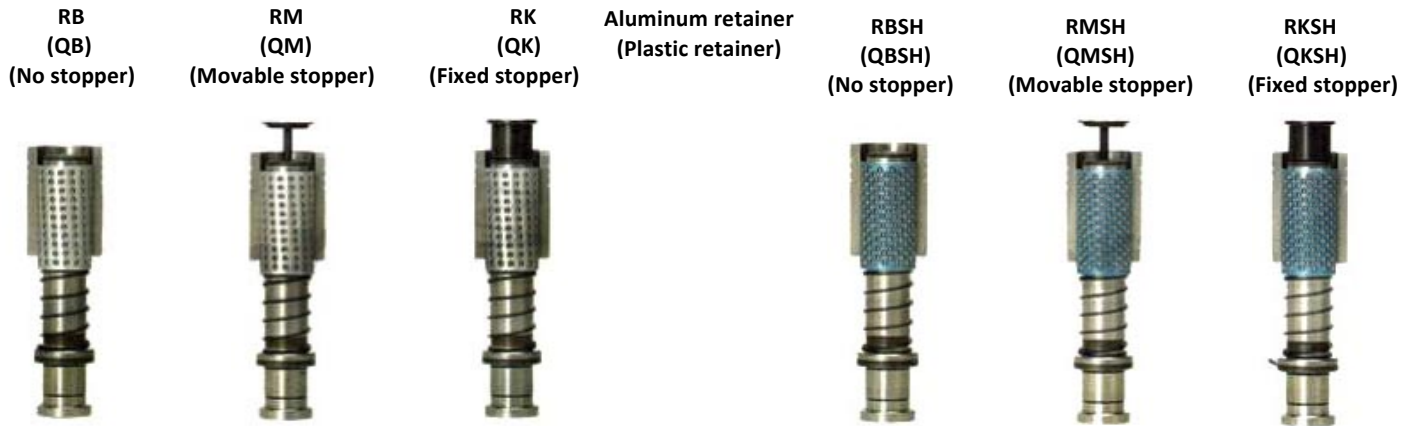


BALL BEARING GUIDE POST SETS FOR DIE SET – REMOVABLE POST

Ball Bearing guide post sets

High-rigidity Ball Bearing guide post sets



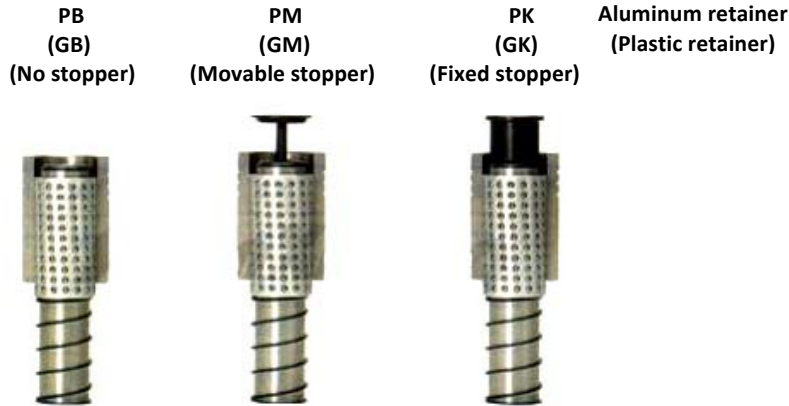
Dimension: MM

Catalog No.		L						MBB - LBB		RL	FL 10mm increment	
Type	D							Type	BL			
RBSH	20	80	90	100	110	120	L (LBB)	50	50	40 ~ 140		
RMSH	22	80	90	100	110	120		60	60	40 ~ 140		
RKSH								80	75			
QBSH	25	80	90	100	110	120		130	75	40 ~ 150		
QMSH								100			110	120
QKSH	28	100	110	120	130	140		150	160	60	60	50 ~ 150
RB										80	75	
RM	32	120	130	140	150	160		80	75	70 ~ 190		
RK								100	90			
QB	38	140	150	160	170	180		80	75	80 ~ 190		
QM								100	90			
QK	45	140	150	160	170	180		100	90	80 ~ 190		
QM								120	110			
QK	50	160	170	180	200	100		90	80 ~ 190			
QK						120	110					
	60	160	170	180	200	100	90	80 ~ 190				
						120	110					

