

# MISUMI

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

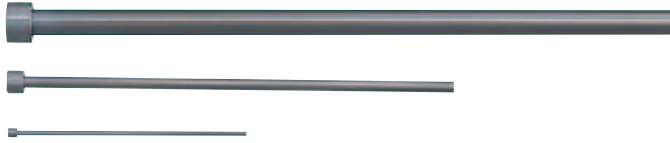


# 2024



# EJECTOR PINS

## STRAIGHT EJECTOR PIN



Category		Type		Standard		Length Specify		Dimensions Specify	
				Standard		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		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

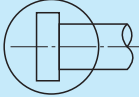

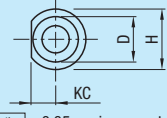
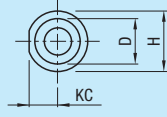




## EJECTOR BLADES



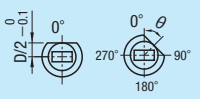
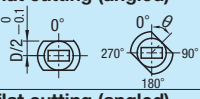
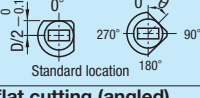
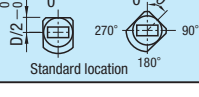
Category		Type		Standard		Length Specify		Dimensions Specify	
				Standard		Length Specify		Dimensions Specify	
Standard	Material	Head Thickness (T mm)	P - W Tolerances	Part No.	Page	Part No.	Page	Part No.	Page
DIN TYPE	1.2344 (equivalent) + Nitrided	1.2~10	0 -0.015	-	-	-	-	D-ERNX	P.13
	1.2344 (equivalent)		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	<b>Key flat cutting</b> 	<b>KC</b>	Single flat cutting Range of designation $D/2 \leq KC < H/2$	To make a flat at the shaft diameter position  Unit of designation: 0.05mm increments possible Designation method: <ul style="list-style-type: none"> <li>KC0.75 (When D1.5)</li> <li>WKC3.5 (When D7)</li> </ul> It remains at D tolerance even when D/2 is designated to fit shaft diameter. To designate an arbitrary flat size  Unit of designation: 0.1mm increments only Designation method: <ul style="list-style-type: none"> <li>KC1.4</li> </ul>
		<b>Key flat cutting</b> 	<b>WKC</b>	Two parallel flat cutting Range of designation $D/2 \leq WKC < H/2$	
		<b>Head diameter change</b> 	<b>HC</b>	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	
		<b>Head diameter change (precision)</b> 	<b>HCC</b>	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)	
		<b>Head thickness change</b> 	<b>TC</b>	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)	

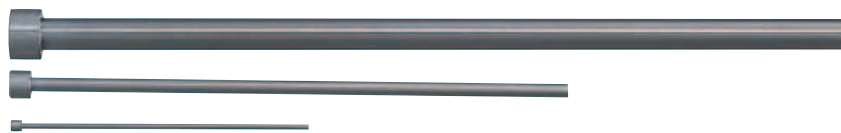
## Alteration Guide for Ejector Blades

Items	Applicable Products	Alterations	Codes	Specifications
Head alteration  Ejector Blades		<b>Key flat cutting (angled)</b> 	<b>AKC</b>	Changes the flat position clockwise from the standard position (standard: 0°). Range of designation $0 \leq AKC < 360$ Unit of designation (AKC) Designation method $\theta = 0^\circ \dots AKC0$ 45° increments    1° increments $\theta = 45^\circ \dots AKC45$
		<b>Key flat cutting (angled)</b> 	<b>AWC</b>	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 $\theta = 0^\circ \dots AWC0$ , $\theta = 45^\circ \dots AWC45$
		<b>Key flat cutting (angled)</b>  Standard location    180°	<b>ARC</b>	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 $\theta = 0^\circ \dots ARC0$ , $\theta = 45^\circ \dots ARC45$
		<b>Key flat cutting (angled)</b>  Standard location    180°	<b>ADC</b>	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 $\theta = 0^\circ \dots ADC0$ , $\theta = 45^\circ \dots ADC45$

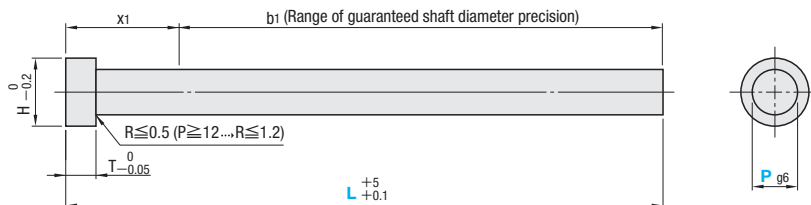
DIN 1530  
1.2344 equivalent  
+  
Nitrided

# 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	-0.004 -0.012	D-EPN	1.5	100 125 160 200 250										
4	2			1.8	100 125 160 200										
				2	100 125 160 200 250 315										
5	3	-0.004 -0.012	D-EPN	2.5	100 125 160 200 250 315 400										
6				3	100 125 160 200 250 315 400 500										
7				3.5	100 125 160 200 250 315 400										
8	5	-0.005 -0.014	D-EPN	4	100 125 160 200 250 315 400 500 630										
10				4.5	100 125 160 200 250 315										
				5	100 125 160 200 250 315 400 500 630 800 1000										
12	7	-0.006 -0.017	D-EPN	5.5	100 125 160 200 250 315 400 500										
				6	100 125 160 200 250 315 400 500 630 800 1000										
				6.5	100 125 160 200 250 315 400 500										
14	8	-0.007	D-EPN	7	100 125 160 200 250 315 400 500										
				7.5	100 125 160 200 250 315 400 500										
				8	100 125 160 200 250 315 400 500 630 800 1000										
16	10	-0.020	D-EPN	8.5	100 125 160 200 250 315 400 500										
				9	100 125 160 200 250 315 400 500 630										
				9.5	100 125 160 200 250 315 400 500										
18	11	-0.006 -0.017	D-EPN	10	100 125 160 200 250 315 400 500 630 800 1000										
				10.5	100 125 160 200 250 315 400 500										
				11	100 125 160 200 250 315 400 500										
22	12	-0.006 -0.017	D-EPN	12	100 125 160 200 250 315 400 500 630 800 1000										
				12.2	125 160 200 250 315 400 500 630										
				12.5	100 125 160 200 250 315 400 500										
24	14	-0.006 -0.017	D-EPN	14	100 125 160 200 250 315 400 500 630										
				16	100 125 160 200 250 315 400 500 630 800 1000										
				18	125 160 200 250 315 400 500 630 800 1000										
26	16	-0.007	D-EPN	18	125 160 200 250 315 400 500 630 800 1000										
				20	100 125 160 200 250 315 400 500 630 800 1000										
32	18	-0.020	D-EPN	25	125 160 200 250 315 400 500 630										



Order

Part No. — L  
D-EPN 3 — 100

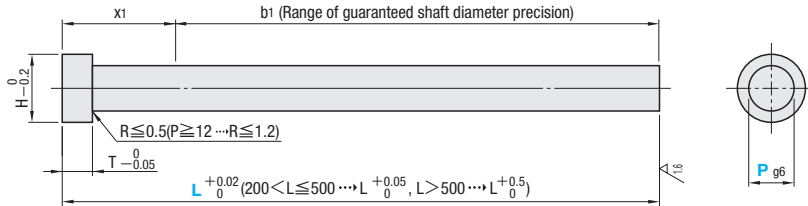
DIN 1530  
1.2344 equivalent  
+  
Nitrided

# 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 g6	Part No.		L 0.01mm increments
			Type	P	
2.5	1.2	-0.002	D-EPN-L	1	40.00 ~ 200.00
3	1.5			1.5	
4	2	-0.008		2	40.00 ~ 315.00
5	5			2.5	
6	3	-0.004		3	40.00 ~ 400.00
7				3.5	
8				4	
10	5	-0.012		4.5	40.00 ~ 250.00
12				5	
14	7	-0.017		5.5	40.00 ~ 200.00
16			6		
18			6.5		
22			8		
26	10	-0.020	8	100.00 ~ 1000.00	
32			10		

## L · P Dimension Specify

H	T	P g6	Part No.		L 0.01mm increments	P 0.01mm increments
			Type	No.		
2.5	1.2	-0.002	D-EPNB	1	40.00 ~ 200.00	0.50 ~ 1.00
3	1.5			1.5		1.01 ~ 1.50
4	2	-0.008		2	40.00 ~ 315.00	1.51 ~ 2.00
5	5			2.5		2.01 ~ 2.50
6	3	-0.004		3	40.00 ~ 400.00	2.51 ~ 3.00
7				3.5		3.01 ~ 3.50
8				4		3.51 ~ 4.00
10	5	-0.012		4.5	40.00 ~ 250.00	4.01 ~ 4.50
12				5		4.51 ~ 5.00
14	7	-0.014		5.5	40.00 ~ 200.00	5.01 ~ 5.50
16			6	5.51 ~ 6.00		
18			6.5	6.01 ~ 6.50		
22			8	6.51 ~ 8.00		
26	10	-0.020	8	100.00 ~ 1000.00	8.01 ~ 10.00	
32			10		10.01 ~ 12.00	

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

Alteration details P.4

Alterations	Code	Spec.
	KC	Single flat cutting $P/2 \leq KC < H/2$  (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

