M8*16	M8	
30		20	29	15	14	M10*20	M10	
32	+0.018 +0.002	20	29	15	14	M10*20	M10	
35		24	34	18	17	M12*24	M12	
45		30	39	24	23	M12*24	M12	

Order note: GTP1-D-A

Example: GTP1-20-3



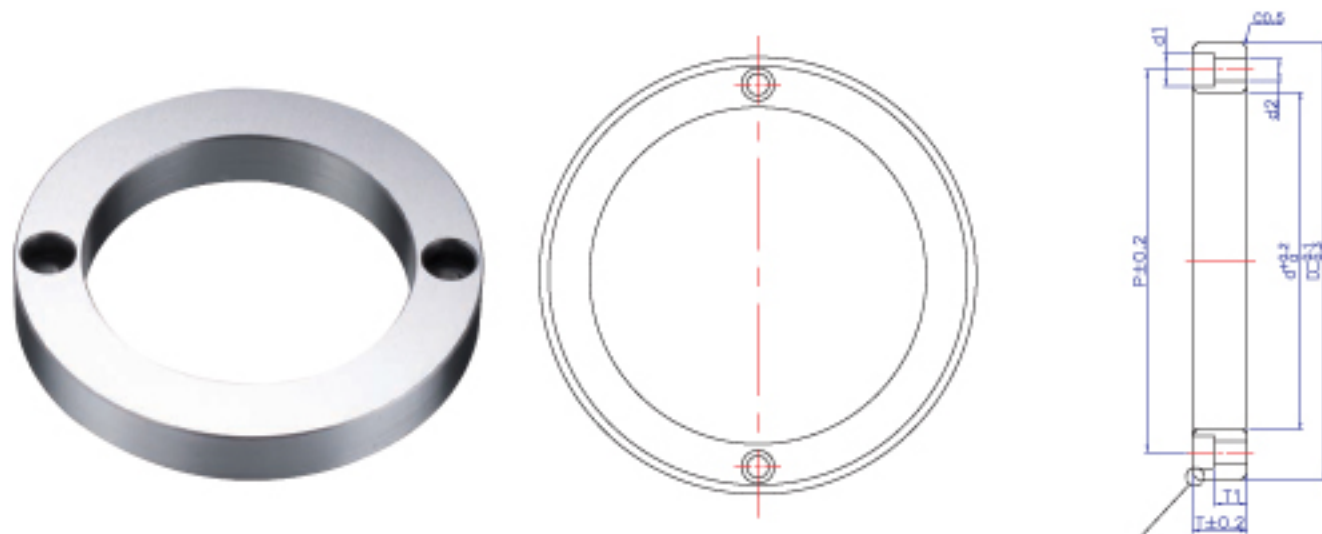
Material:	JIS	S45C
	AISI	1045/1046
	DIN	1.0503/1.1191/1.1193
Heat treatment:	High frequency induction	
Order note: GST1		

Material:	JIS	SKD11
	AISI	D2
	DIN	1.238
Hardness:	58 - 60 ° HRC	
Heat treatment:	High frequency induction	

L	A	B	M	T	G	Screw hole diameter				Screw	W	W ₁	S	R _x	C _x
						E	N	d	d ₁						
16	11	6	17	29	7	—	5	8	4.5	M4	8	3	1	1	0.5
20		6		29	8										
25		8	19	31	10										
30	14	8	22	37	12	16	6	9.5	5.5	M5	10	4	1	1	0.5
		20	34	49									2	2	1
40	18	10	28	47	15	22	7	11	7	M6	13	6	1	1	0.5

