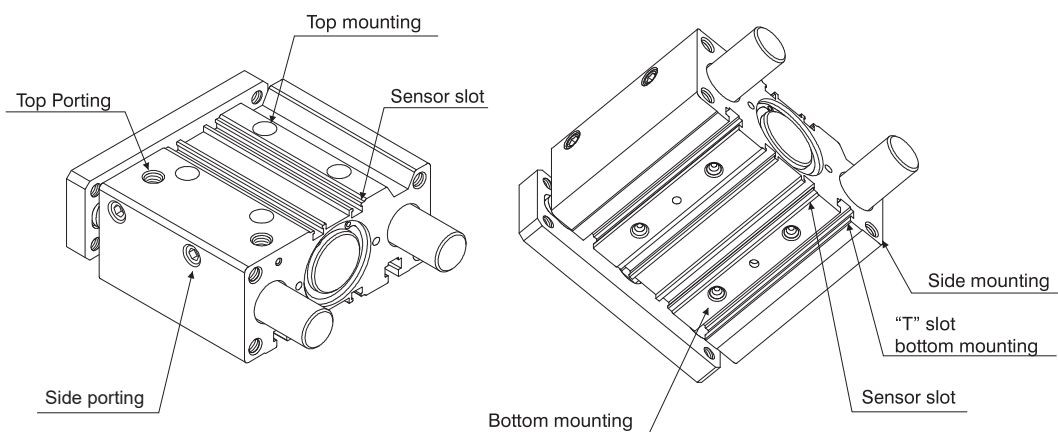


Series 6100-6101-6110



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.

When sensors are required, there are special slots in the barrel extrusion where 1580 series miniaturised sensors are easily fitted.

Construction characteristics

Body	anodized aluminium
Guide rods	C43 chromed steel (control unit with bronze bush)tempered and chromed steel (control unit with bearing bush)
Rods bushing	teflon coated bush
Piston rod bushing	bronze or bearing bushing
Rear end cap	anodized aluminium
Piston seals	oil resistant NBR rubber
Piston rod seals	PUR (NBR 12-16)
Plate	anodized aluminium
Piston	aluminium
Wipers	PUR
Piston rod	C43 chromed steel or stainless steel

Operational characteristics

Fluid	filtered and lubricated air or not (if lubricated the lubrication must be continuous)
Working pressure	max. 10 bar
Function	Double acting
Working temperature	-5 °C ... +70 °C
Cushioning	elastic bumper on both ends

Guided compact cylinder

Coding: 6100.Ø.C.G.K

Ø	BORE
	12 = Ø12
	16 = Ø16
	20 = Ø20
	25 = Ø25
	32 = Ø32
	40 = Ø40
	50 = Ø50
C	63 = Ø63
	STROKE
	10 = 10 mm
	20 = 20 mm
	25 = 25 mm
	30 = 30 mm
	40 = 40 mm
	50 = 50 mm
	75 = 75 mm
	100 = 100 mm
	125 = 125 mm
	150 = 150 mm
K	175 = 175 mm
	200 = 200 mm
	250 = 250 mm *
	300 = 300 mm *
	350 = 350 mm *
	400 = 400 mm *
	450 = 450 mm *
	500 = 500 mm *
	CONTROL UNIT
	B = Control unit with bronze bush
K	C = Control unit with bearing bushes
	CONNECTIONS
K	= Side supply ports closed
	L = Top supply ports closed

*Only for bronze bushings B version



Construction characteristics

Body	anodized 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)
Piston rod bushings	bronze or bearing bushing
Bottom plates	anodized aluminium
Piston seals	oil resistant NBR rubber
Rod seal	PUR (NBR 12-16)
Wipers	PUR
Plate	zinc plated steel

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PNEUMATIC ACTUATION

Operational characteristics

Cushioning	elastic bumper on both ends
Fluid	filtered and lubricated air or not (if lubricated the lubrication must be continuous)
Function	Double acting
Working pressure (bar)	max 10
Temperature °C	-5 ... +70

Standard strokes

Bore	Stroke																	
	10	20	25	30	40	50	75	100	125	150	175	200	250	300	350	400	450	500
Ø12	●	●		●	●	●	●	●										
Ø16	●	●		●	●	●	●	●										
Ø20		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Ø25		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Ø32			●			●	●	●	●	●	●	●	●	●	●	●	●	●
Ø40			●			●	●	●	●	●	●	●	●	●	●	●	●	●
Ø50			●			●	●	●	●	●	●	●	●	●	●	●	●	●
Ø63			●			●	●	●	●	●	●	●	●	●	●	●	●	●

