

This functional and heavy-duty cylinder is a further development of the well-known and proven CMPG series. It is designed to allow the fixing on multiple sides using different methods, compressed air supply on both sides and double sensor slots, on both the upper and lower side.

The bushing guides of the piston rods are fitted directly into the anodized aluminium alloy cylinder liner.

There are two possible guiding solutions: sintered bronze bushings coupled with piston rods made of ground chromed carbon steel or ball recirculating bushings coupled with hardened, chromed and ground steel.

A silenced version with elastic end-stroke elements and a version with pneumatic cushioning with adjustable pins to control the braking are also available.



TECHNICAL DATA		SILENCED	WITH PNEUMATIC CUSHIONING
Operating pressure	bar		1 to 10
	MPa		0.1 to 1
Temperature range	psi		14.5 to 145
	°C		-20 to +80
	°F		14 to 176
Fluid		Unlubricated air. Lubrication, if used, must be continuous.	
Bores	mm	16; 20; 25; 32; 40; 80	
Strokes	mm	Ø 16: 10-20-30-40-50-75-100-125-150-175-200-250	Ø 16: 25-50-75-100-125-150-175-200-250
		Ø 20, Ø 25: 20-30-40-50-75-100-125-150-175-200-250-300-350-400	Ø 20 to 80: 25-50-75-100-125-150-175-200-250-300-350-400
		Ø 32 to 80: 25-50-75-100-125-150-175-200-250-300-350-400	
Version		Other strokes on request but with the same cylinder dimensions as the standard stroke immediately above	
Magnet for sensors		With bronze bushings, with ball recirculating bearings	
Maximum impact energy	J	Yes	See diagram page A1.150
Inrush pressure	with bronze bushings	bar	Ø 16; 20; 25 = 0.8 Ø 32; 40 = 0.5 Ø 80 = 0.4
	with ball recirculating bearings	bar	Ø 16; 20; 25 = 0.6 Ø 32; 40 = 0.4 Ø 80 = 0.3
Forces generated in thrust/retraction		See cylinder "General technical data" at the beginning of the chapter	

**Weights [kg]**

**SILENCED VERSION**

Bore	Strokes [mm]															
	10	20	25	30	40	50	75	100	125	150	175	200	250	300	350	400
16	0.3	0.35	-	0.4	0.45	0.5	0.7	0.85	1	1.15	1.3	1.45	1.6	-	-	-
20	-	0.55	-	0.65	0.75	0.85	1.15	1.35	1.55	1.75	1.95	2.15	2.5	2.9	3.3	3.7
25	-	0.9	-	1.05	1.2	1.35	1.9	2.25	2.55	2.85	3.15	3.35	4	4.35	4.7	5
32	-	-	1.5	-	-	1.85	2.25	2.6	3	3.35	3.7	4.05	5.2	5.9	6.6	7.3
40	-	-	1.75	-	-	2.15	2.55	2.95	3.35	3.75	4.15	4.55	5.8	6.6	7.4	8.2
80	-	-	5	-	-	5.89	7.60	8.46	9.32	10.18	11.14	11.91	13.94	15.66	18.35	19.11

**VERSION WITH PNEUMATIC CUSHIONING**

Bore	Strokes [mm]											
	25	50	75	100	125	150	175	200	250	300	350	400
16	0.55	0.65	0.8	0.95	1.2	1.35	1.5	1.65	1.8	-	-	-
20	0.8	1	1.25	1.5	1.75	2	2.25	2.5	2.75	3	3.25	3.5
25	1.3	1.6	2	2.4	2.7	3	3.3	3.6	4.2	4.8	5.4	6
32	1.8	2.1	2.5	2.9	3.3	3.7	4.1	4.5	5.3	6.1	6.9	7.7
40	2.1	2.5	2.9	3.4	3.8	4.2	4.6	5	6.1	7.1	8.2	9.3

**COMPONENTS SILENCED VERSION**

- ① BODY: anodized extruded aluminium alloy
  - ② PISTON ROD: grinded chromed steel
  - ③ REAR BASE: anodized aluminium alloy
  - ④ FRONT BASE: anodized aluminium alloy
  - ⑤ PISTON: aluminium alloy
  - ⑥ MAGNET: plastoferrite
  - ⑦ PISTON GASKET: NBR or polyurethane
  - ⑧ GASKET O-Ring: NBR
  - ⑨ FLANGE: anodized aluminium alloy
  - ⑩ ELASTIC BUFFER: polyurethane
  - ⑪ THREADED PLUG: nickel-plated brass with O-Ring
- N.B.: when using side compressed air supplies, unscrew the caps and tighten them onto the threads of the compressed air supplies on the upper side.

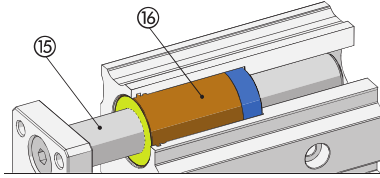
**Version with bronze bushings**

- ⑫ GUIDE ROD: grinded chromed steel
- ⑬ SLIDE BUSHING: sintered bronze
- ⑭ WIPER RING: NBR

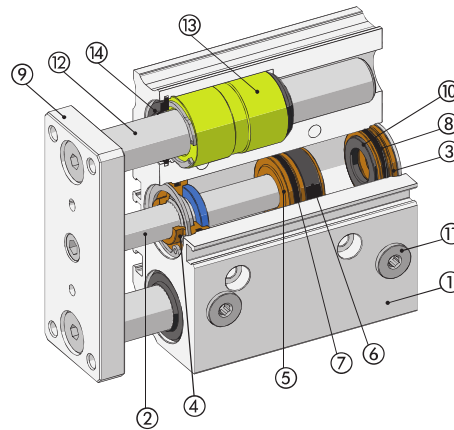
**Version with ball recirculating bearings**

- ⑮ GUIDE ROD: tempered and chromed chrome steel
- ⑯ BALL RECIRCULATING BEARING

**Version with ball recirculating bearings**



**Version with bronze bushings**



**COMPONENTS VERSION WITH PNEUMATIC CUSHIONING**

- ① BODY: anodized extruded aluminium alloy
  - ② PISTON ROD: grinded chromed steel
  - ③ REAR BASE: anodized aluminium alloy
  - ④ FRONT BASE: anodized aluminium alloy
  - ⑤ PISTON: aluminium alloy
  - ⑥ MAGNET: plastoferrite
  - ⑦ PISTON GASKET: NBR or polyurethane
  - ⑧ GASKET O-Ring: NBR
  - ⑨ FLANGE: anodized aluminium alloy
  - ⑩ CUSHIONING GASKET: NBR
  - ⑪ CUSHIONING NEEDLE: brass
  - ⑫ THREADED PLUG: nickel-plated brass with O-Ring
- N.B.: when using side compressed air supplies, unscrew the caps and tighten them onto the threads of the compressed air supplies on the upper side.

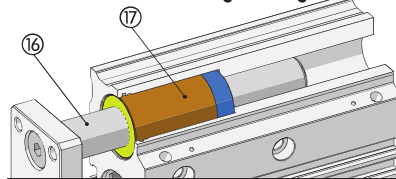
**Version with bronze bushings**

- ⑬ GUIDE ROD: grinded chromed steel
- ⑭ SLIDE BUSHING: sintered bronze
- ⑮ WIPER RING: NBR

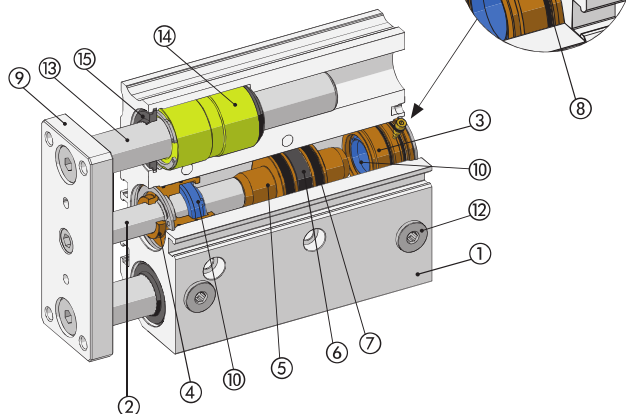
**Version with ball recirculating bearings**

- ⑯ GUIDE ROD: tempered and chromed chrome steel
- ⑰ BALL RECIRCULATING BEARING

**Version with ball recirculating bearings**

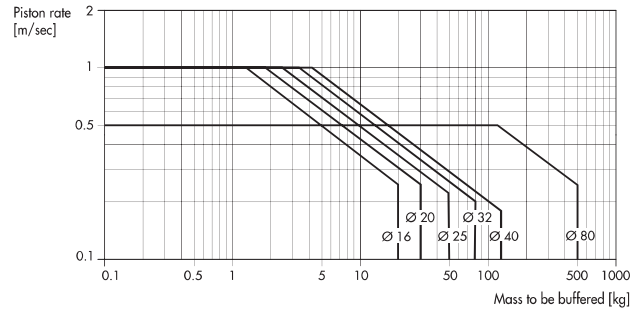


**Version with bronze bushings**

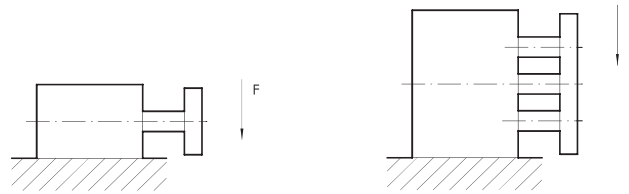


**DIAGRAM OF SPEED AND MAXIMUM CUSHIONABLE LOAD**

For the cylinder to reach the end-of-stroke position without intense or repeated impact which would damage it, it is necessary to annul the kinetic energy of the moving mass and the work generated. The maximum cushionable load depends on the traversing speed and the absorption of the air buffer supplied standard with the various cylinders. The diagram shows the speeds and cushionable mass for the various diameters at a pressure of 6 bar.



**MAXIMUM SIDE LOAD**

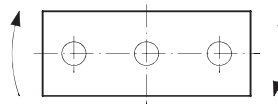


Ø [mm]	Guide unit	Stroke [mm]															
		10	20	25	30	40	50	75	100	125	150	175	200	250	300	350	400
16	Bushes	40	35	32	29	25	24	25	20	19	18	16	13	10	-	-	-
	Balls	35	38	33	30	29	28	35	24	21	19	16	13	10	-	-	-
20	Bushes	-	40	35	33	32	30	63	52	49	40	36	32	26	22	14	10
	Balls	-	40	34	32	31	28	55	50	45	38	34	30	25	21	12	8
25	Bushes	-	70	60	50	40	36	80	70	65	55	50	45	35	25	18	10
	Balls	-	70	60	50	40	36	65	55	62	52	45	42	30	23	15	6
32	Bushes	-	-	140	130	125	120	150	120	110	90	80	70	50	40	20	10
	Balls	-	-	120	115	110	100	180	140	125	120	110	90	80	60	30	15
40	Bushes	-	-	140	130	125	120	150	120	110	90	80	70	50	40	20	10
	Balls	-	-	120	115	110	100	180	140	125	120	110	90	80	60	30	15
80	Bushes	-	-	250	-	-	190	250	220	200	150	130	125	95	70	30	20
	Balls	-	-	170	-	-	170	320	300	280	250	200	190	160	140	70	60

Centre of gravity distance from the front plane = 50 mm

N.B.: Forces are expressed in N

**MAXIMUM TORQUE ON PLATE**

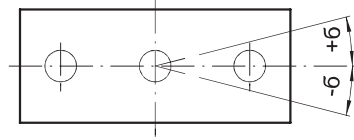


Ø [mm]	Guide unit	Stroke [mm]															
		10	20	25	30	40	50	75	100	125	150	175	200	250	300	350	400
16	Bushes	0.71	0.60	0.54	0.50	0.44	0.39	0.71	0.60	0.52	0.45	0.41	0.37	0.31	-	-	-
	Balls	1.02	0.76	0.62	0.61	1.02	0.89	0.67	0.54	0.44	0.38	0.33	0.29	0.24	-	-	-
20	Bushes	-	1.08	1.03	0.96	0.85	0.77	1.94	1.68	1.48	1.32	1.19	1.09	0.93	0.80	0.71	0.64
	Balls	-	1.30	1.13	1.06	2.24	2.00	1.57	1.29	1.38	1.21	1.06	0.96	0.78	0.67	0.58	0.50
25	Bushes	-	1.81	1.67	1.60	1.42	1.29	3.05	2.65	2.33	2.08	1.88	1.72	1.46	1.28	1.12	1.01
	Balls	-	2.17	2.01	1.80	3.47	3.11	2.45	2.03	2.11	1.83	1.63	1.45	1.19	1.01	0.88	0.76
32	Bushes	-	-	6.54	-	-	5.28	5.86	5.12	4.55	4.10	3.72	3.41	2.93	2.55	2.27	2.04
	Balls	-	-	6.13	-	-	5.04	5.26	4.65	6.53	5.96	5.49	5.08	4.42	3.89	3.48	3.13
40	Bushes	-	-	7.21	-	-	5.83	6.46	5.64	5.02	4.51	4.10	3.76	3.22	2.82	2.50	2.26
	Balls	-	-	6.75	-	-	5.55	5.79	5.11	7.19	6.57	6.05	5.59	4.86	4.28	3.82	3.45
80	Bushes	-	-	22.55	-	-	19.15	23.58	21.11	19.15	17.51	16.06	14.93	12.97	11.53	10.30	9.38
	Balls	-	-	15.55	-	-	23.99	23.38	21.21	19.46	17.81	16.48	15.24	13.28	11.63	10.30	9.20

