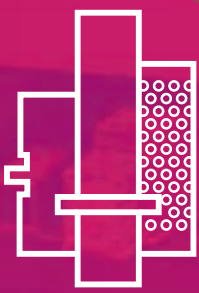




**DIN
STANDARD**

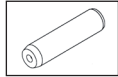
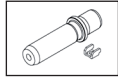
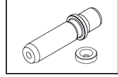
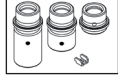


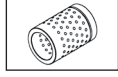
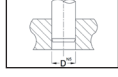
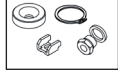


Guiding elements

MDL® **BLUEline**



AMDL®
Atelier Mécanique De La Lauch

■ Compatibility to DIN standard and Easyfit		4
■ Straight column DP10		5
■ Demountable column with clip fastening DP21		6
■ Demountable column with central fastening DP22		7
■ Steel / bronze-plated demountable bushing DB11 DB21		8 - 9
■ Demountable flanged bushing DB31		10
■ Bushing with steel ball bearings DB41		12 - 13
■ Ball cage DC13		14
■ Installation instructions		16 - 17
■ Accessories		18

Both our standard MDL guiding components and the DIN-compatible MDL Blue Line products are equipped with our Easyfit system.

DIN COMPATIBILITY

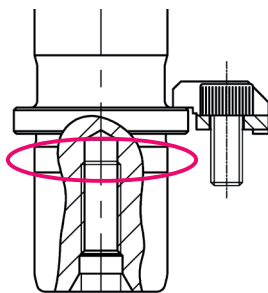
All components in the Blue Line range are compatible and interchangeable with guiding elements complying with the DIN Standard.

See Equivalence Table below:

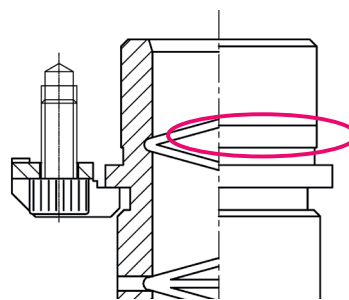
MDL Blue Line part	DIN compatibility
Straight column DP10	DIN 9825
Demountable column DP21 / DP 22	DIN 9825
Demountable bushing DB11 / DB21	DIN 9831
Demountable flanged bushing DB31	DIN 9831
Ball bearing guide bushing DB41	DIN 9831
Ball cage DC13	DIN 5401

EASYFIT SYSTEM

for columns



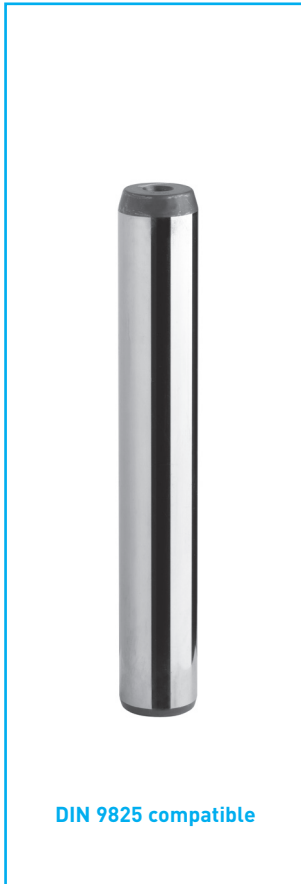
for bushings



The EasyFit system allows easier assembly and disassembly of columns and/or bushings while ensuring parts are perfectly perpendicular to the plate surface.

Tightening is achieved using a shoulder over a height of 5mm under the flange. Positioning is then ensured by the perpendicularity of the adjusted flange.

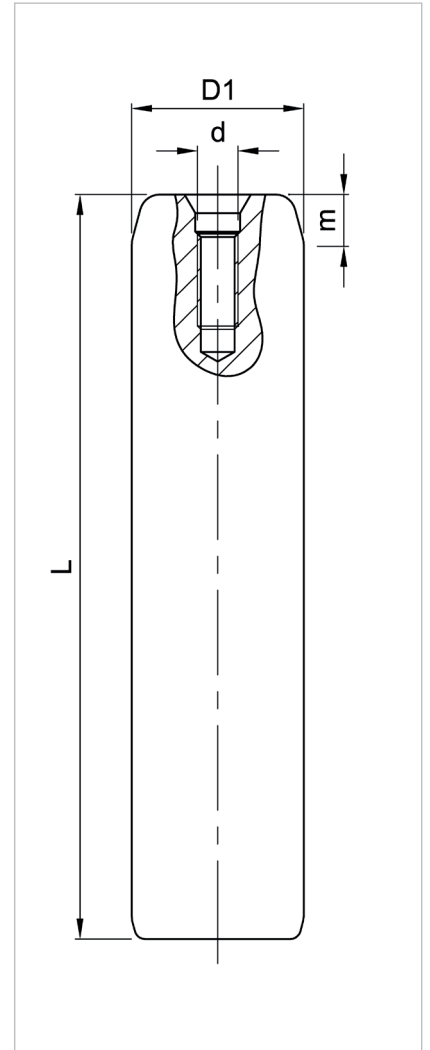
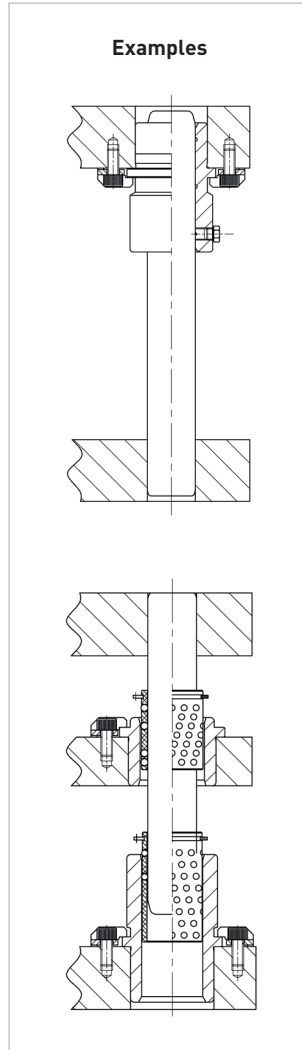
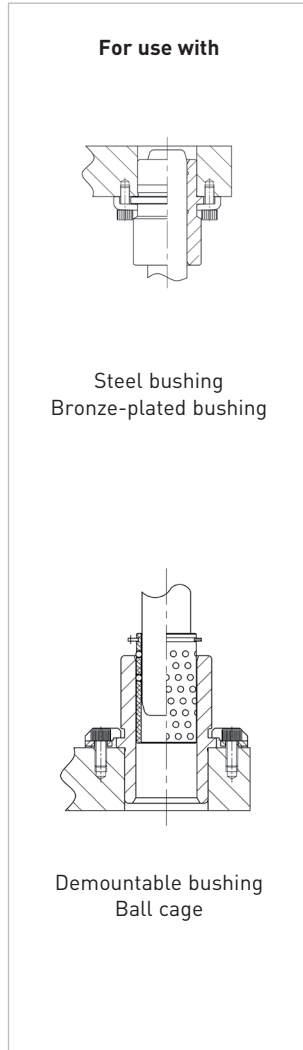
Our Easyfit design has been successfully used for more than 30 years by our clients worldwide over our whole MDL product portfolio. It is now compliant with DIN Standard and allows part interchangeability.



