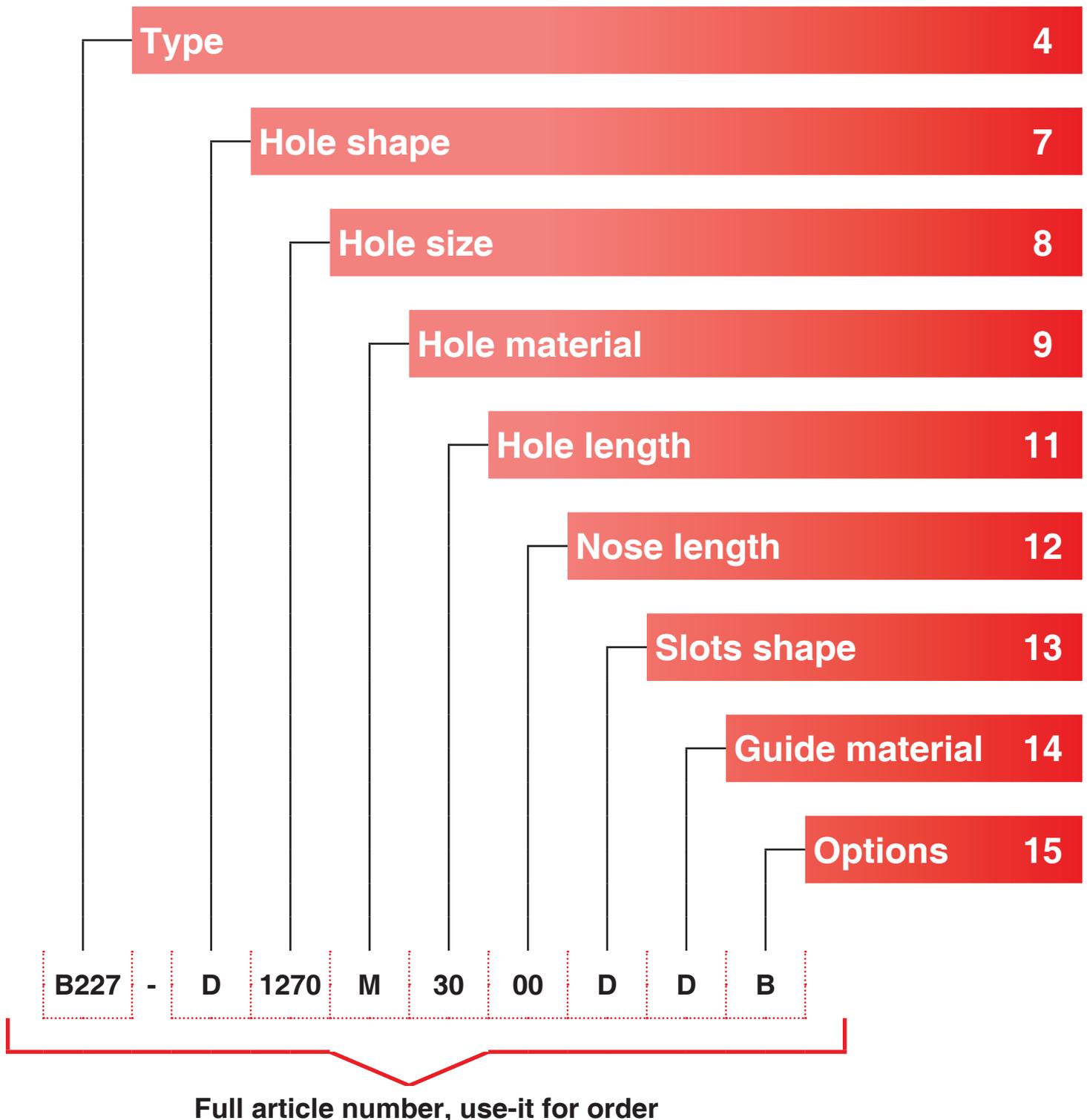


 **DUNNER**



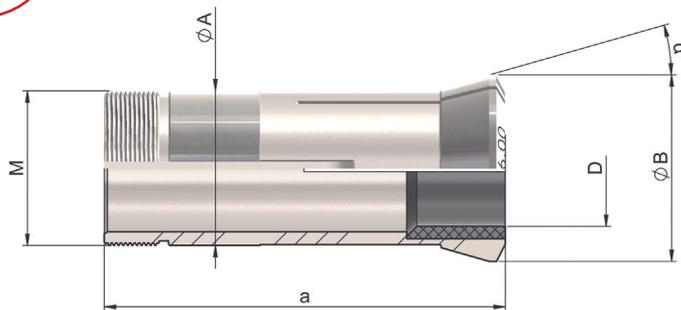
GUIDE BUSHES

GUIDE BUSHES



GUIDE BUSHES

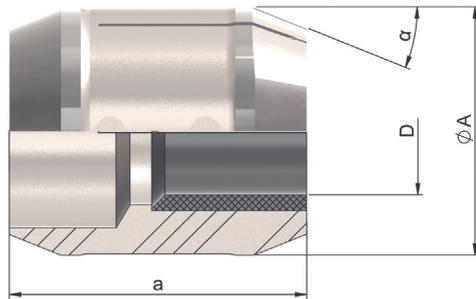
B TYPE



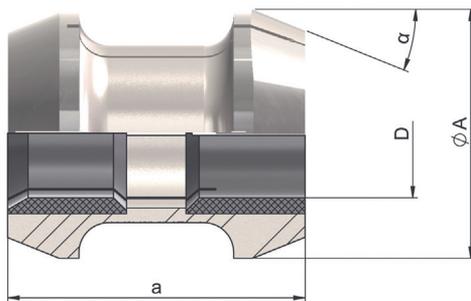
Type code	Ø A	Ø B	a	α	M	D max		
						●	◆	■
B201	9	13	52	30°	M9x0.7	5	4	3
B207G	40	48	72	30°	M36x1	28	24	20
B211	12	15	52	30°	M12x1	8	7	5.5
B211H	12	15	52	30°	M10x0.5	8	7	5.5
B212	18	22	60	30°	M18x1	13	10	8
B212A	18	22	60	30°	M16x1	13	10	8
B215	26	29	77	16°	M25x1	20	17.5	14
B227	34	41	87	10°	M34x1	26	22	18
B230	30	35	59	16°	M30x1	22	19	15
B230N	30	35	68	16°	M30x1	22	19	15
B230T	30	36	70	16°	M28x1	22	19	15
B232	41	46	54	10°	M38x1	32	27	20
B236	48	56	81	30°	M48x1.25	42	36	30
B238	24	30	61	30°	M24x1	16	14.5	12
B240	48	54	81	30°	M46x1	38	32	26
B246	46	53	92	16°	M45x1	38	32	26
B248	48	54	82	16°	M46x1	40	34	28
B250	45	52	82	16°	M42x1	36	32	26
B252	52	59	99	10°	M48x1.5L	42	36	30
B260	28	38	82	30°	M25x1	20	17	14
B261	28	34	82	16°	M25x1	20	17	14
B261R	28	34	82	16°	M27x1	23	19	16
B301T	21	24	66	12°	M18x1	12,7	10	8
B304T	27	30	68	12°	M24x1	16	14	11

