

**Vacuum cup suspensions**

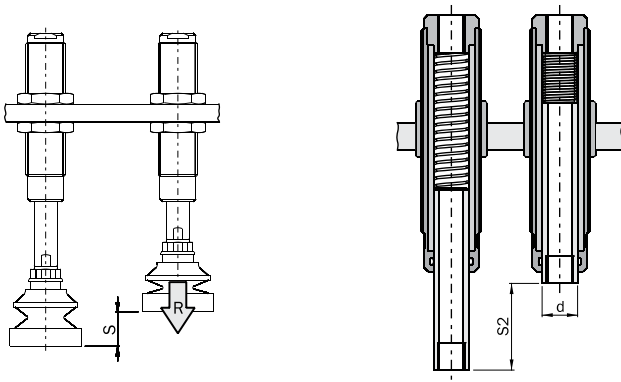
- The suspensions (or buffers, or level compensators) are used to keep the suction cups in position as the robot approaches.
- Gimatic offers a range specifically designed for Plastics applications.
- They are typically mounted on EOATs (End Of Arm Toolings) with MFI brackets.

**Reaction force**

The reaction force depends on the compression (S) of the internal spring. And also on the piston diameter (d) and operation pressure (p), in the case of telescopic suspensions. Use the following formula for calculation.

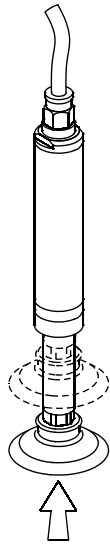
$$R = R1 + K \cdot S + d^2 \cdot \frac{\pi}{40} \cdot p$$

- R [N] Reaction force
- R1 [N] Spring force at the beginning
- K [N/mm] Spring rate
- S [mm] Compression stroke
- d [mm] Piston bore
- p [bar] Pressure
- R2 [N] Spring force at the end-stroke
- S2 [mm] Maximum stroke
- m [g] Weight



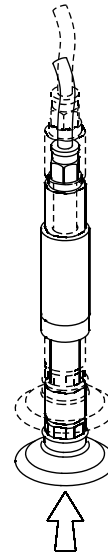
**Telescopic suspensions**

- VSC
- VSL
- VSS



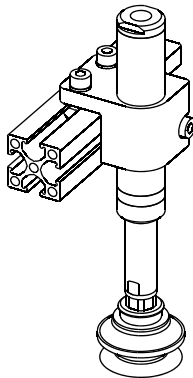
**Through rod suspensions**

- VSR
- VSRT
- VSN
- VSNT
- VSE
- VSET
- VVX
- VSRTG
- VSNG
- VSNTG
- VSD



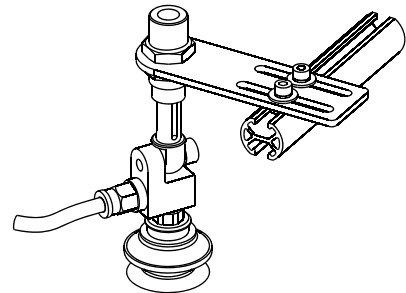
**Suspensions with smooth body**

- VSL
- VSS
- VSR
- VSN
- VSE
- VVX
- VSNG
- VSD
- VSNF
- VSRF



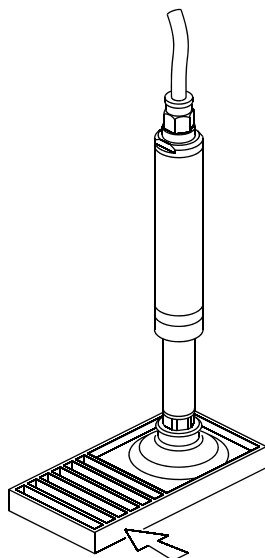
**Suspensions with threaded body**

- VSC
- VSRT
- VSNT
- VSET
- VSRTG
- VSNTG
- VSNTF
- VSRTF



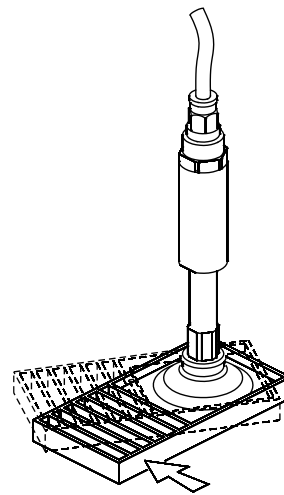
**Non-rotative suspensions**

- VSC
- VSL
- VSN
- VSNT
- VSE
- VSET
- VVX
- VSNG
- VSNTG
- VSD
- VSNF
- VSNTF



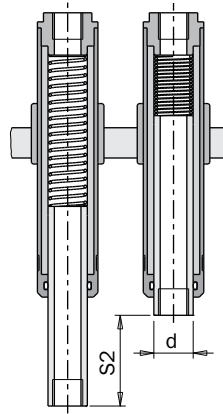
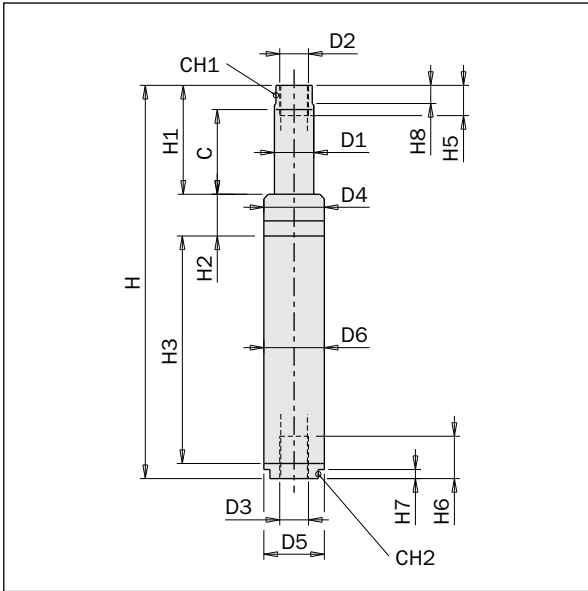
**Rotative suspensions**