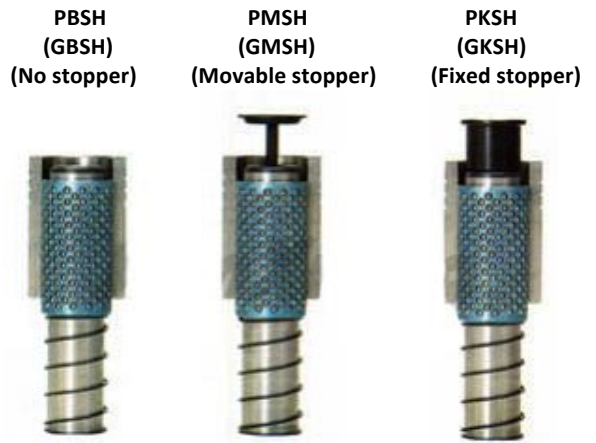
- * BL = BALL BEARING LENGTH
- * RL = BALL RETAINER LENGTH
- * FL = WIRE SPRING LENGTH

BALL BEARING GUIDE POST SETS FOR DIE SET – PRESS FIT POST

Ball Bearing guide post sets



High-rigidity Ball Bearing guide post sets



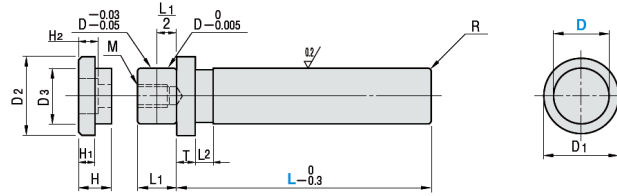
Catalog No.		L									MBB - LBB		RL	FL 10mm increment
Type	D										Type	BL		
PBSH	20	100	110	120	130	140	150	160	170	180	L (LBB)	50	50	40 ~ 140
PMSH	22	120	130	140	150	160	170	180				50	50	40 ~ 140
PRKSH	25	120	130	140	150	160	170	180				60	60	40 ~ 150
GBSH												80	75	
GMSH	28	140	150	160	170	180	190	200				60	60	50 ~ 150
GKSH	32	160	170	180	190	200	220	240				80	75	
PB												80	75	70 ~ 190
PM	38	180	190	200	220	240	260					100	90	
PK												80	75	
GB	45	180	190	200	220	240	260					100	90	80 ~ 190
GM												120	110	
GK	50	200	220	240	260							100	90	80 ~ 190
												120	110	
	60	200	220	240	260							100	90	80 ~ 190
											120	110		

* BL = BALL BEARING LENGTH
 * RL = BALL RETAINER LENGTH
 * FL = WIRE SPRING LENGTH

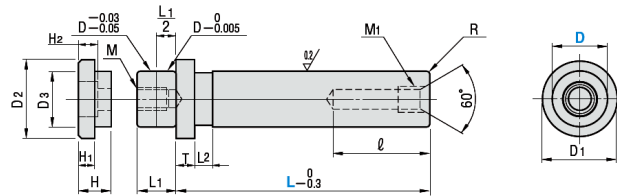
GUIDE POST SETS FOR DIE SET



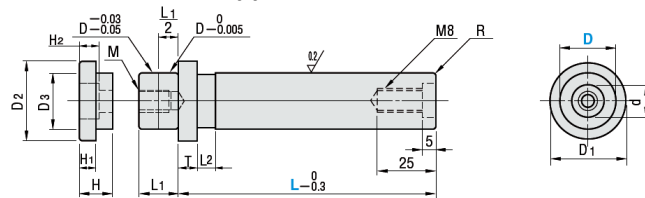
MRP



BRPM (For movable stopper STM)



BRPK (For fixed stopper STK)

