



Ed. 10/2007

**CM**



# elementi normalizzati per stampi standard parts for molds Normalien für Werkzeuge



*Siamo specializzati nella costruzione di elementi normalizzati per stampi trancia, plastica, pressofusione. Eseguiamo particolari speciali a disegno seguendo le normative italiane e internazionali (DIN - ISO - AFNOR - MABEC - NAAMS). Garantiamo la massima celerità nelle consegne disponendo di un nostro magazzino per i prodotti di serie. Qualità del prodotto, affidabilità e soddisfazione del cliente sono i nostri obiettivi primari.*

*La continua attenzione alle richieste della clientela, la ricerca di nuove esperienze produttive, l'impiego di attrezzature sempre più sofisticate, hanno permesso alla Società di fornire alla clientela i tre componenti essenziali: Qualità, Servizio e Competitività. Abbiniamo macchinari tecnologicamente avanzati a personale qualificato.*

*La materia prima standard è acciaio 1.7131. I prodotti sono sottoposti a trattamento termico di cementazione-tempera e rinvenimento con profondità di 0,8-1 mm, durezza 61-63 HRC, rettificati.*

*Per carichi gravosi e dove necessita la massima protezione contro il grippaggio utilizziamo bronzine inserite nella bussola d'acciaio. Forniamo a richiesta, in base al loro utilizzo materiali specifici quali 1.2344 (stampaggio a caldo) oppure 1.8509 (per plastica).*



*We are specialized in the construction of guide pillars and guide bushes for blanking die, plastic mould and casting die. Moreover we execute special particular based on drawing following the italian and international norms (DIN - ISO - AFNOR - MABEC - NAAMS). We guarantee the shortest delivery time on standard products since we have a good storing.*

*Quality of the products, reliability and customer satisfaction are the primary objects. We offer technologically leading machine and semi-skilled personnel.*

*The continuous attention for the customer's request, the research of new production's experiences and the use of more sofisticate instruments, let our Company supply to all the clients three important points: Quality, Service, Competition.*

*The primary material used is stainless steel 1.7131. The products are being heat treated, case hardening and tempering of 0,8 - 1 mm, hardness 61 - 63 HRC, adjusted.*

*For higher load and when the application may require the maximal protection against seizure, we apply bushes into the steel sleeves. Also on request and if needed special material may be used such 1.2344 (hot moulding) and 1.8509 (for plastic mould).*



*Wir haben uns spezialisiert auf die Herstellung von Normteilen für Stanz-, Spritzguss- und Druckgusswerkzeuge. Auch Sonderteile nach diversen nationalen und internationalen Normen (DIN - ISO - AFNOR - MABEC - NAAMS) fertigen wir an. Wir bieten Ihnen höchste Schnelligkeit bei der Lieferung, da wir über ein großes Lager an Standardteilen verfügen. Produktqualität, Zuverlässigkeit und Zufriedenheit des Kunden sind unsere obersten Ziele. Wir setzen auf die Kombination von technisch fortschrittlichen Maschinen mit qualifiziertem Personal.*

*Das Unternehmen ist ständig bestrebt die Kundenanforderungen mittels neuer Technologien und optimierter Prozeßabläufe zu erfüllen, um drei wesentlichen Punkte der Kundenzufriedenheit zu erreichen, nämlich: Qualität, Service, Wettberbsfähigkeit. Unser Standardrohmaterial ist Stahl gemäß 1.7131. Unsere Produkte werden einsatzgehärtet mit einer Härtetiefe von 0,8 bis 1 mm, 61-63 HRC, und geschliffen.*

*Für Anwendungen unter höchster Beanspruchung stellen wir Führungsbuchsen mit Bronzeinsatz bzw. aus Vollbronze her. Auf Anfrage liefern wir unsere Produkte je nach Einsatzgebiet in Sondermaterialien wie W.1.2344 (für Warmumformwerkzeuge) oder W.1.8509 (für Spritzgusswerkzeuge).*



	<b>C1</b> COLONNA GUIDA A DUE DIAMETRI <i>GUIDE PILLAR</i>	02 03		<b>B4B</b> BUSSOLA LISCIA ACCIAIO / BRONZO <i>PILOT BUSHES, STEEL / BRONZE</i>	19
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# COLONNA GUIDA A DUE DIAMETRI

## GUIDE PILLAR

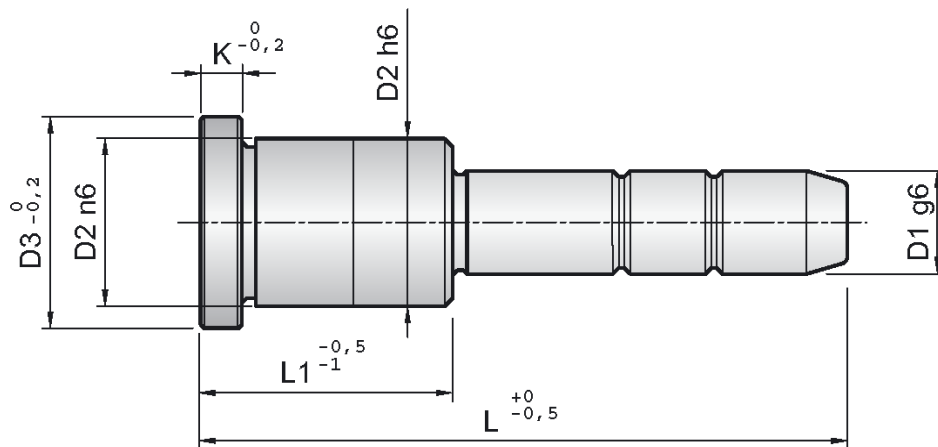
CODICE / Item no.

# C1

Materiale: 1.7131  
Material: 1.7131

Trattamento Termico:  
Cementazione + Tempra  
Heat Treatment: Cementing

Durezza: Hrc 61+ 63  
Hardness: Hrc 61+ 63



D1	D2	D3	K	L1	50	60	70	80	90	100	120	140	160	180	200	220	240	260	280	300	340				
12	18	22	5	22	★	★	★	★	★	★															
				26	★	★	★	★	★	★															
				36	★	★	★	★	★	★	★														
				46			★	★	★	★	★	★													
				56							★	★	★												
14	20	24	5	22	★	★	★	★	★	★															
				26		★	★	★	★	★	★														
				36			★	★	★	★	★	★													
				46			★	★	★	★	★	★													
				56							★	★	★	★											
16	22	26	5	22	★	★	★	★	★	★	★														
				26	★	★	★	★	★	★	★	★													
				36		★	★	★	★	★	★	★	★												
				46			★	★	★	★	★	★	★	★											
				56					★	★	★	★	★	★	★										
				66								★	★	★	★	★	★	★							
				76								★	★	★	★	★	★	★							
96										★	★	★	★	★											
18	26	30	5	26		★	★	★	★	★															
				36		★	★	★	★	★	★	★	★												
				46			★	★	★	★	★	★	★	★											
				56				★	★	★	★	★	★	★	★										
				66								★	★	★	★	★	★								
76									★	★	★	★	★												
20	28 30 <sup>●</sup>	32 34 <sup>●</sup>	6	26		★	★	★	★	★	★	★													
				36		★	★	★	★	★	★	★	★	★											
				46			★	★	★	★	★	★	★	★	★										
				56				★	★	★	★	★	★	★	★	★									
				66								★	★	★	★	★	★	★							
				76									★	★	★	★	★	★							
				86											★	★	★	★							
96											★	★	★	★											

● a richiesta    □ in esaurimento  
● on request    □ in exhaustion

ESEMPIO DI ORDINAZIONE C1 D1xL1xL  
EXAMPLE OF ORDER C1 D1xL1xL

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# COLONNA GUIDA A DUE DIAMETRI

GUIDE PILLAR

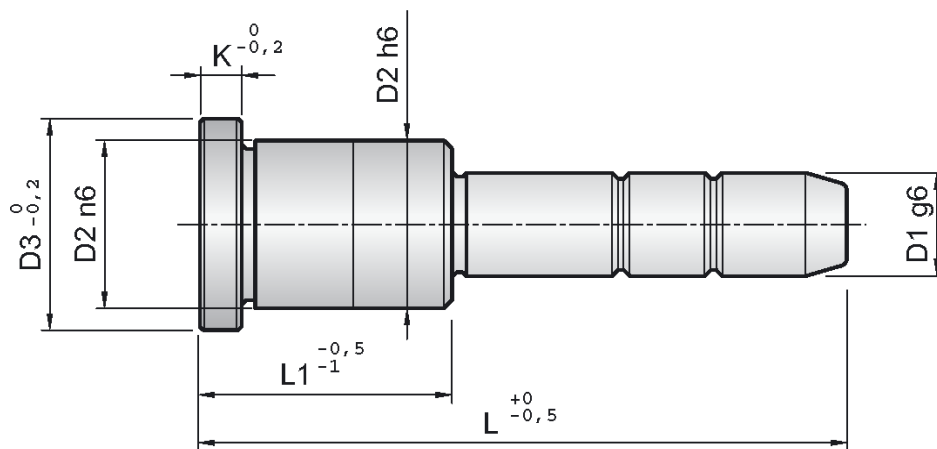
CODICE / Item no.

# C1

Materiale: 1.7131  
Material: 1.7131

Trattamento Termico:  
Cementazione + Tempra  
Heat Treatment: Cementing

Durezza: Hrc 61+63  
Hardness: Hrc 61+63



D1	D2	D3	K	L1	60	70	80	90	100	120	140	160	180	200	220	240	260	280	300	340	400					
25	34	38	7	26			★	★	★																	
				36			★	★	★	★	★	★														
				46					★	★	★	★	★	★												
				56						★	★	★	★	★	★	★	★	★								
				66							★	★	★	★	★	★	★	★	★	★	★					
				76								★	★	★	★	★	★	★	★	★	★					
				86									★	★	★	★	★	★	★	★	★					
				96										★	★	★	★	★	★	★	★	★				
				116											★	★	★	★	★	★	★	★				
32	40	45	7	36					★	★																
				46					★	★	★	★														
				56						★	★	★	★	★	★	★	★	★								
				66							★	★	★	★	★	★	★	★	★	★	★					
				76								★	★	★	★	★	★	★	★	★	★					
				86										★	★	★	★	★	★	★	★					
				96											★	★	★	★	★	★	★	★	★			
				106												★	★	★	★	★	★	★	★	★	★	
				116													★	★	★	★	★	★	★	★	★	★
126														★	★	★	★	★	★	★	★	★				
146															★	★	★	★	★	★	★	★				
40	48	52	8	46						★	★	★	★	★												
				56							★	★	★	★	★	★										
				66								★	★	★	★	★	★	★								
				76										★	★	★	★	★	★	★						
				86											★	★	★	★	★	★	★					
				96											★	★	★	★	★	★	★	★	★	★	★	
				106												★	★	★	★	★	★	★	★	★	★	
				116													★	★	★	★	★	★	★	★	★	★
126														★	★	★	★	★	★	★	★	★				
146															★	★	★	★	★	★	★	★				
50	60	65	10	96										★	★	★	★	★	★	★	★	★				
				126														★	★	★	★	★	★	★		
				146															★	★	★	★	★	★	★	

● a richiesta    □ in esaurimento  
● on request    □ in exhaustion

ESEMPIO DI ORDINAZIONE C1 D1xL1xL  
EXEMPLE OF ORDER C1 D1xL1xL

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# COLONNA GUIDA SPALLATA

LOCATING GUIDE PILLAR, SHOULDERED

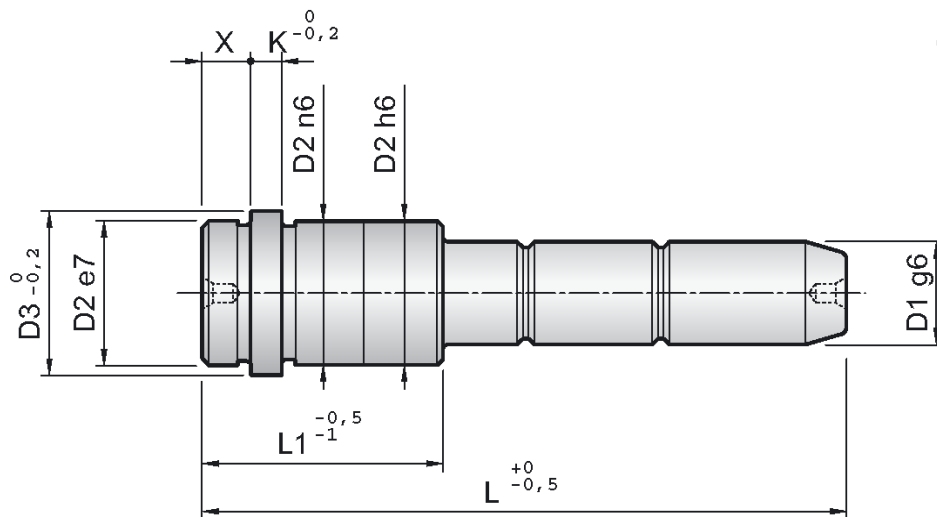
CODICE / Item no.

# C1S

Materiale: 1.7131  
Material: 1.7131

Trattamento Termico:  
Cementazione + Tempra  
Heat Treatment: Cementing

Durezza: Hrc 61+ 63  
Hardness: Hrc 61+63



D1	D2	D3	K	X	L1	L=lunghezza totale								
						80	90	110	130	150	170	190	210	
16	22	26	5	10	36	★	★	★	★					
					46		★	★	★					
					56			★	★	★	★			
					66			★	★	★	★			
					76				★	★	★	★		
					86					★	★	★	★	
20	28 30●	32 34●	6	10	46	★	★	★	★	★				
					56		★	★	★	★				
					66			★	★	★	★			
					76				★	★	★			
					86					★	★	★		
					106						★	★	★	★
25	34 36●	38 40●	7	10	46		★	★	★	★				
					56		★	★	★	★				
					66			★	★	★	★			
					76				★	★	★	★		
					86					★	★	★		
					106						★	★	★	★
32	40	45	7	10	46			★	★	★				
					56			★	★	★	★			
					66			★	★	★	★	★		
					76				★	★	★	★		
					86					★	★	★		
					106							★	★	★
40	48	52	8	10	56				★	★				
					66				★	★	★			
					76					★	★	★	★	
					86						★	★	★	★
					106							★	★	★

● a richiesta  
● on request

ESEMPIO DI ORDINAZIONE C1S D1xL1xL  
EXEMPLE OF ORDER C1S D1xL1xL



# COLONNA GUIDA A UN DIAMETRO

GUIDE PILLAR

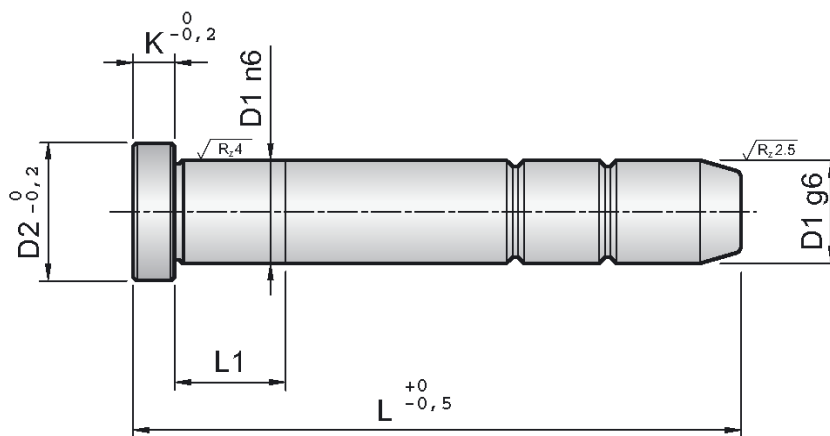
CODICE / Item no.

# C2

Materiale: 1.7131  
Material: 1.7131

Trattamento Termico:  
Cementazione + Tempra  
Heat Treatment: Cementing

Durezza: Hrc 61+63  
Hardness: Hrc 61+63



D1		12	14	16	18	20	25	32	40	50	60
D2		16	18	20	22	24	30	37	45	55	68
K		5	5	5	5	6	7	7	8	10	12
L	L1										
50	8	★	★	★	★						
60	8	★	★	★	★	★					
70	8	★	★	★	★	★					
80	15	★	★	★	★	★	★				
90	15	★	★	★	★	★	★				
100	20	★	★	★	★	★	★				
110	20		★	★	★	★					
120	20	★	★	★	★	★	★	★	★		
130	20	★	★	★	★	★					
140	20	★	★	★	★	★	★	★	★		
150	20		★	★	★	★					
160	20	★	★	★	★	★	★	★	★		
180	25		★	★	★	★	★	★	★		
200	25			★	★	★	★	★	★		
220	25			★	★	★	★	★	★		
240	35					★	★	★	★	★	
260	35					★	★	★	★	★	
280	35					★	★	★	★	★	
300	45					★	★	★	★	★	
350	55						★	★	★	★	★
400	55						★	★	★	★	★
450	65							★	★	★	★
500	65								★	★	★
600	75									★	★
800	75										★

ESEMPIO DI ORDINAZIONE C2 D1xL  
EXEMPLE OF ORDER C2 D1xL



# BUSSOLA GUIDA CON COLLARE

GUIDE BUSH, HEADED

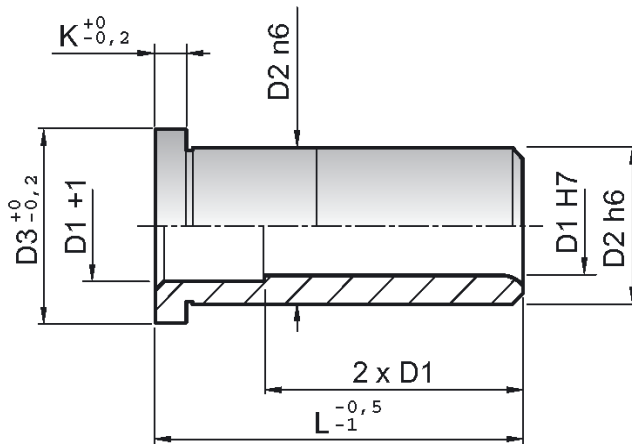
CODICE / Item no.

# B1

Materiale: 1.7131  
Material: 1.7131

Trattamento Termico:  
Cementazione + Tempra  
Heat Treatment: Cementing

Durezza: Hrc 61+ 63  
Hardness: Hrc 61+ 63



D1	12	14	16	18	20	25	32	40	50	60		
D2	18	20	22	26	28	30 <sup>●</sup>	34	36 <sup>●</sup>	40	48	60	74
D3	22	24	26	30	32	34 <sup>●</sup>	38	40 <sup>●</sup>	45	52	65	84
K	5	5	5	5	6	7	7	8	10	12		
L	22	★	★	★	★	★						
	26	★	★	★	★	★	★	★				
	36	★	★	★	★	★	★	★	★			
	46	★	★	★	★	★	★	★	★			
	56	★	★	★	★	★	★	★	★			
	66		★	★	★	★	★	★	★			
	76			★	★	★	★	★	★	★		
	86			★	★	★	★	★	★	★		
	96			★	★	★	★	★	★	★	★	
	106					★	★	★	★	★	★	★
	116					★	★	★	★	★	★	★
	126					★	★	★	★	★	★	★
	136							★	★	★		
	146							★	★	★	★	★
	156									★	★	
176											★	
196											★	

● a richiesta  
● on request

ESEMPIO DI ORDINAZIONE B1 D1xL  
EXAMPLE OF ORDER B1 D1xL



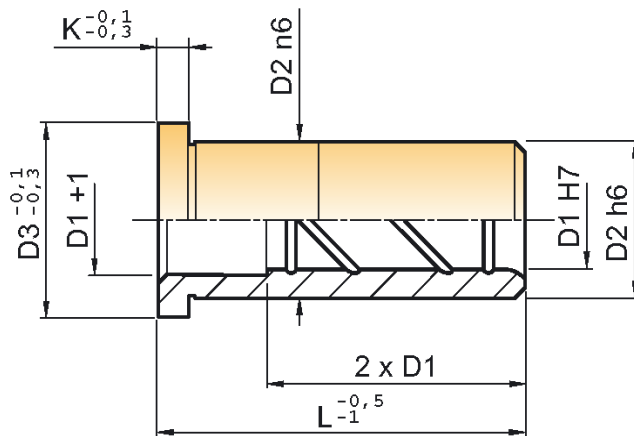
# BUSSOLA GUIDA BRONZO INTEGRALE

BRONZE GUIDE BUSH

CODICE / Item no.

# B1B

Materiale: Bronzo  
Material: Bronze



D1	16	20	25	32	40	50	60	
D2	22	28 30 <sup>●</sup>	34 36 <sup>●</sup>	40	48	60	74	
D3	26	32 34 <sup>●</sup>	38 40 <sup>●</sup>	45	52	65	84	
K	5	6	7	7	8	10	12	
L	22	★	★					
	26	★	★	★	★			
	36	★	★	★	★	★		
	46	★	★	★	★	★		
	56	★	★	★	★	★		
	66	★	★	★	★	★		
	76	★	★	★	★	★	★	
	86	★	★	★	★	★	★	
	96	★	★	★	★	★	★	★
	106		★	★	★	★	★	★
	116		★	★	★	★	★	★
	126		★	★	★	★	★	★
	136				★	★	★	
	146				★	★	★	★
156						★	★	
176							★	
196							★	

● a richiesta  
● on request

ESEMPIO DI ORDINAZIONE B1B D1xL  
EXAMPLE OF ORDER B1B D1xL



# BUSSOLA SPALLATA

LOCATING GUIDE BUSH, HEADED

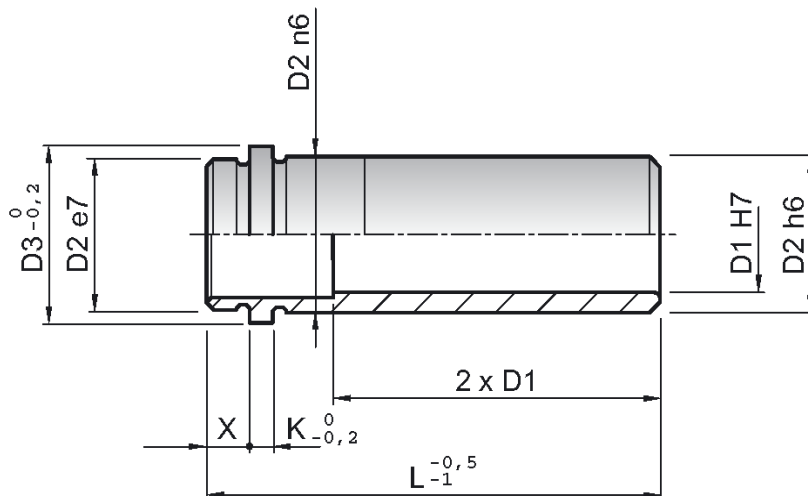
CODICE / Item no.

# B1S

Materiale: 1.7131  
Material: 1.7131

Trattamento Termico:  
Cementazione + Tempra  
Heat Treatment: Cementing

Durezza: Hrc 61+ 63  
Hardness: Hrc 61+ 63



D1	D2	D3	K	X	L=lunghezza totale									
					26	36	46	56	66	76	86	96	106	124
16	22	26	5	10	★	★	★	★	★	★	★	★	★	
20	28	32	6	10	★	★	★	★	★	★	★	★	★	★
	30 <sup>●</sup>	34 <sup>●</sup>												
25	34	38	7	10			★	★	★	★	★	★	★	★
	36 <sup>●</sup>	40 <sup>●</sup>												
32	40	45	7	10			★	★	★	★	★	★	★	★
40	48	52	8	10				★	★	★	★	★	★	★

● a richiesta  
● on request

ESEMPIO DI ORDINAZIONE B1S D1xL  
EXAMPLE OF ORDER B1S D1xL



# BUSSOLA DI GUIDA LISCIA

SMOOTH BUSHES

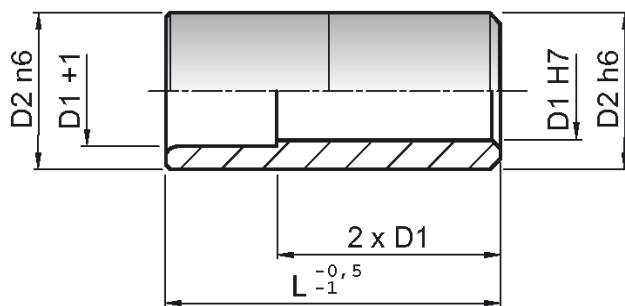
CODICE / Item no.

# B2

Materiale: 1.7131  
Material: 1.7131

Trattamento Termico:  
Cementazione + Tempra  
Heat Treatment: Cementing

Durezza: Hrc 61+63  
Hardness: Hrc 61+ 63



D1	12	14	16	18	20	25	32	40		
D2	18	20	22	26	28	30 <sup>●</sup>	34	36 <sup>●</sup>	40	48
L	22	★	★	★	★					
	26	★	★	★	★	★	★	★		
	36	★	★	★	★	★	★	★		
	46	★	★	★	★	★	★	★	★	
	56	★	★	★	★	★	★	★	★	★
	66		★	★	★	★	★	★	★	★
	76			★	★	★	★	★	★	★
	86			★	★	★	★	★	★	★
	96			★	★	★	★	★	★	★
	106						★	★	★	
	116						★	★	★	
	126									
	136									
	146									
156										
176										
196										

● a richiesta  
● on request

ESEMPIO DI ORDINAZIONE B2 D1xL  
EXAMPLE OF ORDER B2 D1xL



# BUSSOLA SPALLATA

EJECTOR GUIDE BUSH

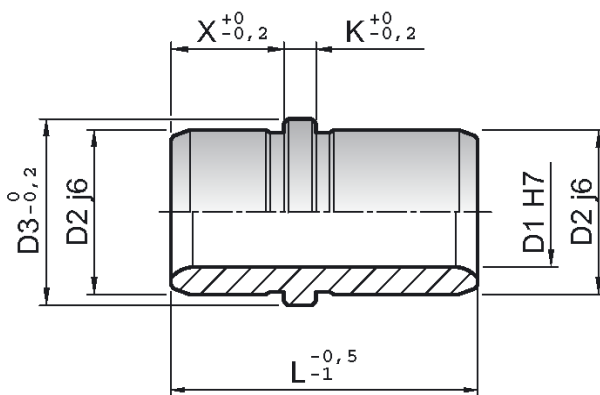
CODICE / Item no.

# B3

Materiale: 1.7131  
Material: 1.7131

Trattamento Termico:  
Cementazione + Tempra  
Heat Treatment: Cementing

Durezza: Hrc 61+ 63  
Hardness: Hrc 61+ 63



D1	D2	D3	X	K	L	
12	18	22	16	5	32	40
14	20	24	16	5	32	40
16	22	26	16	5	32	40
18	26	30	16	5	32	40
20	28	32	16	6	32	40
	30 <sup>●</sup>	34 <sup>●</sup>				
25	34	38	16	7	32	40
	36 <sup>●</sup>	40 <sup>●</sup>				
32	40	45	25	7	50	65
40	48	52	32	8	65	80
50	60	65	32	10	70	90

● a richiesta  
● on request

ESEMPIO DI ORDINAZIONE B3 D1xL  
EXAMPLE OF ORDER B3 D1xL



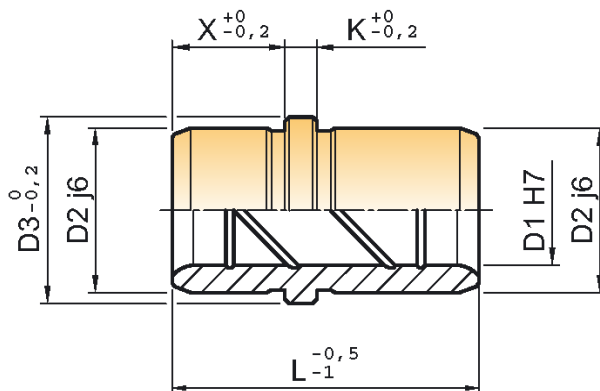
# BUSSOLA SPALLATA BRONZO INTEGRALE

EJECTOR BRONZE GUIDE BUSH

CODICE / Item no.

# B3B

Materiale: Bronzo  
Material: Bronze



D1	D2	D3	X	K	L	
12	18	22	16	5	32	40
14	20	24	16	5	32	40
16	22	26	16	5	32	40
18	26	30	16	5	32	40
20	28	32	16	6	32	40
	30 <sup>●</sup>	34 <sup>●</sup>				
25	34	38	16	7	32	40
	36 <sup>●</sup>	40 <sup>●</sup>				
32	40	45	25	7	50	65
40	48	52	32	8	65	80
50	60	65	32	10	70	90

● a richiesta  
● on request

ESEMPIO DI ORDINAZIONE B3B D1xL  
EXAMPLE OF ORDER B3B D1xL



# BUSSOLE DI CENTRAGGIO

CENTRING SLEEVE

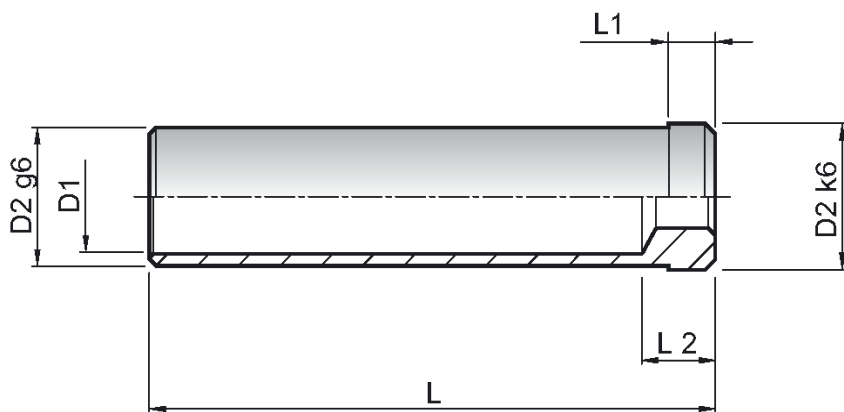
CODICE / Item no.

# BC

Materiale: 1.7131  
Material: 1.7131

Trattamento Termico:  
Cementazione + Tempra  
Heat Treatment: Cementing

Durezza: Hrc 61+ 63  
Hardness: Hrc 61+ 63



D2	D1	L2	L1	L						
				40	60	80	100	120	140	160
22	17	13	6	★	★	★	★	★	★	★
28	21	13	6		★	★	★	★	★	★
30 <sup>●</sup>	25	13	6		★	★	★	★	★	★
34	26	13	6		★	★	★	★	★	★
36 <sup>●</sup>										
40	33	13	6		★	★	★	★	★	★

● a richiesta  
● on request

ESEMPIO DI ORDINAZIONE BC D2xL  
EXAMPLE OF ORDER BC D2xL



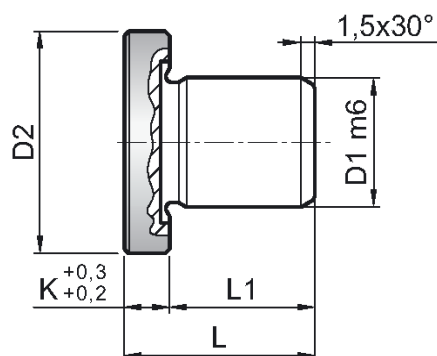


## APPOGGI TAVOLINO

BUFFER PLATE FOR EJECTOR SET

CODICE / Item no.