- VSS
- VSR
- VSRT
- VSRTG
- VSRF
- VSRTF



**Smooth-body non-rotative telescopic suspensions**

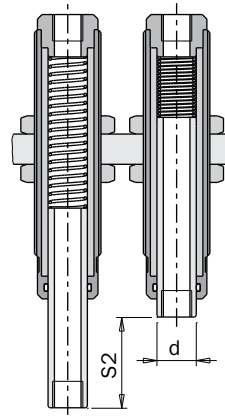
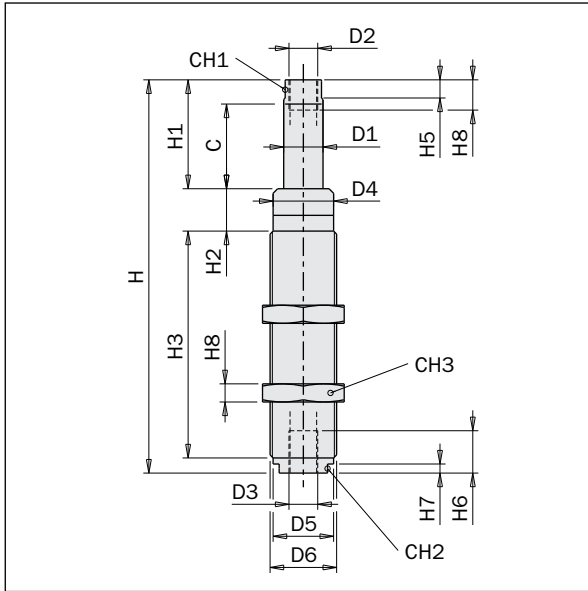
- Body and rod in anodized aluminum.
- Anti-friction treatment on the rod.
- Smooth movement thanks to the plastic bearing.
- Non-rotative rod with reduced tolerance.
- Telescopic lay-out: fittings and hoses don't move.
- Unidirectional sealing: only for vacuum applications.
- Pressure range: -1 ÷ 0 bar.
- FDA-H1 food-grade grease.



	VSL1620	VSL2030	VSL2430
H [mm]	100	130	130
H1 [mm]	26	36	36
H2 [mm]	12	14	14
H3 [mm]	57	75	75
H4 [mm]	5	5	5
H5 [mm]	10	10	10
H6 [mm]	14	14	14
H7 [mm]	3	3	3
H8 [mm]	5	6	6
D1 [mm]	Ø8	Ø13	Ø16
D2	M5	G1/8"	G1/4"
D3	M5	G1/8"	G1/4"
D4 [mm]	Ø14.5	Ø20	Ø23
D5 [mm]	Ø14.5	Ø20	Ø23
D6 [mm]	Ø16	Ø20	Ø24
CH1 [mm]	7	12	14
CH2 [mm]	13	16	20
C [mm]	20	30	30
S2 [mm]	20	30	30
d [mm]	8	13	16
K [N/mm]	0.311	0.239	0.334
R1 [N]	9.338	14.80	20.05
R2 [N]	16.04	22.37	30.42
m [g]	30	55	70

**Threaded-body non-rotative telescopic suspensions**

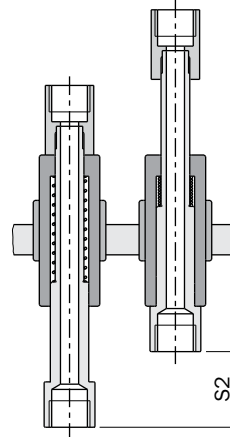
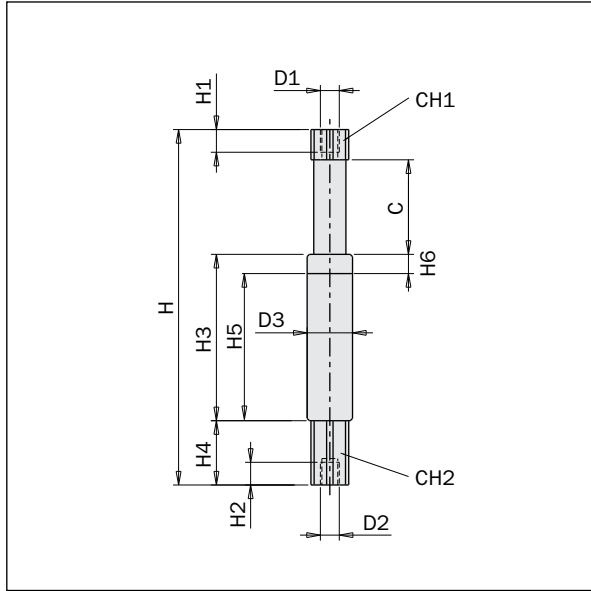
- Body and rod in anodized aluminum.
- Anti-friction treatment on the rod.
- Smooth movement thanks to the plastic bearing.
- Non-rotative rod with reduced tolerance.
- Telescopic lay-out: fittings and hoses don't move.
- Unidirectional sealing: only for vacuum applications.
- Pressure range: -1 ÷ 0 bar.
- FDA-H1 food-grade grease.



	VSC1620	VSC2230	VSC2530
H [mm]	100	130	130
H1 [mm]	26	36	36
H2 [mm]	12	14	14
H3 [mm]	57	75	75
H4 [mm]	5	5	5
H5 [mm]	10	10	10
H6 [mm]	14	14	14
H7 [mm]	3	3	3
H8 [mm]	5	6	6
D1 [mm]	Ø8	Ø13	Ø16
D2	M5	G1/8"	G1/4"
D3	M5	G1/8"	G1/4"
D4 [mm]	Ø14.5	Ø20	Ø23
D5 [mm]	Ø14.5	Ø20	Ø23
D6	M16x1	M22x1.5	M25x1.5
CH1 [mm]	7	12	14
CH2 [mm]	13	16	20
CH3 [mm]	19	27	32
C [mm]	20	30	30
S2 [mm]	20	30	30
d [mm]	8	13	16
K [N/mm]	0.311	0.239	0.334
R1 [N]	9.338	14.80	20.05
R2 [N]	16.04	22.37	30.42
m [g]	35	80	115

**Smooth-body rotative suspensions**

- Body and rod in anodized aluminum.
- Rotative rod.
- Pressure range: -1 ÷ 8 bar.
- Spring in stainless steel.



