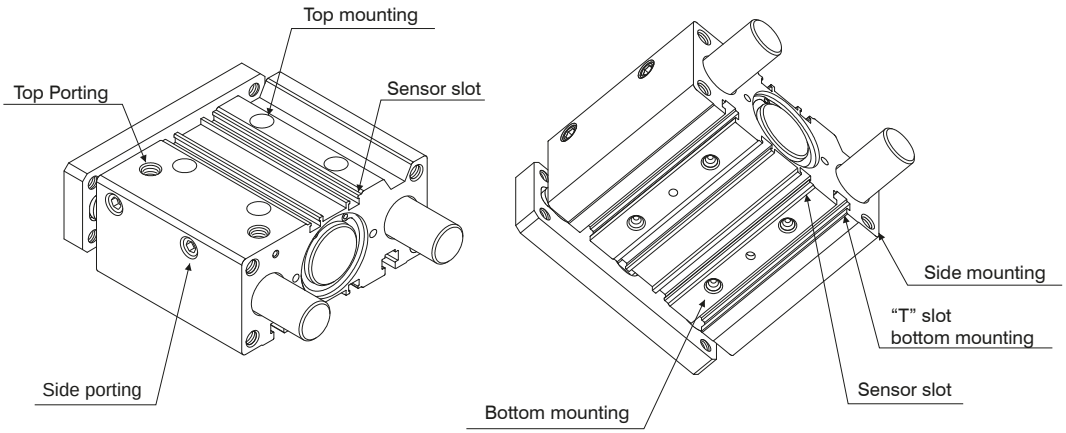
Series 6100 - 6101 - 6110 - Guided compact cylinder



These guided compact cylinders, characterised by reduced overall dimensions, can be used for the compression, conveyance and manipulation of objects in many industrial sectors; similarly they can also be used in pushing, lifting and stopping applications.

These cylinders are available in sizes 32mm to 63 mm diameter, and comprise a single compact cylinder with integral guide rods, making it a true guide cylinder designed with installation flexibility and space saving in mind.

The rod guide is available in two styles:
Self-lubricating bronze bushes - useful for absorbing lateral loads and forces, especially as a stopper.
Bearing bushes - guaranteeing high precision and uniform movement with low friction characteristics, useful with mis-aligned loads.
Guided compact cylinders are ideal for use in applications requiring a combination of reduced dimensions and anti-rotation features. Mounting can be achieved on three sides through holes or "T" slots.

Adjustable mounting holes in the front plate ensure safe and accurate assembly. Pneumatic connections can be made to either lateral or top ports (lateral ports plugged on standard units).
When sensors are required, there are special slots in the barrel extrusion where 1580 series miniaturised sensors are easily fitted.

Guided compact cylinder

Ordering code

6100.Ø.stroke. _ . _

- **12**
- **16**
- **20**
- **25**
- **32**
- **40**
- **50**
- **63**

Side supply ports closed
L = Top supply ports closed

B = Control unit with bronze bush
C = Control unit with bearing bush

Construction characteristics

Body	anodised aluminium
Guide rods	C43 chromed steel (control unit with bronze bush) tempered and chromed steel (control unit with bearing bush)
Piston	aluminium
Piston rod	stainless steel (for bores Ø12, Ø16, Ø20, Ø25) C43 chromed steel (for bores Ø32, Ø40, Ø50, Ø63)
Rods bushing	bronze or bearing bushing
End cap	anodised aluminium
Piston seal	oil resistant NBR rubber
Piston rod seal	PUR (NBR 12-16)
Wipers	PUR
Plate	nickel plated steel

Operational characteristics

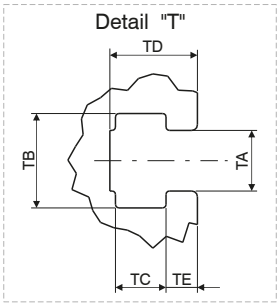
Function	double acting
Fluid	Filtered air. No lubrication needed, if applied it shall be continuous.
Working pressure	max. 10 bar
Working temperature	-5°C - +70°C
Cushioning	elastic bumper on both ends

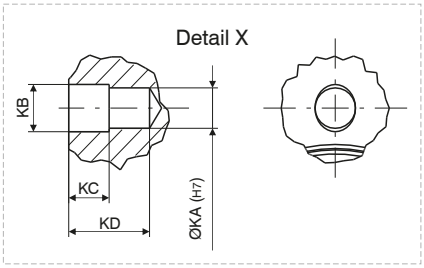
Standard stroke

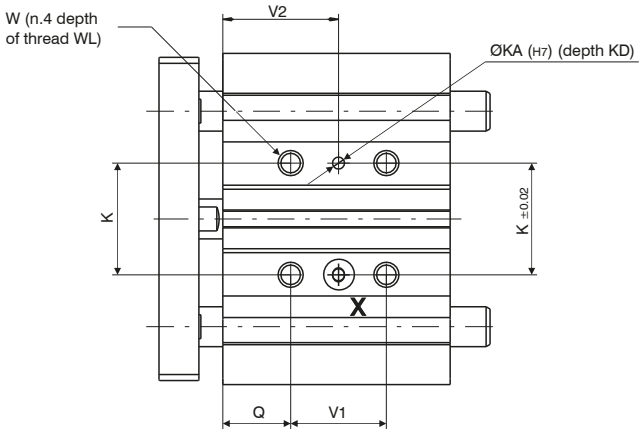
	Stroke											
Bore	**10**	**20**	**25**	**30**	**40**	**50**	**75**	**100**	**125**	**150**	**175**	**200**
Ø12	●	●		●	●	●	●	●				
Ø16	●	●		●	●	●	●	●				
Ø20		●		●	●	●	●	●	●	●	●	●
Ø25		●		●	●	●	●	●	●	●	●	●
Ø32			●			●	●	●	●	●	●	●
Ø40			●			●	●	●	●	●	●	●
Ø50			●			●	●	●	●	●	●	●
Ø63			●			●	●	●	●	●	●	●

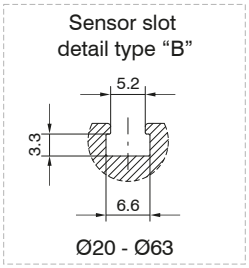
Intermediate strokes can be obtained using spacers with defined length (5, 10, 15, 20 mm).
Example: It is possible to obtain a **6100.32.45.B** cylinder from a **6100.32.50.B** cylinder by inserting a spacer with length of 5 mm.
The intermediate strokes manufactured without the use of spacers are considered special executions.

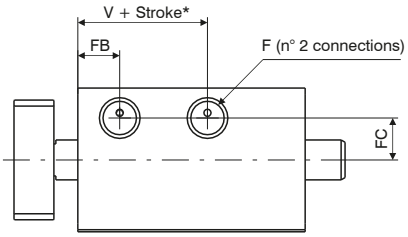
Overall dimensions

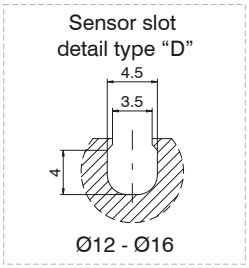


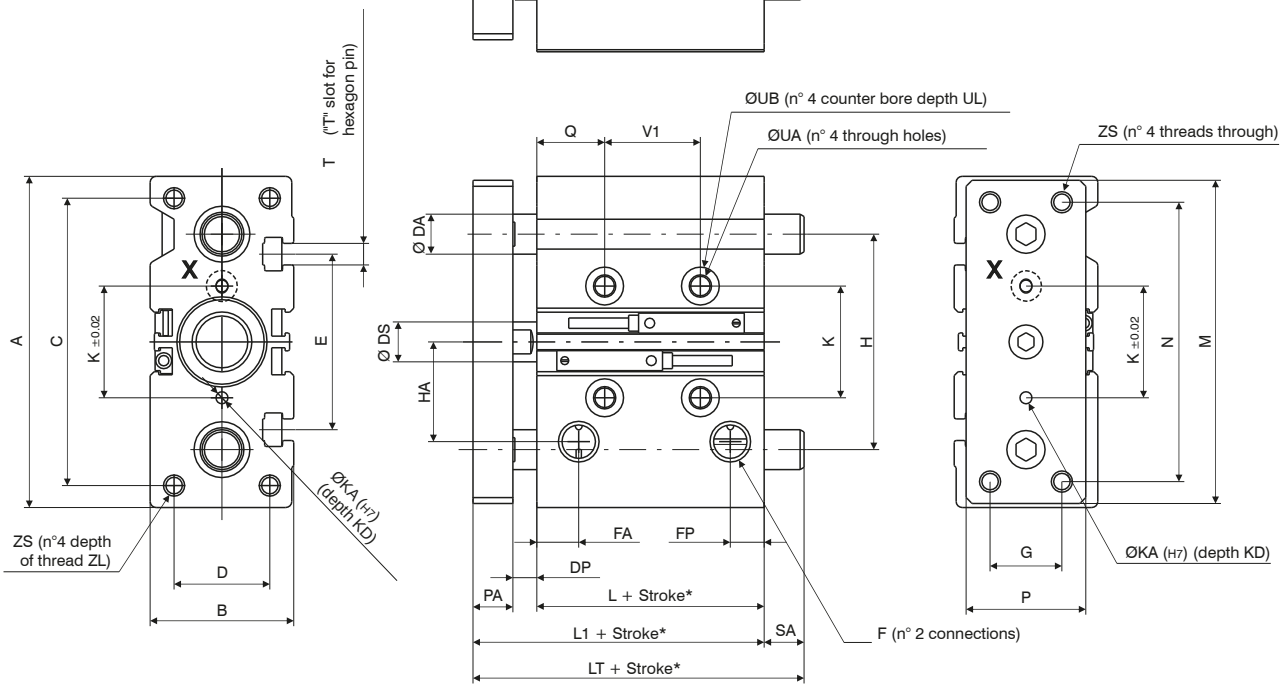












*Dimensions only refer to the "standard stroke"

Overall dimensions

				Bore	Ø12	Ø16	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63
				Table of dimensions								
				A	58	64	83	93	112	120	148	162
				B	26	30	36	42	48	54	64	78
				C	40	42	72	82	98	106	130	142
				D	18	22	24	30	34	40	46	58
Control unit with bronze bushes				DA	8	10	12	16	20	20	25	25
Control unit with bearing bushes				DA	6	8	10	14	16	16	20	20
				DP	2	2	5,5	5,5	9,5	10	13	13
				DS	6	8	10	12	16	16	20	20
				E	/	/	44	50	63	72	92	110
				F	M5	M5	G1/8"	G1/8"	G1/8"	G1/8"	G1/4"	G1/4"
				FA	11	11	11	12	13	13	13	14
				FB	11	11	11	12	13	13	13	14
				FC	8,5	10	10,5	13,5	15	18	21,5	28
				FP	15	17	9	10,5	9,5	11	11	12,5
				G	14	16	18	26	30	30	40	50
				H	41,5	46	54	64	78	86	110	124
				HA	19,5	23	25	28,5	34	38	47	55
				K	23	24	28	34	42	50	66	80
				KA	/	/	3	4	4	4	5	5
				KB	/	/	3,5	4,5	4,5	4,5	6	6
				KC	/	/	3	3	3	3	4	4
				KD	/	/	6	6	6	6	8	8
				L	29	31	38	38,5	38,5	44	44	49
				L1	39	43	53,5	54	60	66	72	77
Control unit with bronze bushes		stroke	≤50	LT	39	43	53,5	54	97	97	106,5	106,5
Control unit with bronze bushes	50<	stroke	≤200	LT	57	64	84,5	85	102	102	118	118
Control unit with bearing bushes				LT	See table 1							
				M	56	62	81	91	110	118	146	158
				N	48	52	70	78	96	104	130	130
				PA	8	10	10	10	12	12	15	15
				P	22	25	30	38	44	44	60	70
				Q	5	5	17,5	17,5	21,5	22	24	24
Control unit with bronze bushes		stroke	≤50	SA	/	/	/	/	37	31	34,5	29,5
Control unit with bronze bushes	50<	stroke	≤200	SA	18	21	31	31	42	36	46	41
Control unit with bearing bushes				SA	See table 1							
				T	/	/	M5	M5	M6	M6	M8	M10
				TA	/	/	5,4	5,4	6,5	6,5	8,5	11
				TB	/	/	8,4	8,4	10,5	10,5	13,5	17,8
				TC	/	/	4,5	4,5	5,5	5,5	7,5	10
				TD	/	/	7,8	8,2	9,5	11	13,5	18,5
				TE	/	/	2,8	3	3,5	4	4,5	7
				UA	4,3	4,3	5,6	5,6	6,6	6,6	8,6	8,6
				UB	8	8	9,5	9,5	11	11	14	14
				UL	4,5	4,5	5,5	5,5	7,5	7,5	9	9
				V	14	14	13	13	7,5	13	9	14
				V1	See table 2							
				V2	See table 2							
				W	M5	M5	M6x1	M6x1	M8x1,25	M8x1,25	M10x1,5	M10x1,5
				WL	10	10	12	12	16	16	20	20
				Z	M4	M5	M5x0,8	M6x1	M8x1,25	M8x1,25	M10x1,5	M10x1,5
				ZL	9	11	13	15	20	20	22	22

	Table 1	LT			SA		
	Bore	stroke≤30	30<stroke≤100	100<stroke≤200	stroke≤30	30<stroke≤100	100<stroke≤200
Control unit with bearing bushes	Ø12	39	53	53	/	14	/
	Ø16	43	64	64	/	21	/
	Ø20	47	72	72	/	18,5	49
	Ø25	49	77	77	/	23	48
		stroke <50	50≤stroke≤100	100<stroke≤200	stroke <50	50≤stroke≤100	100<stroke≤200
	Ø32	/	87	117	/	27	57
	Ø40	/			/	21	51
	Ø50	/	92	127	/	20	55
	Ø63	/			/	15	50

Table 2	V1			V2		
Bore	stroke≤30	30<stroke≤100	100<stroke≤200	stroke≤30	30<stroke≤100	100<stroke≤200
Ø12	4+stroke			/	/	/
Ø16				/	/	/
Ø20	24	44	120	29,5	39,5	77,5
Ø25						
	stroke≤25	25<stroke≤100	100<stroke≤200	stroke≤25	25<stroke≤100	100<stroke≤200
Ø32	24	48	124	33,5	45,5	83,5
Ø40				34	46	84
Ø50				36	48	86
Ø63	28	52	128	38	50	88

Weight - Cylinder force - kinetic energy

	Bore							
	Ø12	Ø16	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63
Stroke	**Control unit with bronze bushes**							**Weight g**
10	240	330	/	/	/	/	/	/
20	280	380	670	950	/	/	/	/
25	/	/	/	/	1690	1950	3360	4180
30	310	430	750	1050	/	/	/	/
40	350	480	830	1160	/	/	/	/
50	390	530	910	1270	2070	2370	4000	4940
75	500	680	1170	1650	2470	2830	4730	5780
100	5903	800	1370	1920	2850	3250	5370	6540
125	/	/	1570	2190	3240	3680	6010	7290
150	/	/	1760	2470	3620	4100	6650	8050
175	/	/	1960	2740	4000	4530	7290	8800
200	/	/	2160	3010	4380	4950	7930	9560
Stroke	Moving parts							
10	100	155	/	/	/	/	/	/
20	108	170	330	520	/	/	/	/
25	/	/	/	/	1070	1140	2150	2500
30	116	185	350	560	/	/	/	/
40	124	200	380	600	/	/	/	/
50	132	215	400	640	1230	1300	2400	2750
75	152	250	520	840	1420	1490	2750	3090
100	172	285	580	950	1580	1650	3000	3350
125	/	/	640	1050	1740	1810	3260	3600
150	/	/	700	1150	1910	1980	3510	3860
175	/	/	760	1250	2070	2140	3760	4110
200	/	/	820	1350	2230	2300	4020	4360
Stroke	**Control unit with bearing bushes**							
10	240	340	/	/	/	/	/	/
20	270	390	700	980	/	/	/	/
25	/	/	/	/	1540	1790	3110	3930
30	300	430	770	1070	/	/	/	/
40	350	510	890	1250	/	/	/	/
50	390	560	970	1340	1850	2150	3660	4590
75	470	670	1140	1570	2300	2640	4410	5460
100	560	790	1310	1810	2620	3000	4960	6120
125	/	/	1520	2080	2990	3420	5600	6880
150	/	/	1690	2310	3310	3780	6150	7540
175	/	/	1870	2540	3620	4140	6700	8210
200	/	/	2040	2770	3940	4500	7250	8870
Stroke	Moving parts							
10	95	145	/	/	/	/	/	/
20	100	153	310	490	/	/	/	/
25	/	/	/	/	820	890	1770	2110
30	105	161	330	520	/	/	/	/
40	110	169	370	580	/	/	/	/
50	120	177	390	610	940	1010	1950	2300
75	145	197	440	690	1110	1180	2240	2590
100	170	217	480	760	1230	1300	2430	2770
125	/	/	560	880	1410	1480	2710	3050
150	/	/	600	950	1530	1600	2890	3240
175	/	/	650	1020	1650	1720	3080	3420
200	/	/	700	1100	1770	1830	3270	3610

Working pressure																**Cylinder theoretic force (N)**
2 bar	23	17	40	30	63	47	98	76	161	121	251	211	393	330	623	561
3 bar	34	26	60	45	94	71	147	113	241	181	377	317	589	495	935	841
4 bar	45	34	80	60	126	94	196	151	322	241	503	422	785	660	1247	1121
5 bar	57	43	101	76	157	118	246	189	402	302	629	528	982	825	1559	1402
6 bar	68	51	121	91	188	142	295	227	482	362	754	634	1178	989	1870	1682
7 bar	79	60	141	106	220	165	344	265	563	422	880	739	1374	1154	2182	1962
8 bar	90	68	161	121	251	189	393	302	643	482	1006	845	1570	1319	2494	2242
9 bar	102	77	181	136	283	212	442	340	724	543	1131	950	1767	1484	2805	2523
10 bar	113	85	201	151	314	236	491	378	804	603	1257	1056	1963	1649	3117	2803
Piston area	out	in	out	in	out	in	out	in	out	in	out	in	out	in	out	in
(mm^2)	113	85	201	151	314	236	491	378	804	603	1257	1056	1963	1649	3117	2803

								Maximum permissible Momentum
J	0,08	0,09	0,11	0,18	0,29	0,52	0,91	1,54

How to calculate the Momentum: $\mathbf{Ec} = \frac{1}{2}\ \mathbf{m}\ \mathbf{V}^2$ (J)

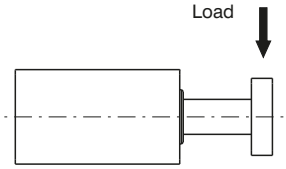
m = Total moving mass: weight of driven object added to weight of cylinder moving parts (kg)
V = max. speed: equal to average speed + 40% (m/sec)

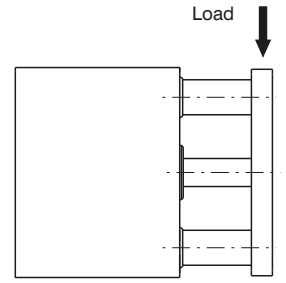
Operating criteria

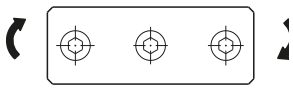
Permissible lateral load (applied on overall plate)

		Bore							
		Ø12	Ø16	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63
Version	**Stroke**	**Permissible lateral load (N)***							
Control unit with bronze bushes	10	30	48						
	20	23	37	49	69				
	25					203	203	296	296
	30	19	30	43	60				
	40	16	25	38	54				
	50	14	20	35	49	164	164	245	245
	75	12	18	87	116	182	182	273	273
	100	10	15	75	100	159	159	241	241
	125			66	88	142	142	216	216
	150			59	79	127	127	195	195
	175			54	71	116	116	179	179
	200			49	65	106	106	164	164
Control unit with bearing bushes	10	20	35						
	20	15	28	58	69				
	25					191	190	208	206
	30	13	22	48	68				
	40	11	18	101	132				
	50	10	16	90	118	157	157	173	171
	75	8	14	70	93	164	163	223	221
	100	6	11	58	77	144	144	199	196
	125			62	80	203	203	264	262
	150			54	70	186	185	242	240
	175			48	62	171	171	224	221
	200			43	55	158	158	207	205
Version	**Stroke**	**Recommended torque moments (Nm)**							
Control unit with bronze bushes	10	0,40	0,70						
	20	0,35	0,65	1,1	1,8				
	25					6,4	7,0	13,0	14,7
	30	0,28	0,48	0,9	1,6				
	40	0,25	0,45	0,8	1,4				
	50	0,21	0,39	0,8	1,3	5,1	5,7	10,8	12,1
	75	0,42	0,68	1,9	3,0	5,7	6,3	12,0	13,5
	100	0,40	0,60	1,6	2,6	5,0	5,5	10,6	11,9
	125			1,4	2,3	4,4	4,9	9,5	10,7
	150			1,3	2,0	4,0	4,4	8,6	9,7
	175			1,2	1,8	3,6	4,0	7,9	8,9
	200			1,1	1,7	3,3	3,7	7,2	8,2
Control unit with bearing bushes	10	0,62	0,70						
	20	0,41	0,65	1,3	2,1				
	25					6,0	6,6	9,2	10,2
	30	0,33	0,48	1,0	1,8				
	40	0,30	0,45	2,2	3,4				
	50	0,48	0,39	1,9	3,0	4,9	5,4	7,6	8,5
	75	0,38	0,68	1,5	2,4	5,1	5,6	9,8	11,0
	100	0,32	0,60	1,3	2,0	4,5	5,0	8,7	9,7
	125			1,3	2,1	6,3	7,0	11,6	13,0
	150			1,2	1,8	5,8	6,4	10,7	11,9
	175			1,0	1,6	5,3	5,9	9,8	11,0
	200			0,9	1,4	4,9	5,4	9,1	10,2

