



# STANDARD PARTS FOR MOULDS




















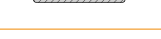














FÜHRUNGSELEMENTE

ELEMENTI NORMALIZZATI

PER STAMPI



MADE IN ITALY

	<b>CM</b>	RANGE EXTENSION	25		<b>CAMI</b>	NEW MODEL	70
	<b>CLA</b>	NEW MODEL	26		<b>CAMBQI</b>	NEW MODEL	71
	<b>CLAF31</b>	NEW MODEL	27		<b>CAUWF</b>	NEW MODEL	72
	<b>CLAF21</b>	NEW MODEL	28		<b>CAUWH</b>	NEW MODEL	73
	<b>CIAF</b>	RANGE EXTENSION	29		<b>CEBTIN</b>	UPGRADE PRODUCT NEW CODE	81
	<b>CEAS</b>	RANGE EXTENSION	30		<b>CEIN</b>	UPGRADE PRODUCT NEW CODE	84
	<b>CEAIN</b>	UPGRADE PRODUCT RANGE EXTENSION	32		<b>BEP</b>	UPGRADE PRODUCT NEW CODE	92
	<b>CEAQIN</b>	UPGRADE PRODUCT	34		<b>C03M</b>	RANGE EXTENSION	102
	<b>BSA</b>	NEW CODE - REPLACES BGA	38		<b>C03MD</b>	NEW MODEL	102
	<b>BSB</b>	NEW CODE - REPLACES BGB	39		<b>C03MLD</b>	NEW MODEL	102
	<b>BSC</b>	NEW CODE - REPLACES BGC	40		<b>C00M</b>	RANGE EXTENSION	105
	<b>BLAG</b>	RANGE EXTENSION	41		<b>C00MD</b>	NEW MODEL	105
	<b>BEPA</b>	UPGRADE PRODUCT NEW CODE	47		<b>C00MLD</b>	NEW MODEL	105
	<b>BEPA PLUS</b>	UPGRADE PRODUCT NEW CODE	48		<b>C20M</b>	RANGE EXTENSION	108
	<b>BGEA</b>	NEW MODEL	49		<b>C30M</b>	RANGE EXTENSION	110
	<b>GSA</b>	RANGE EXTENSION	53		<b>C34M</b>	NEW MODEL	111
	<b>GSAP</b>	RANGE EXTENSION	55		<b>C50MH</b>	RANGE EXTENSION	112
	<b>GR</b>	RANGE EXTENSION	56		<b>C012M</b>	RANGE EXTENSION	116
	<b>CAU</b>	RANGE EXTENSION	60		<b>C013M</b>	RANGE EXTENSION	117
	<b>CAUFCB</b>	NEW MODEL	65		<b>B11M</b>	RANGE EXTENSION	118
	<b>CAUBQFCB</b>	NEW MODEL	66		<b>B10M</b>	RANGE EXTENSION	122
	<b>CAUBQAM</b>	NEW MODEL	67		<b>B3M</b>	NEW MODEL	124
	<b>CLO</b>	NEW MODEL	68		<b>B3BM</b>	NEW MODEL	125
	<b>CLOT</b>	NEW MODEL	69		<b>B60MH</b>	RANGE EXTENSION	126
					<b>CCZ</b>	RANGE EXTENSION	129



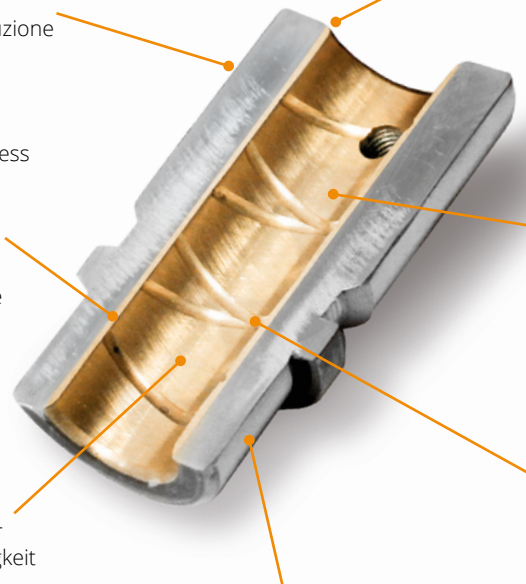
<b>BEP</b>	ITALIAN STD.	92
<b>BEPA</b>	ISO 9448-6	47
<b>BEPA PLUS</b>	ISO 9448-6	48



**BEPA PLUS ONLY**  
 Induction hardened steel for improved protection  
 Induktionsgehärteter Stahl für verbesserten Schutz  
 Acciaio temprato ad induzione per maggiore protezione

Optimized bronze thickness for greater durability  
 Optimierte Bronzedicke für längere Haltbarkeit  
 Spessore del bronzo ottimizzato per maggiore durabilità

Honed bore for greater guiding accuracy  
 Geschliffene Bohrung für höhere Führungsgenauigkeit  
 Foro levigato per maggiore precisione di guida

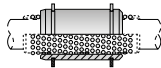
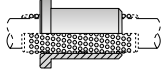
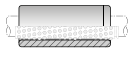
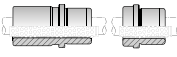
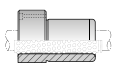
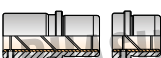






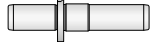

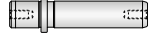


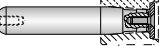







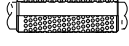




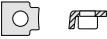


















End desing for easy assembly  
 Besondere Einlaufgeometrie für eine einfachere Montage  
 Design dell'estremità per un facile imbocco














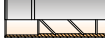
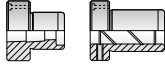
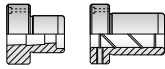

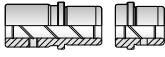

High quality of bronze layer for improved guiding  
 Hochwertige Bronzeschicht für verbesserte Führung  
 Alta qualità dello strato di bronzo per una migliore guida  
**HV ≥ 110**

Improved lubricating grooves for longer lasting  
 Verbesserte Schmierrillen für längere Lebensdauer  
 Canali di lubrificazione migliorati per una maggiore durata









**BEP, BEPA and BEPA PLUS**  
 Induction hardened steel for multiple no wear fits  
 Induktionsgehärteter Stahl zur mehrmaligen Montage ohne Verschleiß und Abnutzung  
 Acciaio temprato ad induzione per piantaggi multipli senza usura  
**HRC 54 - 58**

<b>ENS CUSTOM-MADE PRODUCTS</b>	<b>10</b>		<b>BSB</b>	<b>GUIDE BUSH FOR MINIATURE SET</b> KUGELFÜHRUNGSBUCHSE KLEINE ABMESSUNG BUSSOLA LISCIA PER MINIATURE SET	<b>39</b>
<b>ENSCOAT</b>	<b>12</b>		<b>BSC</b>	<b>GUIDE BUSH FOR MINIATURE SET</b> KUGELFÜHRUNGSBUCHSE KLEINE ABMESSUNG BUSSOLA LISCIA PER MINIATURE SET	<b>40</b>
<b>DLC</b>	<b>13</b>		<b>BLAG</b>	<b>GUIDE BUSH FOR BALL CAGE</b> KUGELFÜHRUNGSBUCHSE BUSSOLA LISCIA PER GABBIA A SFERE	<b>41</b>
<b>HOW TO READ CATALOGUE</b>	<b>14</b>		<b>BEAG</b>	<b>DEMOUNTABLE BUSH FOR BALL CAGE</b> KUGELFÜHRUNGSBUCHSE MIT BUND BUSSOLA ESTRAIBILE PER GABBIA A SFERE	<b>43</b>
<b>CROSS CHART DIE COMPONENTS</b>	<b>16</b>		<b>B5AG</b>	<b>FLANGED GUIDE BUSH FOR BALL CAGE</b> KUGELFÜHRUNGSBUCHSE MIT FLANSCH BUSSOLA A COLLARE PER GABBIA A SFERE	<b>44</b>
<b>CROSS CHART MOULD COMPONENTS</b>	<b>20</b>		<b>BEBA</b>	<b>DEMOUNTABLE BUSH STEEL / BRONZE</b> FÜHRUNGSBUCHSE MIT BUND MIT BRONZEEINSATZ BUSSOLA ESTRAIBILE ACCIAIO / BRONZO	<b>45</b>
<b>DIE COMPONENTS</b>	<b>23</b>				
<b>ISO</b>					
	<b>CIS</b>	<b>STRAIGHT GUIDE PILLAR</b> FÜHRUNGSSÄULE COLONNA LISCIA			<b>24</b>
	<b>CM</b>	<b>STRAIGHT GUIDE PILLAR FOR MINIATURE SET</b> FÜHRUNGSSÄULE KLEINE ABMESSUNG COLONNA LISCIA PER MINIATURE SET			<b>25</b>
	<b>CLA</b>	<b>STRAIGHT GUIDE PILLAR</b> FÜHRUNGSSÄULE COLONNA LISCIA			<b>26</b>
	<b>CLAF31</b>	<b>GUIDE PILLAR ENDWISE BOLT-ON TYPE</b> FÜHRUNGSSÄULE ZUM ANSCHRAUBEN COLONNA DA AVVITARE			<b>27</b>
	<b>CLAF21</b>	<b>GUIDE PILLAR ENDWISE BOLT-ON TYPE</b> FÜHRUNGSSÄULE ZUM ANSCHRAUBEN COLONNA DA AVVITARE			<b>28</b>
	<b>CIAF</b>	<b>STRAIGHT GUIDE PILLAR WITH THREADS</b> FÜHRUNGSSÄULE INNENGEWINDE BEIDSEITIG COLONNA LISCIA FILETTATA			<b>29</b>
	<b>CEAS</b>	<b>STRIPPER MOUNTED PILLAR</b> MITTENBUNDSÄULE COLONNA CON FLANGIA			<b>30</b>
	<b>CEA</b>	<b>DEMOUNTABLE GUIDE PILLAR</b> FÜHRUNGSSÄULE MIT BUND COLONNA ESTRAIBILE			<b>31</b>
	<b>CEAIN</b>	<b>DEMOUNTABLE GUIDE PILLAR</b> FÜHRUNGSSÄULE MIT BUND COLONNA ESTRAIBILE			<b>32</b>
	<b>CEAQ</b>	<b>DEMOUNTABLE GUIDE PILLAR</b> FÜHRUNGSSÄULE MIT BUND COLONNA ESTRAIBILE			<b>33</b>
	<b>CEAQIN</b>	<b>DEMOUNTABLE GUIDE PILLAR</b> FÜHRUNGSSÄULE MIT BUND COLONNA ESTRAIBILE			<b>34</b>
	<b>C5A</b>	<b>DEMOUNTABLE CONICAL PILLAR</b> FÜHRUNGSSÄULE MIT KONISCHEM SCHAFT (MIT SCHEIBE UND SCHRAUBE) COLONNA CONICA (COMPLETA DI RONDELLA E VITE)			<b>35</b>
	<b>BEAC</b>	<b>DEMOUNTABLE CONICAL BUSH</b> HALTEBUCHSE FÜR KONISCHE FÜHRUNGSBUCHSE BUSSOLA CONICA			<b>37</b>
	<b>BSA</b>	<b>GUIDE BUSH FOR MINIATURE SET</b> KUGELFÜHRUNGSBUCHSE KLEINE ABMESSUNG BUSSOLA LISCIA PER MINIATURE SET			<b>38</b>
			<b>B5BA</b>	<b>STEEL/BRONZE FLANGED GUIDE BUSH</b> FÜHRUNGSBUCHSE MIT FLANSCH MIT BRONZEEINSATZ BUSSOLA A COLLARE CON FORI DI FISSAGGIO ACCIAIO/BRONZO	<b>50</b>
			<b>BEA</b>	<b>SELF - LUBE DEMOUNTABLE BUSH</b> SELBSTSCHMIERENDE FÜHRUNGSBUCHSE MIT BUND BUSSOLA ESTRAIBILE AUTOLUBRIFICANTE	<b>51</b>
			<b>B5A</b>	<b>SELF - LUBE FLANGED GUIDE BUSH</b> SELBSTSCHMIERENDE FÜHRUNGSBUCHSE MIT FLANSCH BUSSOLA A COLLARE AUTOLUBRIFICANTE	<b>52</b>
			<b>GSA</b>	<b>BALL CAGE WITH CIRCLIP GROOVE</b> KUGELKÄFIG MIT SICHERUNGSRING GABBIA A SFERE CON SCANALATURA PER ANELLO D'ARRESTO	<b>53</b>
			<b>GSAB</b>	<b>BALL CAGE WITH STOP GROOVE</b> KUGELKÄFIG MIT KÄFIGHALTER GABBIA A SFERE CON BLOCCAGGIO	<b>54</b>
			<b>GSAP</b>	<b>PLASTIC BALL CAGE</b> KUGELKÄFIG AUS KUNSTSTOFF GABBIA A SFERE IN PLASTICA	<b>55</b>
			<b>GR</b>	<b>ROLLER CAGE</b> ROLLENKÄFIG GABBIA A RULLI	<b>56</b>
			<b>RTI</b>	<b>WASHER FOR CEAIN/CEAQIN</b> HALTESCHEIBE FÜR CEAIN/CEAQIN RONDELLA PER CEAIN/CEAQIN	<b>57</b>

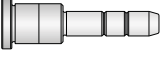
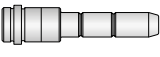







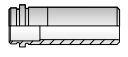

	<b>S-ISO</b>	RETAINING CLAMPS HALTESTÜCKE STAFFETTE DI RITEGNO	<b>58</b>
	<b>V</b>	SCREWS FOR CLAMPS SCHRAUBE VITI PER STAFFETTE	<b>59</b>
	<b>VS</b>	SCREWS FOR WASHERS SCHRAUBE FÜR HALTESCHEIBE VITI PER RONDELLE	<b>59</b>
<b>AUTO</b>			
	<b>CAU</b>	GUIDE PILLAR DIN 9833 FÜHRUNGSSÄULE DIN 9833 COLONNA DIN 9833	<b>60</b>
	<b>CAUBQ</b>	GUIDE PILLAR WITH HOLE DIN 9833 FÜHRUNGSSÄULE MIT HOHLBOHRUNG DIN 9833 COLONNA FORATA DIN 9833	<b>61</b>
	<b>CAUR</b>	GUIDE PILLAR WITH MILLING VW FÜHRUNGSSÄULE MIT NUT VW COLONNA CON FRESATURA VW	<b>62</b>
	<b>CEOT</b>	DEMOUNTABLE GUIDE PILLAR WDX FÜHRUNGSSÄULE MIT BUND WDX COLONNA ESTRAIBILE WDX	<b>63</b>
	<b>CS</b>	GUIDE PILLAR AFNOR FÜHRUNGSSÄULE MIT HALTERINGEINSTECH AFNOR COLONNA AFNOR	<b>64</b>
	<b>CAUFCB</b>	GUIDE PILLAR FCA FÜHRUNGSSÄULE FCA COLONNA FCA	<b>65</b>
	<b>CAUBQFCB</b>	GUIDE PILLAR WITH HOLE FCA FÜHRUNGSSÄULE MIT HOHLBOHRUNG FCA COLONNA FORATA FCA	<b>66</b>
	<b>CAUBQAM</b>	GUIDE PILLAR WITH HOLE FCA FÜHRUNGSSÄULE MIT HOHLBOHRUNG FCA COLONNA FORATA FCA	<b>67</b>
	<b>CLO</b>	GUIDE PILLAR GM FÜHRUNGSSÄULE GM COLONNA GM	<b>68</b>
	<b>CLOT</b>	GUIDE PILLAR WDX FÜHRUNGSSÄULE WDX COLONNA WDX	<b>69</b>
	<b>CAMI</b>	GUIDE PILLAR MERCEDES FÜHRUNGSSÄULE MERCEDES COLONNA MERCEDES	<b>70</b>
	<b>CAMBQI</b>	GUIDE PILLAR WITH HOLE MERCEDES FÜHRUNGSSÄULE MIT HOHLBOHRUNG MERCEDES COLONNA FORATA MERCEDES	<b>71</b>
	<b>CAUWF</b>	GUIDE PILLAR BMW FÜHRUNGSSÄULE BMW COLONNA BMW	<b>72</b>
	<b>CAUWH</b>	GUIDE PILLAR BMW FÜHRUNGSSÄULE BMW COLONNA BMW	<b>73</b>
	<b>BG9834</b>	SELF-LUBRICATING BUSH DIN 9834 FÜHRUNGSBUCHSE BRONZE MIT FESTSCHMIERSTOFF DIN 9834 BUSSOLA AUTOLUBRIFICANTE DIN 9834	<b>74</b>
	<b>PS</b>	LOCATING PLATE VW SICHERUNGSPLATTE FÜR FÜHRUNGSSÄULE NACH VW PIASTRINA DI SICUREZZA VW	<b>75</b>



	<b>PCS</b>	RETAINER FOR AFNOR GUIDE PILLAR HALTESTÜCK FÜR AFNOR FÜHRUNGSSÄULE STAFFA DI BLOCCAGGIO PER COLONNA AFNOR	<b>76</b>
	<b>ACS</b>	RING FOR AFNOR GUIDE PILLAR HALTERING FÜR AFNOR FÜHRUNGSSÄULE ANELLO DI TENUTA PER COLONNA AFNOR	<b>76</b>
	<b>S-AUTO</b>	RETAINING CLAMPS HALTESTÜCKE STAFFETTE DI RITEGNO	<b>77</b>
<b>ITALIA</b>			
	<b>C3</b>	HEAD PILOT PIN FÜHRUNGSSÄULE COLONNA CON TESTA	<b>78</b>
	<b>C4</b>	SMOOTH PILOT PIN FÜHRUNGSSÄULE COLONNA SENZA TESTA	<b>79</b>
	<b>C5</b>	GUIDE PILLAR WITH TAPER LEAD FÜHRUNGSSÄULE MIT KONISCHEM SCHAFT COLONNA CONICA	<b>80</b>
	<b>RON</b>	WASHER FOR PILLAR C5 SCHEIBE FÜR FÜHRUNGSSÄULE C5 RONDELLA PER COLONNA C5	<b>80</b>
	<b>CEBT</b>	DEMOUNTABLE GUIDE PILLAR FÜHRUNGSSÄULE MIT BUND COLONNA ESTRAIBILE	<b>81</b>
	<b>CEBTIN</b>	DEMOUNTABLE GUIDE PILLAR FÜHRUNGSSÄULE MIT BUND COLONNA ESTRAIBILE	<b>81</b>
	<b>CE</b>	DEMOUNTABLE GUIDE PILLAR FÜHRUNGSSÄULE MIT BUND COLONNA ESTRAIBILE	<b>82</b>
	<b>CEW</b>	DEMOUNTABLE GUIDE PILLAR FÜHRUNGSSÄULE MIT BUND COLONNA ESTRAIBILE	<b>83</b>
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**ITALIA**

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*ACCESSORY*
*BUSH*
*PILLAR*
*DIE*
*MOULD*

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CAMI	AUTO	70
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GSAB	ISO	54
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PS	AUTO	75
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RTE	ITALIA	96
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## ENS' CUSTOM-MADE PRODUCTS

TURNING, MILLING, GRINDING AND LAPPING

DREHEN, FRÄSEN, SCHLEIFEN UN LÄPPEN | TORNITURA, FRESATURA, RETTIFICA E LAPPATURA



Products made on customer's demand and drawing to satisfy applications where standards are not the option.

Turning, milling, grinding and lapping to manufacture products with unique quality features.

Flexibility, short delivery times and co-design are the pillars on which ENS bases its service to customers.

MATERIALS	TREATMENTS AND COATINGS	DIMENSIONS (MM)	
Carbon steels	Induction hardening	Diameter	min 9 max 200
Alloy steels	Integral hardening		
Stainless steels	Case hardening		
Bronze	Gas nitriding		
Others on demand	Tenifer	Length	max 1500
	DLC coating		
	Others on demand		

Produkte, die nach Kundenwunsch und Zeichnung hergestellt werden, damit Anwendungen zu erfüllen, bei denen Standards nicht in Frage kommen.

Drehen, Fräsen, Schleifen und Läppen zur Herstellung von Produkten mit einzigartigen Qualitätsmerkmalen für schwere Anwendungen.

Flexibilität, kurze Lieferzeiten und Co-Design sind die Aspekte, auf denen ENS seinen Service für seine Kunden aufbaut.

MATERIALEN	HANDLUNGEN UND BESCHICHTUNGEN	MASSE (MM)	
Kohlenstoffstahle	Induktionshärtung	Durchmesser	min 9 max 200
Legierte Stahle	Vollständige Härtung		
Edelstahle	Einsatzhärtung		
Bronze	Gasnitrieren		
Mehr nach Anfrage	Tenifer	Länge	max 1500
	DLC Beschichtung		
	Mehr nach Anfrage		

Prodotti realizzati su richiesta e disegno del cliente per soddisfare applicazioni dove gli standard non sono un'opzione.

Tornitura, fresatura, rettifica e lappatura per realizzare prodotti con caratteristiche qualitative uniche per condizioni di lavoro gravose.

Flessibilità, tempi di consegna brevi e co-design sono i pilastri su cui ENS basa il proprio servizio ai clienti.

MATERIALI	TRATTAMENTI E RIVESTIMENTI	DIMENSIONI (MM)	
Acciai al carbonio	Tempera ad induzione	Diametro	min 9 max 200
Acciai legati	Tempera integrale		
Acciai inossidabili	Cementazione e tempera		
Bronzo	Nitrurazione gassosa		
Altri a richiesta	Tenifer	Lunghezza	max 1500
	Rivestimento DLC		
	Altri a richiesta		

# ENSCOAT COATING\*

## POLYMER-BASED COATING WITH GRAPHITE

OLYMERBASIERTE BESCHICHTUNG MIT GRAPHIT | RIVESTIMENTO POLIMERICO CON GRAFITE



\*STANDARD ON BEA/B5A BUSHES 

\*STANDARD BEI BEA/B5A BUSCHEN 

\*STANDARD SU BUSSOLE BEA/B5A 

ADVANTAGES	
excellent dry lubrication	thickness: 10 to 30 $\mu$
excellent anti-friction properties	operating temperature from -125 to 285 °C
longer lasting of coated parts	properties of coating remain intact, regardless of its level of wear
suitable as alternative option to sintered bushes	up to 250 h in salt spray
low friction coefficient < 0,06	color black
APPLICATIONS	
sliding components	transmission parts
stamping dies and injection moldings	pistons
processes where lubrication is not possible or difficult	automotive industry

VORTEILE	
hervorragende Trockenschmierung	Dicke: 10 bis 30 $\mu$
hervorragende Anti-Griff-Eigenschaften	Betriebstemperatur von -125 bis 285 °C
längere Lebensdauer beschichteter Teile	Eigenschaften der Beschichtung bleiben erhalten, unabhängig vom Abnutzungsgrad
geeignet als Alternative zu Sinterbuchsen	bis zu 250 h im Salznebel
niedriger Reibungskoeffizient < 0,06	Farbe schwarz
ANWENDUNGEN	
Gleitelemente	Getriebeteile
Stanzwerkzeuge und Spritzgussteile	Kolben
Prozesse, bei denen eine Schmierung nicht möglich oder schwierig ist	Automobilindustrie

VANTAGGI	
eccellente lubrificazione a secco	spessore: da 10 a 30 $\mu$
eccellenti proprietà anti-grip	temperatura di esercizio da -125 a 285 °C
maggior durata delle parti rivestite	le proprietà del rivestimento rimangono intatte, indipendentemente dal livello di usura
adatto come alternativa alle boccole sinterizzate	fino a 250 ore in nebbia salina
basso coefficiente di attrito < 0,06	colore nero
APPLICAZIONI	
componenti di scorrimento	industria automobilistica
stampi di tranciatura e iniezione plastica	organi di trasmissione
processi in cui la lubrificazione non è possibile o è difficoltosa	pistoni

# DLC (Diamond Like Carbon)\*

## CARBON-BASED COATING FOR HIGHER PERFORMANCE

KOHLENSTOFFBASIERTE BESCHICHTUNG FÜR EINE HÖHERE LEISTUNG  
 RIVESTIMENTO A BASE CARBONIO PER PERFORMANCE SUPERIORE



\*APPLICATION ON REQUEST

\*ANFERTIGUNG AUF ANFRAGE

\*APPLICAZIONE SU RICHIESTA

ADVANTAGES - FEATURS	
high surface hardness	3000 - 3500 HV 0,05
low coefficient of friction DLC vs steel	< 0,05 DLC
ideal for dry sliding	cleanrooms - no pollution
high resistance to corrosion	> 350 h in salt spray
color	dark grey - black
thickness	2 - 4 micron
APPLICATIONS	
sliding components	Al alloy molding
components subject to high abrasive wear	car engine components
components for molding ABS, HDPE, PC, PET	medical sector components
components for food sector machinery	

VORTEILE - EIGENSCHAFTEN	
hohe Oberflächenhärte	3000 - 3500 HV 0,05
niedriger Reibungskoeffizient DLC gegenüber Stahl	< 0,05 DLC
geeignet für trockene Reiräume	Reinräume - keine Belastung
hohe Korrosionsbeständigkeit	> 350 Stunden im Salznebel
Farbe	Dunkelgrau - Schwarz
Dicke	2 - 4 micron
ANWENDUNGEN	
Schiebeteile	Formteil aus Al-Legierung
Bauteile, die einem hohen abrasiven Verschleiß unterliegen	Komponenten für Automotoren
Komponenten zum Formen von ABS, HDPE, PC, PET	Komponenten für den medizinischen Bereich
Komponenten für Maschinen im Lebensmittelsektor	

VANTAGGI - CARATTERISTICHE	
durezza superficiale	3000 - 3500 HV 0,05
basso coefficiente di attrito DLC vs acciaio	< 0,05 DLC
ideale per scorrimenti a secco	camere bianche
alta resistenza alla corrosione	> 350 h in nebbia salina
colore	grigio scuro - nero
spessore	2 - 4 µ
APPLICAZIONI	
componenti soggetti a scorrimento	stampaggio leghe Al
componenti soggetti ad elevata usura abrasiva	componenti motori auto
componenti per stampaggio ABS, HDPE, PC, PET	componenti settore medicale
componenti per macchine settore alimentare	

1

## COLOR IDENTIFYING THE FIELD OF APPLICATION OF THE ITEM

FARBE FÜR DIE KENNZEICHNUNG DES ANWENDUNGSBEREICHS DES PRODUKTES  
COLORE IDENTIFICATIVO DEL CAMPO DI UTILIZZO DEL PRODOTTO

2

## ITEM-TYPE IDENTIFICATION COLOR

PRODUKTTYP - IDENTIFIKATIONSFARBE  
COLORE IDENTIFICATIVO DEL TIPO PRODOTTO

3

## ITEM SERIES

PRODUKTSERIE  
SERIE DI APPARTENENZA DEL PRODOTTO

4

## ITEM TYPE

PRODUKTTYP  
TIPO PRODOTTO

5

## ITEM FAMILY CODE

PRODUKTFAMILIENCODE  
CODICE FAMIGLIA PRODOTTO

6

## PRODUCT DESCRIPTION

PRODUKTBESCHREIBUNG  
DESCRIZIONE DEL PRODOTTO

7

## INTERNATIONAL STANDARDS REFERENCE

INTERNATIONALE REFERENZNORMEN  
STANDARD INTERNAZIONALI DI RIFERIMENTO

8

## ENS MANUFACTURING FEATURES

ENS PRODUKTIONSBEZOGENE EIGENSCHAFTEN  
CARATTERISTICHE SPECIFICHE DI PRODUZIONE ENS

9

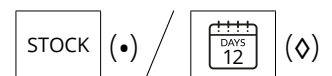
## TECHNICAL SPECIFICATIONS OF THE ITEM

TECHNISCHE PRODUKTEIGENSCHAFTEN  
CARATTERISTICHE TECNICHE PRODOTTO

10

## ITEMS AVAILABILITY: "ON STOCK" OR "LEAD TIME IN WORKING DAYS"

PRODUKTVERWALTUNGSART: AUF LAGER" ODER "LIEFERZEIT IN ARBEITSTAGEN  
TIPO DI GESTIONE PRODOTTO: "A STOCK" O "TEMPO DI CONSEGNA IN GIORNI LAVORATIVI"



11

## 3D ITEM CAD FILE ON CADENAS

3D-PRODUKT-CAD-DATEI AUF CADENAS  
FILE PRODOTTO 3D SU CADENAS



12

## HOW TO BUILD THE PRODUCT CODE AND HOW TO ORDER IT

WIE DAS PRODUKT AUFZUBAUEN, UND WIE ES ZU BESTELLEN  
COME COSTRUIRE IL CODICE PRODOTTO E ORDINARLO

13

## DATA TABLE AND PRODUCT RANGE

MASSDATENTABELLE UND PRODUKTPALETTE  
TAVOLA DATI DIMENSIONALI E GAMMA PRODOTTO



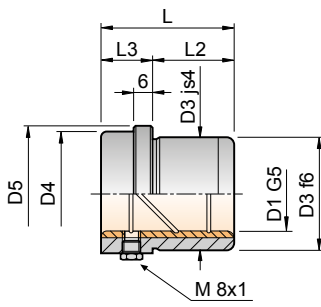
ALL SIZES ARE NOMINAL SIZES UNLESS A TOLERANCE RANGE IS INDICATED  
ALLE MASSANGABEN OHNE TOLERANZEN GELTEN ALS NENNMASSE  
TUTTE LE DIMENSIONI SENZA TOLLERANZA SI INTENDONO NOMINALI



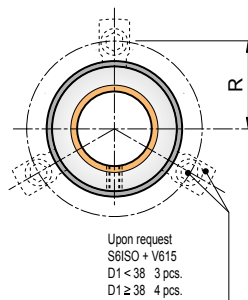
- 5 **BEPA**
- 6 **DEMOUNTABLE BUSH BRONZE PLATED**  
FÜHRUNGSBUCHSE MIT BUND BRONZEPLATTIERT | BUSSOLA ESTRAIBILE RIVESTIMENTO BRONZO
- 7 **ISO 9448-6**



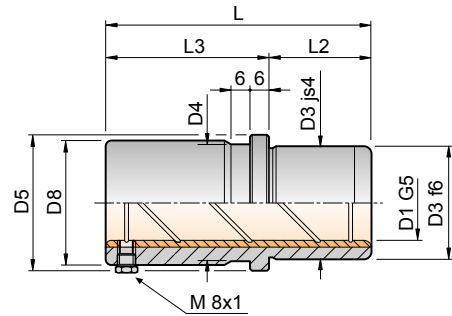
<b>Material:</b> C45 - Bronze <b>Hardness:</b> 54±58 HRC (D3) <b>Execution:</b> inner diameter bronze coated honed; D3 precision ground	STOCK	3D-CAD 	HOW TO ORDER <b>BEPA * D1 * - * TYPE</b> <b>(BEPA19-5)</b>
9	10	11	12



TYPE 5



Upon request  
S6ISO + V615  
D1 < 38 3 pcs.  
D1 ≥ 38 4 pcs.



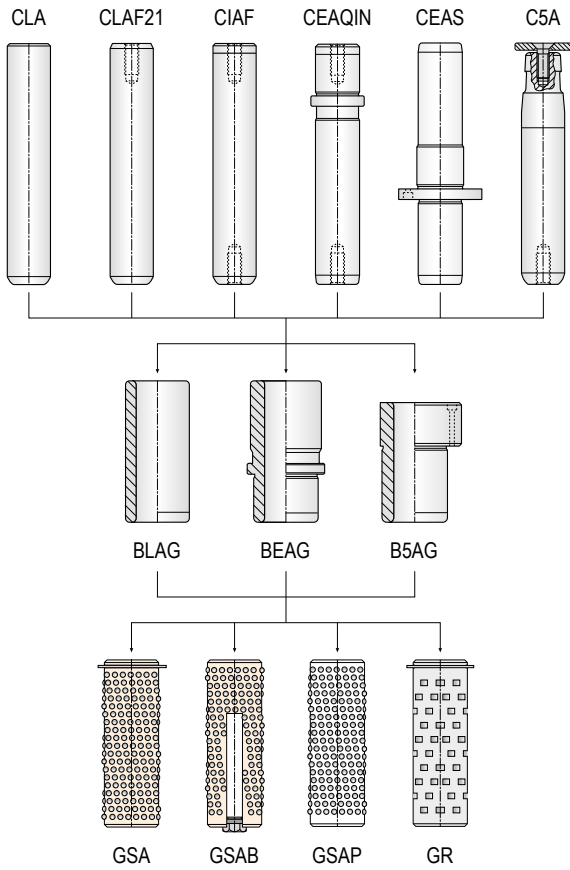
TYPE 1 - 4

13	D1	D3	D4	D5	D8	R	L	L2	L3	TYPE
19 - 20	32	32	40	---	26	35	23	12	5	
				39					20	
				59					36	
24 - 25	40	40	48	---	30	35	23	12	5	
				46					36	
				79					56	
30 - 32	48	48	56	---	33,5	42	30	12	5	
				53					45	
				93					63	
38 - 40	58	58	66	---	38,5	52	37	15	5	
				63					45	
				108					71	
48 - 50	70	70	80	---	45,5	65	47	18	5	
				77					50	
				127					80	
60 - 63	85	85	95	---	53	80	60	20	5	
				92					56	
				150					90	
80	105	105	118	---	64,5	80	60	20	5	
				115					60	
				150					90	

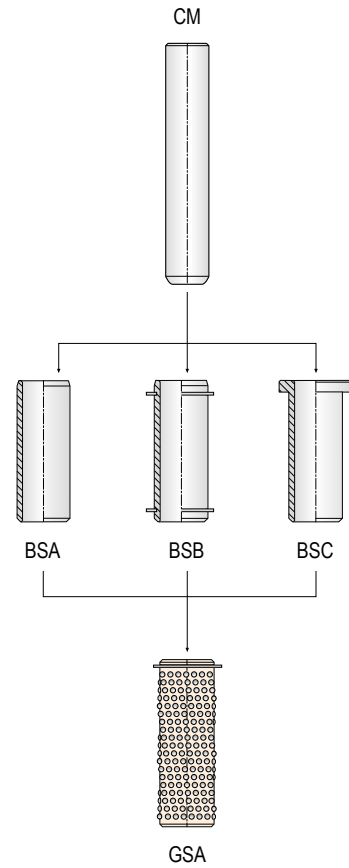
**PAIRING GUIDE**

AUSWAHLHILFE | GUIDA DI ACCOPPIAMENTO

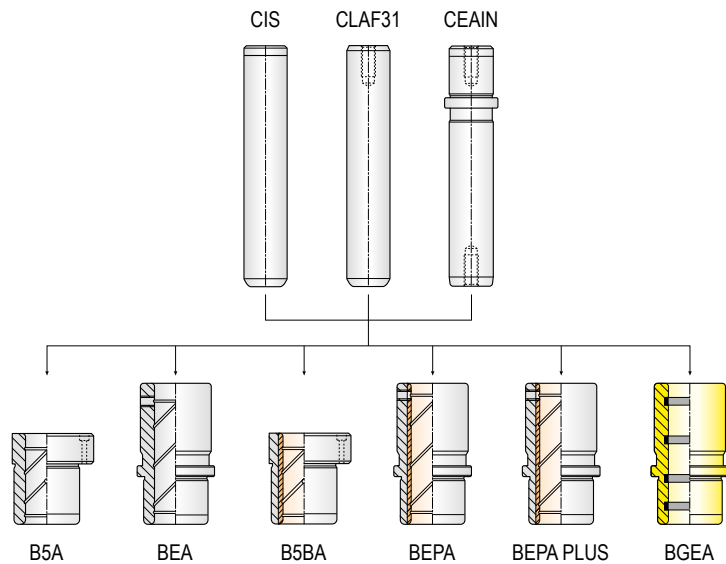
**ISO - BALL AND ROLLER GUIDES**



**ISO - MINIATURE BALL GUIDES**





**ISO - SLIDING GUIDES**



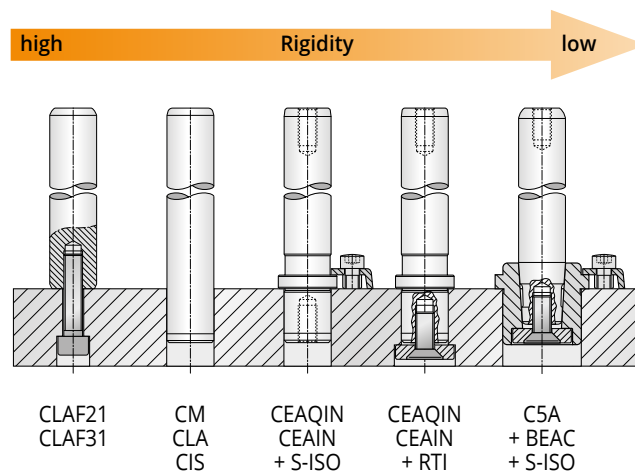
## PAIRING GUIDE

AUSWAHLHILFE | GUIDA DI ACCOPPIAMENTO

ITEM TYPE	FAMILY CODE	TOLERANCE			V max (m/min) *	SIDE FORCE	
		PLATE HOLE Ø	MOUNTING SIDE Ø	SLIDING Ø			
<b>Pillar</b> 	CLA	-0,015 -0,025	h3	h3	--	--	
	CLAF21	--	--				
	CIAF	-0,015 -0,025	h3				
	CEAQIN	H5	js4				
	CEAS						
	C5A	--	--				
	CM	-0,015 -0,025	h3				
	CIS		h4				
	CLAF31		--				h4
	CEAIN	H5	js4				
<b>Bush</b> 	BLAG + BALL CAGE	H5	js4	--	High (60 - 100)	Low	
	BEAG + BALL CAGE	H6					
	B5AG + BALL CAGE	H5					
	BLAG + ROLLER CAGE						
	BEAG + ROLLER CAGE	H6					
	B5AG + ROLLER CAGE	H5	h6	--	Medium (20 - 60)		
	BSA						
	BSB						
	BSC						
	B5A	H6	js4	H7	High (60 - 100)		
	BEA						
	B5BA						
	BEPA	H5	js4	G5	Medium (20 - 60)		Medium
	BEPA PLUS						
BGEA	H6					j6	