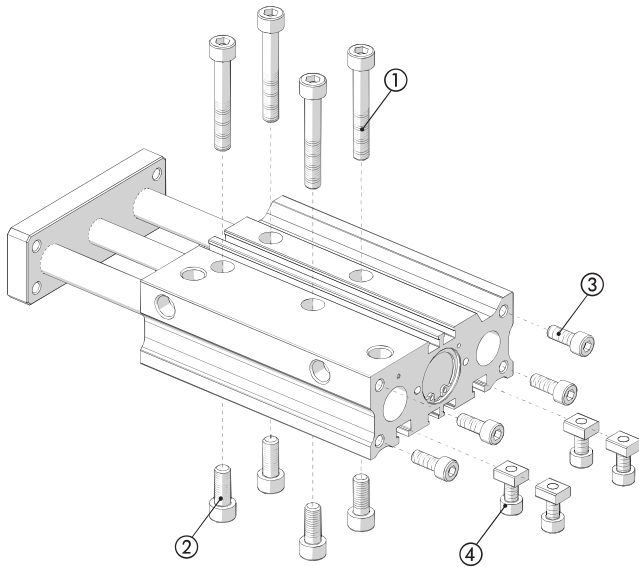
## TORSIONAL BACKLASH

Torsional backlash 6 with piston rods retracted and without applied loads.

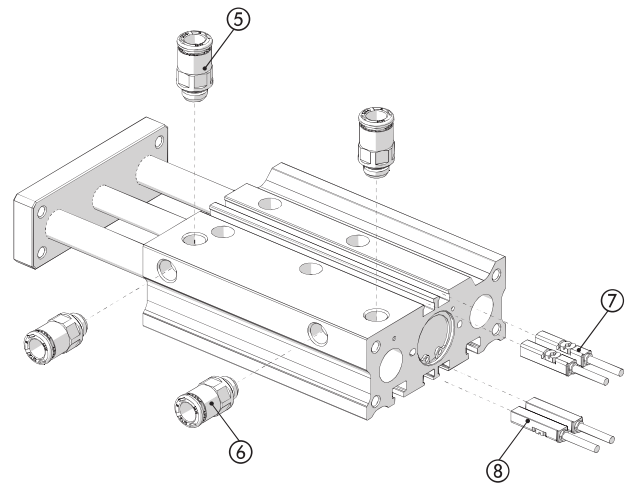
	Ø [mm]					
Torsional backlash 6	16	20	25	32	40	80
With bronze bushings	±0.07	±0.06	±0.06	±0.05	±0.05	±0.03
With ball recirculating bearings	±0.05	±0.04	±0.04	±0.03	±0.03	±0.03



## MOUNTING OPTIONS



- ① Fixing with through screws
- ② Fixing with threaded holes
- ③ Fixing from the back side, using threaded holes
- ④ Fixing with plugs inserted into the T-slots



- ⑤ Compressed air supply on the upper side
- ⑥ Compressed air supply on the lateral side
- ⑦ Two sensor slots on the upper side
- ⑧ Two sensor slots on the lower side

## NOTES

There are two sliding systems available:

- on bushes
- on ball recirculating bearings

The frame is made up of two paired cylinders with a common anodized aluminium body containing slots for retracting sensors.

There are 5 bores available:

2 x Ø 12, 2 x Ø 16, 2 x Ø 20, 2 x Ø 25 and 2 x Ø 30.



ACTUATORS

TWIN CYLINDER SERIES S10

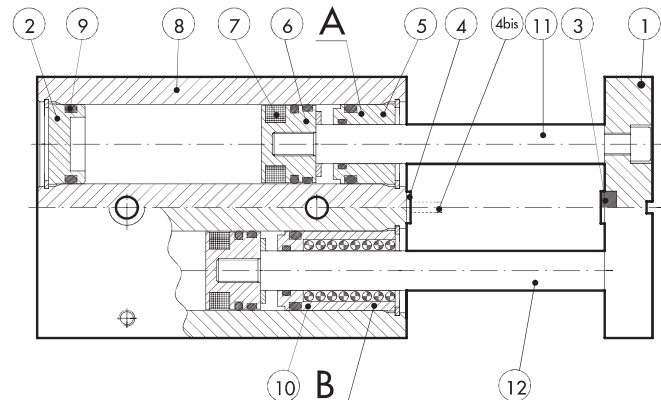
TECHNICAL DATA		S10-12	S10-16	S10-20	S10-25	S10-30
Pressure range	bar	3 to 7				
	MPa	0.3 to 0.7				
Temperature range	psi	43.5 to 101				
	°C	-10 to +80				
Fluid		20 µm dried or lubricated filtered air. Lubrication, if used, must be continuous.				
Piston speed	mm/s	30 to 100				
Versions		System with sliding bushes/System with ball bushes available with stop screw or hydraulic decelerator				
Sizes		12	16	20	25	30
Bores	mm	2 x 12	2 x 16	2 x 20	2 x 25	2 x 30
Piston rod diameter	mm	6	8	10	12	16
Strokes	mm	15	15	25	25	25
	mm	25	25	50	50	50
	mm	50	50	75	75	75
	mm	-	75	100	100	100
	mm	-	-	-	125	125
Weight (C = stroke mm)						
Bushes version	kg	0.12 + (0.002 x C)	0.24 + (0.0025 x C)	0.51 + (0.005 x C)	0.76 + (0.006 x C)	1.3 + (0.009 x C)
Ball bearing version	kg	0.21 + (0.002 x C)	0.48 + (0.0025 x C)	0.77 + (0.005 x C)	0.18 + (0.006 x C)	1.92 + (0.009 x C)
Maximum impact energy	J	0.10	0.15	0.20	0.30	0.5
Theoretical thrust (P = relative pressure in bar)		(Multiply the value shown by the pressure in bar)				
Thrust force	da N	2.26 x P	4 x P	6.28 x P	9.8 x P	14.1 x P
Pull force	da N	1.69 x P	3 x P	4.11 x P	7.5 x P	10.1 x P
Max. loads		(The values shown refer to the min. and max. strokes)				
Bushes version	N	6 to 4	11 to 6	20 to 7	26 to 8	36 to 11
Ball bearing version	N	3 to 1.5	6 to 3	10 to 3.5	12 to 5.6	20 to 7

## COMPONENTS

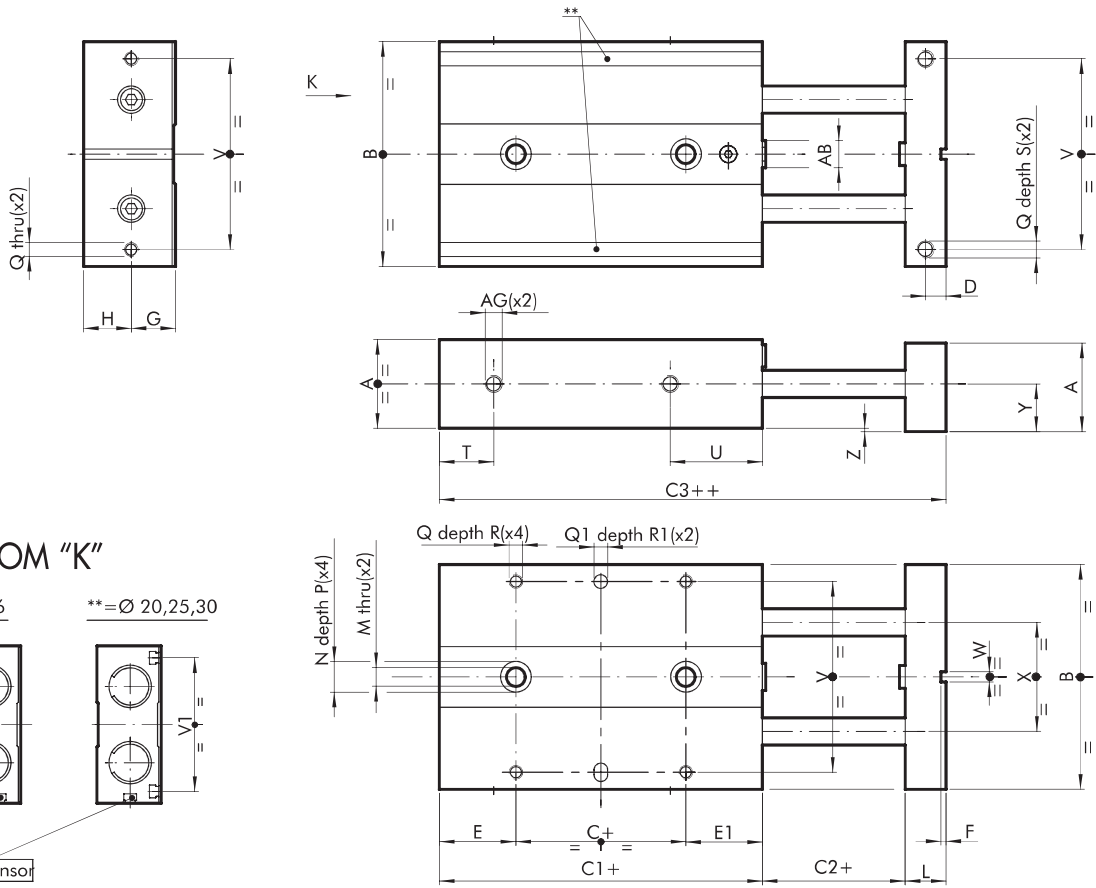
- ① FLANGE: anodized aluminium
- ② REAR BASE: anodized aluminium
- ③ BUFFER: rubber
- ④ ADJUSTABLE STRIKER PLATE. Zinc-plated steel
- ④bis HYDRAULIC DECELERATOR
- ⑤ FRONT BASE: brass
- ⑥ PISTON: brass
- ⑦ MAGNET: Plastoferrite
- ⑧ CYLINDER BODY: anodized aluminium
- ⑨ STATIC O-RING: NBR
- ⑩ BALL RE-CIRCULATION BUSH
- ⑪ PISTON ROD: grinded chromed stainless steel
- ⑫ PISTON ROD: tempered chrome stainless steel, grinded

## VERSIONS:

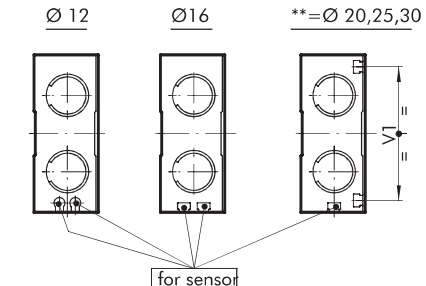
- Ⓐ With sliding bushes
- Ⓑ With ball bushes



DIMENSIONS OF TWIN CYLINDER SERIES S10, ON BUSHES Ø 12 to 30 mm



VIEW FROM "K"



+ = ADD THE STROKE  
++ = ADD TWICE THE STROKE

Code	Ø	A	B	C	C1	C2	C3	D	E	E1	F	G	H	L	M	N	P	Q	Q1 <sup>H7</sup>	R	R1	S	T
W1440122...	12	18	46	10	50	2	60	4	20	20	1.5	9	10	8	4.3	8	4	M3	4	5	3	8	9
W1440162...	16	22	56	16	62	2	74	5	26	20	1.5	11	12	10	4.3	8	4	M4	4	6	3	8	10
W1440202...	20	26	66	10	68	2	82	6	29	29	1.5	13	14	12	5.5	9	5	M4	4	7	3	10	11
W1440252...	25	32	78	10	74	2	90	7	32.5	31.5	2.5	16	17	14	6.5	10.5	6	M5	4	7	3	12	11
W1440302...	30	36	98	10	87	2	105	8	37.5	39.5	2.5	18	19	16	8.5	14	8	M6	6	8	5	12	13

Ø	U	V	V1	W	X	Y	Z	AB	AG
12	28	38	-	3	20	10	1	M5	M5
16	33	46	-	3	26	12	1	M6	M5
20	40	56	54	3	30	14	1	M8	M5
25	42	66	64	5	39	17	1	M10	M5
30	51	86	82	5	52	19	1	M12	G 1/8"