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**NEW**

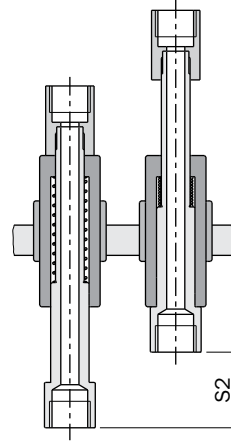
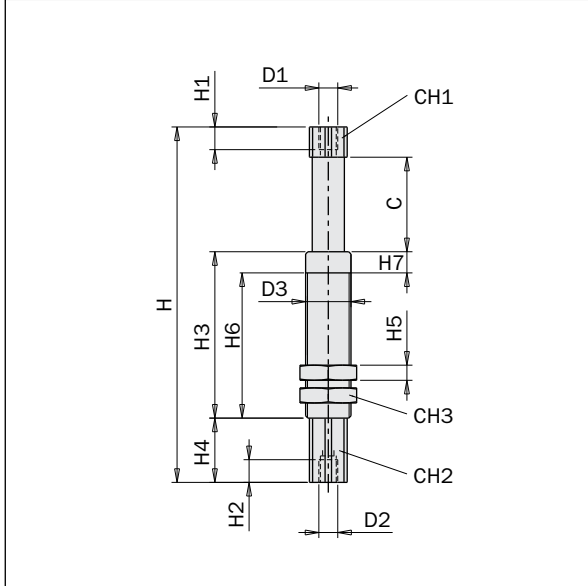
**NEW**

	VSR1010	VSR1025	VSR1420	VSR1435	VSR2025F18	VSR2025F14	VSR2050F18	VSR2050F14
H [mm]	56	90.5	107	142	126	126	183.5	183.5
H1 [mm]	5	5	7	7	10	10	10	10
H2 [mm]	5	5	7	7	10	10	10	10
H3 [mm]	24.5	44	52	72	58	58	90.5	90.5
H4 [mm]	13.5	13.5	22	22	28	28	28	28
H5 [mm]	18.3	37.8	39.6	59.6	45.3	6	77.8	6
H6 [mm]	6.2*	6.2*	12.4*	12.4*	12.7*	58	12.7*	90.5
D1	M5	M5	G1/8"	G1/8"	G1/8"	G1/4"	G1/8"	G1/4"
D2	M5	M5	G1/8"	G1/8"	G1/8"	G1/4"	G1/8"	G1/4"
D3 [mm]	Ø10	Ø10	Ø14	Ø14	Ø20	Ø20	Ø20	Ø20
CH1 [mm]	8	8	12	12	16	16	16	16
CH2 [mm]	8	8	12	12	16	16	16	16
CH3 [mm]						24		24
C [mm]	10	25	20	35	25	25	50	50
S2 [mm]	10	25	20	35	25	25	50	50
d [mm]	0	0	0	0	0	0	0	0
K [N/mm]	0.213	0.085	0.268	0.15	0.258	0.258	0.129	0.129
R1 [N]	1.49	1.575	3.617	4.267	4.388	4.31	4.452	4.4
R2 [N]	3.619	3.704	8.975	9.507	10.84	10.76	10.90	10.87
m [g]	7.6 g	12 g	30 g	38 g	64 g	60	93 g	90

\*Non-clampable

**Threaded-body rotative suspensions**

- Body and rod in anodized aluminum.
- Rotative rod.
- Pressure range: -1 ÷ 8 bar.
- Spring in stainless steel.

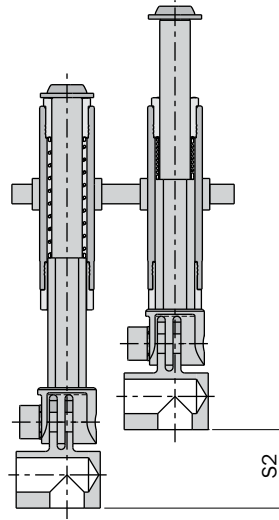
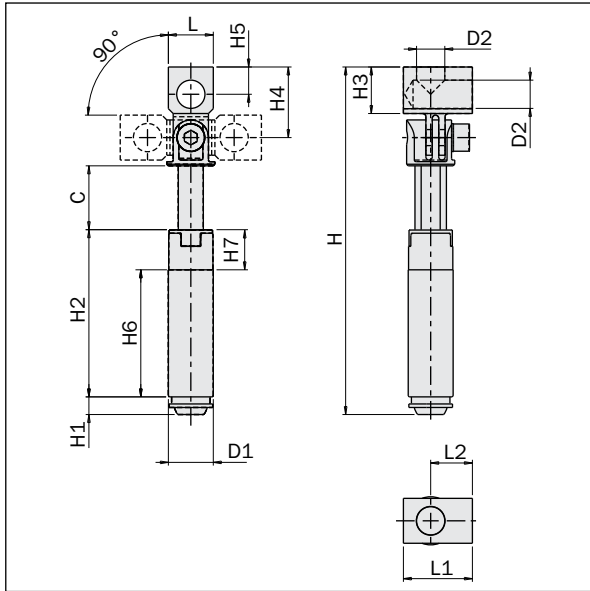