DIN 9825 compatible

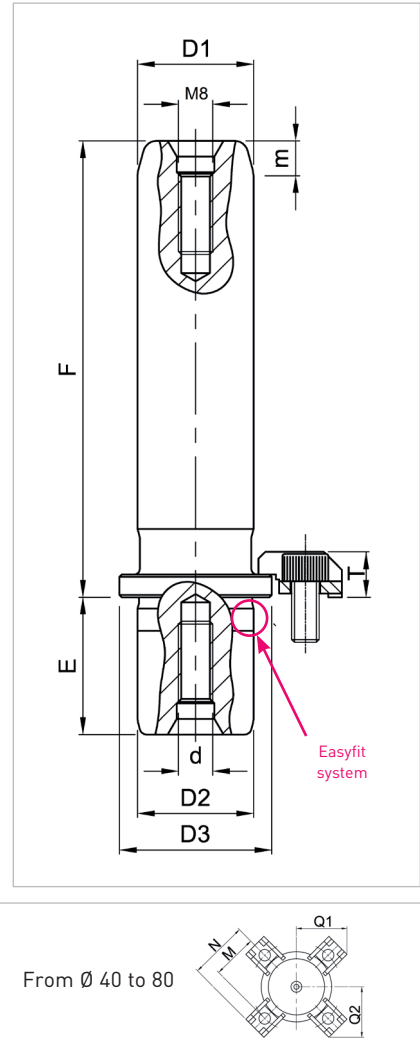
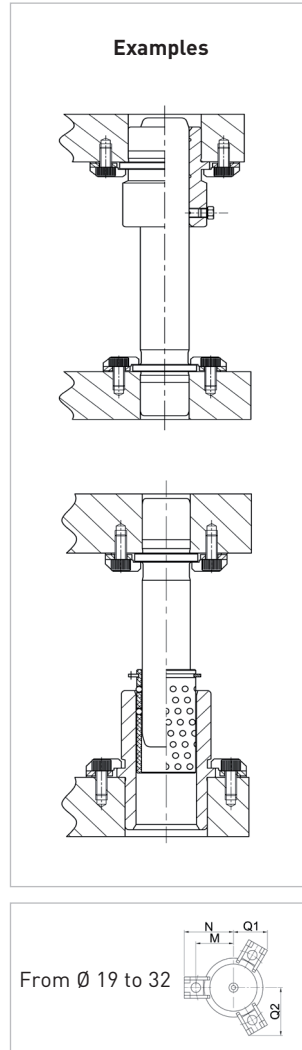
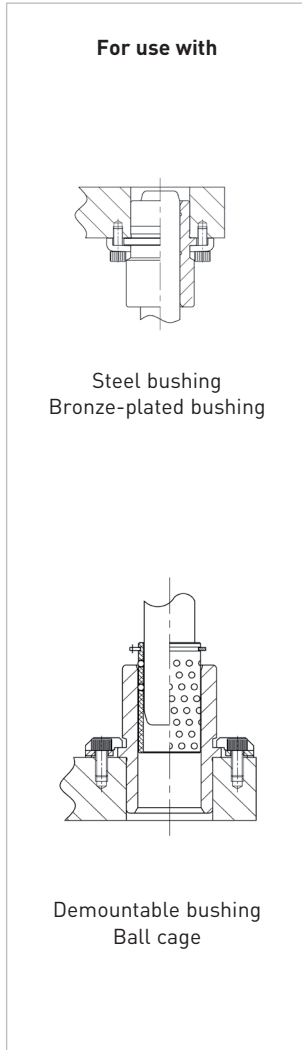
Example

Column D1=30 - L=160
Please indicate :
DP10.030.160



Tempered case-hardened steel columns with a hardness of 60-64HRC, with Easyfit system.

D ₁ h4	19	20	24	25	30	32	40	50	63	80
d	M8		M8		M8		M8	M8	M8	M8
m	4		6		6		6	8	8	8
L	REFERENCE									
100	DP10.019.100	DP10.020.100	DP10.024.100	DP10.025.100						
112	DP10.019.112	DP10.020.112	DP10.024.112	DP10.025.112						
125	DP10.019.125	DP10.020.125	DP10.024.125	DP10.025.125	DP10.030.125	DP10.032.125				
140	DP10.019.140	DP10.020.140	DP10.024.140	DP10.025.140	DP10.030.140	DP10.032.140				
160	DP10.019.160	DP10.020.160	DP10.024.160	DP10.025.160	DP10.030.160	DP10.032.160	DP10.040.160			
180	DP10.019.180	DP10.020.180	DP10.024.180	DP10.025.180	DP10.030.180	DP10.032.180	DP10.040.180	DP10.050.180		
200	DP10.019.200	DP10.020.200	DP10.024.200	DP10.025.200	DP10.030.200	DP10.032.200	DP10.040.200	DP10.050.200		
224	DP10.019.224	DP10.020.224	DP10.024.224	DP10.025.224	DP10.030.224	DP10.032.224	DP10.040.224	DP10.050.224		
250			DP10.024.250	DP10.025.250	DP10.030.250	DP10.032.250	DP10.040.250	DP10.050.250	DP10.063.250	
280			DP10.024.280	DP10.025.280	DP10.030.280	DP10.032.280	DP10.040.280	DP10.050.280	DP10.063.280	DP10.080.280
315					DP10.030.315	DP10.032.315	DP10.040.315	DP10.050.315	DP10.063.315	DP10.080.315
355							DP10.040.355	DP10.050.355	DP10.063.355	DP10.080.355
400							DP10.040.400	DP10.050.400	DP10.063.400	DP10.080.400
450								DP10.050.450	DP10.063.450	DP10.080.450
500								DP10.050.500	DP10.063.500	DP10.080.500



Example
Column D1=30 - F=160
Please state:
DP21.030.160

Tempered case-hardened steel columns with a hardness of 60-64HRC, with Easyfit system. Come with fastening clamp and screws. Quote D1h³ is available upon request.

