DUNNER

SWISS TOOLING PRODUCER

AirFlex guide bushes

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

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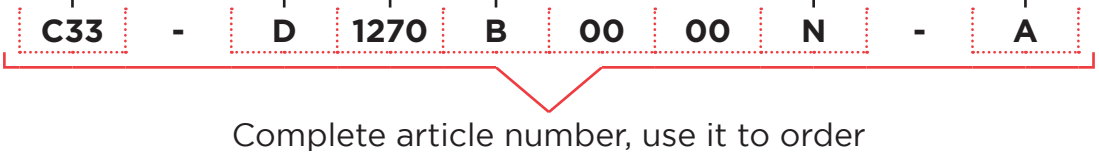
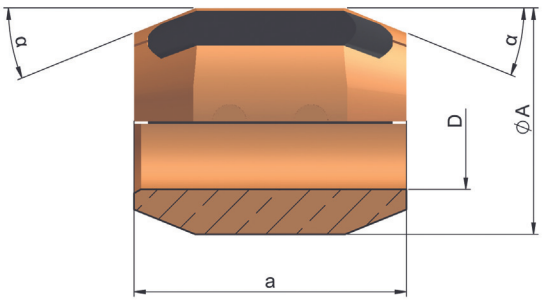
AirFlex guide bushes

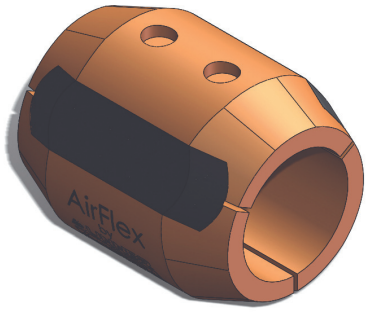


Complete article number, use it to order

AirFlex guide bushes

Type





Type code	ØA	a	α	D max		
				●	⬣	■
C22	22	40	22°	13	10.5	8.5
C28	28	40	22°	18	15	12
C33	33	40	22°	26	22	17.5
C42	42	50	22°	33	27.5	22
C42L†	42	100	22.5°	32	27	20
C48	48	50	22°	38	32.5	26
C51	51	60	22°	42	35.5	30

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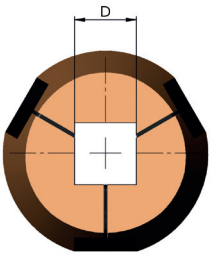
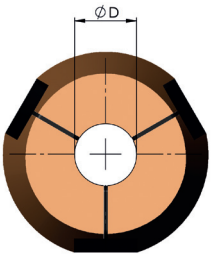
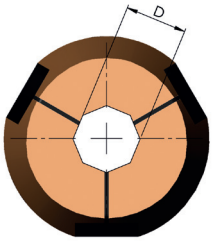
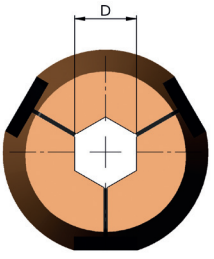
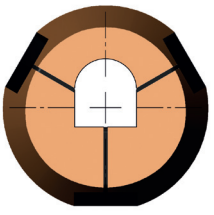
Hole shape

Shape code	Description	Remarks	Illustration
C[2]	Square	- Not available with NewSurf® material. - 4 slots available on request.	
D[1]	Round		
O[3]	Octagon	- Not available with NewSurf® material.	
S[2]	Hexagon	- Not available with NewSurf® material.	
Z[3]	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 at least 0.1mm larger than the nominal diameter. They also allow a compression of 0.3mm for diameters under 5mm and 0.5mm for diameters from 5mm upwards. Dimensions not listed below are available on request (also larger or smaller than the standard range).

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

mm	C22	C28	C33	C42	C48	C51	inch
11							0.433
11.11							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							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

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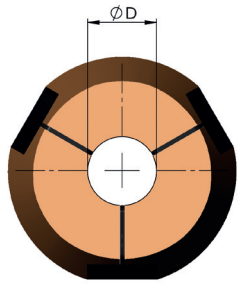
mm	C22	C28	C33	C42	C48	C51	inch
23.5							0.925
23.8							15/16
24							0.945
24.5							0.965
25							0.984
25.4							1
25.5							1.004
26							1.024
26.5							1.043
27							1˝1/17
27.5							1.083
28							1.102
28.57							1˝1/8
29							1.142
29.5							1.161
30							1.181
30.16							1˝3/16
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

mm	C22	C28	C33	C42	C48	C51	inch
34.5							1.358
35							1˝3/8
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