	<b>NEW</b> VSRT1010 9900001	<b>NEW</b> VSRT1025 9900002	VSRT1210 9900049	VSRT1225 9900050	VSRT1420 9900003	VSRT1435 9900004	VSRT1620 9900005	VSRT1635 9900006	<b>NEW</b> VSRT2025F18 9900007	<b>NEW</b> VSRT2025F14 9900051	<b>NEW</b> VSRT2050F18 9900008	<b>NEW</b> VSRT2050F14 9900052	<b>NEW</b> VSRT2540 9900047	<b>NEW</b> VSRT2580 9900048
H [mm]	56	90.5	65	99	107	142	107	142	126	126	183.5	183.5	173	263
H1 [mm]	5	5	5.5	5.5	7	7	7	7	10	10	10	10	10.5	10.5
H2 [mm]	5	5	5.5	5.5	7	7	7	7	10	10	10	10	10.5	10.5
H3 [mm]	24.5	44	30	49	52	72	52	72	58	58	90.5	90.5	90	140
H4 [mm]	13.5	13.5	17	17	22	22	22	22	28	28	28	28	28	28
H5 [mm]	3.5	3.5	7.2	7.2	4	4	5	5	6	6	6	6	8	8
H6 [mm]	17.5	37	30	49	39	59	52	72	58	58	90.5	90.5	90	140
H7 [mm]	*7	*7	\	\	*13	*13	/	/	\	\	\	\	\	\
D1	M5	M5	M5	M5	G1/8"	G1/8"	G1/8"	G1/8"	G1/8"	G1/4"	G1/8"	G1/4"	G3/8"	G3/8"
D2	M5	M5	M5	M5	G1/8"	G1/8"	G1/8"	G1/8"	G1/8"	G1/4"	G1/8"	G1/4"	G3/8"	G3/8"
D3	M10x1	M10x1	M12X1	M12X1	M14x1.5	M14x1.5	M16x1	M16x1	M20X1.5	M20X1.5	M20X1.5	M20X1.5	M25X1.5	M25X1.5
CH1 [mm]	8	8	10	10	12	12	12	12	16	16	16	16	22	22
CH2 [mm]	8	8	10	10	12	12	12	12	16	16	16	16	22	22
CH3 [mm]	13	13	15	15	17	17	19	19	24	24	24	24	32	32
C [mm]	10	25	10	25	20	35	20	35	25	25	50	50	40	80
S2 [mm]	10	25	10	25	20	35	20	35	25	25	50	50	40	80
d [mm]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
K [N/mm]	0.213	0.085	0.197	0.087	0.268	0.15	0.252	0.137	0.258	0.258	0.129	0.129	0.256	0.121
R1 [N]	1.49	1.575	1.578	1.523	3.617	4.267	3.650	4.325	4.31	4.31	4.4	4.4	5.5	6.253
R2 [N]	3.619	3.704	3.55	3.698	8.975	9.507	8.685	9.132	10.76	10.76	10.87	10.87	15.7	15.97
m [g]	12 g	16.5 g	19	25	37 g	47 g	46.5 g	58 g	85	82	110	111	200	271

\*Not threaded

### Smooth-body non-rotative suspensions with integral elbow arms

- It is possible to set continuously the angle between 0° and +/-90°.
- External air feeding.
- Body and rod in anodized aluminum.
- Non-rotative rod with high load capability.
- Pressure range: -1 ÷ 8 bar.

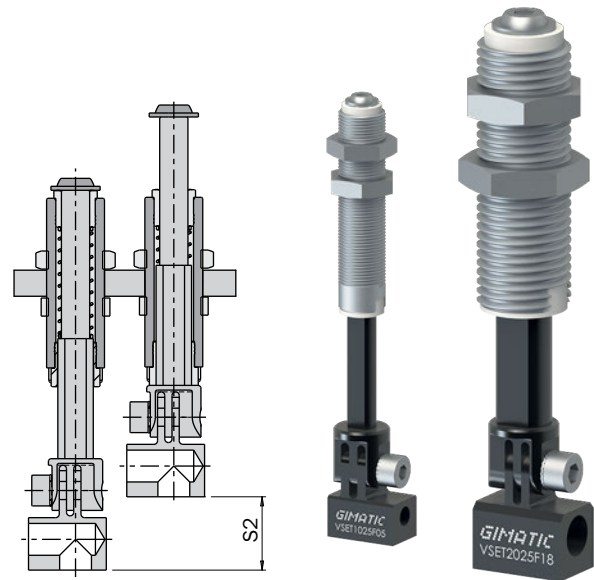
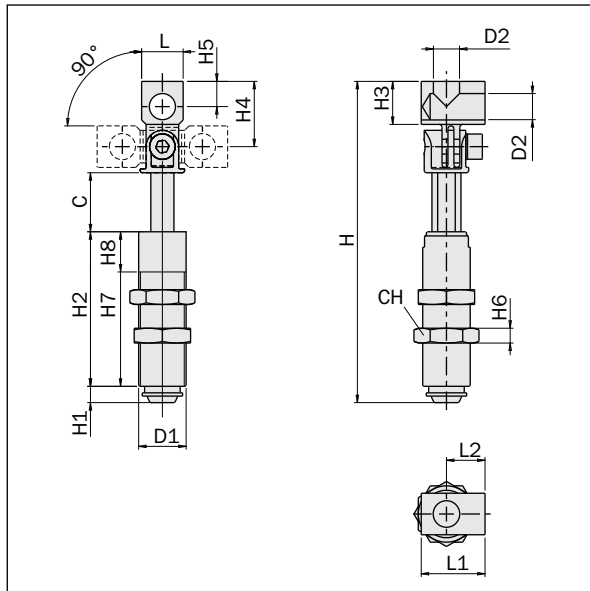


	VSE1010F05	VSE1025F05	VSE1420F18	VSE1435F18	VSE2025F18	VSE2025F14	VSE2050F18	VSE2050F14
H [mm]	61.8	96.3	108.3	143.3	121.3	127.5	178.8	184.8
H1 [mm]	3.5	3.5	5.5	5.5	6.5	6.5	6.5	6.5
H2 [mm]	24.6	44.1	52.1	72.1	58.1	58.1	90.6	90.6
H3 [mm]	9	9	14.5	14.5	14.5	20.5	14.5	20.5
H4 [mm]	15	15	22	22	22	28	22	28
H5 [mm]	5.5	5.5	8.5	8.5	8.5	12	8.5	12
H6 [mm]	18.4	37.9	38.6	38.6	44.4	44.4	76.9	76.9
H7 [mm]	6.2*	6.2*	13.5*	13.5*	13.7*	13.7*	13.7*	13.7*
D1 [mm]	Ø10	Ø10	Ø14	Ø14	Ø20	Ø20	Ø20	Ø20
D2	M5	M5	G1/8"	G1/8"	G1/8"	G1/4"	G1/8"	G1/4"
L [mm]	10	10	14	14	14	17	14	17
L1 [mm]	16	16	21.5	21.5	21.5	26	21.5	26
L2 [mm]	10.5	10.5	13	13	13	15	13	15
C [mm]	10	25	20	35	25	25	50	50
S2 [mm]	10	25	20	35	25	25	50	50
d [mm]	0	0	0	0	0	0	0	0
K [N/mm]	0.106	0.138	0.268	0.150	0.275	0.275	0.141	0.141
R1 [N]	0.957	3.100	3.617	4.267	4.131	4.131	4.308	4.308
R2 [N]	2.020	6.545	8.975	9.507	11.02	11.02	11	11.37
m [g]	15	20	45	55	70	90	105	120

\*Non-clampable

**Threaded-body non-rotative suspensions with integral elbow arms**

- It is possible to set continuously the angle between 0° and +/-90°.
- External air feeding.
- Body and rod in anodized aluminum.
- Non-rotative rod with high load capability.
- Pressure range: -1 ÷ 8 bar.