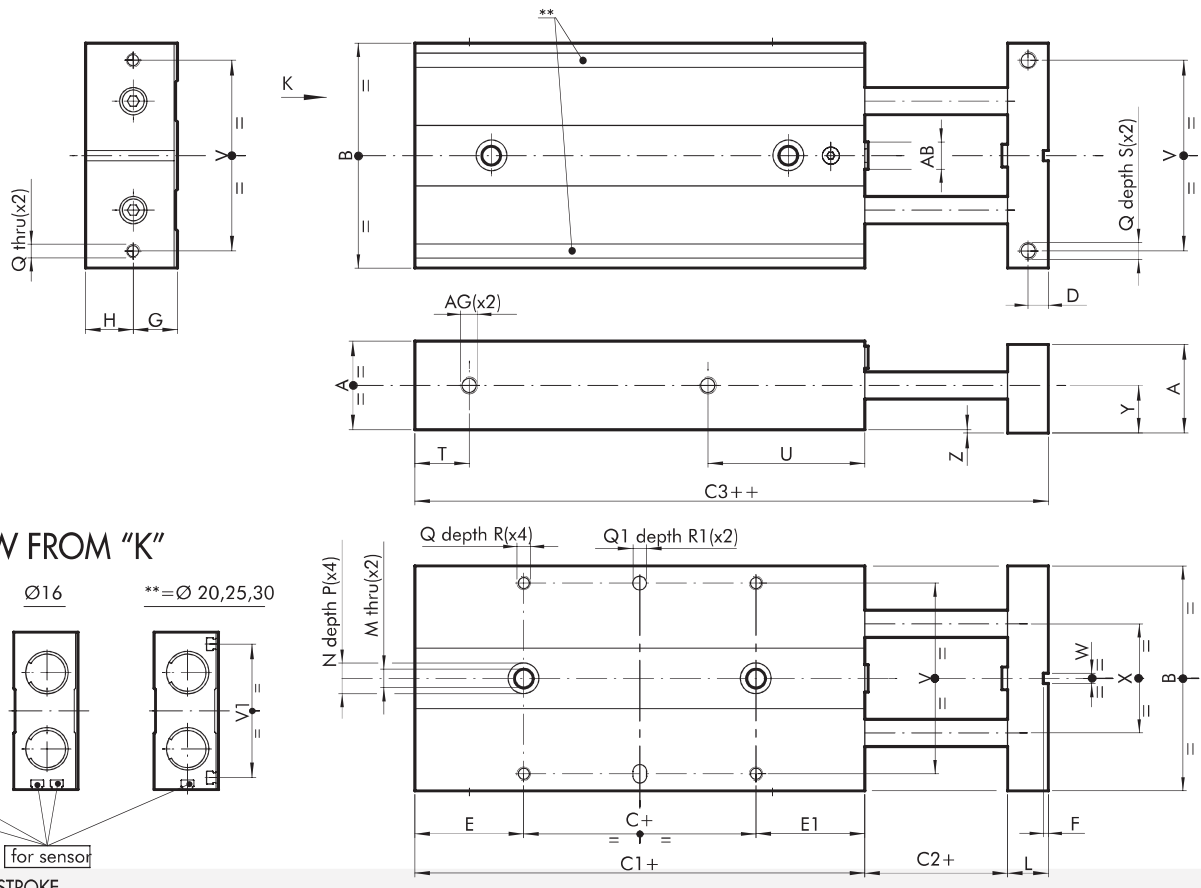
...Enter the stroke in mm (e.g. Ø 12 stroke 50 = W1440122050)

- Strokes for bore 12 mm 15; 25; 50;
- Strokes for bore 16 mm 15; 25; 50; 75;
- Strokes for bore 20 mm 25; 50; 75; 100;
- Strokes for bore 25 mm 25; 50; 75; 100; 125;
- Strokes for bore 30 mm 25; 50; 75; 100; 125;

**DIMENSIONS OF TWIN CYLINDER SERIES S10, ON BALL BEARINGS Ø 12 to 30 mm**

**ACTUATORS**

TWIN CYLINDER SERIES S10



+ = ADD THE STROKE  
 ++ = ADD TWICE THE STROKE

Code	Ø	A	B	C	C1	C2	C3	D	E	E1	F	G	H	L	M	N	P	Q	Q1 <sup>H7</sup>	R	R1	S	T
W1440123...	12	18	46	10	69	2	79	4	29.5	29.5	1.5	9	10	8	4.3	8	4	M3	4	5	3	8	9
W1440163...	16	22	56	10	90	2	98	5	42	38	1.5	11	12	10	4.3	8	4	M4	4	6	3	8	10
W1440203...	20	26	66	10	100	2	111	6	46.5	43.5	1.5	13	14	12	5.5	9	5	M4	4	7	3	10	11
W1440253...	25	32	78	10	108	2	120	7	51.5	46.5	2.5	16	17	14	6.5	10.5	6	M5	4	7	3	12	11
W1440303...	30	36	98	10	124	2	142	8	56	58	2.5	18	19	16	8.5	14	8	M6	6	8	5	12	13

Ø	U	V	V1	W	X	Y	Z	AB	AG
12	47	38	-	3	20	10	1	M5	M5
16	57	46	-	3	26	12	1	M6	M5
20	69	56	3	30	14	1	M8	M5	
25	72	66	64	5	39	17	1	M10	M5
30	88	86	82	5	52	19	1	M12	G 1/8"

...Enter the stroke in mm (e.g. Ø 12 stroke 50 = W1440123050)

- Strokes for bore 12 mm 15; 25; 50;
- Strokes for bore 16 mm 15; 25; 50; 75;
- Strokes for bore 20 mm 25; 50; 75; 100;
- Strokes for bore 25 mm 25; 50; 75; 100; 125;
- Strokes for bore 30 mm 25; 50; 75; 100; 125;

# TWIN CYLINDER SLIDE WITH FIXED BODY SERIES S11

There are two sliding systems available:

- on bushes
- on ball bearings

The frame is made up of two paired through-rod cylinders with a common anodized aluminium body containing slots for retracting sensors.

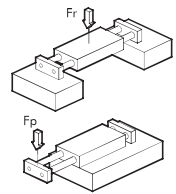
There are 5 bores available:

2 x Ø 12; 2 x Ø 16; 2 x Ø 20; 2 x Ø 25 and 2 x Ø 30.

The piston rods are united by means of a plate on which mechanical stops or hydraulic shock absorbers can be mounted.



TECHNICAL DATA	S11-12	S11-16	S11-20	S11-25	S11-30	
Fluid	20 µm filtered air					
Pressure range	bar					
	1.5 to 7					
	MPa					
Temperature range	0.15 to 0.7					
	psi					
	43.5 to 101					
Piston speed	°C					
	-10 to +80					
Versions	mm/s					
Bores	30 to 200					
Piston rod diameter	With sliding bushes / With ball bearing bushes / With stop screw / With hydraulic shock absorbers					
Strokes	mm	12	16	20	25	30
	mm	6	8	10	12	16
Strokes	mm	25	25	25	25	25
	mm	50	50	50	50	50
Strokes	mm	75	75	75	75	75
	mm	-	100	100	100	100
Strokes	mm	-	-	125	125	125
	mm	-	-	-	150	150
Weight = X + (Y · C) where C = stroke	kg					
Bushes version	kg	X = 0.14	X = 0.25	X = 0.5	X = 0.7	X = 1.24
	kg	Y = 0.002	Y = 0.0035	Y = 0.045	Y = 0.007	Y = 0.01
Ball bearing version	kg	X = 0.25	X = 0.37	X = 0.78	X = 1.04	X = 1.98
	kg	Y = 0.002	Y = 0.0035	Y = 0.045	Y = 0.007	Y = 0.01
Maximum impact energy with buffers	J	0.10	0.15	0.20	0.30	0.5
Maximum impact energy with hydraulic decelerators	J	2	5	5	10	20
Theoretical thrust (P = relative pressure in bar)	N	16.9 x P	30 x P	47 x P	75 x P	101 x P
Max. loads	(The values shown refer to the min. and max. strokes)					
Bushes version	N	Fr: 13 to 5 Fp: 6 to 3	Fr: 35 to 6.5 Fp: 11 to 3	Fr: 58 to 7 Fp: 18 to 5	Fr: 80 to 8 Fp: 23 to 6	Fr: 130 to 18 Fp: 50 to 8
	N	Fr: 7 to 3 Fp: 4 to 1.5	Fr: 20 to 4 Fp: 4 to 1.5	Fr: 35 to 4.5 Fp: 12 to 3	Fr: 50 to 5.4 Fp: 15 to 3.5	Fr: 80 to 12 Fp: 20 to 4.5

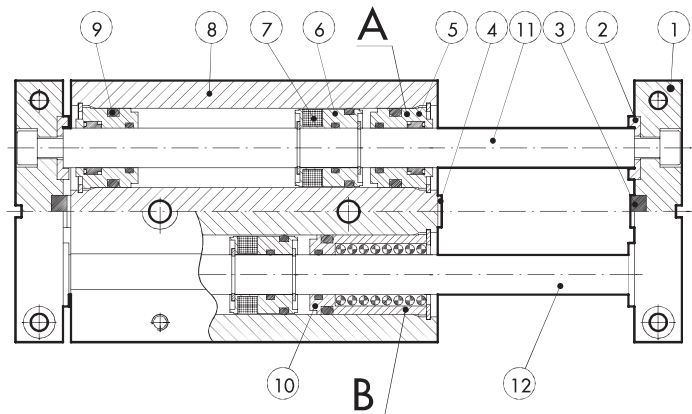


## COMPONENTS

- ① FLANGE: anodized aluminium
- ② WASHER: steel
- ③ BUFFER: rubber
- ④ ADJUSTABLE STRIKER PLATE: Zinc-plated steel
- ⑤ BASE: brass
- ⑥ PISTON: brass
- ⑦ MAGNET: plastoferrite
- ⑧ CYLINDER BODY: anodized aluminium
- ⑨ STATIC O-RINGS: NBR
- ⑩ BUSH: ball bearing
- ⑪ PISTON ROD: grinded chromed stainless steel
- ⑫ PISTON ROD: tempered chrome stainless steel, grinded

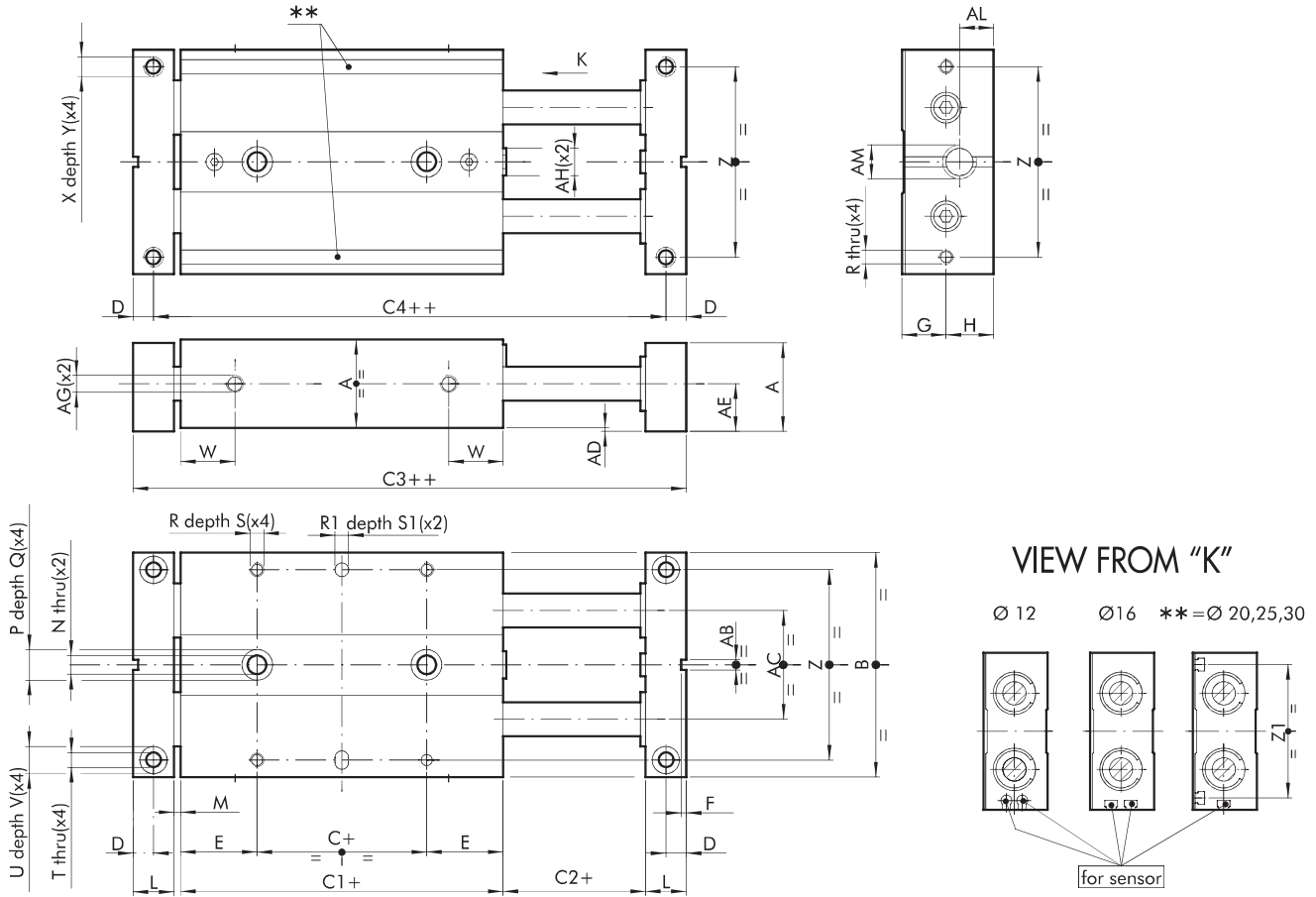
### VERSIONS:

