

Cantilever Shafts / Pivot Pins / Fulcrum Pins

Cantilever Shafts / Pivot Pins / Fulcrum Pins

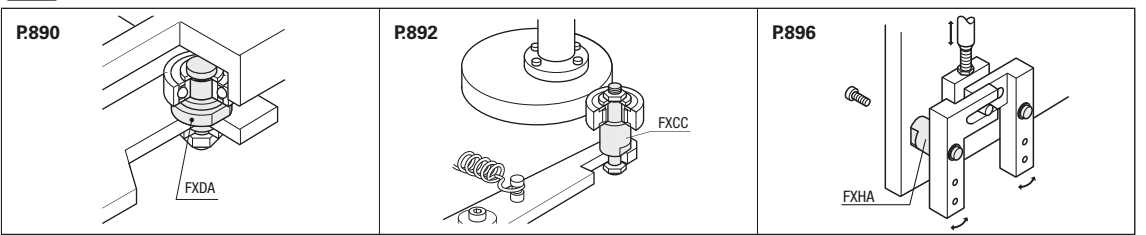
Cantilever Shafts / Pivot Pins / Fulcrum Pins																							
	Product Name Page			Cantilever Shafts - Threaded with Retaining Ring Groove 883			Threaded with Tapped End 885			Threaded with Threaded Ends 887													
																							
Cantilever Shafts Piloted Thread with Retaining Ring Groove 889			Piloted Thread with Tapped End 891			Piloted Thread with Threaded Ends 893			Screw Mount with Retaining Ring Groove 895														
																							
Cantilever Shafts - Screw Mount with Tapped End 897			Screw Mount with Threaded End 899			Heavy Load 901																	
																							
Cantilever Shafts - Shouldered 903			For Tension 905			Pivot Pins - Cotter Pins 907																	
																							
Straight Retaining Ring 908			Cotter Pins with Shoulder 909			Retaining Ring with Shoulder 910			Lock Nut with Shoulder 911			Lock Nut with Hex Socket Head 912											
																							
Lock Nut with Extra Low Hex Socket Head 913			Tapped with Shoulder 914			Tapped, Hex Socket Head with Shoulder 914			Both Ends Tapped 915			Both Ends Threaded 915											
																							
Keyway 916			Keys for Precision Pivot Pins 916			Pivot Pins - Set Screw Flat 917			Shouldered with Set Screw Flat 917			Pivot Pins - D-Cut 918											

				
End Shape Combination Selectable 919	Pivot Pins - Diameter Tolerance Selectable 921	Fulcrum Pins - Selectable 923	Fulcrum Pins - Configurable 924	Fulcrum Pins - Low Head Stepped, With Lock Nut 925

		
Precision Pivot Pins - Retaining Rings 926	Tapped Ends 926	Roller with Pin 886

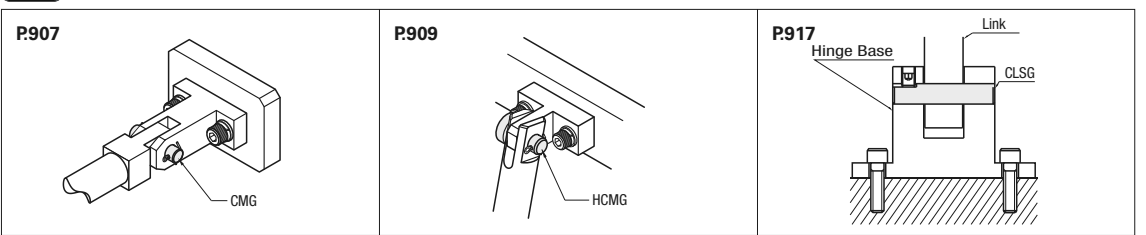
Cantilever Shafts Can be used as a fulcrum for rotary parts such as Idlers. Tension Type is also available.

Example



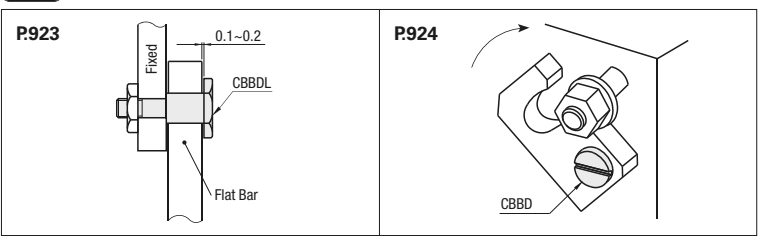
Pivot Pins Can be used as a fulcrum for various types of connections. We offer two types: L Dimension Selectable Type and L Dimension Configurable Type.

Example



Fulcrum Pins Can be used as a fulcrum for rotary motions of sheet metal parts. Four types of screw heads are available such as Straight Slot and Hex Sockets.

Example



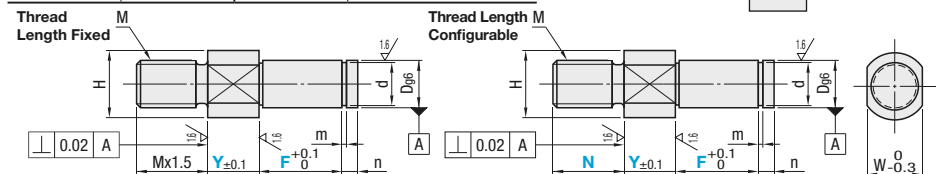
Cantilever Shafts

Threaded with Retaining Ring Groove

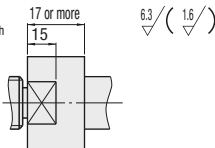
Standard



Type		M Material	S Surface Treatment
Thread Length Fixed	Thread Length Configurable		
FXAA	FXNAA	EN 1.1191 Equiv.	Black Oxide
PFXAA	PFXNAA		Electroless Nickel Plating
SFXAA	SFXNAA	EN 1.4301 Equiv.	-
HFXAA	-	EN 1.7220 Equiv. Hardness: 35 ~ 40HRC	Black Oxide



Dimensions of Wrench
Flats when Y≥17



- This type may have centering holes depending on dimensions.
- Refer to the table on P.884 for thread undercut dimensions.

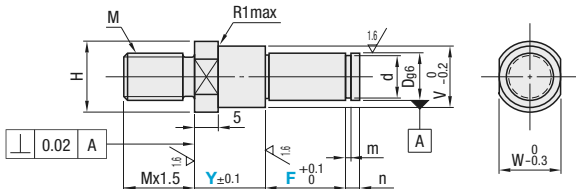
Part Number		Dg6	1mm Increment		H	W	M (Coarse)	d		m	n	Unit Price					
Type	No.		Y	F				Ref. Dim.	Tolerance			Thread Length Fixed		Thread Length Configurable			
Thread Length Fixed FXAA PFXAA SFXAA HFXAA (D≥6)	3	3	-0.002		3~6	7	5	M 3	2	+0.060	0.5						
	3A	3	-0.008			11	9			0							
	4	4			4~8	8	6	M 4	3								
	4A	4				12	10										
	5	5	-0.004		5~10	9	7	M 5	4	+0.075	0.7						
	5A	5	-0.012			13	11			0							
	6	6			6~12	10	8	M 6	5								
	6A	6				14	12			0							
	8	8	-0.005		8~16	12	10	M 8	7	+0.090	0.9						
	8A	8	-0.014			16	14			0							
Thread Length Configurable FXNAA PFXNAA SFXNAA (D≥6)	10	10			10~20	15	13	M10	9.6	0	-0.090						
	10A	10				20	17										
	12	12				17	14			11.5							
	13	13				18	15			12.4							
	15	15	-0.006			20	17			14.3	0						
	16	16	-0.017		12~24	21	18	M12	15.2	-0.110							
	17	17				22	19			16.2							
	18	18				23	20			17							
	20	20				26		M20	19								
	20A	20				28	24	M16	21	0	-0.210						
	22	22	-0.007		10~150	31	27	M20	23.9								
	22A	22	-0.020		20~40	36	32	M16	28.6								
	25	25															
	25A	25															
	30	30															
	30A	30															

HFAXA is applicable to D6 or larger specifications. N is available for Thread Length Configurable Type only.

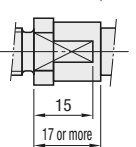
Stepped



Type	M Material	S Surface Treatment
FXBA	EN 1.1191 Equiv.	Black Oxide
PFXBA	EN 1.1191 Equiv.	Electroless Nickel Plating
SFXBA	EN 1.4301 Equiv.	-
PHFXBA	EN 1.7220 Equiv. Hardness: 35 ~ 40HRC	Electroless Nickel Plating



Dimensions of Wrench
Flats when W<V, Y≥17



- This type may have centering holes depending on dimensions.
- Refer to the table on P.884 for thread undercut dimensions.

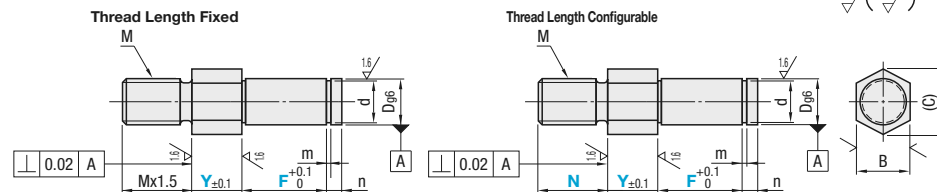
Part Number		Dg6	1mm Increment		V	H	W	M (Coarse)	d		m	n	Unit Price			
Type	No.		Y	F					Ref. Dim.	Tolerance			FXBA	PFXBA	SFXBA	PHFXBA
FXBA PFXBA SFXBA (D≥6)	3	3	-0.002		5	7	5	M 3	2	+0.060	0.5					
	3A	3	-0.008		9	11	9			0						
	4	4			6	8	6	M 4	3							
	4A	4			10	12	10									
	5	5	-0.004		7	9	7	M 5	4	+0.075	0.7					
	5A	5	-0.012		11	13	11			0						
	6	6			8	10	8	M 6	5							
	6A	6			12	14	12			0						
	8	8	-0.005		10	12	10	M 8	7	+0.090	0.9					
	8A	8	-0.014		14	16	14			0						
	10	10			13	15	13	M10	9.6	0	-0.090					
	10A	10			18	20	17									
	12	12			15	17	14			11.5						
	13	13			16	18	15			12.4						
	15	15	-0.006		18	20	17			14.3	0					
	16	16	-0.017		19	21	18			15.2	-0.110					
	17	17			20	22	19			16.2						
	18	18			21	23	20			17						
	20	20			24	26		M20	19							
	20A	20			26	28	24	M16	21	0	-0.210					
	22	22	-0.007		10~150	31	27	M20	23.9							
	22A	22	-0.020			34	36	M16	28.6							
	25	25														
	25A	25														
	30	30														
	30A	30														

When W<V, wrench flats W reaches O.D.V. PHFXBA is applicable to D6 or larger specifications.

Hex



Type		M Material	S Surface Treatment
Thread Length Fixed	Thread Length Configurable		
LXAA	LXNAA	EN 1.1191 Equiv.	Black Oxide
PLXAA	PLXNAA		Electroless Nickel Plating
SLXAA	SLXNAA	EN 1.4301 Equiv.	-



- This type may have centering holes depending on dimensions.
- Refer to the table below for thread undercut dimensions.

Part Number		Dg6	1mm Increment		B	(C)	M (Coarse)	d		m	n	Unit Price					
Type	No.		Y	F				Ref. Dim.	Tolerance			Thread Length Fixed		Thread Length Configurable			
Thread Length Fixed LXAA PLXAA SLXAA	3	3	-0.002		3~6	6	6.9	M 3	2	+0.060	0.5						
	4	4	-0.008		4~8			M 4	3	0							
	5	5	-0.004		5~10	7	8.1	M 5	4	+0.075	0.7						
	6	6	-0.012		6~12	8	9.2	M 6	5	0							
	8	8	-0.005		8~16	10	11.5	M 8	7	+0.090	0.9						
	10	10	-0.014		10~20	13	15.0	M10	9.6	0	-0.090						
	12	12				14	16.2			11.5							
	13	13				17	19.6			12.4							
	15	15	-0.006		12~24	19	21.9	M12	15.2	-0.110							
	16	16	-0.017							16.2							
Thread Length Configurable LXNAA PLXNAA SLXNAA	17	17								17							
	18	18															
	20	20			10~150	24	27.7	M20	19								
	20A	20						M16	21	0	-0.210						
	22	22	-0.007		4~60			M20	23.9								
	22A	22	-0.020		20~40	27	31.2	M16	28.6								
	25	25															
	25A	25															
	30	30				32	36.9	M20									
	30A	30						M16	28.6								

N is available for Thread Length Configurable Type only.

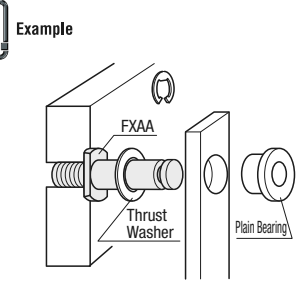


Ordering Example
Part Number - Y - F - N
FXAA10 - 25 - F18
PLXNAA12 - 15 - F25 - N12

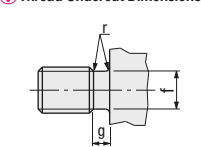


Alterations
Part Number - Y - F - N - (YKC, WSC, SET)
FXAA20 - 20 - F20 - YKC

Alterations	Y Dimension Tolerance	Four Wrench Flats	Retaining Ring Set
Code	YKC	WSC	SET
Spec.	Changes Y dimension tolerance to ±0.05. Applicable to all types. Ordering Code YKC	Changes from two wrench flats to four wrench flats. Applicable to Standard and Stepped Types. Ordering Code WSC	Retaining Ring applicable to each shaft diameter is included. Ordering Code SET Applicable to all types. Retaining Ring Shape No.=3 ~ 8A: E Type Retaining Ring No.=10 ~ 30A: C Type Retaining Ring Retaining Ring Material Cantilever Shafts Material Surface Treatment Material EN 1.1191 Equiv. Black Oxide Spring Steel EN 1.4301 Equiv. Electroless Nickel Plating EN 1.4301 (CSP) Equiv. EN 1.7220 Equiv. Black Oxide Spring Steel Electroless Nickel Plating EN 1.4301 (CSP) Equiv.



Thread Undercut Dimensions



Coarse Thread			
Thread Dia. (M)	g	r	f
3			2.1~2.4
4	1.2~1.5	0.2~0.3	2.9~3.2
5			3.9~4.1
6			4.3~4.9
8	1.5~2.5	0.2~0.6	6.3~6.6
10			8.1~8.3
12	1.5~3.0		9.8~10.1
16		0.2~1.0	13.6~13.8
20	1.5~4.0		17.0~17.2

Cantilever Shafts

Threaded with Tapped End

Standard

Type	Material	Surface Treatment
FXAB	EN 1.1191 Equiv.	Black Oxide
PFXAB	EN 1.1191 Equiv.	Electroless Nickel Plating
SFXAB	EN 1.4301 Equiv.	-
PHFXAB	EN 1.7220 Equiv. Hardness: 35 ~ 40HRC	Electroless Nickel Plating

Thread Length Fixed

Thread Length Configurable

17 or more

6.3 / (1.6)

Dimensions of Wrench Flats when Y≥17

This type may have centering holes depending on dimensions.