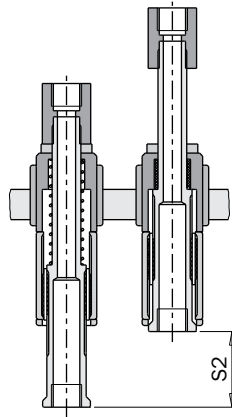
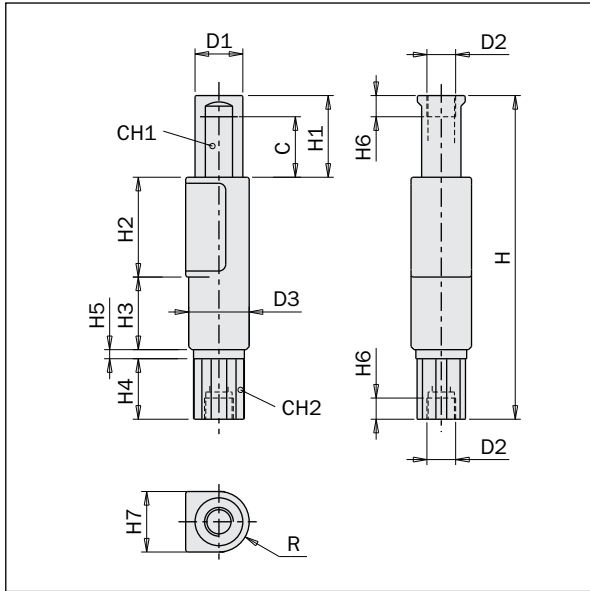
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H [mm]	61.8	96.3	108.3	143.3	121.3	127.3	178.8	184.4
H1 [mm]	3.5	3.5	5.5	5.5	6.5	6.5	6.5	6.5
H2 [mm]	24.6	44.1	52.1	72.1	58.1	58.1	90.6	90.6
H3 [mm]	9	9	14.5	14.5	14.5	20.5	14.5	20.5
H4 [mm]	15	15	22	22	22	28	22	28
H5 [mm]	5.5	5.5	8.5	8.5	8.5	12	8.5	12
H6 [mm]	3.5	3.5	5	5	6	6	6	6
H7 [mm]	17.5	37	52	72	58	58	90.5	90.5
H8 [mm]	*7.1	*7.1	/	/	/	/	/	/
D1	M10x1	M10x1	M16x1	M16x1	M20x1.5	M20x1.5	M20x1.5	M20x1.5
D2	M5	M5	G1/8"	G1/8"	G1/8"	G1/4"	G1/8"	G1/4"
L [mm]	10	10	14	14	14	17	14	17
L1 [mm]	16	16	21.5	21.5	21.5	26	21.5	26
L2 [mm]	10.5	10.5	13	13	13	15	13	15
C [mm]	10	25	20	35	25	25	50	50
CH [mm]	13	13	19	19	24	24	24	24
S2 [mm]	10	25	20	35	25	25	50	50
d [mm]	0	0	0	0	0	0	0	0
K [N/mm]	0.213	0.085	0.268	0.150	0.275	0.275	0.141	0.142
R1 [N]	1.490	1.575	3.617	4.267	4.131	4.131	4.308	4.308
R2 [N]	3.619	3.704	8.975	9.507	11.02	11.02	11.37	11.37
m [g]	18	23	57	70	88	109	125	142

\*Not threaded



**Non-rotative heavy duty stainless suspensions**

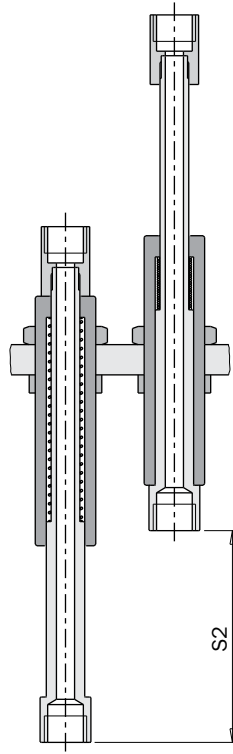
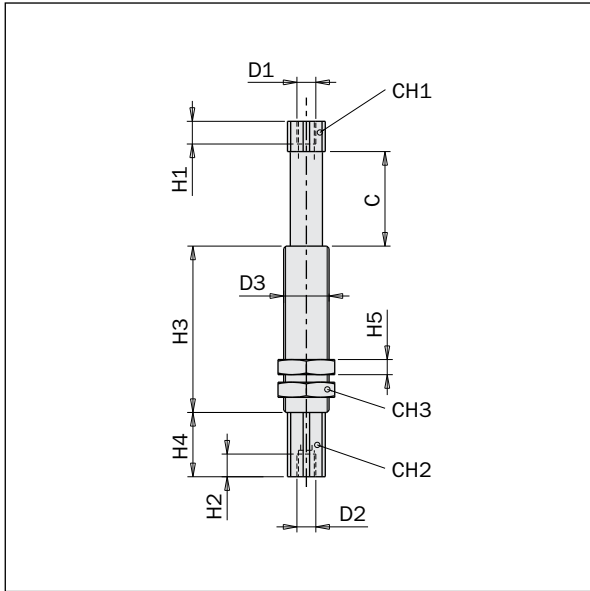
- Body, rod, bearing and spring in stainless steel.
- Ball bearing for a very high load capability.
- Zero backlash.
- FDA-H1 food-grade grease.
- Pressure range: -1 ÷ 8 bar.