Size code example

Size code	Description	Remarks	Illustration
2540	Example of a 25.40mm ØD size (1 inch)	- 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 or lower	

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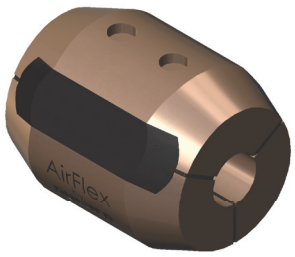
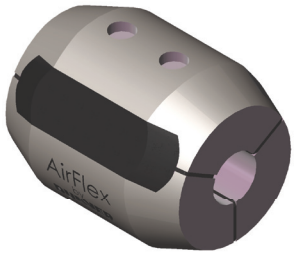
AirFlex guide bushes

Inserts / body material

Material code	Description	Guided material					Price & Medical compliance	Illustration
		Steel	Brass / copper	Aluminium	Stainless steel	Titanium		
B[1]	-Bronze- Special high resistance bronze.	Wear resistance ★★ Gliding ★★★ No marking ★★★	 ★★ ★★ ★★	 ★★★ ★★★ ★★★	 ★★ ★★★ ★★★	 ★★ ★★ ★★★	Price **$** Medical part production **Restricted**	
G[3]	-Glide- DLC coating made to reduce friction on hardened stainless steel AirFlex.	Wear resistance - Gliding ★ No marking ★	 ★★★ ★★ ★★	 ★★★ ★★ ★★	 - ★ ★	 ★★ ★★ ★★	Price **$$** Medical part production **Yes**	
I[2]	-Inox- Hardened stainless steel.	Wear resistance ★★★ Gliding ★★ No marking ★	 ★★★ ★★ ★★	 ★★★ ★ ★	 ★★ ★★ ★	 ★★ ★ ★	Price **$** Medical part production **Yes**	

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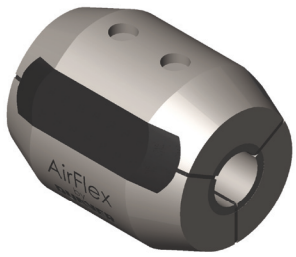
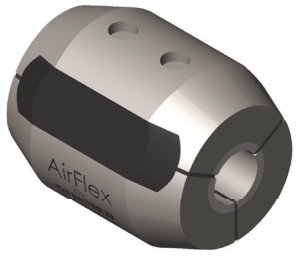
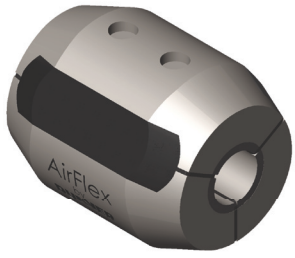
Inserts / body material

Material code	Description	Guided material					Price & Medical com-pliance	Illustration
		Steel	Brass / copper	Aluminium	Stainless steel	Titanium		
M[3]	-Carbide- Steel body with carbide inserts.	Wear resistance ★★★	★★★	★★★	★★	★★	Price **$$** Medical part pro-duction **Yes**	
		Gliding ★★	★★★	★★	★★	★★		
		No marking ★★	★★★	★★	★★	★★		
S[3]	-NewSurf®- Steel body with spe-cial ceramic inserts (see below).	Wear resistance ★★★	★★	★★★	★★★	★★★	Price **$$$** Medical part pro-duction **Yes**	
		Gliding ★★★	★★	★★★	★★★	★★		
		No marking ★★★	★★★	★★	★★★	★★★		
T[2]	-Titane- Steel body with spe-cial cast iron inserts.	Wear resistance ★★	★	★	★★	★★★	Price **$** Medical part pro-duction **Yes**	
		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.

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AirFlex guide bushes

Rubber hardness

Hardness code	Description	Specifications	
		Advantage	Inconvenient
N	Normal	- less pressure needed to adjust the guide bush - better sensitivity to material variation (less marking)	- less stability with high radial forces - low self power to open the guide bush
H	Hard	- better stability with high radial forces - high self power to open the guide bush (less risk of sticking)	- more pressure needed to adjust the guide bush (more wear) - less sensitivity to material variation

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 insterts 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
C22	smallest	maximum				
C28	smallest	5.99	6	11.99	12	maximum
C33	smallest	5.99	6	16.99	17	maximum
C42	smallest	10.99	11	24.99	25	maximum
C42L	smallest	maximum				
C48	smallest	11.99	12	25.99	26	maximum
C51	smallest	maximum				

