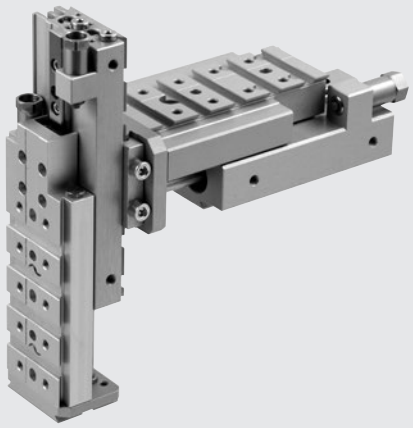
COMPACT PRECISION SLIDE SERIES S14K

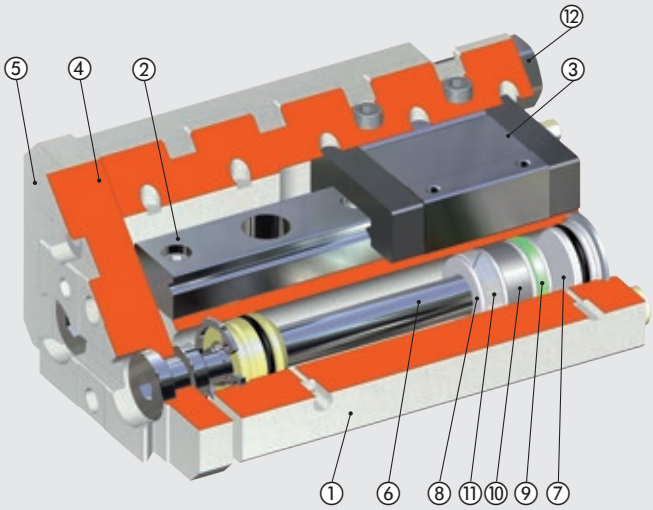
Flat, compact precision slides with two cylinders.
The fixed and moving parts are moved by a sturdy ball recirculation carriage running on hardened guides. Elastic mechanical stop or shock absorbers are used to achieve adjustable stop at the end of the stroke.
A three-position version is available allowing an intermediate stop.
Slots are provided in the body for end-of-stroke sensors.



TECHNICAL DATA		S14K-8	S14K-16	S14K-25
Operating pressure	bar	2 to 8		
	psi	29 to 116		
Temperature range	°C	–10 to +80		
Fluid		Dry or lubricated 10 µm filtered compressed air. Lubrication, if used, must be continuous		
Maximum speed	m/s	0.8 (we always suggest to use micro regulator)	0.8	0.8
Versions		With shock absorbers – With elastic mechanical stop		
Bore		2 x Ø 8	2 x Ø 16	2 x Ø 25
Piston rod diameter	mm	4	8	12
Strokes	mm	10, 20, 30, 40, 50, 80, 100	10, 20, 30, 40, 50, 80, 100, 125, 150	10, 20, 30, 40, 50, 80, 100, 125, 150, 200
Stroke reduction by adjusting the decelerators retraction	mm	16 extension / 16 retraction	12 extension / 12 retraction	30 extension / 30 retraction
Stroke reduction by adjusting the buffers retraction	mm	8 extension / 8 retraction	10 extension / 10 retraction	15 extension / 15 retraction
Maximum impact energy with hydraulic decelerators	J	2	5	20
Maximum impact energy with buffers	J	0.15	0.25	0.5
Sensors		Sensors Magnetic Hall or Reed		
Theoretical thrust force at 6 bar	N	60	240	589
Theoretical pull force at 6 bar	N	46	180	453
Repeatability in stop positions	mm	0.02 (with shock absorbers); 0.02 (with buffers and 5 bar minimum pressure)		
Monitoring position		Any		
Notes		Lubrication recommended: every 2 million cycles for strokes below 100 mm and 1 million for longer strokes (grease code 9910506)		

COMPONENTS

① SLIDE BODY: anodized aluminium
② GUIDE: hardened steel
③ CARRIAGE: recirculating ball bearings
④ MOVING PART: anodized aluminium
⑤ FRONT PLATE: anodized aluminium
⑥ PISTON ROD: stainless steel
⑦ END CAP: brass
⑧ PISTON: aluminium
⑨ GASKETS: polyurethane/NBR
⑩ MAGNET: plastoferrite/plastoneodymium
⑪ GUIDE STRIP: special technopolymer
⑫ STOP: stainless steel



WEIGHTS OF SLIDES AND OF MOVING MASSES

S14K Ø 8

Stroke [mm]	Total slide weight [kg]	Masses in movement [kg]
10	0.341	0.162
20	0.337	0.162
30	0.335	0.162
40	0.369	0.178
50	0.430	0.208
80	0.526	0.148
100	0.591	0.174

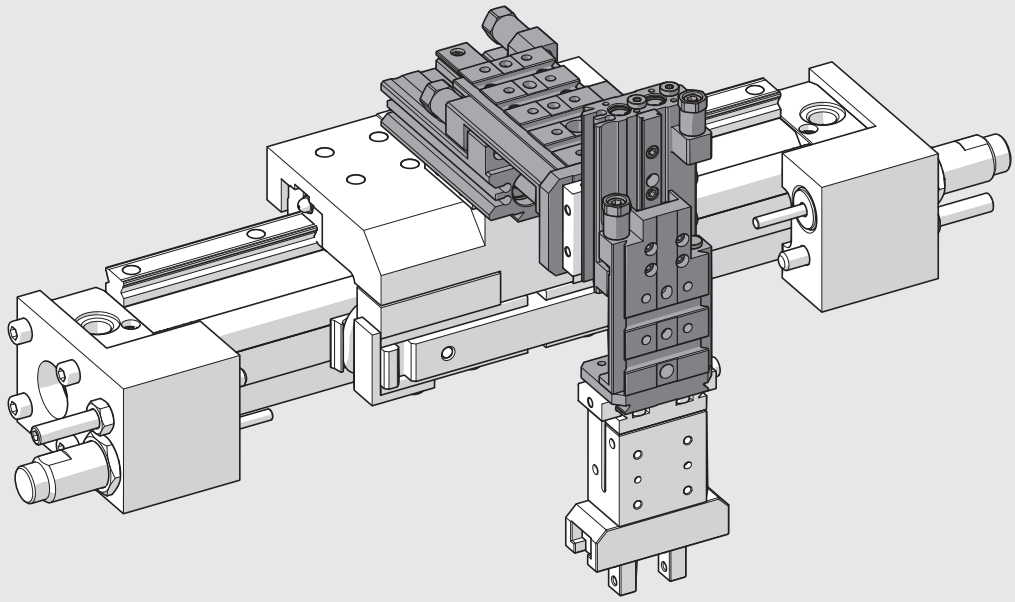
S14K Ø 16

Stroke [mm]	Total slide weight [kg]	Masses in movement [kg]
10	0.783	0.386
20	0.777	0.386
30	0.773	0.386
40	0.839	0.413
50	0.905	0.436
80	1.110	0.531
100	1.363	0.648
125	1.533	0.721
150	1.678	0.773

S14K Ø 25

Stroke [mm]	Total slide weight [kg]	Masses in movement [kg]
10	2.582	1.137
20	2.570	1.137
30	2.561	1.137
40	2.548	1.137
50	2.705	1.198
80	3.143	1.367
100	3.434	1.469
125	3.788	1.608
150	4.180	1.748
200	4.914	2.026

EXAMPLES OF APPLICATION



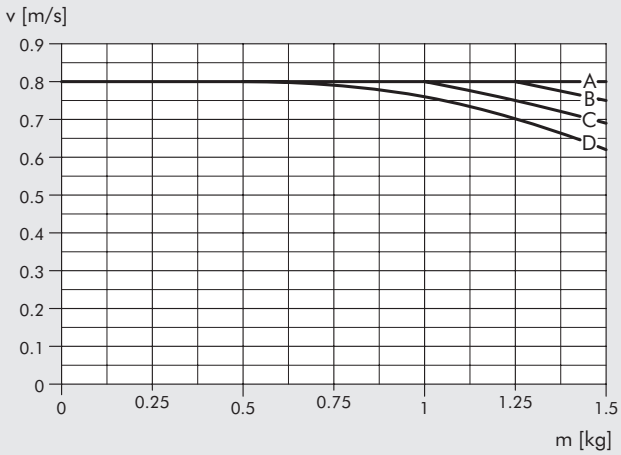
MAXIMUM LOADS AND SPEEDS

The graphs below show the maximum recommended movable loads (masses) [kg] as a function of the average traverse speed [m/s], defined as stroke/time, slide position (horizontal/vertical) and supply pressure.
The following stop versions are available:
- buffer: for lightweight applications, with a lower amount of energy to cushion (relatively low speeds and loads);
- shock absorbers: for heavy-duty applications, with more energy to cushion.

