

MISUMI

**DIN 1530 EJECTOR PIN
DIN ISO 8405 EJECTOR SLEEVE
DIN GUIDING ELEMENTS**



2024

EJECTOR PINS

STRAIGHT EJECTOR PIN



Category \ Type				Standard		Length Specify		Dimensions Specify	
Standard	Material	Head Thickness (T mm)	Diameter (P) Tolerances	Part No.	Page	Part No.	Page	Part No.	Page
DIN TYPE	1.2344 (equivalent) + Nitrided	1.2~10	g6	D-EPN	P.5	D-EPN-L	P.6	D-EPNB	P.6
	1.2344/1.3505 (equivalent)		g6	D-EPU	P.7	D-EPD-L	P.8	D-EPDB	P.8

STEP EJECTOR PIN



Category \ Type				Standard		Dimensions Specify	
Standard	Material	Head Thickness (T mm)	Diameter (P) Tolerances	Part No.	Page	Part No.	Page
DIN TYPE	1.2344 (equivalent) + Nitrided	1.2~10	g6	—	—	D-ENSF	P.10
	1.2344 (equivalent)		g6	—	—	D-EDSF	P.11

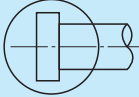
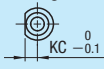
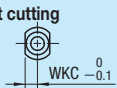
EJECTOR BLADES



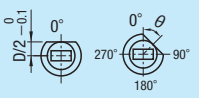
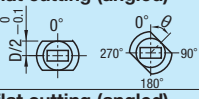
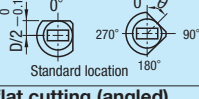
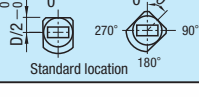
Category \ Type				Standard		Length Specify		Dimensions Specify	
Standard	Material	Head Thickness (T mm)	P · W Tolerances	Part No.	Page	Part No.	Page	Part No.	Page
DIN TYPE	1.2344 (equivalent) + Nitrided	1.2~10	0 -0.015	—	—	—	—	D-ERNX	P.13
	1.2344 (equivalent)		0 -0.015	—	—	—	—	D-ERDX	P.14

ALTERATION GUIDE

■Alteration Guide for Straight and Stepped Ejector Pins

Items	Applicable Products	Alterations	Codes	Specifications
 Head alteration	Straight and Stepped Ejector Pins	Key flat cutting 	KC	Single flat cutting Range of designation $D/2 \leq KC < H/2$ Unit of designation 0.05mm increments possible Designation method • KC0.75 (When D1.5) • WKC3.5 (When D7) ⓘ It remains at D tolerance even when D/2 is designated to fit shaft diameter.
		Key flat cutting 	WKC	Two parallel flat cutting Range of designation $D/2 \leq WKC < H/2$ Unit of designation 0.1mm increments only Designation method • KC1.4
		Head diameter change 	HC	Reduces head diameter. Range of designation $D+1 \leq HC < H$ and $D \geq 1.5$ Unit of designation 0.1mm increments Designation method HC6.5
		Head diameter change (precision) 	HCC	Reduces head diameter. (Precision) Range of designation $D+1 \leq HCC < H-0.3$ and $D \geq 1.5$ Unit of designation 0.1mm increments Designation method HCC6.1 ⓘ JIS Type Only
		Head thickness change 	TC	Reduces the head thickness from the standard. Dimension L remains unchanged (except blank type). Range of designation $T/2 \leq TC < T$ ⓘ $D \geq 1.5$ ⓘ $T-TC \leq L_{max}$ —L ⓘ JIS Type Only

■Alteration Guide for Ejector Blades

Items	Applicable Products	Alterations	Codes	Specifications
Head alteration Ejector Blades		Key flat cutting (angled) 	AKC	Changes the flat position clockwise from the standard position (standard: 0°). Range of designation $0 \leq AKC < 360$ Unit of designation (AKC) Designation method $\theta = 0^\circ \rightarrow AKC0$ 45° increments 1° increments $\theta = 45^\circ \rightarrow AKC45$
		Key flat cutting (angled) 	AWC	Adds two parallel flats at the standard (0°) position, or at the designated angle (clockwise in 1° increments from the standard position). Range of designation $0 \leq AWC < 360$ Unit of designation 1° increments Designation method $\theta = 0^\circ \rightarrow AWC0$, $\theta = 45^\circ \rightarrow AWC45$
		Key flat cutting (angled)  Standard location 180°	ARC	Adds two right-angled flats at the standard (0°) position, moreover at the designated angle (clockwise in 1° increments from the standard position). Range of designation $0 \leq ARC < 360$ Unit of designation 1° increments Designation method $\theta = 0^\circ \rightarrow ARC0$, $\theta = 45^\circ \rightarrow ARC45$
		Key flat cutting (angled)  Standard location 180°	ADC	Adds three flats at the standard (0°) position, moreover at the designated angle (clockwise in 1° increments from the standard position). Range of designation $0 \leq ADC < 360$ Unit of designation 1° increments Designation method $\theta = 0^\circ \rightarrow ADC0$, $\theta = 45^\circ \rightarrow ADC45$

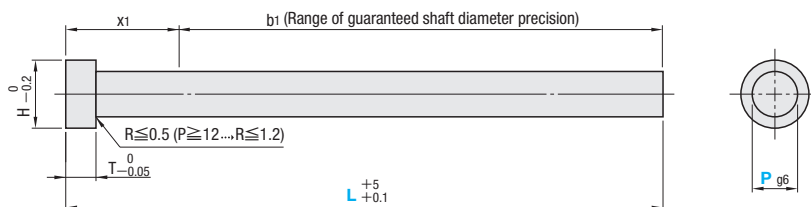
DIN 1530
1.2344 equivalent
+
Nitrided

STRAIGHT EJECTOR PINS

—STANDARD TYPE—



D-EPN



1.2344 equivalent + Nitrided
Surface base: 900HV~
Material: 40~45HRC

Standard

H	T	P _{g6}	Part No.		L Selection											
			Type	P												
2.5	1.2	−0.002 −0.008	D-EPN	1	100	125	160	200								
				1.1	100	125	160	200								
				1.2	100	125	160	200								
3	1.5			1.5	100	125	160	200	250							
				1.8	100	125	160	200								
4	2			2	100	125	160	200	250	315						
5				2.5	100	125	160	200	250	315	400					
6				3	100	125	160	200	250	315	400	500				
7	3			−0.004 −0.012	3.5	100	125	160	200	250	315	400				
4					100	125	160	200	250	315	400	500	630			
8		4.5			100	125	160	200	250	315						
		5			100	125	160	200	250	315	400	500	630	800	1000	
		5.5			100	125	160	200	250	315	400	500				
10	−0.005 −0.014	6			100	125	160	200	250	315	400	500	630	800	1000	
		6.5			100	125	160	200	250	315	400	500				
		7			100	125	160	200	250	315	400	500				
12		7.5			100	125	160	200	250	315	400	500				
		8			100	125	160	200	250	315	400	500	630	800	1000	
		8.5		100	125	160	200	250	315	400	500					
14		−0.006 −0.017		9	100	125	160	200	250	315	400	500	630			
				9.5	100	125	160	200	250	315	400	500				
				10	100	125	160	200	250	315	400	500	630	800	1000	
16				10.5	100	125	160	200	250	315	400	500				
	11			100	125	160	200	250	315	400	500					
	12			100	125	160	200	250	315	400	500	630	800	1000		
18	7			12.2	125	160	200	250	315	400	500	630				
				12.5	100	125	160	200	250	315	400	500				
				14	100	125	160	200	250	315	400	500	630			
22				16	100	125	160	200	250	315	400	500	630	800	1000	
		18		125	160	200	250	315	400	500	630	800	1000			
		20		100	125	160	200	250	315	400	500	630	800	1000		
24		8		−0.007 −0.020	25	125	160	200	250	315	400	500	630			
32					10	25	125	160	200	250	315	400	500	630		



Order

Part No. — L
D-EPN 3 — 100

DIN 1530
1.2344 equivalent
+
Nitrided

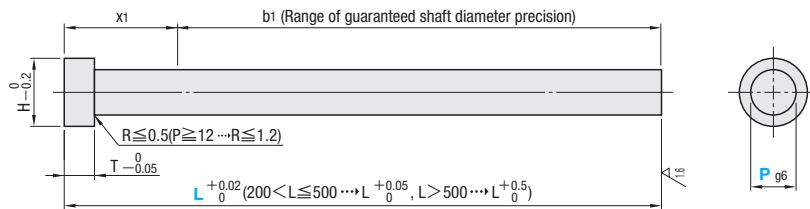
STRAIGHT EJECTOR PINS

—L/L · P DIMENSION SPECIFY TYPE—



D-EPN-L (L Specify)

D-EPNB (L · P Specify)



■ 1.2344 equivalent + Nitrided

■ Surface base: 900HV ~
Materials: 40 ~ 45HRC

Ejector Pins

■ L Dimension Specify

H	T	P g ⁶	Part No.		L
			Type	P	0.01mm increments
2.5	1.2	—0.002 —0.008	D-EPN-L	1	40.00 ~ 200.00
3	1.5			1.5	
4	2			2	40.00 ~ 315.00
5				2.5	
6	3	3		40.00 ~ 400.00	
7		3.5			
8		4		40.00 ~ 500.00	
10		—0.004 —0.012		4.5	40.00 ~ 250.00
	5			40.00 ~ 400.00	
5.5	40.00 ~ 200.00				
6	40.00 ~ 1000.00				
12	5	6.5		100.00 ~ 250.00	
14		8		100.00 ~ 1000.00	
16		10			
18		12			
22	7	16			
26		20			
32	8	—0.007		100.00 ~ 500.00	
32	10	—0.020			

■ L · P Dimension Specify

H	T	P g ₆	Part No.		L 0.01mm increments	P 0.01mm increments
			Type	No.		
2.5	1.2	-0.002 -0.008	D-EPNB	1	40.00 ~ 200.00	0.50 ~ 1.00
3	1.5			1.5		1.01 ~ 1.50
4	2			2	40.00 ~ 315.00	1.51 ~ 2.00
5				2.5		2.01 ~ 2.50
6	3	3		40.00 ~ 400.00	2.51 ~ 3.00	
7		3.5			3.01 ~ 3.50	
8		-0.004 -0.012		4	40.00 ~ 500.00	3.51 ~ 4.00
				4.5	40.00 ~ 250.00	4.01 ~ 4.50
10	5			40.00 ~ 400.00	4.51 ~ 5.00	
	5.5			40.00 ~ 200.00	5.01 ~ 5.50	
12	5	6		40.00 ~ 1000.00	5.51 ~ 6.00	
		6.5		100.00 ~ 250.00	6.01 ~ 6.50	
14		8		100.00 ~ 1000.00	6.51 ~ 8.00	
16		10			8.01 ~ 10.00	
18	7	12			10.01 ~ 12.00	
22		16			12.01 ~ 16.00	
26	8	-0.007		20	16.01 ~ 20.00	
32	10	-0.020		25	100.00 ~ 500.00	20.01 ~ 25.00



Alterations



Part No. — L — P — (KC · WKC...etc.)
D-EPNB 4.5 — 248.35 — P4.23 — WKC2.115

Alterations	Code	Spec.
	KC	Single flat cutting $P/2 \leq KC < H/2$ About Designation Unit for Key Flat Cutting (1) To align the key flat with the shaft diameter (Unit of designation) 0.005mm increments possible
	WKC	Two flats cutting $P/2 \leq WKC < H/2$ (2) To designate arbitrary key flat dimensions (Unit of designation) 0.1mm

Alteration details ■ P.4

Alterations	Code	Spec.
	HC	HC=0.1mm increments $P+1 \leq HC < H, P \geq 1.5$



Order

Part No. — L — P
D-EPN-L 1 — 100.00
D-EPNB 1 — 100.00 — P0.50

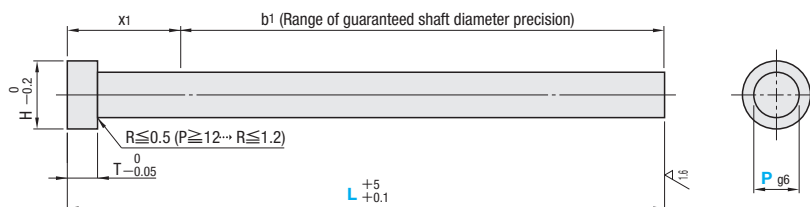
DIN 1530
1.3505 equivalent
Hardened

STRAIGHT EJECTOR PINS

—STANDARD TYPE—



D-EPU



M 1.3505 equivalent
H 58~62HRC

H	T	P _{g6}	Part No.		L Selection							
			Type	P								
2.5	1.2	−0.002 −0.008	D-EPU	1	100	125	160	200	250			
				1.1	100	125	160	200				
				1.2	100	125	160	200	250			
3	1.5			−0.002 −0.008	1.5	100	125	160	200	250	315	
4	2				2	100	125	160	200	250	315	400
5					2.5	100	125	160	200	250	315	
6		3		−0.004 −0.012	3	100	125	160	200	250	315	400
7	3.5				100	125	160	200	250	315	400	
8	4				100	125	160	200	250	315	400	500
10	4.5				100	125	160	200	250	315	400	500
	5				100	125	160	200	250	315	400	500
	5.5				100	125	160	200	250	315	400	
12	5	−0.005 −0.014		6	100	125	160	200	250	315	400	500
				6.5	100	125	160	200	250	315	400	
				7	100	125	160	200	250	315	400	500
7.5				100	125	160	200	250	315	400		
14				8	100	125	160	200	250	315	400	500
				8.5	100	125	160	200	250	315	400	
	9	100		125	160	200	250	315	400			
16	7	−0.006 −0.017		9.5	100	125	160	200	250	315	400	
				10	100	125	160	200	250	315	400	500
				10.5	100	125	160	200	250	315	400	
11				100	125	160	200	250	315	400		
12				100	125	160	200	250	315	400	500	
12.5				100	125	160	200	250	315	400		
22	8	−0.007 −0.020		14	100	125	160	200	250	315	400	500
16				100	125	160	200	250	315	400	500	
18				125	160	200	250	315	400	500		
26	8	−0.007 −0.020		20	100	125	160	200	250	315	400	500



Order

Part No.