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

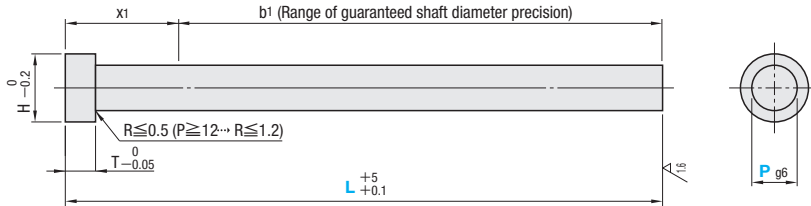
DIN 1530  
1.3505 equivalent  
Hardened

# 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				
					2	100	125	160	200	250	315	400			
4	2	-0.002 -0.008			2	100	125	160	200	250	315	400			
5					100	125	160	200	250	315					
6					100	125	160	200	250	315	400	500			
7	3	-0.004 -0.012			3	100	125	160	200	250	315	400	500		
8					100	125	160	200	250	315	400	500			
10					100	125	160	200	250	315	400	500			
12	5	-0.005 -0.014			3.5	100	125	160	200	250	315	400			
					4	100	125	160	200	250	315	400	500		
					4.5	100	125	160	200	250	315	400	500		
14	5	-0.005 -0.014			5	100	125	160	200	250	315	400	500		
					5.5	100	125	160	200	250	315	400			
					6	100	125	160	200	250	315	400	500		
16	7	-0.006 -0.017			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			
18	7	-0.006 -0.017			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			
22	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					
24	7	-0.006 -0.017	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					
26	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					
			20	100	125	160	200	250	315	400	500				



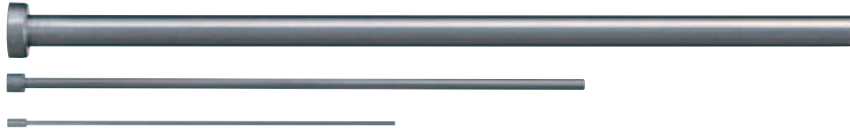
Order

Part No. — L  
D-EPU 3 — 100

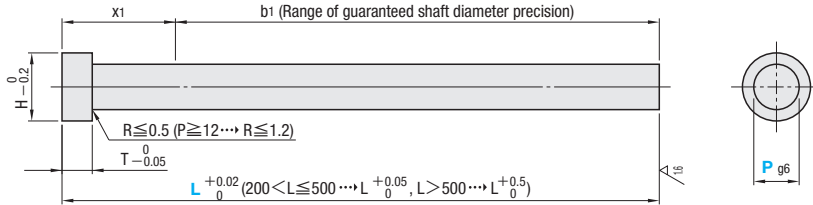
DIN 1530  
1.2344 equivalent  
Hardened

# 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 0.01mm increments		
			Type	P			
2.5	1.2	-0.002 -0.008	D-EPD-L	1	40.00 ~ 200.00		
3	1.5			1.5			
4	2			2			
5				2.5			
6				3			
7				3.5			
8	3			-0.004 -0.012		D-EPD-L	4
10		4.5					
		5					
		5.5					
12		6					
		6.5					
14	5	-0.005 -0.014	D-EPD-L	8	100.00 ~ 1000.00		
16				10			
18	7			-0.006 -0.017		D-EPD-L	12
22							16
26	8	-0.007 -0.020	D-EPD-L	20	100.00 ~ 500.00		
32	10			25			

## L · P Dimension Specify

H	T	P g6	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		1.51 ~ 2.00		
5				2.5		2.01 ~ 2.50		
6				3		2.51 ~ 3.00		
7				3.5		3.01 ~ 3.50		
8	3			-0.004 -0.012		D-EPDB	4	40.00 ~ 500.00
10		4.5	4.01 ~ 4.50					
		5	4.51 ~ 5.00					
		5.5	5.01 ~ 5.50					
12		6	5.51 ~ 6.00					
		6.5	6.01 ~ 6.50					
14	5	-0.005 -0.014	D-EPDB	8	100.00 ~ 1000.00	6.51 ~ 8.00		
16				10		8.01 ~ 10.00		
18	7			-0.006 -0.017		D-EPDB	12	10.01 ~ 12.00
22							16	12.01 ~ 16.00
26	8	-0.007 -0.020	D-EPDB	20	100.00 ~ 500.00	16.01 ~ 20.00		
32	10			25		20.01 ~ 25.00		

Alteration details P.4

Alterations	Code	Spec.
	KC	Single flat cutting P/2 ≤ KC < H/2  About Designation Unit for Key Flat Cutting (1) To align the key flat with the shaft diameter Unit of designation D-EPD-L 0.05mm increments possible
	WKC	Two flats cutting P/2 ≤ WKC < H/2  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

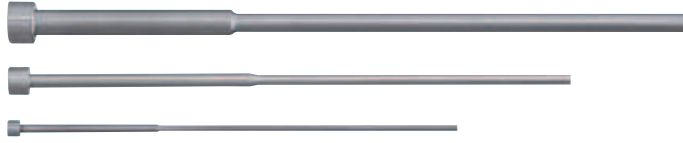
Order Part No. — L  
D-EPD-L 1 — 100.00

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

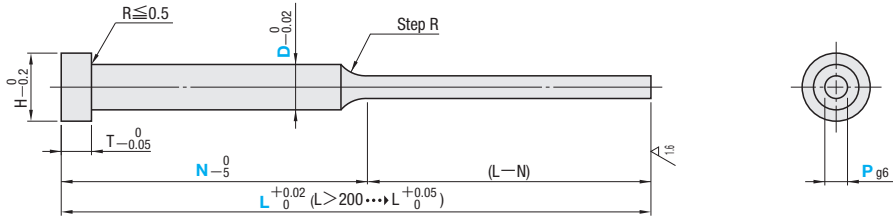
DIN 1530  
1.2344 equivalent  
+  
Nitrided

# 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		100	1 1.5	40	
			160		50	
			200	75		
5	2		100	1.5	40	
			160	1.5 2	50	
6	3		3	100	1 1.5	40 75
				125		
			160	1 1.5 2	50 75	
			200			1.5 2 2.5

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



Order

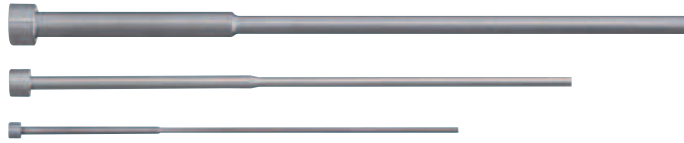
Part No. — L — P — N  
D-ENSFB 3 — 100 — P1.0 — N40



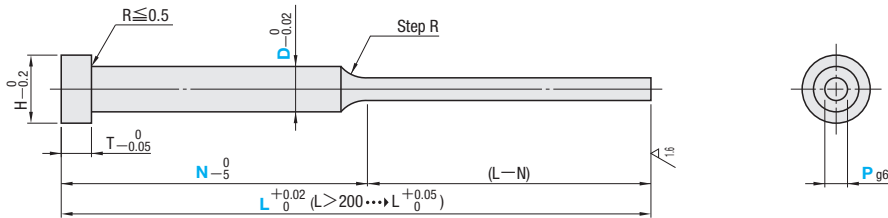
DIN 1530  
1.2344 equivalent  
+  
Nitrided

# 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 ≥ 15 and 15 ≤ (L - N) ≤ 150
4	2		2	40.00 ~ 315.00	0.80 ~ 1.90	
5			2.5	40.00 ~ 315.00	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 ≥ L/3 and (L - N) ≥ 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	7		12	50.00 ~ 1000.00	8.90 ~ 11.90	
22			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 $\begin{matrix} 0 \\ -0.1 \end{matrix}$	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 $\begin{matrix} 0 \\ -0.1 \end{matrix}$	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	HC = 0.1mm increments $D + 1 \leq HC < H$



Order

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

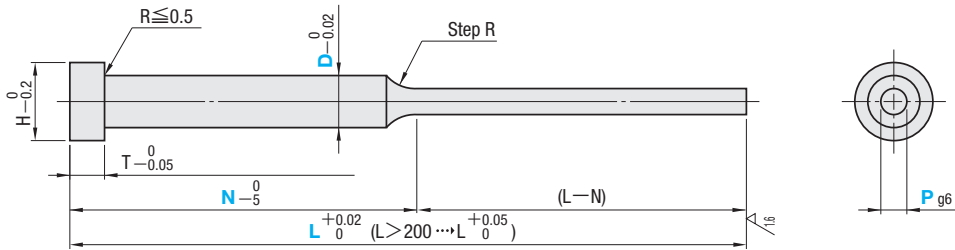
DIN 1530  
1.2344 equivalent  
Hardened

# 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	40.00 ~ 315.00	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	7		12	50.00 ~ 1000.00	8.90 ~ 11.90	
22			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	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-EDSF 2.5 — 149.78 — P1.5 — N70

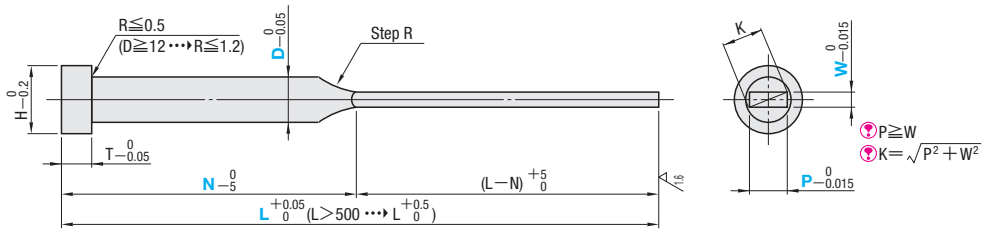
DIN 1530  
1.2344 equivalent  
+  
Nitrided