Order note: GTP2-L-M
 Example:GTP2-30-34

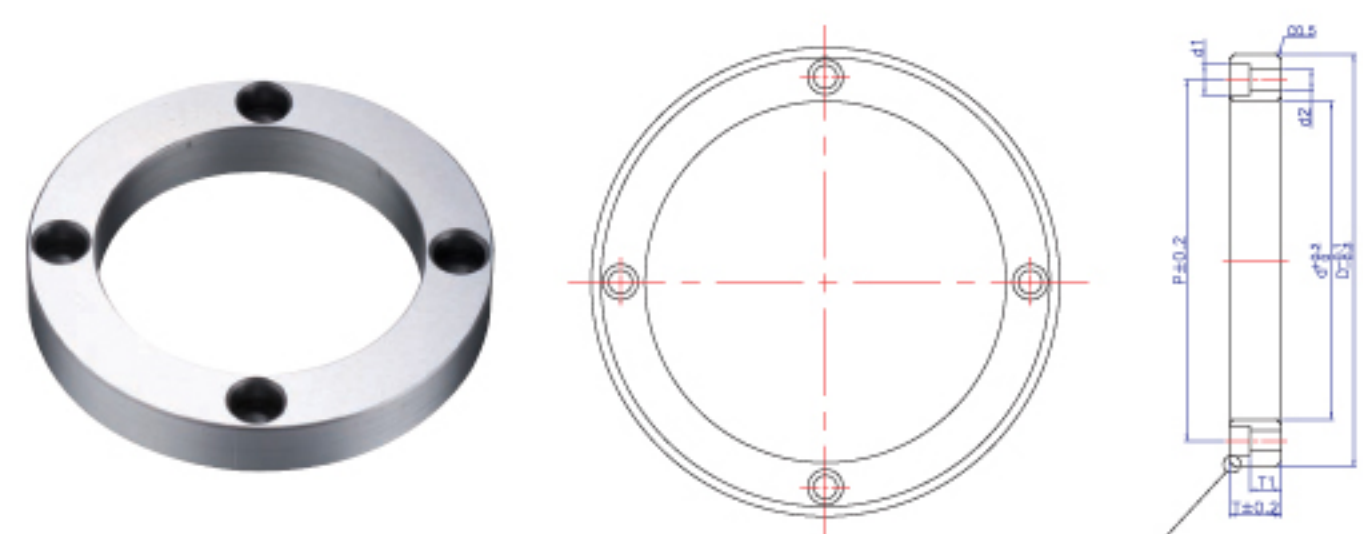
Note: Please keep 1 mm gap between the set pieces to prevent any damage during action.



Material:	JIS S45C
	AISI 1045/1046
	DIN 1.0503/1.1191/1.1193
Heat treatment:	High frequency induction

d	D	P	T	T ₁	d ₁	d ₂	SCREW
40	60	50	10	5	9	6	M5
			15				
			20				
			25				
70	100	85	10	3	11	7	M6
			15	8			
			20				
			25				
			30				
80	110	95	10	3	11	7	M6
			15	8			
			20				
			25				
90	120	105	10	3	11	7	M6
			15	8			
			20				
			25				
110	150	130	15	6	14	9	M8
			20				
			25				

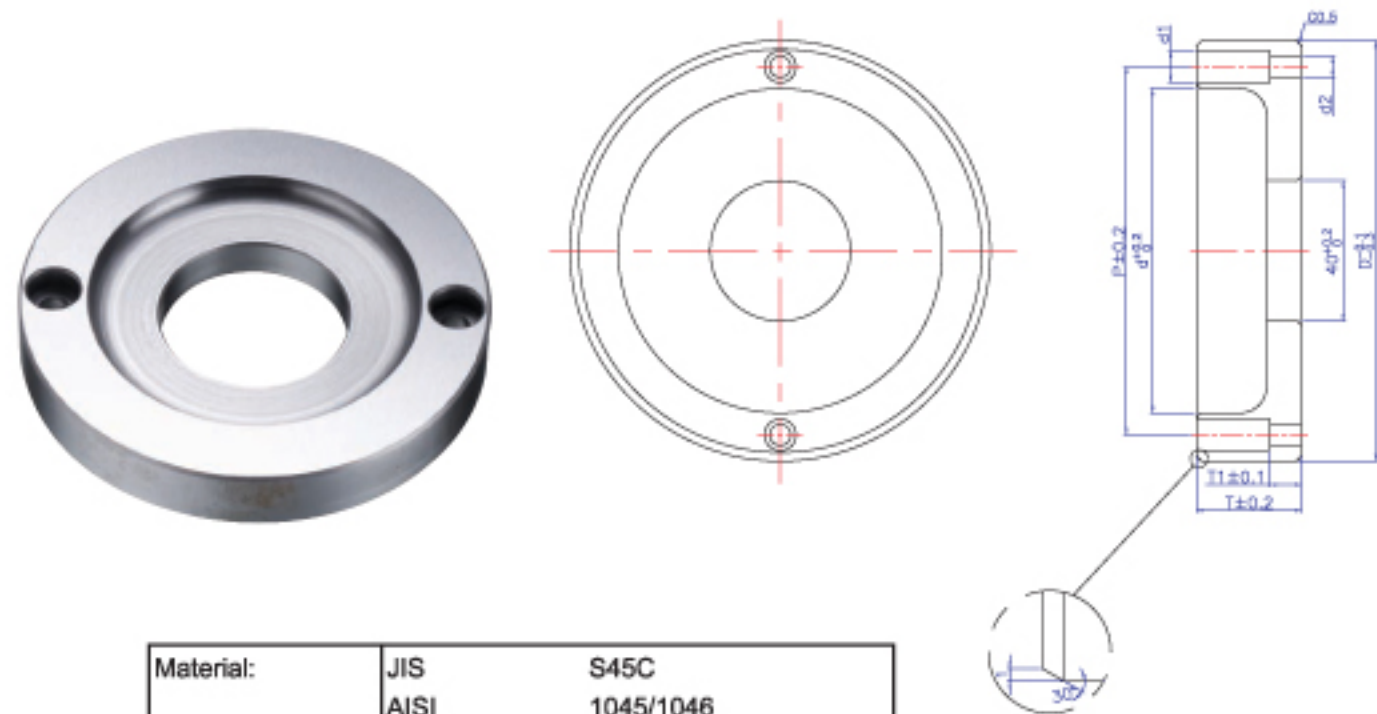
Order note: GLR1-D-T
Example:GLR1-150-25