D-EPU 3

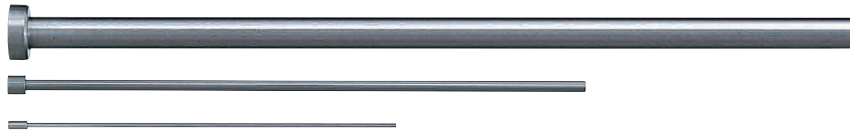
L

100

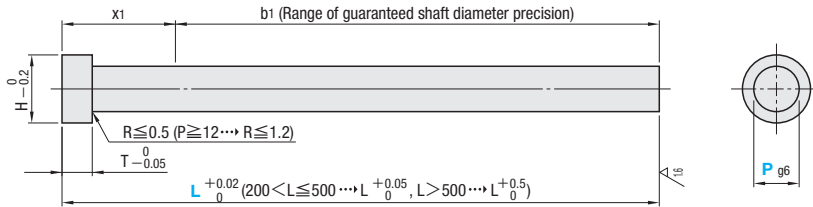
DIN 1530
1.2344 equivalent
Hardened

STRAIGHT EJECTOR PINS

—L/L · P DIMENSION SPECIFY TYPE—



D-EPD-L (L Specify)
D-EPDB (L · P Specify)



1.2344 equivalent
50~55HRC

Ejector Pins

L Dimension Specify

H	T	P g6	Part No.		L	
			Type	P	0.01mm increments	
2.5	1.2	-0.002 -0.008	D-EPD-L	1		
3	1.5			1.5	40.00 ~	200.00
4	2			2	40.00 ~	315.00
5				2.5		
6	3	3		40.00 ~	400.00	
7		3.5				
8		4		40.00 ~	500.00	
10		4.5		40.00 ~	250.00	
	5	40.00 ~		400.00		
12	5	5.5		40.00 ~	200.00	
14		6		40.00 ~	1000.00	
16		6.5		100.00 ~	250.00	
		8				
18	7	10				
22		12	100.00 ~	1000.00		
		16				
26	8	20				
32	10	25	100.00 ~	500.00		

L · P Dimension Specify

H	T	P g ₆	Part No.		L 0.01mm increments	P 0.01mm increments	
			Type	No.			
2.5	1.2	-0.002 -0.008	D-EPDB	1	40.00 ~ 200.00	0.50 ~ 1.00	
3	1.5			1.5		1.01 ~ 1.50	
4	2			2	40.00 ~ 315.00	1.51 ~ 2.00	
5				2.5		2.01 ~ 2.50	
6	3	3		40.00 ~ 400.00	2.51 ~ 3.00		
7		3.5			3.01 ~ 3.50		
8		3		4	40.00 ~ 500.00	3.51 ~ 4.00	
				4.5		4.01 ~ 4.50	
10	-0.004 -0.012			5	40.00 ~ 400.00	4.51 ~ 5.00	
				5.5		5.01 ~ 5.50	
12		5		6	40.00 ~ 1000.00	5.51 ~ 6.00	
				6.5		6.01 ~ 6.50	
14	-0.005 -0.014			8	100.00 ~ 250.00	6.51 ~ 8.00	
16				8.01 ~ 10.00			
18		7		12		100.00 ~ 1000.00	10.01 ~ 12.00
				16			12.01 ~ 16.00
22	-0.007			20	16.01 ~ 20.00		
32				25	100.00 ~ 500.00		20.01 ~ 25.00

Alteration details P.4

Alterations	Code	Spec.
	KC	Single flat cutting P/2 ≤ KC < H/2 (1) To align the key flat with the shaft diameter Unit of designation D-EPD-L 0.05mm increments possible
	WKC	D-EPDB 0.005mm increments possible (2) To designate arbitrary key flat dimensions Unit of designation 0.1mm

Alterations	Code	Spec.
	HC	HC=0.1mm increments P+1 ≤ HC < H, P ≥ 1.5



Part No. — L
Order **D-EPD-L 1 — 100.00**



Alterations Part No. — L — P — (KC · WKC...etc.)
D-EPDB 12 — 350.00 — P11.00 — HC15

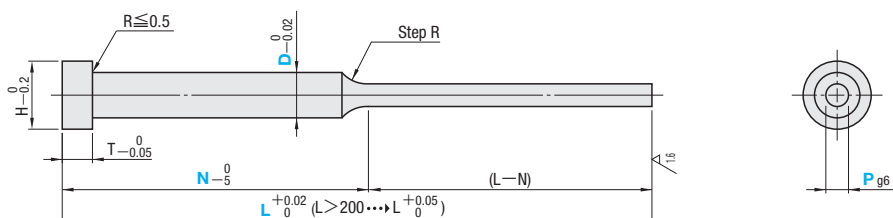
DIN 1530
1.2344 equivalent
+
Nitrided

STEPPED EJECTOR PINS

—STANDARD TYPE—



D-ENSFB



M 1.2344 equivalent+Nitrided
H Surface 900HV~Material 40~45HRC

H	T	Part No.		L Selection	P	N
		Type	D			
3	1.5	D-ENSFB	1.5	100	0.8	40
				160	1	50
4	2		2	100	1 1.5	40
				160		50
				200	75	
5			2.5	100	1.5	40
				160	1.5 2	50
6	3		3	100	1 1.5	40 75
				125	1 1.5 2	
				160		50 75
				200	1.5 2 2.5	75

⚠ Nitriding may extend to the head as it is applied after dimension P machining.



Order

Part No. — L — P — N
D-ENSFB 3 — 100 — P1.0 — N40

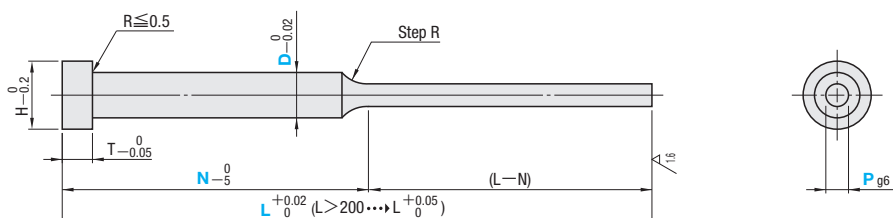
DIN 1530
1.2344 equivalent
+
Nitrided

STEPPED EJECTOR PINS

— DIMENSIONS SPECIFY TYPE —



D-ENSF



M 1.2344 equivalent + Nitrided
H Surface 900HV ~ Material 40 ~ 45HRC

Ejector Pins

H	T	Part No.		L 0.01mm increments	P 0.01mm increments	N 1mm increments
		Type	No.			
3	1.5	D-ENSF	1.5	40.00 ~ 200.00	0.80 ~ 1.40	$N \geq 15$ and $15 \leq (L - N) \leq 150$
4	2		2	40.00 ~ 315.00	0.80 ~ 1.90	
5			2.5		0.80 ~ 2.40	
6			3	40.00 ~ 400.00	1.00 ~ 2.90	
7			3.5	40.00 ~ 400.00	1.50 ~ 3.40	
8	3		4	50.00 ~ 500.00	1.50 ~ 3.90	$N \geq L/3$ and $(L - N) \geq 10$
			4.5	50.00 ~ 250.00	2.50 ~ 4.40	
			5	50.00 ~ 400.00	3.00 ~ 4.90	
10			5.5	50.00 ~ 200.00	3.50 ~ 5.40	
			6	50.00 ~ 1000.00	4.00 ~ 5.90	
12	5		6.5	50.00 ~ 250.00	4.50 ~ 6.40	
14			8		5.90 ~ 7.90	
16			10		7.90 ~ 9.90	
18			12	50.00 ~ 1000.00	8.90 ~ 11.90	
22	7		16		11.90 ~ 15.90	
26	8		20		15.90 ~ 19.90	

Nitriding may extend to the head as it is applied after dimension P machining.



Alterations



Part No. — L — P — N — (KC · WKC...etc.)
D-ENSF 2.5 — 149.78 — P1.5 — N70 — KC1.25

Alteration details P.4

Alterations	Code	Spec.
	KC	Single flat cutting $D/2 \leq KC < H/2$ (1) To align the key flat with the shaft diameter [Unit of designation] 0.05mm increments possible
	WKC	Two flats cutting $D/2 \leq WKC < H/2$ (2) To designate arbitrary key flat dimensions [Unit of designation] 0.1mm

Alterations	Code	Spec.
	HC	HC = 0.1mm increments $D + 1 \leq HC < H$



Order

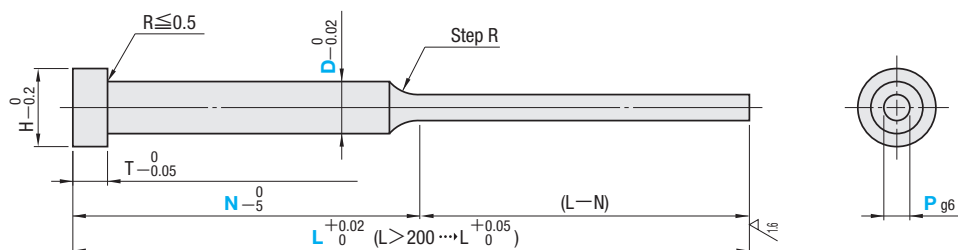
Part No. — L — P — N
D-ENSF 2.5 — 149.78 — P1.5 — N70

DIN 1530
1.2344 equivalent
Hardened

STEPPED EJECTOR PINS

— DIMENSIONS SPECIFY TYPE —

D-EDSF



M 1.2344 equivalent
H 50 ~ 55HRC

H	T	Part No.		L 0.01mm increments	P 0.01mm increments	N 1mm increments
		Type	No.			
3	1.5	D-EDSF	1.5	40.00 ~ 200.00	0.80 ~ 1.40	$N \geq 15$ and $15 \leq (L-N) \leq 150$
4	2		2	40.00 ~ 315.00	0.80 ~ 1.90	
5			2.5		0.80 ~ 2.40	
6			3	40.00 ~ 400.00	1.00 ~ 2.90	
7			3.5	40.00 ~ 400.00	1.50 ~ 3.40	
8	3		4	50.00 ~ 500.00	1.50 ~ 3.90	$N \geq L/3$ and $(L-N) \geq 10$
			4.5	50.00 ~ 250.00	2.50 ~ 4.40	
			5	50.00 ~ 400.00	3.00 ~ 4.90	
10			5.5	50.00 ~ 200.00	3.50 ~ 5.40	
12			6	50.00 ~ 1000.00	4.00 ~ 5.90	
	5		6.5	50.00 ~ 250.00	4.50 ~ 6.40	
14			8	50.00 ~ 1000.00	5.90 ~ 7.90	
16			10		7.90 ~ 9.90	
18			12		8.90 ~ 11.90	
22	7		16		11.90 ~ 15.90	
26	8		20		15.90 ~ 19.90	