# 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				
				160				
8	3	D-ERNXB	4	100	3.5	1	3.9	40
				125				
				160				
10	3	D-ERNXB	4.5	125	4	1.2	4.4	40
				160				
12	5	D-ERNXB	5	125	5	1.2 1.5 2	4.9	40
				160				
14	5	D-ERNXB	6	160	6	1.2	7.9	120
				200				
				315				
16	5	D-ERNXB	10	160	8	2 2.5	9.9	50
				200				
				250				
18	7	D-ERNXB	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
<p>W plane as the base <math>(P_{max.} - P_{min.}) \leq 0.02</math></p>	<p><math>R_{max.} \leq 0.03</math> (Trimming R) ⚠ The tip corners have been slightly trimmed to measure the P · W dimensions.</p>

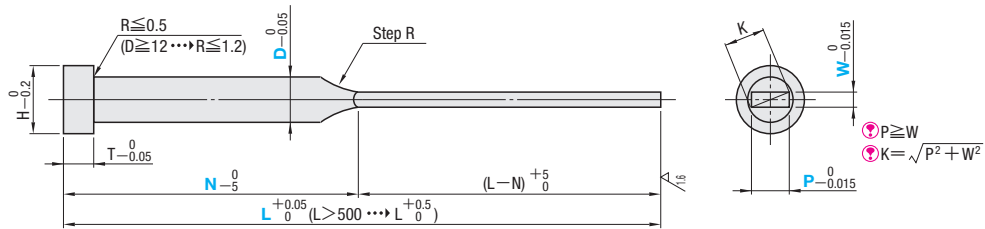
DIN 1530  
1.2344 equivalent  
+  
Nitrided

# 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.

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

H	T	Part No.		L	P	W	K max.	N	
		Type	D						
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	100.00 ~ 400.00	0.80 ~ 2.30		2.4		
6			3		0.80 ~ 2.80		2.9		
7	3.5		1.00 ~ 3.30		3.4				
8	3		4		100.00 ~ 500.00		1.00 ~ 3.80		3.9
			4.5		100.00 ~ 250.00		1.20 ~ 4.30		4.4
			5		100.00 ~ 400.00	1.50 ~ 4.80	4.9		
10	5		5.5	100.00 ~ 200.00	1.80 ~ 5.30	0.50 ~	5.4		
12			6	100.00 ~ 1000.00	2.00 ~ 5.80		5.9		
14			6.5	100.00 ~ 250.00	2.00 ~ 6.30		6.4		
16	7		8	100.00 ~ 1000.00	2.50 ~ 7.80		1.00 ~		7.9
18			10		5.00 ~ 9.80				9.9
22		12	6.00 ~ 11.80		11.9				
26		16	8.00 ~ 15.80		15.9				
32		20	10.00 ~ 19.70		19.9				
	25	100.00 ~ 500.00	13.00 ~ 24.70	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
<p>W plane as the base (Pmax. - Pmin.) ≤ 0.02</p>	<p>Rmax. ≤ 0.03 (Trimming R) ⚠ The tip corners have been slightly trimmed to measure the P · W dimensions.</p>

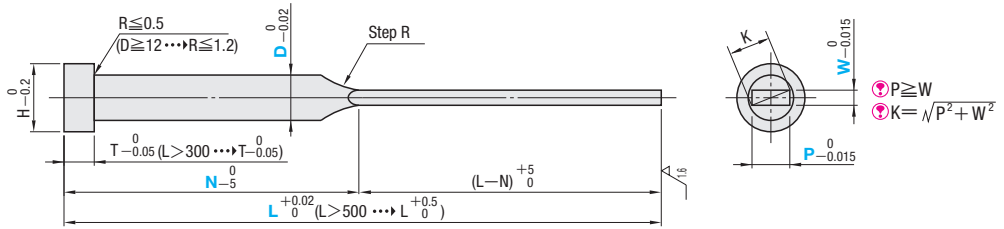
DIN 1530  
1.2344 equivalent  
Hardened

# EJECTOR BLADES

— DIMENSIONS SPECIFY TYPE —



## D-ERDX



1.2344 equivalent  
 50~55HRC

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



Alteration details P.4

Alterations	Code	Spec.
	AKC	AKC=1° increments $0 \leq AKC < 360$
	AWC	AWC=1° increments $0 \leq AWC < 360$
	ARC	ARC=1° increments $0 \leq ARC < 360$

Alterations	Code	Spec.
	ADC	ADC=1° increments $0 \leq ADC < 360$
	HC	HC=0.1mm increments $D+1 \leq HC < H$
	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
 Pmax. Pmin. W W plane as the base $(Pmax. - Pmin.) \leq 0.02$	 Rmax. $Rmax. \leq 0.03$ (Trimming R) The tip corners have been slightly trimmed to measure the P · W dimensions.

Ejector Pins

DIN ISO 8405  
1.2344 equivalent  
+  
Nitrided

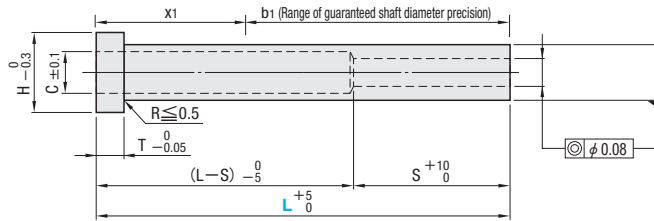
DIN ISO 8405  
1.2344 equivalent  
+  
Hardened

# STRAIGHT EJECTOR SLEEVES

—◎0.08 STANDARD TYPE—



Type	Material	Surface	Base Material	Tolerance	Applicable center pin shaft diameter tolerance
D-ESN	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 $-0.005$ is not recommended. The reason for this is the fitting section S are longer.
D-ESD	1.2344 equivalent		Base Material: 50~55HRC	H7	

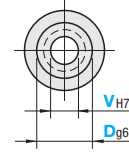


**D<sub>g6</sub>**

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

**V<sub>H7</sub>**

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



$C = V + 0.5$

Range of guaranteed shaft diameter precision ( $b_1 = L - X_1$ )  
x1 max.40

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).

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			
				100	*125 *150	1.5			
				100	*125 *150 175 *200	2			
				*100	*125 *150 175 *200	2.5			
				100	*125 *150 *175 *200	2 2.5			
	10			5	100	125 *150 *175 *200 250 *300	3		
					100	*125 150 175 200	2 2.5		
					100	*125 *150 175 *200 250 300	3		
					100	125 *150 175 *200 250 300	3.5		
					100	*125 *150 *175 *200 250 *300	2 2.5		
					100	*125 *150 *175 *200 250 *300 350 *400 450	3 3.5		
12	5	D-ESN (1.2344 equivalent) + Nitrided	6	*100	*125 *150 *175 *200 250 *300 350 *400 450	4			
				*100	*125 *150 *175 *200 250 *300 350 *400 450	4			
				*100	125 150 175 200 250 300	2.5			
				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			
	14			5	D-ESD (1.2344 equivalent) Hardened	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
							100	125 150 175 200 250 300	3
							100	125 150 175 200 250 300 350	3.5 4.5
							100	125 150 175 *200 250 *300 350	4 5
							100	125 *150 *175 *200 250 *300 350 *400 450	4
14	7	D-ESD (1.2344 equivalent) Hardened	8	100			125 150 175 200 250 300 350 400 450 500	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	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	
				100			125 *150 175 200 250 *300 350 400 450 *500	5 6 6.5	
	16			7	D-ESD (1.2344 equivalent) Hardened	10	100	125 150 175 200 250 300 350 400 450 500	5.5
							100	125 150 175 200 250 *300 350 400 450 *500	7
							100	125 150 175 200 250 300 350 400 450	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
18		7	D-ESD (1.2344 equivalent) Hardened	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
							100	125 150 175 200 250 300 350 400 450 500	10
							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
							100	125 150 175 *200 250 *300 350 400 450 500	11
22	7	D-ESD (1.2344 equivalent) Hardened			16	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	
						100	125 150 175 200 250 *300 350 400 450 500	11	
						100	125 150 175 200 250 300 350 400 450 500	12	
						100	125 150 175 *200 250 *300 350 400 450 500	12	
						100	125 150 175 200 250 *300 350 400 450 500	15	
26	8		D-ESD (1.2344 equivalent) Hardened	20		100	125 150 175 200 250 300 350 400 450 500	12	
						100	125 150 175 200 250 300 350 400 450 500	12	
						100	125 150 175 200 250 *300 350 400 450 500	11	
						100	125 150 175 200 250 300 350 400 450 500	12	
						100	125 150 175 *200 250 *300 350 400 450 500	12	
						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—



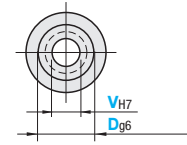
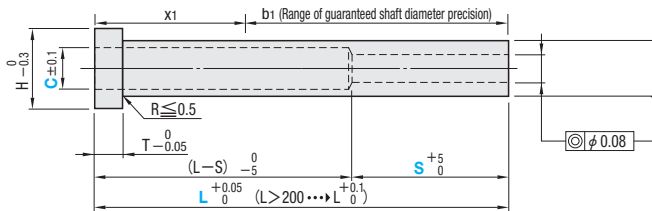
Type	M	H	T V	Applicable center pin shaft diameter tolerance
D-ESN-L	1.2344 equivalent+Nitrided	Surface: 900HV Base Material: 40±3HRC	H7	*Note that for sleeves with V dimension tolerance of H7, combination with center pins that have shaft diameter tolerance $-\frac{0}{0.005}$ is not recommended. The reason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

T D<sub>g6</sub>

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

T V<sub>H7</sub>

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 (b<sub>1</sub>=L-x<sub>1</sub>)  
x<sub>1</sub> max.40