Please refer to Table 1 to specify dimensions Y and F.

Refer to the table on P886 for thread undercut dimensions.

Part Number	Type	No.	Dg6	1mm Increment			MA (Coarse) Selection	H	W	M (Coarse)	Unit Price					
				Y	F	N					Thread Length Fixed			Thread Length Configurable		
Thread Length Fixed	FXAB	6	6	-0.004			6-12	3	10	8						
	PFXAB	6A	6	-0.012					14	12						
	SFXAB	8	8	-0.005			5-100	8-16	12	10						
	PHFXAB	8A	8	-0.014					16	14						
		10	10	-0.006			10-20	4 5 6	15	13						
		10A	10	-0.017					20	17						
		12	12						17	14						
		13	13						18	15						
		15	15						20	17						
		16	16						21	18						
Thread Length Configurable	FXAB	17	17	-0.006			12-24	6 8 10	22	19						
	PFXAB	17A	17	-0.017					23	20						
	SFXAB	18	18													
	PHFXAB	20	20													
		20A	20													
		22	22	-0.007			10-150	6 8 10 12	26	24						
		22A	22	-0.020												
		25	25				20-40	8 10 12 16	31	27						
		25A	25													
		30	30					8 10 12 16 20	36	32						
		30A	30													

Table 1	MA	Y+F
M 3	Y+F≥11.5	
M 4	Y+F≥14.0	
M 5	Y+F≥16.2	
M 6	Y+F≥18.5	
M 8	Y+F≥23.5	
M10	Y+F≥28.5	
M12	Y+F≥35.5	
M16	Y+F≥45.0	
M20	Y+F≥55.0	

N is available for Thread Length Configurable Type only.

Stepped

Type	Material	Surface Treatment
FXBB	EN 1.1191 Equiv.	Black Oxide
PFXBB	EN 1.1191 Equiv.	Electroless Nickel Plating
SFXBB	EN 1.4301 Equiv.	-

Thread Length Fixed

Thread Length Configurable

17 or more

6.3 / (1.6)

Dimensions of Wrench Flats when W<V, Y≥17

This type may have centering holes depending on dimensions.

Please refer to Table 1 to specify dimensions Y and F.

Refer to the table on P886 for thread undercut dimensions.

Part Number	Type	No.	Dg6	1mm Increment			MA (Coarse) Selection	V	H	W	M (Coarse)	Unit Price		
				Y	F	N						FXBB	PFXBB	SFXBB
Thread Length Fixed	FXBB	6	6	-0.004			3	8	10	8	M 6			
	PFXBB	6A	6	-0.012				12	14	12				
	SFXBB	8	8	-0.005			4	10	12	10	M 8			
		8A	8	-0.014				14	16	14				
		10	10	-0.006			4 5 6	13	15	13	M10			
		10A	10	-0.017				18	20	17				
		12	12				5 6 8	15	17	14				
		13	13					16	18	15				
		15	15					18	20	17	M12			
		16	16					19	21	18				
Thread Length Configurable	FXBB	17	17	-0.006			6 8 10	20	22	19				
	PFXBB	17A	17	-0.017				21	23	20				
	SFXBB	18	18											
		20	20											
		20A	20											
		22	22	-0.007			6 8 10 12	24	26	24	M20			
		22A	22	-0.020				26	28		M16			
		25	25								M20			
		25A	25				8 10 12 16	29	31	27	M16			
		30	30								M20			
		30A	30				8 10 12 16 20	34	36	32	M16			

Table 1	MA	Y+F
M 3	Y+F≥11.5	
M 4	Y+F≥14.0	
M 5	Y+F≥16.2	
M 6	Y+F≥18.5	
M 8	Y+F≥23.5	
M10	Y+F≥28.5	
M12	Y+F≥35.5	
M16	Y+F≥45.0	
M20	Y+F≥55.0	

When W<V, wrench flats W reaches O.D.V.

Hex

Type	Material	Surface Treatment
LXAB	EN 1.1191 Equiv.	Black Oxide
PLXAB	EN 1.1191 Equiv.	Electroless Nickel Plating
SLXAB	EN 1.4301 Equiv.	-

Thread Length Fixed

Thread Length Configurable

6.3 / (1.6)

Please refer to Table 1 to specify dimensions Y and F.

Refer to the table below for thread undercut dimensions.

This type may have centering holes depending on dimensions.

Part Number	Type	No.	Dg6	1mm Increment			MA (Coarse) Selection	B	(C)	M (Coarse)	Unit Price					
				Y	F	N					Thread Length Fixed			Thread Length Configurable		
Thread Length Fixed	LXAB	6	6	-0.004			6-12	3	8	9.2						
	PLXAB	6A	6	-0.012					10	11.5						
	SLXAB	8	8	-0.005			5-100	8-16	4	8						
		10	10	-0.014			10-20	4 5 6	13	15						
		12	12						14	16.2						
		13	13						17	19.6						
		15	15	-0.006			12-24	5 6 8								
		16	16	-0.017					19	21.9						
		17	17													
		18	18													
Thread Length Configurable	LXAB	20	20	-0.007			10-100									
	PLXAB	20A	20	-0.020												
	SLXAB	22	22				20-40	6 8 10 12	24	27.7						
		22A	22													
		25	25													
		25A	25													
		30	30					8 10 12 16	27	31.2						
		30A	30													
								8 10 12 16 20	32	36.9						

N is available for Thread Length Configurable Type only.

Ordering Example

Part Number - Y - F - N - MA

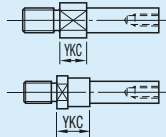
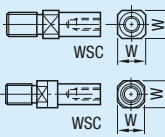
FXAB10 - 25 - F18 - MA5

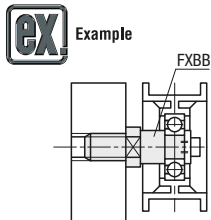
PLXNAB12 - 15 - F25 - N12 - MA6

Alterations

Part Number - Y - F - N - MA - (YKC, WSC)

FXAB20 - 20 - F20 - MA10 - YKC

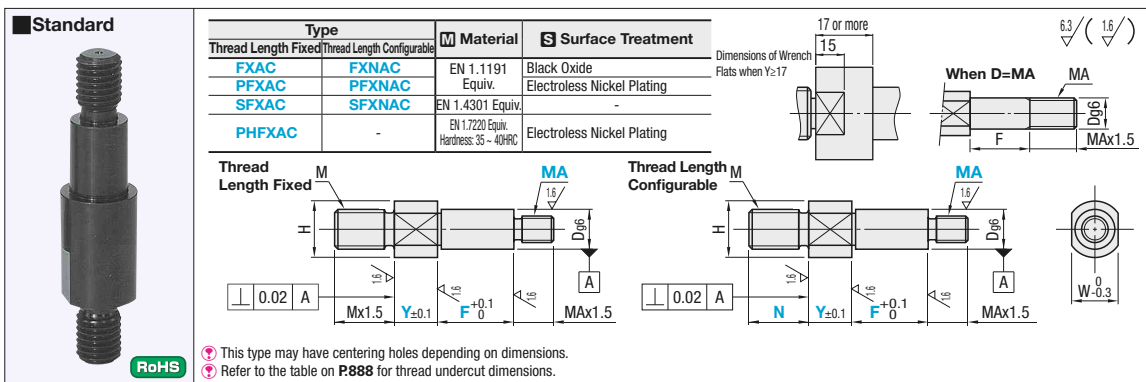
Alterations	Y Dimension Tolerance	Four Wrench Flats
		
Code	YKC	WSC
	Changes Y dimension tolerance to ±0.05. Applicable to all types. Ordering Code YKC	Changes from two wrench flats to four wrench flats. Applicable to Standard and Stepped Types. Ordering Code WSC
Spec.		



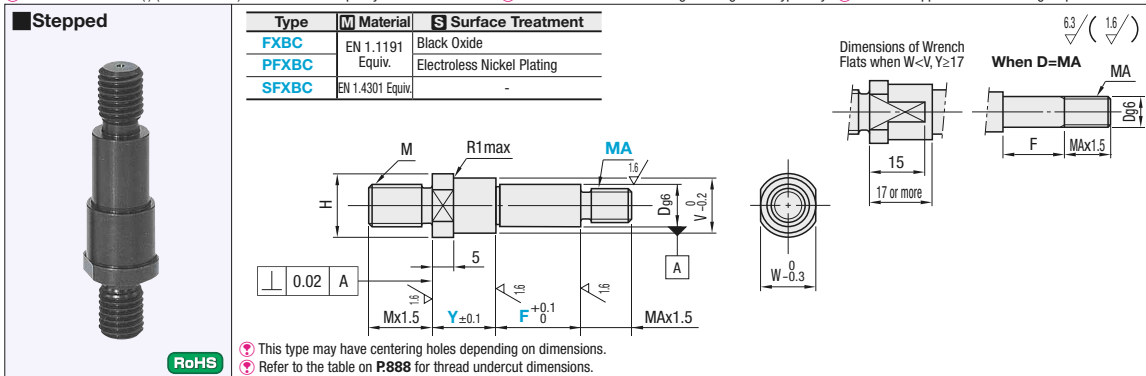
Thread Undercut Dimensions

Coarse Thread			
Thread Dia. (M)	g	r	f
6			4.3-4.9
8	1.5-2.5	0.2-0.6	6.3-6.6
10			8.1-8.3
12	1.5-3.0		9.8-10.1
16		0.2-1.0	13.6-13.8
20	1.5-4.0		17.0-17.2

Threaded with Threaded Ends

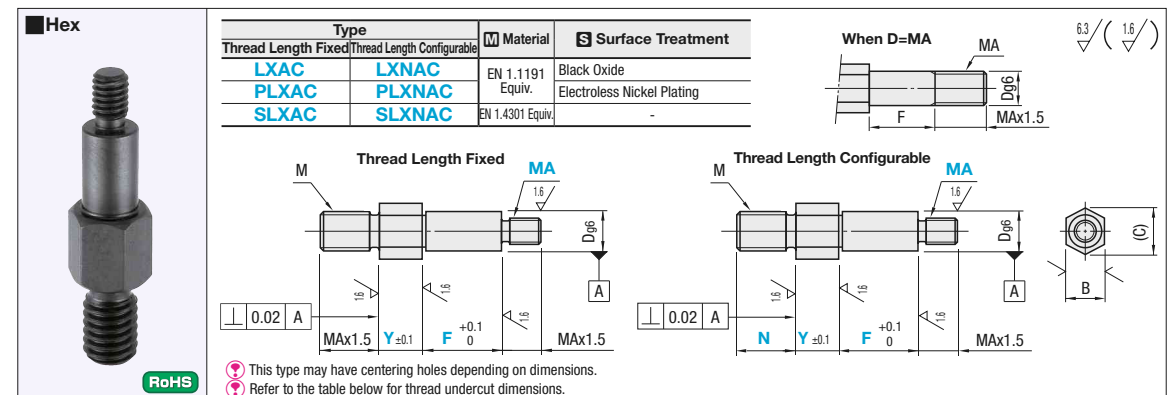
[illegible]

MA dimensions with () (M15 and M25) are Fine Thread. Specify MSC instead of MA. N is available for Thread Length Configurable Type only. PHFXAC is applicable to D6 or larger specifications.

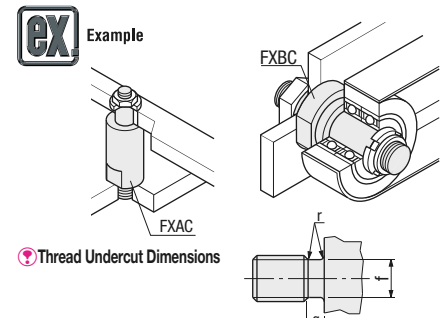
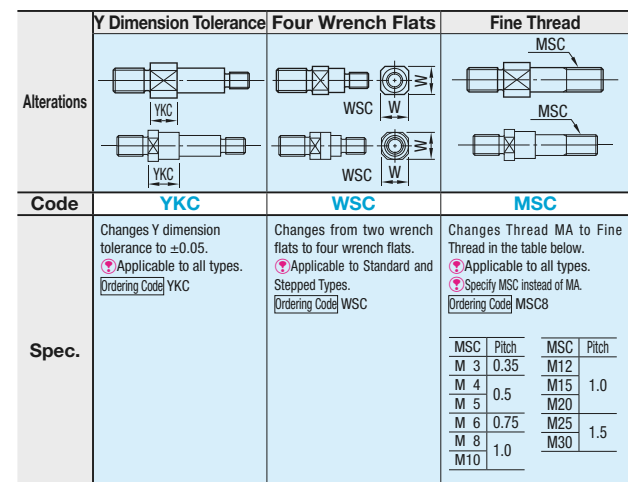


Part Number		Dgs		1mm Increment		MA (Coarse) Selection			V	H	W	M (Coarse)	Unit Price							
Type	No.			Y	F								FXBC	PFxBC	SFXBC					
FXBC PFxBC SFXBC	3	3	-0.002	7~30	3~ 50	3			5	7	5	M 3								
	3A		-0.008							9	11		9							
	4	4				3	4			6	8		6	M 4						
	4A									10	12		10							
	5	5	-0.004			3	4	5		7	9		7		M 5					
	5A		-0.012					11	13	11										
	6	6		5~100				8	10	8	M 6									
	6A						4	5	6			12	14	12						
	8	8	-0.005				5	6	8			10	12	10	M 8					
	8A		-0.014								14	16	14							
	10	10					6	8	10		13	15	13	M10						
	10A									18	20	17								
	12	12			7~60	10~100				15	17	14	M12							
	13	13							6	8	10	12			16	18	15			
	15	15	-0.006						8	10	12	(15)			18	20	17			
	16	16	-0.017											19	21	18				
	17	17									20	22		19						
	18	18									21	23		20						
	20	20									24	26			24					
	20A															M20				
	22	22	-0.007					10	12	(15)	16	20				M16				
	22A		-0.020											26	28		M20			
	25	25							10	12	(15)	16	20	24	(25)					
	25A										29	31	27							
	30	30												M16						
	30A								12	(15)	16	20	24	(25)	30					
														M20						
														M16						

MA dimensions with () (M15 and M25) are Fine Thread. Specify MSC instead of MA. When $W < V$, wrench flats W reaches O.D.V.

[illegible]

⚠ MA dimensions with () (M15 and M25) are Fine Thread. Specify MSC instead of MA. ⚠ N is available for Thread Length Configurable Type only.



