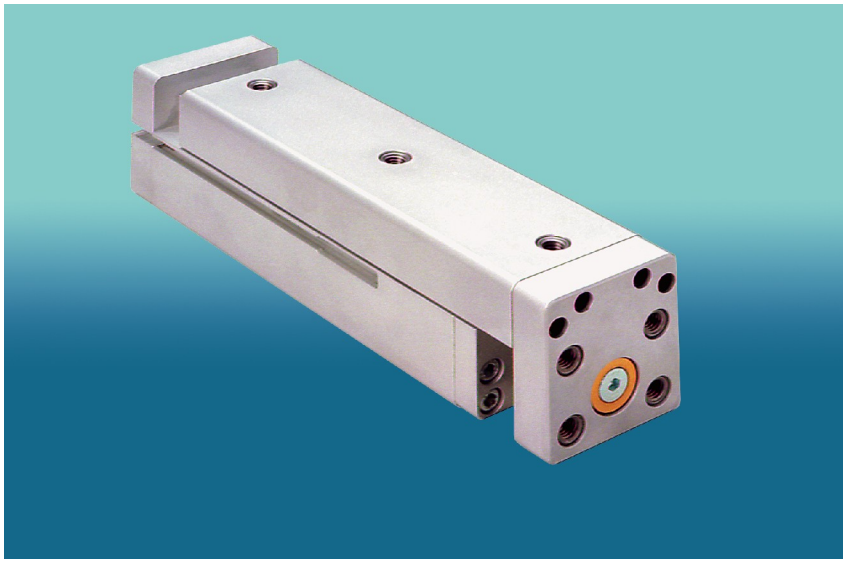
Pneumatic cylinder

TOSS®

Type B, D2R

double-acting

Linear Ball Slide
∅ 50/63/80 mm



The slides consist of hardened and ground angular rails provided with linear cages for balls, which allows to apply stress on all sides.

Technical data:

Type	50 - B, D2R	63 - B, D2R	80 - B, D2R
Design type	Pneumatic cylinder with linear ball guide incl. sensor grooves, dust-proof protection and adjustable end position cushioning on both sides		
Stroke length [mm]	50, 80, 100, 125, 160, 200		
Fitting position	any (provided that extended position can always be attained)		
Adm. temperature range [°C]	-10 to +70		
Medium	Filtered, oiled or non-oiled compressed-air (min. fineness 40 µm)		
Compressed-air supply	Front		
Compressed-air [bar]	min. 2 ... max. 6		
Materials	Base body, upper part, mounting plate, cover, piston plate: Al Guides: 100 Cr 6, piston rod: Ck 45 SL f7 Setting screws: Ms 58 Pistons, seals: NBR, cylinder barrel: Ms 63		

Weights: (gramme)

Stroke length [mm]	Piston - ∅ [mm]		
	50	63	80
50	3740	6140	8780
80			
100			
125			
160			
200			

Delivery time on request

Pneumatic cylinder

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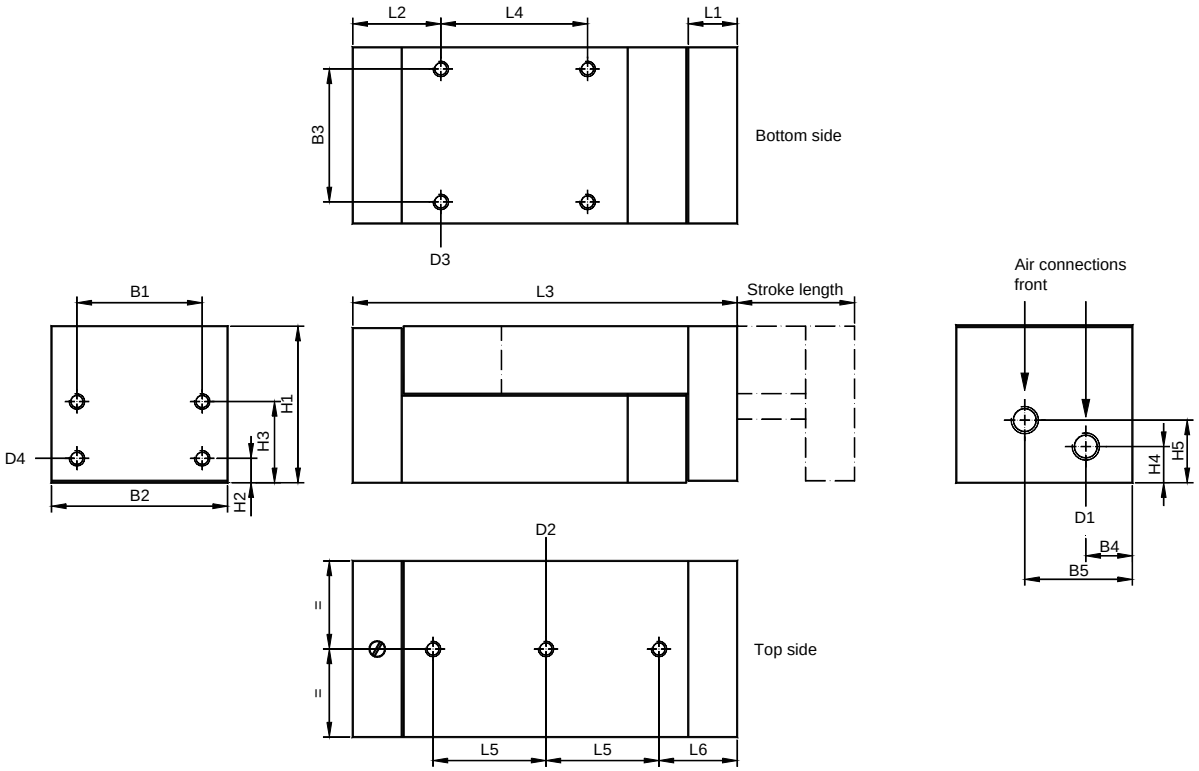


