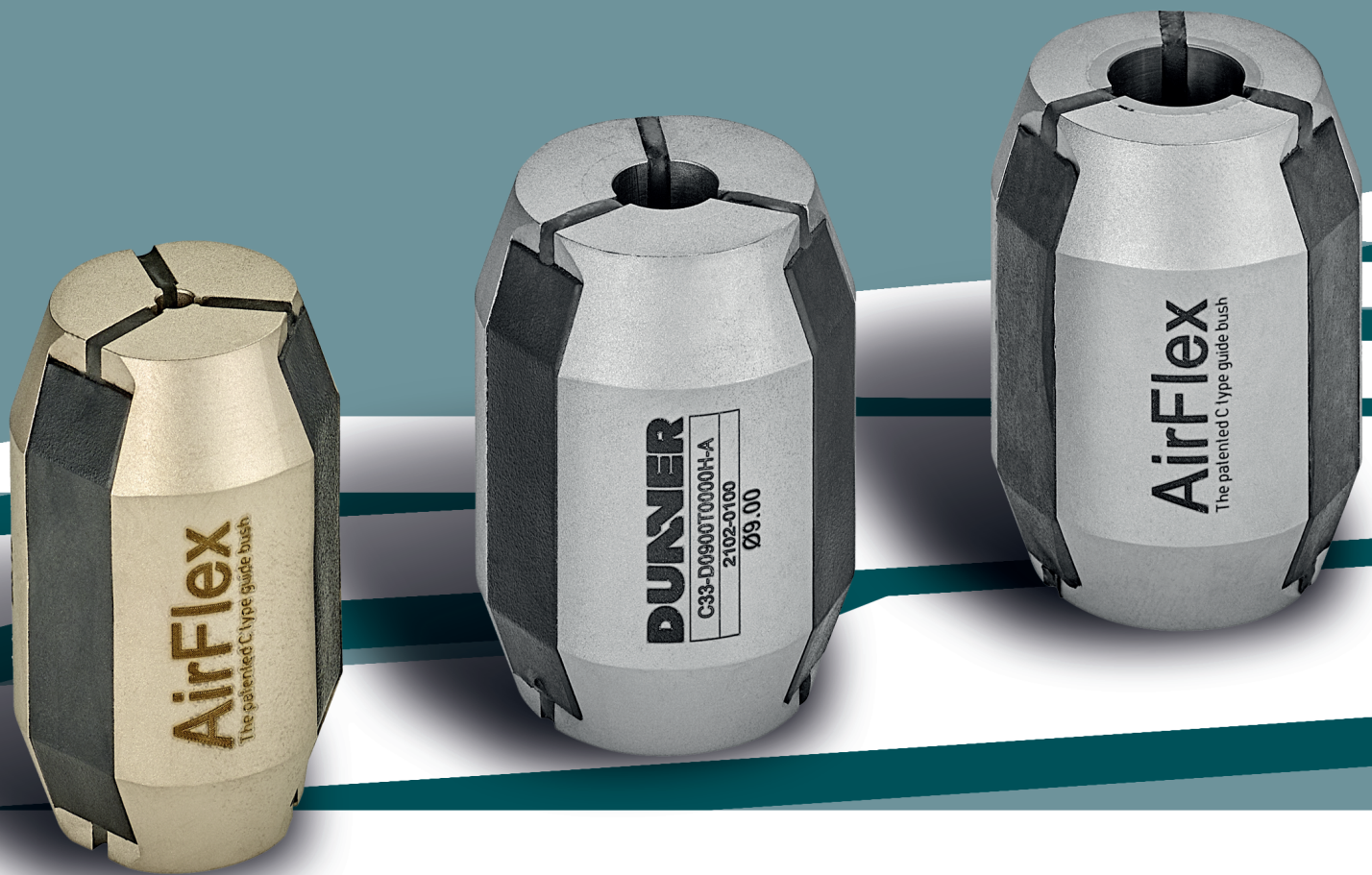


# DUNNER

SWISS TOOLING PRODUCER



## AirFlex guide bushes



# AirFlex guide bushes

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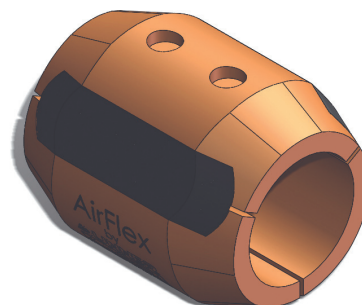
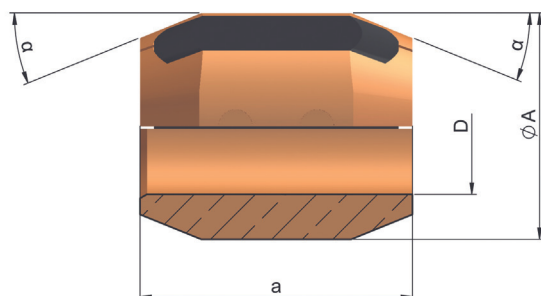
  

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Complete article number, use it to order

# AirFlex guide bushes

## Type



Type code	Ø A	a	Ø	D max		
				●	◆	■
<b>C22</b>	22	40	22°	13	10	8
<b>C28</b>	28	40	22°	16	14.5	12
<b>C33</b>	33	40	22°	25	21	17
<b>C42</b>	42	50	22°	32	27	20
<b>C42L</b>	42	100	22.5°	32	27	20
<b>C48</b>	48	50	22°	38	32	26
<b>C51</b>	51	60	22°	42	36	30

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## Hole shape

Shape code	Description	Remarks	Illustration
<b>C</b>	Square	- Not available with NewSurf® material.	
<b>D</b>	Round		
<b>O</b>	Octagon	- Not available with NewSurf® material.	
<b>S</b>	Hexagon	- Not available with NewSurf® material.	
<b>Z</b>	Special profile	- Not available with NewSurf® material. - Necessary to send a drawing (PDF, DXF or DWG) of the material profile and if required, a sample of 30cm to DUNNER.	

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# AirFlex guide bushes