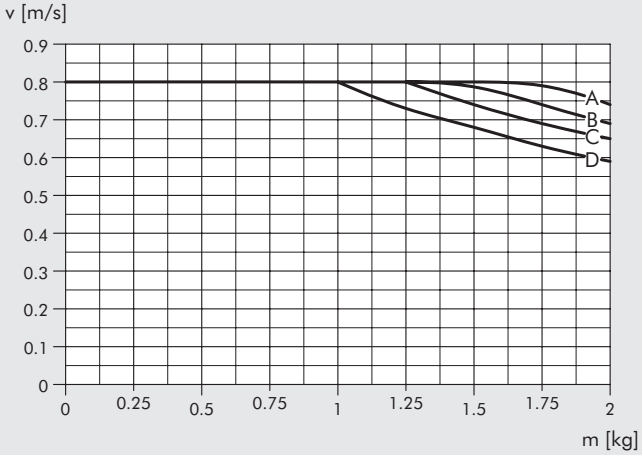
METAL WORK PNEUMATIC

MAXIMUM LOADS: VERSIONS WITH SHOCK ABSORBERS

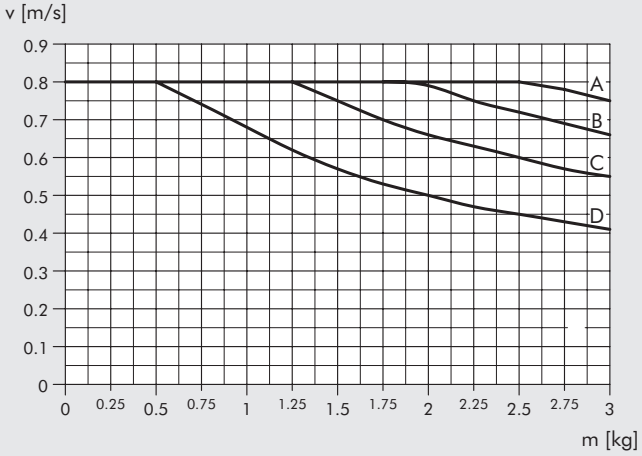
S14K **Ø 8** - Vertical orientation



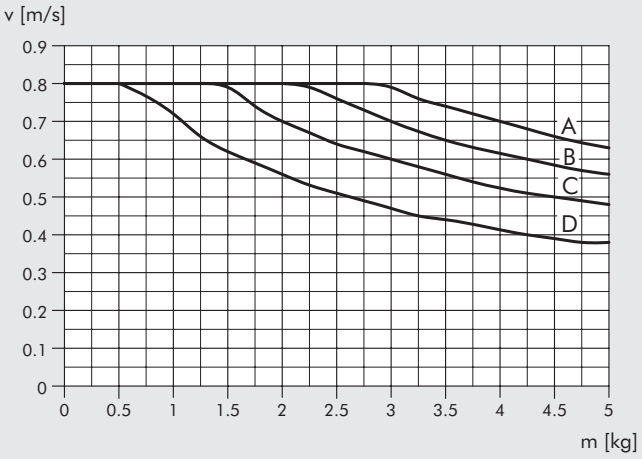
S14K **Ø 8** - Horizontal orientation



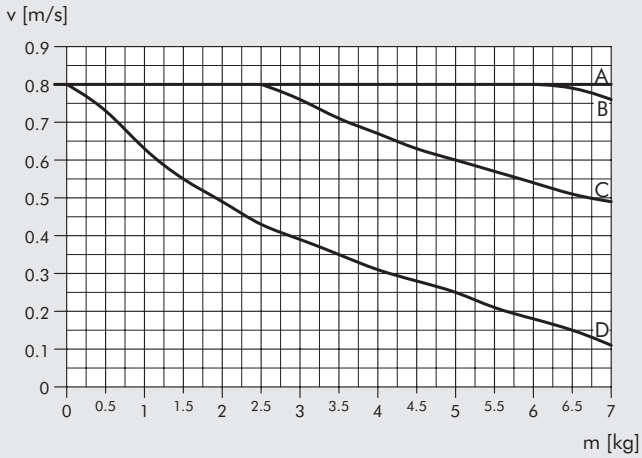
S14K **Ø 16** - Vertical orientation



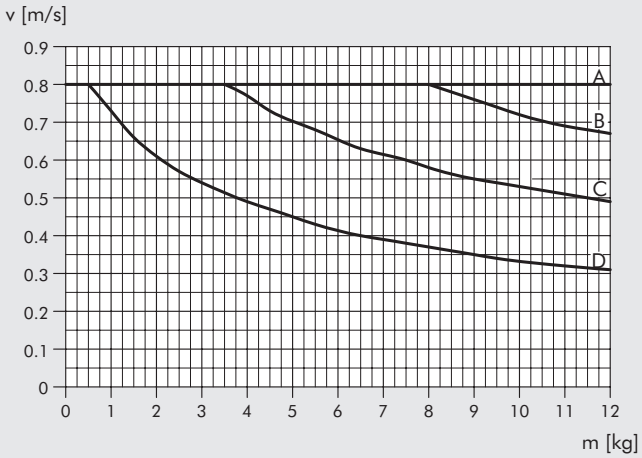
S14K **Ø 16** - Horizontal orientation



S14K **Ø 25** - Vertical orientation



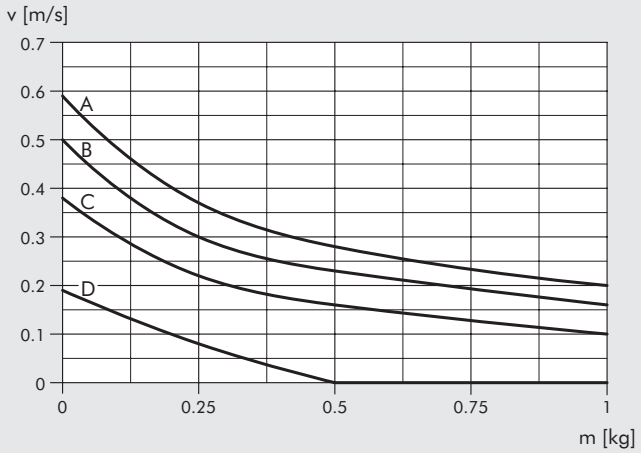
S14K **Ø 25** - Horizontal orientation



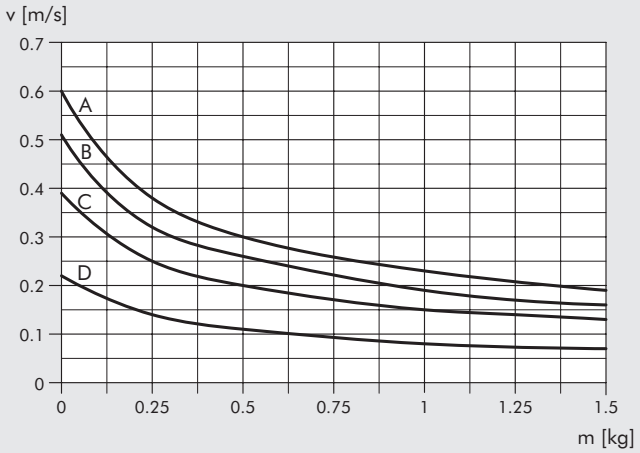
A = 2 bar B = 4 bar C = 6 bar D = 8 bar

MAXIMUM LOADS: VERSIONS WITH ELASTIC MECHANICAL STOP

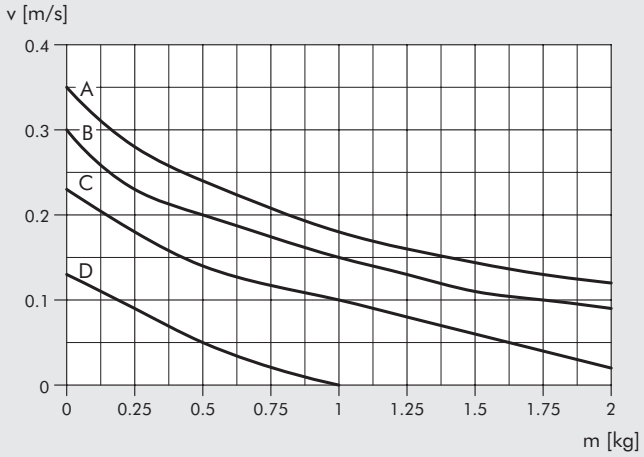
S14K **Ø 8** - Vertical orientation



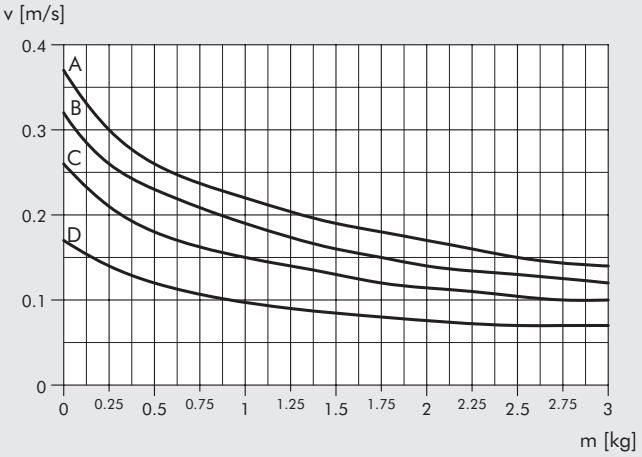
S14K **Ø 8** - Horizontal orientation



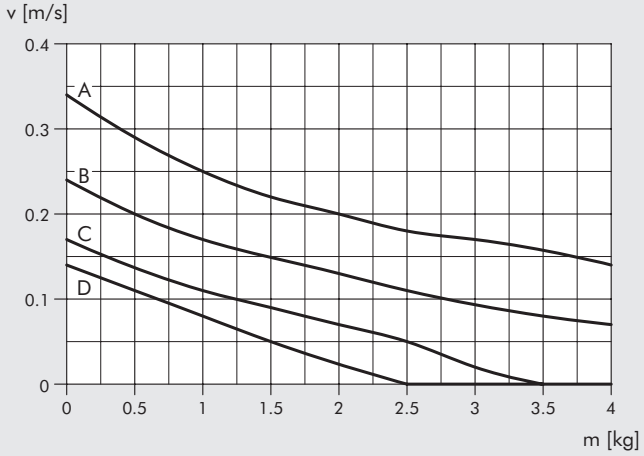
S14K **Ø 16** - Vertical orientation



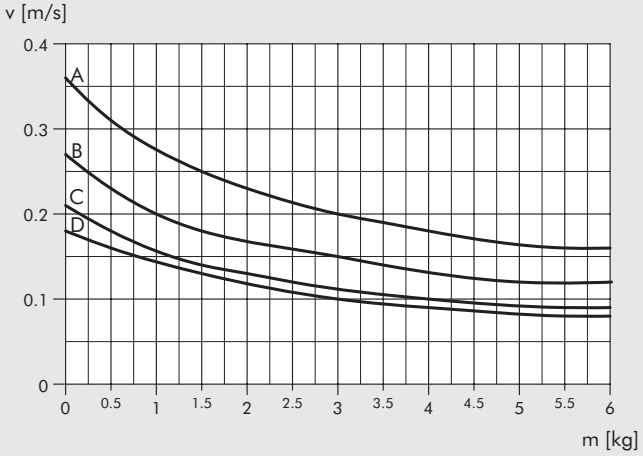
S14K **Ø 16** - Horizontal orientation



S14K **Ø 25** - Vertical orientation



S14K **Ø 25** - Horizontal orientation



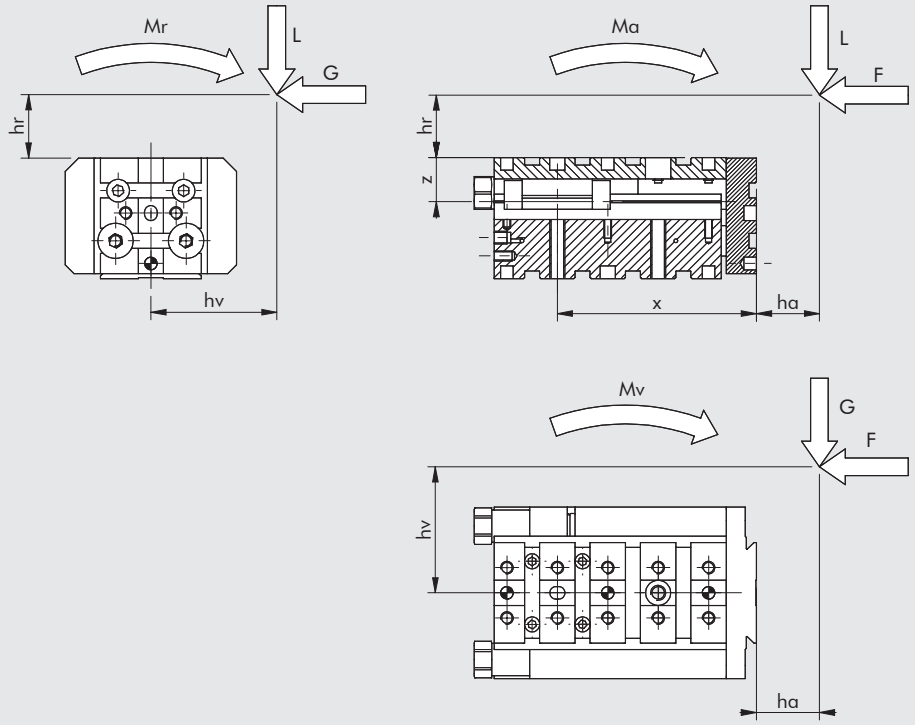
A = 2 bar B = 4 bar C = 6 bar D = 8 bar

METAL WORK PNEUMATIC

STATIC FORCES AND MOMENTS

To prevent the recirculating ball guide from getting damaged, the maximum static loads and moments applied must meet the following equations, where the lengths have to be given in metres.

