

Round Stoppers / Shims for Round Stoppers Standard Type

Counterbored Holes, Tapped Holes

Flat Stoppers / Shims for Flat Stoppers Standard Type

■ **Features:** Use at stop point of equipments and workpieces. Selectable from Standard/Free Type according to the applications.

■ **Round Stoppers - Counterbored Holes**

Standard **AST**
Configurable **ASTNF**

RoHS10

Material: S45C Equivalent
Hardness: 40~45HRC

⚠ If the Configurable Type D - D1 ≤ 2, the chamfer will be C0.5 or less. (*Part)

Standard										Configurable									
Part Number Type	No.	D	H	d	D1	E	Applicable Screw	Unit Price	Volume Discount Rate	Part Number Type	No.	D	H	d	D1	E	Applicable Screw	Unit Price	Volume Discount Rate
								1 ~ 19 pcs(s).	20 ~ 99 pcs.										
AST	3	12	8	3.4	6.5	3.5	M3			ASTNF	3	10~15	5~30	3.4	6.5	3.5	M3		
	4	16	8	4.4	8	4.5	M4				4	10~25	(H≥E+1)	4.4	8	4.5	M4		
	5	19	10	5.4	9.5	5.5	M5				5	12~35		5.4	9.5	5.5	M5		
	6	20	10	6.6	11	6.5	M6				6	15~40		6.6	11	6.5	M6		
	8	25	15	9	14	8.6	M8				8	16~50		9	14	8.6	M8		
	10	28	16	11	17.5	11	M10				10	22~50		11	17.5	11	M10		
12	30	18	14	20	13.5	M12			12	24~50		14	20	13.5	M12				

■ **Round Stoppers - Tapped Holes**

Standard **ASTM**
Configurable **ASTMF**

RoHS10

Material: S45C Equivalent
Hardness: 40~45HRC

Standard										Configurable									
Part Number Type	No.	D	H	M (Coarse)	B	Unit Price	Volume Discount Rate	Part Number Type	No.	D	H	M (Coarse)	B	Unit Price	Volume Discount Rate				
						1 ~ 19 pc(s).	20 ~ 99 pcs.												
ASTM	3	12	8	M3	10			ASTMF	3	10~15	5~30	M3	D-2						
	4	16	8	M4	14				4	10~25	(H≤Mx4)	M4							
	5	19	10	M5	17				5	12~35		M5							
	6	20	10	M6	17				6	15~40		M6							
	8	25	15	M8	22				8	16~50		M8							
	10	28	16	M10	24				10	22~50		M10							
12	30	18	M12	27			12	24~50		M12									

Ordering Example: Part Number - D - H
 AST8 - 12 - 10 (Counterbored Standard Type)
 ASTNF3 - 12 - 10 (Counterbored Configurable Type)
 ASTM6 - 12 - 15 (Tapped Hole Standard Type)
 ASTMF5 - 12 - 15 (Tapped Hole Configurable Type)

Alterations: Part Number - D - H - (ZG)
 ASTNF4 - 12 - 10 - ZG

Alterations Code	Counterbored Hole Depth																
ZG																	
Spec.	<table border="1"> <tr> <th>Applicable Screw</th> <th>E</th> </tr> <tr> <td>M3</td> <td>-</td> </tr> <tr> <td>M4</td> <td>5.6</td> </tr> <tr> <td>M5</td> <td>6.7</td> </tr> <tr> <td>M6</td> <td>8.0</td> </tr> <tr> <td>M8</td> <td>10.6</td> </tr> <tr> <td>M10</td> <td>13.2</td> </tr> <tr> <td>M12</td> <td>15.5</td> </tr> </table> <p>⚠ Applicable to ASTNF only ⚠ Not applicable to M3</p>	Applicable Screw	E	M3	-	M4	5.6	M5	6.7	M6	8.0	M8	10.6	M10	13.2	M12	15.5
Applicable Screw	E																
M3	-																
M4	5.6																
M5	6.7																
M6	8.0																
M8	10.6																
M10	13.2																
M12	15.5																