## Hole size

AirFlex guide bushes are produced to obtain an open diameter approximately 0.1mm larger than the nominal diameter. AirFlex guide bushes also allow a compression of 0.3mm for diameters smaller than 5mm and 0.5mm from 5mm and larger nominal diameters.

### Standard diameter sizes

mm	C22	C28	C33	C42	C48	C51	inch
1							0.039
1.3							0.051
1.5							0.059
1.6							1/16
1.8							0.071
2							0.079
2.3							0.091
2.5							0.098
2.8							0.11
3							0.118
3.17							1/8
3.3							0.13
3.5							0.138
3.8							0.15
4							0.157
4.3							0.169
4.5							0.177
4.8							3/16
5							0.197
5.5							0.217
6							0.236
6.35							1/4
6.5							0.256
7							0.276
7.5							0.295
8							5/16
8.5							0.335
9							0.354
9.52							3/8
10							0.394
10.5							0.413
11							0.433

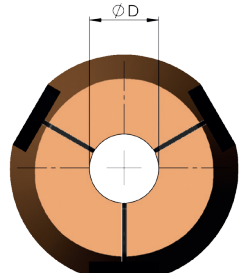
mm	C22	C28	C33	C42	C48	C51	inch
11.1							7/16
11.5							0.453
12							0.472
12.5							0.492
12.7							1/2
13							0.512
13.5							0.531
14							0.551
14.3							9/16
14.5							0.571
15							0.591
15.5							0.61
15.87							5/8
16							0.63
16.5							0.65
17							0.669
17.5							11/16
18							0.709
18.5							0.728
19.05							3/4
19.5							0.768
20							0.787
20.5							0.807
20.64							13/16
21							0.827
21.5							0.846
22							0.866
22.22							7/8
22.5							0.886
23							0.906
23.5							0.925
23.8							15/16