# AT



Materiale: 11 S Mn Pb 37  
Material: 11 S Mn Pb 37

Trattamento Termico:  
Cementazione + Tempra  
Heat Treatment: Cementing

Durezza: Hrc 58 + 60  
Hardness: Hrc 58 + 60

D1	D2	K	L
8	18	5	21
14	24	5	21

ESEMPIO DI ORDINAZIONE AT D1  
EXEMPLE OF ORDER AT D1

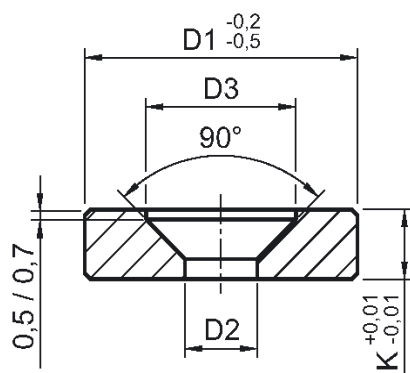


## APPOGGI TAVOLINO

SEATING WASHERS FOR EJECTOR SET

CODICE / Item no.

# ATF



Materiale: 1.7131  
Material: 1.7131

Trattamento Termico:  
Cementazione + Tempra  
Heat Treatment: Cementing

Durezza: Hrc 61+63  
Hardness: Hrc 61+63

D1	D2	K
18	4,3	3
20	5,3	5

ESEMPIO DI ORDINAZIONE ATF D1  
EXEMPLE OF ORDER ATF D1

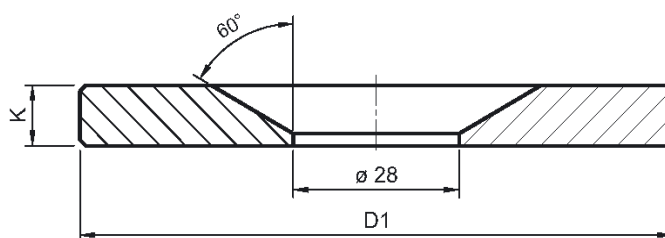


## ANELLI DI CENTRAGGIO

LOCATING RINGS

CODICE / Item no.

# AC



Materiale: 1.7131  
Material: 1.7131

DIAMETRO D1	60	70	80	90	100	125	150	175
K	10	10	10	10	10	10	10	10

ESEMPIO DI ORDINAZIONE AC D1  
EXEMPLE OF ORDER AC D1



# COLONNA CON TESTA

HEAD PILOT PINS

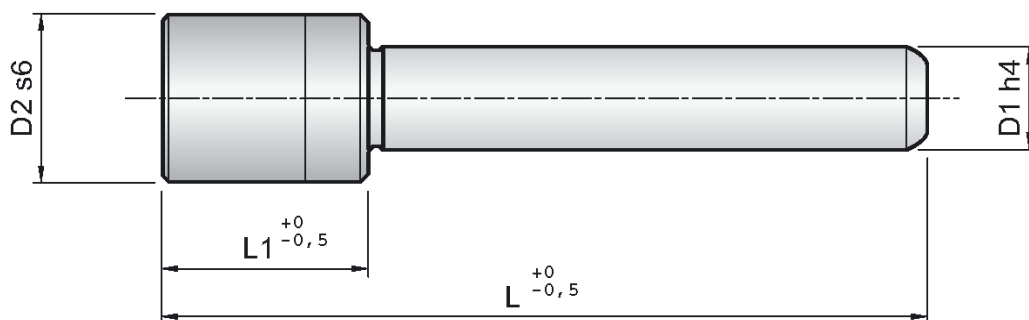
CODICE / Item no.

# C3

Materiale: 1.7131  
Material: 1.7131

Trattamento Termico:  
Cementazione + Tempra  
Heat Treatment: Cementing

Durezza: Hrc 61+63  
Hardness: Hrc 61+63



D1	D2	L1	85	95	105	115	125	135	145	155	170	185	200	225	250	275	300	325	350	400
15-16	26	30	★	★	★	★	★	★	★											
17-18	28	30	★	★	★	★														
		35					★	★	★	★	★	★	★							
19-20	30	30	★	★	★															
		35				★	★	★	★	★	★	★	★							
24-25	36	35				★	★	★												
		40							★	★	★	★	★	★	★					
30-31	45	40				★	★	★	★	★										
		45									★	★	★	★	★	★	★			
40-41	55	60							★	★										
		70									★	★	★	★	★	★	★	★	★	★
50-51	70	70									★	★	★	★	★	★	★	★	★	

ESEMPIO DI ORDINAZIONE C3 D1xL  
EXEMPLE OF ORDER C3 D1xL



# COLONNA SENZA TESTA

SMOOTH PILOT PINS

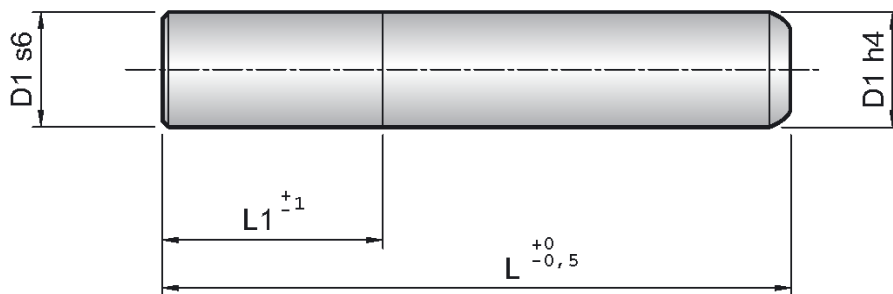
CODICE / Item no.

# C4

Materiale: 1.7131  
Material: 1.7131

Trattamento Termico:  
Cementazione + Tempra  
Heat Treatment: Cementing

Durezza: Hrc 61+ 63  
Hardness: Hrc 61+ 63



D1	L1	85	95	105	115	125	135	145	155	170	185	200	225	250	275	300	325	350	400
15-16	16	★	★	★	★	★	★	★	★										
17-18	18	★	★	★	★														
	18					★	★	★	★	★	★	★							
19-20	20	★	★	★															
	20				★	★	★	★	★	★	★	★							
24-25	25				★	★	★												
	25							★	★	★	★	★	★	★					
30-31	30				★	★	★	★	★										
	30									★	★	★	★	★	★	★			
40-41	40							★	★	★	★	★							
	40												★	★	★	★	★	★	★
50-51	50									★	★	★	★	★	★	★	★	★	★
63	63													★	★	★		★	★

ESEMPIO DI ORDINAZIONE C4 D1xL  
EXAMPLE OF ORDER C4 D1xL



# COLONNA CONICA

GUIDE PILLAR WITH TAPER LEAD

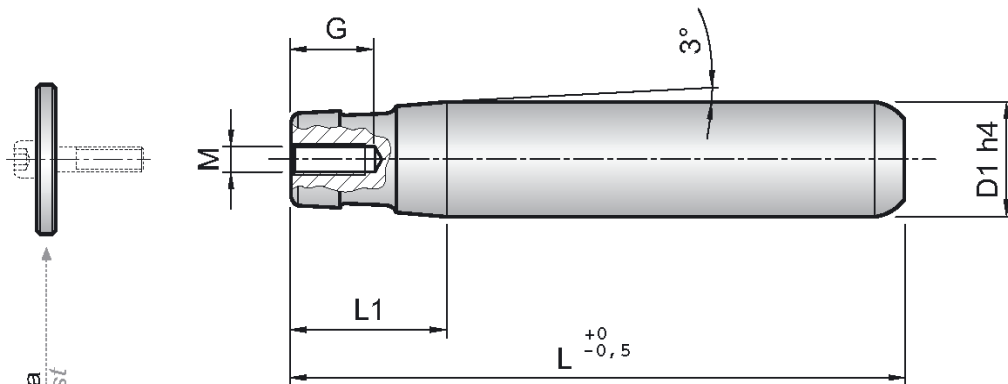
CODICE / Item no.

# C5

Materiale: 1.7131  
Material: 1.7131

Trattamento Termico:  
Cementazione + Tempra  
Heat Treatment: Cementing

Durezza: Hrc 61+63  
Hardness: Hrc 61+63



Rondella a richiesta  
Washers on request

D1	L1	G	M	115	135	155	170	185	200	225	250	300	400
24-25	48	20	8	★	★	★	★	★	★				
30-31	57	20	8		★	★	★	★	★	★	★	★	
40-41	63	25	10				★	★	★	★	★	★	★
50-51	80	25	10					★	★	★	★	★	★
63	86	25	10						★	★	★	★	★

ESEMPIO DI ORDINAZIONE C5 D1xL  
EXAMPLE OF ORDER C5 D1xL



# RONDELLA PER COLONNA C5

WASHERS FOR PILLAR C5

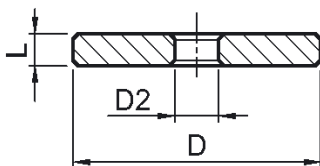
CODICE / Item no.

# RON

Materiale: 1.7131  
Material: 1.7131

Trattamento Termico:  
Cementazione + Tempra  
Heat Treatment: Cementing

Durezza: Hrc 61+63  
Hardness: Hrc 61+63



abbinare a Colonna C5	D	D2	L
24 - 25	28	8,7	6
30 - 31	36	8,7	6
40 - 41	43	10,7	8
50 - 51	53	10,7	8
63	70	10,7	8

ESEMPIO DI ORDINAZIONE RON D  
EXAMPLE OF ORDER RON D



# BUSSOLA LISCIA

PILOT BUSHES

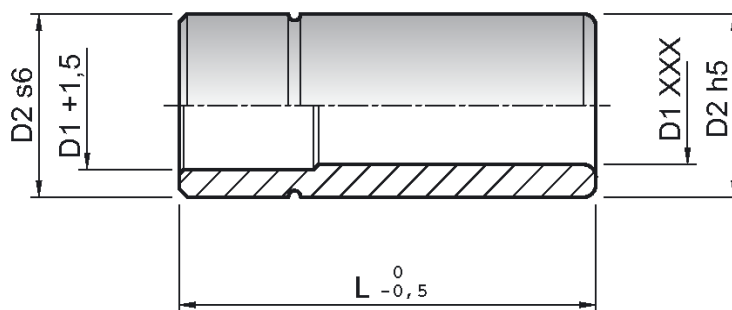
CODICE / Item no.

# B4

Materiale: 1.7131  
Material: 1.7131

Trattamento Termico:  
Cementazione + Tempra  
Heat Treatment: Cementing

Durezza: Hrc 61+ 63  
Hardness: Hrc 61+ 63



XXX	D1	D2	L	
			normale	corta
+ 0,006 + 0,010	15-16	26	50	35
	17-18	28	55	45
	19-20	30	60	45
	24-25	36	70	50
+ 0,008 + 0,012	30-31	45	80	55
	40-41	55	100	60
	50-51	70	100	60
	63	85	100	/

ESEMPIO DI ORDINAZIONE B4 D1xL  
EXAMPLE OF ORDER B4 D1xL



**BUSSOLA LISCIA ACCIAIO / BRONZO**  
*PILOT BUSHES, STEEL / BRONZE*

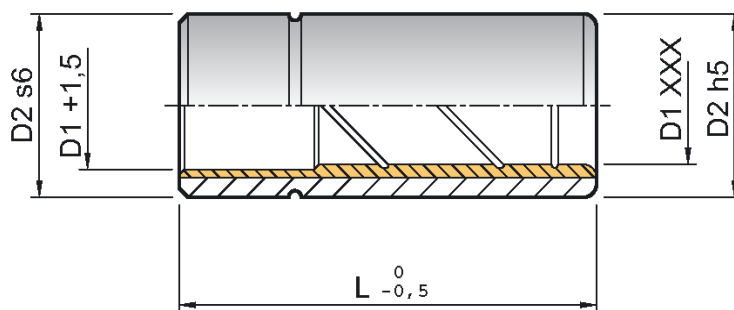
CODICE / Item no.

**B4B**

Materiale: 1.7131 + Bronzo  
*Material: 1.7131 + Bronze*

Trattamento Termico Acciaio:  
 Cementazione + Tempra  
*Heat Treatment Steel: Cementing*

Durezza Acciaio: Hrc 61+ 63  
*Hardness Steel: Hrc 61+ 63*



XXX	D1	D2	L	
			normale	corta
+ 0,006 + 0,010	15-16	26	50	35
	17-18	28	55	45
	19-20	30	60	45
	24-25	36	70	50
+ 0,008 + 0,012	30-31	45	80	55
	40-41	55	100	60
	50-51	70	100	60
	63	85	100	/

**ESEMPIO DI ORDINAZIONE B4B D1xL**  
*EXEMPLE OF ORDER B4B D1xL*



**BUSSOLA A COLLARE CON FORI DI FISSAGGIO**  
*FLANGED GUIDE BUSHES*

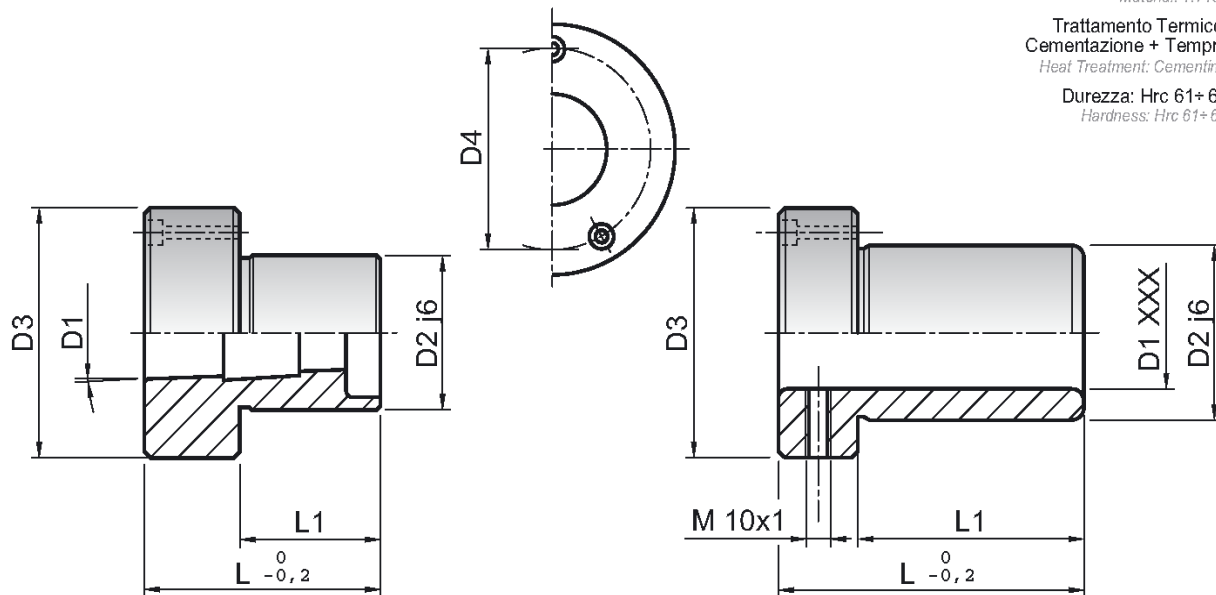
CODICE / Item no.

**B5**

Materiale: 1.7131  
 Material: 1.7131

Trattamento Termico:  
 Cementazione + Tempra  
 Heat Treatment: Cementing

Durezza: Hrc 61+ 63  
 Hardness: Hrc 61+ 63



XXX	D1	D2	D3	D4	L1	L	VITI
+ 0,008 + 0,012	24-25	40	63	50	43	63	M5
	30-31	48	72	58	47	72	M5
	40-41	58	83	70	52	80	M6
	50-51	70	103	86	58	100	M8
	63	85	120	100	57	99	M8

**ESEMPIO DI ORDINAZIONE B5 D1 (Cilindrico) - B5 D1 C (Conico)**  
*EXEMPLE OF ORDER B5 D1 (Cylindrical) - B5 D1 C (Conical)*



**BUSSOLA A COLLARE CON FORI DI FISSAGGIO  
ACCIAIO / BRONZO**

FLANGED GUIDE BUSHES, STEEL / BRONZE

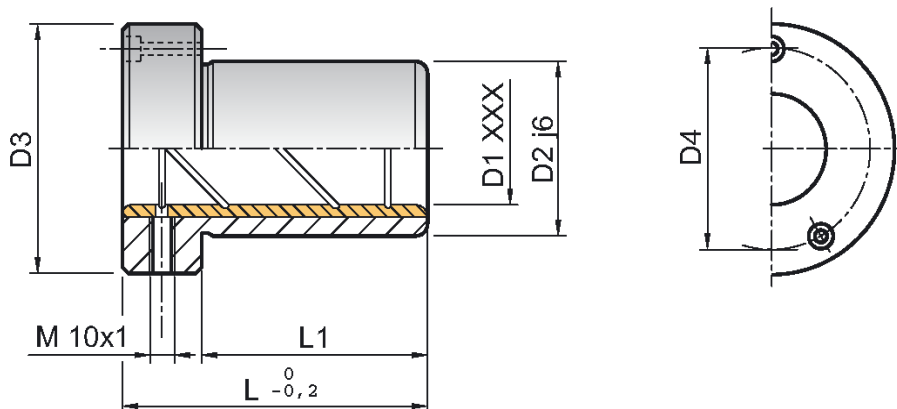
CODICE / Item no.

**B5B**

Materiale: 1.7131 + Bronzo  
Material: 1.7131 + Bronze

Trattamento Termico Acciaio:  
Cementazione + Tempra  
Heat Treatment Steel: Cementing

Durezza Acciaio: Hrc 61+63  
Hardness Steel: Hrc 61+63



XXX	D1	D2	D3	D4	L1	L	VITI
+ 0,008 + 0,012	24-25	40	63	50	43	63	M5
	30-31	48	72	58	47	72	M5
	40-41	58	83	70	52	80	M6
	50-51	70	103	86	58	100	M8
	63	85	120	100	57	99	M8

**ESEMPIO DI ORDINAZIONE B5B D1**  
EXAMPLE OF ORDER B5B D1



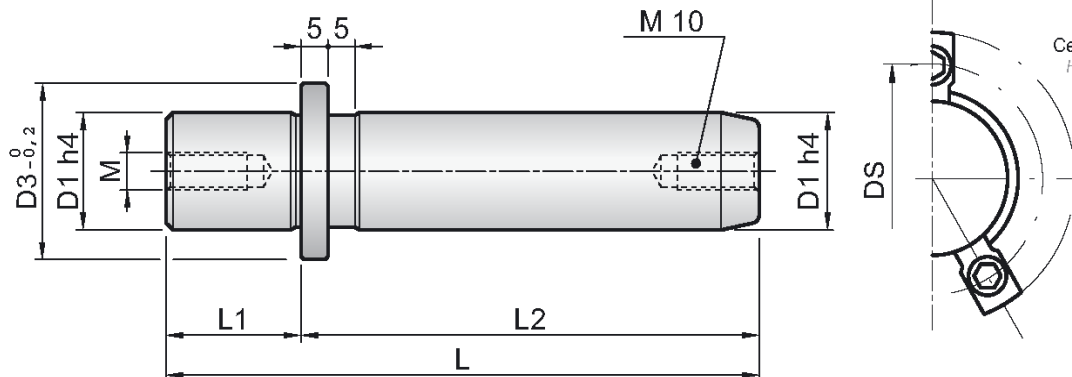


# COLONNA ESTRAIBILE

DEMOUNTABLE GUIDE PILLARS

CODICE / Item no.

# CEW



Materiale: 1.7131  
Material: 1.7131

Trattamento Termico:  
Cementazione + Tempra  
Heat Treatment: Cementing

Durezza: Hrc 61+63  
Hardness: Hrc 61+63

D1	D3	M	DS	STAF	L1	L2																						
						100	110	120	130	140	150	160	170	180	200	220	240	260	280	300	320	360	400					
80	93	12	103	M8	59													*	*	*	*	*	*	*	*	*	*	*

ESEMPIO DI ORDINAZIONE CEW D1xL2  
EXAMPLE OF ORDER CEW D1xL2

STAFFETTE E VITI A RICHIESTA  
CLAMPS AND SCREWS ON REQUEST

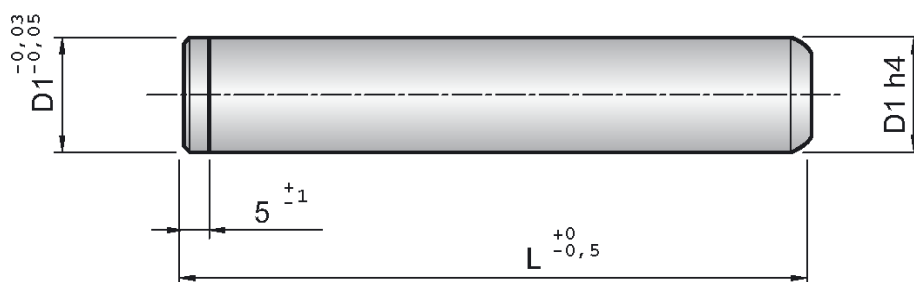


# COLONNA LISCIA CON INVITO

STRAIGHT GUIDE PILLAR

CODICE / Item no.

# CIS



Materiale: 1.7131  
Material: 1.7131

Trattamento Termico:  
Cementazione + Tempra  
Heat Treatment: Cementing

Durezza: Hrc 61+63  
Hardness: Hrc 61+63

D1	L																						
	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	300	320	350	360	400	
18-19	*	*	*	*	*	*	*	*	*														
24-25			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*					
30-32			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*					
40-42						*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		*	*
50-52							*	*	*	*	*	*	*	*	*	*	*	*	*	*		*	*
63								*	*	*	*	*	*	*	*	*	*	*	*		*	*	
80																	*	*	*		*	*	

ESEMPIO DI ORDINAZIONE CIS D1xL  
EXAMPLE OF ORDER CIS D1xL



# RONDELLA PER COLONNA CE

WASHERS FOR PILLARS CE

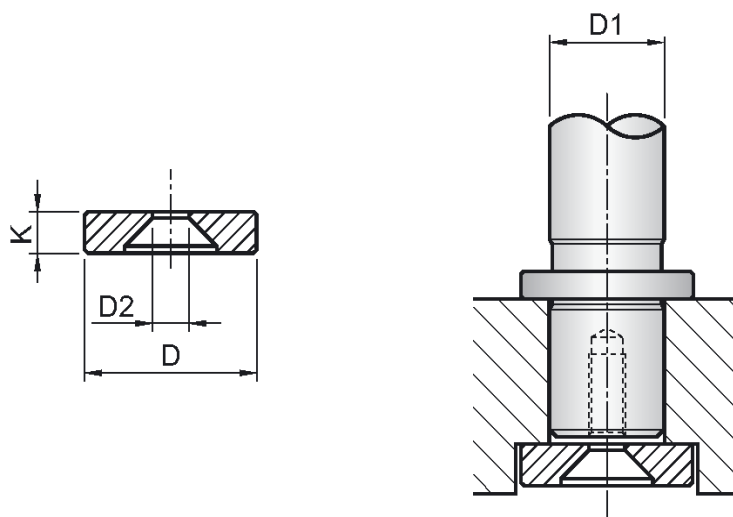
CODICE / Item no.

# RTE

Materiale: 16 Cr Ni 4  
Material: 16 Cr Ni 4

Trattamento Termico:  
Cementazione + Tempra  
Heat Treatment: Cementing

Durezza: Hrc 61+ 63  
Hardness: Hrc 61+ 63



CODICE	D1	D	K	D2
RTE 1	18-19	25	6	9
RTE 2	24-25	32	7	11
RTE 3	30-32	40	7	11
RTE 4	40-42	50	9	13
RTE 5	50-52	62	9	13
RTE 6	63	73	9	13
RTE 7	80	93	12	13

ESEMPIO DI ORDINAZIONE RTE D  
EXAMPLE OF ORDER RTE D

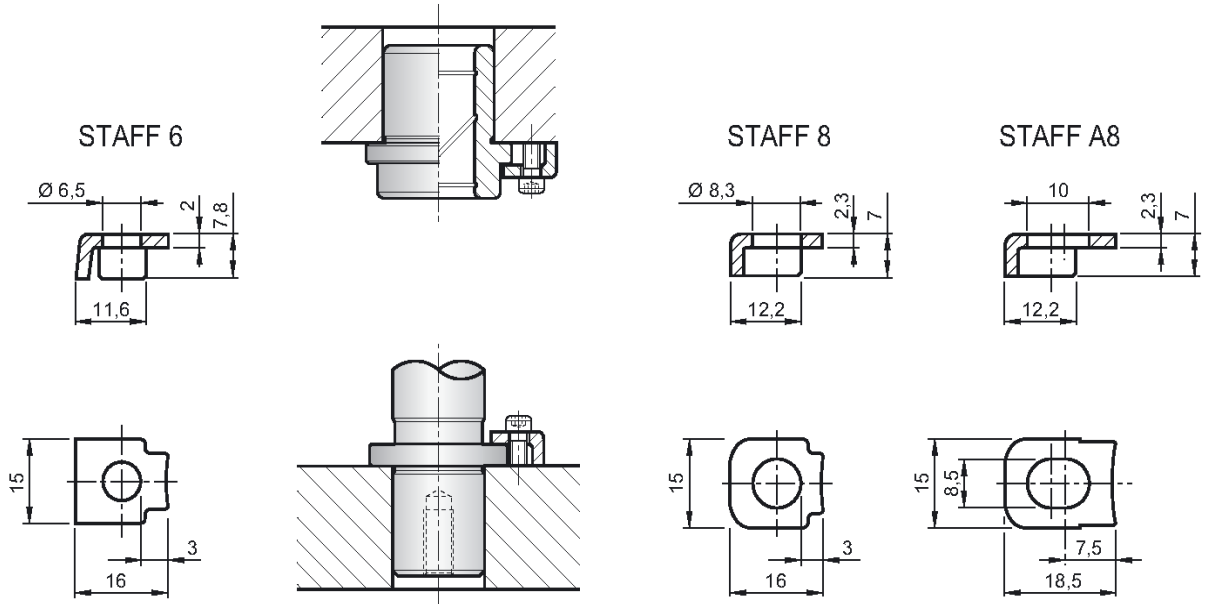


# STAFFETTE DI RITEGNO

RETAINING CLAMPS

CODICE / Item no.

# STAFF



N°3 STAFFETTE / CLAMPS  
N°3 STAFFETTE / CLAMPS

M6 dal / from  $\varnothing 18$  al / to  $\varnothing 25$   
M8 dal / from  $\varnothing 30$  al / to  $\varnothing 80$

ESEMPIO DI ORDINAZIONE STAFF (6 - 8 - A8)  
EXEMPLE OF ORDER STAFF (6 - 8 - A8)

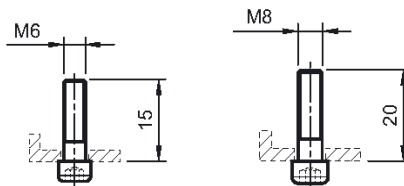


# VITI PER STAFFETTE

SCREWS FOR CLAMPS

CODICE / Item no.

# VITI





# BUSSOLA ESTRAIBILE

GUIDE BUSHES WITH SHOULDER

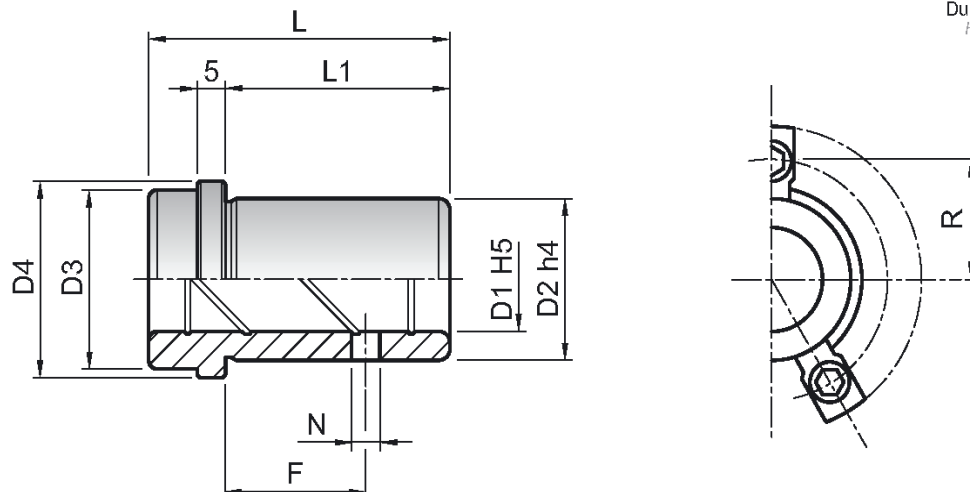
CODICE / Item no.

# BE

Materiale: 1.7131  
Material: 1.7131

Trattamento Termico:  
Cementazione + Tempra  
Heat Treatment: Cementing

Durezza: Hrc 61+ 63  
Hardness: Hrc 61+63



TIPO CORTO - C								
D1	L	D2	D3	D4	L1	R	N	F
18-19	31	28	29	34	18	21	5	8
24-25	36	38	39	44	23	26	5	9
30-32	43	45	48	53	30	31,5	5	11
40-42	51	54	58	63	38	36,5	8	11
50-52	61	65	74	79	48	44,5	8	14
63	74	81	87	92	61	51	8	19

**ESEMPIO DI ORDINAZIONE BE D1 C**  
**STAFFETTE E VITI A RICHIESTA**  
EXAMPLE OF ORDER BE D1 C  
CLAMPS AND SCREWS ON REQUEST

TIPO EXTRA MEDIO - XM								
D1	L	D2	D3	D4	L1	R	N	F
18-19	50	28	29	34	37	21	5	8
24-25	55	38	39	44	42	26	5	12
30-32	60	45	48	53	47	31,5	5	16
40-42	67	54	58	63	54	36,5	8	19
50-52	75	65	74	79	62	44,5	8	19
63	90	81	87	92	77	51	8	19

**ESEMPIO DI ORDINAZIONE BE D1 XM**  
**(STAFFETTE E VITI A RICHIESTA)**  
EXAMPLE OF ORDER BE D1 XM  
(CLAMPS AND SCREWS ON REQUEST)



# BUSSOLA ESTRAIBILE

GUIDE BUSHES WITH SHOULDER

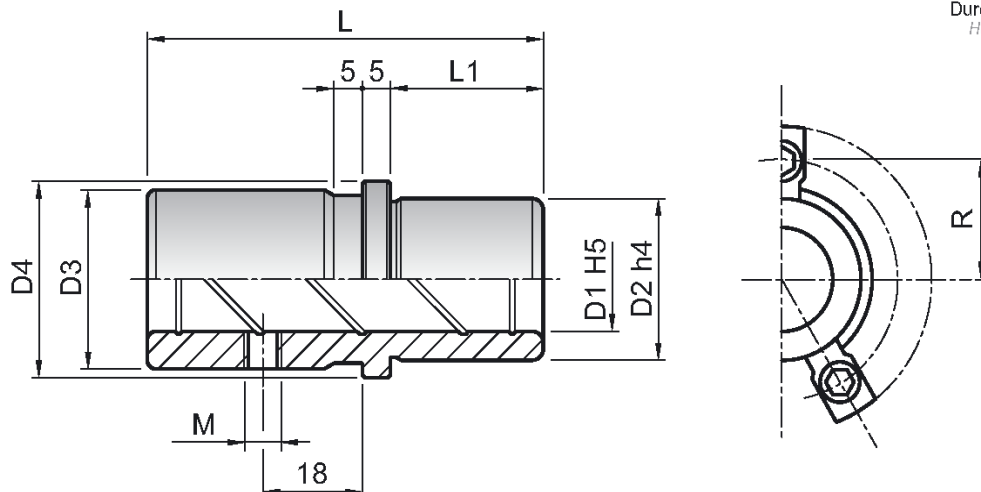
CODICE / Item no.