Material:	JIS S45C
	AISI 1045/1046
	DIN 1.0503/1.1191/1.1193
Heat treatment:	High frequency induction

d	D	P	T	T ₁	d ₁	d ₂	SCREW
40	60	50	10	5	9	6	M5
			15				
			20				
			25				
70	100	85	10	3	11	7	M6
			15	8			
			20				
			25				
			30				
80	110	95	10	3	11	7	M6
			15	8			
			20				
			25				
90	120	105	10	3	11	7	M6
			15	8			
			20				
			25				
110	150	130	15	6	14	9	M8
			20				
			25				

Order note: GLR2-D-T
Example:GLR2-100-25



Material:	JIS	S45C
	AISI	1045/1046
	DIN	1.0503/1.1191/1.1193
Heat treatment:	High frequency induction	

d	D	P	R	T	T ₁	d ₁	d ₂	SCREW
70	100	85	5	15	9	11	6.5	M6
				20				
			10	35				
				40				
90	120	105	5	15	9			
				20				
			10	35	20			
				40				
				45				

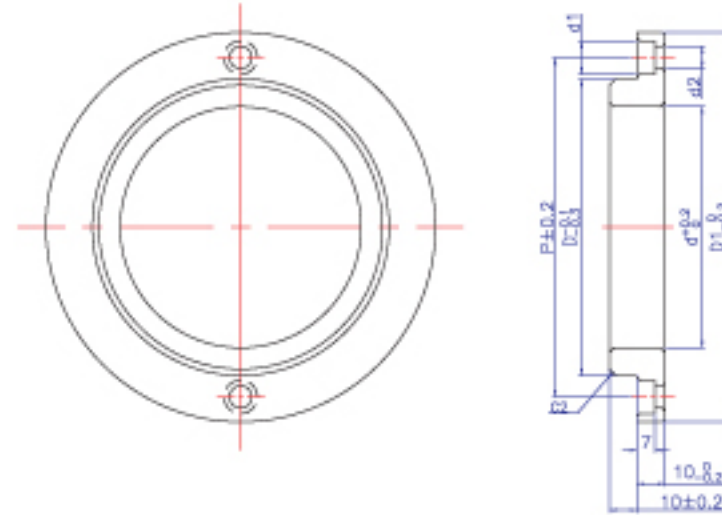
Order note: GLR3-D-T
Example: GLR3-100-45



Material:	JIS	S45C
	AISI	1045/1046
	DIN	1.0503/1.1191/1.1193
Heat treatment:	High frequency induction	

d	D	P	T	T ₁	d ₁	d ₂	SCREW
35	100	85	15	6.5	11.0	6.6	M6
40			20				
50			25				
35	120		15				
40			20				
50			25				
35	150	100	15	8.6	14.0	9	M8
40			20				
50			20				