Alterations



Part No. — L — P — N — (KC · WKC...etc.)
D-EDSF 2 — 149.78 — P1.5 — N70 — KC1

Alteration details P.4

Alterations	Code	Spec.
 KC -0.1	KC	Single flat cutting $D/2 \leq KC < H/2$ (1) To align the key flat with the shaft diameter (Unit of designation) 0.05mm increments possible
 WKC -0.1	WKC	Two flats cutting $D/2 \leq WKC < H/2$ (2) To designate arbitrary key flat dimensions (Unit of designation) 0.1mm

Alterations	Code	Spec.
 H	HC	HC=0.1mm increments $D+1 \leq HC < H$



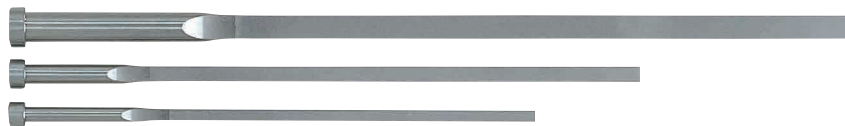
Order

Part No. — L — P — N —
D-EDSF 2.5 — 149.78 — P1.5 — N70

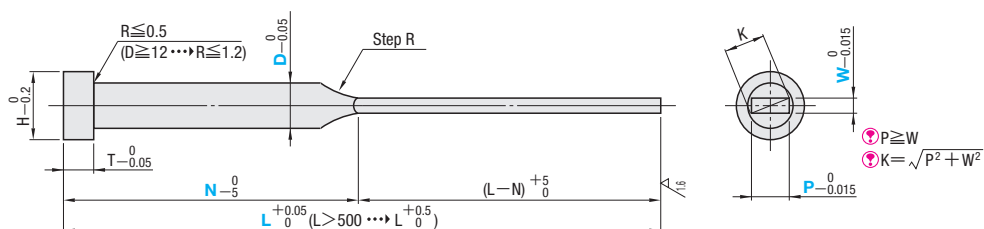
DIN 1530
1.2344 equivalent
+
Nitrided

EJECTOR BLADES

—STANDARD TYPE—



D-ERNXB



⚠ This product is not polished after nitriding.
There is hardly any color unevenness, and no problem with the quality.

Ⓜ 1.2344 equivalent + Nitrided
Ⓜ Surface 900HV~ Material 40~45HRC

H	T	Part No.		L Selection	P	W	K max.	N
		Type	D					
6	3	D-ERNXB	3	100	2 2.5	0.8	2.9	40
				125				50
				160				
8			4	100	3.5	1	3.9	40
				125				50
				160				
			4.5	125	4	4.4	40	
				160			50	
	10		5	125	1.2	4.9	40	
160								
12	5		6	5	1.2 1.5 2	5.9	50	
200								
8			315	6	1.2	7.9	120	
16			10	160	8	2 2.5	9.9	50
				200				80
				250				
18	7		12	315	10	3	11.9	120



Order

Part No. — L — P — W — N
D-ERNXB 4 — 125 — P3.5 — W1 — N40

Precision Standard

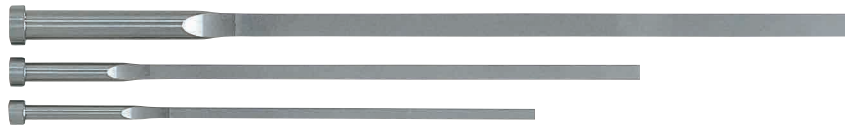
Squareness of the tip corner	Corner R value of the tip corner
W plane as the base (Pmax. — Pmin.) ≤ 0.02	Rmax. ≤ 0.03 (Trimming R) ⚠ The tip corners have been slightly trimmed to measure the P · W dimensions.

Ejector Pins

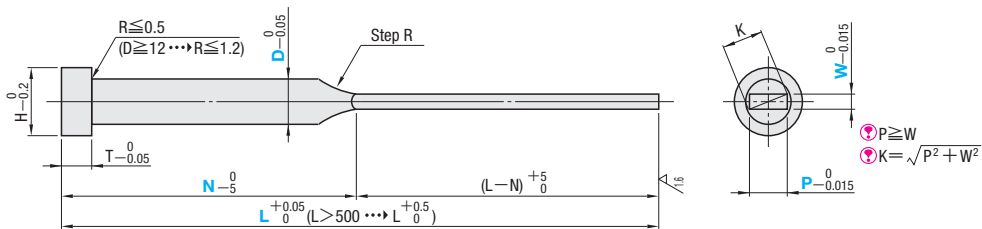
DIN 1530
1.2344 equivalent
+
Nitrided

EJECTOR BLADES

— DIMENSIONS SPECIFY TYPE —



D-ERNX



⚠ This product is not polished after nitriding.
There is hardly any color unevenness, and no problem with the quality.

W 1.2344 equivalent + Nitrided
H Surface 900HV~ Material 40~45HRC

H	T	Part No.	D	L	P	W	K	N
		Type		0.01mm increments	0.01mm increments	0.01mm increments	max.	1mm increments
4	2	D-ERNX	2	100.00 ~ 315.00	0.80 ~ 1.80	0.30 ~	1.9	N ≥ 30 and (L - N) ≥ 30
5			2.5		0.80 ~ 2.30		2.4	
6			3		0.80 ~ 2.80		2.9	
7			3.5	100.00 ~ 400.00	1.00 ~ 3.30		3.4	
8	3		4	100.00 ~ 500.00	1.00 ~ 3.80	0.40 ~	3.9	
			4.5	100.00 ~ 250.00	1.20 ~ 4.30		4.4	
10			5	100.00 ~ 400.00	1.50 ~ 4.80		4.9	
			5.5	100.00 ~ 200.00	1.80 ~ 5.30		5.4	
12	5		6	100.00 ~ 1000.00	2.00 ~ 5.80	0.50 ~	5.9	
			6.5	100.00 ~ 250.00	2.00 ~ 6.30		6.4	
14			8	100.00 ~ 1000.00	2.50 ~ 7.80		7.9	
16			10		5.00 ~ 9.80		9.9	
18	7		12		6.00 ~ 11.80	1.00 ~	11.9	• D10~D16 N ≥ 50 • D20~D25 N ≥ 55 and N ≥ L/3, (L - N) ≥ 10
22			16		8.00 ~ 15.80	1.50 ~	15.9	
26	8		20		10.00 ~ 19.70	2.00 ~	19.9	
32	10		25	100.00 ~ 500.00	13.00 ~ 24.70	2.50 ~	24.9	



Order

Part No. — L — P — W — N
D-ERNX12 — 505.00 — P10.00 — W5.00 — N170



Alterations

Part No. — L — P — W — N — (AKC · AWC · etc.)
D-ERNX12 — 505.00 — P10.00 — W5.00 — N170 — AKC 0

Alteration details P.4

Alterations	Code	Spec.
	AKC	AKC = 1° increments ⚠ 0 ≤ AKC < 360
	AWC	AWC = 1° increments ⚠ 0 ≤ AWC < 360
	ARC	ARC = 1° increments ⚠ 0 ≤ ARC < 360

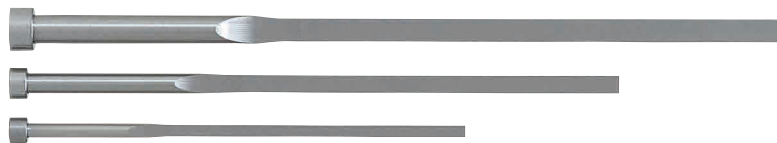
Alterations	Code	Spec.
	ADC	ADC = 1° increments ⚠ 0 ≤ ADC < 360
	HC	HC = 0.1mm increments ⚠ D + 1 ≤ HC < H
	WR	2 places on top are rounded.
	FR	4 places on top are rounded.

Precision Standard

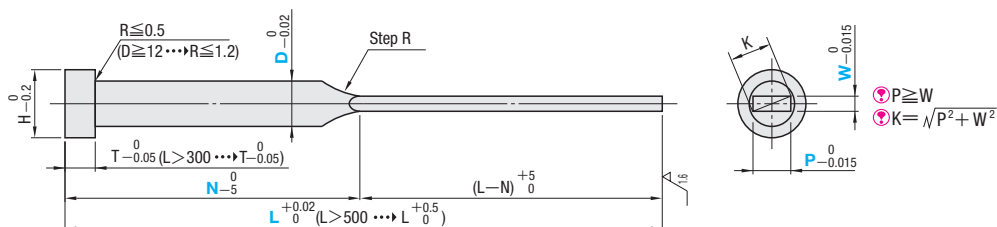
Squareness of the tip corner	Corner R value of the tip corner
 W plane as the base (Pmax. - Pmin.) ≤ 0.02	 Rmax. ≤ 0.03 (Trimming R) ⚠ The tip corners have been slightly trimmed to measure the P · W dimensions.

EJECTOR BLADES

— DIMENSIONS SPECIFY TYPE —



D-ERDX



W 1.2344 equivalent
H 50~55HRC

H	T	Part No. Type	D	L 0.01mm increments	P 0.01mm increments	W 0.01mm increments	K max.	N 1mm increments
4	2	D-ERDX	2	100.00 ~ 315.00	0.80 ~ 1.80	0.30 ~	1.9	N ≥ 30 and (L - N) ≥ 30
5			2.5		0.80 ~ 2.30		2.4	
6			3		0.80 ~ 2.80		2.9	
7			3.5	100.00 ~ 400.00	1.00 ~ 3.30		3.4	
8	3		4	100.00 ~ 500.00	1.00 ~ 3.80	0.40 ~	3.9	
			4.5	100.00 ~ 250.00	1.20 ~ 4.30		4.4	
10			5	100.00 ~ 400.00	1.50 ~ 4.80		4.9	
			5.5	100.00 ~ 200.00	1.80 ~ 5.30		5.4	
12	5		6	100.00 ~ 1000.00	2.00 ~ 5.80	0.50 ~	5.9	
			6.5	100.00 ~ 250.00	2.00 ~ 6.30		6.4	
14			8	100.00 ~ 1000.00	2.50 ~ 7.80		7.9	
16			10		5.00 ~ 9.80		9.9	
18	7		12		6.00 ~ 11.80	1.00 ~	11.9	
22			16		8.00 ~ 15.80	1.50 ~	15.9	
26	8		20		10.00 ~ 19.70	2.00 ~	19.9	
32	10		25	100.00 ~ 500.00	13.00 ~ 24.70	2.50 ~	24.9	



Order

Part No. — L — P — W — N
D-ERDX5 — 120.25 — P3.50 — W1.50 — N60



Alterations

Part No. — L — P — W — N — (AKC · AWC · etc.)
D-ERDX5 — 120.25 — P3.50 — W1.50 — N60 — AWC60

Alteration details P.4

Alterations	Code	Spec.
	AKC	AKC = 1° increments 0 ≤ AKC < 360
	AWC	AWC = 1° increments 0 ≤ AWC < 360
	ARC	ARC = 1° increments 0 ≤ ARC < 360

Alterations	Code	Spec.
	ADC	ADC = 1° increments 0 ≤ ADC < 360
	HC	HC = 0.1mm increments D + 1 ≤ HC < H
	WR	2 places on top are rounded.
	FR	4 places on top are rounded.

Precision Standard

Squareness of the tip corner	Corner R value of the tip corner
 W plane as the base (Pmax. - Pmin.) ≤ 0.02	 Rmax. ≤ 0.03 (Trimming R) The tip corners have been slightly trimmed to measure the P · W dimensions.

DIN ISO 8405
1.2344 equivalent
+
Nitrided

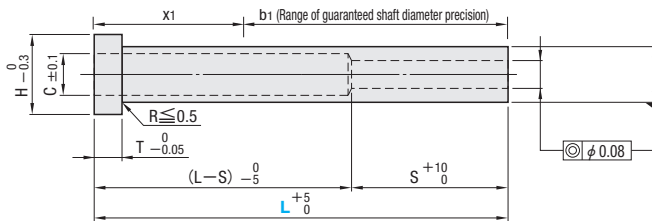
DIN ISO 8405
1.2344 equivalent
Hardened

STRAIGHT EJECTOR SLEEVES

—◎0.08 STANDARD TYPE—



Type	M	H	T V	Applicable center pin shaft diameter tolerance
D-ESN	1.2344 equivalent+Nitrided	Surface: 900HV Base Material: 40±3HRC	H7	—0.01 —0.02
D-ESD	1.2344 equivalent	Base Material: 50~55HRC		—0.01 —0.02



L	100	125	150	175	200	250	300	350	400	450	500
S	50 (V1.5~40)	60	75	100	115	150					

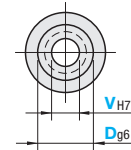
- ⚠ Nitriding may extend to the head as it is applied after dimension V and D machining.
- ⚠ The diameter (D) portion of the stepped center pin cannot be inserted into the relief hole (C).

