

Shoulder Bolts

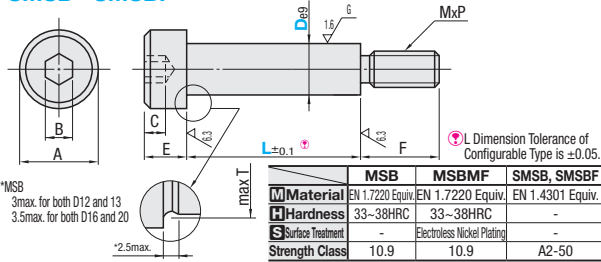
Shaft Dia. Tolerance e9

Shoulder Bolts - Shaft Dia. Tolerance e9



Standard Type
MSB
SMSB

Configurable
MSBMF
SMSBF



• Standard Type

De9	A	B	C	E	MxP	T
4	6.5	7	2.5	1.6	3	2.5x0.45
4.5	-0.020	8			3.5	3x0.5
5	-0.050					5.5
5.5		9	3	2.2	4	4x0.7
6						6.5
6.5	-0.025	10	4	2.5	5	5x0.8
8	-0.061	13	5	3	6	6x1.0
10		16	6	4	8	8x1.25
12	-0.032	17	8	5	10	10x1.5
13	-0.075	18	8	7	14	12x1.75
16	-0.040	24	10	7	14	12x1.75
20	-0.092	27	14	9	18	16x2.0

	MSB	MSBMF	SMSB, SMSBF
M Material	EN 1.7220 Equiv.	EN 1.7220 Equiv.	EN 1.4301 Equiv.
H Hardness	33~38HRC	33~38HRC	-
S Surface Treatment	-	Electroless Nickel Plating	-
Strength Class	10.9	10.9	A2-50

Standard Type

Part Number	D	L (SMSB is applicable only to sizes marked with *.)	F	Unit Price
Type	D			MSB SMSB
MSB	4	*15 *20 *25 *30 *35 *40	5	
	4.5	*15 *20 *25 *30 *35 *40	6	
	5	*15 *20 *25 *30 *35 *40	7	
	5.5	*15 *20 *25 *30 *35 *40	9	
	6	*15 *20 *25 *30 *35 *40	12	
	6.5	*15 *20 *25 *30 *35 *40	16	
	8	*15 *20 *25 *30 *35 *40	18	
	10	*15 *20 *25 *30 *35 *40	24	
	12	15 20 25 30 35 40 45 50 55 60 65 70 75 80		
	13	15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90		
SMSB	4	*15 *20 *25 *30 *35 *40	5	
	4.5	*15 *20 *25 *30 *35 *40	6	
	5	*15 *20 *25 *30 *35 *40	7	
	5.5	*15 *20 *25 *30 *35 *40	9	
	6	*15 *20 *25 *30 *35 *40	12	
	6.5	*15 *20 *25 *30 *35 *40	16	
	8	*15 *20 *25 *30 *35 *40	18	
	10	*15 *20 *25 *30 *35 *40	24	
	12	15 20 25 30 35 40 45 50 55 60 65 70 75 80		
	13	15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90		

Configurable

Part Number	De9	L 0.1mm Increment	F 0.5mm Increment	A	B	C	E	T	L+F Machining Conditions	Unit Price
Type	De9									MSBMF SMSBF
MSBMF SMSBF	4	-0.020	10~40	7	2.5	1.6	3	4.5	L+F≤46	
	4.5	-0.050	10~40	9	3	2.2	4	5.5	L+F≤47	
	5		10~40	10	4	2.5	5	6.5	L+F≤49	
	5.5		10~40	13	5	3	6	8.7	L+F≤70	
	6		10~50	16	6	4	8	10.8	L+F≤72	
	6.5	-0.025	10~50							
	8	-0.061	10~60							
	10		10~60							
	12		10~60							
	13		10~60							

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



Alterations



Part Number

- L(LC) - F - (FC, LKC)

MSB10

SMSBF8

LC0.1

L30

F10

FC10

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	
	FC	
	LKC	

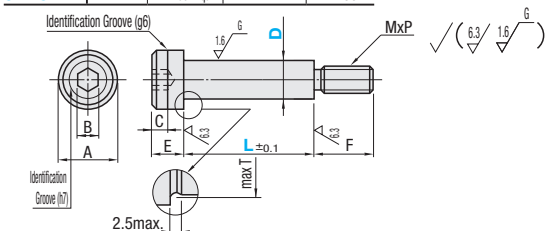
Shoulder Bolts

Shaft Dia. Tolerance g6/h7/e9

Shoulder Bolts: Dimension Selectable - Shaft Dia. Tolerance g6/h7



Type	D Tolerance	Material	Hardness	Strength Class
GMSB	g6	EN 1.7220 Equiv.	33~38HRC	10.9
SGMSB		EN 1.4301 Equiv.	-	A2-50
MSBH	h7	EN 1.7220 Equiv.	33~38HRC	10.9
SHMSB		EN 1.4301 Equiv.	-	A2-50