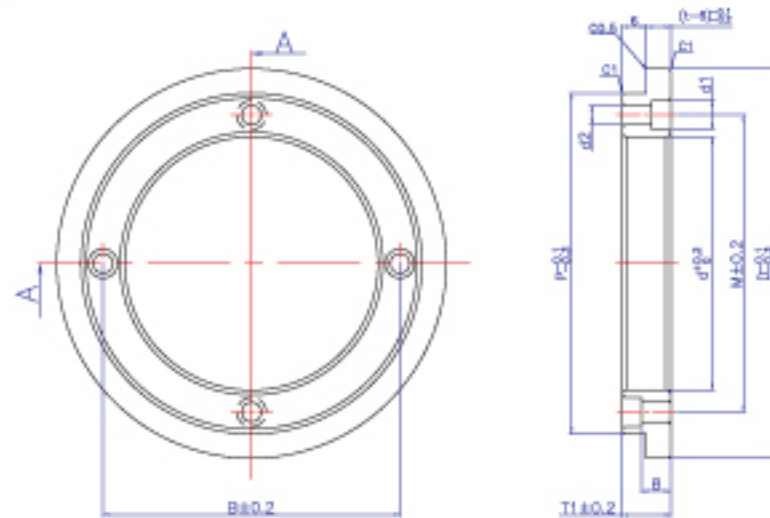
Order note: GLR4-d-D-T
Example: GLR4-49-100-20



Material:	JIS	S45C
	AISI	1045/1046
	DIN	1.0503/1.1191/1.1193
Heat treatment:	High frequency induction	

d	D	D ₁	P	d ₁	d ₂	SCREW
85	100	130	115	11	6.6	M6
105	120	150	135			

Order note: GLR5-D Example:GLR5-100



Material:	JIS	S45C
	AISI	1045/1046
	DIN	1.0503/1.1191/1.1193
Heat treatment:	High frequency induction	

d	D	T ₁	P	d ₁	d ₂	M	SCREW
40	100	14	60	9	5.5	50	M5
		16					
70	120	14	100	11	6.5	80	M6
		16					
	130	14					
		16					

Order note: GLR6-D-T1 Example:GLR6-120-16

Shaft diameters

Dimensions in μm (1 μm = 0.001mm)

mm		e7	f6	f7	f8	g5	g6	h3	h4	h5	h6	h7	h8	h9	j6	js4	js5	js6	k5	k6	m5	m6	n5	n6	
Over	To																								
0	3	-14 -24	-6 -12	-6 -16	-6 -20	-2 -6	-2 -6	0 -2	0 -3	0 -4	0 -6	0 -10	0 -14	0 -25	+4 -2	±1.5	±2	±3	+4 0	+6 0	+6 +2	+8 +2	+8 +4	+10 +4	
3	6	-20 -32	-10 -18	-10 -22	-10 -26	-4 -8	-4 -12	0 -2.5	0 -4	0 -5	0 -8	0 -12	0 -18	0 -30	+6 -2	±2	±2.5	±4	+6 +1	+9 +1	+9 +4	+12 +4	+13 +8	+18 +8	
6	10	-25 -40	-13 -22	-13 -28	-13 -35	-5 -11	-5 -14	0 -2.5	0 -4	0 -6	0 -9	0 -15	0 -22	0 -36	+7 -2	±2	±3	±4.5	+7 +1	+10 +1	+12 +6	+15 +6	+16 +10	+19 +10	
10	18	-32 -50	-16 -27	-16 -34	-16 -43	-6 -14	-6 -17	0 -3	0 -5	0 -8	0 -11	0 -18	0 -27	0 -43	+8 -3	±2.5	±4	±5.5	+9 +1	+12 +1	+15 +7	+18 +7	+20 +12	+23 +12	
18	30	-40 -61	-20 -33	-20 -41	-20 -53	-7 -16	-7 -20	0 -4	0 -6	0 -9	0 -13	0 -21	0 -33	0 -52	+9 -4	±3	±4.5	±6.5	+11 +2	+15 +1	+17 +8	+21 +8	+24 +15	+28 +15	
30	50	-50 -75	-25 -41	-25 -50	-25 -64	-9 -20	-9 -25	0 -4	0 -7	0 -11	0 -16	0 -25	0 -39	0 -62	+11 -8	±3.5	±5.5	±8	+13 +2	+18 +2	+20 +9	+25 +9	+28 +17	+33 +17	
50	80	-60 -80	-30 -48	-30 -60	-30 -76	-10 -23	-10 -29	0 -5	0 -8	0 -13	0 -19	0 -30	0 -46	0 -74	+12 -7	±4	±6.5	±9.5	+15 +2	+21 +2	+24 +11	+30 +11	+33 +20	+39 +20	
80	120	-72 -107	-36 -58	-36 -71	-36 -90	-12 -27	-12 -34	0 -6	0 -10	0 -15	0 -22	0 -35	0 -54	0 -87	+13 -8	±5	±7.5	±11	+18 +3	+25 +3	+28 +13	+35 +13	+38 +23	+45 +23	