T Dg6

D≤6	6.5≤D≤10	12≤D≤16	D=20
—0.004 —0.012	—0.005 —0.014	—0.006 —0.017	—0.007 —0.020

T V H7

V≤3	3.5≤V≤6	6.5≤V≤10	V≥12
+0.010 0	+0.012 0	+0.015 0	+0.018 0



$$C=V+0.5$$

Range of guaranteed shaft diameter precision (b1=L—x1)
x1 max.40

H	T	Part No.	L	V
		Type	D	
8	3	D-ESN (1.2344 equivalent + Nitrided)	4	100 *125 *150 1.5
				100 *125 *150 *175 *200 2 2.5
			4.5	100 *125 *150 1.5
				100 *125 *150 *175 *200 2
				*100 *125 *150 *175 *200 2.5
			5	100 *125 *150 *175 *200 2 2.5
				100 *125 *150 *175 *200 250 *300 3
				100 *125 *150 *175 *200 2 2.5
			5.5	100 *125 *150 *175 *200 250 300 3
				100 *125 *150 *175 *200 250 300 3.5
12	5	D-ESN (1.2344 equivalent + Nitrided)	6	100 *125 *150 *175 *200 250 *300 2 2.5
				100 *125 *150 *175 *200 250 *300 350 *400 450 3 3.5
				*100 *125 *150 *175 *200 250 *300 350 *400 450 4
				*100 *125 *150 *175 *200 250 300 2.5
			6.5	100 *125 *150 *175 *200 250 300 350 *400 450 3
				100 *125 *150 *175 *200 250 300 350 400 450 3.5
				100 *125 *150 *175 *200 250 300 350 *400 450 4
				100 *125 *150 *175 *200 250 300 2.5
			7	100 *125 *150 *175 *200 250 300 350 400 450 3 3.5
				100 *125 *150 *175 *200 250 *300 350 *400 450 4 4.5 5
14	5	D-ESD (1.2344 equivalent Hardened)	7.5	100 *125 *150 *175 *200 250 300 3 3.5
				100 *125 *150 *175 *200 250 300 350 4 5
				100 *125 *150 *175 *200 250 *300 350 4
			8	100 *125 *150 *175 *200 250 300 350 400 450 4.5 5.5
				100 *125 *150 *175 *200 250 *300 350 *400 450 *500 5 6
				100 *125 *150 *175 *200 250 300 350 400 450 500 3.5 4 4.5
				100 *125 *150 *175 *200 250 *300 350 400 450 500 5 6.5
				100 *125 *150 *175 *200 250 300 350 400 450 500 6
			10	100 *125 *150 *175 *200 250 *300 350 400 450 *500 5 6 6.5
				100 *125 *150 *175 *200 250 300 350 400 450 500 5.5
18	7	D-ESD (1.2344 equivalent Hardened)	12	100 *125 *150 *175 *200 250 300 350 400 450 500 7
				100 *125 *150 *175 *200 250 300 350 400 450 500 4
				100 *125 *150 *175 *200 250 300 350 400 450 500 5 6.5 7
				100 *125 *150 *175 *200 250 *300 350 400 450 500 8 9
				100 *125 *150 *175 *200 250 300 350 400 450 500 8 9
			13	100 *125 *150 *175 *200 250 *300 350 400 450 500 10
				100 *125 *150 *175 *200 250 300 350 400 450 500 9
			15	100 *125 *150 *175 *200 250 *300 350 400 450 500 10
				100 *125 *150 *175 *200 250 300 350 400 450 500 10 12
			16	100 *125 *150 *175 *200 250 *300 350 400 450 500 11
22	8	D-ESD (1.2344 equivalent Hardened)		100 *125 *150 *175 *200 250 300 350 400 450 500 12
			20	100 *125 *150 *175 *200 250 *300 350 400 450 500 15



Order

Part No. — L — V
D-ESN 6.5 — 125 — 2.5



Alterations



Part No. — L — V — (KC · WKC · etc.) Alteration details P.4
D-ESD 8 — 500 — 4.5 — KC4.5

DIN ISO 8405
1.2344 equivalent
+
Nitrided

DIN ISO 8405
1.2344 equivalent
Hardened

STRAIGHT EJECTOR SLEEVES

—◎0.08 DIMENSIONS SPECIFY TYPE—



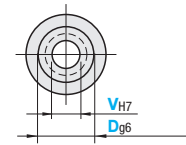
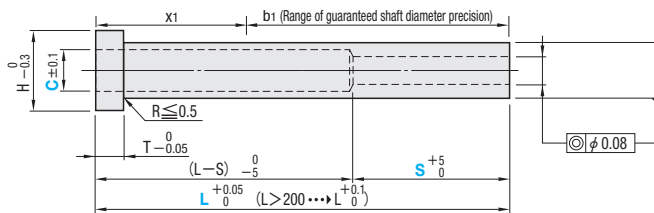
Type	M	H	T V	Applicable center pin shaft diameter tolerance
D-ESN-L	1.2344 equivalent+Nitrided	Surface: 900HV Base Material: 40±3HRC	H7	*Note that for sleeves with V dimension tolerance of H7, combination with center pins that have shaft diameter tolerance $-\frac{0}{0.005}$ is not recommended. The reason for this is the fitting section S are longer.
D-ESD-L	1.2344 equivalent	Base Material: 50~55HRC		

T D_{g6}

D ≤ 6	6.5 ≤ D ≤ 10	12 ≤ D ≤ 16	D = 20
-0.004 -0.012	-0.005 -0.014	-0.006 -0.017	-0.007 -0.020

T V_{H7}

V ≤ 3.0	3.1 ≤ V ≤ 6.0	6.1 ≤ V ≤ 10.0	V ≥ 10.1
+0.010 0	+0.012 0	+0.015 0	+0.018 0



Dimension C remains unchanged

☑ Nitriding may extend to the head as it is applied after dimension V and D machining.

☑ When the diameter (D) portion of the stepped center pin is inserted into the relief hole (C), make sure relief hole (C) ≥ pin diameter (D)+1.0

Range of guaranteed shaft diameter precision (b1=L-x1)
x1 max.40

H	T	Part No.		L		V	C	Cmax.	S				
		Type	D	0.01mm increments	0.1mm increments	0.1mm increments	0.1mm increments		1mm increments				
8	3	D-ESN-L	4	40.00~200.00	—	1.5~ 2.5	C≥V+0.5 (☹When L>300 0.5mm increments)	3.0	20~100 (☹D4, D4.5 When V1.5~V1.9 20~40)				
			4.5			1.5~ 3.0		3.5					
10			5			2.0~ 3.5		4.0					
			5.5			2.0~ 4.0		4.5					
	5		6	40.00~400.00		2.0~ 4.5		5.0		L	(L—S) min.		
			6.5			2.0~ 4.5		5.5				40.00~60.00	20
12			7			2.0~ 5.0		6.0				60.01~	30
			7.5			2.0~ 5.5		6.5					
14		8	2.0~ 6.0		7.5								
	7	9	70.00~500.00	2.5~ 7.0	8.5	20~100 (L—S)≥50							
16		10		2.5~ 8.0	10.5								
		12		2.5~10.0	12.5								
18		15		2.5~12.0	13.5								
22		16		3.0~13.0	16.5								
	8	D-ESD-L	20	100.00~500.00	3.0~16.0	C≥V+0.5 (☹When L>300 0.5mm increments)	16.5						
26													



Order

Part No.	L	V	C	S
D-ESN-L6	300	3.5	5.5	S30



Alterations

Part No.	L	V	C	S	(KC · WKC...etc.)	Alteration details
D-ESD-L8	500	4.5	6.5	S40	KC4.5	P.4

Ejector Sleeves

DIN ISO 8405
1.2344 equivalent
+
Nitrided

DIN ISO 8405
1.2344 equivalent
Hardened

STRAIGHT EJECTOR SLEEVES

—◎0.08 DIMENSIONS SPECIFY TYPE—



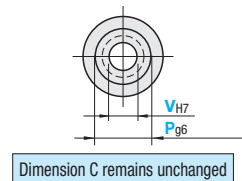
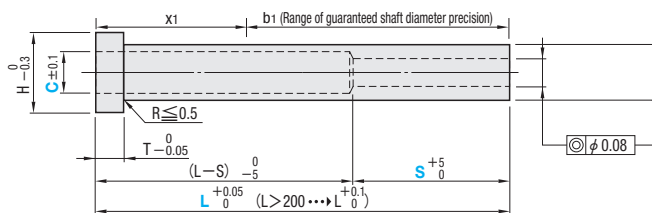
Part No.	M	H	T V	Applicable center pin shaft diameter tolerance
D-ESNB	1.2344 equivalent+Nitrided	Surface: 900HV Base Material: 40±3HRC	H7	—0.01 —0.02
D-ESDB	1.2344 equivalent	Base Material: 50~55HRC		

T P_{g6}

P ≤ 6	6.5 ≤ P ≤ 10	12 ≤ P ≤ 16	P = 20
—0.004 —0.012	—0.005 —0.014	—0.006 —0.017	—0.007 —0.020

T V_{H7}

V ≤ 3.0	3.1 ≤ V ≤ 6.0	6.1 ≤ V ≤ 10.0	V ≥ 10.1
+0.010 0	+0.012 0	+0.015 0	+0.018 0



⚠ Nitriding may extend to the head as it is applied after dimension V and P machining.

⚠ When the diameter (P) portion of the stepped center pin is inserted into the relief hole (C), make sure relief hole (C) ≥ pin diameter (P)+1.0

Range of guaranteed shaft diameter precision (b1=L-X1)
x1 max.40

H	T	Part No.		L		P	V	C	Cmax.	S								
		Type	No.	0.01mm increments	0.1mm increments	0.1mm increments	0.1mm increments	0.1mm increments		1mm increments								
8	3	D-ESNB	4	40.00~200.00	—	3.50~ 3.99	1.5~ 1.9	$C \geq V+0.5$ and $C \leq P-1.5$	2.4	$\left(\begin{array}{l} \text{No.4, No.4.5} \\ \text{When V1.5~V1.9} \\ 20 \sim 40 \end{array} \right)$								
10			4.5			4.01~ 4.49	1.5~ 2.4		2.9									
			5			4.51~ 4.99	2.0~ 2.9		3.4									
			5.5			5.01~ 5.49	2.0~ 3.4		3.9									
12	$\left(\begin{array}{l} 1.2344 \text{ equivalent} \\ + \\ \text{Nitrided} \end{array} \right)$	6	40.00~400.00	5.51~ 5.99		2.0~ 3.9	4.4											
		6.5		6.01~ 6.49		2.0~ 4.4	4.9											
		7		6.51~ 6.99		2.0~ 4.9	5.4											
		7.5		7.01~ 7.49		2.0~ 5.4	5.9											
14	D-ESDB	8	70.00~500.00	7.51~ 7.99		2.5~ 5.9	6.4		$\left(\begin{array}{l} \text{When L>300} \\ 0.5\text{mm} \\ \text{increments} \end{array} \right)$	20~100								
		9		8.01~ 8.99		2.5~ 6.9	7.4											
16	10	9.01~ 9.99		2.5~ 7.9		8.4												
	7	12		10.01~11.99		2.5~ 9.9	10.4				<table><tr><td>L</td><td>(L-S) min.</td></tr><tr><td>40.00~60.00</td><td>20</td></tr><tr><td>60.01~70.00</td><td>30</td></tr><tr><td>70.01~80.00</td><td>40</td></tr><tr><td>80.01~</td><td>50</td></tr></table>	L	(L-S) min.	40.00~60.00	20	60.01~70.00	30	70.01~80.00
L		(L-S) min.																
40.00~60.00		20																
60.01~70.00		30																
70.01~80.00	40																	
80.01~	50																	
18		15	500.1~800.0	12.01~14.99	2.5~12.0	12.5												
22		16		15.01~15.99	2.5~13.0	13.5												
26	8	20		16.01~19.99	3.0~16.0	16.5												

⚠ V ≤ P-2.0



Order

Part No. — L — P — V — C — S
D-ESNB 4 — 200 — P3.5 — V1.5 — C2.0 — S30



Alterations



Part No. — L — P — V — C — S — (KC · WKC...etc.)
D-ESDB 10 — 300 — P9.1 — V5.5 — C6.2 — S50 — HC10

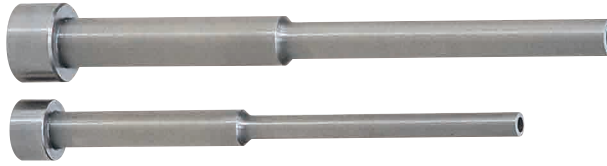
Alteration details P.4

DIN Type
1.2344 equivalent
+
Nitrided

DIN Type
1.2344 equivalent
Hardened

STEP EJECTOR SLEEVES

—◎0.08 DIMENSIONS SPECIFY TYPE—



Part No.	M	H	T P	T V	Applicable center pin shaft diameter tolerance
D-ESNF	1.2344 equivalent+Nitrided	Surface: 900HV Base Material: 40±3HRC	g6	H7	—0.01 —0.02
D-ESDF	1.2344 equivalent	Base Material: 50~55HRC			

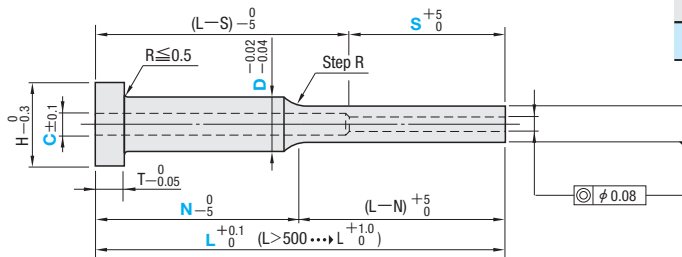
*Please note that the ejector sleeve with a V dimension tolerance of H7 has a long precision fitting portion S and is not suitable for use with a center pin with a shaft diameter tolerance of —0.005.