# BE

Materiale: 1.7131  
Material: 1.7131

Trattamento Termico:  
Cementazione + Tempra  
Heat Treatment: Cementing

Durezza: Hrc 61+63  
Hardness: Hrc 61+63



TIPO MEDIO - M							
D1	L	D2	D3	D4	L1	R	M
18-19	50	28	31	34	18	21	6x1
24-25	55	38	41	44	23	26	10x1
30-32	60	45	50	53	26	31,5	10x1
40-42	67	54	60	63	30	36,5	10x1
50-52	75	65	76	79	35	44,5	10x1
63	90	81	89	92	48	51	10x1

ESEMPIO DI ORDINAZIONE BE D1 M  
(STAFFETTE E VITI A RICHIESTA)  
EXAMPLE OF ORDER BE D1 M  
(CLAMPS AND SCREWS ON REQUEST)

TIPO LUNGO - L							
D1	L	D2	D3	D4	L1	R	M
18-19	70	28	31	34	18	21	6x1
24-25	80	38	41	44	23	26	10x1
30-32	90	45	50	53	26	31,5	10x1
40-42	100	54	60	63	30	36,5	10x1
50-52	110	65	76	79	35	44,5	10x1
63	130	81	89	92	48	51	10x1

ESEMPIO DI ORDINAZIONE BE D1 L  
(STAFFETTE E VITI A RICHIESTA)  
EXAMPLE OF ORDER BE D1 L  
(CLAMPS AND SCREWS ON REQUEST)

TIPO EXTRA LUNGO - XL							
D1	L	D2	D3	D4	L1	R	M
18-19	70	28	31	34	27	21	6x1
24-25	80	38	41	44	32	26	10x1
30-32	90	45	50	53	37	31,5	10x1
40-42	100	54	60	63	47	36,5	10x1
50-52	110	65	76	79	57	44,5	10x1
63	130	81	89	92	67	51	10x1

ESEMPIO DI ORDINAZIONE BE D1 XL  
(STAFFETTE E VITI A RICHIESTA)  
EXAMPLE OF ORDER BE D1 XL  
(CLAMPS AND SCREWS ON REQUEST)



# BUSSOLA ESTRAIBILE ACCIAIO / BRONZO

GUIDE BUSHES WITH SHOULDER, STEEL / BRONZE

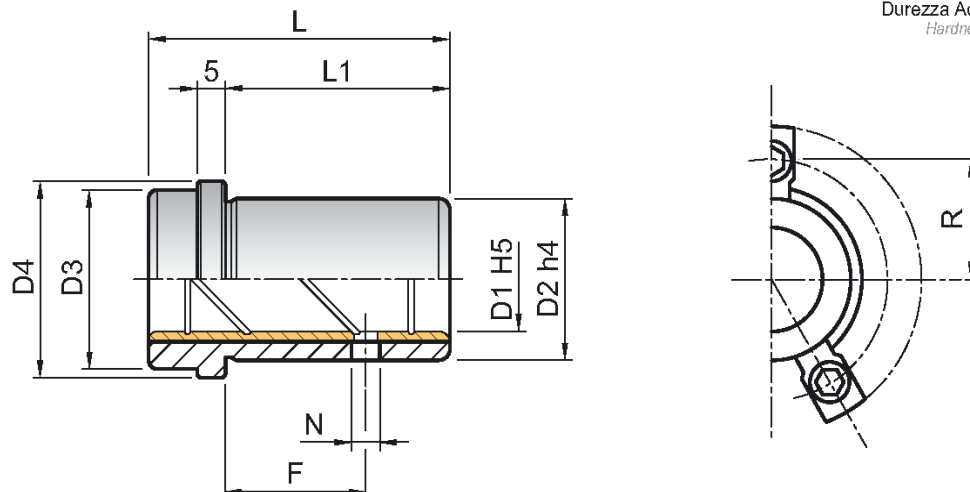
CODICE / Item no.

# BEB

Materiale: 1.7131 + Bronzo  
Material: 1.7131 + Bronze

Trattamento Termico Acciaio:  
Cementazione + Tempra  
Heat Treatment Steel: Cementing

Durezza Acciaio: Hrc 61+ 63  
Hardness Steel: Hrc 61+63



TIPO CORTO - C								
D1	L	D2	D3	D4	L1	R	N	F
18-19	31	28	29	34	18	21	5	8
24-25	36	38	39	44	23	26	5	12
30-32	43	45	48	53	30	31,5	5	16
40-42	51	54	58	63	38	36,5	8	19
50-52	61	65	74	79	48	44,5	8	19
63	74	81	87	92	61	51	8	19
80	91	100	106	111	78	60,5	8	19

**ESEMPIO DI ORDINAZIONE BEB D1 C**  
(STAFFETTE E VITI A RICHIESTA)  
EXAMPLE OF ORDER BEB D1 C  
(CLAMPS AND SCREWS ON REQUEST)

TIPO EXTRA MEDIO - XM								
D1	L	D2	D3	D4	L1	R	N	F
18-19	50	28	29	34	37	21	5	8
24-25	55	38	39	44	42	26	5	12
30-32	60	45	48	53	47	31,5	5	16
40-42	67	54	58	63	54	36,5	8	19
50-52	75	65	74	79	62	44,5	8	19
63	90	81	87	92	77	51	8	19

**ESEMPIO DI ORDINAZIONE BEB D1 XM**  
(STAFFETTE E VITI A RICHIESTA)  
EXAMPLE OF ORDER BEB D1 XM  
(CLAMPS AND SCREWS ON REQUEST)



# BUSSOLA ESTRAIBILE ACCIAIO / BRONZO

GUIDE BUSHES WITH SHOULDER, STEEL / BRONZE

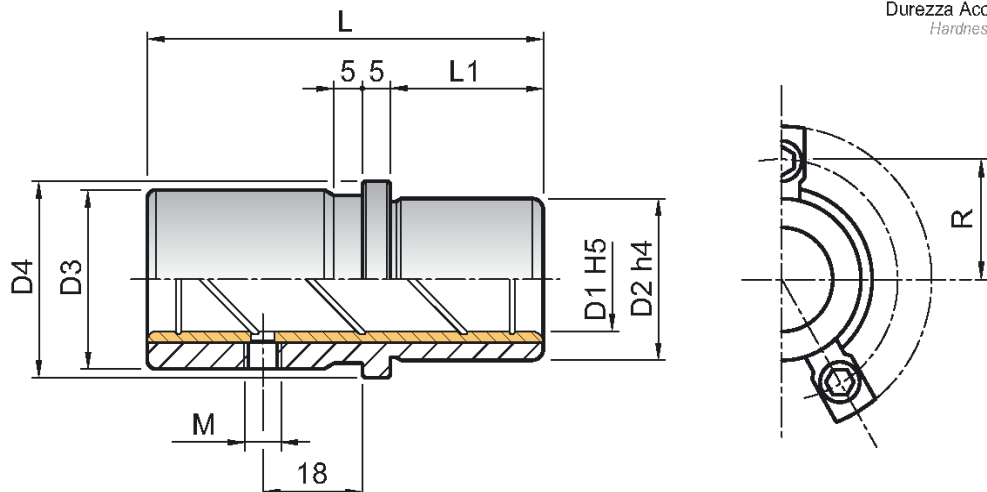
CODICE / Item no.

# BEB

Materiale: 1.7131 + Bronzo  
Material: 1.7131 + Bronze

Trattamento Termico Acciaio:  
Cementazione + Tempra  
Heat Treatment Steel: Cementing

Durezza Acciaio: Hrc 61+63  
Hardness Steel: Hrc 61+63



TIPO MEDIO - M							
D1	L	D2	D3	D4	L1	R	M
18-19	50	28	31	34	18	21	6x1
24-25	55	38	41	44	23	26	10x1
30-32	60	45	50	53	26	31,5	10x1
40-42	67	54	60	63	30	36,5	10x1
50-52	75	65	76	79	35	44,5	10x1
63	90	81	89	92	48	51	10x1
80	100	100	108	111	48	60,5	10x1

ESEMPIO DI ORDINAZIONE BEB D1 M  
(STAFFETTE E VITI A RICHIESTA)  
EXAMPLE OF ORDER BEB D1 M  
(CLAMPS AND SCREWS ON REQUEST)

TIPO LUNGO - L							
D1	L	D2	D3	D4	L1	R	M
18-19	70	28	31	34	18	21	6x1
24-25	80	38	41	44	23	26	10x1
30-32	90	45	50	53	26	31,5	10x1
40-42	100	54	60	63	30	36,5	10x1
50-52	110	65	76	79	35	44,5	10x1
63	130	81	89	92	48	51	10x1
80	150	100	108	111	48	60,5	10x1

ESEMPIO DI ORDINAZIONE BEB D1 L  
(STAFFETTE E VITI A RICHIESTA)  
EXAMPLE OF ORDER BEB D1 L  
(CLAMPS AND SCREWS ON REQUEST)

TIPO EXTRA LUNGO - XL							
D1	L	D2	D3	D4	L1	R	M
18-19	70	28	31	34	27	21	6x1
24-25	80	38	41	44	32	26	10x1
30-32	90	45	50	53	37	31,5	10x1
40-42	100	54	60	63	47	36,5	10x1
50-52	110	65	76	79	57	44,5	10x1
63	130	81	89	92	67	51	10x1
80	150	100	108	111	77	60,5	10x1

ESEMPIO DI ORDINAZIONE BEB D1 XL  
(STAFFETTE E VITI A RICHIESTA)  
EXAMPLE OF ORDER BEB D1 XL  
(CLAMPS AND SCREWS ON REQUEST)



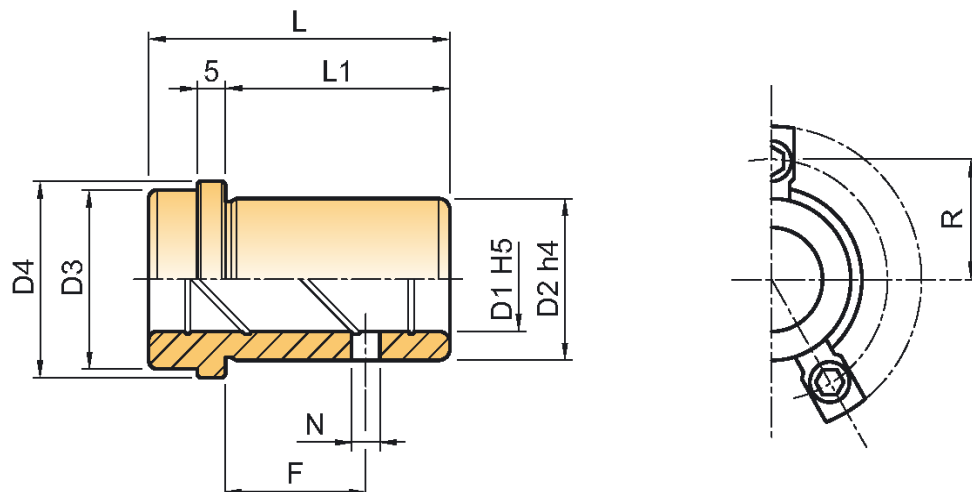
# BUSSOLA ESTRAIBILE BRONZO INTEGRALE

GUIDE BUSHES WITH SHOULDER, BRONZE

CODICE / Item no.

# BBE

Materiale: Bronzo  
Material: Bronze



TIPO CORTO - C								
D1	L	D2	D3	D4	L1	R	N	F
18-19	31	28	29	34	18	21	5	8
24-25	36	38	39	44	23	26	5	12
30-32	43	45	48	53	30	31,5	5	16
40-42	51	54	58	63	38	36,5	8	19
50-52	61	65	74	79	48	44,5	8	19
63	74	81	87	92	61	51	8	19
80	91	100	106	111	78	60,5	8	19

**ESEMPIO DI ORDINAZIONE BBE D1 C**  
(STAFFETTE E VITI A RICHIESTA)  
EXAMPLE OF ORDER BBE D1 C  
(CLAMPS AND SCREWS ON REQUEST)

TIPO EXTRA MEDIO - XM								
D1	L	D2	D3	D4	L1	R	N	F
18-19	50	28	29	34	37	21	5	8
24-25	55	38	39	44	42	26	5	12
30-32	60	45	48	53	47	31,5	5	16
40-42	67	54	58	63	54	36,5	8	19
50-52	75	65	74	79	62	44,5	8	19
63	90	81	87	92	77	51	8	19

**ESEMPIO DI ORDINAZIONE BBE D1 XM**  
(STAFFETTE E VITI A RICHIESTA)  
EXAMPLE OF ORDER BBE D1 XM  
(CLAMPS AND SCREWS ON REQUEST)



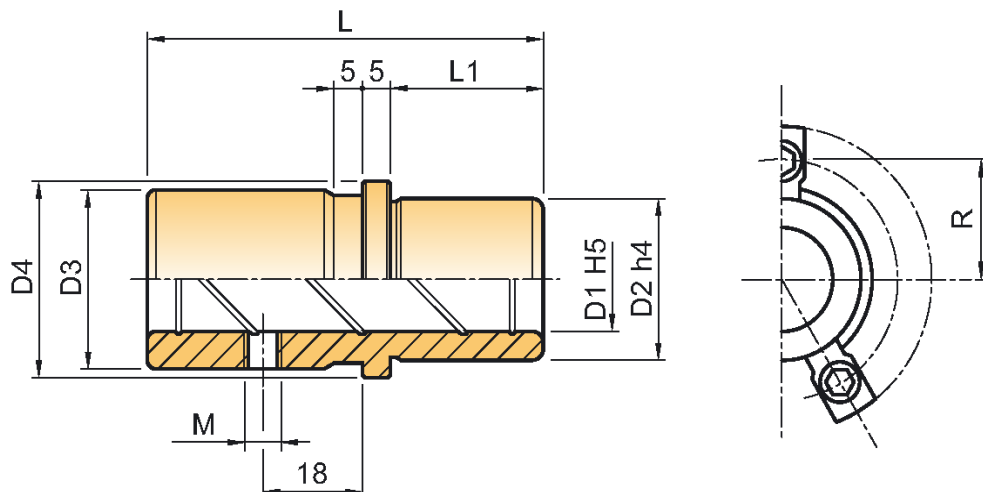
# BUSSOLA ESTRAIBILE BRONZO INTEGRALE

GUIDE BUSHES WITH SHOULDER, BRONZE

CODICE / Item no.

# BBE

Materiale: Bronzo  
Material: Bronze



TIPO MEDIO - M							
D1	L	D2	D3	D4	L1	R	M
18-19	50	28	31	34	18	21	6x1
24-25	55	38	41	44	23	26	10x1
30-32	60	45	50	53	26	31,5	10x1
40-42	67	54	60	63	30	36,5	10x1
50-52	75	65	76	79	35	44,5	10x1
63	90	81	89	92	48	51	10x1
80	100	100	108	111	48	60,5	10x1

ESEMPIO DI ORDINAZIONE BBE D1 M  
(STAFFETTE E VITI A RICHIESTA)  
EXAMPLE OF ORDER BBE D1 M  
(CLAMPS AND SCREWS ON REQUEST)

TIPO LUNGO - L							
D1	L	D2	D3	D4	L1	R	M
18-19	70	28	31	34	18	21	6x1
24-25	80	38	41	44	23	26	10x1
30-32	90	45	50	53	26	31,5	10x1
40-42	100	54	60	63	30	36,5	10x1
50-52	110	65	76	79	35	44,5	10x1
63	130	81	89	92	48	51	10x1
80	150	100	108	111	48	60,5	10x1

ESEMPIO DI ORDINAZIONE BBE D1 L  
(STAFFETTE E VITI A RICHIESTA)  
EXAMPLE OF ORDER BBE D1 L  
(CLAMPS AND SCREWS ON REQUEST)

TIPO EXTRA LUNGO - XL							
D1	L	D2	D3	D4	L1	R	M
18-19	70	28	31	34	27	21	6x1
24-25	80	38	41	44	32	26	10x1
30-32	90	45	50	53	37	31,5	10x1
40-42	100	54	60	63	47	36,5	10x1
50-52	110	65	76	79	57	44,5	10x1
63	130	81	89	92	67	51	10x1
80	150	100	108	111	77	60,5	10x1

ESEMPIO DI ORDINAZIONE BBE D1 XL  
(STAFFETTE E VITI A RICHIESTA)  
EXAMPLE OF ORDER BBE D1 XL  
(CLAMPS AND SCREWS ON REQUEST)

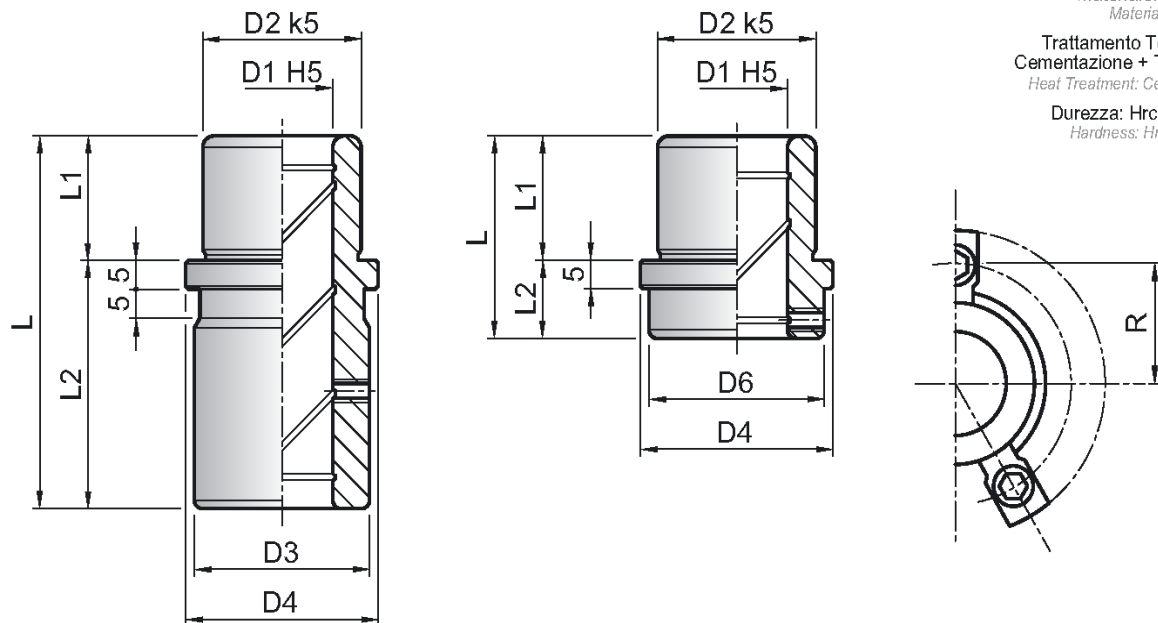


# BUSSOLA ESTRAIBILE

GUIDE BUSHES WITH SHOULDER

CODICE / Item no.

# BESS



Materiale: 1.7131  
Material: 1.7131

Trattamento Termico:  
Cementazione + Tempra  
Heat Treatment: Cementing

Durezza: Hrc 61+ 63  
Hardness: Hrc 61+ 63

D1	L		L1	L2	D2	D3	D4	D6	R
25	40	70	25	45	40	42	45	37	25,5
30	50	80	30	50	45	52	55	47	32,5
40	55	90	35	55	55	62	65	57	37,5
50	65	100	45	55	70	77	79	72	44,5
63	68	110	48	62	81	90	92	84	51

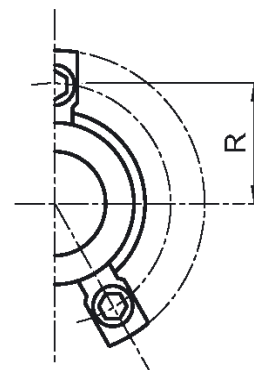
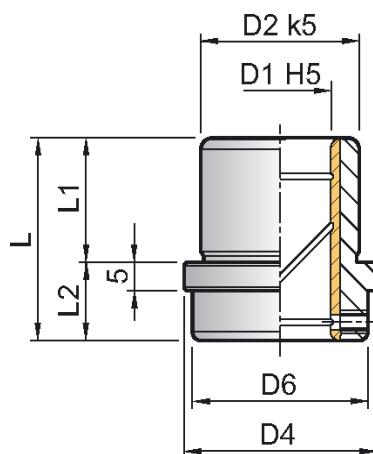
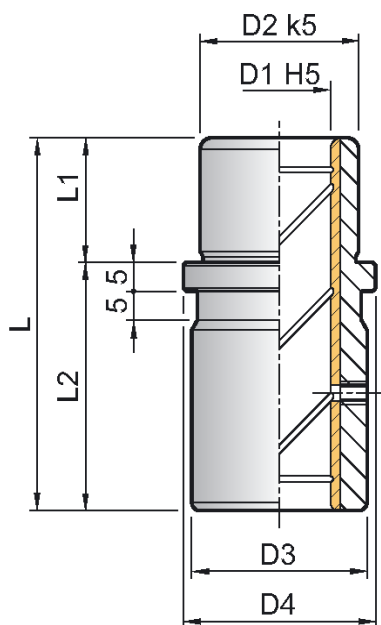
ESEMPIO DI ORDINAZIONE BESS D1xL  
STAFFETTE E VITI A RICHIESTA  
EXAMPLE OF ORDER BESS D1xL  
CLAMPS AND SCREWS ON REQUEST



**BUSSOLA ESTRAIBILE ACCIAIO / BRONZO**  
GUIDE BUSHES WITH SHOULDER, STEEL / BRONZE

CODICE / Item no.

**BEBSS**



Materiale: 1.7131 + Bronzo  
Material: 1.7131 + Bronze

Trattamento Termico Acciaio:  
Cementazione + Tempra

Heat Treatment Steel: Cementing

Durezza Acciaio: Hrc 61+63

Hardness Steel: Hrc 61+ 63

D1	L	L1	L2	D2	D3	D4	D6	R	
25	40	70	25	45	40	42	45	37	25,5
30	50	80	30	50	45	52	55	47	32,5
40	55	90	35	55	55	62	65	57	37,5
50	65	100	45	55	70	77	79	72	44,5
63	68	110	48	62	81	90	92	84	51

**ESEMPIO DI ORDINAZIONE BEBSS D1xL**  
**STAFFETTE E VITI A RICHIESTA**

**EXAMPLE OF ORDER BEBSS D1xL**  
**CLAMPS AND SCREWS ON REQUEST**



# VITI A COLLETO

## SHOULDER SCREWS

CODICE / Item no.

# VCOL

Materiale: ISO 12.9  
Material: ISO 12.9

Durezza: Hrc 38 + 44  
Hardness: Hrc 38 + 44

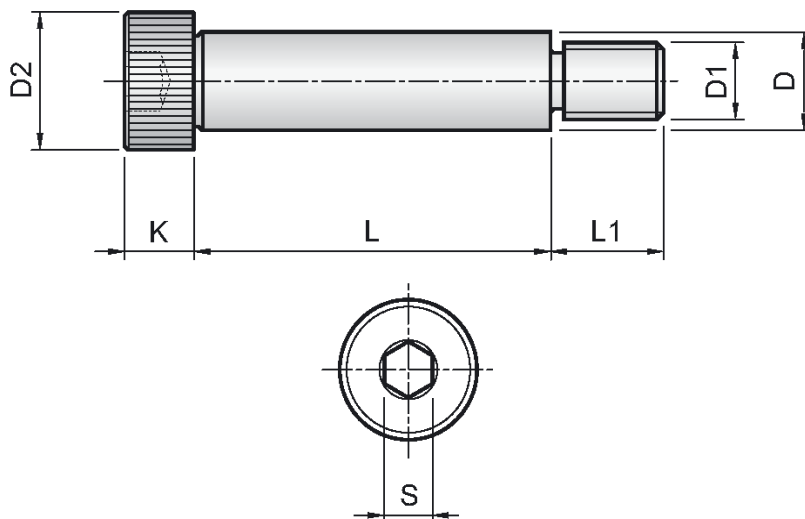
Resistenza al taglio: 730 N/mm<sup>2</sup>  
Shear Strength: 730 N/mm<sup>2</sup>

Tolleranza gambo rettificato: h8  
Tolerance of the ground shaft: h8

Resistenza alla rottura per trazione:  
100/120 Kg/mm<sup>2</sup>  
Tensile strength: 100/120 Kg/mm<sup>2</sup>

Allungamento: 9%  
Stretch: 9%

Limite di elasticità: 90 Kg/mm min  
Limit of elasticity: 90 Kg/mm min



D	6	8	10	12	16	20	24	
D1	M 5x0,8	M 6x1	M 8x1,25	M 10x1,5	M 12x1,75	M 16x2	M 20x2,5	
D2	10	13	16	18	24	30	36	
K	4,5	5,5	7	9	11	14	16	
L1	9,5	11	13	16	18	22	27	
S	3	4	5	6	8	10	12	
L	10	★	★					
	12	★	★					
	16	★	★	★	★			
	20	★	★	★	★			
	25	★	★	★	★			
	30	★	★	★	★	★		
	35	★	★	★	★	★		
	40	★	★	★	★	★	★	
	45	★	★	★	★	★		
	50	★	★	★	★	★	★	★
	55	★	★	★	★	★	★	★
	60		★	★	★	★	★	★
	65		★	★	★	★		
	70		★	★	★	★	★	★
80		★	★	★	★	★	★	
90				★	★	★	★	
100			★	★	★	★	★	
120				★	★	★	★	

ESEMPIO DI ORDINAZIONE VCOL DxL  
EXAMPLE OF ORDER VCOL DxL

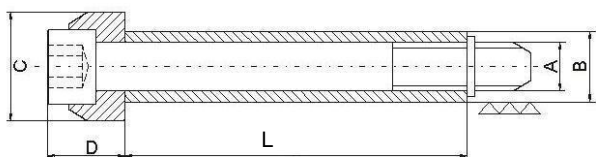


# VITI A COLLETO

SHOULDER SCREWS

CODICE / Item no.

# CRM



**MATERIAL** : Steel 1.7242  
**DUREZA / HARDNESS** : 46-48 Hrc

	A	M-6	M-8	M-10	M-12	M-16
<b>B</b>		10	13	16	18	23
<b>C</b>		15	19	22	26	34
<b>D</b>		10	13	15	18	24
<b>L</b>	10					
	12					
	16					
	20	★				
	25	★				
	30	★	★	★		
	35	★	★	★		
	40	★	★	★	★	
	45	★	★	★	★	
	50	★	★	★	★	★
	55	★	★	★	★	★
	60	★	★	★	★	★
	65					
	70		★	★	★	★
	80		★	★	★	★
90			★	★	★	
100			★	★	★	
120				★	★	

EXEMPLE OF ORDER : CRM / A x L



# BARRE PER SCORRIMENTO LINEARE

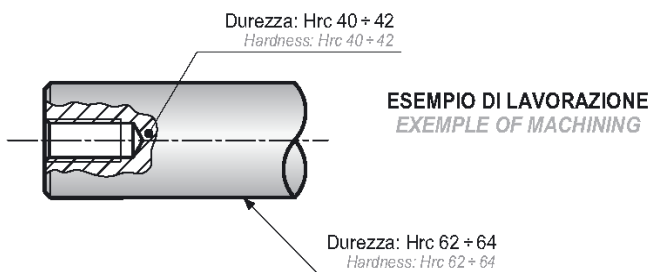
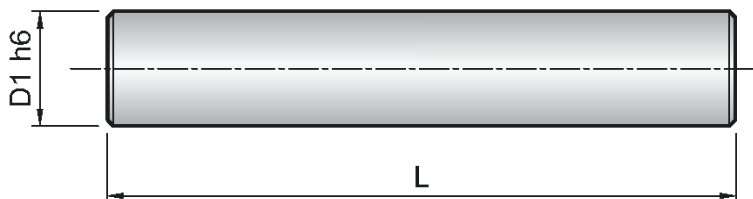
SHAFTS FOR LINEAR MOTION

CODICE / Item no.

# BARRAT

Materiale: CF 53 - W. Nr. 1.1213  
Material: CF 53 - W. Nr. 1.1213

Trattamento Termico:  
Temperate a induzione  
Heat Treatment:  
Hardened for induction



D1	L = 1.000
5	★
6	★
8	★
10	★
12	★
14	★
15	★
16	★
18	★
20	★
22	★
25	★
28	★
30	★
32	★
35	★
40	★
45	★
50	★
60	★
70	★
80	★
90	★
100	★

a richiesta altre lunghezze  
on request different length

ESEMPIO DI ORDINAZIONE BARRAT D1xL  
EXEMPLE OF ORDER BARRAT D1xL



# ISO - TOLLERANZE

## ISO - TOLERANCES

CODICE / Item no.