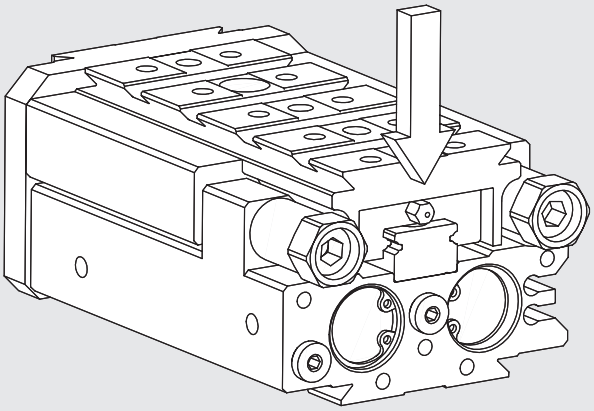
$$\frac{Ma}{Ma\ max} + \frac{Mr}{Mr\ max} + \frac{Mv}{Mv\ max} + \frac{L}{L\ max} + \frac{G}{G\ max} \leq 1$$



Sum of the moments, with the signs shown in the example:
Mr = L · hv - G · (hr+z)
Ma = -F · (hr+z) + L · (ha+x)
Mv = -F · hv + G · (ha+x)

Ø	Stroke [mm]	X [mm]	Z [mm]	G max [N]	L max [N]	Mr max [Nm]	Ma max [Nm]	Mv max [Nm]
8	10	61	14	309.1	368.0	1.8	1.3	1.1
	20	61	14	309.1	368.0	1.8	1.3	1.1
	30	61	14	309.1	368.0	1.8	1.3	1.1
	40	71	14	309.1	368.0	1.8	1.3	1.1
	50	83.5	14	398.2	474.1	2.7	2.7	2.2
	80	113.5	14	398.2	474.1	2.7	2.7	2.2
	100	133.5	14	398.2	474.1	2.7	2.7	2.2
16	10	67	17.5	962.6	1145.9	10.7	9.1	7.7
	20	67	17.5	962.6	1145.9	10.7	9.1	7.7
	30	67	17.5	962.6	1145.9	10.7	9.1	7.7
	40	79	17.5	962.6	1145.9	10.7	9.1	7.7
	50	79	17.5	962.6	1145.9	10.7	9.1	7.7
	80	119	17.5	962.6	1145.9	10.7	9.1	7.7
	100	146.5	17.5	962.6	1145.9	10.7	9.1	7.7
	125	171.5	17.5	962.6	1145.9	10.7	9.1	7.7
	150	196.5	17.5	962.6	1145.9	10.7	9.1	7.7
25	10	98	22	1423.1	1694.1	43.6	18	15.1
	20	98	22	1423.1	1694.1	43.6	18	15.1
	30	98	22	1423.1	1694.1	43.6	18	15.1
	40	98	22	1423.1	1694.1	43.6	18	15.1
	50	108	22	1423.1	1694.1	43.6	18	15.1
	80	138	22	1423.1	1694.1	43.6	18	15.1
	100	158	22	1423.1	1694.1	43.6	18	15.1
	125	183	22	1423.1	1694.1	43.6	18	15.1
	150	208	22	1423.1	1694.1	43.6	18	15.1
	200	258	22	1423.1	1694.1	43.6	18	15.1