T Pg6

P ≤ 6	6.5 ≤ P ≤ 10	12 ≤ P ≤ 16	P = 20
—0.004 —0.012	—0.005 —0.014	—0.006 —0.017	—0.007 —0.020

T VH7

V ≤ 3.0	3.1 ≤ V ≤ 6.0	6.1 ≤ V ≤ 10.0	V ≥ 10.1
+0.010 0	+0.012 0	+0.015 0	+0.018 0



Dimension C remains unchanged

⚠ Nitriding may extend to the head as it is applied after dimension V, D and P machining.

⚠ When the diameter (D) portion of the stepped center pin is inserted into the relief hole (C) of D—ESNF, D—ESDF type, make sure $\text{relief hole (C)} \geq \text{pin diameter (D)} + 1.0$

H	T	Part No.		L		V	⚡ P	C	Cmax.	N	S						
		Type	D	0.01mm increments	0.1mm increments	0.1mm increments	0.01mm increments	0.1mm increments		1mm increments	5mm increments						
10	3	D-ESNF (1.2344 equivalent + Nitrided)	5	50.00~300.00	—	2.0~ 3.0	3.50~ 4.95	C≥V+0.5 and C≤P-1.0 (⚡ When L>300) 0.5mm increments)	3.5	N≥ $\frac{L}{3}$	20~100 <table><tr><td>L</td><td>(L-S) min.</td></tr><tr><td>50.00~60.00</td><td>20</td></tr><tr><td>60.01~</td><td>30</td></tr></table>	L	(L-S) min.	50.00~60.00	20	60.01~	30
L	(L-S) min.																
50.00~60.00	20																
60.01~	30																
12	5		5.5				2.0~ 3.5		3.50~ 5.45			4.0					
		6		2.0~ 4.0	4.00~ 5.95	4.5											
		6.5	50.00~500.00		4.00~ 6.45	5.0											
		7			4.00~ 6.95	5.0											
7.5		2.0~ 5.0		4.00~ 7.45	5.5												
14	5	8			2.5~ 5.5	5.00~ 7.95	6.0										
		9	70.00~500.00		3.0~ 6.5	6.00~ 8.95	7.0										
		10			3.5~ 7.5	6.00~ 9.95	8.0										
		12			4.0~ 8.5	7.50~ 11.95	9.0										
16	7	15		70.00~500.00	500.1~800.0	5.0~ 10.5	10.00~ 14.95	11.0									
		16				5.0~ 11.5	12.00~ 15.95	12.0									
		22				7.0~ 16.0	14.50~ 19.95	17.0									
		26	8														

⚠ Lower limit of P and V

L	D	5 · 5.5	6~7	7.5 · 8	9~20
L ≤ 300		P ≥ V+1.5	P ≥ V+1.5	P ≥ V+1.5	P ≥ V+2
L > 300 and (L-N-10) ≤ S		—	P ≥ V+3	P ≥ V+4	P ≥ V+4.5
L > 300 and (L-N-10) > S		—	P ≥ (V+3) and (P-C)/2 ≥ 0.75	P ≥ (V+4) and (P-C)/2 ≥ 0.75	P ≥ (V+4.5) and (P-C)/2 ≥ 0.75



Order

Part No. — L — V — P — C — N — S
D-ESNF 12 — 200.05 — V4.5 — P7.55 — C6.0 — N120 — S85



Alterations



Part No. — L — V — P — C — N — S — (KC · WK · etc.) Alterations details P.4
D-ESDF 6 — 150.00 — V3.0 — P5.50 — C4.0 — N80 — S85 — KC3.5

DIN Type
1.2344 equivalent
+
Nitrided

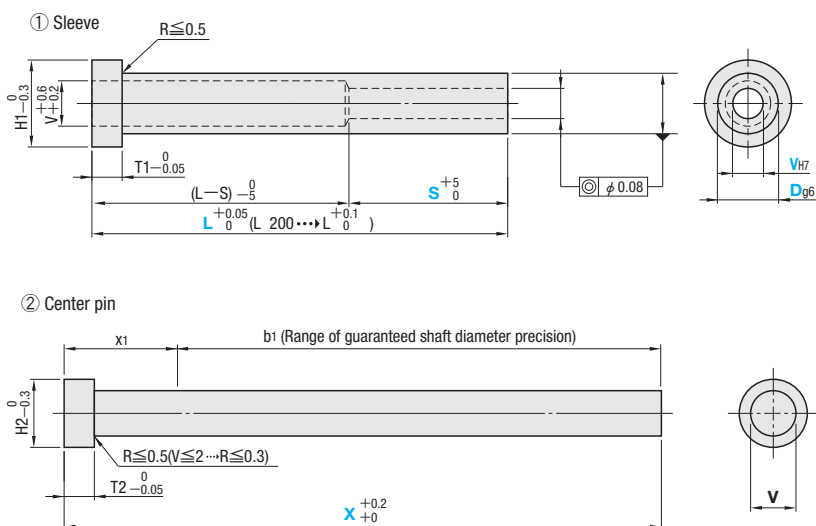
DIN Type
1.2344 equivalent
Hardened

STRAIGHT EJECTOR SLEEVES & STRAIGHT CENTER PIN SETS

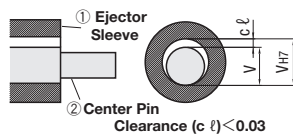


Part No.		M	H
D-ESNP	①	1.2344 equivalent + Nitrided	Surface: 900HV Base Material: 40±3HRC
	②	1.2344 equivalent + Nitrided	Surface: 900HV Base Material: 40±3HRC
D-ESDP	①	1.2344 equivalent	Base Material: 50~55HRC
	②	1.2344 equivalent	Base Material: 50~55HRC

⚠ Nitriding may extend to the head as it is applied after dimension V and D machining.
⚠ To add fitting processing, not applicable to combination with other than sets.



Clearance (cℓ) between the ejector sleeve's internal diameter (V_{H7}) and the center pin's shaft diameter (V).



T V_{H7} Dimension

V (sleeve)	Tolerance
2.0 ~ 3.0	+0.010 0
3.1 ~ 6.0	+0.012 0
6.1 ~ 10.0	+0.015 0
10.1 ~ 16.0	+0.018 0

Range of guaranteed shaft diameter precision (b1=L-x1)
x1 max.40

H1	T1	Part No.		L		V 0.1mm increments	S 1mm increments	X 5mm increments			
		Type	D	0.01mm increments	0.1mm increments						
8	3	D-ESNP $\left(\begin{array}{c} 1.2344 \text{ equivalent} \\ + \\ \text{Nitrided} \end{array} \right)$	4	40.00~200.00	—	1.5~2.5	$20 \sim 100$ $\left(\begin{array}{c} \text{D4, D4.5} \\ \text{When V1.5} \sim \text{V1.9} \\ 20 \sim 40 \end{array} \right)$	$X \geq L + 20$ and $X \leq L + 100$			
			4.5			1.5~3.0					
10			5	40.00~300.00		2.0~3.5					
	5.5		2.0~4.0								
12	5		6	40.00~450.00		2.0~4.5	<table><tr><td>L</td><td>(L—S) min.</td></tr><tr><td>40.00~60.00</td><td>20</td></tr><tr><td>60.01~</td><td>30</td></tr></table>		L	(L—S) min.	40.00~60.00
		L	(L—S) min.								
		40.00~60.00	20								
60.01~		30									
		6.5	2.0~4.5								
	7	2.0~5.0									
	7.5	2.0~5.5									
14	7	8	70.00~500.00	2.0~6.0	$20 \sim 100$ $(L - S) \geq 50$						
		9		2.5~7.0							
		10		2.5~8.0							
16	12	500.1~800.0		2.5~10.0							
18	15		2.5~12.0								
22	16		3.0~13.0								
26	8		20	100.00~500.00		3.0~16.0					

Head diameter/thickness of center pin

H2	T2	V (Center pin)
3	1.5	1.5
4	2	1.6~ 2.0
5		2.1~ 2.5
6	3	2.6~ 3.0
7		3.1~ 3.5
8		3.6~ 4.5
10	5	4.6~ 5.5
12		5.6~ 6.5
14		6.6~ 8.0
16	7	8.1~10.0
18		10.1~12.0
22		12.1~16.0



Order

Part No. — L — V — S — X
D-ESNP10 — 250.00 — 6.5 — S80 — X360



Alterations

Part No. — L — V — S — X — (KC · WKC...etc.)
D-ESNP10 — 150.3 — 2.5 — S60 — X215 — HC14

Alteration details P.4

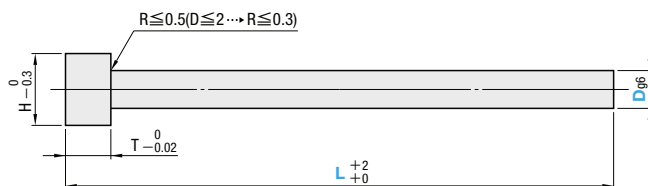
DIN 1530
1.2344 equivalent
Hardened

STRAIGHT CORE PINS

—STANDARD TYPE—



Part No.	M Material	H Hardness	T D Tolerance
D-CPD	1.2344 equivalent	48~52HRC	g6



H	T	Part No.		L
		Type	D	
2.5	1.2	D-CPD	1	125
3	1.5		1.5	
4	2		2	
5			2.5	
6			3	
7			3.5	
8	3		4	
			4.5	
10			5	
12			6	
14	5	8		



Order

Part No.

D-CPD2.5

—

L

—

125

LEADER COMPONENTS

LEADER COMPONENTS



Product Name Part No.	DIN Type Guide Pillar with Centering Head – Oil Groove/Step Type – D-GPM00	DIN Type Guide Pillar without Centering Head – Oil Groove/Step Type – D-GPM03	DIN Type Guide Pillar – Oil Groove/Straight Type – D-GPM011	DIN Type Ejector Guide Pillar – Plain/Straight Type – D-GPM01
Page	23	24	25	26



DIN Type Guide Bushing with Centering Head – Plain Type – D-GBM10	DIN Type Guide Bushing without Centering Head – Plain Type – D-GBM11	DIN Type Oil – Free Guide Bushings with Centering Head D-GBM1000W	DIN Type Oil – Free Guide Bushings without Centering Head D-GBM1100W	DIN Type Oil-Free Ejector Guide Bushings D-GBM13W
27	28	29	30	31



Centering Sleeve CNTR
32

■Guide for guide pillars & bushings

Guide pillars and bushings are guide components used for accurately positioning movable molds and fixed molds. If the cavity is not accurately aligned when the mold is closed, the molded components such as the core may be damaged.

Usually, four sets of guide pillars are installed at the four corners of the movable mold, and the guide bushings are placed at the relative positions of the fixed mold, but sometimes the guide pillars and the guide bushings are reversely mounted depending on the mold structure.

If they are used in combination with positioning components (tapered positioning pins, tapered positioning blocks, etc.), the alignment of the cavity will be more precise.

■Guide pillar

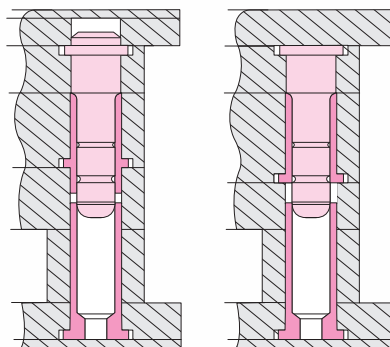
MISUMI guide pillars are classified as head type and straight type.