*(Applied on overall plate)

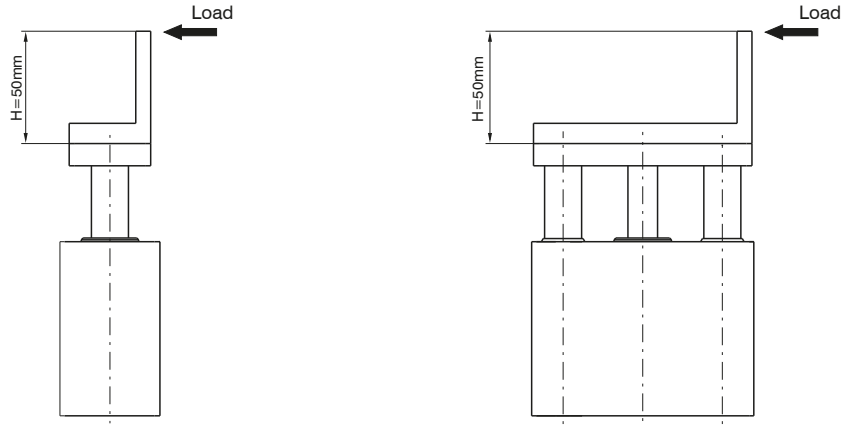






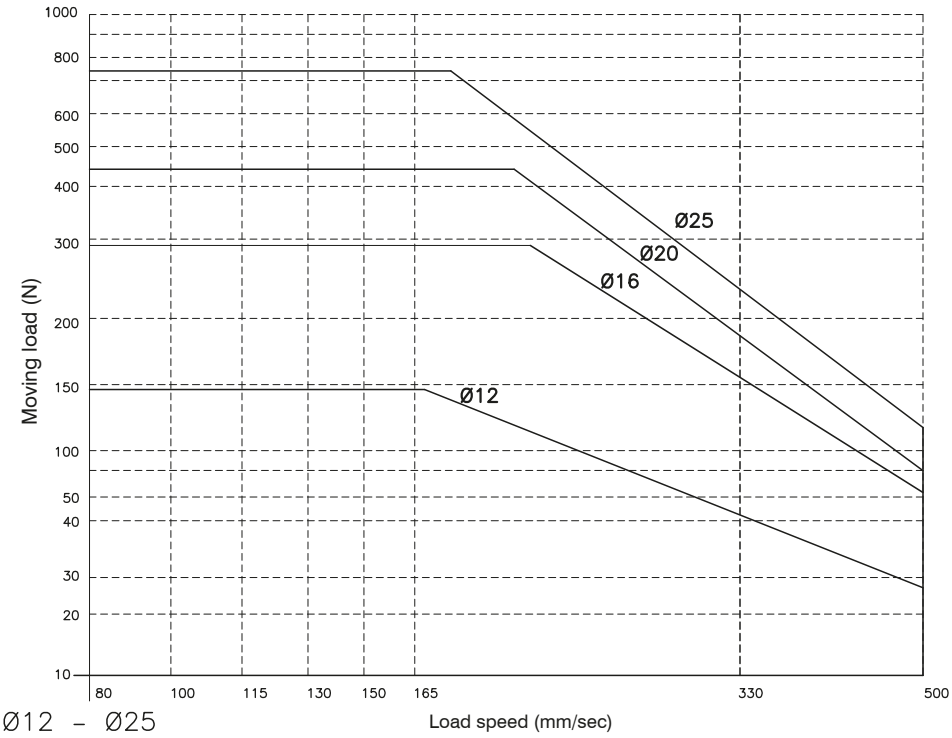
Operating criteria

Stopper device applications



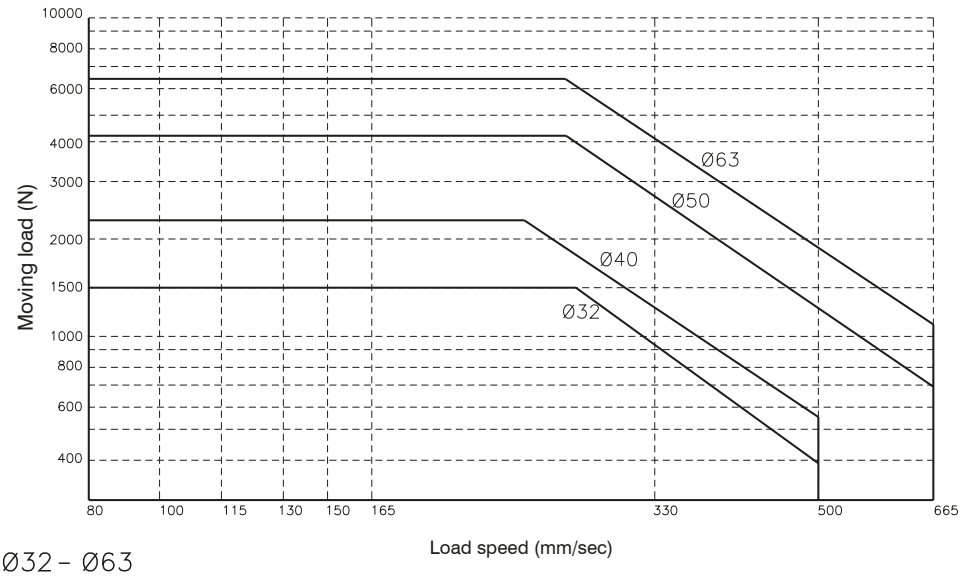
Control unit with bronze bushes

ATTENTION: if H>50 mm use larger bore



Ø12 – Ø25

ATTENTION: use with stroke £ 30 mm

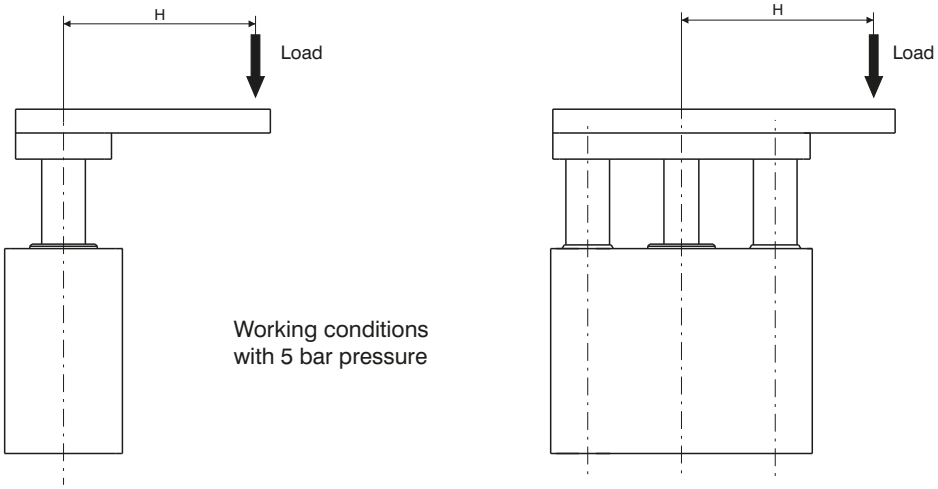


Ø32 – Ø63

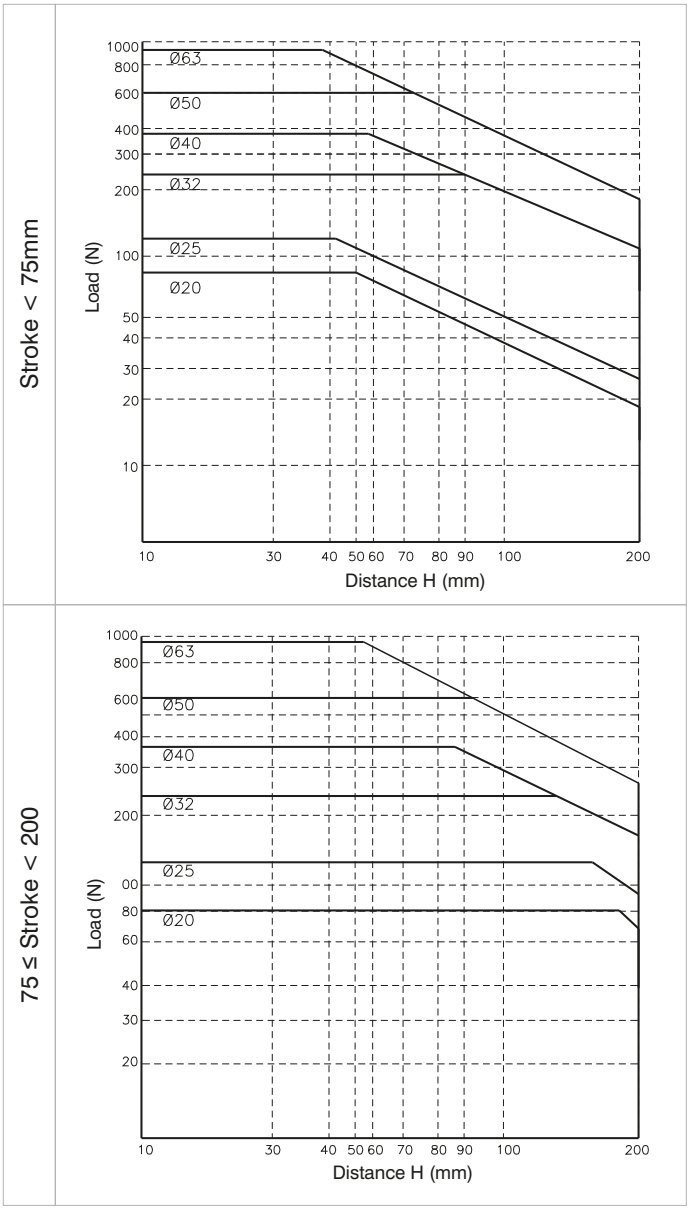
ATTENTION: use with stroke £ 50 mm

Operating criteria

Handling applications



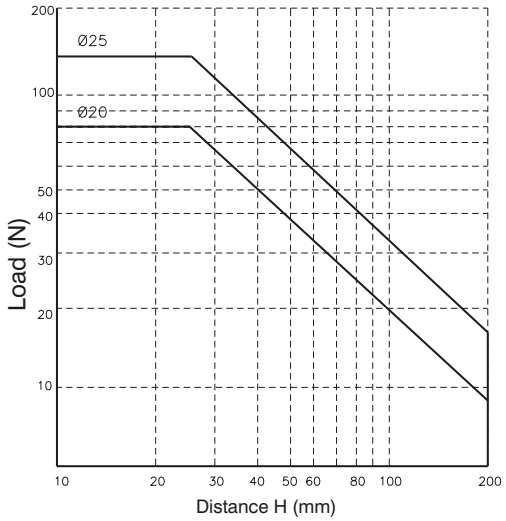
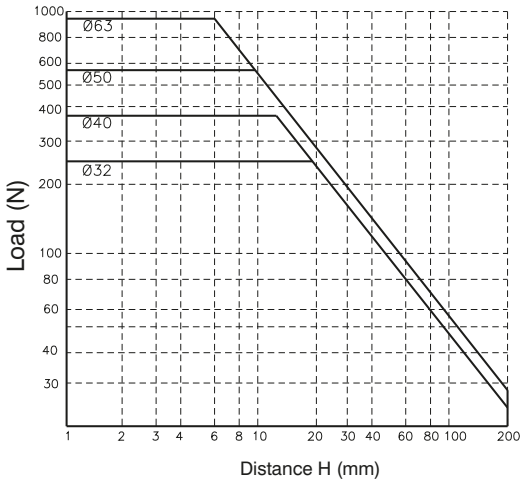
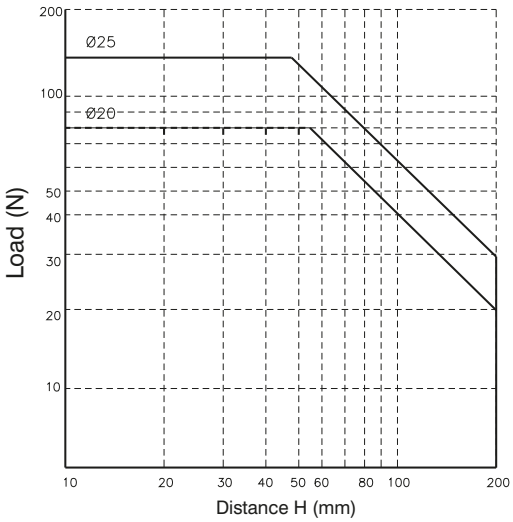
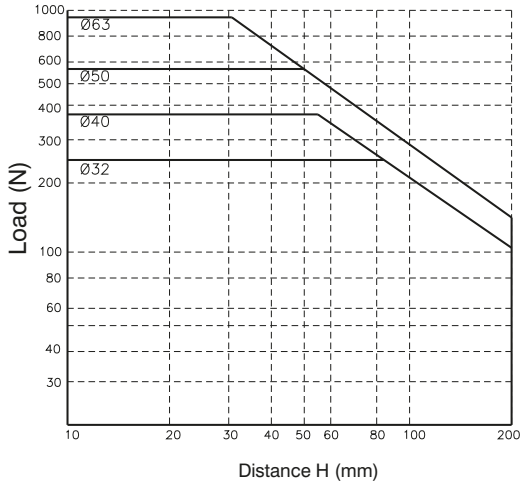
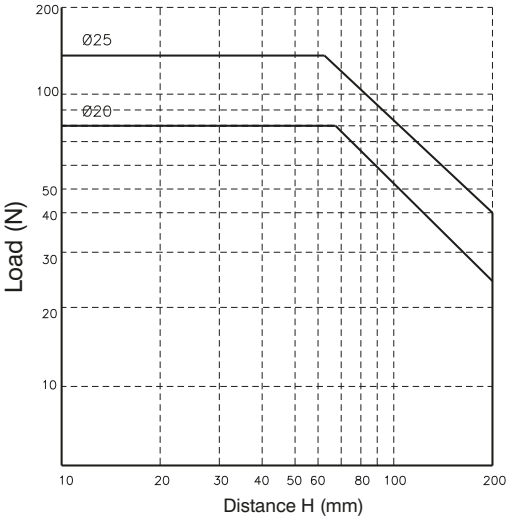
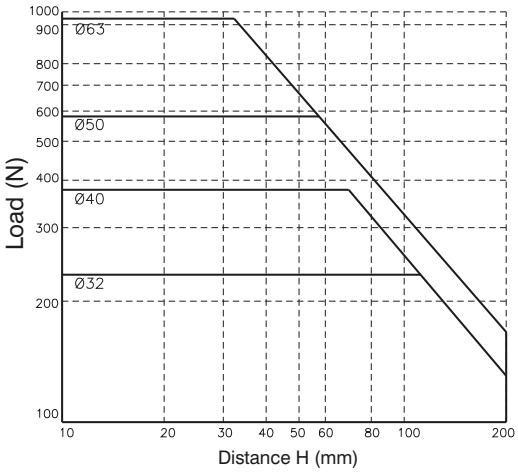
Control unit with bronze bushes



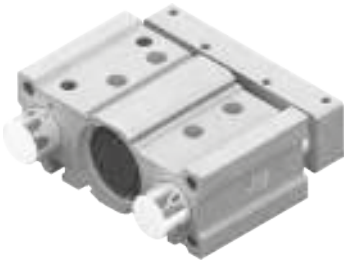
Operating criteria

Handling applications

Control unit with bearing bushes

Ø20 – Ø25		Ø32 - Ø63	
Stroke < 40 mm		Stroke < 75 mm	
40 < Stroke < 125 mm		75 < Stroke < 125 mm	
125 ≤ Stroke < 200 mm		125 ≤ Stroke < 200 mm	

Heavy duty guided short stroke cylinder



Ordering code

6101.80.stroke. B . _

Side supply ports closed
L = Top supply ports closed

Construction characteristics

Body	anodised aluminium
Rods	C43 chromed steel
Piston	aluminium
Piston rod	C43 chromed steel
Piston rod bushing	sintered bronze
Rod bushing	teflon coated bush
End cap	aluminium
Piston seal	NBR oil-resistant rubber
Piston rod seal	PUR
Plate	anodised aluminium

Operational characteristics

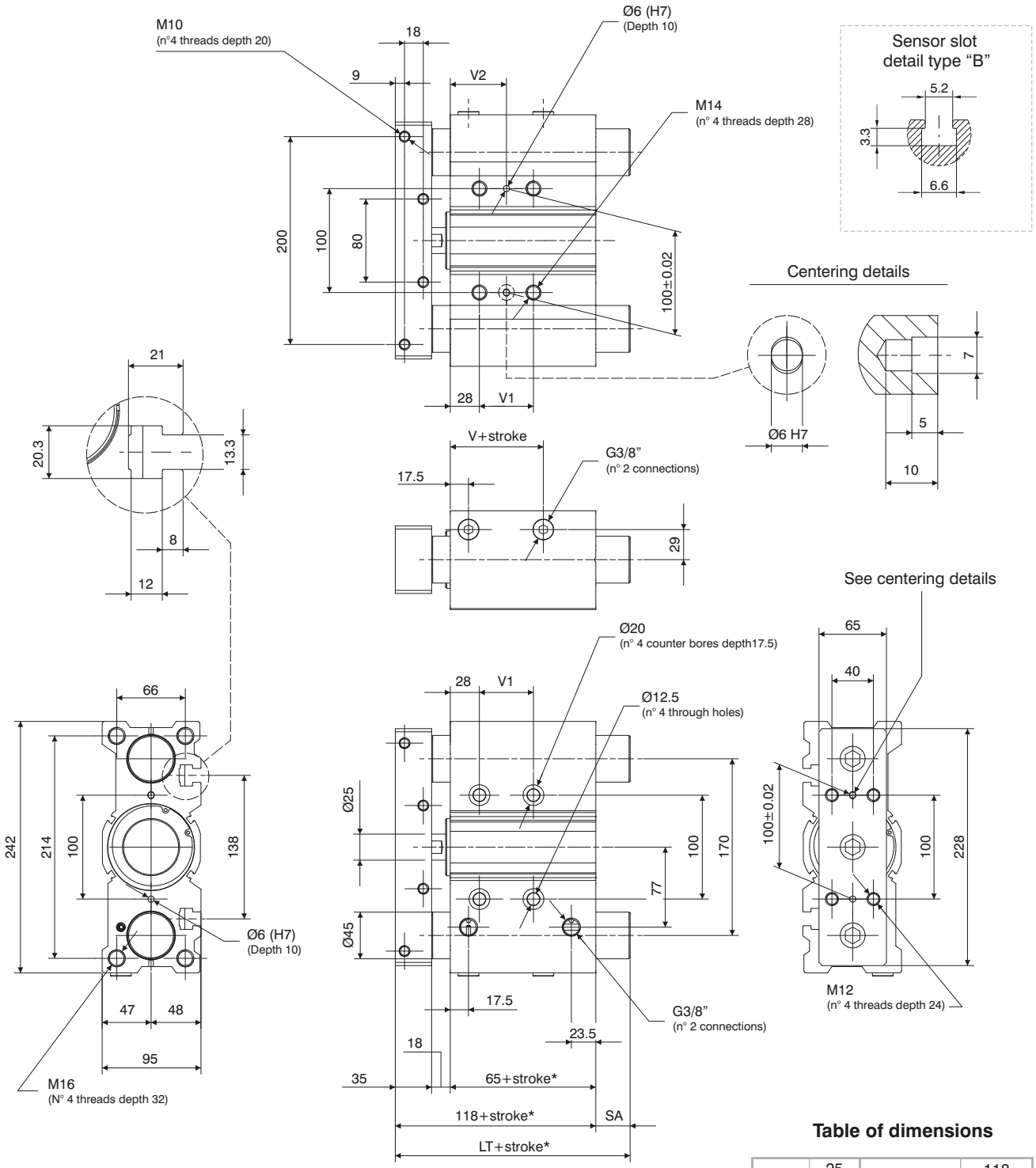
Function	double acting
Fluid	Filtered air. No lubrication needed, if applied it shall be continuous.
Max. pressure	max. 10 bar
Working temperature	-5°C - +70°C
Cushioning	elastic bumper on both ends

Standard strokes

	Stroke							
Bore	25	50	75	100	125	150	175	200
Ø80	●	●	●	●	●	●	●	●

Intermediate strokes can be obtained by adding specific spacers (5, 10, 15, 20mm).
Example: It is possible to obtain a **6101.80.45.B** cylinder from a **6101.80.50.B** cylinder by adding a 5mm spacer.
The Intermediate strokes manufactured without the use of spacers are considered special executions.

