

# DUNNER

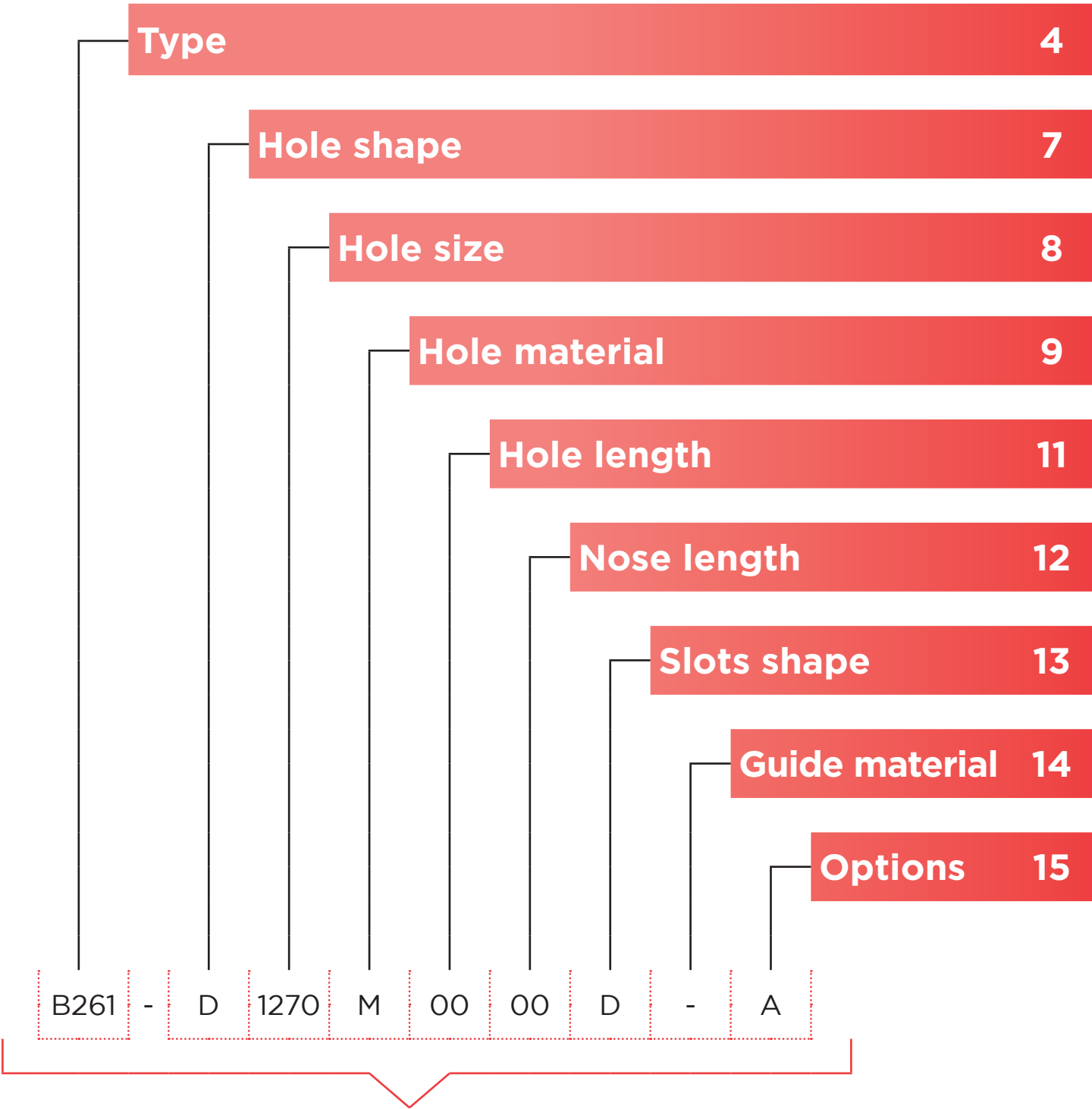
SWISS TOOLING PRODUCER



## Standard guide bushes

Brochure caption					
<sup>1</sup>	Standard	★★★	Best	\$\$\$	High price
<sup>2</sup>	Semi-standard	★★	Good	\$\$	Medium price
<sup>3</sup>	Custom made	★	Weak	\$	Low price
<sup>†</sup>	On request	-	Avoid		

