



PRECISION GUIDING ELEMENTS FOR HIGH-SPEED STAMPING

PRÄZISIONS-FÜHRUNGSELEMENTE
FÜR HOCHGESCHWINDIGKEITSSTANZEN

*GUIDAGGI DI PRECISIONE PER
STAMPAGGIO AD ALTA VELOCITÀ*



MADE IN ITALY



SPECIAL DESIGN ROLLER AND BALL CAGES

ROLLER & BALL CAGES SPECIAL AND CUSTOMIZED DESIGN

Ideal for high performance dies and custom applications for:

- EV Traction Motor core stamping
- EV Battery cell and pack stamping
- High Speed press machines
- High Precision stamping dies

Maximum dimensions:
400 mm Ø for ball cages
200 mm Ø for roller cages

ROLLEN- UND KUGELKÄFIGE SPEZIAL- UND KUNDENSPEZIFISCHE AUSFÜHRUNGEN

Ideal für Hochleistungswerkzeuge und kundenspezifische Anwendungen für:

- Kernstanzen für Elektrofahrzeug-Antriebsmotoren
- Werkzeugsatz für zweite Elektrofahrzeugbatterien
- Hochgeschwindigkeitspresse
- Hochpräzisions-Stanzwerkzeuge

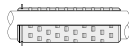

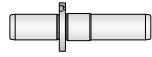
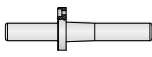
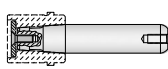



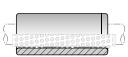













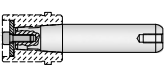


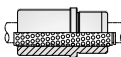

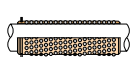



Maximale Abmessungen:
400 mm Ø für Kugelkäfige
200 mm Ø für Rollenkäfige

GABBIE A RULLI & A SFERE SPECIALI E PERSONALIZZATE SU INDICAZIONE DEL CLIENTE

Ideali per stampi ad alte prestazioni e applicazioni personalizzate per:

- Stampaggio nuclei di motori elettrici
- Stampaggio celle e pacchi batterie per veicoli elettrici
- Presse ad alta velocità
- Stampi di tranciatura ad alta precisione

Dimensioni massime:
400 mm Ø per gabbie a sfere
200 mm Ø per gabbie a rulli

BALL CAGES VS ROLLER CAGES	5		GR	ROLLER CAGE ROLLENKÄFIG GABBIA A RULLI	25		
CHOSS CHART ISO AND AFNOR COMPONENTS	6		RC5A	WASHER FOR CONICAL PILLAR HALTESCHEIBE FÜR KONISCHE FÜHRUNGSSÄULE RONDELLA PER COLONNA CONICA	26		
DIE COMPONENTS							
ISO							
	CEAS	STRIPPER MOUNTED PILLAR MITTENBUNDSÄULE COLONNA CON FLANGIA	8				
	CEAS64	STRIPPER MOUNTED CONICAL PILLAR KONISCHE MITTENBUNDSÄULE COLONNA CONICA CON FLANGIA	9				
	C5A	DEMOUNTABLE CONICAL PILLAR (WITH WASHER AND SCREW) FÜHRUNGSSÄULE MIT KONISCHEM SCHAFT (MIT SCHEIBE UND SCHRAUBE) COLONNA CONICA (COMPLETA DI RONDELLA E VITE)	10				
	BEAC	DEMOUNTABLE CONICAL BUSH HALTEBUCHSE FÜR KONISCHE FÜHRUNGSSÄULE BUSSOLA ESTRAIBILE CONICA	12				
	BEAC39	DEMOUNTABLE CONICAL BUSH HALTEBUCHSE FÜR KONISCHE FÜHRUNGSSÄULE BUSSOLA ESTRAIBILE CONICA	13				
	B1F64	THREADED CONICAL BUSH KONISCHE FÜHRUNGSBUCHSE MIT GEWINDE BUSSOLA FILETTATA CONICA	14				
	BLAG	GUIDE BUSH FOR BALL CAGE KUGELFÜHRUNGSBUCHSE BUSSOLA LISCIA PER GABBIA A SFERE	15				
	BEAG	DEMOUNTABLE BUSH FOR BALL CAGE KUGELFÜHRUNGSBUCHSE MIT BUND BUSSOLA ESTRAIBILE PER GABBIA A SFERE	17				
	BEAG44	DEMOUNTABLE BUSH FOR BALL CAGE KUGELFÜHRUNGSBUCHSE MIT BUND BUSSOLA ESTRAIBILE PER GABBIA A SFERE	18				
	BEAG46	DEMOUNTABLE BUSH FOR BALL CAGE KUGELFÜHRUNGSBUCHSE MIT BUND BUSSOLA ESTRAIBILE PER GABBIA A SFERE	19				
	B5AG	FLANGED GUIDE BUSH FOR BALL CAGE KUGELFÜHRUNGSBUCHSE MIT FLANSCH BUSSOLA A COLLARE PER GABBIA A SFERE	20				
	B1FG45	THREADED BUSH FOR BALL CAGE KUGELFÜHRUNGSBUCHSE MIT GEWINDE BUSSOLA FILETTATA PER GABBIE A SFERA	21				
	GSA	BALL CAGE WITH CIRCLIP GROOVE KUGELKÄFIG MIT SICHERUNGSRING GABBIA A SFERE CON SCANALATURA PER ANELLO D'ARRESTO	22				
	GSAB	BALL CAGE WITH STOP GROOVE KUGELKÄFIG MIT KÄFIGHALTER GABBIA A SFERE CON BLOCCAGGIO	23				
	GSAP	PLASTIC BALL CAGE KUGELKÄFIG AUS KUNSTSTOFF GABBIA A SFERE IN PLASTICA	24				
					R5730	WASHER FOR CONICAL PILLAR HALTESCHEIBE FÜR KONISCHE FÜHRUNGSSÄULE RONDELLA PER COLONNA CONICA	27
					GHF7348	NUT NUTMUTTER GHIERA	28
					GH23120	NUT NUTMUTTER GHIERA	29
					S-ISO	RETAINING CLAMPS HALTESTÜCKE STAFFETTE DI RITEGNO	30
					V	SCREWS FOR CLAMPS SCHRAUBE VITI PER STAFFETTE	31
AFNOR							
					C5726	DEMOUNTABLE CONICAL PILLAR (WITH WASHER AND SCREW) FÜHRUNGSSÄULE MIT KONISCHEM SCHAFT (MIT SCHEIBE UND SCHRAUBE) COLONNA CONICA (COMPLETA DI RONDELLA E VITE)	32
					BEC736	DEMOUNTABLE CONICAL BUSH HALTEBUCHSE FÜR KONISCHE FÜHRUNGSSÄULE BUSSOLA ESTRAIBILE CONICA	35
					BEG737	DEMOUNTABLE BUSH FOR BALL CAGE KUGELFÜHRUNGSBUCHSE MIT BUND BUSSOLA ESTRAIBILE PER GABBIA A SFERE	36
					BEG738	DEMOUNTABLE BUSH FOR BALL CAGE KUGELFÜHRUNGSBUCHSE MIT BUND BUSSOLA ESTRAIBILE PER GABBIA A SFERE	38
					B1FG772	THREADED BUSH FOR BALL CAGE KUGELFÜHRUNGSBUCHSE MIT GEWINDE BUSSOLA FILETTATA PER GABBIE A SFERA	40
					GS741	BALL CAGE WITH CIRCLIP GROOVE KUGELKÄFIG MIT SICHERUNGSRING GABBIA A SFERE CON SCANALATURA PER ANELLO D'ARRESTO	41
					R5730	WASHER FOR CONICAL PILLAR HALTESCHEIBE FÜR KONISCHE FÜHRUNGSSÄULE RONDELLA PER COLONNA CONICA	42
					GH23120	NUT NUTMUTTER GHIERA	43
					S5522	RETAINING CLAMP HALTESTÜCK STAFFETTA DI RITEGNO	44
TOLLERANCES						45	
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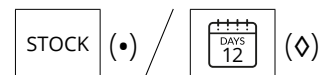
- 4 **C5A**
- 5 **DEMOUNTABLE CONICAL PILLAR (WITH WASHER AND SCREW)**
FÜHRUNGSSÄULE MIT KONISCHEM SCHAFT (MIT SCHEIBE UND SCHRAUBE) | COLONNA CONICA (COMPLETA DI RONDELLA E VITE)
- 6 **DIN 9825 / ISO 9182-4 / AFNOR**



Material: 1.7131 Hardness: 61+63 HRC Execution: superfinished	• STOCK 	3D-CAD 	HOW TO ORDER C5A * D1 * L1 * L3 (C5A168228)
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- 7
- 8
- 9
- 10

- 1 **ITEM-TYPE IDENTIFICATION COLOR**
PRODUKTTYP - IDENTIFIKATIONSFARBE
COLORE IDENTIFICATIVO DEL TIPO PRODOTTO
- 2 **ITEM SERIES**
PRODUKTSERIE
SERIE DI APPARTENENZA DEL PRODOTTO
- 3 **ITEM TYPE**
PRODUKTTYP
TIPO PRODOTTO
- 4 **ITEM FAMILY CODE**
PRODUKTFAMILIENCODE
CODICE FAMIGLIA PRODOTTO
- 5 **PRODUCT DESCRIPTION**
PRODUKTBESCHREIBUNG
DESCRIZIONE DEL PRODOTTO
- 6 **INTERNATIONAL STANDARDS REFERENCE**
INTERNATIONALE REFERENZNORMEN
STANDARD INTERNAZIONALI DI RIFERIMENTO
- 7 **TECHNICAL SPECIFICATIONS OF THE ITEM**
TECHNISCHE PRODUKTEIGENSCHAFTEN
CARATTERISTICHE TECNICHE PRODOTTO
- 8 **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"
- 9 **3D ITEM CAD FILE ON CADENAS**
3D-PRODUKT-CAD-DATEI AUF CADENAS
FILE PRODOTTO 3D SU CADENAS
- 10 **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



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

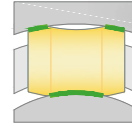
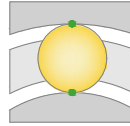
BALL CAGES VS ROLLER CAGES

KUGELKÄFIGE VS ROLLENKÄFIGE | GABBIE A SFERA VS GABBIE A RULLI

BUSH / BUCHSE / BUSSOLA

CONTACT AREA / BERÜHRUNGSOBERFLÄCHE / AREA CONTATTO

PILLAR / SAULE / COLONNA



FEATURES	BALL CAGES	ROLLER CAGES
play-free through optimal preload	★★★★★	★★★★★
low overheating due to less friction	★★★★★	★★★★★
suitable without lubrication	★★★★★	★★★★★
minimal wear through axial offset of balls/rollers	★★★★★	★★★★★
APPLICATIONS		
high precision	★★★★★	★★★★★
high speed	★★★★★	★★★★
stiffness under side overload	★★★	★★★★★
suitable for fine blanking	★★	★★★★★
suitable for thin sheet	★★★★★	★★★★★
suitable for any position and rotational motion	★★★★★	★★★★★
long working travel	★	★

EIGENSCHAFTEN	KUGELKÄFIGE	ROLLENKÄFIGE
Spielfrei durch optimale Vorspannung	★★★★★	★★★★★
Geringe Überhitzung durch geringere Reibung	★★★★★	★★★★★
Ohne Schmierung einsetzbar	★★★★★	★★★★★
Minimaler Verschleiß durch axialen Versatz der Kugeln/Rollen	★★★★★	★★★★★
ANWENDUNGEN		
Hohe Präzision	★★★★★	★★★★★
Hohe Geschwindigkeit	★★★★★	★★★★
Steifigkeit bei seitlicher Überlast	★★★	★★★★★
Geeignet für Feinschneiden	★★	★★★★★
Geeignet für dünne Bleche	★★★★★	★★★★★
Geeignet für jede Position und Drehbewegung	★★★★★	★★★★★
Langer Arbeitsweg	★	★