The guide pillar and the mold plate are usually fixed by an interference fit, so the fixed portion at the root of the guide pillar is set to a positive tolerance. The guide pillar and the guide bushing usually have relative movement by a clearance fit, so the outer diameter dimension of the guide pillar working surface is set to a negative tolerance. In order to smoothly insert the guide pillar into the guide bushing during mold closing, MISUMI guide pillar also has a guidance portion at the top corner, which is composed of a tapered surface and an R angle.

■Bushing

MISUMI guide bushings are classified as head type and straight type.

The guide bushing and the mold plate are usually fixed by an interference fit. Therefore, the outer diameter dimension tolerance of the guide bushing is set to a positive tolerance. The guide bushing and the guide pillar usually have relative movement by a clearance fit, so the inner diameter dimension of the guide bushing working surface is set to a negative tolerance.



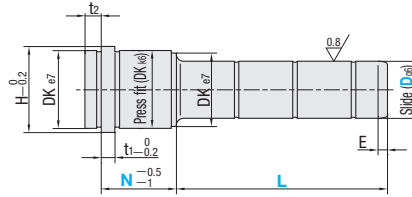
DIN
TYPE

DIN TYPE GUIDE PILLAR

— OIL GROOVE / STEP TYPE —



D-GPM00



Tool steel
HRC~56

Press Fit Part			E	t2	t1	H	Part No.		L	N
DK	k6	e7					Type	Slide Part D		
14	+0.012 +0.001	−0.032 −0.050	4	3	3	16	D-GPM00	9 10	20 35 50	9
									25 45 65	12
									20 30 50 70	17
									25 35 55 75 95	22
									20 30 50 70 90	27
									25 45 65 85	36
									30 45 70	46
									35 60	56
									45	66
									20	
30 50 70 90 110 125 150	22									
30 45 65 85 105 125 145 165	27									
35 55 75 95 125 155	36									
35 45 65 85 105 125 145	46									
35 55 75 95 135	56									
55 65 95 125	66									
55 95	76									
55 95	86									
55 95	96									
26	+0.015 +0.002	−0.040 −0.061	7	9	31	18 20		75	116	
								35 55 75 95 120	17	
								35 45 65 85 115 135	22	
								35 45 65 85 105 125 145 165 195 225 245	27	
								*35 *55 *75 *95 115 135 165 225 255	36	
								35 45 *65 *85 *105 135 165 245	46	
								35 *55 *75 95 135 155	56	
								35 *55 *75 95 145	66	
								*55 75 95 135	76	
								*55 75 95 125	86	
30			7	9	35	22 24		55 75 95 115 135	96	
								75 115	116	
								135	136	
								35 55 75	17	
								35 55 75 95 105 130	22	
								35 45 65 85 105 125 165 205 245 285	27	
								*35 *55 *75 *95 115 135 165 *205 245 285	36	
								35 45 *65 *85 *105 *125 165 205 245	46	
								35 *55 *75 *95 115 *165 *205	56	
								35 55 *75 *95 125 155 195	66	
42	+0.018 +0.002	−0.050 −0.075	10	12	47	30 32		*65 *75 95 *115 145	76	
								*65 *75 *95 115 *135 155 195	86	
								*55 *75 *95 125 155 195	96	
								75 95 115 135 155 195	116	
								95 115 135 155	136	
								115 155	156	
								35 75 130	22	
								45 65 105 165 185 245 285	27	
								*55 *75 *95 115 *155 205 245 285	36	
								45 *65 85 *105 *125 *165 205 245 285	46	
54	+0.021 +0.002	−0.060 −0.090	10	12	60	40 42		55 *75 *95 *115 *135 *175 205 245 295	56	
								55 *75 *95 *115 135 *175 205 245 295	66	
								*55 *75 *95 *115 *155 225	76	
								55 75 95 115 155 195 *225	86	
								*55 *75 *95 *115 155 175 205	96	
								75 95 *115 *155 195	116	
								95 115 155 195	136	
								95 115 155	156	
								135 175	176	
								115 155 195	196	
66			10	12	71	50 52		75 135	36	
								95 *165	46	
								*75 *115 *155 *195	56	
								75 *135	66	
								75 95 *115 135 *175	76	
								75 *135	86	
								75 95 115 155 195	96	
								*95 115 135 155 195	116	
								95 115 135 155 195 215	136	
								115 155 215	156	

Slide Part Dg6	9 · 10	14~18	20~30	32~42	50 · 52
	-0.005 -0.014	-0.006 -0.017	-0.007 -0.020	-0.009 -0.025	-0.010 -0.029

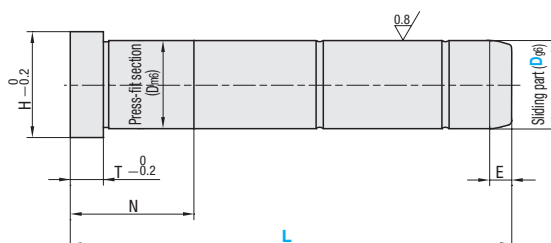


Order

Part No.	D	L	N
D-GPM00	18	35	36

Alterations	Code	Spec.
	GN	No oil groove

24

**D-GPM011**

M 20Cr
H 56HRC~

Sliding part Dg6		Press-fit section Dm6		E	T	H	N	Part No.		L																		
								Type	D																			
18	−0.006 −0.017	18	+0.018 +0.007	7	8	22	27	D-GPM011		18		80	100															
							36					120																
							46					140	160															
							56					180	200	220														
20	−0.007 −0.020	20				24	27			20		80	100															
							36					120																
							46					140	160															
							56					180	200	220														
22		22	+0.021 +0.008			26	36			22		100																
							46					120	140															
							56					160	180															
							76					200	220	240	280													
24						24				15	28	36	24		100													
												46			120	140												
												56			160	180												
												76			200	220	240	280										
30																	36	36	30		120	140	160	180	200			
																		46			220	240	280	320	360			
																		56			120	140	160	180	200	220		
																		76			240	280	320	360				
32	−0.009 −0.025	32	+0.025 +0.009			48	56				32		200															
							76						240	280	320	360												
							76						200															
							96						240															
40											48	56	40		200													
												76			240													
							96					300	360															



Order

Part No. — D — L
D-GPM011 — **18** — **80**

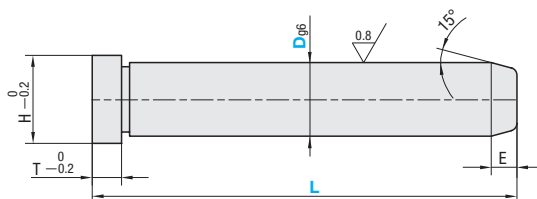
DIN
TYPE

DIN TYPE EJECTOR GUIDE PILLAR

—PLAIN / STRAIGHT TYPE—



D-GPM01



M 20Cr
H 56HRC~

Dg6		E	H	T	Part No.		L										
					Type	D											
14	—0.006 —0.017	7	18	8	D-GPM01	14	60	80	100	120	140	160	180				
15						15	60	80	100	120	140	160	180				
16						16	40	60	80	100	120	140	160	180	200	240	
18						18	60	80	100	120	140	160	180	200	240		
20	—0.007 —0.020		24	15		20	60	80	100	120	140	160	180	200	240		
22						22	80	100	120	140	160	180	200	220	240	300	
24						24	80	100	120	140	160	180	200	220	240	300	
30						30	100	120	160	200	240	300	360				
32	—0.009 —0.025					32	100	120	160	200	240	300	360				
40						40	160	200	240	300	360						



Order

Part No.

D-GPM01

—

D

14

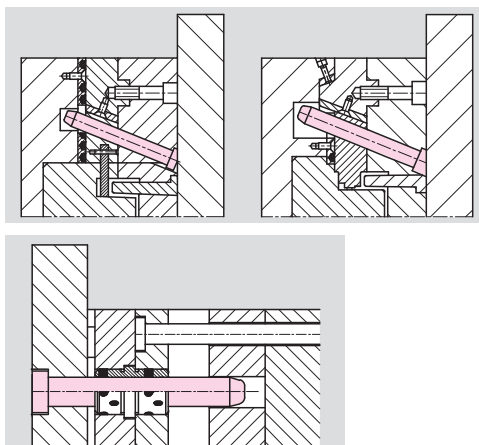
—

L

60

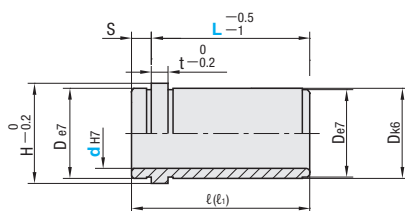


Example

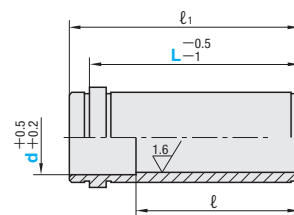




D-GBM10



TYPE 1



TYPE 2

Tool steel
 58 HRC~

TYPE	ℓ	ℓ(ℓ1)	S	t	D	H	Part No.	d	L
							Type		
1	12	12	3	3	14	16	D-GBM10	9 10	9
	15	15							12
	20	20							17
	25	25							22
	30	30							27
39	39	36							
2	46	49	46						
		59	56						
		69	66						
1	21	21	9	6	20	25			14 15
	26	26						17	
	31	31						22	
	36	36						27	
	45	45						36	
55	55	46							
2	56	65						56	
		75						66	
		85						76	
		95						86	
		105			96				
125	116								
1	26	26			26	31		18 20	17
	31	31							22
	36	36							27
	45	45							*36
	55	55							*46
65	65	*56							
2	75	75							*66
		85							*76
		95	86						
2	76	105	96						
		125	116						
		145	136						
		1	26	26	30	35		22 24	17
			31	31					*22
36	36		27						
45	45		*36						
55	55		*46						
65	65		*56						
75	75		*66						
85	85		*76						
95	95		*86						
105	105		*96						

TYPE	ℓ	ℓ(ℓ1)	S	t	D	H	Part No.	d	L		
							Type				
2	96	125 145 165	9	6	30	35	D-GBM10	22 24	*116 136 156		
1	31	31			42	47		30 32	*27 *36 *46 *56 *66 *76 *86 *96 *116 *136		
	36	36									
	45	45									
	55	55									
	65	65									
	75	75									
	85	85									
	95	95									
2	105	105			156 176 196						
	125	125			216						
	1	48			48	54		60	40 42	*36 *46 *56 *66 *76 *86 *96 116 136 156 176 196 216 236 246	
		58			58						
68		68									
78		78									
88	88										
98	98										
108	108										
128	128										
2	136	148 168 188 208 228 248 258	12	10	66	72		56 66 76 86 96 116 136 156 176 196 216 236			
		1						68 78 88 98 108 128	56 66 76 86 96 116 136 156 176 196 216 236		
								2	136	145 168 188 208 228 248	136 156 176 196 216 236

dH7		De7		Dk6	
9	+0.015	14	−0.032	14	+0.012
10	0		−0.050		+0.001
14	+0.018	20	−0.040	20	+0.015
15		26		26	+0.002
18		26		26	+0.015
20		30		30	
22	+0.021	30	−0.061	30	
24		42		42	+0.018
30		42		42	
32	+0.025	54	−0.050	54	+0.002
40		54		54	
42		66		66	+0.021
50	+0.030	66	−0.075	66	
52		66		66	

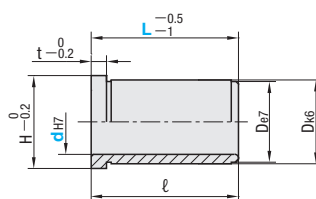


Order

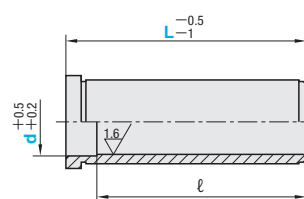
Part No. — d — L
 D-GBM10 — 18 — 17



D-GBM11



TYPE 1



TYPE 2

M Tool steel
H 58 HRC~

TYPE	ℓ	D	H	t	Part No. Type	d	L		
1	9	14	16	3	D-GBM11	9 10	9		
	12						12		
	17						17		
	22						22		
	27						27		
	36						36		
2	46	6	23	12		46			
	56					56			
	66					66			
	76					76			
	86					86			
	96					96			
1	12		18	25		14 15	12		
	17						17		
	22						22		
	27						27		
	36						36		
	46						46		
	2		56	20			27	16	56
			66						66
			76						76
			86						86
			96						96
			106						106
1	17		22	31		18 20	116		
	22						17		
	27						22		
	36						27		
	46						36		
	56						46		
2	56		26	36			96	56	
	66							66	
	76							76	
	86							86	
	96							96	
	106							106	
1	17		26	36		96	116		
	22						17		
	27						22		
	36						27		
	46						36		
	56						46		
2	66		26	36		96	*27		
	76						*36		
	86						*46		
	96						*56		
	106						*66		
	116						*76		
2	76		26	36		96	86		
	86						96		
	96						106		
	106						116		
	116						126		
	126						136		

dH7	De7	Dk6
9	+0.015	14
10	0	18
12		20
14	+0.018	22
15	0	26
16		26
18		30
20		30
22	+0.021	42
24	0	42
30		54
32		54
40	+0.025	54
42	0	66
50		66
52	+0.030	66
60	0	80