**Outside diameters (shafts):** Dimensions in  $\mu\text{m} = 0,001 \text{ mm}$

Range in mm	Tolerance class																	
	f6	f7	g6	h3	h4	h5	h6	h8	h9	j6	js6	js9	js14	js15	k6	m5	m6	n6
over 0	-6	-6	-2	0	0	0	0	0	0	+4	+3	+12,5	+125	+200	+6	+6	+8	+10
to 3	-12	-12	-8	-2	-3	-4	-6	-14	-25	-2	-3	-12,5	-125	-200	0	+2	+2	+4
over 3	-10	-10	-4	0	0	0	0	0	0	+6	+4	+15	+150	+240	+9	+9	+12	+16
to 6	-18	-22	-12	-2,5	-4	-5	-8	-18	-30	-2	-4	-15	-150	-240	+1	+4	+4	+8
over 6	-13	-13	-5	0	0	0	0	0	0	+7	+4,5	+18	+180	+290	+10	+12	+15	+19
to 10	-22	-28	-14	-2,5	-4	-6	-9	-22	-36	-2	-4,5	-18	-180	-290	+1	+6	+6	+10
over 10	-16	-16	-6	0	0	0	0	0	0	+8	+5,5	+21,5	+215	+350	+12	+15	+18	+23
to 18	-27	-34	-17	-3	-5	-8	-11	-27	-43	-3	-5,5	-21,5	-215	-350	+1	+7	+7	+12
over 18	-20	-20	-7	0	0	0	0	0	0	+9	+6,5	+26	+260	+420	+15	+17	+21	+28
to 30	-33	-41	-20	-4	-6	-9	-13	-33	-52	-4	-6,5	-26	-260	-420	+1	+8	+8	+15
over 30	-25	-25	-9	0	0	0	0	0	0	+11	+8	+31	+310	+500	+18	+20	+25	+33
to 50	-41	-50	-25	-4	-7	-11	-16	-39	-62	-5	-8	-31	-310	-500	+2	+9	+9	+17
over 50	-30	-30	-10	0	0	0	0	0	0	+12	+9,5	+37	+370	+600	+21	+24	+30	+39
to 80	-49	-60	-29	-5	-8	-13	-19	-46	-74	-7	-9,5	-37	-370	-600	+2	+11	+11	+20
over 80	-36	-36	-12	0	0	0	0	0	0	+13	+11	+43,5	+435	+700	+25	+28	+35	+45
to 120	-58	-71	-34	-6	-10	-15	-22	-54	-87	-9	-11	-43,5	-435	-700	+3	+13	+13	+23

**Inside diameters (bores):** Dimensions in  $\mu\text{m} = 0,001 \text{ mm}$

Range in mm	Tolerance class																	
	E8	F7	G7	H5	H6	H7	H8	H9	H10	H11	J7	JS5	K6	K7	M6	M7	P6	P7
over 0	+28	+16	+12	+4	+6	+10	+14	+25	+40	+60	+4	+2	0	0	-2	-2	-6	-6
to 3	+14	+6	+2	0	0	0	0	0	0	0	-6	-2	-6	-10	-8	-12	-12	-16
over 3	+38	+22	+16	+5	+8	+12	+18	+30	+48	+75	+6	+2,5	+2	+3	-1	0	-9	-8
to 6	+20	+10	+4	0	0	0	0	0	0	0	-6	-2,5	-6	-9	-9	-12	-17	-20
over 6	+47	+28	+20	+6	+9	+15	+22	+36	+58	+90	+8	+3	+2	+5	-3	0	-12	-9
to 10	+25	+13	+5	0	0	0	0	0	0	0	-7	-3	-7	-10	-12	-15	-21	-24
over 10	+59	+34	+24	+8	+11	+18	+27	+43	+70	+110	+10	+4	+2	+6	-4	0	-15	-11
to 18	+32	+16	+6	0	0	0	0	0	0	0	-8	-4	-9	-12	-15	-18	-26	-29
over 18	+73	+41	+28	+9	+13	+21	+33	+52	+84	+130	+12	+4,5	+2	+6	-4	0	-18	-14
to 30	+40	+20	+7	0	0	0	0	0	0	0	-9	-4,5	-11	-15	-17	-21	-31	-35
over 30	+89	+50	+34	+11	+16	+25	+39	+62	+100	+160	+14	+5,5	+3	+7	-4	0	-21	-17
to 50	+50	+25	+9	0	0	0	0	0	0	0	-11	-5,5	-13	-18	-20	-25	-37	-42
over 50	+106	+60	+40	+13	+19	+30	+46	+74	+120	+190	+18	+6,5	+4	+9	-5	0	-26	-21
to 80	+60	+30	+10	0	0	0	0	0	0	0	-12	-6,5	-15	-21	-24	-30	-45	-51
over 80	+125	+71	+47	+15	+22	+35	+54	+87	+140	+220	+22	+7,5	+4	+10	-6	0	-30	-24
to 120	+72	+36	+12	0	0	0	0	0	0	0	-13	-7,5	-18	-25	-28	-35	-52	-59



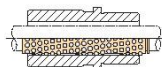
Ed. 7/2009





**CIS**  
COLONNA LISCIA  
STRAIGHT GUIDE PILLAR

02



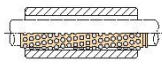
**BEAG**  
BUSSOLA ESTRAIBILE PER GABBIA A SFERE  
BALL CAGES DEMOUNTABLE BUSHES

13



**CIAF**  
COLONNA LISCIA FILETTATA  
STRAIGHT GUIDE PILLAR WITH THREAD

03



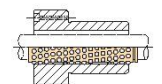
**BLAG**  
BUSSOLA LISCIA PER GABBIA A SFERE  
BALL CAGES GUIDE BUSHES

14



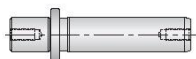
**CEA**  
COLONNA ESTRAIBILE  
DEMOUNTABLE GUIDE PILLARS

04



**B5AG**  
BUSSOLA A COLLARE PER GABBIA A SFERE  
BALL CAGES FLANGED GUIDE BUSHES

15



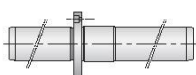
**CEAQ**  
COLONNA ESTRAIBILE  
DEMOUNTABLE GUIDE PILLARS

05



**BEA**  
BUSSOLA ESTRAIBILE  
DEMOUNTABLE BUSHES

16



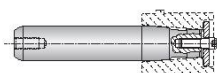
**CEAS**  
COLONNA CON FLANGIA  
STRIPPER MOUNTED PILLARS

06



**BEA**  
BUSSOLA ESTRAIBILE  
DEMOUNTABLE BUSHES

17



**C5A**  
COLONNA CONICA  
DEMOUNTABLE CONICAL PILLARS

07



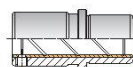
**BEBA**  
BUSSOLA ESTRAIBILE ACCIAIO / BRONZO  
DEMOUNTABLE BUSHES STEEL / BRONZE

18



**BEAC**  
BUSSOLA CONICA  
DEMOUNTABLE CONICAL BUSHES

07



**BEBA**  
BUSSOLA ESTRAIBILE ACCIAIO / BRONZO  
DEMOUNTABLE BUSHES STEEL / BRONZE

19



**STAFF**  
STAFFETTE DI RITEGNO  
RETAINING CLAMPS

08



**B5A**  
BUSSOLA A COLLARE CON FORI DI FISSAGGIO  
FLANGED GUIDE BUSHES

20



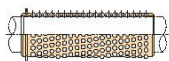
**RTI**  
RONDELLA PER COLONNA CE  
WASHERS FOR PILLAR CE

09



**B5BA**  
BUSSOLA A COLLARE CON FORI DI FISSAGGIO  
ACCIAIO / BRONZO  
FLANGED GUIDE BUSHES, STEEL / BRONZE

21

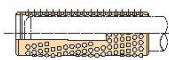


**GSA**  
GABBIA A SFERE  
BALL CAGE

10

ISO - TOLLERANZE  
ISO - TOLERANCES

22

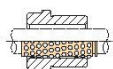


**GSAB**  
GABBIA A SFERE CON BLOCCAGGIO  
BALL CAGES WITH ARREST GROOVE

11

ALTRI PRODOTTI  
OTHER ITEM

23



**BEAG**  
BUSSOLA ESTRAIBILE PER GABBIA A SFERE  
BALL CAGES DEMOUNTABLE BUSHES

12

NOTE  
NOTES

24



**COLONNA LISCIA**  
STRAIGHT GUIDE PILLAR

CODICE / Item no.

**CIS**

Materiale: 1.7131

Material: 1.7131

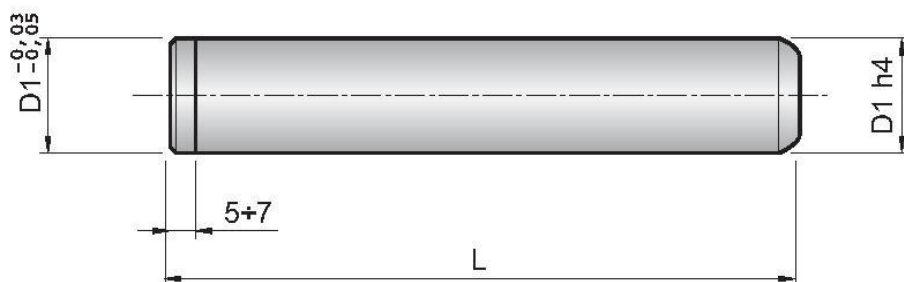
Trattamento Termico:

Cementazione + Tempra

Heat Treatment: Cementing

Durezza: Hrc 61+63

Hardness: Hrc 61+63



D1	L																		
	100	112	125	140	160	180	200	224	250	280	315	355	400	450	500	600	700	800	
19-20	★	★	★	★	★	★	★	★	★										
24-25			★	★	★	★	★	★	★	★	★	★	★	★	★				
30-32			★	★	★	★	★	★	★	★	★	★	★	★	★				
38-40					★	★	★	★	★	★	★	★	★	★	★				
48-50							★	★	★	★	★	★	★	★	★				
60-63									★	★	★	★	★	★	★				
80										★	★	★	★	★	★	★	★	★	

ESEMPIO DI ORDINAZIONE CIS D1xL

EXEMPLE OF ORDER CIS D1xL



**COLONNA LISCIA FILETTATA**  
STRAIGHT GUIDE PILLAR WITH THREAD

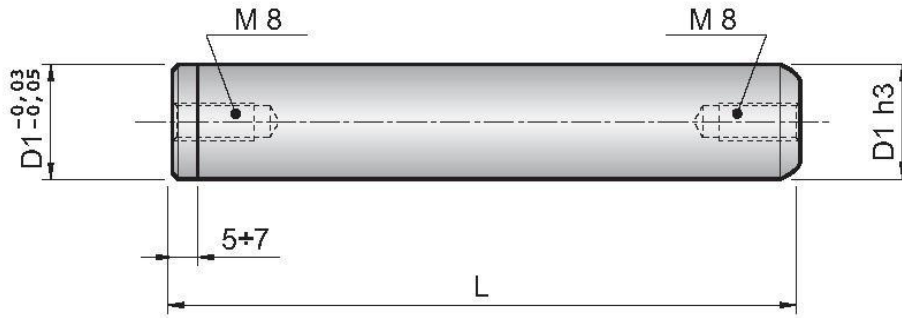
CODICE / Item no.

**CIAF**  
ISO

Materiale: 1.7131  
Material: 1.7131

Trattamento Termico:  
Cementazione + Tempra  
Heat Treatment: Cementing

Durezza: Hrc 61+ 63  
Hardness: Hrc 61+ 63



D1	L																						
	100	112	125	140	160	180	200	224	250	280	315	355	400	450	500	600	700	800					
19-20	★	★	★	★	★	★	★	★	★														
24-25			★	★	★	★	★	★	★	★	★	★	★	★	★								
30-32			★	★	★	★	★	★	★	★	★	★	★	★	★								
38-40					★	★	★	★	★	★	★	★	★	★	★								
48-50							★	★	★	★	★	★	★	★	★								
60-63									★	★	★	★	★	★	★								
80										★	★	★	★	★	★	★	★	★					

ESEMPIO DI ORDINAZIONE CIAF D1xL  
EXEMPLE OF ORDER CIAF D1xL







# COLONNA CON FLANGIA

STRIPPER MOUNTED PILLARS

CODICE / Item no.

**CEAS**  
ISO

Materiale: 1.7131

Material: 1.7131

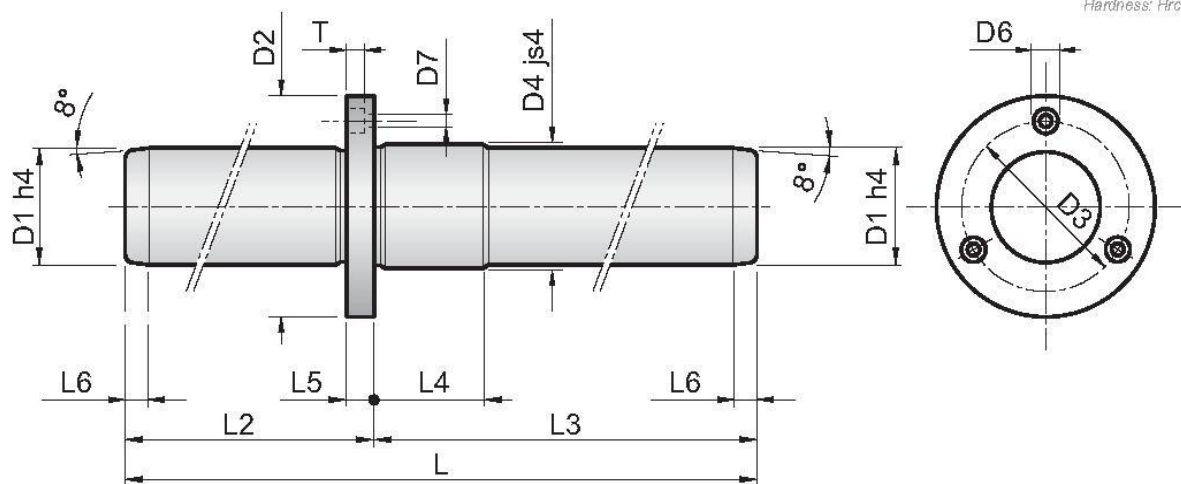
Trattamento Termico:

Cementazione + Tempra

Heat Treatment: Cementing

Durezza: Hrc 61+63

Hardness: Hrc 61+63



D1	D2	D3	D4	D6	D7	T	L	L2	L3	L4	L5	L6
19	42	32	22	8	4,5	4,6	160	70	90		8	4
							170	70	100			
							180	80	100			
							190	80	110			
							200	90	110			
25	48	38	26	8	4,5	4,6	180	80	100	22	8	6
							190	80	110			
							200	90	110			
							210	90	120			
							220	100	120			
32	60	48	34	10	5,5	5,7	180	80	100	25	10	7
							190	80	110			
							200	90	110			
							210	90	120			
							220	100	120			
40	70	56	42	11	6,6	6,8	200	90	110	27	12	7
							210	90	120			
							220	100	120			
							230	100	130			
							240	110	130			
							250	110	140			
							260	120	140			

ESEMPIO DI ORDINAZIONE CEAS D1xL2xL3

EXAMPLE OF ORDER CEAS D1xL2xL3

Casalmáquinas Lda. • Apartado 268 Casal de Álvaro 3754-909 Águeda • Tel. +351 234624026 • Fax. +351 234624015

Email :geral@casalmaquinas.pt • www.casalmaquinas.pt

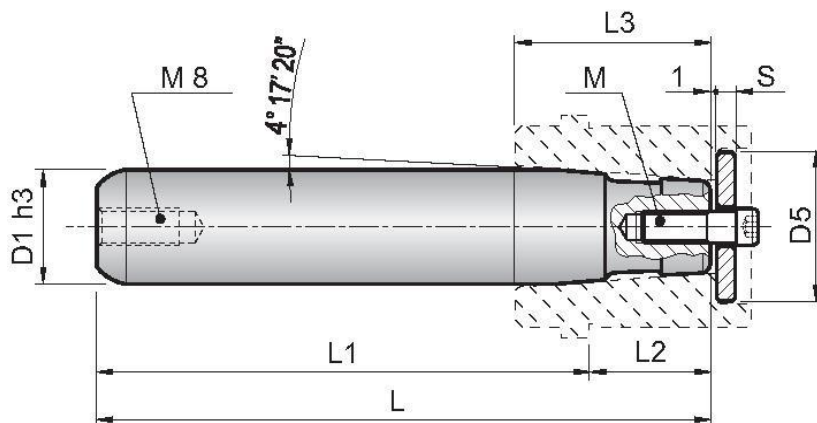


## COLONNA CONICA

DEMOUNTABLE CONICAL PILLARS

CODICE / Item no.

**C5A**  
ISO



Materiale: 1.7131

Material: 1.7131

Trattamento Termico:  
Cementazione + Tempra  
Heat Treatment: Cementing

Durezza: Hrc 61+63

Hardness: Hrc 61+63

D1	M	L3	S	D5	L1											
					100	112	125	140	160	180	200	224	250	280	315	355
24-25	M 8x20	35	4	25	123	135	148	163	183	203	223	247	273			
30-32	M 8x20	48	4	32		145	158	173	193	213	233	257	283	313		
38-40	M 8x20	48	4	40			158	173	193	213	233	257	283	313	348	
48-50	M 10x20	58	5	50				180	200	220	240	264	290	320	355	395
60-63	M 12x30	69	6	63					211	231	251	275	301	331	366	406

ESEMPIO DI ORDINAZIONE C5A D1xL1xL3

EXAMPLE OF ORDER C5A D1xL1xL3

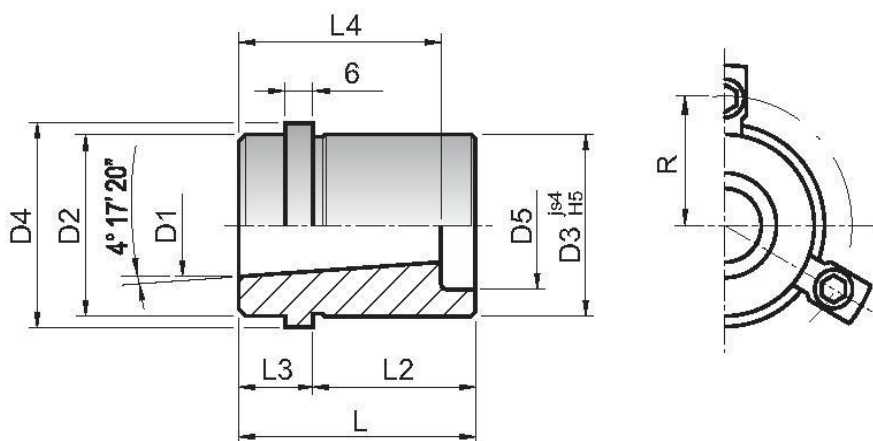


## BUSSOLA CONICA

DEMOUNTABLE CONICAL BUSHES

CODICE / Item no.

**BEAC**  
ISO



Materiale: 1.7131

Material: 1.7131

Trattamento Termico:  
Cementazione + Tempra  
Heat Treatment: Cementing

Durezza: Hrc 61+63

Hardness: Hrc 61+63

D1	D2	D3	D4	D5	R	L	L2	L3	L4
24-25	40	40	48	26	30	49-59	37-47	12	36
30-32	48	48	56	33	33,5	52-62	37-47	15	49
38-40	58	58	66	41	38,5	62-75	47-60	15	49
48-50	70	70	80	51	45,5	65-78	47-60	18	59
60-63	85	85	95	64	53	78-95	60-77	18	70

ESEMPIO DI ORDINAZIONE BEAC D1xL

EXAMPLE OF ORDER BEAC D1xL



# STAFFETTE DI RITEGNO

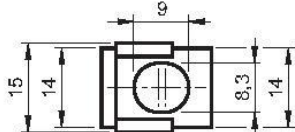
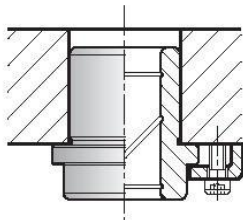
RETAINING CLAMPS

CODICE / Item no.

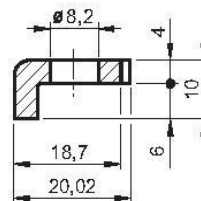
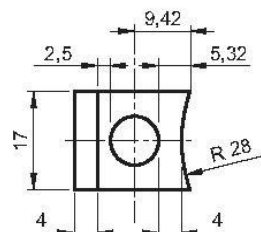
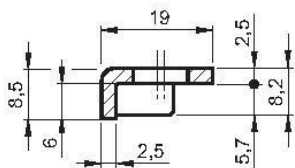
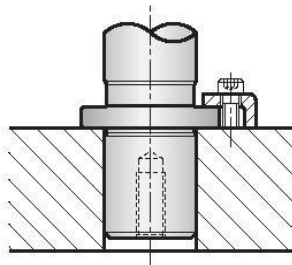
# STAFF

ISO

STAFF ISO 8  
(Staffetta ISO)  
(Retaining Clamps ISO)



STAFF P ISO 8  
(Staffetta Pesante ISO)  
(Stronger Retaining Clamps ISO)



N. 3 STAFFETTE / CLAMPS

ESEMPIO DI ORDINAZIONE STAFF ISO 8 / STAFF P ISO 8  
EXAMPLE OF ORDER STAFF ISO 8 / STAFF P ISO 8

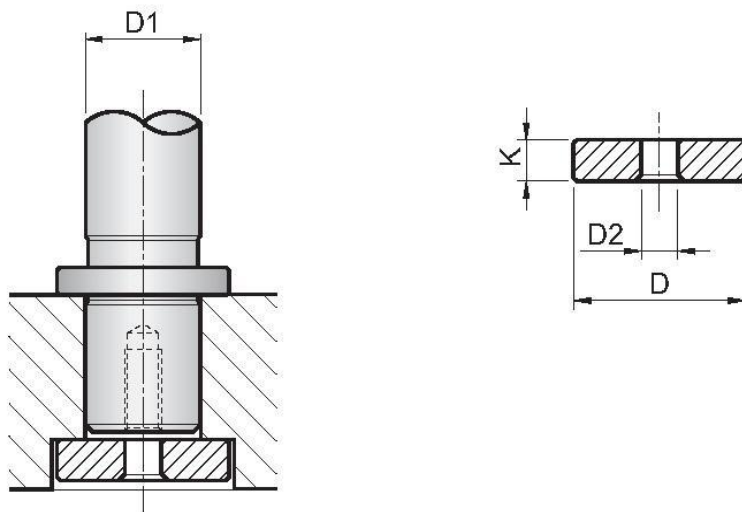
N. 3 VITI / SCREWS M8x20 (a richiesta / on request)



**RONDELLA PER COLONNA CEA / CEAQ**  
WASHERS FOR PILLARS CEA / CEAQ

CODICE / Item no.

**RTI**  
**ISO**



D1	D	K	D2
19-20	25	6	8,5
24-25	32	6	8,5
30-32	40	6	8,5
38-40	50	6	8,5
48-50	60	6	8,5
60-63	70	6	8,5
80	93	12	12,5

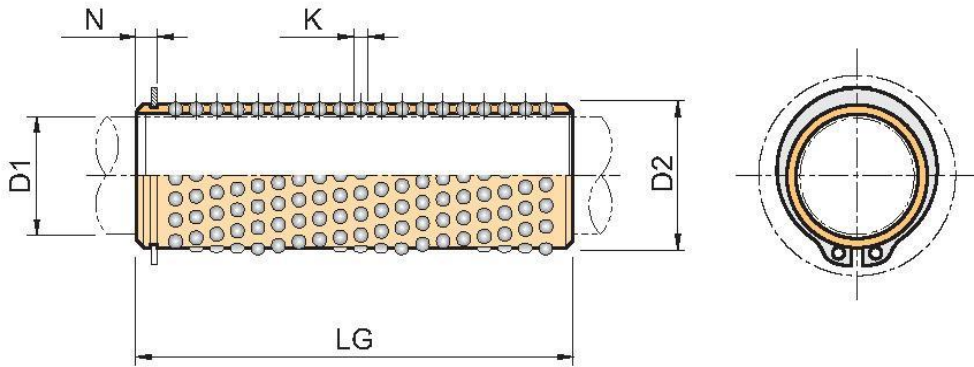
ESEMPIO DI ORDINAZIONE RTI D  
EXAMPLE OF ORDER RTI D



# GABBIA A SFERE BALL CAGES

CODICE / Item no.

**GSA**  
**ISO**



D1	19	20	24	25	30	32	38	40	48	50	60	63	80
D2	25	26	30	31	38	40	46	48	56	58	68	71	92
K	3		3		4		4		4		4		6
N	2,9		3,2		3,95		3,95		4,25		4,75		6,15
<b>LG</b>	40			160		120							
	45	180		180		140		168					
	50					160		192		224			
	56	240		240		180		216					
	63							264		308			
	71	320		320		240							
	80	360		360		280		336		392			
	95	440		440		340		408		476		544	
	105					380		456		532		608	
	120			560		440		528		616		704	540
	140					520		624		728		832	648
	160					600		720		840		960	756
	180							816		952		1088	864
	200							912		1064		1216	972
240							1104		1288		1472	1152	

ESEMPIO DI ORDINAZIONE GSA D1xLG  
EXEMPLE OF ORDER GSA D1xLG

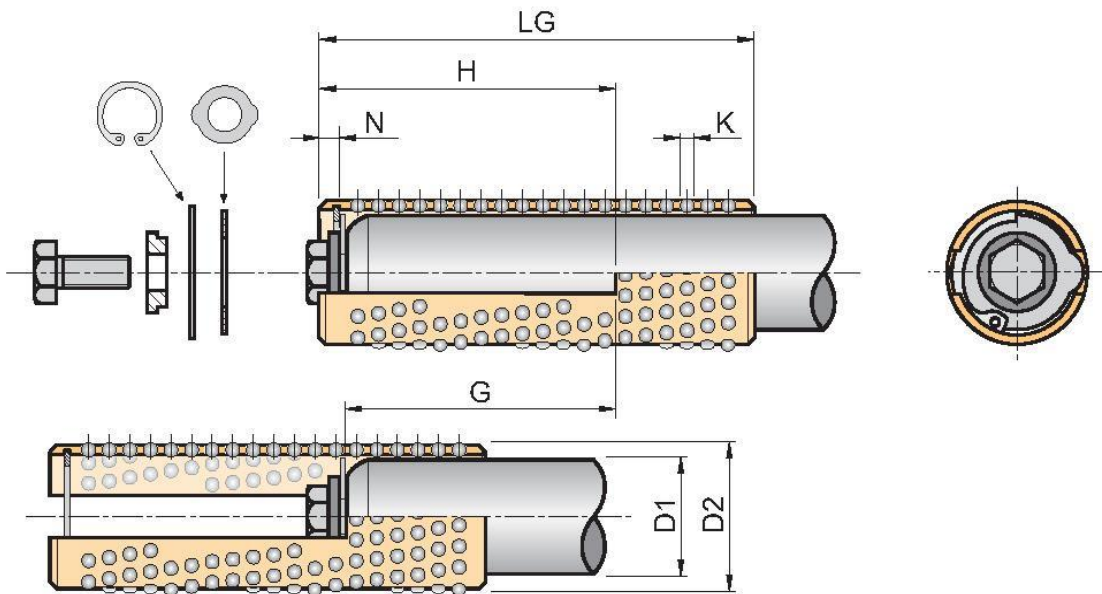


# GABBIA A SFERE CON BLOCCAGGIO

BALL CAGES WITH ARREST GROOVE

CODICE / Item no.

**GSAB**  
ISO



D1	19	20	24	25	30	32	38	40	48	50	60	63	80
D2	25	26	30	31	38	40	46	48	56	58	68	71	92
K	3		3		4		4		4		4		6
N	2,6		2,6		2,6		3,5		4,3		4,3		5
H	31		31		41		51		51		61		61
	41		41		51		61		61		73		73
	51		51		61		61		61		83		83
							73		73				
G	26,9		26,9		36,9		45,5		44,7		54,7		54
	36,9		36,9		46,9		55,5		54,7		66,7		66
	46,9		46,9		56,9		55,5		54,7		76,7		76
					56,9		67,5		66,7				
LG	56		56		70		80		80		95		95
	72		72		80		95		95		120		120
	80		80		95		105		105		140		140
					105		120		120				

ESEMPIO DI ORDINAZIONE GSAB D1xLG  
EXEMPLE OF ORDER GSAB D1xLG



**BUSSOLA ESTRAIBILE PER GABBIA A SFERE**  
*BALL CAGES DEMOUNTABLE BUSHES*

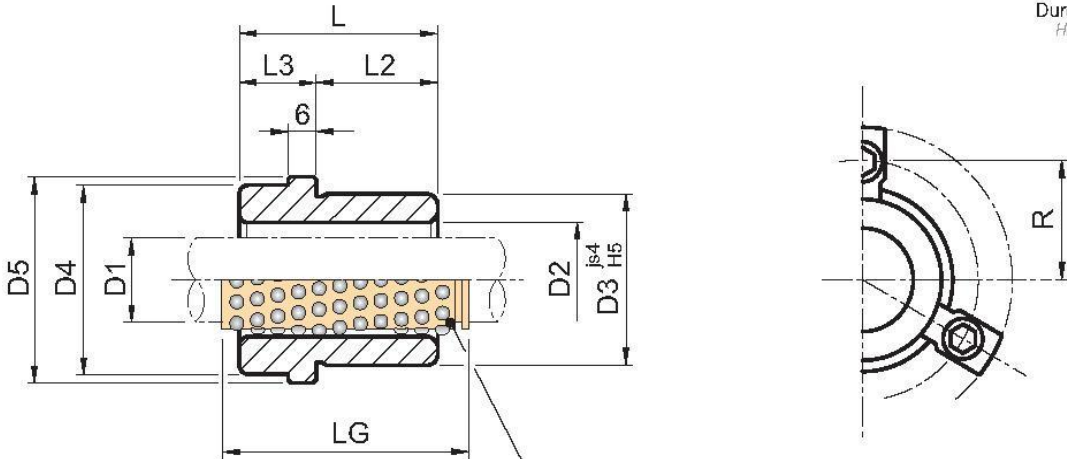
CODICE / Item no.

**BEAG**  
**ISO**

Materiale: 1.7131  
 Material: 1.7131

Trattamento Termico:  
 Cementazione + Tempra  
 Heat Treatment: Cementing

Durezza: Hrc 61+63  
 Hardness: Hrc 61+63



da ordinare separatamente: GABBIA A SFERE GSA  
 To be ordered separately: BALL CAGES GSA

TIPO 7									
D1	D2	D3	D4	D5	R	L	L2	L3	LG
19-20	25-26	32	32	40	26	35	23	12	45
24-25	30-31	40	40	48	30	35	23	12	45
30-32	38-40	48	48	56	33,5	42	30	12	56
38-40	46-48	58	58	66	38,5	52	37	15	63
48-50	56-58	70	70	80	45,5	65	47	18	80
60-63	68-71	85	85	95	53	80	60	20	95
80	92	105	105	118	64,5	80	60	20	120

**ESEMPIO DI ORDINAZIONE BEAG D1 TIPO 7**  
**STAFFETTE E VITI A RICHIESTA**

*EXAMPLE OF ORDER BEAG D1 TYPE 7*  
*CLAMPS AND SCREWS ON REQUEST*



# BUSSOLA ESTRAIBILE PER GABBIA A SFERE

## BALL CAGES DEMOUNTABLE BUSHES

CODICE / Item no.