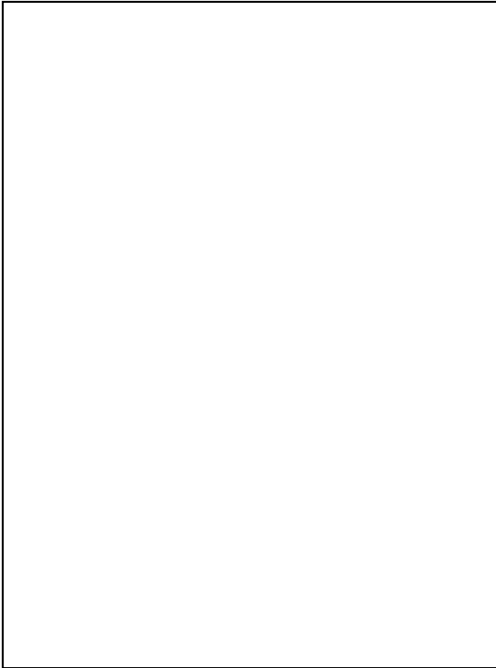


Dimension: MM

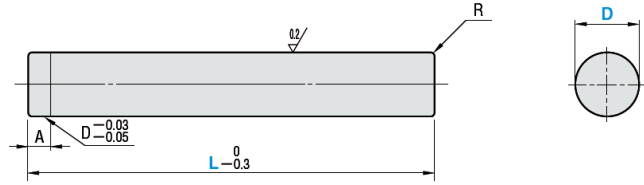
D	D1	T	L1	L2	ℓ	M1 x P	d	A	M	R	D2	D3	H	H1	H2	A Supplied Bolts		
20	+0.020	29	5	15	10	M10 x 1.5	14	4	M8 x 18	2.0	28	19.5	14	7	8.5	CB8 - 25		
22		31	8	16							42	3.0					30	21.5
25	+0.015	36	18	50		M12 x 1.5				5	M10 x 22		3.5	36	37.5		16	8
28	+0.025	39	10	20	50			40	31.5			CB10 - 30						
32	+0.020	44	23	12	60	M16 x 1.5		20	6	M12 x 27	4.0		49	37.5	18		10	12.5
38	+0.030	53	12	27	70							55	44.5					
45	+0.025	59	32	15	70	M14 x 31	5.0		62	49.5	20	12	14.5	CB14 - 40				
50	+0.035	69	15	35	70										72	59.5		
60	+0.030	79	42	70														

Catalog No.		L										
Type	D											
MRP	20	80	90	100	110	120						
	22	80	90	100	110	120						
	25	80	90	100	110	120	130					
BRPM	28			100	110	120	130	140	150	160		
	32					120	130	140	150	160		
BRPK	38							140	150	160	170	180
	45							140	150	160	170	180
	50								160	170	180	200
	60								160	170	180	200

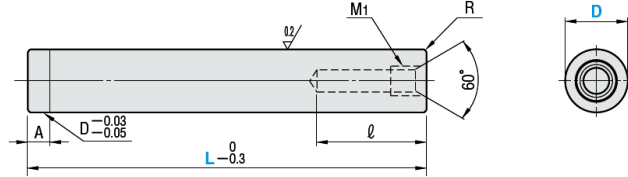
GUIDE POST SETS FOR DIE SET



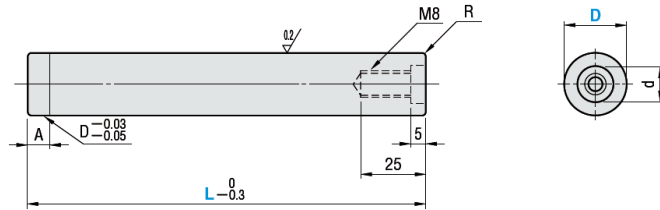
MSP



BSPM (For movable stopper STM)



BSPK (For fixed stopper STK)



Dimension: MM

D	D ₁	T	L ₁	L ₂	ℓ	M ₁ x P	d	A	M	R	D ₂	D ₃	H	H ₁	H ₂	A Supplied Bolts
20	+0.020	29	5	15	10	M10 x 1.5	14	4	M8 x 18	2.0	28	19.5	14	7	8.5	CB8 - 25
22		31	8	16							30	21.5				
25		36	18	35							24.5					
28	+0.025	39	10	20	12	M12 x 1.5	20	5	M10 x 22	3.5	36	37.5	16	8	10.5	CB10 - 30
32	+0.020	44		23							40	31.5				
38	+0.030	53		27							49	37.5				
45	+0.025	59	12	32	15	M16 x 1.5	20	6	M12 x 27	4.0	55	44.5	18	10	12.5	CB12 - 35
50	+0.035	69		35							62	49.5				
60	+0.030	79		42							72	59.5				

Catalog No.		L												
Type	D													
MSP	20	100	110	120	130	140	150	160	170	180				
	22			120	130	140	150	160	170	180				
	25			120	130	140	150	160	170	180				
	28					140	150	160	170	180	190	200		
BSPM	32						160	170	180	190	200	220	240	
	38								180	190	200	220	240	260
BSPK	45								180	190	200	220	240	260
	50										200	220	240	260
	60											200	220	240