LUBRICATION INSTRUCTIONS



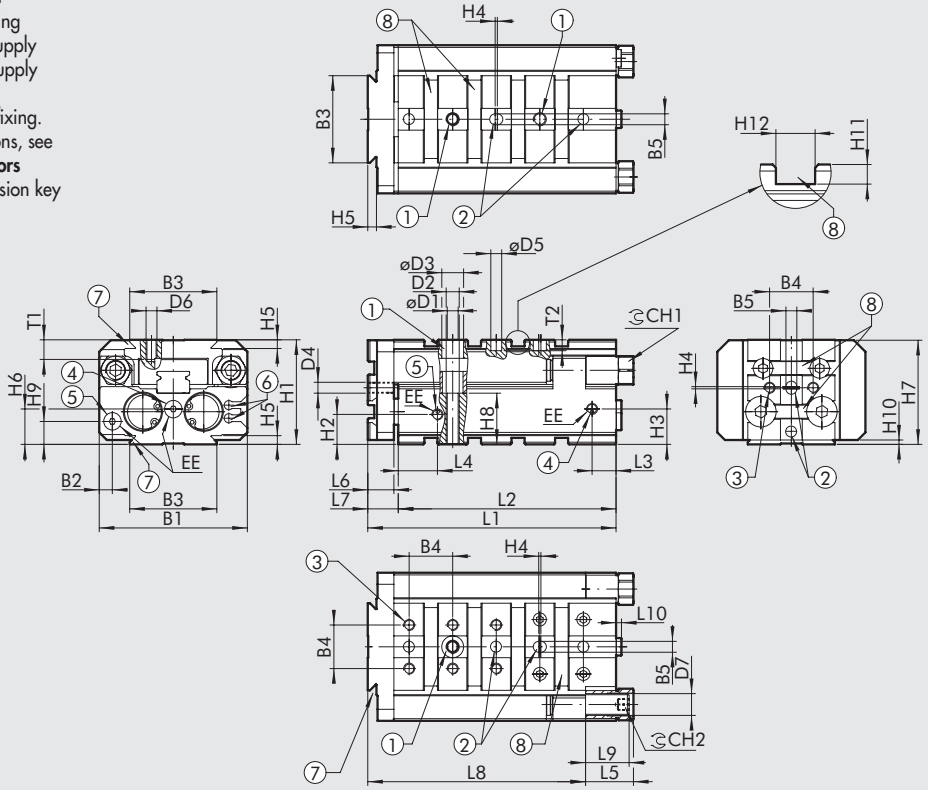
Ball recirculation carriages are supplied pre-lubricated.
They can be re-greased when necessary using the hole (Ø 8) or greasing Nipple (Ø 16 and Ø 25) provided.
The lubrication frequency depends on the environmental and operating conditions.
To ensure smooth movement and long life, we recommend an average lubrication interval of 2 million cycles for strokes less than 100 mm and 1 million for longer strokes.
A suitable bearing lubrication grease must be used (code 9910506).

NOTES

METAL WORK PNEUMATIC

DIMENSIONS

① Through holes for fixing actuators
② Holes for centring pins
③ Threaded holes for fixing
④ Piston rod extension supply
⑤ Piston rod retraction supply
⑥ Sensor fixing slots
⑦ Dovetail for "V-Lock" fixing. For standard dimensions, see **chapter V-Lock adaptors**
⑧ Slot for "V-Lock" precision key



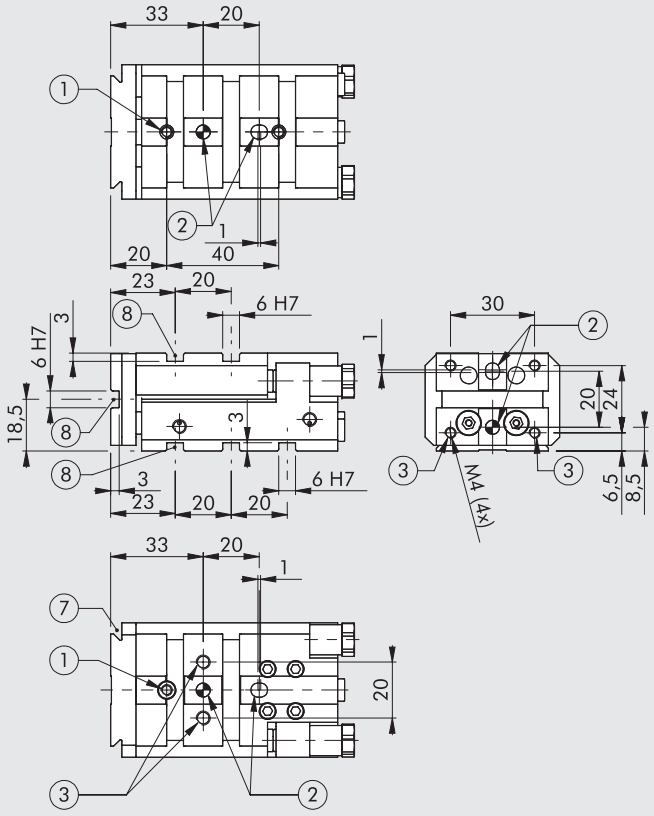
Ø	B1	B2	B3	B4	B5H7	øD1	D2	øD3	D4	øD5H7	D6	D7	EE	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	H11	H12H7	T1	T2	CH1	CH2
8	48	7	40	-	5	3.3	M4	6	-	5	M5	M8x1	M5	35	8.8	11.3	1	4	10	34.8	17	7.5	2	3	6	6	5	11	4
16	68	6	40	20	5	5	M6	9.5	M5	5	M5	M10x1	M5	48	13.8	16.3	1	4	16.3	47.8	23.5	10.5	2	3	6	9	5	13	5
25	106	7.5	40	20	5	6.8	M8	11	M5	5	M5	M14x1.5	1/8"	64	17.3	23	1	4	17	63.8	35	12	2	3	6	10	5	18	6

ACCORDING TO THE STROKE

Ø	Stroke	L1	L2	L3	L4	L5	L6	L7	L8	L9		L10
										buffer decel.	shock absorbers	
	10	81	70	10	13.5	16	9	11	71	15	27.9	2.5
	20	81	70	10	13.5	16	9	11	71	15	27.9	2.5
	30	81	70	10	13.5	16	9	11	71	15	27.9	2.5
8	40	91	80	10	13.5	16	9	11	81	15	27.9	2.5
	50	106	95	10	13.5	16	9	11	96	15	27.9	2.5
	80	136	125	10	13.5	16	9	11	126	15	27.9	2.5
	100	156	145	10	13.5	16	9	11	146	15	27.9	2.5
	10	109	95	11	18	22	12	14	95	20	30.7	2.5
	20	109	95	11	18	22	12	14	95	20	30.7	2.5
	30	109	95	11	18	22	12	14	95	20	30.7	2.5
	40	119	105	11	18	22	12	14	105	20	30.7	2.5
16	50	129	115	11	18	22	12	14	115	20	30.7	2.5
	80	159	145	11	18	22	12	14	145	20	30.7	2.5
	100	179	165	11	18	22	12	14	165	20	30.7	2.5
	125	204	190	11	18	22	12	14	190	20	30.7	2.5
	150	229	215	11	18	22	12	14	215	20	30.7	2.5
	10	138	120	16.5	25	30	16	18	118	28	65.7	2.5
	20	138	120	16.5	25	30	16	18	118	28	65.7	2.5
	30	138	120	16.5	25	30	16	18	118	28	65.7	2.5
	40	138	120	16.5	25	30	16	18	118	28	65.7	2.5
25	50	148	130	16.5	25	30	16	18	128	28	65.7	2.5
	80	178	160	16.5	25	30	16	18	158	28	65.7	2.5
	100	198	180	16.5	25	30	16	18	178	28	65.7	2.5
	125	223	205	16.5	25	30	16	18	203	28	65.7	2.5
	150	248	230	16.5	25	30	16	18	228	28	65.7	2.5
	200	298	280	16.5	25	30	16	18	278	28	65.7	2.5