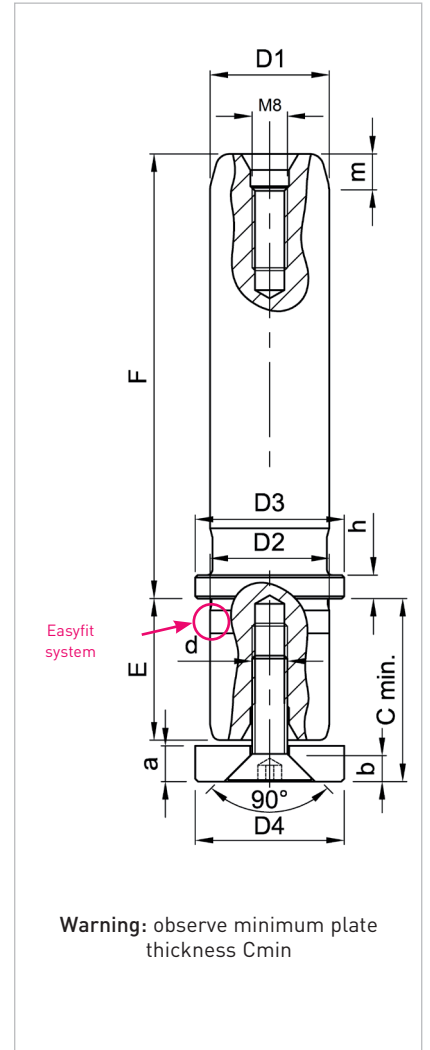
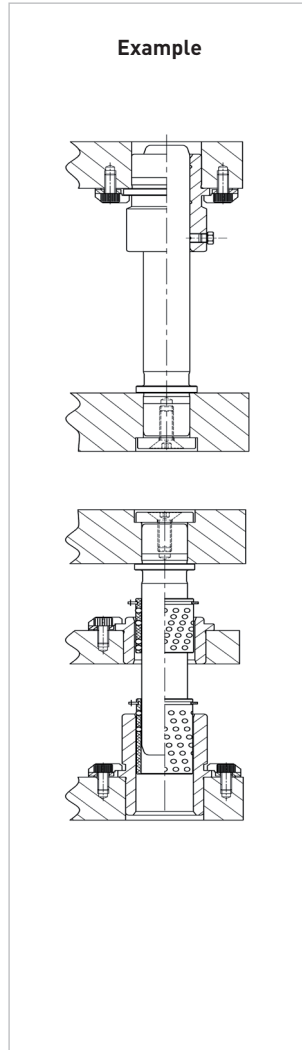
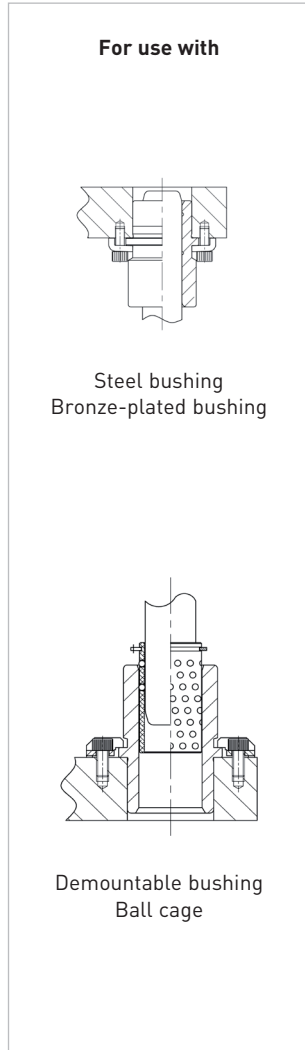
D ₁ h ⁴ = D ₂ j ⁶	19	20	24	25	30	32	40	50	63	80
D ₃	25		32		40		50	63	76	95
E	20		25		32		40	45	50	60
d	M8		M8		M8		M8	M8	M8	M12
m	6		8		8		8	8	8	8
Qty. clamp	3		3		3		4	4	4	4
Ref. clamp	B02.006.100									
Screw	A05.006.012									
M	18		21,5		25,5		30,5	37	45,5	53
N	25,9		29,4		33,4		38,4	44,9	53,4	60,9
Q1	19,2		21		23		32,3	36,9	43,4	48,2
Q2	26,1		29,1		32,6		32,3	36,9	43,4	48,2
T	10									
F	REFERENCES									
100	DP21.019.100	DP21.020.100	DP21.024.100	DP21.025.100						
112	DP21.019.112	DP21.020.112	DP21.024.112	DP21.025.112	DP21.030.112	DP21.032.112				
125	DP21.019.125	DP21.020.125	DP21.024.125	DP21.025.125	DP21.030.125	DP21.032.125	DP21.040.125			
140	DP21.019.140	DP21.020.140	DP21.024.140	DP21.025.140	DP21.030.140	DP21.032.140	DP21.040.140	DP21.050.140		
160	DP21.019.160	DP21.020.160	DP21.024.160	DP21.025.160	DP21.030.160	DP21.032.160	DP21.040.160	DP21.050.160	DP21.063.160	
180	DP21.019.180	DP21.020.180	DP21.024.180	DP21.025.180	DP21.030.180	DP21.032.180	DP21.040.180	DP21.050.180	DP21.063.180	
200	DP21.019.200	DP21.020.200	DP21.024.200	DP21.025.200	DP21.030.200	DP21.032.200	DP21.040.200	DP21.050.200	DP21.063.200	DP21.080.200
224			DP21.024.224	DP21.025.224	DP21.030.224	DP21.032.224	DP21.040.224	DP21.050.224	DP21.063.224	DP21.080.224
250			DP21.024.250	DP21.025.250	DP21.030.250	DP21.032.250	DP21.040.250	DP21.050.250	DP21.063.250	DP21.080.250
280					DP21.030.280	DP21.032.280	DP21.040.280	DP21.050.280	DP21.063.280	DP21.080.280
315							DP21.040.315	DP21.050.315	DP21.063.315	DP21.080.315
355								DP21.050.355	DP21.063.355	DP21.080.355
400										DP21.080.400



DIN 9825 compatible

Example

Column D1=30 - F=160
Please state:
DP22.030.160

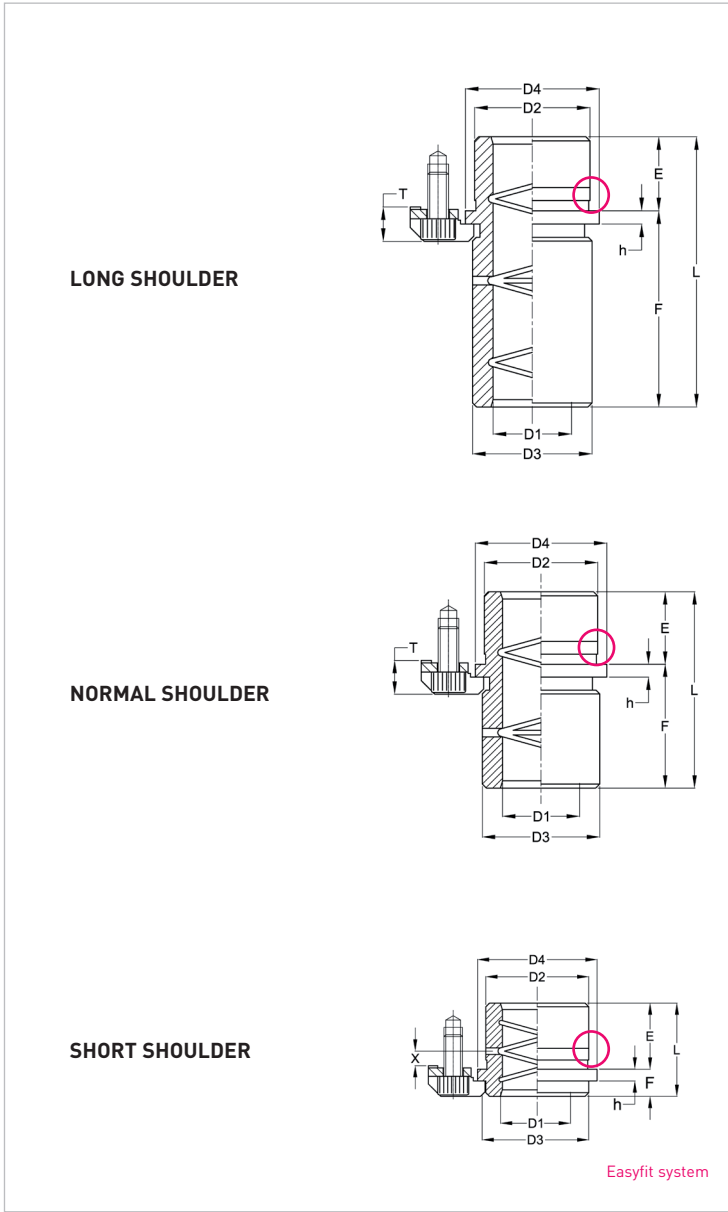
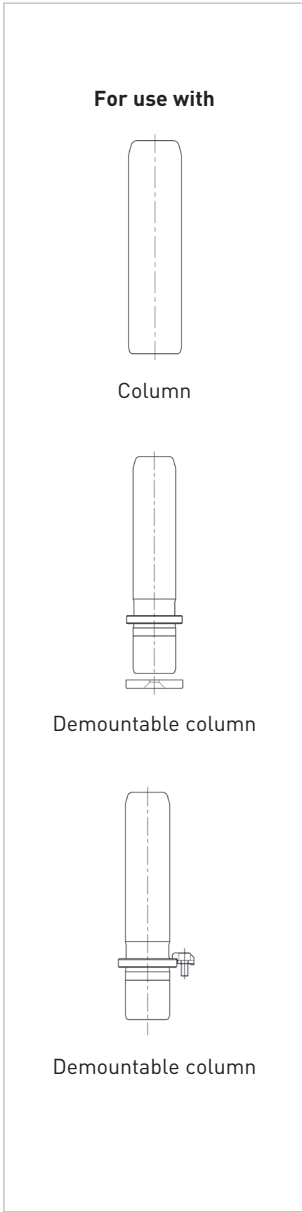


Tempered case-hardened steel columns with a hardness of 60-64HRC, with Easyfit system
Come with washer and screw. Quote $D1h^3$ is available upon request.