\* Maximal working speed

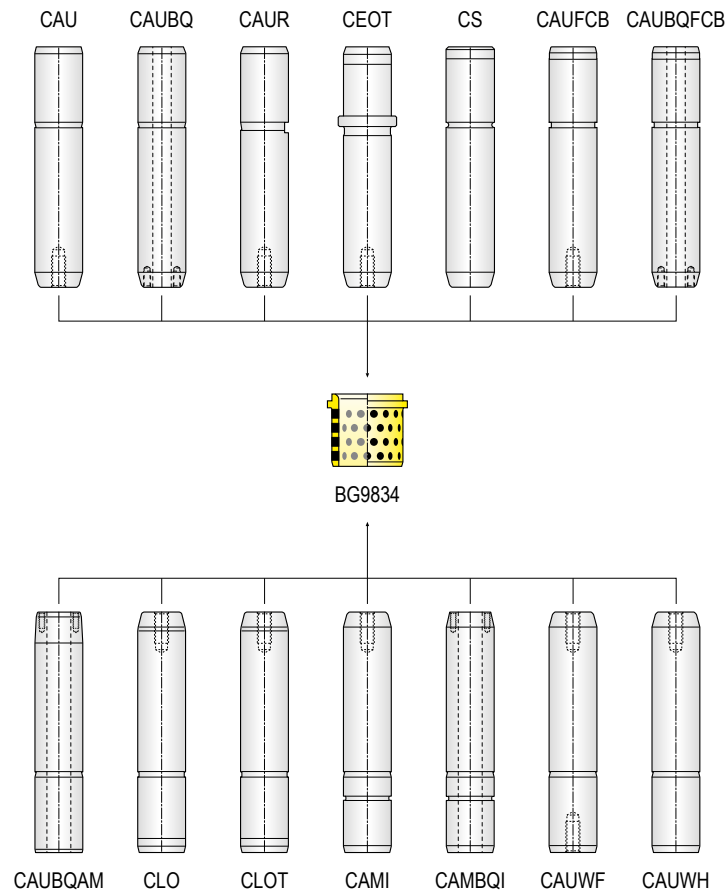
## ISO – MOUNTING OPTIONS AND RIGIDITY





## PAIRING GUIDE

AUSWAHLHILFE | GUIDA DI ACCOPPIAMENTO

### AUTO - SLIDING GUIDES



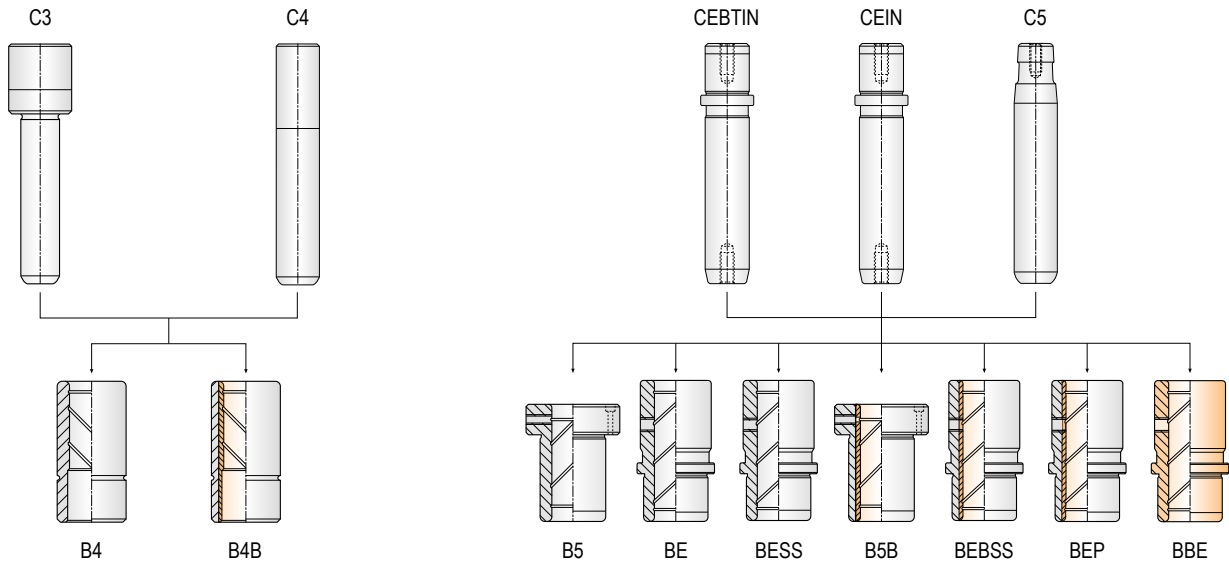
ITEM TYPE	FAMILY CODE	TOLERANCE			V max (m/min) *	SIDE FORCE
		PLATE HOLE Ø	MOUNTING SIDE Ø	SLIDING Ø		
<b>Pillar</b> 	CAU	H7	r6	f6	--	--
	CAUBQ					
	CAUR					
	CEOT					
	CS	M6	h5	h5		
	CAUFCB					
	CAUBQFCB	H7	r6	f6		
	CAUBQAM			g6		
	CLO			f6		
	CLOT					
	CAMI					
	CAMBQI					
	CAUWF					
	CAUWH					
<b>Bush</b> 	BG9834		h6	H7	Medium (20 - 60)	Medium

\* Maximal working speed

## PAIRING GUIDE

AUSWAHLHILFE | GUIDA DI ACCOPPIAMENTO

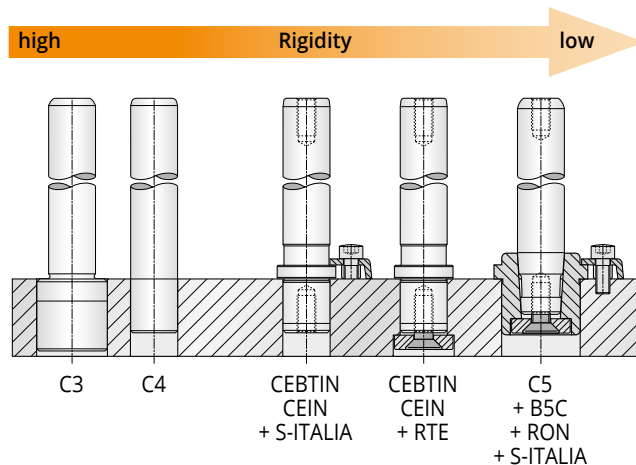
### ITALIA - SLIDING GUIDES



ITEM TYPE	FAMILY CODE	TOLERANCE			V max (m/min) *	SIDE FORCE	
		PLATE HOLE Ø	MOUNTING SIDE Ø	SLIDING Ø			
 Pillar	C3	H6	s6	h4	--	--	
	C4						
	CEBTIN						
	CEIN						
	C5	--	--				
 Bush	B4	H6	s6	see item page	Low (0 - 20)	High	
	B4B		h4		+0,008 +0,012	Medium (20 - 60)	Medium
	B5			k5		G5	Low (0 - 20)
	BE						
	BESS		h4	+0,008 +0,012	G5	Medium (20 - 60)	Medium
	B5B						
	BEBSS		k5				
	BEP		h4				
	BBE						

\* Maximal working speed

### ITALIA - MOUNTING OPTIONS AND RIGIDITY

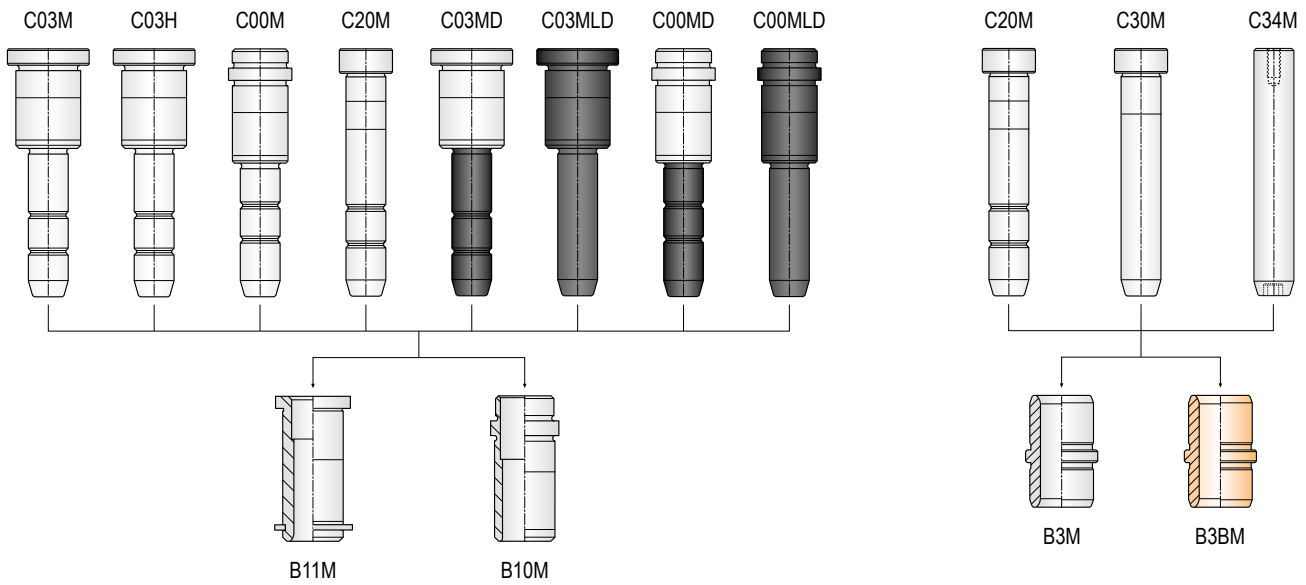


**PAIRING GUIDE**

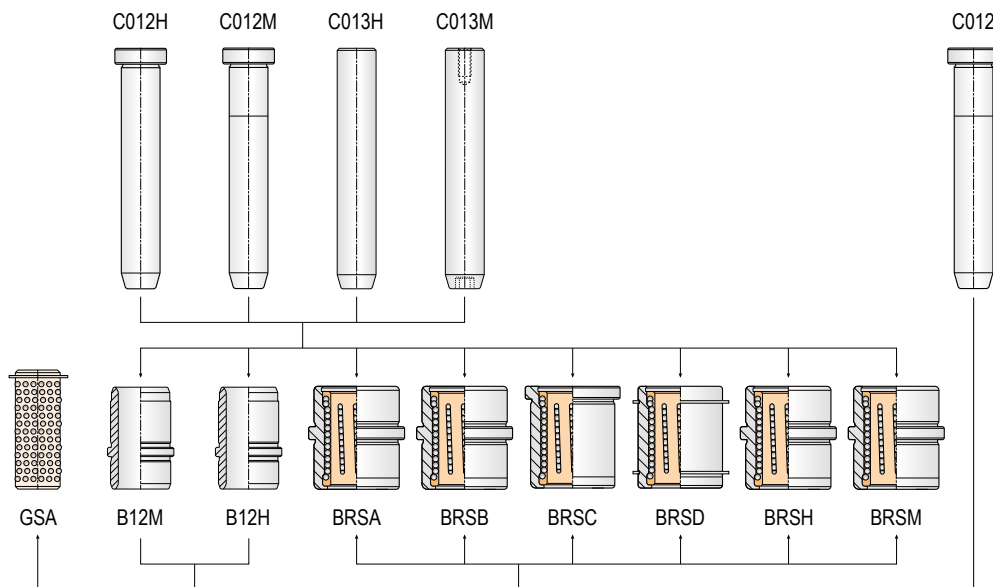
AUSWAHLHILFE | GUIDA DI ACCOPPIAMENTO

**EURO - SLIDING GUIDES**

**EURO - SLIDING GUIDES**





**EURO - BALL GUIDES**



## PAIRING GUIDE

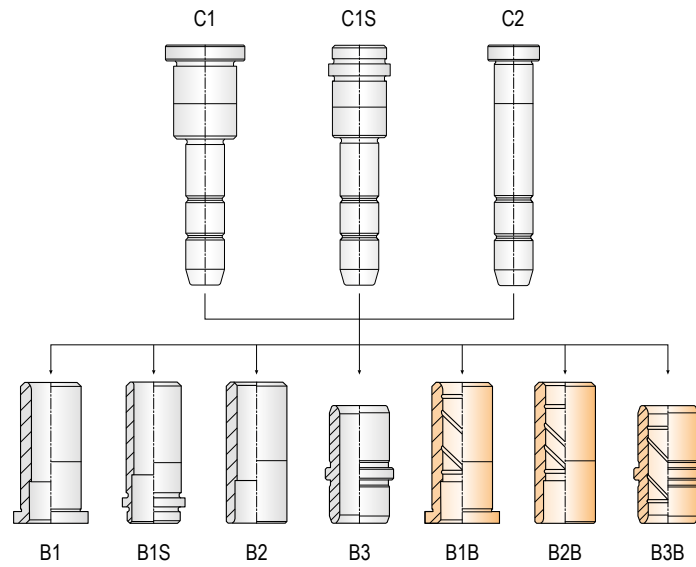
AUSWAHLHILFE | GUIDA DI ACCOPPIAMENTO



ITEM TYPE	FAMILY CODE	TOLERANCE			
		PLATE HOLE Ø	MOUNTING SIDE Ø	SLIDING Ø	
<b>Pillar</b> 	C03M	H7	n5	g6	
	C03H		k6		
	C00M		n5		
	C20M				
	C03MD				
	C03MLD				
	C00MD				
	C00MLD				
	C30M				n6
	C34M				g6
	C012H		h4	h4	
	C012M		n6		
	C013H		h4		
	C013M		--		
	C012		n6	h5	
	<b>Bush</b> 		B11M	H7	n5
B10M		k6			
B3M					
B3BM		g6			
B12M		k6	--		
B12H					
BRSA					
BRSB					
BRSC					
BRSD					
BRSH					
BRSM					

**PAIRING GUIDE**

AUSWAHLHILFE | GUIDA DI ACCOPPIAMENTO

**ITALIA - SLIDING GUIDES**



ITEM TYPE	FAMILY CODE	TOLERANCE		
		PLATE HOLE Ø	MOUNTING SIDE Ø	SLIDING Ø
<b>Pillar</b> 	C1	H7	n6	g6
	C1S			
	C2			
<b>Bush</b> 	B1	H7	n6	H7
	B1S			
	B2		j6	
	B3			
	B1B		n6	
	B2B			
	B3B		j6	



# DIE COMPONENTS

# CIS

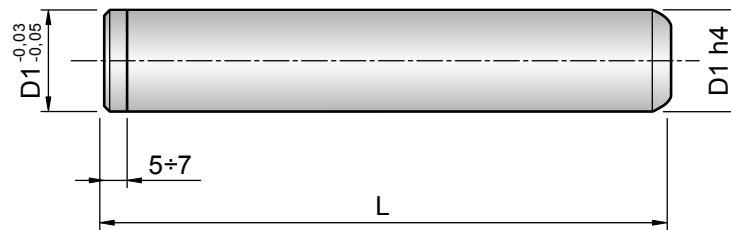
## STRAIGHT GUIDE PILLAR

FÜHRUNGSSÄULE | COLONNA LISCIA

~ DIN 9825 / ~ ISO 9182-2



Material: 1.7131 Hardness: 61÷63 HRC Execution: fine ground	STOCK	3D-CAD 		HOW TO ORDER CIS * D1 * L (CIS1590)
---	-------	------------	--	--



D1	L																																						
	90	100	112	120	125	130	140	150	160	170	180	190	200	210	220	224	230	240	250	260	270	280	300	315	320	350	355	360	400	450	500	600	700	800					
15 - 16	•	•	•		•		•		•		•		•			•			•																				
18				•		•		•		•		•		•																									
19		•	•	•	•	•	•	•	•	•	•	•	•			•				•																			
20		•	•		•			•		•		•				•				•																			
24 - 25					•		•		•		•		•		•		•		•		•		•		•				•		•		•						
30 - 32					•		•		•		•		•		•		•		•		•		•		•		•			•		•		•					
38										•		•				•				•			•					•		•		•							
40										•		•		•		•		•		•		•		•		•		•		•		•		•					
42											•		•		•		•		•		•		•		•		•		•		•		•		•				
48													•			•				•			•					•		•		•		•					
50												•		•		•		•		•		•		•		•		•		•		•		•		•			
52												•		•		•		•		•		•		•		•		•		•		•		•		•			
60																																							
63																																							
80																																							

# CM

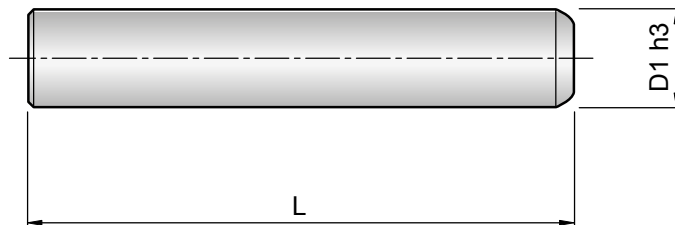
## STRAIGHT GUIDE PILLAR FOR MINIATURE SET

FÜHRUNGSSÄULE KLEINE ABMESSUNG | COLONNA LISCIA PER MINIATURE SET

DIN 9825 / ISO 9182-2



<b>Material:</b> steel <b>Hardness:</b> 60÷64 HRC <b>Execution:</b> fine ground	 DAYS 12	 DAYS 18	3D-CAD 		<b>HOW TO ORDER</b> CM * D1 * L (CM340)
---	-------------	-------------	------------	--	--



D1	L										
	30	40	50	60	80	90	100	112	125	140	160
3	◇	◇	◇	◇	◇						
4		◇	◇	◇	◇		◇				
5		◇	◇	◇	◇		◇				
6		◇	◇	◇	◇		◇		◇	◇	◇
8			■	■	■		■		■	■	■
10					■	■	■	■	■	■	
12					■	■	■	■	■	■	■

# CLA

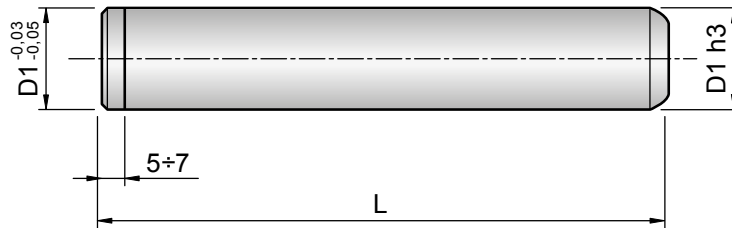
## STRAIGHT GUIDE PILLAR

FÜHRUNGSSÄULE | COLONNA LISCIA

DIN 9825 / ISO 9182-2



<b>Material:</b> 1.7131 <b>Hardness:</b> 61 + 63 HRC <b>Execution:</b> superfinished	 DAYS 12	<b>3D-CAD</b> 	 <b>HOW TO ORDER</b> <b>CLA * D1 * L (CLA1590)</b>
--	----------------	-------------------	--



D1	L																		
	90	100	112	125	140	160	180	200	224	250	280	315	355	400	450	500	600	700	800
15 - 16	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇									
19 - 20		◇	◇	◇	◇	◇	◇	◇	◇	◇									
24 - 25		◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇			
30 - 32				◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇			
38 - 40						◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇			
48 - 50								◇	◇	◇	◇	◇	◇	◇	◇	◇			
60 - 63										◇	◇	◇	◇	◇	◇	◇			
80											◇	◇	◇	◇	◇	◇	◇	◇	◇

# CLAF31

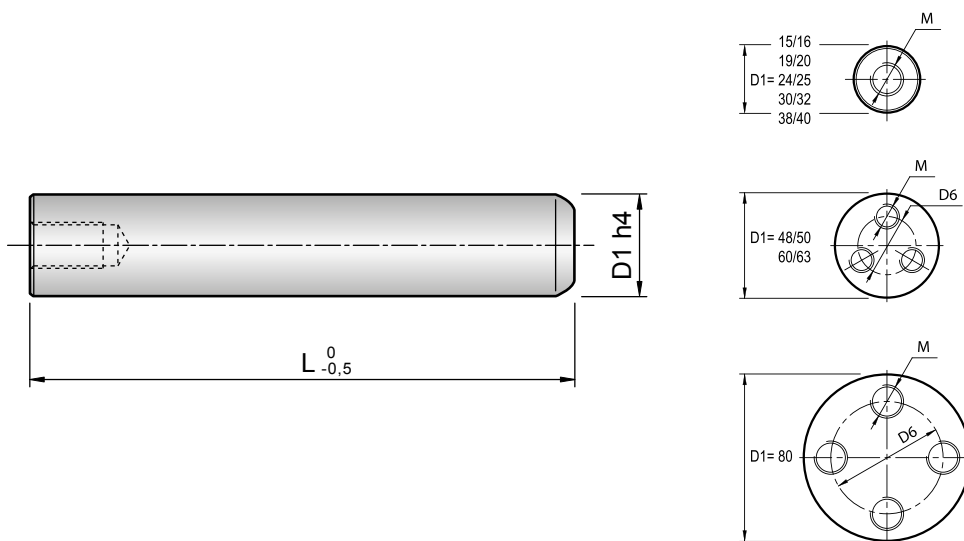
## GUIDE PILLAR ENDWISE BOLT-ON TYPE

FÜHRUNGSSÄULE ZUM ANSCHRAUBEN | COLONNA DA AVVITARE

~ DIN 9825 / ~ ISO 9182-2



Material: 1.7131 Hardness: 61÷63 HRC Execution: fine ground	• STOCK 	3D-CAD 	HOW TO ORDER CLAF31 * D1 * L (CLAF311590)
---	-------------	------------	--



D1	D6	M	L																				
			90	100	112	125	140	160	180	200	224	250	280	315	355	400	450	500	550	600	700	800	
15 - 16	---	M8	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
19 - 20		M10		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
24 - 25		M12		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
30 - 32		M16				•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
38 - 40								◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
48 - 50	28	M12						◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	
60 - 63	34	M16									◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	
80	54											◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	

# CLAF21

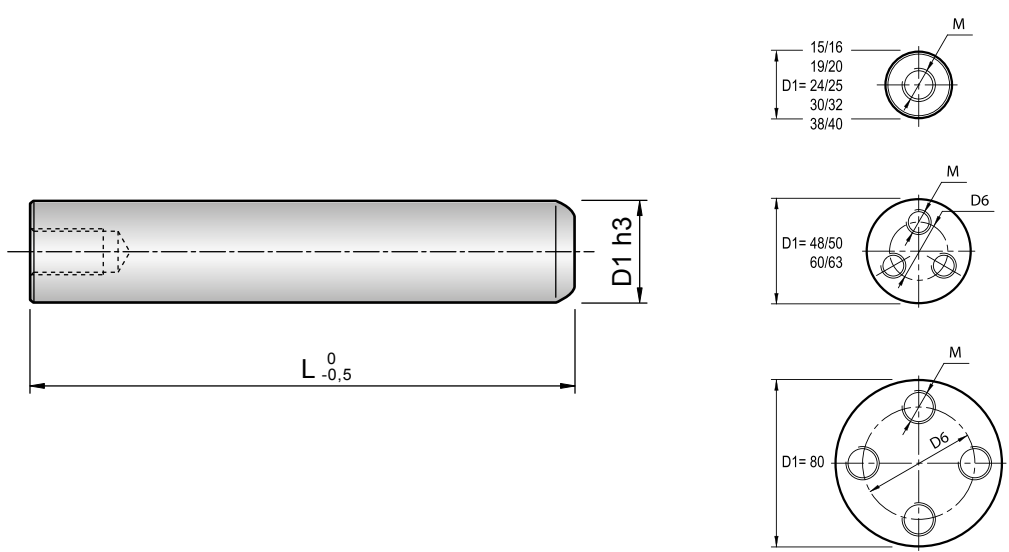
## GUIDE PILLAR ENDWISE BOLT-ON TYPE

FÜHRUNGSSÄULE ZUM ANSCHRAUBEN | COLONNA DA AVVITARE

~ DIN 9825 / ~ ISO 9182-2



<b>Material:</b> 1.7131 <b>Hardness:</b> 61÷63 HRC <b>Execution:</b> superfinished	 DAYS 12	3D-CAD 	 <b>HOW TO ORDER</b> <b>CLAF21 * D1 * L (CLAF211590)</b>
--	----------------	------------	--



D1	D6	M	L																				
			90	100	112	125	140	160	180	200	224	250	280	315	355	400	450	500	550	600	700	800	
15 - 16	---	M8	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇									
19 - 20		M10		◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇								
24 - 25		M12		◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇						
30 - 32		M16				◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇						
38 - 40								◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
48 - 50	28	M12							◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	
60 - 63	34	M16											◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	
80	54													◇	◇	◇	◇	◇	◇	◇	◇	◇	

# CIAF

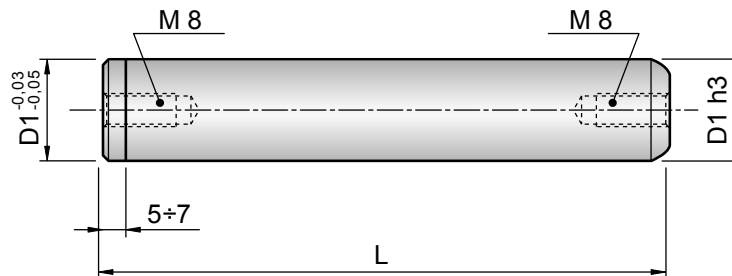
## STRAIGHT GUIDE PILLAR WITH THREADS

FÜHRUNGSSÄULE INNENGEWINDE BEIDSEITIG | COLONNA LISCIA FILETTATA

~ DIN 9825 / ~ ISO 9182-2



Material: 1.7131 Hardness: 61÷63 HRC Execution: superfinished	STOCK	3D-CAD 	 HOW TO ORDER CIAF * D1 * L (CIAF1590)
---	-------	------------	--



D1	L																		
	90	100	112	125	140	160	180	200	224	250	280	315	355	400	450	500	600	700	800
15 - 16	•	•	•	•	•	•	•	•	•	•									
19 - 20		•	•	•	•	•	•	•	•	•									
24 - 25		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•			
30 - 32				•	•	•	•	•	•	•	•	•	•	•	•	•			
38 - 40						•	•	•	•	•	•	•	•	•	•	•			
48 - 50								•	•	•	•	•	•	•	•	•			
60 - 63										•	•	•	•	•	•	•			
80											•	•	•	•	•	•	•	•	•

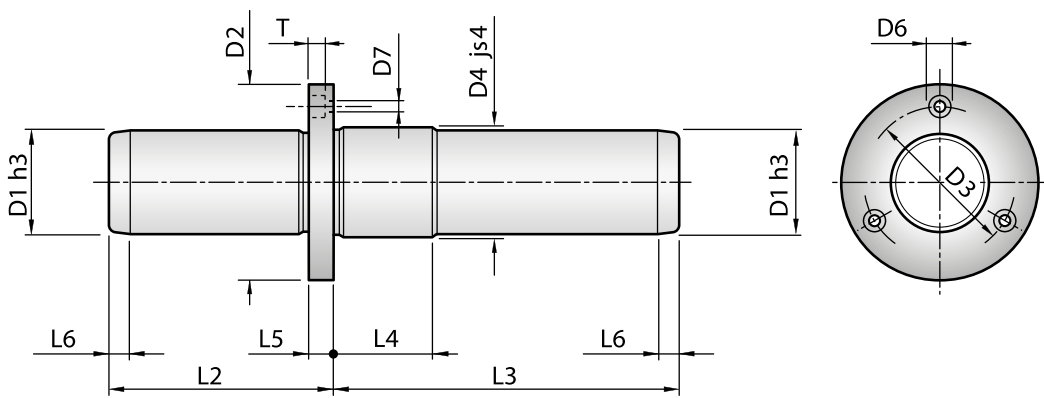
# CEAS

## STRIPPER MOUNTED PILLAR

MITTENBUNDSÄULE | COLONNA CON FLANGIA



<b>Material:</b> 1.7131 <b>Hardness:</b> 61÷63 HRC <b>Execution:</b> superfinished	• STOCK 	3D-CAD 		<b>HOW TO ORDER</b> <b>CEAS * D1 * L2 * L3 (CEAS124050)</b>
--	-------------	------------	--	--



D1	D2	D3	D4	D6	D7	L4	L5	L6	T	L2	L3												
											50	60	70	80	90	100	110	120	130	140			
12	28	20	13	6	3,4	12	6	3	3,4	40	♦	♦											
										50		♦	♦										
										60			♦	♦									
										70				♦									
16	38	28	18			16		4		60			♦	♦									
										70				♦	♦								
										80					♦								
										90						♦							
19	42	32	22	8	4,5	20	8	4,6		70				♦	♦								
										80					♦	♦							
										90						♦	♦						
										100							♦	♦					
25	48	38	26			22		6		80					♦	♦							
										90						♦	♦						
										100							♦	♦					
										110								♦	♦				
32	60	48	34	10	5,5	25	10	7	5,7	80					♦	♦							
										90						♦	♦						
										100							♦	♦					
										110								♦	♦				
40	70	56	42	11	6,6	27	12	7	6,8	90						♦	♦						
										100							♦	♦					
										110								♦	♦				
										120									♦	♦			

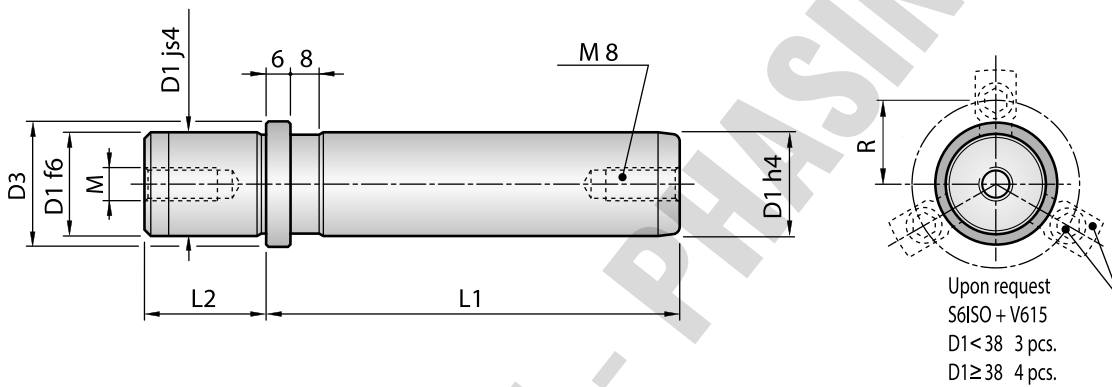
# CEA

## DEMOUNTABLE GUIDE PILLAR

FÜHRUNGSSÄULE MIT BUND | COLONNA ESTRAIBILE



Material: 1.7131 Hardness: 61÷63 HRC Execution: fine ground	STOCK	3D-CAD 	HOW TO ORDER CEA * D1 * L1 (CEA15100) 
---	-------	------------	--



D1	D3	R	M	L2	L1													
					100	112	125	140	160	180	200	224	250	280	315	355	400	
15 - 16	22	16,5	M8	20	•	•	•	•	•	•	•							
19 - 20	25	18		23	•	•	•	•	•	•	•							
24 - 25	32	21,5		30	•	•	•	•	•	•	•	•						
30 - 32	40	25,5		37	•	•	•	•	•	•	•	•	•	•	•	•		
38 - 40	50	30,5			•	•	•	•	•	•	•	•	•	•	•	•	•	
48 - 50	63	37		47				•	•	•	•	•	•	•	•	•	•	•
60 - 63	80	45,5						•	•	•	•	•	•	•	•	•	•	•
80	95	53	M12	60							•	•	•	•	•	•	•	

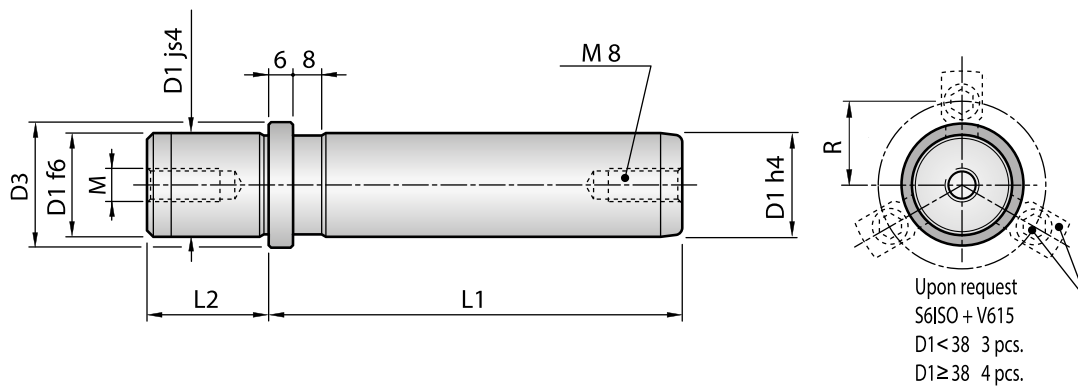
# CEAIN

## DEMOUNTABLE GUIDE PILLAR

FÜHRUNGSSÄULE MIT BUND | COLONNA ESTRAIBILE



Material: steel Hardness: 60 ÷ 63 HRC (induction) Execution: fine ground	STOCK	3D-CAD 	HOW TO ORDER CEAIN * D1 * L1 (CEAIN15100)
--	-------	------------	--



D1	D3	R	M	L2	L1													
					100	112	125	140	160	180	200	224	250	280	315	355	400	
15 - 16	22	16,5	M8	20	•	•	•	•	•	•	•							
19 - 20	25	18		23	•	•	•	•	•	•	•							
24 - 25	32	21,5		30	•	•	•	•	•	•	•	•	•					
30 - 32	40	25,5		37		•	•	•	•	•	•	•	•	•	•			
38 - 40	50	30,5					•	•	•	•	•	•	•	•	•	•	•	
48 - 50	63	37		47				•	•	•	•	•	•	•	•	•	•	•
60 - 63	80	45,5							•	•	•	•	•	•	•	•	•	•
80	95	53	M12	60							•	•	•	•	•	•	•	

# CEAQ

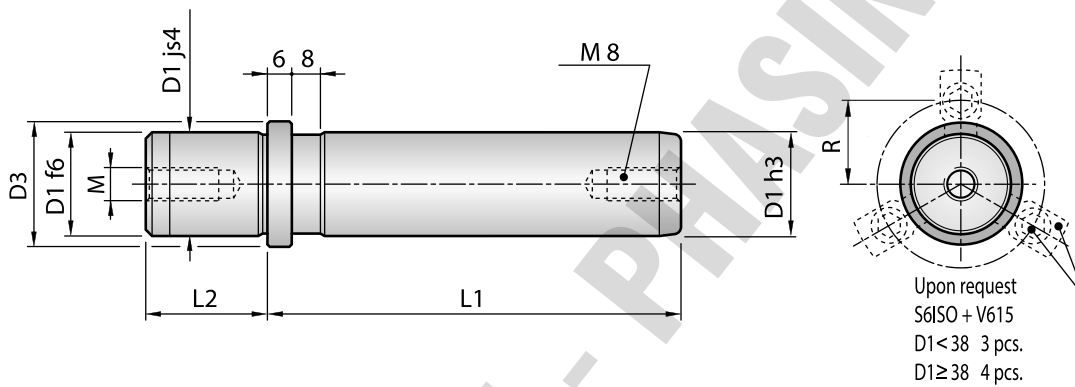
## DEMOUNTABLE GUIDE PILLAR

FÜHRUNGSSÄULE MIT BUND | COLONNA ESTRAIBILE

DIN 9825 / ~ ISO 9182-5



Material: 1.7131 Hardness: 61÷63 HRC Execution: superfinished	STOCK	3D-CAD 	HOW TO ORDER CEAQ * D1 * L1 (CEAQ15100)
---	-------	------------	--



D1	D3	R	M	L2	L1													
					100	112	125	140	160	180	200	224	250	280	315	355	400	
15 - 16	22	16,5	M8	20	•	•	•	•	•	•	•							
19 - 20	25	18		23	•	•	•	•	•	•	•							
24 - 25	32	21,5		30	•	•	•	•	•	•	•	•						
30 - 32	40	25,5		37		•	•	•	•	•	•	•	•					
38 - 40	50	30,5		47			•	•	•	•	•	•	•	•	•	•	•	•
48 - 50	63	37						•	•	•	•	•	•	•	•	•	•	•
60 - 63	80	45,5							•	•	•	•	•	•	•	•	•	•
80	95	53	M12	60						•	•	•	•	•	•	•	•	

# CEAQIN

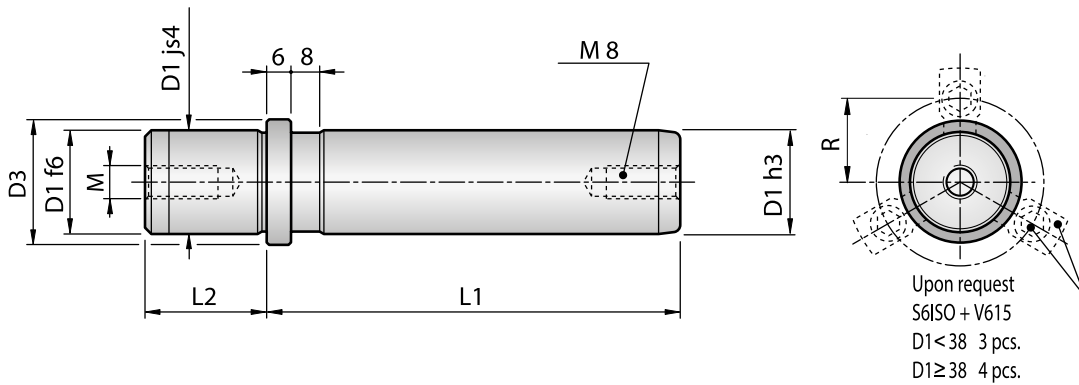
## DEMOUNTABLE GUIDE PILLAR

FÜHRUNGSSÄULE MIT BUND | COLONNA ESTRAIBILE

DIN 9825 / ~ ISO 9182-5



Material: steel Hardness: 60 ÷ 63 HRC (induction) Execution: superfinished	STOCK	3D-CAD 	HOW TO ORDER CEAQIN * D1 * L1 (CEAQIN15100) 
--	-------	------------	--



D1	D3	R	M	L2	L1														
					100	112	125	140	160	180	200	224	250	280	315	355	400		
15 - 16	22	16,5	M8	20	•	•	•	•	•	•	•								
19 - 20	25	18		23	•	•	•	•	•	•	•								
24 - 25	32	21,5		30	•	•	•	•	•	•	•	•	•						
30 - 32	40	25,5		37		•	•	•	•	•	•	•	•	•	•				
38 - 40	50	30,5					•	•	•	•	•	•	•	•	•	•	•		
48 - 50	63	37			47				•	•	•	•	•	•	•	•	•	•	•
60 - 63	80	45,5							•	•	•	•	•	•	•	•	•	•	
80	95	53	M12	60						•	•	•	•	•	•	•	•		