TYPE	ℓ	D	H	t	Part No.	d	L	
					Type			
1	17	30	35	6	D-GBM11	22 24	17	
	22						22	
	27						*27	
	36						*36	
	46						*46	
	56						*56	
	66						*66	
	76						*76	
	86						*86	
96	*96							
2	96						116 136	
							156	
1	22	42	47	6			30 32	22
	27					27		
	36					*36		
	46					*46		
	56					*56		
	66					*66		
	76					*76		
	86					*86		
	96					*96		
116						116		
2	116						136 156	
							176 196	
1	36	54	60	10			40 42	*36
	46					*46		
	56					*56		
	66					*66		
	76					*76		
	86					*86		
	96					*96		
	116					116		
	136					136		
2	136						156 176 196 216 236 246	
							56 66 76 86 96	
	56	66	72	1		50 52	116 136 156 176 196 216 236 246	
	66							
	76							
	86							
96								
116								
136								
2	136						196 216 236 246	
							96 116 136 156	
	96	80	86	20		1	176 196 216 236 246	
	116							
	136							
	2	136						196 246

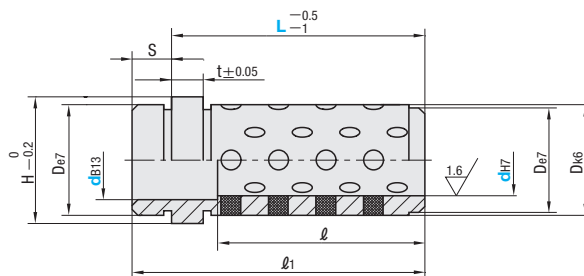


Order

Part No. — d — L
D-GBM11 — 18 — 17



D-GBM1000W



High strength brass
inlaid graphite

ℓ	S	t	D	H	ℓ ₁	Part No.	d	L					
						Type							
—	6	6	20	25	23	D-GBM1000W	14 15	17					
28					28			22					
					33			27					
30					42			36					
					52			46					
					62			56					
					72			66					
					82			76					
					92			86					
—	8	6	26	31	25		18 20	17					
30					30			22					
					35			27					
40					44			36					
					54			46					
					64			56					
					74			66					
					84			76					
					94			86					
					104			96					
					124			116					
					—			30	22				
					36			35	27				
44								36					
49					8			6	30	35	54	22 24	46
	64	56											
	74	66											
	84	76											
	94	86											
	104	96											
	124	116											
	144	136											
	164	156											
—	8	6	42	47	35		30 32	27					
—					44			36					
54					54			46					
					64			56					
64					8			6	42	47	74	30 32	66
											84		76
											94		86
											104		96
											124		116
											144		136
											164		156
											—		56
—	66	56											
76	10	10	54	60	76		66						
					86		76						
96					86								
106					96								
126					116								
146					136								
166					156								
206					196								

dH7	dB13	De7	Dk6
14	14	20	20
15	+0.018	20	20
18	0	26	+0.015
20		26	+0.002
22	+0.021	30	
24	0	30	
30		42	+0.018
32		42	+0.002
40	+0.025	54	
42	0	54	+0.021
		54	+0.002



Order

Part No.

D-GBM1000W

— d —

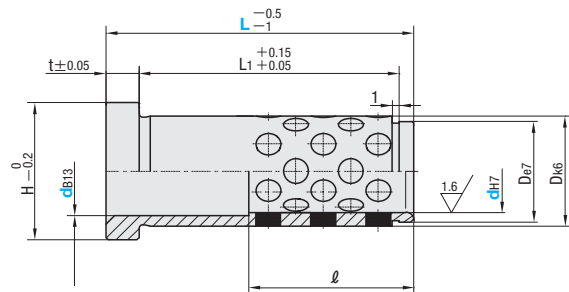
14

— L

17



D-GBM1100W



High strength brass
inlaid graphite

L1	D	H	t	l	Part No.	d	L
					Type		
8.3	20	25	6	—	D-GBM1100W	14 15	17
13.3				27			22
18.3				32			27
27.3				—		16	36
37.3				27			46
47.3	22	27	6	32			56
13.3				—			22
18.3				27			27
27.3				32			36
37.3				—		18 20	46
47.3	26	31	6	40			56
57.3				—			66
67.3				36			76
12.6				48		22 24	22
17.6	30	35	6	—			27
26.6				36			36
36.6				48			46
46.6				—		30 32	56
56.6	42	47	6	54			66
66.6				64			76
76.6				—			86
86.6				76		40 42	96
15.85	54	60	10	80			116
24.85				—			136
34.85				—			46
44.85				—			56
54.85				—			66

dH7	dB13	De7	Dk6
14	14	20	20
15	15	20	20
18	18	26	26
20	20	26	26
22	22	30	30
24	24	30	30
30	30	42	42
32	32	42	42
40	40	54	54
42	42	54	54

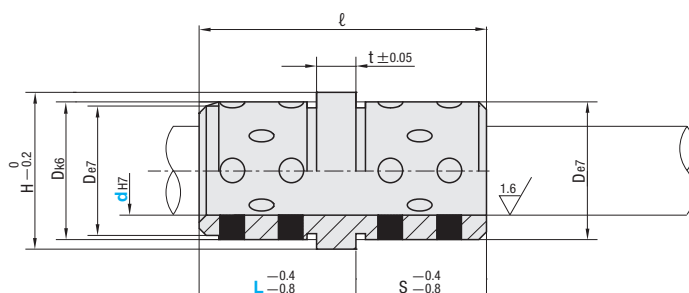


Order

Part No. — d — L
D-GBM1100W — 14 — 17



D-GBM13W



M High strength brass inlaid
graphite

R	S	t	D	H	Part No.	d	L
					Type		
26	9	6	20	25	D-GBM13W	14	17
			20			15	17
39	17		26	31		18	22
			26			20	22
49	22		30	35		22	27
			30			24	27
63	27		42	47		30	36
			42			32	36

dH7		De7		Dk6	
14	$+0.018$ 0	20	-0.040 -0.061	20	$+0.015$ $+0.002$
15		20		20	
18		26		26	
20		26		26	
22	$+0.021$ 0	30	-0.050 -0.075	30	$+0.018$ $+0.002$
24		30		30	
30	$+0.025$ 0	42	-0.060 -0.090	42	$+0.021$ $+0.002$
32		54		54	



Order

Part No.

D-GBM13W

—

d

—

14

—

17

—

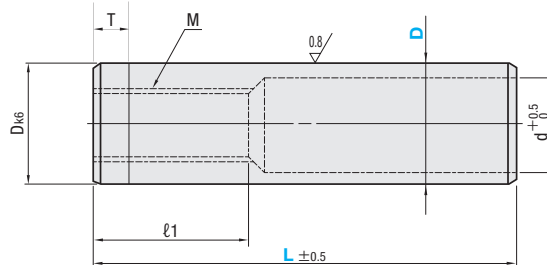
L

—

17

CENTERING SLEEVE

CNTR



M 1.3505
H 58HRC~

T	L1	M	d	Part No.		L															
				Type	D	14	20	30	40	50	60	70	80	100							
2.5	8.8	M8	11	CNTR		14	20	30	40	50	60	70	80	100							
	11.2	M12	16			20		30	40	50	60		80	100	120	140	160				
	15.2		21			26		30	40	50	60		80	100	120	140	160	180			
	16.1		25			30			40	50	60		80	100	120	140	160	180	200	220	240
4	20.8		33			42			40		60		80	100	120	140	160	180	200	220	240
	22.9		43			54					60		80	100	120	140	160	180	200	220	240
	25.2		54			66							80	100	120	140	160	180	200	220	240
														80	120	160	180	200	220	240	260
															80	120	160	180	200	220	240
																80	120	160	180	200	220
																	80	120	160	180	200

■ Tolerance for D and DK

D		D k6	
14	g6	-0.006	+0.012
		-0.017	+0.001
20		-0.007	+0.015
26		-0.020	+0.002
30		-0.009	+0.018
42		-0.025	+0.002
54	f6	-0.030	+0.021
66		-0.049	+0.002



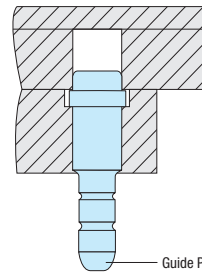
Order

Part No.
CNTR30

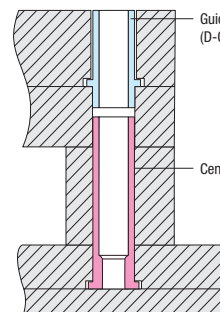
L
160



Example



Guide Pillar (D-GPM00) P.23



Guide Bushing (D-GBM10) P.27

Centering Sleeve

RECTANGULAR STRAIGHT BLOCK SETS

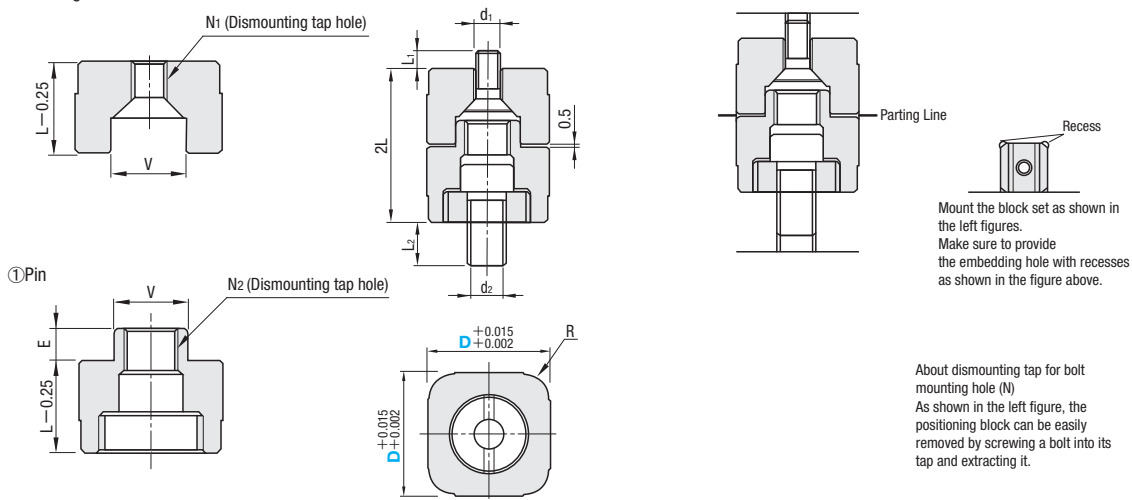


Part No. Set	V Tolerance		Positioning precision (Clearance)	V dimension symmetry against D plane	M	H
	① Pin	② Bushing				
D-TBSFH08	0 -0.005	+0.01 +0.005	0.005~0.015	0.005 or less	SKS3	53~58HRC

② Bushing

■ Dimensions when combined

■ When using



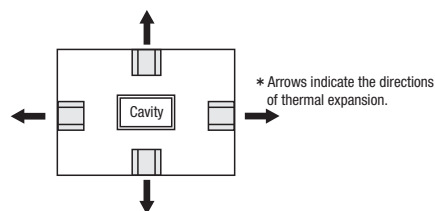
V	E	R	L	L ₁	L ₂	Dismounting tap hole		Installation bolts		Part No.	
						N ₁	N ₂	d ₁	d ₂	Type	D
10	5.5	4	14	4	12	M 5	M 6	M4	M 5	D-TBSFH08 (①+②Set)	20
12	7.5	5	16	8	13	M 6	M 8	M5	M 6		25
16	9.5	6	18	12	15	M 8	M10	M6	M 8		32
20	11.5		22.5	10	17	M10	M12	M8	M10		40