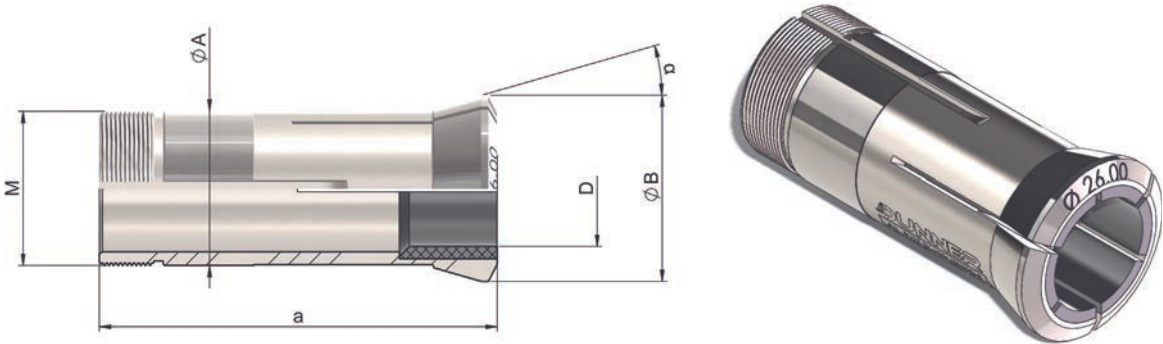
# Standard guide bushes



Complete article number, use it to order

# Standard guide bushes

## Type



«B and J» shape

Type code	ØA	a	ØB	α	M	D max		
						●	⬡	■
J2 <sup>+</sup>	7	30	10	16	M6x0.50	4	3	2.5
J3C	9	38	13	16	M8x0.75	4	3	2.5
J3	9	44	13	16	M8X0.75	4	3	2.5
B201 <sup>+</sup>	9	52	13	30	M9x0.70	5	4	3.5
J4	11	53	15	16	M10x0.75	7	6	5
J5 <sup>+</sup>	12	50	16	16	M10x0.75	7	6	5
B211	12	52	15	30	M12x1	8	7	5.5
B211H	12	52	15	30	M10x0.50	8	7	5.5
B300 <sup>+</sup>	13	41	16	15	M12.5x0.75	9	7.5	6
B305 <sup>+</sup>	14	64	18	16	M13x0.75	8	7	5.5
J6C	16	50	20	16	M14x1	10.5	9	7
B203 <sup>+</sup>	16	55	20	30	M16x1	10	8.5	7
J6	16	58	20	16	M14x1	10.5	9	7
J6R	16	59	22	16	M14x1	11	9.5	7.5
J6X <sup>+</sup>	16	59	22	16	M16x1	13	11	9
J6N	16	63	20	16	M14x1	10.5	9	7
B212	18	60	22	30	M18x1	13	11	9
B212A	18	60	22	30	M16x1	13	11	9
B208 <sup>+</sup>	20	55	25	30	M20x1	13	11	9
B301 <sup>+</sup>	21	57	24	12	M18x1	16	14	10
B301T	21	66	24	12	M18X1	12.7	10	8
J7A	22	68	29	16	M19x1	16	14	11
J7AR	22	68	29	16	M22x1	17	14	11
J7AN	22	70	26	16	M20x1	16	14	11
J8	23	72	28	16	M22x1	16	14	11
B238	24	61	30	30	M24x1	16	14	11

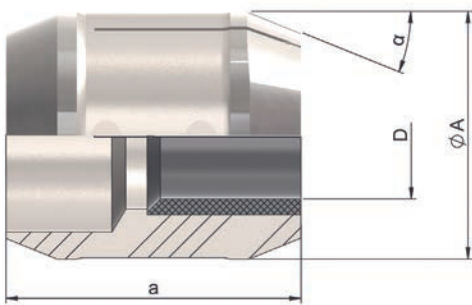
**B261** - **D** **1270** **M** **00** **00** **D** - **A**