# C5A

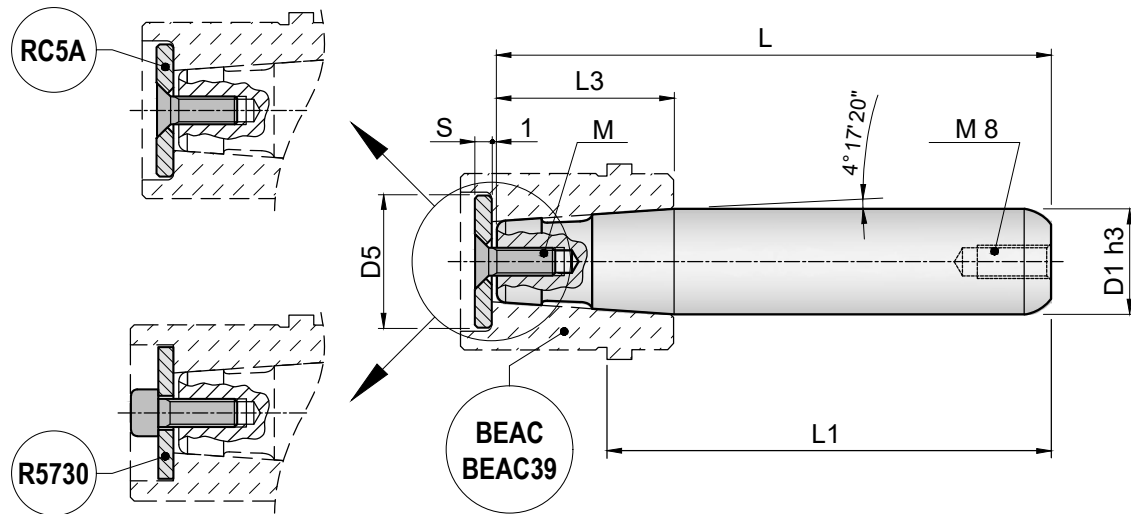
## DEMOUNTABLE CONICAL PILLAR (WITH WASHER AND SCREW)

FÜHRUNGSSÄULE MIT KONISCHEM SCHAFT (MIT SCHEIBE UND SCHRAUBE) | COLONNA CONICA (COMPLETA DI RONDELLA E VITE)

DIN 9825 / ISO 9182-4 / ~ AFNOR



Material: 1.7131 Hardness: 61±63 HRC Execution: superfinished	• STOCK DAYS 12	3D-CAD	HOW TO ORDER C5A * D1 * L1 * L3 (C5A168228)
---	--------------------	--------	--



.....continue

D1	D5	S	M	WASHER	BUSH (UPON REQUEST)	L3	L	L1																							
								82	95	100	112	125	140	160	180	200	224	250	280	315	355	400									
30 - 32	32	3	M8	RC5A32	BEAC	48	145				•																				
							158				•																				
							173					•																			
							193						•																		
							213							•																	
							233									•															
							257											•													
32	4	4	M8	R5730324	BEAC39	61	283																								
							313																								
							186							◊																	
							206								◊																
							226										◊														
38 - 40	40	5	M8	RC5A40	BEAC	48	270																								
							213																								
							233																								
							257																								
							283																								
							313																								
							348																								
							206																								
40	4	4	M8	R5730404	BEAC39	61	226																								
							270																								
							296																								
							226																								

D1	D5	S	M	WASHER	BUSH (UPON REQUEST)	L3	L	L1																					
								82	95	100	112	125	140	160	180	200	224	250	280	315	355	400							
48 - 50	50	5	M10	RC5A50	BEAC	58	180						•																
							200							•															
							220										•												
							240											•											
							264												•										
							290													•									
							320														•								
							355																•						
							395																		•				
50				R5730505	BEAC39	78	260										◇												
							310												◇										
							340														◇								
							375																◇						
60 - 63				RC5A63	BEAC	69	211						•																
							231										•												
							251												•										
							275														•								
							301															•							
							331																•						
							366																	•					
							406																		•				
63	63	6	M12	R5730636	BEAC39	77	237										◇												
							257														◇								
							307															◇							
						97	337																◇						
							372																	◇					
							327																	◇					
							392																		◇				
477																				◇									

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# BEAC

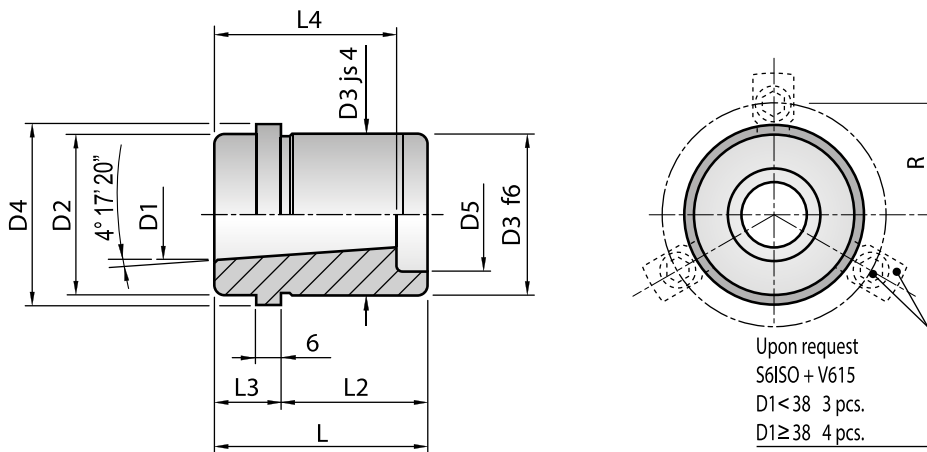
## DEMOUNTABLE CONICAL BUSH

HALTEBUCHSE FÜR KONISCHE FÜHRUNGSSÄULE | BUSSOLA ESTRAIBILE CONICA

DIN 9825 / ISO 9182-4



Material: 1.7131 Hardness: 61÷63 HRC Execution: conical diameter and D3 fine ground	• STOCK 	3D-CAD 	HOW TO ORDER <b>BEAC * D1 * L2 (BEAC3037)</b>
---	-------------	------------	--



D1	D2	D3	D4	D5	R	L	L2	L3	L4	• STOCK
19 - 20	32	32	40	23	26,5	42	30	12	39	♦
24 - 25	40	40	48	26	30	49	37		36	♦
30 - 32	48	48	56	33	33,5	59	47	15	49	•
38 - 40	58	58	66	41	38,5	52	37		49	•
48 - 50	70	70	80	51	45,5	62	47	18	59	•
60 - 63	85	85	95	64	53	75	60		59	•
						65	47		70	•
						78	60			•
						95	77			•

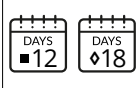
# BSA

## GUIDE BUSH FOR MINIATURE SET

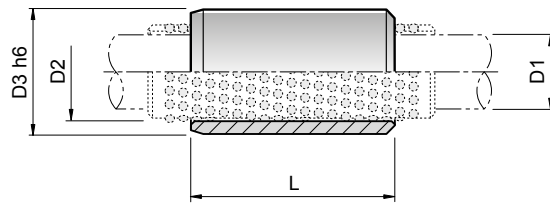
KUGELFÜHRUNGSBUCHSE KLEINE ABMESSUNG | BUSSOLA LISCIA PER MINIATURE SET



**Material:** steel  
**Hardness:** 60÷64 HRC  
**Execution:** inner diameter honed; outer diameter fine ground



HOW TO ORDER  
**BSA \* D1 \* L (BSA310)**



D1	D2	D3	L								
			10	15	20	23	25	30	35	37	40
3	5	7	◇	◇	◇						
4	6	8	◇	◇	◇		◇				
5	7	10	◇	◇	◇		◇	◇			
6	8	11		◇	◇		◇	◇	◇		◇
8	10	14		■	■		■	■	■		■
10	14	22				■		■		■	
12	16					■		■		■	

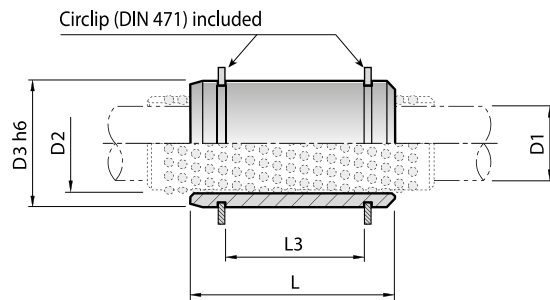
# BSB

## GUIDE BUSH FOR MINIATURE SET

KUGELFÜHRUNGSBUCHSE KLEINE ABMESSUNG | BUSSOLA LISCIA PER MINIATURE SET



<b>Material:</b> steel <b>Hardness:</b> 60÷64 HRC <b>Execution:</b> inner diameter honed; outer diameter fine ground	 DAYS 12	 DAYS 18	3D-CAD 	 HOW TO ORDER <b>BSB * D1 * L (BSB310)</b>
--	-------------	-------------	------------	--



D1	D2	D3	L3	L				
				10	20	30	40	50
3	5	7	---	◇	◇	◇		
4	6	8		◇	◇	◇		
5	7	10	10		◇			
			20		◇			
6	8	11	10		◇			
			20		◇			
			30			◇		
8	10	12	10		■			
			20			■		
			30				■	
10	14	22	20			■		
			30				■	
			40					■
12	16	22	20			■		
			30				■	
			40					■

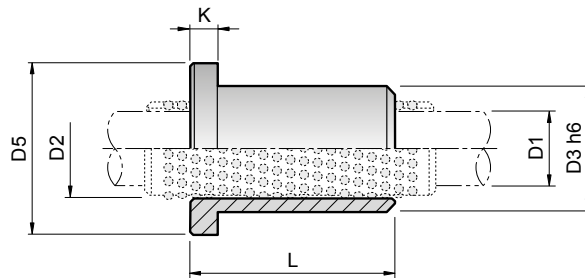
# BSC

## GUIDE BUSH FOR MINIATURE SET

KUGELFÜHRUNGSBUCHSE KLEINE ABMESSUNG | BUSSOLA LISCIA PER MINIATURE SET



<b>Material:</b> steel <b>Hardness:</b> 60÷64 HRC <b>Execution:</b> inner diameter honed; outer diameter fine ground	 DAYS 12	 DAYS 18	 3D-CAD	 HOW TO ORDER <b>BSC * D1 * L (BSC310)</b>
--	-------------	-------------	------------	--



D1	D2	D3	D5	K	L				
					10	20	30	40	50
3	5	7	9	2,5	◇	◇	◇		
4	6	8	10	3	◇	◇	◇		
5	7	10	12		◇	◇	◇		
6	8	11	13	4		◇	◇	◇	
8	10	12	14			■	■	■	
10	14	22	24				■	■	■
12	16						■	■	■

# BLAG

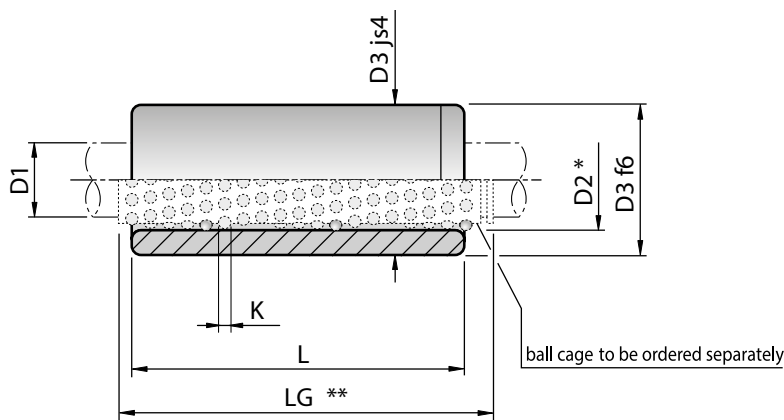
## GUIDE BUSH FOR BALL CAGE

KUGELFÜHRUNGSBUCHSE | BUSSOLA LISCIA PER GABBIA A SFERE

ISO 9448-3



Material: 1.7131 Hardness: 61÷63 HRC Execution: inner diameter honed; outer diameter fine ground	• STOCK 	3D-CAD 	HOW TO ORDER <b>BLAG * D1 * L (BLAG1223)</b>
--	-------------	------------	---



\*  $D2 = D1 + 2K$

\*\* Suggested length for ball cage

D1	D3	K	LG **	L										
				23	30	37	47	60	77	95	120			
12	22	2	30	◇										
			40		◇	◇								
15 - 16	28	3	45	•	•	•								
			56				•							
			71					•						
19 - 20	32	3	45	•	•	•								
			56				•							
			71					•						
24 - 25	40	3	95							•				
			45	•	•	•								
			56				•							
30 - 32	48	4	71						•					
			95								•			
			45		•									
			50			•								
			56				•							
			120								•			

to be continued.....

# BLAG

## GUIDE BUSH FOR BALL CAGE

KUGELFÜHRUNGSBUCHSE | BUSSOLA LISCIA PER GABBIA A SFERE

ISO 9448-3



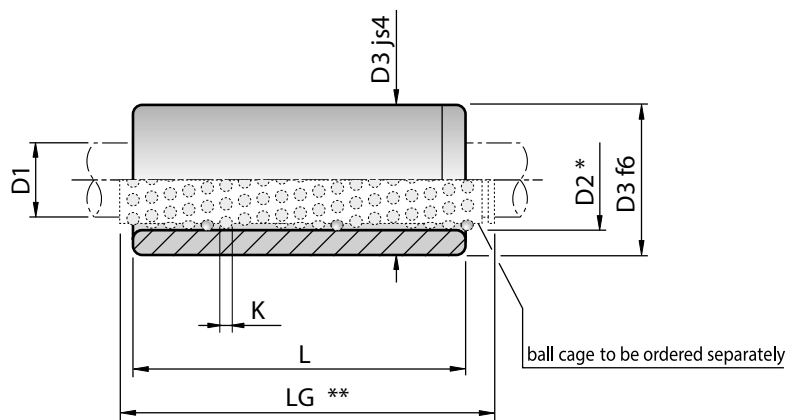
Material: 1.7131  
Hardness: 61÷63 HRC  
Execution: inner diameter honed; outer diameter fine ground

• STOCK  
12 DAYS

3D-CAD



HOW TO ORDER  
BLAG \* D1 \* L (BLAG1223)



\*  $D2 = D1 + 2K$

\*\* Suggested length for ball cage

.....continue

D1	D3	K	LG **	L								
				23	30	37	47	60	77	95	120	
38 - 40	58	4	45		•							
			50			•						
			63				•					
			80					•				
			95						•			
			120							•		
48 - 50	70	4	140								•	
			50			•						
			63				•					
			80					•				
			95						•			
60 - 63	85	4	120							•		
			140							•		
			95				•	•				
80	105	6	120							•		
			140								•	

# BEAG

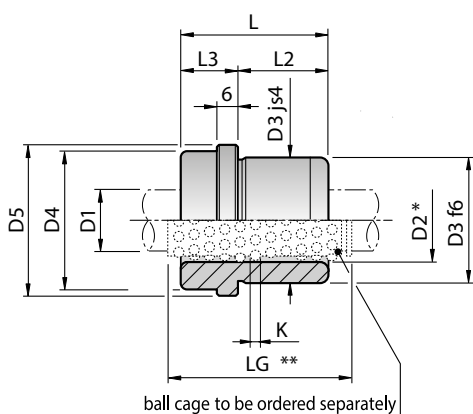
## DEMOUNTABLE BUSH FOR BALL CAGE

KUGELFÜHRUNGSBUCHSE MIT BUND | BUSSOLA ESTRAIBILE PER GABBIA A SFERE

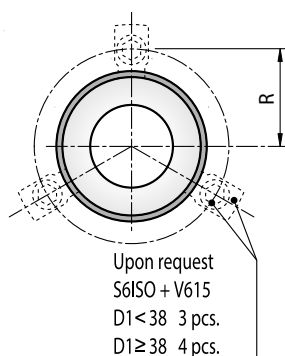
ISO 9448-7



Material: 1.7131 Hardness: 61÷63 HRC Execution: inner diameter honed; D3 fine ground	STOCK	3D-CAD	HOW TO ORDER BEAG * D1 * - * TYPE (BEAG19-7)
--	-------	--------	---



**TYPE 7**



**TYPE 4 - 5 - 6 - 9**

\* D2 = D1 + 2K

\*\* Suggested length for ball cage

D1	D3	D4	D5	D8	R	L	L2	L3	LG **	K	TYPE
19 - 20	32	32	40	---	26	35	23	12	45	3	7
				39		43		20	56		6
				---		59		36	71		4
24 - 25	40	40	48	---	30	35	30	12	45	3	7
				46		55		25	71		9
				---		59	36	95	6		
				---		79	56	95	4		
30 - 32	48	48	56	---	33,5	80	30	50	95	3	5
				53		42	12	56	7		
				---		69	37	32	80		9
				---		75	30	45	95		6
38 - 40	58	58	66	---	38,5	93	37	63	120	4	4
				63		56		120	5		
				---		52	15	63	7		
				---		79	47	32	95		9
				---		82	37	45	105		6
48 - 50	70	70	80	---	45,5	108	37	71	120	4	4
				63		63		140	5		
				---		65	18	80	7		
				---		96	60	36	120		9
				---		97	47	50	120		6
60 - 63	85	85	95	---	53	127	47	80	140	3	4
				92		71		160	5		
				---		80	20	95	7		
				---		116	60	56	140		6
80	105	105	118	---	64,5	150	60	90	160	6	4
				---		80		20	120		7
				---		120	60	140	6		
				---		150	90	160	4		

# B5AG

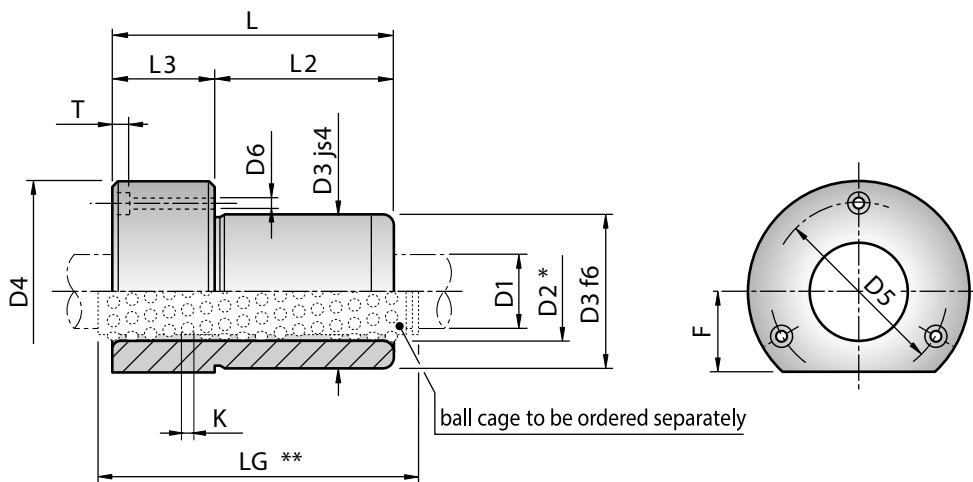
## FLANGED GUIDE BUSH FOR BALL CAGE

KUGELFÜHRUNGSBUCHSE MIT FLANSCH | BUSSOLA A COLLARE PER GABBIA A SFERE

ISO 9448-5



Material: 1.7131 Hardness: 61÷63 HRC Execution: inner diameter honed; D3 fine ground	STOCK	3D-CAD	HOW TO ORDER B5AG * D1 * - * TYPE (B5AG15-6)
--	-------	--------	---



\*  $D2 = D1 + 2K$

\*\* Suggested length for ball cage

D1	D3	D4	D5	D6	T	F	L	L2	L3	LG **	K	TYPE
15 - 16	28	45	35	4,5	3,4	15	29	23	6	45	3	6
							36	30				5
19 - 20	32	50	40	4,5	4,6	18	38	23	15	56	3	6
							45	30				5
							52	37	71	4		
24 - 25	40	63	50	5,5	5,7	23	38	23	15	45	3	6
							55	30				5
							62	37	25	71	4	
30 - 32	48	72	58	5,5	5,7	28	45	30	15	56	3	6
							62	37				25
							72	47	25	80	4	
38 - 40	58	85	70	6,6	6,8	33	55	30	25	63	3	6
							67	37				30
							77	47	30	95	4	
48 - 50	70	104	86	9	9	38	62	37	25	80	3	6
							89	47				25
							102	60	42	120	4	
60 - 63	85	120	100	9	9	46	89	47	42	95	3	5
							102	60				42
							80	105	148	125	11	11

# BEBA

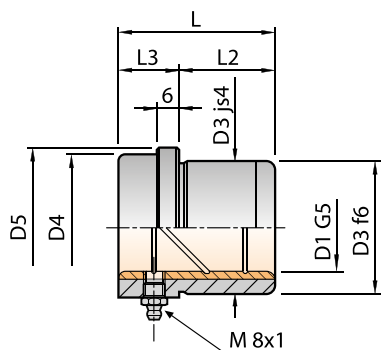
## DEMOUNTABLE BUSH STEEL / BRONZE

FÜHRUNGSBUCHSE MIT BUND MIT BRONZEEINSATZ | BUSSOLA ESTRAIBILE ACCIAIO / BRONZO

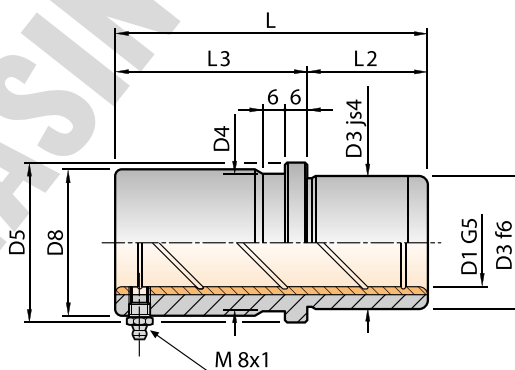
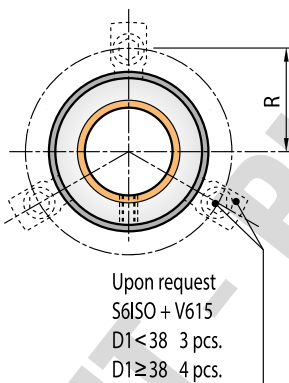
ISO 9448-6



Material: 1.7131 - Bronze Hardness: 52÷54 HRC Execution: inner diameter bronze insert, honed; D3 fine ground	STOCK	3D-CAD	HOW TO ORDER BEBA * D1 * - * TYPE (BEBA19-5)
--	-------	--------	--



TYPE 5



TYPE 1 - 4

D1	D3	D4	D5	D8	R	L	L2	L3	TYPE
19 - 20	32	32	40	---	26	35	23	12	5
				39		43		20	4
				---		59		36	1
24 - 25	40	40	48	---	30	35	30	12	5
				46		59		36	4
				---		79		56	1
30 - 32	48	48	56	---	33,5	42	37	12	5
				53		75		45	4
				---		93		63	1
38 - 40	58	58	66	---	38,5	52	47	15	5
				63		82		45	4
				---		108		71	1
48 - 50	70	70	80	---	45,5	65	60	18	5
				77		97		50	4
				---		127		80	1
60 - 63	85	85	95	---	53	80	60	20	5
				92		116		56	4
				---		150		90	1
80	105	105	118	---	64,5	80	60	20	5
				115		120		60	4
				---		150		90	1



# BEBC

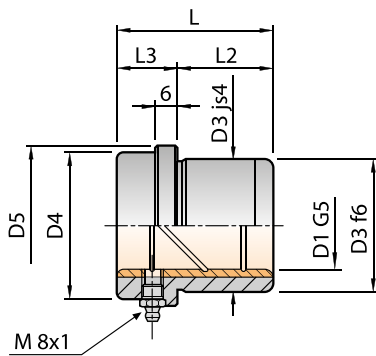
## DEMOUNTABLE BUSH BRONZE PLATED

FÜHRUNGSBUCHSE MIT BUND BRONZEPLATTIERT | BUSSOLA ESTRAIBILE RIVESTIMENTO BRONZO

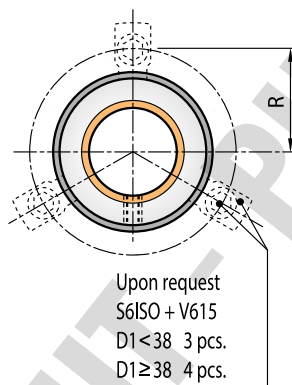
ISO 9448-6



<b>Material:</b> C45 - Bronze <b>Hardness:</b> 54÷58 HRC (induction) <b>Execution:</b> inner diameter bronze coated, honed; D3 fine ground	STOCK	3D-CAD 		<b>HOW TO ORDER</b> <b>BEBC * D1 * - * TYPE</b> <b>(BEBC19-5)</b>
--	-------	---	---	---



**TYPE 5**



Upon request  
S6ISO + V615  
D1 < 38 3 pcs.  
D1 ≥ 38 4 pcs.

**TYPE 1 - 4**

D1	D3	D4	D5	D8	R	L	L2	L3	TYPE
19 - 20	32	32	40	---	26	35	23	12	5
				39		43		20	4
				---		59		36	1
24 - 25	40	40	48	---	30	35	23	12	5
				46		59		36	4
				---		79		56	1
30 - 32	48	48	56	---	33,5	42	30	12	5
				53		75		45	4
				---		93		63	1
38 - 40	58	58	66	---	38,5	52	37	15	5
				63		82		45	4
				---		108		71	1
48 - 50	70	70	80	---	45,5	65	47	18	5
				77		97		50	4
				---		127		80	1
60 - 63	85	85	95	---	53	80	60	20	5
				92		116		56	4
				---		150		90	1
80	105	105	118	---	64,5	80	60	20	5
				115		120		60	4
				---		150		90	1

# BEPA

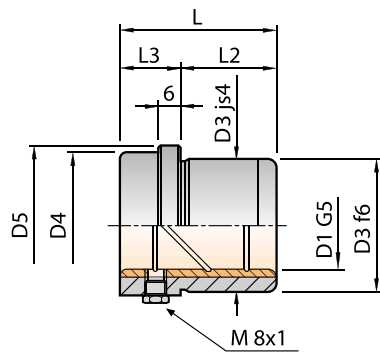
## BRONZE PLATED DEMOUNTABLE BUSH

FÜHRUNGSBUCHSE MIT BUND BRONZEPLATTIERT | BUSSOLA ESTRAIBILE RIVESTIMENTO BRONZO

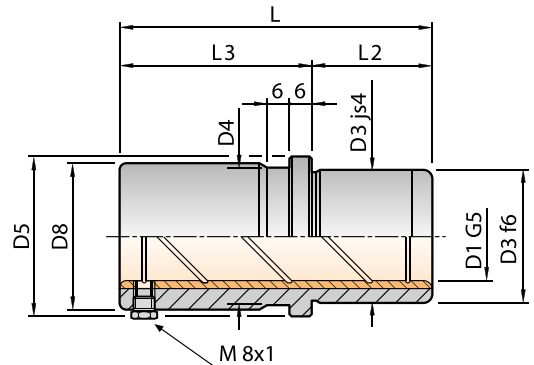
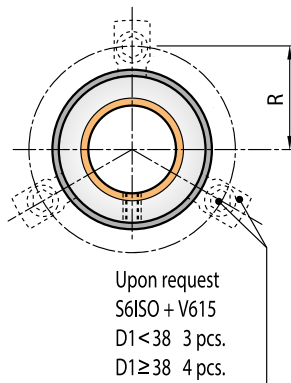
ISO 9448-6



Material: C45 - Bronze Hardness: D3 54÷58 HRC (induction) Execution: inner diameter bronze coated, honed; D3 fine ground	STOCK	3D-CAD	HOW TO ORDER BEPA * D1 * - * TYPE (BEPA19-5)
--	-------	--------	--



TYPE 5



TYPE 1 - 4

D1	D3	D4	D5	D8	R	L	L2	L3	TYPE
19 - 20	32	32	40	---	26	35	23	12	5
				39		43		20	4
				---		59		36	1
24 - 25	40	40	48	---	30	35	30	12	5
				46		59		36	4
				---		79		56	1
30 - 32	48	48	56	---	33,5	42	30	12	5
				53		75		45	4
				---		93		63	1
38 - 40	58	58	66	---	38,5	52	37	15	5
				63		82		45	4
				---		108		71	1
48 - 50	70	70	80	---	45,5	65	47	18	5
				77		97		50	4
				---		127		80	1
60 - 63	85	85	95	---	53	80	60	20	5
				92		116		56	4
				---		150		90	1
80	105	105	118	---	64,5	80	60	20	5
				115		120		60	4
				---		150		90	1

# BEPA PLUS

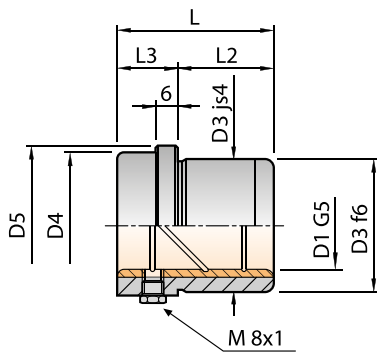
## BRONZE PLATED DEMOUNTABLE BUSH

FÜHRUNGSBUCHSE MIT BUND BRONZEPLATTIERT | BUSSOLA ESTRAIBILE RIVESTIMENTO BRONZO

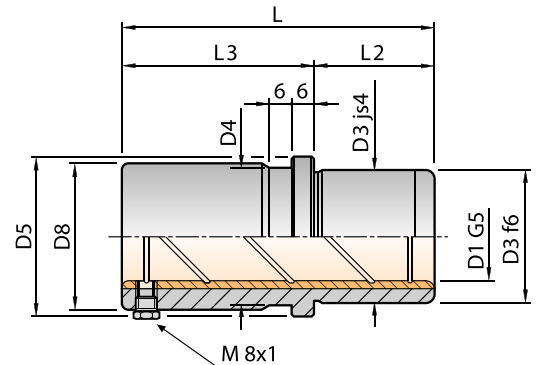
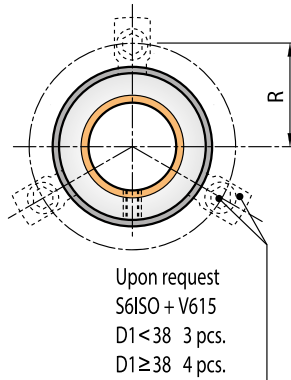
ISO 9448-6



<b>Material:</b> C45 - Bronze <b>Hardness:</b> 54÷58 HRC (induction) <b>Execution:</b> inner diameter bronze coated, honed; D3 fine ground	DAYS 4	3D-CAD	HOW TO ORDER <b>BEPA * D1 * - * TYPE</b> <b>(BEPA19-5P)</b>
--	--------	--------	---



TYPE 5 P



TYPE 1P - 4P

D1	D3	D4	D5	D8	R	L	L2	L3	TYPE
19 - 20	32	32	40	---	26	35	23	12	5P
				39		43		20	4P
				---		59		36	1P
24 - 25	40	40	48	---	30	35	30	12	5P
				46		59		36	4P
				---		79		56	1P
30 - 32	48	48	56	---	33,5	42	30	12	5P
				53		75		45	4P
				---		93		63	1P
38 - 40	58	58	66	---	38,5	52	37	15	5P
				63		82		45	4P
				---		108		71	1P
48 - 50	70	70	80	---	45,5	65	47	18	5P
				77		97		50	4P
				---		127		80	1P
60 - 63	85	85	95	---	53	80	60	20	5P
				92		116		56	4P
				---		150		90	1P
80	105	105	118	---	64,5	80	60	20	5P
				115		120		60	4P
				---		150		90	1P

# BGEA

## BRONZE DEMOUNTABLE BUSH WITH SOLID LUBRICANT RINGS

FÜHRUNGSBUCHSE MIT BUND BRONZE MIT FESTSCHMIERSTOFFRINGEN

BUSSOLA ESTRAIBILE BRONZO CON INSERTI IN GRAFITE

ISO 9448-6



Material: bronze + graphite

Hardness: -

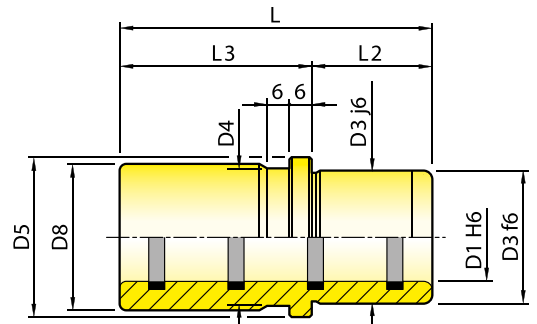
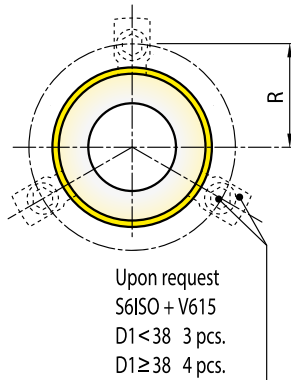
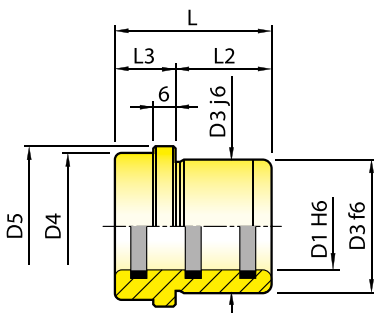
Execution: inner diameter and D3 fine ground



3D-CAD



HOW TO ORDER  
BGEA \* D1 \* - \* TYPE  
(BGEA19-5)



D1	D3	D4	D5	D8	R	L	L2	L3	TYPE
19 - 20	32	32	40	---	26	35	23	12	5
				39		43		20	4
				---		59		36	1
24 - 25	40	40	48	---	30	35	30	12	5
				46		59		36	4
				---		79		56	1
30 - 32	48	48	56	---	33,5	42	37	12	5
				53		75		45	4
				---		93		63	1
38 - 40	58	58	66	---	38,5	52	47	15	5
				63		82		45	4
				---		108		71	1
48 - 50	70	70	80	---	45,5	65	60	18	5
				77		97		50	4
				---		127		80	1
60 - 63	85	85	95	---	53	80	60	20	5
				92		116		56	4
				---		150		90	1
80	105	105	118	---	64,5	80	60	20	5
				115		120		60	4
				---		150		90	1

# B5BA

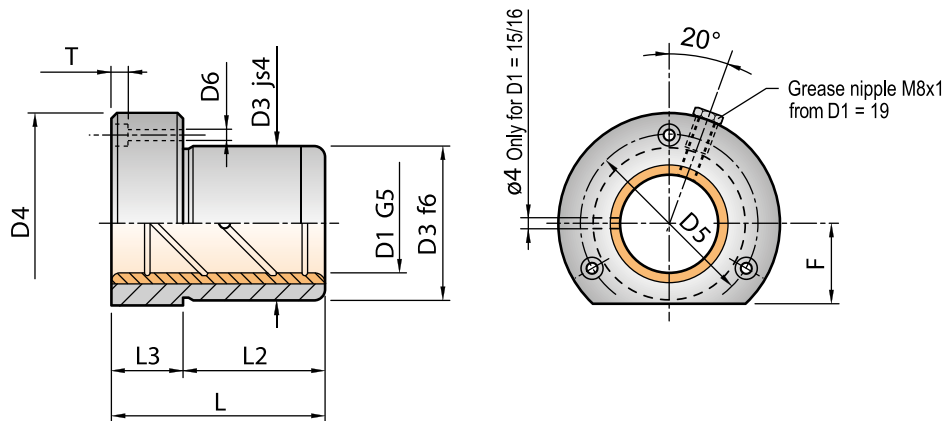
## STEEL/BRONZE FLANGED GUIDE BUSH

FÜHRUNGSBUCHSE MIT FLANSCH MIT BRONZEEINSATZ | BUSSOLA A COLLARE CON FORI DI FISSAGGIO ACCIAIO/BRONZO

ISO 9448-4



<b>Material:</b> 1.7131 - Bronze <b>Hardness:</b> 52÷54 HRC <b>Execution:</b> inner diameter bronze insert, honed; D3 fine ground	STOCK	3D-CAD	<b>HOW TO ORDER</b> <b>B5BA * D1 * - * TYPE</b> <b>(B5BA15-4)</b>
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D1	D3	D4	D5	D6	T	F	L	L2	L3	TYPE
15 - 16	28	45	35	4,5	3,4	15	29	23	6	4
							36	30		2
19 - 20	32	50	40	4,5	4,6	18	38	23	15	4
							45	30		2
							52	37		1
24 - 25	40	63	50	5,5	5,7	23	38	23	25	4
							55	30		2
							62	37		1
30 - 32	48	72	58	5,5	5,7	28	45	30	15	4
							62	37		2
							72	47		1
38 - 40	58	85	70	6,6	6,8	33	55	30	30	4
							67	37		2
							77	47		1
48 - 50	70	104	86	9	9	38	62	37	25	4
							89	47		2
							102	60		1
60 - 63	85	120	100	9	9	46	89	47	42	2
							102	60		1
							102	60		1
80	105	148	125	11	11	56	125	75	50	1

# BEA

## SELF-LUBE DEMOUNTABLE BUSH

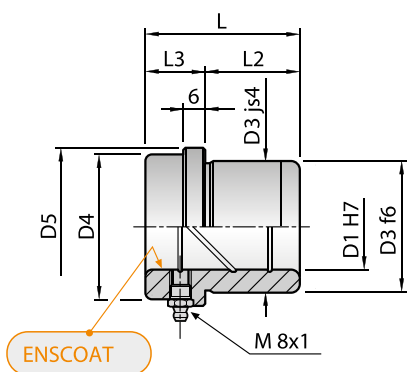
SELBSTSCHMIERENDE FÜHRUNGSBUCHSE MIT BUND | BUSSOLA ESTRAIBILE AUTOLUBRIFICANTE

ISO 9448-6

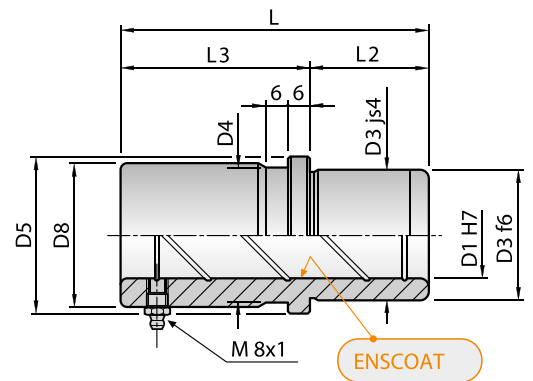
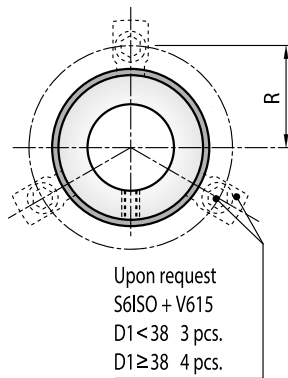