Coarse Thread				Fine Thread			
Thread Dia. (M, MA)	g	r	f	Thread Dia. (M, MSC)	g	r	f
3			2.1- 2.4	3			2.1- 2.4
4	1.2-1.5	0.2-0.3	2.9- 3.2	4	1.2-1.5	0.2-0.3	2.9- 3.2
5			3.9- 4.1	5			3.9- 4.1
6			4.3- 4.9	6			4.3- 4.9
8	1.5-2.5	0.2-0.6	6.3- 6.6	8	1.5-2.5	0.2-0.6	6.3- 6.6
10			8.1- 8.3	10			8.3- 8.6
12	1.5-3.0	0.2-1.0	9.8-10.1	12	1.5-3.0	0.2-1.0	9.8-10.7
16			13.6-13.8	15			13.6-13.8
20	1.5-4.0		17.0-17.2	20	1.5-4.0		17.2-18.6
24	2.5-5.0	0.2-1.5	20.2-20.7	25	2.5-5.0	0.2-1.5	20.2- 23.2
30			26.0-26.2	30			26.2-28.2

Cantilever Shafts

Piloted Thread with Retaining Ring Groove

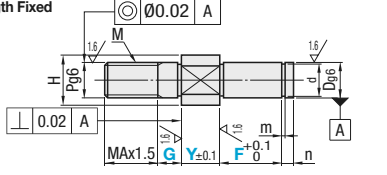
Standard



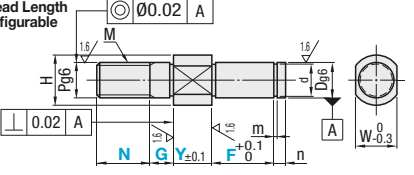
RoHS

Type		Material	Surface Treatment
Thread Length Fixed	Thread Length Configurable		
FXCA	FXNCA	EN 1.1191 Equiv.	Black Oxide
PFXCA	PFXNCA	EN 1.4301 Equiv.	Electroless Nickel Plating
SFXCA	SFXNCA	EN 1.7220 Equiv.	Electroless Nickel Plating
HFXCA	-	EN 1.4301 Equiv.	Black Oxide

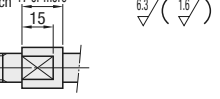
Thread Length Fixed



Thread Length Configurable



Dimensions of Wrench Flats when Y≥17



This type may have centering holes depending on dimensions.

Part Number	Type	No.	Dg6	1mm Increment			Pg6	M (Coarse)	H	W	Ref. Dim.	Tolerance	m	n	Unit Price					
				Y	F	G														
Thread Length Fixed FXCA PFXCA SFXCA HFXCA (D≥6)	3	3A	3	2~30	3~ 50	3~ 8	3~ 6	M 3	7	5	2	+0.060	0.5	2						
	4	4A	4				4~ 8	M 4	8	6	3	0	0.7							
	5	5A	5				5~ 10	M 5	9	7	4	+0.075	0							
	6	6A	6				6~ 12	M 6	10	8	5	0	0.9							
	8	8A	8				8~ 16	M 8	12	10	7	+0.090	0							
	10	10A	10	2~60	5~100	5~10	10~20	M10	14	12	9.6	-0.090	1.15	3						
	12	12A	12				12~24	M12	15	13	16.2	0	1.35							
	13	13A	13						17	14	11.5	0	1.65							
	15	15A	15						18	15	12.4	0								
	16	16A	16						20	17	14.3	0								
Thread Length Configurable FXNCA PFXNCA SFXNCA	17	17A	17	4~75	5~20	20~40			21	18	15.2	-0.110	1.35	5						
	18	18A	18						23	20	17	0	1.65							
	20	20A	20						25	21	18.2	0								
	22	22A	22						27	23.9	23.9	0								
	25	25A	25						31	27	23.9	0								
	30	30A	30	10~150	5~20	20~40			36	32	28.6	0								
	19	19A	19						24	24	19	0								
	21	21A	21						26	24	19	0								
	23	23A	23						28	25	21	0								
	24	24A	24						30	27	23.9	0								

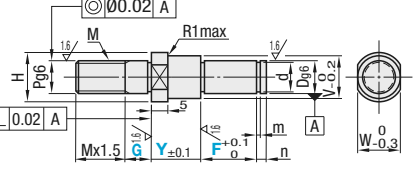
Stepped



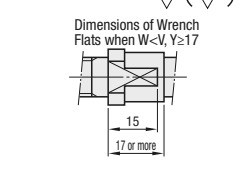
RoHS

Type	Material	Surface Treatment
FXDA	EN 1.1191 Equiv.	Black Oxide
PFXDA	EN 1.4301 Equiv.	Electroless Nickel Plating
SFXDA	EN 1.4301 Equiv.	Electroless Nickel Plating

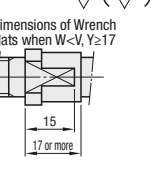
Thread Length Fixed



Thread Length Configurable



Dimensions of Wrench Flats when W<V, Y≥17



This type may have centering holes depending on dimensions.

Part Number		Dgs	1mm Increment			Pg6	M (Coarse)	V	H	W	d		m	n	Unit Price																
Type	No.		Y	F	G						Ref. Dim.	Tolerance			FXDA	PFXDA	SFXDA														
FXDA PFXDA SFXDA	3	3	7~30	3~ 50	3~ 8	3	M 3	5	7	5	2	+0.060 0	0.5	2																	
	3A	-0.002 -0.008				9	11	9	3	10								12	10												
	4	4				4	M 4	6	8	6	3	+0.075 0	0.7					3													
	4A	-0.004 -0.012				10	12	10	7	9												7	11	13	11						
	5	5				5	M 5	7	9	7	4	+0.090 0	0.9									4									
	5A	-0.005 -0.014	11	13	11	8	10	8	12	14				12																	
	6	6	6	M 6	8	10	8	5	+0.090 0	1.15	5																				
	6A	-0.006 -0.017	12	14	12	10	12								10	14	16	14													
	8	8	8	7~60	5~100	5~10	8	M 8	10	12					10	7	+0.090 0	1.35	5												
	8A	-0.007 -0.020	14				16	14	16	14					13							15	13	18	20		17				
	10	10	10				M10	13	15	13					9.6	0 -0.090	1.65	6													
	10A	-0.007 -0.020	18				20	17	16	18	15	12.4	18	20											17		14.3	19	21	18	15.2
	12	12	12				10~100	5~20	5~15	12	M12	15	17	14	11.5	0 -0.110	1.35								6						
	13	13	16	18	15	12.4						18	20	17	14.3				20	23	20					16.2				17	
	15	15	15	19	21	18						15.2	0 -0.210	1.65	7																
	16	16	20	23	20	16.2						21						17		24	26	24	19	26		28				25	21
	17	17	17	21	23	20						16.2	21	17				24		26	24	19	26	28		25				21	23.9
	18	18	18	21	23	20	16.2	21	17	24	26	24	19	26				28		25	21	23.9	28.6								
	20	20	20	10~100	5~20	5~20	20	M20	24	26	24	19	0 -0.210	1.65				7													
	20A	-0.007 -0.020	16				M16	26	28	25	21	26			28	25	21		26				28	25	21	23.9	28.6				
22	22	22	20				M20	26	28	25	21	26	28	25	21	26	28		25				21	23.9	28.6						
22A	-0.007 -0.020	16	M16				26	28	25	21	26	28	25	21	26	28	25		21				23.9	28.6							
25	25	25	20				M20	29	31	27	23.9	29	31	27	23.9	29	31		27				23.9	28.6							
25A	-0.007 -0.020	16	M16	29	31	27	23.9	29	31	27	23.9	29	31	27	23.9	28.6															
30	30	30	10~100	5~20	5~20	20	M20	34	36	32	28.6	0 -0.210	1.65	7																	
30A	-0.007 -0.020	16				M16	34	36	32	28.6	34							36	32	28.6	34	36	32	28.6							

When W<V, wrench flats W reaches 0.D.V.

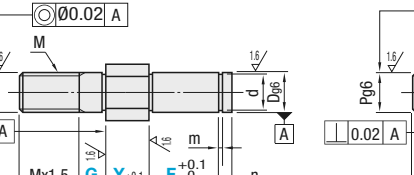
Hex



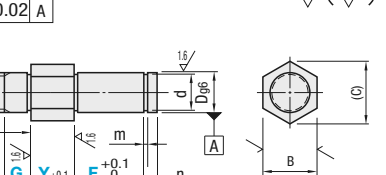
RoHS

Type	Material	Surface Treatment
LXCA	EN 1.1191 Equiv.	Black Oxide
PLXCA	EN 1.4301 Equiv.	Electroless Nickel Plating
SLXCA	EN 1.4301 Equiv.	Electroless Nickel Plating

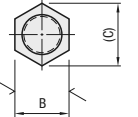
Thread Length Fixed



Thread Length Configurable



Dimensions of Wrench Flats when Y≥17



This type may have centering holes depending on dimensions.

Part Number		Dgs		1mm Increment				Pgs	M (Coarse)	B	(C)	d		m	n	Unit Price								
Type	No.			Y	F	G	N					Ref. Dim.	Tolerance			Thread Length Fixed	Thread Length Configurable							
																LXCA	PLXCA	SLXCA	LXNCA	PLXNCA	SLXNCA			
Thread Length Fixed LXCA PLXCA SLXCA Thread Length Configurable LXNCA PLXNCA SLXNCA	3	3	-0.002 -0.008	2~30	3~ 50	3~ 8	3~ 6	3	M 3	6	6.9	2	+0.060 0	0.5	2									
	4	4	-0.004 -0.012				4~ 8	4	M 4			3	3	3		3								
	5	5					5~10	5	M 5			7	8.1	4		+0.075 0	0.7							
	6	6		5~100	5~10	8~16	6~12	6	M 6	8	9.2	5			3									
	8	8	-0.005 -0.014				8~16	8	M 8	10	11.5	7	+0.090 0	0.9										
	10	10					10~20	10	M10	13	15.0	9.6	-0.090											
	12	12	-0.006 -0.017	2~60		5~15	12~24	12	M12			14	16.2	11.5	1.15									
	13	13										17	19.6	12.4									0	-0.110
	15	15										19	21.9	15.2										
	16	16										16.2												
	17	17										17												
	20	20	-0.007 -0.020	4~60	10~100	5~20	20~40	20	M20	24	27.7	19	0 -0.210	1.35										
	20A	20A						16	M16			21												
	22	22						20	M20			23												
	22A	22A						16	M16			27											31.2	23.9
	25	25						20	M20															
	25A	25A						16	M16															
	30	30						20	M20															
30A	30A	16	M16	32	36.9	28.6	1.65																	

Cantilever Shafts

Piloted Thread with Tapped End

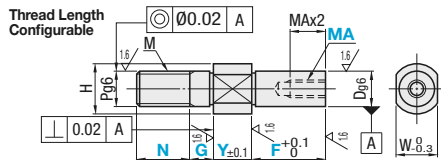
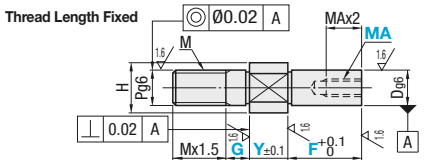
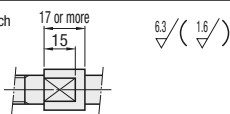
Standard



RoHS

Type		Material	Surface Treatment
Thread Length Fixed	Thread Length Configurable		
FXCB	FXNCB	EN 1.1191 Equiv.	Black Oxide
PFXCB	PFXNCB		Electroless Nickel Plating
SFXCB	SFXNCB	EN 1.4301 Equiv.	-

Dimensions of Wrench Flats when Y≥17



Please refer to Table 1 to specify dimensions Y and F. This type may have centering holes depending on dimensions.

Part Number		Dg6	1mm Increment			MA (Coarse) Selection	Pg6	M (Coarse)	H	W	Unit Price			
Type	No.		Y	F	G						Thread Length Fixed	Thread Length Configurable		
Thread Length Fixed FXCB PFXCB SFXCB	6	6	-0.004			6-12	3	6	M 6	10	8			
	6A	6	-0.012							14	12			
	8	8				8-16	4	8	M 8	12	10			
	8A	8	-0.005							16	14			
	10	10	-0.014			10-20	4 5 6	10	M10	15	13			
	10A	10								17	14			
	12	12								18	15			
	13	13	-0.006			5-15	5 6 8			20	17			
	15	15	-0.006							21	18			
	16	16	-0.017			12-24	6 8 10	12	M12	23	20			
Thread Length Configurable FXNCB PFXNCB SFXNCB	17	17												
	18	18												
	20	20												
	20A	20												
	22	22	-0.007											
	22A	22	-0.020			20-40	6 8 10 12	20	M20	26	24			
	25	25												
	25A	25												
	30	30												
	30A	30												

Table 1

MA	Y+F
M 3	Y+F≥11.5
M 4	Y+F≥14.0
M 5	Y+F≥16.2
M 6	Y+F≥18.5
M 8	Y+F≥23.5
M10	Y+F≥28.5
M12	Y+F≥35.5
M16	Y+F≥45.0
M20	Y+F≥55.0

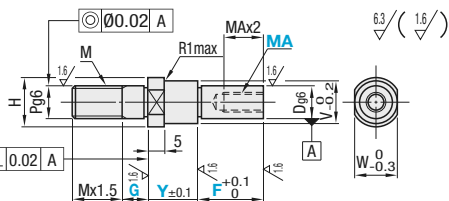
N is available for Thread Length Configurable Type only.

Stepped

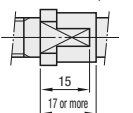


RoHS

Type	Material	Surface Treatment
FXDB	EN 1.1191 Equiv.	Black Oxide
PFXDB	EN 1.1191 Equiv.	Electroless Nickel Plating
SFXDB	EN 1.4301 Equiv.	-



Dimensions of Wrench Flats when W<V, Y≥17



Please refer to Table 1 to specify dimensions Y and F. This type may have centering holes depending on dimensions.

Part Number		Dg6	1mm Increment			MA (Coarse) Selection	Pg6	M (Coarse)	V	H	W	Unit Price		
Type	No.		Y	F	G							FXDB	PFXDB	SFXDB
FXDB PFXDB SFXDB	6	6	-0.004			3	6	M 6	8	10	8			
	6A	6	-0.012						12	14	12			
	8	8				5-100	8	M 8	10	12	10			
	8A	8	-0.005						14	16	14			
	10	10	-0.014						13	15	13			
	10A	10							18	20	17			
	12	12							15	17	14			
	13	13	-0.006			5-15	5 6 8		16	18	15			
	15	15	-0.006						18	20	17			
	16	16	-0.017						19	21	18			
	17	17							20	23	20			
	18	18												
	20	20							20	M20	24	26	24	
	20A	20							16	M16				
	22	22	-0.007						20	M20	26	28	25	
	22A	22	-0.020						16	M16				
	25	25							20	M20	29	31	27	
	25A	25							16	M16				
	30	30							20	M20	34	36	32	
	30A	30							16	M16				

Table 1

MA	Y+F
M 3	Y+F≥11.5
M 4	Y+F≥14.0
M 5	Y+F≥16.2
M 6	Y+F≥18.5
M 8	Y+F≥23.5
M10	Y+F≥28.5
M12	Y+F≥35.5
M16	Y+F≥45.0
M20	Y+F≥55.0

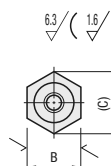
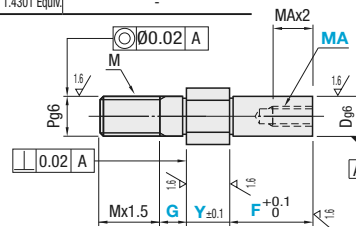
When W<V, wrench flats W reaches O.D.V.

Hex



RoHS

Type	Material	Surface Treatment
LXCB	EN 1.1191 Equiv.	Black Oxide
PLXCB	EN 1.1191 Equiv.	Electroless Nickel Plating
SLXCB	EN 1.4301 Equiv.	-



Please refer to Table 1 to specify dimensions Y and F.