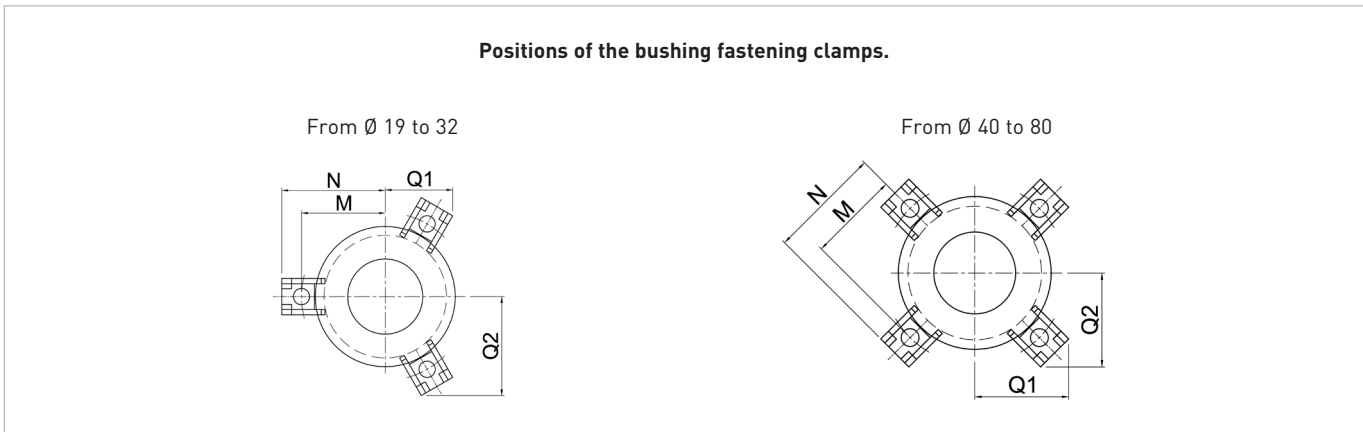
D1 h ⁴ = D2 l ⁶	19	20	24	25	30	32	40	50	63	80
D ₃	25		32		40		50	63	80	93
D ₄	25		32		40		50	60	70	93
E	20		25		32		40	45	50	60
d	M8		M8		M8		M8	M8	M8	M12
m	6		8		8		8	8	8	8
a	6		6		6		6	6	6	12
b	4,3		4,3		4,3		4,3	4,3	4,3	6,3
Cmin	26		31		38		46	51	56	72
Washer	P02.020.100		P02.025.100		P02.032.100		P02.040.100	P02.050.100	P02.063.100	P02.080.100
Vis					A09.008.020					A09.012.025
h						6				
F	REFERENCES									
100	DP22.019.100	DP22.020.100	DP22.024.100	DP22.025.100						
112	DP22.019.112	DP22.020.112	DP22.024.112	DP22.025.112	DP22.030.112	DP22.032.112				
125	DP22.019.125	DP22.020.125	DP22.024.125	DP22.025.125	DP22.030.125	DP22.032.125	DP22.040.125			
140	DP22.019.140	DP22.020.140	DP22.024.140	DP22.025.140	DP22.030.140	DP22.032.140	DP22.040.140	DP22.050.140		
160	DP22.019.160	DP22.020.160	DP22.024.160	DP22.025.160	DP22.030.160	DP22.032.160	DP22.040.160	DP22.050.160	DP22.063.160	
180	DP22.019.180	DP22.020.180	DP22.024.180	DP22.025.180	DP22.030.180	DP22.032.180	DP22.040.180	DP22.050.180	DP22.063.180	
200	DP22.019.200	DP22.020.200	DP22.024.200	DP22.025.200	DP22.030.200	DP22.032.200	DP22.040.200	DP22.050.200	DP22.063.200	DP22.080.200
224			DP22.024.224	DP21.025.224	DP22.030.224	DP22.032.224	DP22.040.224	DP22.050.224	DP22.063.224	DP22.080.224
250			DP22.024.250	DP21.025.250	DP22.030.250	DP21.032.250	DP22.040.250	DP22.050.250	DP22.063.250	DP22.080.250
280					DP22.030.280	DP21.032.280	DP22.040.280	DP22.050.280	DP22.063.280	DP22.080.280
315							DP22.040.315	DP22.050.315	DP22.063.315	DP22.080.315
355								DP22.050.355	DP22.063.355	DP22.080.355
400										DP22.080.400



Example
Bushing D1=40 - F=45
Bronze-plated
Please state:
DB21.040.045



Tempered case-hardened steel bushings with a hardness of 60-64HRC, with Easyfit system, delivered with fastening clamps and screws.
Two different materials are available:
- Steel bushings: DB11 high rigidity and resistance
- Bronze-plated bushings: DB21 technology specific to the MDL group combining the rigidity of steel with the frictional coefficient of bronze



D ₁ H ⁵	19	20	24	25	30	32	40	50	63	80
D ₂	32		40		48		58	70	85	105
D ₃	39		46		53		63	77	92	115
D ₄	40		48		56		66	80	95	118
E	23		23		30		37	47	60	60
Qty. clamps	3		3		3		4	4	4	4
Ref. clamps	B02.006.100									
Vis	A05.006.012									
h	6									
M	26		30		33,5		38,5	45,5	53	64,5
N	33,9		37,9		41,4		46,4	53,4	60,9	72,4
Q1	23,4		25,3		27,1		38	42,9	48,2	56,3
Q2	33,1		36,5		39,6		38	42,9	48,2	56,3
T	10									

LONG SHOULDER

D ₁	19	20	24	25	30	32	40	50	63	80
F	36		56		63		71	80	90	90
L	59		79		93		108	127	150	150
Réf. acier	DB11.019.036	DB11.020.036	DB11.024.056	DB11.025.056	DB11.030.063	DB11.032.063	DB11.040.071	DB11.050.080	DB11.063.090	DB11.080.090
Réf. pl. bronze	DB21.019.036	DB21.020.036	DB21.024.056	DB21.025.056	DB21.030.063	DB21.032.063	DB21.040.071	DB21.050.080	DB21.063.090	DB21.080.090

NORMAL SHOULDER

D ₁	19	20	24	25	30	32	40	50	63	80
F	20		36		45		45	50	56	60
L	43		59		75		82	97	116	120
Réf. acier	DB11.019.020	DB11.020.020	DB11.024.036	DB11.025.036	DB11.030.045	DB11.032.045	DB11.040.045	DB11.050.050	DB11.063.056	DB11.080.060
Réf. pl. bronze	DB21.019.020	DB21.020.020	DB21.024.036	DB21.025.036	DB21.030.045	DB21.032.045	DB21.040.045	DB21.050.050	DB21.063.056	DB21.080.060