- Ⓐ With sliding bushes
- Ⓑ With ball bearing bushes





**DIMENSIONS OF TWIN-CYLINDER GUIDE UNITS SERIES S11, ON BUSHES Ø 12 to 30**



+ = ADD THE STROKE  
++ = ADD TWICE THE STROKE

Code	Ø	A	B	C	C1	C2	C3	C4	D	E	F	G	H	L	M	N	P	Q	R	R1 <sup>17</sup>	S	S1	T
W1450122...	12	18	46	5	45	2	65	57	4	20	1.5	9	10	8	2	4.3	8	4	M3	4	5	3	3.3
W1450162...	16	22	56	10	50	2	74	64	5	20	1.5	11	12	10	2	4.3	8	4	M4	4	6	3	4.3
W1450202...	20	26	66	10	55	2	83	71	6	22.5	1.5	13	14	12	2	5.5	9	5	M4	4	7	3	4.3
W1450252...	25	32	78	10	60	2	92	78	7	25	2.5	16	17	14	2	6.5	10.5	6	M5	4	7	3	5.2
W1450302...	30	36	98	10	70	2	106	90	8	30	2.5	18	19	16	2	8.5	14	8	M6	6	8	5	5.2

Ø	U	V	W	X	Y	Z	Z1	AB	AC	AD	AE	AF	AG	AM	AL
12	6	3	14	M4	6	38	-	3	20	1	10	4	M5	M8x1	7
16	8	4	15	M5	8	46	-	3	26	1	12	5	M5	M10x1	8.5
20	8	4	16	M5	10	56	54	3	30	1	14	5	M5	M10x1	9
25	9	5	19	M6	12	66	64	5	39	1	17	6	M5	M12x1	10
30	9	5	21	M6	12	86	82	5	52	1	19	6	G 1/8	M14x1.5	12

...Enter the stroke in mm (e.g. Ø 12 stroke 50 = W1450122050)

Strokes for bore 12 mm 25; 50; 75

Strokes for bore 16 mm 25; 50; 75; 100

Strokes for bore 20 mm 25; 50; 75; 100; 125

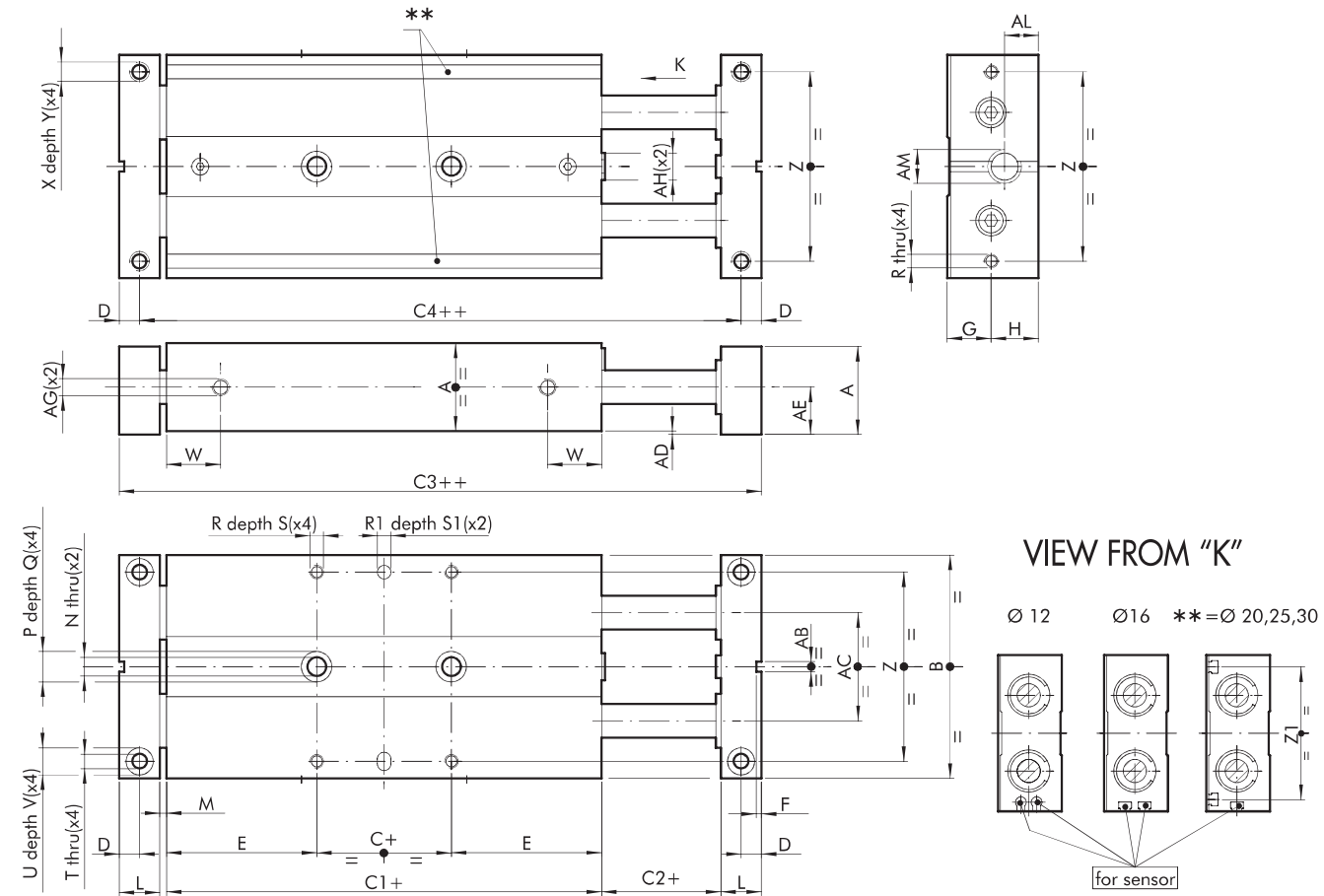
Strokes for bore 25 mm 25; 50; 75; 100; 125; 150

Strokes for bore 30 mm 25; 50; 75; 100; 125; 150

**DIMENSIONS OF TWIN-CYLINDER GUIDE UNITS SERIES S11, ON BALL BEARINGS Ø 12 to 30**

**ACTUATORS**

TWIN CYLINDER SLIDE WITH FIXED BODY SERIES S11



+ = ADD THE STROKE  
++ = ADD TWICE THE STROKE

Code	Ø	A	B	C	C1	C2	C3	C4	D	E	F	G	H	L	M	N	P	Q	R	R1 <sup>H7</sup>	S	S1	T
W1450123...	12	18	46	5	71	2	91	83	4	33	1.5	9	10	8	2	4.3	8	4	M3	4	5	3	3.3
W1450163...	16	22	56	10	85	2	109	99	5	37.5	1.5	11	12	10	2	4.3	8	4	M4	4	6	3	4.3
W1450203...	20	26	66	10	99	2	127	115	6	44.5	1.5	13	14	12	2	5.5	9	5	M4	4	7	3	4.3
W1450253...	25	32	78	10	105	2	137	123	7	47.5	2.5	16	17	14	2	6.5	10.5	6	M5	4	7	3	5.2

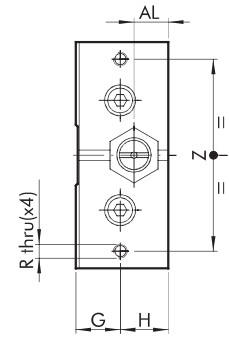
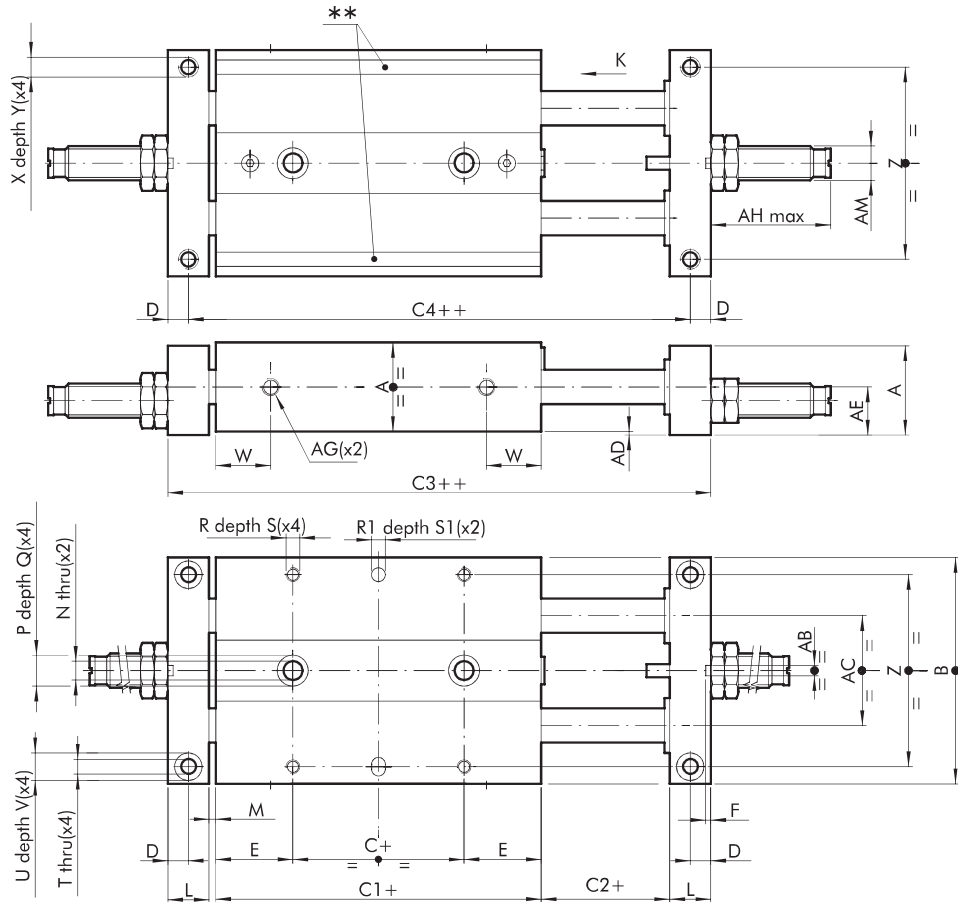
W1450303...	30	36	98	10	128	2	164	148	8	59	2.5	18	19	16	2	8.5	14	8	M6	6	8	5	5.2
-------------	----	----	----	----	-----	---	-----	-----	---	----	-----	----	----	----	---	-----	----	---	----	---	---	---	-----

Ø	U	V	W	X	Y	Z	Z1	AB	AC	AD	AE	AF	AG	AH	AM	AL
12	6	3	28	M4	6	38	-	3	20	1	10	4	M5	M5	M8x1	7
16	8	4	33	M5	8	46	-	3	26	1	12	5	M5	M6	M10x1	8.5
20	8	4	40	M5	10	56	54	3	30	1	14	5	M5	M8	M10x1	9
25	9	5	42	M6	6	66	64	5	39	1	17	6	M5	M10	M12x1	10
30	9	5	50	M6	12	86	82	5	52	1	19	6	G 1/8	M12	M14x1.5	12

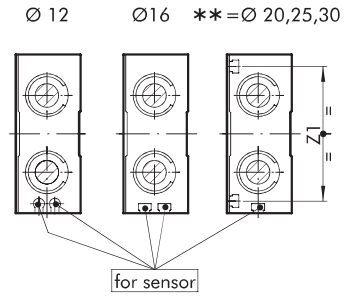
...Enter the stroke in mm (e.g. Ø 12 stroke 50 = W1450123050)

- Strokes for bore 12 mm 25; 50; 75
- Strokes for bore 16 mm 25; 50; 75; 100
- Strokes for bore 20 mm 25; 50; 75; 100; 125
- Strokes for bore 25 mm 25; 50; 75; 100; 125; 150
- Strokes for bore 30 mm 25; 50; 75; 100; 125; 150