Part Number		Dg6	1mm Increment			MA (Coarse) Selection	Pg6	M (Coarse)	B	(C)	Unit Price		
Type	No.		Y	F	G						LXCB	PLXCB	SLXCB
LXCB PLXCB SLXCB	6	6	-0.004			3	6	M 6	8	9.2			
	8	8	-0.005			4	8	M 8	10	11.5			
	10	10	-0.014			4 5 6	10	M10	13	15			
	12	12				5 6 8			14	16.2			
	13	13							17	19.6			
	15	15	-0.006										
	16	16	-0.017			6 8 10	12	M12	19	21.9			
	17	17											
	18	18											
	20	20											
	20A	20							20	M20			
	22	22	-0.007			6 8 10 12	16	M16	24	27.7			
	22A	22	-0.020						20	M20			
	25	25							16	M16			
	25A	25				8 10 12 16	20	M20	27	31.2			
	30	30							20	M20			
	30A	30				8 10 12 16 20	16	M16	32	36.9			

Table 1

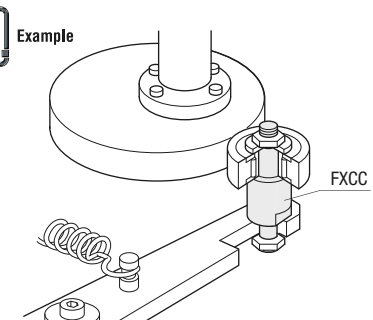
MA	Y+F
M 3	Y+F≥11.5
M 4	Y+F≥14.0
M 5	Y+F≥16.2
M 6	Y+F≥18.5
M 8	Y+F≥23.5
M10	Y+F≥28.5
M12	Y+F≥35.5
M16	Y+F≥45.0
M20	Y+F≥55.0



Ordering Example
Part Number - Y - F - G - N - MA
FXCB8 - 15 - F25 - G5 - MA4
PFXNCB10 - 27 - F10 - G5 - N10 - MA5



Alterations
Part Number - Y - F - G - N - MA - (YKC, WSC)
FXCB15 - 10 - F21 - G7 - MA6 - WSC



Alterations	Y Dimension Tolerance	Four Wrench Flats
Code	YKC	WSC
Spec.	Changes Y dimension tolerance to ±0.05. Applicable to all types. Ordering Code YKC	Changes from two wrench flats to four wrench flats. Applicable to Standard and Stepped Types. Ordering Code WSC

Cantilever Shafts

Piloted Thread with Threaded Ends

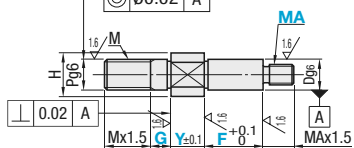
Standard



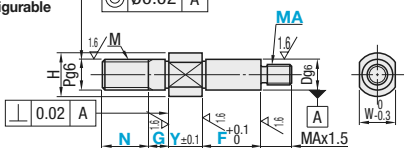
RoHS

Type	Material	Surface Treatment
FXCC PFXCC SFXCC	EN 1.1191 Equiv. EN 1.4301 Equiv.	Black Oxide Electroless Nickel Plating -

Thread Length Fixed

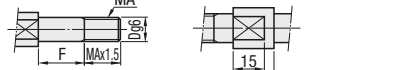


Thread Length Configurable



- This type may have centering holes depending on dimensions.
- Refer to the table on the next page for thread undercut dimensions.

When D=MA



Part Number		Dgs	1mm Increment				MA (Coarse) Selection	Pgs	M (Coarse)	H	W	Unit Price								
Type	No.		Y	F	G	N						Thread Length Fixed			Thread Length Configurable					
												FXCC	PFXCC	SFXCC	FXNCC	PFXNCC	SFXNCC			
Thread Length Fixed FXCC PFXCC SFXCC	3	3	-0.002 -0.008	2~30	3~ 50	3~ 8	3~ 6	3	3	M 3	7	5								
	3A																			
	4																			
	4A	4					4~ 8	3	4	M 4	8	6			-	-	-			
	5	5	-0.004 -0.012																	
	5A							5~10	3	4	5	M 5	9	7			-	-	-	
	6																			
	6A	6																		
	8	8	-0.005 -0.014		5~100	5~10	6~12	4	5	6	M 6	10	8							
	8A									8~16	5	6	8	M 8	12	10			-	-
10																				
10A	10					10~20	6	8	10	M10	12	10								
12	12	-0.006 -0.017	2~60	5~15		12~24														
12																				
13																				
13																				
15																				
15																				
16																				
16																				
17	17	-0.007 -0.020		4~60	5~20	20~40														
17																				
18																				
18																				
20																				
20																				
22																				
22A																				
25	25	-0.007 -0.020	10~150		5~20	20~40														
25																				
25A																				
30	30																			
30A																				

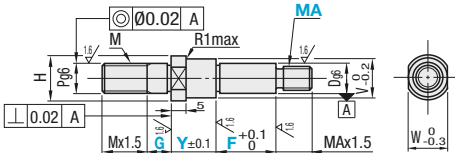
MA dimensions with () (M15 and M25) are Fine Thread. Specify MSC instead of MA. N is available for Thread Length Configurable Type only.

Stepped



RoHS

Type	Material	Surface Treatment
FXDC PFXDC SFXDC	EN 1.1191 Equiv. EN 1.4301 Equiv.	Black Oxide Electroless Nickel Plating -



- This type may have centering holes depending on dimensions.
- Refer to the table on the next page for thread undercut dimensions.

When D=MA



Part Number Type	No.	Dg6	1mm Increment			MA (Coarse) Selection	Pg6	M (Coarse)	V	H	W	Unit Price		
			Y	F	G							FXDC	PFXDC	SFXDC
FXDC PFXDC SFXDC	3	3	-0.002 -0.008	7-30	3-50	3	3	M 3	5	7	5			
	4	4	-0.004 -0.012						9	11	9			
	5	5	-0.004 -0.012						10	12	10			
	6	6	-0.005 -0.014						11	13	11			
	8	8	-0.005 -0.014						12	14	12			
	10	10	-0.006 -0.017	7-60	5-75	5-10	3	M 4	13	15	13			
	12	12	-0.006 -0.017						14	16	14			
	13	13	-0.006 -0.017						15	17	15			
	15	15	-0.006 -0.017						16	18	16			
	16	16	-0.006 -0.017						17	19	17			
FXDC PFXDC SFXDC	17	17	-0.007 -0.020				3	M 5	18	20	18			
	18	18	-0.007 -0.020						19	21	19			
	20	20	-0.007 -0.020						20	22	20			
	22	22	-0.007 -0.020						21	23	21			
	25	25	-0.007 -0.020						22	24	22			
	26	26	-0.007 -0.020	7-60	5-20	20-40	3	M 6	14	12	14			
	27	27	-0.007 -0.020						15	13	15			
	28	28	-0.007 -0.020						16	14	16			
	30	30	-0.007 -0.020						17	15	17			
	32	32	-0.007 -0.020						18	16	18			

MA dimensions with () (M15 and M25) are Fine Thread. Specify MSC instead of MA. When W<V, wrench flats W reaches O.D.V.

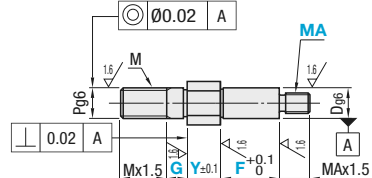
Hex



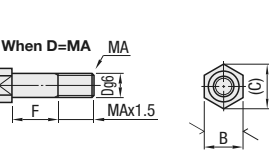
RoHS

Type	Material	Surface Treatment
LXCC PLXCC SLXCC	EN 1.1191 Equiv. EN 1.4301 Equiv.	Black Oxide Electroless Nickel Plating -

Thread Length Fixed



When D=MA



- This type may have centering holes depending on dimensions.
- Refer to the table below for thread undercut dimensions.

Part Number Type	No.	Dg6	1mm Increment			MA (Coarse) Selection	Pg6	M (Coarse)	B	(C)	Unit Price		
			Y	F	G						LXCC	PLXCC	SLXCC
LXCC PLXCC SLXCC	3	3	-0.002 -0.008	2-30	3-50	3-8	3	M 3	6	6.9			
	4	4	-0.004 -0.012						7	8.1			
	5	5	-0.004 -0.012						8	9.2			
	6	6	-0.005 -0.014						10	11.5			
	8	8	-0.005 -0.014						13	15.0			
	10	10	-0.006 -0.017	2-60	5-100	5-10	3	M 4	14	16.2			
	12	12	-0.006 -0.017						17	19.6			
	13	13	-0.006 -0.017						19	21.9			
	15	15	-0.006 -0.017						24	27.7			
	16	16	-0.006 -0.017						27	31.2			
LXCC PLXCC SLXCC	17	17	-0.007 -0.020				3	M 5	32	36.9			
	18	18	-0.007 -0.020										
	20	20	-0.007 -0.020										
	22	22	-0.007 -0.020										
	25	25	-0.007 -0.020										
	26	26	-0.007 -0.020	4-60	5-20	20-40	3	M 6	32	36.9			
	27	27	-0.007 -0.020										
	28	28	-0.007 -0.020										
	30	30	-0.007 -0.020										
	32	32	-0.007 -0.020										

MA dimensions with () (M15 and M25) are Fine Thread. Specify MSC instead of MA.

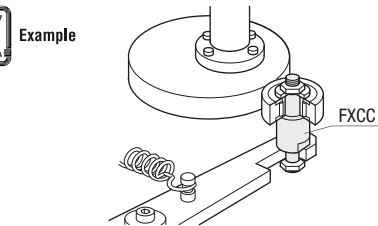


Ordering Example
Part Number - Y - F - G - N - MA
FXCC8 - 15 - F25 - G5 - MA5
FXNCC10 - 27 - F10 - G5 - N10 - MA6

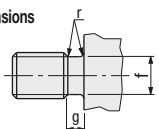


Alterations
Part Number - Y - F - G - N - MA(MSC) - (YKC, WSC)
FXCC15 - 10 - F21 - G7 - MSC15 - WSC

Alterations	Y Dimension Tolerance	Four Wrench Flats	Fine Thread
	 YKC	 WSC	 MSC
Code	YKC	WSC	MSC
Spec.	Changes Y dimension tolerance to ±0.05. Applicable to all types. Ordering Code YKC	Changes from two wrench flats to four wrench flats. Applicable to Standard and Stepped Types. Ordering Code WSC	Changes Thread MA to Fine Thread in the table below. Applicable to all types. Specify MSC instead of MA. Ordering Code MSC12



Thread Undercut Dimensions



Coarse Thread				Fine Thread			
Thread Dia. (M, MA)	g	r	f	Thread Dia. (MSC)	g	r	f
3			2.1- 2.4	3			2.1-2.4
4	1.2-1.5	0.2-0.3	2.9- 3.2	4	1.2-1.5	0.2-0.3	2.9-3.2
5			3.9- 4.1	5			3.9-4.1
6			4.3- 4.9	6			4.3-4.9
8	1.5-2.5	0.2-0.6	6.3- 6.6	8	1.5-2.5	0.2-0.6	6.3-6.6
10			8.1- 8.3	10			8.3-8.6
12			9.8-10.1	12			9.8-10.7
16	1.5-3.0	0.2-1.0	13.6-13.8	15	1.5-3.0	0.2-1.0	13.6-13.8
20	1.5-4.0		17.0-17.2	20	1.5-4.0		17.2-18.8
24	2.5-5.0	0.2-1.5	20.2-20.7	25			20.2-23.2
30			26.0-26.2	30	2.5-5.0	0.2-1.5	26.2-28.2

Cantilever Shafts

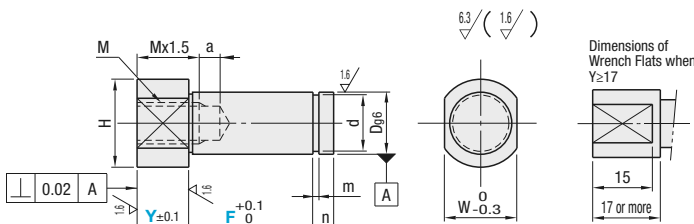
Screw Mount with Retaining Ring Groove

Standard



RoHS

Type	Material	Surface Treatment
FXHA	EN 1.1191 Equiv.	Black Oxide
PFXHA	EN 1.1191 Equiv.	Electroless Nickel Plating
SFXHA	EN 1.4301 Equiv.	-



This type may have centering holes depending on dimensions.

Part Number		D96	1mm Increment		M (Coarse)	H	W	d		m	n	Unit Price		
Type	No.		Y	F				Ref. Dim.	Tolerance			FXHA	PFXHA	SFXHA
FXHA PFXHA SFXHA	6	6	-0.004		M 3	10	8	5	+0.075 0	0.7	2			
	6A		-0.012											
	8	8	-0.005		M 4	12	10	7	+0.090 0	0.9	3			
	8A		-0.014											
	10	10	-0.006		M 6	15	13	9.6	0 -0.090	1.15	4			
	10A		-0.017											
	12	12	-0.007		M 8	17	14	11.5	0 -0.110	1.35	5			
	13	13	-0.007											
	15	15	-0.007		M 10	20	17	14.3	0 -0.210	1.65	6			
	16	16	-0.017											
	17	17	-0.020											
	18	18	-0.020											
	20	20	-0.007		M 12	23	20	16.2	0 -0.210	1.65	7			
	20A		-0.020											
	22	22	-0.007		M 8	26	24	19	0 -0.210	1.65	8			
	22A		-0.020											
	25	25	-0.007		M 16	28	26	21	0 -0.210	1.65	9			
	25A		-0.020											
	30	30	-0.007		M 12	31	27	23.9	0 -0.210	1.65	10			
	30A		-0.020											

M	a
M 3~M10	5
M12~M20	7

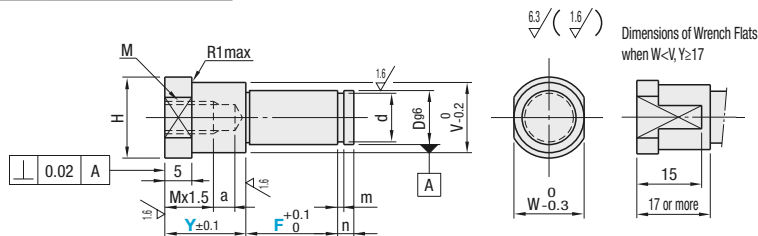
When (Mx1.5)+a≥Y+F, the pilot hole for M goes through.
When Mx1.5≥Y+F, M also goes through.

Stepped



RoHS

Type	Material	Surface Treatment
FXJA	EN 1.1191 Equiv.	Black Oxide
PFXJA	EN 1.1191 Equiv.	Electroless Nickel Plating
SFXJA	EN 1.4301 Equiv.	-



This type may have centering holes depending on dimensions.