ENSCOAT

<b>Material:</b> 1.7131 <b>Hardness:</b> 61÷63 HRC <b>Execution:</b> inner diameter honed, ENSCOAT coated; D3 fine ground	STOCK	3D-CAD	HOW TO ORDER <b>BEA * D1 * - * TYPE</b> (BEA19-5)
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TYPE 5



TYPE 1 - 4

D1	D3	D4	D5	D8	R	L	L2	L3	TYPE
19 - 20	32	32	40	---	26	35	23	12	5
				39		43		20	4
						59		36	1
24 - 25	40	40	48	---	30	35	23	12	5
				46		59		36	4
						79		56	1
30 - 32	48	48	56	---	33,5	42	30	12	5
				53		75		45	4
						93		63	1
38 - 40	58	58	66	---	38,5	52	37	15	5
				63		82		45	4
						108		71	1
48 - 50	70	70	80	---	45,5	65	47	18	5
				77		97		50	4
						127		80	1
60 - 63	85	85	95	---	53	80	60	20	5
				92		116		56	4
						150		90	1

# B5A

## SELF LUBE FLANGED GUIDE BUSH

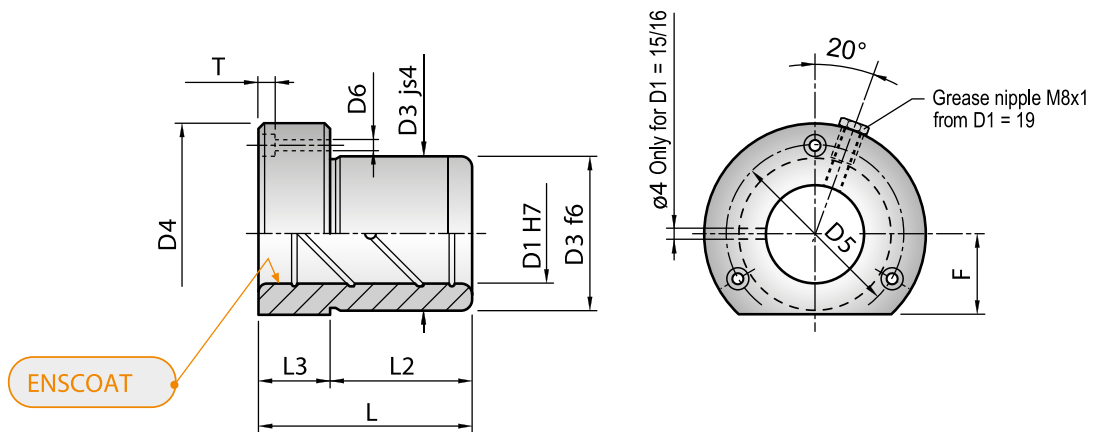
SELBSTSCHMIERENDE FÜHRUNGSBUCHSE MIT FLANSCH | BUSSOLA A COLLARE AUTOLUBRIFICANTE

ISO 9448-4



ENSCOAT

<b>Material:</b> 1.7131 <b>Hardness:</b> 61÷63 HRC <b>Execution:</b> inner diameter honed, ENSCOAT coated; D3 fine ground	STOCK	3D-CAD	<b>HOW TO ORDER</b> <b>B5A * D1 * - * TYPE</b> <b>(B5A15-4)</b>
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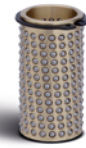


D1	D3	D4	D5	D6	T	F	L	L2	L3	TYPE
15 - 16	28	45	35	4,5	3,4	15	29	23	6	4
							36	30		2
19 - 20	32	50	40	4,5	4,6	18	38	23	15	4
							45	30		2
							52	37		1
24 - 25	40	63	50	5,5	5,7	23	38	23	25	4
							55	30		2
							62	37		1
30 - 32	48	72	58	5,5	5,7	28	45	30	15	4
							62	37		2
							72	47		1
38 - 40	58	85	70	6,6	6,8	33	55	30	30	4
							67	37		2
							77	47		1
48 - 50	70	104	86	9	9	38	62	37	25	4
							89	47		2
							102	60		1
60 - 63	85	120	100			46	89	47	42	2
							102	60		1
							102	60		1
80	105	148	125	11	11	56	125	75	50	1

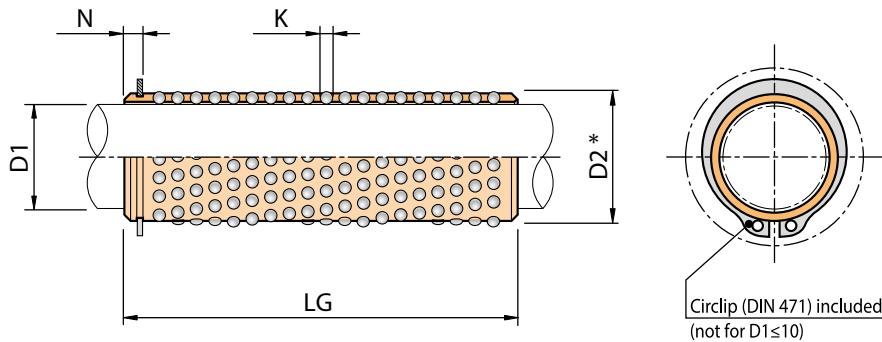
# GSA

## BALL CAGE WITH CIRCLIP GROOVE

KUGELKÄFIG MIT SICHERUNGSRING | GABBIA A SFERE CON SCANALATURA PER ANELLO D'ARRESTO



<b>Material:</b> Cage: brass; Balls: hardened steel conforming to DIN 5401 <b>Hardness:</b> - <b>Execution:</b> -	• STOCK 	3D-CAD 	HOW TO ORDER <b>GSA * D1 * LG (GSA310)</b>
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\* D2 = D1 + 2K

◇ 000 / • 000 = No. of balls

D1	K	N	LG																							
			10	15	20	25	30	31	40	45	50	56	63	71	75	80	95	105	120	140	160	180	200	240		
3	1	--	◇ 24	◇ 36	◇ 54																					
4		--	◇ 28	◇ 42	◇ 63	◇ 77																				
5		--	◇ 32	◇ 48	◇ 72	◇ 88	◇ 112																			
6		--	◇ 36	◇ 54	◇ 81	◇ 99	◇ 126																			
8		--	◇ 40	◇ 60	◇ 90	◇ 110	◇ 140		◇ 190																	
10	2	--		◇ 56	◇ 70	◇ 84	◇ 112		◇ 154																	
12		2,2			◇ 80	◇ 96	• 128		• 176				• 272													
15 - 16	3				◇ 64		• 96	• 128	• 144	• 192	• 224	• 256														
18		2,9							• 180	• 240		• 320														
19 - 20					◇ 80			• 120		• 180	• 240		• 320		• 360	• 440										
24 - 25		3,2					◇ 120	• 160	• 180	• 240		• 320		• 360	• 440	• 500	• 560									
30 - 32	4							• 120	• 140	• 160	• 180		• 240	• 260	• 280	• 340	• 380	• 440	• 520	• 600						
38 - 40		3,95							• 168	• 192	• 216	• 264			• 336	• 408	• 456	• 528	• 624	• 720	• 816	• 912	• 1104			
48 - 50		4,25								• 224		• 308			• 392	• 476	• 532	• 616	• 728	• 840	• 952	• 1064	• 1288			
60 - 63		4,75														• 544	• 608	• 704	• 832	• 960	• 1088	• 1216	• 1472			
80	6	6,15																• 540	• 648	• 756	• 864	• 972	• 1152			

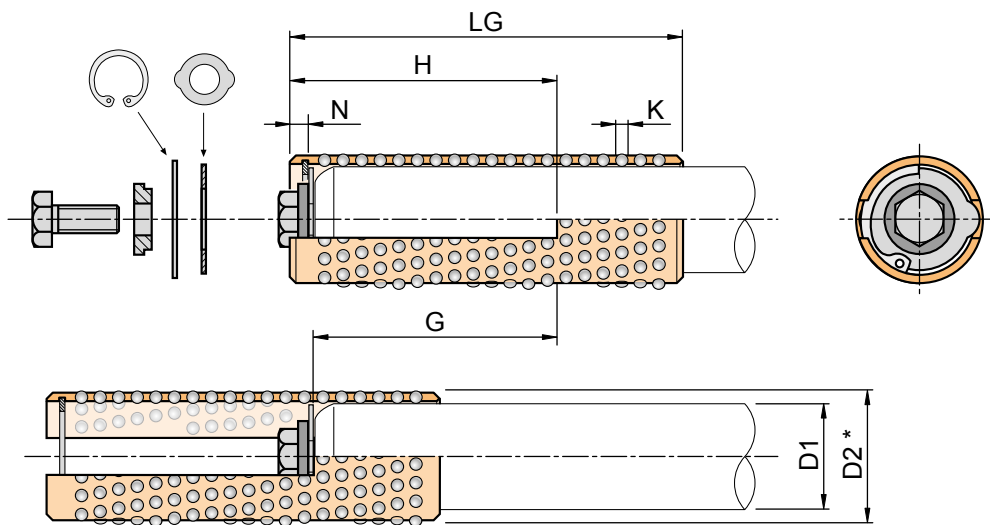
# GSAB

## BALL CAGE WITH STOP GROOVE

KUGELKÄFIG MIT KÄFIGHALTER | GABBIA A SFERE CON BLOCCAGGIO



<b>Material:</b> Cage: brass; Balls: hardened steel conforming to DIN 5401 <b>Hardness:</b> - <b>Execution:</b> -	STOCK	3D-CAD		<b>HOW TO ORDER</b> <b>GSAB * D1 * LG</b> <b>(GSAB1956)</b>
---	-------	--------	--	---



\* D2 = D1 + 2K

• 000 = No. of balls

D1	K	G	H	N	LG								
					56	70	72	80	95	105	120	140	
19 - 20	3	26,9	31	2,6	• 184								
		36,9	41										
		46,9	51			• 240							
24 - 25		26,9	31		• 184			• 264					
36,9		41				• 240							
46,9		51						• 264					
30 - 32	4	36,9	41	3,5		• 184							
		46,9	51										
		56,9	61					• 208					
38 - 40		45,5	51						• 252				
		55,5	61					• 264			• 284		
		67,5	73						• 320				
48 - 50	44,7	51	4,3	5									
	54,7	61						• 320			• 416		
	66,7	73							• 388				
60 - 63	66,7	73									• 444		
	54,7	61							• 456			• 504	
	66,7	73										• 592	
80	76,7	83									• 704		
	54	61					• 368						
	66	73								• 460			
	76	83									• 560		

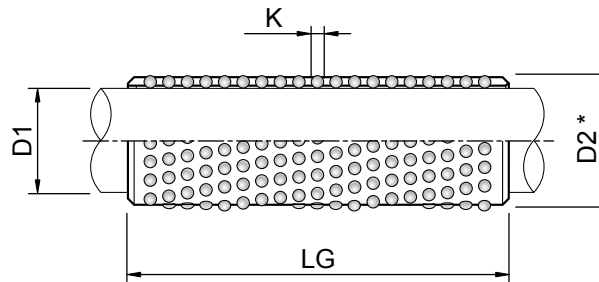
# GSAP

## PLASTIC BALL CAGE

KUGELKÄFIG AUS KUNSTSTOFF | GABBIA A SFERE IN PLASTICA



<b>Material:</b> Cage: polyacetat; Balls: hardened steel conforming to DIN 5401 <b>Hardness:</b> - <b>Execution:</b> -				<b>HOW TO ORDER</b> GSAP * D1 * LG (GSAP1010)
--	--	--	--	--



\* D2 = D1 + 2K

◇ 000 = No. of balls

D1	K	LG															
		30	38	43	54	58	63	68	74	83	88	90	94	103	108	128	
10 - 12	2	◇ 117	◇ 153	◇ 171													
15 - 16	3	◇ 72	◇ 99	◇ 108	◇ 144		◇ 180										
19 - 20		◇ 88	◇ 126	◇ 132	◇ 176		◇ 220		◇ 253								
24 - 25		◇ 104	◇ 143	◇ 156	◇ 208		◇ 260		◇ 299	◇ 338		◇ 364					
30 - 32	4		◇ 117	◇ 130	◇ 182	◇ 196		◇ 234	◇ 260	◇ 299	◇ 302			◇ 377	◇ 390		
38 - 40			◇ 144	◇ 160		◇ 240		◇ 288				◇ 384		◇ 416		◇ 480	◇ 576

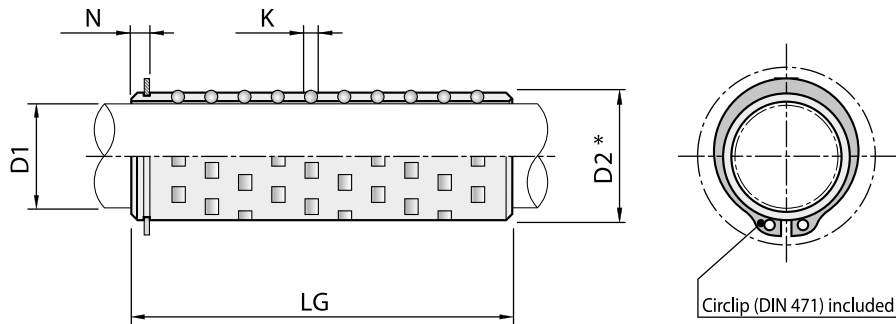
# GR

## ROLLER CAGE

ROLLENKÄFIG | GABBIA A RULLI



<b>Material:</b> Cage: Aluminum; Rollers: hardened steel conforming to DIN 5402 <b>Hardness:</b> - <b>Execution:</b> -	DAYS 18	3D-CAD	HOW TO ORDER <b>GR * D1 * LG (GR1541)</b>
--	---------	--------	--



\* D2 = D1 + 2K

◇ 000 = No. of rollers



D1	K	N	LG																				
			41	45	49	55	65	75	85	95	105	113	115	125	135	138	145	155	156	165	175	185	205
15 - 16	3	2,9	◇ 32		◇ 40																		
19 - 20				◇ 32		◇ 40	◇ 48	◇ 56	◇ 64	◇ 72	◇ 80												
24 - 25		3,2	◇ 40	◇ 50	◇ 60	◇ 70	◇ 80	◇ 90	◇ 100			◇ 110	◇ 120	◇ 130									
30 - 32	4	3,95	◇ 48	◇ 60	◇ 72	◇ 84	◇ 96	◇ 108	◇ 120			◇ 132	◇ 144	◇ 156		◇ 168	◇ 180		◇ 192				
38 - 40				◇ 70	◇ 84	◇ 98	◇ 112	◇ 126	◇ 140			◇ 154	◇ 168	◇ 182		◇ 196	◇ 210		◇ 224	◇ 238	◇ 252	◇ 280	
48 - 50		4,25			◇ 108	◇ 126	◇ 144	◇ 162	◇ 180			◇ 198	◇ 216	◇ 234		◇ 252	◇ 270		◇ 288	◇ 306	◇ 324	◇ 360	
60 - 63		4,75					◇ 154	◇ 176	◇ 198	◇ 220			◇ 242	◇ 264	◇ 286		◇ 308	◇ 330		◇ 352	◇ 374	◇ 396	◇ 440
80		6	6,15									◇ 128		◇ 144		◇ 160	◇ 176		◇ 192			◇ 224	◇ 256

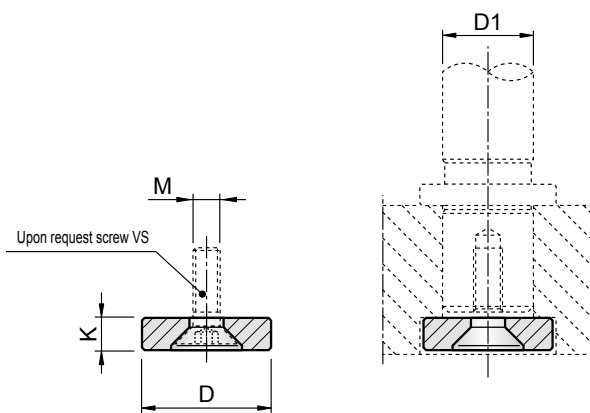
# RTI

## WASHER FOR CEAIN/CEAQIN

HALTESCHEIBE FÜR CEAIN/CEAQIN | RONDELLA PER CEAIN/CEAQIN



Material: 1.1730 Hardness: - Execution: -	STOCK	3D-CAD 		HOW TO ORDER RTI * D (RTI22)
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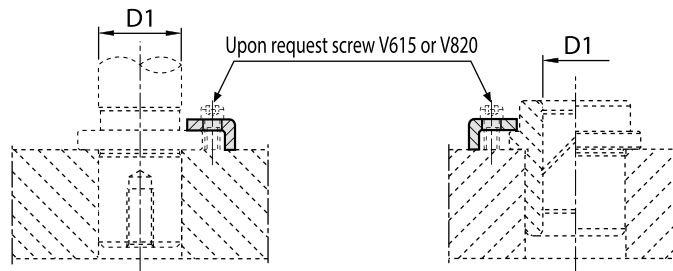
D	D1	K	M
22	15 - 16	6	M8
25	19 - 20		
32	24 - 25		
40	30 - 32		
50	38 - 40		
60	48 - 50		
70	60 - 63	12	M12
93	80		

# S-ISO

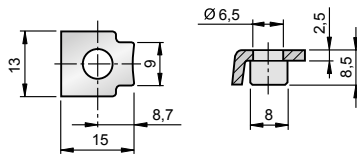
## RETAINING CLAMPS

HALTESTÜCKE | STAFFETTE DI RITEGNO

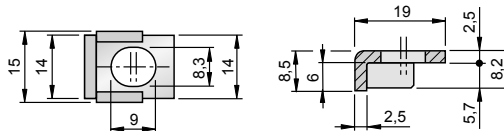
Material: steel Hardness: - Execution: -	STOCK	3D-CAD 		HOW TO ORDER CODE (S6ISO)
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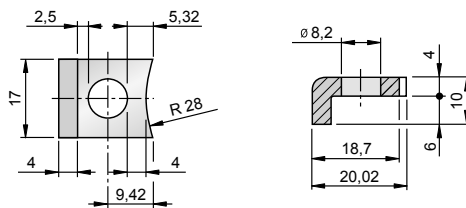
### S6ISO



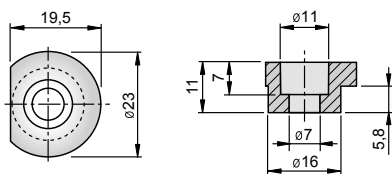
### S8ISO



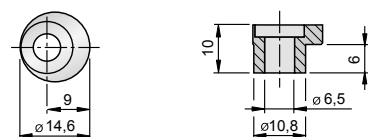
### S8PISO



### S23ISO



### S5270



CODE	D1	QUANTITY
S6ISO S8ISO S8PISO	< 38	3
S5270	≥ 38	4
S23ISO	ALL DIAMETERS	3

# V

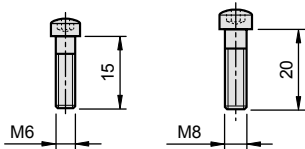
## SCREWS FOR CLAMPS

SCHRAUBE | VITI PER STAFFETTE

ISO 7380



STOCK	3D-CAD 		HOW TO ORDER CODE (V615)
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CODE	M
V615	M6x15
V820	M8x20

# VS

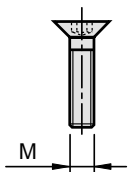
## SCREWS FOR WASHERS

SCHRAUBE FÜR HALTESCHEIBE | VITI PER RONDELLE

DIN 7991 / ISO 10642



STOCK	3D-CAD 		HOW TO ORDER CODE (VS820)
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CODE	M
VS820	M8x20
VS1020	M10x20
VS1230	M12x30

# CAU

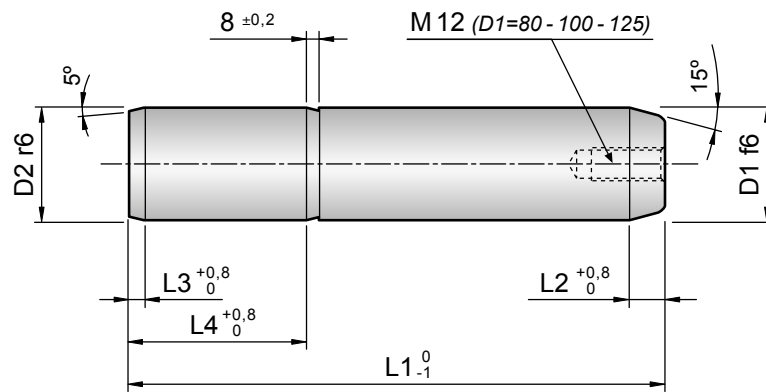
## GUIDE PILLAR DIN 9833

FÜHRUNGSSÄULE DIN 9833 | COLONNA DIN 9833

DIN 9833 / ISO 9182-3



Material: steel Hardness: 60÷64 HRC Execution: fine ground	STOCK	3D-CAD 	HOW TO ORDER CAU * D1 * L1 (CAU25125)
--	-------	------------	--



D1	D2	L2	L3	L4	L1														
					125	140	160	180	200	224	250	280	315	355	400	450	500		
25	25	8	4	40	•	•	•	•	•	•	•								
32	32			45	•	•	•	•	•	•	•								
40	40			56	•	•	•	•	•	•	•	•							
50	50	10	4	70			•	•	•	•	•	•	•	•					
63	63			80			•	•	•	•	•	•	•	•	•	•			
80	80			100					•	•	•	•	•	•	•	•	•	•	•
100	100	12	5	125						•	•	•	•	•	•	•	•	•	
125	125			140										•	•	•	•	•	•

# CAUBQ

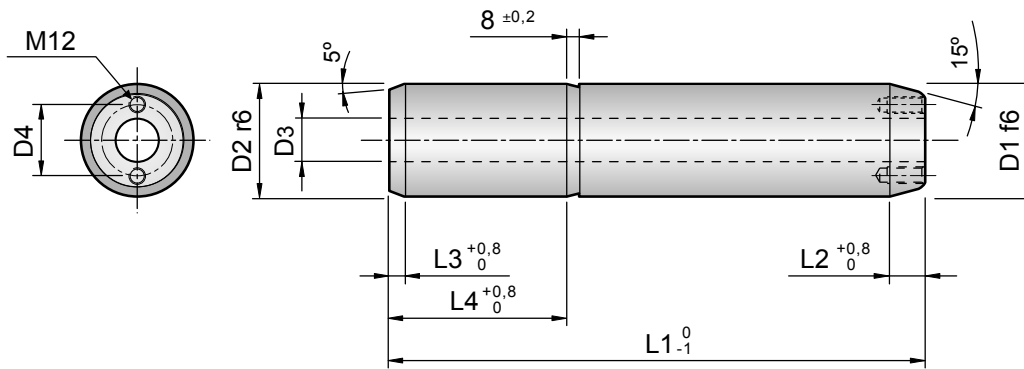
## GUIDE PILLAR WITH HOLE DIN 9833

FÜHRUNGSSÄULE MIT HOHLBOHRUNG DIN 9833 | COLONNA FORATA DIN 9833

DIN 9833 / ISO 9182-3



Material: steel Hardness: 60÷64 HRC Execution: fine ground	STOCK	3D-CAD 	HOW TO ORDER CAUBQ * D1 * L1 (CAUBQ80200)
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D1	D2	D3	D4	L2	L3	L4	L1									
							200	224	250	280	315	355	400	450	500	560
80	80	40	58	10	4	100	•	•	•	•	•	•	•	•	•	
100	100	50	72			125	•	•	•	•	•	•	•	•	•	•
125	125	65	90	12	5	140				•	•	•	•	•	•	
160	160	95	132			180							•	•	•	•

# CAUR

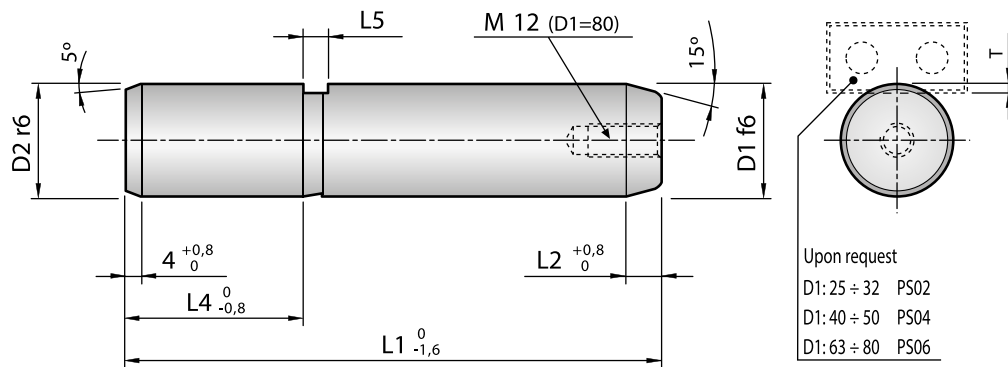
## GUIDE PILLAR WITH MILLING VW

FÜHRUNGSSÄULE MIT NUT VW | COLONNA CON FRESATURA VW

VW 39D969



Material: steel Hardness: 60÷64 HRC Execution: fine ground	STOCK	3D-CAD 		HOW TO ORDER CAUR * D1 * L1 (CAUR25125)
--	-------	------------	--	--



D1	D2	L2	L4	L5	T	L1												
						125	140	160	180	200	224	250	280	315	355	400	450	500
25	25	8	40	7	3	•	•	•	•	•	•							
32	32		45			•	•	•	•	•	•	•	•					
40	40	10	56	10	4		•	•	•	•	•	•						
50	50		70				•	•	•	•	•	•	•	•	•			
63	63		80	12	6,5				•	•	•	•	•	•	•	•	•	•
80	80	100	8								•	•	•	•	•	•	•	•

# CEOT

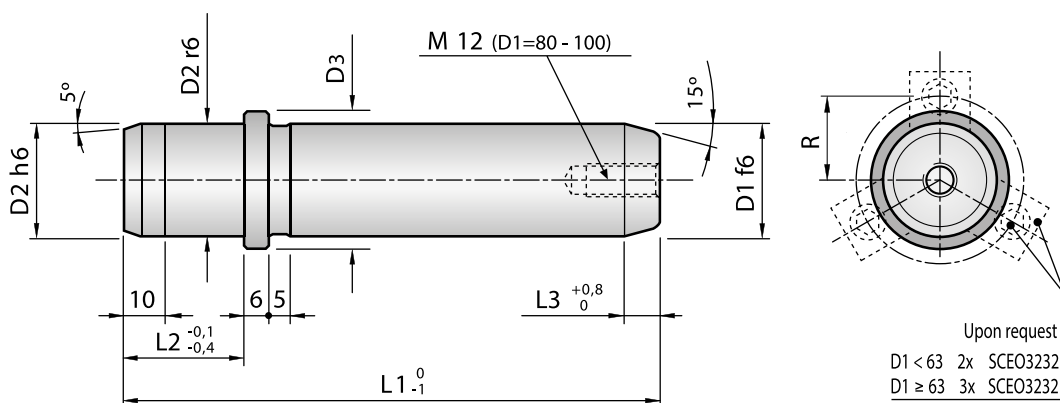
## DEMOUNTABLE GUIDE PILLAR WDX

FÜHRUNGSSÄULE MIT BUND WDX | COLONNA ESTRAIBILE WDX

WDX 13-65-20



Material: steel Hardness: 60÷64 HRC Execution: fine ground	STOCK	3D-CAD 	HOW TO ORDER CEOT * D1 * L1 (CEOT25125)
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D1	D2	D3	R	L2	L3	L1										
						125	140	160	180	200	224	250	280	315	355	400
25	25	33	34	40	4	•	•	•	•	•	•					
32	32	40	37,5	45	8		•	•	•	•	•					
40	40	50	41,5	56	10			•	•	•	•	•				
50	50	60	46,5	70				•	•	•	•	•	•			
63	63	80	53	80						•	•	•	•	•	•	
80	80	90	61,5	100							•	•	•	•	•	•
100	100	110	71,5	125								•	•	•	•	

# CS

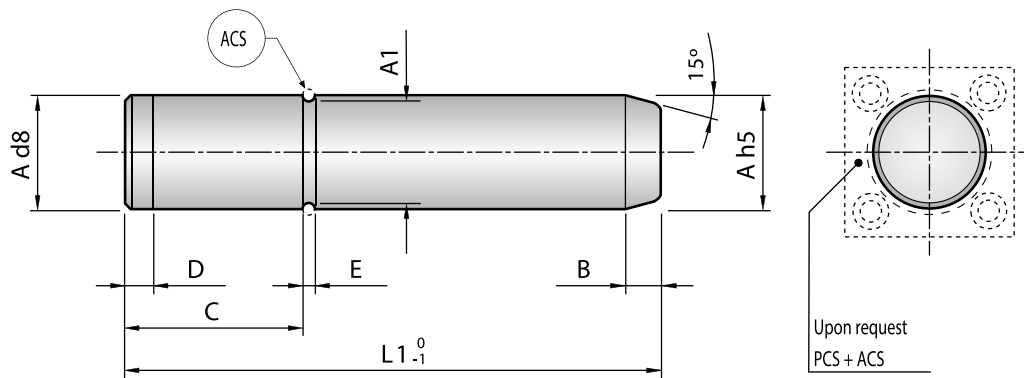
## GUIDE PILLAR AFNOR

FÜHRUNGSSÄULE MIT HALTERINGEINSTICH AFNOR | COLONNA AFNOR

### AFNOR



Material: steel Hardness: 60÷64 HRC Execution: fine ground	STOCK	3D-CAD 		HOW TO ORDER CS * A * L1 (CS25100)
--	-------	------------	--	---------------------------------------



A	A1	B	C	D	E	L1																
						100	125	140	160	180	200	220	250	280	315	355	400	450	500			
25	22,3	8	25	8	2,7	•	•	•	•	•	•	•										
32	27,8	10	32	12	4,2		•	•	•	•	•	•	•									
40	35,8	12	63								•	•	•	•	•	•						
50	45,8	16	80	18	6,2						•	•	•	•	•	•	•	•				
63	56,8		100										•	•	•	•	•	•	•	•	•	
80	73,8		125													•	•	•	•	•	•	•
100	93,8		160															•	•	•	•	•

# CAUFCB

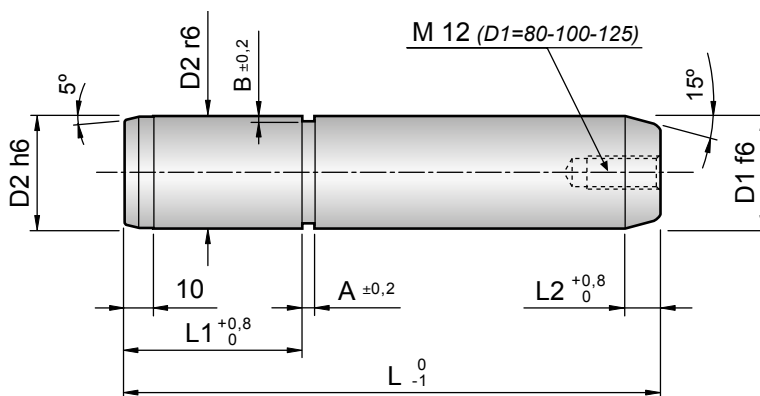
## GUIDE PILLAR FCA

FÜHRUNGSSÄULE FCA | COLONNA FCA

FCA 065.90.70



Material: 1.7131 Hardness: 61÷63 HRC Execution: fine ground	DAYS 12	3D-CAD	HOW TO ORDER CAUFCB * D1 * L (CAUFCB25100)
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D1	D2	L1	L2	A	B	L														
						100	125	140	160	180	200	225	250	280	315	355	400	450	500	550
25	25	40	4	6	2,5	◇	◇	◇	◇	◇										
32	32	45	8			◇	◇	◇	◇	◇	◇									
40	40	56	10	9	3,5			◇	◇	◇	◇	◇								
50	50	70						◇	◇	◇	◇	◇	◇							
63	63	80		11	5,5					◇	◇	◇	◇	◇	◇	◇				
80	80	100									◇	◇	◇	◇	◇	◇	◇			
100	100	125												◇	◇	◇	◇	◇	◇	◇
125	125	140	12											◇	◇	◇	◇	◇	◇	

# CAUBQFCB

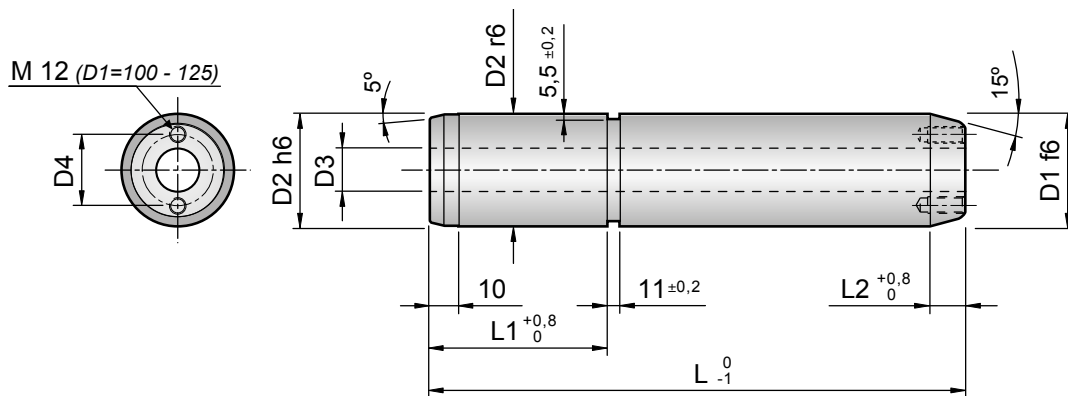
GUIDE PILLAR WITH HOLE FCA

FÜHRUNGSSÄULE MIT HOHLBOHRUNG FCA | COLONNA FORATA FCA

FCA 065.90.70



Material: 1.7131 Hardness: 61÷63 HRC Execution: fine ground	DAYS 12	3D-CAD 	HOW TO ORDER CAUBQFCB * D1 * L (CAUBQFCB80250)
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D1	D2	D3	D4	L1	L2	L								
						250	280	315	355	400	450	500	550	
80	80	40	---	100	10	◇	◇	◇	◇	◇				
100	100	50	74	125					◇	◇	◇	◇	◇	◇
125	125	65	84	140						◇	◇	◇	◇	◇

# CAUBQAM

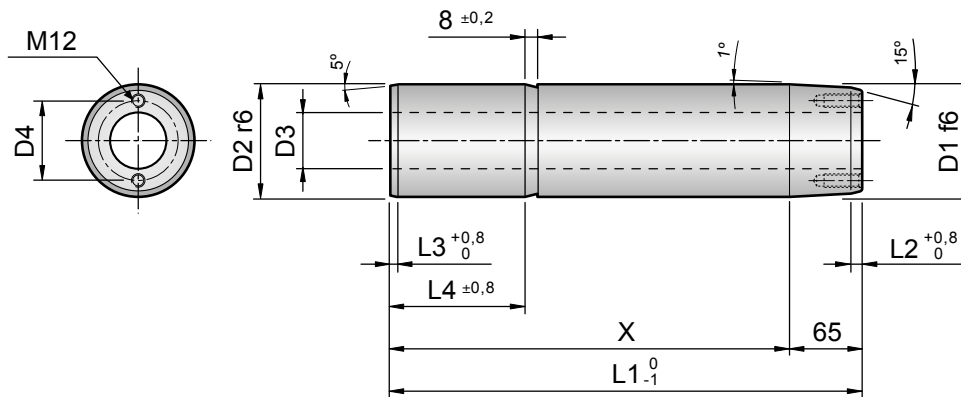
## GUIDE PILLAR WITH HOLE FCA

FÜHRUNGSSÄULE MIT HOHLBOHRUNG FCA | COLONNA FORATA FCA

FCA 065.90.80



Material: 1.7131 Hardness: 61÷63 HRC Execution: fine ground	 DAYS 12	3D-CAD 	HOW TO ORDER CAUBQAM * D1 * L1 (CAUBQAM100315)
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D1	D2	D3	D4	L2	L3	L4	X	L1	
								315	355
100	100	50	72	10	4	125	250	◇	
							290		◇

# CLO

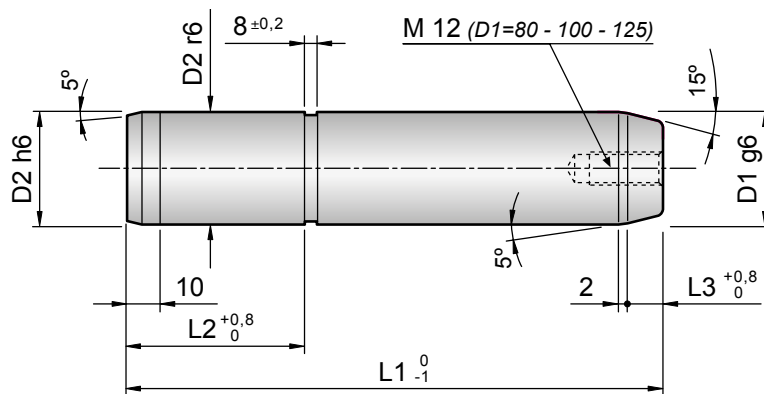
## GUIDE PILLAR GM

FÜHRUNGSSÄULE GM | COLONNA GM

GM 90.20.50



<b>Material:</b> steel <b>Hardness:</b> 60÷64 HRC <b>Execution:</b> fine ground	DAYS <b>12</b>	<b>3D-CAD</b> 		<b>HOW TO ORDER</b> <b>CLO * D1 * L1 (CLO25125)</b>
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D1	D2	L2	L3	L1															
				125	140	160	180	200	224	250	280	315	355	400	450	500	550	600	650
25	25	40	8	◇	◇	◇	◇												
32	32	45			◇	◇	◇	◇											
40	40	56			◇	◇	◇	◇	◇	◇									
50	50	70	10			◇	◇	◇	◇	◇	◇	◇							
63	63	80					◇	◇	◇	◇	◇	◇	◇	◇	◇				
80	80	100							◇	◇	◇	◇	◇	◇	◇	◇			
100	100	125								◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
125	125	140	12									◇	◇	◇	◇	◇	◇	◇	