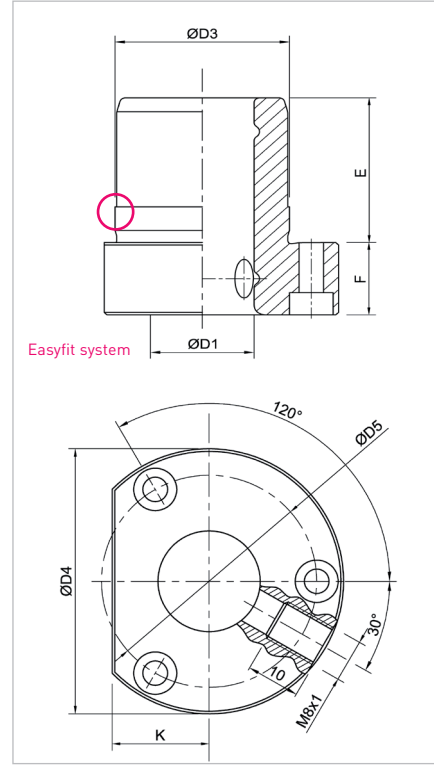
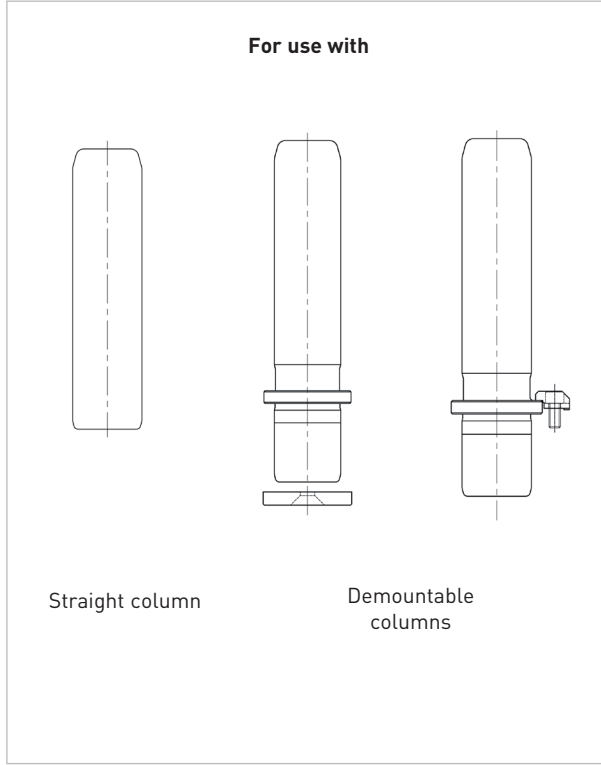
SHORT SHOULDER

D ₁	19	20	24	25	30	32	40	50	63	80
D ₃	32		40		48		58	70	85	105
F	12		12		12		15	18	20	20
L	35		35		42		52	65	80	80
Réf. acier	DB11.019.012	DB11.020.012	DB11.024.012	DB11.025.012	DB11.030.012	DB11.032.012	DB11.040.015	DB11.050.018	DB11.063.020	DB11.080.020
Réf. pl. bronze	DB21.019.012	DB21.020.012	DB21.024.012	DB21.025.012	DB21.030.012	DB21.032.012	DB21.040.015	DB21.050.018	DB21.063.020	DB21.080.020

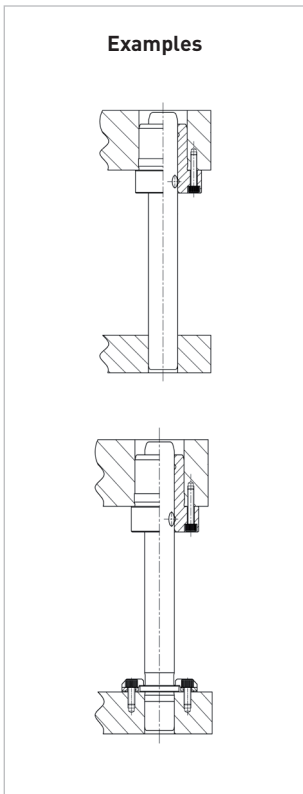


DIN 9831 compatible

Example
Bushing D1=30 - F=62
Please state:
DB41.030.062



Tempered case-hardened steel bushings with a hardness of 60-64HRC, bronze- plated, with Easyfit system
Come with screws



D1	19	20	24	25	30	32	40	50	63
D3	32		40		48		58	70	85
D4	50		63		72		85	104	120
D5	40		50		58		70	86	100
K	18		23		28		33	38	44

LONG SHOULDER									
D1	19	20	24	25	30	32	40	50	
E	23		23		30		30	37	
F	15		15		15		25	25	
Vis	A05.004.020		A05.005.020		A05.005.020		A05.005.030	A05.005.035	
Référence	DB31.019.038	DB31.020.038	DB31.024.038	DB31.025.038	DB31.030.045	DB31.032.045	DB31.040.055	DB31.050.062	

SHORT SHOULDER									
D1	19	20	24	25	30	32	40	50	63
E	30		30		37		37	47	60
F	15		25		25		30	42	42
Vis	A05.004.020		A05.005.030		A05.005.030		A05.005.035	A05.005.050	A05.008.050
Référence	DB31.019.045	DB31.020.045	DB31.024.055	DB31.025.055	DB31.030.062	DB31.032.062	DB31.040.067	DB31.050.089	DB31.063.089

NOTE

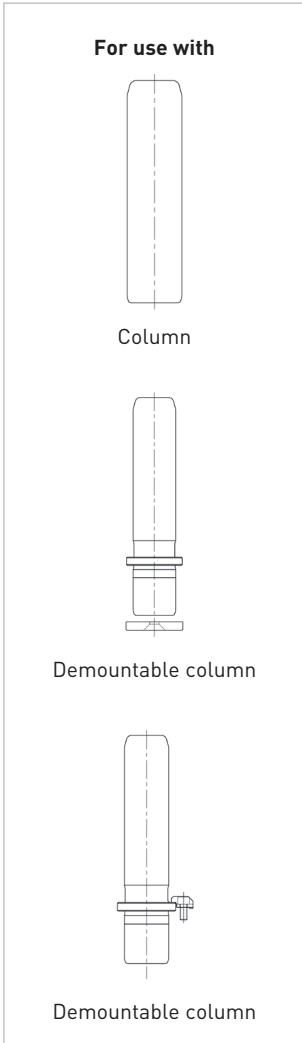
Large empty area with horizontal dotted lines for writing notes.