Overall dimensions



*Dimensions only refer to the "standard stroke"

Table of dimensions

	25	LT	118
stroke	50		118
	> 50		151
		V	14.5
	25	V1	28
	50		52
stroke	75		52
	100		52
	>100		128
	25	V2	42
	50		54
stroke	75		54
	100		54
	>100		92
	25	SA	0
stroke	50		
	> 50		33

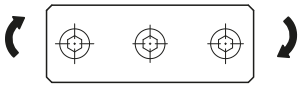
Operating criteria

Cylinder theoretic force (N)

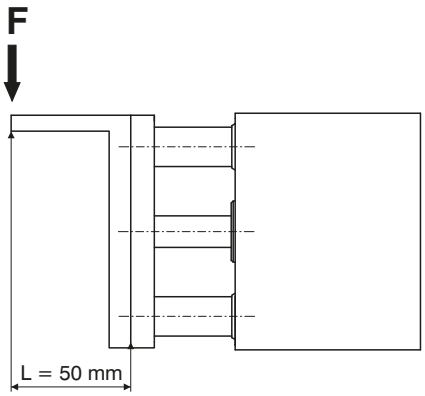
Working pressure		
2 bar	1005	907
3 bar	1508	1361
4 bar	2011	1814
5 bar	2513	2268
6 bar	3016	2721
7 bar	3519	3175
8 bar	4021	3629
9 bar	4524	4082
10 bar	5027	4536
Effective area (mm^2)	out	in
	5027	4536

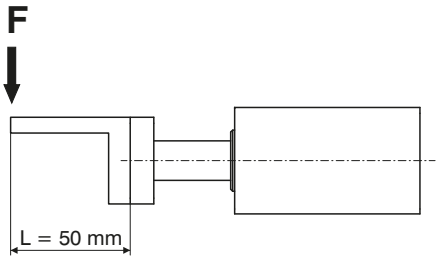
Recommended torque moments

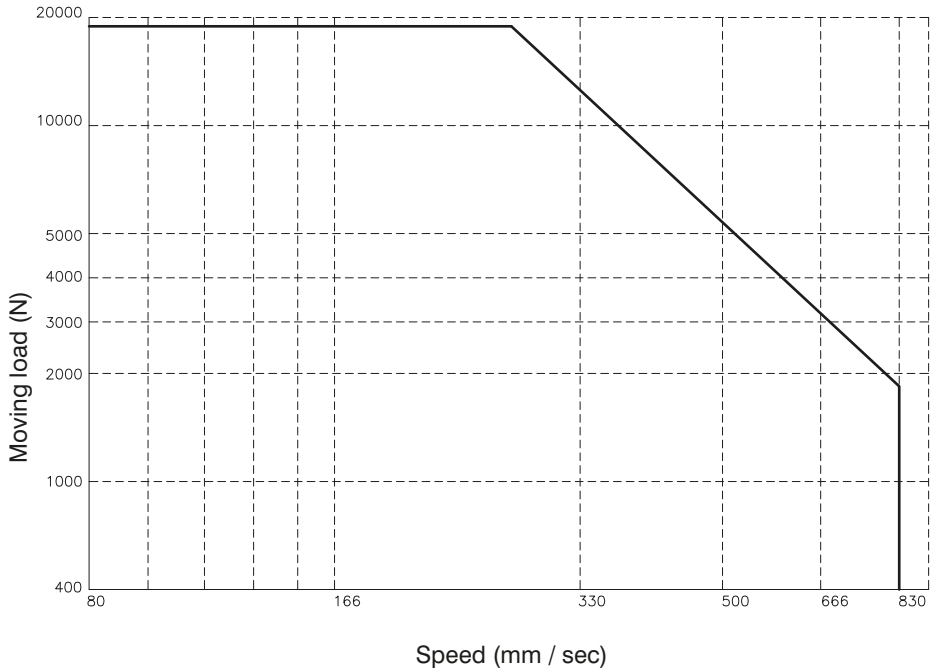
Stroke	N/m
25	49
50	41
75	51
100	45
125	41
150	38
175	35
200	32



"Stopper" device applications





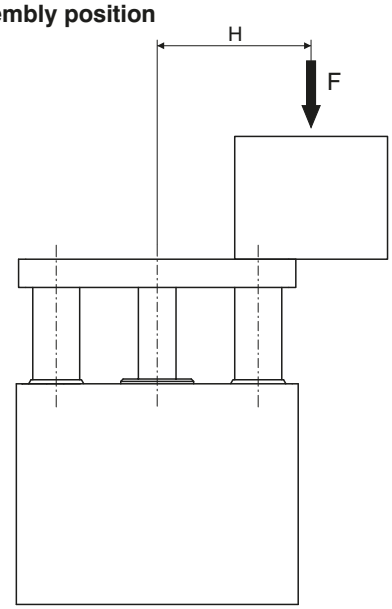


ATTENTION : max stroke 50 mm

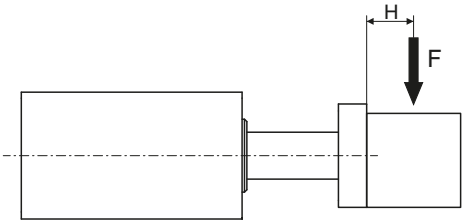
Operating criteria

Handling applications

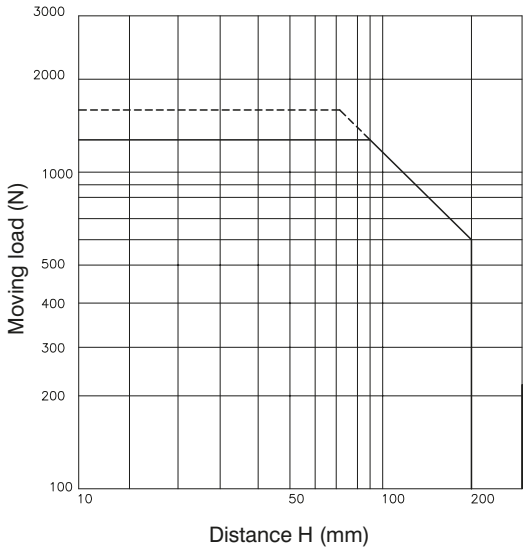
VERTICAL assembly position



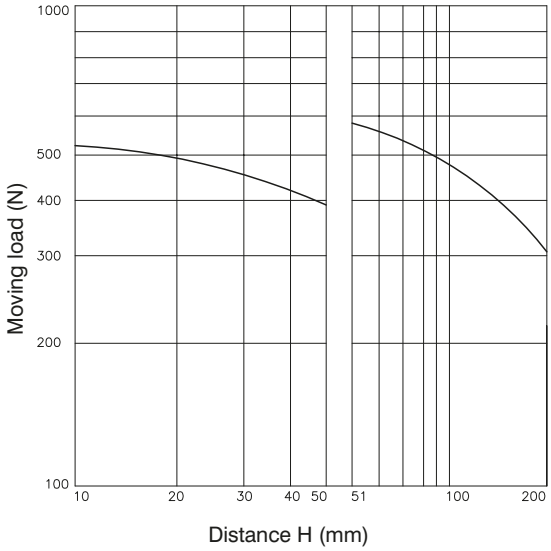
HORIZONTAL assembly position



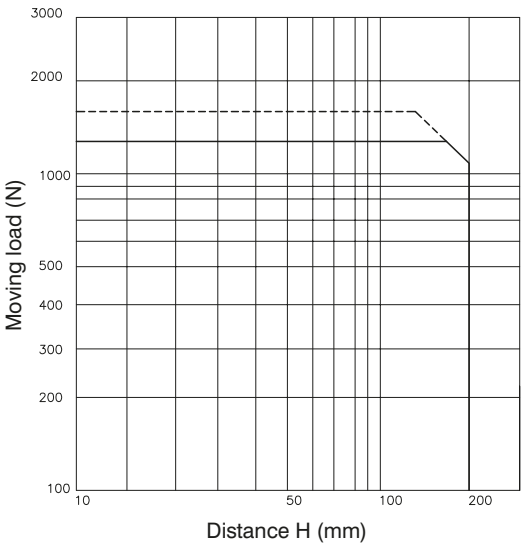
STROKE ≤ 50 mm / V = 200 mm/s



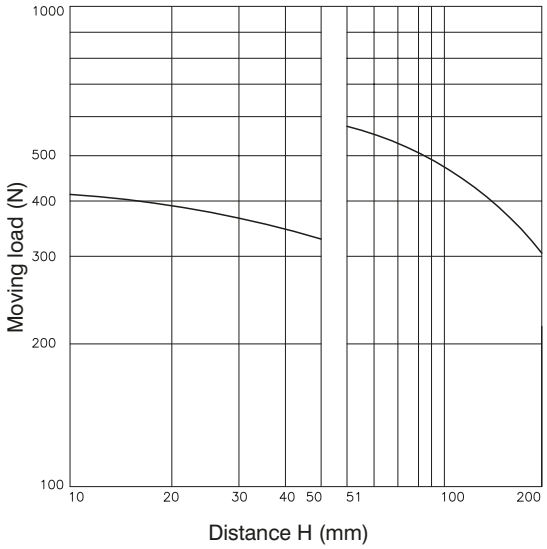
H= 50 mm / V = 200 mm/s



STROKE > 50 mm / V = 200 mm/s



H= 100 mm / V = 200 mm/s



——— Working pressure : 4 bar
- - - - Working pressure : 5 bar

Guided compact cylinder with additional metal rod scrapers

Ordering code

6110.Ø.stroke. C . _

- **32**
- **40**
- **50**
- **63**

- Side supply ports closed
- **L** = Top supply ports closed

Construction characteristics

Body	anodised aluminium
Guide rods	tempered and chromed steel
Piston	aluminium
Piston rod	C43 chromed steel
Rods bushing	bearing bushing
End cap	anodised aluminium
Piston seal	oil resistant NBR rubber
Piston rod seal	PUR
External rod scraper	brass
Internal rod scraper	NBR
Plate	nickel plated steel

The cylinders are equipped with 4 rod scrapers on the guide rods and 1 rod scraper on the central piston rod

Operational characteristics

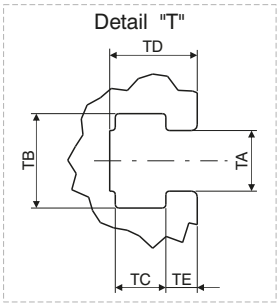
Function	double acting
Fluid	Filtered air. No lubrication needed, if applied it shall be continuous.
Working pressure	max. 10 bar
Working temperature	-5°C - +70°C
Cushioning	elastic bumper on both ends

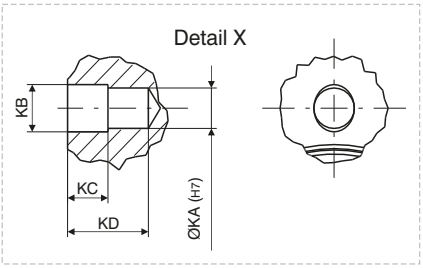
Standard strokes

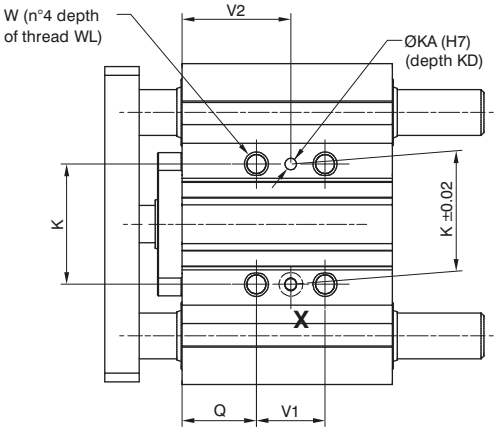
	Stroke									
Bore	**10**	**20**	**25**	**50**	**75**	**100**	**125**	**150**	**175**	**200**
Ø32			●	●	●	●	●	●	●	●
Ø40			●	●	●	●	●	●	●	●
Ø50			●	●	●	●	●	●	●	●
Ø63			●	●	●	●	●	●	●	●

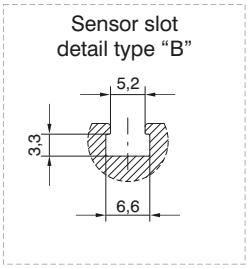
Intermediate strokes can be obtained using spacers with defined length (5, 10, 15, 20 mm).
Example: It is possible to obtain a **6110.32.45.B** cylinder from a **6110.32.50.B** cylinder by inserting a spacer with length of 5 mm.
The intermediate strokes manufactured without the use of spacers are considered special executions.

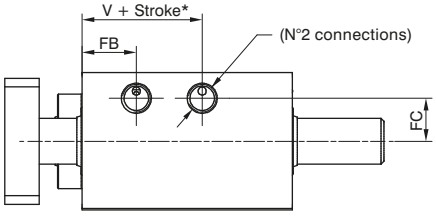
Overall dimensions

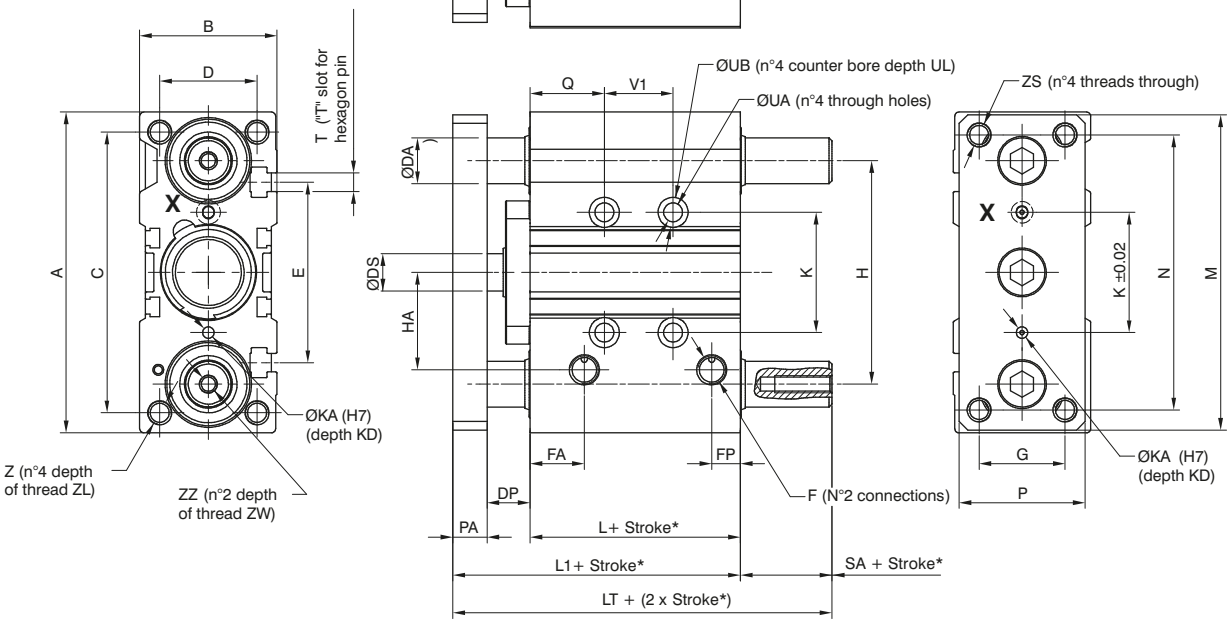












Overall dimensions

Bore	Ø32	Ø40	Ø50	Ø63
Table of dimensions				
A	112	120	148	162
B	48	54	64	78
C	98	106	130	142
D	34	40	46	58
DA	16	16	20	20
DP	15	20	23	23
DS	16	16	20	20
E	63	72	92	110
F	G1/8"	G1/8"	G1/4"	G1/4"
FA	19	13	13	14
FB	19	13	13	14
FC	15	18	21,5	28
FP	10	11	11	12,5
G	30	30	40	50
H	78	86	110	124
HA	34	38	47	55
K	42	50	66	80
KA	4	4	5	5
KB	4,5	4,5	6	6
KC	3	3	4	4
KD	6	6	8	8
L	48,5	50	50	55
L1	75,5	82	88	93
LT	82,5	89	93	100
M	110	118	146	158
N	96	104	130	130
PA	12	12	15	15
P	44	44	60	70
Q	26	22	24	24
SA	7	7	5	7
T	M6	M6	M8	M10
TA	6,5	6,5	8,5	11
TB	10,5	10,5	13,5	17,8
TC	5,5	5,5	7,5	10
TD	9,5	11	13,5	18,5
TE	3,5	4	4,5	7
UA	6,6	6,6	8,6	8,6
UB	11	11	14	14
UL	7,5	7,5	9	9
V	17	19	15	20
V1	See table 1			
V2				
W	M8x1,25	M8x1,25	M10x1,5	M10x1,5
WL	16	16	20	20
Z	M8x1,25	M8x1,25	M10x1,5	M10x1,5
ZL	20	20	22	22
ZS	M8x1,25	M8x1,25	M10x1,5	M10x1,5
ZZ	M6	M8	M10	M10
ZW	20	20	25	25

Table 1	V1			V2		
Bore	stroke≤25	25<stroke≤100	100<stroke≤200	stroke≤25	25<stroke≤100	100<stroke≤200
Ø32	24	48	124	38	50	88
Ø40				34	46	84
Ø50				36	48	86
Ø63	28	52	128	38	50	88

Slide cylinders

Ordering code

6600.Ø.stroke. _ . _

- **8**
- **12**
- **16**
- **20**
- **25**

- = Without accessories
- **A** = Double regulation end stroke
- **AU** = Regulation front end stroke
- **AR** = Regulation rear end stroke
- **D** = Double shock absorber
- **DU** = Front shock absorber
- **DR** = Rear shock absorber

Construction characteristics

Body	anodised aluminium
Piston rod	stainless steel
Piston	stainless steel
Piston rod bushing	sintered bronze
End cap	anodised aluminium
Cushioning washer	PUR
Seal	oil resistant NBR rubber
Flange	anodised aluminium
Upper plate	anodised aluminium

Operational characteristics

Fluid	Filtered air. No lubrication needed, if applied it shall be continuous.
Working pressure	1.5 - 7 bar
Working temperature	-5°C - +70°C
Cushioning	with elastic bumper

Theoretical force

Bore	Effective area (mm²)	Force (N)						
Ø8	Out	101	20	30	40	51	61	71
	In	75	15	23	30	38	45	53
Ø12	Out	226	45	68	90	113	136	158
	In	170	34	51	68	85	102	119
Ø16	Out	402	80	121	161	201	241	281
	In	302	60	91	121	151	181	211
Ø20	Out	628	126	188	251	314	377	440
	In	471	94	141	188	236	283	330
Ø25	Out	982	196	295	393	491	589	687
	In	756	151	227	302	378	454	529
			2	3	4	5	6	7
			Working pressure(bar)					

Standard strokes

	Stroke								
Bore	10	20	30	40	50	75	100	125	150
Ø8	●	●	●	●	●	●			
Ø12	●	●	●	●	●	●	●		
Ø16	●	●	●	●	●	●	●	●	
Ø20	●	●	●	●	●	●	●	●	●
Ø25	●	●	●	●	●	●	●	●	●