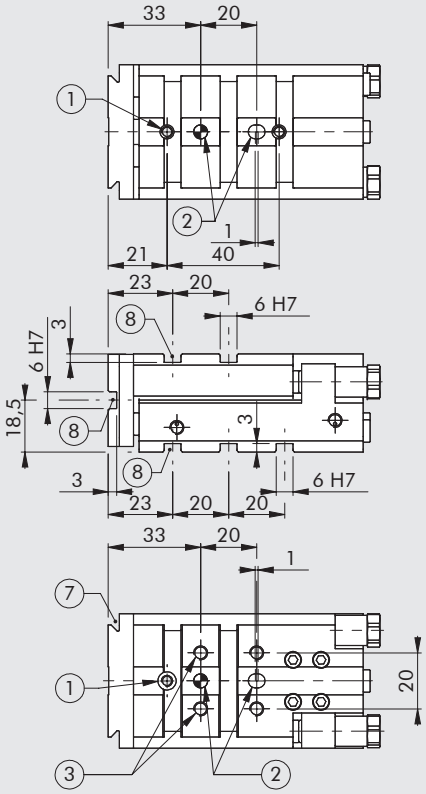
DIMENSIONS OF SLIDE S14K Ø 8

Ø 8 stroke 10; 20; 30 mm

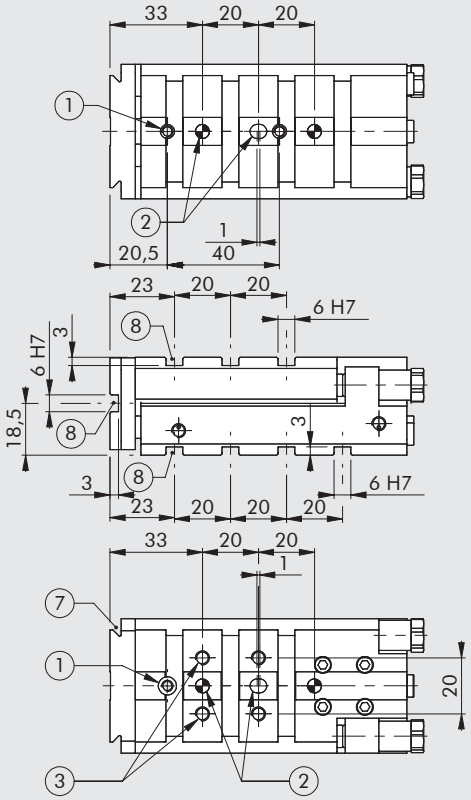


① Through holes for fixing actuators
② Holes for centring pins
③ Threaded holes for fixing
⑦ Dovetail for "V-Lock" fixing. For standard dimensions, see **chapter V-Lock adaptors**
⑧ Slot for "V-Lock" precision key

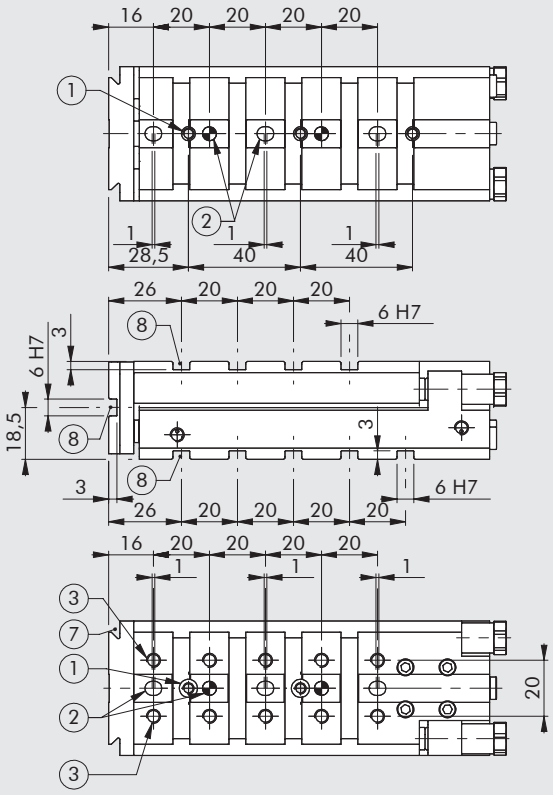
Ø 8 stroke 40 mm



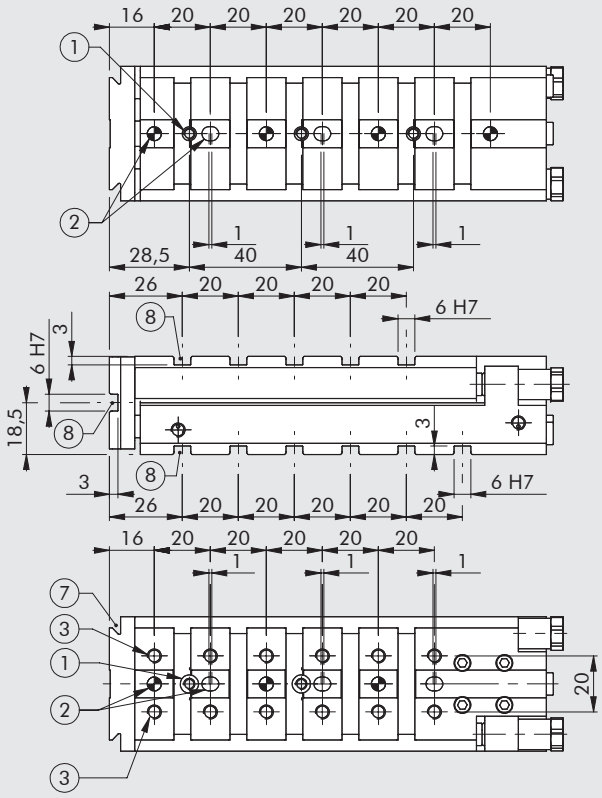
Ø 8 stroke 50 mm



Ø 8 stroke 80 mm



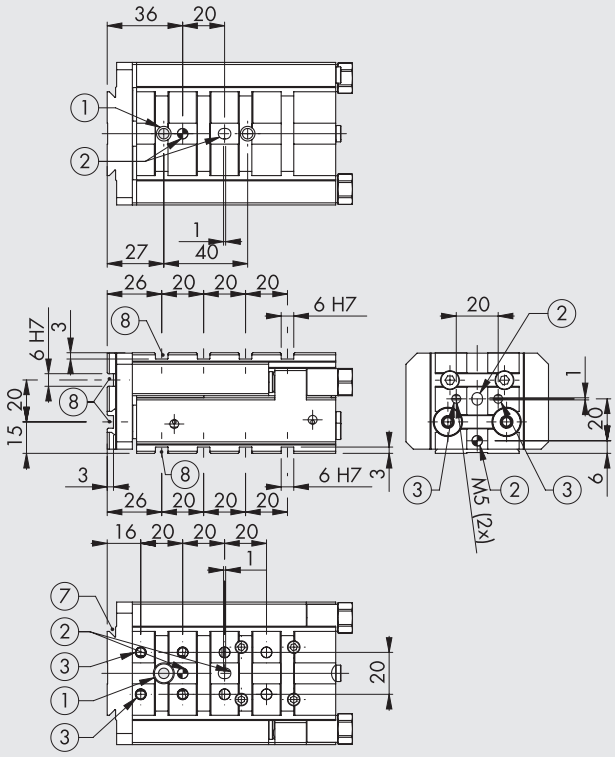
Ø 8 stroke 100 mm



NOTES

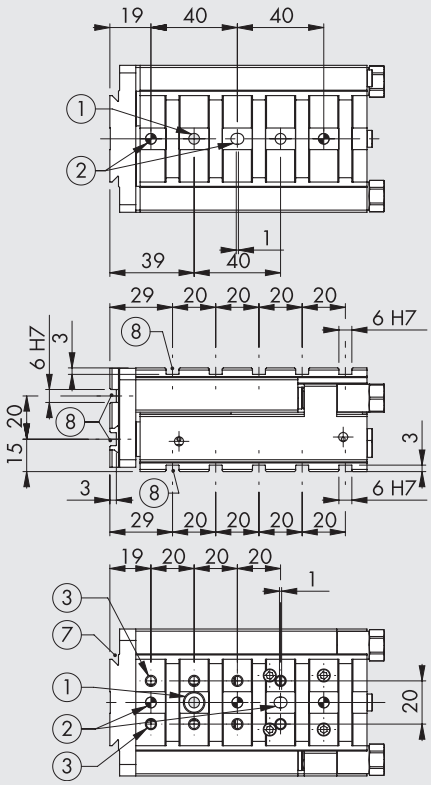
DIMENSIONS OF SLIDE S14K Ø 16

Ø 16 stroke 10; 20; 30 mm

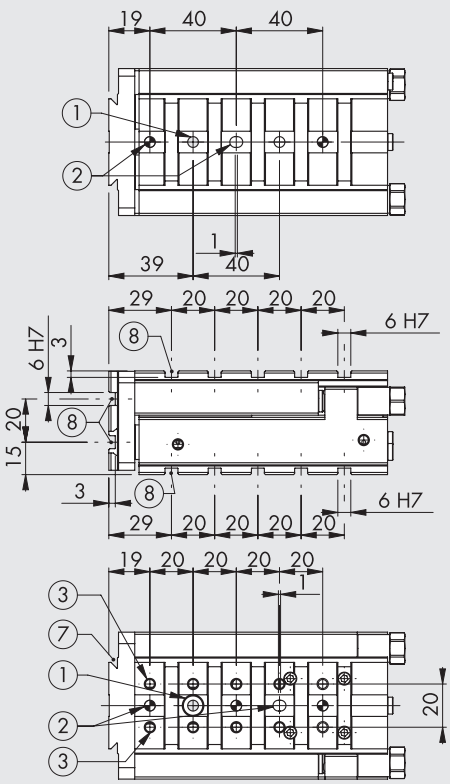


① Through holes for fixing actuators
② Holes for centring pins
③ Threaded holes for fixing
⑦ Dovetail for "V-Lock" fixing.
For standard dimensions, see **chapter V-Lock adaptors**
⑧ Slot for "V-Lock" precision key