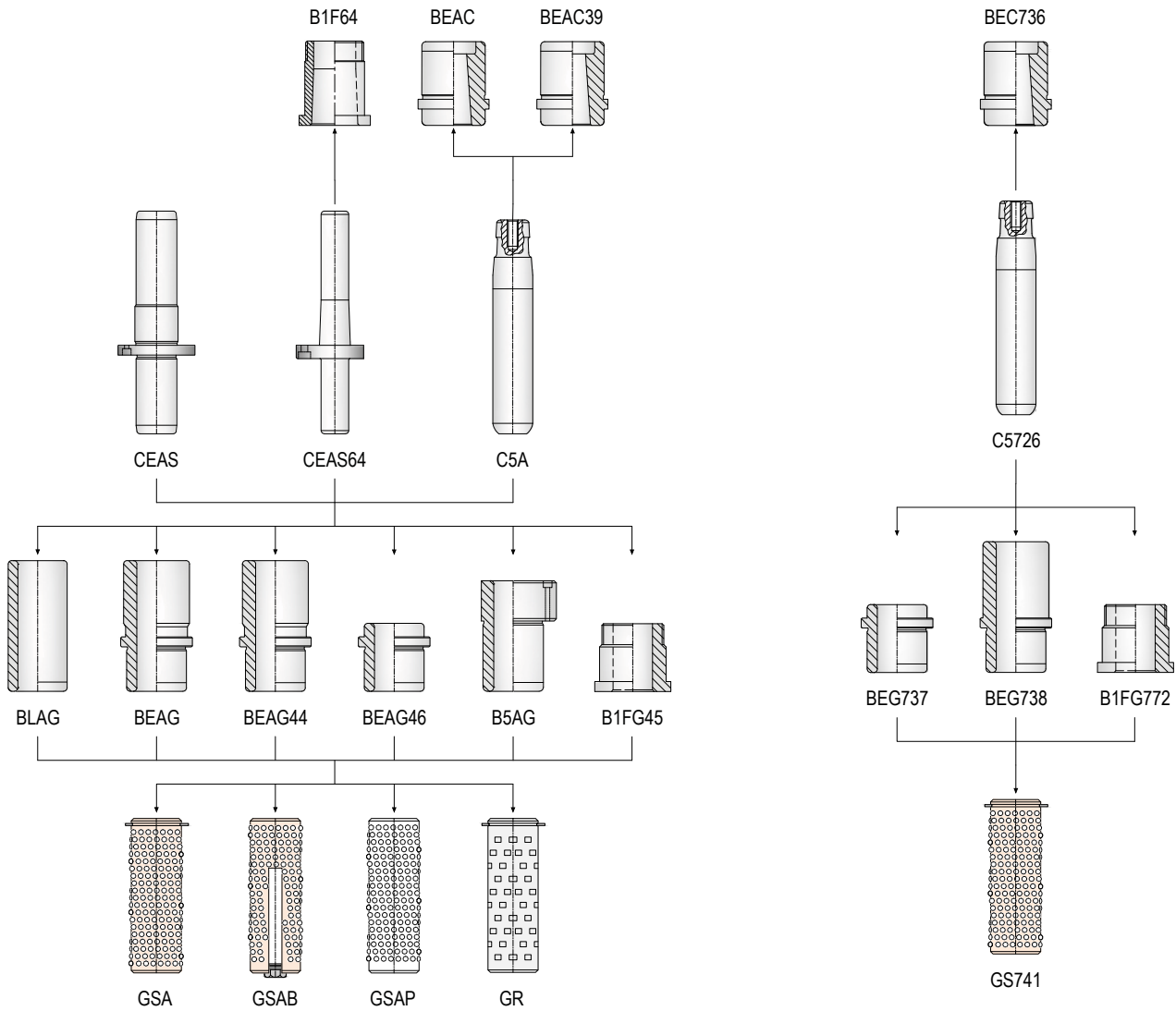
VANTAGGI	GABBIE A SFERA	GABBIE A RULLI
Senza gioco grazie al precarico ottimale	★★★★★	★★★★★
Basso surriscaldamento grazie al minor attrito	★★★★★	★★★★★
Adatto utilizzo senza lubrificazione	★★★★★	★★★★★
Usura minima grazie allo sfalsamento assiale di sfere/rulli	★★★★★	★★★★★
APPLICAZIONI		
Alta precisione	★★★★★	★★★★★
Alta velocità	★★★★★	★★★★
Rigidità con sovraccarico laterale	★★★	★★★★★
Adatto per trancitura fine	★★	★★★★★
Adatto per lamiere sottili	★★★★★	★★★★★
Adatto a qualsiasi posizione e movimento rotatorio	★★★★★	★★★★★
Grandi corse di lavoro	★	★

PAIRING GUIDE

AUSWAHLHILFE | GUIDA DI ACCOPPIAMENTO

ISO



AFNOR





PAIRING GUIDE

AUSWAHLHILFE | GUIDA DI ACCOPPIAMENTO

ISO

ITEM TYPE	FAMILY CODE	TOLERANCE			V max (m/min) *	SIDE FORCE
		PLATE HOLE Ø	MOUNTING SIDE Ø	SLIDING Ø		
 Pillar	CEAS	H5	js4	h3	--	--
	CEAS64					
	C5A	--	--			
 Bush	BEAC	H5	js4	--	High (60 - 100)	Low
	BEAC39	H6	m5			
	B1F64	H6	n5			
	BLAG + BALL CAGE	H5	js4			
	BEAG + BALL CAGE	H6				
	BEAG44 + BALL CAGE					
	BEAG46 + BALL CAGE		k5			
	B5AG + BALL CAGE	H5	js4			
	B1FG45 + BALL CAGE	H6	k5			
	BLAG + ROLLER CAGE	H5	js4			
	BEAG + ROLLER CAGE	H6				
	BEAG44 + ROLLER CAGE					
	BEAG46 + ROLLER CAGE		k5			
	B5AG + ROLLER CAGE	H5	js4			
	B1FG45 + ROLLER CAGE	H6	k5			
				Medium (20 - 60)	Low	

AFNOR

ITEM TYPE	FAMILY CODE	TOLERANCE			V max (m/min) *	SIDE FORCE
		PLATE HOLE Ø	MOUNTING SIDE Ø	SLIDING Ø		
 Pillar	C5726	--	--	h3	--	--
 Bush	BEC736	H6	m5	--	High (60 - 100)	Low
	BEG737					
	BEG738					
	B1FG772					

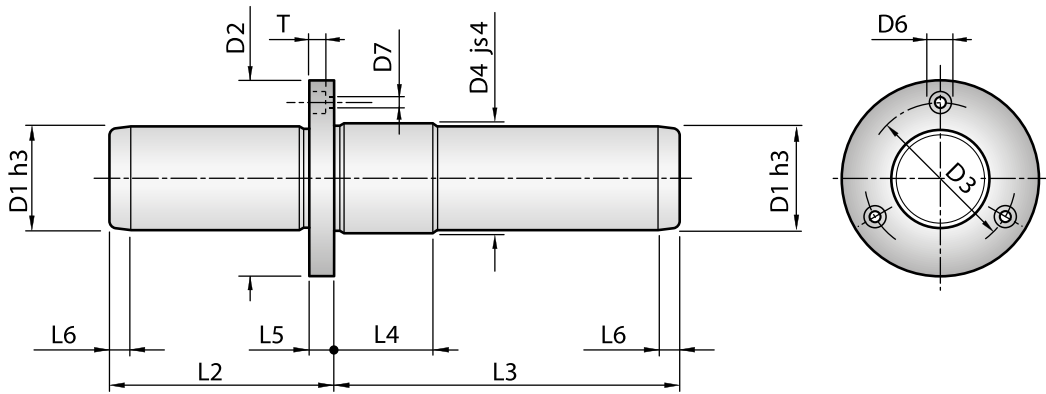
CEAS

STRIPPER MOUNTED PILLAR

MITTENBUNDSÄULE | COLONNA CON FLANGIA



Material: 1.7131 Hardness: 61÷63 HRC Execution: superfinished	• STOCK DAYS 12	3D-CAD	HOW TO ORDER CEAS * D1 * L2 * L3 (CEAS124050)
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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	8	4,5	16	8	4	4,6	60			•	•										
										70				•	•									
										80					•	•								
										90						•	•							
19	42	32	22	8	4,5	20	8	6	4,6	70				•	•									
										80					•	•								
										90						•	•							
										100							•	•						
25	48	38	26	8	4,5	22	8	6	4,6	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									•	•				

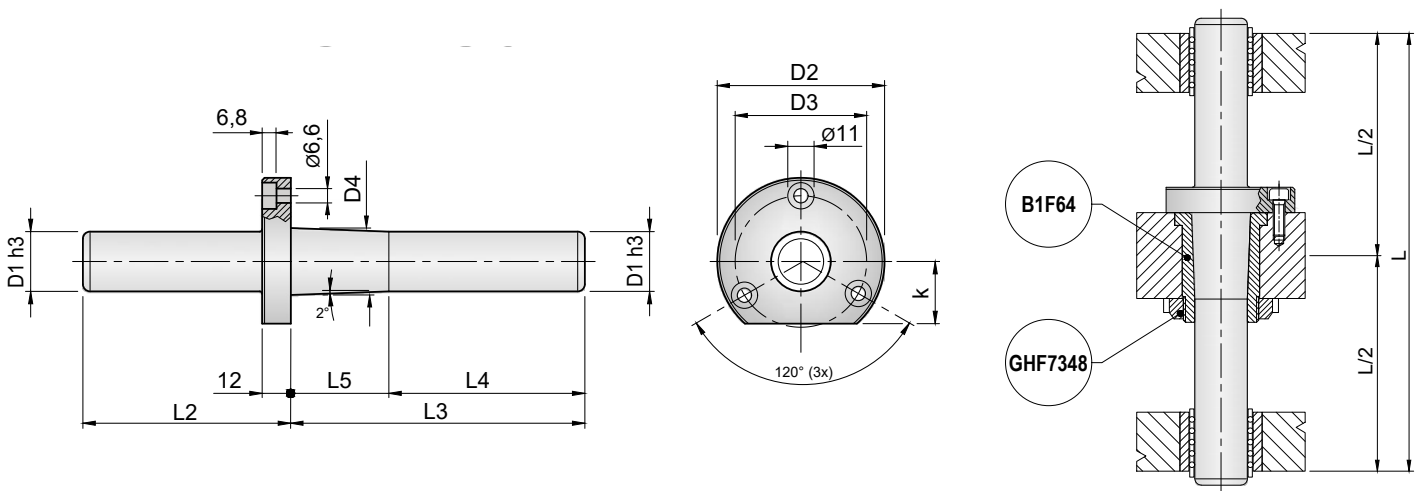
CEAS64

STRIPPER MOUNTED CONICAL PILLAR

KONISCHE MITTENBUNDSÄULE | COLONNA CONICA CON FLANGIA



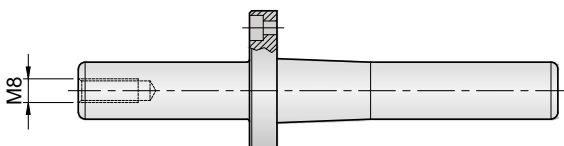
Material: 1.7131			HOW TO ORDER CEAS64 * D1 * L2 * L3 (CEAS6425102143)
Hardness: 61 ÷ 63 HRC			
Execution: superfinished			