Bore diameters

Dimensions in μm (1 μm = 0.001mm)

Mm		E8	F7	F8	G7	H5	H6	H7	H8	H9	H10	J7	JS4	JS5	K5	K6	K7	M5	M6	M7	N5	P6	P7	R6	
Over	To																								
0	3	+28 +14	+16 +5	+20 +6	+12 +2	+4 0	+6 0	+10 0	+14 0	+25 0	+40 0	+4 -5	±1.5	+2 -2	0 -4	0 -6	0 -10	-2 -6	-2 -8	-2 -12	-4 -8	-6 -12	-6 -16	-10 -16	
3	6	+38 +20	+22 +10	+28 +10	+16 +4	+5 0	+8 0	+12 0	+18 0	+30 0	+48 0	+6 -6	±2	+2.5 -2.5	0 -5	+2 -6	+3 -6	-3 -8	-1 -8	0 -12	-7 -12	-9 -17	-8 -20	-12 -20	
6	10	+47 +25	+28 +13	+35 +13	+20 +5	+6 0	+9 0	+15 0	+22 0	+36 0	+58 0	+8 -7	±2.5	+3 -3	+1 -5	+2 -7	+5 -10	-4 -10	-3 -12	0 -15	-8 -14	-12 -21	-9 -24	-16 -25	
10	18	+59 +32	+34 +16	+43 +16	+24 +8	+8 0	+11 0	+18 0	+27 0	+43 0	+70 0	+10 -8	±3	+4 -4	+2 -8	+2 -9	+6 -12	-4 -12	-4 -15	0 -18	-9 -17	-15 -26	-11 -29	-20 -31	
18	30	+73 +40	+41 +20	+53 +20	+28 +7	+9 0	+13 0	+21 0	+33 0	+52 0	+84 0	+12 -8	±3.5	+4.5 -4.5	+1 -8	+2 -11	+6 -15	-5 -14	-4 -17	0 -21	-12 -21	-18 -31	-14 -35	-24 -37	
30	50	+89 +50	+50 +25	+64 +25	+34 +8	+11 0	+16 0	+25 0	+38 0	+62 0	+100 0	+14 -11	±4	+5.5 -5.5	+2 -9	+3 -13	+7 -18	-5 -16	-4 -20	0 -25	-13 -24	-21 -37	-17 -42	-28 -45	
50	80	+108 +60	+60 +30	+76 +30	+40 +10	+13 0	+19 0	+30 0	+46 0	+74 0	+120 0	+18 -12	±5	+6.5 -6.5	+3 -10	+4 -15	+9 -21	-6 -19	-5 -24	0 -30	-15 -28	-26 -45	-21 -51	-36 -66	
80	120	+126 +72	+71 +36	+90 +36	+47 +12	+15 0	+22 0	+35 0	+54 0	+87 0	+140 0	+22 -13		+7.5 -7.5	+2 -13	+4 -18	+10 -25	-8 -23	-6 -28	0 -35	-18 -33	-30 -52	-24 -59	-44 -66	