Overall dimensions Ø8

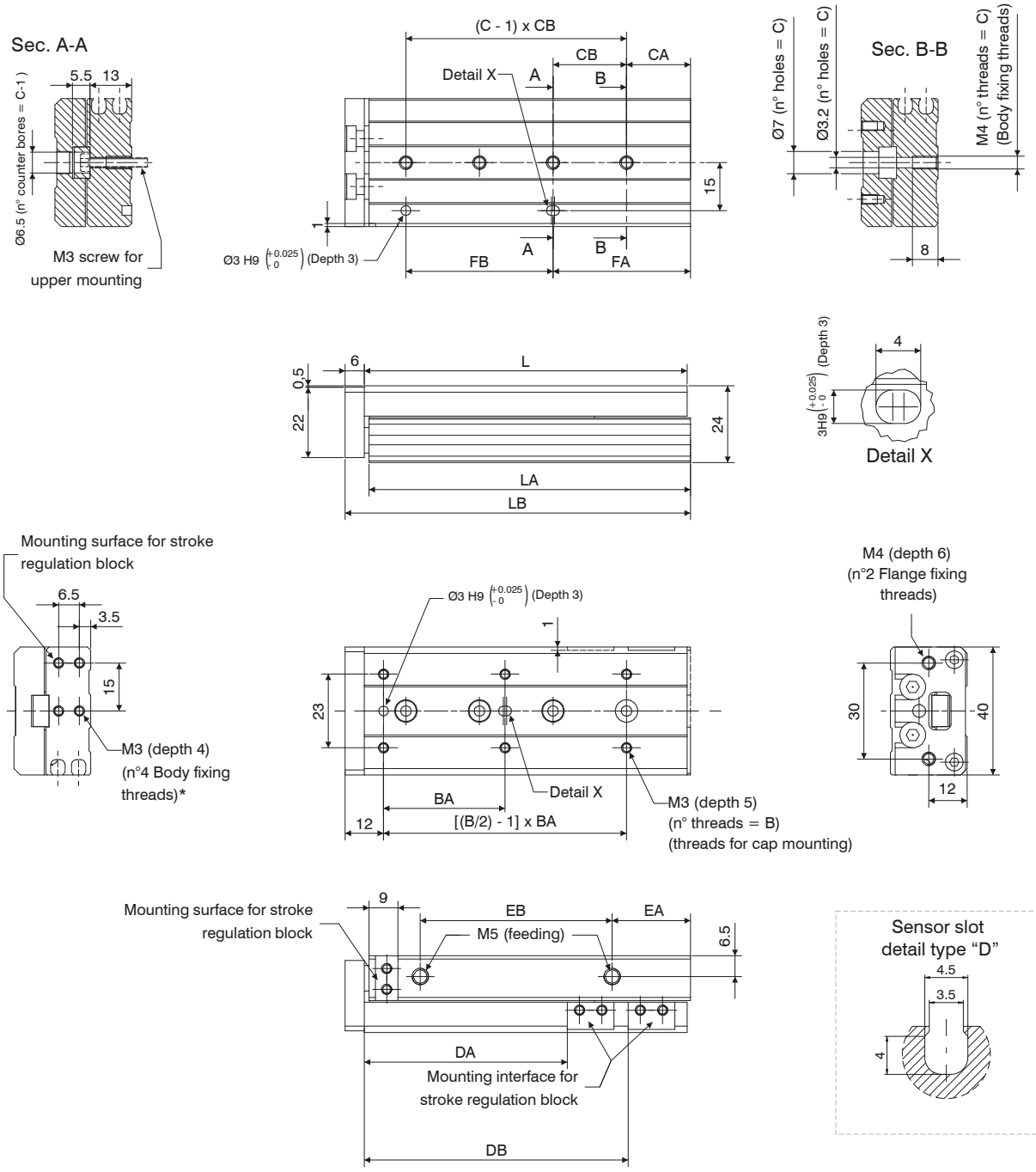
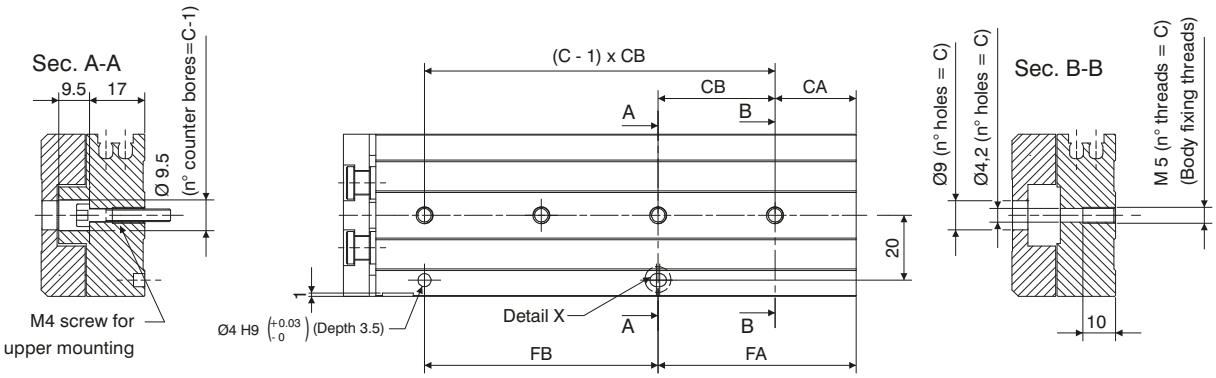
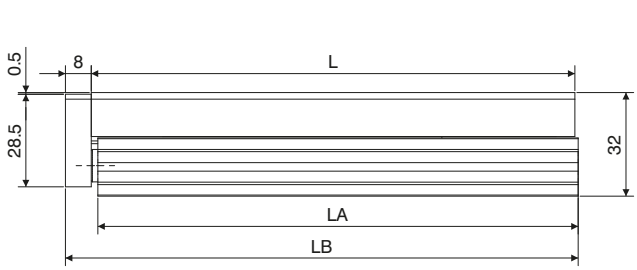


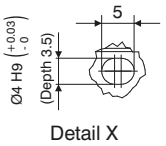
Table of dimensions

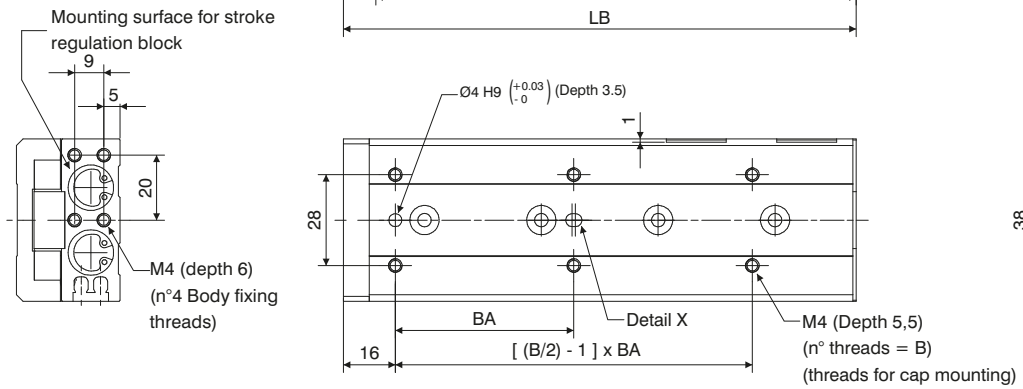
	Standard stroke					
	10	**20**	**30**	**40**	**50**	**75**
B	4	4	4	4	6	6
BA	25	25	40	50	38	50
C	2	2	3	3	4	5
CA	9	12	13	15	20	27
CB	28	30	20	28	23	28
DA	23,5	33,5	43,5	53,5	63,5	88,5
DB	/	/	/	/	82,5	132,5
FA	17	12	33	43	43	83
FB	20	30	20	28	46	56
EA	13	8,5	9,5	10,5	24,5	38,5
EB	19,5	29	39	56	60	96
L	49	54	65	83	101	151
LA	48,5	53,5	64,5	82,5	100,5	150,5
LB	56	61	72	90	108	158
Weight g	150	160	190	235	285	410

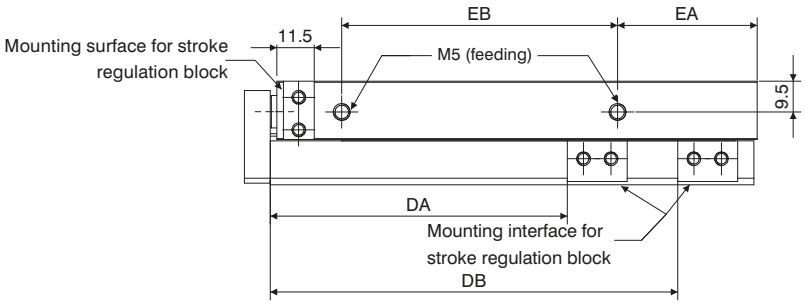
Overall dimensions Ø12











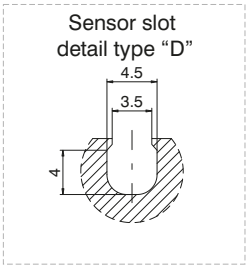


Table of dimensions

	Standard stroke						
	10	20	30	40	50	75	100
B	4				6		
BA		35		50	35	55	65
C		2		3	3	4	5
CA		15		17	15	25	35
CB		40		25	36	36	38
DA	26,5	36,5	46,5	56,5	66,5	91,5	116,5
DB	/	/	/	/	/	125,5	179,5
FA		15		42	51	61	111
FB		40		25	36	72	76
EA	10				22	43	52
EB		40		52	60	85	130
L		71		83	103	149	203
LA		70		82	102	148	202
LB		80		92	112	158	212
Weight (gr.)		325		385	480	660	890

Overall dimensions Ø16

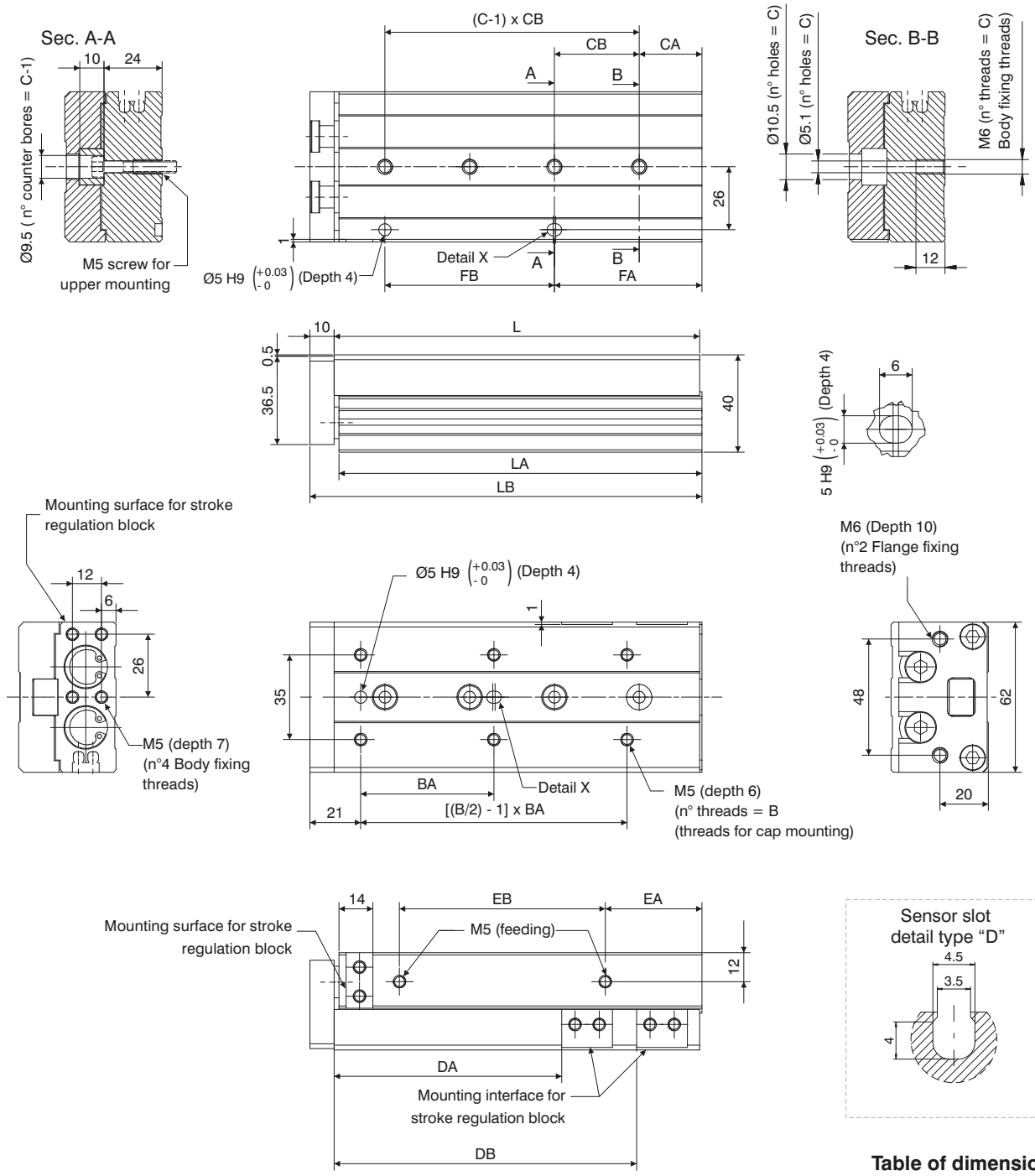


Table of dimensions

	Standard stroke							
	10	**20**	**30**	**40**	**50**	**75**	**100**	**125**
B	4	4	4	4	6	6	6	8
BA	35	35	35	40	30	55	65	70
C	2	2	2	2	3	4	5	7
CA	16	16	16	16	21	26	39	19
CB	40	40	40	50	30	35	35	35
DA	29	39	49	59	69	94	119	144
DB	/	/	/	/	/	125	173	223
FA	16	16	16	16	51	61	109	159
FB	40	40	40	50	30	70	70	70
EA	10	10	10	10	15	40	55	68
EB	40	40	40	50	60	85	118	155
L	76	76	76	86	101	151	199	249
LA	75	75	75	85	100	150	198	248
LB	87	87	87	97	112	162	210	260
Weight (gr.)	570	570	580	640	760	1090	1370	1700

Overall dimensions Ø20

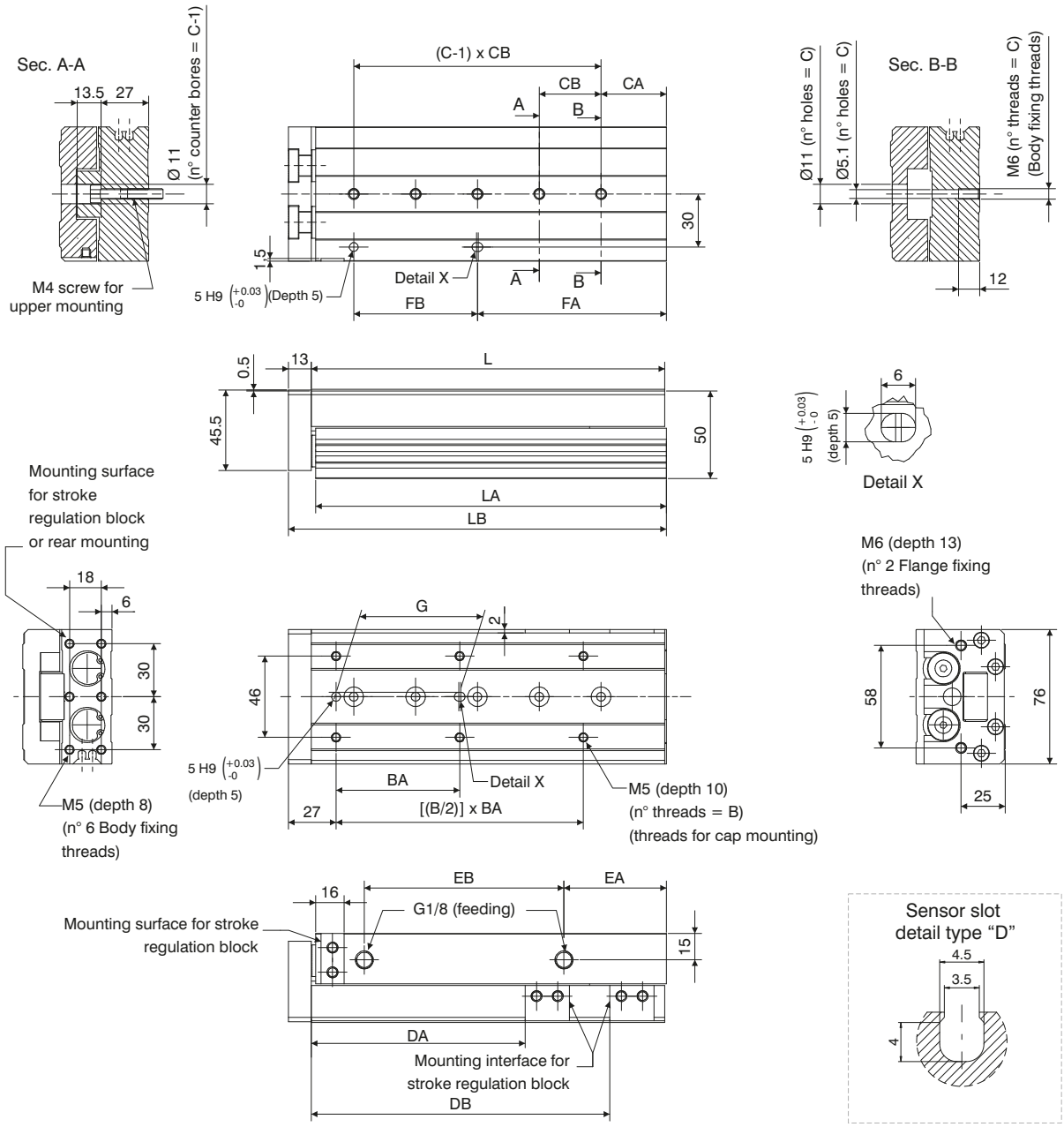


Table of dimensions

	Standard stroke								
	10	**20**	**30**	**40**	**50**	**75**	**100**	**125**	**150**
B	4	4	4	4	6	6	6	8	8
BA	50	50	50	60	35	60	70	70	80
C	2	2	2	2	3	4	5	6	7
CA	15	15	15	15	15	19	37	41	19
CB	45	45	45	55	35	35	35	38	44
DA	31	41	51	61	71	96	121	146	171
DB	/	/	/	/	/	/	169	223	275
EA	10	10	10	10	10	10	58	70	87
EB	44	44	44	54	69	108	113	155	190
FA	25	25	25	35	50	54	107	155	195
FB	35	35	35	35	35	70	70	76	88
G	40	40	40	50	35	60	70	70	80
L	83	83	83	93	108	147	200	254	306
LA	81,5	81,5	81,5	91,5	106,5	145,5	198,5	252,5	304,5
LB	97	97	97	107	122	161	214	268	320
Weight (gr.)	960	980	1010	1100	1250	1630	2150	2670	3190

Overall dimensions Ø25

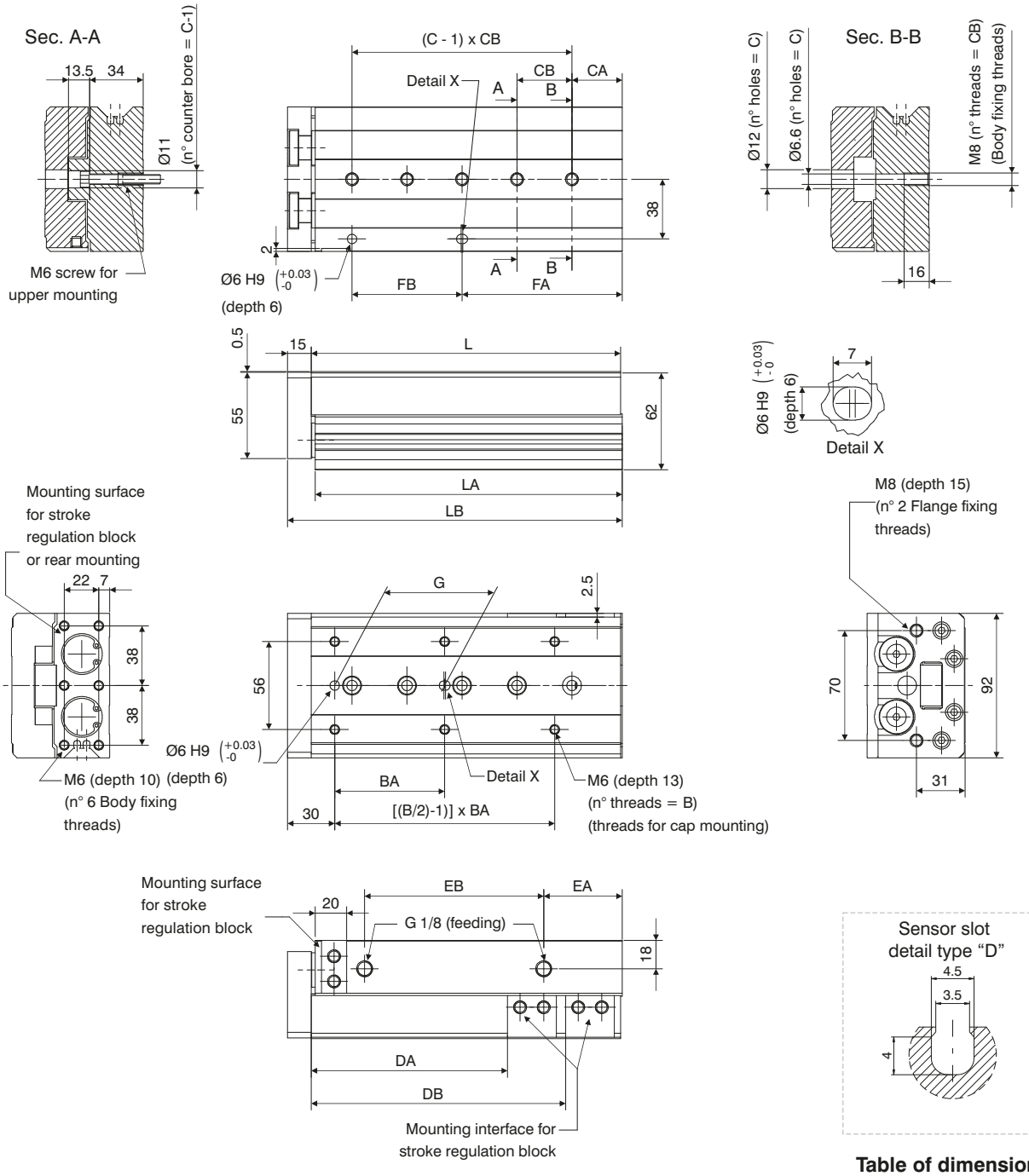
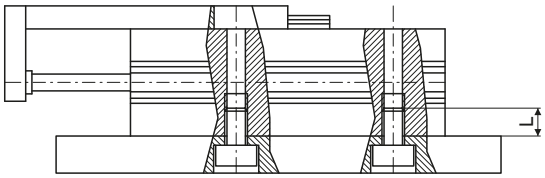


Table of dimensions

	Standard stroke								
	10	**20**	**30**	**40**	**50**	**75**	**100**	**125**	**150**
B	4	4	4	4	6	6	6	8	8
BA	50	50	50	60	35	60	70	75	80
C	2	2	2	2	3	4	5	6	7
CA	22	22	22	22	20	26	32	40	30
CB	45	45	45	55	35	35	35	38	40
DA	35	45	55	65	75	100	125	150	175
DB	/	/	/	/	/	/	162	218	258
EA	12	12	12	12	12	33	50	67	82
EB	47	47	47	57	70	90	114	155	180
FA	22	22	22	22	55	61	102	154	190
FB	45	45	45	55	35	70	70	76	80
G	40	40	40	50	35	60	70	75	80
L	92	92	92	102	115	156	197	255	295
LA	90,5	90,5	90,5	100,5	113,5	154,5	195,5	253,5	293,5
LB	108	108	108	118	131	172	213	271	311
Weight g	1660	1680	1690	1840	2090	2650	3270	4140	4710