Ø 16 stroke 40 mm

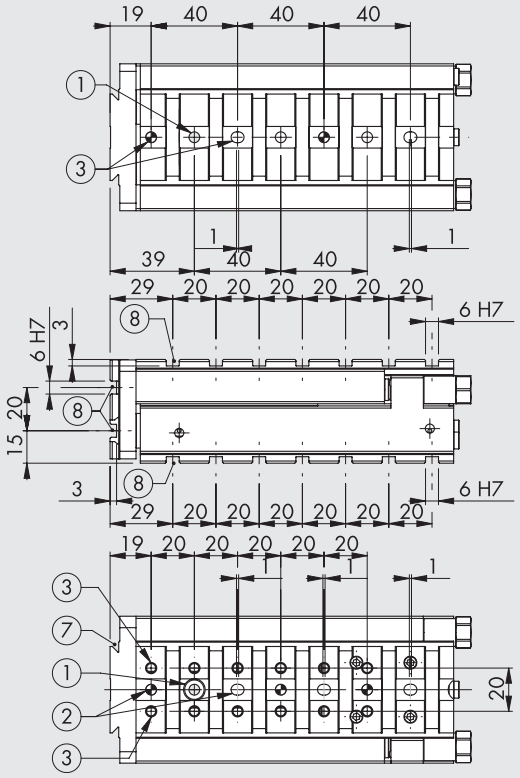


Ø 16 stroke 50 mm

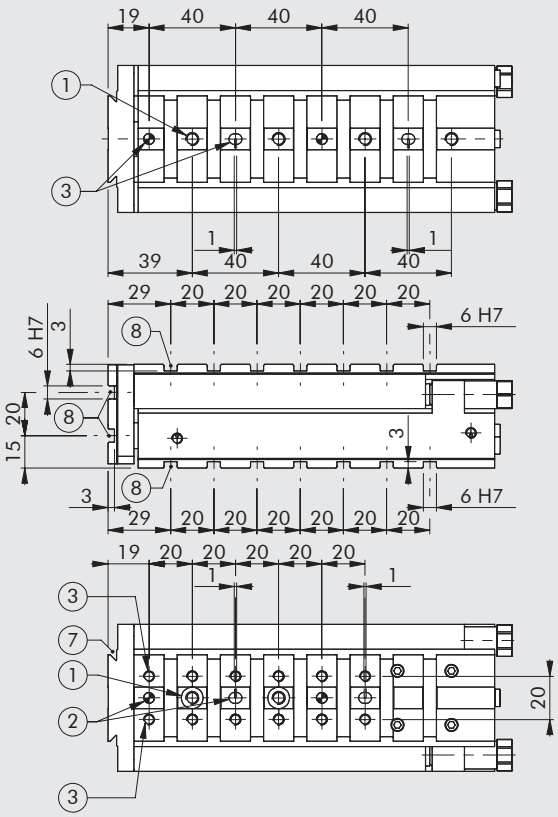


METAL WORK PNEUMATIC

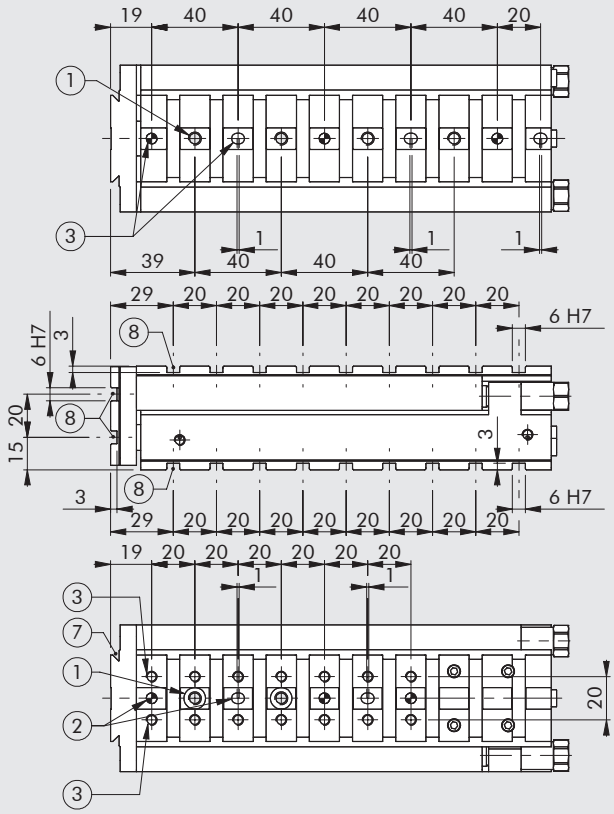
Ø 16 stroke 80 mm



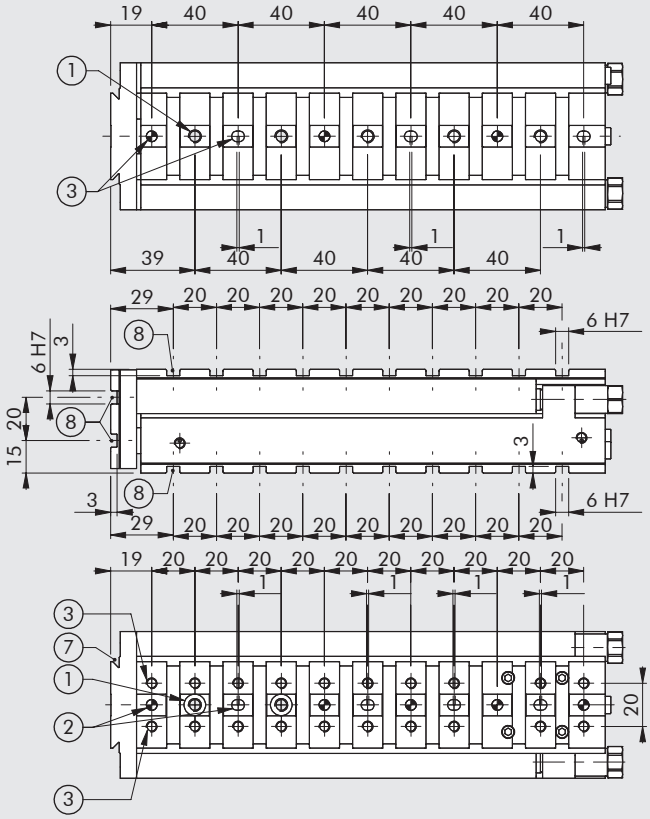
Ø 16 stroke 100 mm



Ø 16 stroke 125 mm

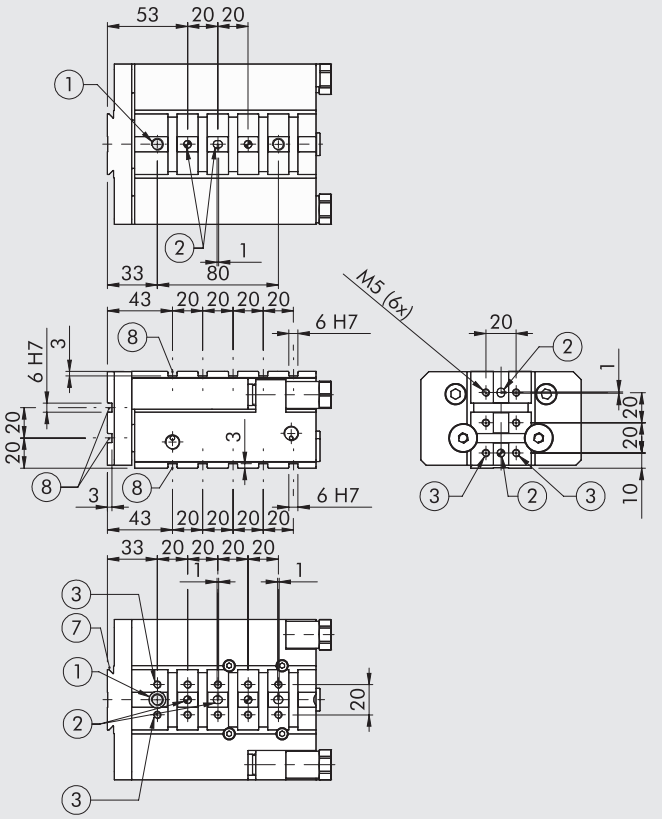


Ø 16 stroke 150 mm



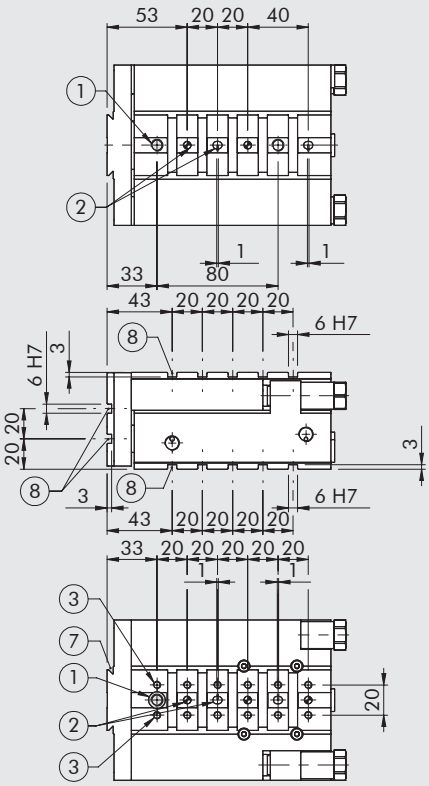
DIMENSIONS OF SLIDE S14K Ø 25

Ø 25 stroke 10; 20; 30; 40 mm

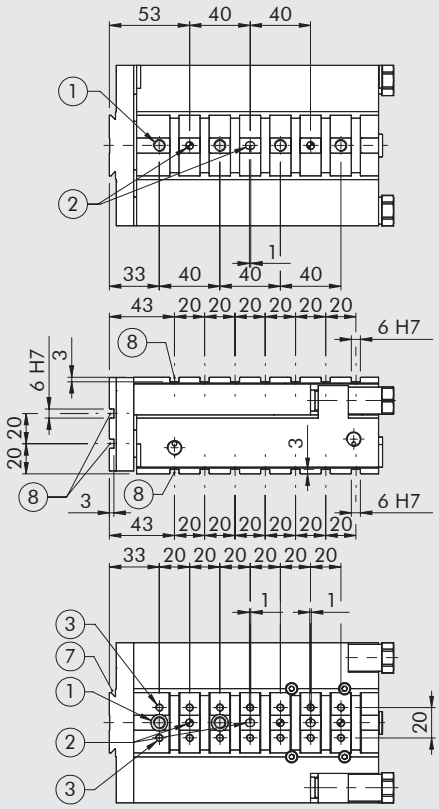


① Through holes for fixing actuators
② Holes for centring pins
③ Threaded holes for fixing
⑦ Dovetail for "V-Lock" fixing. For standard dimensions, see **chapter V-Lock adaptors**
⑧ Slot for "V-Lock" precision key

Ø 25 stroke 50 mm

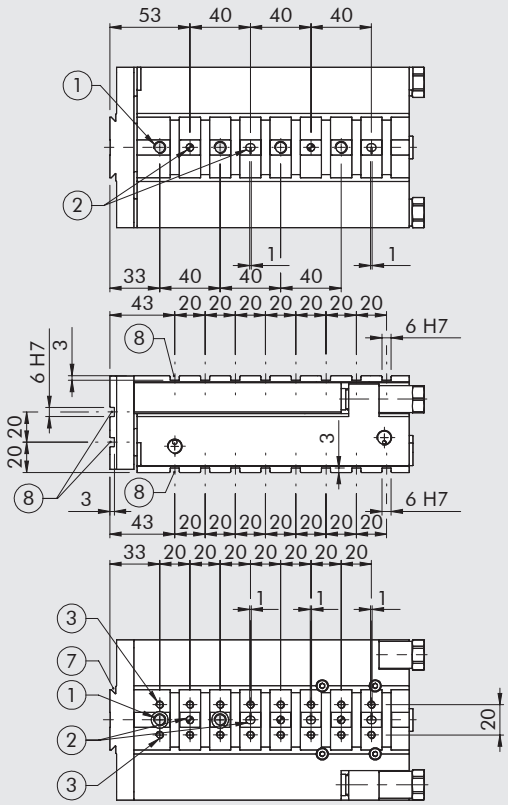