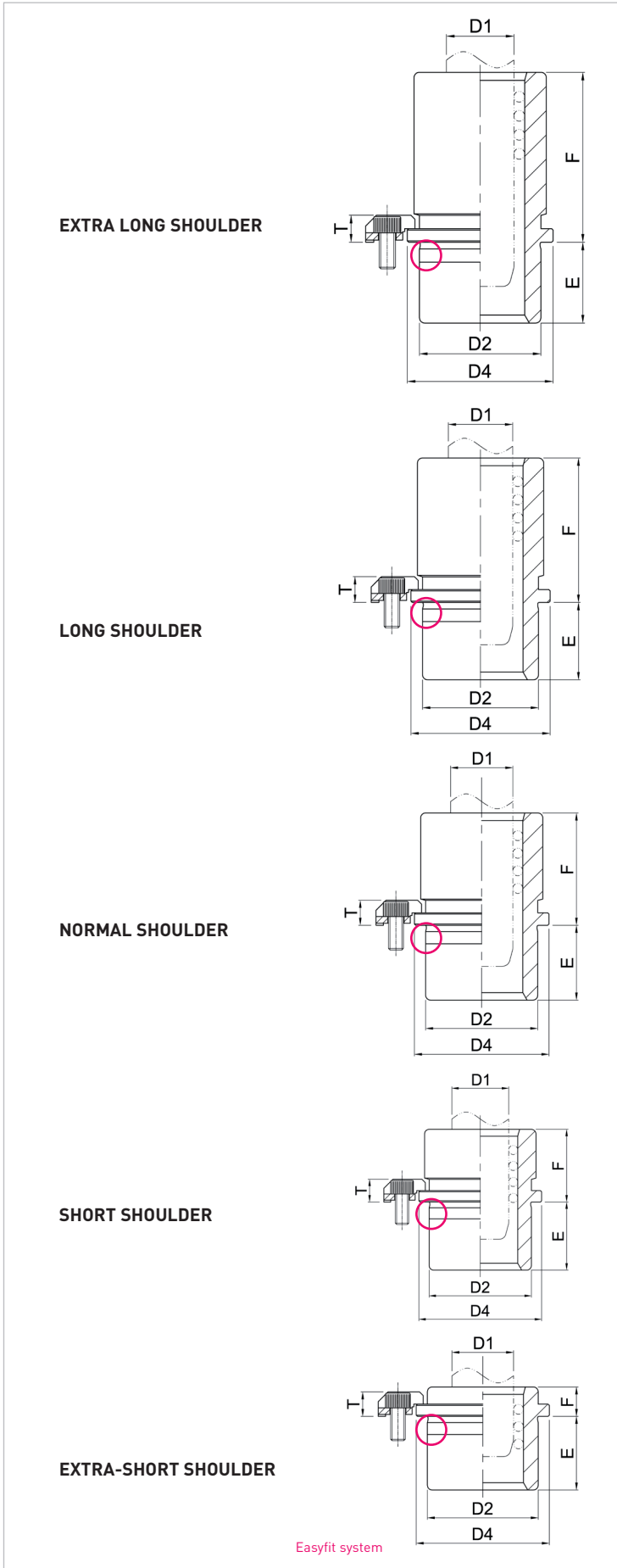
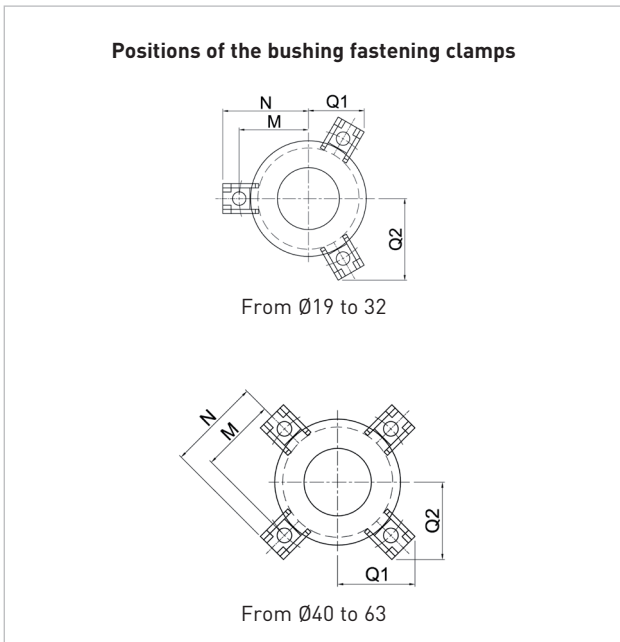
DIN 9831 compatible

Example

Column D1=40 - F=45
Please state:
DB41.040.045



Tempered case-hardened steel bushings with a hardness of 60-64HRC, with Easyfit system
Come with fastening clamps and screws



D ₁	19	20	24	25	30	32	40	50	63
D ₂	32		40		48		58	70	85
D ₃	39		46		53		63	77	92
D ₄	40		48		56		66	80	95
Qty. clamps	3		3		3		4	4	4
Ref. clamps	B02.006.100								
Vis	A05.006.012								
M	26		30		33,5		38,5	45,5	53
N	33,9		37,9		41,4		46,4	53,4	60,9
Q1	23,4		25,3		27,1		38	42,9	48,2
Q2	33,1		36,5		39,6		38	42,9	48,2
T	10								

EXTRA LONG SHOULDER									
D ₁	19	20	24	25	30	32	40	50	63
E	23		23		30		37	47	60
F	36		56		63		71	80	90
L=E+F	59		79		93		108	127	150
REFERENCE	DB41.019.036	DB41.020.036	DB41.024.056	DB41.025.056	DB41.030.063	DB41.032.063	DB41.040.071	DB41.050.080	DB41.063.090

LONG SHOULDER									
D ₁	19	20	24	25	30	32	40	50	63
E			30		37		47	60	
F			50		56		63	71	
L=E+F			80		93		110	131	
REFERENCE			DB41.024.050	DB41.025.050	DB41.030.056	DB41.032.056	DB41.040.063	DB41.050.071	

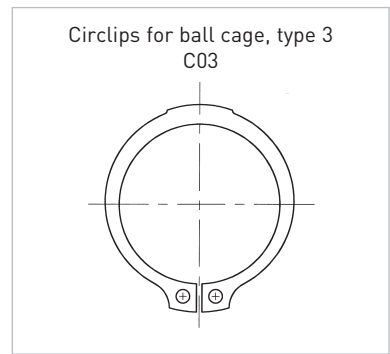
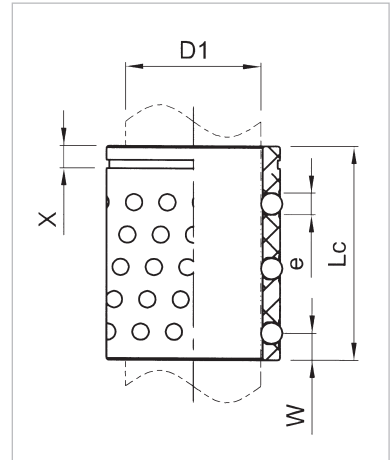
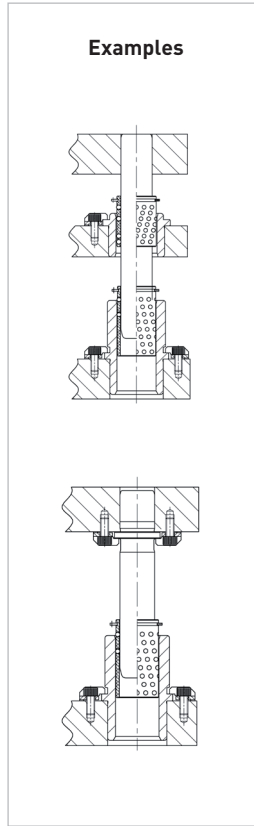
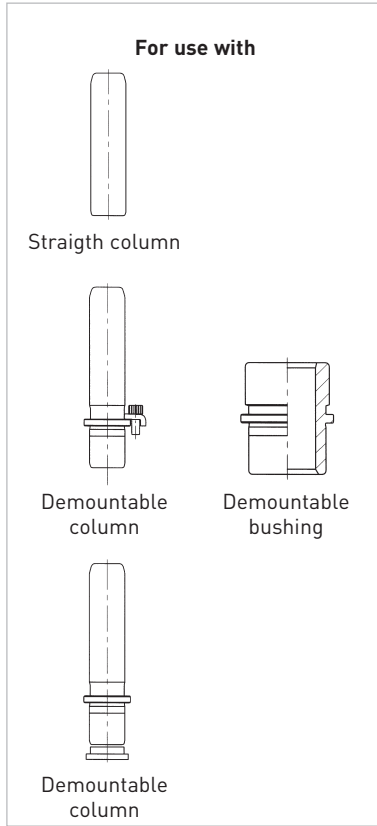
NORMAL SHOULDER									
D ₁	19	20	24	25	30	32	40	50	63
E	23		23		30		37	47	60
F	20		36		45		45	50	56
L=E+F	43		59		75		82	97	116
REFERENCE	DB41.019.020	DB41.020.020	DB41.024.036	DB41.025.036	DB41.030.045	DB41.032.045	DB41.040.045	DB41.050.050	DB41.063.056