D1	D2	D3	D4	K	L2	L3	L4	L5
25	70	55	27,86	26	102	143	102	41
					122			
32	76	62	34,86	30	102	153	112	
					122			
					137			
					142			
40	84	70	42,86	34	162	163	122	
					137			

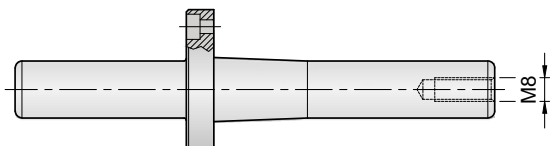
CEAS64F

Upon request (15 working days)



CEAS64Q

Upon request (15 working days)



BEAC

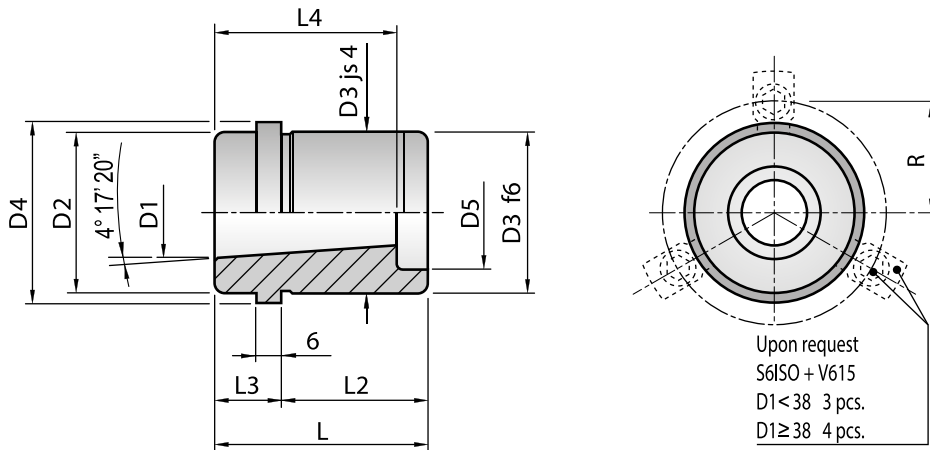
DEMOUNTABLE CONICAL BUSH

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 BEAC * D1 * L2 (BEAC3037)
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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	52	37	15	49	•
38 - 40	58	58	66	41	38,5	62	47		59	•
48 - 50	70	70	80	51	45,5	75	60		78	•
60 - 63	85	85	95	64	53	65	47	18	70	•
						78	60		95	77

BEAC39

DEMOUNTABLE CONICAL BUSH

HALTEBUCHSE FÜR KONISCHE FÜHRUNGSSÄULE | BUSSOLA ESTRAIBILE CONICA

~ AFNOR



Material: 1.7131

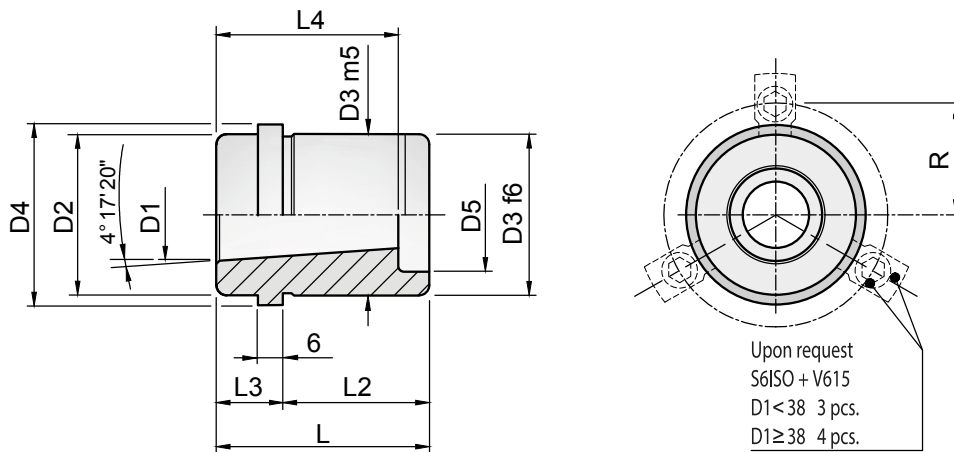
Hardness: 61 ÷ 63 HRC

Execution: conical diameter and D3 fine ground



HOW TO ORDER

BEAC39 * D1 * L2 (BEAC391630)

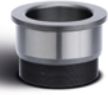


D1	D2	D3	D4	D5	R	L	L2	L3	L4
16	29	28	32	19	22,5	40	30	10	30
20	32	32	36	23	24,5	50	38	12	40
25	41	40	45	26	28,5	60	48	15	37
32	51	50	56	33	33,5	63	61		47
						76			50
40	65	63	70	41	40,5	63	48	18	63
						76			50
50	84	80	90	51	50,5	79	61	20	63
						96			78
63	100	90	110	64	60,5	98	78	20	80
						118			98
									99

B1F64

THREADED CONICAL BUSH

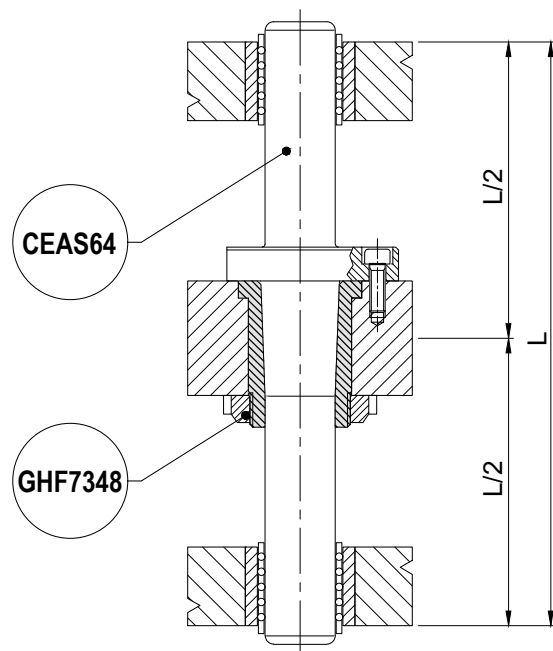
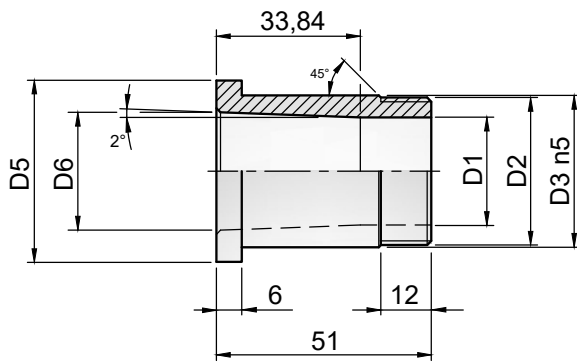
KONISCHE FÜHRUNGSBUCHSE MIT GEWINDE | BUSSOLA FILETTATA CONICA



Material: 1.7131
Hardness: 61 ÷ 63 HRC
Execution: conical diameter and D3 fine ground



HOW TO ORDER
CODE (B1F6425)



CODE	D1	D2	D3	D5	D6
B1F6425	25,5	M35x1,5	37	43	27,86
B1F6432	32,5	M40x1,5	44	50	34,86
B1F6440	40,5	M50x1,5	52	58	42,86

BLAG

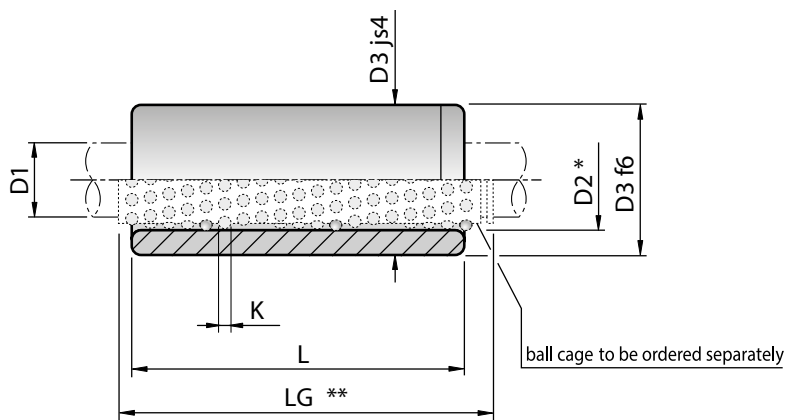
GUIDE BUSH FOR BALL CAGE

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 BLAG * D1 * L (BLAG1223)
--	-------------	------------	---



* $D2 = D1 + 2K$

** 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							•			

BLAG

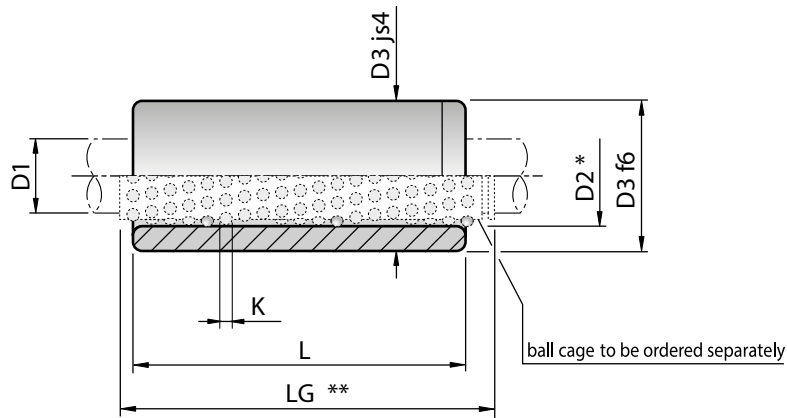
GUIDE BUSH FOR BALL CAGE

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 BLAG * D1 * L (BLAG1223)
---	-------------	------------	---



* $D2 = D1 + 2K$

** Suggested length for ball cage

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	50			•							
			63				•						
			80					•					
			95						•				
			120							•			
60 - 63	85	6	95					•	•				
			120							•			
80	105	6	140									•	
													•

BEAG

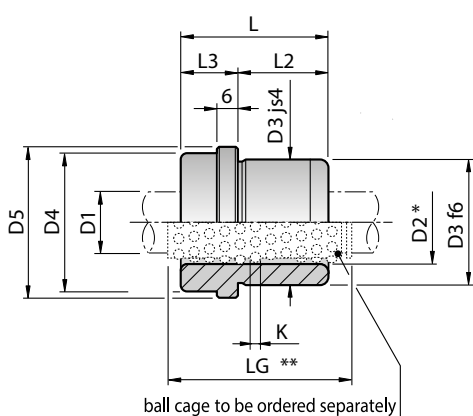
DEMOUNTABLE BUSH FOR BALL CAGE

KUGELFÜHRUNGSBUCHSE MIT BUND | BUSSOLA ESTRAIBILE PER GABBIA A SFERE

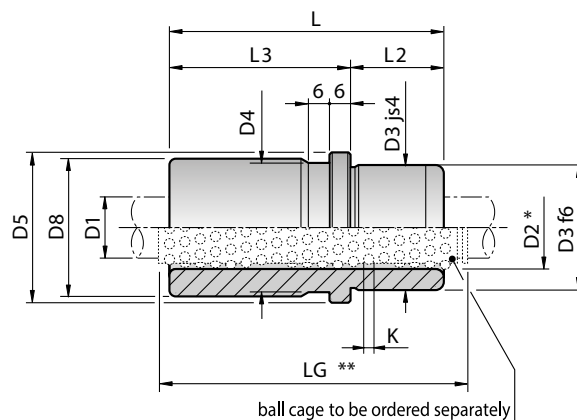
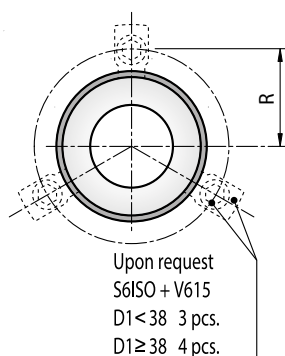
ISO 9448-7