BALL BEARING GUIDE BUSHINGS

PD Post Diameter		LBB					
		d	Dh4		ℓ	A	B
20	+0.020 +0.015	26	37	0 -0.007	4	10	6
22		28	40				
25		31	45				
28	+0.025	36	50	0 -0.008	5	12	7
32	+0.020	40	55				
38	+0.030	48	64				
45	+0.025	55	74	0 -0.010	6	15	10
50	+0.035	60	83				
60	+0.030	70	95				

Catalog No.		L				
Type	PD					
LBB (Loctite Type)	20	50				
	22	50	60			
	25		60	80		
	28		60	80		
	32			80	100	
	38			80	100	
	45				100	120
	50				100	120

LOYAL TOOLS
BALL BEARING GUIDE BUSHINGS – REMOVABLE TYPE

Catalog No.		dR	D ₁	DM	DF	P.S.D	S	M	L ₁	L ₂	L	
Type	PD Post Diameter											
RBB	20	26	37	40	43	49	65	M4	32	27	15	
	25	31	45	48	51	58	76	M5	43	31		
	28	36	50	53	57	62	80		M6	45		39
	32	40	55	58	61	70	90	50		44	20	
	36	44	58	61	64	74	94			56		49
	38	48	64	67	70	79	99					49
	45	55	74	77	80	90	110					
	50	60	83	87	90	94	114					

PLAIN GUIDE BUSHINGS SETS FOR DIE SET

Catalog No.			D	L1	A	B
Type	d (Post Diameter)					
PGB	20	+0.027	31	4	10	6
	22	+0.022	34			
	25		37			
	28	+0.032	42	5	12	7
	32	+0.027	46			
	36	+0.037	54	6	15	10
	38	+0.032				
	45	+0.040 +0.035	62			
	50	+0.045 +0.040	68			
			+0.015 +0.005			

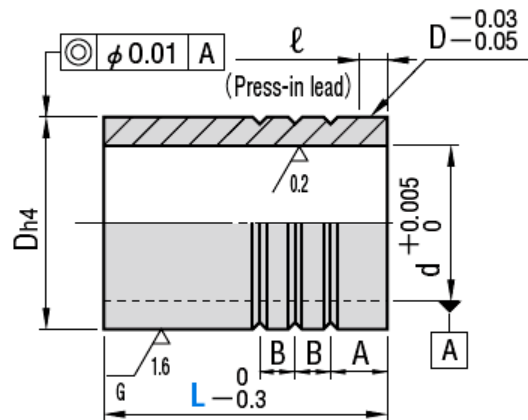
Catalog No.		L				
Type	d (Post Diameter)					
PGB	20	50				
	22	50	60			
	25		60	80		
	28		60	80		
	32			80	100	
	36			80	100	
	38			80	100	
	45				100	120
	50				100	120

PLAIN GUIDE BUSHINGS SETS FOR DIE SET

d		d1		l	A	B	E
20	+0.027	31	0 -0.007	4	10	6	10
22	+0.022	34					
25	+0.022	37					
28	+0.032	42	0 -0.008	5	12	7	Length 80 – E 10 Length 100 – E 15
32	+0.027	46					
38	+0.037 +0.032	54					
45	+0.040 +0.035	62	0 -0.010	6	15	10	15
50	+0.045	70					
60	+0.040	80					

Catalog No.		L				
Type	d					
LDB	20	50				
	22	50	60			
	25		60	80		
	28		60	80		
	32			80	100	
	38			80	100	
	45				100	120
	50				100	120
	60				100	120

BALL BEARING GUIDE BUSHINGS – WITH SNAP BUSHINGS



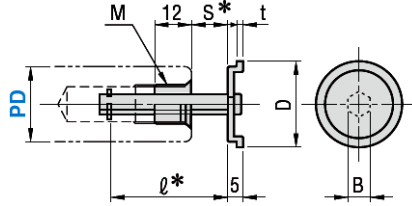
Dimension: MM

PD Post Diameter	d	D _{h4}		l	A	B	L ₁	N	R	d ₁
20	+0.020	26	0	4	10	6	4	1.35	2.5	21.4
22		28								40
25	+0.015	31	-0.007	5	12	7	4.5	1.65	3	26
28	+0.025	36								50
32	+0.020	40	0	6	15	10	5	1.9	3.5	33.2
38	+0.030	48								64
45	+0.025	55	-0.008	6	15	10	5	2.2	3.5	46.8
50	+0.035	60								83
60	+0.030	70	-0.010				6	2.7		61