H	T	Part No.		L		V 0.1mm increments	C 0.1mm increments	Cmax.	S 1mm increments		
		Type	D	0.01mm increments	0.1mm increments				L	(L-S) min.	
8	3	D-ESN-L (1.2344 equivalent + Nitrided)	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						3.5	L	(L-S) min.
			5						4.0		
			5.5						4.5	60.01~	30
12	5	D-ESD-L (1.2344 equivalent Hardened)	6	70.00~500.00	500.1 ~ 800.0	2.0~ 4.5	3.0	20~100 (L-S) ≥ 50			
			6.5					3.5	L	(L-S) min.	
			7					4.0			40.00~60.00
			7.5					4.5	60.01~	30	
14	7	D-ESD-L (1.2344 equivalent Hardened)	8	70.00~500.00	500.1 ~ 800.0	2.0~ 5.0	3.0	20~100 (L-S) ≥ 50			
9			3.5					L	(L-S) min.		
10			4.0							40.00~60.00	20
10.5			4.5					60.01~	30		
16	8	D-ESD-L (1.2344 equivalent Hardened)	12	70.00~500.00	500.1 ~ 800.0	2.0~ 5.5	3.0	20~100 (L-S) ≥ 50			
13			3.5					L	(L-S) min.		
14			4.0							40.00~60.00	20
14.5			4.5					60.01~	30		
18	8	D-ESD-L (1.2344 equivalent Hardened)	15	70.00~500.00	500.1 ~ 800.0	2.0~ 6.0	3.0	20~100 (L-S) ≥ 50			
16			3.5					L	(L-S) min.		
17			4.0							40.00~60.00	20
17.5			4.5					60.01~	30		
22	8	D-ESD-L (1.2344 equivalent Hardened)	16	70.00~500.00	500.1 ~ 800.0	2.0~ 6.5	3.0	20~100 (L-S) ≥ 50			
18			3.5					L	(L-S) min.		
19			4.0							40.00~60.00	20
19.5			4.5					60.01~	30		
26	8	D-ESD-L (1.2344 equivalent Hardened)	20	70.00~500.00	500.1 ~ 800.0	2.0~ 7.0	3.0	20~100 (L-S) ≥ 50			
22			3.5					L	(L-S) min.		
23			4.0							40.00~60.00	20
23.5			4.5					60.01~	30		



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	P.4
D-ESD-L8	500	4.5	6.5	S40	KC4.5		

Ejector Sleeves

DIN ISO 8405  
1.2344 equivalent  
+  
Nitrided

DIN ISO 8405  
1.2344 equivalent  
+  
Hardened

# STRAIGHT EJECTOR SLEEVES

—◎0.08 DIMENSIONS SPECIFY TYPE—



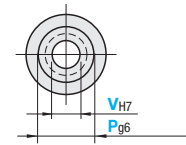
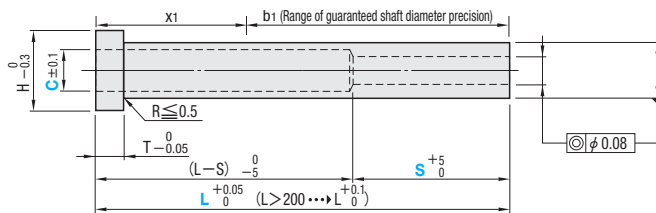
Part No.	M	H	T V	Applicable center pin shaft diameter tolerance
D-ESNB	1.2344 equivalent+Nitrided	Surface: 900HV Base Material: 40±3HRC	H7	*Note that for sleeves with V dimension tolerance of H7, combination with center pins that have shaft diameter tolerance $-\frac{0}{0.005}$ is not recommended. The reason for this is the fitting section S are longer.
D-ESDB	1.2344 equivalent	Base Material: 50~55HRC	H7	

### T Pg6

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

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

⚠ 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

H	T	Part No.		L		P 0.1mm increments	V 0.1mm increments	C 0.1mm increments	Cmax.	S 1mm increments
		Type	No.	0.01mm increments	0.1mm increments					
8	3	D-ESNB	4	40.00~200.00	-	3.50~ 3.99	1.5~ 1.9	C ≥ V+0.5 and C ≤ P-1.5	2.4	20~100 (⚠No.4, No.4.5 When V1.5~V1.9 20~40)
			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				
10	5	D-ESDB	6	40.00~300.00	-	5.51~ 5.99	2.0~ 3.9	⚠When L>300 0.5mm increments	4.4	20~100
			6.5			6.01~ 6.49	2.0~ 4.4		4.9	
12	5	D-ESDB	7	40.00~400.00	-	6.51~ 6.99	2.0~ 4.9	⚠When L>300 0.5mm increments	5.4	20~100
			7.5			7.01~ 7.49	2.0~ 5.4		5.9	
14	5	D-ESDB	8	40.00~400.00	-	7.51~ 7.99	2.5~ 5.9	⚠When L>300 0.5mm increments	6.4	20~100
			9			8.01~ 8.99	2.5~ 6.9		7.4	
16	5	D-ESDB	10	40.00~400.00	-	9.01~ 9.99	2.5~ 7.9	⚠When L>300 0.5mm increments	8.4	20~100
			12			10.01~11.99	2.5~ 9.9		10.4	
18	7	D-ESDB	15	70.00~500.00	500.1~800.0	12.01~14.99	2.5~12.0	⚠When L>300 0.5mm increments	12.5	L (L-S) min. 40.00~60.00 20 60.01~70.00 30 70.01~80.00 40 80.01~ 50
			16			15.01~15.99	2.5~13.0		13.5	
22	7	D-ESDB	20	100.00~500.00	500.1~800.0	16.01~19.99	3.0~16.0	⚠When L>300 0.5mm increments	16.5	L (L-S) min. 40.00~60.00 20 60.01~70.00 30 70.01~80.00 40 80.01~ 50
			20			100.00~500.00	16.01~19.99		3.0~16.0	

⚠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.) Alteration details P.4  
D-ESDB 10 - 300 - P9.1 - V5.5 - C6.2 - S50 - HC10

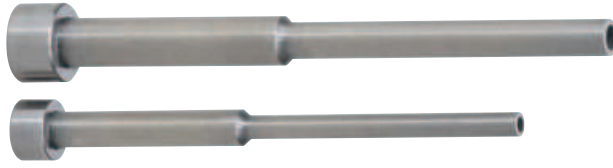


DIN Type  
1.2344 equivalent  
+  
Nitrided

DIN Type  
1.2344 equivalent  
Hardened

# STEP EJECTOR SLEEVES

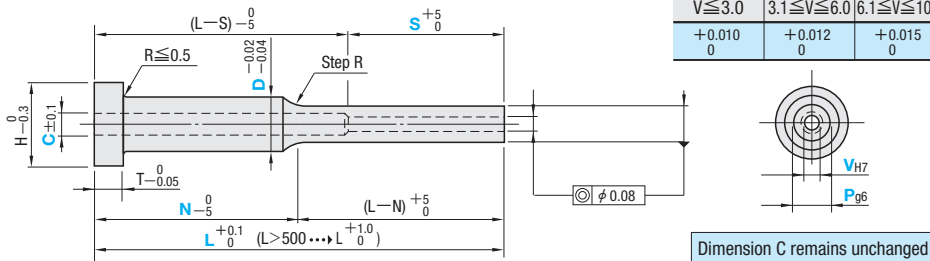
—◎0.08 DIMENSIONS SPECIFY TYPE—



Part No.	Material	Surface	Base Material	Tolerance	Applicable center pin shaft diameter tolerance
D-ESNF	1.2344 equivalent+Nitrided	Surface: 900HV Base Material: 40±3HRC		g6 H7	*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.
D-ESDF	1.2344 equivalent	Base Material: 50~55HRC			

P <sub>g6</sub>			
P ≤ 6	6.5 ≤ P ≤ 10	12 ≤ P ≤ 16	P = 20
-0.004	-0.005	-0.006	-0.007
-0.012	-0.014	-0.017	-0.020

V <sub>H7</sub>			
V ≤ 3.0	3.1 ≤ V ≤ 6.0	6.1 ≤ V ≤ 10.0	V ≥ 10.1
+0.010	+0.012	+0.015	+0.018
0	0	0	0



- Ⓢ 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. Type	D	L		V	P	C	Cmax.	N	S
				0.01mm increments	0.1mm 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 ≥ L/3	20~100
			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			2.0~4.5	4.00~6.45		5.0		
			7			2.0~5.0	4.00~7.45		5.5		
14	5	D-ESDF (1.2344 equivalent Hardened)	7.5	70.00~500.00	—	2.5~5.5	5.00~7.95	C ≥ V+0.5 and C ≤ P-1.5  (Ⓢ When L > 300 0.5mm increments)	6.0	N ≥ L/3 (When L > 600 L/3 ≤ N ≤ 2/3 L)	20~100 (L-S) ≥ 50
			8			3.0~6.5	6.00~8.95		7.0		
			9			3.5~7.5	6.00~9.95		8.0		
18	7	D-ESDF (1.2344 equivalent Hardened)	10	70.00~500.00	500.1~800.0	4.0~8.5	7.50~11.95	C ≥ V+0.5 and C ≤ P-1.5  (Ⓢ When L > 300 0.5mm increments)	9.0	N ≥ L/3 (When L > 600 L/3 ≤ N ≤ 2/3 L)	20~100 (L-S) ≥ 50
			12			5.0~10.5	10.00~14.95		11.0		
			15			5.0~11.5	12.00~15.95		12.0		
			16			7.0~16.0	14.50~19.95		17.0		
26	8	D-ESDF (1.2344 equivalent Hardened)	20	100.00~500.00	500.1~800.0	7.0~16.0	14.50~19.95	17.0	N ≥ L/3 (When L > 600 L/3 ≤ N ≤ 2/3 L)	20~100 (L-S) ≥ 50	