Type code	ØA	a	ØB	α	M	D max		
						●	⬡	■
B213 <sup>+</sup>	25	71	30	30	M25x1	16	14	11
B215	26	77	29	16	M25x1	20	17.5	14
B302 <sup>+</sup>	27	57	30	13	M24x1	18	15	12
B304 <sup>+</sup>	27	67	30	12	M24x1	16	14	11
B304T	27	68	30	12	M24x1	16	14	11
B260	28	81	38	30	M25x1	20	17.5	14
B261	28	81	34	16	M25x1	20	17.5	14
B261R	28	81	34	16	M27x1	23	20	16
B230	30	59	35	16	M30x1	22	19	15
B230N	30	68	35	16	M30x1	22	19	15
B230T	30	70	36	16	M28x1	22	19	15
B214 <sup>+</sup>	32	71	40	30	M32x1	21	18	15
B227	34	87	41	10	M34x1	26	22	18
B226 <sup>+</sup>	36	90	44	13	M36x1	26	22	18
B209 <sup>+</sup>	40	65	48	30	M40x1	28	24	20
B303 <sup>+</sup>	40	65	45	12	M38x1	22	19	15
B207 <sup>+</sup>	40	72	48	30	M40x1	26	22	18
B207A <sup>+</sup>	40	72	48	30	M36x1	26	22	18
B207G <sup>+</sup>	40	72	48	30	M36x1	28	24	20
B232	41	54	46	10	M38x1	32	27	22
J9	42	81	49	16	M40x1	32	27	22
J9C	42	81	49	20	M40x1	32	27	22
B306 <sup>+</sup>	43	65	48	12	M42x1	32	27	22
J10 <sup>+</sup>	44	87	53	20	M40x1	32	27	22
B250	45	82	52	16	M42x1	35	30	24
B246	46	92	53	16	M45x1	38	33	27
B234 <sup>+</sup>	48	73	58	19	M48x1.25	33	28	23
B236	48	81	56	30	M48x1.25	42	36	30
B240	48	81	54	10	M46x1	38	33	27
B248	48	82	54	16	M46x1	40	34	28
B252 <sup>+</sup>	52	99	60	10	M48x1.5L	42	36	30

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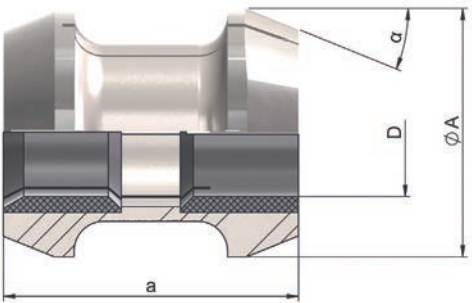
# Standard guide bushes

## Type



«C» shape

Type code	ØA	a	α	D max		
				●	⬠	■
C42P <sup>+</sup>	42	50	22.5°	32	27	22

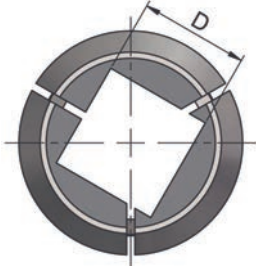
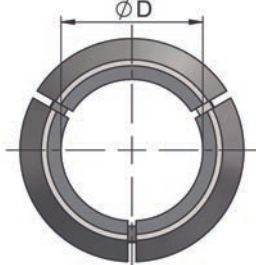
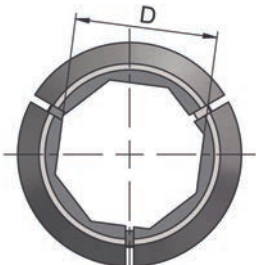
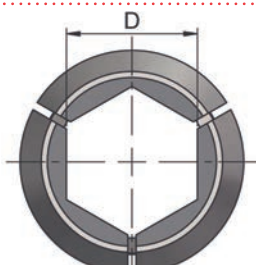



Type code	ØA	a	α	D max		
				●	⬠	■
C42T <sup>+</sup>	42	50	22.5°	32	27	22

**NOTE :** Standard C type guide bush could be replaced by AirFlex guide bush.  
Ask for the dedicated brochure or download it from [www.dunner.ch](http://www.dunner.ch).