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mm	C22	C28	C33	C42	C48	C51	inch
24							0.945
24.5							0.965
25							0.984
25.4							1
25.5							1.004
26							1.024
26.5							1.043
27							1 1/17
27.5							1.083
28							1.102
28.57							1 1/8
29							1.142
29.5							1.161
30							1.181
30.16							1 3/16
30.5							1.201
31							1.22
31.5							1.24
31.75							1 1/4
32							1.26
32.5							1.28
33							1.299
33.34							1 5/16
33.5							1.319
34							1.339
34.5							1.358
35							1 3/8

mm	C22	C28	C33	C42	C48	C51	inch
35.5							1.398
36							1.417
36.5							1 7/16
37							1.457
37.5							1.476
38							1.496
38.1							1 1/2
38.5							1.516
39							1.535
39.5							1.555
39.7							1 9/16
40							1.575
40.5							1.594
41							1.614
41.27							1 5/8
41.5							1.634
42							1.654
42.5							1.673
42.86							1 11/16
43							1.693
40.5							1.594
41							1.614
41.27							1 5/8
41.5							1.634
42							1.654
42.5							1.673
42.86							1 11/16

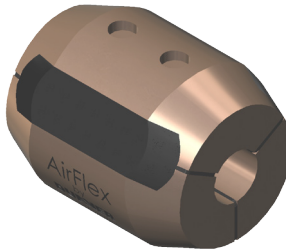
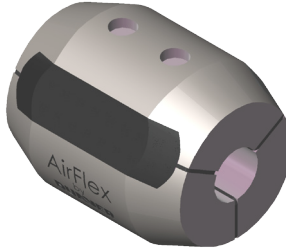

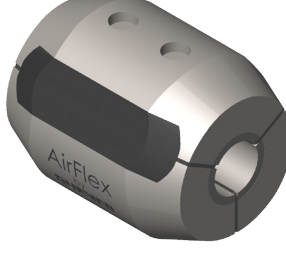
## Size code example

Size code	Description	Remarks	Illustration
<b>2540</b>	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 or lower</li> </ul>	

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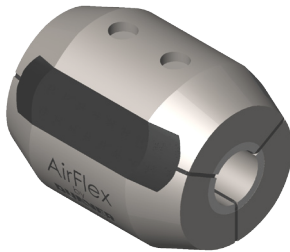
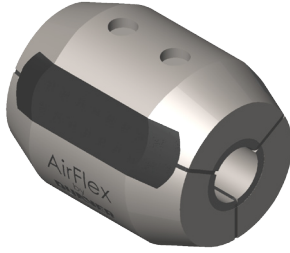
# AirFlex guide bushes

## Inserts / body material

Material code	Description	Guided material					Price & Medical compliance	Illustration
		Steel	Brass / copper	Aluminium	Stainless steel	Titanium		
<b>B</b> standard	-Bronze- Special high resistance bronze.	Wear resistance					Price \$  Medical part production <b>Restricted</b>	
		★★	★★	★★★★	★★	★★		
		Gliding						
		★★★★	★★	★★★★	★★★★	★★		
		No marking						
		★★★★	★★	★★★★	★★★★	★★★★		
<b>G</b> on request	-Glide- DLC coating made to reduce friction on hardened stainless steel AirFlex.	Wear resistance					Price \$\$  Medical part production <b>Yes</b>	
		-	★★★★	★★★★	-	★★		
		Gliding						
		★	★★	★★	★	★★		
		No marking						
		★	★★	★★	★	★★		
<b>I</b> semi-standard	-Inox- Hardened stainless steel.	Wear resistance					Price \$  Medical part production <b>Yes</b>	
		★★★★	★★★★	★★★★	★★	★★		
		Gliding						
		★★	★★	★	★★	★		
		No marking						
		★	★★	★	★	★		
<b>M</b> on request	-Carbide- Steel body with carbide inserts.	Wear resistance					Price \$\$  Medical part production <b>Yes</b>	
		★★★★	★★★★	★★★★	★★	★★		
		Gliding						
		★★	★★★★	★★	★★	★★		
		No marking						
		★★	★★★★	★★	★★	★★		