Ⓢ 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

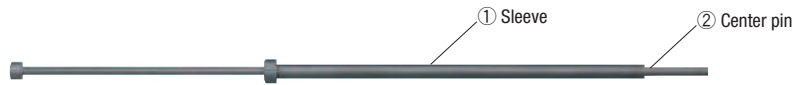
Part No. — L — V — P — C — N — S — (KC · WK · etc.) Alterations details ☒ P.4  
D-ESDF 6 — 150.00 — V3.0 — P5.50 — C4.0 — N80 — S85 — KC3.5

Ejector Sleeves

DIN Type  
1.2344 equivalent  
+  
Nitrided

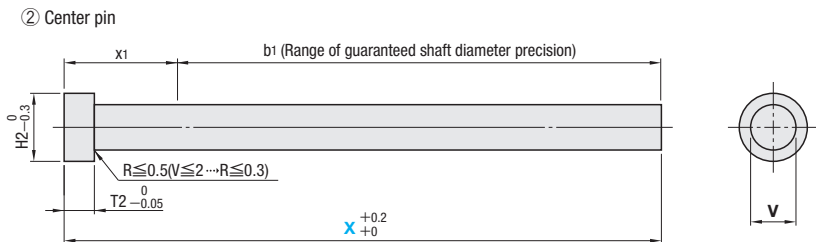
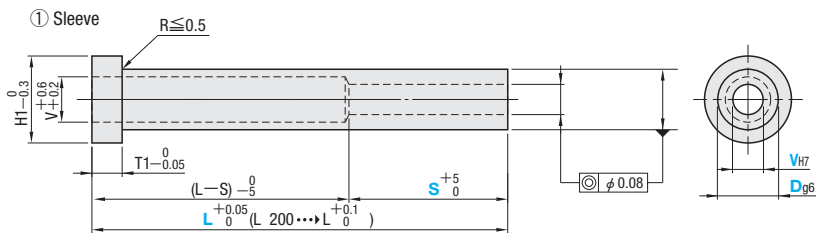
DIN Type  
1.2344 equivalent  
Hardened

# STRAIGHT EJECTOR SLEEVES & STRAIGHT CENTER PIN SETS

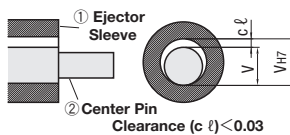


Part No.		M	H
D-ESNP	①	1.2344 equivalent + Nitrided	Surface: 900HV Base Material: 40±3HRC
	②	1.2344 equivalent + Nitrided	Surface: 900HV Base Material: 40±3HRC
D-ESDP	①	1.2344 equivalent	Base Material: 50~55HRC
	②	1.2344 equivalent	Base Material: 50~55HRC

⚠ 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<sub>H7</sub>) and the center pin's shaft diameter (V).



### V<sub>H7</sub> 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 (1.2344 equivalent + Nitrided)	4	40.00~200.00	-	1.5~2.5	20~100 (D4, D4.5 When V1.5~V1.9 20~40)				
			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					
			6.5			2.0~4.5					
			7			2.0~5.0					
			7.5			2.0~5.5					
14	7		D-ESDP (1.2344 equivalent Hardened)	70.00~500.00		8			2.0~6.0	20~100 (L-S) ≥ 50	X ≥ L + 20 and X ≤ L + 100
						9			2.5~7.0		
		10			2.5~8.0						
16	7	12		500.1~800.0	2.5~10.0						
		15			2.5~12.0						
18	7	16		500.1~800.0	3.0~13.0						
		20			3.0~16.0						
22	8	100.00~500.00		3.0~16.0							

Ejector Sleeves

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		8.1~10.0
18	7	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		3.5	
8			4	
10			4.5	
12	5		5	
14			6	
			8	



Order

Part No. — L  
D-CPD2.5 — 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

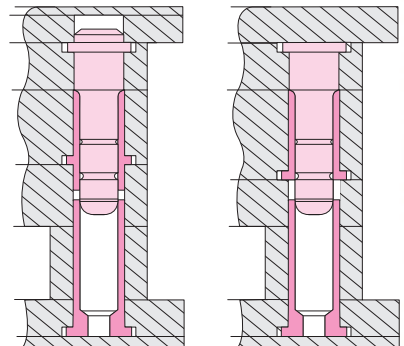
MISUMI guide pillars are classified as head type and straight type.

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.



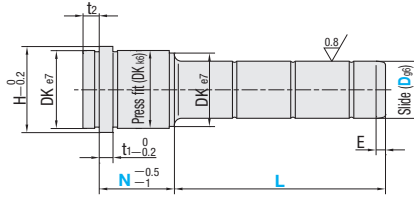
DIN  
TYPE

# DIN TYPE GUIDE PILLAR

— OIL GROOVE / STEP TYPE —



D-GPM00



Tool steel  
56 HRC~

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
									45	77
20			7	9	6	25	14 15	35 55 75 95	17	
								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	6	31	18 20	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	
								55 75 95 115 135	96	
30			7	9	6	35	22 24	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	
								*55 *75 95 *115 145	76	
								*55 *75 *95 115 *135 155 195	86	
								*55 *75 *95 125 155 195	96	
42	+0.018 +0.002	-0.050 -0.075	7	9	6	47	30 32	35 55 75 95 115 135 155 195	116	
								75 95 115 135 155 195	136	
								95 115 135 155	156	
								115 155	176	
								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	
								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									
75 95 *115 *155 175 205	96									
95 115 155 195	116									
95 115 155	136									
135 175	156									
115 155 195	176									
75 135	196									
95 *165	36									
*75 *115 *155 *195	46									
75 *135	56									
75 95 *115 135 *175	66									
75 *135	76									
75 95 115 155 195	86									
*95 115 135 155 195	96									
95 115 135 155 195 215	116									
115 155 215	136									
135 155 175	156									
115 155 195 235	176									
165 215 245	196									
95 115 135 175	246									
95 115 135	76									
95 115 155 195	86									
115 155 195	96									
115 155 195	116									
135 155 195	136									
195 235	156									
195 235	176									
195 235	196									

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



Order

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

Alterations

Code  
GN

Spec.  
No oil groove

Guide Components

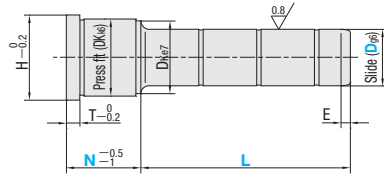
DIN  
TYPE

# DIN TYPE GUIDE PILLAR

— OIL GROOVE / STEP TYPE —



D-GPM03



Tool steel  
56 HRC~

Press Fit Part			E	T	H	Part No.		L											N											
DK	k6	e7				Type	Slide Part D																							
14	+0.012 +0.001	-0.032 -0.050	4	3	16	D-GPM03	9	20	35	50												9								
								25	45	65												12								
								20	30													17								
								25	35	55												22								
								30	50													27								
								25	45													36								
20					25		14	30	45	75												46								
								35	60												56									
								45												66										
								35	55	75	95												17							
								20	35	40	45	50	55	65	70	90	110						22							
								20	35	40	45	55	65	85	105						27									
						26	+0.015 +0.002	-0.040 -0.061			31	15	20	35	40	45	55	65	75	95						36				
													20	35	45	65	85	105						46						
													20	35	55	75	95						56							
													55	95						66										
													55	95						76										
													55	95						86										
30				35	18							35	55	75	95												17			
												20	35	40	45	50	55	60	65	70	80	85	115				22			
												20	35	40	45	50	55	60	65	70	80	85	105	125	155			27		
												20	*35	*40	45	50	55	60	*65	*70	75	80	*95	115	135	155			36	
												20	*45	*65	*85	*105	135	165												46
												20	*35	*55	75	95												56		
					42	+0.018 +0.002	-0.050 -0.075		47	20	*55	*75	*95												66					
											*55	75	*95												76					
											55	75	95												86					
											55	95												96						
											115												116							
											135												136							
54				60						22	35	55	75	105	130												17			
											25	45	50	60	65	70	80	85	105	125	165					22				
											25	*45	*50	*55	*60	70	*75	80	*95	*115	135	*165	195			27				
											25	*45	*50	60	*65	70	80	*85	*105	115	125	*165	195			36				
											25	*45	*55	*75	*95	*115	*165	195												46
											*55	*75	*95												56					
					66	+0.021 +0.002	-0.060 -0.090		72	24	25	*45	*55	*75	*95	115												66		
											*55	*75	*95												76					
											55	75	*95	115	135	155												86		
											75	115	155												96					
											135												116							
											155												136							
80				86						30	35	75	130												156					
											45	65	105	165												22				
											*55	*75	*95	*115	*155												27			
											*45	*65	85	105	*125	*165	195												36	
											*55	*75	*95	*115	*135	*175	195												46	
											*55	*75	*95	*115	135	*175	195												56	
					66				10	32	55	*75	95	115	*155	195												66		
											*55	*75	95	*115	155												76			
											*55	75	*95	115	155	195												86		
											75	95	115	155												96				
											95	115	155												116					
											115	155												136						
80				20						40	135	175												156						
											155	195												176						
											75	*135												196						
											95	165												36						
											*75	115	*155	195												46				
											*75	*135												56						
					80				20	42	75	*115	*175												76					
											75	*135												86						
											75	115	155												96					
											95	115	135	195												116				
											95	115	135	215												136				
											115	155	195	215												156				
80				20						50	135	155	175												176					
											155	195	235												196					
											115	135	155	175	195												76			
											115	155	175	195												96				
											135	155	175	195												116				
											135	155	175	195												136				
					80				20	52	155	175	195	215												156				
											175	195	215	245												196				
											195	215	245												246					
											115												96							
											135												116							
											135												136							
80				20						60	155												156							
											175												196							
											195												246							
											115												96							
											135												116							
											135												136							