DIMENSIONS OF TWIN-CYLINDER GUIDE UNITS WITH SHOCK ABSORBERS SERIES S11, ON BUSHES Ø 12 to 30



VIEW FROM "K"



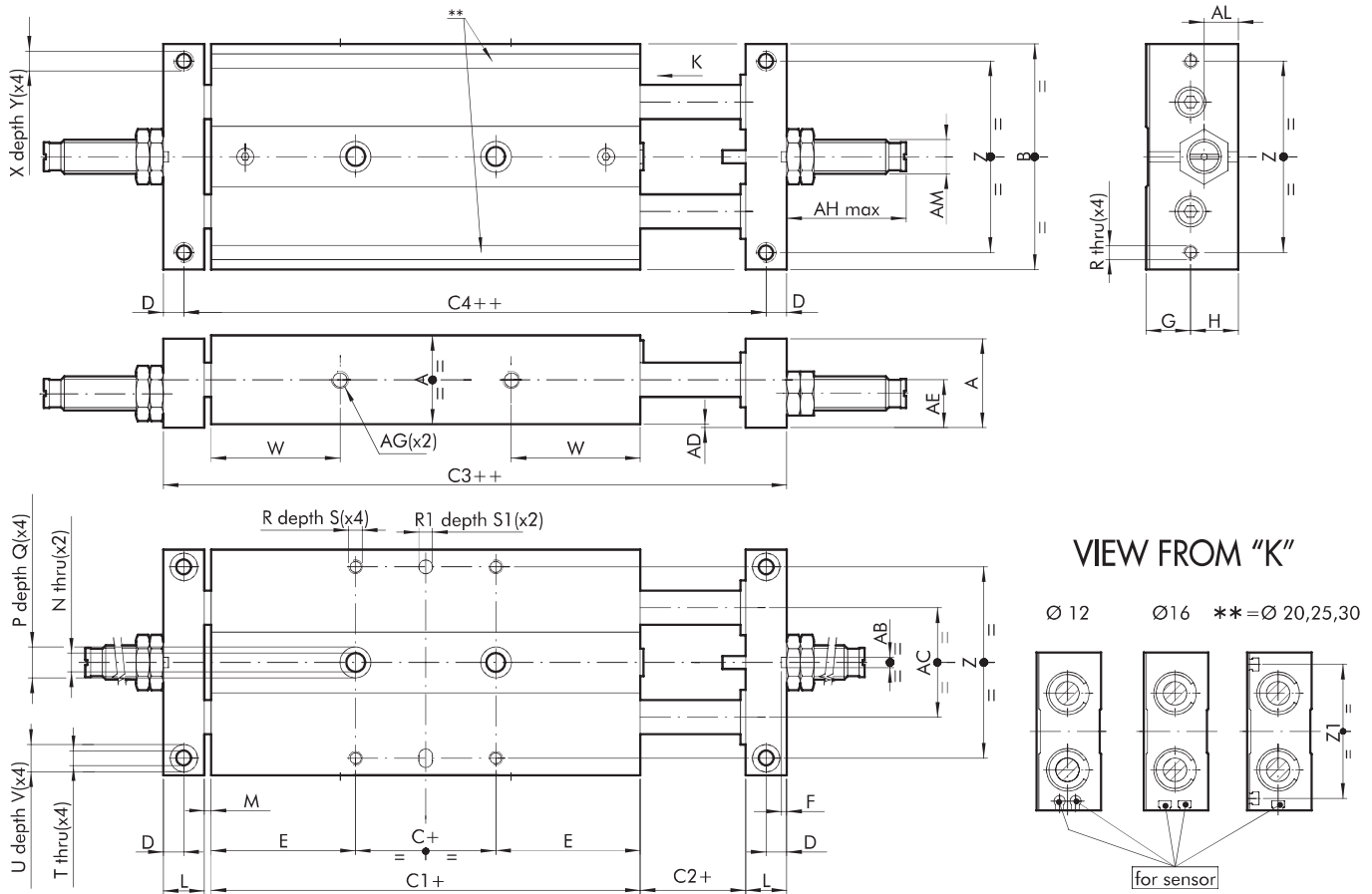
+ = ADD THE STROKE  
++ = ADD TWICE THE STROKE

Code	Ø	A	B	C	C1	C2	C3	C4	D	E	F	G	H	L	M	N	P	Q	R	R1 <sup>H7</sup>	S	S1	T
W1450124...	12	18	46	5	45	2	65	57	4	20	1.5	9	10	8	2	4.3	8	4	M3	4	5	3	3.3
W1450164...	16	22	56	10	50	2	74	64	5	20	1.5	11	12	10	2	4.3	8	4	M4	4	6	3	4.3
W1450204...	20	26	66	10	55	2	83	71	6	22.5	1.5	13	14	12	2	5.5	9	5	M4	4	7	3	4.3
W1450254...	25	32	78	10	60	2	92	78	7	25	2.5	16	17	14	2	6.5	10.5	6	M5	4	7	3	5.2
W1450304...	30	36	98	10	70	2	106	90	8	30	2.5	18	19	16	2	8.5	14	8	M6	6	8	5	5.2
Ø	U	V	W	X	Y	Z	Z1	AB	AC	AD	AE	AF	AG	AH	AM	AL							
12	6	3	14	M4	6	38	-	3	20	1	10	4	M5	30	M8x1	7							
16	8	4	15	M5	8	46	-	3	26	1	12	5	M5	35	M10x1	8.5							
20	8	4	16	M5	10	56	54	3	30	1	14	5	M5	35	M10x1	9							
25	9	5	19	M6	12	66	69	5	39	1	17	6	M5	36	M12x1	10							
30	9	5	21	M6	12	86	82	5	52	1	19	6	G 1/8	60	M14x1.5	12							

...Enter the stroke in mm (e.g. Ø 12 stroke 50 = W1450124050)

- Strokes for bore 12 mm 25; 50; 75
- Strokes for bore 16 mm 25; 50; 75; 100
- Strokes for bore 20 mm 25; 50; 75; 100; 125
- Strokes for bore 25 mm 25; 50; 75; 100; 125; 150
- Strokes for bore 30 mm 25; 50; 75; 100; 125; 150

**DIMENSIONS OF TWIN-CYLINDER GUIDE UNITS WITH SHOCK ABSORBERS SERIES S11, ON BALL BEARING Ø 12 to 30**



+ = ADD THE STROKE  
 ++ = ADD TWICE THE STROKE

Code	Ø	A	B	C	C1	C2	C3	C4	D	E	F	G	H	L	M	N	P	Q	R	R1 <sup>H7</sup>	S	S1	T
W1450125...	12	18	46	5	71	2	91	83	4	33	1.5	9	10	8	2	4.3	8	4	M3	4	5	3	3.3
W1450165...	16	22	56	10	85	2	109	99	5	37.5	1.5	11	12	10	2	4.3	8	4	M4	4	6	3	4.3
W1450205...	20	26	66	10	99	2	127	115	6	44.5	1.5	13	14	12	2	5.5	9	5	M4	4	7	3	4.3
W1450255...	25	32	78	10	105	2	137	123	7	47.5	2.5	16	17	14	2	6.5	10.5	6	M5	4	7	3	5.2
W1450305...	30	36	98	10	128	2	164	148	8	59	2.5	18	19	16	2	8.5	14	8	M6	6	8	5	5.2

Ø	U	V	W	X	Y	Z	Z1	AB	AC	AD	AE	AF	AG	AH	AM	AL
12	6	3	28	M4	6	38	-	3	20	1	10	4	M5	30	M8x1	7
16	8	4	33	M5	8	46	-	3	26	1	12	5	M5	35	M10x1	8.5
20	8	4	40	M5	10	56	54	3	30	1	14	5	M5	35	M10x1	9
25	9	5	42	M6	6	66	64	5	39	1	17	6	M5	36	M12x1	10
30	9	5	50	M6	12	86	82	5	52	1	19	6	G 1/8	60	M14x1.5	12

...Enter the stroke in mm (e.g. Ø 12 stroke 50 = W1450125050)  
 Strokes for bore 12 mm 25; 50; 75  
 Strokes for bore 16 mm 25; 50; 75; 100  
 Strokes for bore 20 mm 25; 50; 75; 100; 125  
 Strokes for bore 25 mm 25; 50; 75; 100; 125; 150  
 Strokes for bore 30 mm 25; 50; 75; 100; 125; 150

# TWIN CYLINDER SLIDE WITH FIXED PLATES SERIES S12

ACTUATORS

TWIN CYLINDER SLIDE WITH FIXED PLATES SERIES S12

Two sliding systems are available:

- on bushes
- on ball bearings

The structure is made up of two paired through-rod cylinders with a common anodized aluminium body with grooves for mounting the retractable sensor.

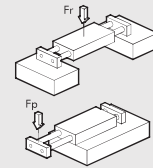
Five bores available: 2 x Ø 16; 2 x Ø 20; 2 x Ø 25; 2 x Ø 30.

The rods are joined together by means of a plate on which the mechanical limit switches or hydraulic shock absorbers can be mounted.

The compressed air ports are at the end of the piston rods.



TECHNICAL DATA		S12-16	S12-20	S12-25	S12-30
Fluid		20 µm filtered air			
Pressure range	bar	1.5 to 7			
	MPa	0.15 to 0.7			
	psi	21.5 to 101			
Temperature range	°C	-10 to +80			
Piston speed	mm/s	30 to 200			
Versions		With sliding bushes / With ball bearing bushes / With stop screw / With hydraulic shock absorbers			
Bores	mm	16	20	25	30
Piston rod diameter	mm	8	10	12	16
Strokes	mm	25	25	25	25
		50	50	50	50
		75	75	75	75
		100	100	100	100
		-	125	125	125
		-	-	150	150
Weight = X + (Y · C) where C = stroke	kg				
Bushes version	X = 0.25	X = 0.5	X = 0.7	X = 1.24	
	Y = 0.0035	Y = 0.045	Y = 0.007	Y = 0.01	
Ball bearing version	X = 0.37	X = 0.78	X = 1.04	X = 1.98	
	Y = 0.0035	Y = 0.045	Y = 0.007	Y = 0.01	
Maximum impact energy with buffers	J	0.15	0.20	0.30	0.5
Maximum impact energy with hydraulic decelerators	J	5	5	10	20
Theoretical thrust (P = relative pressure in bar)	N	30 x P	47 x P	75 x P	101 x P
Max. loads		(The values shown refer to the min. and max. strokes)			
Bushes version	N	Fr: 35 to 6.5 Fp: 11 to 3	Fr: 58 to 7 Fp: 18 to 5	Fr: 80 to 8 Fp: 23 to 6	Fr: 130 to 18 Fp: 50 to 8
	N	Fr: 20 to 4 Fp: 4 to 1.5	Fr: 35 to 4.5 Fp: 12 to 3	Fr: 50 to 5.4 Fp: 15 to 3.5	Fr: 80 to 12 Fp: 20 to 4.5