Rockwell Hardness			Vickers Hardness (HV)	Brinell Hardness (HB)		Shore Hardness (HS)
A Scale Load: 588.4N (HRA)	B Scale Load: 980.7N (HRB)	C Scale Load: 1471N (HRC)		Standard Ball	Tungsten Carbide Ball	
85.8	-	68	940	-	-	97
85.0	-	67	900	-	-	95
84.5	-	66	865	-	-	92
83.9	-	65	832	-	739	91
83.4	-	64	800	-	722	88
82.8	-	63	772	-	705	87
82.3	-	62	746	-	688	85
81.8	-	61	720	-	670	83
81.2	-	60	697	-	654	81
80.7	-	59	674	-	634	80
80.1	-	58	653	-	615	78
79.6	-	57	633	-	595	76
79.0	-	56	613	-	577	75
78.5	-	55	595	-	560	74
78.0	-	54	577	-	543	72
77.4	-	53	560	-	525	71
76.8	-	52	544	500	512	69
76.3	-	51	528	487	496	68
75.9	-	50	513	475	481	67
75.2	-	49	498	464	469	66
74.7	-	48	484	451	455	64
74.1	-	47	471	442	443	63
73.6	-	46	458	432	432	62
73.1	-	45	446	421	421	60
72.5	-	44	434	409	409	58
72.0	-	43	423	400	400	57
71.5	-	42	412	390	390	56
70.9	-	41	402	381	381	55
70.4	-	40	392	371	371	54
69.9	-	39	382	362	362	52
69.4	-	38	372	353	353	51
68.9	-	37	363	344	344	50
68.4	(109.0)	36	354	336	336	49
67.9	(108.5)	35	345	327	327	48
67.4	(108.0)	34	336	319	319	47
66.8	(107.5)	33	327	311	311	46
66.3	(107.0)	32	318	301	301	44
65.8	(106.0)	31	310	294	294	43
65.3	(105.5)	30	302	286	286	42
64.7	(104.5)	29	294	279	279	41
64.3	(104.0)	28	286	271	271	41
63.8	(103.0)	27	279	264	264	40
63.3	(102.5)	26	272	258	258	38
62.8	(101.5)	25	266	253	253	38
62.4	(101.0)	24	260	247	247	37
62.0	100.0	23	254	243	243	36
61.5	99.0	22	248	237	237	35
61.0	98.5	21	243	231	231	35
60.5	97.8	20	238	226	226	34
-	96.7	(18)	230	219	219	33
-	95.5	(16)	222	212	212	32
-	93.9	(14)	213	203	203	31
-	92.3	(12)	204	194	194	29
-	90.7	(10)	196	187	187	28
-	89.5	(8)	189	179	179	27
-	87.1	(6)	180	171	171	26
-	85.5	(4)	173	165	165	25
-	83.5	(2)	166	158	158	24
-	81.7	(0)	160	152	152	24

High speed tool steel & Alloy tool steel

JIS	ISO	AISI ASTM	BS	DIN VDEh	
SKH51	HS 6-5-2	M2	BM 2	S 6-5-2	1.3343
SKH55	HS 6-5-2-5	-	BM35	S 6-5-2-5	1.3243
SKS 3	-	-	-	-	1.2419
SKD11	-	D2	BD2	-	1.2379
SKD61	40CrMoV5	H13	BH13	X40CrMoV51	1.2344

High-carbon chrome bearing steel

JIS	ISO	AISI SAE	BS	DIN	
SUJ 2	B1or 100Cr6	52100	-	100Cr6	1.2067/1.3505

Carbon steel for machine structural use & Chrome molybdenum steel

JIS	ISO 683/1,10,11 ⁵⁾	AISI SAE	BS 970 Part1,3 BS EN 10083-1,2	DIN	
S45C	C45	1045 1046	C45	C45	1.0503
	C45E4		C45E	C45E	1.1191
	C45M2		C45R	C45R	1.1193
S50C	C50	1049	080M50	C50	1.1213
	C50E4		C50	C50E	
	C50M2		C50E	C50R	
S55C	C55	1055	070M55	C55	1.0535/1.1203
	C55E4		C55	C55E	
	C55M2		C55E	C55R	
SCM430	-	4131	-	-	1.7218
SCM435	34CrMo4 34CrMoS4	4137	34CrMo4 34CrMoS4	34CrMo4 34CrMoS4	1.7220
SCM440	42CrMo4	4140	708M40	42CrMo4 42CrMoS4	1.7225
	42CrMoS4	4142	709M40		
			42CrMo4 42CrMoS4		

Stainless Steel

JIS	ISO TR 15510 L - No.	AISI	BS	DIN	
SUS 303	13	303	303S21	X10CrNiS18 9	1.4305
SUS 304	6	304	304S31	X5CrNi18 10	1.4301
SUS 430	41	430	430S17	X6Cr17	1.4016

Aluminum and aluminum alloy extender

JIS H4000:88	ISO 6361:90 ISO 209:89	ASTM B209M:95	BS EN485-2:95 BS EN573-3:95	DIN EN485-2:95 DIN EN573-3:94
A5052P	AlMg2.5	5052	EN AW-5052	EN AW-5052
A6061P	-	6061	EN AW-6061	EN AW-6061
A7075P	AlZn5.5MgCu	7075	EN AW-7075	EN AW-7075

