

BRONZINE

Bushes

Supersedes:
NS 096-b:2005-03

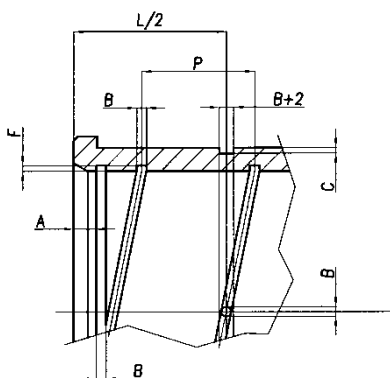
1.0 Scopo e campo di applicazione

La norma stabilisce le tipologie di bronzine.

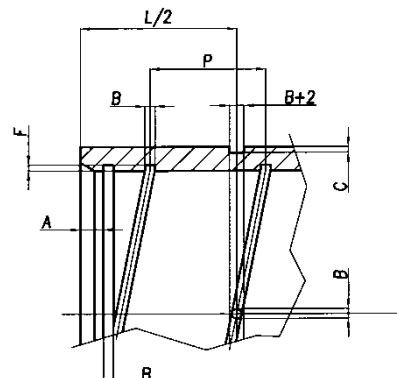
1.0 Scope and application field

The standard defines the types of bushes.

Tipi di ragnature Types of grooves

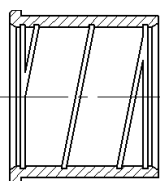


Bronzina tipo C (con collarino) (Bush type C- headed)

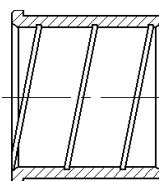


Bronzina tipo P (piana) (Bush type P - plain)

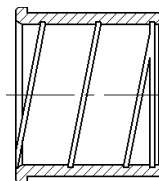
Diametro interno d Internal diameter d	A	Passo (P) Pitch (P)	F	B	N° fori B N° of holes B
Fino a 50 Up to 50	4	12	0,8	3	2
Da 50 a 100 From 50 to 100	6	18	1	3,5	3
Da 100 a 200 From 100 to 200	8	24	1,5	4	4
Oltre 200 Over 200	10	36	2	5	4



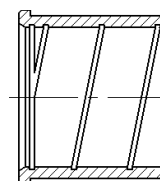
Ragnatura tipo 1
Groove type 1



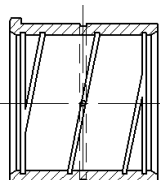
Ragnatura tipo 2
Groove type 2



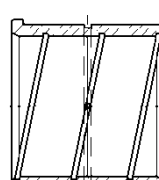
Ragnatura tipo 3
Groove type 3



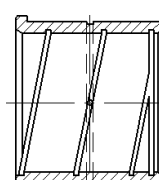
Ragnatura tipo 4
Groove type 4



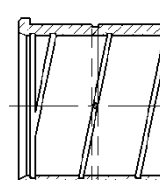
Ragnatura tipo 1E
Groove type 1E



Ragnatura tipo 2E
Groove type 2E



Ragnatura tipo 3E
Groove type 3E



Ragnatura tipo 4E
Groove type 4E

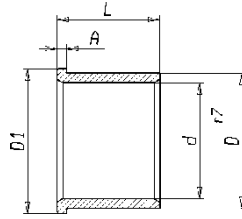
Le ragnature tipo E devono avere i fori di collegamento coincidenti con il canale della ragnatura.

The connecting holes of the grooves type E must coincide with the channels of the grooves.

La forma delle ragnature è valida anche per bronzine di diversa forma.

The shape of the grooves is also valid for different shaped bushes.

Bronzine con collarino
Headed Bushes



Bronzina tipo **C** (con collarino) (*Bush type C - headed*)
Disegno (*drawing*) n° **1000.0175**

Es. descrizione a norma: Bronzina 30 C
Eg. description according to standard: Bush 30 C

Tolleranza alloggiamento:H8
Materiale :G-CuSn12 UNI EN 1982
(vedi tabella pag. 5)

Housing tolerance : H8
Material : G-Cu Sn12 – UNI EN 1982
(See table page 5)

Nota :Le bronzine hanno ragnatura **tipo 2**.

Note : The bushes have groove **type 2**.

Disegnare una bronzina non presente in questa norma:

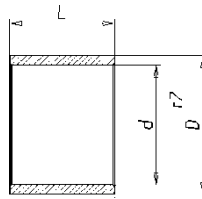
- Prelevare il file del disegno 1000.0175 del diametro corrispondente.
- Salvarlo con il numero di disegno nuovo.
- Completare il particolare con il nuovo tipo di ragnatura.
- Indicare il valore L (LUNGHEZZA).
- Aggiornare il peso sul disegno.