Slide Part Dg6	9 · 10	14~18	20~30	32~42	50~60
		-0.005 -0.014	-0.006 -0.017	-0.007 -0.020	-0.009 -0.025



Order

Part No. — D — L — N  
D-GPM03 — 18 — 20 — 36

Alterations	Code	Spec.
	GN	No oil groove

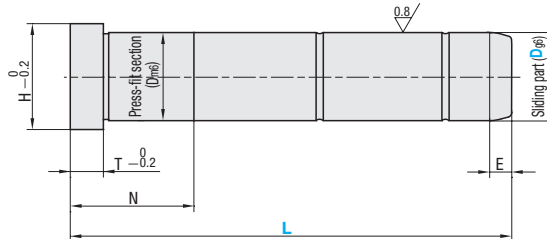
DIN  
TYPE

# DIN TYPE GUIDE PILLAR

— OIL GROOVE / STRAIGHT TYPE —



## 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	8	22	27	D-GPM011	18	80	100				
						36			120					
						46			140	160				
						56			180	200	220			
20	-0.007 -0.020	20	+0.021 +0.008		24	27		20	80	100				
						36			120					
						46			140	160				
						56			180	200	220			
22	-0.007 -0.020	22	+0.021 +0.008	15	26	22		100	120	140				
								46	160	180				
								56	200	220	240	280		
								76	100	120	140			
24	-0.007 -0.020	24	+0.021 +0.008		28			36	24	100	120	140		
								46		160	180			
								56		200	220	240	280	
								76		120	140	160	180	200
30	-0.007 -0.020	30	+0.021 +0.008		36		56	30	220	240	280	320	360	
							76		120	140	160	180	200	
32	-0.009 -0.025	32	+0.025 +0.009		48		56	32	120	140	160	180	200	220
							76		240	280	320	360		
40	-0.009 -0.025	40	+0.025 +0.009	10	56	40	200	240	300	360				
					76		240							
					96		300	360						



Order

Part No. — D — L  
D-GPM011 — 18 — 80



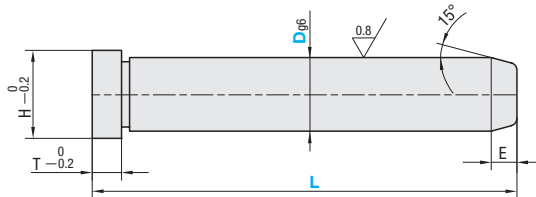
DIN  
TYPE

# DIN TYPE EJECTOR GUIDE PILLAR

—PLAIN / STRAIGHT TYPE—



D-GPM01



M 20Cr  
H 56HRC~

Dg6	E	H	T	Part No.		L														
				Type	D	14	60	80	100	120	140	160	180	200	220	240	300	360		
14	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	180	200					
18					18	60	80	100	120	140	160	180	200	240						
20		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		32	100		120	160	200	240	300	360										
40		40	160		200	240	300	360												

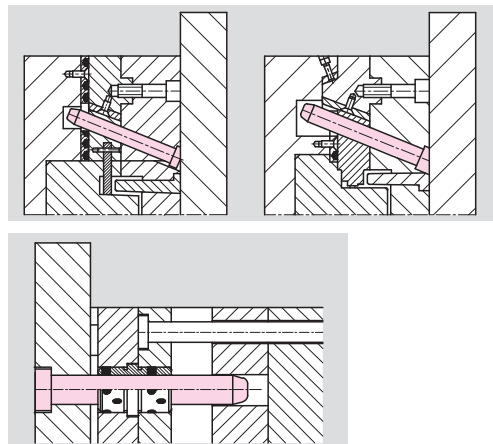


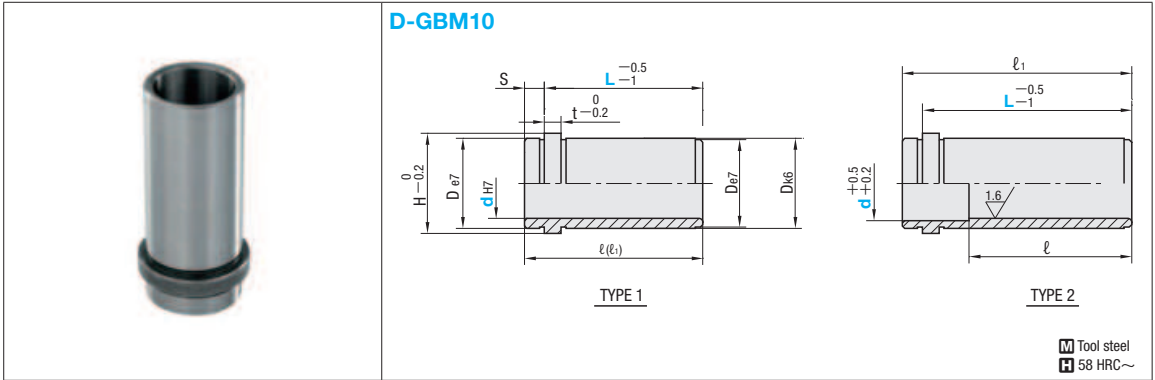
Order

Part No. — D — L  
D-GPM01 — 14 — 60



Example





TYPE	ℓ	ℓ(ℓ1)	S	t	D	H	Part No. Type	d	L					
										D-GBM10				
1	12	12	3	3	14	16	D-GBM10	9	9					
	15	15							12					
	20	20							17					
	25	25							22					
	30	30							27					
	39	39							36					
2	46	49	9	6	26	31		14	46					
	49	59							12					
	59	69							17					
1	21	21							14	15	20	25	18	12
	26	26												17
	31	31												22
	36	36					27							
	45	45					36							
	55	55					46							
2	46	59					18	20	26	31	20	56		
	59	65										27		
	69	75										*36		
	1	26	26	9	6	26						31	22	*46
		31	31											*56
		36	36											*66
45		45	*76											
55		55	86											
65		65	96											
2	76	85	12	10	24	35					24	*116		
	85	95										*136		
	95	105										156		
	105	125					176							
	125	145					196							
	145	165					*36							
1	26	26					18	20	26	31	22	17		
	31	31										*22		
	36	36										27		
	45	45										*36		
	55	55										*46		
	65	65										*56		
2	76	85	22	24	30	35	24	*66						
	85	95						*76						
	95	105						86						
	105	125						96						
	125	145						116						
	145	165						136						
1	26	26					9	6	26	31	18	17		
	31	31										*22		
	36	36										27		
	45	45										*36		
	55	55										*46		
	65	65										*56		
2	76	85	22	24	30	35	24	*66						
	85	95						*76						
	95	105						86						
	105	125						96						
	125	145						116						
	145	165						136						

TYPE	ℓ	ℓ(ℓ1)	S	t	D	H	Part No. Type	d	L									
										D-GBM10								
2	96	125	9	6	30	35	D-GBM10	22	*116									
	1	31							31	14	15	20	25	18	136			
		36							36						17			
		45							45						22			
		55							55						27			
		65							65						36			
75		75						46										
2	116	145						12	10	54	60	30	*36					
	1	48											48	22	24	30	35	156
		58											58					176
		68											68					196
		78											78					*46
		88	88	*56														
98		98	*66															
2	136	168	12	10	66	72	40					*76						
	1	68										68	24	24	30	35	86	
		78										78					96	
		88										88					116	
		98										98					136	
		108						108	156									
128		128					176											
2	136	188					12	10	66	72	42	196						
	1	68										68	24	24	30	35	216	
		78										78					236	
		88										88					246	
		98										98					56	
		108	108	66														
128		128	76															
2	136	168	12	10	66	72					50	86						
	1	68										68	24	24	30	35	116	
		78										78					136	
		88										88					156	
		98										98					176	
		108					108	196										
128		128					216											
2	136	188					12	10	66	72	52	236						
	1	68										68	24	24	30	35	156	
		78										78					176	
		88										88					196	
		98										98					216	
		108	108	236														
128		128	246															

dH7		De7		Dk6	
9	+0.015 0	14	-0.032 -0.050	14	+0.012 +0.001
10					
14	+0.018 0	20	-0.040 -0.061	20	+0.015 +0.002
15					
18	+0.021 0	26		26	
20		26		26	+0.015 +0.002
22		30	30		
24		30	30		
30	+0.025 0	42	-0.050 -0.075	42	+0.018 +0.002
32		42	42		
40		54	54		
42		54	54		
50	+0.030 0	66	-0.060 -0.090	66	+0.021 +0.002
52		66	66		



Order

Part No. — d — L  
D-GBM10 — 18 — 17

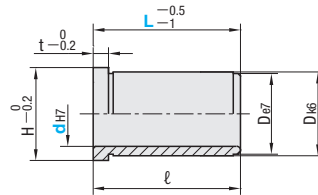
DIN  
TYPE

# DIN TYPE GUIDE BUSHINGS WITHOUT CENTERING HEAD

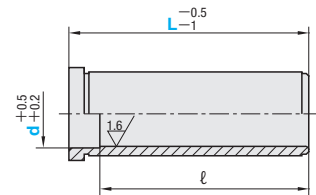
—PLAIN TYPE—



## D-GBM11



TYPE 1



TYPE 2

☐ Tool steel  
☐ 58 HRC~

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

dH7		De7		Dk6	
9	+0.015	14	-0.032	14	+0.012
10	0	18	-0.050	18	+0.001
12	+0.018	20	-0.040	20	+0.015
14		22		22	+0.002
15		26		26	
16		30		30	+0.015
18	0	30	-0.061	30	+0.002
20	+0.021	30	-0.050	30	
22		42		42	+0.018
24		42		42	+0.002
30		54		54	
32	+0.025	54	-0.060	54	
40		66		66	+0.021
42		66		66	+0.002
50		80		80	
52	+0.030	66	-0.090	66	
60		0		80	