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	42	30	50	95	3	5
				53		69		12	56		7
				---		75	32	80	9		
				---		93	45	95	6		
38 - 40	58	58	66	---	38,5	52	30	63	120	4	4
				63		79		56	120		5
				---		82	15	63	7		
				---		108	47	32	95		9
				---		110	37	45	105		6
48 - 50	70	70	80	---	45,5	65	37	71	120	4	4
				77		82		45	105		6
				---		108	37	71	120		4
				---		110	47	63	140		5
				---		127	60	18	80		7
60 - 63	85	85	95	---	53	96	47	36	120	3	9
				92		97		50	120		6
				---		131	80	71	160		5
				---		150	60	20	95		7
80	105	105	118	---	64,5	80	60	56	140	6	6
				115		116		90	160		4
				---		150		90	160		4
80	105	105	118	---	64,5	80	60	20	120	6	7
				115		120		60	140		6
				---		150		90	160		4

BEAG44

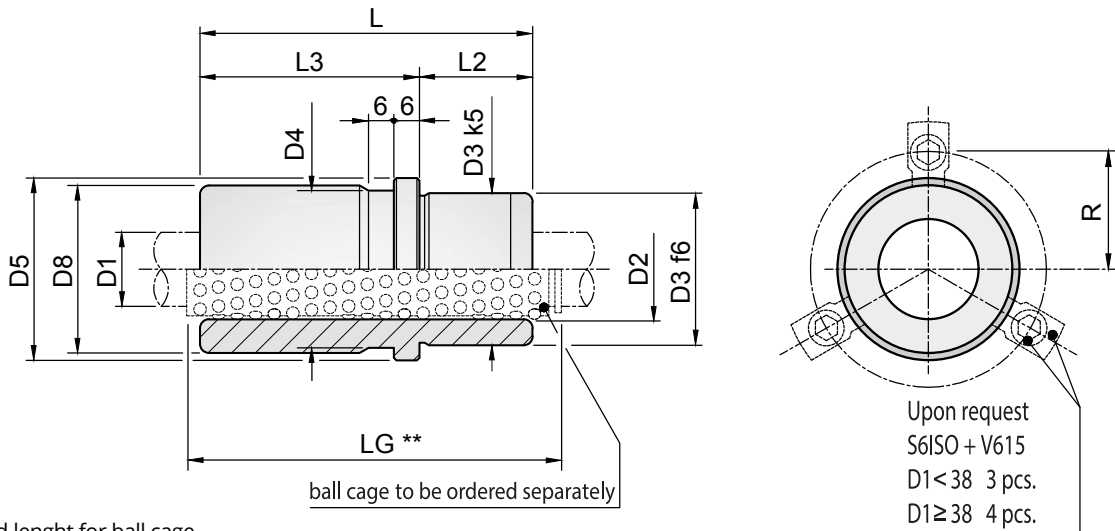
DEMOUNTABLE BUSH FOR BALL CAGE

KUGELFÜHRUNGSBUCHSE MIT BUND | BUSSOLA ESTRAIBILE PER GABBIA A SFERE

~ AFNOR



Material: 1.7131 Hardness: 61 ÷ 63 HRC Execution: inner diameter honed; D3 fine ground	DAYS 12	HOW TO ORDER BEAG44 * D1 * L2 (BEAG441623)
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** Suggested lenght for ball cage

D1	D2	D3	D4	D5	D8	R	L	L2	L3	LG **
16	22	28	29	32	31	22,5	55	23	32	63
							62	30		
							70	38		
20	26	32	32	36	35	24,5	66	30	36	71
							74	38		
25	31	40	40	45	43,5	28,5	63	23	40	71
							70	30		
							78	38		
							88	48		
							101	61		
32	40	50	50	56	53,5	33,5	68	23	45	80
							75	30		
							83	38		
							93	48		
							106	61		
40	48	63	63	70	67	40,5	80	30	50	95
							88	38		
							98	48		
							111	61		
							128	78		
							148	98		
50	58	80	80	90	87	50,5	101	38	63	120
							111	48		
							124	61		
							141	78		
63	71	90	90	110	107	60,5	161	98	63	180
							186	123		

BEAG46

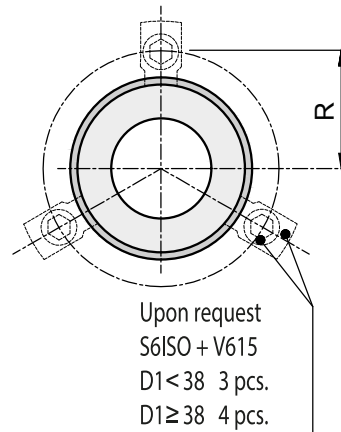
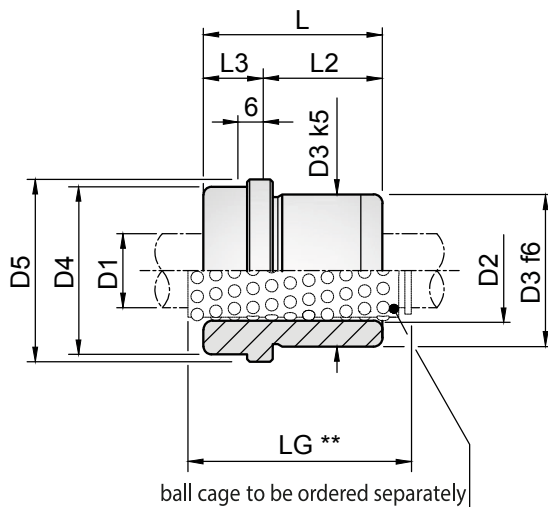
DEMOUNTABLE BUSH FOR BALL CAGE

KUGELFÜHRUNGSBUCHSE MIT BUND | BUSSOLA ESTRAIBILE PER GABBIA A SFERE

~ AFNOR



Material: 1.7131 Hardness: 61 ÷ 63 HRC Execution: inner diameter honed; D3 fine ground			HOW TO ORDER BEAG46 * D1 * L2 (BEAG461623)
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** Suggested lenght for ball cage

D1	D2	D3	D4	D5	R	L	L2	L3	LG **
16	22	28	29	32	22,5	33	23	10	45
						40	30		56
						48	38		63
						58	48		
20	26	32	32	36	24,5	42	30		45
						50	38		56
						60	48		71
25	31	40	40	45	28,5	42	30	12	45
						50	38		56
						60	48		71
						73	61		80
						90	78		105
32	40	50	50	56	33,5	45	30	15	56
						53	38		71
						63	48		80
						76	61		105
						93	78		120
						113	98		
40	48	63	63	70	40,5	63	48		80
						76	61		95
						93	78		105
						113	98		120
50	58	80	80	90	50,5	79	61	18	95
						96	78		105
						116	98		140
63	71	90	90	110	60,5	118	98	20	120
						143	123		160

B5AG

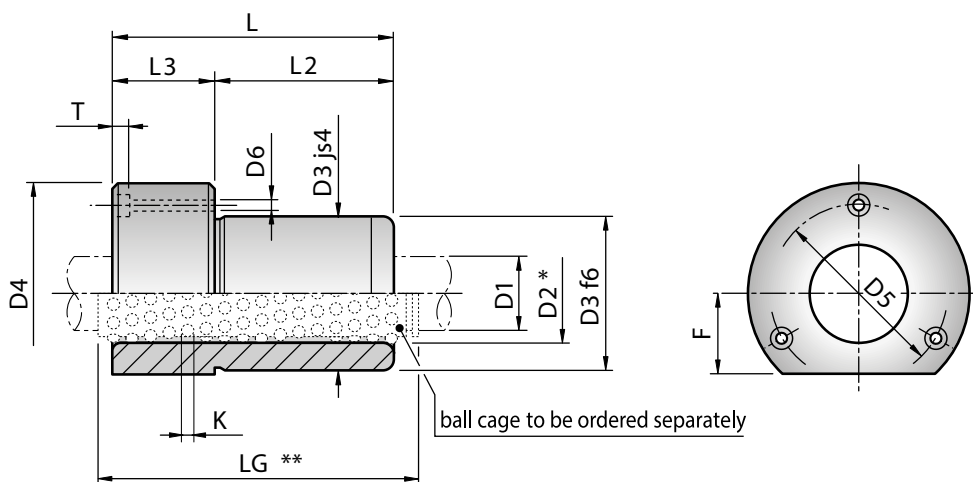
FLANGED GUIDE BUSH FOR BALL CAGE

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)
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* $D2 = D1 + 2K$

** 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	5,5	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				71
							72	47	25	80	4	
38 - 40	58	85	70	6,6	6,8	33	55	30	25	63	3	6
							67	37				80
							77	47	30	95	4	
48 - 50	70	104	86	9	9	38	62	37	25	80	3	6
							89	47				95
							102	60	42	120	4	
60 - 63	85	120	100	9	9	46	89	47	42	95	3	5
							102	60				120
							80	105	148	125	11	11

B1FG45

THREADED BUSH FOR BALL CAGE

KUGELFÜHRUNGSBUCHSE MIT GEWINDE | BUSSOLA FILETTATA PER GABBIE A SFERA

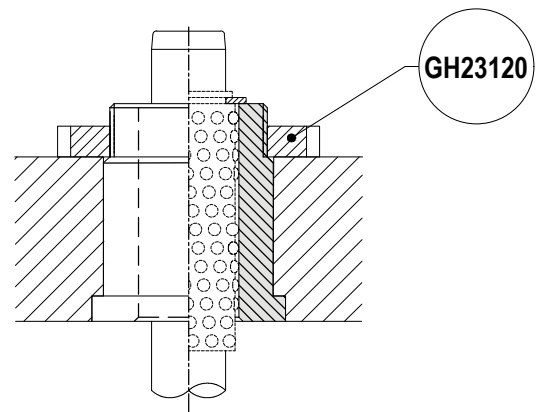
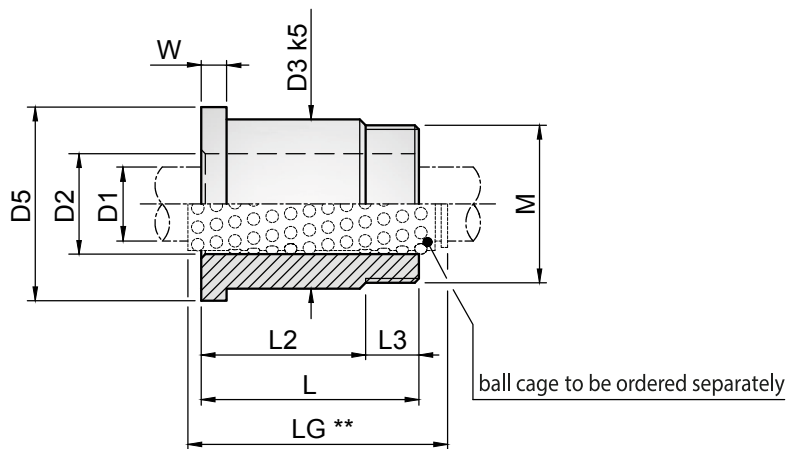
~ AFNOR