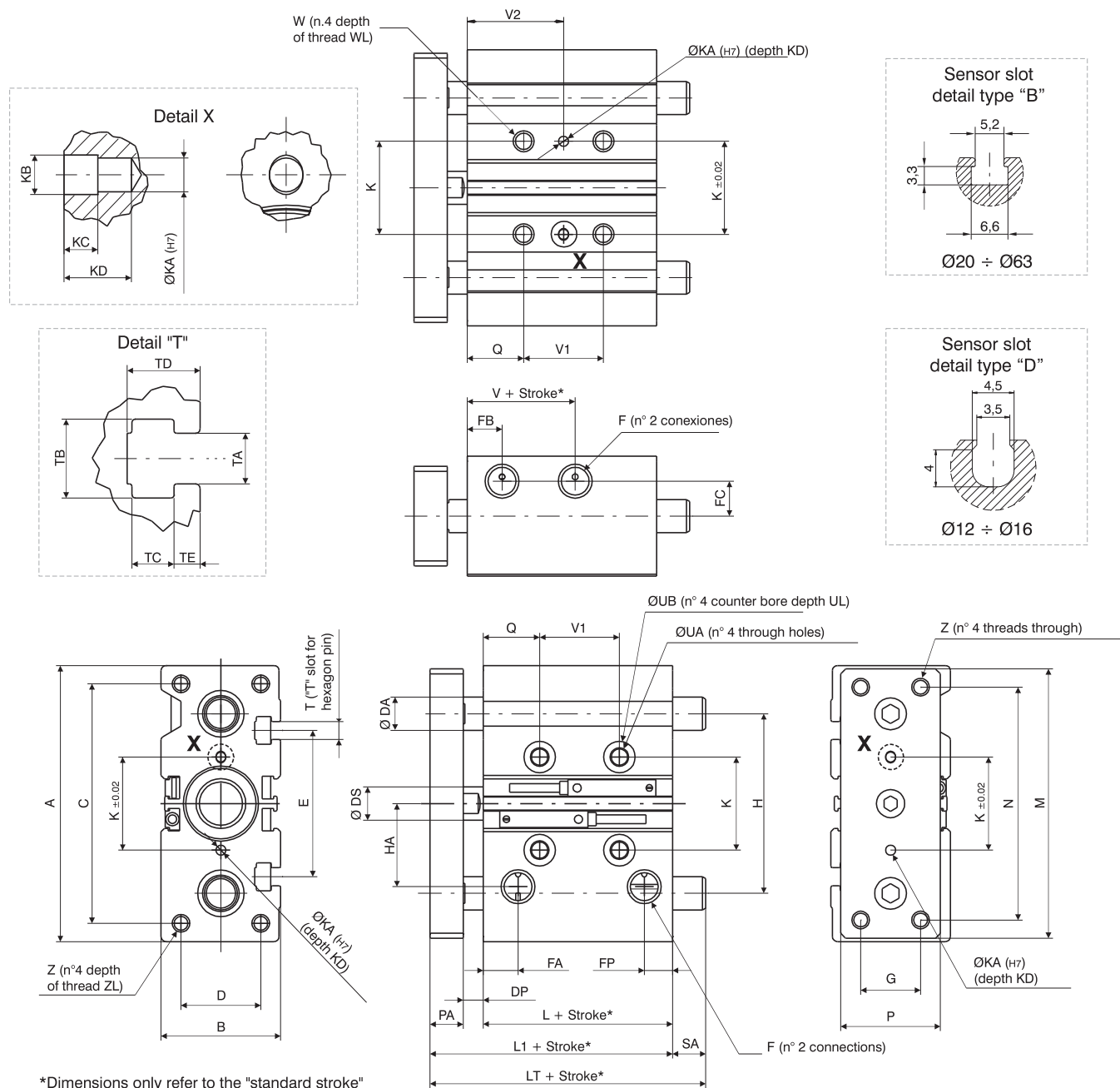
Only for bronze bushings B version

Intermediate strokes can be obtained by adding specific spacers (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 adding a 5 mm spacer.

The Intermediate strokes manufactured without the use of spacers are considered special executions.

Overall dimensions





Overall dimensions

Bore	Ø12	Ø16	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63
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
DA Control unit with bronze bushes	8	10	12	16	20	20	25	25
DA Control unit with bearing bushes	6	8	10	14	16	16	20	20
DP	2	4	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
LT Control unit with bronze bushes stroke ≤50	39	43	53,5	54	97	97	106,5	106,5
LT Control unit with bronze bushes stroke ≤50 stroke ≤200	57	64	84,5	85	102	102	118	118
LT >200 < Stroke ≤ 500	/	/	122	122	140	140	161	161
LT Control unit with bearing bushes	See table 1							
M	56	62	81	91	110	118	146	158
N	48	52	70	78	96	104	130	130
PA	8	8	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
SA Control unit with bronze bushes stroke ≤50	/	/	/	/	37	31	34,5	29,5
SA Control unit with bronze bushes ≤50 stroke ≤200	18	21	31	31	42	36	46	41
SA >200 < Stroke ≤ 500	/	/	68,5	68	80	74	89	84
SA Control unit with bearing bushes	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								
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

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PNEUMATIC ACTUATION

Table 1						
Bore	LT			SA		
	stroke≤30	30<stroke≤100	100<stroke≤200	stroke≤30	30<stroke≤100	100<stroke≤200
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				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							
Bore	V1				V2		
	stroke≤30	30<stroke≤100	100<stroke≤200	200<stroke≤500	stroke≤30	30<stroke≤100	100<stroke≤200
Ø12	4+stroke			/	/	/	/
Ø16					/	/	/
Ø20	24	44	120	200	29,5	39,5	77,5
Ø25	stroke≤25				stroke≤25	25<stroke≤100	100<stroke≤200
Ø32	24	48	124	200	33,5	45,5	83,5
Ø40					34	46	84
Ø50					36	48	86
Ø63					38	50	88



Weight (g)

Stroke	Bore							
	Ø12	Ø16	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63
Control unit with bronze bushes								
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
250	/	/	2360	3280	4760	5370	8570	10320
300	/	/	2560	3550	5140	5790	9210	11080
350	/	/	2760	3820	5520	6210	9850	11840
400	/	/	2960	4090	5900	6630	10490	12600
450	/	/	3160	4360	6280	7050	11130	13360
500	/	/	3360	4630	6660	7470	11770	14120
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
250	/	/	880	1450	2390	2460	4280	4610
300	/	/	940	1550	2550	2620	4540	4860
350	/	/	1000	1650	2710	2780	4800	5110
400	/	/	1060	1750	2870	2940	5060	5360
450	/	/	1120	1850	3030	3100	5320	5610
500	/	/	1180	1950	3190	3260	5580	5860
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	300	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
Moving parts								
10	95	145	/	/	/	/	/	/
20	100	153	310	490	/	/	/	/
25	/	/	/	/	820	870	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