SHORT SHOULDER									
D ₁	19	20	24	25	30	32	40	50	63
E			30		37		47	60	
F			25		32		32	36	
L=E+F			55		69		79	96	
REFERENCE			DB41.024.025	DB41.025.025	DB41.030.032	DB41.032.032	DB41.040.032	DB41.050.036	

EXTRA-SHORT SHOULDER									
D ₁	19	20	24	25	30	32	40	50	63
E	23		23		30		37	47	60
F	12		12		12		15	18	20
L=E+F	35		35		42		52	65	80
REFERENCE	DB41.019.012	DB41.020.012	DB41.024.012	DB41.025.012	DB41.030.012	DB41.032.012	DB41.040.015	DB41.050.018	DB41.063.020



Example
Cage D1=30 - Lc=70
Please state:
DC13.030.070

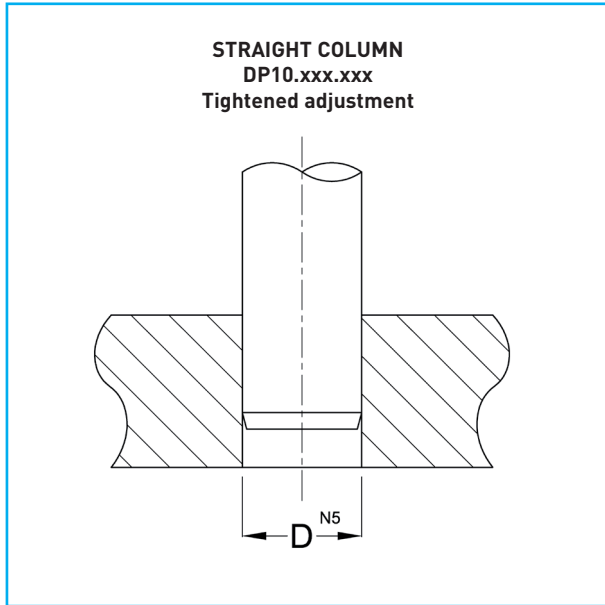


Ball cage built of monobloc aluminium alloy, processed, aircraft grade
Ball cages come with circlips

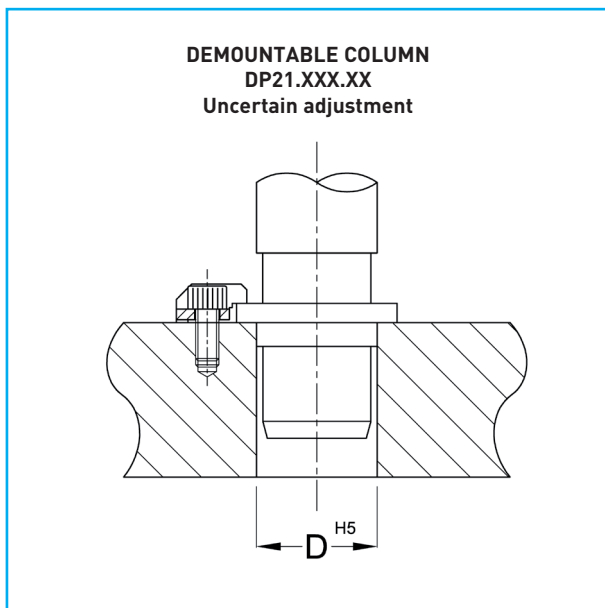
D1	19	20	24	25	30	32	40	50	63
Lc	REFERENCES								
32	DC13.019.032	DC13.020.032							
40						DC13.032.040			
44	DC13.019.044	DC13.020.044	DC13.024.044	DC13.025.044					
45						DC13.032.045			
50						DC13.032.050			
55					DC13.030.055	DC13.032.055			
56	DC13.019.056	DC13.020.056	DC13.024.056	DC13.025.056					
65							DC13.040.065		
70					DC13.030.070	DC13.032.070			
72	DC13.019.072	DC13.020.072	DC13.024.072	DC13.025.072					
80			DC13.024.080	DC13.025.080	DC13.030.080	DC13.032.080	DC13.040.080	DC13.050.080	
95					DC13.030.095	DC13.032.095	DC13.040.095	DC13.050.095	DC13.063.095
96			DC13.024.096	DC13.025.096					
105					DC13.030.105	DC13.032.105	DC13.040.105	DC13.050.105	DC13.063.105
120					DC13.030.120	DC13.032.120	DC13.040.120	DC13.050.120	DC13.063.120
140							DC13.040.140	DC13.050.140	DC13.063.140
160								DC13.050.160	DC13.063.160
180									DC13.063.180
X	2,9		3,2		4		4	4,3	4,8
e	3		3		4	4	4	4	4

NOTE

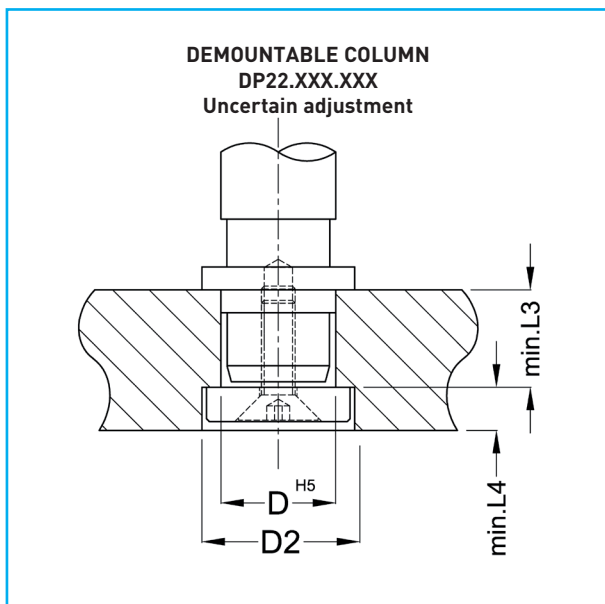
Large empty area with horizontal dotted lines for writing notes.