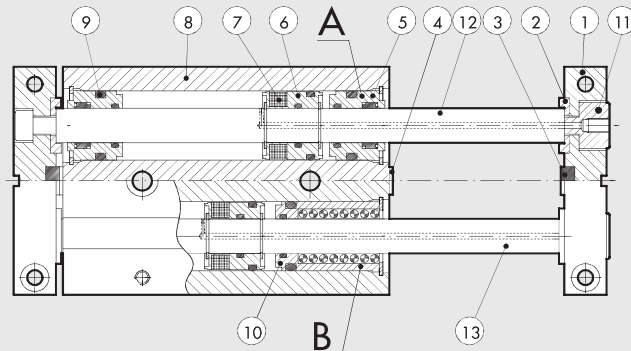


## COMPONENTS

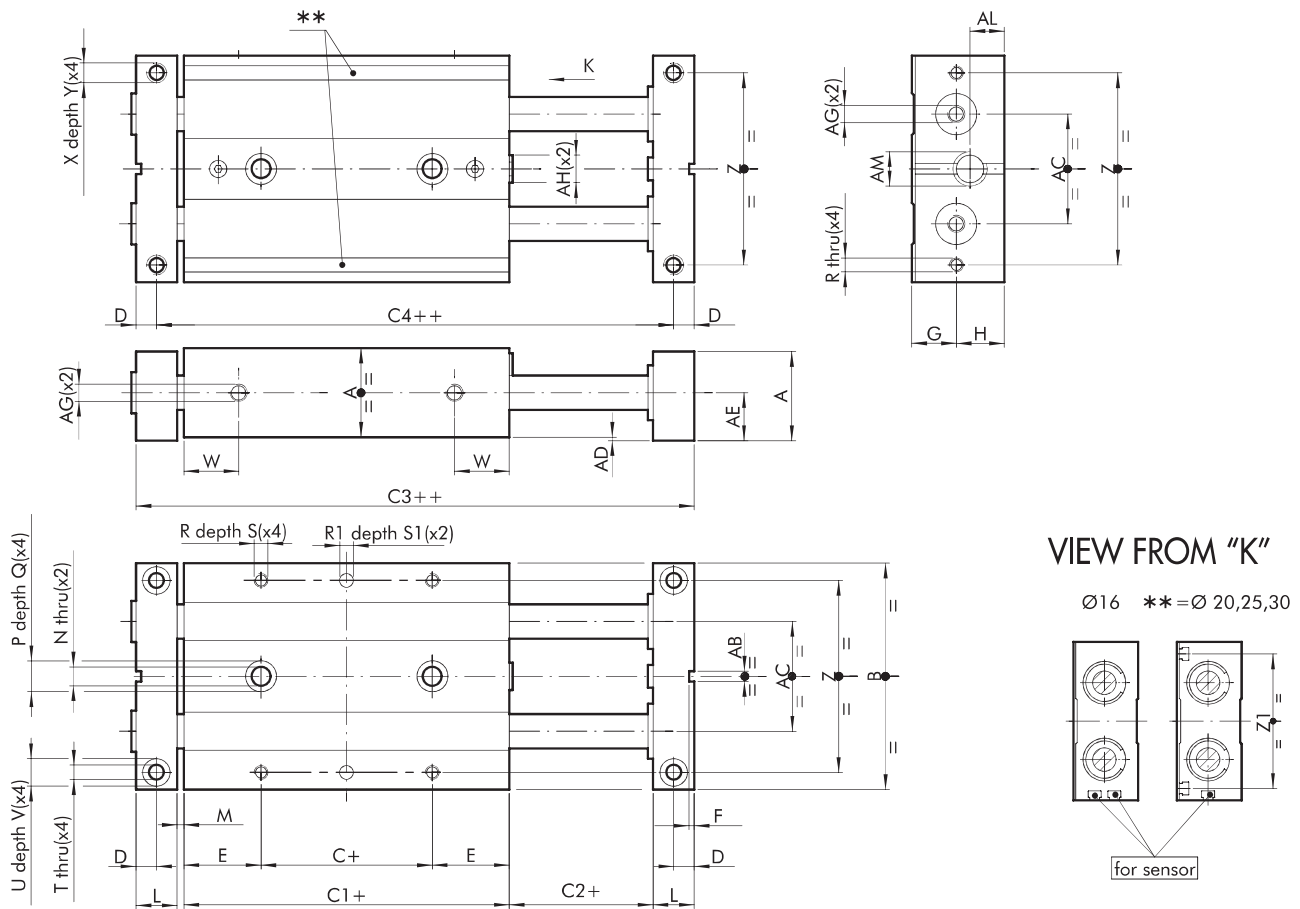
- FLANGE: anodized aluminium
- WASHER: steel
- BUFFER: rubber
- ADJUSTABLE STRIKER PLATE: Zinc-plated steel
- BASE: brass
- PISTON: brass
- MAGNET: Plastroferrite
- CYLINDER BODY: anodized aluminium
- STATIC O-RINGS: NBR
- BUSH: ball bearing
- SCREW: pneumatically powered
- PISTON ROD: grinded chromed stainless steel
- PISTON ROD: tempered chrome stainless steel, grinded

VERSIONS:

- Ⓐ With sliding bush
- Ⓑ With ball bearing bush



DIMENSIONS OF TWIN-CYLINDER SLIDE SERIES S12, ON BUSHES Ø 16 to 30



+ = ADD THE STROKE  
++ = ADD TWICE THE STROKE

Code	Ø	A	B	C	C1	C2	C3	C4	D	E	F	G	H	L	M	N	P	Q	R	R1 <sup>H7</sup>	S	S1	T
W1460162...	16	22	56	10	50	2	74	64	5	20	1.5	11	12	10	2	4.3	8	4	M4	4	6	3	4.3
W1460202...	20	26	66	10	55	2	83	71	6	22.5	1.5	13	14	12	2	5.5	9	5	M4	4	7	3	4.3
W1460252...	25	32	78	10	60	2	92	78	7	25	2.5	16	17	14	2	6.5	10.5	6	M5	4	7	3	5.2
W1460302...	30	36	98	10	70	2	106	90	8	30	2.5	18	19	16	2	8.5	14	8	M6	6	8	5	5.2

Ø	U	V	W	X	Y	Z	Z1	AB	AC	AD	AE	AF	AG	AH	AM	AL
16	8	4	15	M5	8	46	-	3	26	1	12	5	M5	M6	M10x1	8.5
20	8	4	16	M5	10	56	54	3	30	1	14	5	M5	M8	M10x1	9
25	9	5	19	M6	12	66	64	5	39	1	17	6	M5	M10	M12x1	10
30	9	5	21	M6	12	86	82	5	52	1	19	6	G 1/8	M12	M14x1.5	12

...Enter the stroke in mm (e.g. Ø 16 stroke 50 = W1450162050)

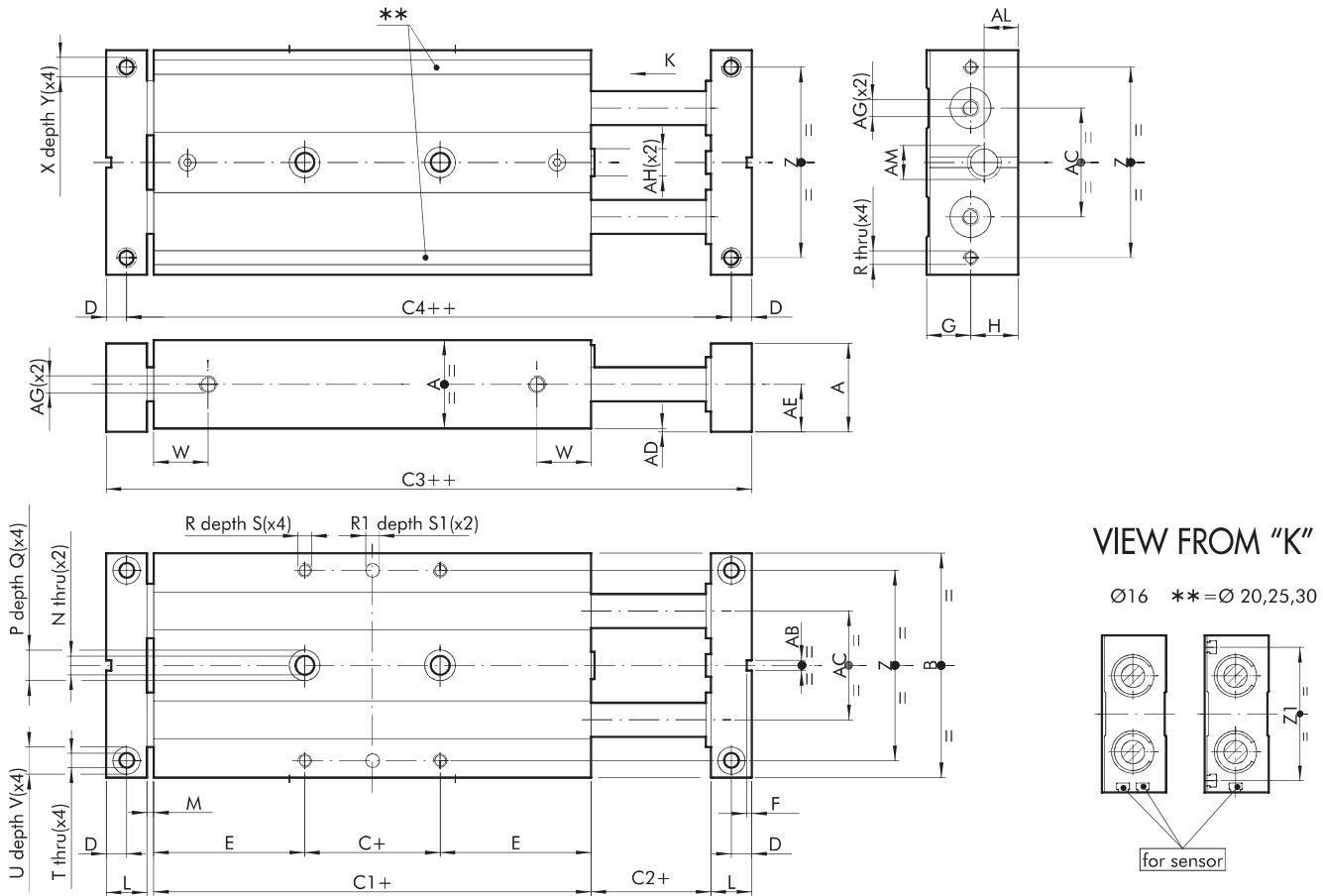
Strokes for bore 16 mm 25; 50; 75; 100

Strokes for bore 20 mm 25; 50; 75; 100; 125

Strokes for bore 25 mm 25; 50; 75; 100; 125; 150

Strokes for bore 30 mm 25; 50; 75; 100; 125; 150

**DIMENSIONS OF TWIN-CYLINDER SLIDE SERIES S12, ON BALL BEARINGS Ø 16 to 30**



+ = ADD THE STROKE  
 ++ = ADD TWICE THE STROKE

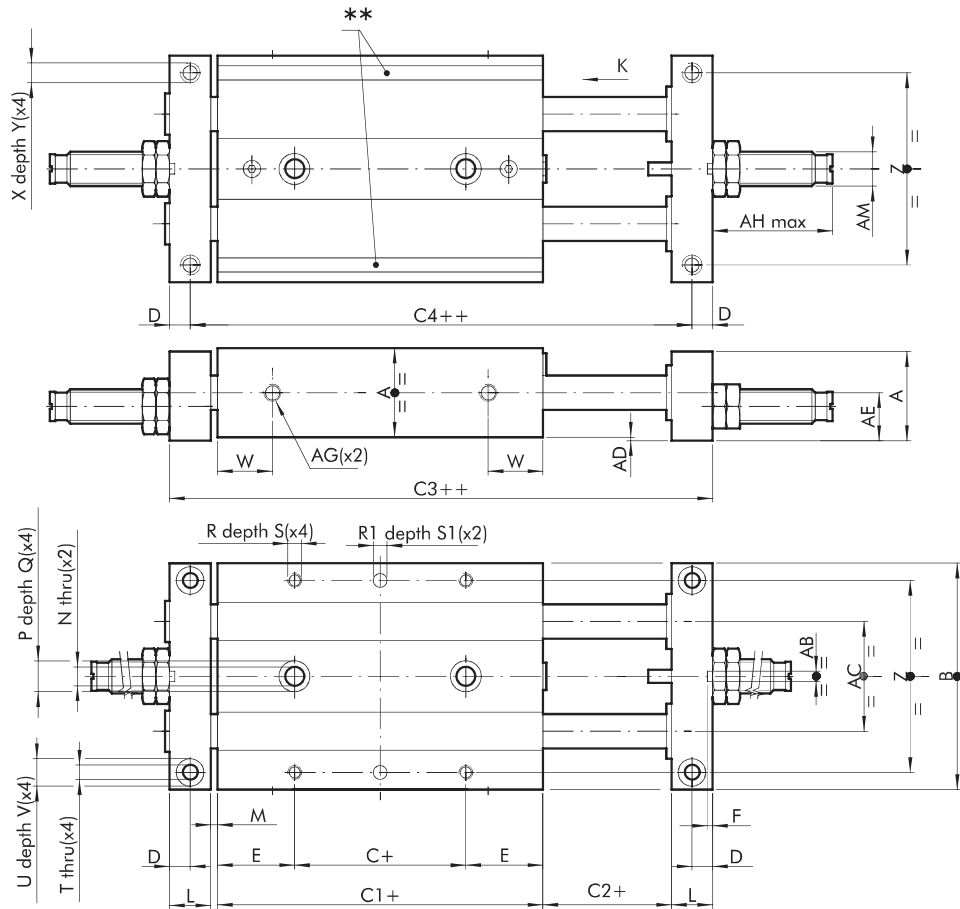
Code	Ø	A	B	C	C1	C2	C3	C4	D	E	F	G	H	L	M	N	P	Q	R	R1 <sup>H7</sup>	S	S1	T
W1460163...	16	22	56	10	85	2	109	99	5	37.5	1.5	11	12	10	2	4.3	8	4	M4	4	6	3	4.3
W1460203...	20	26	66	10	99	2	127	115	6	44.5	1.5	13	14	12	2	5.5	9	5	M4	4	7	3	4.3
W1460253...	25	32	78	10	105	2	137	123	7	47.5	2.5	16	17	14	2	6.5	10.5	6	M5	4	7	3	5.2
W1460303...	30	36	98	10	128	2	164	148	8	59	2.5	18	19	16	2	8.5	14	8	M6	6	8	5	5.2