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Hole shape

Shape code	Description	Remarks	Illustration
C <sup>2</sup>	Square	- Not available with NewSurf® material.	
D <sup>1</sup>	Round		
O <sup>3</sup>	Octagon	- Not available with NewSurf® material.	
S <sup>2</sup>	Hexagon	- Not available with NewSurf® material.	
Z <sup>3</sup>	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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# Standard guide bushes

## Hole size

For quotation and other commercial discussion, you can use:

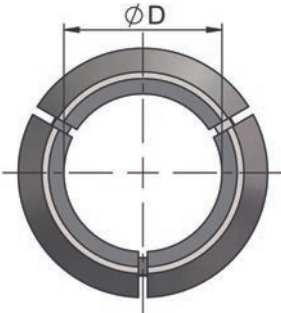
- Millimeters (for example 16.50)
- Inches (for example .357")
- Imperial (for example 1/16 ")

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

### Standard size steps

Hole size		Standard steps	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	D max	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"><li>- The hole size is given in 1/100 mm in the article code.</li><li>- The material size should be equal to the nominal guide bush size and with a tolerance between 0 and -20µm.</li><li>- In other cases, the tolerances of your material must be specified.</li><li>- Standard runout value is less than 15Qm (more information under chapter «options» ).</li></ul>	
0080	Example of a 0.80mm ØD size		

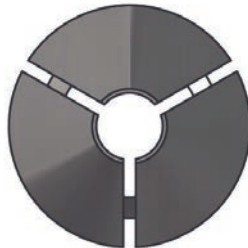
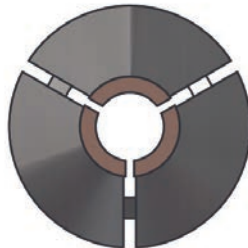
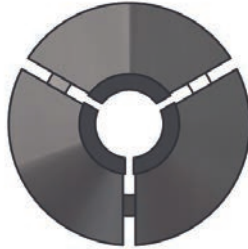
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Standard guide bushes

DUNNER

Hole material

Material code	Description	Guided material					Price & Medical compliance	Illustration
		Steel	Brass / copper	Aluminium	Stainless steel	Titanium		
A <sup>3</sup>	Steel	Wear resistance					Price \$  Medical part production <b>Yes</b>	
		★	★★	★★	★	★		
		Gliding						
		-	★	★	-	-		
B <sup>2</sup>	Bronze	Wear resistance					Price \$\$  Medical part production <b>Restricted</b>	
		★★	★★	★★★★	★★	★		
		Gliding						
		★★★★	★	★★	★★★★	★★		
M <sup>1</sup>	Carbide	Wear resistance					Price \$\$  Medical part production <b>Yes</b>	
		★★★★	★★★★	★★★★	★★	★★		
		Gliding						
		★★★★	★★★★	★★	★★	★★		
		No marking						
		★★	★★★★	★★	★★	★★		

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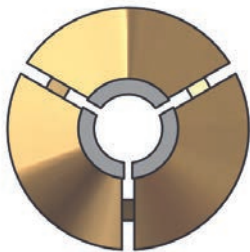
A

# Standard guide bushes

## Hole material

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

S <sup>1</sup>	NewSurf®	Wear resistance					Price \$\$\$	Medical part production Yes
		★★★	★★	★★	★★★★	★★		
		Gliding						
		★★★	★	★★	★★★★	★★		
		No marking						
		★★★	★★	★★	★★★★	★★		

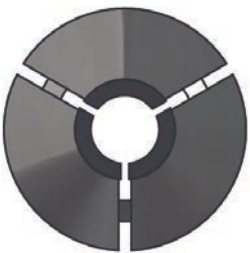


The NewSurf® is a special ceramic developed to improve the machining of stainless steel and other difficult materials. Thanks to the low friction coefficient, this material allows to tight more and reduces at the minimum the play between the bar and the guide bush.

This material is more sensitive to vibrations and could brake if these are very strong. The actual maximal hole diameter available is 22.00mm.