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## Inserts / body material

Material code	Description	Guided material					Price & Medical compliance	Illustration
		Steel	Brass / copper	Aluminium	Stainless steel	Titanium		
<b>S</b> on request	-NewSurf®- Steel body with special ceramic inserts (see below).	★★★★	★★	★★★★	★★★★	★★★★	Price <b>\$\$\$</b> Medical part production <b>Yes</b>	
		Wear resistance						
		★★★★	★★	★★★★	★★★★	★★★★		
		Gliding						
		★★★★	★★	★★★★	★★★★	★★		
		No marking						
		★★★★	★★★★	★★	★★★★	★★★★		
<b>T</b> semi-standard	-Titane- Steel body with special cast iron inserts.	★★	★	★	★★	★★★★	Price <b>\$</b> Medical part production <b>Yes</b>	
		Wear resistance						
		★★	★	★	★★	★★★★		
		Gliding						
		★★★★	★★	★	★★	★★★★		
		No marking						
		★★	★	★	★★	★★★★		

The NewSurf® is a special ceramic developed by DUNNER to improve the machining of stainless steel and other difficult materials. This material is more sensitive to shock or high intensity vibration, but the friction coefficient is much lower than other materials.

For safety purpose, the inserts are released at 300 °C to avoid any risk of fire.

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

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# AirFlex guide bushes

## Rubber hardness

Hardness code	Description	Specifications	
		Advantage	Inconvenient
<b>N</b>	Normal	<ul style="list-style-type: none"> <li>- less pressure needed to adjust the guide bush</li> <li>- better sensitivity to material variation (less marking)</li> </ul>	<ul style="list-style-type: none"> <li>- less stability with high radial forces</li> <li>- low self power to open the guide bush</li> </ul>
<b>H</b>	Hard	<ul style="list-style-type: none"> <li>- better stability with high radial forces</li> <li>- high self power to open the guide bush (less risk of sticking)</li> </ul>	<ul style="list-style-type: none"> <li>- more pressure needed to adjust the guide bush (more wear)</li> <li>- less sensitivity to material variation</li> </ul>

### Standard rubbers by type and diameter

Rubber hardness varies according to hole size to provide the good balancing between stability and sensitivity.

Attention : In standard, the use of Titane inserts require hard rubber for all sizes.

Type code	Hard		Normal		Hard	
	From Ø	Up to Ø	From Ø	Up to Ø	From Ø	Up to Ø
<b>C22</b>	smallest	maximum				
<b>C28</b>	smallest	5.99	6	11.99	12	maximum
<b>C33</b>	smallest	5.99	6	16.99	17	maximum
<b>C42</b>	smallest	10.99	11	24.99	25	maximum
<b>C42L</b>	smallest	maximum				
<b>C48</b>	smallest	11.99	12	25.99	26	maximum
<b>C51</b>	smallest	maximum				

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## Options

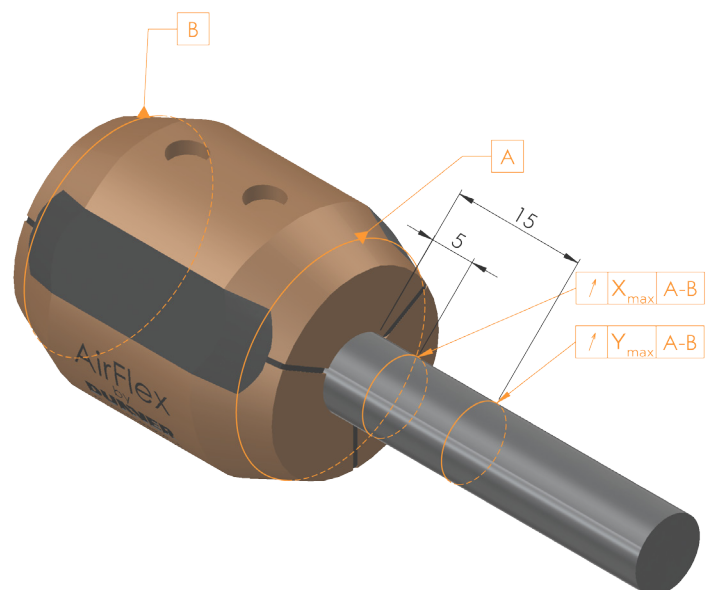
Option code	Option combination			
	UP	Silicone	Polished	HP
A				
B	✓			
D		✓		
E	✓	✓		
G			✓	
H	✓		✓	
J		✓	✓	
K	✓	✓	✓	
M				✓
N	✓			✓
P		✓		✓
Q	✓	✓		✓
S			✓	✓
T	✓		✓	✓
V		✓	✓	✓
W	✓	✓	✓	✓