Cylinder theoretic force (N)

Working pressure																
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
Effective area (mm ²)	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In
	113	85	201	151	314	236	491	378	804	603	1257	1056	1963	1649	3117	2803

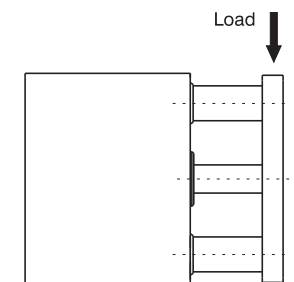
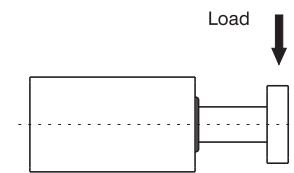
Maximum permissible Momentum

J	0,08	0,09	0,11	0,18	0,29	0,52	0,91	1,54
How to calculate the Momentum: $E_c = 1/2 V^2 (J)$ m = Total moving mass: weight of driven object added to weight of cylinder moving parts (kg) v = V = max. speed: equal to average speed + 40% (m/s)								

Operating criteria

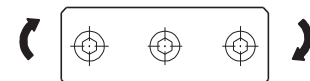
Permissible lateral load

Version	Stroke	Bore							
		Ø12	Ø16	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63
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



Recommended torque moments

Version	Stroke	Bore							
		Ø12	Ø16	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63
Control unit with bronze bushes	10	0,40	0,70						
	20	0,35	0,65	1,1	1,8				
	25					6,4	7	13	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