Ø 25 stroke 80 mm

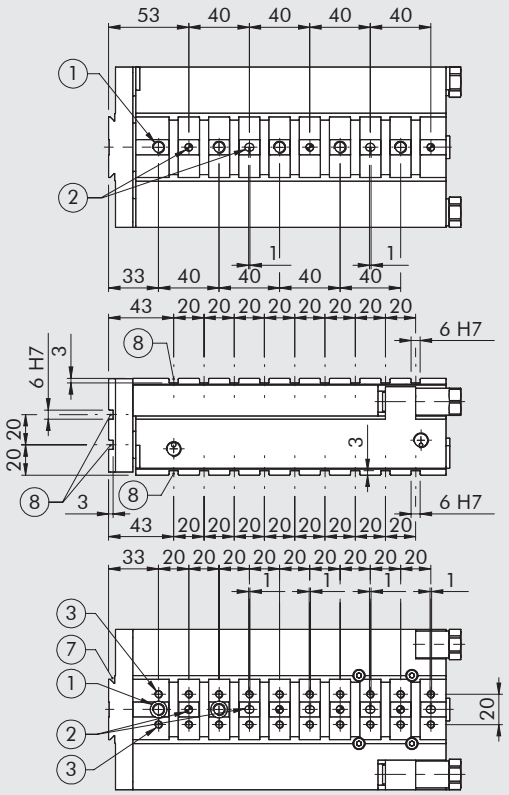


METAL WORK PNEUMATIC

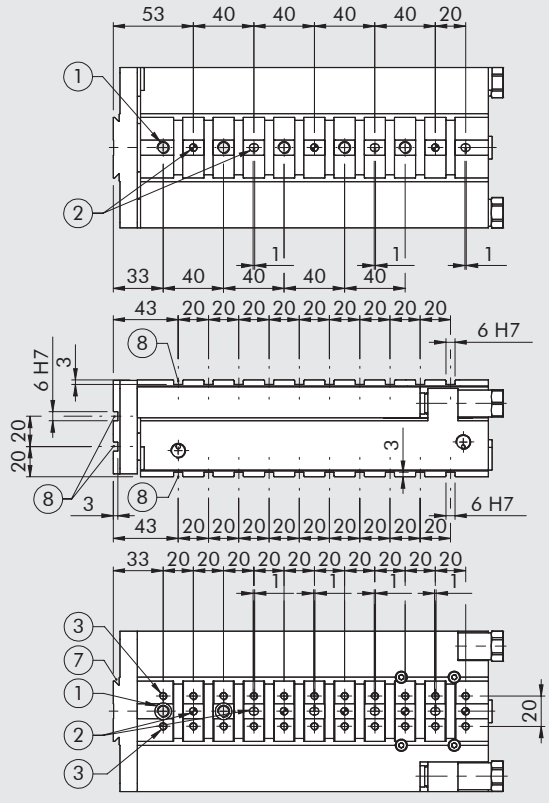
Ø 25 stroke 100 mm



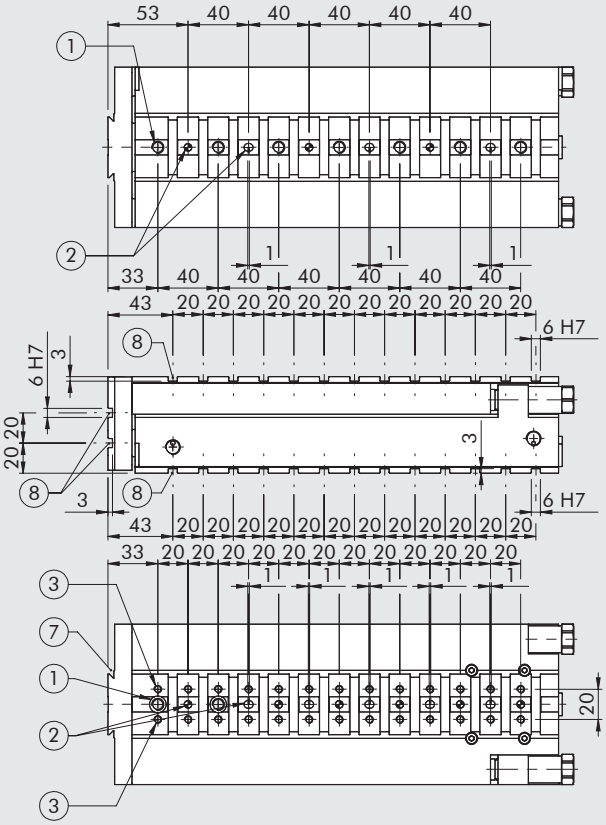
Ø 25 stroke 125 mm



Ø 25 stroke 150 mm

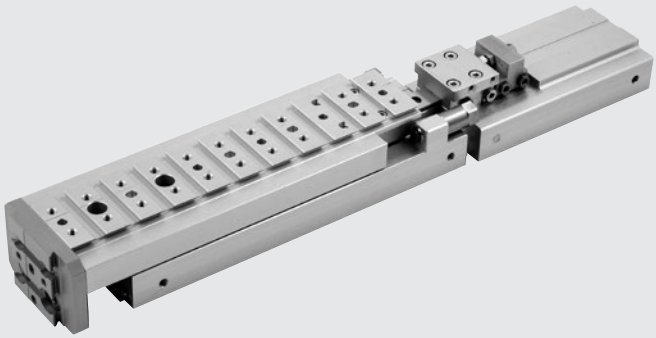


Ø 25 stroke 200 mm



THIRD-POSITION STOP DEVICE

Slide S14 can be supplied in a version with a third-position stop device for application where the slide needs to stop in an intermediate position (e.g. for depositing a workpiece).
A stop device is mounted in series with the slide and partialises the total stroke when supplied with compressed air.
The third-position stop device comes with a magnet on the piston and slots for sensors to monitor the position of the piston rod.