D Tolerance	D	g6	h7	A	B	C	E	F	MxP	T
4	-0.004	0	6.5	2.5	1.6	3	5	2.5x0.45	4.5	
5	-0.012	-0.012	8	3	2	4	7	3x0.5	5.5	
6			9	4	2.5	5	9	4x0.7	6.5	
8	-0.005	0	13	5	3	6	9	6x1.0	8.7	
10	-0.014	-0.015	16	6	4	8	12	8x1.25	10.8	

Part Number	D	L Dimensions in () are only available for GMSB.	Unit Price
Type	D		GMSB SGMSB
GMSB SGMSB	4	15 20 (25) (30)	
	4.5	15 20 (25) (30)	
	5	15 20 (25) (30)	
	5.5	15 20 (25) (30)	
	6	15 20 25 30 35 40	
	6.5	15 20 25 30 35 40 45 50	
	8	15 20 25 30 35 40 45 50 55 60	
	10	15 20 25 30 35 40 45 50 55 60	
	12	15 20 25 30 35 40 45 50 55 60	
	13	15 20 25 30 35 40 45 50 55 60	



Ordering Example

Part Number

- L

GMSB10

SGMSB8

- 50

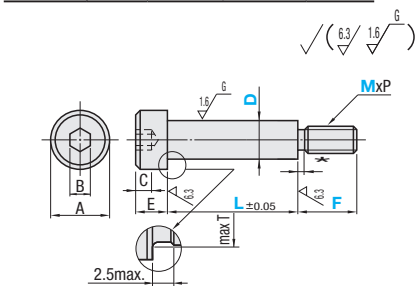
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Part Number	D	L	Unit Price
Type	D		MSBH SHMSB
MSBH SHMSB	4	15 20	
	4.5	15 20	
	5	15 20	
	5.5	15 20	
	6	15 20 25	
	6.5	15 20 25 30	
	8	15 20 25 30	
	10	15 20 25 30 35	
	12	15 20 25 30 35	
	13	15 20 25 30 35	

Shoulder Bolts: Configurable Type - Shaft Dia. Tolerance g6/h7

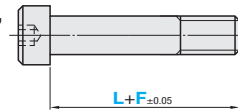


Type	D Tolerance	Material	Hardness	Strength Class
GMSB	g6	EN 1.7220 Equiv.	33~38HRC	10.9
SGMSB		EN 1.4301 Equiv.	-	A2-50
MSBH	h7	EN 1.7220 Equiv.	33~38HRC	10.9
SHMSB		EN 1.4301 Equiv.	-	A2-50



D Tolerance	D	g6	h7	A	B	C	E	T	L+F Machining Conditions
4	-0.004	0	6.5	2.5	1.6	3	5	2.5x0.45	L+F≤46
5	-0.012	-0.012	8	3	2	4	7	3x0.5	L+F≤47
6			9	4	2.5	5	9	4x0.7	L+F≤49
8	-0.005	0	13	5	3	6	9	6x1.0	L+F≤70
10	-0.014	-0.015	16	6	4	8	12	8x1.25	L+F≤72

When M=D,



* M=D has no groove and F is the effective thread. In Standard L, therefore, incomplete threaded portion of approximately 1 to 2 pitch long occurs.

Part Number	D	L 0.1mm Increment	F 0.5mm Increment	M	Unit Price
Type	D				GMSB SGMSB MSBH SHMSB
GMSB SGMSB MSBH SHMSB	4	10~40	3~9	3 4	
	4.5	10~40	3~9	3 4	
	5	10~40	4~12	3 4 5	
	5.5	10~40	4~12	3 4 5	
	6	10~50	5~15	4 5 6	
	6.5	10~50	5~15	4 5 6	
	8	10~60	6~18	5 6 8	
	10	10~60	8~24	6 8 10	
	12	10~60	8~24	6 8 10	
	13	10~60	8~24	6 8 10	



Ordering Example

Part Number

- L

- F

- M

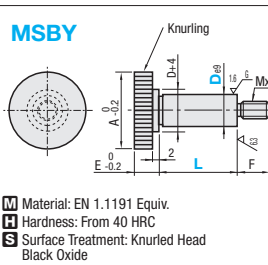
HDSMSB6.5

- 30

- F12

- M5

Large Head Shoulder Bolts - Shaft Dia. Tolerance e9



Part Number	D	L Selection	MxP	A	E	F	Unit Price
Type	D						
MSBY	6	15 20	4x0.7	24	7	7	
	8	25 30 35 40	6x1.0	30	8	9	
	10	25 30 35 40	8x1.25	36	10	12	



Ordering Example

Part Number

- L

MSBY6

- 20