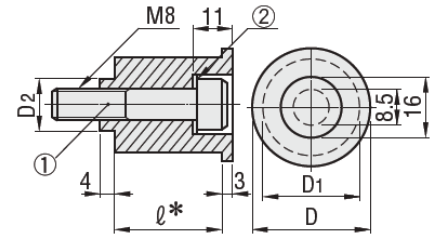
Catalog No.		L
Type	PD	
LBB	20	50
	22	50 60
	25	60 80
	28	60 80
	32	80 100
	38	80 100
	45	100 120
	50	100 120
	60	100 120

STOPPERS FOR BALL BEARING GUIDE

STM (Movable type)



STK (Fixed type)



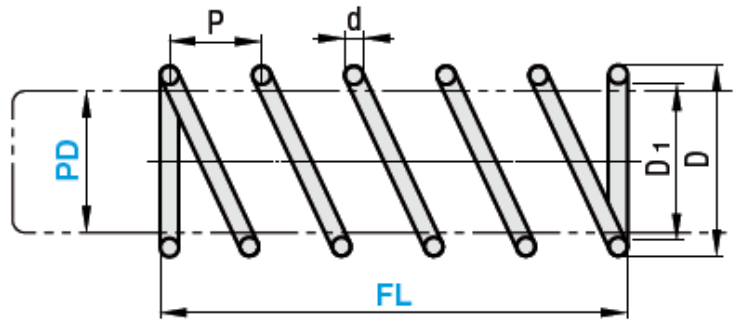
Dimension: MM

PD Post Diameter	D	M x P	B	t	D ₁	D ₂	② A Spring Washer
20	24	10 x 1.5	5	1.6	19	14	Conform to JIS B1251 – 1984 Nominal 8
22	26				21		
25	29				24		
28	33	12 x 1.5	6	1.6	27	14	
32	37				31		
38	44				37		
45	51	16 x 1.5	8	2.0	44	20	
50	56				49		
60	66				59		

Catalog No.		L	
Type	PD	L	
STM (Movable Stopper)	20	50	
	22	50	60
	25		60
	28		60
	32		75
STK (Fixed Stopper)	38		75
	45		90
	50		90
	60		90

L (Ball Retainer Length)	STM		STK	
	S	l	l	① CB (Cap Screw)
50	0 ~ 19	31	15	8 – 30
60	0 ~ 23	35	20	8 – 35
75	0 ~ 30	42	25	8 – 40
90	0 ~ 37	49	30	8 – 45
110	0 ~ 47	59	35	8 – 50

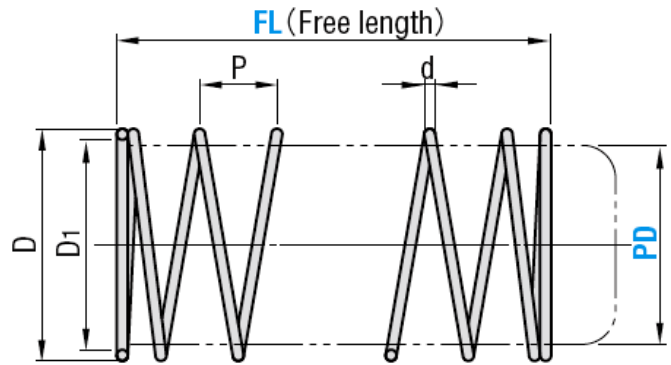
SPRINGS FOR BALL BEARING GUIDE



Dimension: MM

Catalog No.		D	D ₁ ⁺¹ ₀	d	P	FL 10mm increments
Type	PD (Post Diameter)					
SWP	20	22.5	20.5	1.0	14	40 ~ 140
	22	24.5	22.5	1.0	14	40 ~ 140
	25	27.9	25.5	1.2	14	40 ~ 150
	28	31.3	28.5	1.4	16	50 ~ 150
	32	35.7	32.5	1.6	16	70 ~ 190
	38	42.5	38.5	2.0	18	80 ~ 190
	45	50.1	45.5	2.3	20	80 ~ 190
	50	55.7	50.5	2.6	20	80 ~ 190
	60	66.9	60.5	3.2	20	80 ~ 190