B227 - D 1270 M 30 00 D D B

C TYPE



Type code	Ø A	a	α	D max		
				●	◆	■
C42P	42	50	22.5°	32	27	22

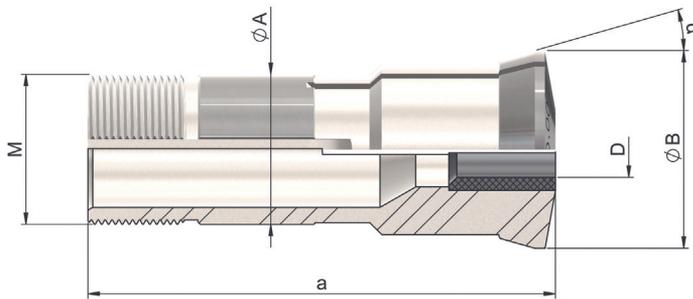


Type code	Ø A	a	α	D max		
				●	◆	■
C42T	42	50	22.5°	32	27	22

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GUIDE BUSHES

J TYPE



Type code	Ø A	Ø B	a	α	M	D max		
						●	◆	■
J3	9	13	44	16°	M8x0.75	4	3	2.5
J3C	9	13	38	16°	M8x0.75	4	3	2.5
J4	11	15	53	16°	M10x0.75	7	6	4.5
J6	16	20	58	16°	M14x1	10.5	8	6
J6C	16	20	50	16°	M14x1	10.5	8	6
J6N	16	20	63	16°	M14x1	10.5	8	6
J6R	16	20	59	16°	M14x1	11	9	7
J6X	16	20	59	16°	M16x1	13	10	8
J7A	22	29	68	16°	M19x1	16	14	12
J7AN	22	26	70	16°	M20x1	16	14	12
J7AR	22	29	68	16°	M22x1	17	14.5	12
J8	23	28	72	16°	M22x1	16	12	14
J9	42	49	82	16°	M40x1	32	27	22
J9C	42	49	82	20°	M40x1	32	27	22

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HOLE SHAPE

Shape code	Description	Remarks	Illustration
C	Square	- Not available with NewSurf® material.	
D	Round		
O	Octagon	- Not available with NewSurf® material.	
S	Hexagon	- Not available with NewSurf® material.	
Z	Special profile	- Not available with NewSurf® material. - Necessary to send a drawing of the material profile and a sample of 30cm to DUNNER sales team.	Based on drawing

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GUIDE BUSHES

HOLE SIZE

For quotation and other commercial discussion, you can use:

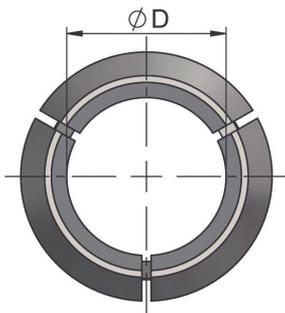
- Millimeters (for example 16.50)
- Inches (for example .357")
- Imperial (for example 1/16 ")

But if you intend to use the code, you need to convert the value in millimeter.

Standard size steps

Hole size		Standard step	Description	Remarks
From	Up to			
0.50mm	5.00mm	0.10mm and 1/32"	From 0.50 mm up to 5.00 mm	Valid only for guide bush type B201, B211, B211H, J3, J3C, J4
0.50mm	Dmax	0.50mm and 1/16"	From 0.50 mm up to the maximal size	All guide bushes

Size code examples

Size code	Description	Remarks	Illustration
2540	Example of a 25.40mm ØD size (1 inch)	<ul style="list-style-type: none"> - The hole size is given in 1/100 mm in the article code. - The material size should be equal to the nominal guide bush size and with a tolerance between 0 and -20µm. 	
0080	Example of a 0.80mm ØD size	<ul style="list-style-type: none"> - In other cases, the tolerances of your material must be specified. - Standard runout value is less than 15µm (more information under chapter «options»). 	

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HOLE MATERIAL

Material code	Description	Guided material					Price & Medical compliance	Illustration
		Steel	Brass / copper	Aluminium	Stainless steel	Titanium		

A	Steel	Wear resistance					Price \$	
		★	★★	★★	★	★		
		Gliding						
		-	★	★	-	-	Medical part production Yes	
		No marking						
		-	★	★	-	-		

B	Bronze	Wear resistance					Price \$\$	
		★★	★★	★★★	★★	★		
		Gliding						
		★★★★	★	★★	★★★★	★★	Medical part production Restricted	
		No marking						
		★★★★	★★	★★	★★★★	★★★★		

