

Sospensioni per ventose / Suspensions for vacuum cups

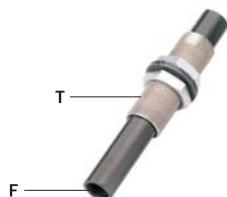
Sospensioni anti-rotazione

- Corpo filettato in acciaio nichelato e stelo in alluminio anodizzato.
- Lo stelo esagonale impedisce la rotazione della ventosa.
- Le rondelle di sicurezza impediscono lo svitamento.

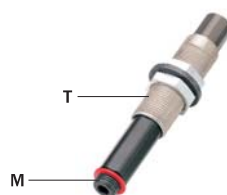
Non-rotative suspensions

- Threaded body in nickel-plated steel, with the rod in hard anodized aluminum.
- The hexagonal rod avoids the vacuum cup to rotate.
- The safety washers assure an easy fastening.

VSF



VSM



VSV



Sospensioni telescopiche anti-rotazione

- Corpo e stelo in alluminio anodizzato.
- Trattamento anti-frizione sullo stelo.
- Cuscinetto in polimero per un movimento più omogeneo.
- Stelo anti-rotazione con gioco ridotto.
- Movimento telescopico: i raccordi ed i tubi non si muovono.
- Guarnizioni unidirezionali: usabile solo con il vuoto.

Telescopic non-rotative 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.

VSC



VSL



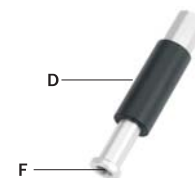
Sospensioni rotanti

- Corpo e stelo in alluminio anodizzato.
- Stelo girevole.

Rotative vacuum suspensions

- Body and rod in anodized aluminum.
- Rotative rod.

VSR



Sospensioni telescopiche auto-ritraenti

- Corpo e stelo in alluminio anodizzato.
- Tenuta senza guarnizioni.
- Usabile solo con il vuoto.
- Quando la ventosa prende un pezzo, il vuoto che agisce sul pistone interno supera la forza della molla e muove lo stelo.
- La velocità del movimento di ritrazione può essere calibrata con un regolatore di flusso standard.
- Quando si rimuove il vuoto, il pezzo viene rilasciato e la molla interna riporta lo stelo a fondo corsa.

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.

VSS



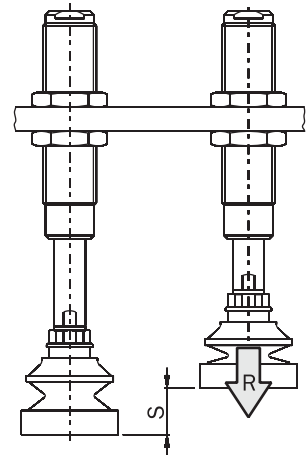
- D Corpo liscio / Smooth body
- T Corpo filettato / Threaded body
- F Filetto femmina per nipples / Female thread for nipples
- M Filetto maschio per nipples / Male thread for nipples
- P/G Nipplo per ventosa / Nipple for vacuum cup

