


Shoulder Bolts

Shaft Dia. Tolerance e9

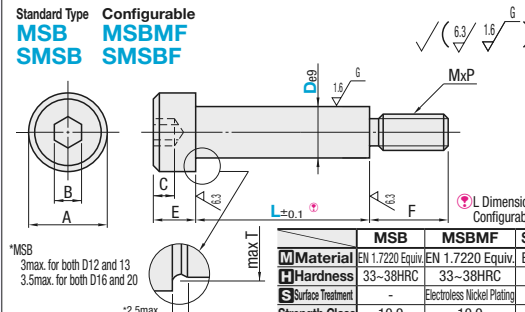
Shoulder Bolts
- Shaft Dia. Tolerance e9



RoHS

Standard Type
MSB
SMSB

Configurable
MSBMF
SMSBF



Material EN 1.7220 Equiv. EN 1.7220 Equiv. EN 1.4301 Equiv.
Hardness 33-38HRC 33-38HRC -
Surface Treatment - Electroless Nickel Plating -
Strength Class 10.9 10.9 A2-50

*MSB
3max. for both D12 and 13
3.5max. for both D16 and 20

max T
2.5max.

Standard Type

De9	A	B	C	E	MxP	T
4	6.5				2.5x0.45	4.5
4.5	7	2.5	1.6	3		5
5	8			3.5	3x0.5	5.5
5.5		9	3	2.2	4x0.7	6
6				2		6.5
6.5		10	4	2.5	5x0.8	7
8	-0.025	13	5	3	6x1.0	8.7
10	-0.061	16				10.8
12		17	6	4	8x1.25	12.8
13	-0.032	18	8	5	10x1.5	14
16	-0.075	24	10	7	12x1.75	17
20	-0.040	27	14	9	16x2.0	21
	-0.092					

Standard Type

Part Number Type	D	L (SMSB is applicable only to sizes marked with *.)											F	Unit Price									
														MSB	SMSB								
MSB	4	*10	*15	*20	*25	*30	*35	*40					45	5									
	4.5	*10	*15	*20	*25	*30	*35	*40	45	50					6								
	5	*10	*15	*20	*25	*30	*35	*40	45	50					7								
	5.5	*10	*15	*20	*25	*30	*35	*40	45	50	55					9							
	6	*10	*15	*20	*25	*30	*35	*40	45	50	55	60	65	70	9								
	6.5	*10	*15	*20	*25	*30	*35	*40	*45	*50	55	60	65	70	75	80	9						
	8	*10	*15	*20	*25	*30	*35	*40	*45	*50	*55	*60	*65	*70	*75	*80	85	90					
	SMSB	10	*10	*15	*20	*25	*30	*35	*40	*45	*50	*55	*60	*65	*70	*75	*80	*85	*90	95	100	110	120
		12	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100		
		13	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100		
16		10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	110	120	130
18																							
20																							

Configurable

Part Number Type	De9	L 0.1mm Increment	F 0.5mm Increment	A	B	C	E	T	L:F Machining Conditions	Unit Price		
										MSBMF	SMSBF	
MSBMF SMSBF	4			M≤F≤Mx3	7	2.5	1.6	3	4.5	L+F≤46		
	4.5	-0.020	10-40							5	L+F≤46	
	5	-0.050	10-40		9	3	2.2	4	5.5	L+F≤47		
	5.5		10-40							6	L+F≤47	
	6		10-50		10	4	2.5	5	6.5	L+F≤59		
	6.5	-0.025	10-50							7	L+F≤59	
	8	-0.061	10-60		13	5	3	6	8.7	L+F≤70		
	10		10-60							16	L+F≤72	

Configurable Type may have different part dimensions from the Standard Type.

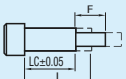
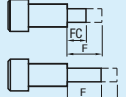
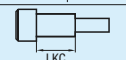


Ordering Example
 Part Number - L - F
 MSB10 - 50 - F10
 SMSBF5.5 - L30 - F10



Alterations
 Part Number - L(LC) - F - (FC, LKC)
 MSB10 - LC50.1 - F10 - FC10
 SMSBF5.5 - L30 - F10 - LKC

*No Low Quantity Surcharge is necessary for alterations orders. For orders of 1 - 19 pc(s), the Unit Price is applied.

Alterations	Code	Spec.
	LC	Changes L dimension (machining) O.A.L. (LC) tolerance is ±0.05. Lmin≤L≤Lmax Specified in 0.1mm * This alteration does not change the F dimension. To change the F dimension, combine FC alteration with it. * Applicable to MSB only.
	FC	Changes the thread part length. M≤F≤Mx3 0.5mm Increment * 3≤FC≤7.5 only when D=4 * Applicable only when MSB and altered LC is combined.
	LKC	Changes L Dimension Tolerance L dimension tolerance is from ±0.05 to 0.1. * Applicable to MSBMF and SMSBF only.