Material: 1.7131
Hardness: 61 ÷ 63 HRC
Execution: inner diameter honed; D3 fine ground



HOW TO ORDER
B1FG45 * D1 * L (B1FG451616)



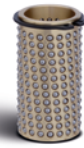
** Suggested length for ball cage

D1	D2	D3	D5	W	M	L	L2	L3	LG **	
16	22	28	32	3	M27x1	16	11	5	25	
						20	15			
20	26	32	36		M30x1	17	11	6	25	
						21	15			
25	31	40	45		M39x1	25	19	7	31	
						22	15			
32	40	50	56	M48x1	26	19	7			40
					31	24				
40	48	63	70	M60x1	26	19	8			50
					31	24				
50	58	80	90	M76x1	32	24	10	56		
					38	31				
						32	24		50	
						39	31			
						41	31		50	
						47	39			
						41	31		50	
						49	39			

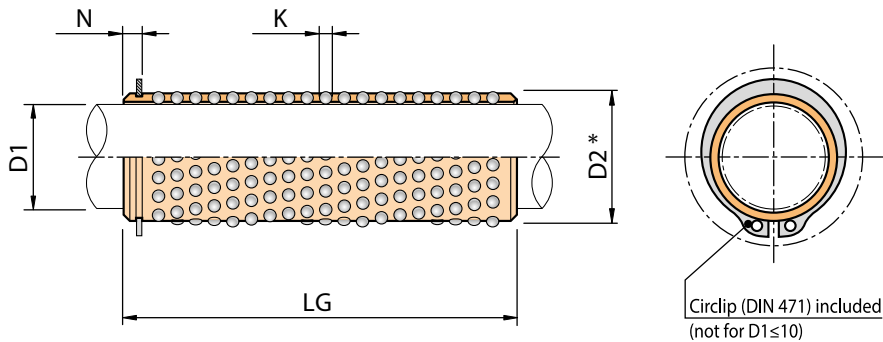
GSA

BALL CAGE WITH CIRCLIP GROOVE

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



Material: Cage: brass; Balls: hardened steel conforming to DIN 5401 Hardness: - Execution: -	• STOCK 	3D-CAD 		HOW TO ORDER GSA * D1 * LG (GSA310)
---	-------------	------------	--	--



* 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							• 120	• 140	• 160	• 180	• 240	• 260	• 280	• 340	• 380	• 440	• 520	• 600							
38 - 40	4	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				

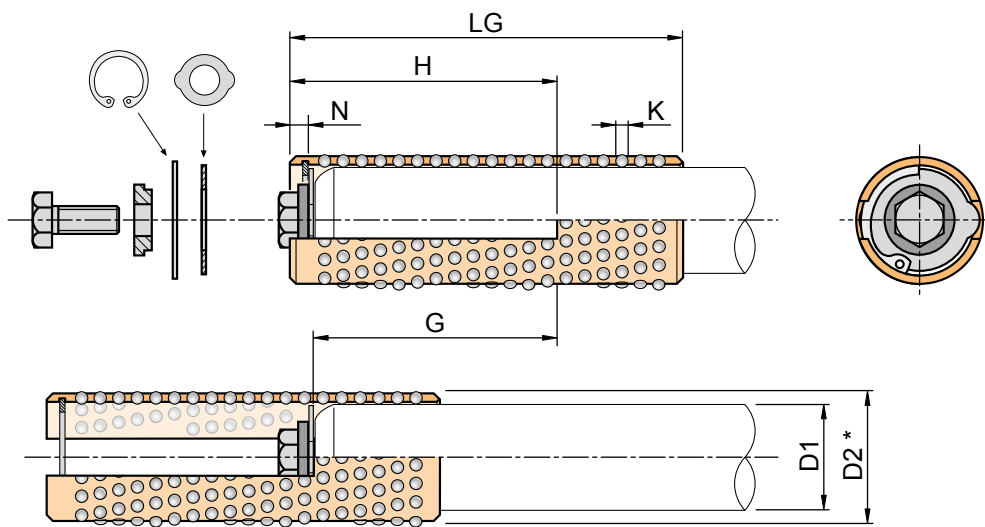
GSAB

BALL CAGE WITH STOP GROOVE

KUGELKÄFIG MIT KÄFIGHALTER | GABBIA A SFERE CON BLOCCAGGIO



Material: Cage: brass; Balls: hardened steel conforming to DIN 5401 Hardness: - Execution: -	STOCK	3D-CAD	HOW TO ORDER GSAB * D1 * LG (GSAB1956)
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* 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			• 240							
		46,9	51				• 264						
24 - 25		26,9	31			• 184							
		36,9	41				• 240						
		46,9	51					• 264					
30 - 32	4	36,9	41	3,5		• 184							
		46,9	51				• 208						
		56,9	61					• 252					
38 - 40		45,5	51					• 264					
		55,5	61						• 320				
		67,5	73							• 368			
48 - 50	4,3	44,7	51	4,3				• 320					
		54,7	61					• 388					
		66,7	73						• 444				
60 - 63		54,7	61							• 456			
		66,7	73								• 592		
		76,7	83									• 704	
80	6	54	61	5					• 368				
		66	73								• 460		
		76	83									• 560	

GSAP

PLASTIC BALL CAGE

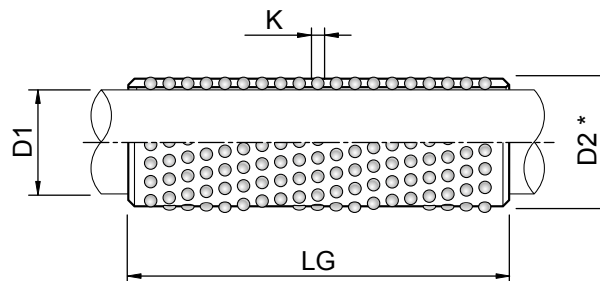
KUGELKÄFIG AUS KUNSTSTOFF | GABBIA A SFERE IN PLASTICA



Material: Cage: polyacetat; Balls: hardened steel conforming to DIN 5401
Hardness: -
Execution: -



HOW TO ORDER
GSAP * D1 * LG (GSAP1010)



* D2 = D1 + 2K

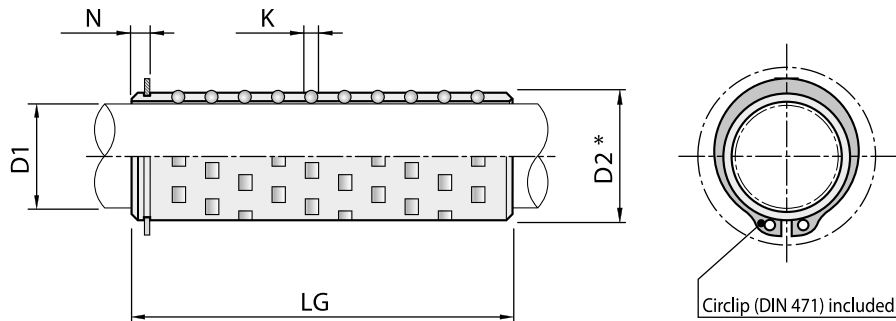
◇ 000 = No. of balls

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



<p>Material: Cage: Aluminum; Rollers: hardened steel conforming to DIN 5402 Hardness: - Execution: -</p>	<p>DAYS 18</p>	<p>3D-CAD</p>	<p>HOW TO ORDER</p> <p>GR * D1 * LG (GR1541)</p>
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* 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	4	3,2		◇ 40	◇ 50	◇ 60	◇ 70	◇ 80	◇ 90	◇ 100		◇ 110	◇ 120	◇ 130									
30 - 32				◇ 48	◇ 60	◇ 72	◇ 84	◇ 96	◇ 108	◇ 120		◇ 132	◇ 144	◇ 156		◇ 168	◇ 180		◇ 192				
38 - 40	6	3,95			◇ 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	6	4,75					◇ 154	◇ 176	◇ 198	◇ 220		◇ 242	◇ 264	◇ 286		◇ 308	◇ 330		◇ 352	◇ 374	◇ 396	◇ 440	
80				6,15									◇ 128		◇ 144		◇ 160	◇ 176		◇ 192			◇ 224

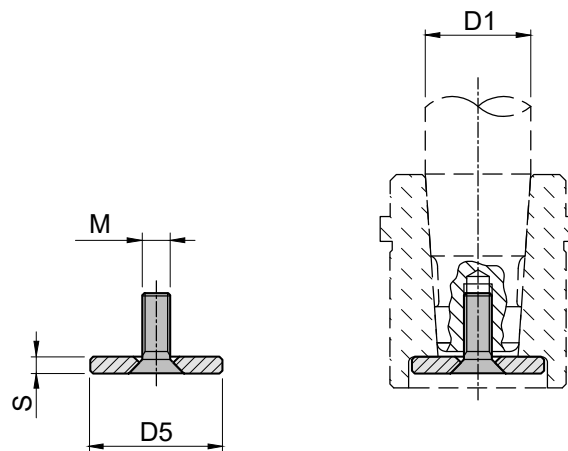
RC5A

WASHER FOR CONICAL PILLAR

HALTESCHEIBE FÜR KONISCHE FÜHRUNGSSÄULE | RONDELLA PER COLONNA CONICA



Material: 1.7131 Hardness: - Execution: -	STOCK	3D-CAD 		HOW TO ORDER RC5A * D5 (RC5A22)
---	-------	---	---	------------------------------------



D1	D5	S	M
19 - 20	22	3	M6
24 - 25	25		M8
30 - 32	32	5	M10
38 - 40	40		M12
48 - 50	50	6	
60 - 63	63		

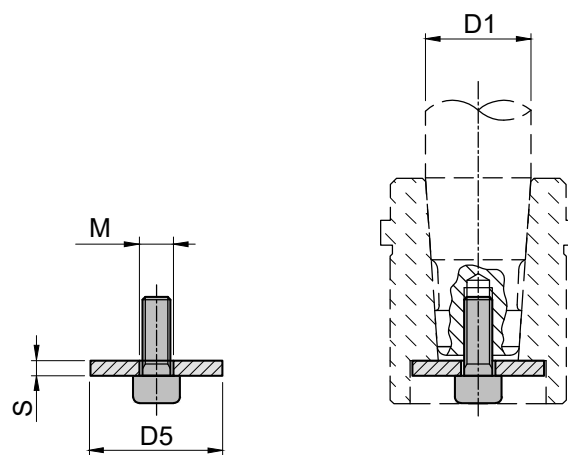
R5730

WASHER FOR CONICAL PILLAR

HALTESCHEIBE FÜR KONISCHE FÜHRUNGSSÄULE | RONDELLA PER COLONNA CONICA



Material: 1.7131	 DAYS 12	3D-CAD 	 HOW TO ORDER R5730 * D5 * S (R5730142)
Hardness: -			
Execution: -			