Dimensions:

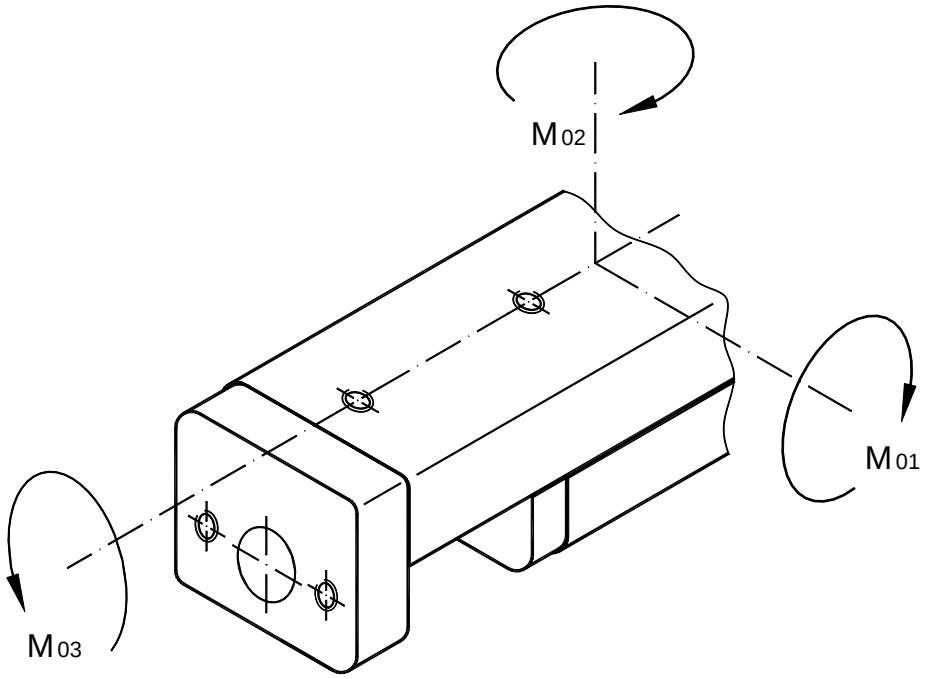
Piston ø [mm]	Piston rod ø [mm]	B1 [mm]	B2 [mm]	B3 [mm]	B4 [mm]	B5 [mm]	D1	D2/depth [mm]	D3/depth [mm]	D4/depth [mm]	H1 [mm]	H2 [mm]	H3 [mm]	H4 [mm]	H5 [mm]	L1 [mm]
50	16	64	90	68	23,8	55	G1/4	M8/10,5	M8/20	M8/10,5	80	12,5	41,5	18,5	32	20
63	20	82	110	80	30	70	G3/8	M10/16	M10/23	M10/16	95	14,5	49,5	18,5	49,5	25
80	25	90	130	98	30	78	G3/8	M12/18	M12/23	M12/18	120	16	48	24	72	25