For a bush drawing that is not according to a standard:

- Open the file of the drawing 1000.0175 corresponding to the diameter.
- Save it with the new drawing number.
- Complete the item with the new type of groove.
- Write the new dimension L (LENGTH)
- Modify the drawing weight

d	D	D1	A	Tolleranze Tolerances		Corta (Short)		Media (Medium)		Lunga (Long)		
				d	D r7	L	N° dis. (Dwg. n°)	L	N° dis. (Dwg. n°)	L	N° dis. (Dwg. n°)	
15	22	25	3	+0,1 +0,3	+0,041	13	1000.0175 /461.01	18	1000.0175 /461.21	23	1000.0175 /461.41	
17	25	29			+0,023	15	/461.02	23	/461.22	28	/461.42	
20	28	32			+0,049	18	/461.03	23	/461.23	33	/461.43	
25	35	40	4		+0,028	23	/461.04	33	/461.24	38	/461.44	
30	40	45				27	/461.05	38	/461.25	43	/461.45	
35	45	50				43	/461.06	53	/461.26	53	/461.46	
40	50	55	5	+0,2 +0,4	+0,059	33	/461.07	53	/461.27	63	/461.47	
45	55	60			+0,034	38	/461.08	58	/461.28	73	/461.48	
50	60	65			43	/461.09	63	/461.29	83	/461.49		
55	65	70			48	/461.10	73	/461.30	93	/461.50		
60	70	75			+0,071	53	/461.11	78		/461.31	/461.51	
65	75	80			+0,041	58	/461.12	83	/461.32	108	/461.52	
70	85	90	7		+0,2 +0,5		63	/461.13	88	/461.33	118	/461.53
75	90	95				+0,073	68	/461.14	98	/461.34	128	/461.54
80	95	100				+0,043	73	/461.15	103	/461.35	133	/461.55
85	100	107					78	/461.16	108	/461.36	143	/461.56
90	105	112				+0,086	83	/461.17	118	/461.37	153	/461.57
95	110	117				+0,051		/461.18	123	/461.38	163	/461.58
100	115	122				/461.19	128	/461.39	173	/461.59		
110	125	132		+0,089		93	/461.20	143	/461.40	188	/461.60	
120				+0,054								

Bronzine piane Plain Bushes



Bronzina tipo **P** (piana) (*Bush type P - plain*)
Disegno (*drawing*) n° **1000.0176**

Es. descrizione a norma: Bronzina 30 P
Eg. *description according to standard: Bush 30 P*

Tolleranza alloggiamento: H8
Materiale :G-Cu Sn12 – UNI EN 1982
(Vedi tabella pag.5)

Housing tolerance : H8
Material : G-Cu Sn12 – UNI EN 1982
(See table page 5)

Nota :Le bronzine hanno ragnatura **tipo 2**.

Note : *The bushes have groove type 2.*

Disegnare una bronzina non presente in questa norma:

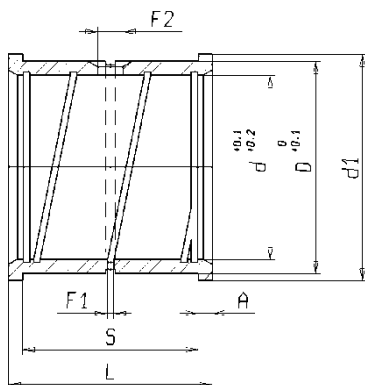
- Prelevare il file del disegno 1000.0176 del diametro corrispondente.
- Salvarlo con il numero di disegno nuovo.
- Completare il particolare con il nuovo tipo di ragnatura.
- Indicare il valore L (LUNGHEZZA).
- Aggiornare il peso sul disegno.

For a bush drawing that is not according to a standard:

- Open the file of the drawing 1000.0176 corresponding to the diameter.
- Save it with the new drawing number.
- Complete the item with the new type of groove.
- Write the new dimension L (LENGTH)
- Modify the drawing weight

d	D	Tolleranze Tolerances		Corta (Short)			Media (Medium)			Lunga (Long)			
		d	D r7	L	N° dis. (Dwg. n°)		L	N° dis. (Dwg. n°)		L	N° dis. (Dwg. n°)		
15	22	+0,1 +0,3	+0,041	13	1000.0176 /461.01		18	1000.0176 /461.21		23	1000.0176 /461.41		
17	25		+0,023	15	/461.02		23	/461.22		28	/461.42		
20	28		+0,049	18	/461.03		23	/461.23		33	/461.43		
25	35		+0,028	23	/461.04		33	/461.24		38	/461.44		
30	40				27	/461.05		38	/461.25		43	/461.45	
35	45					/461.06		43	/461.26		53	/461.46	
40	50	+0,2 +0,4	+0,059	33	/461.07		53	/461.27		63	/461.47		
45	55		+0,034	38	/461.08		58	/461.28		73	/461.48		
50	60			43	/461.09		63	/461.29		83	/461.49		
55	65		+0,071	48	/461.10		73	/461.30		93	/461.50		
60	70		+0,041	53	/461.11		78	/461.31			/461.51		
65	75				58	/461.12		83	/461.32		108	/461.52	
70	85		+0,073			/461.13		88	/461.33		118	/461.53	
75	90		+0,043	63	/461.14		98	/461.34		128	/461.54		
80	95			68	/461.15		103	/461.35		133	/461.55		
85	100			73	/461.16		108	/461.36		143	/461.56		
90	105	+0,2 +0,5	+0,086	78	/461.17		118	/461.37		153	/461.57		
95	110		+0,051	83	/461.18		123	/461.38		163	/461.58		
100	115				/461.19		128	/461.39		173	/461.59		
110	125		+0,089	93	/461.20		143	/461.40		188	/461.60		
120			+0,054										