D1	D5	S	M
12	14	2	M5
16	18	3	M6
20	22		
25	25	4	M8
32	32		
40	40		
50	50	5	M10
63	63	6	M12
80	80	8	M16

GHF7348

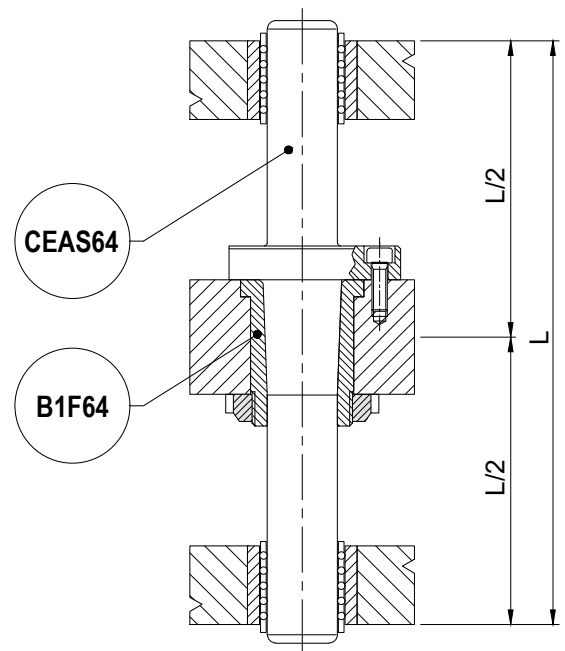
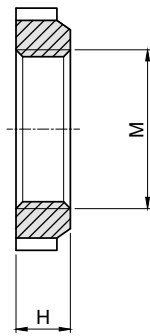
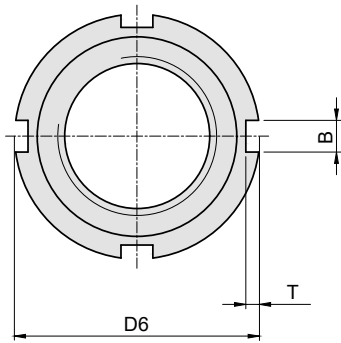
NUT
NUTMUTTER | GHIERA
DIN 1804



Material: steel
Hardness: -
Execution: -



HOW TO ORDER
CODE (GHF7348M35)



CODE	D6	B	T	H	M	SLOTS
GHF7348M35	55	7	3	11	M35x1,5	4
GHF7348M40	62	8	3,5	12	M40x1,5	
GHF7348M50	75	8		13	M50x1,5	6

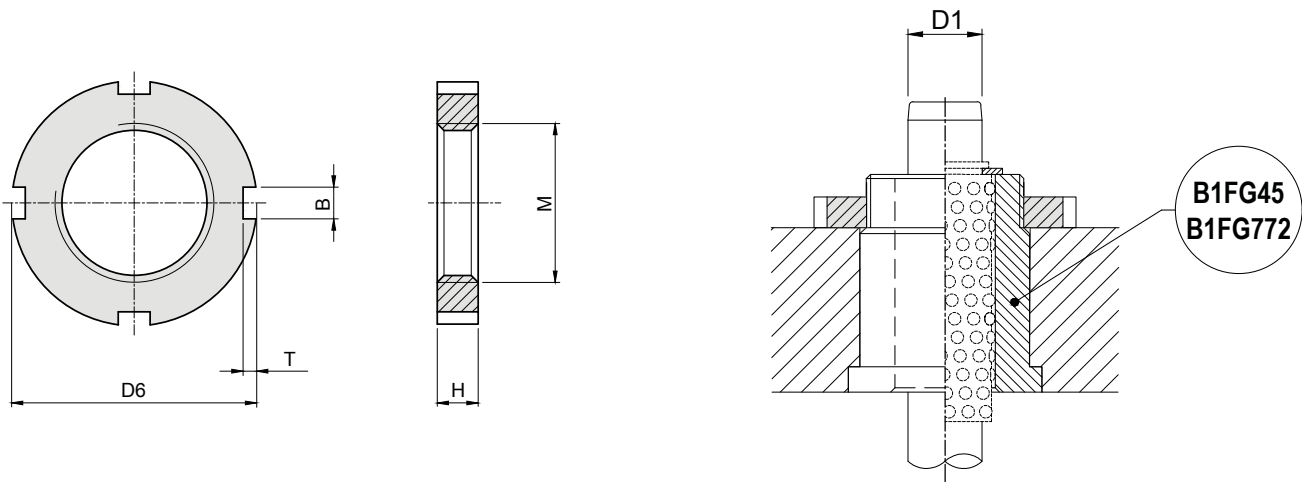
GH23120

NUT

NUTMUTTER | GHIERA



Material: steel			HOW TO ORDER GH23120 * D1 (GH2312012)
Hardness: -			
Execution: -			





B1FG45
B1FG772

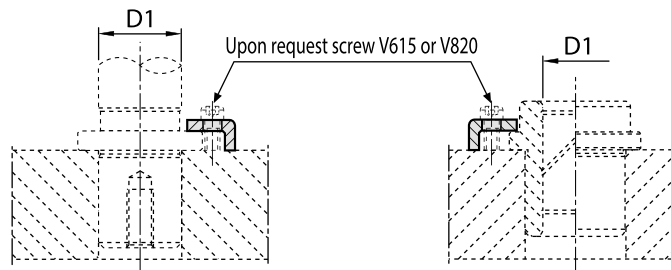
D1	D6	B	T	H	M
12	34	4	2,5	3	M22x1
16	40	5	3		M27x1
20	44			6	3,5
25	55	M39x1			
32	65	M48x1			
40	81	7	4	6	M60x1
50	100	8		8	M76x1
63	104	6			M85x1

S-ISO

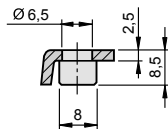
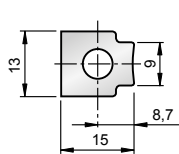
RETAINING CLAMPS

HALTESTÜCKE | STAFFETTE DI RITEGNO

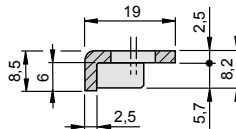
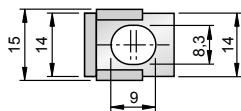
Material: steel Hardness: - Execution: -	STOCK	3D-CAD 		HOW TO ORDER CODE (S6ISO)
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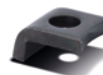
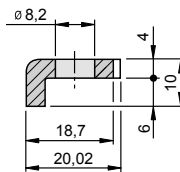
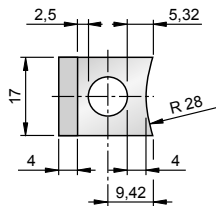
S6ISO



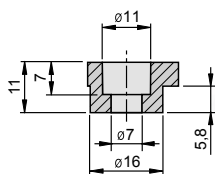
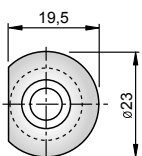
S8ISO



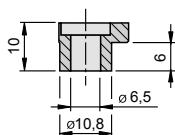
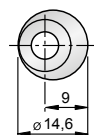
S8PISO



S23ISO



S5270



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

V

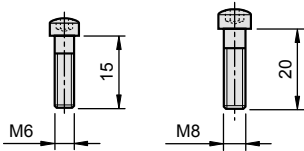
SCREWS FOR CLAMPS

SCHRAUBE | VITI PER STAFFETTE

ISO 7380



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

C5726

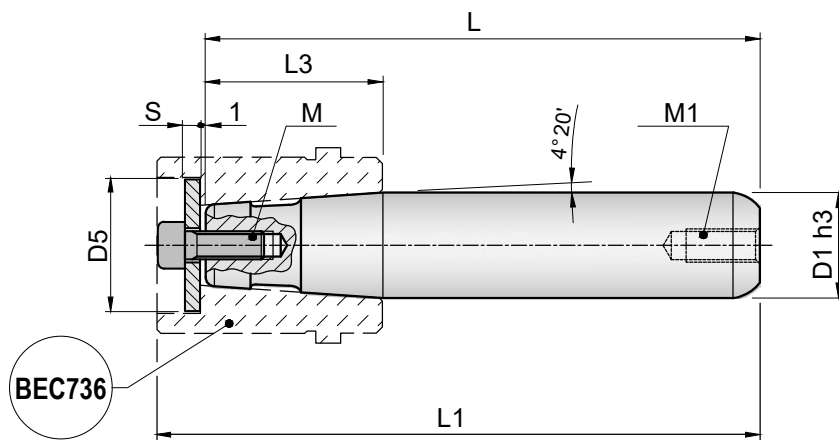
DEMOUNTABLE CONICAL PILLAR (WITH WASHER AND SCREW)

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

AFNOR



Material: 1.7131 Hardness: 61÷63 HRC Execution: superfinished	 DAYS 12		HOW TO ORDER C5726 * D1 * L1 * L3 (C57261210023)
---	--	---	---



D1	D5	S	M	M1	WASHER	L3	L	L1																				
								100	125	140	160	180	200	224	250	280	315	355	400	450	500							
12	14	2	M5	M5	R5730142	23	90	◇																				
							115		◇																			
							130			◇																		
							150				◇																	
16	18	3	M6	M6	R5730183	28	88	◇																				
							113		◇																			
							128			◇																		
							148				◇																	
20	22	3	M6	M6	R5730223	38	113		◇																			
							128			◇																		
							148				◇																	
							168					◇																
25	25	4	M8	M8	R5730254	35	110		◇																			
							125			◇																		
							145				◇																	
							165					◇																
						185						◇																
						209							◇															
						235									◇													
						45	110		◇																			
	125			◇																								

D1	D5	S	M	M1	WASHER	L3	L	L1																				
								100	125	140	160	180	200	224	250	280	315	355	400	450	500							
25	25	4	M8	M8	R5730254	45	145				◇																	
							165					◇																
							185						◇															
							209									◇												
							235											◇										
32	32				4	M8	M8	R5730324	48	145				◇														
										165					◇													
										185						◇												
										209									◇									
										235											◇							
								265													◇							
								300															◇					
								145										◇										
								165											◇									
								185												◇								
209																◇												
235																	◇											
265																		◇										
300																			◇									
40	40				4	M8	M8	R5730404	48	165					◇													
		185											◇															
		209												◇														
		235														◇												
		265																◇										
		300																		◇								
		165													◇													
		185														◇												
		209															◇											
		235																◇										
		265																	◇									
		300																		◇								
		165														◇												
		185															◇											
		209																◇										
235														◇														
265															◇													
300																◇												
50	50	5	M10	M10	R5730505	61	182						◇															
							206								◇													
							232										◇											
							262												◇									
							297													◇								
							337														◇							
					382																◇							
					182										◇													
					206											◇												
					232												◇											
					262													◇										
					297														◇									
337															◇													
382																◇												
63	63	6	M12		R5730636	77	229							◇														
							259									◇												
							294											◇										
							334													◇								
							379																◇					