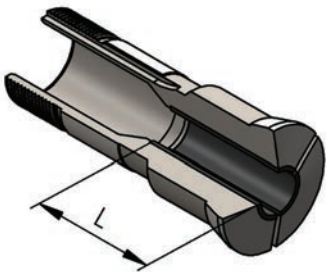
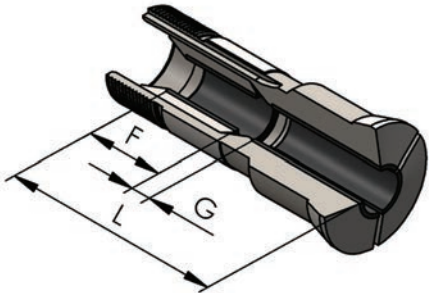
Be sure to always adjust the guide bush without oil when using fix. For safety the inserts are released at 300 °C to avoid any risk of fire.

T <sup>2</sup>	Titane	Wear resistance					Price \$\$	Medical part pro- duction Yes
		★★	★	★	★★	★		
		Gliding						
		★★★★	★	★	★★	★★★★		
		No marking						
		★	★	★	★★	★★		



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Hole length

Length code	Description	Illustration
00 <sup>1</sup>	Standard length L, see next table to know the value according to hole size and material.	
25 <sup>3</sup>	25 mm guiding length L guaranteed, only for the NewSurf® guide bush, as this is the maximum value with this material.	
30 <sup>2</sup>	30 mm guiding length L guaranteed.	
50 <sup>3</sup>	50 mm guiding length L guaranteed, only possible for guide bush longer than 59mm. Length F is not adjustable and there will be a gap G between the two inserts.	
70 <sup>3</sup>	70 mm guiding length L guaranteed, only possible for guide bush longer than 79mm. Length F is not adjustable and there will be a gap G between the two inserts.	

Standard hole length (00 code)

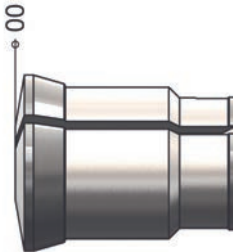
Hole size (mm)		Guaranteed minimum standard guide length L (mm)			
From	Up to	Bronze	Carbide	NewSurf®	Titane
0.20	1.00		10	10	
1.00	1.95		11	10	
2.00	2.95	20	13	10	20
3.00	4.95	20	14	13	20
5.00	6.95	20	14	14	20
7.00	7.95	20	14	15	20
8.00	11.95	20	15	15	20
12.00	13.45	20	17	15	20
13.50	16.95	20	19	15	20
17.00	21.95	20	19	17	20
22.00	32.95	20	20		20
33.00	37.95	20	23		20
38.00	42.00	20	25		20

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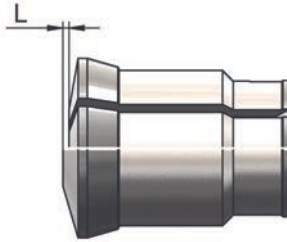
# Standard guide bushes

## 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 1/10<sup>th</sup> of a millimeter.

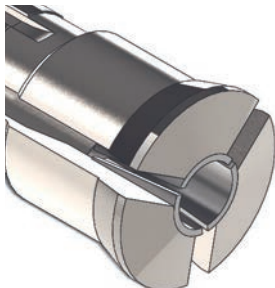
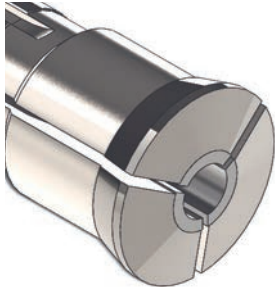
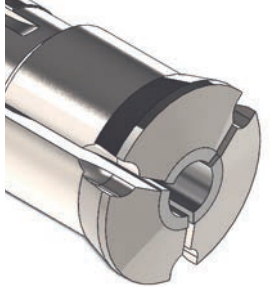
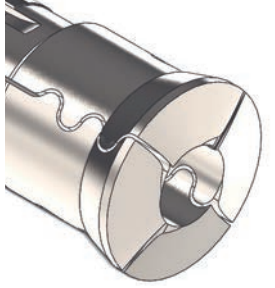
Length code	Description	Remarks	Illustration
00 <sup>1</sup>	Standard	-The standard length is the reference.	