SPRINGS FOR BALL BEARING GUIDE – WITH SNAP BUSHINGS



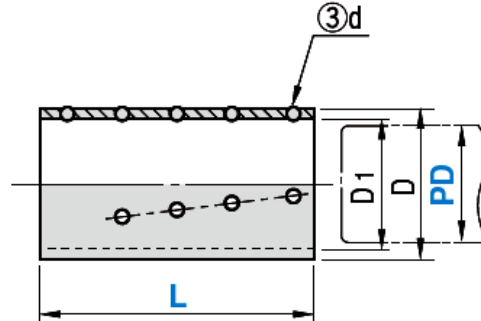
Dimension: MM

Catalog No.		D	D1	d	P	FL 5mm increments
Type	PD (Post Diameter)					
SWPB	20	25	23.2	0.9	12	25 ~ 40
	22	27	25.0	1.0		25 ~ 50
	25	30	27.8	1.1	13	25 ~ 60
	28	35	32.6	1.2	15	25 ~ 60
	32	39	36.0	1.5		35 ~ 70
	38	47	43.4	1.8	18	35 ~ 70
	45	54	50.0	2.0	20	45 ~ 80
	50	59	54.4	2.3		45 ~ 80
60	69	63.8	2.6	45 ~ 80		

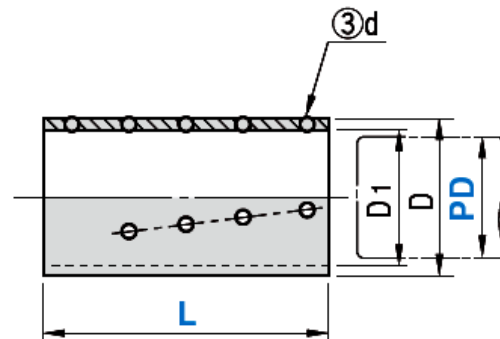
BALL RETAINERS FOR BALL BEARING GUIDE



MBSJ (High-rigidity aluminium)
MBJH (High-rigidity plastic)



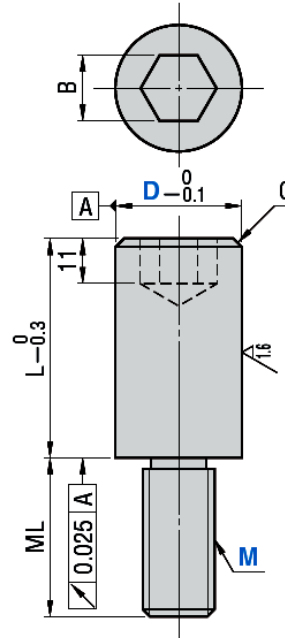
MBS (Aluminium)
MBJ (Plastic)



Dimension: MM

Type	Catalog No.		Outside Diameter Ø D	Inner Diameter Ø D ₁	Ball Diameter Ø d	Length L	Number of Ball		
	PD (Post Diameter)						MBSH MBJH	MBS MBJ	Ratio
MBSH (Aluminium)	20	+ 0.020 + 0.015	25.5	20.5	3	50	165	90	1.72
	22		27.5	22.5		50	180	112	1.61
	25		60	266		160	1.66		
			75	350		208	1.68		
MBJH (Plastic)	28	+ 0.025 + 0.020	35.5	28.5	4	60	204	126	1.62
	32		75	252		154	1.64		
			75	294		176	1.67		
			90	350		208	1.68		
MBS (Aluminium)	38	+ 0.030 + 0.025	47.5	38.5	5	75	238	144	1.65
	45		90	280		176	1.67		
			90	320		198	1.70		
			110	400		234	1.71		
MBJ (Plastic)	50	+ 0.035 + 0.030	59.5	50.5	90	360	220	1.72	
					110	450	260	1.73	
	60		90	400	242	1.74			
			110	500	286	1.75			

SHANKS FOR DIE SET



Dimension: MM

Catalog No.		B	C	L	ML	M	MSKTP	
Type	D						L1	L2
MSKS	25	12	2	50	40	M18 x P1.5	10	28
	25					M22 x P1.5		
MSKTP	32	17	3	55	60	M30 x P2.0	12	32
	38			13				
	50			15				