M	Carbide	Wear resistance					Price \$\$	
		★★★★	★★★★	★★★★	★★	★★		
		Gliding						
		★★★★	★★★★	★★	★★	★★	Medical part production Yes	
		No marking						
		★★	★★★★	★★	★★	★★		

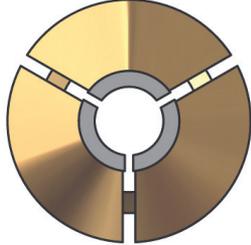
Caption					
★★★★	Best	★	Weak	\$\$\$	High price
★★	Good	-	Avoid	\$\$	Medium price
				\$	Low price

B227 - D 1270 **M** 30 00 D D B

GUIDE BUSHES

HOLE MATERIAL

Material code	Description	Guided material					Price & Medical compliance	Illustration
		Steel	Brass / copper	Aluminium	Stainless steel	Titanium		

S	NewSurf®	Wear resistance					Price \$\$\$	Medical part production Yes	
		★★★	★★	★★	★★★★	★★			
		Gliding							
		★★★	★	★★	★★★★	★★			
		No marking							
		★★★	★★	★★	★★★★	★★			

The NewSurf® is a special ceramic developed to improve the machining of stainless steel and other difficult materials. Thanks to the low friction coefficient, this material allows to tight more and reduces at the minimum the play between the bar and the guide bush. This material is more sensitive to vibrations and could brake if these are very strong.

Be sure to always adjust the guide bush without oil when using fix. For safety the inserts are released at 300 °C to avoid any risk of fire.

T	Titane	Wear resistance					Price \$\$	Medical part production Yes	
		★★	★	★	★★	★			
		Gliding							
		★★★	★	★	★★	★★★★			
		No marking							
		★	★	★	★★	★★			

Caption

★★★	Best	★	Weak	\$\$\$	High price
★★	Good	-	Avoid	\$\$	Medium price
				\$	Low price

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HOLE LENGTH

Length code	Description	Remarks	Illustration
00	Standard length	-To know the standard length according to the hole size, check the next table	
30	30 mm guiding length guaranteed		
50	50 mm guiding length guaranteed	- Possible only if the guide bush length (a) is longer than 59mm.	
70	70 mm guiding length guaranteed	- Possible only if the guide bush length (a) is longer than 79mm.	

Standard hole length

Hole size		Standard minimal guiding length guaranteed	
From	Up to	NewSurf®	Other
0.20mm	1.00mm	10mm	10mm
1.00mm	1.95mm	10mm	11mm
2.00mm	2.95mm	10mm	13mm
3.00mm	4.95mm	13mm	14mm
5.00mm	6.95mm	14mm	14mm
7.00mm	7.95mm	15mm	14mm
8.00mm	11.95mm	15mm	15mm
12.00mm	13.45mm	15mm	17mm
13.50mm	16.95mm	15mm	19mm
17.00mm	21.95mm	17mm	19mm
22.00mm	32.95mm		20mm
33.00mm	37.95mm		23mm
38.00mm	42.00mm		25mm

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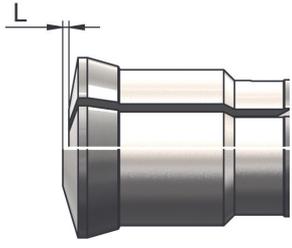
GUIDE BUSHES

NOSE LENGTH

A longer nose is very unusual for guide bush. But for some special needs it helps to come nearer the tools with the material. The value is always in 1/10th of a millimeter.

Length code	Description	Remarks	Illustration
00	Standard length	-The standard length is the reference.	