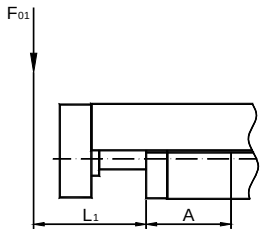
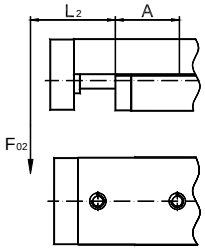
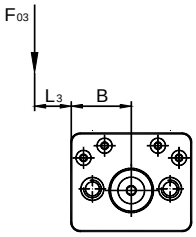
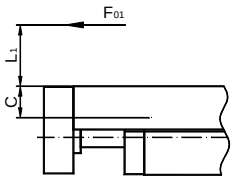
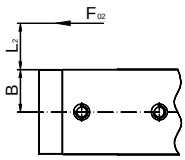
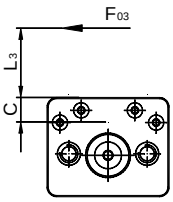
Piston - ∅ [mm]		**Stroke length [mm]**					
		50	**80**	**100**	**125**	**160**	**200**
50	L2	45	45	45	45	45	45
	L3	196,5	251,5	286,5	321,5	381,5	446,5
	L4	75	130	2 x 82,5	2 x 100	2 x 130	2 x 162,5
	L5	2 x 57,5	2 x 85	2 x 102,5	3 x 80	3 x 100	3 x 120
	L6	40	40	40	40	40	40
63	L2	55	55	55	55	55	55
	L3	216,5	281,5	316,5	361,5	421,5	501,5
	L4	65	130	2 x 82,5	2 x 105	2 x 135	2 x 175
	L5	2 x 57,5	2 x 90	3 x 75	3 x 90	3 x 110	3 x135
	L6	50	50	45	45	45	47,5
80	L2	55	55	55	55	55	55
	L3	217	282	317	362	422	502
	L4	65	130	2 x 82,5	2 x 105	2 x 135	2 x 175
	L5	2 x 57,5	2 x 90	3 x 75	3 x 90	3 x 110	3 x 135
	L6	50	50	45	45	45	47,5

Admissible stress

Pneumatic cylinder

Type B, D2R



Longitudinal torque	Lateral torque	Transverse torque
		
$F_{01} \leq \frac{M_{01\ zul.}}{L_1 + A}$	$F_{02} \leq \frac{M_{02\ zul.}}{L_2 + A}$	$F_{03} \leq \frac{M_{03\ zul.}}{L_3 + B}$
		
$F_{01} \leq \frac{M_{01\ zul.}}{L_1 + C}$	$F_{02} \leq \frac{M_{02\ zul.}}{L_2 + B}$	$F_{03} \leq \frac{M_{03\ zul.}}{L_3 + C}$

Admissible stress

Pneumatic cylinder

Stroke length [mm]	50		80		100		125		160		200	
∅ / Type	M_1/M_2 Nm	M_3 Nm	M_1/M_2 Nm	M_3 Nm	M_1/M_2 Nm	M_3 Nm	M_1/M_2 Nm	M_3 Nm	M_1/M_2 Nm	M_3 Nm	M_1/M_2 Nm	M_3 Nm
50 - B, D2R	7,5	6,23	11,0	8,72	12,0	9,97	14,5	11,84	16,0	11,84	19,7	11,84
63 - B, D2R	25,0	30,3	38,9	45,5	47,6	54,5	56,4	66,6	65,5	66,6	82,5	66,6
80 - B, D2R	25,0	37,3	43,0	59,6	51,5	74,5	60,0	85,7	69,5	85,7	90,0	85,7

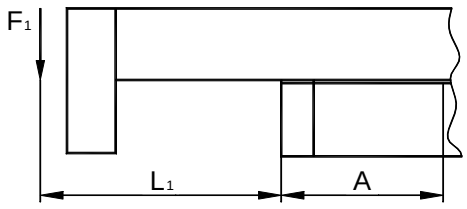
Correction factors:

∅ / Type	Stroke length	A	B	C
	[mm]	[mm]	[mm]	[mm]
50 - B, D2R	50	103,9	44,5	24,8
	80	133,3		
	100	147,5		
	125	172,0		
	160	193,0		
	200	228,5		

∅ / Type	Stroke length	A	B	C
	[mm]	[mm]	[mm]	[mm]
63 - B, D2R	50	113,5	54,5	31,0
	80	142,0		
	100	161,0		
	125	182,5		
	160	209,0		
	200	247,0		

∅ / Type	Stroke length	A	B	C
	[mm]	[mm]	[mm]	[mm]
80 - B, D2R	50	113,5	64,5	42,0
	80	146,5		
	100	165,5		
	125	187,0		
	160	213,5		
	200	256,0		

Example of calculation:



Stress - longitudinal torque M_1

Given qty: 63 - B with a stroke length of 50 mm
Lever arm L_1 = 30 mm = 0,03 m
Longitudinal torque M_1 = 25 Nm
Correction factor A = 113,5 mm = 0,1135 m

Required qty: $F_1 \leq \frac{M_1}{L_1 + A} = \frac{25\ \text{Nm}}{0{,}03\ \text{m} + 0{,}1135\ \text{m}} = 174{,}2\ \text{N}$

All data based on tests conducted by Toss.