# BEAG

## ISO

Materiale: 1.7131

Material: 1.7131

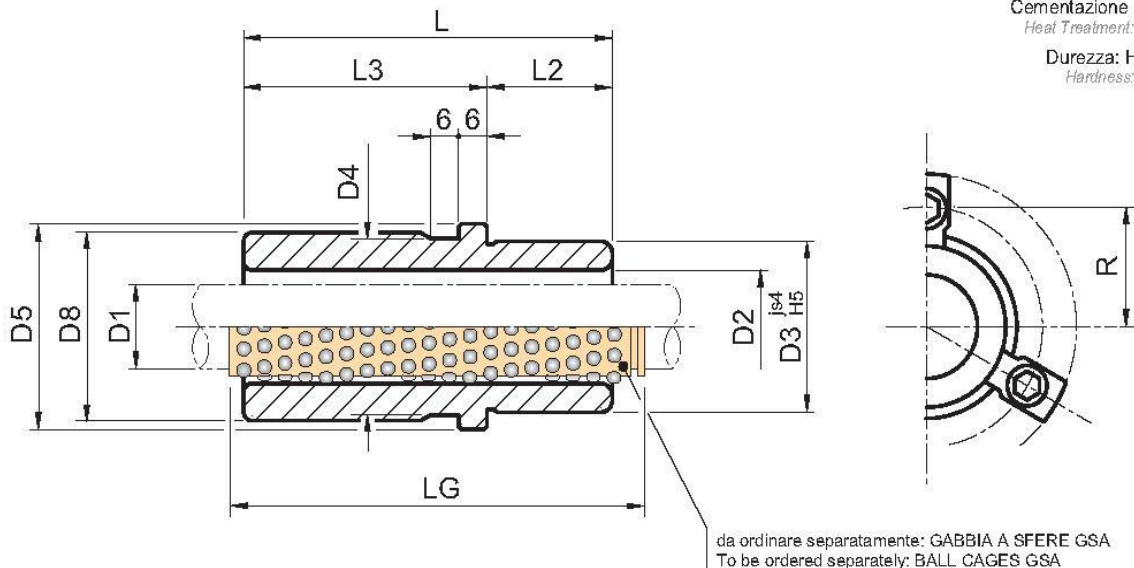
Trattamento Termico:

Cementazione + Tempra

Heat Treatment: Cementing

Durezza: Hrc 61+63

Hardness: Hrc 61+63



TIPO 4										
D1	D2	D3	D4	D5	D8	R	L	L2	L3	LG
19-20	25-26	32	32	40	39	26	59	23	36	71
24-25	30-31	40	40	48	46	30	79	23	56	95
30-32	38-40	48	48	56	53	33,5	93	30	63	120
38-40	46-48	58	58	66	63	38,5	108	37	71	120
48-50	56-58	70	70	80	77	45,5	127	47	80	140
60-63	68-71	85	85	95	92	53	150	60	90	160
80	92	105	105	118	115	64,5	150	60	90	160

ESEMPIO DI ORDINAZIONE BEAG D1 TIPO 4  
(STAFFETTE E VITI A RICHIESTA)

EXAMPLE OF ORDER BEAG D1 TYPE 4  
(CLAMPS AND SCREWS ON REQUEST)

TIPO 5										
D1	D2	D3	D4	D5	D8	R	L	L2	L3	LG
24-25	30-31	40	40	48	46	30	80	30	50	95
30-32	38-40	48	48	56	53	33,5	93	37	56	120
38-40	46-48	58	58	66	63	38,5	110	47	63	140
48-50	56-58	70	70	80	77	45,5	131	60	71	160

ESEMPIO DI ORDINAZIONE BEAG D1 TIPO 5  
(STAFFETTE E VITI A RICHIESTA)

EXAMPLE OF ORDER BEAG D1 TYPE 5  
(CLAMPS AND SCREWS ON REQUEST)

TIPO 6										
D1	D2	D3	D4	D5	D8	R	L	L2	L3	LG
19-20	25-26	32	32	40	39	26	43	23	20	56
24-25	30-31	40	40	48	46	30	59	23	36	71
30-32	38-40	48	48	56	53	33,5	75	30	45	95
38-40	46-48	58	58	66	63	38,5	82	37	45	105
48-50	56-58	70	70	80	77	45,5	97	47	50	120
60-63	68-71	85	85	95	92	53	116	60	56	140
80	92	105	105	118	115	64,5	120	60	60	140

ESEMPIO DI ORDINAZIONE BEAG D1 TIPO 6  
(STAFFETTE E VITI A RICHIESTA)

EXAMPLE OF ORDER BEAG D1 TYPE 6  
(CLAMPS AND SCREWS ON REQUEST)

TIPO 9										
D1	D2	D3	D4	D5	D8	R	L	L2	L3	LG
24-25	30-31	40	40	48	46	30	55	30	25	71
30-32	38-40	48	48	56	53	33,5	69	37	32	80
38-40	46-48	58	58	66	63	38,5	79	47	32	95
48-50	56-58	70	70	80	77	45,5	96	60	36	120

ESEMPIO DI ORDINAZIONE BEAG D1 TIPO 9  
(STAFFETTE E VITI A RICHIESTA)

EXAMPLE OF ORDER BEAG D1 TYPE 9  
(CLAMPS AND SCREWS ON REQUEST)

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**BUSSOLA LISCIA PER GABBIA A SFERE**  
*BALL CAGES GUIDE BUSHES*

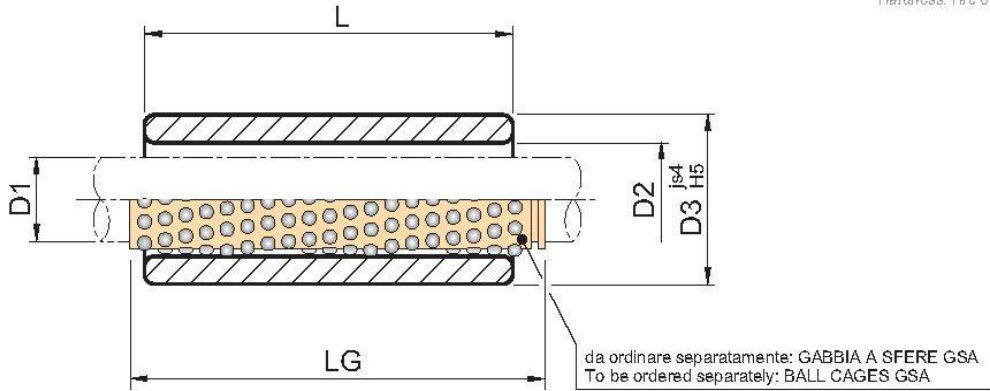
CODICE / Item no.

**BLAG**  
**ISO**

Materiale: 1.7131  
*Material: 1.7131*

Trattamento Termico:  
 Cementazione + Tempra  
*Heat Treatment: Cementing*

Durezza: Hrc 61+63  
*Hardness: Hrc 61+63*



D1		19	20	24	25	30	32	38	40	48	50	60	63	80
D2		25	26	30	31	38	40	46	48	56	58	68	71	92
D3		32	32	40	40	48	48	58	58	70	70	85	85	105
L	LG													
23	45	★	★	★	★									
30	45	★	★	★	★	★	★	★	★					
37	45	★	★	★	★									
37	50					★	★	★	★	★	★			
47	56	★	★	★	★	★	★							
47	63							★	★	★	★			
60	71	★	★	★	★	★	★							
60	80							★	★	★	★			
60	95											★	★	
77	95	★	★	★	★	★	★	★	★	★	★	★	★	
95	120					★	★	★	★	★	★	★	★	
120	140							★	★	★	★	★	★	★

ESEMPIO DI ORDINAZIONE BLAG D1xL  
 EXAMPLE OF ORDER BLAG D1xL



# BUSSOLA A COLLARE PER GABBIA A SFERE

## BALL CAGES FLANGED GUIDE BUSHES

CODICE / Item no.

# B5AG

## ISO

Materiale: 1.7131

Material: 1.7131

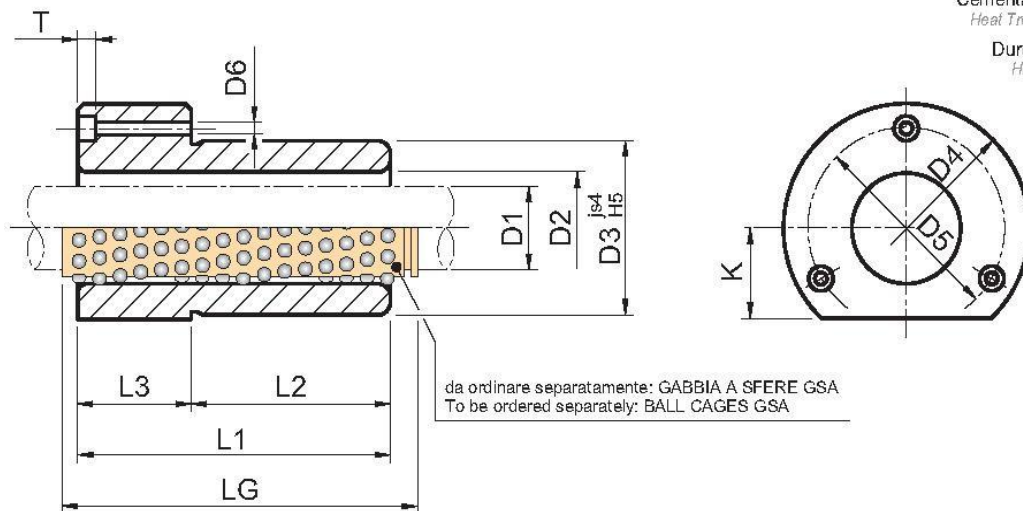
Trattamento Termico:

Cementazione + Tempra

Heat Treatment: Cementing

Durezza: Hrc 61+63

Hardness: Hrc 61+63



TIPO 4									
D1	D2	D3	D4	D5	K	L1	L2	L3	LG
19-20	25-26	32	50	40	18	52	37	15	71
24-25	30-31	40	63	50	23	62	37	25	71
30-32	38-40	48	72	58	28	72	47	25	80
38-40	46-48	58	85	70	33	77	47	30	95
48-50	56-58	70	104	86	38	102	60	42	120
60-63	68-71	85	120	100	46	102	60	42	120
80	92	105	148	125	56	125	75	50	140

ESEMPIO DI ORDINAZIONE B5AG D1 TIPO 4  
EXAMPLE OF ORDER B5AG D1 TYPE 4

TIPO 5									
D1	D2	D3	D4	D5	K	L1	L2	L3	LG
19-20	25-26	32	50	40	18	45	30	15	56
24-25	30-31	40	63	50	23	55	30	25	71
30-32	38-40	48	72	58	28	62	37	25	71
38-40	46-48	58	85	70	33	67	37	30	80
48-50	56-58	70	104	86	38	89	47	42	95
60-63	68-71	85	120	100	46	89	47	42	95

ESEMPIO DI ORDINAZIONE B5AG D1 TIPO 5  
EXAMPLE OF ORDER B5AG D1 TYPE 5

D1	D6	T
19-20	4,5	4,6
24-25	5,5	5,7
30-32	5,5	5,7
38-40	6,6	6,8
48-50	9	9
60-63	9	9
80	11	11

TIPO 6									
D1	D2	D3	D4	D5	K	L1	L2	L3	LG
19-20	25-26	32	50	40	18	38	23	15	45
24-25	30-31	40	63	50	23	38	23	15	45
30-32	38-40	48	72	58	28	45	30	15	56
38-40	46-48	58	85	70	33	55	30	25	63
48-50	56-58	70	104	86	38	62	37	25	80

ESEMPIO DI ORDINAZIONE B5AG D1 TIPO 6  
EXAMPLE OF ORDER B5AG D1 TYPE 6



# BUSSOLA ESTRAIBILE

DEMOUNTABLE BUSHES

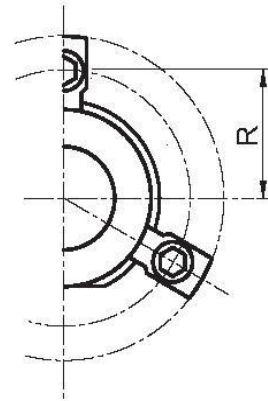
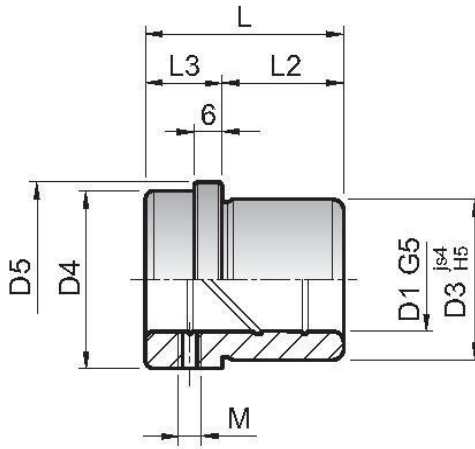
CODICE / Item no.

**BEA**  
ISO

Materiale: 1.7131  
Material: 1.7131

Trattamento Termico:  
Cementazione + Tempra  
Heat Treatment: Cementing

Durezza: Hrc 61+63  
Hardness: Hrc 61+63



TIPO 5								
D1	D3	D4	D5	R	M	L	L2	L3
19-20	32	32	40	26	8	35	23	12
24-25	40	40	48	30	8	35	23	12
30-32	48	48	56	33,5	8	42	30	12
38-40	58	58	66	38,5	8	52	37	15
48-50	70	70	80	45,5	8	65	47	18
60-63	85	85	95	53	8	80	60	20

ESEMPIO DI ORDINAZIONE BEA D1 TIPO 5  
STAFFETTE E VITI A RICHIESTA

EXAMPLE OF ORDER BEA D1 TYPE 5  
CLAMPS AND SCREWS ON REQUEST



# BUSSOLA ESTRAIBILE

DEMOUNTABLE BUSHES

CODICE / Item no.

**BEA**  
ISO

Materiale: 1.7131

Material: 1.7131

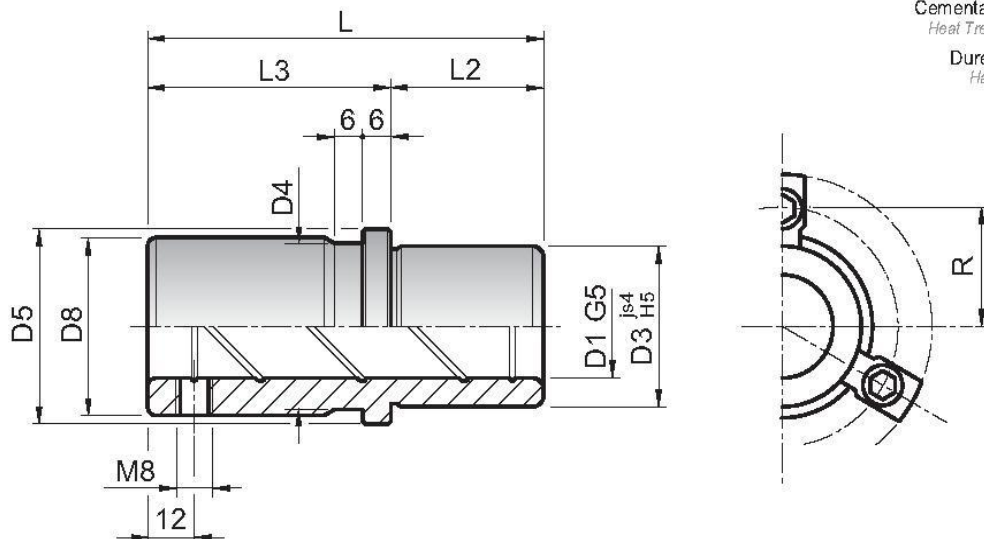
Trattamento Termico:

Cementazione + Tempra

Heat Treatment: Cementing

Durezza: Hrc 61+63

Hardness: Hrc 61+63



TIPO 4								
D1	D3	D4	D5	D8	R	L	L2	L3
19-20	32	32	40	39	26	43	23	20
24-25	40	40	48	46	30	59	23	36
30-32	48	48	56	53	33,5	75	30	45
38-40	58	58	66	63	38,5	82	37	45
48-50	70	70	80	77	45,5	97	47	50
60-63	85	85	95	92	53	116	60	56

ESEMPIO DI ORDINAZIONE BEA D1 TIPO 4  
(STAFFETTE E VITI A RICHIESTA)

EXAMPLE OF ORDER BEA D1 TYPE 4  
(CLAMPS AND SCREWS ON REQUEST)

TIPO 1								
D1	D3	D4	D5	D8	R	L	L2	L3
19-20	32	32	40	39	26	59	23	36
24-25	40	40	48	46	30	79	23	56
30-32	48	48	56	53	33,5	93	30	63
38-40	58	58	66	63	38,5	108	37	71
48-50	70	70	80	77	45,5	127	47	80
60-63	85	85	95	92	53	150	60	90

ESEMPIO DI ORDINAZIONE BEA D1 TIPO 1  
(STAFFETTE E VITI A RICHIESTA)

EXAMPLE OF ORDER BEA D1 TYPE 1  
(CLAMPS AND SCREWS ON REQUEST)



**BUSSOLA ESTRAIBILE ACCIAIO / BRONZO**  
 DEMOUNTABLE BUSHES STEEL / BRONZE

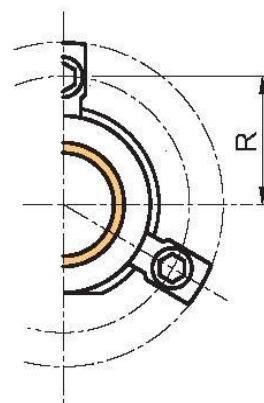
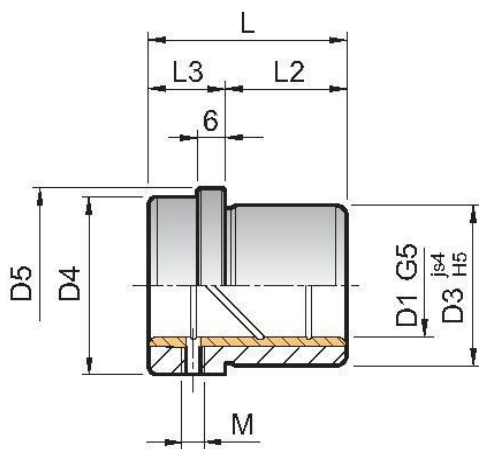
CODICE / Item no.

**BEBA**  
**ISO**

Materiale: 1.7131 + Bronzo  
 Material: 1.7131 + Bronze

Trattamento Termico Acciaio:  
 Cementazione + Tempra  
 Heat Treatment Steel: Cementing

Durezza Acciaio: Hrc 61+63  
 Hardness Steel: Hrc 61+63



TIPO 5							
D1	D3	D4	D5	R	L	L2	L3
19-20	32	32	40	26	35	23	12
24-25	40	40	48	30	35	23	12
30-32	48	48	56	33,5	42	30	12
38-40	58	58	66	38,5	52	37	15
48-50	70	70	80	45,5	65	47	18
60-63	85	85	95	53	80	60	20
80	105	105	118	64,5	80	60	20

**ESEMPIO DI ORDINAZIONE BEBA D1 TIPO 5**  
**(STAFFETTE E VITI A RICHIESTA)**

**EXAMPLE OF ORDER BEBA D1 TYPE 5**  
**(CLAMPS AND SCREWS ON REQUEST)**



**BUSSOLA ESTRAIBILE ACCIAIO / BRONZO**  
 DEMOUNTABLE BUSHES STEEL / BRONZE

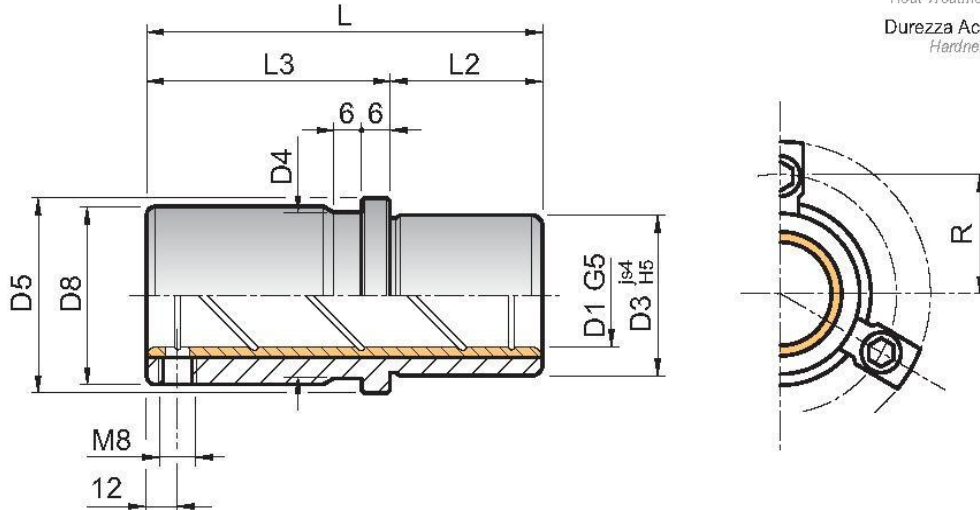
CODICE / Item no.

**BEBA**  
**ISO**

Materiale: 1.7131 + Bronzo  
 Material: 1.7131 + Bronze

Trattamento Termico Acciaio:  
 Cementazione + Tempra  
 Heat Treatment Steel: Cementing

Durezza Acciaio: Hrc 61+63  
 Hardness Steel: Hrc 61+63



TIPO 4								
D1	D3	D4	D5	D8	R	L	L2	L3
19-20	32	32	40	39	26	43	23	20
24-25	40	40	48	46	30	59	23	36
30-32	48	48	56	53	33,5	75	30	45
38-40	58	58	66	63	38,5	82	37	45
48-50	70	70	80	77	45,5	97	47	50
60-63	85	85	95	92	53	116	60	56
80	105	105	118	115	64,5	120	60	60

ESEMPIO DI ORDINAZIONE BEBA D1 TIPO 4  
 (STAFFETTE E VITI A RICHIESTA)

EXAMPLE OF ORDER BEBA D1 TYPE 4  
 (CLAMPS AND SCREWS ON REQUEST)

TIPO 1								
D1	D3	D4	D5	D8	R	L	L2	L3
19-20	32	32	40	39	26	59	23	36
24-25	40	40	48	46	30	79	23	56
30-32	48	48	56	53	33,5	93	30	63
38-40	58	58	66	63	38,5	108	37	71
48-50	70	70	80	77	45,5	127	47	80
60-63	85	85	95	92	53	150	60	90
80	105	105	118	115	64,5	150	60	90

ESEMPIO DI ORDINAZIONE BEBA D1 TIPO 1  
 (STAFFETTE E VITI A RICHIESTA)

EXAMPLE OF ORDER BEBA D1 TYPE 1  
 (CLAMPS AND SCREWS ON REQUEST)



# BUSSOLA A COLLARE CON FORI DI FISSAGGIO

## FLANGED GUIDE BUSHES

CODICE / Item no.

# B5A

## ISO

Materiale: 1.7131

Material: 1.7131

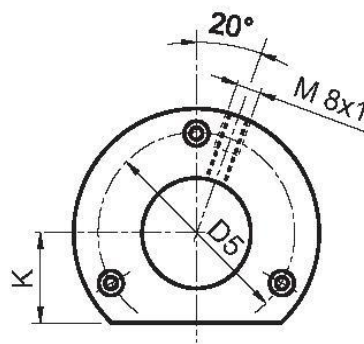
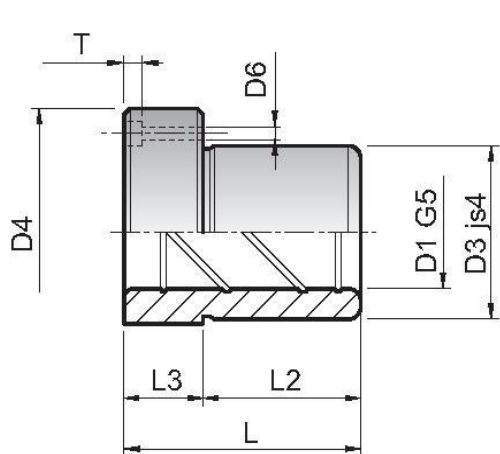
Trattamento Termico:

Cementazione + Tempra

Heat Treatment: Cementing

Durezza: Hrc 61+63

Hardness: Hrc 61+63



TIPO 1									
D1	D3	D4	D5	D6	T	K	L	L2	L3
19-20	32	50	40	4,5	4,6	18	52	37	15
24-25	40	63	50	5,5	5,7	23	62	37	25
30-32	48	72	58	5,5	5,7	28	72	47	25
38-40	58	85	70	6,6	6,8	33	77	47	30
48-50	70	104	86	9	9	38	102	60	42
60-63	85	120	100	9	9	46	102	60	42
80	105	148	125	11	11	56	125	75	50

ESEMPIO DI ORDINAZIONE B5A D1 TIPO 1  
EXEMPLE OF ORDER B5A D1 TYPE 1

TIPO 2									
D1	D3	D4	D5	D6	T	K	L	L2	L3
19-20	32	50	40	4,5	4,6	18	45	30	15
24-25	40	63	50	5,5	5,7	23	55	30	25
30-32	48	72	58	5,5	5,7	28	62	37	25
38-40	58	85	70	6,6	6,8	33	67	37	30
48-50	70	104	86	9	9	38	89	47	42
60-63	85	120	100	9	9	46	89	47	42

ESEMPIO DI ORDINAZIONE B5A D1 TIPO 2  
EXEMPLE OF ORDER B5A D1 TYPE 2

TIPO 4									
D1	D3	D4	D5	D6	T	K	L	L2	L3
19-20	32	50	40	4,5	4,6	18	38	23	15
24-25	40	63	50	5,5	5,7	23	38	23	15
30-32	48	72	58	5,5	5,7	28	45	30	15
38-40	58	85	70	6,6	6,8	33	55	30	25
48-50	70	104	86	9	9	38	62	37	25

ESEMPIO DI ORDINAZIONE B5A D1 TIPO 4  
EXEMPLE OF ORDER B5A D1 TYPE 4



**BUSSOLA A COLLARE CON FORI DI FISSAGGIO**  
**ACCIAIO / BRONZO**

FLANGED GUIDE BUSHES, STEEL / BRONZE

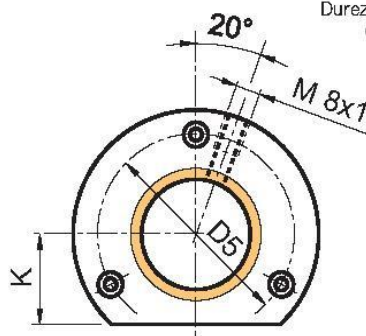
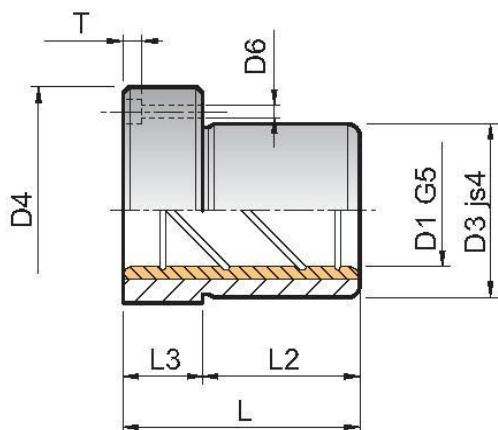
CODICE / Item no.

**B5BA**  
**ISO**

Materiale: 1.7131 + Bronzo  
 Material: 1.7131 + Bronze

Trattamento Termico Acciaio:  
 Cementazione + Tempra  
 Heat Treatment Steel: Cementing

Durezza Acciaio: Hrc 61+ 63  
 Hardness Steel: Hrc 61+ 63



TIPO 1									
D1	D3	D4	D5	D6	T	K	L	L2	L3
19-20	32	50	40	4,5	4,6	18	52	37	15
24-25	40	63	50	5,5	5,7	23	62	37	25
30-32	48	72	58	5,5	5,7	28	72	47	25
38-40	58	85	70	6,6	6,8	33	77	47	30
48-50	70	104	86	9	9	38	102	60	42
60-63	85	120	100	9	9	46	102	60	42
80	105	148	125	11	11	56	125	75	50

ESEMPIO DI ORDINAZIONE B5BA D1 TIPO 1  
 EXEMPLE OF ORDER B5BA D1 TYPE 1

TIPO 2									
D1	D3	D4	D5	D6	T	K	L	L2	L3
19-20	32	50	40	4,5	4,6	18	45	30	15
24-25	40	63	50	5,5	5,7	23	55	30	25
30-32	48	72	58	5,5	5,7	28	62	37	25
38-40	58	85	70	6,6	6,8	33	67	37	30
48-50	70	104	86	9	9	38	89	47	42
60-63	85	120	100	9	9	46	89	47	42

ESEMPIO DI ORDINAZIONE B5BA D1 TIPO 2  
 EXEMPLE OF ORDER B5BA D1 TYPE 2

TIPO 4									
D1	D3	D4	D5	D6	T	K	L	L2	L3
19-20	32	50	40	4,5	4,6	18	38	23	15
24-25	40	63	50	5,5	5,7	23	38	23	15
30-32	48	72	58	5,5	5,7	28	45	30	15
38-40	58	85	70	6,6	6,8	33	55	30	25
48-50	70	104	86	9	9	38	62	37	25

ESEMPIO DI ORDINAZIONE B5BA D1 TIPO 4  
 EXEMPLE OF ORDER B5BA D1 TYPE 4



# ISO - TOLLERANZE

## ISO - TOLERANCES

CODICE / Item no.

**ISO**

### Outside diameters (shafts): Dimensions in $\mu\text{m} = 0,001 \text{ mm}$

Range in mm	Tolerance class																		
	f6	f7	g6	h3	h4	h5	h6	h8	h9	j6	js4	js6	js9	k5	k6	m5	m6	n6	
over 0 to 3	-6 -12	-6 -12	-2 -8	0 -2	0 -3	0 -4	0 -6	0 -14	0 -25	+4 -2	+1,5 -1,5	+3 -3	+12 -12	+4 0	+6 0	+6 +2	+8 +2	+10 +4	
over 3 to 6	-10 -18	-10 -22	-4 -12	0 -2,5	0 -4	0 -5	0 -8	0 -18	0 -30	+6 -2	+2 -2	+4 -4	+15 -15	+6 +1	+9 +1	+9 +4	+12 +4	+16 +8	
over 6 to 10	-13 -22	-13 -28	-5 -14	0 -2,5	0 -4	0 -6	0 -9	0 -22	0 -36	+7 -2	+2 -2	+4,5 -4,5	+18 -18	+7 +1	+10 +1	+12 +6	+15 +6	+19 +10	
over 10 to 18	-16 -27	-16 -34	-6 -17	0 -3	0 -5	0 -8	0 -11	0 -27	0 -43	+8 -3	+2,5 -2,5	+5,5 -5,5	+21 -21	+9 +1	+12 +1	+15 +7	+18 +7	+23 +12	
over 18 to 30	-20 -33	-20 -41	-7 -20	0 -4	0 -6	0 -9	0 -13	0 -33	0 -52	+9 -4	+3 -3	+6,5 -6,5	+26 -26	+11 +2	+15 +2	+17 +8	+21 +8	+28 +15	
over 30 to 50	-25 -41	-25 -50	-9 -25	0 -4	0 -7	0 -11	0 -16	0 -39	0 -62	+11 -5	+3,5 -3,5	+8 -8	+31 -31	+13 +2	+18 +2	+20 +9	+25 +9	+33 +17	
over 50 to 80	-30 -49	-30 -60	-10 -29	0 -5	0 -8	0 -13	0 -19	0 -46	0 -74	+12 -7	+4 -4	+9,5 -9,5	+37 -37	+15 +2	+21 +2	+24 +11	+30 +11	+39 +20	
over 80 to 120	-36 -58	-36 -71	-12 -34	0 -6	0 -10	0 -15	0 -22	0 -54	0 -87	+13 -9	+5 -5	+11 -11	+43 -43	+18 +3	+25 +3	+28 +13	+35 +13	+45 +23	

### Inside diameters (bores): Dimensions in $\mu\text{m} = 0,001 \text{ mm}$

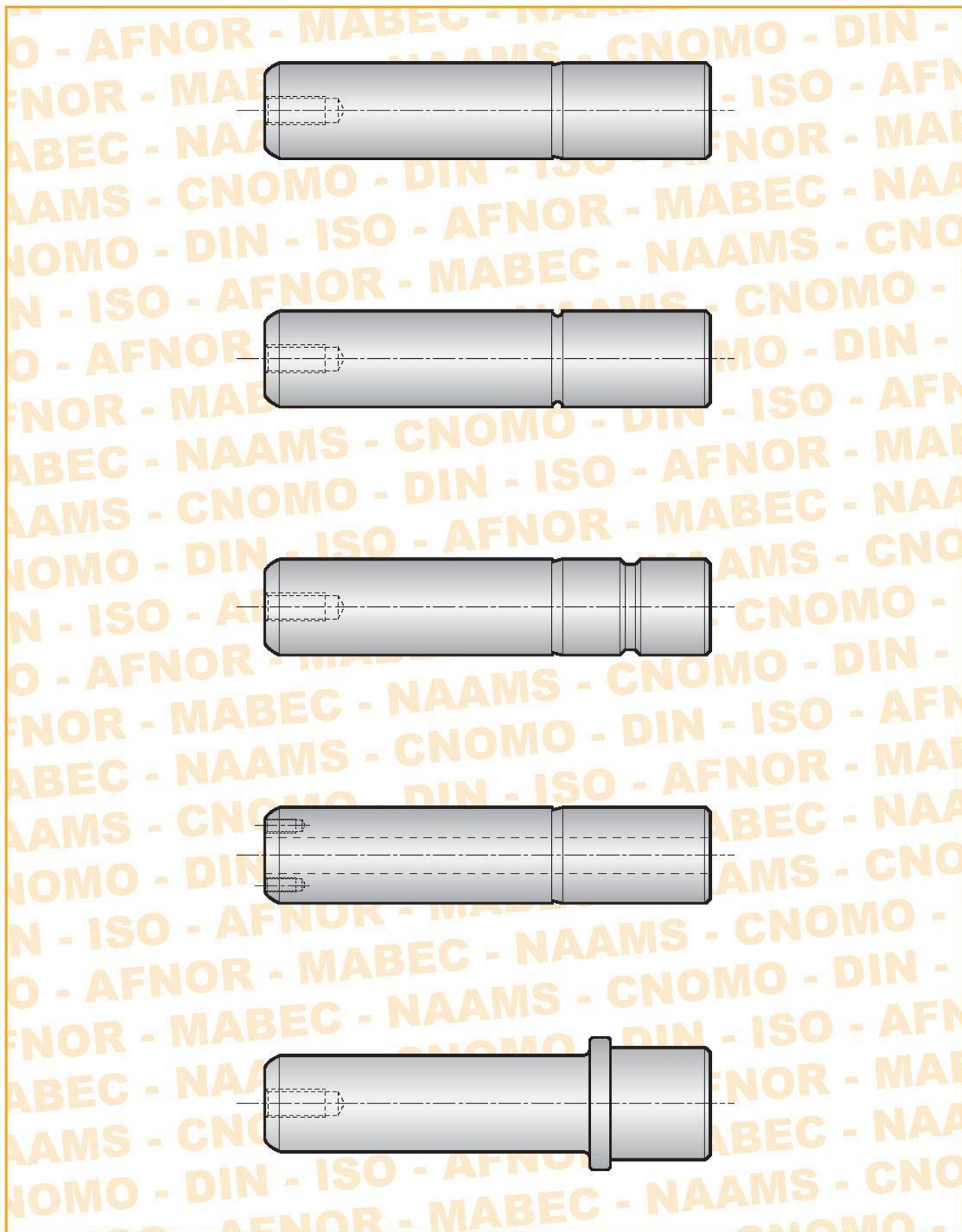
Range in mm	Tolerance class																	
	E8	F7	G5	H5	H6	H7	H8	H9	H10	H11	J7	JS5	K6	K7	M6	M7	P6	P7
over 0 to 3	+28 +14	+16 +6	+6 +2	+4 0	+6 0	+10 0	+14 0	+25 0	+40 0	+60 0	+4 -6	+2 -2	0 -6	0 -10	-2 -8	-2 -12	-6 -12	-6 -16
over 3 to 6	+38 +20	+22 +10	+9 +4	+5 0	+8 0	+12 0	+18 0	+30 0	+48 0	+75 0	+6 -6	+2,5 -2,5	+2 -6	+3 -9	-1 -9	0 -12	-9 -17	-8 -20
over 6 to 10	+47 +25	+28 +13	+11 +5	+6 0	+9 0	+15 0	+22 0	+36 0	+58 0	+90 0	+8 -7	+3 -3	+2 -7	+5 -10	-3 -12	0 -15	-12 -21	-9 -24
over 10 to 18	+59 +32	+34 +16	+14 +6	+8 0	+11 0	+18 0	+27 0	+43 0	+70 0	+110 0	+10 -8	+4 -4	+2 -9	+6 -12	-4 -15	0 -18	-15 -26	-11 -29
over 18 to 30	+73 +40	+41 +20	+16 +7	+9 0	+13 0	+21 0	+33 0	+52 0	+84 0	+130 0	+12 -9	+4,5 -4,5	+2 -11	+6 -15	-4 -17	0 -21	-18 -31	-14 -35
over 30 to 50	+89 +50	+50 +25	+20 +9	+11 0	+16 0	+25 0	+39 0	+62 0	+100 0	+160 0	+14 -11	+5,5 -5,5	+3 -13	+7 -18	-4 -20	0 -25	-21 -37	-17 -42
over 50 to 80	+106 +60	+60 +30	+23 +10	+13 0	+19 0	+30 0	+46 0	+74 0	+120 0	+190 0	+18 -12	+6,5 -6,5	+4 -15	+9 -21	-5 -24	0 -30	-26 -45	-21 -51
over 80 to 120	+125 +72	+71 +36	+27 +12	+15 0	+22 0	+35 0	+54 0	+87 0	+140 0	+220 0	+22 -13	+7,5 -7,5	+4 -18	+10 -25	-6 -28	0 -35	-30 -52	-24 -59



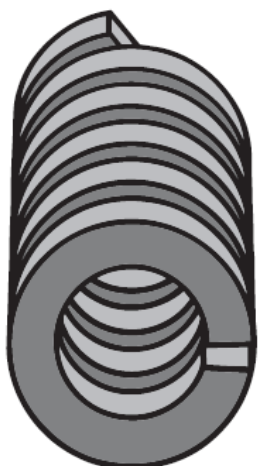
ALTRI PRODOTTI  
OTHER ITEMS

CODICE / Item no.