	WX1010F	WX1025F	WX1420F	WX1435F	WX2025F	WX2050F
H [mm]	63	100.5	99	137	107	169
H1 [mm]	11	26	25	40	27	52
H2 [mm]	23.5	35	31	43	33	50.5
H3 [mm]	12	23	21	32	24	43.5
H4 [mm]	15	15	20	20	20	20
H5 [mm]	10	10	14	14	20	20
H6 [mm]	6	6	7	7	7	7
H7 [mm]	8	8	10	10	11	11
D1 [mm]	Ø7.8	Ø7.8	Ø11.8	Ø11.8	Ø15.8	Ø15.8
D2	M5	M5	G1/8"	G1/8"	G1/8"	G1/8"
D3 [mm]	Ø10	Ø10	Ø14	Ø14	Ø20	Ø20
CH1 [mm]	6	6	10.5	10.5	13	13
CH2 [mm]	8	8	12	12	16	16
C [mm]	10	25	20	35	25	50
R [mm]	5	5	7	7	10	10
S2 [mm]	10	25	20	35	25	50
d [mm]	0	0	0	0	0	0
K [N/mm]	0.194	0.0786	0.252	0.137	0.258	0.129
R1 [N]	1.548	1.533	3.65	4.325	4.388	4.452
R2 [N]	3.483	3.498	8.685	9.132	10.84	10.9
m [g]	30	45	80	110	150	235

**Rotative stainless suspensions with threaded body**

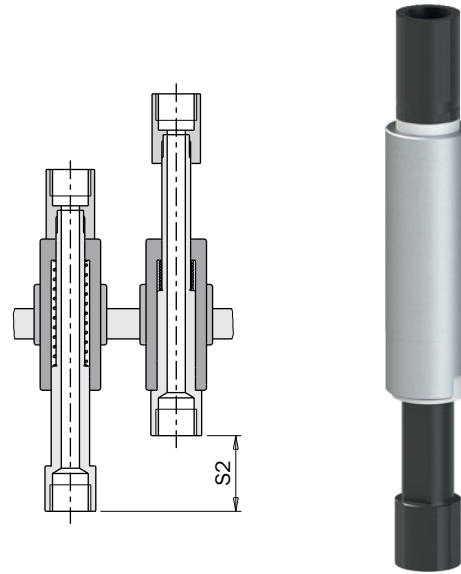
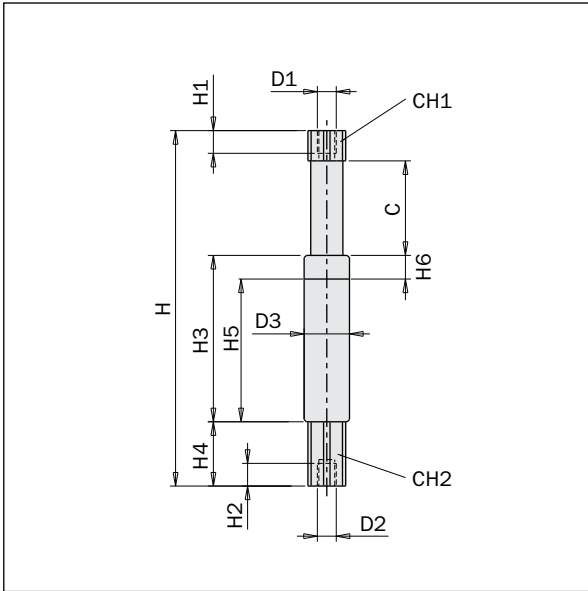
- Body, rod and spring in stainless steel.
- Rotative rod.
- FDA-H1 food-grade grease.
- Pressure range: -1 ÷ 8 bar.



	VSRTG1225	VSRTG1635	VSRTG2050	VSRTG2580
H [mm]	94	127.5	170.5	249
H1 [mm]	5.5	9	10	11
H2 [mm]	5.5	7	10	11
H3 [mm]	44	58.5	82.5	121
H4 [mm]	17	20	23	33
H5 [mm]	4	5	6	8
D1	M5	G1/8"	G1/4"	G3/8"
D2	M5	G1/8"	G1/4"	G3/8"
D3	M12x1	M16x1	M20x1.5	M25x1.5
CH1 [mm]	10	12	16	23
CH2 [mm]	10	12	16	23
CH3 [mm]	15	19	24	32
C [mm]	25	35	50	80
S2 [mm]	25	35	50	80
d [mm]	0	0	0	0
K [N/mm]	0.108	0.137	0.129	0.119
R1 [N]	2.112	4.325	4.452	6.005
R2 [N]	4.820	9.132	10.90	15.52
m [g]	50	110	220	560

**Smooth-body non-rotative telescopic suspensions**

- Body and rod in anodized aluminum.
- Spring in stainless steel.
- Non-rotative rod with high load capability.
- Pressure range: -1 ÷ 8 bar.