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

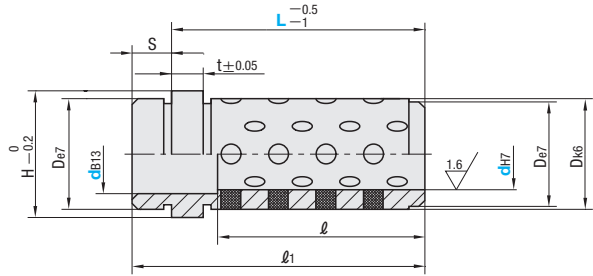


Order

Part No. — d — L  
D-GBM11 — 18 — 17



D-GBM1000W



High strength brass  
inlaid graphite

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

	dH7	dB13	De7	Dk6
14		14	20	20
15	+0.018	15	+0.42	20
18	0	18	+0.15	20
20		20	26	+0.015
22	+0.021	22	+0.49	+0.002
24	0	24	+0.16	30
30		30	42	30
32	+0.025	32	+0.56	42
40	0	40	+0.17	42
42		42	+0.42	54
			+0.15	54

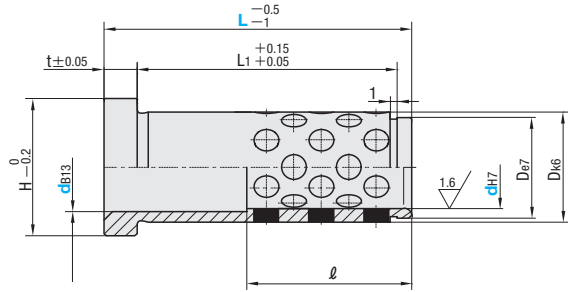


Order

Part No. — d — L  
D-GBM1000W — 14 — 17



**D-GBM1100W**



**M** High strength brass  
inlaid graphite

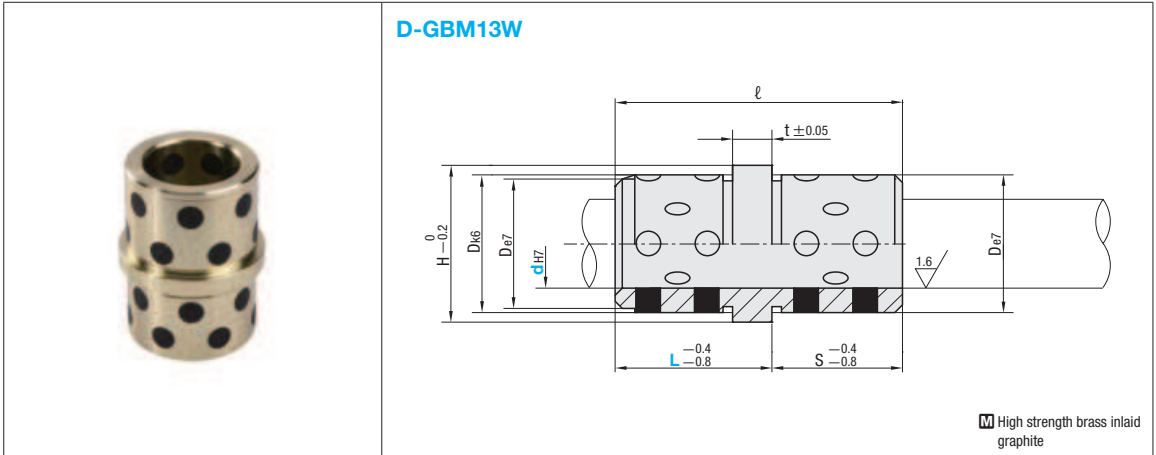
L1	D	H	t	l	Part No.	d	L	
					Type			
8.3	20	25	6	—	<b>D-GBM1100W</b>	14	17	
13.3				22				
18.3				27				
27.3				36				
37.3				46				
47.3	56							
13.3	22	27	6	—		22		
18.3				27				
27.3				36				
37.3				46				
47.3				56				
8.3	26	31	6	—		17		
13.3				27				
18.3				36				
27.3				46				
37.3				56				
47.3				66				
57.3				76				
67.3				86				
12.6				30		35	6	—
17.6					27			
26.6	36							
36.6	46							
46.6	56							
56.6	66							
66.6	76							
76.6	86							
86.6	96							
15.85	42	47	6		—			27
24.85				36				
34.85				46				
44.85				56				
54.85				66				
64.85				76				
74.85				86				
84.85				96				
104.9				116				
30.15				54	60	10	—	46
40.15	56							
50.15	66							
60.15	76							
70.15	86							
80.15	96							
100.15	116							
120.15	136							

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



Order

Part No. — d — L  
**D-GBM1100W** — 14 — 17



**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	

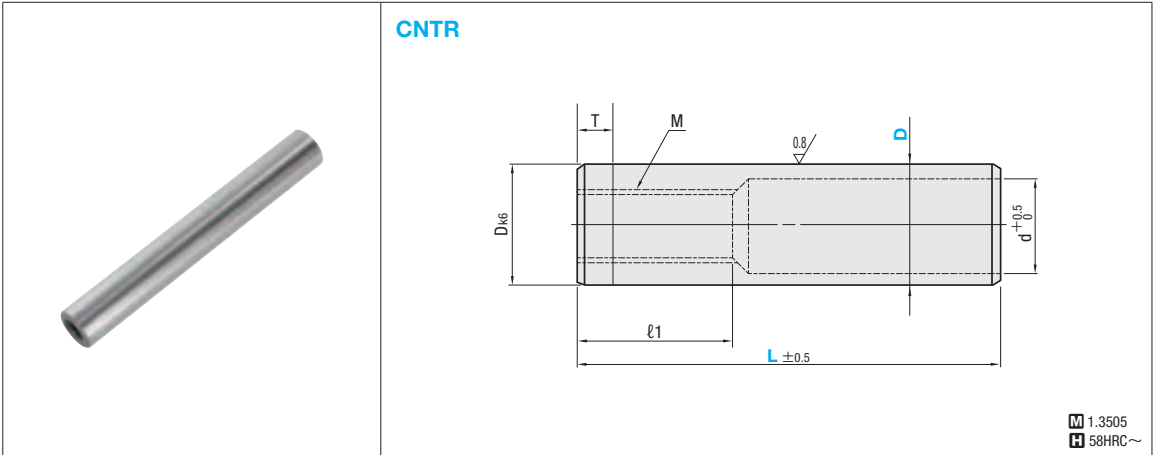
dH7		De7		Dk6	
14	+0.018 0	20	-0.040 -0.061	20	+0.015 +0.002
15		20		20	
18		26		26	
20		26		26	
22	+0.021 0	30	-0.050 -0.075	30	+0.018 +0.002
24		30		30	
30	+0.025 0	42	-0.060 -0.090	42	+0.021 +0.002
32		54		54	



Order

Part No. — d — L  
D-GBM13W — 14 — 17

# CENTERING SLEEVE



1.3505  
58HRC~

T	ℓ1	M	d	Part No.		L
				Type	D	
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
20.8	33		42		40 60 80 100 120 140 160 180 200 220 240 260 280 300	
4	22.9	M12	43		54	60 80 120 160 180 200 220 240 260 280 300 320
	25.2		54		66	80 120 160 180 200 220 240 260 280 300 320

■ Tolerance for D and DK

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

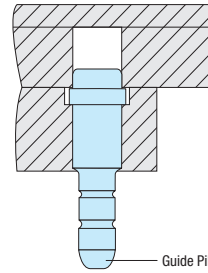


Order

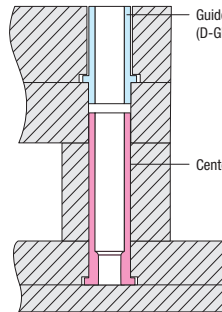
Part No. — L  
CNTR30 — 160



Example



Guide Pillar (D-GPM00) P.23



Guide Bushing (D-GBM10) P.27

Centering Sleeve

# RECTANGULAR STRAIGHT BLOCK SETS

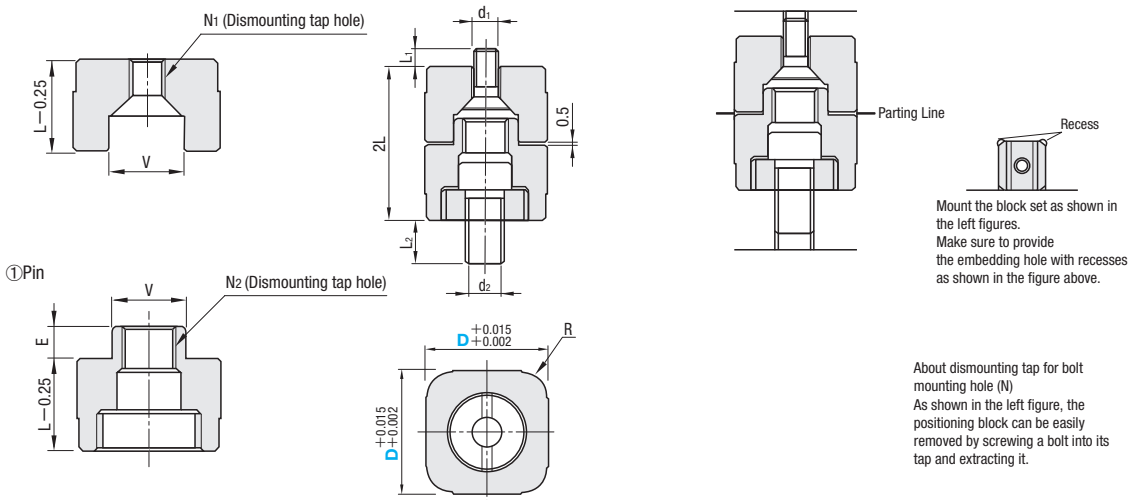


Part No. Set	V Tolerance		Positioning precision (Clearance)	V dimension symmetry against D plane	M	□
	① Pin	② Bushing				
D-TBSFH08	0 -0.005	+0.01 +0.005	0.005~0.015	0.005 or less	SKS3	53~58HRC