# CLOT

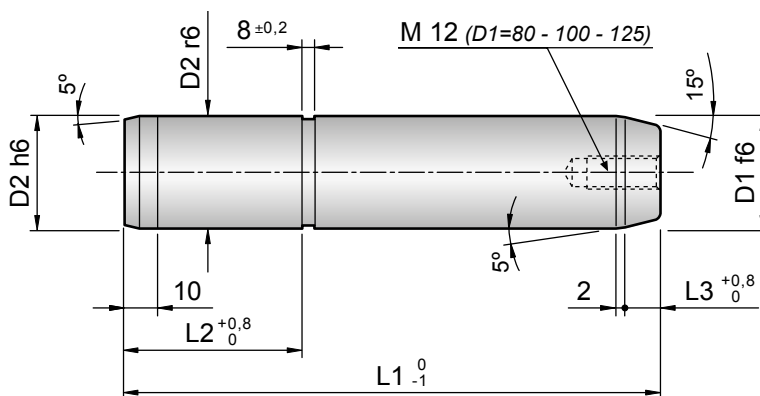
## GUIDE PILLAR WDX

FÜHRUNGSSÄULE WDX | COLONNA WDX

WDX 13-65-22



Material: steel Hardness: 60÷64 HRC Execution: fine ground	DAYS 12	3D-CAD	HOW TO ORDER CLOT * D1 * L1 (CLOT25140)
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D1	D2	L2	L3	L1															
				140	160	180	200	224	250	280	300	315	355	360	400	450	500	550	600
25	25	40	4	◇	◇	◇													
32	32	45	8	◇	◇	◇	◇												
40	40	56			◇	◇	◇	◇	◇										
50	50	70	10		◇	◇	◇	◇	◇	◇		◇		◇					
63	63	80					◇	◇	◇	◇	◇		◇	◇		◇			
80	80	100							◇	◇			◇	◇		◇	◇		
100	100	125											◇	◇		◇		◇	◇

# CAMI

## GUIDE PILLAR MERCEDES

FÜHRUNGSSÄULE MERCEDES | COLONNA MERCEDES

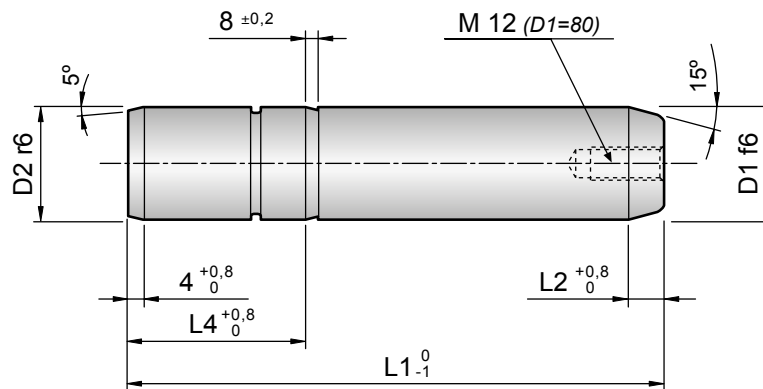
B8 0450 200 009 001



Material: steel  
Hardness: 60÷64 HRC  
Execution: fine ground



HOW TO ORDER  
CAMI \* D1 \* L1 (CAMI40140)



D1	D2	L2	L4	L1									
				160	180	200	224	250	280	315	355	400	
40	40	8	56	◇	◇	◇	◇	◇	◇				
50	50	10	70	◇	◇	◇	◇	◇	◇	◇	◇		
63	63		80		◇	◇	◇	◇	◇	◇	◇	◇	◇
80	80		100				◇	◇	◇	◇	◇	◇	◇

# CAMBQI

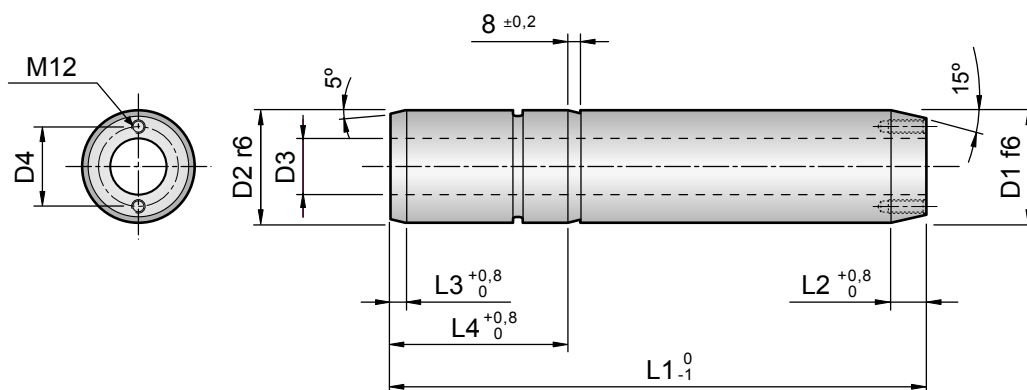
## GUIDE PILLAR WITH HOLE MERCEDES

FÜHRUNGSSÄULE MIT HOHLBOHRUNG MERCEDES | COLONNA FORATA MERCEDES

B8 0450 200 009 001



<b>Material:</b> steel <b>Hardness:</b> 60÷64 HRC <b>Execution:</b> fine ground	 DAYS 12	3D-CAD 	 HOW TO ORDER CAMBQI * D1 * L1 (CAMBQI100280)
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D1	D2	D3	D4	L2	L3	L4	L1							
							280	315	355	400	450	500	560	
100	100	50	72	10	4	125	◇	◇	◇	◇				
125	125	65	90	12	5	140			◇	◇				
160	160	95	132			180				◇	◇	◇	◇	

# CAUWF

## GUIDE PILLAR BMW

FÜHRUNGSSÄULE BMW | COLONNA BMW

B2 2920.001

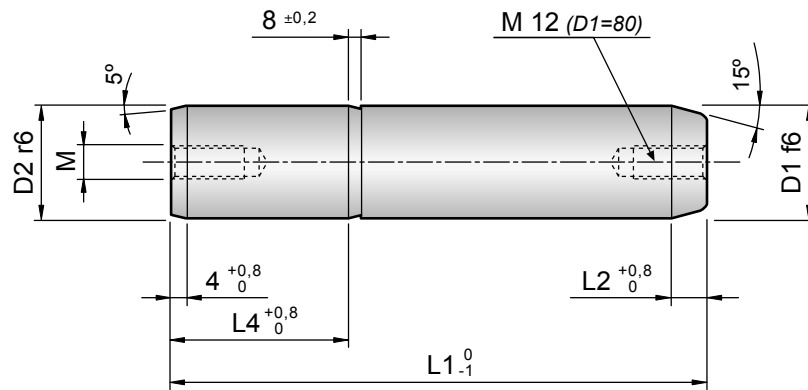


Material: steel  
Hardness: 60÷64 HRC  
Execution: fine ground



HOW TO ORDER

CAUWF \* D1 \* L1 (CAUWF40160)



D1	D2	L2	L4	M	L1								
					160	180	200	224	250	280	315	355	400
40	40	8	56	M8	◇	◇	◇	◇	◇	◇			
50	50	10	70	M10	◇		◇		◇	◇	◇	◇	
63	63		80	M12			◇		◇	◇	◇	◇	◇
80	80		100	M16					◇	◇	◇	◇	

# CAUWH

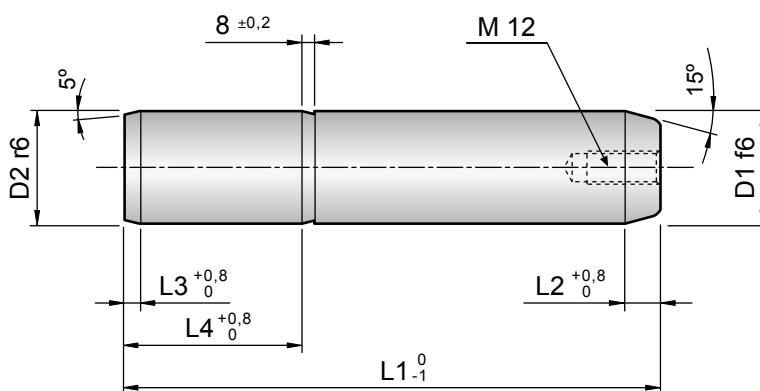
## GUIDE PILLAR BMW

FÜHRUNGSSÄULE BMW | COLONNA BMW

B2 2920.001



Material: steel Hardness: D1 60÷64 HRC Execution: fine ground		3D-CAD 		HOW TO ORDER CAUWH * D1 * L1 (CAUWH80250)
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D1	D2	L2	L3	L4	L1					
					250	280	315	355	400	450
80	80	10	4	100	◇	◇	◇	◇		
100	100			125	◇	◇	◇	◇		
125	125	12	5	140				◇	◇	◇

# BG9834

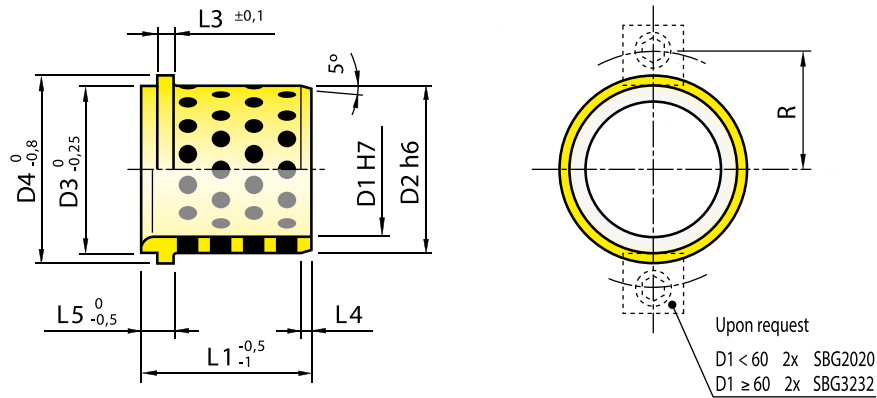
## SELF-LUBRICATING BUSH DIN 9834

FÜHRUNGSBUCHSE BRONZE MIT FESTSCHMIERSTOFF DIN 9834 | BUSSOLA AUTOLUBRIFICANTE DIN 9834

DIN 9834 / ISO 9448



Material: bronze + graphite Hardness: - Execution: inner diameter and D2 fine ground	STOCK	3D-CAD	HOW TO ORDER BG9834 * D1 (BG983425)
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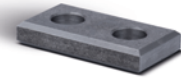
D1	D2	D3	D4	R	L3	L4	L5	L1										
								40	50	63	71	80	100	125	160	200		
25	32	32	40	29	6,3	3	10	•										
32	40	40	50	33		4	12		•									
40	50	50	63	39,5		5	15			•								
50	63	63	71	44,5		6,3	17				•							
63	80	80	90	61,5	10	8	19				•							
80	100	100	112	71,5		10	22						•					
100	125	125	140	84		12,5	21							•				
125	160	160	180	101,5		16	30										•	
160	200	200	220	121,5			32											



# PS

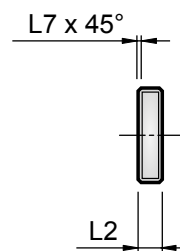
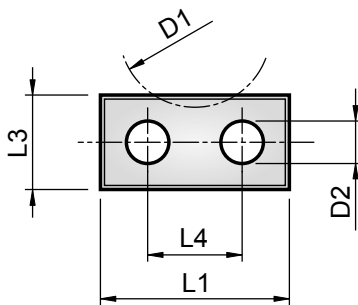
## LOCATING PLATE VW

SICHERUGSPLATTE FÜR FÜHRUNGSSÄULE NACH VW | PIASTRINA DI SICUREZZA VW

VW 39D856



Material: 1.1730 Hardness: - Execution: -	STOCK	3D-CAD 		HOW TO ORDER PS * TYPE (PS02)
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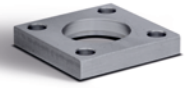


D1	D2	L1	L2	L3	L4	L7	TYPE
25 - 32	9	40	5	20	20	1	02
40 - 50	11	48	8	25	24	2	04
63 - 80	14	60	10	34	30		06

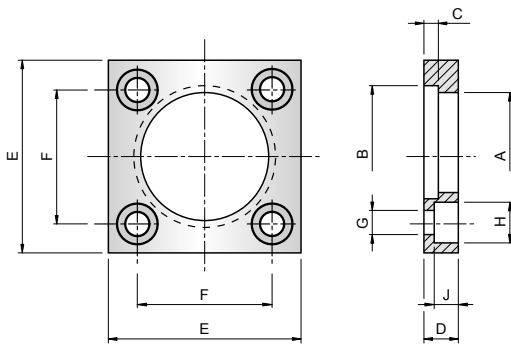
# PCS

## RETAINER FOR AFNOR GUIDE PILLAR

HALTESTÜCK FÜR AFNOR FÜHRUNGSSÄULE | STAFFA DI BLOCCAGGIO PER COLONNA AFNOR



Material: 1.1730 Hardness: - Execution: -	STOCK	3D-CAD 		HOW TO ORDER PCS * A (PCS25)
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A	B	G	H	J	D	C	E	F
25	28	6,6	11	7	10	2,7	45	31
32	37				12			
40	45	9	15	9	14	4,2	70	50
50	55	11	18	11	18			
63	70	13	20	14	20	110	80	
80	87							140
100	107							

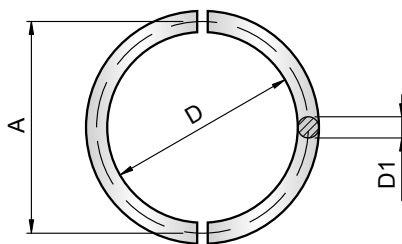
# ACS

## RING FOR AFNOR GUIDE PILLAR

TEDESCO HALTERING FÜR AFNOR FÜHRUNGSSÄULE | ANELLO DI TENUTA PER COLONNA AFNOR



Material: steel Hardness: - Execution: -	STOCK	3D-CAD 		HOW TO ORDER ACS * A (ACS25)
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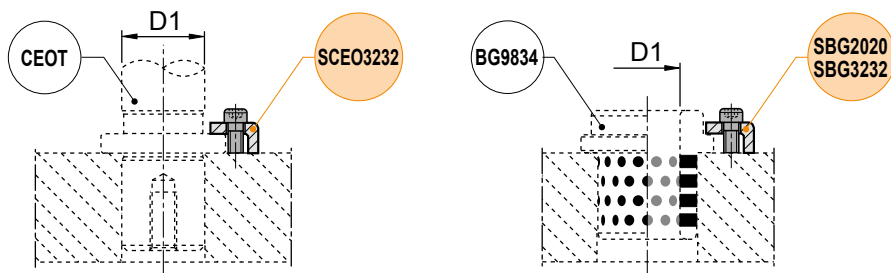
A	D	D1
25	22,5	2,5
32	28	4
40	36	
50	46	
63	57	6
80	74	
100	94	

# S-AUTO

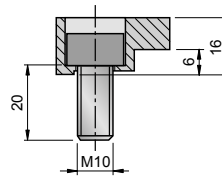
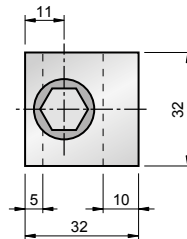
## RETAINING CLAMPS

HALTESTÜCKE | STAFFETTE DI RITEGNO

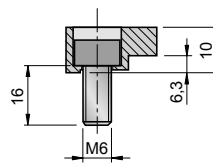
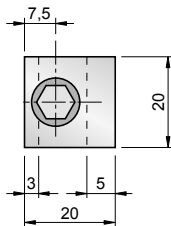
Material: steel Hardness: - Execution: -	STOCK	3D-CAD 		HOW TO ORDER CODE (SCEO3232)
--	-------	---	---	---------------------------------



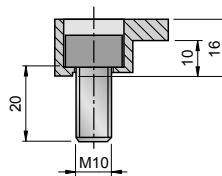
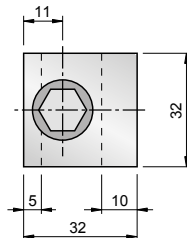
### SCEO3232



### SBG2020



### SBG3232



CODE	D1	QUANTITY
SCEO3232	< 63	2
	≥ 63	3
SBG2020	< 60	2
SBG3232	≥ 60	

# C3

## HEAD PILOT PIN

FÜHRUNGSSÄULE | COLONNA CON TESTA

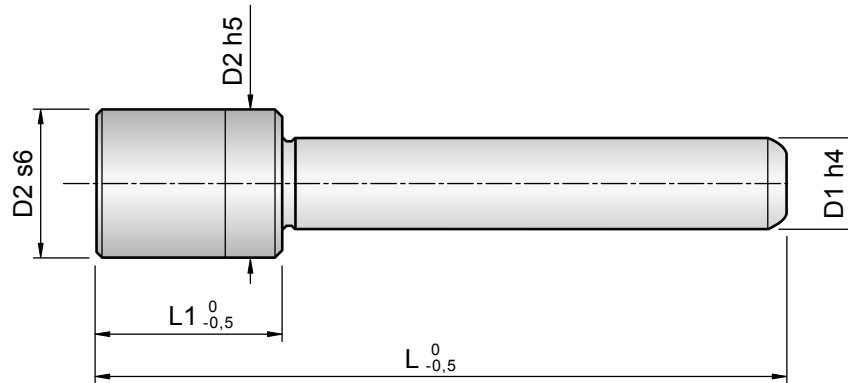


Material: 1.7131  
Hardness: 61÷63 HRC  
Execution: fine ground

STOCK



HOW TO ORDER  
C3 \* D1 \* L (C31585)



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

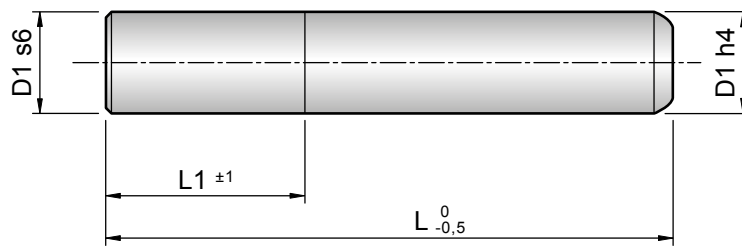
# C4

## SMOOTH PILOT PIN

FÜHRUNGSSÄULE | COLONNA SENZA TESTA



<b>Material:</b> 1.7131 <b>Hardness:</b> 61÷63 HRC <b>Execution:</b> fine ground	STOCK		<b>HOW TO ORDER</b> <b>C4 * D1 * L (C41585)</b>
--	-------	---	--



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

# C5

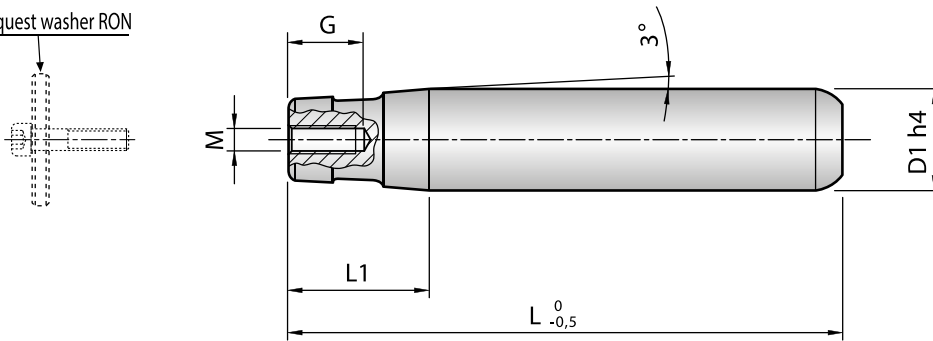
## GUIDE PILLAR WITH TAPER LEAD

FÜHRUNGSSÄULE MIT KONISCHEM SCHAFT | COLONNA CONICA



Material: 1.7131 Hardness: 61÷63 HRC Execution: fine ground	STOCK		HOW TO ORDER C5 * D1 * L (C524115)
---	-------	---	---------------------------------------

Upon request washer RON

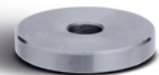


D1	L1	M	G	L										
				115	135	155	170	185	200	225	250	300	400	
24 - 25	48	8	20	•	•	•	•	•	•	•	•	•	•	•
30 - 31	57			•	•	•	•	•	•	•	•	•	•	•
40 - 41	63	10	25				•	•	•	•	•	•	•	•
50 - 51	80						•	•	•	•	•	•	•	•
63	86									•	•	•	•	•

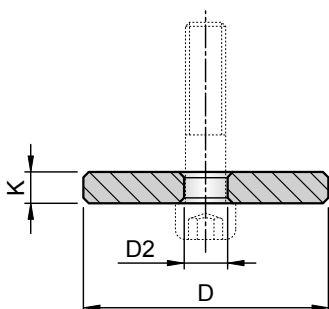
# RON

## WASHER FOR PILLAR C5

SCHEIBE FÜR FÜHRUNGSSÄULE C5 | RONDELLA PER COLONNA C5



Material: 1.1730 Hardness: - Execution: -	STOCK		HOW TO ORDER RON * D (RON28)
---	-------	---	---------------------------------



D	D2	K
28	8,7	6
36		
43		
53	10,7	8
70		

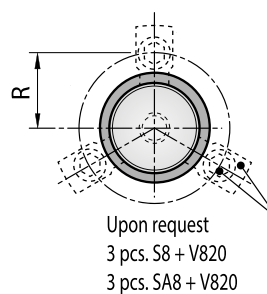
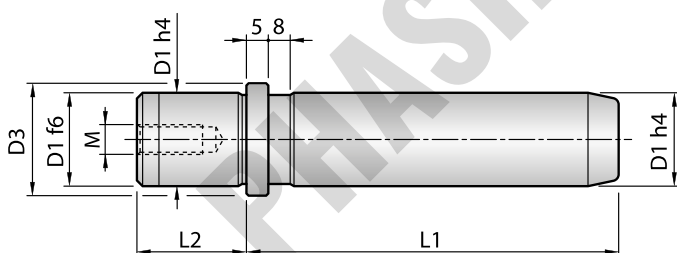
# CEBT

## DEMOUNTABLE GUIDE PILLAR

FÜHRUNGSSÄULE MIT BUND | COLONNA ESTRAIBILE



Material: 1.7131 Hardness: 61÷63 HRC Execution: fine ground	STOCK		HOW TO ORDER CEBT * D1 * L1 (CEBT63130)
---	-------	---	--




D1	D3	R	M	L2	L1														
					130	140	150	160	170	180	200	220	240	260	280	300	320	360	400
63	77	43,5	M12	49	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

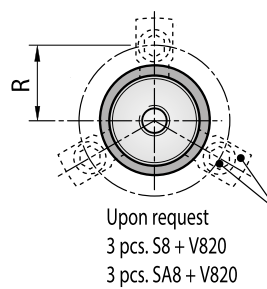
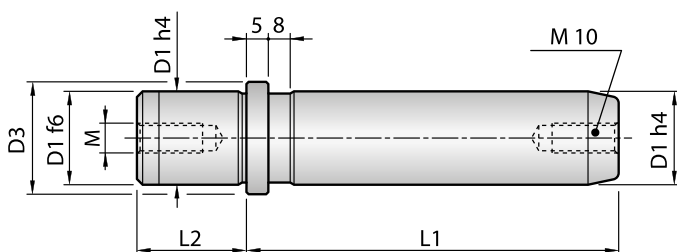
# CEBTIN

## DEMOUNTABLE GUIDE PILLAR

FÜHRUNGSSÄULE MIT BUND | COLONNA ESTRAIBILE



Material: Steel Hardness: 60 ÷ 63 HRC (induction) Execution: fine ground	STOCK		HOW TO ORDER CEBTIN * D1 * L1 (CEBTIN63130)
--	-------	---	--



D1	D3	R	M	L2	L1														
					130	140	150	160	170	180	200	220	240	260	280	300	320	360	400
63	77	43,5	M12	49	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•



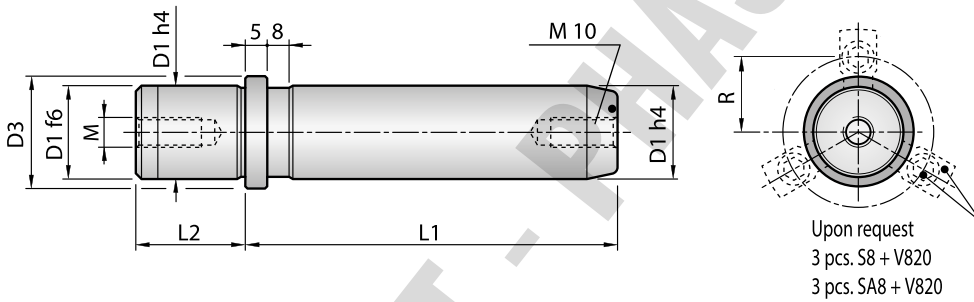
# CEW

## DEMOUNTABLE GUIDE PILLAR

FÜHRUNGSSÄULE MIT BUND | COLONNA ESTRAIBILE



Material: 1.7131 Hardness: 61÷63 HRC Execution: fine ground	STOCK	HOW TO ORDER CEW * D1 * L1 (CEW80180)
---	-------	--



D1	D3	R	M	L2	L1									
					180	200	220	240	260	280	300	320	360	400
80	93	51,5	M12	59	•	•	•	•	•	•	•	•	•	•

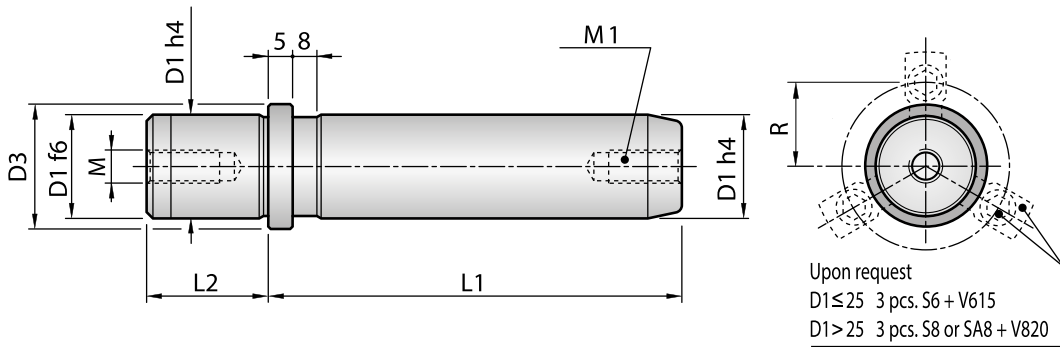
# CEIN

## DEMOUNTABLE GUIDE PILLAR

FÜHRUNGSSÄULE MIT BUND | COLONNA ESTRAIBILE



Material: steel Hardness: 60 ÷ 63 HRC (induction) Execution: fine ground	STOCK		HOW TO ORDER CEIN * D1 * L1 (CEIN18100)
--	-------	---	--



D1	D3	R	M	M1	L2	L1																						
						100	110	120	130	140	150	160	170	180	200	220	240	260	280	300	320	360	400					
18 - 19	25	16,5	M8	M10	20	•	•	•	•	•	•	•																
24 - 25	32	20			25	•	•	•	•	•	•	•	•	•	•	•	•											
30 - 32	40	25			30	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•								
40 - 42	50	30	M12	M8	35	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
50 - 52	62	36			45		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
63	73	41,5		M10	49				•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
80	93	51,5			59										•	•	•	•	•	•	•	•	•	•	•	•	•	

# B4

## PILOT BUSH

FÜHRUNGSBUCHSE | BUSSOLA LISCIA

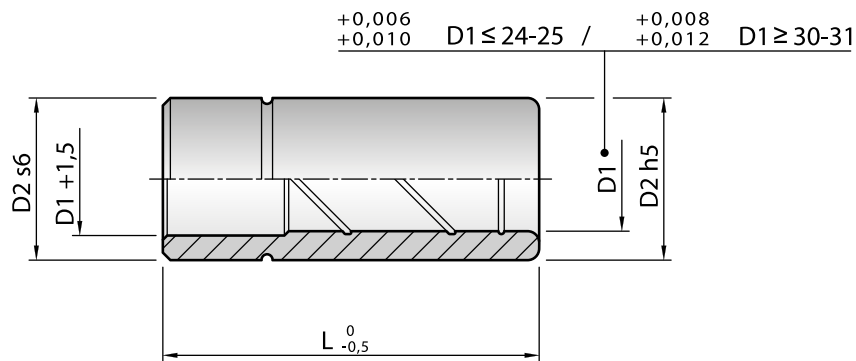


Material: 1.7131  
 Hardness: 61÷63 HRC  
 Execution: inner diameter honed; outer diameter fine ground

STOCK



HOW TO ORDER  
**B4 \* D1 \* L (B41535)**




D1	D2	L							
		35	45	50	55	60	70	80	100
15 - 16	26	•		•					
17 - 18	28		•		•				
19 - 20	30		•			•			
24 - 25	36			•			•		
30 - 31	45				•			•	
40 - 41	55					•			•
50 - 51	70					•			•
63	85								•

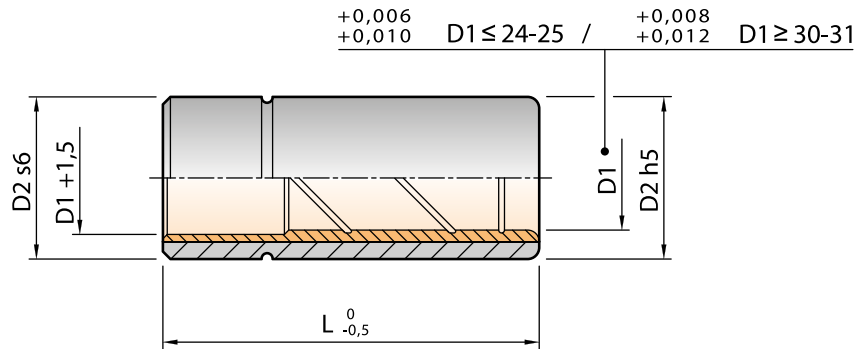
# B4B

## STEEL/BRONZE PILOT BUSH

FÜHRUNGSBUCHSE MIT BRONZEEINSATZ | BUSSOLA LISCIA ACCIAIO/BRONZO



<b>Material:</b> 1.7131 - Bronze <b>Hardness:</b> 52÷54 HRC <b>Execution:</b> inner diameter bronze insert, honed; D3 fine ground	STOCK	 <b>HOW TO ORDER</b> <b>B4B * D1 * L (B4B1535)</b>
---	-------	--



D1	D2	L							
		35	45	50	55	60	70	80	100
15 - 16	26	•		•					
17 - 18	28		•		•				
19 - 20	30		•			•			
24 - 25	36			•			•		
30 - 31	45				•			•	
40 - 41	55					•			•
50 - 51	70					•			•
63	85								•

# B5 C

## FLANGED CONICAL GUIDE BUSH

KONISCHE FÜHRUNGSBUCHSE | BUSSOLA A COLLARE CON FORI DI FISSAGGIO - CONICA

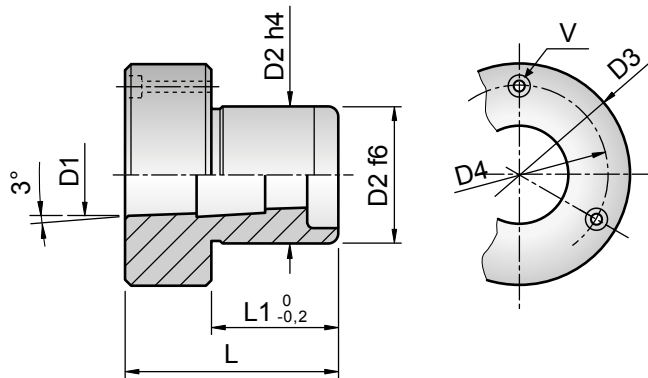


Material: 1.7131  
 Hardness: 61÷63 HRC  
 Execution: conical diameter and D2 fine ground

STOCK



HOW TO ORDER  
**B5 \* D1 \* C (B524C)**



D1	D2	D3	D4	V	L1	L				
						63	72	80	99	100
24 - 25	40	63	50	M5	43	•				
30 - 31	48	72	58		47		•			
40 - 41	58	83	70	M6	52			•		
50 - 51	70	103	86	M8	58					•
63	85	120	100		57				•	

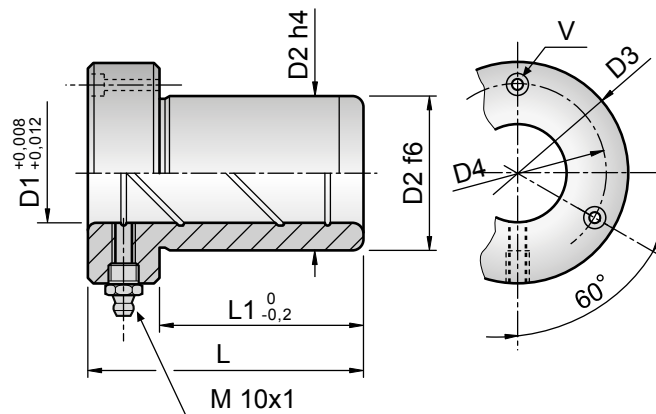
# B5

## FLANGED GUIDE BUSH

FÜHRUNGSBUCHSE MIT FLANSCH | BUSSOLA A COLLARE CON FORI DI FISSAGGIO



<b>Material:</b> 1.7131 <b>Hardness:</b> 61÷63 HRC <b>Execution:</b> inner diameter honed; D2 fine ground	STOCK		<b>HOW TO ORDER</b> <b>B5 * D1 (B524)</b>
---	-------	--	--



D1	D2	D3	D4	V	L1	L				
						63	72	80	99	100
24 - 25	40	63	50	M5	43	•				
30 - 31	48	72	58		47		•			
40 - 41	58	83	70	M6	52			•		
50 - 51	70	103	86	M8	58					•
63	85	120	100		57				•	

# B5B

## STEEL/BRONZE FLANGED GUIDE BUSH

FÜHRUNGSBUCHSE MIT FLANSCH MIT BRONZEEINSATZ | BUSSOLA A COLLARE CON FORI DI FISSAGGIO ACCIAIO/BRONZO

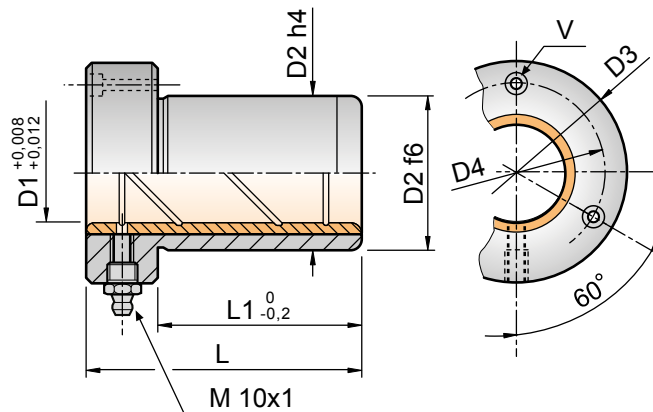


Material: 1.7131 - Bronze  
 Hardness: 52÷54 HRC  
 Execution: inner diameter bronze insert, honed; D2 fine ground

STOCK



HOW TO ORDER  
**B5B \* D1 (B5B24)**



D1	D2	D3	D4	V	L1	L				
						63	72	80	99	100
24 - 25	40	63	50	M5	43	•				
30 - 31	48	72	58		47		•			
40 - 41	58	83	70	M6	52			•		
50 - 51	70	103	86	M8	58					•
63	85	120	100		57				•	

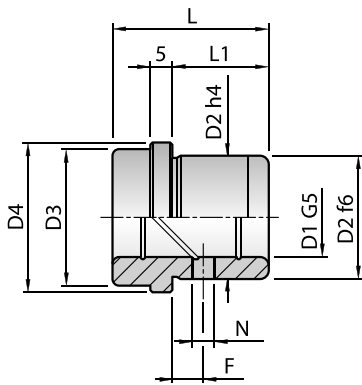
**BE**

**DEMOUNTABLE GUIDE BUSH**

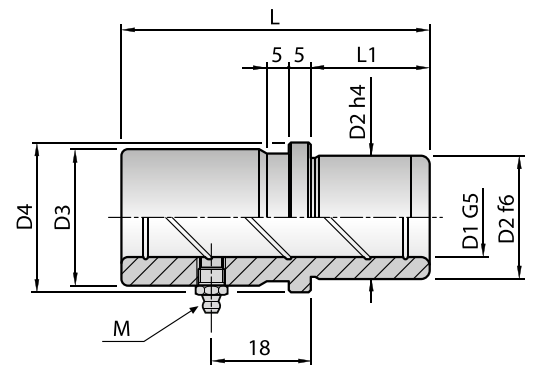
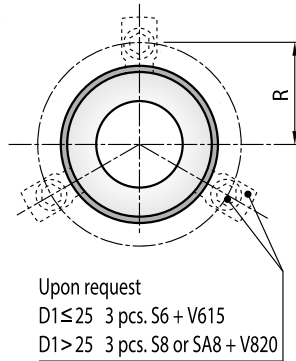
FÜHRUNGSBUCHSE MIT BUND | BUSSOLA ESTRAIBILE



Material: 1.7131 Hardness: 61÷63 HRC Execution: inner diameter honed; D2 fine ground	STOCK	 HOW TO ORDER <b>BE * D1 * TYPE (BE18C)</b>
--	-------	---