Part Number		D96	1mm Increment		M (Coarse)	a	V	H	W	d		m	n	Unit Price		
Type	No.		Y	F						Ref. Dim.	Tolerance			FXJA	PFXJA	SFXJA
FXJA PFXJA SFXJA	6	6	-0.004		M 3	10	8	8	10	5	+0.075 0	0.7	2			
	6A		-0.012													
	8	8	-0.005		M 4	12	10	10	12	7	+0.090 0	0.9	3			
	8A		-0.014													
	10	10	-0.006		M 6	15	13	13	14	9.6	0 -0.090	1.15	4			
	10A		-0.017													
	12	12	-0.007		M 8	17	14	14	15	11.5	0 -0.110	1.35	5			
	13	13	-0.007													
	15	15	-0.007		M 10	20	17	17	18	14.3	0 -0.210	1.65	6			
	16	16	-0.017													
	17	17	-0.020													
	18	18	-0.020													
	20	20	-0.007		M 12	23	20	20	21	16.2	0 -0.210	1.65	7			
	20A		-0.020													
	22	22	-0.007		M 8	24	26	24	26	19	0 -0.210	1.65	8			
	22A		-0.020													
	25	25	-0.007		M 12	26	28	26	28	21	0 -0.210	1.65	9			
	25A		-0.020													
	30	30	-0.007		M 16	29	31	27	31	23.9	0 -0.210	1.65	10			
	30A		-0.020													

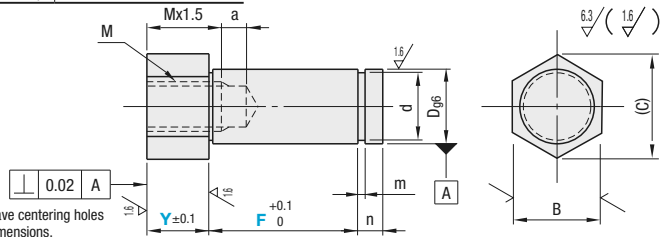
When W<V, wrench flats W reaches O.D.V. When (Mx1.5)+a≥Y+F, the pilot hole for M goes through. When Mx1.5≥Y+F, M also goes through.

Hex



RoHS

Type	Material	Surface Treatment
LXHA	EN 1.1191 Equiv.	Black Oxide
PLXHA	EN 1.1191 Equiv.	Electroless Nickel Plating
SLXHA	EN 1.4301 Equiv.	-



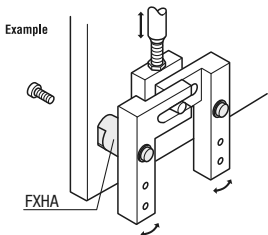
This type may have centering holes depending on dimensions.

Part Number		D96	1mm Increment		M (Coarse)	a	B	(C)	d		m	n	Unit Price		
Type	No.		Y	F					Ref. Dim.	Tolerance			LXHA	PLXHA	SLXHA
LXHA PLXHA SLXHA	6	6	-0.004		M 3	10	8	9.2	5	+0.075 0	0.7	2			
	8	8	-0.005		M 4	12	10	11.5	7	+0.090 0	0.9	3			
	10	10	-0.014		M 6	15	13	15.0	9.6	0 -0.090	1.15	4			
	12	12	-0.006		M 8	17	14	16.2	11.5	0 -0.110	1.35	5			
	13	13	-0.017												
	15	15	-0.007		M 10	20	17	19.6	12.4	0 -0.210	1.65	6			
	16	16	-0.017												
	17	17	-0.020												
	18	18	-0.020												
	20	20	-0.007		M 12	23	20	27.7	15.2	0 -0.210	1.65	7			
	22	22	-0.020												
	25	25	-0.007		M 16	27	24	31.2	16.2	0 -0.210	1.65	8			
	25A		-0.020												
	30	30	-0.007		M 12	31	27	36.9	17	0 -0.210	1.65	9			
	30A		-0.020												
					M 16	32	28	28.6	19	0 -0.210	1.65	10			

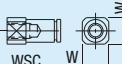
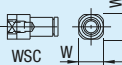
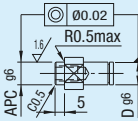
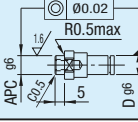
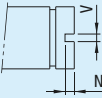
When (Mx1.5)+a≥Y+F, the pilot hole for M goes through. When Mx1.5≥Y+F, M also goes through.



Part Number - Y - F
FXHA12 - 5 - F15
PLXHA10 - 20 - F35



Part Number - Y - F - (YKC, WSC, APC, SET)
FXHA15 - 20 - F22 - APC

Alterations	Y Dimension Tolerance  	Four Wrench Flats  	Adds a Pilot  	Dimensions of Wrench Flats  	Adds a Straight Slot 	Y Dimension  	Retaining Ring Set																																																																														
	Code	YKC	WSC	APC	FW	MM		YC	SET																																																																												
Spec.	Changes Y dimension tolerance to ± 0.05 . 🔗 Applicable to all types. <u>Ordering Code</u> YKC	Changes from two wrench flats to four wrench flats. 🔗 Applicable to Standard and Stepped Types. <u>Ordering Code</u> WSC	Adds a pilot to the shaft seat. 🔗 Applicable to all types. 🔗 For 8A and 12A, pilot depth is 2mm. <u>Ordering Code</u> APC <table border="1"><thead><tr><th colspan="3"><u>Ordering Code</u> APC</th></tr><tr><th>D</th><th>M</th><th>APC 96</th></tr></thead><tbody><tr><td>6</td><td>M 3</td><td>8</td></tr><tr><td>8</td><td>M 4</td><td>8</td></tr><tr><td>8A</td><td>M 5</td><td>8</td></tr><tr><td>10</td><td>M 6</td><td>10</td></tr><tr><td>12A</td><td>M 5</td><td>8</td></tr><tr><td>12</td><td>M 8</td><td>12</td></tr><tr><td>13</td><td></td><td>13</td></tr><tr><td>15</td><td></td><td>15</td></tr><tr><td>16</td><td>M10</td><td>16</td></tr><tr><td>17</td><td></td><td>17</td></tr><tr><td>18</td><td></td><td>18</td></tr><tr><td>20</td><td>M12</td><td>20</td></tr><tr><td>22</td><td></td><td>22</td></tr><tr><td>25</td><td>M16</td><td>25</td></tr><tr><td>25A</td><td>M12</td><td>22</td></tr><tr><td>30</td><td>M20</td><td></td></tr><tr><td>30A</td><td>M16</td><td>30</td></tr></tbody></table>	<u>Ordering Code</u> APC			D	M	APC 96	6	M 3	8	8	M 4	8	8A	M 5	8	10	M 6	10	12A	M 5	8	12	M 8	12	13		13	15		15	16	M10	16	17		17	18		18	20	M12	20	22		22	25	M16	25	25A	M12	22	30	M20		30A	M16	30	Applies Wrench Flat Dimension Changes. 1mm Increment <u>Ordering Code</u> FW3 🔗 $0 \leq FW \leq 15$ 🔗 When FW=0, there are no Wrench Flats. 🔗 Applicable to Standard and Stepped Types.	Adds a straight slot to D. <u>Ordering Code</u> MM 🔗 It will not be aligned with wrench flats. <table border="1"><thead><tr><th>D</th><th>N</th><th>V</th></tr></thead><tbody><tr><td>6-13</td><td>1.2</td><td>1.5</td></tr><tr><td>15-20</td><td>2.0</td><td>2.5</td></tr><tr><td>22-30</td><td>3.0</td><td>3.5</td></tr></tbody></table> 🔗 Applicable when $(M \times 15) + a < Y + F$.	D	N	V	6-13	1.2	1.5	15-20	2.0	2.5	22-30	3.0	3.5	Increases Y dimension by increments. 0.1mm Increment <u>Ordering Code</u> YC10.8	Retaining Ring applicable to each shaft diameter is included. <u>Ordering Code</u> SET 🔗 Applicable to all types. Retaining Ring Shape No.=6, 8: E Type Retaining Ring No.=10 ~ 30A: C Type Retaining Ring Retaining Ring Material <table border="1"><thead><tr><th>Material</th><th>Surface Treatment</th><th>Retaining Ring</th></tr></thead><tbody><tr><td>EN 1.1191 Equiv.</td><td>Black Oxide</td><td>Spring Steel</td></tr><tr><td>EN 1.4301 Equiv.</td><td>Electroless Nickel Plating</td><td>EN 1.4301 (CSP) Equiv.</td></tr></tbody></table>	Material	Surface Treatment	Retaining Ring	EN 1.1191 Equiv.	Black Oxide	Spring Steel	EN 1.4301 Equiv.	Electroless Nickel Plating	EN 1.4301 (CSP) Equiv.
	<u>Ordering Code</u> APC																																																																																				
D	M	APC 96																																																																																			
6	M 3	8																																																																																			
8	M 4	8																																																																																			
8A	M 5	8																																																																																			
10	M 6	10																																																																																			
12A	M 5	8																																																																																			
12	M 8	12																																																																																			
13		13																																																																																			
15		15																																																																																			
16	M10	16																																																																																			
17		17																																																																																			
18		18																																																																																			
20	M12	20																																																																																			
22		22																																																																																			
25	M16	25																																																																																			
25A	M12	22																																																																																			
30	M20																																																																																				
30A	M16	30																																																																																			
D	N	V																																																																																			
6-13	1.2	1.5																																																																																			
15-20	2.0	2.5																																																																																			
22-30	3.0	3.5																																																																																			
Material	Surface Treatment	Retaining Ring																																																																																			
EN 1.1191 Equiv.	Black Oxide	Spring Steel																																																																																			
EN 1.4301 Equiv.	Electroless Nickel Plating	EN 1.4301 (CSP) Equiv.																																																																																			

Cantilever Shafts

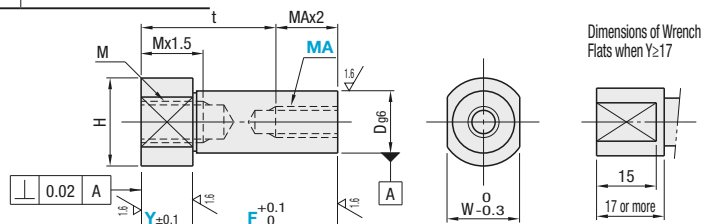
Screw Mount with Tapped End

Standard



RoHS

Type	M Material	S Surface Treatment
FXHB	EN 1.1191 Equiv.	Black Oxide
PFXHB	EN 1.1191 Equiv.	Electroless Nickel Plating
SFXHB	EN 1.4301 Equiv.	-
PHFXHB	EN 1.7220 Equiv. Hardness: 35 ~ 40HRC	Electroless Nickel Plating



Dimensions of Wrench Flats when Y≥17

6.3 / (1.6 /)

Part Number Type	No.	Dg6	1mm Increment		MA (Coarse) Selection	M (Coarse)	H	W	Unit Price			
			Y	F					FXHB	PFXHB	SFXHB	PHFXHB
FXHB	6	6	-0.004 -0.012	5-100	3	M 3	10	8				
	6A	6	-0.004 -0.012				14	12				
	8	8	-0.005 -0.014		4	M 4	12	10				
	8A	8	-0.005 -0.014				16	14				
	10	10	-0.006 -0.017		4 5 6	M 6	15	13				
	10A	10	-0.006 -0.017				20	17				
	12	12	-0.007 -0.020		5 6 8	M 8	17	14				
	13	13	-0.007 -0.020				18	15				
	15	15	-0.007 -0.020		6 8 10	M 10	20	17				
	16	16	-0.007 -0.020				21	18				
PFXHB	17	17	-0.007 -0.020	10-150			23	20				
SFXHB	18	18	-0.007 -0.020									
PHFXHB	20	20	-0.007 -0.020		6 8 10 12	M 12	26	24				
	20A	20	-0.007 -0.020			M 8						
	22	22	-0.007 -0.020			M 16	28	26				
	22A	22	-0.007 -0.020			M 12						
	25	25	-0.007 -0.020		8 10 12 16	M 16	31	27				
	25A	25	-0.007 -0.020			M 12						
	30	30	-0.007 -0.020		8 10 12 16 20	M 20	36	32				
	30A	30	-0.007 -0.020			M 16						

D	M	t
6	M 3	11
8	M 4	12.5
10	M 6	14
12, 13	M 8	17
15	M10	20
16		
17		
18		
20	M12	25
22	M16	31
25		
30	M20	37

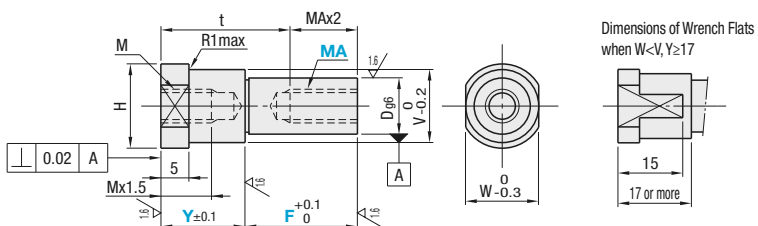
Specify dimensions Y and F not to make the dimension "t" less than the values in the table above.

Stepped



RoHS

Type	M Material	S Surface Treatment
FXJB	EN 1.1191 Equiv.	Black Oxide
PFXJB	EN 1.1191 Equiv.	Electroless Nickel Plating
SFXJB	EN 1.4301 Equiv.	-



Dimensions of Wrench Flats when W<V, Y≥17

6.3 / (1.6 /)

Part Number Type	No.	Dg6	1mm Increment		MA (Coarse) Selection	M (Coarse)	V	H	W	Unit Price		
			Y	F						FXJB	PFXJB	SFXJB
FXJB	6	6	-0.004 -0.012	5-100	3	M 3	8	10	8			
	6A	6	-0.004 -0.012				12	14	12			
	8	8	-0.005 -0.014		4	M 4	10	12	10			
	8A	8	-0.005 -0.014				14	16	14			
	10	10	-0.006 -0.017		4 5 6	M 6	13	15	13			
	10A	10	-0.006 -0.017				18	20	17			
	12	12	-0.007 -0.020		5 6 8	M 8	15	17	14			
	13	13	-0.007 -0.020				16	18	15			
	15	15	-0.007 -0.020		6 8 10	M 10	18	20	17			
	16	16	-0.007 -0.020				19	21	18			
PFXJB	17	17	-0.007 -0.020	10-100			20	23	20			
SFXJB	18	18	-0.007 -0.020				21					
	20	20	-0.007 -0.020		6 8 10 12	M 12	24	26	24			
	20A	20	-0.007 -0.020			M 8						
	22	22	-0.007 -0.020			M 12	26	28	26			
	22A	22	-0.007 -0.020			M 8						
	25	25	-0.007 -0.020		8 10 12 16	M 16	29	31	27			
	25A	25	-0.007 -0.020			M 12						
	30	30	-0.007 -0.020		8 10 12 16 20	M 20	34	36	32			
	30A	30	-0.007 -0.020			M 16						

D	M	t
6	M 3	11
8	M 4	12.5
10	M 6	14
12, 13	M 8	17
15	M10	20
16		
17		
18		
20	M12	25
22	M16	31
25		
30	M20	37

Specify dimensions Y and F not to make the dimension "t" less than the values in the table above.

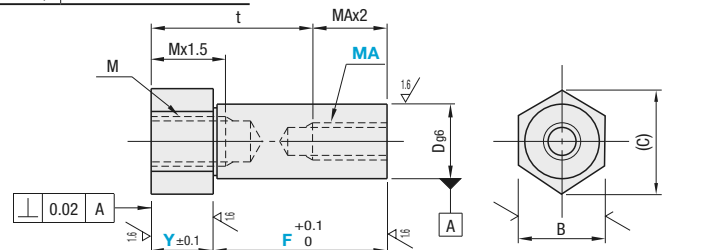
When W<V, wrench flats W reaches O.D.V.