② Bushing

■ Dimensions when combined

■ When using



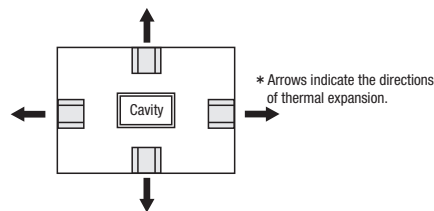
V	E	R	L	L <sub>1</sub>	L <sub>2</sub>	Dismounting tap hole		Installation bolts		Part No.	
						N <sub>1</sub>	N <sub>2</sub>	d <sub>1</sub>	d <sub>2</sub>	Type	D
10	5.5	4	14	4	12	M 5	M 6	M4	M 5	D-TBSFH08 (①+②Set)	20
12	7.5	5	16	8	13	M 6	M 8	M5	M 6		25
16	9.5	6	18	12	15	M 8	M10	M6	M 8		32
20	11.5		22.5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

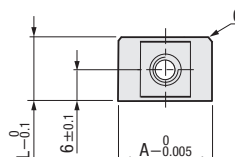


# STRAIGHT BLOCK SETS

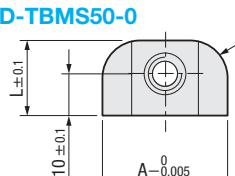
— PL SIDE FIXING TYPE —



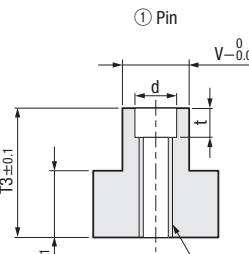
**D-TBMS50-02**



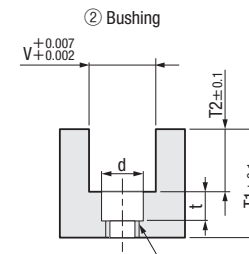
**D-TBMS50-0**






① Pin



② Bushing

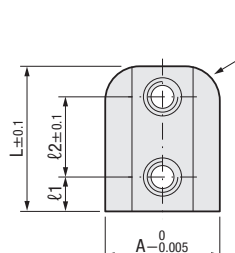


 SKD11  
 54~58HRC

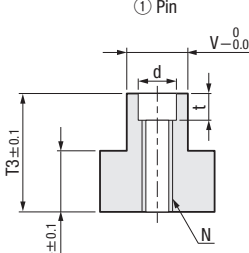


**D-TBMS50-05**

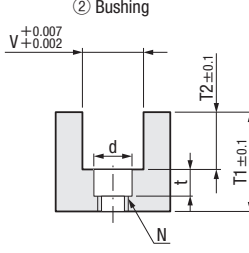
**D-TBMS50-1**






① Pin



② Bushing

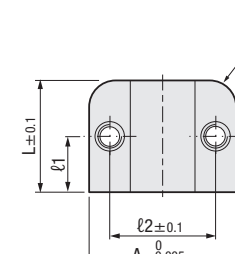


 SKD11  
 54~58HRC

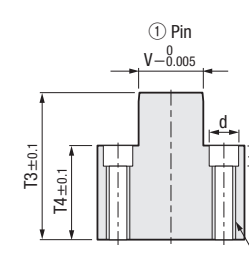


**D-TBMS50-2**

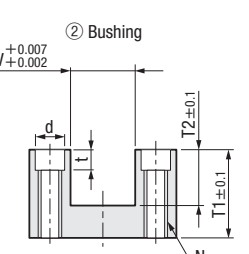
**D-TBMS50-3**





① Pin



② Bushing



 SKD11  
 54~58HRC

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	<b>D-TBMS50</b>	<b>02</b>
				R5	5.5	11						22			<b>05</b>
26	14.8	30	15.5	R8	-	-	11	7	M6	M8	16	18	30		<b>0</b>
29.8	20	48.8	29.8		8	22					20	38	50		<b>1</b>
39.8	25	63.8	39.8		19	35	15	9	M8	M10	30	20	75		<b>2</b>
					52	15						9	M8	M10	30



Order

Part No.  
**D-TBMS50-0**

### D-TBMS46

M SKD11  
H 54~58HRC

### D-TBMS48

M SKD11  
H 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	
19.5	20	10	46	17.5									35	60
25.5	26	12.5	74	23	18	11	M10	M12	46	100		48	36	
35.5	36	16	114	30	20	13	M12	M16	60	150		77	56	32
														40
														50
														71
													100	

### D-TBMGT

M SKS3  
H HRC50~  
S Surface Treatment Fe<sub>2</sub>O<sub>3</sub>

M SKD11  
H 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		
35	52	18		10.5	11	M10×25	M10×40	30	26	36	75		
60	70		22.5								M10×65		40

### D-TBMGS

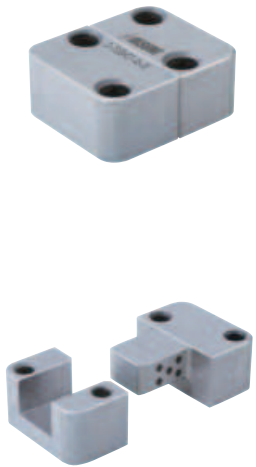
M SKS3  
H HRC50~  
S Surface Treatment Fe<sub>2</sub>O<sub>3</sub>

M SKD11  
H HRC56~  
S Surface Treatment Titanium Plating

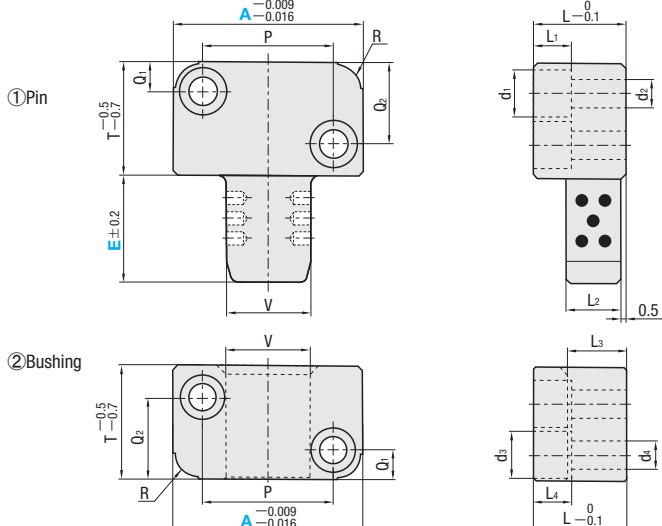
T1	Installation bolt hole					Installation bolts	V	E	L	Part No.	
	P	Q	d1	d2	t					Type	A
21.5	34	11	11	7	7.5	M6×20	17	12	16	D-TBMGS	50
36	50	18	18	11	11.5	M10×25	25	17	19		75
	70	84					35	23	25		100
45	84	22	M10×30	35	23	25	125				

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

# OIL-FREE SIDE STRAIGHT BLOCK SETS



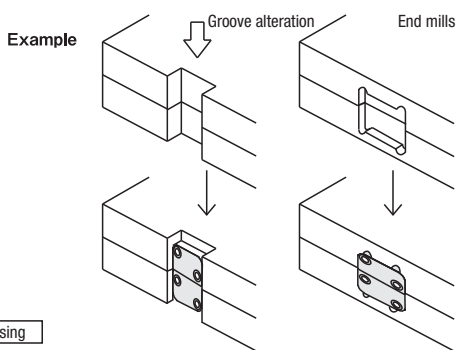
Part No.	V Tolerance		Positioning precision (Clearance)	V dimension symmetry against A plane	M	□
	① Pin	② Bushing				
D-TSSBH07	0 -0.007	+0.012 +0.005	0.005 0.015	0.005 or less	SKS3	53~58HRC



V	T	R	Bolt Hole								L	L1	L2	L3	L4	Part No.		
			P	Q1	Q2	d1	d2	d3	d4	Type						A	E	
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							13	14				40	
25	36	8	35	9	27	15	9	15	32	9	14	15	9	50		32		
32	46		45	11	35						19	20				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	100



Order Part No. — A — E  
**D-TSSBH07** — **45** — **25**

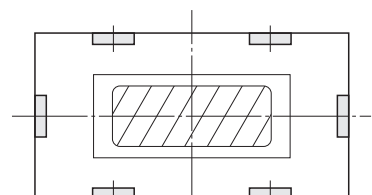
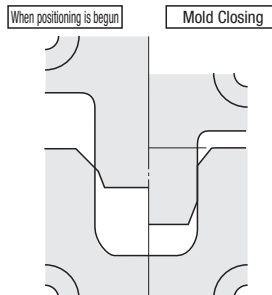


## ■ Features

- 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.



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.