**TYPE C - XM**



**TYPE M - XL - L**

D1	D2	D3	D4	R	M	N	F	L	L1	TYPE		
18 - 19	28	29	34	21	---	5	8	31	18	C		
		31			---	---		50	37	XM		
					M6X1	---	---	70	18	M		
						---	---	---	---	27	XL	
24 - 25	38	39	44	26	---	5	9	36	23	C		
		41			---	---		12	55	42	XM	
					M10X1	---	---	---	---	23	M	
						---	---	---	---	80	32	XL
30 - 32	45	48	53	31,5	---	5	11	43	30	C		
		50			---	---		16	60	47	XM	
					M10X1	---	---	---	---	26	M	
						---	---	---	---	90	37	XL
40 - 42	54	58	63	36,5	---	8	11	51	38	C		
		60			---	---		19	67	54	XM	
					M10X1	---	---	---	---	30	M	
						---	---	---	---	100	47	XL
50 - 52	65	74	79	44,5	---	8	14	61	48	C		
		76			---	---		19	75	62	XM	
					M10X1	---	---	---	---	35	M	
						---	---	---	---	110	57	XL
63	81	87	92	51	---	8	19	74	61	C		
		89			---	---		---	---	90	77	XM
					M10X1	---	---	---	---	---	48	M
						---	---	---	---	130	67	XL
										48	L	

# BEB

## STEEL/BRONZE DEMOUNTABLE GUIDE BUSH

FÜHRUNGSBUCHSE MIT BUND MIT BRONZEEINSATZ | BUSSOLA ESTRAIBILE ACCIAIO/BRONZO



Material: 1.7131 - Bronze

Hardness: 52÷54 HRC

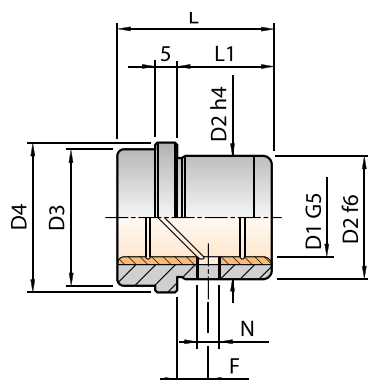
Execution: inner diameter bronze insert, honed; D3 fine ground

STOCK

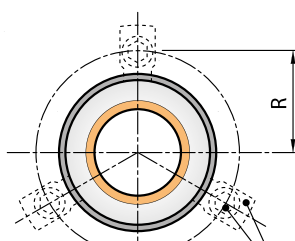


HOW TO ORDER

BEB \* D1 \* TYPE (BEB18C)



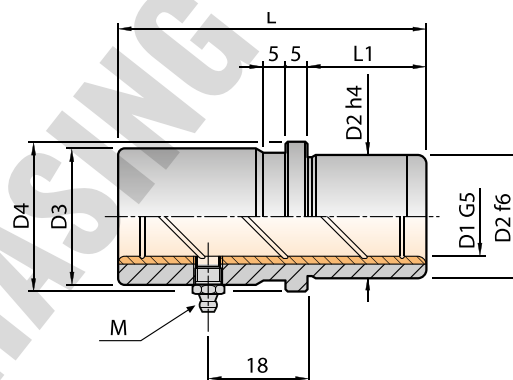
TYPE C - XM



Upon request

D1 ≤ 25 3 pcs. S6 + V615

D1 > 25 3 pcs. S8 or SA8 + V820



TYPE M - XL - L

D1	D2	D3	D4	R	M	N	F	L	L1	TYPE
18 - 19	28	29	34	21	---	5	8	31	18	C
		31			M6X1	---	---	50	37	XM
								70	27	XL
24 - 25	38	39	44	26	---	5	12	36	23	C
		41			M10X1	---	---	55	42	XM
								80	32	XL
									23	L
30 - 32	45	48	53	31,5	---	5	16	43	30	C
		50			M10X1	---	---	60	47	XM
									26	M
								90	37	XL
40 - 42	54	58	63	36,5	---	8	19	51	38	C
		60			M10X1	---	---	67	54	XM
									30	M
								100	47	XL
									30	L
50 - 52	65	74	79	44,5	---	8	19	61	48	C
		76			M10X1	---	---	75	62	XM
									35	M
								110	57	XL
63	81	87	92	51	---	8	19	74	61	C
		89			M10X1	---	---	90	77	XM
									48	M
								130	67	XL
									48	L
80	100	106	111	60,5	---	8	19	91	78	C
		108			M10X1	---	---	100	48	M
								150	77	XL
								48	L	

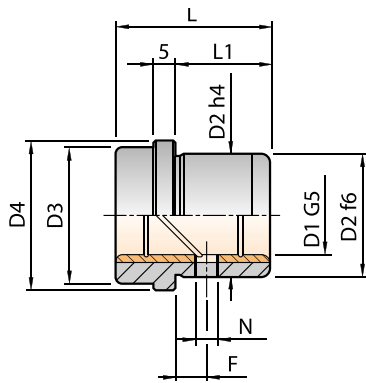
# BEP

## BRONZE PLATED DEMOUNTABLE BUSH

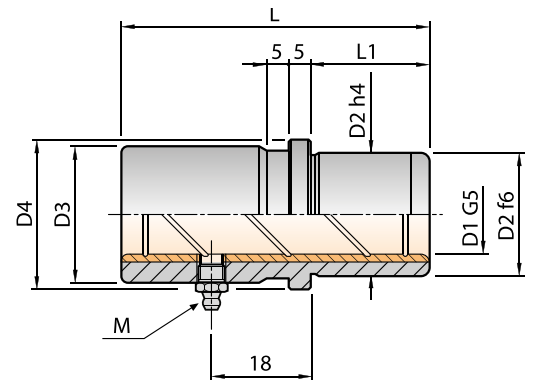
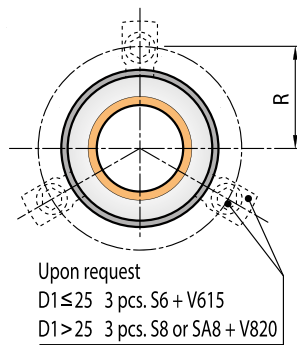
FÜHRUNGSBUCHSE MIT BUND BRONZEPLATTIERT | BUSSOLA ESTRAIBILE RIVESTIMENTO BRONZO



<b>Material:</b> C45 - Bronze <b>Hardness:</b> D2 54÷58 HRC (induction) <b>Execution:</b> inner diameter bronze plated, honed; D2 fine ground	STOCK	<b>HOW TO ORDER</b> <b>BEP * D1 * TYPE (BEP18C)</b>
---	-------	--



TYPE C - XM



TYPE M - XL - L

D1	D2	D3	D4	R	M	N	F	L	L1	TYPE
18 - 19	28	29	34	21	---	5	8	31	18	C
		31			---	---	50	37	XM	
			31		M6X1	---	---	70	18	M
		---			---	---	---	---	---	---
24 - 25	38	39	44	26	---	5	12	36	23	C
		41			---	---	55	42	XM	
			41		M10X1	---	---	80	23	M
		---			---	---	---	---	---	---
30 - 32	45	48	53	31,5	---	5	16	43	30	C
		50			---	---	60	47	XM	
			50		M10X1	---	---	90	26	M
		---			---	---	---	---	---	---
40 - 42	54	58	63	36,5	---	8	19	51	38	C
		60			---	---	67	54	XM	
			60		M10X1	---	---	100	30	M
		---			---	---	---	---	---	---
50 - 52	65	74	79	44,5	---	8	19	61	48	C
		76			---	---	75	62	XM	
			76		M10X1	---	---	110	35	M
		---			---	---	---	---	---	---
63	81	87	92	51	---	8	19	74	61	C
		89			---	---	90	77	XM	
			89		M10X1	---	---	130	48	M
		---			---	---	---	---	---	---
80	100	106	111	60,5	---	8	19	91	78	C
		108			---	---	100	48	M	
			108		M10X1	---	---	150	77	XL
		---			---	---	---	---	---	---

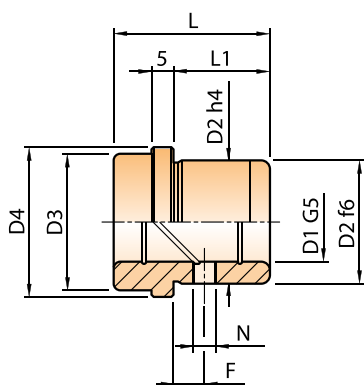
# BBE

## BRONZE DEMOUNTABLE GUIDE BUSH

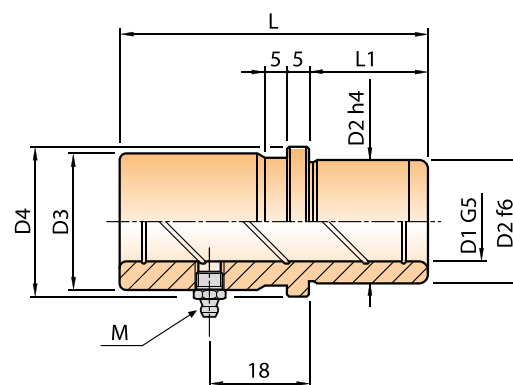
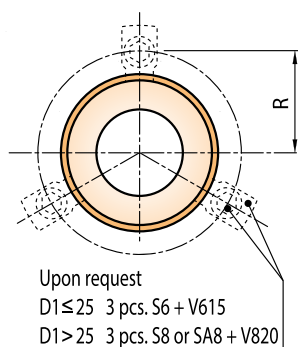
FÜHRUNGSBUCHSE MIT BUND VOLLBRONZE | BUSSOLA ESTRAIBILE BRONZO INTEGRALE



Material: bronze Hardness: - Execution: inner diameter honed; D2 fine ground	STOCK		HOW TO ORDER BBE * D1 * TYPE (BBE18C)
--	-------	--	--



TYPE C - XM



TYPE M - XL - L

D1	D2	D3	D4	R	M	N	F	L	L1	TYPE	
18 - 19	28	29	34	21	---	5	8	31	18	C	
		31			M6X1	---	---	50	37	XM	
		31	---		---	---	---	---	70	18	M
24 - 25	38	39	44	26	---	5	12	36	23	C	
		41			M10X1	---	---	55	42	XM	
		41	---		---	---	---	---	80	23	M
		41	---		---	---	---	---	80	32	XL
30 - 32	45	48	53	31,5	---	5	16	43	30	C	
		50			M10X1	---	---	60	47	XM	
		50	---		---	---	---	---	90	26	M
		50	---		---	---	---	---	90	37	XL
40 - 42	54	58	63	36,5	---	8	19	51	26	L	
		60			M10X1	---	---	67	37	XL	
		60	---		---	---	---	---	100	30	M
		60	---		---	---	---	---	100	47	XL
50 - 52	65	74	79	44,5	---	8	19	61	30	L	
		76			M10X1	---	---	75	48	C	
		76	---		---	---	---	---	110	62	XM
		76	---		---	---	---	---	110	35	M
63	81	87	92	51	---	8	19	74	57	XL	
		89			M10X1	---	---	90	35	L	
		89	---		---	---	---	---	130	61	C
		89	---		---	---	---	---	130	77	XM
80	100	106	111	60,5	---	8	19	91	48	M	
		108			M10X1	---	---	100	78	C	
		108	---		---	---	---	---	150	48	L
								150	77	XL	
									48	L	

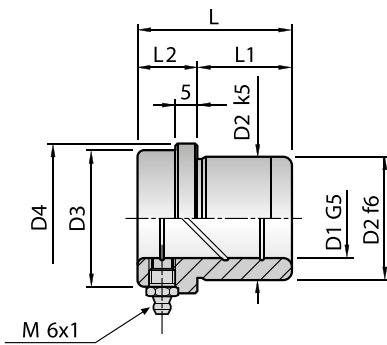
# BESS

## DEMOUNTABLE GUIDE BUSH

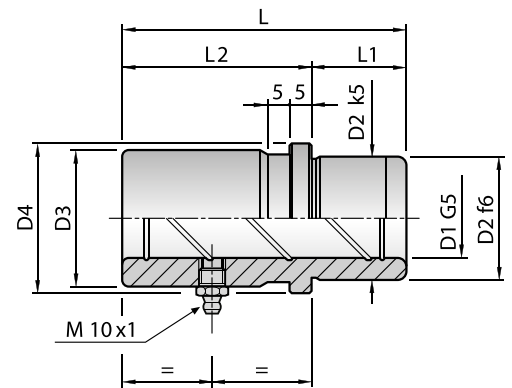
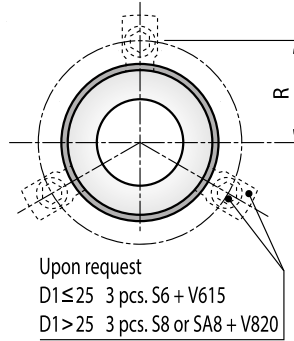
FÜHRUNGSBUCHSE MIT BUND | BUSSOLA ESTRAIBILE



<b>Material:</b> 1.7131 <b>Hardness:</b> 61÷63 HRC <b>Execution:</b> inner diameter honed; D2 fine ground	STOCK	 <b>HOW TO ORDER</b> <b>BESS * D1 * TYPE (BESS25C)</b>
---	-------	--



**TYPE C**



**TYPE L**

D1	D2	D3	D4	R	L	L1	L2	TYPE
25	40	37	45	25,5	40	25	15	C
		42			70		45	L
30	45	47	55	32,5	50	30	20	C
		52			80		50	L
40	55	57	65	37,5	55	35	20	C
		62			90		55	L
50	70	72	79	44,5	65	45	20	C
		77			100		55	L
63	81	84	92	51	68	48	20	C
		90			110		62	L

# BEBSS

## STEEL/BRONZE DEMOUNTABLE GUIDE BUSH

FÜHRUNGSBUCHSE MIT BUND MIT BRONZEEINSATZ | BUSSOLA ESTRAIBILE ACCIAIO/BRONZO



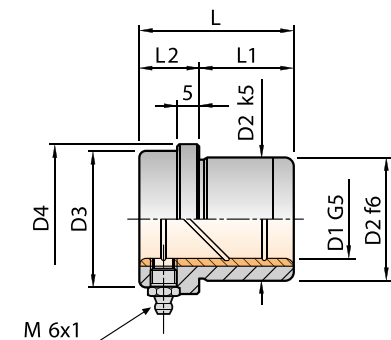
**Material:** 1.7131 - Bronze  
**Hardness:** 52÷54 HRC  
**Execution:** inner diameter bronze insert, honed; D2 fine ground

STOCK

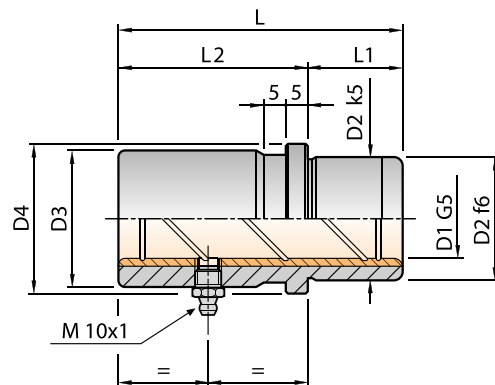
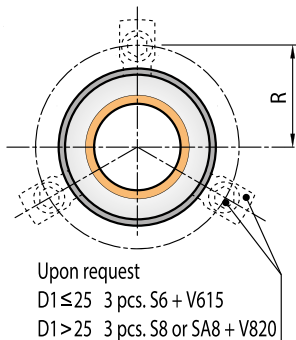


HOW TO ORDER

**BEBSS \* D1 \* TYPE (BEBSS25C)**



**TYPE C**



**TYPE L**

D1	D2	D3	D4	R	L	L1	L2	TYPE
25	40	37	45	25,5	40	25	15	C
		42			70		45	L
30	45	47	55	32,5	50	30	20	C
		52			80		50	L
40	55	57	65	37,5	55	35	20	C
		62			90		55	L
50	70	72	79	44,5	65	45	20	C
		77			100		55	L
63	81	84	92	51	68	48	20	C
		90			110		62	L

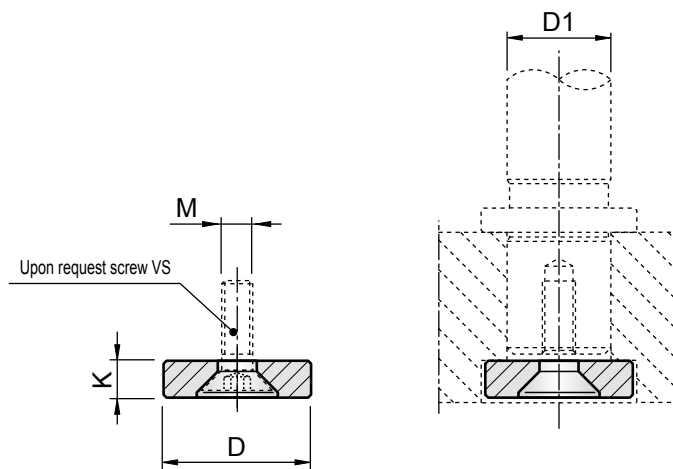
# RTE

## WASHER FOR PILLAR CE

HALTESCHEIBE FÜR CE SÄULE | RONDELLA PER COLONNA CE



Material: 1.1730 Hardness: - Execution: -	STOCK		HOW TO ORDER RTE * D (RTE25)
---	-------	---	---------------------------------




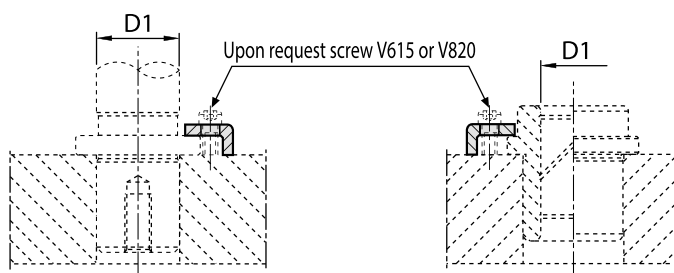
D	D1	K	M
25	18 - 19	6	M8
32	24 - 25	7	M10
40	30 - 32		
50	40 - 42	9	M12
62	50 - 52		
73	63		
93	80	12	

# S-ITALIA

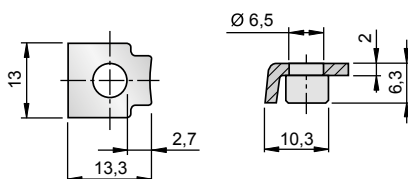
## RETAINING CLAMPS

HALTESTÜCKE | STAFFETTE DI RITEGNO

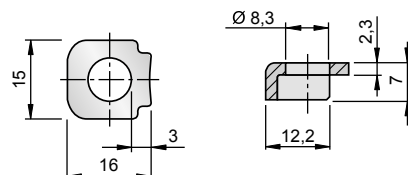
Material: steel Hardness: - Execution: -	STOCK		HOW TO ORDER CODE (S6)
--	-------	---	---------------------------



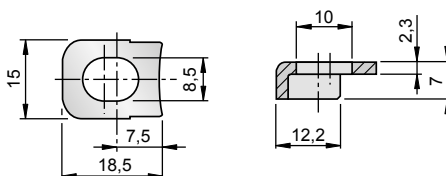
**S6**



**S8**



**SA8**



CODE	D1	QUANTITY
S6	18 - 19	3
	24 - 25	
	30 - 32	
S8 - SA8	40 - 42	
	50 - 52	
	63	
	80	

# V

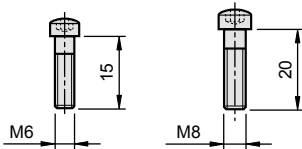
## SCREWS FOR CLAMPS

SCHRAUBE | VITI PER STAFFETTE

ISO 7380



STOCK	3D-CAD 		HOW TO ORDER CODE (V615)
-------	------------	--	-----------------------------



CODE	M
V615	M6x15
V820	M8x20

# VS

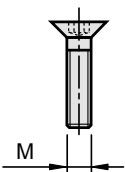
## SCREWS FOR WASHERS

SCHRAUBE FÜR HALTESCHEIBE | VITI PER RONDELLE

DIN 7991 / ISO 10642



STOCK	3D-CAD 		HOW TO ORDER CODE (VS820)
-------	------------	--	------------------------------



CODE	M
VS820	M8x20
VS1020	M10x20
VS1230	M12x30

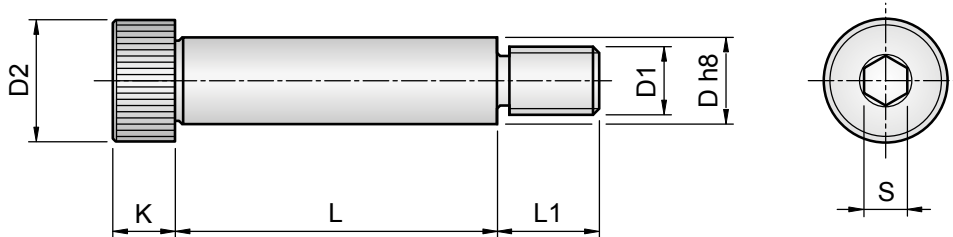
# VCOL

## SHOULDER SCREW

SCHULTERSCHRAUBE | VITE A COLLETTA



Material: steel 12.9 Hardness: 38 ÷ 44 HRC Execution: fine ground	STOCK		HOW TO ORDER <b>VCOL * D * L (VCOL610)</b>
---	-------	---	---

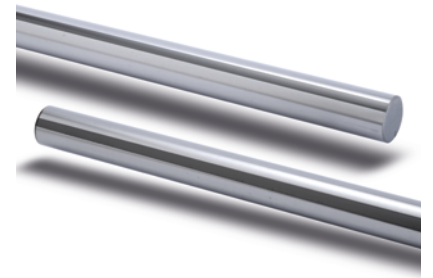


D	D1	D2	K	L1	S	L															
						10	12	16	20	25	30	35	40	45	50	55	60	65	70	80	90
6	M5X0,8	10	4,5	9,5	3	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
8	M6X1	13	5,5	11	4	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
10	M8X1,25	16	7	13	5			•	•	•	•	•	•	•	•	•	•	•	•	•	•
12	M10X1,5	18	9	16	6			•	•	•	•	•	•	•	•	•	•	•	•	•	•
16	M12X1,75	24	11	18	8					•	•	•	•	•	•	•	•	•	•	•	•
20	M16X2	30	14	22	10							•	•	•	•	•	•	•	•	•	•
24	M20X2,5	36	16	27	12									•	•	•	•	•	•	•	•

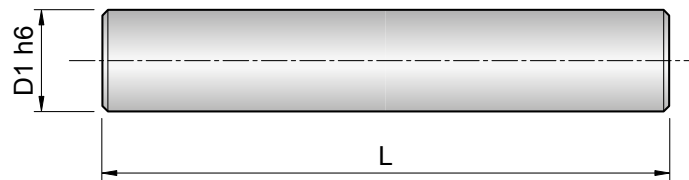
# BARRAT

## INDUCTION HARDENED GROUND SHAFT

INDUKTIONSGEHÄRTETE WELLE | BARRA RETTIFICATA E TEMPRATA INDUZIONE



Material: 1.1213 Hardness: 60÷64 HRC Execution: fine ground	STOCK	 HOW TO ORDER <b>BARRAT * D1 * L (BARRAT61000)</b>
---	-------	--



D1	L
6	1000
8	
10	
12	
14	
16	
18	
20	
25	
30	
32	
40	
50	
60	



# MOULD COMPONENTS

# C03M - C03MD - C03MLD

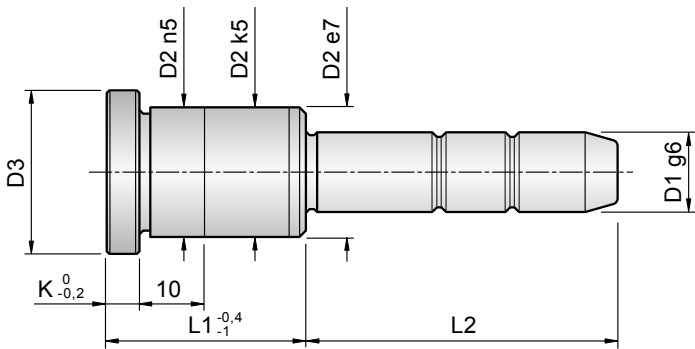
## GUIDE PILLAR WITHOUT CENTRING COLLAR

FÜHRUNGSSÄULE OHNE ZENTRIERANSATZ | COLONNA GUIDA A DUE DIAMETRI



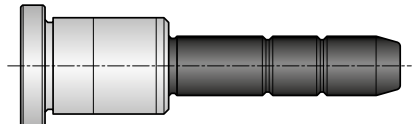
Material: 1.7131 Hardness: 61 ÷ 63 HRC Execution: fine ground	STOCK	3D-CAD 	HOW TO ORDER C03M * D1 * L1 * L2 (C03M141735)
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### C03M



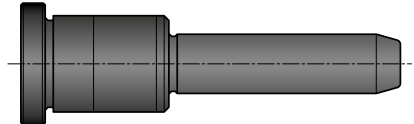
### C03MD

Option with **DLC** on sliding  
Upon request (8 working days)



### C03MLD

Option with **DLC** integral - no grooves on sliding  
Upon request (18 working days)



D1	D2	D3	K	L1	L2																	
					25	35	55	75	95	115	135	155	175	195	205	215	235	245	255	275		
14 - 15	20	25	6	17		•	•	•	•													
				22		•	•	•	•	•												
				27	•	•	•	•	•	•	•	•										
				36		•	•	•	•	•	•	•										
				46		•	•	•	•	•	•	•										
				56		•	•	•	•	•	•	•										
				66			•	•	•	•	•	•										
				76			•	•	•	•	•	•										
				86			•	•	•	•	•	•										
				96			•	•	•	•	•	•										
18 - 20	26	31	6	17		•	•	•	•													
				22		•	•	•	•	•												
				27		•	•	•	•	•	•	•	•									
				36		•	•	•	•	•	•	•	•									
				46		•	•	•	•	•	•	•	•									
				56		•	•	•	•	•	•	•	•									
				66		•	•	•	•	•	•	•	•									
				76			•	•	•	•	•	•	•									
				86			•	•	•	•	•	•	•									
				96			•	•	•	•	•	•	•									
106			•	•	•	•	•	•	•													
116			•	•	•	•	•	•	•													
22 - 24	30	35	6	22		•	•	•	•	•												
				27		•	•	•	•	•	•	•										
				36		•	•	•	•	•	•	•	•									
				46		•	•	•	•	•	•	•	•									

D1	D2	D3	K	L1	L2																
					25	35	55	75	95	115	135	155	175	195	205	215	235	245	255	275	
22 - 24	30	35	6	56		•	•	•	•	•		•		•							
				66			•	•	•	•		•		•							
				76			•	•	•	•	•	•		•							
				86			•	•	•	•	•	•	•		•						
				96			•	•	•	•	•	•	•		•						
				106					•	•	•	•	•								
				116					•	•	•	•	•		•						
				136							•	•	•		•						
				156								•	•		•						
30 - 32	42	47	6	27			•	•	•	•		•		•				•			
				36			•	•	•	•		•		•					•		
				46			•	•	•	•		•		•						•	
				56			•	•	•	•		•		•						•	
				66			•	•	•	•		•		•						•	
				76			•	•	•	•		•		•						•	
				86			•	•	•	•		•		•						•	
				96					•	•	•	•		•						•	
				106					•	•	•	•		•						•	
				116					•	•	•	•		•						•	
40 - 42	54	59	10	36				•	•	•		•									
				46				•	•	•		•									
				56				•	•	•		•									
				66				•	•	•		•									
				76				•	•	•		•									
				86				•	•	•		•									
				96				•	•	•		•				•					
				106				•	•	•		•				•					
				116				•	•	•		•				•				•	
				136						•	•	•		•		•					
50 - 52	66	71	10	156					•	•		•		•							
				176					•	•		•		•		•					
				196					•	•		•		•		•					
				216					•	•		•		•		•					
				236										•		•					
				246												•				•	
				256												•				•	
				56							•	•		•							
				66							•	•		•							
				76						•	•	•	•	•		•					
86						•	•	•	•	•		•									
96							•	•	•	•	•	•		•							
116								•	•	•	•	•		•							
136								•	•	•	•	•		•							
156									•	•	•	•		•							
176										•	•	•		•			•				
196										•	•	•		•			•				
216										•	•	•		•			•				
236											•	•		•			•				
246												•		•			•				
256													•	•			•				

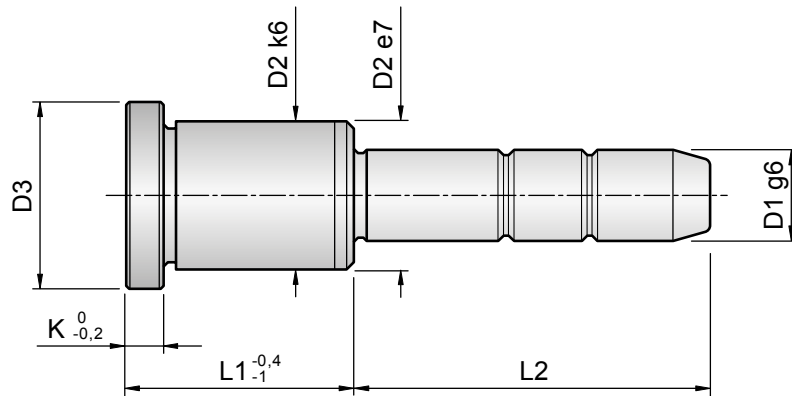
# C03H

## GUIDE PILLAR WITHOUT CENTRING COLLAR

FÜHRUNGSSÄULE OHNE ZENTRIERANSATZ | COLONNA GUIDA A DUE DIAMETRI



Material: 1.7131 Hardness: 61 ÷ 63 HRC Execution: fine ground	STOCK	3D-CAD 	HOW TO ORDER C03H * D1 * L1 * L2 (C03H6096115)
---	-------	------------	---



D1	D2	D3	K	L1	L2								
					115	135	155	175	195	235	275	315	
60	80	86	20	96	•		•		•				
				116		•	•		•				
				136		•	•		•				
				156			•		•	•			
				196				•		•	•		
				246							•	•	•

# COOM - COOMD - COOMLD

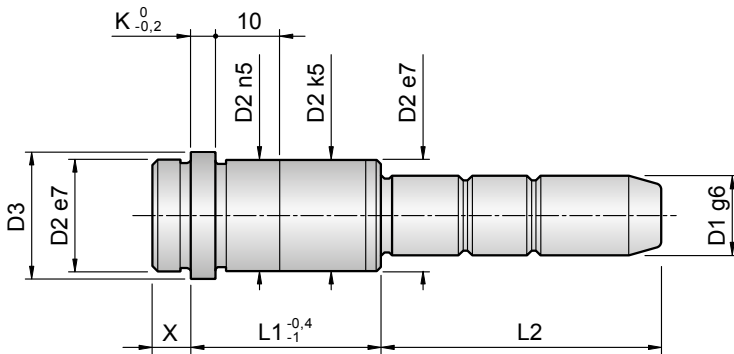
## GUIDE PILLAR WITH CENTRING COLLAR

FÜHRUNGSSÄULE MIT ZENTRIERANSATZ | COLONNA GUIDA SPALLATA



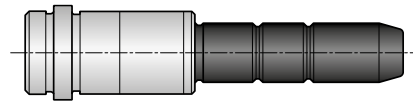
Material: 1.7131 Hardness: 61÷63 HRC Execution: fine ground	STOCK	3D-CAD 	HOW TO ORDER C00M * D1 * L1 * L2 (C00M141735)
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### COOM



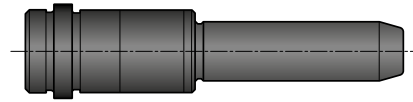
### COOMD

Option with **DLC** on sliding  
Upon request (8 working days)



### COOMLD

Option with **DLC** integral - no grooves on sliding  
Upon request (18 working days)



D1	D2	D3	K	X	L1	L2																	
						25	35	55	75	95	115	135	155	195	205	215	235	245	255	275	295		
14 - 15	20	25	6	9	17																		
					22	•	•	•	•	•	•	•	•										
					27	•	•	•	•	•	•	•	•	•									
					36	•	•	•	•	•	•	•	•	•	•								
					46	•	•	•	•	•	•	•	•	•	•								
					56		•	•	•	•	•	•	•	•	•								
					66		•	•	•	•	•	•	•	•	•								
					76			•	•	•	•	•	•	•	•								
					86			•	•	•	•	•	•	•	•								
18 - 20	26	31	6	9	96			•	•	•													
					17		•	•	•	•	•	•											
					22		•	•	•	•	•	•	•										
					27		•	•	•	•	•	•	•	•	•				•				
					36		•	•	•	•	•	•	•	•	•	•			•				
					46		•	•	•	•	•	•	•	•	•	•	•		•				
					56		•	•	•	•	•	•	•	•	•	•	•						
					66		•	•	•	•	•	•	•	•	•	•	•						
					76		•	•	•	•	•	•	•	•	•	•	•						
					86			•	•	•	•	•	•	•	•	•	•						
96			•	•	•	•	•	•	•	•	•	•											
106			•	•	•	•	•	•	•	•	•	•											
116			•	•	•	•	•	•	•	•	•	•											

to be continued.....