BEC736

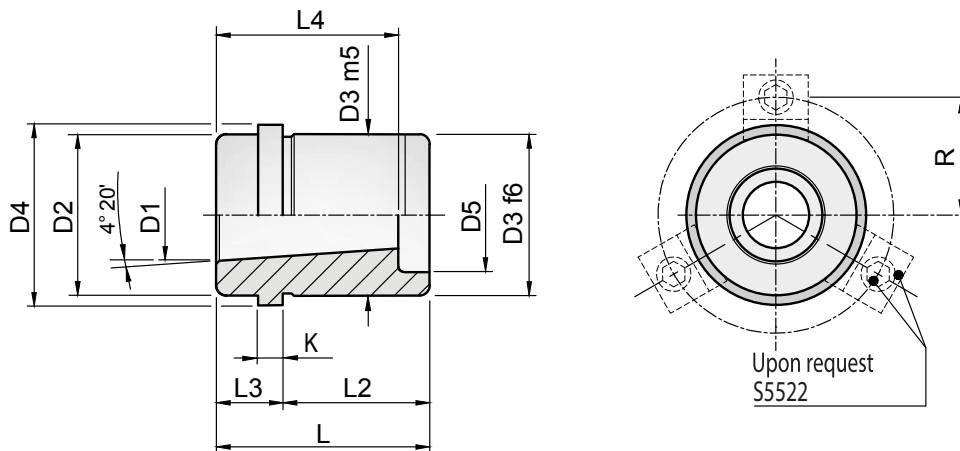
DEMOUNTABLE CONICAL BUSH

HALTEBUCHSE FÜR KONISCHE FÜHRUNGSSÄULE | BUSSOLA ESTRAIBILE CONICA

AFNOR



Material: 1.7131 Hardness: 61÷63 HRC Execution: conical diameter and D3 fine ground	 DAYS 12	 HOW TO ORDER BEC736 * D1 * L2 (BEC7361223)
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D1	D2	D3	D4	D5	R	W	L	L2	L3	L4	CLAMP	QTY	
12	22	22	25	15	17,5	3	33	23	10	25	S5522-1	2	
16	29	28	32	19	21		40	30		30			
20	32	32	36	23	23,5	4	50	38	12	40	S5522-2		
25	41	40	45	26	28		60	48		37			47
32	51	50	56	33	35,5	5	63	61	15	50	S5522-3	3	
40	65	63	70	41	42,5		76	61		63			50
							63	48		63			63
50	84	80	90	51	54,5	93	78	80	80	18	S5522-4		
						79	61	63	63				
63	100	90	110	64	65,5	6	96	78	79	18	S5522-4		
							98	78	79			79	
80	125	110	135	81	78,5	10	118	98	99	20	S5522-5	4	
													93

BEG737

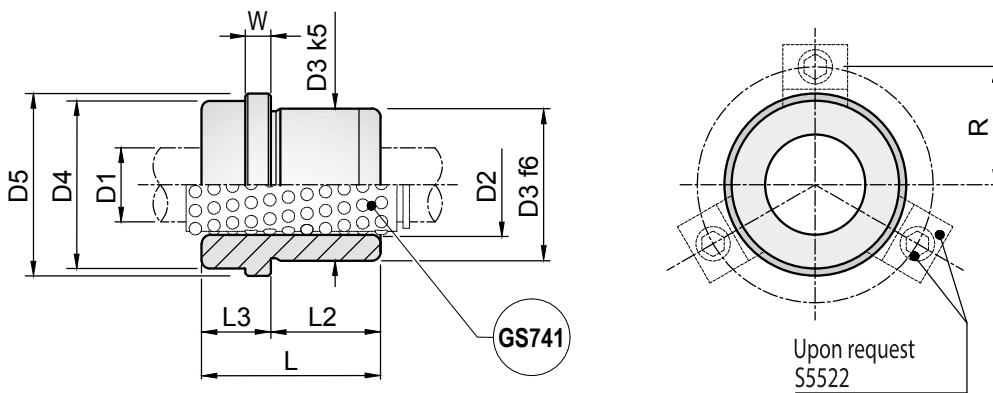
DEMOUNTABLE BUSH FOR BALL CAGE

KUGELFÜHRUNGSBUCHSE MIT BUND | BUSSOLA ESTRAIBILE PER GABBIA A SFERE

AFNOR



<p>Material: 1.7131 Hardness: 61÷63 HRC Execution: inner diameter honed; D3 fine ground</p>	<p>DAYS 12</p>	<p>HOW TO ORDER BEG737 * D1 * L2 (BEG7371218)</p>
---	--------------------	--



D1	D2	D3	D4	D5	R	W	L	L2	L3	CLAMP	QTY
12	16	22	22	25	17,5	3	28	18	10	S5522-1	2
							33	23			
							40	30			
16	20	28	29	32	21	3	33	23	10	S5522-1	2
							40	30			
							48	38			
20	25	32	32	36	23,5	4	58	48	12	S5522-2	2
							35	23			
							42	30			
25	32	40	41	45	28	4	50	38	12	S5522-2	2
							60	48			
							73	61			
32	40	50	51	56	35,5	5	90	78	15	S5522-3	3
							42	30			
							50	38			
40	50	63	65	70	42,5	5	60	48	15	S5522-3	3
							76	61			
							93	78			
40	50	63	65	70	42,5	5	113	98	15	S5522-3	3
							63	48			
							76	61			
40	50	63	65	70	42,5	5	93	78	15	S5522-3	3
							113	98			
							63	48			

D1	D2	D3	D4	D5	R	W	L	L2	L3	CLAMP	QTY
50	63	80	84	90	54,5	6	79	61	18	S5522-4	3
							96	78			
							116	98			
63	75	90	100	110	65,5	10	118		20	S5522-5	4
80	92	110	125	135	78,5		143	123			

BEG738

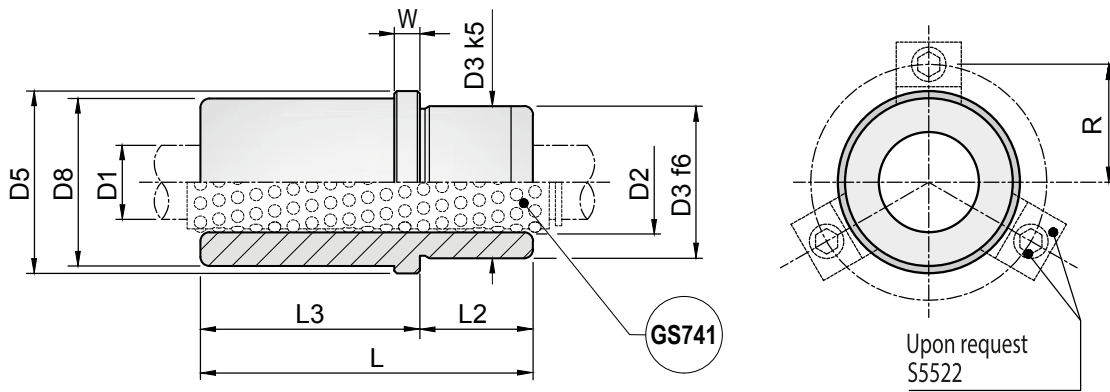
DEMOUNTABLE BUSH FOR BALL CAGE

KUGELFÜHRUNGSBUCHSE MIT BUND | BUSSOLA ESTRAIBILE PER GABBIA A SFERE

AFNOR



Material: 1.7131 Hardness: 61÷63 HRC Execution: inner diameter honed; D3 fine ground	DAYS 12	HOW TO ORDER BEG738 * D1 * L2 (BEG7381218)
--	---------	---



D1	D2	D3	D5	D8	R	W	L	L2	L3	CLAMP	QTY
12	16	22	25	22	17,5	3	43	18	25	S5522-1	2
							48	23			
							55	30			
16	20	28	32	29	21	3	62	38	32	S5522-1	2
							70	38			
							59	23			
20	25	32	36	32	23,5	4	66	30	36	S5522-2	2
							74	38			
							84	48			
25	32	40	45	41	28	4	63	23	40	S5522-2	2
							70	30			
							78	38			
32	40	50	56	51	35,5	5	88	48	45	S5522-3	3
							101	61			
							75	30			
40	50	63	70	65	42,5	5	83	38	50	S5522-3	3
							93	48			
							106	61			
40	50	63	70	65	42,5	5	123	78	50	S5522-3	3
							80	30			
							88	38			
40	50	63	70	65	42,5	5	98	48	50	S5522-3	3
							111	61			
							128	78			
40	50	63	70	65	42,5	5	148	98	50	S5522-3	3
							111	61			
							128	78			

D1	D2	D3	D5	D8	R	W	L	L2	L3	CLAMP	QTY
50	63	80	90	84	54,5	6	101	38	63	S5522-4	3
							111	48			
							124	61			
							141	78			
							161	98			
63	75	90	110	100	65,5	10	186	123	S5522-5	4	
80	92	110	135	125	78,5		193				
							228				158

B1FG772

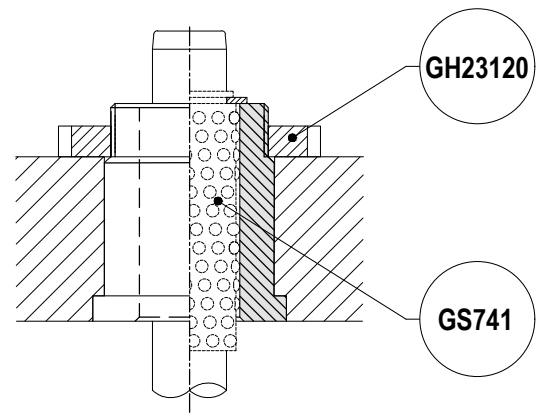
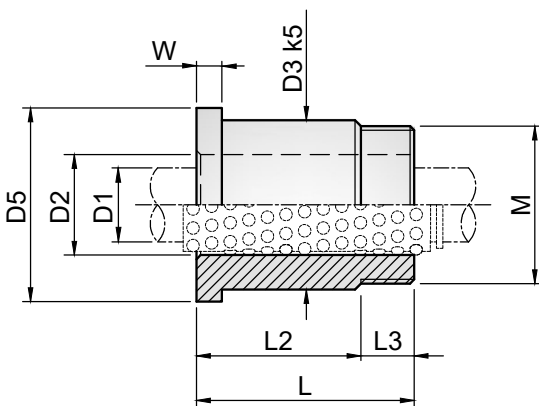
THREADED BUSH FOR BALL CAGE

KUGELFÜHRUNGSBUCHSE MIT GEWINDE | BUSSOLA FILETTATA PER GABBIE A SFERA

AFNOR



Material: 1.7131 Hardness: 61÷63 HRC Execution: inner diameter honed; D3 fine ground	DAYS 12		HOW TO ORDER B1FG772 * D1 * L2 (B1FG7721211)
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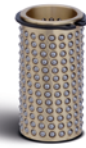
D1	D2	D3	D5	W	M	L	L2	L3
12	16	22	25	2	M22x1	16	11	5
16	20	28	32	3	M27x1	20	15	
20	25	32	36		M30x1	17	11	6
						21	15	
						25	19	
25	32	40	45		M39x1	18	11	7
						22	15	
				26		19		
				31		24		
32	40	50	56	M48x1	38	31		
					22	15		
					26	19		
					31	24		
40	50	63	70	M60x1	32	24	8	
					39	31		
					47	39		
50	63	80	90	5	M76x1	41	31	10
						49	39	
63	75	90	100	7	M85x1	48	38	

GS741

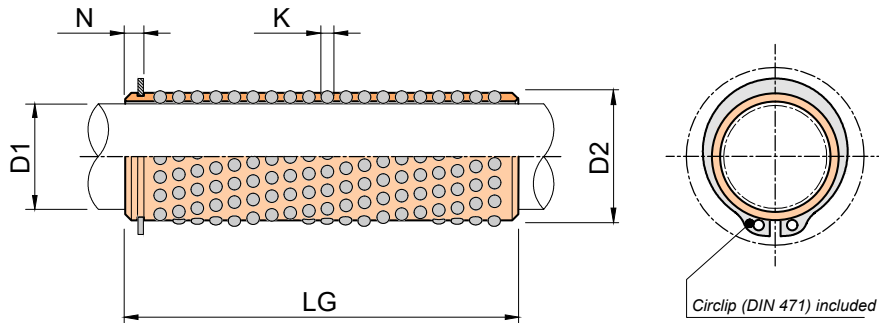
BALL CAGE WITH CIRCLIP GROOVE

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

AFNOR



Material: Cage: brass; Balls: hardened steel conforming to DIN 5401	<p>DAYS 18</p>	<p>HOW TO ORDER GS741 * D1 * LG (GS7411220)</p>
Hardness: -		
Execution: -		