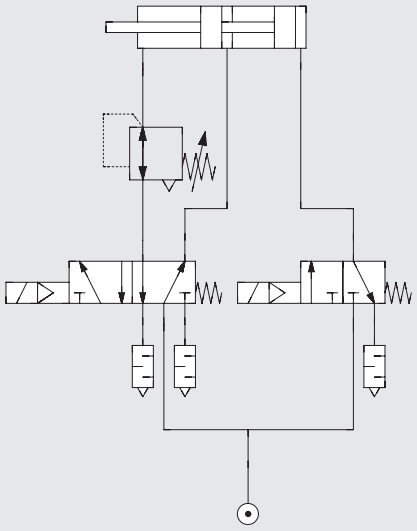


This device can be ordered with a free nominal stroke, up to the total length of the slide on which it is mounted, with 1 mm interval.
The stop position can be adjusted mechanically within ± 1.5 mm of the nominal stroke. For example, a stop device with a 30 mm stroke can limit the stroke of the slide by an adjustable length ranging from 28.5 to 31.5 mm.

	S14K-8	S14K-16	S14K-25
Maximum impact energy in intermediate position [J]	0.05	0.15	0.25

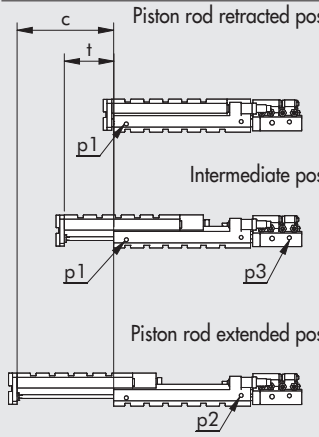
PNEUMATIC SYSTEM DIAGRAM

The third-position stop device can be operated by a 3/2 valve, as shown in the diagram.
The optional pressure regulator can be used to regulate the backpressure, and hence the useful force, in the first section of the stroke.



PNEUMATIC THRUST CHART

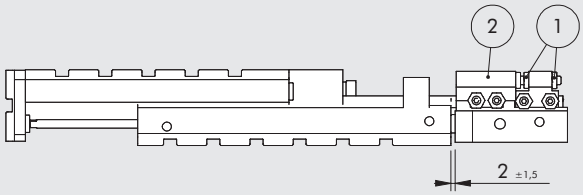
Supply diagram	Useful theoretical thrust [N] depending on pressure [bar]		
	S14K-8	S14K-16	S14K-25
Piston rod retracted position	p1 x 7.5	p1 x 30	p1 x 75.5
Intermediate position	p3 x 10 - p1 x 7.5	p3 x 40 - p1 x 30	p3 x 98 - p1 x 75.5
Piston rod extended position	p2 x 10	p2 x 40	p2 x 98



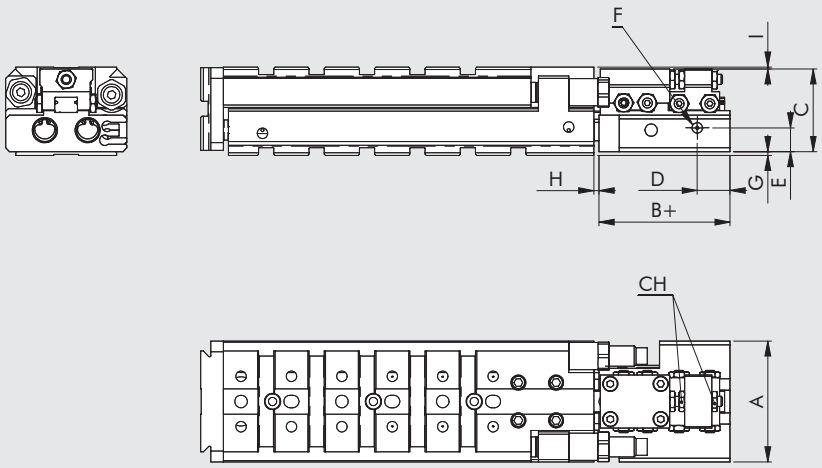
c = Slide S14K stroke
t = Third-position stop device stroke

FINE ADJUSTMENT

How to adjust the third position:
- Unscrew the lock nuts on the adjusting grub screw ①
- Regulate the position of the stop by adjusting the moving unit ②
- Tighten the lock nuts on the adjusting grub screw ①



DIMENSIONS OF THE THIRD-POSITION DEVICE FOR SLIDE S14K Ø 8 - Ø 16 - Ø 25



+ = Add the stroke of the third position
H = Adjusting the third position

Ø	A	B	C	D	E	F	G	H max	I	CH
8	48	52	33.3	13	9	M5	1	4	0.7	7
16	68	60	42	13	12	M5	3	4	3	8
25	106	85	59.5	16	16	1/8"	4	4	0.5	13

KEY TO CODES - STANDARD VERSION

W147	2	08	3	050	K
TYPE	**MODEL**	**BORE**	**STOP**	**STROKE**	**FAMILY**
Precision slide	**2** S14K	08 16 25	**3** With mechanical stop **5** With shock absorbers	See general technical data	**K** V-Lock

KEY TO CODES - VERSION WITH THIRD-POSITION STOP DEVICE

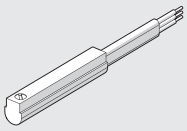
W147	2	08	3	050	020	K
TYPE	**MODEL**	**BORE**	**STOP**	**STROKE**	**THIRD POSITION STROKE**	**FAMILY**
Precision slide	**2** S14K	08 16 25	**3** With mechanical stop **5** With shock absorbers	See general technical data		**K** V-Lock

S14K SLIDE ACCESSORIES

V-Lock ACCESSORIES

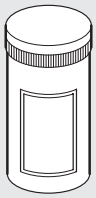
See page **A3**.36

SENSOR Ø 4



For codes and technical data, see **chapter A6**.

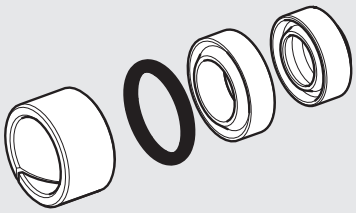
GREASE



Code	Description	Weight [g]
9910506	Tube of RHEOLUBE 363 AX1 grease	400

S14K SLIDE SPARE PARTS

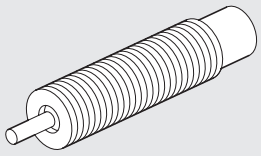
GASKET SPARE PARTS KIT



Code	Description
W1472089001K	S14K gasket kit Ø 8
W1472169001K	S14K gasket kit Ø 16
W1472259001K	S14K gasket kit Ø 25

NOTE: kit contents: 1 guide strip, 1 piston rod gasket, 1 piston gasket, 1 end cap O-ring

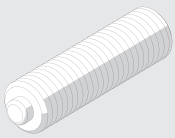
SHOCK ABSORBERS



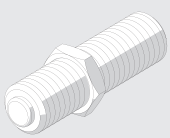
Code	Ø	Description
W0950005300	8	Shock absorbers - 2 M8 x 1
W0950005301	16	Shock absorbers - 2 M10 x 1
W0950005303	25	Shock absorbers - 2 M14 x 1.5

ELASTIC MECHANICAL STOP

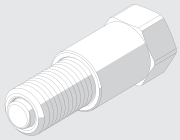
Ø8



Ø16



Ø25



Code	Ø	Description
W0950005400K	8	Elastic mechanical stop M8 x 1
W0950005401K	16	Elastic mechanical stop M10 x 1 + nut
W0950005402K	25	Elastic mechanical stop M14 x 1.5 + bushing