# COOM - COOMD - COOMLD

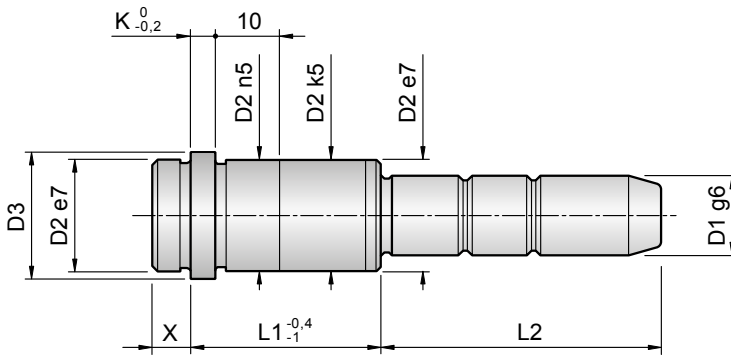
## GUIDE PILLAR WITH CENTRING COLLAR

FÜHRUNGSSÄULE MIT ZENTRIERANSATZ | COLONNA GUIDA SPALLATA



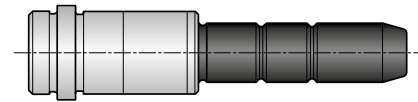
Material: 1.7131 Hardness: 61÷63 HRC Execution: fine ground	STOCK	3D-CAD 	HOW TO ORDER C00M * D1 * L1 * L2 (C00M141735) 
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### COOM



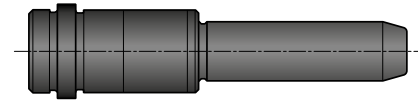
### COOMD

Option with **DLC** on sliding  
Upon request (8 working days)



### COOMLD

Option with **DLC** integral - no grooves on sliding  
Upon request (18 working days)



.....continue

D1	D2	D3	K	X	L1	L2																			
						25	35	55	75	95	115	135	155	195	205	215	235	245	255	275	295				
18 - 20	26	31	6	9	126				•	•	•														
					136				•	•	•														
22 - 24	30	35	6	9	22		•	•	•	•	•	•													
					27		•	•	•	•	•			•	•					•				•	
					36		•	•	•	•	•				•	•					•				•
					46		•	•	•	•	•				•	•					•				•
					56		•	•	•	•	•				•	•					•				
					66		•	•	•	•	•					•	•				•				
					76			•	•	•	•				•	•									
					86			•	•	•	•				•	•					•				•
					96			•	•	•	•				•	•					•				•
					106				•	•	•	•			•	•									
30 - 32	42	47	6	9	116			•	•	•	•							•							
					126				•	•	•														
					136				•	•	•														
					156					•	•														
					27				•	•	•	•				•	•					•			•
					36				•	•	•	•				•	•					•			•
					46				•	•	•	•				•	•					•			•
					56				•	•	•	•				•	•					•			•
					66				•	•	•	•				•	•					•			•
					76				•	•	•	•				•	•					•			•
86				•	•	•	•				•	•					•			•					
96				•	•	•	•				•	•					•			•					

D1	D2	D3	K	X	L1	L2																			
						25	35	55	75	95	115	135	155	195	205	215	235	245	255	275	295				
30 - 32	42	47	6	9	106				•	•	•			•	•										
					116				•	•	•			•	•			•					•	•	
					126				•	•	•			•	•										
					136				•	•	•			•	•				•					•	
					156					•	•			•	•				•						
					176								•		•	•			•						
					196									•	•	•			•						
40 - 42	54	59	10	12	36				•	•	•			•											
					46				•	•	•			•											
					56				•	•	•			•	•				•						
					66				•	•	•			•	•										
					76				•	•	•			•	•										
					86				•	•	•			•	•										
					96				•	•	•			•	•				•					•	
					106				•	•	•			•	•									•	
					116				•	•	•			•	•				•					•	
					136					•	•			•	•				•					•	
					156					•	•			•	•				•						
					176								•		•	•			•					•	
					196									•	•	•			•					•	
					216											•			•						
236											•			•		•									
246														•		•									
256											•						•								
50 - 52	66	71	10	12	56				•	•	•			•											
					66					•	•														
					76					•	•			•	•										
					86						•			•											
					96						•	•		•	•										
					116							•		•	•										
					136							•		•	•										
					156										•	•									
					176										•	•			•						
					196										•	•			•						
216										•	•			•											
236										•	•			•				•							
256										•	•			•				•							

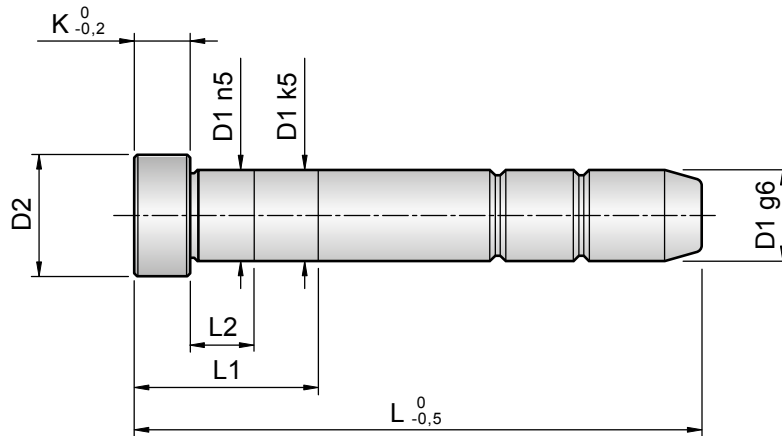
# C20M

## GUIDE PILLAR

FÜHRUNGSSÄULE | COLONNA GUIDA A UN DIAMETRO



Material: 1.7131 Hardness: 61÷63 HRC Execution: fine ground	STOCK	3D-CAD 		HOW TO ORDER C20M * D1 * L (C20M1460)
---	-------	------------	--	--



D1	D2	K	L1	L2	L																	
					60	80	100	120	140	160	180	200	220	250	280	320	360	400	450	500	550	
14	17	6	22	6	•	•	•	•														
			27	10					•	•	•											
15	18		22	6	•	•	•	•														
			27	10					•	•												
16	19		22	6		•	•	•														
			27	10					•	•	•											
18	21		22	6		•	•	•														
			27	10					•	•	•											
			36	10								•	•									
20	23		22	6		•	•	•														
			27	10					•	•	•											
			36	10								•	•	•								
22	25		27	10					•	•	•											
			36	10								•	•	•								
			46	10											•	•						
24	27		27	10			•	•	•	•	•											
		36	10								•	•	•									
		46	10											•	•							
30	35	36	10				•	•	•	•	•	•	•									
		46	10											•	•							
		56	10												•	•						
32	37	36	10				•	•	•	•	•	•	•									
		46	10											•	•							
		56	10												•	•						

D1	D2	K	L1	L2	L																	
					60	80	100	120	140	160	180	200	220	250	280	320	360	400	450	500	550	
40	45	10	46	15						•	•	•	•	•								
			56											•	•							
			66														•	•				
			76																		•	
42	47		46							•	•	•	•	•								
			56												•	•						
			66														•	•				
50	55		76																		•	
			56										•		•	•	•					
			66														•	•				
			76																•	•		
52	57		86																			•
			56											•		•	•	•				
			66														•	•				
			76																•	•		
60	68		86																			•
		66											•	•	•							
		76														•	•					
			86																•			

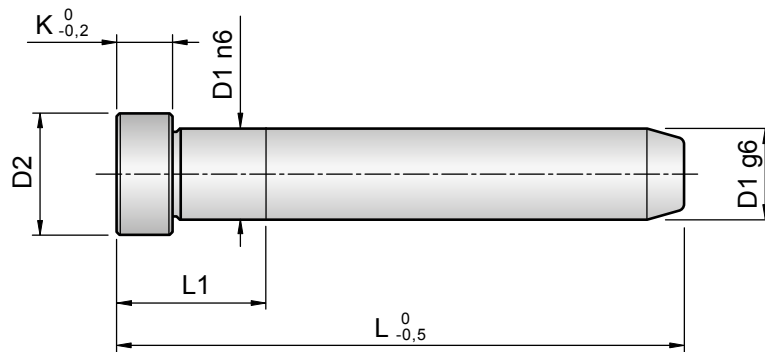
# C30M

## GUIDE PILLAR

FÜHRUNGSSÄULE | COLONNA GUIDA A UN DIAMETRO LISCIA



Material: 1.7131 Hardness: 61÷63 HRC Execution: fine ground	STOCK	3D-CAD 		HOW TO ORDER C30M * D1 * L (C30M1460)
---	-------	------------	--	--



D1	D2	K	L1	L																							
				50	60	70	80	90	100	110	120	140	160	180	200	220	240	250	260	280	300	320	360	400	440		
14	17	8	22		•	•	•	•	•	•	•	•	•	•	•	•	•										
16	19			•	•	•	•	•	•	•	•	•	•	•	•	•	•	•									
18	21			•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•								
20	23				•	•	•	•	•	•	•	•	•	•	•	•	•	•	•								
22	25	10	27				•	•	•	•	•	•	•	•	•	•	•			•	•	•	•				
24	27						•	•	•	•	•	•	•	•	•	•	•	•			•	•	•	•			
30	35		36					•	•	•	•	•	•	•	•	•	•	•			•	•	•	•	•	•	
32								•	•	•	•	•	•	•	•	•	•	•	•			•	•	•	•	•	
40													•	•	•	•	•	•	•			•	•	•	•	•	•
				45																	•		•	•	•	•	•

# C34M

## STRAIGHT GUIDE PILLAR

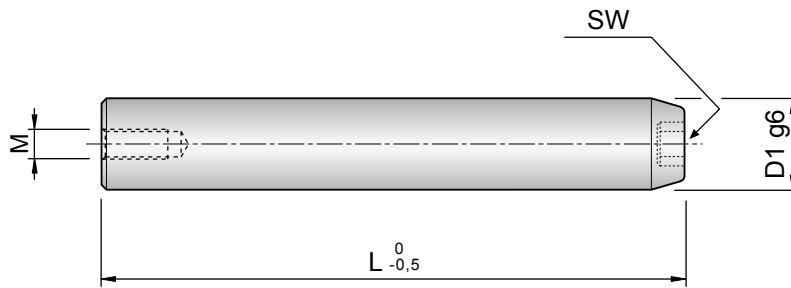
SCHRÄBOLZEN OHNE BUND | COLONNA LISCIA



Material: 1.7131  
Hardness: 61÷63 HRC  
Execution: fine ground



HOW TO ORDER  
C34M \* D1 \* L (C34M1040)



D1	M	SW	L															
			40	50	60	70	80	90	100	110	120	140	160	180	200	220	240	260
10	M6	4	◇	◇	◇	◇	◇	◇	◇		◇							
12		5		◇	◇	◇	◇	◇	◇		◇	◇	◇					
14			◇	◇	◇	◇	◇	◇	◇	◇		◇	◇					
16	M8	6			◇		◇	◇	◇		◇	◇	◇	◇	◇			
18				◇		◇	◇	◇		◇	◇	◇	◇	◇	◇	◇		
20	M10	8			◇	◇	◇	◇		◇	◇	◇	◇	◇	◇	◇		
22				◇		◇	◇	◇		◇	◇	◇	◇	◇	◇	◇	◇	
24				◇		◇	◇	◇		◇	◇	◇	◇	◇	◇	◇	◇	◇
30	M16							◇		◇	◇		◇		◇	◇	◇	

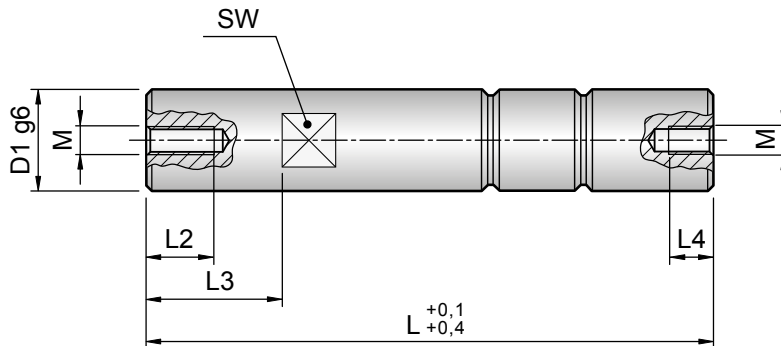
# C50MH

## EJECTOR RODS

AUSWERFERBOLZE | DISTANZIALE FILETTATO



Material: 1.7131 Hardness: 61÷63 HRC Execution: fine ground	STOCK	3D-CAD 		HOW TO ORDER C50MH * D1 * L (C50MH1460)
---	-------	------------	--	--



D1	L2	L3	L4	M	SW	L																	
						60	70	80	100	120	140	160	180	200	220	240	260	300	340	380			
14	25	14	17	M8	12	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•			
18	30	16	20	M10	14		•	•	•	•	•	•	•	•	•	•				•			
20		18		M12	17			•		•	•	•	•	•	•	•	•				•		
24	35	22	25	M16	19		•	•	•	•	•	•	•	•	•	•	•					•	
30	45	28	30		24				•	•	•	•	•	•	•	•	•			•	•	•	
40	55	36	35	M20	36								•	•	•	•	•	•	•	•	•	•	•

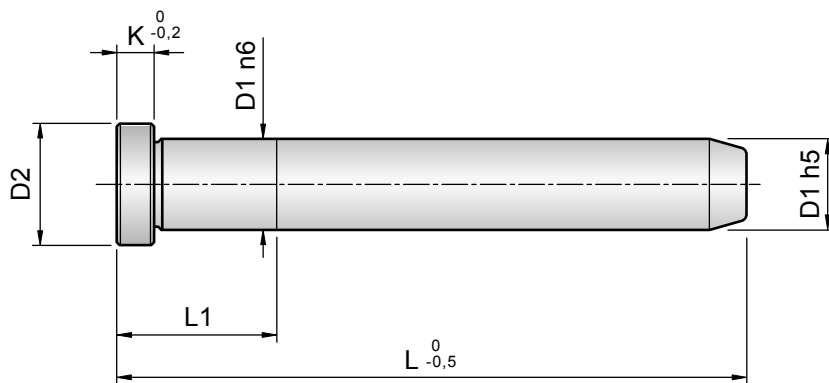
# C012

## GUIDE PILLAR

FÜHRUNGSBOLZE MIT BUND FÜR KUGELFÜHRUNGSEINHEIT | COLONNA GUIDA A UN DIAMETRO LISCIA



Material: 1.7131 Hardness: 61÷63 HRC Execution: fine ground	STOCK	3D-CAD 	HOW TO ORDER C012 * D1 * L (C0121280)
---	-------	------------	--



D1	D2	K	L1	L								
				80	100	125	160	200	250	315	400	
12	16	4	16	•	•	•						
16	20	6	20	•	•	•	•	•				
20	24		22		•	•	•	•	•			
25	30	8	25			•	•	•	•	•		
32	37		35			•		•	•	•		
40	45	10				•		•	•	•	•	
50	55		45							•	•	
60	65		55							•	•	

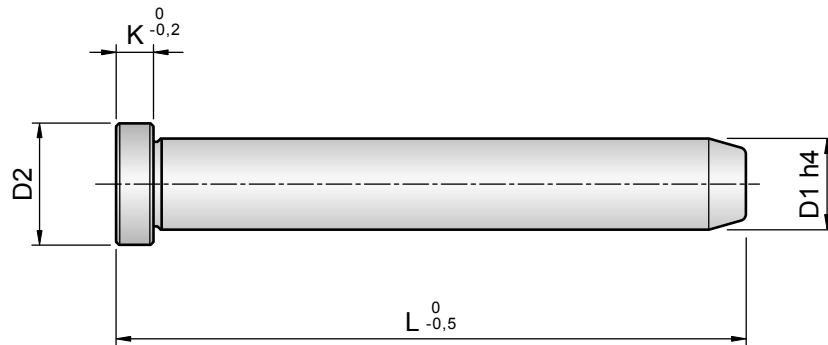
# C012H

## GUIDE PILLAR

FÜHRUNGSBOLZE MIT BUND FÜR KUGELFÜHRUNGSEINHEIT | COLONNA GUIDA A UN DIAMETRO LISCIA



Material: 1.7131 Hardness: 61÷63 HRC Execution: fine ground	STOCK	3D-CAD 		HOW TO ORDER C012H * D1 * L (C012H1280)
---	-------	------------	--	--



D1	D2	K	L						
			80	100	120	140	160	200	240
12	16	4	•	•	•				
18	22	6			•	•	•		
24	28						•	•	•
30	36						•	•	•

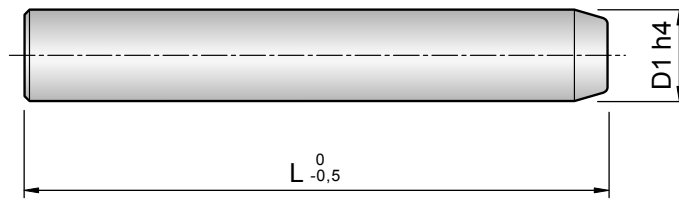
# C013H

## STRAIGHT GUIDE PILLAR

FÜHRUNGSBOLZE OHNE BUND FÜR KUGELFÜHRUNGSEINHEIT | COLONNA LISCIA



Material: 1.7131 Hardness: 61÷63 HRC Execution: fine ground	STOCK	3D-CAD 	HOW TO ORDER C013H * D1 * L (C013H12100)
---	-------	------------	---



D1	L					
	100	120	140	160	200	250
12	•	•				
18		•	•	•		
24			•	•	•	
30				•	•	•

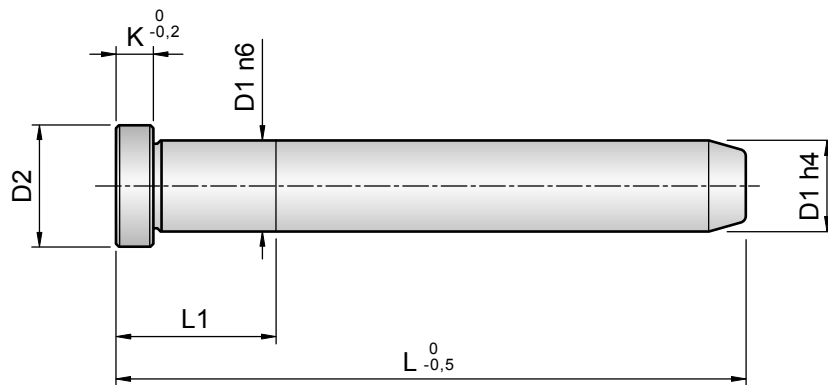
# C012M

## GUIDE PILLAR

FÜHRUNGSBOLZE MIT BUND FÜR KUGELFÜHRUNGSEINHEIT | COLONNA GUIDA A UN DIAMETRO LISCIA



Material: 1.7131 Hardness: 61÷63 HRC Execution: fine ground	STOCK	3D-CAD 	HOW TO ORDER C012M * D1 * L (C012M1280)
---	-------	------------	--



D1	D2	K	L1	L									
				80	100	120	140	160	180	200	250	280	320
12	15	4	17	•	•	•	•	•	•				
18	21	6	22	•	•	•	•	•	•	•	•		
24	27		27		•	•	•	•	•	•	•	•	
30	35		36				•	•	•	•	•	•	•

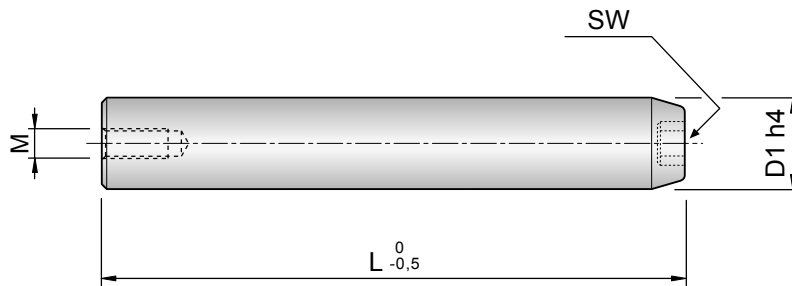
# C013M

## STRAIGHT GUIDE PILLAR

FÜHRUNGSBOLZE OHNE BUND FÜR KUGELFÜHRUNGSEINHEIT | COLONNA LISCIA



<b>Material:</b> 1.7131 <b>Hardness:</b> 61÷63 HRC <b>Execution:</b> fine ground	STOCK	3D-CAD 	HOW TO ORDER C013M * D1 * L (C013M1280)
--	-------	------------	--



D1	M	SW	L									
			80	100	120	140	160	180	200	220	250	280
12	M8	5	•	•	•	•	•	•				
18	M10	6	•	•	•	•	•	•	•			
24	M12	8		•	•	•	•	•	•	•	•	•
30	M16				•	•	•	•	•	•	•	•







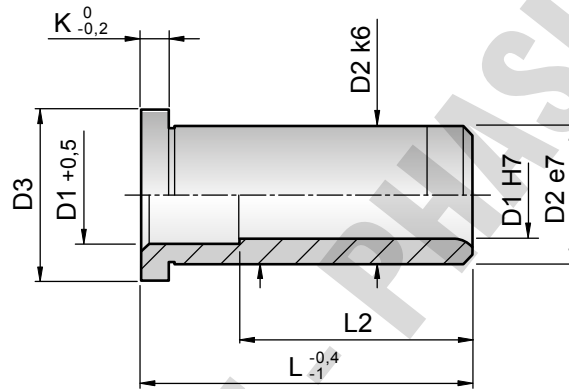
# B11H

## GUIDE BUSH WITH COLLAR

FÜHRUNGSBUCHSE OHNE ZENTRIERANSATZ | BUSSOLA GUIDA CON COLLARE



Material: 1.7131 Hardness: 61÷63 HRC Execution: inner and outer diameter fine ground	STOCK	3D-CAD 	HOW TO ORDER <b>B11H * D1 * L (B11H6096)</b>
--	-------	------------	---



D1	D2	D3	K	L2	L						
					96	116	136	156	196	246	
60	80	86	20	96	•						
				116		•					
				136			•	•	•	•	•

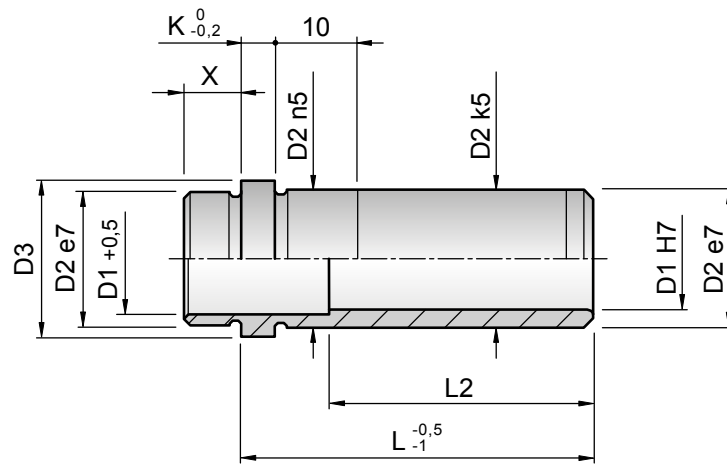
# B10M

## GUIDE BUSH WITH CENTERING COLLAR

FÜHRUNGSBUCHSE MIT ZENTRIERANSATZ | BUSSOLA SPALLATA



Material: 1.7131 Hardness: 61÷63 HRC Execution: inner and outer diameter fine ground	STOCK	3D-CAD 	HOW TO ORDER B10M * D1 * L (B10M1417)
--	-------	------------	--



D1	D2	D3	K	X	L2	L																						
						17	22	27	36	46	56	66	76	86	96	106	116	126	136	156	176	196	216	236	246	256		
14 - 15	20	25	6	9	17	•																						
					22		•																					
					27			•																				
					36				•																			
					46					•	•	•	•	•	•													
18 - 20	26	31	6	9	17	•																						
					22		•																					
					27			•																				
					36				•																			
					46					•																		
22 - 24	30	35	6	9	22		•																					
					27			•																				
					36				•																			
					46					•																		
					56						•																	
30 - 32	42	47	6	9	66						•																	
					76										•													
					86												•											
					96														•									
					96																•	•	•	•	•	•	•	•

D1	D2	D3	K	X	L2	L																					
						17	22	27	36	46	56	66	76	86	96	106	116	126	136	156	176	196	216	236	246	256	
40 - 42	54	59	10	12	36				•																		
					46				•																		
					56					•																	
					66							•															
					76									•													
					86											•											
					96												•	•									
50 - 52	66	71	10	12	116												•		•	•	•	•	•	•			
					56						•																
					66							•															
					76									•													
					86											•											
					96												•										
					116											•		•	•	•	•	•	•				

# B3M

## EJECTOR GUIDE BUSH

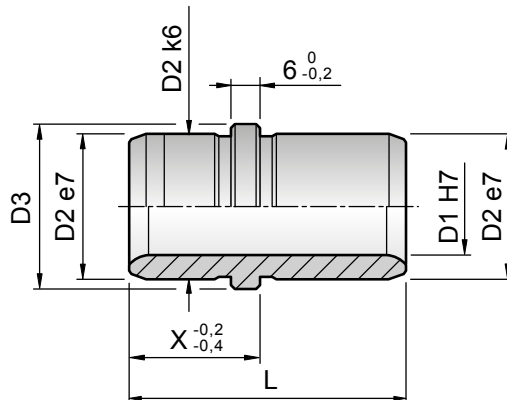
FÜHRUNGSBUCHSE FÜR AUSWERFERPAKET | BUSSOLA SPALLATA



Material: 1.7131  
Hardness: 61÷63 HRC  
Execution: inner and outer diameter fine ground



HOW TO ORDER  
B3M \* D1 \* L (B3M1021)



D1	D2	D3	X	L										
				21	26	29	34	39	44	49	63	73	82	
10	14	17	12	◇										
			17		◇									
12	16	19	17		◇	◇								
			22			◇	◇							
14	18	21	17			◇								
			22			◇	◇							
			27					◇	◇					
18	24	27	17			◇								
			22			◇	◇							
			27						◇	◇				
20	26	29	22				◇							
			27							◇				
22	28	31	22					◇						
			27								◇			
24	30	33	22						◇					
			27							◇	◇			
			36									◇		
30	38	41	27								◇			
			36										◇	
40	48	51	46										◇	◇

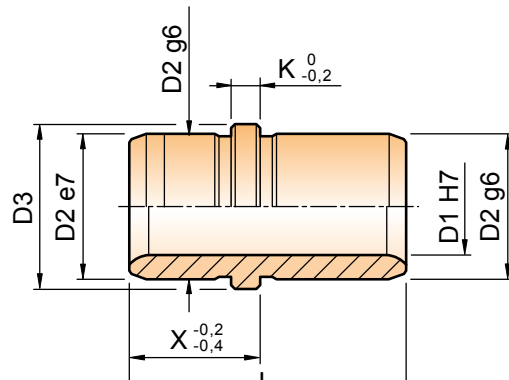
# B3BM

## EJECTOR BRONZE GUIDE BUSH

FÜHRUNGSBUCHSE VOLLBRONZE FÜR AUSWERFERPAKET | BUSSOLA SPALLATA BRONZO INTEGRALE



Material: bronze Hardness: - Execution: inner and outer diameter fine ground	DAYS 12	3D-CAD		HOW TO ORDER <b>B3BM * D1 * L (B3BM1021)</b>
--	---------	--------	--	---



D1	D2	D3	K	X	L												
					15	20	21	26	29	34	39	44	49	63	73	82	
10	14	16	3	10	◇	◇											
		17			◇												
12	16	19	6	17			◇	◇									
14	18	21		22				◇	◇								
18	24	27		17				◇									
				22				◇	◇								
20	26	29		27						◇	◇						
				22						◇							
22	28	31		27									◇	◇			
				22						◇							
24	30	33		27									◇	◇			
				36											◇		
30	38	41	27										◇				
			36												◇		
40	48	51		46											◇	◇	

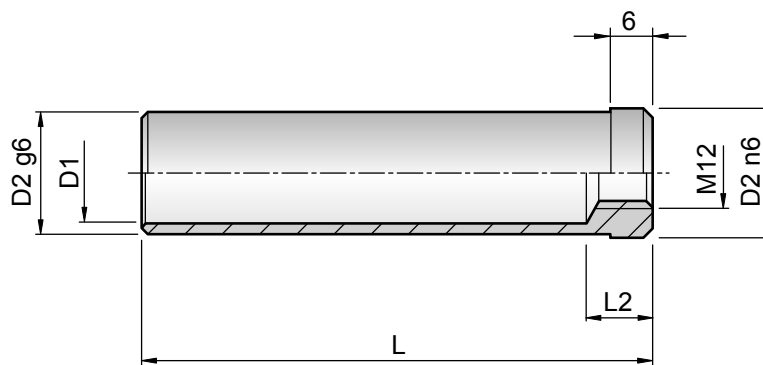
# B60MH

## CENTRING SLEEVE

ZENTRIERHÜLSE | BUSSOLA DI CENTRAGGIO



<b>Material:</b> 1.7131 <b>Hardness:</b> 61÷63 HRC <b>Execution:</b> outer diameter fine ground	STOCK	3D-CAD 	HOW TO ORDER <b>B60MH * D2 * L (B60MH2030)</b>
---	-------	------------	---



D2	D1	L2	L																											
			30	40	50	60	70	80	90	100	110	120	130	140	160	180	200	220	240	260	280	300	320	340	360	380				
20	16	14	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•			
26	21		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•			
30	25		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		
42	33	18	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•			
54	43		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•			
66	54	26	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•			

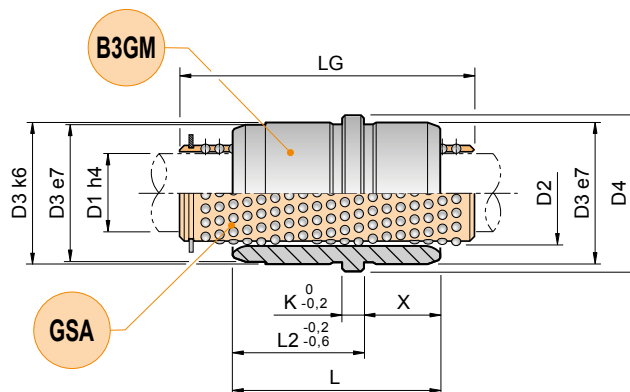
# B12M

## BALL CAGE AND GUIDE BUSH FOR EJECTOR SET

KUGELFÜHRUNGSBUCHSE FÜR AUSWERFERPAKET | GRUPPO BUSSOLA / GABBIA A SFERE PER TAVOLINO



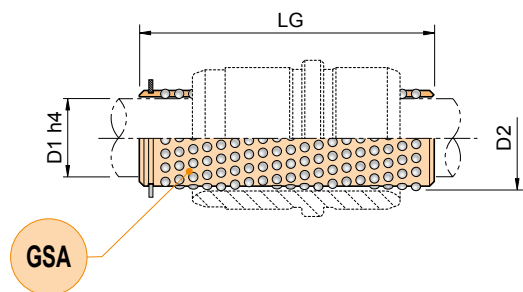
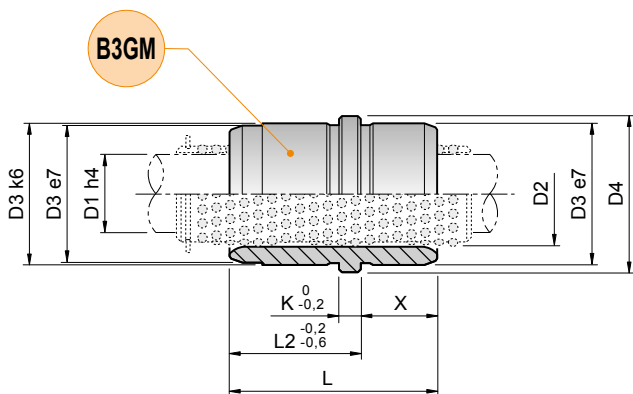
Material: Bush: 1.7131 ; Cage: brass	STOCK	3D-CAD	HOW TO ORDER <b>B12M * D1 * LG (B12M1240)</b>
Hardness: Bush: 61÷63 HRC			
Execution: inner diameter honed; outer diameter fine ground			



D1	D2	D3	D4	X	K	L	L2	LG								
								40	45	56	71	80	95	105		
12	16	22	25	9	6	26	17	•								
18	24	30	33	12		34	22		•	•	•					
24	30	38	41	17		44	27			•	•	•				
30	38	46	49	22		54	32				•	•	•	•	•	•

HOW TO ORDER  
**B3GM \* D1 (B3GM12)**

HOW TO ORDER  
**GSA \* D1 \* LG (GSA1240)**



D1	L			
	26	34	44	54
12	•			
18		•		
24			•	
30				•

D1	LG						
	40	45	56	71	80	95	105
12	•						
18		•	•	•			
24			•	•	•		
30				•		•	•

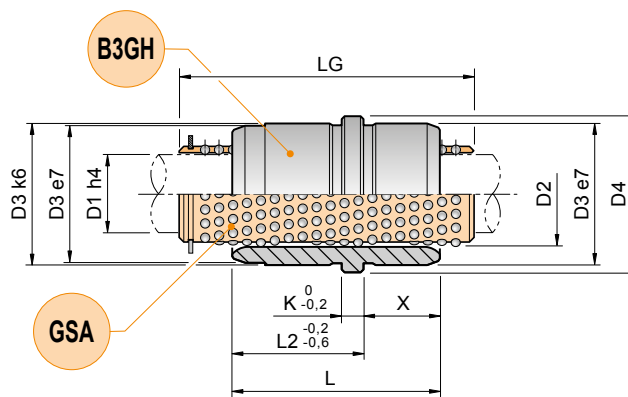
# B12H

## BALL CAGE AND GUIDE BUSH FOR EJECTOR SET

KUGELFÜHRUNGSBUCHSE FÜR AUSWERFERPAKET | GRUPPO BUSSOLA / GABBIA A SFERE PER TAVOLINO



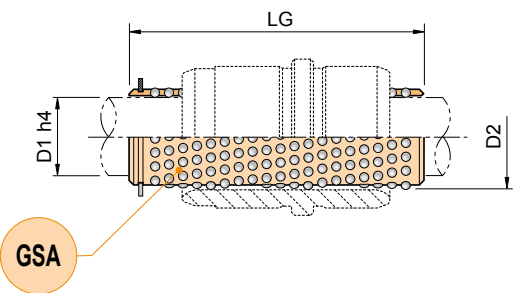
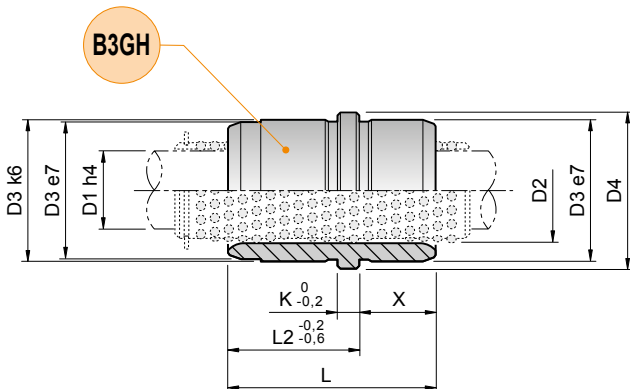
Material: Bush: 1.7131 ; Cage: brass	STOCK	3D-CAD	HOW TO ORDER
Hardness: Bush: 61÷63 HRC			
Execution: inner diameter honed; outer diameter fine ground			



D1	D2	D3	D4	X	K	L	L2	LG						
								40	45	56	71	75	95	
12	16	22	26	6	6	24	18	•		•				
18	24	30	35	11		34	23		•	•	•			
30	38	46	52	21		54	33			•		•	•	

HOW TO ORDER  
**B3GH \* D1 (B3GH12)**

HOW TO ORDER  
**GSA \* D1 \* LG (GSA1240)**



D1	L		
		24	34
12	•		
18		•	
30			•

D1	LG					
		40	45	56	71	75
12	•		•			
18		•	•	•		
30			•		•	•

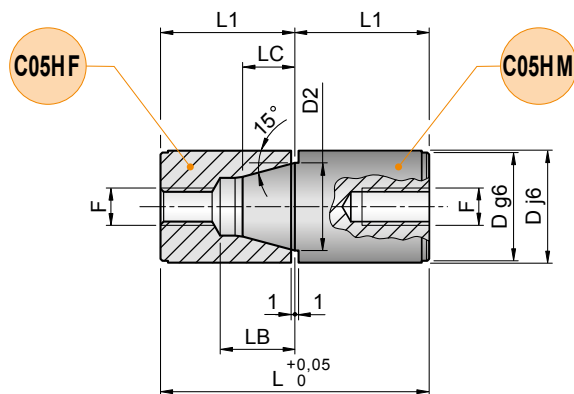
# C05H

## LOCATING UNIT

ROUND ZENTRIERFÜHRUNG | CENTRAGGI CONICI



Material: 1.7131 Hardness: 61÷63 HRC Execution: fine ground	STOCK	3D-CAD	HOW TO ORDER
			only male C05H * D * L * "M" (C05H1634M) only female C05H * D * L * "F" (C05H1634F)



D	D2	L1	LC	LB	F	L			
						34	54	72	92
16	11	17	7	11	5 MA	•			
20	15	27	11	15	8 MA		•		
25 - 26	20		10	16			•		
30 - 32	25	36	14	22	10 MA			•	
40 - 42	34	46	19	27					•

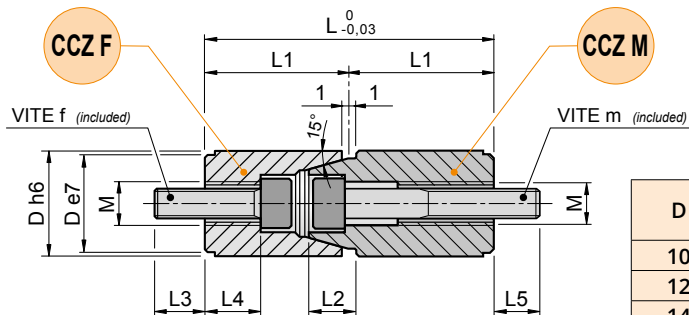
# CCZ

## LOCATING UNIT

ROUND ZENTRIERFÜHRUNG | CENTRAGGI CONICI



Material: 1.7131 Hardness: 61÷63 HRC Execution: fine ground	STOCK	3D-CAD	HOW TO ORDER
			only male CCZ * D * "M" (CCZ10M) only female CCZ * D * "F" (CCZ10F)



D	L1	L2	L3	L4	L5	M	VITE m	VITE f	L				
									24	34	54	72	92
10	12	3,3	8,5	4,9	8	M4	3x20	3x12	•				
12		4,5	7,5	8,5			3x25	3x16		•			
14	17	6	8	6	7,5	M5	4x25	4x14		•			
16				5,8						•			
20	27	9	9,5	10,6	12	M8	6x40	6x20			•		
25 - 26		10	11	9,2	11						•		
30 - 32	36	14	13	12,2	15	M10	8x55	8x25			•		
42	46	18		16,5	16		8x70	8x30				•	

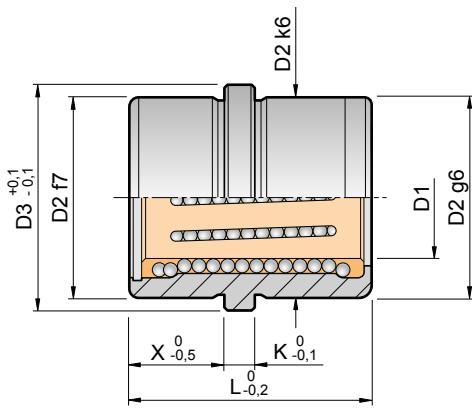
# BRSA

## RECIRCULATING BALL GUIDE BUSH FOR EJECTOR SET

KUGELUMLAUFBUCHSE FÜR AUSWERFERPAKET | BUSSOLA CON RICIRCOLO SFERE



<b>Material:</b> Bush: 1.7131; Ball carrier: brass; Balls: hardened steel conforming to DIN 5401 <b>Hardness:</b> 60÷62 HRC <b>Execution:</b> external diameter fine ground	STOCK	3D-CAD	<b>HOW TO ORDER</b> <b>BRSA * D1 * L1 (BRSA1226)</b>
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D1	D2	D3	K	X	L			
					26	35	45	55
12	22	26	6	6	•			
18	30	35		11		•		
24	38	43		16			•	
30	46	52		21				•

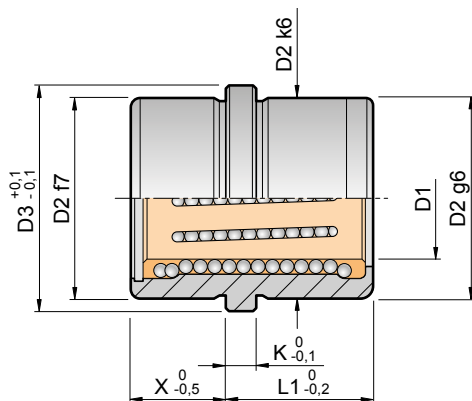
# BRSB

## RECIRCULATING BALL GUIDE BUSH FOR EJECTOR SET

KUGELUMLAUFBUCHSE FÜR AUSWERFERPAKET | BUSSOLA CON RICIRCOLO SFERE



<b>Material:</b> Bush: 1.7131; Ball carrier: brass; Balls: hardened steel conforming to DIN 5401 <b>Hardness:</b> 60÷62 HRC <b>Execution:</b> external diameter fine ground	STOCK	3D-CAD	<b>HOW TO ORDER</b> <b>BRSB * D1 * L1 (BRSB1222)</b>
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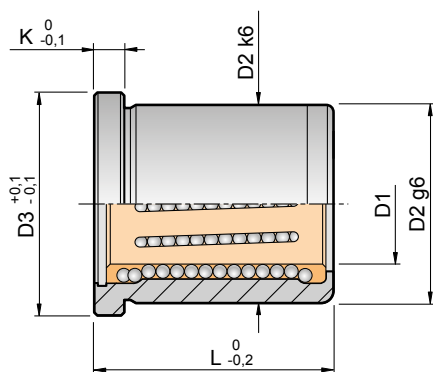
D1	D2	D3	K	X	L1						
					22	26	35	45	55	63	
12	24	28	6	8	•						
16	28	32		9	•		•				
20	32	36		10		•		•			
25	40	45	8	12			•		•		
32	50	56		12				•		•	
40	60	66	10	25					•		
50	70	76								•	
60	85	91								•	

# BRSC

## RECIRCULATING BALL GUIDE BUSH FOR EJECTOR SET KUGELUMLAUFBUCHSE | BUSSOLA CON RICIRCOLO SFERE



<b>Material:</b> Bush: 1.7131; Ball carrier: brass; Balls: hardened steel conforming to DIN 5401 <b>Hardness:</b> 60÷62 HRC <b>Execution:</b> external diameter fine ground	STOCK	3D-CAD	HOW TO ORDER BRSC * D1 * L (BRSC2035)
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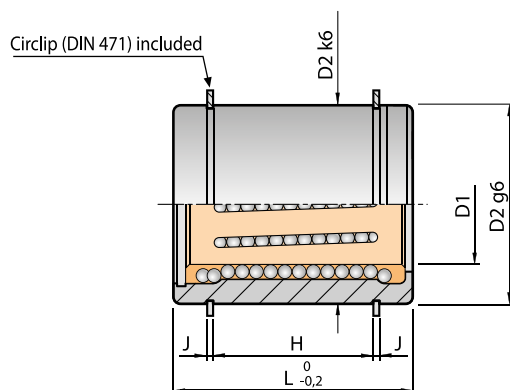
D1	D2	D3	K	L			
				35	45	55	63
20	32	36	6	•			
25	40	45		•		•	
32	50	56	8		•		•
40	60	66			•		•