### Accuracy option «UP»

The options «UP» for ultra-precision is made to obtain a very high accuracy product.

Each piece is controlled during the production process to warranty the conformity of this high accuracy level.

	X <sub>max</sub>	Y <sub>max</sub>
<b>Standard</b>	15µm	15µm
<b>UP</b>	5µm	8µm



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# AirFlex guide bushes

## Options

### *Anti-chips option «Silicone»*

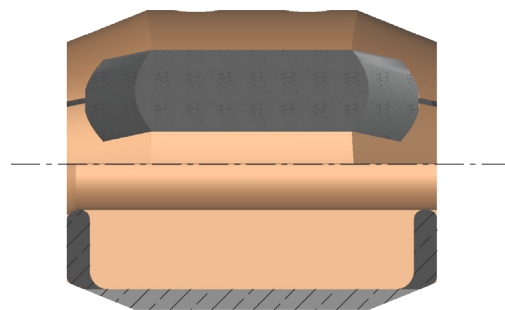
AirFlex guide bushes could be requested with the «Silicone» option.

This option is usually requested when small chips enter between the front and back seal. These chips can cause the rubber to lift or even tear off completely, rendering the AirFlex guide bush unusable.

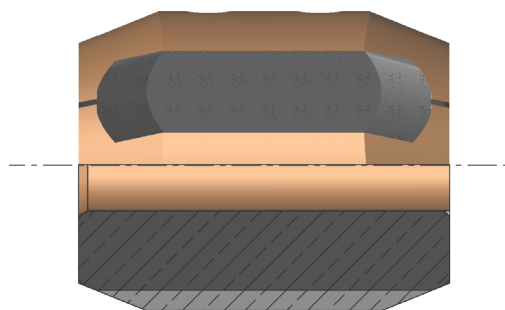
The «Silicone» option fills the gap between front and back seal to avoid chip accumulation. This can be combined with all other options available.

Note that the AirFlex guide bush needs more compression force to adjust it with this option.

This option is available from Ø6mm (.236in).



Standard



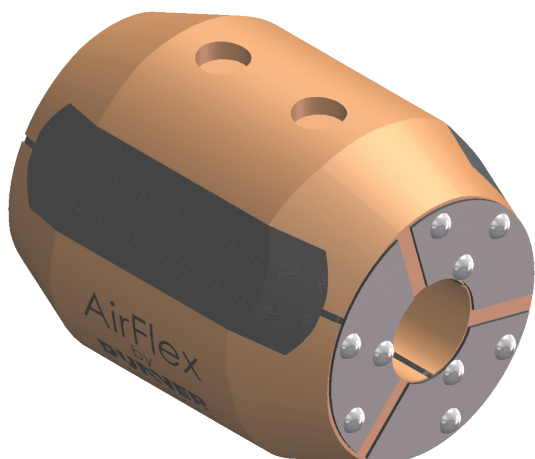
with «Silicone» option

### *Tribological improvement and anti-scratch option «Polish»*

This option adds a super-finishing operation during 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.

### *High pressure protection «HP»*



To protect the rubber of the AirFlex guide bush against the high pressure coolant mixed with chips, it's possible to add HP protective shields. These shields are made on steel and help to increase the lifetime of your guide bush.

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Personal notes

Lined area for personal notes, consisting of multiple horizontal lines for writing.

# AirFlex guide bushes

## Personal notes

Handwriting practice lines consisting of solid top and bottom lines with a dotted midline. There are 10 sets of these lines on the page.

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!





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