Ø	U	V	W	X	Y	Z	Z1	AB	AC	AD	AE	AF	AG	AH	AM	AL
16	8	4	33	M5	8	46	-	3	26	1	12	5	M5	M6	M10x1	8.5
20	8	4	40	M5	10	56	54	3	30	1	14	5	M5	M8	M10x1	9
25	9	5	42	M6	6	66	64	5	39	1	17	6	M5	M10	M12x1	10
30	9	5	50	M6	12	86	82	5	52	1	19	6	G 1/8	M12	M14x1.5	12

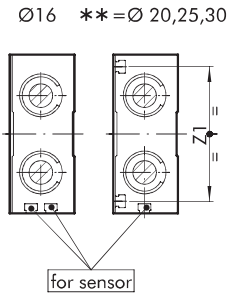
...Enter the stroke in mm (e.g. Ø 16 stroke 50 = W1450163050)

- Strokes for bore 16 mm 25; 50; 75; 100
- Strokes for bore 20 mm 25; 50; 75; 100; 125
- Strokes for bore 25 mm 25; 50; 75; 100; 125; 150
- Strokes for bore 30 mm 25; 50; 75; 100; 125; 150

DIMENSIONS OF TWIN-CYLINDER SLIDE WITH SHOCK ABSORBERS SERIES S12, ON BUSHES Ø 16 to 30



VIEW FROM "K"



+ = ADD THE STROKE  
++ = ADD TWICE THE STROKE

Code	Ø	A	B	C	C1	C2	C3	C4	D	E	F	G	H	L	M	N	P	Q	R	R1 <sup>H7</sup>	S	S1	T
W1460164...	16	22	56	10	50	2	74	64	5	20	1.5	11	12	10	2	4.3	8	4	M4	4	6	3	4.3
W1460204...	20	26	66	10	55	2	83	71	6	22.5	1.5	13	14	12	2	5.5	9	5	M4	4	7	3	4.3
W1460254...	25	32	78	10	60	2	92	78	7	25	2.5	16	17	14	2	6.5	10.5	6	M5	4	7	3	5.2
W1460304...	30	36	98	10	70	2	106	90	8	30	2.5	18	19	16	2	8.5	14	8	M6	6	8	5	5.2

Ø	U	V	W	X	Y	Z	Z1	AB	AC	AD	AE	AF	AG	AH	AM	AL
16	8	4	15	M5	8	46	-	3	26	1	12	5	M5	35	M10x1	8.5
20	8	4	16	M5	10	56	54	3	30	1	14	5	M5	35	M10x1	9
25	9	5	19	M6	12	66	64	5	39	1	17	6	M5	36	M12x1	10
30	9	5	21	M6	12	86	82	5	52	1	19	6	G 1/8	60	M14x1.5	12

...Enter the stroke in mm (e.g. Ø 16 stroke 50 = W1450164050)

Strokes for bore 16 mm 25; 50; 75; 100

Strokes for bore 20 mm 25; 50; 75; 100; 125

Strokes for bore 25 mm 25; 50; 75; 100; 125; 150

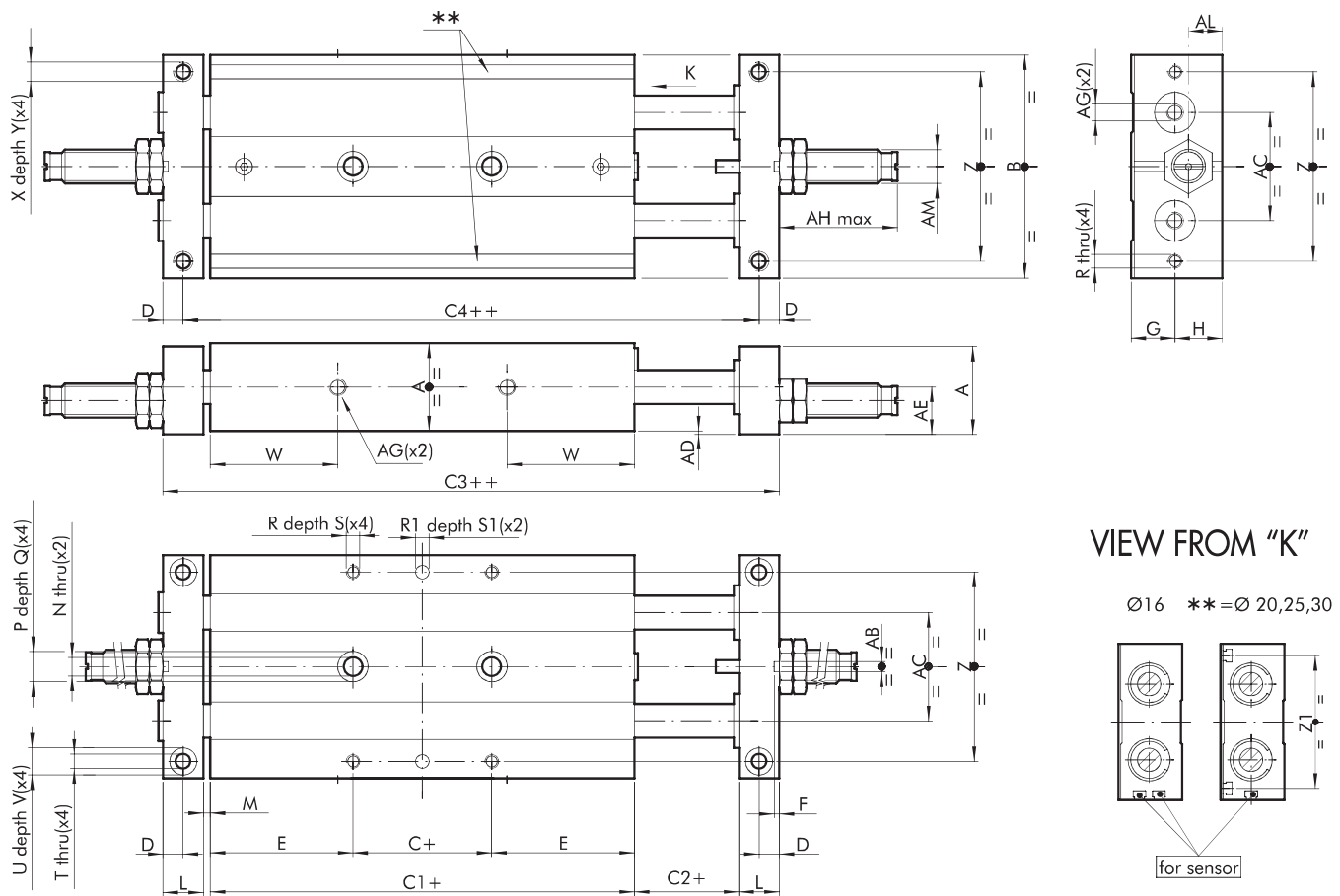
Strokes for bore 30 mm 25; 50; 75; 100; 125; 150



**DIMENSIONS OF TWIN-CYLINDER SLIDE WITH SHOCK ABSORBERS SERIES S12, ON BALL BEARING Ø 16 to 30**

**ACTUATORS**

TWIN CYLINDER SLIDE WITH FIXED PLATES SERIES S12



+ = ADD THE STROKE  
++ = ADD TWICE THE STROKE

Code	Ø	A	B	C	C1	C2	C3	C4	D	E	F	G	H	L	M	N	P	Q	R	R1 <sup>H7</sup>	S	S1	T
W1460165...	16	22	56	10	85	2	109	99	5	37.5	1.5	11	12	10	2	4.3	8	4	M4	4	6	3	4.3
W1460205...	20	26	66	10	99	2	127	115	6	44.5	1.5	13	14	12	2	5.5	9	5	M4	4	7	3	4.3
W1460255...	25	32	78	10	105	2	137	123	7	47.5	2.5	16	17	14	2	6.5	10.5	6	M5	4	7	3	5.2
W1460305...	30	36	98	10	128	2	164	148	8	59	2.5	18	19	16	2	8.5	14	8	M6	6	8	5	5.2

Ø	U	V	W	X	Y	Z	Z1	AB	AC	AD	AE	AF	AG	AH	AM	AL
16	8	4	33	M5	8	46	-	3	26	1	12	5	M5	35	M10x1	8.5
20	8	4	40	M5	10	56	54	3	30	1	14	5	M5	35	M10x1	9
25	9	5	42	M6	6	66	64	5	39	1	17	6	M5	36	M12x1	10
30	9	5	50	M6	12	86	82	5	52	1	19	6	G 1/8	60	M14x1	12

...Enter the stroke in mm (e.g. Ø 16 stroke 50 = W1450165050)  
 Strokes for bore 16 mm 25; 50; 75; 100  
 Strokes for bore 20 mm 25; 50; 75; 100; 125  
 Strokes for bore 25 mm 25; 50; 75; 100; 125; 150

Series S13 precision slides feature a dual-acting pneumatic cylinder that has the sole purpose of pushing and pulling the load, a ground steel guide that is integral with the body, and a ball recirculation pad that is fixed onto the moving table and is designed to withstand all the loads and movements applied. This ensures accurate movement with virtually no play, and the piston rods do not suffer wear as there are no lateral loads.

All the slides are equipped with sensor magnets.

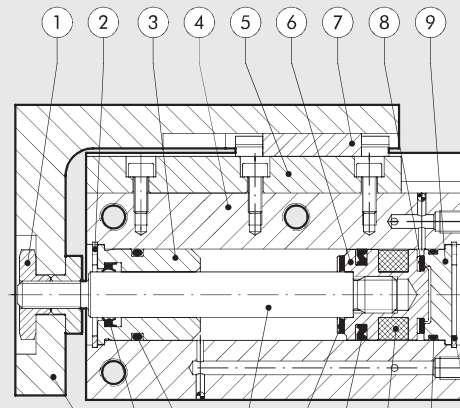
The body can be secured on many sides. The load side can be fixed onto the table from the top or the front. The compressed air supply can be connected on three sides. The retractable sensors can be fitted on the right or on the left. All these possibilities make the application extremely flexible. The width is extremely reduced to allow installation in small spaces and the combination of several reduced-pitch slides.



TECHNICAL DATA		Ø 6	Ø 10	Ø 16	Ø 20
Operating pressure	bar	2 to 8			
	MPa	0.2 to 0.8			
	psi	29 to 116			
Operating temperature	°C	-10 to +80			
Fluid		Lubricated and unlubricated compressed air at 20 µm, must be uninterrupted when lubricated			
Minimum and maximum speed	mm/s	30 to 500			
Pneumatic fittings		M5			
Type of guide		Ball recirculation			
Versions		Magnetic dual-acting with rubber buffer			
Strokes	mm	10	10	10	10
		25	25	25	25
		---	---	50	50
Theoretical thrust force, at 6 bar	N	17	47	120	188
Theoretical pull force, at 6 bar	N	13	40	104	158
Admitted loads		See next page			
Admitted kinetic energy	Joule	0.012	0.025	0.050	0.100
Stroke tolerance	mm	0 / +1.0			
Assembly position		Any (horizontal and vertical)			
Weight	kg	See next page			

### COMPONENTS

- ① NUT: stainless steel
- ② SNAP RING: zinc-plated steel
- ③ FRONT BASE: bronze
- ④ BODY: anodized aluminium
- ⑤ GUIDE: tempered stainless steel
- ⑥ PISTON: aluminium
- ⑦ BALL RECIRCULATION PAD: stainless steel
- ⑧ BUFFER: NBR
- ⑨ REAR BASE: anodized aluminium
- ⑩ PLATE: anodized aluminium
- ⑪ PISTON ROD GASKET: type EM, NBR
- ⑫ O-RING: NBR
- ⑬ PISTON ROD: stainless steel
- ⑭ PISTON GASKET: type PZ, NBR



**WEIGHTS**

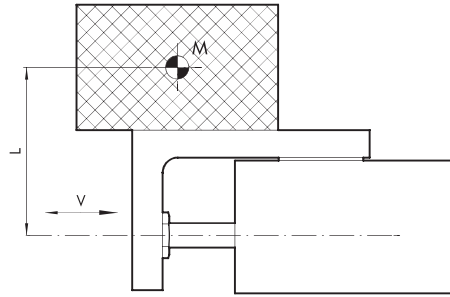
Stroke	Bore			
	6	8	16	20
10	68	125	230	455
25	90	160	280	550
50	---	---	350	660

**WEIGHT OF MOVING PART [gr]**

Stroke	Bore			
	6	8	16	20
10	30	50	100	180
25	40	68	125	220
50	---	---	167	290

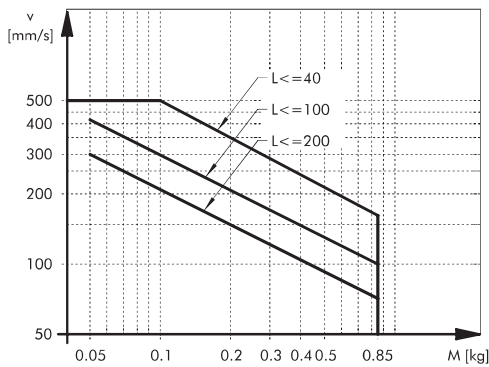
**MASS/VELOCITY DIAGRAM**

M (kg) = Mass applied  
 L (mm) = Distance between the axis of the piston rod and the barycentre of the mass  
 v (mm/s) = Velocity of the slide  
 vert = Limit with vertical movement