■ **Shims for Round Stoppers Standard Type**

Standard **ASTC**

RoHS10

Material: SPCC Equivalent

Part Number Type	No.	T Selection	d	D	Unit Price	Volume Discount Rate
					1 ~ 19 pc(s).	20 ~ 50 pcs.
ASTC	3	0.1	4	12		
	4	0.2	5	16		
	5	0.5	6	19		
	6	1	8	20		
	8		10	25		
	10		12	28		
12		14	30			

Ordering Example: Part Number - T
 ASTC3 - 0.1

■ **Flat Stoppers - T, L Selectable / T, L Configurable**

RoHS10

Type	Material	Hardness
FSWN	S45C Equivalent	40~45HRC
FSWJ	Polycetal	-

Material: S45C Equivalent
Hardness: 40~45HRC

T, L Selectable										T, L Configurable									
Part Number Type	A	T Selection	L Selection	d	d1	h	Unit Price	Part Number Type	A	T	L	d	d1	h	Unit Price				
							FSWN FSWJ								FSWNF FSWJF				
FSWN FSWJ	12	12 15 20	50 75 100	4.5	8	5		FSWNF FSWJF	12	10~20	35~100	4.5	8	5					
	15			5.5	9.5	6			15			5.5	9.5	6					
	16			6.6	11	7			16			6.6	11	7					
	19								19										
	25								25										

■ **Flat Stoppers - Hole Selectable**

RoHS10

FSWNSF (1 Hole) Hole Selection: M (Tapped), Z (Counterbored)

FSWNWF (2 Holes) 2-Hole Selection: M (Tapped), Z (Counterbored)

Hole Details: M (Tapped Hole), Z (Counterbored Hole)

Counterbore Dimensions	d	d1	h
Z4	4.5	8	5
Z5	5.5	9.5	6
Z6	6.6	11	7

Material: S45C Equivalent
Hardness: 40~45HRC

Hole Selectable: One-Hole										Hole Selectable: Two-Hole									
Part Number Type	A	T	L	Hole Selection	Unit Price	Part Number Type	A	T	L	X	Hole Selection	Unit Price							
				M (Tapped) Z (Counterbored)							M (Tapped) Z (Counterbored)								
FSWNSF	12	10~15	A≤L≤60	M4, 5, 6 Z4, 5		FSWNWF	12	10~15	35~100	10~30	M4, 5, 6 Z4, 5								
	15			M4, 5, 6 Z4, 5, 6			15				M4, 5, 6 Z4, 5, 6								
	16			M6 Z6			16				M6 Z6								
	19						19												
	25						25												

Ordering Example: Part Number - T - L - X - Hole Selection
 FSWN12 - 15 - 75 - Z5
 FSWNSF16 - 12 - 16 - Z5
 FSWNWF16 - 15 - 40 - X10 - M6

Alterations Code	Counterbored Hole Depth								
ZG									
Spec.	<table border="1"> <tr> <th>ZG (Counterbored)</th> <th>h</th> </tr> <tr> <td>ZG4</td> <td>5.6</td> </tr> <tr> <td>ZG5</td> <td>6.7</td> </tr> <tr> <td>ZG6</td> <td>8.0</td> </tr> </table> <p>⚠ Applicable to Hole Selectable Type only</p>	ZG (Counterbored)	h	ZG4	5.6	ZG5	6.7	ZG6	8.0
ZG (Counterbored)	h								
ZG4	5.6								
ZG5	6.7								
ZG6	8.0								

■ **Shims for Flat Stoppers Standard Type**

RoHS10

Type	Material	Surface Treatment	T
FSWNC	SUS304	-	0.1 0.2 0.3
	SPCC Equivalent	Black Oxide	0.5 1

Material: S45C Equivalent
Hardness: 40~45HRC

Part Number Type	A	T Selection	L Selection	D	Unit Price
		SUS304 SPCC Equivalent			To0.1, 0.2, 0.3 To0.5, 1
FSWNC	12	0.1	30	5	
	15	0.2	50	6	
	16	0.3	75	6	
	19		100	7	
	25				

Ordering Example: Part Number - T - L
 FSWNC12 - 0.1 - 75

For Shims for T and L Configurable Flat Stoppers, see P.2-161