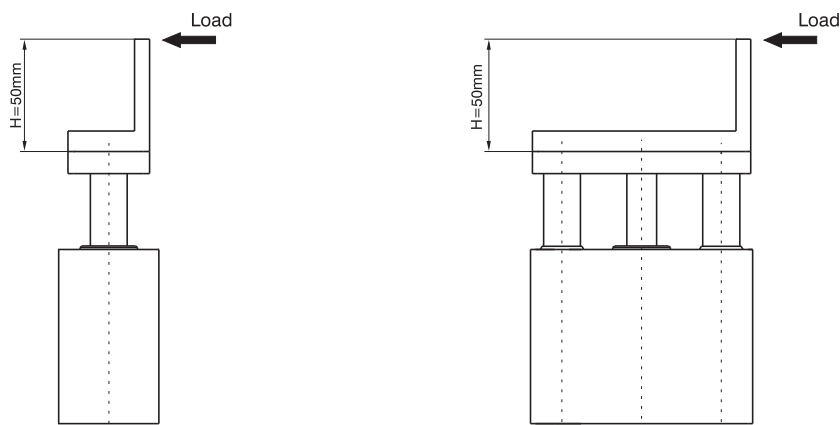


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PNEUMATIC ACTUATION

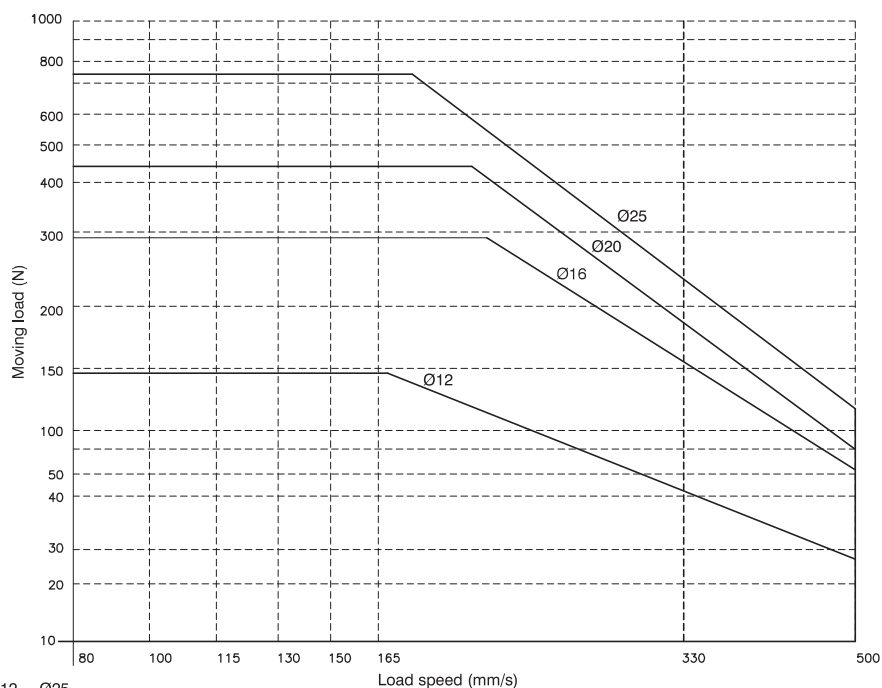
Operating criteria

“Stopper” device applications



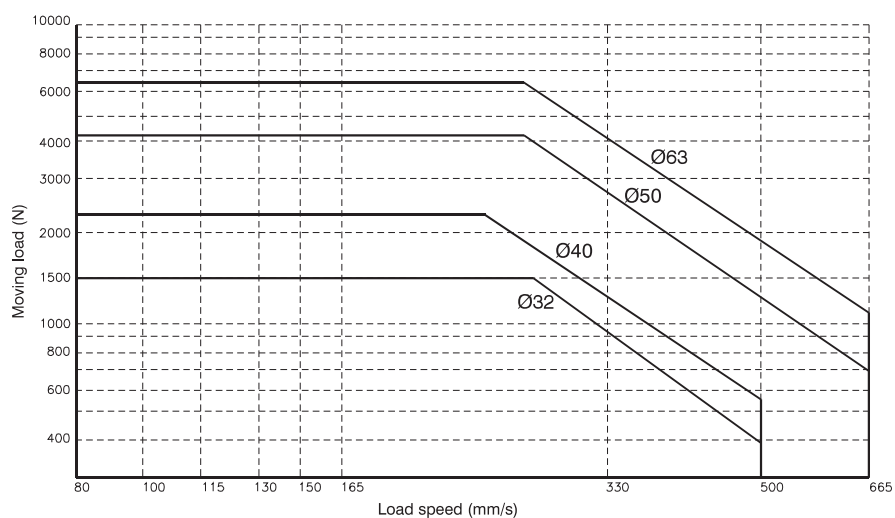
Control unit with bronze bush

ATTENTION: if $H > 50$ mm use larger bore



Ø12 ... Ø25

ATTENTION: use with stroke ≤ 30 mm



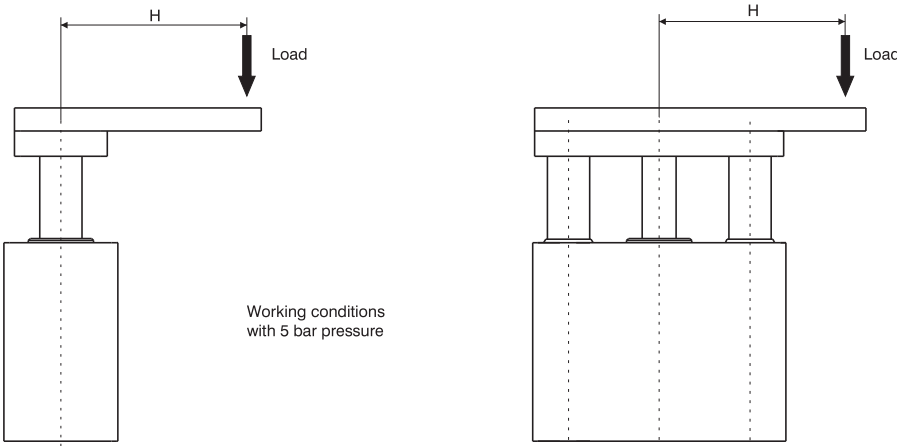
Ø32 ... Ø63

ATTENTION: use with stroke ≤ 50 mm

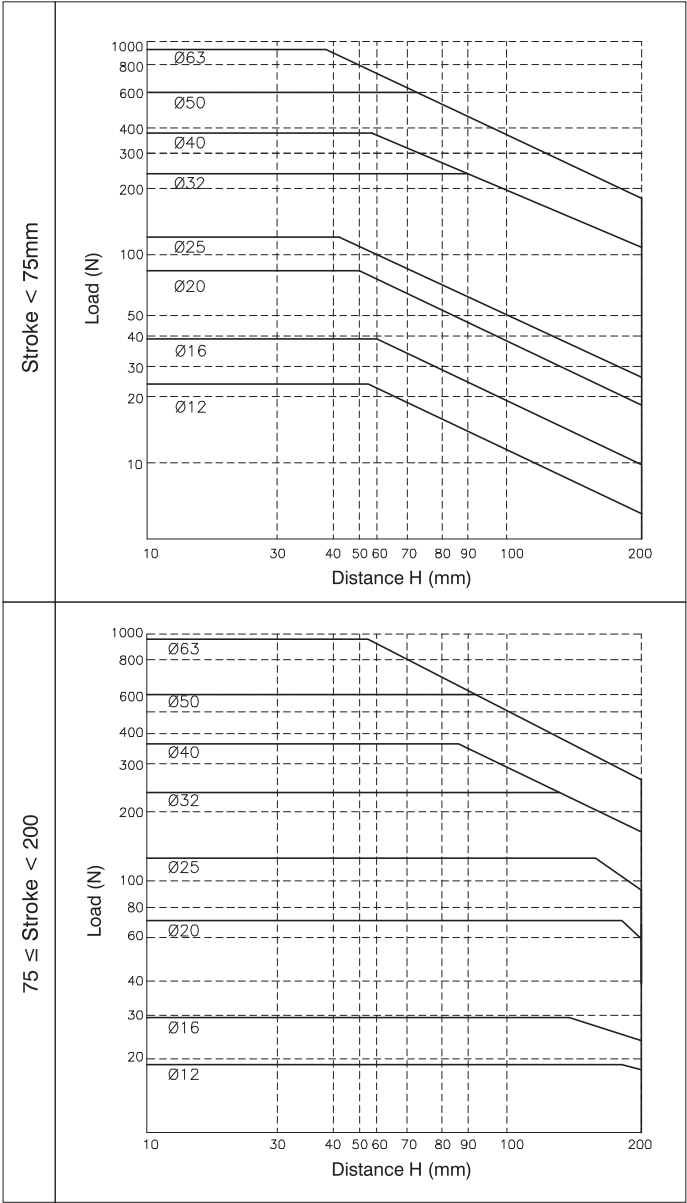


Operating criteria

Handling applications



Control unit with bronze bush





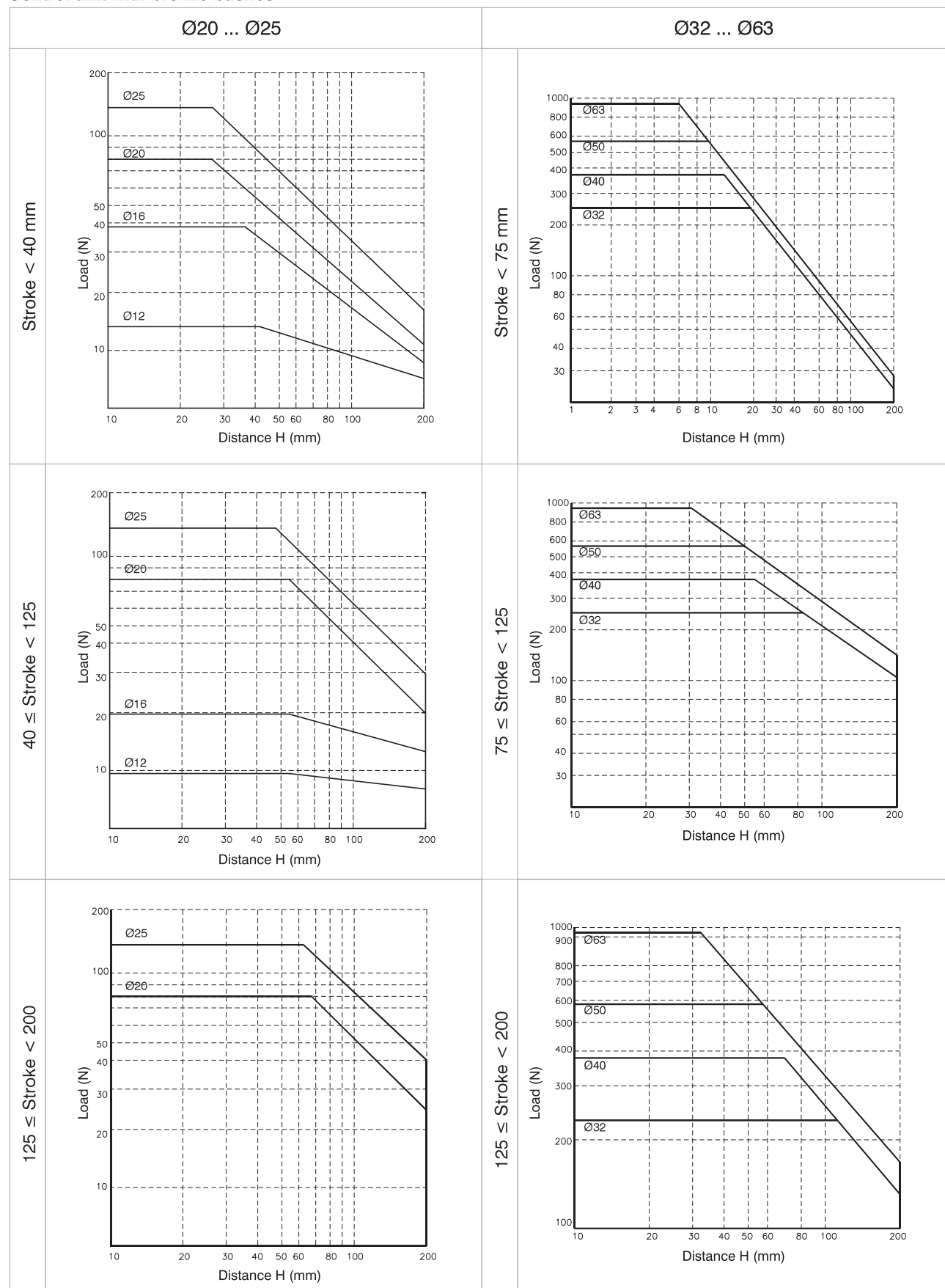
Operating criteria

Handling applications

Control unit with bronze bushes

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PNEUMATIC ACTUATION



Heavy duty guided compact cylinder

Coding: 6101.80.C.B.K

	STROKE
	25 = 25 mm
	50 = 50 mm
	75 = 75 mm
C	100 = 100 mm
	125 = 125 mm
	150 = 150 mm
	175 = 175 mm
	200 = 200 mm
	CONNECTIONS
K	= Side supply ports closed
L	= Top supply ports closed



Construction characteristics

Body	anodized aluminium
Guide rods	C43 chromed steel
Piston	aluminium
Piston rod	C43 chromed steel
Piston rod bushing	sintered bronze
Rods bushing	teflon coated bush
Rear end cap	anodized aluminium
Piston seals	oil resistant NBR rubber
Piston rod seals	PUR
Plate	anodized aluminium

Operational characteristics

Operational characteristics	
Cushioning	elastic bumper on both ends
Fluid	filtered and preferably lubricated air or not (if lubricated the lubrication must be continuous)
Function	Double acting
Working pressure (bar)	max 10
Temperature °C	-5 ... +70