### Custom length nose code example

Length code	Description	Remarks	Illustration
08 <sup>3</sup>	Example of a 0.8mm longer nose	- The nose length is the added length from the standard nose.	
12 <sup>3</sup>	Example of a 1.2mm longer nose	- This always requires production from scratch.	

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## Slots shape




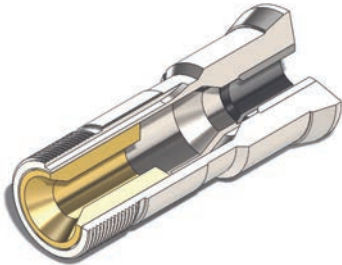
Shape code	Description	Specifications		Price	Illustration
		Advantage	Disadvantage		
<b>B<sup>3</sup></b>	Slanted	<ul style="list-style-type: none"> <li>- Machining profile with round hole</li> <li>- Compatible for fix mount</li> <li>- Best lubrication</li> <li>- Less sensitive to material ovality</li> <li>- Less marking risk</li> </ul>	<ul style="list-style-type: none"> <li>- Medium chips income</li> </ul>	Price \$\$	
<b>D<sup>1</sup></b>	Straight (Standard)	<ul style="list-style-type: none"> <li>- Good lubrication</li> <li>- Low chips income</li> </ul>	<ul style="list-style-type: none"> <li>- Not recommended for fix mount</li> </ul>	Price \$	
<b>R<sup>2</sup></b>	Rounded	<ul style="list-style-type: none"> <li>- Recommended for fix mount</li> <li>- Best lubrication</li> </ul>	<ul style="list-style-type: none"> <li>- Medium chips income</li> </ul>	Price \$	
<b>S<sup>3</sup></b>	«S»	<ul style="list-style-type: none"> <li>- Lower chips income</li> <li>- Good lubrication</li> <li>- Less sensitive to material ovality</li> <li>- Less marking risk</li> </ul>	<ul style="list-style-type: none"> <li>- Not recommended for fix mount</li> </ul>	Price \$\$\$	

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# Standard 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	Disadvantage		
- <sup>1</sup>	No guide				
A <sup>3</sup>	Steel guide	- Best wear resistance	- Marking risk	Price \$\$ Medical part production Yes	
D <sup>1</sup>	Plastic guide	- No marking	- Medium wear resistance with small dimensions	Price \$ Medical part production Yes	
L <sup>1</sup>	Brass guide	- Low marking risk - Good wear resistance		Price \$ Medical part production Restricted	

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Options

Option code	Option combination			
	UP	UU	Silicone	Polished
A <sup>1</sup>				
B <sup>2</sup>	✓			
C <sup>3</sup>		✓		
D <sup>2</sup>			✓	
E <sup>2</sup>	✓		✓	
F <sup>3</sup>		✓	✓	
G <sup>2</sup>				✓
H <sup>2</sup>	✓			✓
I <sup>3</sup>		✓		✓
J <sup>2</sup>			✓	✓
K <sup>2</sup>	✓		✓	✓
L <sup>3</sup>		✓	✓	✓