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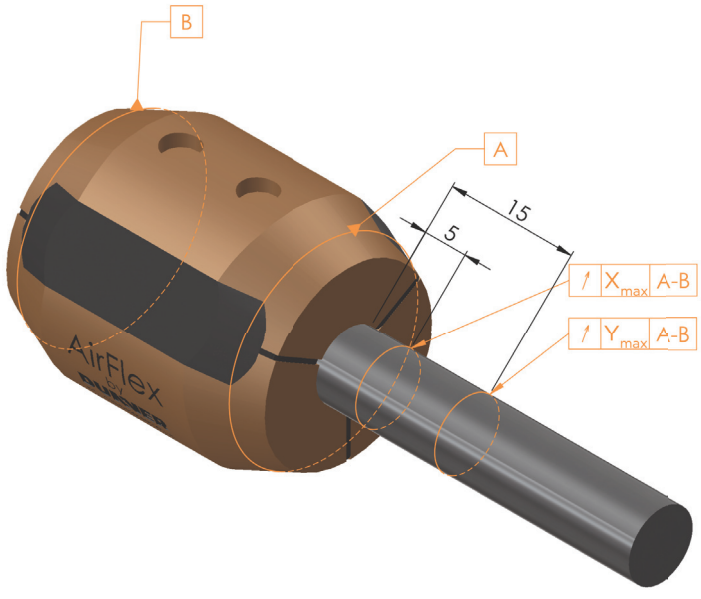
Options

Option code	Option combination			
	UP	Silicone	Polished	HP
A[1]				
B[2]	✓			
D[2]		✓		
E[2]	✓	✓		
G[2]			✓	
H[2]	✓		✓	
J[2]		✓	✓	
K[2]	✓	✓	✓	
M[2]				✓
N[2]	✓			✓
P[2]		✓		✓
Q[2]	✓	✓		✓
S[2]			✓	✓
T[2]	✓		✓	✓
V[2]		✓	✓	✓
W[2]	✓	✓	✓	✓

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_{max}	Y_{max}
Standard	15µm	15µm
UP	5µm	8µm

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AirFlex guide bushes

Options

Anti-chips option «Silicone»

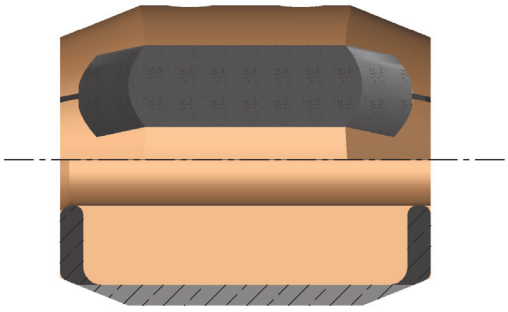
AirFlex guide bushes could be requested with the «Silicone» option.

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.

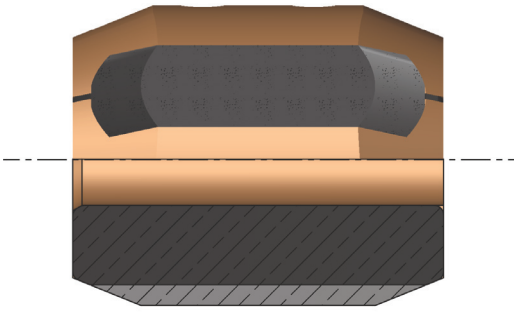
The «Silicone» option fill the gap between front and back seal to avoir chips accumulation. This can be combined with all other options available.

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

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



Standard



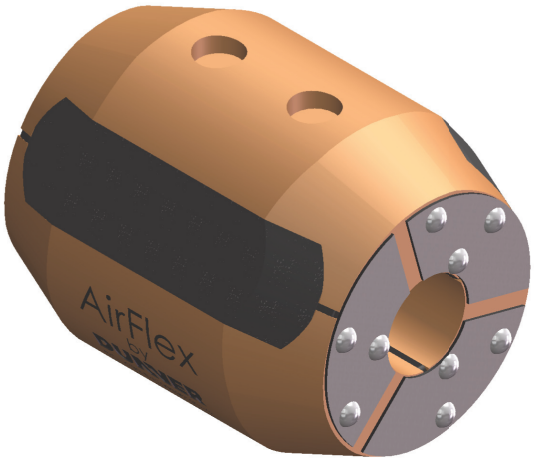
with «Silicone» option

Tribological improvement and anti-scratch option «Polish»

This option add 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 lifetime of your guide bush.

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Personal notes

Personal notes

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