Standard strokes

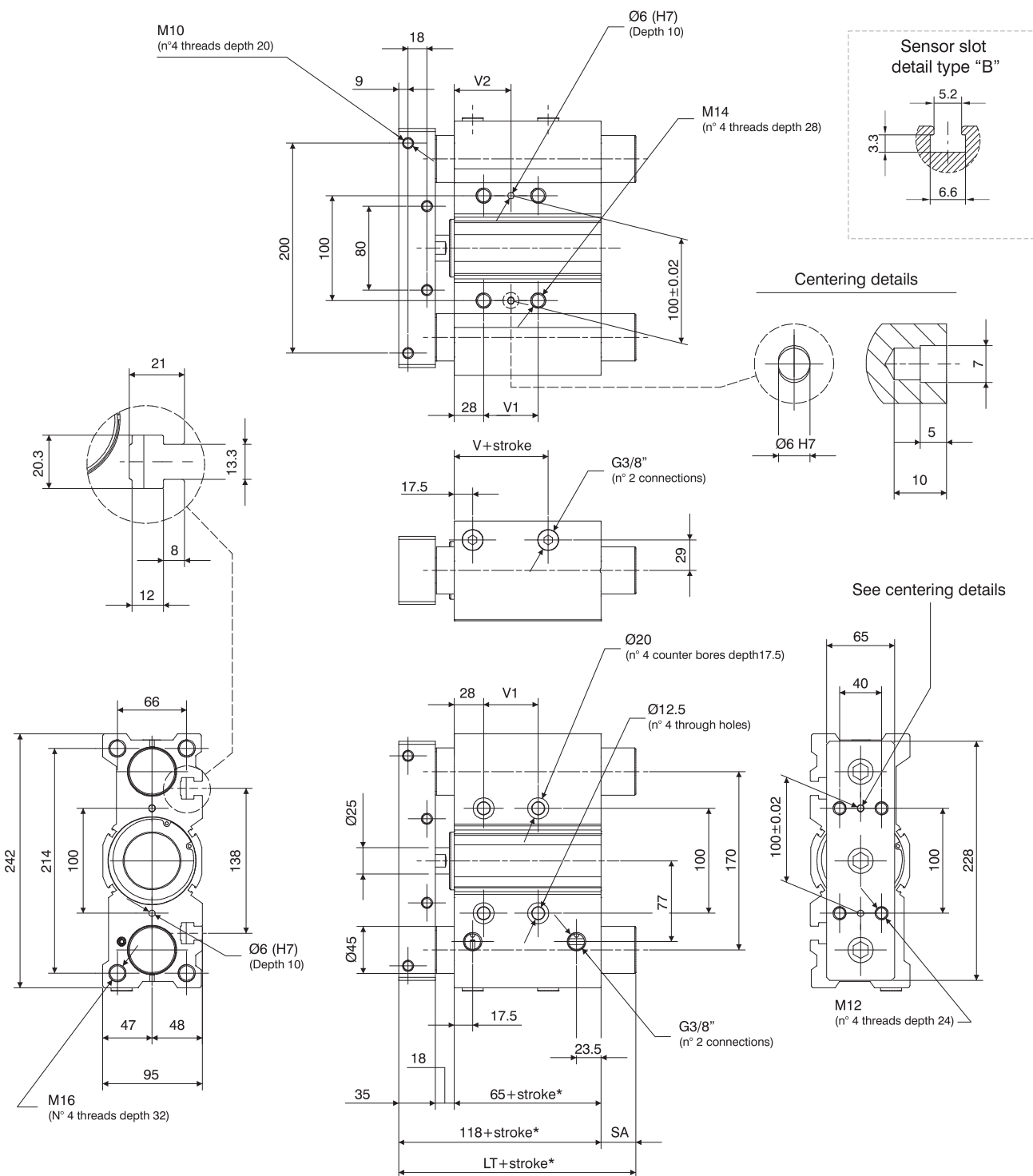
	Stroke							
Bore	25	50	75	100	125	150	175	200
Ø80	●	●	●	●	●	●	●	●

Intermediate strokes can be obtained by adding specific spacers (5, 10, 15, 20 mm).

Example: It is possible to obtain a **6101.80.45.B** cylinder from a **6101.80.50.B** cylinder by adding a 5 mm 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

Strokes		
25	LT	118
50		118
> 50		151
25	V	14,5
50		28
75		52
100	V1	52
> 100		128
25	V2	42
50		54
75		54
100		54
> 100		92
25	SA	0
50		33
> 50		33



Cylinder force - Operating criteria

Cylinder theoretic force (N)

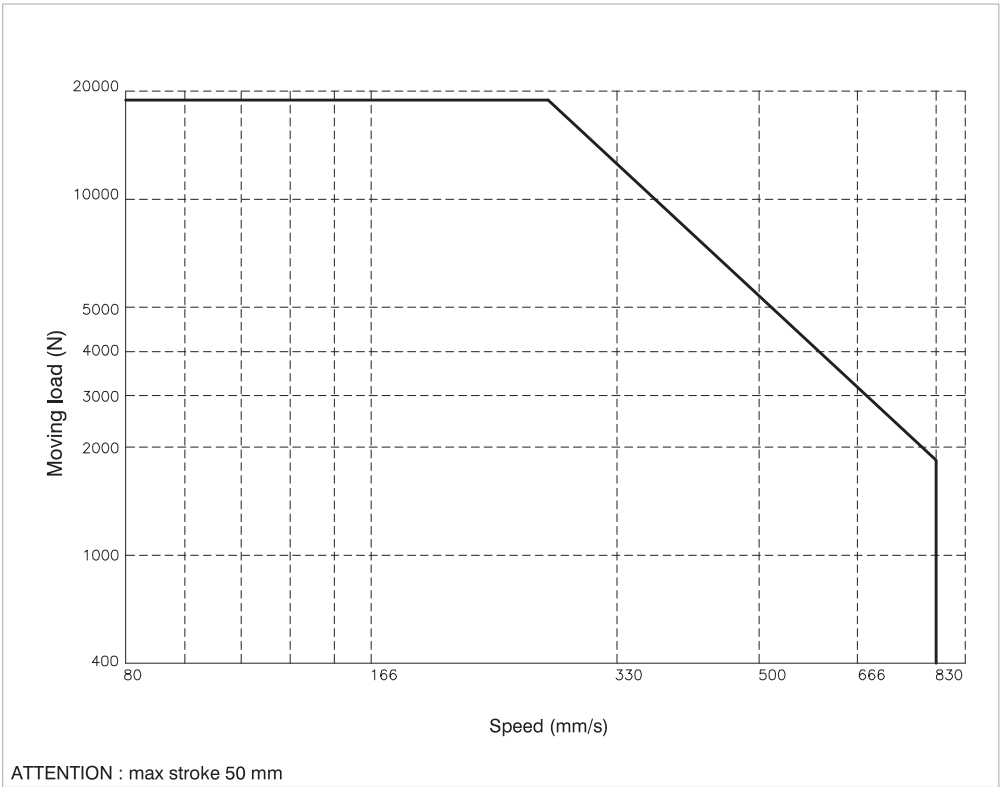
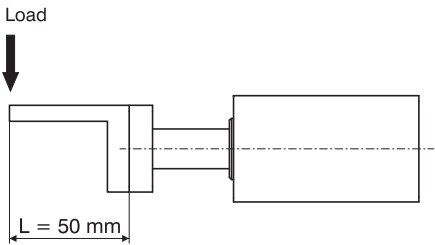
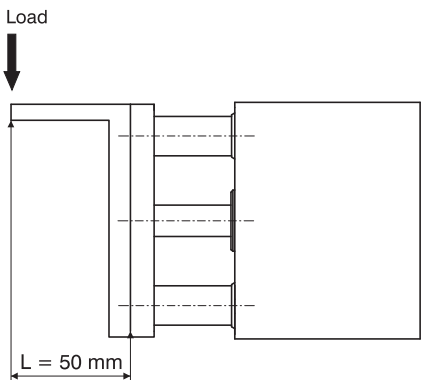
Working pressure		
2 bar	1005	907
3 bar	1508	1361
4 bar	2011	1814
5 bar	2513	2268
6 bar	3016	2721
7 bar	3519	3175
8 bar	4021	3629
9 bar	4524	4082
10 bar	5027	4536
Effective area (mm²)	Out	In
	5027	4536