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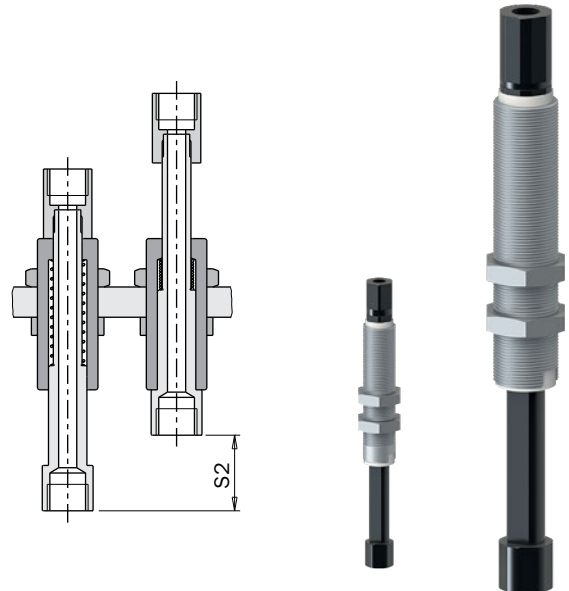
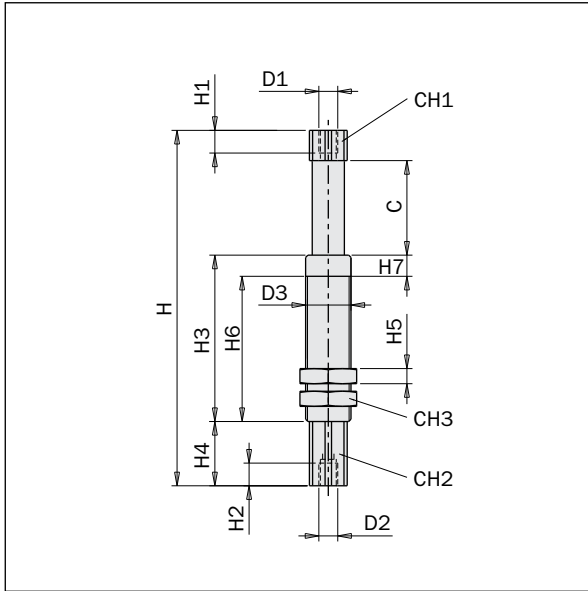


	VSNG1010	VSNG1025	VSNG1420	VSNG1435	VSNG2025F18	VSNG2025F14	VSNG2050F18	VSNG2050F14
H [mm]	56	90.5	107	142	126	126	183.5	183.5
H1 [mm]	5	5	7	7	10	10	10	10
H2 [mm]	5	5	7	7	10	10	10	10
H3 [mm]	24.5	44	52	72	58	58	90.5	90.5
H4 [mm]	13.5	13.5	22	22	28	28	28	28
H5 [mm]	18.3	36.8	38.4	58.6	44.3	44.3	76.8	76.8
H6 [mm]	6.2*	7.2	13.6	13.4	13.7	13.7	13.7	13.7
D1	M5	M5	G1/8"	G1/8"	G1/8"	G1/4"	G1/8"	G1/4"
D2	M5	M5	G1/8"	G1/8"	G1/8"	G1/4"	G1/8"	G1/4"
D3 [mm]	Ø10	Ø10	Ø14	Ø14	Ø20	Ø20	Ø20	Ø20
CH1 [mm]	8	8	12	12	16	16	16	16
CH2 [mm]	8	8	12	12	16	16	16	16
C [mm]	10	25	20	35	25	25	50	50
S2 [mm]	10	25	20	35	25	25	50	50
d [mm]	0	0	0	0	0	0	0	0
K [N/mm]	0.213	0.085	0.268	0.15	0.275	0.258	0.141	0.129
R1 [N]	1.49	1.575	3.617	4.267	4.131	4.388	4.308	4.452
R2 [N]	3.619	3.704	8.975	9.507	11.02	10.84	11.37	10.90
m [g]	7.6 g	12 g	30 g	38 g	67.5 g	64 g	96 g	93 g

\*Non-clampable

**Threaded-body non-rotative suspensions**

- Body and rod in anodized aluminum.
- Spring in stainless steel.
- Non-rotative rod with high load capability.
- Pressure range: -1 + 8 bar.

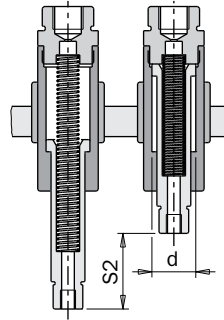
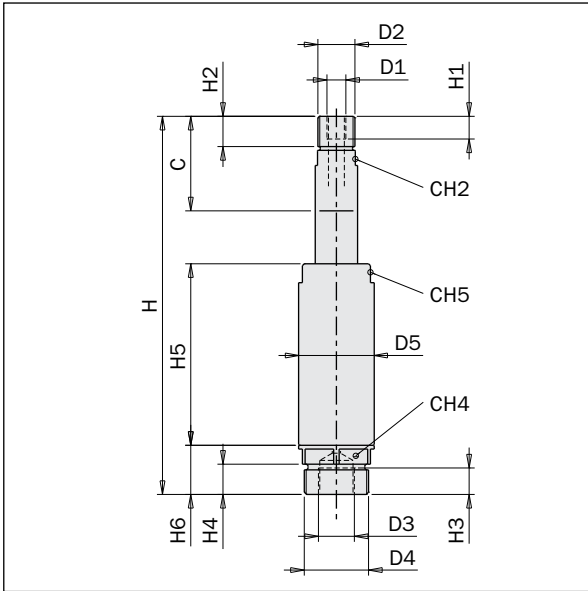


	VSNTG.1010 9900019	VSNTG.1025 9900020	VSNTG.1210 9900024	VSNTG.1225 9900025	VSNTG.1420 9900026	VSNTG.1435 9900021	VSNTG.1620 9900027	VSNTG.1635 9900028	VSNTG.2025F18 9900022	VSNTG.2025F14 9900018	VSNTG.2050F18 9900017	VSNTG.2050F14 9900023	VSNTG.2540 9900029	VSNTG.2580 9900030
H [mm]	56	90.5	64.5	98.5	107	142	107	142	126	126	183.5	183.5	173	263
H1 [mm]	5	5	5.5	5.5	7	7	7	7	10	10	10	10	11	11
H2 [mm]	5	5	5.5	5.5	7	7	7	7	10	10	10	10	11	11
H3 [mm]	24.5	44	30	49	52	72	52	72	58	58	90.5	90.5	90	140
H4 [mm]	13.5	13.5	16.7	16.7	22	22	22	22	28	28	28	28	28	28
H5 [mm]	3.5	3.5	4	4	4	4	5	5	6	6	6	6	8	8
H6 [mm]	17.5	37	30	49	39	59	52	72	58	58	90.5	90.5	90	140
H7 [mm]	*7	*7	/	/	*13	*13	/	/	/	/	/	/	/	/
D1	M5	M5	M5	M5	G1/8"	G1/8"	G1/8"	G1/8"	G1/8"	G1/4"	G1/8"	G1/4"	G3/8"	G3/8"
D2	M5	M5	M5	M5	G1/8"	G1/8"	G1/8"	G1/8"	G1/8"	G1/4"	G1/8"	G1/4"	G3/8"	G3/8"
D3	M10x1		M12x1		M14x1.5		M16x1		M20x1.5			M25x1.5		
CH1 [mm]	8	8	10	10	12	12	12	12	16	16	16	16	22	22
CH2 [mm]	8	8	10	10	12	12	12	12	16	16	16	16	22	22
CH3 [mm]	13	13	15	15	17	17	19	19	24	24	24	24	32	32
C [mm]	10	25	10	25	20	35	20	35	25	25	50	50	40	80
S2 [mm]	10	25	10	25	20	35	20	35	25	25	50	50	40	80
d [mm]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
K [N/mm]	0.213	0.085	0.277	0.108	0.268	0.15	0.252	0.137	0.275	0.258	0.141	0.129	0.230	0.119
R1 [N]	1.49	1.575	1.938	2.112	3.617	4.267	3.650	4.325	4.131	4.388	4.308	4.452	6.082	6.005
R2 [N]	3.619	3.704	4.706	4.820	8.975	9.507	8.685	9.132	11.02	10.84	11.37	10.90	15.26	15.52
m [g]	12 g	16.5 g	20 g	26.5 g	37 g	47 g	46.5 g	58 g	90 g	86 g	118 g	115 g	205 g	275 g