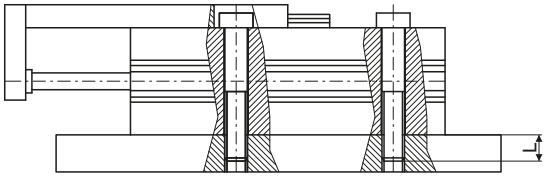
Mounting options

SIDE THREADED HOLES



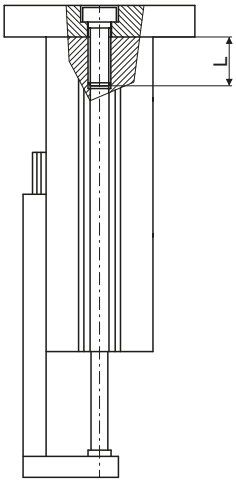
Bore	Screw	Torque (Nm)	Max. Lenght L (mm)
Ø8	M3	2,1	8
Ø12	M4	4,4	10
Ø16	M5	7,4	12
Ø20	M5	7,4	12
Ø25	M6	18	16

SIDE THROUGH HOLES



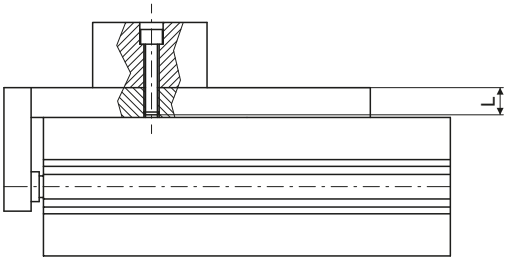
Bore	Screw	Torque (Nm)	Max. Lenght L (mm)
Ø8	M3	1,2	13
Ø12	M4	2,8	18,5
Ø16	M5	5,7	24
Ø20	M5	5,7	29
Ø25	M6	18	34

AXIAL THREADED HOLES

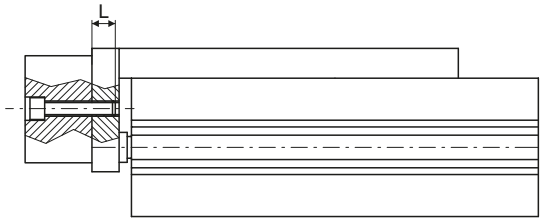


Bore	Screw	Torque (Nm)	Max. Lenght L (mm)
Ø8	M3	0,9	4
Ø12	M4	2,1	6
Ø16	M5	4,4	7
Ø20	M5	4,4	8
Ø25	M6	7,4	10

Mounting load



Bore	Screw	Torque (Nm)	Max. Lenght L (mm)
Ø8	M3	2,1	6
Ø12	M4	4,4	8
Ø16	M5	7,4	10
Ø20	M5	7,4	13
Ø25	M6	18	15



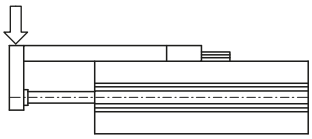
Bore	Screw	Torque (Nm)	Max. Lenght L (mm)
Ø8	M3	0,9	5
Ø12	M4	2,1	5,5
Ø16	M5	4,4	6
Ø20	M5	4,4	10
Ø25	M6	7,4	13

Kinetic energy (J)

Bore	With elastic bumper	With shock absorber
Ø8	0,027	See Dampers 6900
Ø12	0,055	
Ø16	0,11	
Ø20	0,16	
Ø25	0,24	

Plate deflection

With front moment under static conditions completely extended and with load applied as indicated by the arrows.



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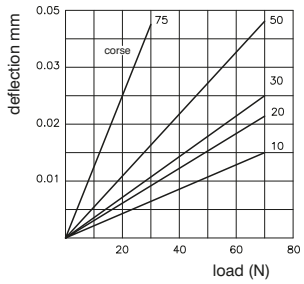

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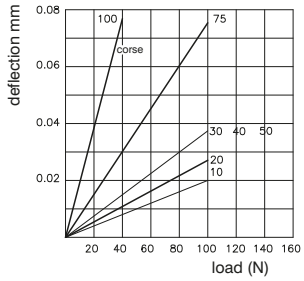
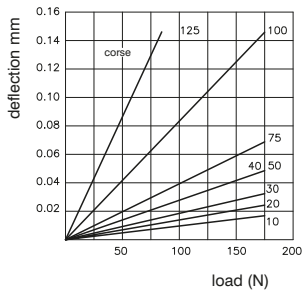
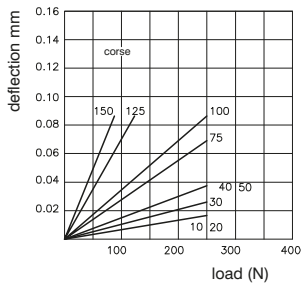


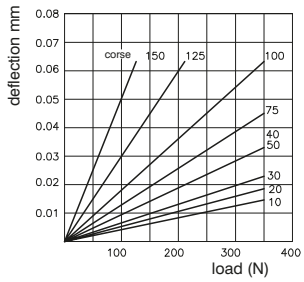
Ø16



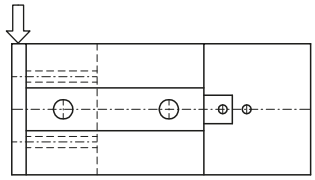
Ø20



Ø25



With side moment under static conditions completely extended and with load applied as indicated by the arrow



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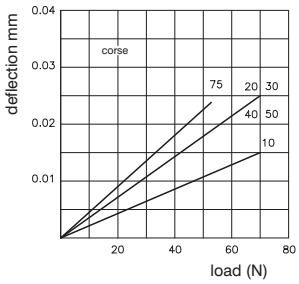

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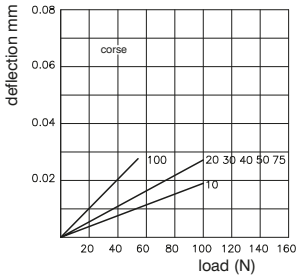

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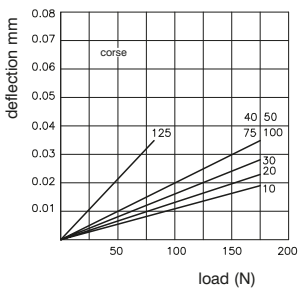

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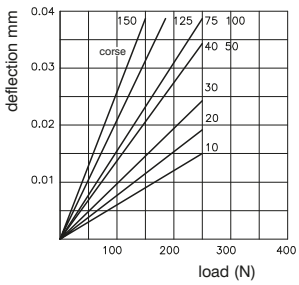
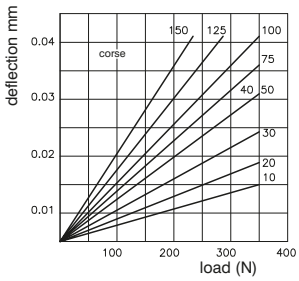
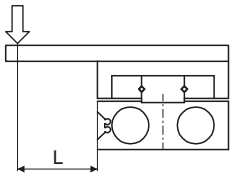


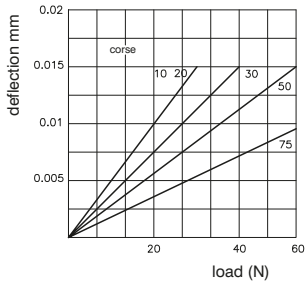
Ø25



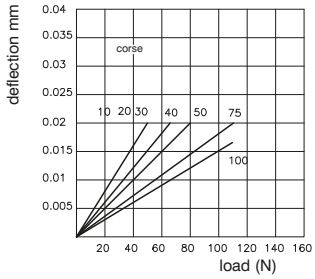
With misaligned side moment with load applied as indicated by the arrow at a distance "L" and with plate completely retracted.



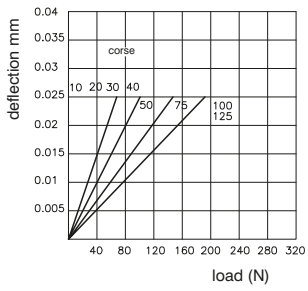
Ø8 L=50mm



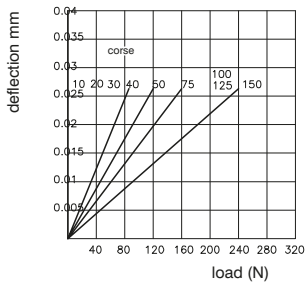
Ø12 L=65mm



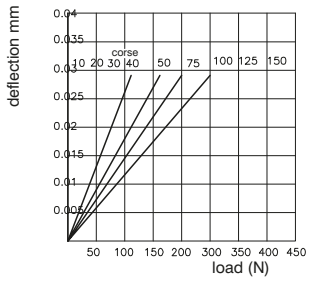
Ø16 L=90mm



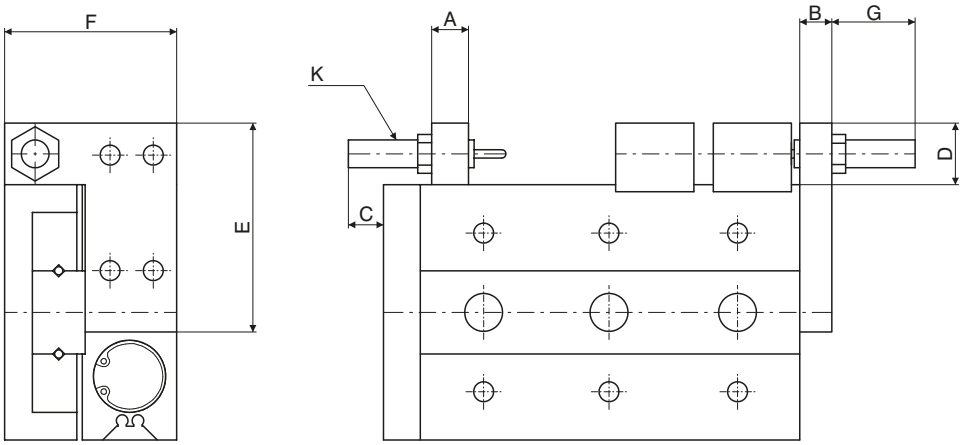
Ø20 L=120mm



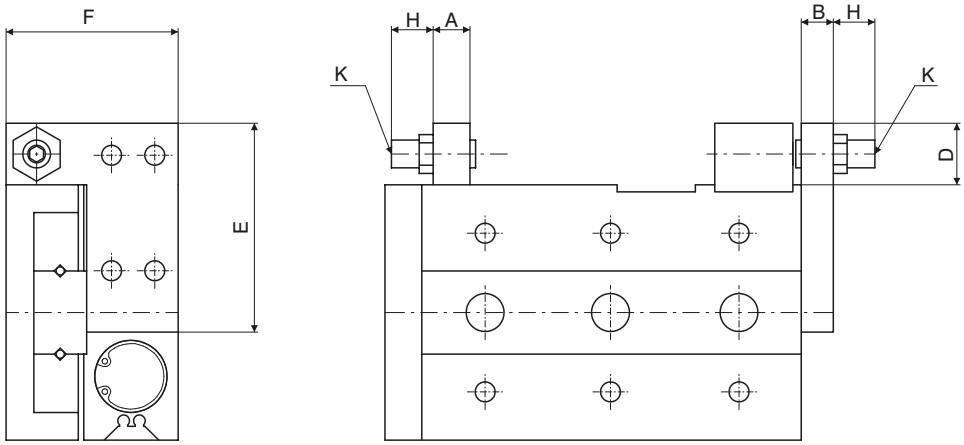
Ø25 L=150mm



Accessories - Static moment
Dimensions with dampers



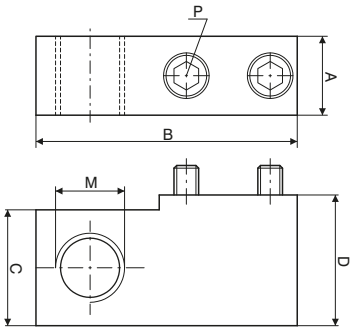
Dimensions with adjusting screw



Bore	A	B	C	D	E	F	G max.	H max.	K
Ø8	7	8	26	14,5	38,5	23	25,5	28,5	M8x1
Ø12	9,5	8	21	15	45	31,5	24,5	32	M8x1
Ø16	11	10	19	18	55	37,5	29	34,5	M10x1
Ø20	13	12	28	24,5	70	47,5	42,5	35,5	M14x1,5
Ø25	16	15	34	24,5	80	54,5	39,5	37,5	M14x1,5

Shock absorber mounting block / front stroke adjusting screw

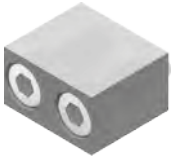
Ordering code
6600.Ø.SU

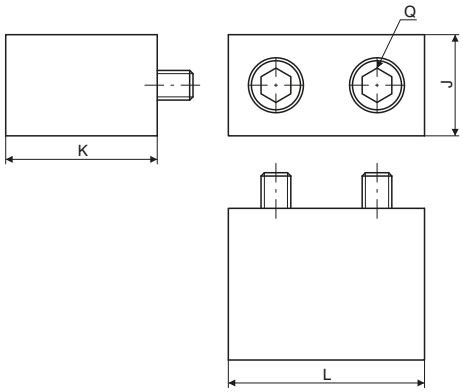


Bore	A	B	C	D	M	P
Ø8	7	23	14	15,5	M8x1	M3x16
Ø12	9,5	31	14,5	16		M4x16
Ø16	11	37	17,5	19	M10x1	M5x18
Ø20	13	45,5	23,5	26	M14x1,5	M6x25
Ø25	16	53,5		26,5		M8x25

Reference block

Ordering code
6600.Ø.SI

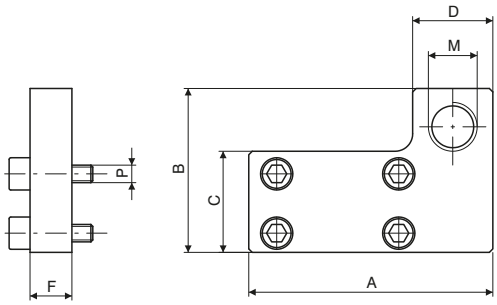




Bore	J	K	L	Q
Ø8	7	15,5	14,6	M3x16
Ø12	10	15	18,5	M4x14
Ø16	12	18,5	21	M5x18
Ø20	13	25,5	25	M6x25
Ø25	17		31	M8x25

Shock absorber mounting block / rear stroke adjusting screw

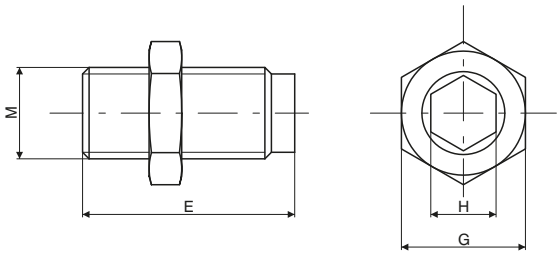
Ordering code
6600.Ø.SR



Bore	A	B	C	D	F	M	P
Ø8	38	23	12,5	14	8	M8x1	M3x12
Ø12	45	31	18				M4x12
Ø16	55	37	23,5	16	10	M10x1	M5x14
Ø20	70	47	29	23	12	M14x1,5	M5x16
Ø25	80	54	35		15		M6x20

Adjusting screw

Ordering code
6600.Ø.VR



Bore	E	G	H	M
Ø8	36,5	12	4	M8x1
Ø12	40			
Ø16	44,5	14	5	M10x1
Ø20	47,5	22	8	M14x1,5
Ø25	52,5			

Series 6200 - Twin-rod slide units

General

TWIN-ROD SLIDE UNITS SERIES 6200 AND 6210

The 6200 series twin-rod linear guide units are wide cylinders used in manipulation applications and are characterised by their high force output thanks to their double piston design.
Bores range from 10mm to 32mm diameter, with sintered bronze bearings for standard applications and linear ball bearings for more rugged applications.
One major characteristic of these cylinders is the precision of their anti-rotational design, with the possibility of regulating the stroke to within 0.5mm.
When using magnetic sensors, the 1580 series sensor sits entirely within the extrusion, resulting in a smooth profile.

The liner guided units range includes , alongside the conventional two rod version with flange series 6200 , also the through rod version with twin flanges series 6210

Thanks to the twin-rod, double yoke design of the 6210 series it is possible to either fix the body and use the ends of the rods, or alternatively to fix the rod ends and use the body as the moving part. The cylinder can be piped through the body or through the rods depending on the application.
Stroke limiting screws are fitted at either end of the stroke. The substitution of these screws with shock absorbers makes it possible to use the cylinder on higher velocity applications (up to 500mm/sec.) Slots are provided along the edge of these units to accommodate 1580 series miniature sensors.

Twin-rod slide units

Ordering code

6200.Ø.stroke. _

- **10**
- **15**
- **20**
- **25**
- **32**

- **B** = Control unit with bronze bush
- **C** = Control unit with bearing bush

Construction characteristics

Body	anodised aluminium
Rods	C43 chromed steel (control unit with bronze bush) tempered and chromed steel (control unit with bearing bush)
Piston	aluminium
Rod bushing	brass
End cap	anodised aluminium
Piston seal	oil resistant NBR rubber
Piston rod seal	PUR
Plate	anodised aluminium

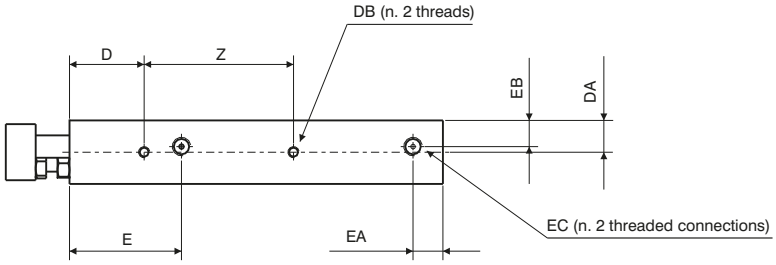
Operational characteristics

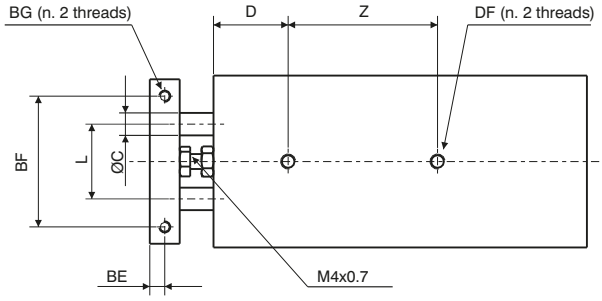
Function	double acting
Fluid	Filtered air. No lubrication needed, if applied it shall be continuous.
Max. pressure	7 bar
Working temperature	-5°C - +70°C
Cushioning	elastic bumper

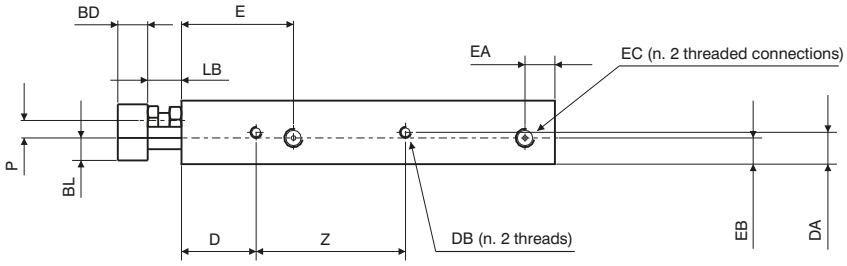
Standard strokes

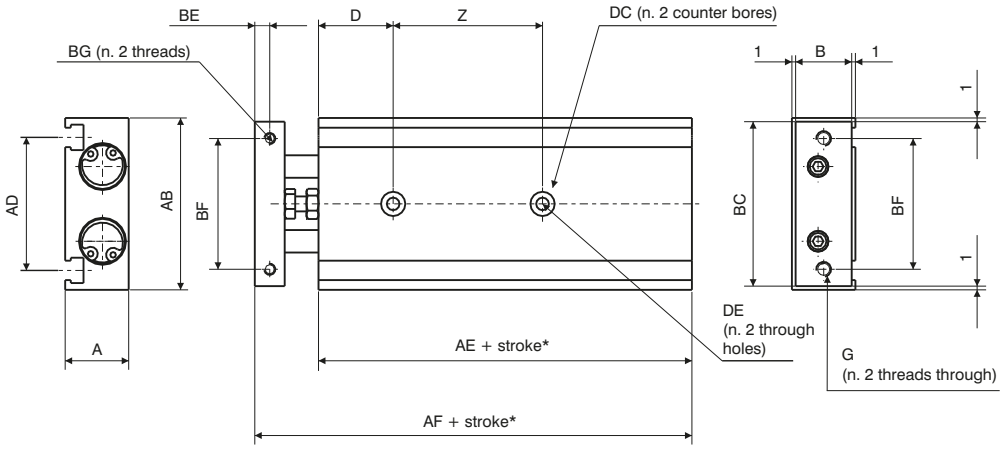
Bore	Stroke														
	10	15	20	25	30	35	40	45	50	60	70	75	80	90	100
Ø10	●	●	●	●	●	●	●	●	●	●	●	●			
Ø15	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Ø20	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Ø25	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Ø32	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Overall dimensions Ø10 - Ø15