Bronzine per supporti
Bushes for supports



Es. descrizione: Bronzina 30 M2
Eg. description: Bush 30 M2

Materiale : G-CuSn5Zn5Pb5 – UNI EN 1982
(Vedi tabella pag.5)

Material : G-CuSn5Zn5Pb5 – UNI EN 1982
(See table page 5)

Ragnatura : Tipo 1E

Grooves : Type 1E

Nota : Montare i supporti - norma NS 092.
(salvo applicazioni particolari)

Note : Assemble the supports of standard NS 092.
(except for special applications)

d	A	D	d1	L	S	F2	F1	N° dis. Dis. n°
20	3	28	32	32	26	5	3	1000.0144/461.01
25	4	35	40	39	31			/461.02
30		40	45	44	36			/461.03
35	4	45	50	49	41	7	5	/461.04
40		50	55					/461.05
45	5	55	60	57	47	9	8	/461.06
50		60	65	62	52			/461.07
55		65	70	67	57			/461.08
60	70	75	/461.09					
65	7	75	80	72	62	9	8	/461.10
70		85	90	86	72			/461.11
75		90	95					/461.12
80		95	100	96	82			/461.13
90	105	112	/461.14					
100	115	122				/461.15		

Tabella materiali UNI EN 1982(ex 7013-2)
Table UNI EN 1982(previous standard 7013-2)

CuSn12-B (CB483K) and CuSn12-C (CC483K)

element	Composition in % (mass fraction)				Casting process and designation	Tensile strength R_m N/mm ² min.	0,2 % proof strength $R_{p0,2}$ N/mm ² min.	Elongation A % min.	Brinell hardness HBW min.
	ingots		castings						
	min.	max.	min.	max.					
Cu	85,5	88,5 ^a	85,0	88,5 ^a	Sand — GS	260	140	7	80
Ni	—	2,0	—	2,0					
P	—	0,20	—	0,60	Permanent mould — GM	270	150	5	80
Pb	—	0,6	—	0,7					
Sn	11,2 ^a	13,0	11,0 ^a	13,0	Continuous — GC	300	150	6	90
Al	—	0,01	—	0,01					
Fe	—	0,15	—	0,2	Centrifugal — GZ	280	150	5	90
Mn	—	0,2	—	0,2					
S	—	0,05	—	0,05					
Sb	—	0,15	—	0,15					
Si	—	0,01	—	0,01					
Zn	—	0,4	—	0,5					

^a For continuous castings and centrifugal castings, the minimum tin content for ingots shall be 10,7 % and for castings 10,5 % and the maximum copper content for ingots and castings shall be 89,0 %.

Tabella materiali UNI EN 1982(ex 7013-8)
Table UNI EN 1982(previous standard 7013-8)

CuSn5Zn5Pb5-B (CB491K) and CuSn5Zn5Pb5-C (CC491K)

element	Composition in % (mass fraction)				Casting process and designation	Tensile strength R_m N/mm ² min.	0,2 % proof strength $R_{p0,2}$ N/mm ² min.	Elongation A % min.	Brinell hardness HBW min.
	ingots		castings						
	min.	max.	min.	max.					
Cu ^a	83,0	86,5	83,0	87,0	Sand — GS	200	90	13	60
Ni	—	2,0	—	2,0					
P	—	0,03	—	0,10	Permanent mould — GM	220	110	6	65
Pb	4,2	5,8	4,0	6,0					
Sn	4,2	6,0	4,0	6,0	Centrifugal — GZ	250	110	13	65
Zn	4,5	6,5	4,0	6,0					
Al	—	0,01	—	0,01	Continuous — GC	250	110	13	65
Fe	—	0,25	—	0,3					
S	—	0,08	—	0,10					
Sb	—	0,25	—	0,25					
Si	—	0,01	—	0,01					

^a Including nickel

Per altri materiali da indicare sul disegno fare riferimento al documento interno :
For other materials refer to internal document :

ex NS022_rev05

Riferimento a norme tecniche, codici e regolamenti
Referenced technical standards, codes and regulations

NS 092	Supporti per alberi - <i>Supports for Shafts</i>
UNI EN 1982	Rame e leghe di rame - Lingotti e getti <i>Copper and copper alloys- Ingots and castings</i>

Revisions of March 2017

Use of SMS group logo.
Editorial revision.
General revision.