\*Not threaded

**Telescopic self-retracting suspensions**

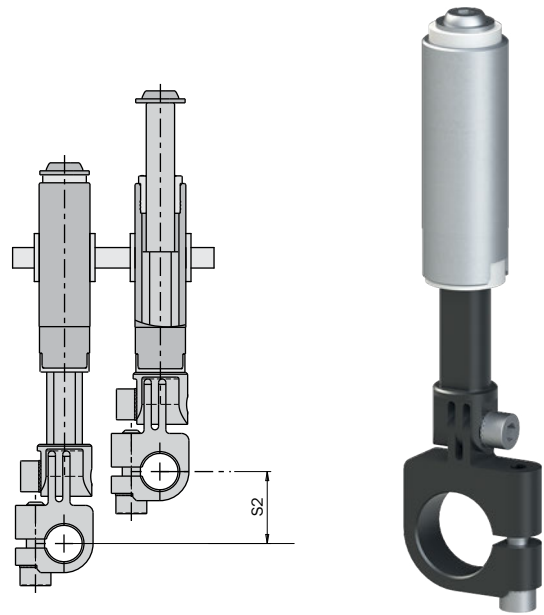
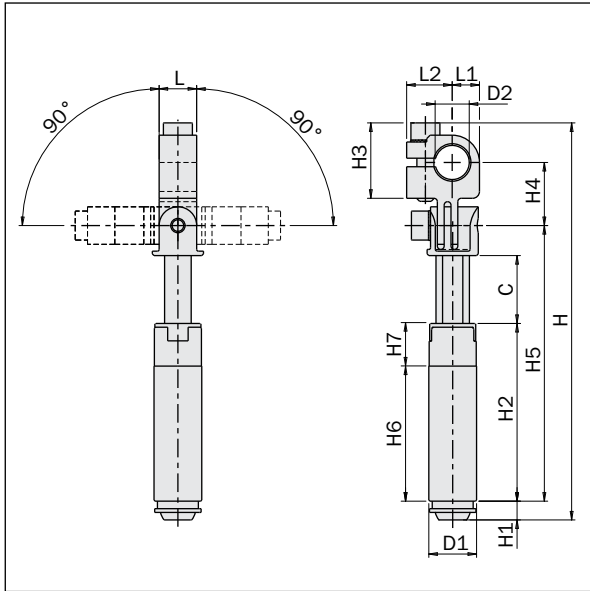
- Body and rod in anodized aluminum.
- Sealing with no seals.
- Only for vacuum applications.
- When the cup takes a part, the vacuum on the internal piston overtakes the spring force and moves the rod up.
- The speed of the retraction movement can be adjusted by a standard throttle valve.
- When the vacuum is removed the part is released and the internal spring resets the rod.
- Pressure range: -1 ÷ 0 bar.
- FDA-H1 food-grade grease.



	VSS2025	VSS2050
H [mm]	100	150
H1 [mm]	6	6
H2 [mm]	8	8
H3 [mm]	8	8
H4 [mm]	8	8
H5 [mm]	48	73
H6 [mm]	13	13
D1	M5	M5
D2	G1/8"	G1/8"
D3	G1/8"	G1/8"
D4	M17x1	M17x1
D5 [mm]	Ø20	Ø20
CH2 [mm]	10	10
CH4 [mm]	18	18
CH5 [mm]	18	18
C [mm]	25	50
S2 [mm]	25	50
d [mm]	14.5	14.5
K [N/mm]	0.085	0.052
R1 [N]	1.525	1.606
R2 [N]	3.642	4.197
m [g]	40	55

**Non-rotative suspensions with smooth-body and adjustable clamp**

- It is possible to set continuously the angle between 0° and +/-90°.
- External air feeding.
- Body and rod in anodized aluminum.
- Non-rotative rod.



	VSD1420D10	VSD2025D10	VSD2025D20
H [mm]	116.4	129.4	141.4
H1 [mm]	5.5	6.5	6.5
H2 [mm]	52	58.1	58.1
H3 [mm]	22.1	22.1	34.1
H4 [mm]	18.5	18.5	25
H5 [mm]	80.8	92.8	92.8
H6 [mm]	39.6	44.4	44.4
H7 [mm]	12.4*	13.7*	13.7*
D1 [mm]	Ø14	Ø20	Ø20
D2 [mm]	Ø10	Ø10	Ø20
L [mm]	11	11	11
L1 [mm]	8	8	13.5
L2 [mm]	13.4	13.4	19.3
C [mm]	20	25	25
S2 [mm]	20	25	25
d [mm]	0	0	0
K [N/mm]	0.268	0.275	0.275
R1 [N]	3.617	4.131	4.131
R2 [N]	8.975	11.02	11.02
m [g]	43	70	80

\*Non-clampable