Hex



RoHS

Type	M Material	S Surface Treatment
LXHB	EN 1.1191 Equiv.	Black Oxide
PLXHB	EN 1.1191 Equiv.	Electroless Nickel Plating
SLXHB	EN 1.4301 Equiv.	-



6.3 / (1.6 /)

Part Number Type	No.	Dg6	1mm Increment		MA (Coarse) Selection	M (Coarse)	B	(C)	Unit Price		
			Y	F					LXHB	PLXHB	SLXHB
LXHB	6	6	-0.004 -0.012	5-100	3	M 3	8	9.2			
	8	8	-0.005 -0.014		4	M 4	10	11.5			
	10	10	-0.006 -0.017		4 5 6	M 6	13	15			
	12	12	-0.007 -0.020		5 6 8	M 8	14	16.2			
	13	13	-0.007 -0.020				17	19.6			
	15	15	-0.007 -0.020		6 8 10	M 10	19	21.9			
	16	16	-0.007 -0.020								
	17	17	-0.007 -0.020		6 8 10 12	M 12	24	27.7			
	18	18	-0.007 -0.020								
	20	20	-0.007 -0.020		8 10 12 16	M 16	27	31.2			
PLXHB	22	22	-0.007 -0.020	10-150			32	36.9			
SLXHB	25	25	-0.007 -0.020		8 10 12 16 20	M 20					
	30	30	-0.007 -0.020			M 16					
	25A	25	-0.007 -0.020			M 12					
	30A	30	-0.007 -0.020			M 20					



Ordering Example

Part Number	Y	F	MA
FXHB20	17	F25	MA10
FXJB12	24	F18	MA6



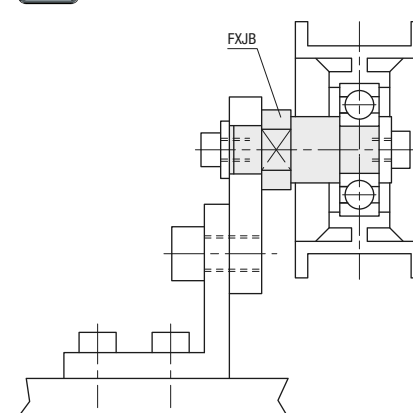
Alterations

Part Number	Y	F	MA	(YKC, WSC, APC)
FXHB25	50	F32	MA10	YKC- APC



Example

	Y Dimension Tolerance	Four Wrench Flats	Adds a Pilot
Alterations			
Code	YKC	WSC	APC
Spec.	Changes Y dimension tolerance to ±0.05. Applicable to all types. Ordering Code YKC	Changes from two wrench flats to four wrench flats. Applicable to Standard and Stepped Types. Ordering Code WSC	Adds a pilot to the shaft seat. Applicable to all types. Ordering Code APC



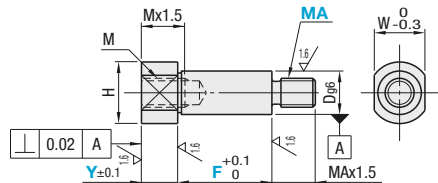
Cantilever Shafts

Screw Mount with Threaded End

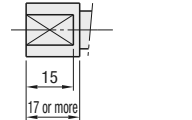


RoHS

Type	M Material	S Surface Treatment
FXHC	EN 1.1191 Equiv.	Black Oxide
PFXHC		Electroless Nickel Plating
SFXHC	EN 1.4301 Equiv.	-



Dimensions of Wrench Flats when $Y \geq 17$



When $D=MA$

MA

D 96

F

MAX1.5

- ✿ This type may have centering holes depending on dimensions.
- ✿ Please refer to Table 1 to specify dimensions Y and F.
- ✿ Refer to the table on the next page for thread undercut dimensions.

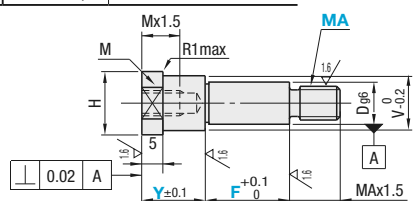
[illegible]

⚠️ MA dimensions with () (M15 and M25) are Fine Thread. Specify MSC instead of MA.

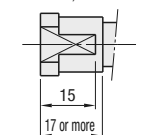


RoHS

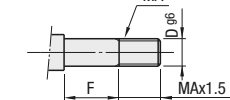
Type	M Material	S Surface Treatment
FXJC	EN 1.1191 Equiv.	Black Oxide
PFXJC		Electroless Nickel Plating
SFXJC	EN 1.4301 Equiv.	-



Dimensions of Wrench Flats when $W < V, Y \geq 17$



When $D=MA$



- ✿ This type may have centering holes depending on dimensions.
- ✿ Please refer to Table 1 to specify dimensions Y and F.
- ✿ Refer to the table on the next page for thread undercut dimensions.

Part Number		Dg6		1mm Increment		MA (Coarse) Selection	M (Coarse)	V	H	W	Unit Price				
Type	No.			Y	F						FXJC	PFXJC	SFXJC		
FXJC PFXJC SFXJC	6	6	-0.004	7~60	5~75	4 5 6	M 3	8	10	8					
	6A		-0.012					12	14	12		-	-		
	8		8				-0.005 -0.014	5 6 8	M 4	10	12	10			
	8A									14	16	14		-	-
	10	13				15			13						
	10A	10	18			20	17		-	-					
	12	12	-0.006 -0.017		10~75	6 8 10 12	M 8	15	17	14					
	12	13						16	18	15					
	15	15					18	20	17						
	16	16					19	21	18						
	17	17				10 12 (15) 16	M10	20	23	20					
	18	21													
	20	20				10 12 (15) 16 20	M12	24	26	24		-	-		
	20A	22						M 8	26	28	26				
	22		M12		29			31	27		-	-			
	22A	M 8													
	25	25	10 12 (15) 16 20 24 (25)		M16										
	25A	M12													
30	30	M20		34	36	32									
	30A				M16										

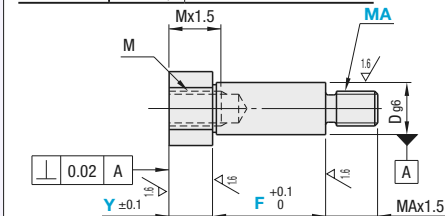
⚠ MA dimensions with () (M15 and M25) are Fine Thread. Specify MSC instead of MA.

When $W < V$, wrench flats W reaches O.D.V.



RoHS

Type	M Material	S Surface Treatment
LXHC	EN 1.1191	Black Oxide
PLXHC	Equiv.	Electroless Nickel Plating
SLXHC	EN 1.4301 Equiv.	-



6.3 / (1.6)



When $D=MA$ MA

- ⚠ This type may have centering holes depending on dimensions.
- ⚠ Please refer to Table 1 to specify dimensions Y and F.
- ⚠ Refer to the table below for thread undercut dimensions.

Part Number		Dg6		1mm Increment		MA (Coarse) Selection	M (Coarse)	B	(C)	Unit Price		
Type	No.			Y	F					LXHC	PLXHC	SLXHC
LXHC	6	6	-0.002	2-60	5-100	4 5 6	M 3	8	9.2			
	8	8	-0.005			5 6 8	M 4	10	11.5			
	10	10	-0.014			6 8 10	M 6	13	15			
	12	12				6 8 10 12	M 8	14	16.2			
	13	13						17	19.6			
	15	15	-0.006			8 10 12 (15)	M10					
	16	16	-0.017			10 12 (15) 16		19	21.9			
	17	17										
	18	18										
	PLXHC	20	20				10-100					
22		22		10 12 (15) 16 20	M12	24		27.7				
SLXHC	25	25	-0.007	4-60		10 12 (15) 16 20 24 (25)	M16	27	31.2			
	25A	25	-0.020			M12						
	30	30				M20	32	36.9				
	30A	30				M16						

MA dimensions with () (M15 and M25) are Fine Thread. Specify MSC instead of MA.



Ordering Example

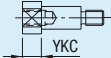
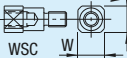
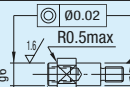
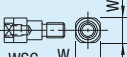
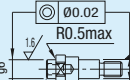
Part Number	Y	F	MA
FXHC12	5	F15	MA8
LXHC10	20	F35	MA6

M	Y+F
M3	$Y+F \geq 10$
M4	$Y+F \geq 12$
M6	$Y+F \geq 15.5$
M8	$Y+F \geq 19.5$
M10	$Y+F \geq 23.5$
M12	$Y+F \geq 29.5$
M16	$Y+F \geq 37$
M20	$Y+F \geq 45$

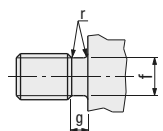


Alterations

Part Number - Y - F - MA(MSC) - (YKC, WSC, APC)
FXHC15 - 20 - F22 - MSC15 - APC

	Y Dimension Tolerance	Four Wrench Flats	Adds a Pilot	Fine Thread																																																																								
Alterations																																																																												
																																																																												
Code	YKC	WSC	APC	MSC																																																																								
Spec.	Changes Y dimension tolerance to ± 0.05. 🔍 Applicable to all types. <u>Ordering Code</u> YKC	Changes from two wrench flats to four wrench flats. 🔍 Applicable to Standard and Stepped Types. <u>Ordering Code</u> WSC	Adds a pilot to the shaft seat. 🔍 Applicable to all types. <u>Ordering Code</u> APC <table><tr><th>D</th><th>M</th><th>APC g6</th></tr><tr><td>6</td><td>M3</td><td>6</td></tr><tr><td>8</td><td>M4</td><td>8</td></tr><tr><td>10</td><td>M6</td><td>10</td></tr><tr><td>12</td><td>M8</td><td>12</td></tr><tr><td>13</td><td></td><td>13</td></tr><tr><td>15</td><td></td><td>15</td></tr><tr><td>16</td><td>M10</td><td>16</td></tr><tr><td>17</td><td></td><td>17</td></tr><tr><td>18</td><td></td><td>18</td></tr><tr><td>20</td><td></td><td>20</td></tr><tr><td>22</td><td>M12</td><td>22</td></tr><tr><td>25</td><td>M16</td><td>25</td></tr><tr><td>25A</td><td>M12</td><td>25</td></tr><tr><td>30</td><td>M20</td><td>30</td></tr><tr><td>30A</td><td>M16</td><td>30</td></tr></table>	D	M	APC g6	6	M3	6	8	M4	8	10	M6	10	12	M8	12	13		13	15		15	16	M10	16	17		17	18		18	20		20	22	M12	22	25	M16	25	25A	M12	25	30	M20	30	30A	M16	30	Changes Thread MA to Fine Thread in the table below. 🔍 Applicable to all types. Specify MSC instead of MA. <u>Ordering Code</u> MSC12 <table><tr><th>MSC</th><th>Pitch</th><th>MSC</th><th>Pitch</th></tr><tr><td>M4</td><td>0.5</td><td>M12</td><td></td></tr><tr><td>M5</td><td></td><td>M15</td><td>1.0</td></tr><tr><td>M6</td><td>0.75</td><td>M20</td><td></td></tr><tr><td>M8</td><td>1.0</td><td>M25</td><td>1.5</td></tr><tr><td>M10</td><td></td><td>M30</td><td></td></tr></table>	MSC	Pitch	MSC	Pitch	M4	0.5	M12		M5		M15	1.0	M6	0.75	M20		M8	1.0	M25	1.5	M10		M30	
	D	M	APC g6																																																																									
6	M3	6																																																																										
8	M4	8																																																																										
10	M6	10																																																																										
12	M8	12																																																																										
13		13																																																																										
15		15																																																																										
16	M10	16																																																																										
17		17																																																																										
18		18																																																																										
20		20																																																																										
22	M12	22																																																																										
25	M16	25																																																																										
25A	M12	25																																																																										
30	M20	30																																																																										
30A	M16	30																																																																										
MSC	Pitch	MSC	Pitch																																																																									
M4	0.5	M12																																																																										
M5		M15	1.0																																																																									
M6	0.75	M20																																																																										
M8	1.0	M25	1.5																																																																									
M10		M30																																																																										

Thread Undercut Dimensions

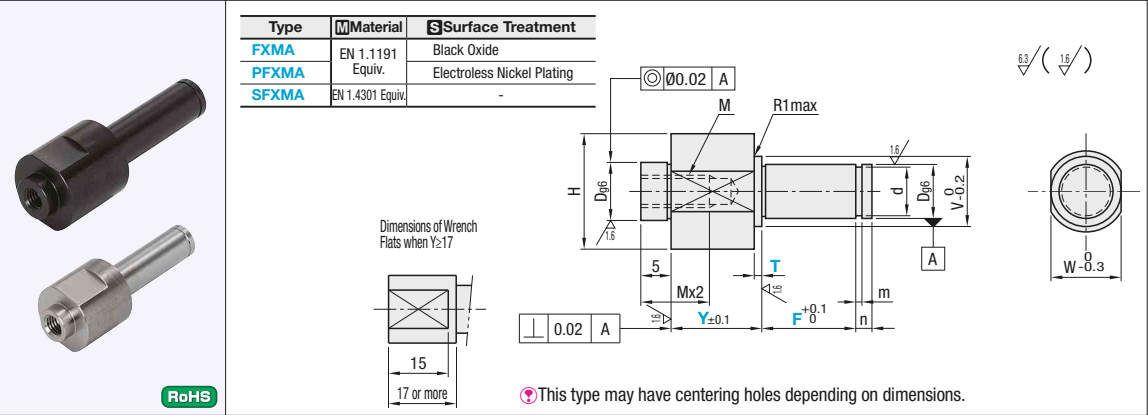


Coarse Thread				Fine Thread			
Thread Dia. (MA)	g	r	f	Thread Dia. (MSC)	g	r	f
4	1.2-1.5	0.2-0.3	2.9-3.2	4	1.2-1.5	0.2-0.3	2.9-3.2
5			3.9-4.1	5			3.9-4.1
6	1.5-2.5	0.2-0.6	4.3-4.9	6	1.5-2.5	0.2-0.6	4.3-4.9
8			6.3-6.6	8			6.3-6.6
10			8.1-8.3	10			8.3-8.6
12	1.5-3.0	0.2-1.0	9.8-10.1	12	1.5-3.0	0.2-1.0	9.8-10.7
16			13.6-13.8	15			13.6-13.8
20	1.5-4.0		17.0-17.2	20	1.5-4.0		17.2-18.8
24	2.5-5.0	0.2-1.5	20.2-20.7	25	2.5-5.0	0.2-1.5	20.2-23.2
30			26.0-26.2	30			26.2-28.2

Cantilever Shafts

Heavy Load

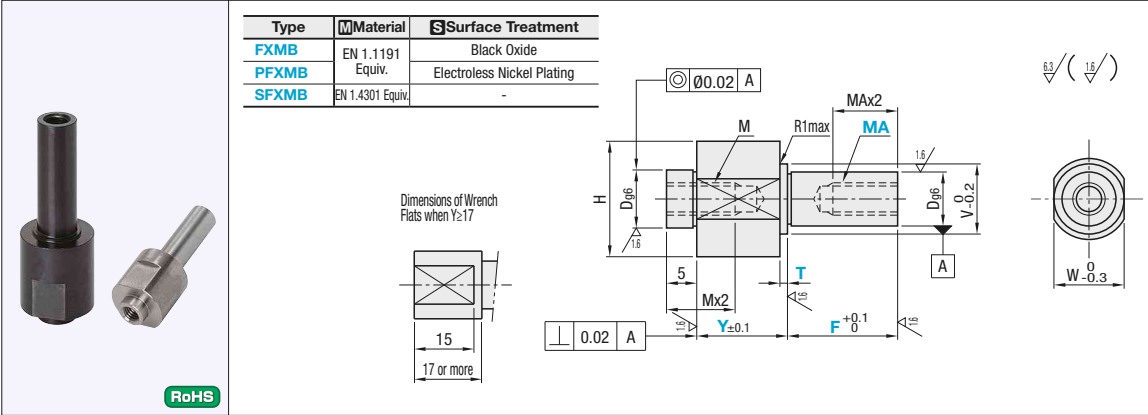
■ **Features:** This is the highly stable type with a tapped hole mounting on a large base.