Recommended torque moments

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

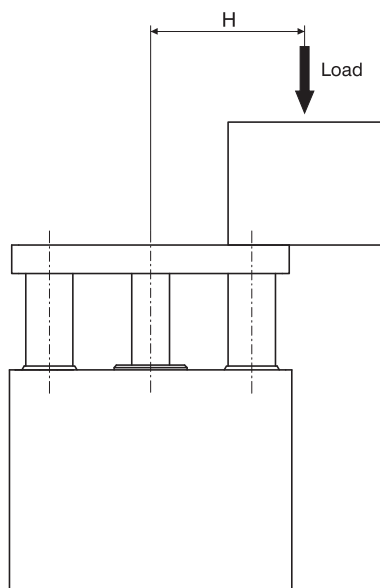


“Stopper” device applications

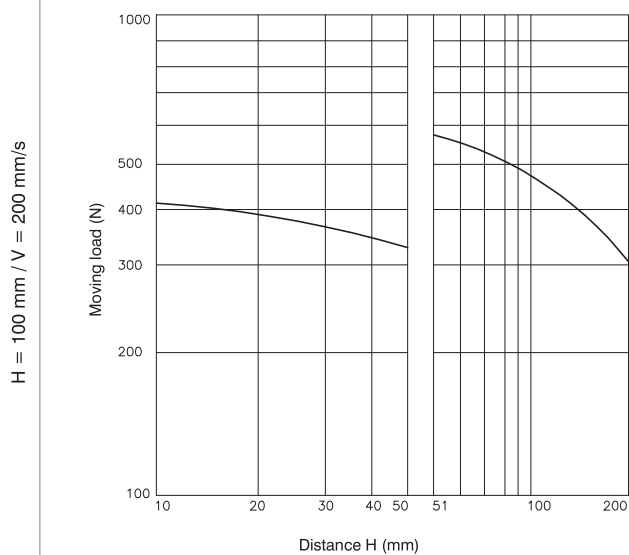
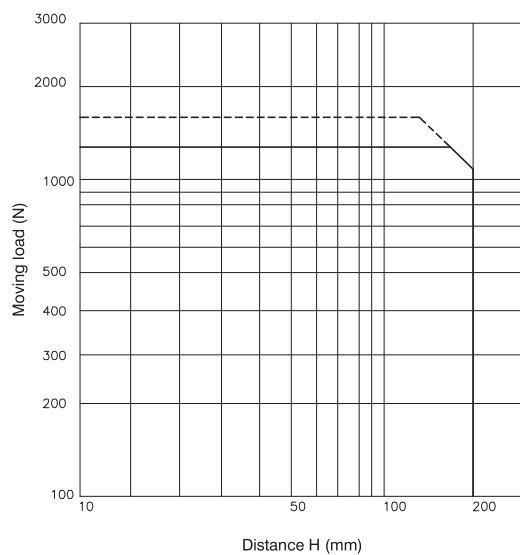
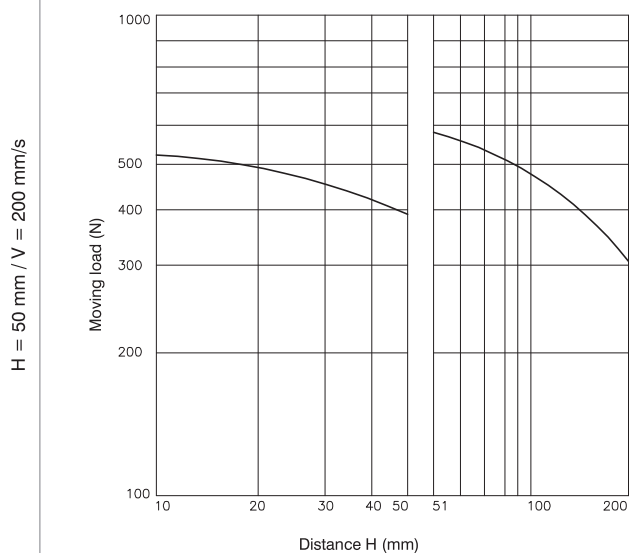
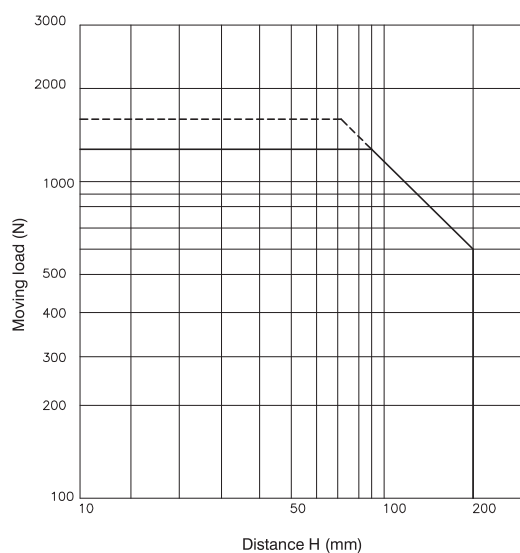
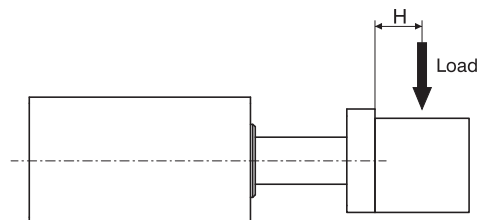