Remarks: AISI (USA), ASTM (USA), BS (UK), DIN (Germany), ISO (International Standard), JIS (Japan)

mm	Inch	
	(Fraction)	(Decimal)
0	0	0.000
3.175	1/8	0.125
6.350	1/4	0.250
9.525	3/8	0.375
12.700	1/2	0.500
15.875	5/8	0.625
19.050	3/4	0.750
22.225	7/8	0.875
25.400	1	1.000
28.575	1-1/8	1.125
31.750	1-1/4	1.250
34.925	1-3/8	1.375
38.100	1-1/2	1.500
41.275	1-5/8	1.625
44.450	1-3/4	1.750
47.625	1-7/8	1.875
50.800	2	2.000
53.975	2-1/8	2.125
57.150	2-1/4	2.250
60.325	2-3/8	2.375
63.500	2-1/2	2.500
66.675	2-5/8	2.625
69.850	2-3/4	2.750
73.025	2-7/8	2.875
76.200	3	3.000
79.375	3-1/8	3.125
82.550	3-1/4	3.250
85.725	3-3/8	3.375
88.900	3-1/2	3.500
92.075	3-5/8	3.625
95.250	3-3/4	3.750
98.425	3-7/8	3.875
101.600	4	4.000
104.775	4-1/8	4.125
107.950	4-1/4	4.250
111.125	4-3/8	4.375
114.300	4-1/2	4.500
117.475	4-5/8	4.625
120.650	4-3/4	4.750
123.825	4-7/8	4.875

mm	Inch	
	(Fraction)	(Decimal)
127.000	5	5.000
130.175	5-1/8	5.125
133.350	5-1/4	5.250
136.525	5-3/8	5.375
139.700	5-1/2	5.500
142.875	5-5/8	5.625
146.050	5-3/4	5.750
149.225	5-7/8	5.875
152.400	6	6.000
155.575	6-1/8	6.125
158.750	6-1/4	6.250
161.925	6-3/8	6.375
165.100	6-1/2	6.500
168.275	6-5/8	6.625
171.450	6-3/4	6.750
174.625	6-7/8	6.875
177.800	7	7.000
180.975	7-1/8	7.125
184.150	7-1/4	7.250
187.325	7-3/8	7.375
190.500	7-1/2	7.500
193.675	7-5/8	7.625
196.850	7-3/4	7.750
200.025	7-7/8	7.875
203.200	8	8.000
206.375	8-1/8	8.125
209.550	8-1/4	8.250
212.725	8-3/8	8.375
215.900	8-1/2	8.500
219.075	8-5/8	8.625
222.250	8-3/4	8.750
225.425	8-7/8	8.875
228.600	9	9.000
231.775	9-1/8	9.125
234.950	9-1/4	9.250
238.125	9-3/8	9.375
241.300	9-1/2	9.500
244.475	9-5/8	9.625
247.650	9-3/4	9.750
250.825	9-7/8	9.875

mm	Inch	
	(Fraction)	(Decimal)
254.000	10	10.000
257.175	10-1/8	10.125
260.350	10-1/4	10.250
263.525	10-3/8	10.375
266.700	10-1/2	10.500
269.875	10-5/8	10.625
273.050	10-3/4	10.750
276.225	10-7/8	10.875
279.400	11	11.000
282.575	11-1/8	11.125
285.750	11-1/4	11.250
288.925	11-3/8	11.375
292.100	11-1/2	11.500
295.275	11-5/8	11.625
298.450	11-3/4	11.750
301.625	11-7/8	11.875
304.800	12	12.000
307.975	12-1/8	12.125
311.150	12-1/4	12.250
314.325	12-3/8	12.375
317.500	12-1/2	12.500
320.675	12-5/8	12.625
323.850	12-3/4	12.750
327.025	12-7/8	12.875
330.200	13	13.000
333.375	13-1/8	13.125
336.550	13-1/4	13.250
339.725	13-3/8	13.375
342.900	13-1/2	13.500
346.075	13-5/8	13.625
349.250	13-3/4	13.750
352.425	13-7/8	13.875
355.600	14	14.000
381.000	15	15.000
406.400	16	16.000
431.800	17	17.000
457.200	18	18.000
482.600	19	19.000
508.000	20	20.000
533.400	21	21.000