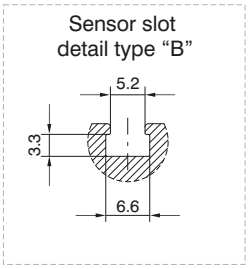






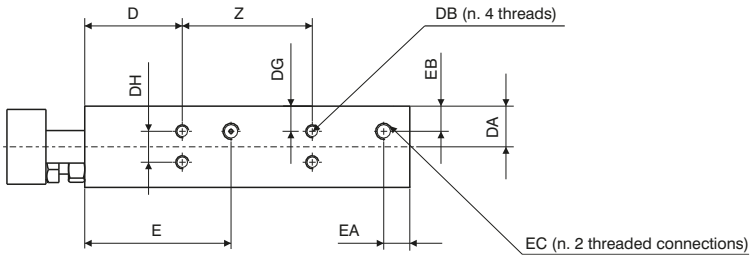


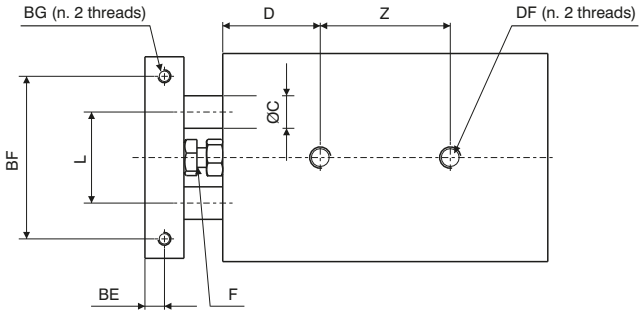
*Dimensions only refer to the "standard stroke"

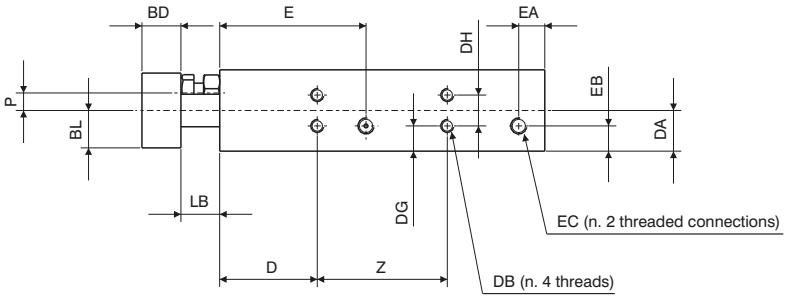


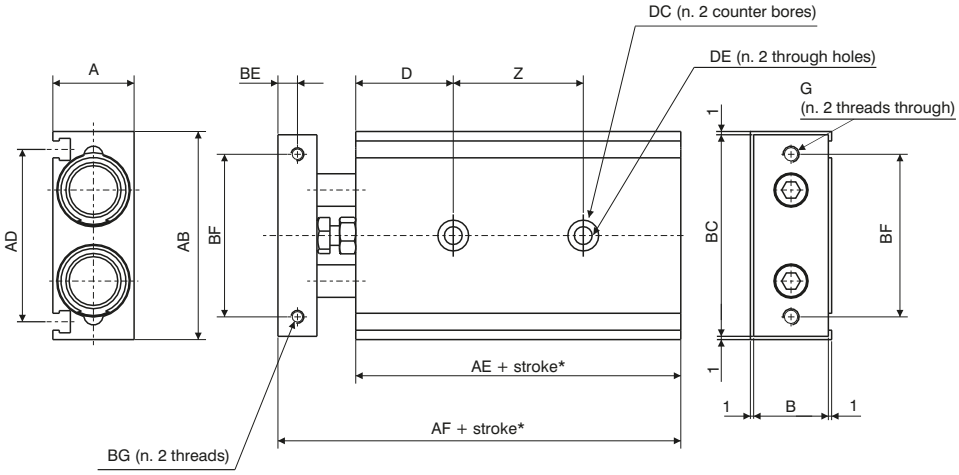
Bore		Ø10	Ø15
A		17	20
AB		46	58
AD		35,6	48
AE		55	60
AF		72	79
B		15	18
BC		44	56
BD		8	10
BE		4	5
BF		35	45
BG		M3x0,5	M4x0,7
	Useful depth	5	6
BL		6	9
C		6	8
D		20	30
DA		8,5	10
DB		M3x0,5	M4x0,7
	Useful depth	4,5	5
DC		6,5	8
	depth	3,3	4,4
DE		3,4	4,3
DF		M4x0,7	M5x0,8
	Useful depth	7	8
E		30	38,5
EA		8	8
EB		7	10
EC		M5x0,8	M5x0,8
	Useful depth	4,5	4,5
F		M4x0,7	M4x0,7
G		M4x0,7	M5x0,8
L		20	25
LB		9	9
P		4,7	4,5
Z	stroke 10 - 25	30	25
	stroke 30 - 50	40	35
	stroke 60 - 75	50	45
	stroke 80	-	45
	stroke 90-100	-	55

Overall dimensions Ø20 - Ø25 - Ø32



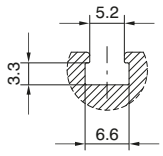






*Dimensions only refer to the "standard stroke"

Sensor slot
detail type “B”



Bore		Ø20	Ø25	Ø32
A		25	30	38
AB		64	80	98
AD		53	64	76
AE		70	72	82
AF		94	96	112
B		23	28	36
BC		62	78	96
BD		12	12	16
BE		6	6	8
BF		50	60	75
BG		M4x0,7	M5x0,8	M5x0,8
	Useful depth	6	7,5	8
BL		11,5	14	18
C		10	12	16
D		30	30	30
DA		12,5	15	19
DB		M4x0,7	M5x0,8	M5x0,8
	Useful depth	6	7,5	7,5
DC		9,5	11	11
	depth	5,3	6,3	6,3
DE		5,5	6,9	6,9
DF		M6x1	M8x1,25	M8x1,25
	Useful depth	10	12	12
DG		7,75	8,5	9
DH		9,5	13	20
E		45	46	56
EA		8	9	10
EB		7,75	15	19
EC		M5x0,8	G1/8	G1/8
	Useful depth	4,5	6,5	6,5
F		M6x1	M6x1	M8x1,25
G		M5x0,8	M6x1	M6x1
L		28	35	44
LB		12	12	14
P		5,4	7,8	12
Z	stroke 10 - 25	30	30	40
	stroke 30 - 50	40	40	50
	stroke 60 - 100	60	60	70

Operating instructions

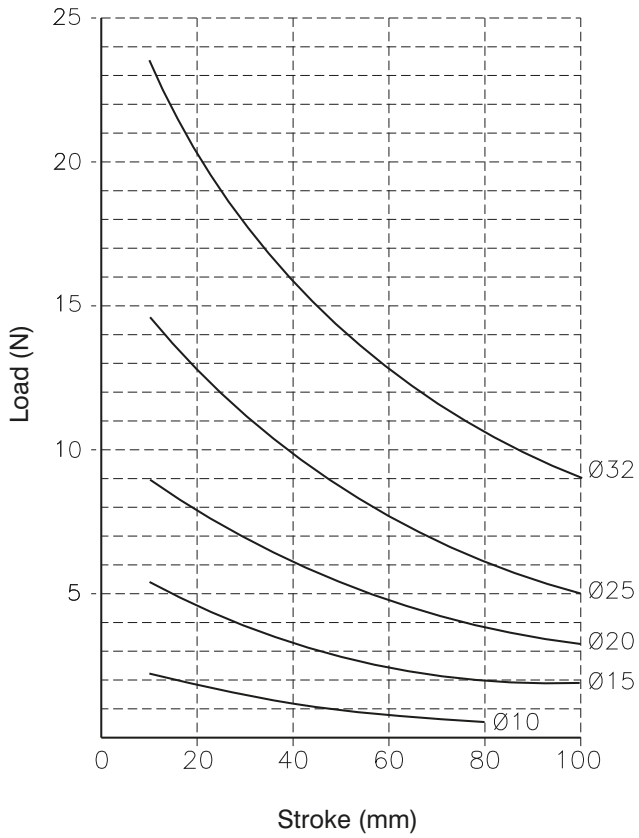
	Bore				
	Ø10	Ø15	Ø20	Ø25	Ø32
Stroke	**Control unit with bronze bush**				**Weight g**
10	150	250	400	610	1150
15	160	265	420	635	1190
20	170	280	440	660	1230
25	180	290	460	690	1275
30	190	300	480	720	1320
35	200	315	495	745	1360
40	210	330	510	770	1400
45	220	345	530	800	1450
50	230	360	550	830	1490
60	250	390	585	890	1580
70	270	420	620	950	1665
75	280	435	640	970	1710
80		450	660	995	1755
90		480	700	1060	1840
100		510	740	1000	1930
Stroke	**Control unit with bearing bush**				
10	160	270	430	620	1160
15	165	285	445	645	1205
20	170	300	460	670	1250
25	180	310	480	700	1295
30	190	320	500	730	1340
35	200	335	515	755	1380
40	210	350	530	780	1420
45	220	365	550	810	1465
50	230	380	570	840	1510
60	250	410	605	895	1595
70	270	440	640	955	1680
75	280	455	660	980	1720
80		470	680	1005	1765
90		500	715	1065	1855
100		530	750	1110	1940

Working pressure										**Theoretical slide force**
1 bar	16	10	35.5	25	63	47	98	75.5	161	120.5
1.5 bar	23.5	15	53	38	94	62.5	147.5	113.5	241	181
2 bar	31.5	20.0	70.5	50.5	125.5	94	196.5	151	321.5	241
3 bar	47	30	106	75.5	188.5	141	294.5	227	482.5	362
4 bar	63	40	141	101	251	188	393	302.5	643	482.5
5 bar	78.5	50	176.5	126	314	236	491	378	804	603
6 bar	94	60	212	151	377	283	589	453.5	965	723.5
7 bar	110	70	247	176.5	440	330	687.5	529	1125.6	844
	Out	In	Out	In	Out	In	Out	In	Out	In

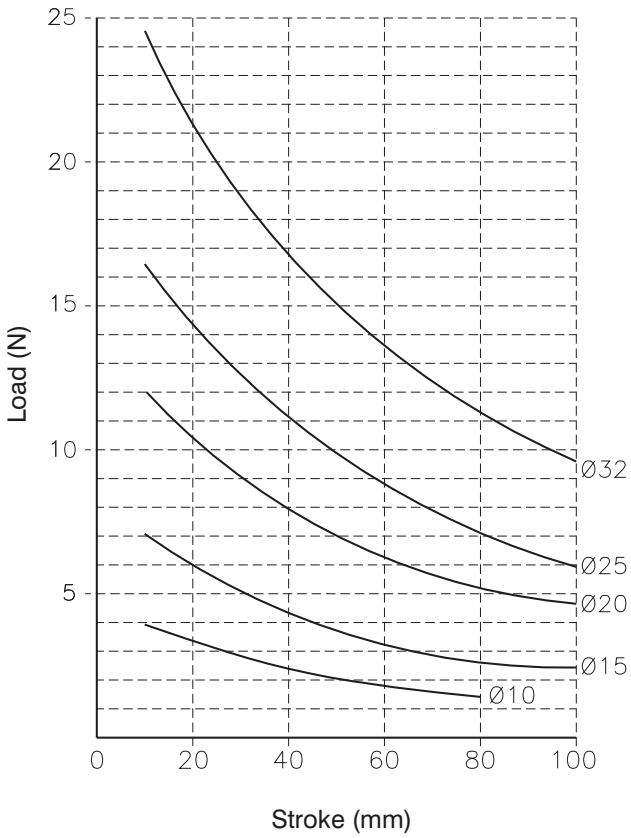
Operating instructions

Possible loads

Control unit with bronze bush



Control unit with bearing bush



Twin-rod slide units

Ordering code

6200.Ø.stroke. _

- **10**
- **15**
- **20**
- **25**
- **32**

- **B** = Control unit with bronze bush
- **C** = Control unit with bearing bush

Construction characteristics

Body	anodised aluminium
Rods	C43 chromed steel (control unit with bronze bush) tempered and chromed steel (control unit with bearing bush)
Piston	aluminium
Rod bushing	brass
End plate	anodised aluminium
Piston seal	oil resistant NBR rubber
Piston rod seal	PUR
Plate	anodised aluminium

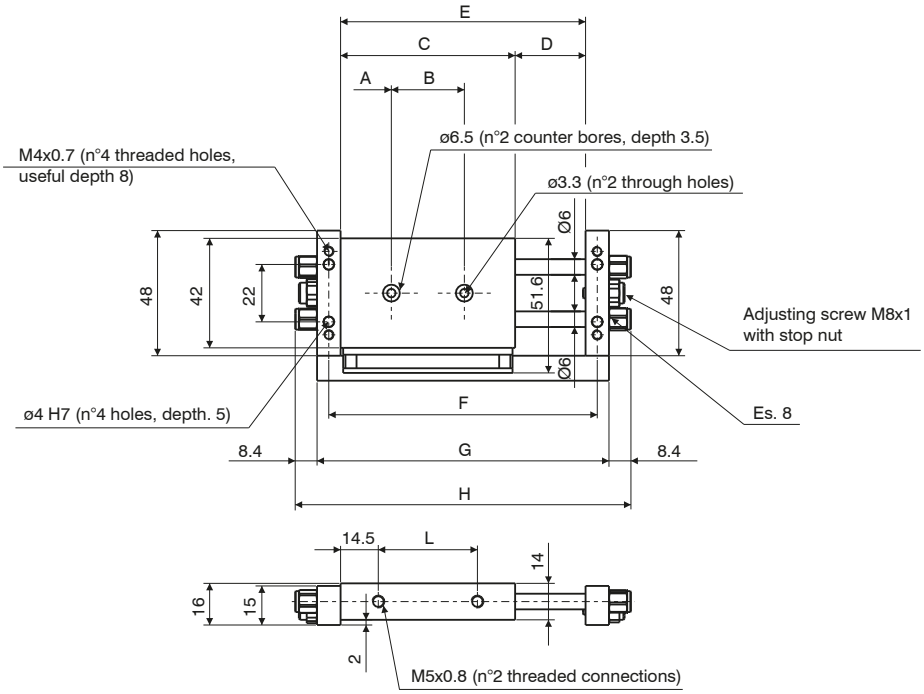
Technical characteristics

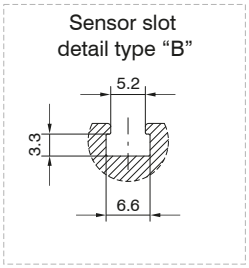
Function	double acting
Fluid	Filtered air. No lubrication needed, if applied it shall be continuous.
Max. pressure	7 bar
Working temperature	-5°C - +70°C
Cushioning	elastic bumper

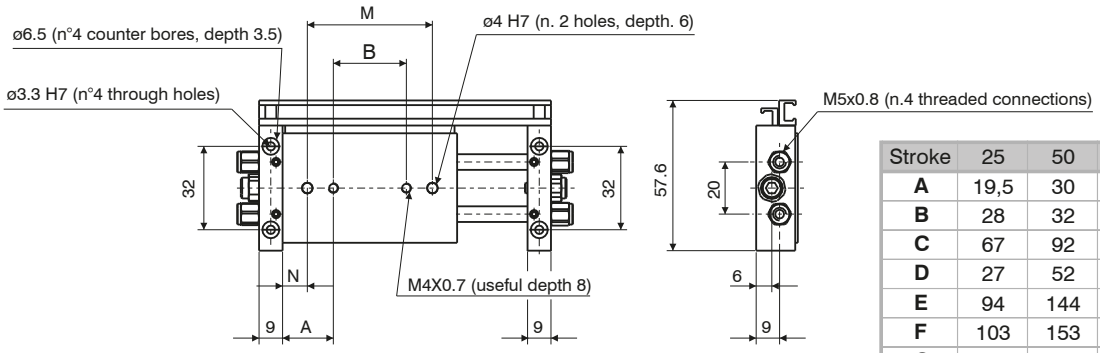
Standard strokes

Bore	Stroke														
	10	15	20	25	30	35	40	45	50	60	70	75	80	90	100
Ø10	●	●	●	●	●	●	●	●	●	●	●	●			
Ø15	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Ø20	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Ø25	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Ø32	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Overall dimensions Ø10

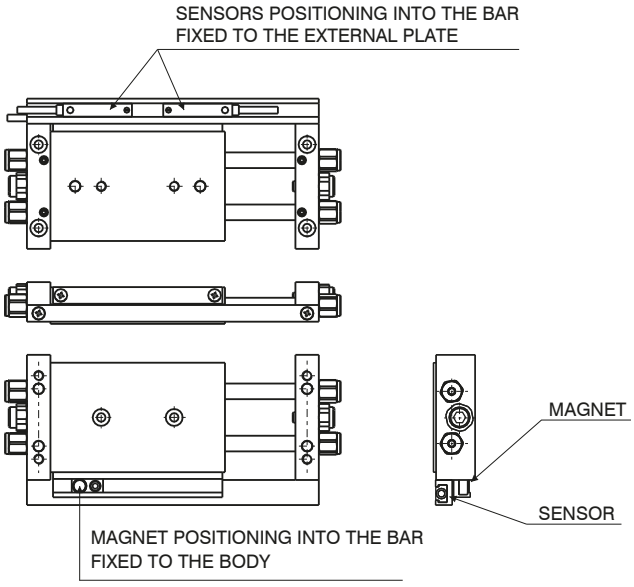




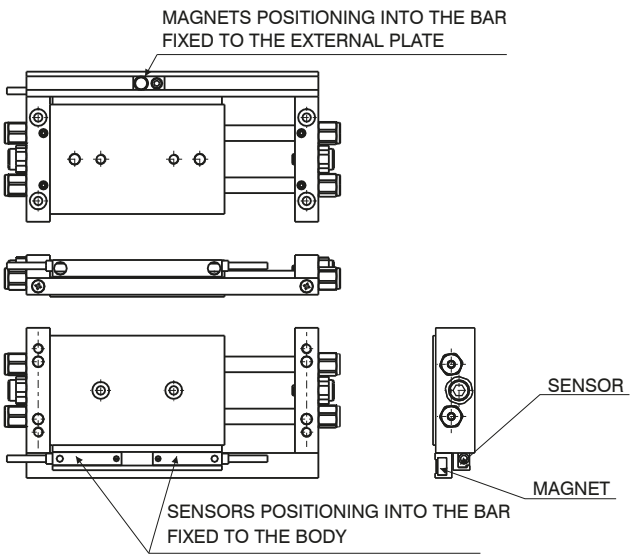


Stroke	25	50	75	100
A	19,5	30	35	35
B	28	32	47	72
C	67	92	117	142
D	27	52	77	102
E	94	144	194	244
F	103	153	203	253
G	112	162	212	262
H	129	179	229	279
L	38	63	88	113
M	48	52	67	92
N	9,5	20	25	25
				Weight
g	160	230	280	310