∅ 000,0 = LG

D1	D2	K	N	NUMBER OF ROWS																							
				4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	27	
12	16	2	2,6	∅ 20,6	∅ 23,6						∅ 38,6		∅ 44,6			∅ 53,6											
16	20	2	2,8	∅ 20,8		∅ 26,8				∅ 35,8	∅ 38,8		∅ 44,8			∅ 53,8		∅ 59,8	∅ 62,8	∅ 65,8				∅ 77,8			
20	25	2,5	2,8	∅ 24,5	∅ 28,1	∅ 31,7	∅ 35,3	∅ 39	∅ 42,5	∅ 46,1	∅ 49,7	∅ 53,3	∅ 56,9		∅ 64,5	∅ 67,7	∅ 71,3		∅ 78,5		∅ 85,7	∅ 89,3		∅ 96,5			
25	32	3,5	3,6	∅ 26,6	∅ 31,3	∅ 36	∅ 40,7	∅ 45,4	∅ 50,1	∅ 54,8	∅ 59,5		∅ 68,9		∅ 78,3		∅ 87,7		∅ 97,1	∅ 101	∅ 106,5						
32	40	4	3,9	∅ 31,3	∅ 36,9	∅ 42,5	∅ 48,1		∅ 59,3		∅ 70,5	∅ 76,1	∅ 81,7	∅ 87,3	∅ 92,9		∅ 104,1		∅ 115,3	∅ 120,9		∅ 132,1					
40	50	5	3,9		∅ 43,4	∅ 50,2	∅ 57		∅ 70,6		∅ 84,1	∅ 91	∅ 97,8	∅ 104,6		∅ 118,2		∅ 131,8	∅ 138,6		∅ 159	∅ 165,8					
50	63	6,5	4,2		∅ 51,4	∅ 59,7				∅ 92,9		∅ 109,5		∅ 126,1	∅ 134,4		∅ 151		∅ 167,6								
63	75	6	5,2										∅ 127,1			∅ 152		∅ 168,6			∅ 193,5						
80	92	6	6,2													∅ 154					∅ 187,2		∅ 203,8			∅ 237	

R5730

WASHER FOR CONICAL PILLAR

HALTESCHEIBE FÜR KONISCHE FÜHRUNGSSÄULE | RONDELLA PER COLONNA CONICA

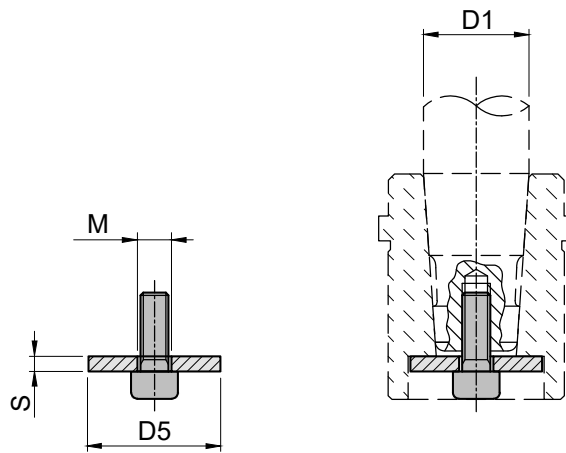


Material: 1.7131
Hardness: -
Execution: -



HOW TO ORDER

R5730 * D5 * S (R5730142)



D1	D5	S	M
12	14	2	M5
16	18	3	M6
20	22		
25	25	4	M8
32	32		
40	40		
50	50	5	M10
63	63	6	M12
80	80	8	M16

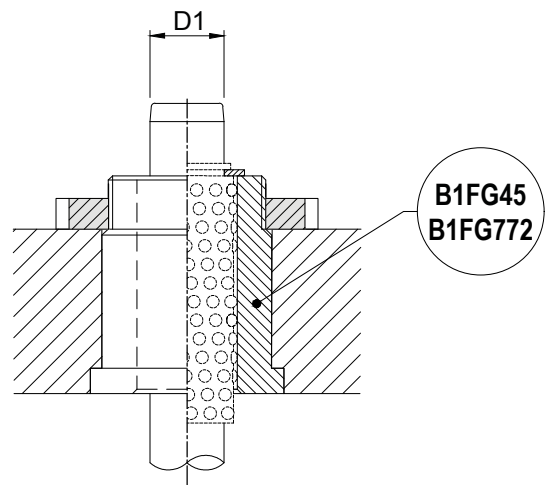
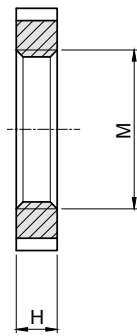
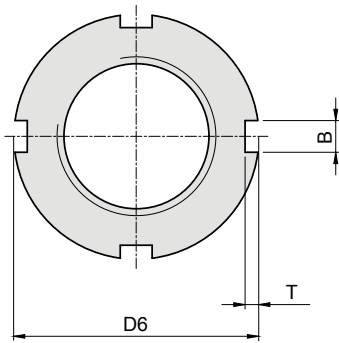
GH23120

NUT

NUTMUTTER | GHIERA



Material: steel			HOW TO ORDER GH23120 * D1 (GH2312012)
Hardness: -			
Execution: -			



D1	D6	B	T	H	M
12	34	4	2,5	3	M22x1
16	40	5	3	4	M27x1
20	44				M30x1
25	55	6	3,5	5	M39x1
32	65				M48x1
40	81	7	4	6	M60x1
50	100	8			M76x1
63	104	6		8	M85x1

S5522

RETAINING CLAMP

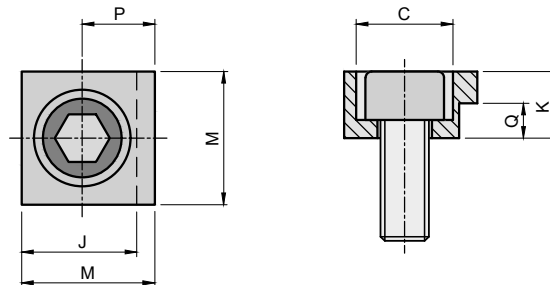
HALTESTÜCK | STAFFETTA DI RITEGNO



Material: steel
Hardness: -
Execution: -



HOW TO ORDER
CODE (S5522-1)



CODE	C	J	K	M	P	Q	SCREW
S5522-1	8	10,5	5	12	6	2,75	M4x10
S5522-2	9	12	7	14	7	3,75	M5x12
S5522-3	12	15,5	9	18	9,5	4,75	M6x16
S5522-4	16	19	11	22	12	5,75	M8x20
S5522-5	18	21	18	26	15	9,75	M10x20

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	-20	-14	-6	-2	0	0	0	0	0	+1,5	+3	+4	+4	+6	+6	+8	+8	+10	+12	+16	+20	
to 3	-34	-24	-12	-8	-2	-3	-4	-6	-14	-1,5	-3	-2	0	0	+2	+2	+4	+4	+6	+10	+14	
over 3	-30	-20	-10	-4	0	0	0	0	0	+2	+4	+6	+6	+9	+9	+12	+13	+16	+20	+23	+27	
to 6	-48	-32	-18	-12	-2,5	-4	-5	-8	-18	-2	-4	-2	+1	+1	+4	+4	+8	+8	+12	+15	+19	
over 6	-40	-25	-13	-5	0	0	0	0	0	+2	+4,5	+7	+7	+10	+12	+15	+16	+19	+24	+28	+32	
to 10	-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	-50	-32	-16	-6	0	0	0	0	0	+2,5	+5,5	+8	+9	+12	+15	+18	+20	+23	+29	+34	+39	
to 18	-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	-65	-40	-20	-7	0	0	0	0	0	+3	+6,5	+9	+11	+15	+17	+21	+24	+28	+35	+41	+48	
to 30	-98	-61	-33	-20	-4	-6	-9	-13	-33	-3	-6,5	-4	+2	+2	+8	+8	+15	+15	+22	+28	+35	
over 30	-80	-50	-25	-9	0	0	0	0	0	+3,5	+8	+11	+13	+18	+20	+25	+28	+33	+42	+50	+59	
to 50	-119	-75	-41	-25	-4	-7	-11	-16	-39	-3,5	-8	-5	+2	+2	+9	+9	+17	+17	+26	+34	+43	
over 50																					+60	+72
to 65	-100	-60	-30	-10	0	0	0	0	0	+4	+9,5	+12	+15	+21	+24	+30	+33	+39	+51	+41	+53	
over 65																					+62	+78
to 80	-146	-90	-49	-29	-5	-8	-13	-19	-46	-4	-9,5	-7	+2	+2	+11	+11	+20	+20	+32	+43	+59	
over 80																					+73	+93
to 100	-120	-72	-36	-12	0	0	0	0	0	+5	+11	+13	+18	+25	+28	+35	+38	+45	+59	+51	+71	
over 100																					+76	+101
to 120	-174	-107	-58	-34	-6	-10	-15	-22	-54	-5	-11	-9	+3	+3	+13	+13	+23	+23	+37	+54	+79	
over 120																					+88	+117
to 140	145	-85	-43	-14	0	0	0	0	0	+6	+12,5	+14	+21	+28	+33	+40	+45	+52	+63	+63	+92	
over 140																					+90	+125
to 160	-208	-125	-68	-39	-8	-12	-18	-25	-63	-6	-12,5	-11	+3	+3	+15	+15	+27	+27	+48	+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	+28	+16	+6	+3	+4	+6	+10	+14	+25	+40	+60	+2	+4	0	0	-2	-2	-6
to 3	+14	+6	+2	0	0	0	0	0	0	0	0	-2	-6	-6	-10	-8	-12	-12
over 3	+38	+22	+9	+4	+5	+8	+12	+18	+30	+48	+75	+2,5	+6	+2	+3	-1	0	-9
to 6	+20	+10	+4	0	0	0	0	0	0	0	0	-2,5	-6	-6	-9	-9	-12	-17
over 6	+47	+28	+11	+4	+6	+9	+15	+22	+36	+58	+90	+3	+8	+2	+5	-3	0	-12
to 10	+25	+13	+5	0	0	0	0	0	0	0	0	-3	-7	-7	-10	-12	-15	-21
over 10	+59	+34	+14	+5	+8	+11	+18	+27	+43	+70	+110	+4	+10	+2	+6	-4	0	-15
to 18	+32	+16	+6	0	0	0	0	0	0	0	0	-4	-8	-9	-12	-15	-18	-26
over 18	+73	+41	+16	+6	+9	+13	+21	+33	+52	+84	+130	+4,5	+12	+2	+6	-4	0	-18
to 30	+40	+20	+7	0	0	0	0	0	0	0	0	-4,5	-9	-11	-15	-17	-21	-31
over 30	+89	+50	+20	+7	+11	+16	+25	+39	+62	+100	+160	+5,5	+14	+3	+7	-4	0	-21
to 50	+50	+25	+9	0	0	0	0	0	0	0	0	-5,5	-11	-13	-18	-20	-25	-37
over 50	+106	+60	+23	+8	+13	+19	+30	+46	+74	+120	+190	+6,5	+18	+4	+9	-5	0	-26
to 80	+60	+30	+10	0	0	0	0	0	0	0	0	-6,5	-12	-15	-21	-24	-30	-45
over 80	+126	+71	+27	+10	+15	+22	+35	+54	+87	+140	+220	+7,5	+22	+4	+10	-6	0	-30
to 120	+72	+36	+12	0	0	0	0	0	0	0	0	-7,5	-13	-18	-25	-28	-35	-52
over 120	+148	+83	+32	+12	+18	+25	+40	+63	+100	+160	+250	+9	+26	+4	+12	-8	0	-36
to 160	+85	+43	+14	0	0	0	0	0	0	0	0	-9	-14	-21	-28	-33	-40	-61

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		

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