Order

Part No. — D
D-TBSFH08 — 25

■ Features of block sets



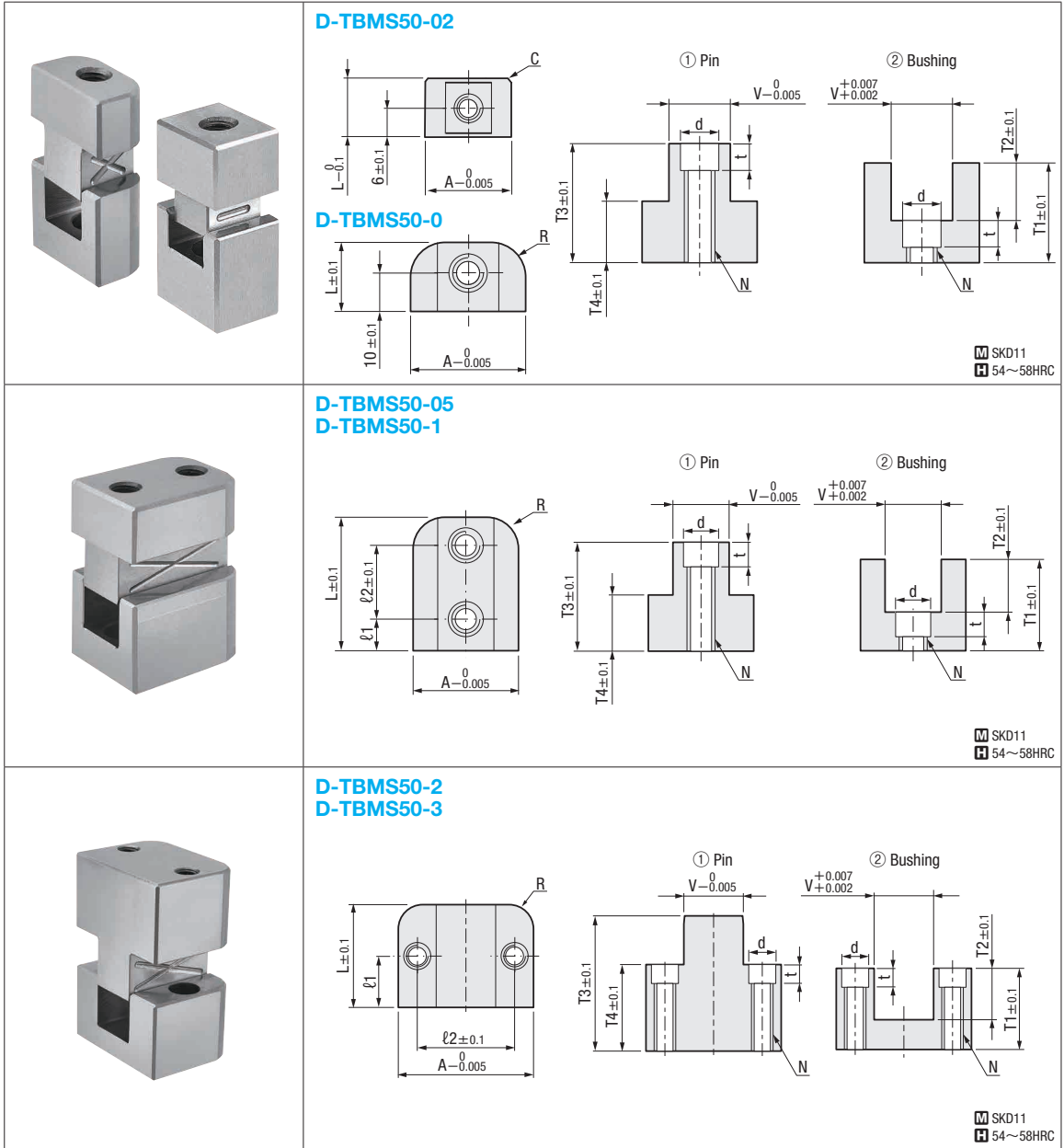
■ Usage

- Contacting the pin and bushing when mold is closed may cause damage. Please leave a clearance of about 0.5mm on PL.

- The block sets are capable of offsetting the plate's thermal expansion caused in high temperature molding process for thermosetting resins, etc., thereby maintaining positioning accuracy. The pin type positioning method cannot thoroughly absorb thermal expansion when it takes place in directions as shown in the figure above.
The block type will be unaffected if the groove direction is in parallel to the directions of thermal expansion as shown in the drawing above.

STRAIGHT BLOCK SETS

—PL SIDE FIXING TYPE—



T1	T2	T3	T4	Corner R(C)	Installation bolt hole				Installation bolts	Dismounting tap hole N	V	L	A	Part No.	
					ℓ1	ℓ2	d	t						Type	No.
16	6	15.8	10	C0.5	-	-	7.5	5	M4	M5	9	12	16	D-TBMS50	02
				R5	5.5	11						22			05
26	14.8	30	15.5	R8	-	-	11	7	M6	M8	16	18	30		0
					8	22						38	50		1
29.8	20	48.8	29.8		19	35					20		75		2
39.8	25	63.8	39.8			52					15	9	M8		M10



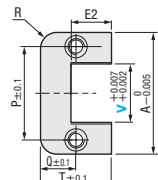
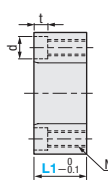
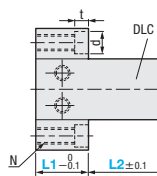
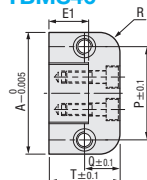
Order

Part No.

D-TBMS50-0



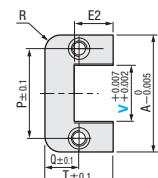
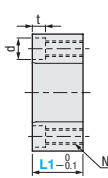
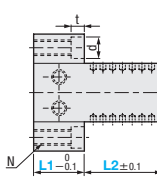
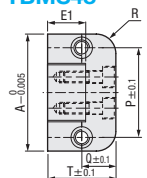
D-TBMS46



SKD11
54~58HRC



D-TBMS48

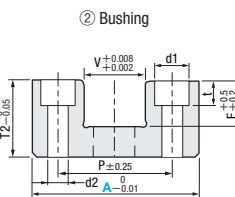
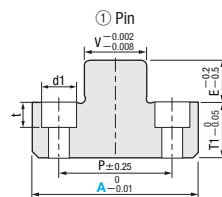
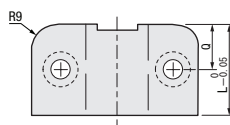


SKD11
54~58HRC

E1	E2	R	Installation bolt hole				Installation bolts	Dismounting tap hole N	T	A	Part No.		L1	L2
			P	Q	d	t					Type	V		
11.5	12	8	30	11	11	7	M6	M8	22	45	D-TBMS46 D-TBMS48	16	20	20
19.5	20	10	46	17.5								30	26	40
25.5	26	12.5	74	23	18	11	M10	M12	46	100		48	36	32
35.5	36	16	114	30	20	13	M12	M16	60	150		77	56	50
														63
														80
														71
														100



D-TBMGT



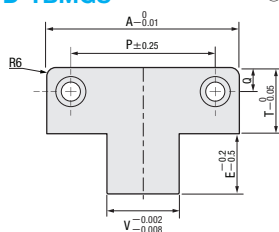
① Pin SKS3
HRC50~
S Surface Treatment Fe₀

② Bushing SKD11
HRC56~
S Surface Treatment Titanium Plating

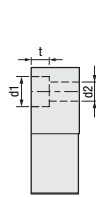
T1	T2	Installation bolt hole					Installation bolts		V	E	L	Part No.	
		P	Q	d1	d2	t	PIN	BUSHING				Type	A
15	25	23	13	10	5.3	5.5	M5×18	M5×30	11	16	26	D-TBMGT	35
		30	15	11	6.4	6.5	M6×18	M6×30	15		30		45
	30	37.5	18	15	8.4	9	M8×25	M8×35	20	20	36		55
20	35	52		18	10.5	11	M10×25	M10×40	30	26	36		75
	60	70						M10×65	40	41	45		100



D-TBMGS

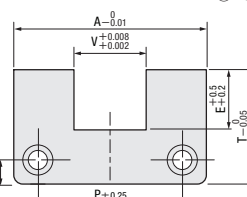


① Pin



① Pin SKS3
HRC50~
S Surface Treatment Fe₀

② Bushing



② Bushing SKD11
HRC56~
S Surface Treatment Titanium Plating

T1	Installation bolt hole					Installation bolts	V	E	L	Part No.	
	P	Q	d1	d2	t					Type	A
21.5	34	11	11	7	7.5	M6×20	17	12	16	D-TBMGS	50
36	50	18	18	11	11.5	M10×25	25	17	19		75
45	70	22					M10×30	25			100
	84					125					

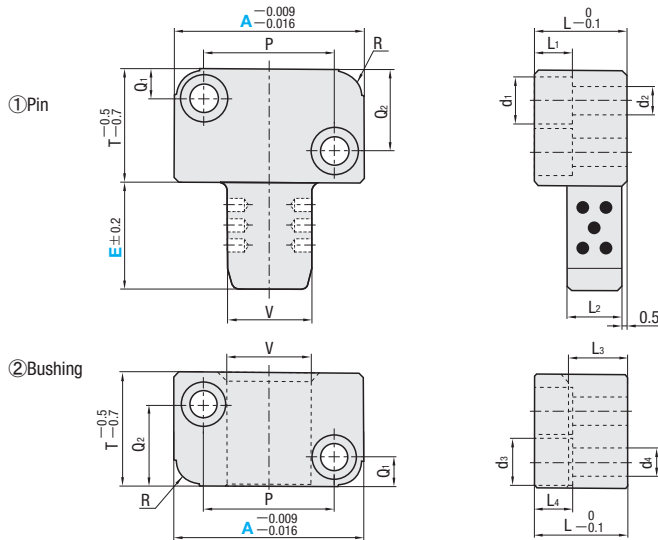


Order Part No. **D-TBMS46** - V - L1 - L2
- 16 - 20 - 20
D-TBMGT35

OIL-FREE SIDE STRAIGHT BLOCK SETS



Part No.	V Tolerance		Positioning precision (Clearance)	V dimension symmetry against A plane	M	H
	① Pin	② Bushing				
D-TSSBH07	0 -0.007	+0.012 +0.005	0.005 ~ 0.015	0.005 or less	SKS3	53~58HRC



V	T	R	Bolt Hole							L	L1	L2	L3	L4	Part No.		E	
			P	Q1	Q2	d1	d2	d3	d4						Type	A		
16	22	6	26	7	15	11	6.6	10.3	6.3	20	6.9	11	12	6.2	D-TSSBH07 (①+②Set)	40	20	
20	27		31		19					22		13	14				40	
25	36	8	35	9	27	25	14	15	50	32								
32	46		45	11	35	15	9	15		9	32	9	19	20		9	63	
40	56	10	60	15	40	18	11	18	11	36	11	22	23	11		85	50	
50	66		74	18	48	20	14	20	14	40	13	24	25	13			100	
																		56
																		112

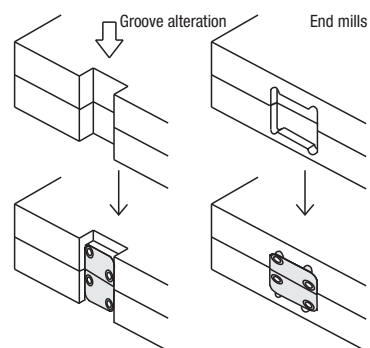


Order

Part No.	A	E
D-TSSBH07	45	25



Example



Features

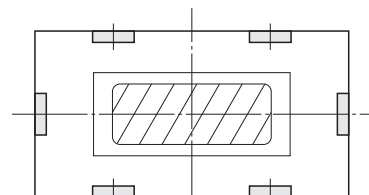
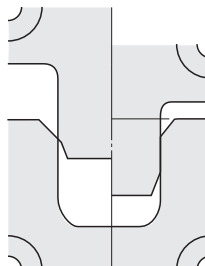
- Suitable for positioning in precision molds such as connector and electronic device.
- It is capable of preventing wear and damage in core pins since it can be positioned before core pins and such are inlaid on cavity.
- Positioning is easily performed by simultaneously processing plates in piles (refers to drawing on the right).
- Use precision leader pins since clearance is fairly small.
- There are lubricant coating on the sliding part of the side block sets and on both sides of the pin.
- The oil grooves that oil is fed to the sliding part, thus preventing the straight locating block set from scuffing or seizing.

Usage

- Contacting the pin and bushing when mold is closed may cause damage. Please leave a clearance of about 1mm on PL.

When positioning is begun

Mold Closing



A relatively large sized mold can be positioned more precisely using 2 of the block set at each side in longitudinal direction of the mold base.