Part Number	Type	No.	Dg6	1mm Increment		Selection	M Coarse	V	H	W	d		m	n	Unit Price		
				Y	F						Ref. Dim.	Tolerance			FXMA	PFXMA	SFXMA
FXMA PFXMA SFXMA		6	6	-0.004 -0.012	4~60	1 3 5	M3	8	14	12	5	+0.075 0	0.7	2			
		8	8	-0.005 -0.014			M4	10	17	14	7	+0.090 0	0.9	3			
		10	10	-0.014			M6	13	21	18	9.6	-0.090 0	1.15	4			
		12	12	-0.006 -0.017		2 5 8	M8	15	24	21	11.5	0	1.15	4			
		15	15	-0.017				18	28	25	14.3	-0.110 0	1.15	4			
		17	17	-0.006 -0.017				20	32	28	16.2	-0.110 0	1.15	4			
		20	20	-0.007 -0.020				24	36	32	19	-0.120 0	1.35	5			
		25	25	-0.020				29	43	38	23.9	-0.120 0	1.35	5			
		30	30	-0.020				34	50	44	28.6	-0.120 0	1.65	5			
					4~75												

⚠ When the pilot hole depth is $\geq Y+F+5$, the pilot for M goes through. Also, when $Mx2 \geq Y+F+5$, M goes through.

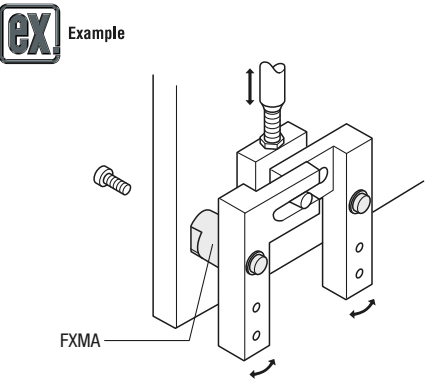
Ordering Example	Part Number	-	Y	-	F	-	T
	FXMA20	-	20	-	F70	-	T5
	SFXMA12	-	10	-	F100	-	T2



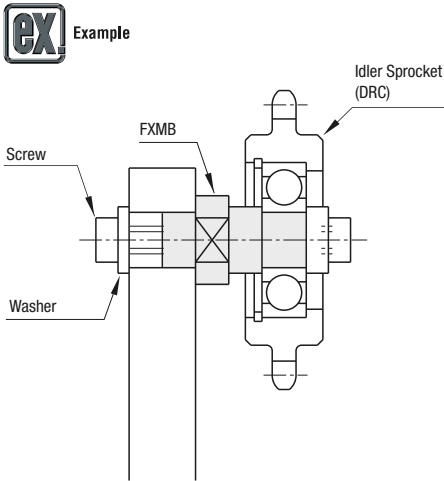
Part Number	Type	No.	Dg6	1mm Increment		Selection	M Coarse	V	H	W	d		m	n	Unit Price		
				Y	F						Ref. Dim.	Tolerance			FXMB	PFXMB	SFXMB
FXMB PFXMB SFXMB		6	6	-0.004 -0.012	5~75	1 3 5	M3	8	14	12	5	+0.075 0	0.7	2			
		8	8	-0.005 -0.014			M4	10	17	14	7	+0.090 0	0.9	3			
		10	10	-0.014			M6	13	21	18	9.6	-0.090 0	1.15	4			
		12	12	-0.006 -0.017		2 5 8	M8	15	24	21	11.5	0	1.15	4			
		15	15	-0.017				18	28	25	14.3	-0.110 0	1.15	4			
		17	17	-0.006 -0.017				20	32	28	16.2	-0.110 0	1.15	4			
		20	20	-0.007 -0.020				24	36	32	19	-0.120 0	1.35	5			
		25	25	-0.020				29	43	38	23.9	-0.120 0	1.35	5			
		30	30	-0.020				34	50	44	28.6	-0.120 0	1.65	5			
					4~60												

Ordering Example	Part Number	-	Y	-	F	-	T	-	MA
	FXMB20	-	20	-	F70	-	T5	-	MA6
	SFXMB12	-	10	-	F100	-	T2	-	MA6

Alterations	Retaining Ring Set	Wrench Flats
Code	SET	SC
Spec.	Retaining Ring applicable to each shaft diameter is included. Ordering Code SET Retaining Ring Shape No.=6, 8: E Type Retaining Ring No.10 ~ 30: C Type Retaining Ring Retaining Ring Material	An alteration of wrench flats can be made for a slot hole guide. Ordering Code SC ⚠ For D (Wrench Flats), the tolerance is always positive. ⚠ Y-T $\geq$ 6



Alterations	Wrench Flats	Spec.
Code	SC	An alteration of wrench flats can be made for a slot hole guide. Ordering Code SC ⚠ For D (Wrench Flats), the tolerance is always positive. ⚠ Y-T $\geq$ 6



Cantilever Shafts

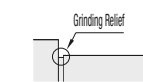
Shouldered

Retaining Ring



RoHS

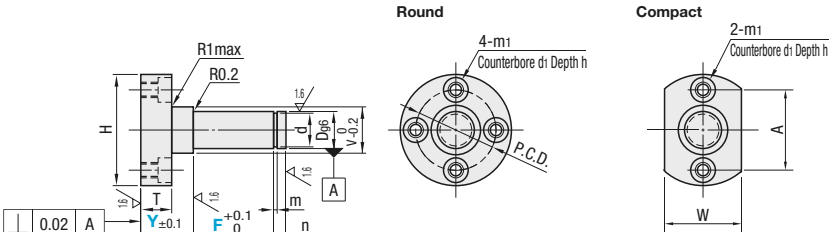
Type		Material	Surface Treatment
Round	Compact		
FXFA	FXEA	EN 1.1191 Equiv.	Black Oxide
PFXFA	PFXEA	EN 1.1191 Equiv.	Electroless Nickel Plating
SFXFA	SFXEA	EN 1.4301 Equiv.	-



All types except FXFA and FXEA have an undercut groove at R0.2 step.

6.3 (1.6)

D Tolerance (g6)	
6	-0.004 -0.012
8-10	-0.005 -0.014
12-18	-0.006 -0.017
20-30	-0.007 -0.020
35-50	-0.009 -0.025



This type may have centering holes depending on dimensions.

Part Number		D	1mm Increment		V	H	T	m1	d1	h	P.C.D.	d Tolerance		m	n	W	A	Unit Price					
Type	No.		Y	F														Round	Compact	Round	Compact	Round	Compact
Round FXFA PFXFA SFXFA	6	6	5~100	12~60	8	26	10	M 4	6.5	3.5	17	5	+0.075	0.7	2	14	17						
	6A	8			10	28					23	0	15					-					
	8	10			12	36					19	+0.090	19					-					
	8A	10			13	32					M 5	8	4.4					26	0				
	10	10			13	40		M 4	6.5	3.5	23	0	0.9	3	16	23							
	10A	12			13	44		30	9.6	-0.090													
	12	12			13	48		26	11.5	0													
	13	13			14	52		27	12.4	-0.110													
	15	15			16	56		30	14.3		1.15	4	20	26									
	16	16			17	60		31	15.2														
17	17	18	64	32	16.2																		
18	18	19	68	34	17																		
Compact FXEA PFXEA SFXEA	20	20	10~150	17~75	24	48	15	M 6	9.5	5.4	36	19	0	1.35	5	32	36						
	22	22			26	50					39	21	-0.210					34	39				
	25	25			29	54					42	23.9	38					42					
	30	30			34	62					49	28.6	42					49					
	35	35			39	70		55	33	0	1.65	5	40	45									
	40	40			44	80		63	38	-0.250					46	51							
	45	45			49	86		73	47						52	57							
	50	50			54	90																	

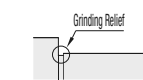
Mounting holes are tapped and counterbored to allow mounting from either the front or the back side.

Screw Mount



RoHS

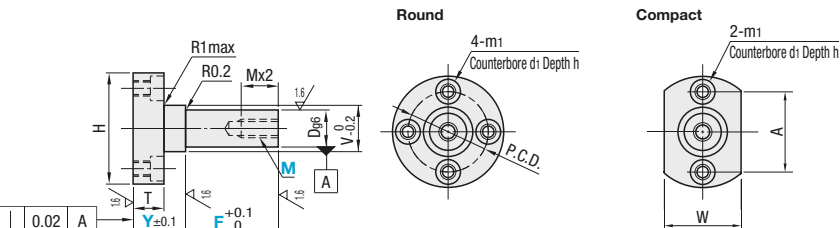
Type		Material	Surface Treatment
Round	Compact		
FXFB	FXEB	EN 1.1191 Equiv.	Black Oxide
PFXFB	PFXEB	EN 1.1191 Equiv.	Electroless Nickel Plating
SFXFB	SFXEB	EN 1.4301 Equiv.	-



All types except FXFB and FXEB have an undercut groove at R0.2 step.

6.3 (1.6)

D Tolerance (g6)	
6	-0.004 -0.012
8, 10	-0.005 -0.014
12-18	-0.006 -0.017
20-30	-0.007 -0.020
35-50	-0.009 -0.025



This type may have centering holes depending on dimensions.

Part Number		D	1mm Increment		M (Coarse) Selection	V	H	T	m1	d1	h	P.C.D.	W	A	Unit Price					
Type	No.		Y	F											Round	Compact	Round	Compact	Round	Compact
Round	6	6	5~100	12~60	3	8	26	10	M 4	6.5	3.5	17	14	17						
	6A	8			4	10	28		M 5	8	4.4	26	15	19						
	8	10			4 5 6	13	32		M 4	6.5	3.5	23	16	23						
	8A	12			15	36	40		M 5	8	4.4	30	20	26						
	10	13			16	40	44		M 6	9.5	5.4	36	22	27						
	10A	15			18	44	48		M 8	11	6.5	42	24	30						
	12	16			19	48	52		M 10	14	9	47	26	32						
	13	17			20	52	56													
	15	19			21	56	60													
	16	20			22	60	64													
Compact	FXEB	22			24	64	68													
	PFXEB	25			26	70	74													
	SFXEB	30			32	76	80													
		35			36	80	84													
		40			42	86	90													
		45			46	90	94													
		50			52	96	100													
		55			56	100	104													
		60			62	106	110													
		65			66	110	114													

Mounting holes are tapped and counterbored to allow mounting from either the front or the back side.

Lock Nut



RoHS

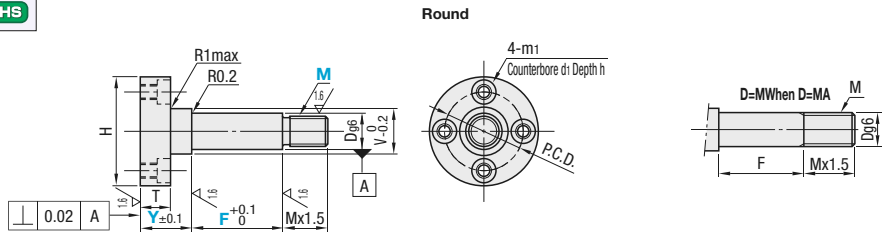
Type		Material	Surface Treatment
Round	Compact		
FXFC	PFXFC	EN 1.1191 Equiv.	Black Oxide
PFXFC	SFXFC	EN 1.1191 Equiv.	Electroless Nickel Plating
SFXFC		EN 1.4301 Equiv.	-



PFXFC has an undercut groove at R0.2 step.
Refer to the table below for thread undercut dimensions.

6.3 (1.6)

D Tolerance (g6)	
6	-0.004 -0.012
8, 10	-0.005 -0.014
12-18	-0.006 -0.017
20-30	-0.007 -0.020
35-50	-0.009 -0.025



This type may have centering holes depending on dimensions.

Part Number		D	1mm Increment		M (Coarse) Selection	V	H	T	m1	d1	h	P.C.D.	Unit Price		
Type	No.		Y	F									Round	Compact	Round
Round	6	6	5~100	12~60	4 5 6	8	26	10	M 4	6.5	3.5	17	FXFC	PFXFC	SFXFC
	6A	8			5 6 8	10	28		M 5	8	4.4	26			
	8	10			6 8 10	13	32		M 4	6.5	3.5	23			
	8A	12			8 10 12 (15)	15	36		M 5	8	4.4	30			
	10	13			10 12 (15) 16	16	40		M 6	9.5	5.4	36			
	10A	15			12 15 16 20	18	44		M 8	11	6.5	42			
	12	16			10 12 (15) 16 20	20	48		M 10	14	9	47			
	13	17			12 (15) 16 20 24 (25) 30	21	52								
	15	19				22	56								
	16	20				24	60								
Compact	FXFC	22				26	64								
	PFXFC	25				28	70								
	SFXFC	30				32	76								
		35				36	80								
		40				42	86								
		45				46	90								
		50				52	96								
		55				56	100								
		60				62	106								
		65				66	110								

M dimensions with () (M15 and M25) are Fine Thread. Specify MSC instead of M. Mounting holes are tapped and counterbored to allow mounting from either the front or the back side.