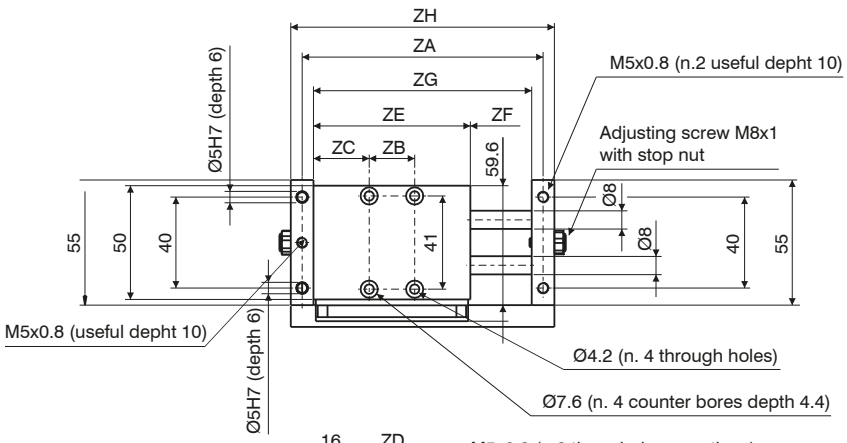
MOUNTING WITH FIXED PLATE

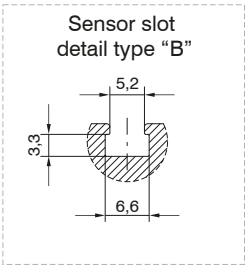


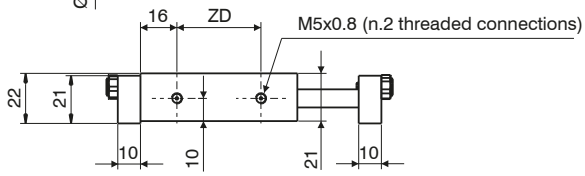
MOUNTING WITH A FIXED BODY

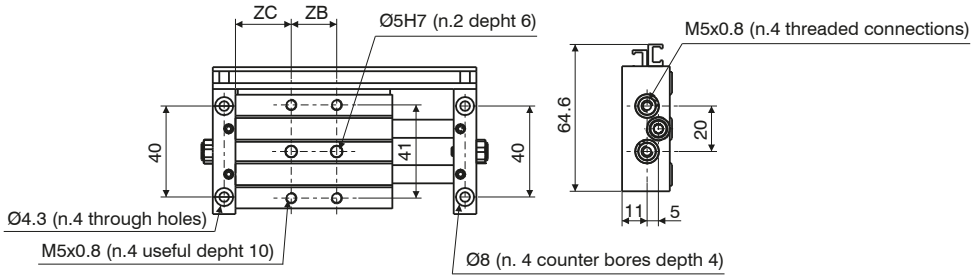


Overall dimensions Ø15



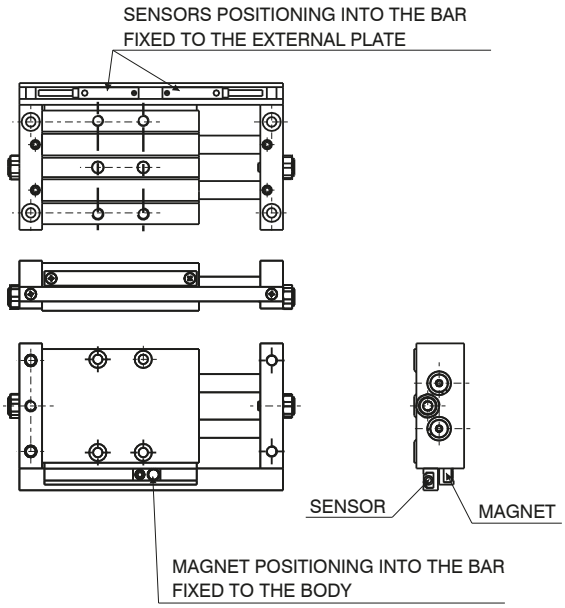




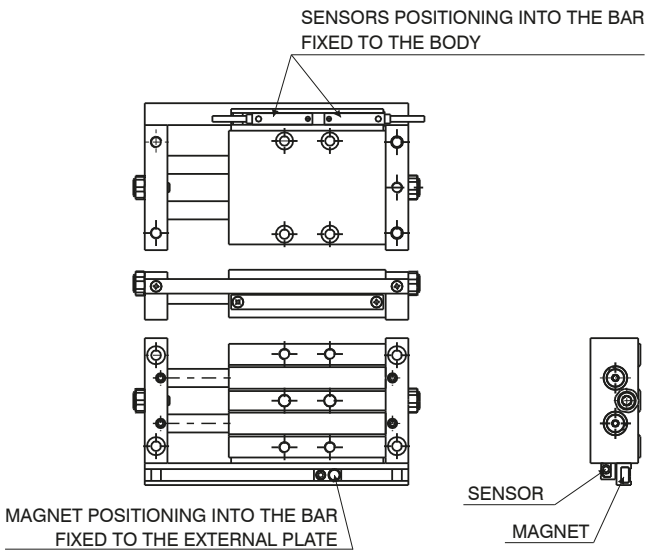


Stroke	25	50	75	100	125	150	175	200
ZA	106	156	206	256	306	356	406	456
ZB	20	45	65	90	90	90	90	90
ZC	24,5	24,5	27	27	39,5	52	64,5	77
ZD	37	62	87	112	137	162	187	212
ZE	69	94	119	144	169	194	219	244
ZF	27	52	77	102	127	152	177	202
ZG	96	146	196	246	296	346	396	446
ZH	116	166	216	266	316	366	416	466
								Weight
g	240	350	450	550	670	750	900	1000

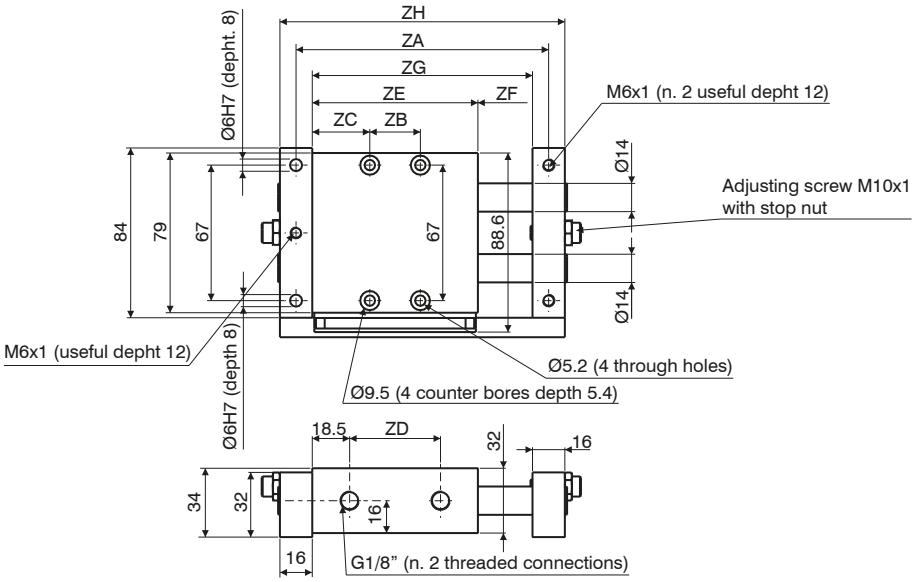
MOUNTING WITH FIXED PLATE

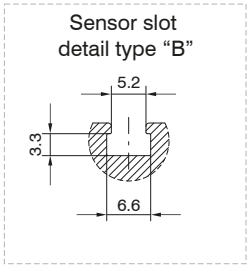


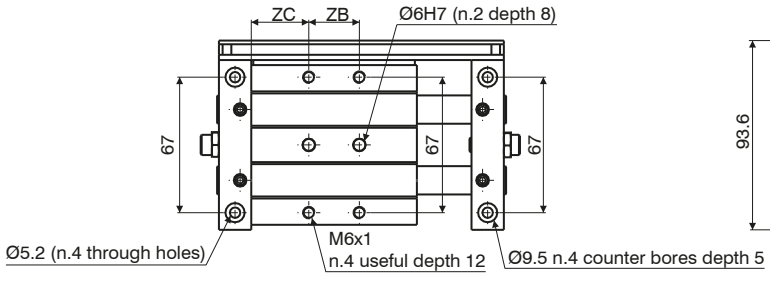
MOUNTING WITH FIXED BODY

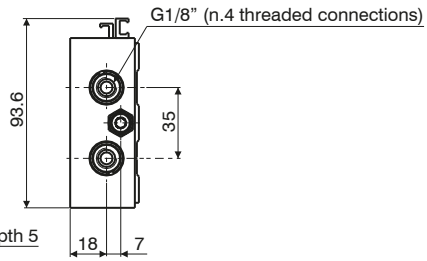


Overall dimensions Ø25



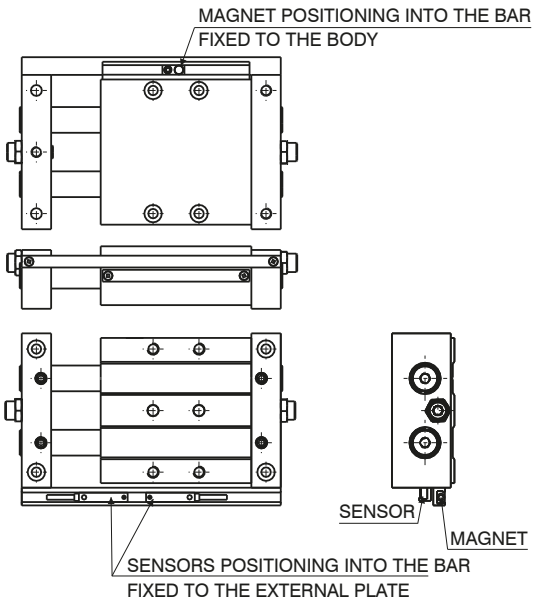




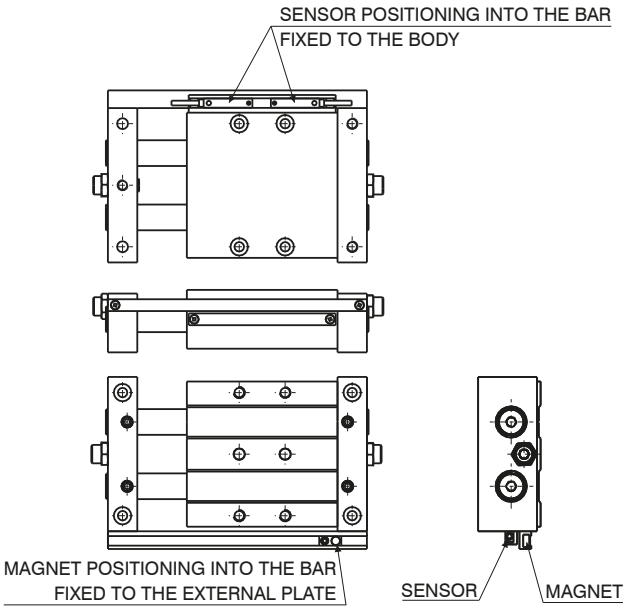


Stroke	25	50	75	100	125	150	175	200
ZA	125	175	225	275	325	375	425	475
ZB	25	45	65	90	90	90	90	90
ZC	28,5	31	33,5	33,5	46	58,5	71	83,5
ZD	45	70	95	120	145	170	195	220
ZE	82	107	132	157	182	207	232	257
ZF	27	52	77	102	127	152	177	202
ZG	109	159	209	259	309	359	409	459
ZH	141	191	241	291	341	391	441	491
								Weight
g	950	1140	1350	1600	1800	2000	2300	2500

MOUNTING WITH FIXED PLATE



MOUNTING WITH FIXED BODY



Operating conditions

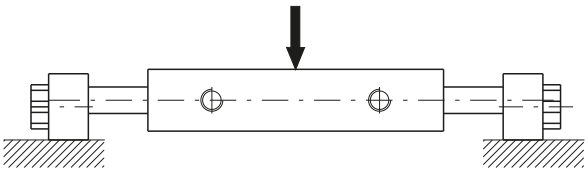
Theoretical force (N)

Working pressure	Bore		
	Ø10	Ø15	Ø25
2 bar	20	41	119
3 bar	30	62	179
4 bar	40	83	239
5 bar	51	104	299
6 bar	61	124	358
7 bar	71	145	418
8 bar	81	166	478
9 bar	91	186	537
	101	207	597
	Effective area (mm^2)		

Deflection of piston rods

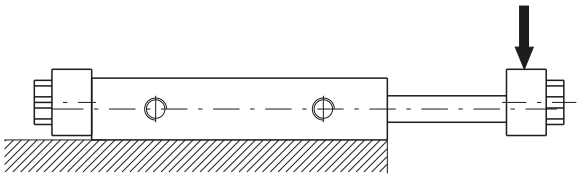
Applied load to body centre

Bore	Load	Deflection (mm)	
Ø10	10 N	0,07	/
Ø15	30 N	0,08	0,28
Ø25	60 N	0,02	0,08
		100	200
		Stroke	

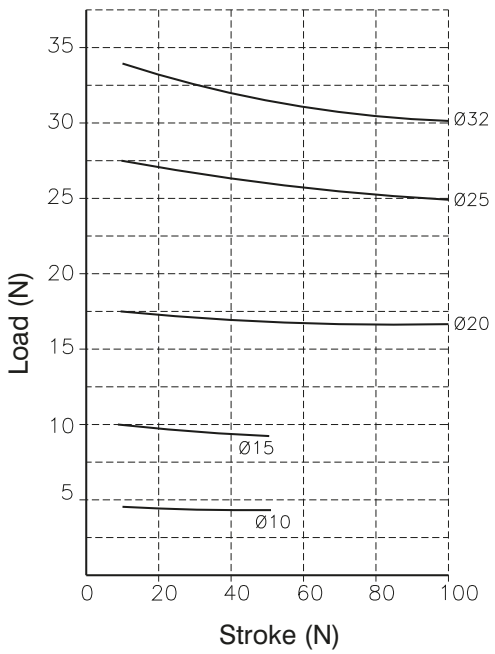


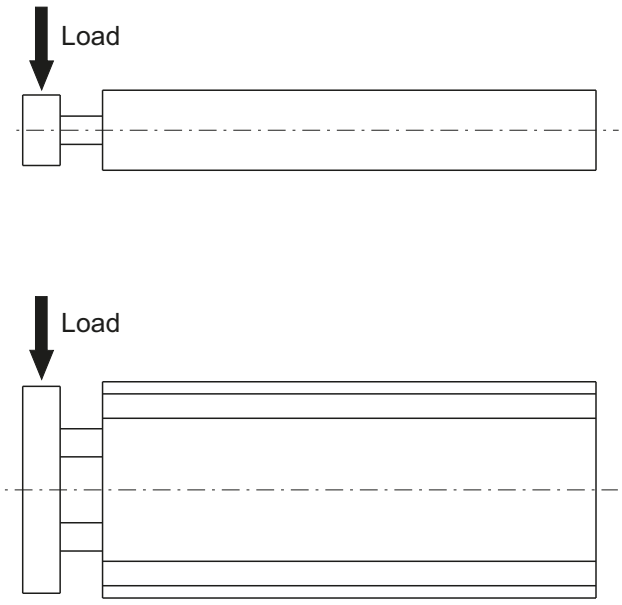
Applied load to body centre

Bore	Load	Deflection (mm)			
Ø10	3 N	0,06	0,3	/	/
Ø15	5 N	0,1	0,2	0,5	1
Ø25	10 N	0,03	0,1	0,15	0,25
		50	100	150	200
		Stroke			



Control unit with bronze bushes





Guide cylinders

Ordering code

6700.Ø.stroke

- 10
- 16
- 20

Construction characteristics

Body	anodised aluminium
Piston rod	stainless steel
Piston	aluminium
Piston rod bushing	aluminium
End cap	anodised aluminium
Seals	oil resistant NBR rubber
Table	anodised aluminium

Operational characteristics

Fluid	Filtered air. No lubrication needed, if applied it shall be continuous.
Working pressure	1.2 - 7 bar
Working temperature	-5°C - +70°C
Cushioning	with elastic bumper

Standard strokes

	Stroke								
Bore	5	10	15	20	25	30	40	50	60
Ø10	●	●	●	●	●	●	●	●	●
Ø16	●	●	●	●	●	●	●	●	●
Ø20	●	●	●	●	●	●	●	●	●

Theoretical force

Bore	Effective area (mm²)		Force (N)					
Ø10	Out	28,3	5,7	8,5	11,3	14,2	17	19,8
	In	21,2	4,2	6,4	8,5	10,6	12,7	14,8
Ø16	Out	78,5	15,7	23,6	31,4	39,3	47,1	55
	In	66	13,2	19,8	26,4	33	39,6	46,2
Ø20	Out	314	62,8	94,2	125,6	157	188,4	219,8
	In	264	52,8	79,2	105,6	132	158,4	184,8
			2	3	4	5	6	7
			Working pressure (bar)					

Overall dimensions - Ø10

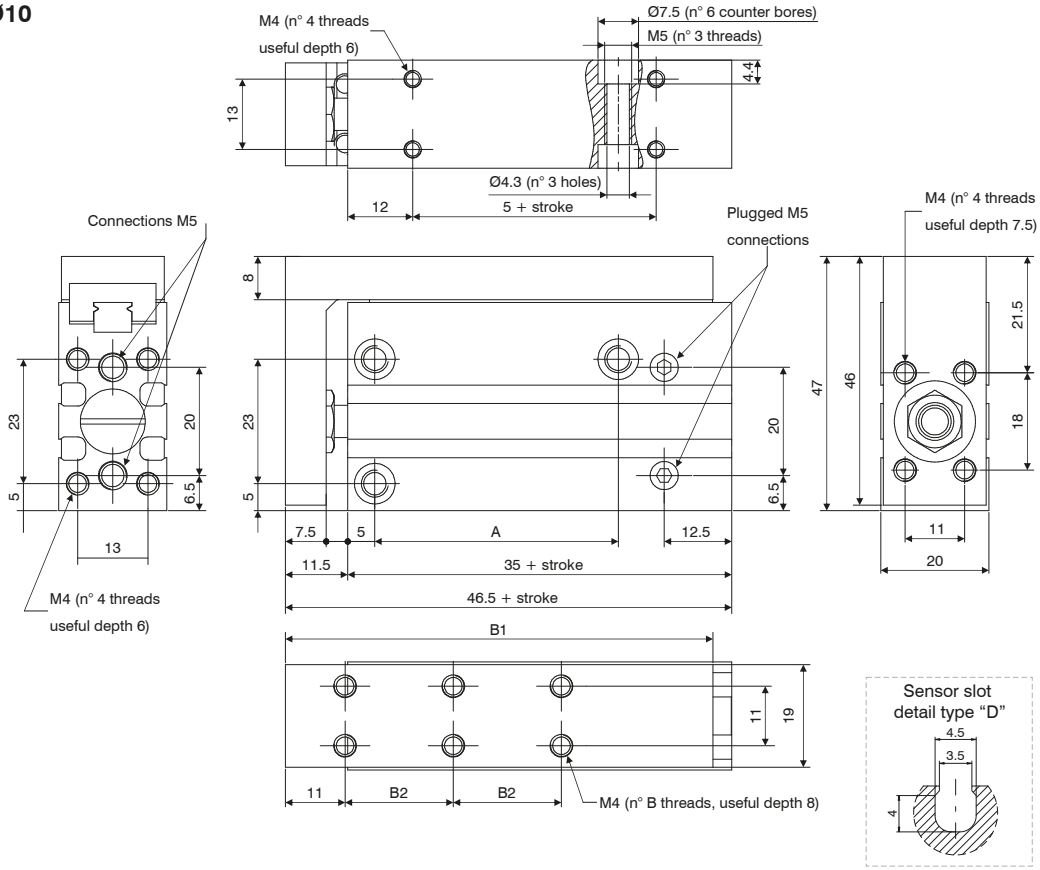


Table of dimensions

	Standard strokes								
	5	10	15	20	25	30	40	50	60
A	14		24		30		45	45	60
B1	49		59		69		79	79	99
B2	10		20		30		20	20	30
B	4						6		
Weight (g)	117	125	140	148	162	170	192	215	238

Overall dimensions - Ø16

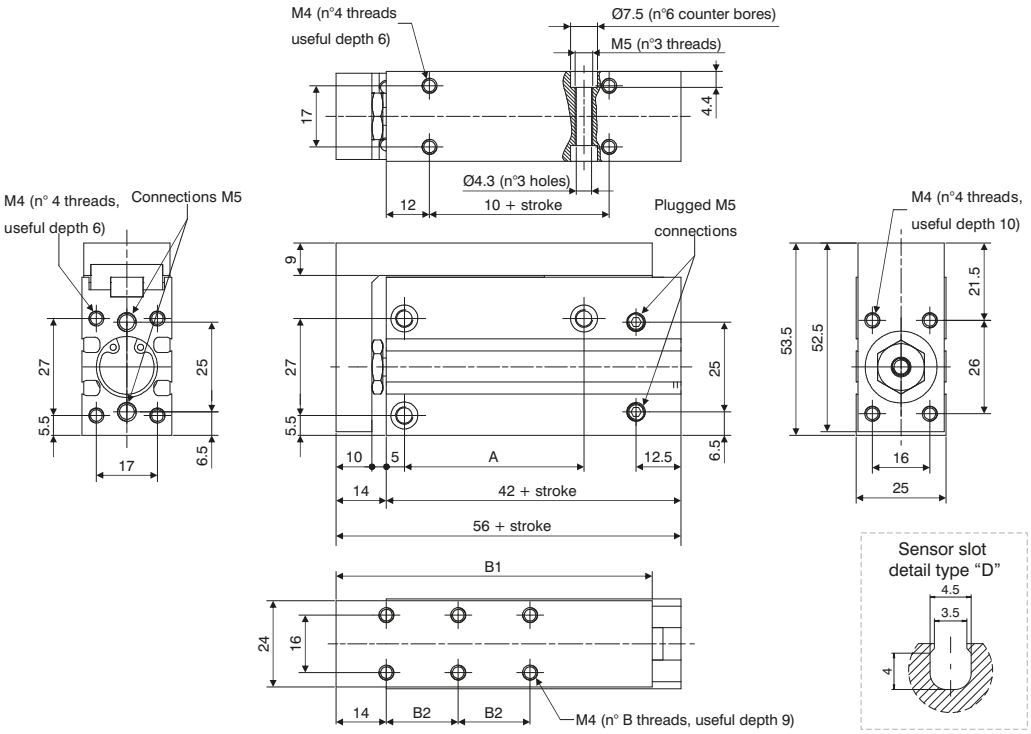


Table of dimensions

	Standard strokes								
	5	10	15	20	25	30	40	50	60
A	20		30		40		50	60	
B1	58		68		78		88	98	108
B2	10		20		30		20	25	30
B	4						6		
Weight (g)	215	230	250	260	280	290	325	350	390