ISO



# Outros Catálogos



**MOLLIFICIO  
BORDIGNON**

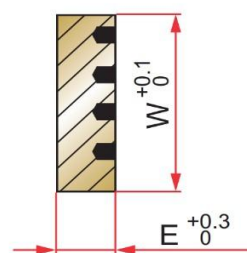
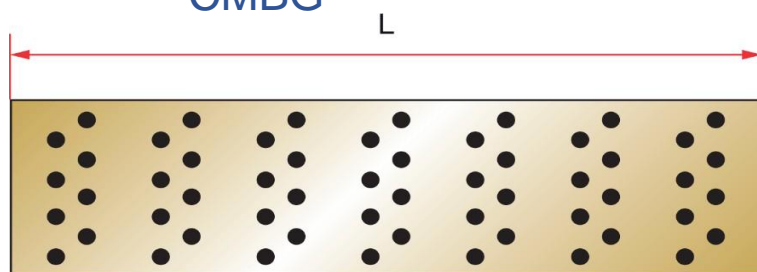




**casalmáquinas**

Importação e Comércio de Máquinas e Acessórios, Lda

## Placa de bronze com grafite "CMBG"



W	E	L
40	5	305
25	5	305
30	10	605
35	10	605
40	10	605
50	10	605
50	20	605
80	20	605
100	20	605
30	12	1005
35	10	1005
40	12	1005
40	16	1005
50	10	1005
50	12	1005
50	20	1005
80	12	1005



# Olhais Rotativos



## Lifting Point Working Load Application

number of leg		1	2	1	2	2	2	2	3-4	3-4	3-4
load direction		0°	0°	90°	90°	0-45°	45-60°	unsymm.	0-45°	45-60°	unsymm.
Referencia	Thread	WLL tonnes*									
LPW 8	M 8	0.3	0.6	0.3	0.6	0.42	0.3	0.3	0.63	0.45	0.3
LPW 10	M10	0.63	1.26	0.63	1.26	0.88	0.63	0.63	1.32	0.95	0.63
LPW 12	M12	1	2	1	2	1.4	1	1	2.1	1.5	1
LPW 14	M14	1.2	2.4	1.2	2.4	1.7	1.2	1.2	2.5	1.8	1.2
LPW 16	M16	1.5	3	1.5	3	2.1	1.5	1.5	3.1	2.2	1.5
LPW 18	M18	2	4	2	4	2.8	2	2	4.2	3	2
LPW 20	M20	2.5	5	2.5	5	3.5	2.5	2.5	5.2	3.7	2.5
LPW 24	M24	4	8	4	8	5.6	4	4	8.4	6	4
LPW 27	M27	4	8	4	8	5.6	4	4	8.4	6	4
LPW 30	M30	5	10	5	10	7	5	5	10.5	7.5	5
LPW 36	M36	7	14	7	14	9.8	7	7	14.7	10.5	7
LPW 36A	M36	8	16	8	16	11.2	8	8	16.8	12	8
LPW 42	M42	10	20	10	20	14	10	10	21	15	10
LPW 42A	M42	15	30	15	30	21	15	15	31.5	22.5	15
LPW 48	M48	20	40	20	40	28	20	20	42	30	20

Forma de Pedido - Referencia



## ASSORTMENTS

Item	Size in mm	Sheets	Contents: 1 Sheet
Assortment 25	25 x 300	21	0.01 – 1.00 mm •
Assortment 50/1	50 x 300	25	0.01 – 1.00 mm •
Assortment 50/2	50 x 300	23	like 50/1 without 0.01/0.02 mm •
Assortment 50/3	50 x 300	11	0.02/0.03/0.05/0.10/0.15/0.20/0.25/0.30/0.40/0.50/1.00 mm •
Assortment 100/1	100 x 500	9	0.02/0.05/0.10/0.15/0.20/0.30/0.40/0.50/1.00 mm •
Assortment 100/2	100 x 500	11	0.02/0.05/0.10/0.15/0.20/0.25/0.30/0.35/0.40/0.45/0.50 mm •
Assortment 100/3	100 x 500	11	0.50/0.55/0.60/0.65/0.70/0.75/0.80/0.85/0.90/0.95/1.00 mm •
Assortment 150	150 x 500	10	0.025 – 0.50 mm •
Assortment 150 MS	150 x 500	10	0.025 – 0.50 mm •

## FLAT SHEETS AND ASSORTMENTS

Available Sizes: Package or piece

Carbon Steel 1.1274  
 Stainless Steel 1.4310

Carbon Steel 1.2003  
 Brass 2.0321

Stainless Steel 1.4034  
 Not available

Quantity:	10 pieces	10 pieces	1 piece	1 piece	5 pieces	5 pieces	1 piece	1 piece	1 piece	5 pieces
Size:	25 x 300	50 x 300	320 x 1000	320 x 1000	100 x 500	150 x 500	250 x 1000	ca. 300 x 1000	ca. 600 x 1000	150 x 500
	C-Steel	C-Steel	C-Steel	Cr-Steel	CrNi-Steel	CrNi-Steel	CrNi-Steel	CrNi-Steel	CrNi-Steel	Brass
Thickness:	1.1274	1.1274	1.2003	1.4034	1.4310	1.4310	1.4310	1.4310	1.4310	2.0321
0.003	-	-	-	-	-	-	-	-	-	-
0.005	-	-	-	-	-	-	-	-	-	-
0.01	•	•	-	-	-	-	-	-	-	•
0.015	-	-	-	-	•	-	-	-	-	-
0.02	•	•	-	-	-	-	-	-	-	-
0.025	-	-	-	-	-	•	-	-	-	•
0.03	•	•	-	-	•	-	-	-	-	-
0.035	-	-	-	-	•	-	-	-	-	-
0.04	•	•	-	-	•	-	-	-	-	-
0.045	-	-	-	-	•	-	-	-	-	-
0.05	•	•	-	-	•	•	-	-	-	•
0.055	-	-	-	-	•	-	-	-	-	-
0.06	•	•	-	-	•	-	-	-	-	-
0.07	•	•	-	-	•	-	-	-	-	-
0.075	-	-	-	-	-	•	-	-	-	•
0.08	•	•	-	-	-	-	-	-	-	-
0.09	•	•	-	-	•	-	-	-	-	-
0.10	•	•	-	-	•	•	-	•	-	•
0.11	-	-	-	-	•	-	-	-	-	-
0.12	-	•	-	-	•	-	-	•	-	-
0.13	-	-	-	-	•	-	-	-	-	-
0.14	-	-	-	-	-	-	-	u.request*	-	-
0.15	•	•	-	-	-	•	-	-	•	•
0.16	-	-	-	-	•	-	-	-	-	-
0.17	-	-	-	-	•	-	-	-	-	-
0.18	-	•	-	-	-	-	-	-	•	-
0.19	-	-	-	-	•	-	-	-	-	-
0.20	•	•	-	-	•	•	-	•	•	•
0.21	-	-	-	-	u.request*	-	-	-	-	-
0.22	-	-	-	-	•	-	-	-	-	-
0.23	-	-	-	-	•	-	-	-	-	-
0.24	-	-	-	-	•	-	-	-	-	-
0.25	•	•	-	-	•	•	-	•	•	•
0.26	-	-	-	-	•	-	-	-	-	-
0.27	-	-	-	-	u.request*	-	-	-	-	-
0.28	-	-	-	-	•	-	-	-	-	-
0.29	-	-	-	-	u.request*	-	-	-	-	-
0.30	•	•	-	-	•	•	-	•	•	•
0.35	-	•	-	-	•	-	-	-	-	-
0.40	•	•	-	-	•	•	-	-	•	•
0.45	-	•	-	-	•	-	-	-	•	-
0.50	•	•	-	-	•	•	-	-	•	•
0.55	-	-	-	-	•	-	-	-	-	-
0.60	•	•	-	-	•	•	-	-	•	•
0.65	-	-	-	-	•	-	-	-	-	-
0.70	•	•	-	-	•	•	-	-	•	•
0.75	-	-	-	-	•	-	-	-	-	-
0.80	•	•	-	-	•	•	-	-	•	•
0.85	-	-	-	-	•	-	-	-	-	-
0.90	•	•	-	-	•	•	-	-	-	•
0.95	-	-	-	-	•	-	-	-	-	-
1.00	•	•	•	•	•	•	-	•	•	•
1.10	-	-	-	-	•	-	-	-	-	-
1.20	u.request*	u.request*	•	-	•	•	-	-	-	-
1.30	-	-	-	-	•	-	-	-	-	-
1.40	-	-	-	-	•	-	-	-	-	-
1.50	u.request*	u.request*	•	•	•	•	-	-	-	-
1.60	-	-	-	-	•	-	-	-	-	-
1.70	-	-	-	-	•	•	-	-	-	-
1.80	u.request*	u.request*	•	-	•	•	-	-	-	-
1.90	-	-	-	-	•	-	-	-	-	-
2.00	u.request*	u.request*	•	•	•	•	-	-	-	-
2.50	u.request*	u.request*	•	•	-	-	-	-	-	-
3.00	u.request*	u.request*	•	•	-	-	-	-	-	-
3.50	-	-	u.request*	-	-	-	-	-	-	-
4.00	-	-	•	-	-	-	-	-	-	-

\*please contact us for availability and sizes



# PRECISION FEELER GAGE STOCK AND SHIM STOCK

Available Sizes: Box or coil precision feeler gauge steel or meter

Carbon steel 1.1274  
 Brass 2.0321

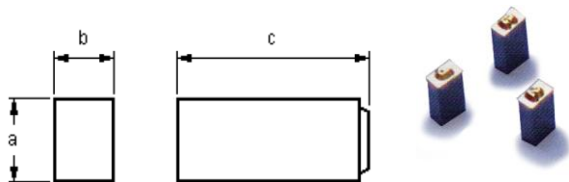
Stainless steel 1.4310  
 Not available

Quantity:	1 m	2 m	5 m	10 m	5 m	5 m	5 m	1 m	5 m	5 m	5 m	5 m	1 m	1 m	5 m	
Width:	12.7	12.7	12.7	12.7	6	25	50	300 - 305	12.7	50	100	150	300 - 305	600 - 625	150	
	C-steel	C-steel	C-steel	C-steel	C-steel	C-steel	C-steel	C-steel	CrNi-Steel	CrNi-Steel	CrNi-Steel	CrNi-Steel	CrNi-Steel	CrNi-Steel	CrNi-Steel	Brass
Thickness:	1.1274	1.1274	1.1274	1.1274	1.1274	1.1274	1.1274	1.1274	1.4310	1.4310	1.4310	1.4310	1.4310	1.4310	1.4310	2.0321
0.003	-	-	-	-	-	-	-	-	-	u.request*	-	-	-	-	-	-
0.005	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
0.01	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
0.015	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
0.02	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
0.025	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.03	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
0.035	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.04	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
0.045	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.05	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
0.055	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.06	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
0.07	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
0.075	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.08	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
0.09	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
0.10	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
0.11	-	-	-	-	-	-	-	-	u.request*	•	•	•	•	•	•	•
0.12	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
0.13	-	-	-	-	-	-	-	-	•	•	•	•	•	•	•	•
0.14	-	-	•	-	-	-	-	-	-	-	-	-	-	u.request*	-	-
0.15	•	•	•	•	•	•	•	•	u.request*	•	•	•	•	•	•	•
0.16	-	-	•	-	-	-	-	-	•	•	•	•	•	•	•	•
0.17	-	-	-	-	-	-	-	-	•	•	•	•	•	•	•	•
0.18	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
0.19	-	-	-	-	-	-	-	-	•	•	•	•	•	•	•	•
0.20	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
0.21	-	-	-	-	-	-	-	-	•	-	u.request*	-	-	-	-	-
0.22	-	-	-	-	-	-	-	-	•	•	•	•	•	•	•	•
0.23	-	-	-	-	-	-	-	-	•	•	•	•	•	•	•	•
0.24	-	-	•	-	-	-	-	-	•	•	•	•	•	•	•	•
0.25	•	•	•	•	•	•	•	•	u.request*	•	•	•	•	•	•	•
0.26	-	-	-	-	-	-	-	-	•	•	•	•	•	•	•	•
0.27	-	-	•	-	-	-	-	-	•	-	u.request*	-	-	-	-	-
0.28	-	-	-	-	-	-	-	-	•	•	•	•	•	•	•	•
0.29	-	-	-	-	-	-	-	-	•	-	u.request*	-	-	-	-	-
0.30	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
0.35	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
0.40	•	•	•	•	•	•	•	•	•	•	•	•	•	u.request*	•	•
0.45	•	•	•	•	•	•	•	•	•	•	•	•	•	u.request*	•	•
0.50	•	•	•	•	•	•	•	•	•	•	•	•	•	u.request*	•	•
0.55	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
0.60	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
0.65	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
0.70	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
0.75	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
0.80	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
0.85	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
0.90	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
0.95	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
1.00	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
1.10	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
1.20	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
1.30	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
1.40	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
1.50	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
1.60	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
1.70	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
1.80	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
1.90	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
2.00	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

\*please contact us for availability and sizes

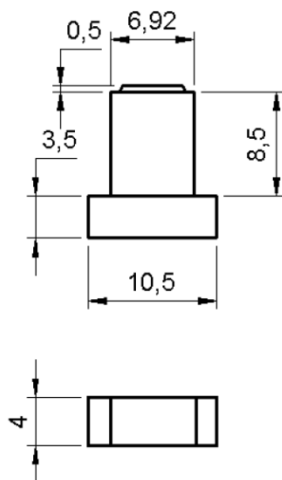


Caracteres de Marcação tipo "i" / Caracteres de Marcação tipo "T"



	a	b	c
<b>2</b>	4	2	19
<b>2.5</b>	6	2.5	19
<b>3</b>	6	3	19
<b>4</b>	8	4	19
<b>5</b>	8	5	19
<b>6</b>	10	6	19
<b>10</b>	14	10	19

Exemplo de pedido : Caracter tipo "i" 2mm



Exemplo de pedido : Caracter tipo "T"

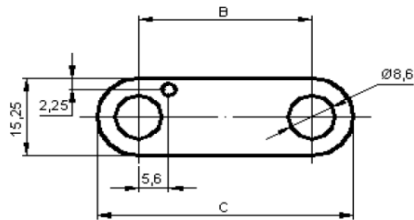
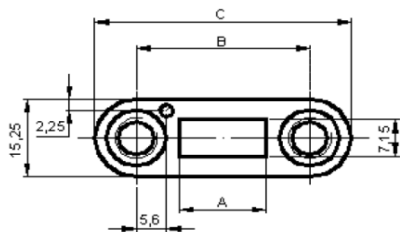
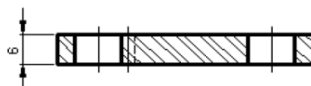
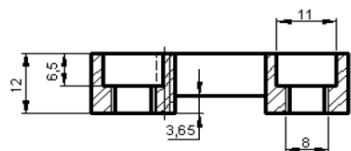
Material - aço temperado

Dureza - 58-60 HRC

Material - aço temperado

Dureza - 58-60 HRC

Porta Caracteres



Numero de caracteres

	4	6	8	10
<b>A</b>	16,1	24,1	32,1	40,1
<b>B</b>	32	40	58	56
<b>C</b>	47	55	63	71

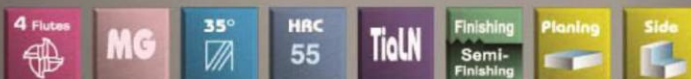


# CM

---



# EB



unit: mm

Co  
10%

Wc  
90%

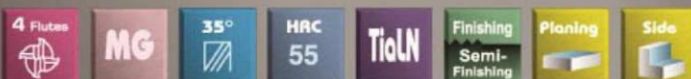
Dia  
0.6µm

Square End Mills



Order No.	Diameter	Flute Length	O.A.L.	Shank Dia
	D1	L1	L2	D2
EB 0104	1.0	3	50	4
EB 0154	1.5	4	50	4
EB 0204	2.0	6	50	4
EB 0254	2.5	8	50	4
EB 0304	3.0	8	50	4
EB 0404	4.0	11	50	4
EB 0506	5.0	13	50	6
EB 0606	6.0	16	50	6
EB 0808	8.0	20	60	8
EB 1010	10.0	25	75	10
EB 1212	12.0	30	75	12
EB 1616	16.0	40	100	16
EB 2020	20.0	45	100	20

# ELD



unit: mm



Order No.	Diameter	Flute Length	O.A.L.	Shank Dia
	D1	L1	L2	D2
ELD 0204	2.0	15	50	4
ELD 0304	3.0	20	50	4
ELD 0404	4.0	25	75	4
ELD 0506	5.0	30	75	6
ELD 0606	6.0	30	75	6
ELB 0606A	6.0	15	100	6
ELD 0808	8.0	40	100	8
ELD 1010	10.0	40	100	10
ELD 1212	12.0	45	100	12
ELD 1616	16.0	60	150	16
ELD 2020	20.0	60	150	20



# BA



unit: mm

Co  
10%

Wc  
90%

Dia  
0.6µm

**Ball Nose End Mills**



Order No.	Radius	Flute Length	O.A.L.	Shank Dia
	R	L1	L2	D2
BA 0104	R0.5	2	50	4
BA 0154	R0.75	3	50	4
BA 0204	R1	4	50	4
BA 0254	R1.25	5	50	4
BA 0304	R1.5	6	50	4
BA 0354	R1.75	7	50	4
BA 0404	R2	8	50	4
BA 0456	R2.25	9	50	6
BA 0506	R2.5	10	50	6
BA 0556	R2.75	11	50	6
BA 0606	R3	12	50	6
BA 0708	R3.5	14	60	8
BA 0808	R4	16	60	8
BA 0910	R4.5	18	75	10
BA 1010	R5	20	75	10
BA 1212	R6	24	75	12
BA 1616	R8	32	100	16
BA 2020	R10	40	100	20

# BLS.BLM.BLL



Order No.	Radius	Flute Length	O.A.L.	Shank Dia
	R	L1	L2	D2
BLS 0104	R0.5	2	75	4
BLS 0106	R0.5	2	75	6
BLS 0154	R0.75	3	75	4
BLS 0156	R0.75	3	75	6
BLS 0206	R1	4	75	6
BLS 0256	R1.25	5	75	6
BLS 0306	R1.5	6	75	6
BLS 0406	R2	8	75	6
BLS 0506	R2.5	10	75	6
BLS 0606	R3	12	75	6
BLM 0206	R1	4	100	6
BLM 0306	R1.5	6	100	6
BLM 0406	R2	8	100	6
BLM 0606	R3	12	100	6
BLM 0808	R4	16	100	8
BLM 1010	R5	20	100	10
BLM 1212	R6	24	100	12



# BF



unit: mm

Co  
10%

Wc  
90%

Dia  
0.6µm

Long Neck / Ball Nose End Mills



Order No.	Radius	Neck Dia	Flute Length	Effective Length	O.A.L.	Shank Dia
	R	D3	L1	L3	L2	D2
BF 01010	R0.5	0.95	2	10	50	4
BF 01012	R0.5	0.95	2	12	50	4
BF 01510	R0.75	1.45	3	10	50	4
BF 01512	R0.75	1.45	3	12	50	4
BF 01516	R0.75	1.45	3	16	50	4
BF 01520	R0.75	1.45	3	20	50	4
BF 02012	R1.0	1.92	4	12	50	4
BF 02016	R1.0	1.92	4	16	50	4
BF 02020	R1.0	1.92	4	20	50	4
BF 03012	R1.5	2.90	6	12	50	6
BF 03016	R1.5	2.90	6	16	50	6
BF 03020	R1.5	2.90	6	20	75	6
BF 03025	R1.5	2.90	6	25	75	6
BF 04016	R2.0	3.88	8	16	50	6
BF 04020	R2.0	3.88	8	20	50	6
BF 04025	R2.0	3.88	8	25	75	6
BF 04030	R2.0	3.88	8	30	75	6



# EFA



unit: mm

Co  
10%

Wc  
90%

Dia  
0.6µm

Long Neck / Square End Mills



Order No.	Diameter	Neck Dia	Flute Length	Effective Length	O.A.L.	Shank Dia
	D1	D3	L1	L3	L2	D2
EFA 01010	1.0	0.95	3	10	50	4
EFA 01012	1.0	0.95	3	12	50	4
EFA 01512	1.5	1.45	4	12	50	4
EFA 01516	1.5	1.45	4	16	50	4
EFA 02016	2.0	1.92	6	16	50	4
EFA 02020	2.0	1.92	6	20	50	4
EFA 03020	3.0	2.90	8	20	75	6
EFA 03025	3.0	2.90	8	25	75	6



# ERB



unit: mm

Co  
10%

Wc  
90%

Dia  
0.6µm

Corner Radius / End Mills



Order No.	Diameter D1	Corner R R	Flute Length L1	O.A.L. L2	Shank Dia D2
ERB0305	3.0	0.5	6	50	3
ERB0405	4.0	0.5	8	50	4
ERB0605	6.0	0.5	12	50	6
ERB0805	8.0	0.5	16	60	8
ERB1005	10.0	0.5	20	75	10
ERC 0605	6.0	0.5	12	75	6
ERC 0605A	6.0	0.5	12	100	6
ERC 0805	8.0	0.5	16	100	8
ERC 1005	10.0	0.5	20	100	10



# SEF



unit: mm

Co  
12%

Wc  
88%

Dia  
0.4µm

Corner Radius Long Neck / End Mills



HSC



Order No.	Diameter	Corner R	Neck Dia	Flute Length	Effective Length	O.A.L.	Shank Dia
	D1	R	D3	L1	L3	L2	D2
SEF 01510	1.5	0.2	1.45	1.5	10	50	4
SEF 01512	1.5	0.2	1.45	1.5	12	50	4
SEF 02012	2.0	0.2	1.92	2.0	12	50	4
SEF 02016	2.0	0.2	1.92	2.0	16	50	4
SEF 03012	3.0	0.2	2.90	3.0	12	50	6
SEF 03016	3.0	0.2	2.90	3.0	16	50	6
SEF 03020	3.0	0.2	2.90	3.0	20	50	6



**PARAFUSOS CABEÇA CILÍNDRICA  
COM SEXTAVADO INTERIOR  
DIN 912 - 12.9**



• PRETO

DIÂM. COMPRIMENTO (mm)	M-4	M-5	M-6	M-8	M-10	M-12	M-14	M-16	M-20	M-24	M-30
8	5,33	4,52									
10	3,76	4,32	5,89								
12	3,86	4,01	5,48								
16	3,35	3,50	4,16	6,80	14,57						
20	3,76	3,50	4,32	6,96	13,00	18,63					
25	4,32	4,26	4,57	7,62	13,86	19,19					
30	4,67	4,57	4,87	8,33	14,67	20,51	43,46	43,46			
35	5,64	4,87	5,99	9,44	16,04	22,44	44,32	44,32			
40	6,30	5,48	6,60	10,31	17,16	24,17	46,76	46,76	81,99		
45		6,45	7,21	11,52	19,04	26,35	50,31	50,31	87,17		
50		7,56	8,02	12,64	20,82	28,63	54,53	54,53	90,27	188,51	
55			9,49	13,71	22,90	31,53	58,59	58,59	96,06	198,51	
60			10,31	14,67	24,62	34,02	64,07	64,07	101,74	201,81	580,00
70			12,03	19,60	28,23	38,64	72,35	72,35	113,32	219,98	660,00
80			14,93	23,35	31,68	43,46	80,82	80,82	126,47	239,68	700,00
90			19,50	24,67	40,11	49,80	91,08	91,08	142,46	254,15	740,00
100			21,48	28,48	46,76	57,93	99,61	99,61	155,76	275,88	780,00
110			26,76	33,15	49,80	64,43	110,37	110,37	172,56	304,51	820,00
120			33,96	35,74	56,35	72,96	125,04	125,04	204,85	326,14	860,00
130				43,66	59,65	77,12	140,73	140,73	219,93	350,92	900,00
140				48,48	68,84	86,21	158,30	158,30	256,13	402,96	940,00
150				63,66	80,93	102,25	167,08	167,08	272,58	426,51	980,00
160						174,58	274,34	274,34	498,80	598,56	1.100,00
180						199,52	299,28	299,28	548,68	698,32	1.200,00
200						249,40	324,22	324,22	598,56	748,20	1.300,00
220						320,00	399,04	399,04	698,32	997,60	
240						340,00	448,92	448,92	798,08	1.246,99	
260						380,00	498,80	498,80	897,84	1.496,39	
280						430,00	548,68	548,68	997,60	1.745,79	
300						480,00	598,56	598,56	1.097,36	1.995,19	

Preço: €/100



## **ELEMENTOS MATRICERIA**

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**CASQUILLO CORTE LISO DIN 9845-A / 207**

**CASQUILLO CORTE CON VALONA DIN 9845-B / 208**

**CASQUILLO CORTE VALONA CON FORMA / 217**

**CASQUILLO GUIA PUNZON DIN 9845-C / 209**

**PORTA PUNZONES CABEZA CILINDRICA "HHR" / 215**

**PORTA PUNZONES CABEZA CILINDRICA CON POSICIONADOR "HHS" / 216**

**PUNZON CABEZA CILINDRICA "A" ISO 8020/8021 / 203**

**PUNZÓN CAB. CILIND. CON EXPULS. INTERIOR FORMA "E" / 211**

**PUNZÓN CAB. CILIND. MECHADO FORMA "B" ISO 8020/8021 / 204**

**PUNZON CAB. CILIND. MECHADO CON EXP. INTERIOR "F" / 212**

**PUNZON CAB. CILIND. MECHADO CON EXP. INTERIOR "G" / 213**

**PUNZÓN CABEZA CILINDRICA MECHADO FORMA "CA" / 210**

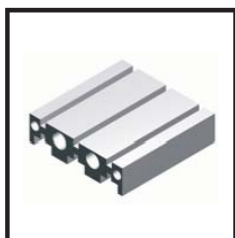
**PUNZÓN CABEZA CONICA TIPO "D" DIN 9861 / 201**

**PUNZÓN CABEZA CONICA MECHADO TIPO "C" DIN 9861 / 202**

**PUNZÓN CUELLO DE BOTELLA "BN" / 214**

**PUNZÓN RECTANGULAR / CUADRADO FORMA "DA" / 205**

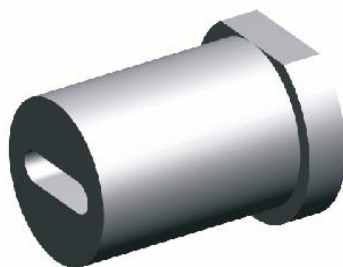
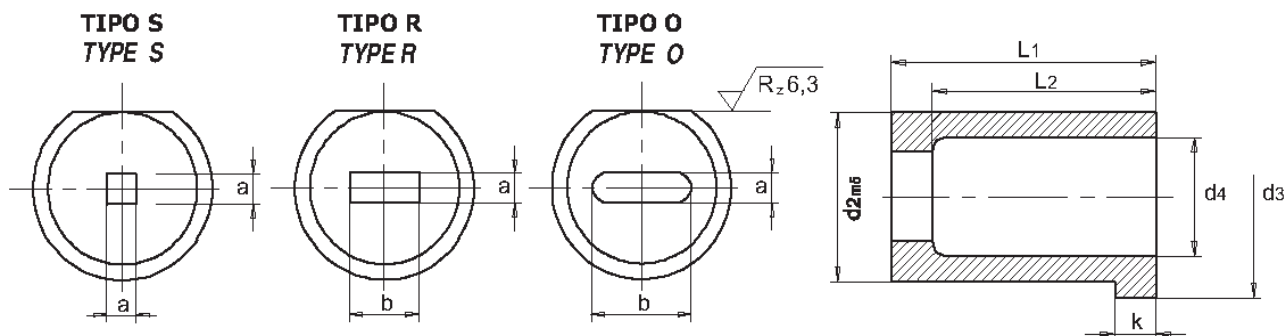
**PUNZÓN FORMAS ESPECIALES / 206**







**CASQUILLO DE CORTE CON VALONA COR FORMA Y LOCALIZADOR - ISO 8977**  
**HEADED SHAPED DIE BUSHES - ISO 8977**



**TIPO S / TYPE S** : Forma corte cuadrada. *Square shape.*

**TIPO R / TYPE R** : Forma corte rectangular. *Rectangular shape.*

**TIPO O / TYPE O** : Forma corte oblonga. *Oblong shape*

**LOCALIZADOR** : El plano localizador está siempre posicionado en el lado más largo, salvo indicación en contra.

**LOCATING FLAT** : *The locating flat is always positioned on the longest side unless otherwise stated.*

**MATERIAL / MATERIAL** : 12% Cromo / HWS

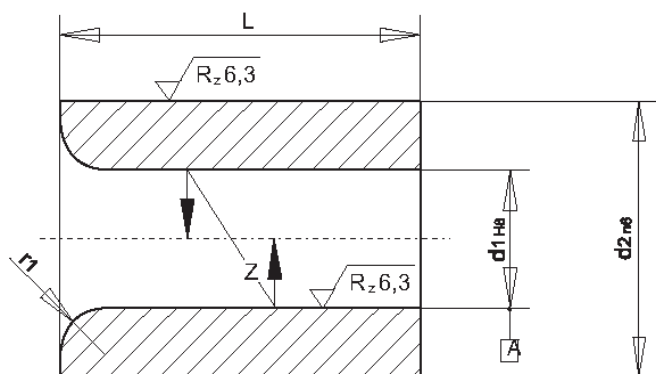
**DUREZA / HARDNESS** : 62 $\pm$ 2 HRC.

a ( H8 )	b ( H8 )	incom. incom.	d2 ( m5 )	d3	d4	k (+0,25-0)	l1 (+0,5-0)	l2
1,6 a 5,4	2,0 a 5,5	0.1	10	13	6.5	5	32	29
2,0 a 7,4	2,5 a 7,5	0.1	13	16	8.5	5	32	28
2,2 a 9,9	2,5 a 10,0	0.1	16	19	11	5	32	28
2,5 a 12,9	3,2 a 13,0	0.1	20	24	14	5	32	27
3,2 a 15,9	4,0 a 16,0	0.1	25	29	17	5	32	27
4,0 a 20,9	5,0 a 21,0	0.1	32	36	22	5	32	26
5,0 a 26,9	6,3 a 27,0	0.1	40	44	28	5	32	24

**FORMA DE PEDIDO** : Tipo, a x b x d2 x l1.

**ORDER FORM** : Type, a x b x d2 x l1.

**CASQUILLO GUIA PUNZON NIN - 2A / DIN 9845-C**  
**PRECISION GUIDE BUSHES NIN-2A / DIN 9845-C**



- MATERIAL** : Acero aleado al 12% Cromo.  
**MATERIAL** : HWS.  
**FABRICACION** : Templado. Diámetro interior y exterior rectificadas.  
**VERSION** : Hardened and tempered bore and outside diameter ground.  
**DUREZA** :  
**HARDNESS** : 62 - 64 Hrc.  
**TOLERANCIAS** : d1 = H7  
**TOLERANCES** : d2 = n6

d1 (H7)	incr. d1	d2 (n6)	Z	r1	L
1,1 a 1,8	0.1	6	0.005	1.2	12
1,9 a 2,6	0.1	7	0.005	1.2	12
2,7 a 3,3	0.1	7	0.005	1.6	12
3,4 a 4,0	0.1	8	0.005	1.6	12
4,1 a 5,0	0.1	10	0.005	2	16
5,1 a 6,0	0.1	12	0.01	2	16
6,1 a 8,0	0.1	15	0.01	2	20
8,1 a 10,0	0.1	18	0.01	2.5	20
10,1 a 12,0	0.1	22	0.01	2.5	28
12,1 a 15,0	0.1	26	0.01	4	28

**FORMA DE PEDIDO / ORDER FORM** : d1.

También disponibles los incrementos de d1 en 0,25 y 0,75.