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# Standard guide bushes

## Options

### Accuracy option «UP» and «UU»

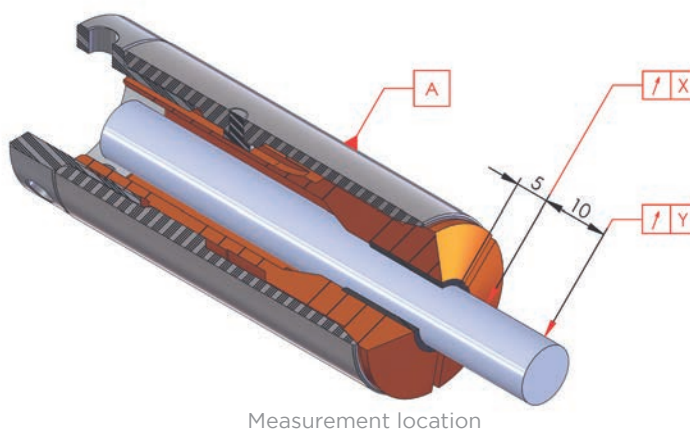
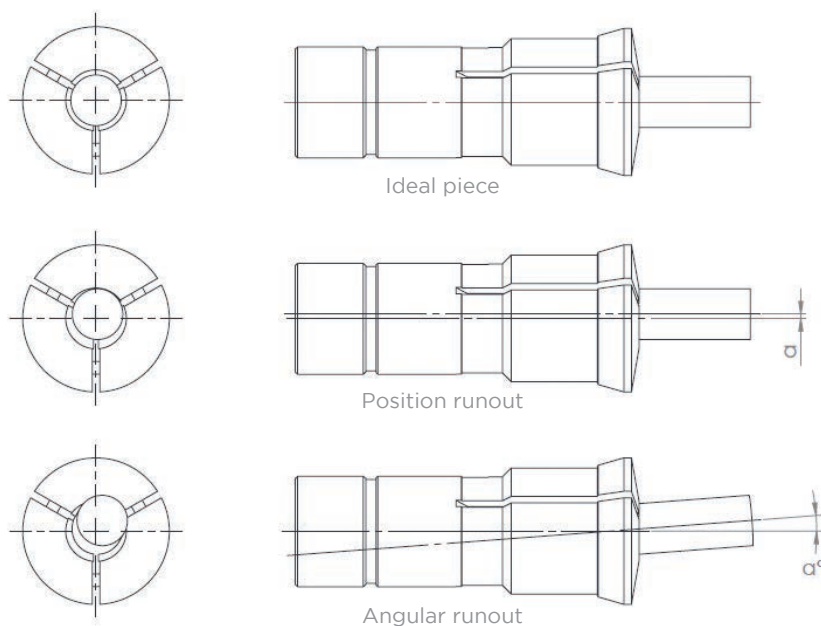
The options «UP» for ultra-precision and «UU» for ultimate ultra-precision are made to obtain a very high accuracy product. Each piece is controlled mounted into a precision sleeve and tight to nominal diameter. Then we make the measurement of the deviation between an ideal piece and this piece.

There are two types of deviation:

- Position runout
- Angular runout

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

	$X_{max}$	$Y_{max}$
<b>Standard</b>	15µm	15µm
<b>UP</b>	5µm	8µm
<b>UU</b>	2µm	n.c.



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## Options

### *Anti-chips option «Silicone»*

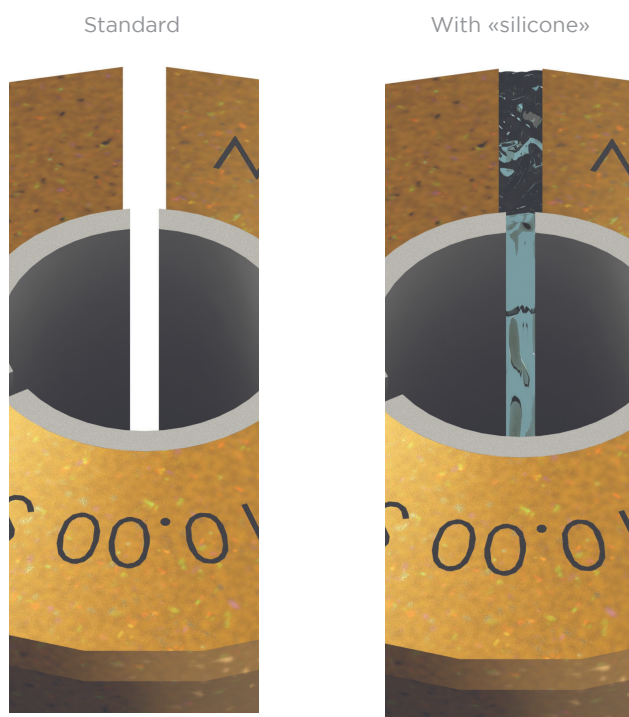
Guide bushes could be requested with the «Silicone» option.

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.

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# Personal notes

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Can't find what you're looking for?  
We manufacture thousands of customized guide  
bushes, collets and other tools every year, so don't  
hesitate to contact us!





Your local agent :