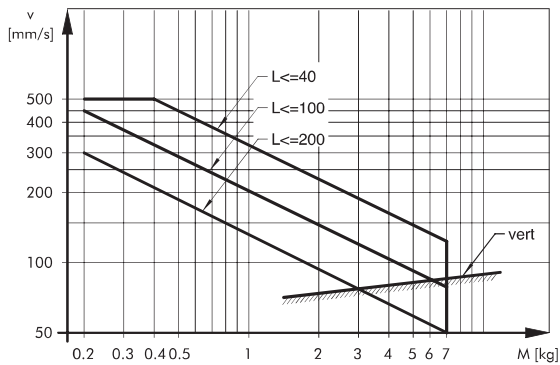


**ADMITTED LOADS DIAGRAM**

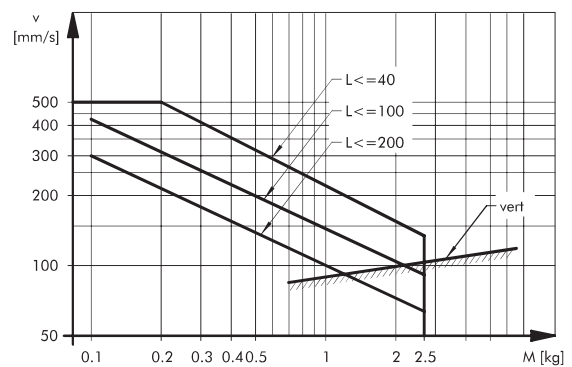
S13-6



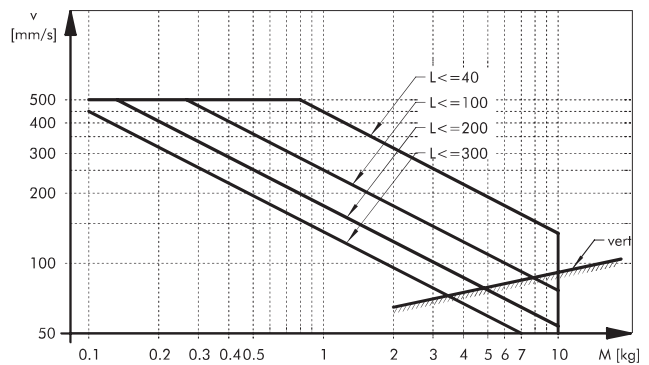
S13-16



S13-10



S13-20



**FIXING OPTIONS**

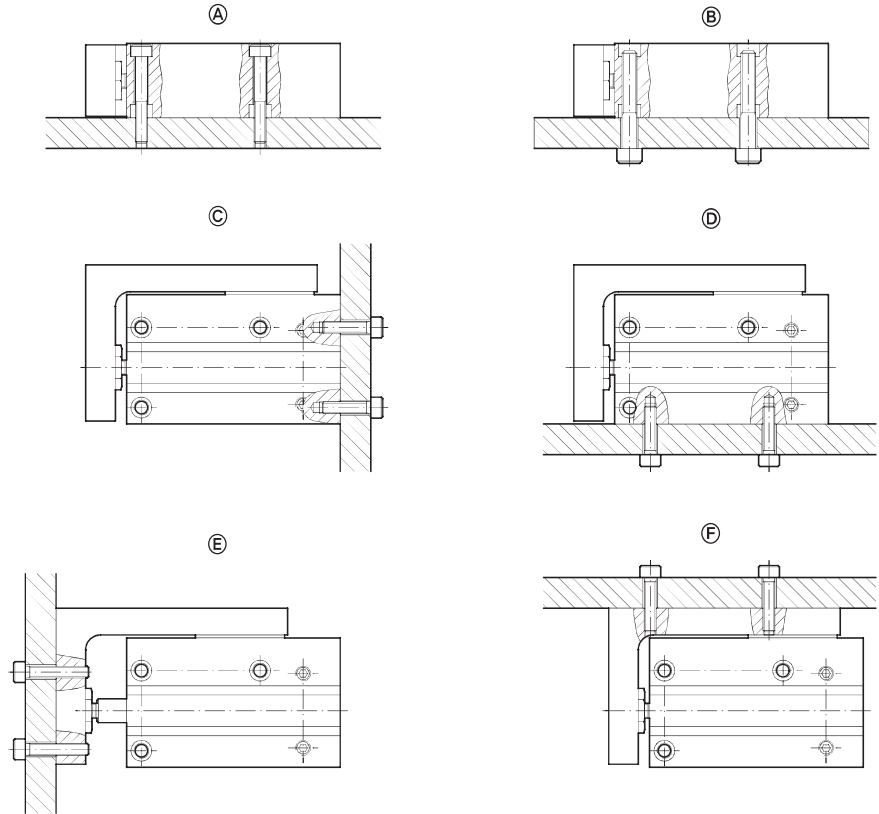
**FIXING THE BODY**

- Ⓐ Lateral, via the through holes
- Ⓑ Lateral, on the hole threads
- Ⓒ Rear, on the threaded holes
- Ⓓ Vertical, on the threaded holes

**FIXING THE MOVING TABLE**

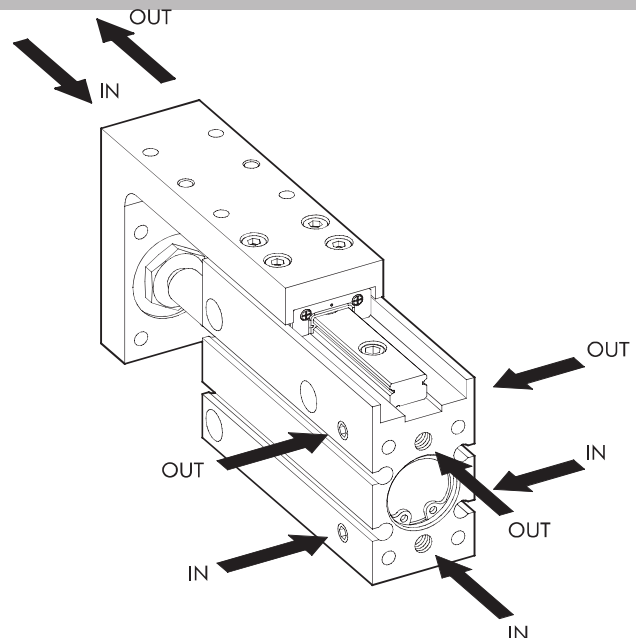
- Ⓔ Front, on the threaded holes
- Ⓕ Top, on the threaded holes

**N.B.** Since the table is supported by a ball guide/pad, avoid applying excessive torques or forces. When securing the screws, hold the table, not the body, so that the torque discharges through the ball pad.

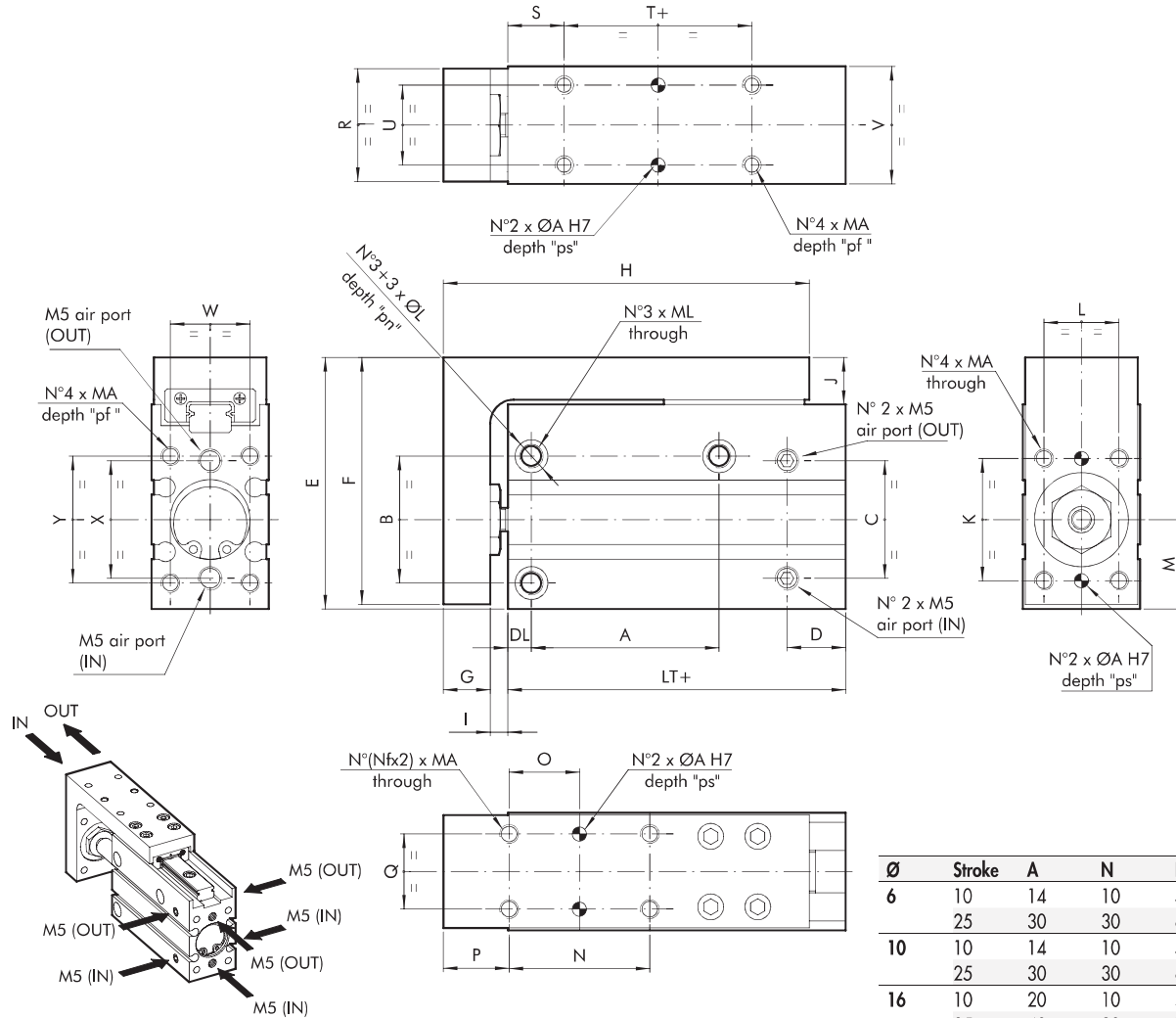


**COMPRESSED-AIR SUPPLY**

The compressed air supply can be from the back, from the left or from the right.  
 The slide comes with holes on the left and right that are plugged with screws and O-ring seals. If you wish to use the holes, remove the screws and O-rings and fix them in the holes in the back, applying a drop of adhesive to the screw thread.



DIMENSIONS



Ø	Stroke	A	N	H	NF
6	10	14	10	42	2
	25	30	30	62	2
10	10	14	10	49	2
	25	30	30	69	2
16	10	20	10	58	2
	25	40	30	78	2
	50	60	25	98	3
20	10	20	10	64	2
	25	40	30	84	2
	50	70	25	104	3

+ = ADD THE STROKE

Code	Ø	LT	B	C	D	E	F	G	I	J	K	MA	pf	ØA	ps	L	M	O	P	Q	R	S
W1471063...*	6	31	19	18	10	39	38	5.5	2.9	7.5	15	M3	5	2	4.5	9	14.5	N/2	8	9	15	10
W1471103...*	10	35	23	20	12.5	47	46	7.5	4	9	18	M4	6	2	4.5	11	15.5	N/2	11	11	19	12
W1471163...*	16	42	27	25	12.5	53.5	52.5	10	3.75	10	26	M4	7	3	7.5	16	19	N/2	14	16	24	12
W1471203...*	20	52.5	34	32	15	64.5	63.5	11	4.5	10.5	34	M5	9	3	7.5	20	23	N/2	14	20	31	15

Ø	T	U	V	W	X	Y	ØL	pn	ML	DL
6	5	9	16	10.5	18	19	6	3.5	M4	4
10	5	13	20	13	20	23	7.5	4.5	M5	5
16	10	17	25	17	25	27	7.5	4.5	M5	5
20	10	20	32	20	32	34	9.5	7.5	M6	6

\* Enter the stroke in mm (e.g. Ø 6 stroke 10=W1471063010)

Standard strokes:

Bore Ø 6 -> 10; 25 mm

Bore Ø 10 -> 10; 25 mm

Bore Ø 16 -> 10; 25; 50 mm

Bore Ø 20 -> 10; 25; 50 mm