Also available d1 increases in 0,25 and 0,75.

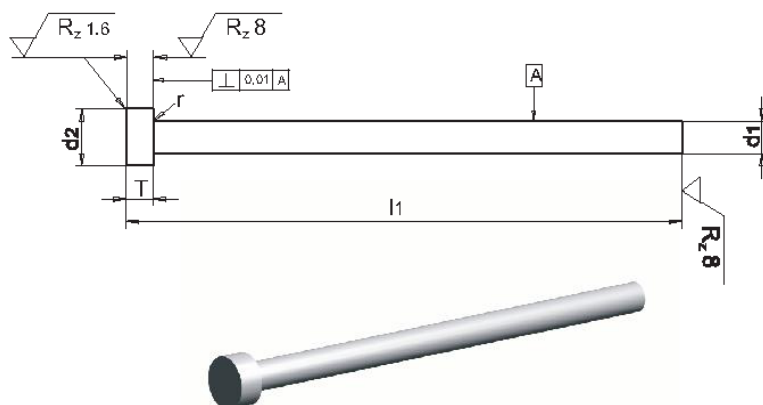
**NOTA** : También disponibles casquillos en las siguientes medidas:

**NOTE** : Also available bushes with the following sizes.

d1 = 1,9 y 2                      d2 = 6  
d1 = 3,1 - 3,2 - 3,3              d2 = 8

## PUNZON DE CORTE CABEZA CILINDRICA FORMA "A" ISO 8020/8021

### PUNCH WITH CYLINDRICAL HEAD FORM "A" ISO 8020/8021



**MATERIAL** : 12% Cromo HWS y Ac. Rapido HSS.

**FABRICACION** : Templado, revenido y rectificado. Cabeza estampada en caliente.  
**VERSION** : Los punzones en 12% Cromo resisten temperaturas de hasta 520 ° C.  
 : Hardened, tempered and fully fine ground finished. Head hot tempered and annealed.  
 : Punches in HWS are heat resistant up to 520° C.

**DUREZAS** : HWS : Caña / Shaft = HRC 62±2  
 : Cabeza / Head = HRC 50±5  
**HARDNESS** : HSS : Caña / Shaft = HRC 64±2  
 : Cabeza / Head = HRC 50±5

d1 (m5)	d2 (+0-0,15)	T (+0.2 +0.1)	r (+0.1-0)	l1 (+0.5+0.2)
3	5	3	0.3	63-71-80
4	6	3	0.3	63-71-80-90-100
5	8	5	0.3	63-71-80-90-100
6	9	5	0.3	63-71-80-90-100
8	11	5	0.3	63-71-80-90-100
10	13	5	0.3	63-71-80-90-100
13	16	5	0.4	63-71-80-90-100
16	19	5	0.4	63-71-80-90-100
20	24	5	0.4	63-71-80-90-100
25	29	5	0.4	63-71-80-90-100
32	36	5	0.4	80-90-100

**OTRAS LONGITUDES BAJO DEMANDA. / OTHER LENGTHS UNDER REQUEST.**

**FORMA DE PEDIDO** : A - HWS o HSS d1 x l1.

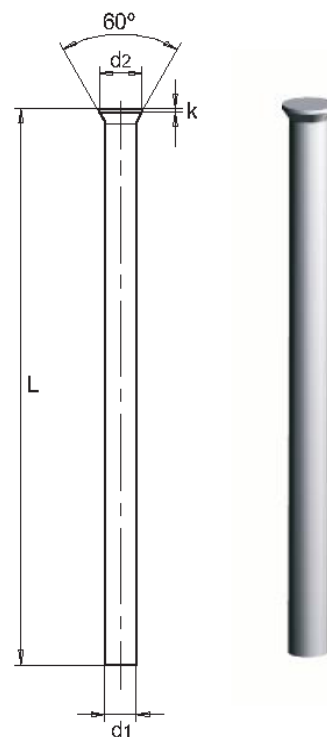
**ORDER FORM** : A - HWS or HSS d1 x l1.

## PUNZON DE CORTE CILINDRICO CABEZA CONICA FORMA "D" DIN 9861 / ISO 6752

### PUNCH WITH COUNTERSUNK HEAD FORM "D" DIN 9861 / ISO 6752

- MATERIAL** : Ac. Carbono WS , 12% Cromo HWS y Ac. Rapido HSS.  
**FABRICACION** : Templado, revenido y rectificado totalmente, excepto Ac. Carbono.  
**VERSION** : *Hardened, tempered and fully fine ground finished, excepting WS.*  
 Cabeza estampada en caliente.  
*Head hot tempered and annealed.*  
 Los punzones en 12% Cromo resisten temperaturas de hasta 520° C.  
*Punches in HWS are heat resistant up to 520° C.*
- DUREZAS** : **d1** : 60-62 HRC.( WS y HWS )  
**HARDNESS** : Cabeza : 62-64 HRC.( HSS )  
 Head : 45±5 HRC.

d1 (h6)	d2 (-0,2)	K (+0,2)	L + 0,5
0.5	0.9	0.2	71
0.55	1	0.2	71
0.6	1.1	0.2	71
0.65	1.2	0.2	71
0,7 - 0,75	1.3	0.2	71
0,8 - 0,85	1.4	0.4	71
0,9 - 0,95	1.6	0.4	71
1,0 - 1,1	1.8	0.5	71 - 80 - 100
1,15 a 1,3	2	0.5	71 - 80 - 100
1,35 a 1,5	2.2	0.5	71 - 80 - 100
1,55 a 1,7	2.5	0.5	71 - 80 - 100
1,75 a 1,9	2.8	0.5	71 - 80 - 100
1,95 - 2,0	3	0.5	71 - 80 - 100
2,05 a 2,2	3.2	0.5	71 - 80 - 100
2,25 a 2,5	3.5	0.5	71 - 80 - 100
2,55 a 2,95	4	0.5	71 - 80 - 100
3,0 a 3,4	4.5	0.5	71 - 80 - 100
3,5 a 3,95	5	0.5	71 - 80 - 100
4,0 a 4,45	5.5	0.5	71 - 80 - 100 - 130
4,5 a 4,95	6	0.5	71 - 80 - 100 - 130
5,0 a 5,45	6.5	0.5	71 - 80 - 100 - 130
5,5 a 5,95	7	0.5	71 - 80 - 100 - 130
6,0 a 6,45	8	0.5	71 - 80 - 100 - 130
6,5 a 7,45	9	1	71 - 80 - 100 - 130
7,5 a 8,45	10	1	71 - 80 - 100 - 130
8,5 a 9,45	11	1	71 - 80 - 100 - 130
9,5 a 10,4	12	1	71 - 80 - 100 - 130
10,5 a 11,4	13	1	71 - 80 - 100 - 130
11,5 a 12,4	14	1	71 - 80 - 100 - 130
12,5 a 13,4	15	1	71 - 80 - 100
13,5 a 14,4	16	1	71 - 80 - 100
14,5 a 15,4	17	1.5	71 - 80 - 100
15,5 a 16,4	18	1.5	71 - 80 - 100
16,5 a 17,4	19	1.5	71 - 80 - 100
17,5 a 18,4	20	1.5	71 - 80 - 100
18,5 a 19,4	21	1.5	71 - 80 - 100
19,5 a 20,4	22	1.5	71 - 80 - 100
20,5 a 21,4	23	1.5	71 - 80 - 100
21,5 a 22,4	24	1.5	71 - 80 - 100
22,5 a 23,4	25	1.5	71 - 80 - 100
23,5 a 24,4	26	1.5	71 - 80 - 100
24,5 a 25,0	27	1.5	71 - 80 - 100



**L=130 DISPONIBLE SOLO EN ACERO RÁPIDO**

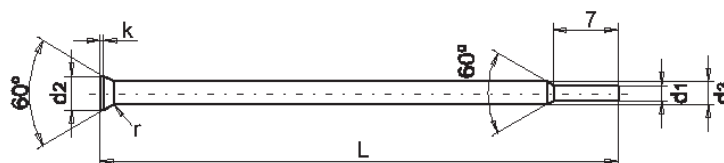
**L=130 AVAILABLE ONLY IN HSS**

**FORMA DE PEDIDO / ORDER FORM : Material, d1 x L.**

Apartado 268-Casal de Álvaro 3754-909 Águeda telef : 234 624 026 fax : 234 624 015

[geral@casalmaquinas.pt](mailto:geral@casalmaquinas.pt)

**PUNZON DE CORTE MECHADO CABEZA CONICA FORMA "C" DIN 9861 ISO 9181**  
**STEPPED PUNCH WITH COUNTERSUNK HEAD FORM "C" DIN 9861 ISO 9181**



**MATERIAL** : 12% Cromo HWS y Ac. Rapido HSS.

**FABRICACION** : Templado, revenido y rectificado totalmente.

**VERSION** : *Hardened, tempered and fully fine ground finished.*

Cabeza estampada en caliente.

Los punzones en 12% Cromo resisten temperaturas de hasta 520 ° C.

*Head hot tempered and annealed. Punches in HWS are heat resistant up to 520° C.*

**DUREZAS** : d1 y d3 : 60-62 HRC.( HWS )

**HARDNESS** : d1 y d3 : 62-64 HRC.( HSS )

**Cabeza** : 45±5 HRC.

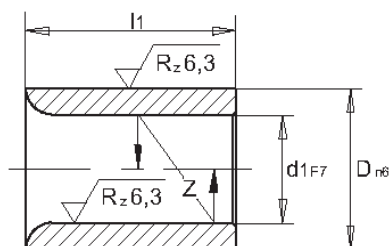
**Head** : 45±5 HRC.

d1 (h6)	d3 (h6)	d2 (-0,2)	K (+0,2)	L + 0,5
0,5 a 0,95	2	3	0.5	71
1,0 a 1,45	2	3	0.5	71
1.5	2-3	3,0 - 4,5	0.5	71
1,55 a 2,25	3	4.5	0.5	71
2,3 a 2,95	3	4.5	0.5	71

**FORMA DE PEDIDO** : Material - d1 x d3 x L.

**ORDER FORM** : Material - d1 x d3 x L.

**CASQUILLO LISO GUIA BROCA DIN 179A / ISO 4247**  
**PRECISION HEADLESS JIG BUSHINGS DIN 179A / ISO 4247**



**MATERIAL** : Acero especial al cromo vanadio.

**MATERIAL** : *Case hardened steel.*

**FABRICACION** : Templado. Diámetro interior y exterior rectificadas.

**FABRICACION** : *Hardened and tempered bore and outside diameter ground.*

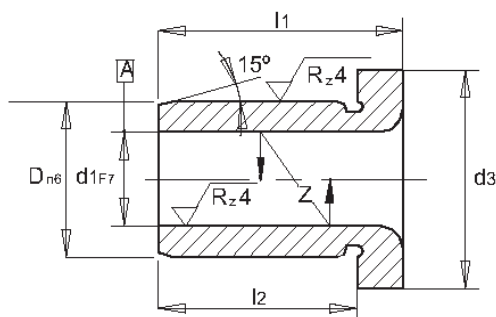
**TOLERANCIAS** :  $d1 = F7$

**TOLERANCES** :  $D = n6$

d1 (F7)	D (n6)	Z	l1	
			CORTO SHORT	LARGO LONG
1	3	0.005	6	9
1,1 a 1,8	4	0.005	6	9
1,9 a 2,6	5	0.005	6	9
2,7 a 3,3	6	0.005	8	12
3,4 a 4,0	7	0.005	8	12
4,1 a 5,0	8	0.005	8	12
5,1 a 6,0	10	0.01	10	16
6,1 a 8,0	12	0.01	10	16
8,1 a 10,0	15	0.01	12	20
10,1 a 12,0	18	0.01	12	20
12,1 a 15,0	22	0.01	16	28
15,1 a 18,0	26	0.01	16	28
18,1 a 22,0	30	0.01	20	36
22,1 a 26,0	35	0.02	20	36
26,1 a 30,0	42	0.02	25	45

**FORMA DE PEDIDO** : **d1 x l1**  
**ORDER FORM** :

**CASQUILLO GUIA BROCA CON VALONA DIN 172 A / ISO 4247**  
**PRECISION HEADED JIG BUSHINGS DIN 172 A / ISO 4247**



- MATERIAL** : Acero especial al cromo vanadio.  
**MATERIAL** : Case hardened steel.  
**FABRICACION** : Templado. Diámetro interior y exterior rectificadas.  
**VERSION** : Hardened and tempered bore and outside diameter ground.  
**TOLERANCIAS** : **d1 = F7**  
**TOLERANCES** : **D = n6**

d1 (F7)	D (n6)	d3	Z	CORTO / SHORT		LARGO / LONG	
				l1	l2	l1	l2
1,1 a 1,8	4	7	0.005	6	4	9	7
1,9 a 2,6	5	8	0.005	6	4	9	7
2,7 a 3,3	6	10	0.005	8	6	12	9
3,4 a 4,0	7	11	0.005	8	6	12	9
4,1 a 5,0	8	12	0.005	8	6	12	9
5,1 a 6,0	10	14	0.01	10	7	16	13
6,1 a 8,0	12	16	0.01	10	7	16	13
8,1 a 10,0	15	19	0.01	12	9	20	17
10,1 a 12,0	18	22	0.01	12	8	20	16
12,1 a 15,0	22	26	0.01	16	12	28	24
15,1 a 18,0	26	30	0.01	16	12	28	24
18,1 a 22,0	30	35	0.01	20	15	36	31
22,1 a 26,0	35	40	0.02	20	15	36	31
26,1 a 30,0	42	47	0.02	25	20	45	40

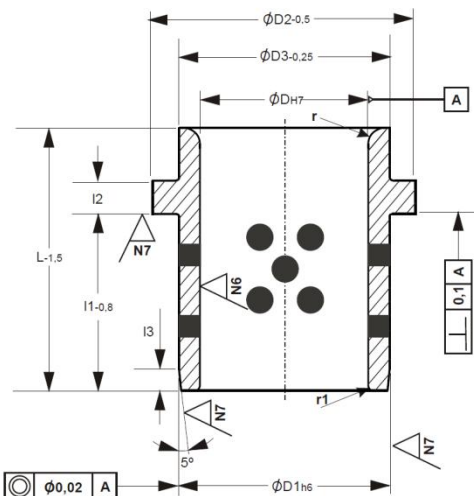
**FORMA DE PEDIDO** : **d1 x l1**  
**ORDER FORM** : **d1 x l1**

# Casquilho Guia Bronze Grafitado "CM"

Ver as páginas 17 para páginas específicas usando as de miniatura



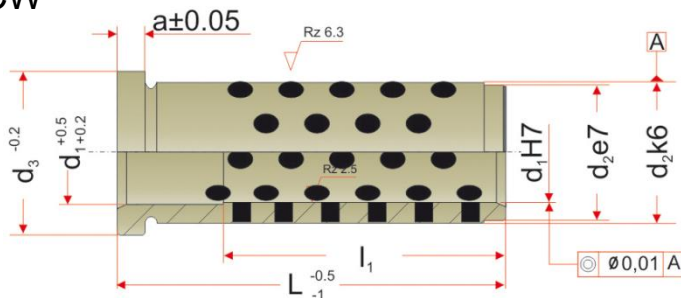
SLIDING DIRECTION



Codigo	D	L	D1	D2	D3	L1	L2	L3	r
CM - 25	25	40	32	40	32	30	6,3	4	3
CM - 32	32	50	40	50	40	40		5	
CM - 40	40	63	50	63	50	50		6,3	
CM - 50	50	71	63	71	63	56	10	8	6
CM - 63	63	80	80	90	80	63		10	
CM - 80	80	100	100	112	100	80		10	

Forma de pedido : Codigo

# Casquilho Bronze Grafitado "CW"

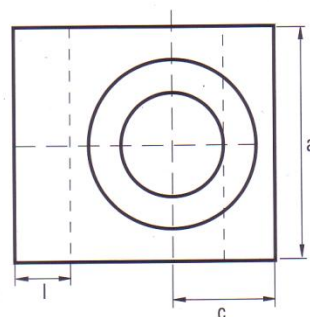
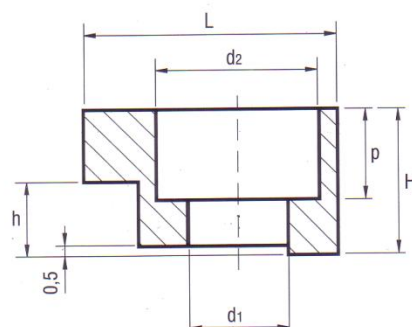
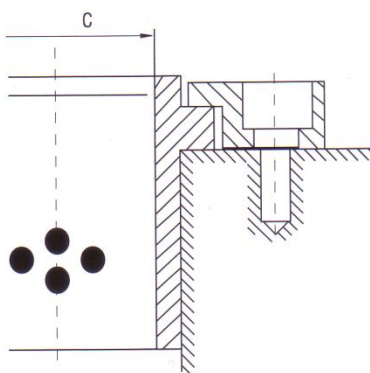


d1	d2	d3	a	L											
				12	17	22	27	36	46	56	66	76	86	96	116
$\frac{9}{10}$	14	16	3	*	*	*	*	*	*	*					
12	18	23	6	*	*	*	*	*	*	*					
$\frac{14}{15}$	20	25	6		*	*	*	*	*	*					
16	22	27	6		*	*	*	*	*	*					
$\frac{18}{20}$	26	31	6		*	*	*	*	*	*	*				
$\frac{22}{24}$	30	35	6			*	*	*	*	*	*	*			
$\frac{30}{32}$	42	47	6				*	*	*	*	*	*	*	*	*

Forma de pedido : CW d1x L

## Clamp for guide bush

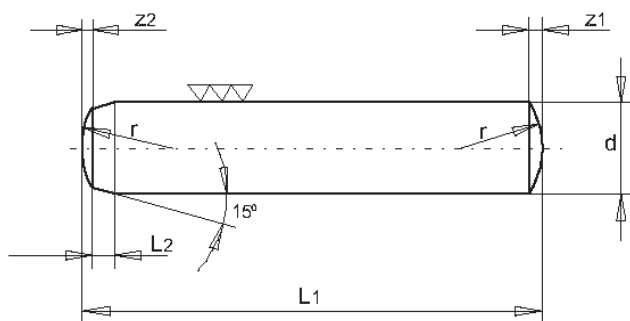
Nº 190



REF.	C	d <sub>1</sub>	L	H	a	c	l	d <sub>2</sub>	p	h
19020	Ø25 a Ø63	9	25	15	20	10	5	15	8,5	6,3
19021	Ø63 a Ø125	11	32	18	25	11	10	18	11,5	6,3
19022	Ø20 a Ø50	7	20	10	20	7	5	11	7	6,3
19023	Ø63 a Ø160	11,5	32	16	32	11	10	17,5	11,5	10

**PASADOR CILINDRICO DIN 6325 / ISO 8734**

**DOWEL PIN DIN 6325 / ISO 8734**

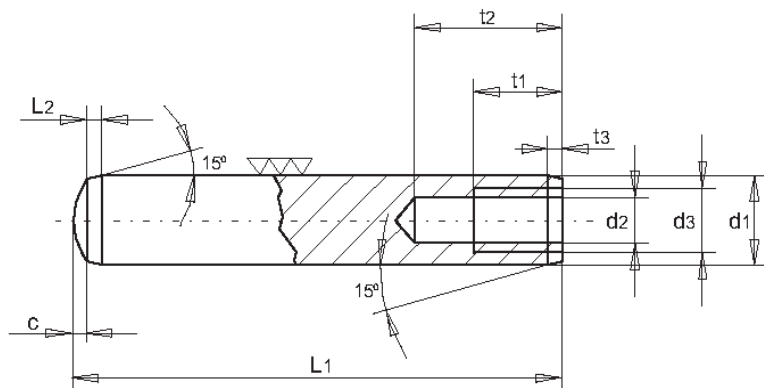


- FABRICACION / VERSION** : Templado hasta el núcleo, rectificado y lapeado.  
*Fully hardened and tempered. Fine ground finished.*
- MATERIAL** : Acero especial indeformable al cromo.  
*Special chrome steel.*
- DUREZA / HARDNESS** : 60 - 62 HRC.
- TOLERANCIA / TOLERANCE** : Diámetro / *Diameter* : m6 / h6  
 Longitud / *Length* : j14

d (m6)	2	2.5	3	4	5	6	7	8	9	10	12	14	16	18	20
L2	0.6	0.7	0.8	1	1.2	1.5	1.6	1.8	1.8	2	2.5	2.5	3	3.5	4
r (apr.)	2	2.5	3	4	5	6	8	8	10	10	12	16	16	18	20
z1 (apr.)	0.3	0.4	0.45	0.6	0.75	0.9	0.8	1.2	0.8	1.5	1.8	2	2.5	2.4	3
z2 (apr.)	0.18	0.25	0.3	0.4	0.5	0.6	0.62	0.8	0.75	1	1.3	1.3	1.7	1.7	2
L1 (j14)															
6	*	*	*												
8	*	*	*	*	*										
10	*	*	*	*	*	*									
12	*	*	*	*	*	*	*								
14	*	*	*	*	*	*	*	*							
16	*	*	*	*	*	*	*	*							
18	*	*	*	*	*	*	*	*	*	*					
20	*	*	*	*	*	*	*	*	*	*	*				
22	*	*	*	*	*	*	*	*	*	*	*	*			
24	*	*	*	*	*	*	*	*	*	*	*	*	*		
26	*	*	*	*	*	*	*	*	*	*	*	*	*		
28	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
30	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
32	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
36			*	*	*	*	*	*	*	*	*	*	*	*	*
40			*	*	*	*	*	*	*	*	*	*	*	*	*
45			*	*	*	*	*	*	*	*	*	*	*	*	*
50			*	*	*	*	*	*	*	*	*	*	*	*	*
55			*	*	*	*	*	*	*	*	*	*	*	*	*
60			*	*	*	*	*	*	*	*	*	*	*	*	*
70				*	*	*	*	*	*	*	*	*	*	*	*
80				*	*	*	*	*	*	*	*	*	*	*	*
90					*	*	*	*	*	*	*	*	*	*	*
100						*	*	*	*	*	*	*	*	*	*
120							*	*	*	*	*	*	*	*	*
130							*	*	*	*	*	*	*	*	*
140							*	*	*	*	*	*	*	*	*
150							*	*	*	*	*	*	*	*	*

**FORMA DE PEDIDO / ORDER FORM : d x L1.**

**PASADOR CILINDRICO CON ROSCA INTERIOR DIN 7979 / ISO 8735**  
**DOWEL PIN DIN 7979 / ISO 8735**



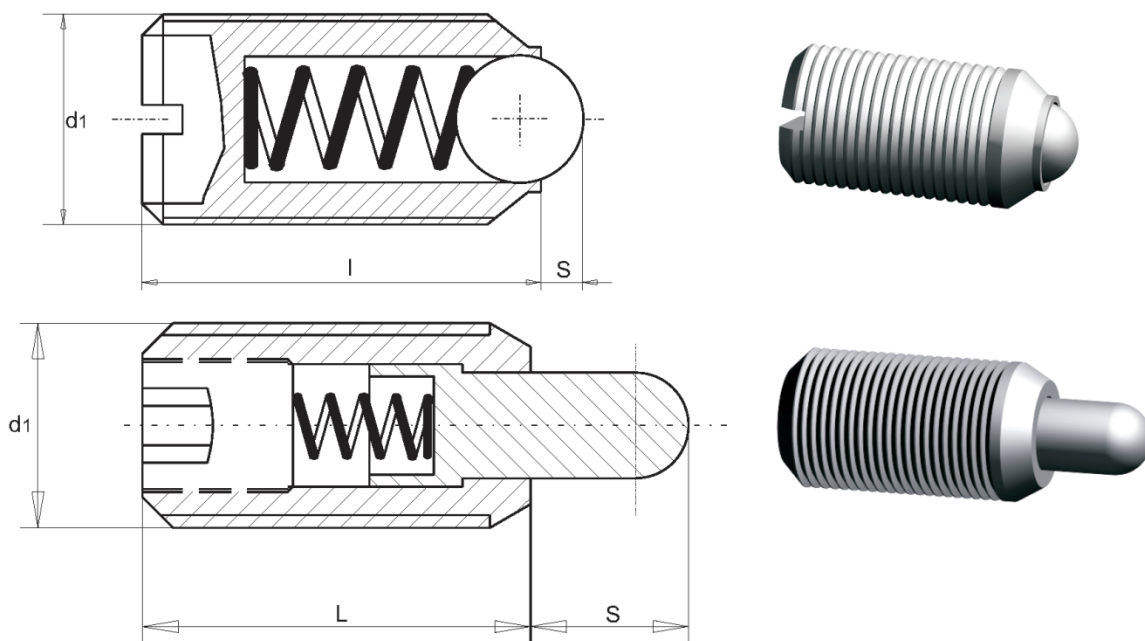
- FABRICACION / VERSION** : Templado hasta el núcleo, rectificado y lapeado.  
*Fully hardened and tempered. Fine ground finished, with air-vent flat.*
- MATERIAL** : Acero especial indeformable al cromo.  
*Special chrome steel.*
- DUREZA / HARDNESS** : 60 - 62 HRc.
- TOLERANCIA / TOLERANCE** : Diámetro / Diameter : m6 / h6  
 Longitud / length : j14

d1 (m6)	5	6	8	10	12	14	16	18	20
d2	M3	M4	M5	M6	M6	M8	M8	M10	M10
d3	3.3	4.3	5.3	6.3	6.3	8.3	8.3	10.3	10.3
t1	4	6	8	10	12	12	16	20	20
t2	6	10	13	16	18	18	23	27	27
t3	1	1	1.2	1.2	1.2	1.2	1.6	1.6	1.6
C. máx.	0.7	0.9	1.2	1.5	1.8	2	2.5	3	3
r	6	6	10	10	14	16	16	20	20
L2	1	1	1	1.2	1.5	1.6	2	2	2

d1 (m6)	5	6	8	10	12	14	16	18	20
L1 (j14)									
16	*	*	*						
18	*	*	*						
20	*	*	*	*	*				
22	*	*	*	*	*				
24	*	*	*	*	*				
28	*	*	*	*	*				
30	*	*	*	*	*				
32	*	*	*	*	*	*	*		*
36	*	*	*	*	*	*	*		*
40	*	*	*	*	*	*	*		*
45	*	*	*	*	*	*	*		*
50	*	*	*	*	*	*	*	*	*
55		*	*	*	*	*	*	*	*
60		*	*	*	*	*	*	*	*
70		*	*	*	*	*	*	*	*
80		*	*	*	*	*	*	*	*
90			*	*	*	*	*	*	*
100			*	*	*	*	*	*	*
120				*	*	*	*	*	*
140					*	*	*	*	*

**FORMA DE PEDIDO / ORDER FORM : d1 x L1.**

**POSICIONADOR BOLA / POSICIONADOR PIVOTE ESFERICO**  
**BALL PLUNGER / SFERIC PIVOT PLUNGER**



**MATERIAL:** Acero F-114. Pavonado.

**MATERIAL:** Steel F-114

d1	l	s	Diam.Bola Ball Diam.
M-3	7	0.5	1.5
M-4	9	0.8	2.5
M-5	12	0.9	3
M-6	14	1	3.5
M-8	16	1.5	5
M-10	19	2	6
M-12	22	2.5	8
M-16	24	3.5	10
M-20	30	4.5	12
M-24	34	5.5	15

**FORMA DE PEDIDO :** d1/bola.  
**ORDER FORM :** d1/ball

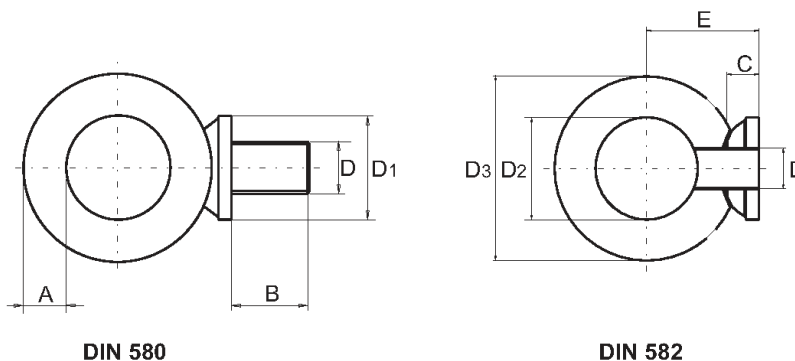
**MATERIAL:** Acero F-114. Pavonado.