Column diameter D_1	Bore diameter D^{N5}	
19/20	19/20	-0,012 -0,021
24/25	24/25	-0,012 -0,021
30/32	30/32	-0,013 -0,024
40	40	-0,013 -0,024
50	50	-0,013 -0,024
63	63	-0,015 -0,028
80	80	-0,015 -0,028

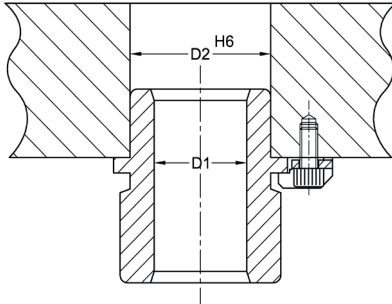


Column diameter D_1	Bore diameter D^{H5}		Adjustment Mini Maxi
19/20	+0,003 -0,003	19/20	+0,009 0 +0,012 -0,003
24/25	+0,003 -0,003	24/25	+0,009 0 +0,012 -0,003
30/32	+0,003 -0,003	30/32	+0,011 0 +0,014 -0,003
40	+0,003 -0,003	40	+0,011 0 +0,014 -0,003
50	+0,003 -0,003	50	+0,011 0 +0,014 -0,003
63	+0,003 -0,003	63	+0,013 0 +0,016 -0,003
80	+0,003 -0,003	80	+0,013 0 +0,016 -0,003



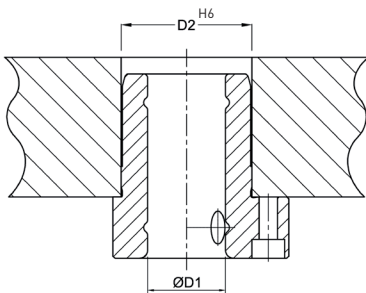
Column diameter D_1	Bore diameter D^{H5}		D_2	L_3	L_4	
19/20	+0,003 -0,003	19/20	+0,009 0	27	23,5	6,5
24/25	+0,003 -0,003	24/25	+0,009 0	34	30,5	6,5
30/32	+0,003 -0,003	30/32	+0,011 0	42	37,5	6,5
40	+0,003 -0,003	40	+0,011 0	52	37,5	6,5
50	+0,003 -0,003	50	+0,011 0	62	47,5	6,5
63	+0,003 -0,003	63	+0,013 0	72	47,5	6,5
80	+0,003 -0,003	80	+0,013 0	95	60,5	12,5

DEMOUNTABLE STEEL/BRONZE-PLATED BUSHINGS
DB11.xxx.xxx



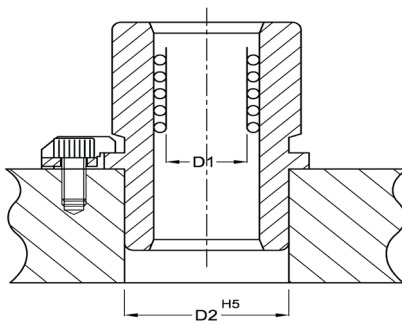
Nominal diameter D1	Bushing diameter D2	Bore diameter D2 H ₆	Adjustment Mini Maxi
19/20	32 +0,003 -0,003	32 +0,016 +0,000	+0,019 -0,003
24/25	40 +0,003 -0,003	40 +0,016 +0,000	+0,019 -0,003
30/32	48 +0,003 -0,003	48 +0,016 +0,000	+0,019 -0,003
40	58 +0,003 -0,003	58 +0,019 +0,000	+0,022 -0,003
50	70 +0,003 -0,003	70 +0,019 +0,000	+0,022 -0,003
63	85 +0,003 -0,003	85 +0,022 +0,000	+0,025 -0,003
80	105 +0,003 -0,003	105 +0,022 +0,000	+0,025 -0,003

DEMOUNTABLE FLANGED BUSHINGS
DB31.xxx.xxx



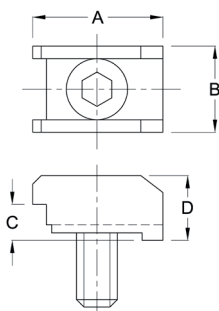
Nominal diameter D1	Bushing diameter D2	Bore diameter D2 H ₆	Adjustment Mini Maxi
19/20	32 +0,003 -0,003	32 +0,016 +0,000	+0,019 -0,003
24/25	40 +0,003 -0,003	40 +0,016 +0,000	+0,019 -0,003
30/32	48 +0,003 -0,003	48 +0,016 +0,000	+0,014 -0,003
40	58 +0,003 -0,003	58 +0,019 +0,000	+0,014 -0,003
50	70 +0,003 -0,003	70 +0,019 +0,000	+0,016 -0,003
63	85 +0,003 -0,003	85 +0,022 +0,000	+0,016 -0,003

STEEL BALL BEARINGS GUIDE BUSHING
DB41.XXX.XXX



Nominal diameter D1	Bushing diameter D2	Bore diameter D2 H ₅	Adjustment Mini Maxi
19/20	32 +0,003 -0,003	32 +0,011 +0,000	+0,014 -0,003
24/25	40 +0,003 -0,003	40 +0,011 +0,000	+0,014 -0,003
30/32	48 +0,003 -0,003	48 +0,011 +0,000	+0,014 -0,003
40	58 +0,003 -0,003	58 +0,013 +0,000	+0,016 -0,003
50	70 +0,003 -0,003	70 +0,013 +0,000	+0,016 -0,003
63	85 +0,003 -0,003	85 +0,015 +0,000	+0,018 -0,003

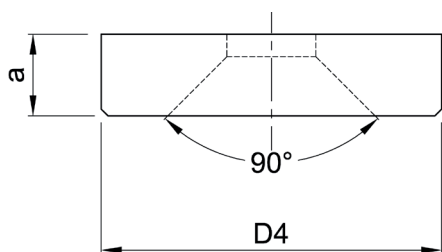
CLAMPS (SCREWLESS)



FASTENING CLAMPS

A	18,3
B	14,5
C	6
D	10
Qty of clamps	From Ø 19 to 32: 3 clamps From Ø 40 to 80: 4 clamps
Reference	B02.006.100
Screw reference code	A05.006.012

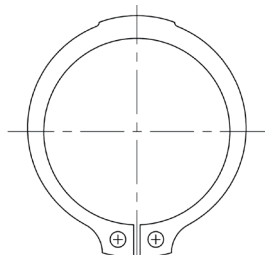
FASTENING WASHER



FASTENING WASHER FOR DP22 COLUMN

Reference	Ø Column	D4	a
P02.020.100	19 / 20	25	6
P02.025.100	24 / 25	32	6
P02.032.100	30 / 32	40	6
P02.040.100	40	50	6
P02.050.100	50	60	6
P02.063.100	63	70	6
P02.080.100	80	93	12

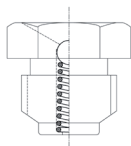
BALL CAGE CIRCLIPS



CIRCLIPS FOR DC13 BALL CAGE

Reference	Ø Ball cage
C03.019.100	19
C03.020.100	20
C03.024.100	24
C03.025.100	25
C03.030.038	30
C03.032.040	32
C03.040.048	40
C03.050.100	50
C03.063.100	63

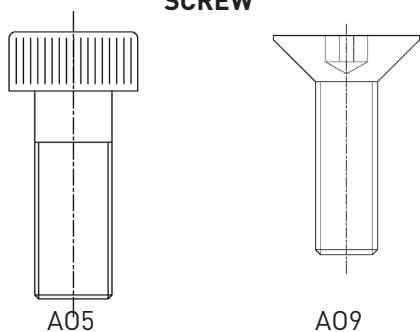
GREASING KIT



GREASING KIT FOR SMOOTH GUIDE BUSHINGS

Reference	G03.008.100
Thread	M8
Greasing kit includes: 4 greasers	

SCREW



SCREW

Reference	Type
A05.004.020	Screw CHC M4 x 20
A05.005.020	Screw CHC M5 x 20
A05.005.030	Screw CHC M5 x 30
A05.006.030	Screw CHC M6 x 30
A05.006.035	Screw CHC M6 x 35
A05.008.050	Screw CHC M8 x 50
A05.006.012	Screw CHC M6 X 12
A09.008.020	Screw FHC M8 X 20
A09.012.025	Screw FHC M12 X 25



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