Part Number	Y	F	M
FXFA12	27	F35	
FXFB10	30	F40	M4



Part Number	Y	F	M(MSC)	(YKC, APC...etc.)
PFXFC10	20	F40	MSC10	APC

Alterations	Retaining Ring Set	Y Dimension Tolerance	Adds a Pilot	Fine Thread	<table><tr><th>Thread Dia. (M)</th><th>g</th><th>r</th><th>f</th></tr><tr><td>4</td><td>1.2-1.5</td><td>0.2-0.3</td><td>29- 32</td></tr><tr><td>5</td><td></td><td></td><td>3.9- 4.1</td></tr><tr><td>6</td><td></td><td></td><td>4.3- 4.9</td></tr><tr><td>8</td><td>1.5-2.5</td><td>0.2-0.6</td><td>6.3- 6.6</td></tr><tr><td>10</td><td></td><td></td><td>8.1- 8.3</td></tr><tr><td>12</td><td>1.5-3.0</td><td></td><td>9.8-10.1</td></tr><tr><td>16</td><td></td><td>0.2-1.0</td><td>13.6-13.8</td></tr><tr><td>20</td><td>1.5-4.0</td><td></td><td>17.0-17.2</td></tr><tr><td>24</td><td></td><td></td><td>20.2-20.7</td></tr><tr><td>30</td><td>2.5-5.0</td><td>0.2-1.5</td><td>26.0-26.2</td></tr></table>	Thread Dia. (M)	g	r	f	4	1.2-1.5	0.2-0.3	29- 32	5			3.9- 4.1	6			4.3- 4.9	8	1.5-2.5	0.2-0.6	6.3- 6.6	10			8.1- 8.3	12	1.5-3.0		9.8-10.1	16		0.2-1.0	13.6-13.8	20	1.5-4.0		17.0-17.2	24			20.2-20.7	30	2.5-5.0	0.2-1.5	26.0-26.2
		Thread Dia. (M)	g	r		f																																											
4	1.2-1.5	0.2-0.3	29- 32																																														
5			3.9- 4.1																																														
6			4.3- 4.9																																														
8	1.5-2.5	0.2-0.6	6.3- 6.6																																														
10			8.1- 8.3																																														
12	1.5-3.0		9.8-10.1																																														
16		0.2-1.0	13.6-13.8																																														
20	1.5-4.0		17.0-17.2																																														
24			20.2-20.7																																														
30	2.5-5.0	0.2-1.5	26.0-26.2																																														
Code	SET	YKC	APC	MSC																																													
Spec.	Retaining Ring applicable to each shaft diameter is included. Ordering Code SET Applicable for Retaining Ring Type (No.30 or less) Retaining Ring Shape No.=6 ~ 8A: E Type Retaining Ring No.10 ~ 30: C Type Retaining Ring Retaining Material <table><tr><th colspan="2">Cantilever Shafts</th><th>Retaining Ring</th></tr><tr><th>Material</th><th>Surface Treatment</th><th>Material</th></tr><tr><td>EN 1.1191</td><td>Black Oxide</td><td>Spring Steel</td></tr><tr><td>Equip.</td><td>Electroless Nickel Plating</td><td>EN 1.4301 (CSP) Equip.</td></tr><tr><td>EN 1.4301 Equip.</td><td></td><td></td></tr></table>	Cantilever Shafts		Retaining Ring	Material	Surface Treatment	Material	EN 1.1191	Black Oxide	Spring Steel	Equip.	Electroless Nickel Plating	EN 1.4301 (CSP) Equip.	EN 1.4301 Equip.			Changes Y dimension tolerance to ±0.05. 🔴Applicable to all types. Ordering Code YKC	Adds a pilot to the Shoulder seat. 🔴Applicable to all types. Ordering Code APC <table><tr><th>D</th><th>APC g6</th></tr><tr><td>6</td><td>8</td></tr><tr><td>8~30</td><td>10</td></tr><tr><td>35~50</td><td>12</td></tr></table>	D	APC g6	6	8	8~30	10	35~50	12	Changes the Lock Nut Type Thread M to Fine Thread in the table below. 🔴Applicable to Lock Nut Type only. 🔴Specify MSC instead of M. Ordering Code MSC8 <table><tr><th>MSC</th><th>Pitch</th></tr><tr><td>M6</td><td>0.75</td></tr><tr><td>M8-20</td><td>1.0</td></tr><tr><td>M25, 30</td><td>1.5</td></tr></table>	MSC	Pitch	M6	0.75	M8-20	1.0	M25, 30	1.5														
	Cantilever Shafts		Retaining Ring																																														
Material	Surface Treatment	Material																																															
EN 1.1191	Black Oxide	Spring Steel																																															
Equip.	Electroless Nickel Plating	EN 1.4301 (CSP) Equip.																																															
EN 1.4301 Equip.																																																	
D	APC g6																																																
6	8																																																
8~30	10																																																
35~50	12																																																
MSC	Pitch																																																
M6	0.75																																																
M8-20	1.0																																																
M25, 30	1.5																																																

Cantilever Shafts

For Tension

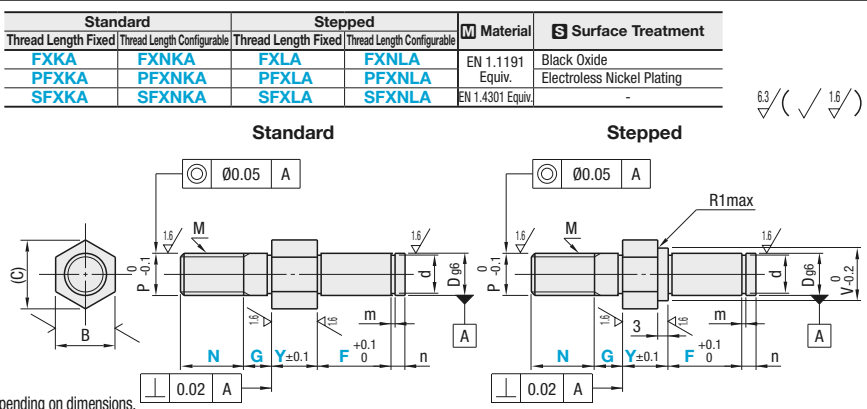
For Idlers, see P1201~.

Retaining Ring



RoHS

D Tolerance (g6)	
6	-0.004 -0.012
8, 10	-0.005 -0.014
12~18	-0.006 -0.017
20~30	-0.007 -0.020



This type may have centering holes depending on dimensions.

Part Number Type		No.		D	1mm Increment			N		P	M (Coarse)	V (Stepped only)	B	(C)	d		m	n																																																																		
					Y	F	G	Thread Length Fixed	Thread Length Configurable						Ref. Dim.	Tolerance																																																																				
Standard Fixed FXKA PFXKA SFXKA	Configurable	6	6	5~60	5~100	5~10	18	12~24	12	M12	15	17	19	21.9	15.2	0 -0.110	1.15	3																																																																		
		8	8																10	12	13.9	7	11.5	9.6	11.5	12.4	14.3	16.2	17																																																							
		10	10																											13	14	16.2	9.6	15	16	18	19	21.9	15.2	16.2	17																																											
		12	12																																							15	16	18	19	21.9	15.2	16.2	17																																			
		13	13																																															16	17	19	21.9	15.2	16.2	17																												
		15	15																																																						17	17	19	21.9	15.2	16.2	17																					
		16	16																																																													18	18	19	21.9	15.2	16.2	17														
		17	17																																																																				18	18	19	21.9	15.2	16.2	17							
		18	18																																																																											18	18	19	21.9	15.2	16.2	17
		20	20																																																																																	
20A	20	18	18	19	21.9	15.2	16.2	17																																																																												
22	22								18	18	19	21.9	15.2	16.2	17																																																																					
22A	22															18	18	19	21.9	15.2	16.2	17																																																														
25	25																						18	18	19	21.9	15.2	16.2	17																																																							
25A	25																													18	18	19	21.9	15.2	16.2	17																																																
30	30																																				18	18	19	21.9	15.2	16.2	17																																									
30A	30																																											18	18	19	21.9	15.2	16.2	17																																		
																																																			18	18	19	21.9	15.2	16.2	17																											
																																																										18	18	19	21.9	15.2	16.2	17																				
																																																																	18	18	19	21.9	15.2	16.2	17													
		18	18	19	21.9	15.2	16.2	17																																																																												
									18	18	19	21.9	15.2	16.2	17																																																																					
																18	18	19	21.9	15.2	16.2	17																																																														
																							18	18	19	21.9	15.2	16.2	17																																																							
																														18	18	19	21.9	15.2	16.2	17																																																
																																					18	18	19	21.9	15.2	16.2	17																																									
																																												18	18	19	21.9	15.2	16.2	17																																		
																																																			18	18	19	21.9	15.2	16.2	17																											
																																																										18	18	19	21.9	15.2	16.2	17																				
																																																																	18	18	19	21.9	15.2	16.2	17													
		18	18	19	21.9	15.2	16.2	17																																																																												
									18	18	19	21.9	15.2	16.2	17																																																																					
																18	18	19	21.9	15.2	16.2	17																																																														
																							18	18	19	21.9	15.2	16.2	17																																																							
																														18	18	19	21.9	15.2	16.2	17																																																
																																					18	18	19	21.9	15.2	16.2	17																																									
																																												18	18	19	21.9	15.2	16.2	17																																		
																																																			18	18	19	21.9	15.2	16.2	17																											
																																																										18	18	19	21.9	15.2	16.2	17																				
																																																																	18	18	19	21.9	15.2	16.2	17													
		18	18	19	21.9	15.2	16.2	17																																																																												
									18	18	19	21.9	15.2	16.2	17																																																																					
																18	18	19	21.9	15.2	16.2	17																																																														
																							18	18	19	21.9	15.2	16.2	17																																																							
																														18	18	19	21.9	15.2	16.2	17																																																
																																					18	18	19	21.9	15.2	16.2	17																																									
																																												18	18	19	21.9	15.2	16.2	17																																		
																																																			18	18	19	21.9	15.2	16.2	17																											
																																																										18	18	19	21.9	15.2	16.2	17																				
																																																																	18	18	19	21.9	15.2	16.2	17													
		18	18	19	21.9	15.2	16.2	17																																																																												
									18	18	19	21.9	15.2	16.2	17																																																																					
																18	18	19	21.9	15.2	16.2	17																																																														
																							18	18	19	21.9	15.2	16.2	17																																																							
																														18	18	19	21.9	15.2	16.2	17																																																
																																					18	18	19</																																													

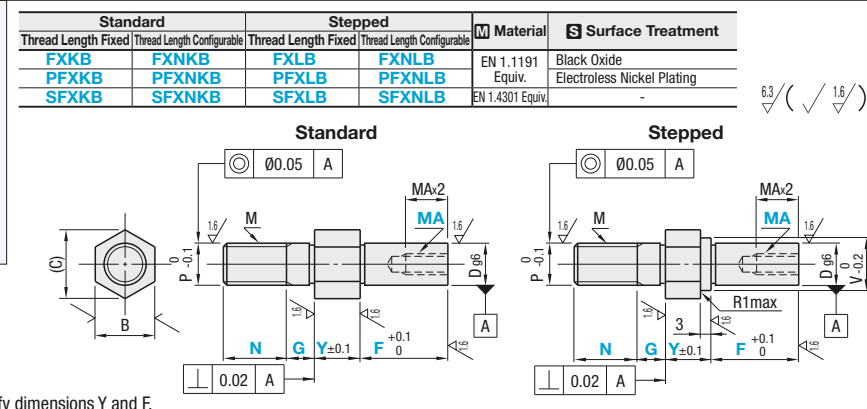
Ordering Example: Part Number - Y - F - G - N
FXKA20A - 20 - F12 - G8
PFXNLA12 - 15 - F21 - G5 - N14

Screw Mount



RoHS

D Tolerance (g6)	
6	-0.004 -0.012
8, 10	-0.005 -0.014
12~18	-0.006 -0.017
20~30	-0.007 -0.020



Please refer to Table 1 to specify dimensions Y and F.

Part Number		No.	D	1mm Increment			N		MA (Coarse) Selection	P	M (Coarse)		V (Stepped only)	B	(C)	Table 1		
Type				Y	F	G	Thread Length Fixed	Thread Length Configurable										
Standard Fixed FXKB PFXKB SFXKB	Configurable FXNKB PFXNKB SFXNKB	6	6	5~60	5~100	5~10	9	6~12	3	6	M 6	8	10	11.5	MA	Y+F		
		8	8				12	8~16	4	8	M 8	10	12	13.9	M 3	Y+F≥11.5		
		10	10				15	10~20	4 5 6	10	M10	13	14	16.2	M 4	Y+F≥14.0		
		12	12				18	12~24	5 6 8	12	M12	15	17	19.6	M 5	Y+F≥16.2		
		13	13									16	18	21.9	M 6	Y+F≥18.5		
		15	15									18	20	22	27.5	M 8	Y+F≥23.5	
		16	16									19	21	24	27.7	M10	Y+F≥28.5	
		17	17									20	22	27	31.2	M12	Y+F≥35.5	
		18	18									21	24	27	31.2	M16	Y+F≥45.0	
		20	20									22	27	31.2	M20	Y+F≥55.0		
20A	20	24	27	31.2														
22	22	10~120	5~20	30	20~40	6 8 10 12						16	M16	26	27	31.2	M12	Y+F≥35.5
22A	22													26	27	31.2	M16	Y+F≥45.0
25	25						29	30	34.6	M20	Y+F≥55.0							
25A	25						29	30	34.6									
30	30						34	36	41.6									
Stepped Fixed FXLB PFXLB SFXLB	Configurable FXNLB PFXNLB SFXNLB	30A	30	5~75						16	M16	34	36	41.6	M20	Y+F≥55.0		

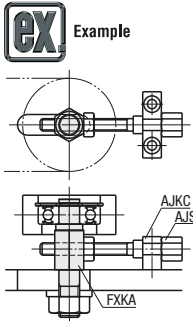
Ordering Example: Part Number - Y - F - G - N - MA
FXKB20A - 20 - F12 - G8 - MA10
FXNKB12 - 15 - F21 - G5 - N14 - MA6

Retaining Ring

No.	Unit Price											
	Standard						Stepped					
	Thread Length Fixed			Thread Length Configurable			Thread Length Fixed			Thread Length Configurable		
	FXKA	PFXKA	SFXKA	FXNKA	PFXNKA	SFXNKA	FXLA	PFXLA	SFXLA	FXNLA	PFXNLA	SFXNLA
6												
8												
10												
12												
13												
15												
16												
17												
18												
20												
20A												
22												
22A												
25												
25A												
30												
30A												

Alterations: Part Number - Y - F - G - N - (YKC, SC, MTC, SET)
FXNLA12 - 27 - F15 - G7 - N12 - MTC

Alterations	Retaining Ring Set	Y Dimension Tolerance		Wrench Flats		Tapped Hole	
		YKC	SC	YKC	SC	YKC	SC
Code	SET	YKC		SC		MTC	
		Changes Y dimension tolerance to ±0.05. Applicable to all types. Ordering Code YKC		An alteration of wrench flats can be made for a slot hole guide. Applicable to all types. Ordering Code SC		An alteration of a tapped hole made for shaft push/pull. Allows combined use of AJST (P1463) or AJKC (P1465). (Configurable dimension Y is limited. Refer to the table below.) Ordering Code MTC	
Spec.	Retaining Ring applicable to each shaft diameter is included. Ordering Code SET Applicable to Retaining Ring Type. Retaining Ring Shape No.=6~8: E Type Retaining Ring No.=10~30A: C Type Retaining Ring Retaining Ring Material						
		Cantilever Shafts Retaining Ring					
		Material	Surface Treatment	Material			
		EN 1.1191	Black Oxide	Spring Steel			
		Equiv.	Electroless Nickel Plating	EN 1.4301 (CSP)			
		EN 1.4301 Equiv.	-	Equiv.			



Screw Mount

No.	Unit Price											
	Standard						Stepped					
	Thread Length Fixed			Thread Length Configurable			Thread Length Fixed			Thread Length Configurable		
	FXKB	PFXKB	SFXKB	FXNKB	PFXNKB	SFXNKB	FXLB	PFXLB	SFXLB	FXNLB	PFXNLB	SFXNLB
6												
8												
10												
12												
13												
15												
16												
17												
18												
20												
20A												
22												
22A												
25												
25A												
30												
30A												