Custom length nose code example

Length code	Description	Remarks	Illustration
08	Example of a 0.8mm longer nose	- The nose length is always the added length from the standard nose.	
12	Example of a 1.2mm longer nose		

B227 - D 1270 M 30 **00** D D B

SLOTS SHAPE

Shape code	Description	Specifications		Price	Illustration
		Advantage	Inconvenient		
B	Slanted	<ul style="list-style-type: none"> - Machining profile with round hole - Compatible for fix mount - Best lubrication - Less sensitive to material ovality - Less marking risk 	<ul style="list-style-type: none"> - Medium chips income 	Price \$\$	
D	Straight	<ul style="list-style-type: none"> - Good lubrication - Low chips income 	<ul style="list-style-type: none"> - Not recommended for fix mount 	Price \$	
R	Rounded	<ul style="list-style-type: none"> - Recommended for fix mount - Best lubrication 	<ul style="list-style-type: none"> - Medium chips income 	Price \$	
S	«S»	<ul style="list-style-type: none"> - Lower chips income - Good lubrication - Less sensitive to material ovality - Less marking risk 	<ul style="list-style-type: none"> - Not recommended for fix mount 	Price \$\$\$	

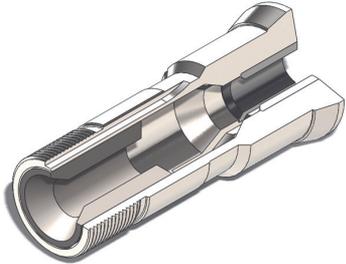
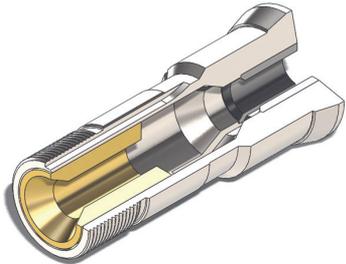
Caption	
\$\$\$	High price
\$\$	Medium price
\$	Low price

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GUIDE BUSHES

GUIDE MATERIAL

The guides are optional for guide bushes. But for NewSurf®, they are mandatory to keep the product integrity and to warranty a long-term use.

Material code	Description	Specifications		Price & Medical compliance	Illustration
		Advantage	Inconvenient		
-	No guide				
A	Steel guide	- Best wear resistance	- Marking risk	Price \$\$ Medical part production Yes	
D	Plastic guide	- No marking	- Medium wear resistance with small dimensions	Price \$ Medical part production Yes	
L	Brass guide	- Low marking risk - Good wear resistance		Price \$ Medical part production Restricted	

Caption

\$\$\$ High price
 \$\$ Medium price
 \$ Low price

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OPTIONS

Option code	Option combination			
	UP	UU	Silicone	Polish
A				
B	✓			
C		✓		
D			✓	
E	✓		✓	
F		✓	✓	
G				✓
H	✓			✓
I		✓		✓
J			✓	✓
K	✓		✓	✓
L		✓	✓	✓

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GUIDE BUSHES

OPTIONS

Accuracy option «UP» and «UU»

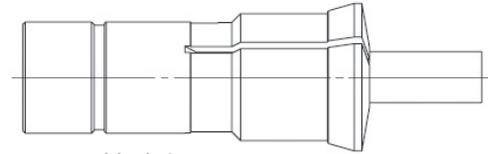
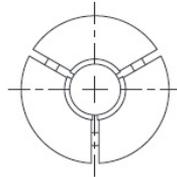
The options «UP» for ultra-precision and «UU» for ultimate ultra-precision are made to obtain a very high accuracy product.

Each piece is controlled mounted into a precision sleeve and tight to nominal diameter. Then we make the measurement of the deviation between an ideal piece and this piece.

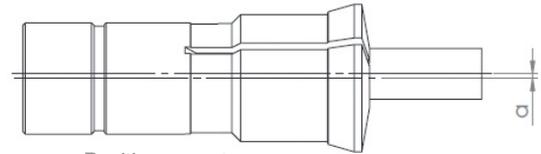
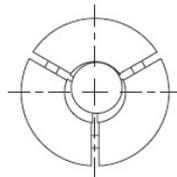
There are two types of deviation:

- Position runout
- Angular runout

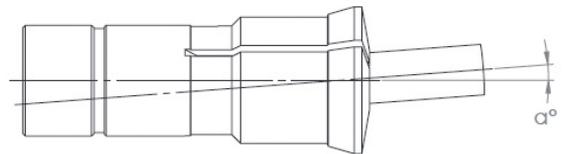
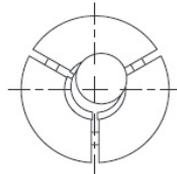
Both values of runout should be less than the values listed hereunder.