Operating criteria
Handling applications

VERTICAL assembly position



HORIZONTAL assembly position



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

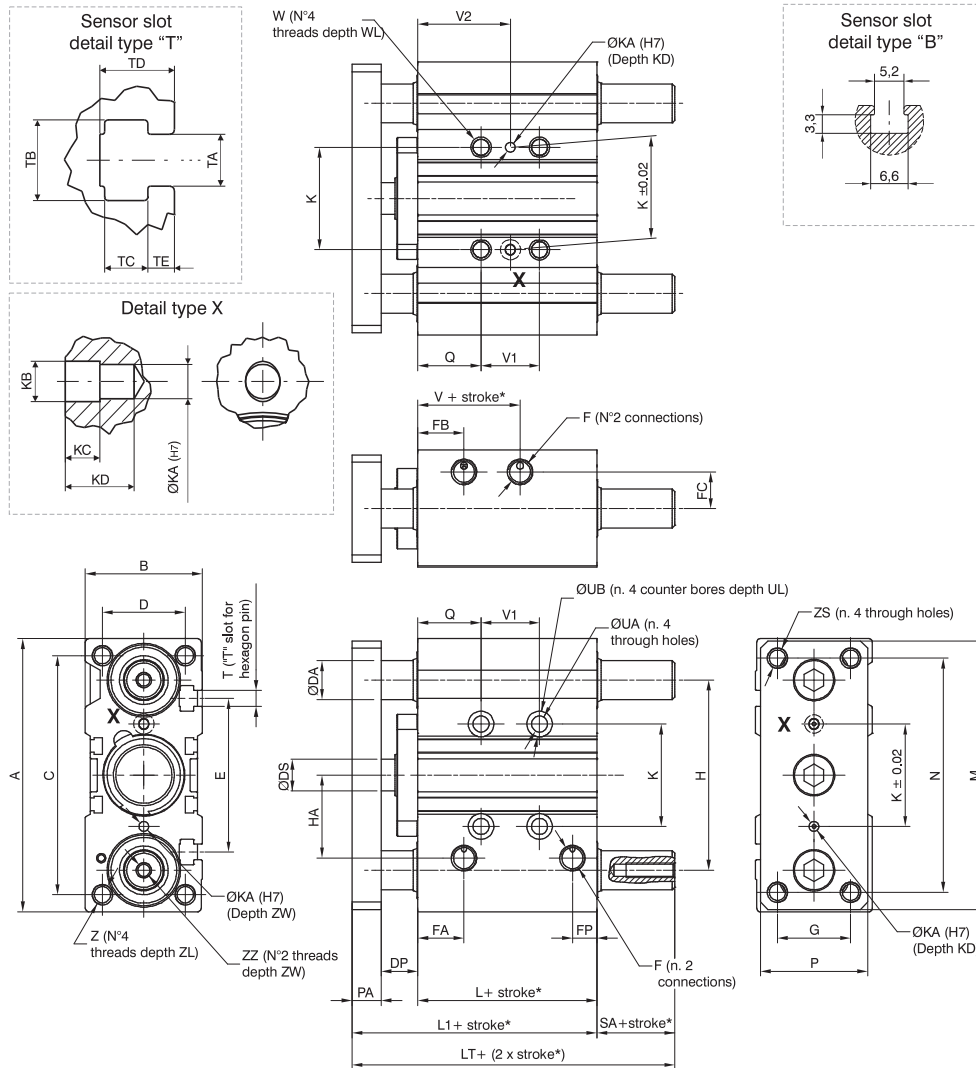
Compact guided cylinders with metal rods scrapers

Coding: 6110.Ø.Ø.C.C.K

Ø	BORE	STROKE	WORKING PORTS SIZE
	32 = Ø32		
	40 = Ø40		
	50 = Ø50		
	63 = Ø63		
		25 = 25 mm	K = Side supply ports closed L = Top supply ports closed
		50 = 50 mm	
		75 = 75 mm	
		100 = 100 mm	
		125 = 125 mm	
		150 = 150 mm	
		175 = 175 mm	
		200 = 200 mm	



Overall dimensions



Intermediate strokes can be obtained by adding specific spacers (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 adding a 5 mm spacer.
The Intermediate strokes manufactured without the use of spacers are considered special executions.

Table of dimensions

Bore	Ø32	Ø40	Ø50	Ø63
A	112	120	148	162
B	48	54	64	78
C	98	106	130	142
D	34	40	46	58
DA Control unit with bronze bushes	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
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	See table 1			
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
ZW	20	20	25	25
ZZ	M6	M8	M10	M10

Standard strokes

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

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