**MATERIAL:** Steel F-114

d1	l	s	Diam. Pivote Sferic pivot Diam.
M-4	9	1.5	1.8
M-5	12	2	2.4
M-6	14	2	2.7
M-8	16	2	4
M-10	19	2.5	4.5
M-12	22	3.5	6
M-16	24	4.5	8.5
M-20	30	6.5	10
M-24	34	8	12

**FORMA DE PEDIDO :** d1/pivote.  
**FORMA DE PEDIDO :** d1/Sferic pivot

**CANCAMO FORJADO DIN 580 (Macho) / DIN 582 (Hembra)**  
**EYE BOLT DIN 580 (Male) DIN 582 (Female)**



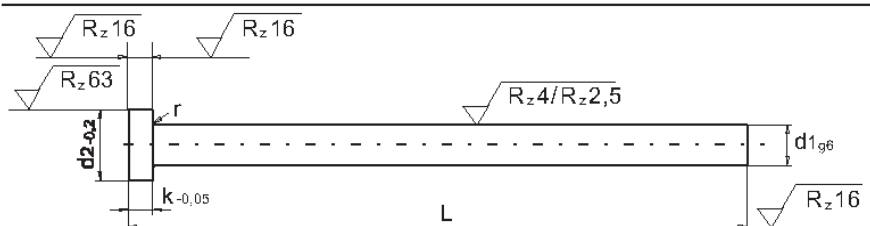
**MATERIAL :** Acero de forja. / *Forged Steel.*

D	D1	D2	D3	A	B	C	E	Carga Max en Kgs. Maximum load Kgs.	DIN580	DIN582
M- 8	20	20	36	8	15	8.5	18	140	*	*
M-10	25	25	45	10	18	10	22	230	*	*
M-12	30	30	54	12	22	11	28	340	*	*
M-14	30	30	54	12	22	11	28	340	*	*
M-16	35	35	63	14	28	13	30	700	*	*
M-18	35	35	63	14	28	13	30	900	*	*
M-20	40	40	72	16	30	16	35	1200	*	*
M-22	40	40	72	16	30	16	35	1500	*	*
M-24	50	50	90	20	38	20	45	1800	*	*
M-27	50	50	90	20	38	20	45	2200	*	*
M-30	65	60	108	24	45	25	55	3600	*	*
M-36	75	70	126	28	56	30	65	5100	*	*
M-42	85	80	144	32	65	35	75	7000	*	*
M-48	100	90	166	38	70	40	85	8600	*	*
M-56	110	100	184	42	78	45	95	11500	*	*

**FORMA DE PEDIDO / ORDER FORM :** D - DIN580 O OR DIN582.



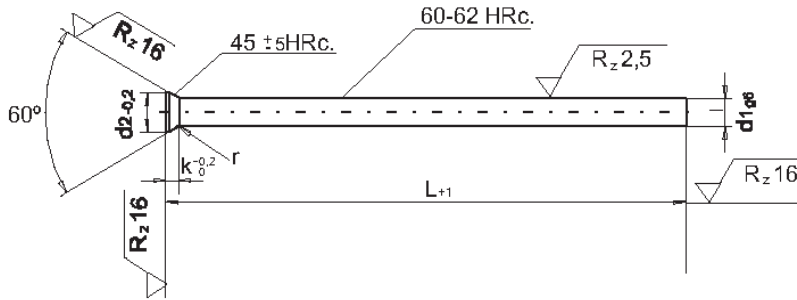
**EXPULSOR / EJECTOR PIN / DIN 1530 - ISO 6751**  
**NITRURADO FORMA "A" / BLACK NITRIDED TYPE "A"**



- EJECUCION VERSION :** Cabeza estampada en caliente y rectificada. Caña (d1) templada y rectificada.  
*Cylindrical head hot folded. Shaft fine ground finished and nitrided (g6)*
- MATERIAL:** Nº 1.2344. Designación DIN X40CrMoV51.  
*Nº 1.2344. DIN X40CrMoV51.*
- TRATAMIENTO TREATMENT :** Nitruración por el procedimiento TENIFER.  
*Dip Nitrided.*
- DUREZA CAÑA SHAFT HARDNESS:** Superficie : 70 Hrc. *Surface : 70 Hrc.*  
 Núcleo : 40-45 Hrc. *Core: 40 - 45 Hrc.*
- DUREZA CABEZA HEAD HARDNESS :** 45±5 Hrc.
- RESISTENCIA DEL NUCLEO A LA TRACCION :** 150 Kp/mm2.
- CORE RIGIDITY:**
- TEMPERATURA DE TRABAJO TEMPER RESISTANCE :** Hasta 650° C. *At least 650° C*

d1 g6	d2 -0,2	K -0,05	r	L +2															
				100	125	160	200	250	315	400	500	630	800	1000	1250	1400			
1,5	3	1,5	0,2	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
2	4	2	0,2	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
2,2	4	2	0,2	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
2,5	5	2	0,3	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
2,7	5	2	0,3	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
3	6	3	0,3	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
3,2	6	3	0,3	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
3,5	7	3	0,3	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
3,7	7	3	0,3	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
4	8	3	0,3	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
4,2	8	3	0,3	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
4,5	8	3	0,3	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
5	10	3	0,3	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
5,2	10	3	0,3	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
5,5	10	3	0,3	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
6	12	5	0,5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
6,2	12	5	0,5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
6,5	12	5	0,5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
7	12	5	0,5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
7,5	14	5	0,5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
8	14	5	0,5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
8,2	14	5	0,5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
8,5	14	5	0,5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
9	14	5	0,5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10	16	5	0,5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10,2	16	5	0,5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10,5	16	5	0,5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11	16	5	0,8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12	18	7	0,8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12,2	18	7	0,8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12,5	18	7	0,8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14	22	7	0,8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16	22	7	0,8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18	24	7	0,8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20	26	8	1	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
25	32	10	1	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
32	40	10	1	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
40	50	10	1	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

**FORMA DE PEDIDO ORDER FORM: d1 x L**



**EJECUCION / VERSION :**

Diametro d1 : templado y rectificado.  
 Diameter d1 : Hardened through and fine ground finished.  
 Cabeza : recalcada en caliente. Countersunk Head: Hot folded.

**MATERIAL / MATERIAL :**

Nº 1.2510 ( F 522 )

**DUREZAS / HARDNESS :**

Caña (d1) Shaft (d1) : 60±2 Hrc.  
 Cabeza Head : 45±5 HRC.

**TEMPERATURA DE TRABAJO  
 TEMPER RESISTANCE**

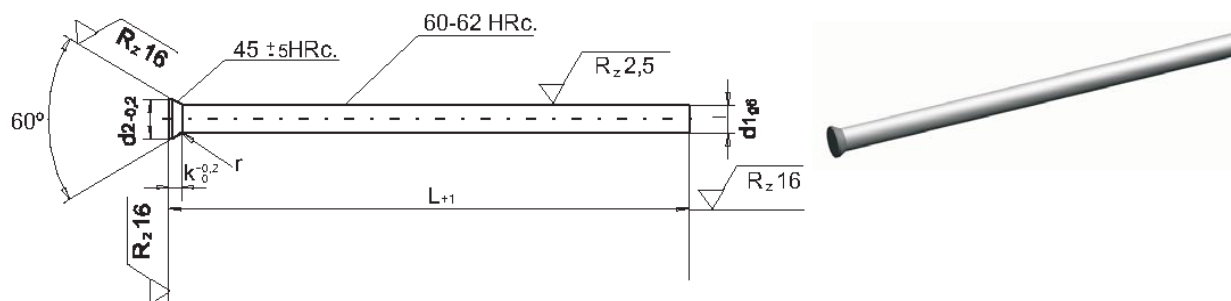
Hasta 220º C. / At least 220º C.

d1 g6	d2 -0,2	K <sup>+0,2</sup> <sub>0</sub>	r	L + 1						
				100	125	160	175	200	250	315
1	1,8	1,19	0,3	*	*	*		*		
1,1	1,8	1,11	0,3	*	*	*		*		
1,2	2	1,19	0,3	*	*	*		*		
1,25	2	1,15	0,3	*	*	*		*		
1,3	2	1,11	0,3	*	*	*		*		
1,4	2,2	1,19	0,3	*	*	*		*		
1,5	2,2	1,11	0,3	*	*	*		*		
1,6	2,5	1,28	0,3	*	*	*		*		
1,7	2,5	1,19	0,3	*	*	*		*		
1,75	2,8	1,15	0,3	*	*	*		*		
1,8	2,8	1,37	0,3	*	*	*		*		
1,9	2,8	1,28	0,3	*	*	*		*		
2	3	1,37	0,3	*	*	*	*	*	*	*
2,1	3,2	1,45	0,3	*	*	*		*		
2,2	3,2	1,37	0,3	*	*	*		*		
2,25	3,5	1,32	0,3	*	*	*		*		
2,3	3,5	1,54	0,3	*	*	*		*		
2,4	3,5	1,45	0,3	*	*	*		*		
2,5	3,5	1,37	0,3	*	*	*	*	*	*	
2,6	4	1,71	0,3	*	*	*		*		
2,7	4	1,63	0,3	*	*	*		*		
2,75	4	1,58	0,3	*	*	*		*		
2,8	4	1,54	0,3	*	*	*		*		
2,9	4	1,45	0,3	*	*	*		*		
3	4,5	1,80	0,3	*	*	*	*	*	*	*
3,1	4,5	1,71	0,3	*	*	*		*		
3,2	4,5	1,63	0,3	*	*	*		*		
3,25	4,5	1,58	0,3	*	*	*		*		
3,3	4,5	1,54	0,3	*	*	*		*		
3,4	4,5	1,45	0,3	*	*	*		*		
3,5	5	1,80	0,3	*	*	*	*	*	*	
3,6	5	1,54	0,3	*	*	*		*		
3,7	5	1,45	0,3	*	*	*		*		
3,75	5	1,58	0,3	*	*	*		*		
3,8	5	1,54	0,3	*	*	*		*		
3,9	5	1,45	0,3	*	*	*		*		
4	5,5	1,80	0,3	*	*	*	*	*	*	*

**FORMA DE PEDIDO ORDER FORM:** d1 x L

**EXPULSOR / EJECTOR PIN / DIN 1530 (Continuación)**

**TEMPLADO FORMA "D" / HARDENED THROUGH TYPE "D" COUNTERSUNK HEAD (Cntd.)**



**EJECUCION / VERSION:**

Diametro d1 : templado y rectificado.  
 Diameter d1 : Hardened through and fine ground finished.  
 Cabeza : recalcada en caliente. Countersunk Head : Hot folded.

**MATERIAL / MATERIAL :**

Nº 1.2510 ( F 522 )

**DUREZAS / HARDNESS:**

Caña (d1) Shaft (d1) : 60±2 Hrc.  
 Cabeza Head : 45±5 HRC.

**TEMPERATURA DE TRABAJO**

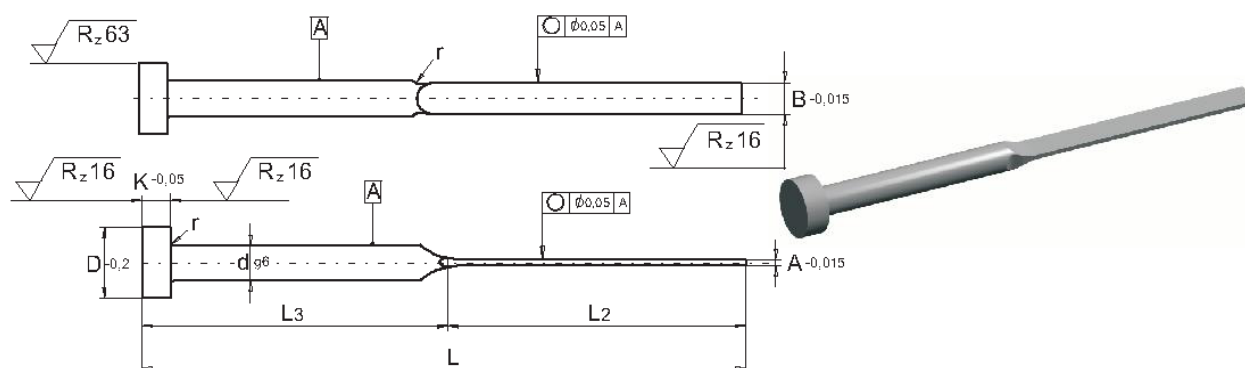
Hasta 220° C. / At least 220° C.

**TEMPER RESISTANCE**

d1 g6	d2 -0,2	K +0,2 0	r	L + 1						
				100	125	160	175	200	250	315
4,1	5,5	1,71	0,3	*	*	*		*		
4,2	5,5	1,63	0,3	*	*	*		*		
4,25	5,5	1,58	0,3	*	*	*		*		
4,4	5,5	1,45	0,3	*	*	*		*		
4,5	6	1,80	0,3	*	*	*	*	*	*	
4,6	6	1,63	0,3	*	*	*		*		
4,75	6	1,58	0,3	*	*	*		*		
5	6,5	1,80	0,3	*	*	*	*	*	*	*
5,1	6,5	1,71	0,3	*	*	*		*		
5,2	6,5	1,63	0,3	*	*	*		*		
5,25	6,5	1,38	0,3	*	*	*		*		
5,3	6,5	1,58	0,3	*	*	*		*		
5,4	6,5	1,45	0,3	*	*	*		*		
5,5	7	1,80	0,5	*	*	*	*	*	*	
5,6	7	1,63	0,5	*	*	*		*		
5,75	7	1,38	0,5	*	*	*		*		
6	8	2,23	0,5	*	*	*	*	*	*	*
6,5	9	3,16	0,5	*	*	*	*	*	*	*
7	9	2,73	0,5	*	*	*	*	*	*	*
7,5	10	3,16	0,5	*	*	*	*	*	*	*
8	10	2,73	0,5	*	*	*	*	*	*	*
8,5	11	3,16	0,5	*	*	*	*	*	*	*
9	11	2,73	0,5	*	*	*	*	*	*	*
10	12	2,73	0,5	*	*	*	*	*	*	*
12	14	2,73	0,5	*	*	*	*	*	*	*
14	16	3,23	0,8	*	*	*	*	*	*	*
16	18	3,23	0,8	*	*	*	*	*	*	*

**FORMA DE PEDIDO : ORDER FORM:** d1 x L

**EXPULSOR LAMINAR / FLAT EJECTOR PIN / DIN 1530 / ISO 8693**  
**NITRURADO FORMA "LAN" / NITRIDED TYPE "LAN"**



**EJECUCION / VERSION:** Cabeza estampada en caliente y rectificada. *Cylindrical head folded and fine ground finished*  
 Caña y lámina templada y rectificada. *Shaft and flat hardened and fine ground finished.*

**MATERIAL / MATERIAL:** Nº 1.2344 DIN X40CrMoV51.

**DUREZA CABEZA / HEAD HARDNESS:** 45±5Hrc.

**RESISTENCIA DEL NUCLEO A LA TRACCION / CORE RIGIDITY:** 150 Kp/mm<sup>2</sup>.

**TEMPERATURA DE TRABAJO / TEMPER RESISTANCE:** Hasta 650° C. / *At least 650° C.*

**DUREZA CAÑA / SHAFT HARDNESS:** Superficie / *Surface:* 70 Hrc  
 Núcleo / *Core:* 40-45 Hrc

**TRATAMIENTO / TREATMENT:** Nitruración por el procedimiento TENIFER / *Dip Nitrided*

**EXPULSOR LAMINAR / FLAT EJECTOR PIN / DIN 1530 / ISO 8693 (Continuación)**

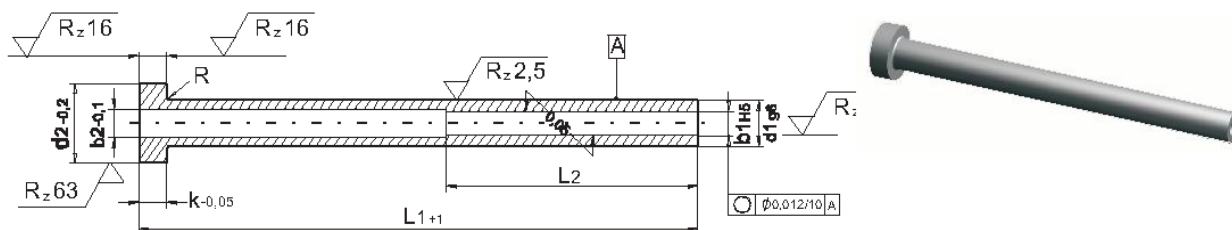
**NITRURADO FORMA "LAN" / NITRIDED TYPE "LAN" (Cntd.)**

L 2						30	40	50	65	80	100	125	155
L 3						30	40	50	60	80	100	125	160
L						60	80	100	125	160	200	250	315
A	B (-0,015)	d g6	D (-0,2)	K (-0,05)	r								
0,8	3,5	4	8	3	0,3	*	*	*	*				
1	3,5	4	8	3	0,3	*	*	*	*				
1,2	3,5	4	8	3	0,3	*	*	*	*				
0,8	3,8	4,2	8	3	0,3	*	*	*	*				
1	3,8	4,2	8	3	0,3	*	*	*	*	*			
1,2	3,8	4,2	8	3	0,3	*	*	*	*	*	*		
1	4,5	5	10	3	0,3		*	*	*	*	*	*	
1,2	4,5	5	10	3	0,3		*	*	*	*	*	*	
1,5	4,5	5	10	3	0,3		*	*	*	*	*	*	
1,6	4,5	5	10	3	0,3		*	*	*	*	*	*	
1,8	4,5	5	10	3	0,5		*	*	*	*	*	*	
1	5,5	6	12	5	0,5		*	*	*	*	*	*	
1,2	5,5	6	12	5	0,5			*	*	*	*	*	
1,5	5,5	6	12	5	0,5			*	*	*	*	*	
1,6	5,5	6	12	5	0,5			*	*	*	*	*	
1,8	5,5	6	12	5	0,5				*	*	*	*	
2	5,5	6	12	5	0,5				*	*	*	*	
1,5	7,5	8	14	5	0,5				*	*	*	*	
1,6	7,5	8	14	5	0,5				*	*	*	*	
1,8	7,5	8	14	5	0,5					*	*	*	*
2	7,5	8	14	5	0,5					*	*	*	*
1,8	9,5	10	16	5	0,8						*	*	*
2	9,5	10	16	5	0,8						*	*	*
1,5	10	12	20	7	0,8				*	*	*	*	*
1,8	10	12	20	7	0,8				*	*	*	*	*
2	10	12	20	7	0,8					*	*	*	*
2	11,5	12	20	7	0,8						*	*	*
1,8	12	14	22	7	0,8				*	*	*	*	*
2	12	14	22	7	0,8					*	*	*	*
2	15	16	22	7	0,8					*	*	*	*
2,5	15	16	22	7	0,8						*	*	*
3	19	20	26	8	1						*	*	*
4	19	20	26	8	1							*	*

**FORMA DE PEDIDO : ORDER FORM: A x B x L.**

**EXPULSOR TUBULAR / EJECTOR SLEEVE / DIN 16756 - ISO 8405**

**NITRURADO FORMA "ETN" / BLACK NITRIDED TYPE "ETN"**



**EJECUCION VERSION :**

Cabeza estampada en caliente. Caña (d1) templada y rectificada.  
Cylindrical head hot folded. Shaft hardened and fine ground finished.

**MATERIAL:**

Nº 1.2344. DIN X40CrMoV51.  
Nº 1.2344. DIN X40CrMoV51.

**TRATAMIENTO TREATMENT :**

Nitruración por el procedimiento TENIFER.  
Dip Nitrided.

**DUREZA CAÑA SHAFT HARDNESS:**

Superficie / Surface : 70 Hrc. (950 Kg/mm2 - 0,3 Kp).  
Núcleo / Core : 40-45 Hrc. (400-450Kg/mm2).  
50 HRC.

**DUREZA CABEZA HEAD HARDNESS :**

**RESISTENCIA DEL NUCLEO A LA TRACCION :  
CORE RIGIDITY:**

150 Kp/mm2.

**TEMPERATURA DE TRABAJO TEMPER RESISTANCE:** Hasta 650º C. At least 650º C.

b1 (H5)	d1 (g6)	b2 -0.1	d2 -0.2	k -0.05	L2	R	L1 + 1													
							75	100	125	150	175	200	225	250	275	300				
2	4	2.5	8	3	35	0.3	*	*	*	*	*	*	*	*	*	*	*	*	*	*
2.2	4	2.5	8	3	35	0.3	*	*	*	*	*	*	*	*	*	*	*	*	*	*
2.5	5	3	10	3	35	0.3	*	*	*	*	*	*	*	*	*	*	*	*	*	*
2.7	5	3	10	3	45	0.3	*	*	*	*	*	*	*	*	*	*	*	*	*	*
3	5	3.5	10	3	45	0.3	*	*	*	*	*	*	*	*	*	*	*	*	*	*
3.2	5	3.5	10	3	45	0.3	*	*	*	*	*	*	*	*	*	*	*	*	*	*
3.5	6	4	12	5	45	0.5	*	*	*	*	*	*	*	*	*	*	*	*	*	*
3.7	6	4	12	5	45	0.5	*	*	*	*	*	*	*	*	*	*	*	*	*	*
4	6	4.5	12	5	45	0.5	*	*	*	*	*	*	*	*	*	*	*	*	*	*
4.2	8	5	14	5	45	0.5	*	*	*	*	*	*	*	*	*	*	*	*	*	*
4.5	8	5	14	5	45	0.5	*	*	*	*	*	*	*	*	*	*	*	*	*	*
5	8	5.5	14	5	45	0.5	*	*	*	*	*	*	*	*	*	*	*	*	*	*
5.2	8-9	5.5	14	5	45	0.5	*	*	*	*	*	*	*	*	*	*	*	*	*	*
5.5	9	6	16	5	45	0.5	*	*	*	*	*	*	*	*	*	*	*	*	*	*
6	10	6.5	16	5	45	0.5	*	*	*	*	*	*	*	*	*	*	*	*	*	*
6.2	10	6.5	16	5	45	0.5	*	*	*	*	*	*	*	*	*	*	*	*	*	*
6.5	10	7	16	5	45	0.5	*	*	*	*	*	*	*	*	*	*	*	*	*	*
8	12	8.5	20	7	45	0.8	*	*	*	*	*	*	*	*	*	*	*	*	*	*
8.2	12	8.5	20	7	45	0.8	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10	14	10.5	22	7	50	0.8	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10.5	14	11	22	7	50	0.8	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12	16	12.5	22	7	50	0.8	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12.5	16	13	22	7	50	0.8	*	*	*	*	*	*	*	*	*	*	*	*	*	*

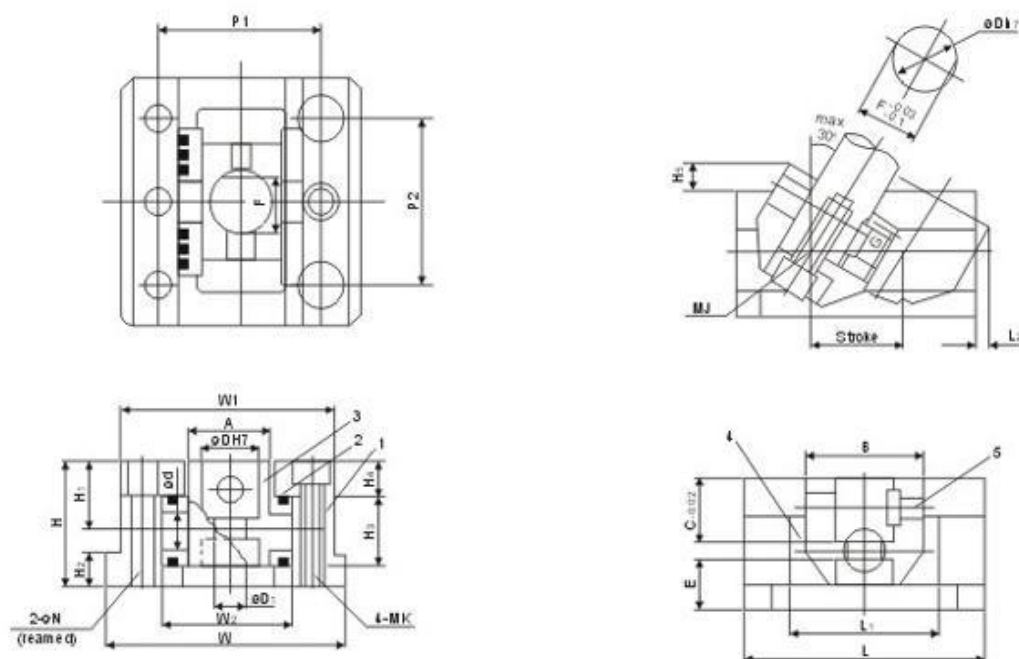
**FORMA DE PEDIDO / ORDER FORM: b1 x d1 x L1.**

## SECU

- Inclined ejector core unit for easy removing of mouldings with undercut.
- Totally self-lubricating even at temperatures up to 300°C
- Pivoted pin holder for maximum working angle of 30 degrees.
- Fixing by screws and dowel pins or clamping between ejector plates.

### Component parts

No.	Description	Qty	Material	Remarks
1	slide base	1	CK 55	tufftrided
2	Upper plate	2	CK55	tufftrided
3	Pin holder	1	CK45	tufftrided
4	Slide plate	2	S O#50 SP	main le nance -tee
5	Anti-turn pin	2	CK 45	tufftrided

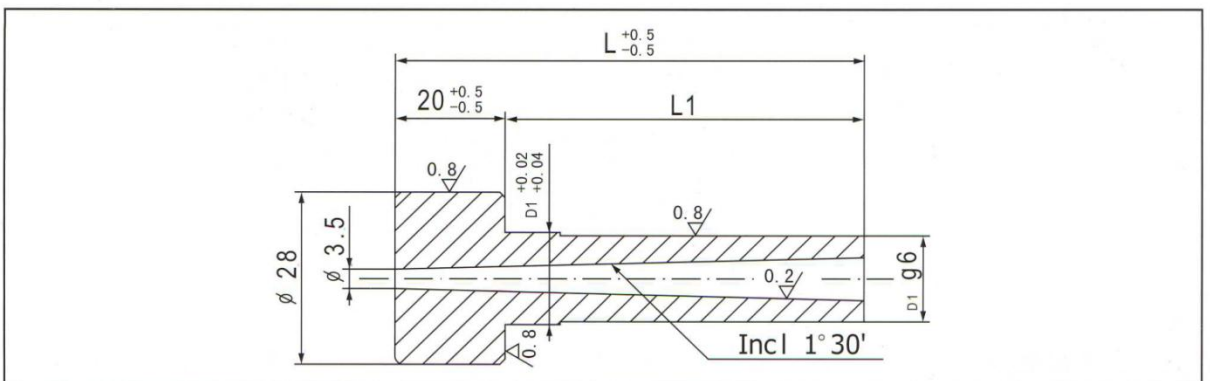
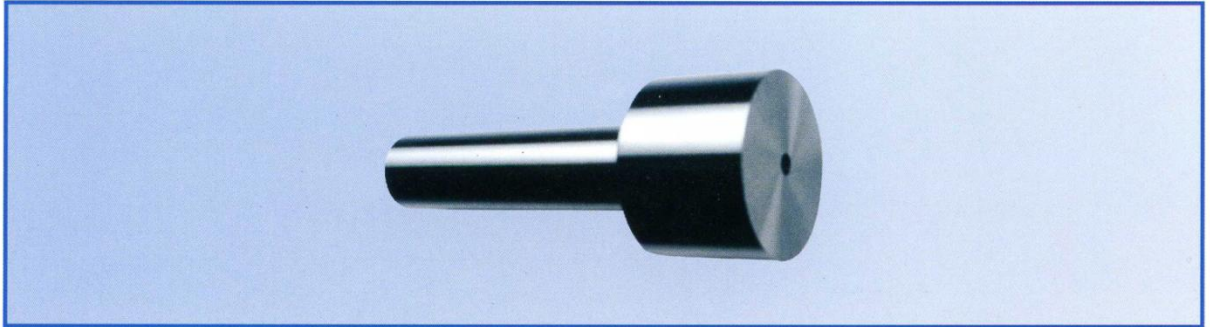


Order NO.	øD	ød	øD1	A	B	C	E	F	G	MJ	H	H1	H2	H3	H4	H5	L	L1	L2	W	W1	W2	p1	p2	MK	øN	Stroke
SECU-8	8	7	4,5	11	20	8	10	7	8	M4	22	12,5	5	11	7	10,5	32	20	3,8	33	30	19	24	20	M3	3	10
SECU-10	10	7	5,5	15	25	10	12,5	9	9	M5	27	15,5	5	15	8	11,3	45	25	4,5	45	40	25	32	30	M4	4	18
SECU-12	12	10	7	17	25	12	15	11	10	M6	32	18	7	16	10	4	50	30	5	57	51	31	39	35	M6	6	20
SECU-16	16	12	9	22	30	16	15	14,5	12	M8	36	20	8	20	10	5	65	40	5	65	58	38	46	40	M6	6	25
SECU-20	20	14	11	26	40	20	16	18	16	M10	42	23	11	22	12	8	80	50	5	80	72	44	56	55	M8	8	30
SECU-25	25	16	14	32	45	25	17	22,5	20	M12	50	28	15	26	15	8	90	55	6	93	85	52	66	65	M10	10	35
SECU-30	30	18	14	38	50	30	17	27	25	M12	55	30	15	30	15	9	100	60	7	101	93	60	74	70	M10	10	40
SECU-35	35	20	14	45	60	35	18	32	30	M12	62	35	15	34	18	10	120	75	8	120	110	70	85	80	M12	10	45
SECU-40	40	25	18	55	70	40	19	36	35	M16	70	40	15	44	18	12	135	85	8	130	120	80	95	90	M12	10	50
SECU-45	45	30	18	60	80	45	24	40	40	M16	80	45	15	50	20	14	150	95	10	140	130	90	105	110	M12	10	55

Dimensions H5 and L2: Machining (cutting) possible.  
Maximum ejector angle 30°.

# Sprue bush

Europe standard



How to order: Sprue bush D1\*L

L	L1	D1 14	D1 18
50	30	●	●
65	45	●	●
75	55	●	●
85	65	●	●
95	75	●	●
105	85	●	●
115	95	●	●

- Normalizados tipo Hasco , Dme ( p/desenho )

- Acessorios especiais para moldes , cunhos e cortantes ( p/desenho )



- Preços por consulta