Ideal piece

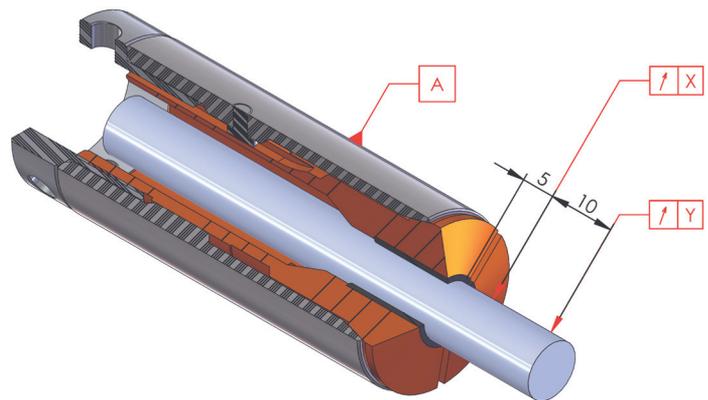


Position runout



Angular runout

	X_{max}	Y_{max}
Standard	15μm	15μm
UP	5μm	8μm
UU	2μm	n.c.



Measurement location

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OPTIONS

Anti-chips option «Silicone»

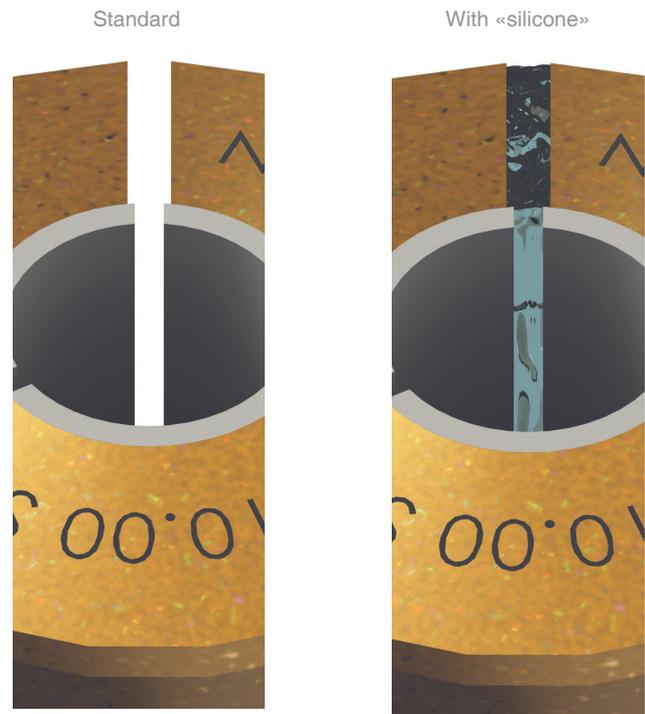
Guide bushes could be requested with the «Silicone» option.

This option is usually requested when small chips enter through the slots of the guide bush. These chips could generate marks or seizure.

The «Silicone» option can be combined with all other options available. The coating used to make this protective layer is very resistant to oils and wear, and does not alter the adjustment properties of the guide bush.

The material bar is protected from chips until it comes out of the guide bush thanks to the coating that completely sealed the slots.

Note : Some medical pieces process prohibit the use of this option.



Tribological improvement and anti-scratch option «Polish»

This option add a super-finishing operation at the end of the production operations. The machining is fully handmade with a special diamond paste to obtain the finest result.

The «polish» option is requested to upgrade the tribological properties of the material into the hole.

B227	-	D	1270	M	30	00	D	D	B
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GUIDE BUSHES

PERSONAL NOTES

Handwriting practice area with 10 sets of horizontal lines. Each set consists of a solid top line, a dashed midline, and a solid bottom line.