# BRSD

## RECIRCULATING BALL GUIDE BUSH KUGELUMLAUFBUCHSE | BUSSOLA CON RICIRCOLO SFERE



<b>Material:</b> Bush: 1.7131; Ball carrier: brass; Balls: hardened steel conforming to DIN 5401 <b>Hardness:</b> 60÷62 HRC <b>Execution:</b> external diameter fine ground	STOCK	3D-CAD	HOW TO ORDER BRSD * D1 * L (BRSD1230)
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D1	D2	H	J	L				
				30	35	45	55	63
12	24	20	1,3	•				
16	28	19	1,6	•				
		24			•			
20	32	24	1,8		•			
		34				•		
25	40	23	2,1		•			
		33				•		
32	50	43	2,1				•	
		33				•		
40	60	51	2,1					•
		33				•		
		51						•

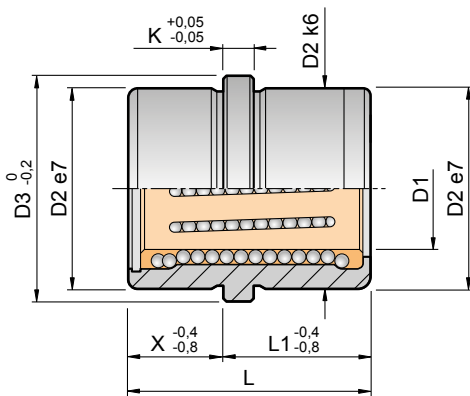
# BRSH

## RECIRCULATING BALL GUIDE BUSH FOR EJECTOR SET

KUGELUMLAUFBUCHSE FÜR AUSWERFERPAKET | BUSSOLA CON RICIRCOLO SFERE



<b>Material:</b> Bush: 1.7131; Ball carrier: brass; Balls: hardened steel conforming to DIN 5401 <b>Hardness:</b> 60÷62 HRC <b>Execution:</b> external diameter fine ground	STOCK	3D-CAD	<b>HOW TO ORDER</b> <b>BRSH * D1 * L1 (BRSH1217)</b>
---	-------	--------	---



D1	D2	D3	K	X	L	L1	
						17	22
12	24	28	6	9	26	•	
18	32	36		17	39		•
24	39	43		12	29	•	
30	50	54		17	39		•

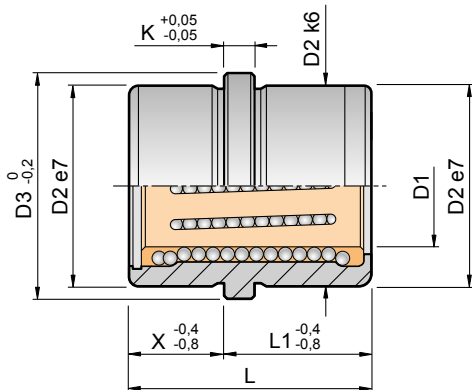
# BRSM

## RECIRCULATING BALL GUIDE BUSH FOR EJECTOR SET

KUGELUMLAUFBUCHSE FÜR AUSWERFERPAKET | BUSSOLA CON RICIRCOLO SFERE



<b>Material:</b> Bush: 1.7131; Ball carrier: brass; Balls: hardened steel conforming to DIN 5401 <b>Hardness:</b> 60÷62 HRC <b>Execution:</b> external diameter fine ground	STOCK	3D-CAD	<b>HOW TO ORDER</b> <b>BRSM * D1 * L (BRSM1226)</b>
---	-------	--------	--



D1	L1	D2	D3	K	X	L								
						26	29	34	39	44	49	54	63	
12	17	22	25	6	9	•								
18	22	30	33		12		•							
24	27	38	41		17			•						
30	32	46	49		22				•					
	36				27							•		

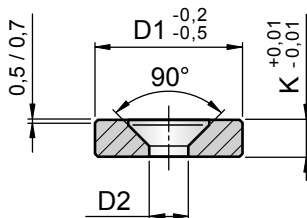
# ATFH

## SEATING WASHERS FOR EJECTOR SET

ANSCHLAGSCHEIBE | APPOGGI TAVOLINO



Material: 1.7131 Hardness: 61÷63 HRC Execution: fine ground	STOCK	3D-CAD 		HOW TO ORDER ATFH * D1 (ATFH18)
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D1	D2	K
18	4,3	3
20	5,3	4
28	4,3	3
30	5,3	4

# R

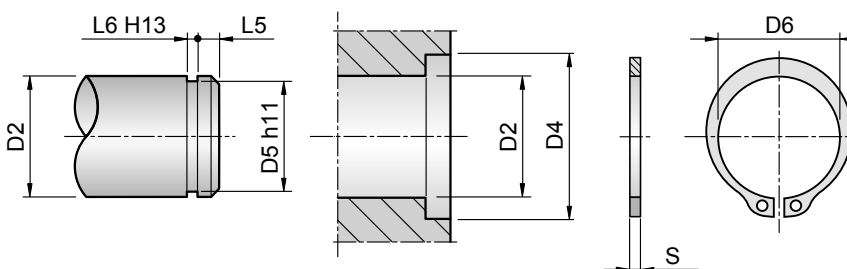
## CIRCLIP DIN 471

SICHERUNGSRING DIN 471 | SEEGER DIN 471

DIN 471



Material: spring steel Hardness: - Execution: -	STOCK	3D-CAD 		HOW TO ORDER R * D2 (R20)
---	-------	------------	--	------------------------------



D2	D4	D5	D6	L5	L6	S
20	29	19	18,5	1,5	1,3	1,2
22	30,8	21	20,5			
26	35,5	24,9	24,2	1,7	1,6	1,5
30	40,5	28,6	27,9	2,1		
42	55,7	39,5	38,5	3,8	1,85	1,75
54	69,2	51	49,8	4,5	2,15	2
66	82,4	62	60,8		2,65	2,5
80	98,1	76,5	74,5	5,3		

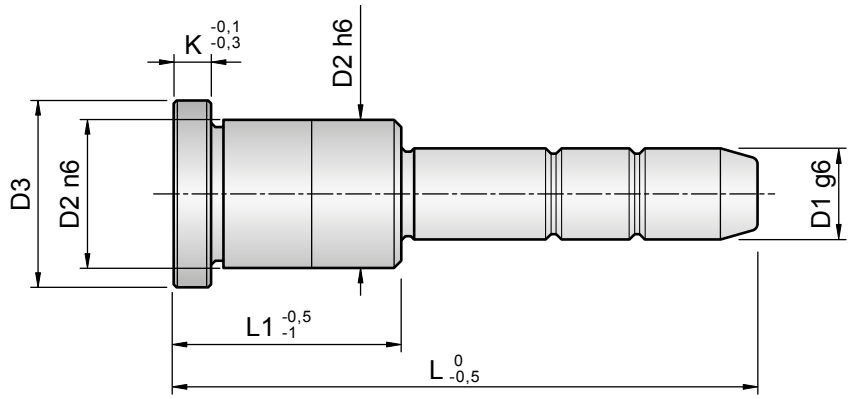
# C1

## GUIDE PILLAR

FÜHRUNGSSÄULE OHNE ZENTRIERANSATZ | COLONNA GUIDA A DUE DIAMETRI



Material: 1.7131 Hardness: 61÷63 HRC Execution: fine ground	STOCK		HOW TO ORDER C1 * D1 * L1 * L (C1122250) C1 * D1 * D2 * L1 * L (only for D1 20-25)
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D1	D2	D3	K	L1	L																		
					50	60	70	80	90	100	120	140	160	180	200	220	240	260	280	300	340	400	
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							•	•	•	•	•	•	•						
18	26	30	5	26		•	•	•	•	•													
				36		•	•	•	•	•	•	•											
				46			•	•	•	•	•	•	•										
				56				•	•	•	•	•	•	•									
				66						•	•	•	•	•	•								
				76						•	•	•	•										




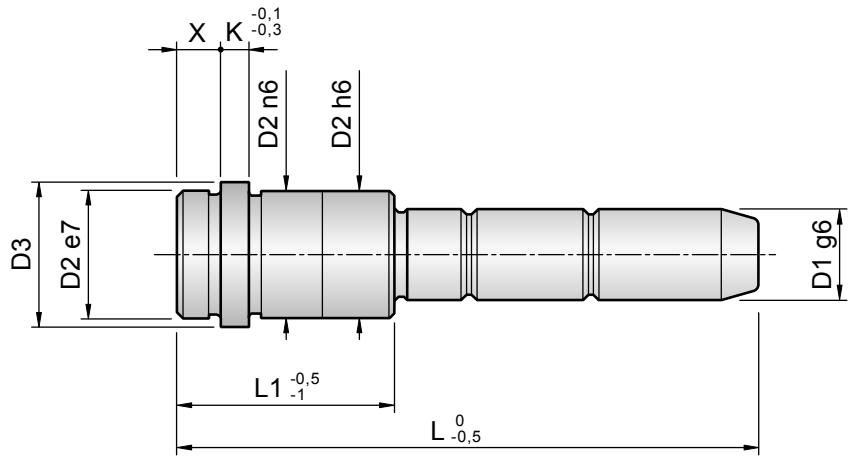
# C1S

## GUIDE PILLAR WITH CENTRING COLLAR

FÜHRUNGSSÄULE MIT ZENTRIERANSATZ | COLONNA GUIDA SPALLATA



Material: 1.7131 Hardness: 61+63 HRC Execution: fine ground	STOCK		HOW TO ORDER C1S * D1 * L1 * L (C1S163680) C1S * D1 * D2 * L1 * L (only for D1 20-25)
---	-------	---	---



D1	D2	D3	K	X	L1	L							
						80	90	110	130	150	170	190	210
16	22	26	5	10	36	•	•	•	•	•	•		
					46		•	•	•	•			
					56			•	•	•	•		
					66			•	•	•	•		
					76				•	•	•	•	
					86						•	•	•
20	28	32	6	10	46	•	•	•	•	•			
					56		•	•	•	•	•		
					66			•	•	•	•		
					76			•	•	•	•		
	86							•	•	•	•		
	106								•	•	•	•	
25	34	38	7	10	46		•	•	•	•			
					56		•	•	•	•	•		
					66			•	•	•	•		
					76			•	•	•	•		
	86							•	•	•	•		
	106								•	•	•	•	
25	36	40	7	10	46		•	•	•	•			
					56		•	•	•	•	•		
					66			•	•	•	•		
					76			•	•	•	•		
					86					•	•	•	•
					106						•	•	•

D1	D2	D3	K	X	L1	L							
						80	90	110	130	150	170	190	210
32	40	45	7	10	46			•	•	•			
					56			•	•	•	•		
					66			•	•	•	•	•	
					76				•	•	•	•	
					86					•	•	•	
					106						•	•	•
40	48	52	8		56				•	•			
					66				•	•	•		
					76					•	•	•	•
					86						•	•	•
				106							•	•	

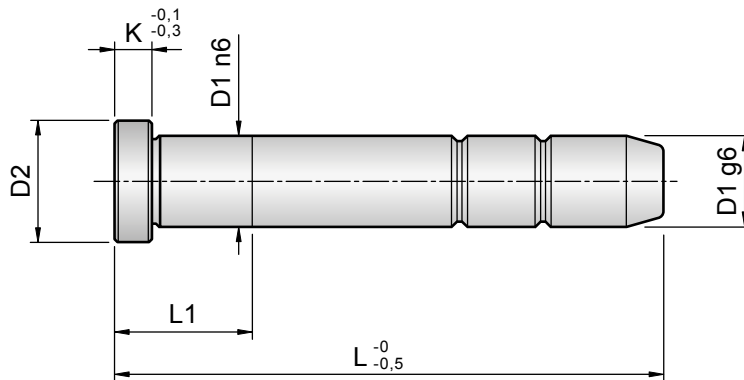
# C2

## GUIDE PILLAR

FÜHRUNGSSÄULE | COLONNA GUIDA A UN DIAMETRO



Material: 1.7131 Hardness: 61÷63 HRC Execution: fine ground	STOCK		HOW TO ORDER C2 * D1 * L (C21250)
---	-------	--	--------------------------------------



D1	D2	K	L1	L																											
				50	60	70	80	90	100	110	120	130	140	150	160	180	200	220	240	260	280	300	350	400	450	500	600	800			
12	16			13	•	•	•																								
				20			•	•																							
				25					•		•		•		•		•														
14	18			13	•	•	•																								
				20			•	•																							
				25					•	•	•	•	•	•	•	•															
16	20	5		30													•														
				13	•	•	•																								
				20			•	•																							
18	22			25				•	•	•	•	•	•	•	•																
				13	•	•	•																								
				30													•	•	•												
20	24	6		14		•	•																								
				21			•	•																							
				26					•	•	•	•	•	•	•	•															
				31														•	•	•											
				41																•	•	•									
25	30	7		51																		•									
				22			•	•																							
				27					•		•		•		•																
				32													•	•	•												
				42																•	•	•									
				52																	•										
				62																		•	•								



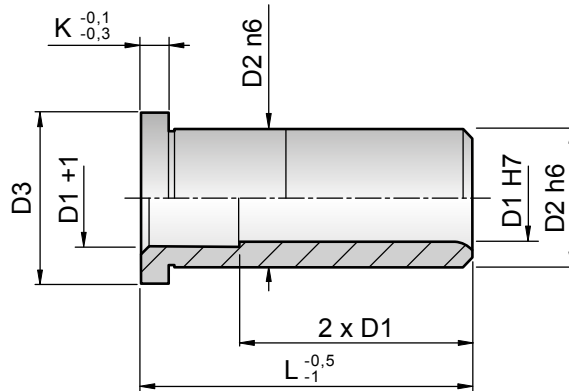
# B1

## GUIDE BUSH WITH COLLAR

FÜHRUNGSBUCHSE OHNE ZENTRIERANSATZ | BUSSOLA GUIDA CON COLLARE



Material: 1.7131 Hardness: 61+63 HRC Execution: inner and outer diameter fine ground	STOCK	 <p>HOW TO ORDER B1 * D1 * L (B11222) B1 * D1 * D2 * L (only for D1 20-25)</p>
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D1	D2	D3	K	L																
				22	26	36	46	56	66	76	86	96	106	116	126	136	146	156	176	196
12	18	22	5	•	•	•	•	•												
14	20	24		•	•	•	•	•	•											
16	22	26		•	•	•	•	•	•	•										
18	26	30		•	•	•	•	•	•	•	•									
20	28	32	6	•	•	•	•	•	•	•	•	•	•	•						
	30	34		•	•	•	•	•	•	•	•	•	•	•						
25	34	38	7		•	•	•	•	•	•	•	•	•	•						
	36	40			•	•	•	•	•	•	•	•	•	•						
32	40	45			•	•	•	•	•	•	•	•	•	•	•					
40	48	52	8			•	•	•	•	•	•	•	•	•	•	•				
50	60	65	10							•	•	•	•	•	•	•	•			
60	74	84	12								•	•	•	•	•	•	•	•	•	

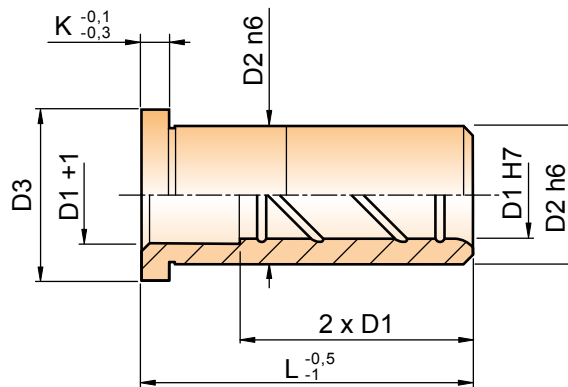
# B1B

## BRONZE GUIDE BUSH WITH COLLAR

FÜHRUNGSBUCHSE VOLLBRONZE | BUSSOLA GUIDA BRONZO INTEGRALE



Material: bronze Hardness: - Execution: inner and outer diameter fine ground	STOCK		HOW TO ORDER B1B * D1 * L (B1B1622) B1B * D1 * D2 * L (only for D1 20-25)
--	-------	---	---



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

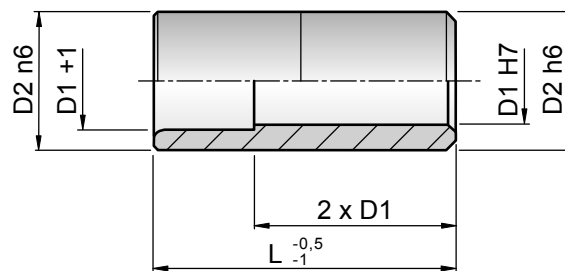
# B2

## SMOOTH BUSH

FÜHRUNGSBUCHSE | BUSSOLA DI GUIDA LISCIA



Material: 1.7131 Hardness: 61÷63 HRC Execution: inner and outer diameter fine ground	STOCK		HOW TO ORDER B2 * D1 * L (B21222) B2 * D1 * D2 * L (only for D1 20-25)
--	-------	---	--



D1	D2	L										
		22	26	36	46	56	66	76	86	96	106	116
12	18	•	•	•	•	•						
14	20	•	•	•	•	•	•					
16	22	•	•	•	•	•	•	•	•	•		
18	26	•	•	•	•	•	•	•	•	•	•	
20	28		•	•	•	•	•	•	•	•	•	
	30		•	•	•	•	•	•	•	•	•	
25	34		•	•	•	•	•	•	•	•	•	•
	36		•	•	•	•	•	•	•	•	•	•
32	40		•	•	•	•	•	•	•	•	•	•
40	48				•	•	•	•	•	•	•	•

# B2B

## BRONZE SMOOTH BUSH

FÜHRUNGSBUCHSE VOLLBRONZE | BUSSOLA DI GUIDA LISCIA BRONZO INTEGRALE



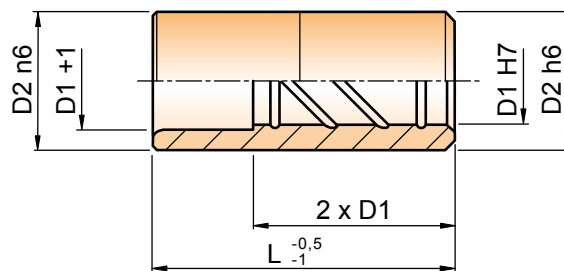
Material: bronze  
 Hardness: -  
 Execution: inner and outer diameter fine ground

STOCK



HOW TO ORDER

B2B \* D1 \* L (B2B1622)  
 B2B \* D1 \* D2 \* L (only for D1 20-25)



D1	D2	L										
		22	26	36	46	56	66	76	86	96	106	116
16	22	•	•	•	•	•	•	•	•	•		
18	26	•	•	•	•	•	•	•	•	•		
20	28		•	•	•	•	•	•	•	•		
	30		•	•	•	•	•	•	•	•		
25	34		•	•	•	•	•	•	•	•	•	•
	36		•	•	•	•	•	•	•	•	•	•
32	40		•	•	•	•	•	•	•	•	•	•
40	48				•	•	•	•	•	•	•	•

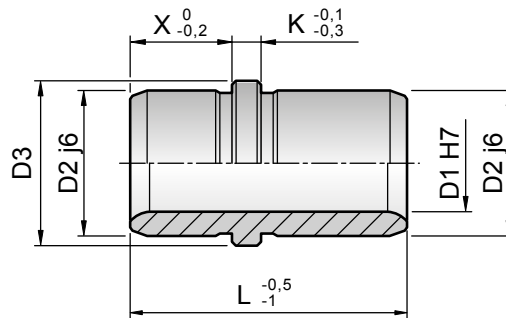
# B3

## EJECTOR GUIDE BUSH

FÜHRUNGSBUCHSE FÜR AUSWERFERPAKET | BUSSOLA SPALLATA



<b>Material:</b> 1.7131 <b>Hardness:</b> 61+63 HRC <b>Execution:</b> inner and outer diameter fine ground	STOCK		<b>HOW TO ORDER</b> <b>B3 * D1 * L (B31232)</b> <b>B3 * D1 * D2 * L (only for D1 20-25)</b>
---	-------	---	---



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

# B3B

## EJECTOR BRONZE GUIDE BUSH

FÜHRUNGSBUCHSE VOLLBRONZE FÜR AUSWERFERPAKET | BUSSOLA SPALLATA BRONZO INTEGRALE



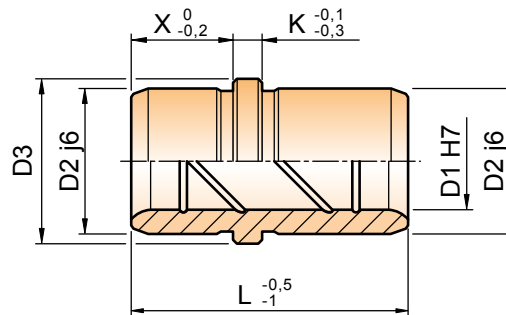
Material: bronze  
 Hardness: -  
 Execution: inner and outer diameter fine ground

STOCK



HOW TO ORDER

B3B \* D1 \* L (B3B1232)  
 B3B \* D1 \* D2 \* L (only for D1 20-25)



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

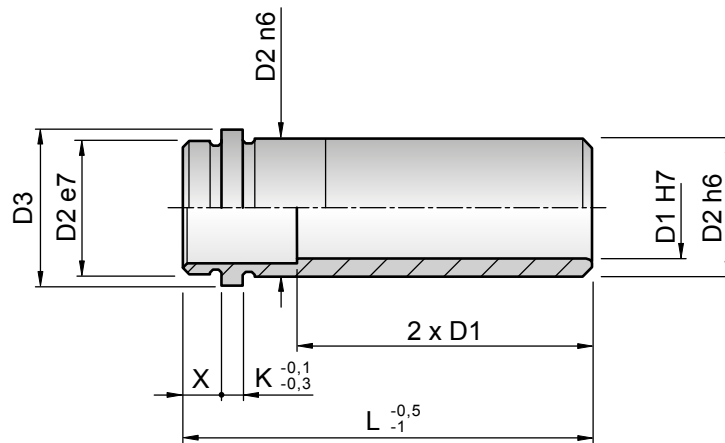
# B1S

## GUIDE BUSH WITH CENTERING COLLAR

FÜHRUNGSBUCHSE MIT ZENTRIERANSATZ | BUSSOLA SPALLATA



Material: 1.7131 Hardness: 61+63 HRC Execution: inner and outer diameter fine ground	STOCK		HOW TO ORDER <b>B1S * D1 * L (B1S1626)</b> <b>B1S* D1 * D2 * L (only for D1 20-25)</b>
--	-------	---	--



D1	D2	D3	K	X	L										
					26	36	46	56	66	76	86	96	106	126	
16	22	26	5	10	•	•	•	•	•	•	•	•	•	•	
	20	28			32	•	•	•	•	•	•	•	•	•	•
30		34	•		•	•	•	•	•	•	•	•	•		
25	34	38	7		•	•	•	•	•	•	•	•	•	•	
	36	40			•	•	•	•	•	•	•	•	•	•	
32	40	45	8				•	•	•	•	•	•	•	•	•
40	48	52						•	•	•	•	•	•	•	•

# BC

## CENTRING SLEEVE

ZENTRIERHÜLSE | BUSSOLA DI CENTRAGGIO



Material: 1.7131

Hardness: 61÷63 HRC

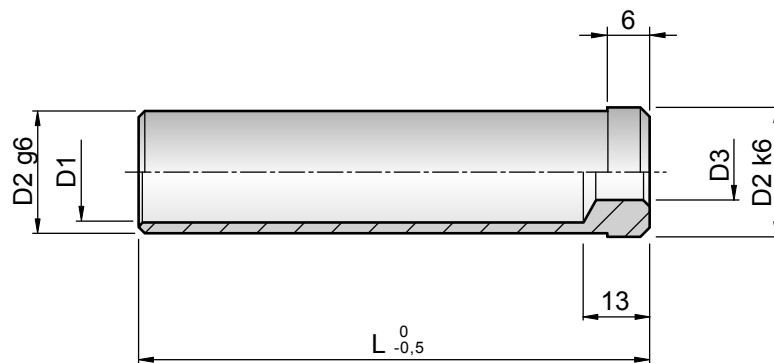
Execution: outer diameter fine ground

STOCK



HOW TO ORDER

BC \* D2 \* L (BC2240)



D2	D1	D3	L						
			40	60	80	100	120	140	160
22	17	12	•	•	•	•	•	•	•
28	21	15		•	•	•	•	•	•
30	25			•	•	•	•	•	•
34	26	19		•	•	•	•	•	•
36				•	•	•	•	•	•
40	33	25		•	•	•	•	•	•

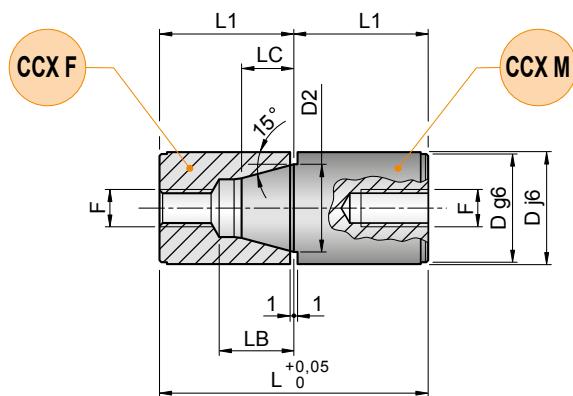
# CCX

## LOCATING UNIT

ROUND ZENTRIERFÜHRUNG | CENTRAGGI CONICI



Material: 1.7131 Hardness: 61÷63 HRC Execution: fine ground	STOCK		HOW TO ORDER CCX * D (CCX16) only male CCX * D * "M" (CCX16M) only female CCX * D * "F" (CCX16F)
---	-------	--	--



D	L1	LC	LB	D2	F	L			
						50	64	80	100
16	25	7	13	12	6 MA	•			
20	32	9	17	14	8 MA		•		
25		11	18	18			•		
32	40	14	24	24	10 MA			•	
40	50	19	27	30					•

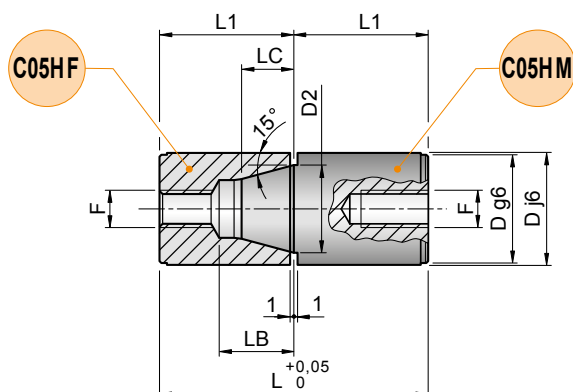
# C05H

## LOCATING UNIT

ROUND ZENTRIERFÜHRUNG | CENTRAGGI CONICI



Material: 1.7131 Hardness: 61÷63 HRC Execution: fine ground	STOCK		HOW TO ORDER C05H * D * L (C05H1634) only male C05H * D * L * "M" (C05H1634M) only female C05H * D * L * "F" (C05H1634F)
---	-------	--	--



D	D2	L1	LC	LB	F	L			
						34	54	72	92
16	11	17	7	11	5 MA	•			
20	15	27	11	15	8 MA		•		
25 - 26	20		10	16			•		
30 - 32	25	36	14	22	10 MA			•	
40 - 42	34	46	19	27					•

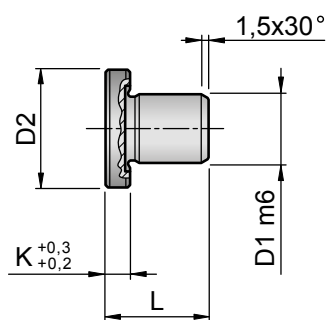
## AT

### BUFFER PLATE FOR EJECTOR SET

ANSCHLAGSCHEIBE STÜTZSCHEIBE | APPOGGI TAVOLINO



Material: 1.7131 Hardness: 61÷63 HRC Execution: fine ground	STOCK		HOW TO ORDER AT * D1 (AT8)
---	-------	---	-------------------------------

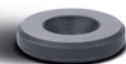


D1	D2	K	L
8	18	5	21
14	24		

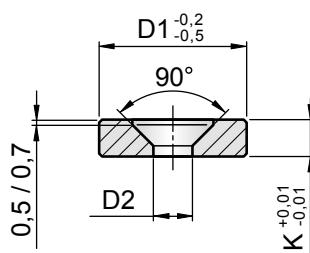
## ATF

### SEATING WASHERS FOR EJECTOR SET

ANSCHLAGSCHEIBE | APPOGGI TAVOLINO



Material: 1.7131 Hardness: 61÷63 HRC Execution: fine ground	STOCK		HOW TO ORDER ATF * D1 (ATF20)
---	-------	---	----------------------------------

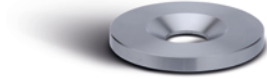


D1	D2	K
20	5,3	5

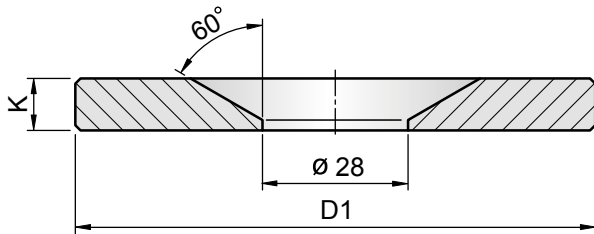
# AC

## LOCATING RING

ZENTRIERFLANSCH | ANELLO DI CENTRAGGIO



Material: 1.7131 Hardness: - Execution: -	STOCK	 HOW TO ORDER AC * D1 (AC60)
---	-------	--




D1	K
60	10
70	
80	
90	
100	
125	
150	
175	

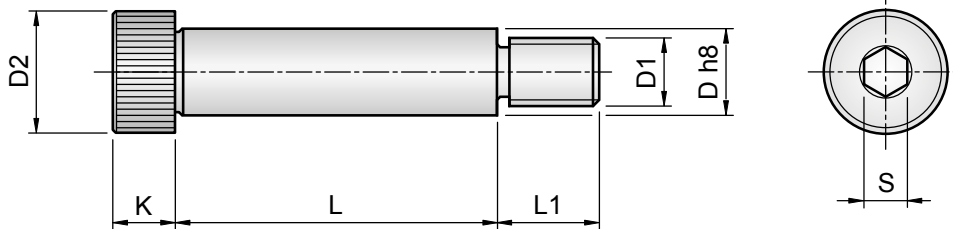
# VCOL

## SHOULDER SCREW

SCHULTERSCHRAUBE | VITE A COLLETTA



Material: steel 12.9 Hardness: 38 ÷ 44 HRC Execution: fine ground	STOCK		HOW TO ORDER VCOL * D * L (VCOL610)
---	-------	---	--

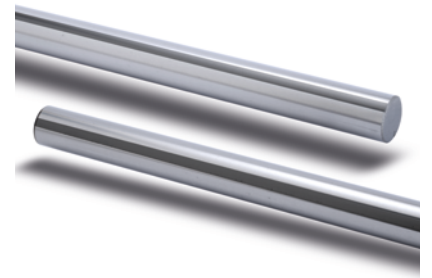


D	D1	D2	K	L1	S	L															
						10	12	16	20	25	30	35	40	45	50	55	60	65	70	80	90
6	M5X0,8	10	4,5	9,5	3	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
8	M6X1	13	5,5	11	4	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
10	M8X1,25	16	7	13	5			•	•	•	•	•	•	•	•	•	•	•	•	•	•
12	M10X1,5	18	9	16	6			•	•	•	•	•	•	•	•	•	•	•	•	•	•
16	M12X1,75	24	11	18	8					•	•	•	•	•	•	•	•	•	•	•	•
20	M16X2	30	14	22	10							•	•	•	•	•	•	•	•	•	•
24	M20X2,5	36	16	27	12									•	•	•	•	•	•	•	•

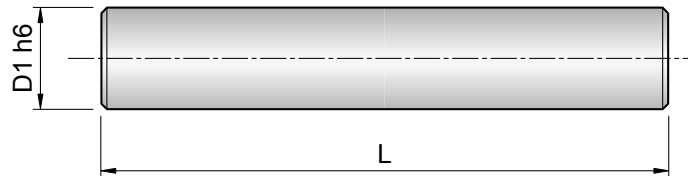
# BARRAT

## INDUCTION HARDENED GROUND SHAFT

INDUKTIONSGEHÄRTETE WELLE | BARRA RETTIFICATA E TEMPRATA INDUZIONE



Material: 1.1213 Hardness: 60÷64 HRC Execution: fine ground	STOCK		HOW TO ORDER <b>BARRAT * D1 * L (BARRAT61000)</b>
---	-------	---	--



D1	L
6	1000
8	
10	
12	
14	
16	
18	
20	
25	
30	
32	
40	
50	
60	

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

Range in mm	TOLERANCE CLASS																				
	d8	e7	f6	g6	h3	h4	h5	h6	h8	js4	js6	j6	k5	k6	m5	m6	n5	n6	p6	r6	s6
over 0 to 3	-20	-14	-6	-2	0	0	0	0	0	+1,5	+3	+4	+4	+6	+6	+8	+8	+10	+12	+16	+20
	-34	-24	-12	-8	-2	-3	-4	-6	-14	-1,5	-3	-2	0	0	+2	+2	+4	+4	+6	+10	+14
over 3 to 6	-30	-20	-10	-4	0	0	0	0	0	+2	+4	+6	+6	+9	+9	+12	+13	+16	+20	+23	+27
	-48	-32	-18	-12	-2,5	-4	-5	-8	-18	-2	-4	-2	+1	+1	+4	+4	+8	+8	+12	+15	+19
over 6 to 10	-40	-25	-13	-5	0	0	0	0	0	+2	+4,5	+7	+7	+10	+12	+15	+16	+19	+24	+28	+32
	-62	-40	-22	-14	-2,5	-4	-6	-9	-22	-2	-4,5	-2	+1	+1	+6	+6	+10	+10	+15	+19	+23
over 10 to 18	-50	-32	-16	-6	0	0	0	0	0	+2,5	+5,5	+8	+9	+12	+15	+18	+20	+23	+29	+34	+39
	-77	-50	-27	-17	-3	-5	-8	-11	-27	-2,5	-5,5	-3	+1	+1	+7	+7	+12	+12	+18	+23	+28
over 18 to 30	-65	-40	-20	-7	0	0	0	0	0	+3	+6,5	+9	+11	+15	+17	+21	+24	+28	+35	+41	+48
	-98	-61	-33	-20	-4	-6	-9	-13	-33	-3	-6,5	-4	+2	+2	+8	+8	+15	+15	+22	+28	+35
over 30 to 50	-80	-50	-25	-9	0	0	0	0	0	+3,5	+8	+11	+13	+18	+20	+25	+28	+33	+42	+50	+59
	-119	-75	-41	-25	-4	-7	-11	-16	-39	-3,5	-8	-5	+2	+2	+9	+9	+17	+17	+26	+34	+43
over 50 to 65	-100	-60	-30	-10	0	0	0	0	0	+4	+9,5	+12	+15	+21	+24	+30	+33	+39	+51	+60	+72
																				+41	+53
over 65 to 80	-146	-90	-49	-29	-5	-8	-13	-19	-46	-4	-9,5	-7	+2	+2	+11	+11	+20	+20	+32	+62	+78
																				+43	+59
over 80 to 100	-120	-72	-36	-12	0	0	0	0	0	+5	+11	+13	+18	+25	+28	+35	+38	+45	+59	+73	+93
																				+51	+71
over 100 to 120	-174	-107	-58	-34	-6	-10	-15	-22	-54	-5	-11	-9	+3	+3	+13	+13	+23	+23	+37	+76	+101
																				+54	+79
over 120 to 140	145	-85	-43	-14	0	0	0	0	0	+6	+12,5	+14	+21	+28	+33	+40	+45	+52	+63	+88	+117
																				+63	+92
over 140 to 160	-208	-125	-68	-39	-8	-12	-18	-25	-63	-6	-12,5	-11	+3	+3	+15	+15	+27	+27	+48	+90	+125
																				+65	+100

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

Range in mm	TOLERANCE CLASS																	
	E8	F7	G5	H4	H5	H6	H7	H8	H9	H10	H11	JS5	J7	K6	K7	M6	M7	P6
over 0 to 3	+28	+16	+6	+3	+4	+6	+10	+14	+25	+40	+60	+2	+4	0	0	-2	-2	-6
	+14	+6	+2	0	0	0	0	0	0	0	0	-2	-6	-6	-10	-8	-12	-12
over 3 to 6	+38	+22	+9	+4	+5	+8	+12	+18	+30	+48	+75	+2,5	+6	+2	+3	-1	0	-9
	+20	+10	+4	0	0	0	0	0	0	0	0	-2,5	-6	-6	-9	-9	-12	-17
over 6 to 10	+47	+28	+11	+4	+6	+9	+15	+22	+36	+58	+90	+3	+8	+2	+5	-3	0	-12
	+25	+13	+5	0	0	0	0	0	0	0	0	-3	-7	-7	-10	-12	-15	-21
over 10 to 18	+59	+34	+14	+5	+8	+11	+18	+27	+43	+70	+110	+4	+10	+2	+6	-4	0	-15
	+32	+16	+6	0	0	0	0	0	0	0	0	-4	-8	-9	-12	-15	-18	-26
over 18 to 30	+73	+41	+16	+6	+9	+13	+21	+33	+52	+84	+130	+4,5	+12	+2	+6	-4	0	-18
	+40	+20	+7	0	0	0	0	0	0	0	0	-4,5	-9	-11	-15	-17	-21	-31
over 30 to 50	+89	+50	+20	+7	+11	+16	+25	+39	+62	+100	+160	+5,5	+14	+3	+7	-4	0	-21
	+50	+25	+9	0	0	0	0	0	0	0	0	-5,5	-11	-13	-18	-20	-25	-37
over 50 to 80	+106	+60	+23	+8	+13	+19	+30	+46	+74	+120	+190	+6,5	+18	+4	+9	-5	0	-26
	+60	+30	+10	0	0	0	0	0	0	0	0	-6,5	-12	-15	-21	-24	-30	-45
over 80 to 120	+126	+71	+27	+10	+15	+22	+35	+54	+87	+140	+220	+7,5	+22	+4	+10	-6	0	-30
	+72	+36	+12	0	0	0	0	0	0	0	0	-7,5	-13	-18	-25	-28	-35	-52
over 120 to 160	+148	+83	+32	+12	+18	+25	+40	+63	+100	+160	+250	+9	+26	+4	+12	-8	0	-36
	+85	+43	+14	0	0	0	0	0	0	0	0	-9	-14	-21	-28	-33	-40	-61

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