Overall dimensions - Ø20

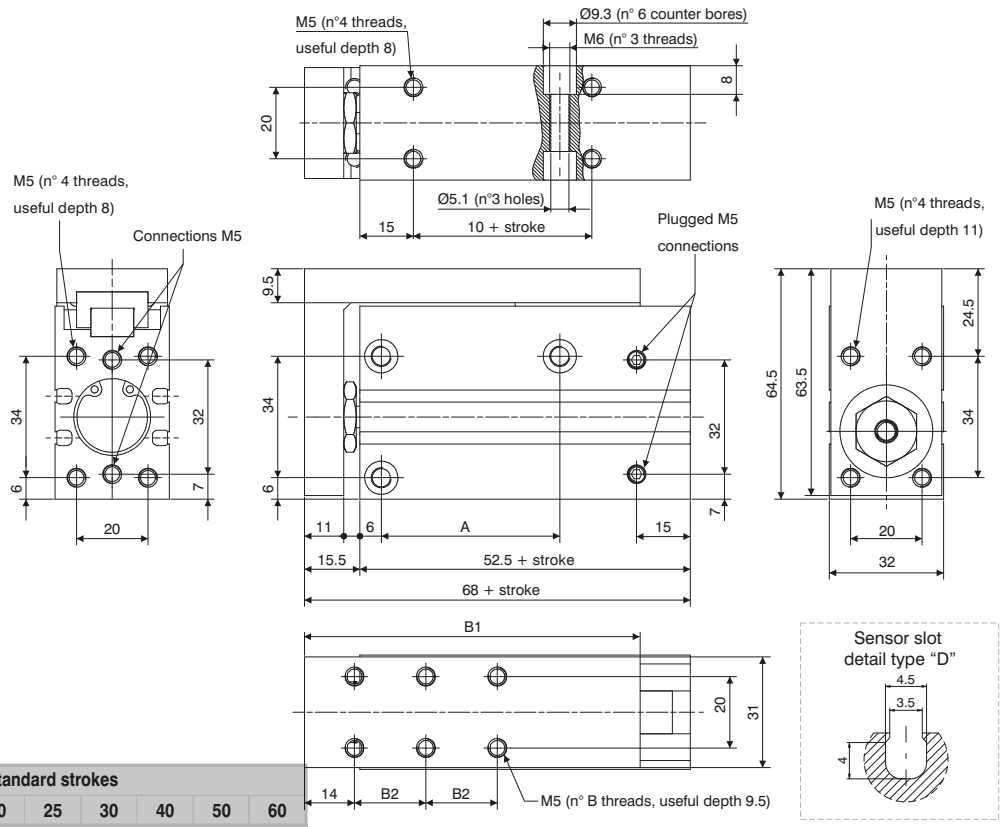
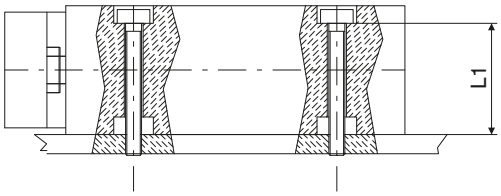


Table of dimensions

	Standard strokes								
	5	10	15	20	25	30	40	50	60
A	20		25		40		50	70	
B1	64		74		84		94	104	114
B2	10		20		30		20	25	30
B	4						6		
Weight (g)	440	455	490	505	540	560	600	660	700

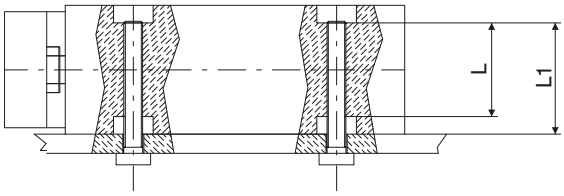
Fixing - Load

LATERAL (THROUGH SCREW)



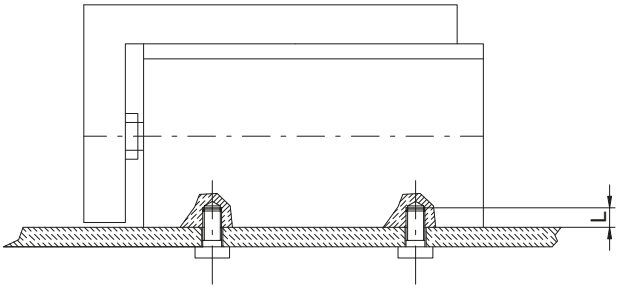
	SCREW	Maximum torque (Nm)	L1
Ø10	M4	2.5	15.6
Ø16	M4	2.5	20.6
Ø20	M5	5.1	24

LATERAL (THREADED HOLE)



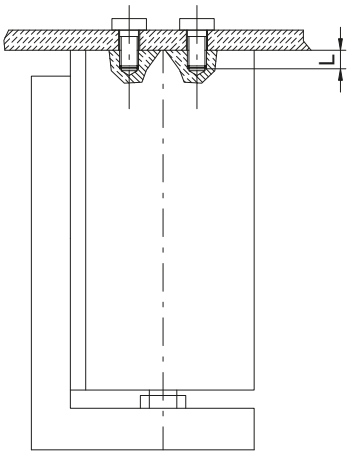
	SCREW	Maximum torque (Nm)	L1	L
Ø10	M5	5.1	15.6	11.2
Ø16	M5	5.1	20.6	16.2
Ø20	M6	8.1	24	16

VERTICAL (THREADED HOLE)



	SCREW	Maximum torque (Nm)	L
Ø10	M4	2.5	6
Ø16	M4	2.5	6
Ø20	M5	5.1	8

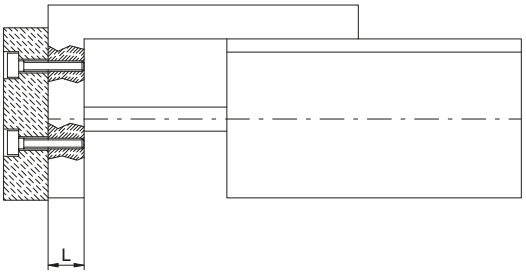
AXIAL (THREADED HOLE)



	SCREW	Maximum torque (Nm)	L
Ø10	M4	2.5	6
Ø16	M4	2.5	6
Ø20	M5	5.1	8

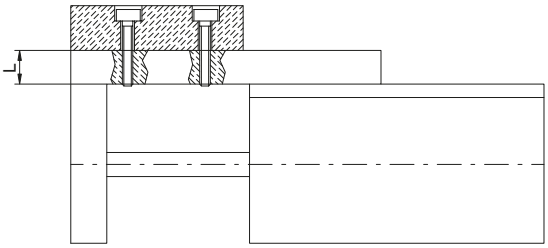
LOAD

FRONTAL MOUNTING



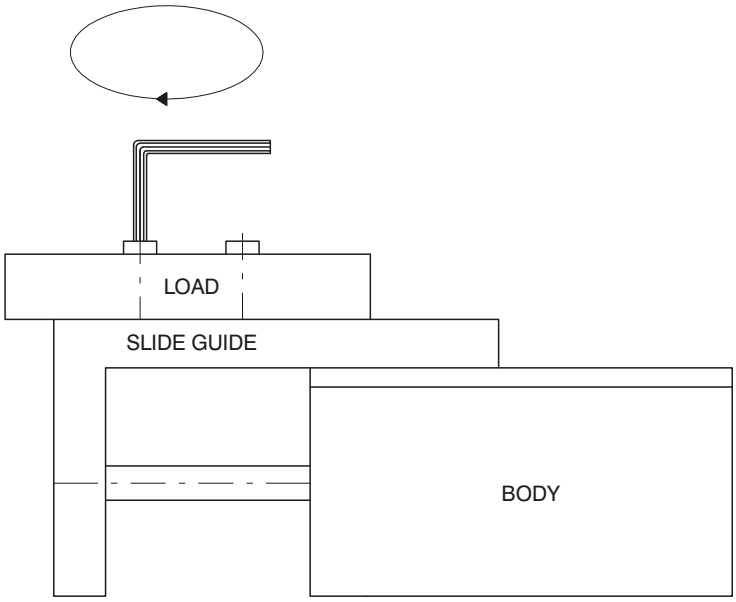
	SCREW	Maximum torque (Nm)	L
Ø10	M4	2.5	7.5
Ø16	M4	2.5	10
Ø20	M5	5.1	11

BACK MOUNTING



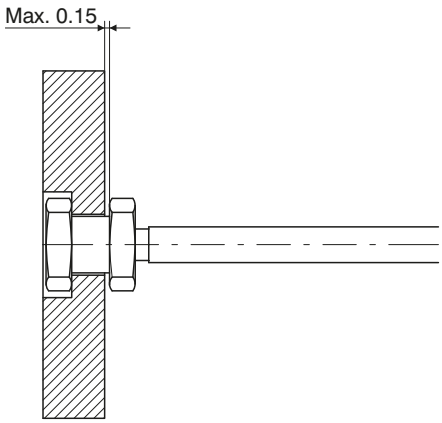
	SCREW	Maximum torque (Nm)	L
Ø10	M4	2.5	8
Ø16	M4	2.5	9
Ø20	M5	5.1	9.5

Fixing - Load



ATTENTION : Slide must be blocked before fixing the load this operation shoul not be done by blocking the body as the guide could get damaged.

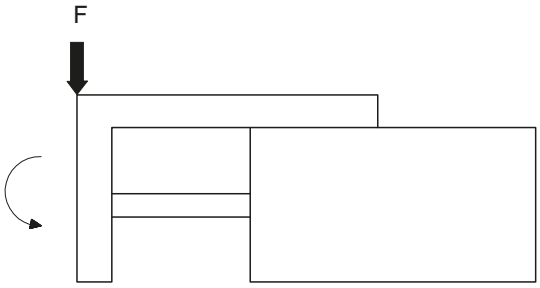
CONNECTION BETWEEN PLATE AND ROD



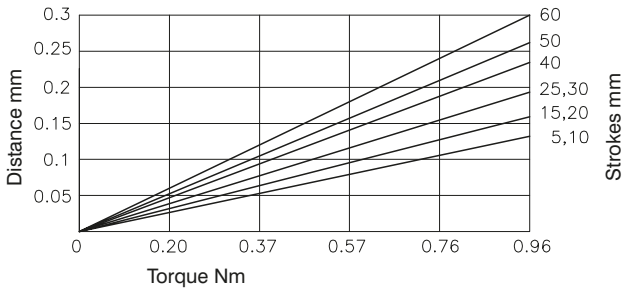
The fluctuating connection, maximum clearence 0.15mm as indicated by the arrow

Plate deflection graphs

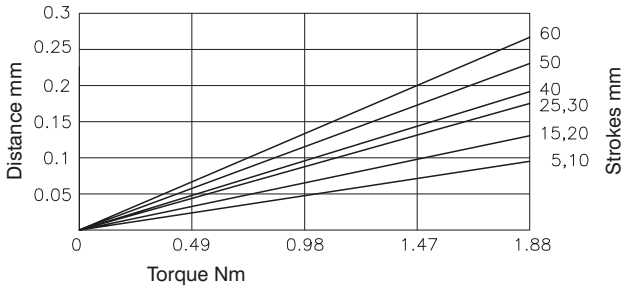
Plate deviation (arrow) when the load is applied on the spot indicated with the arrow and the unit completely extended



Ø10



Ø16



Ø20

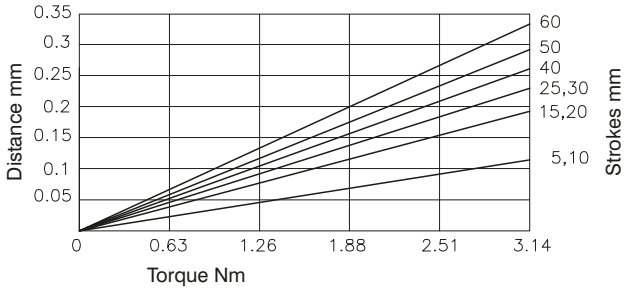
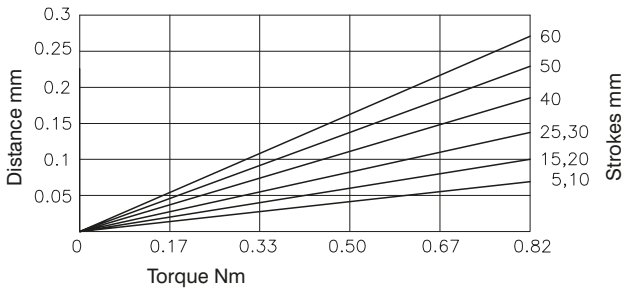
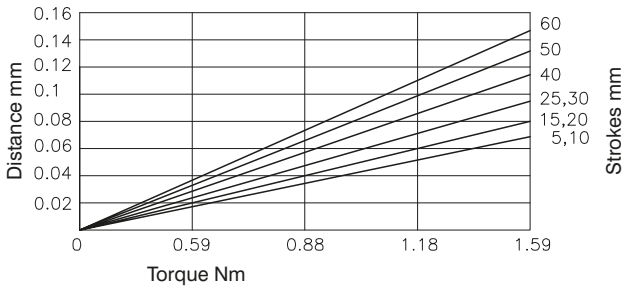


Plate deviation (arrow) when the load is applied on the spot indicated with the arrow and the unit completely extended

Ø10



Ø16



Ø20

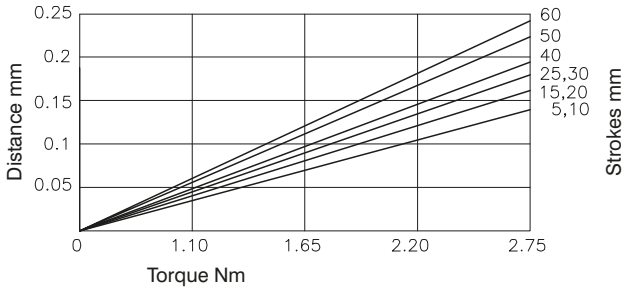
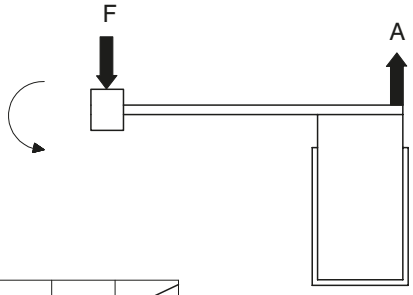
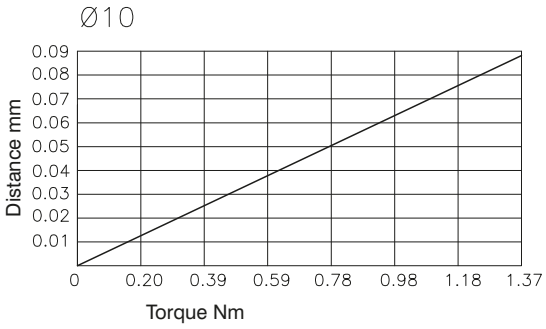
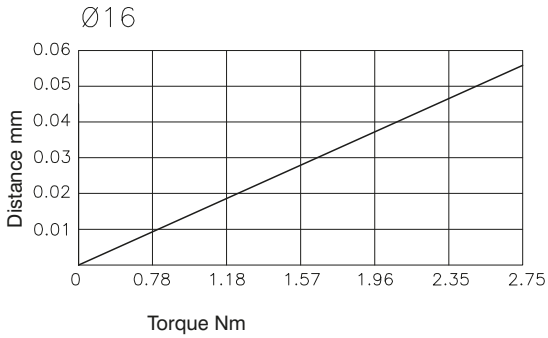


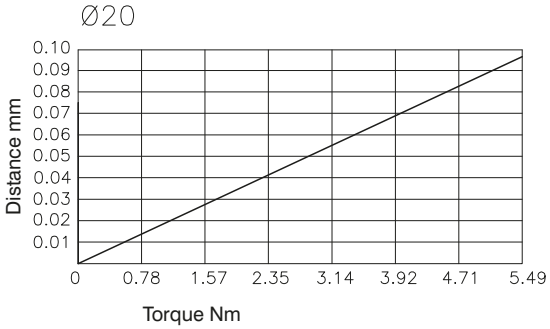
Plate deflection graphs outer stroke - selection graphs

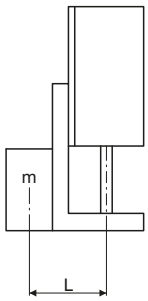
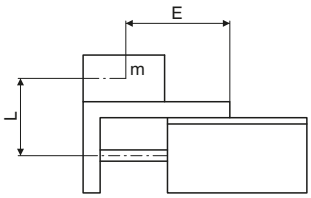
Plate deviation (compared to A) when the load is applied on the spot indicated with the arrow and the unit completely extended





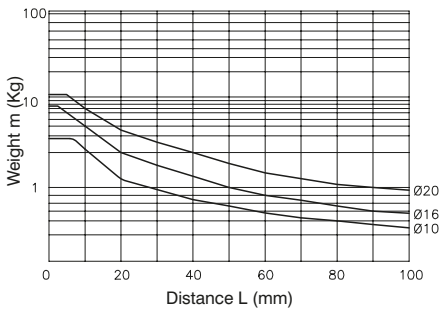




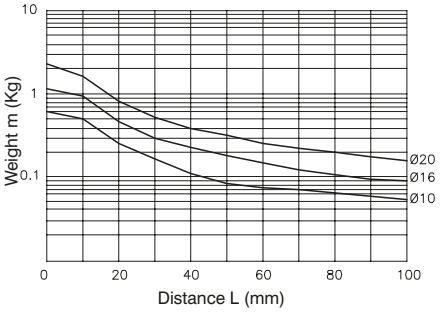
MOUNTING POSITION	VERTICAL			HORIZONTAL								
												
MAX. SPEED (mm/sec.)	100	200	300	100			200			300		
Load eccentricity				50	100	200	50	100	200	50	100	200
Selection graphs	1	2	3	4	5	6	7	8	9	10	11	12

Selection graphs 1 - 3 (vertical mounting)

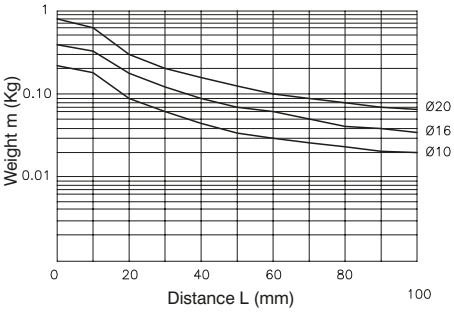
Drawing 1
Maximum speed 100 mm/s or lower



Drawing 2
Maximum speed 300 mm/s or lower



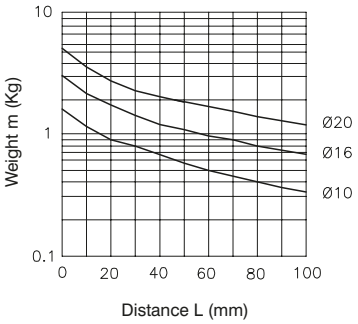
Drawing 3
Maximum speed 500 mm/s or lower



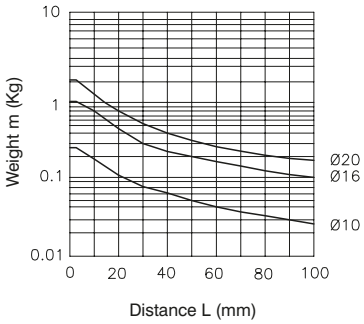
Selection graphs

Selection graphs 4 - 12 (horizontal mounting)

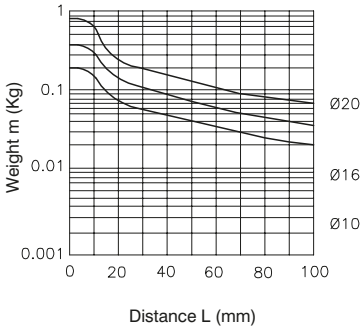
Drawing 4 load eccentricity 50mm
Maximum speed 100 mm/s or lower



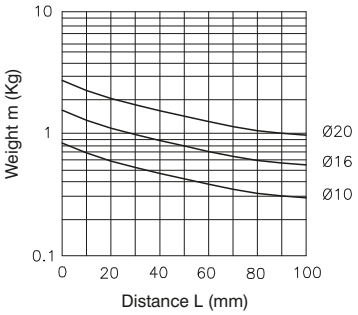
Drawing 7 load eccentricity 50mm
Maximum speed 300 mm/s or lower



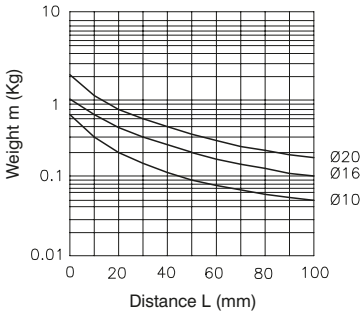
Drawing 10 load eccentricity 50mm
Maximum speed 500 mm/s or lower



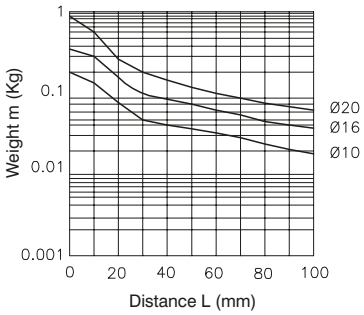
Drawing 5 load eccentricity 100mm
Maximum speed 100 mm/s or lower



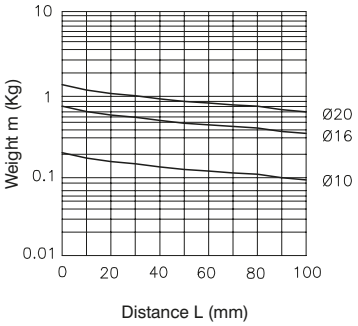
Drawing 8 load eccentricity 100mm
Maximum speed 300 mm/s or lower



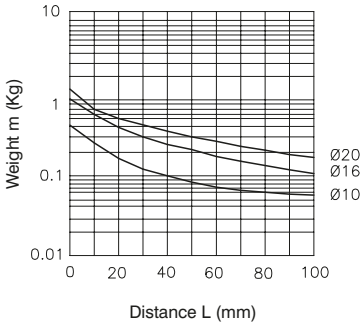
Drawing 11 load eccentricity 100mm
Maximum speed 500 mm/s or lower



Drawing 6 load eccentricity 200mm
Maximum speed 100 mm/s or lower



Drawing 9 load eccentricity 200mm
Maximum speed 300 mm/s or lower



Drawing 12 load eccentricity 200mm
Maximum speed 500 mm/s or lower