Forza di reazione / Reaction force

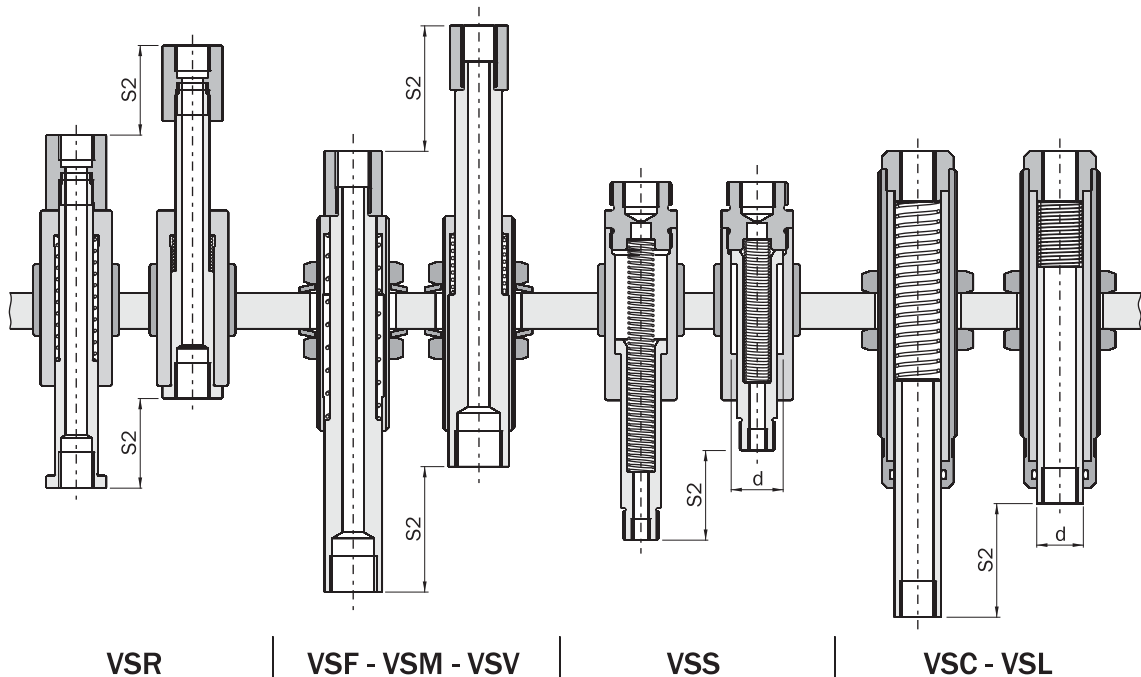
$$R = R1 + K \cdot S + d^2 \cdot \frac{\pi}{40} \cdot p$$

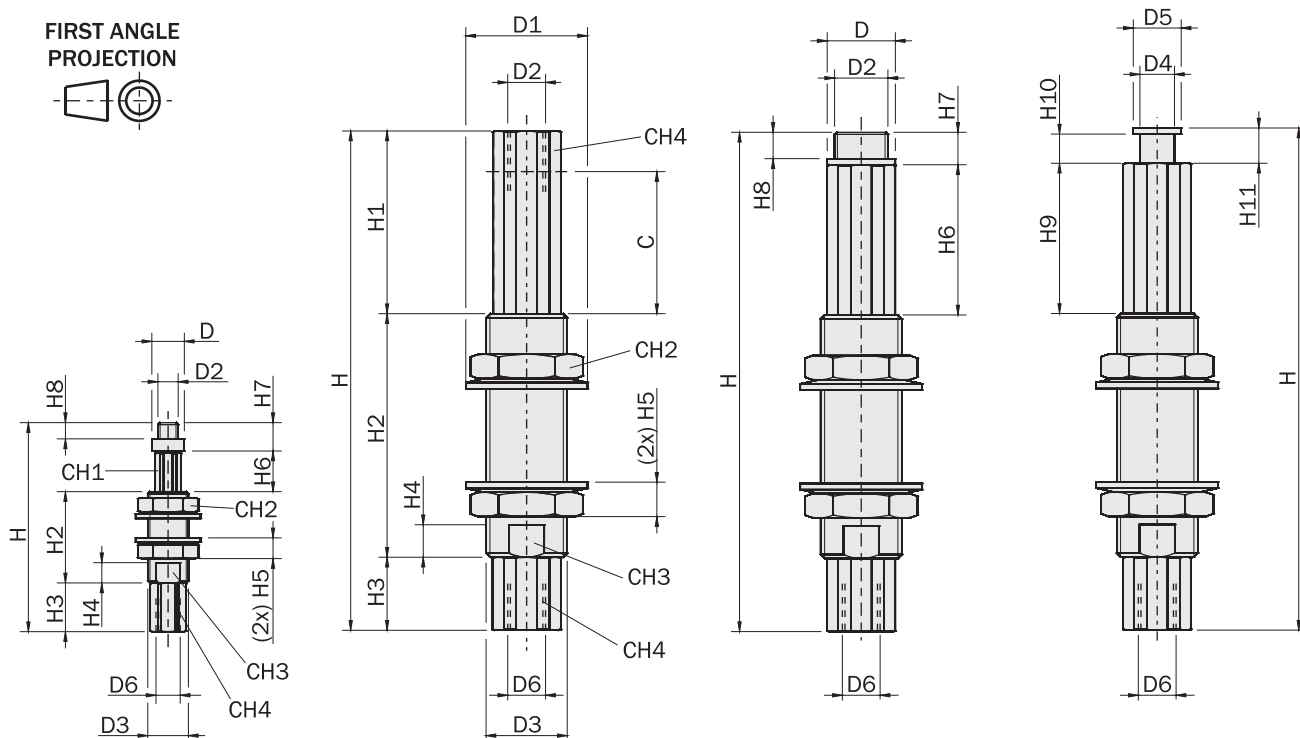
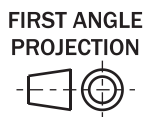
dove: / where:

- R [N]** Forza di reazione / Reaction force
- R1 [N]** Forza della molla all'inizio della corsa / Spring force at the beginning
- K [N/mm]** Costante elastica della molla / Spring rate
- S [mm]** Corsa effettuata / Compression stroke
- d [mm]** Alesaggio / Piston bore
- p [bar]** Pressione / Pressure



	P/G	F	M	T	D [mm]	S2 [mm]	d [mm]	K [N/mm]	R1 [N]	R2 [N]	m [g]	p [bar]
VSF1215G	-	M5	-	M12x1	-	15	0	0.111	1.664	3.329	24	-1 ÷ 8
VSF1625G	-	G1/8"	-	M16x1	-	25	0	0.200	4.007	9.015	47	-1 ÷ 8
VSF2035G	-	G1/4"	-	M20x1.5	-	35	0	0.250	5.490	14.22	108	-1 ÷ 8
VSM1010G	-	-	M5	G1/8"	-	10	0	0.207	1.344	3.412	22	-1 ÷ 8
VSM1215G	-	-	M5	M12x1	-	15	0	0.111	1.664	3.329	24	-1 ÷ 8
VSM1625G	-	-	G1/8"	M16x1	-	25	0	0.200	4.007	9.015	50	-1 ÷ 8
VSM2035G	-	-	G1/4"	M20x1.5	-	35	0	0.250	5.490	14.22	110	-1 ÷ 8
VSV1215G	P	-	-	M12x1	-	15	0	0.111	1.664	3.329	24	-1 ÷ 8
VSV1625G	G	-	-	M16x1	-	25	0	0.200	4.007	9.015	44	-1 ÷ 8
VSV2035G	G	-	-	M20x1.5	-	35	0	0.250	5.490	14.22	104	-1 ÷ 8
VSC1620	-	M5	-	M16x1	-	20	8	0.311	9.338	16.04	35	-1 ÷ 0
VSC2230	-	G1/8"	-	M22x1.5	-	30	13	0.239	14.80	22.37	80	-1 ÷ 0
VSC2530	-	G1/4"	-	M25x1.5	-	30	16	0.334	20.05	30.42	115	-1 ÷ 0
VSL1620	-	M5	-	-	Ø16	20	8	0.311	9.338	16.04	30	-1 ÷ 0
VSL2030	-	G1/8"	-	-	Ø20	30	13	0.239	14.80	22.37	55	-1 ÷ 0
VSL2430	-	G1/4"	-	-	Ø24	30	16	0.334	20.05	30.42	70	-1 ÷ 0
VSR1010	-	M5	-	-	Ø10	10	0	0.213	1.490	3.619	7	-1 ÷ 8
VSR1025	-	M5	-	-	Ø10	25	0	0.085	1.575	3.704	11	-1 ÷ 8
VSR1420	-	G1/8"	-	-	Ø14	20	0	0.268	3.617	8.975	23	-1 ÷ 8
VSR1435	-	G1/8"	-	-	Ø14	35	0	0.150	4.267	9.507	32	-1 ÷ 8
VSR2025	-	G1/8"	-	-	Ø20	25	0	0.275	4.131	11.02	50	-1 ÷ 8
VSR2050	-	G1/8"	-	-	Ø20	50	0	0.141	4.308	11.37	77	-1 ÷ 8
VSS2025	-	M5	G1/8"	-	Ø20	25	14.5	0.085	1.525	3.642	40	-1 ÷ 0
VSS2050	-	M5	G1/8"	-	Ø20	50	14.5	0.052	1.606	4.197	55	-1 ÷ 0





VSM1010G

VSF

VSM

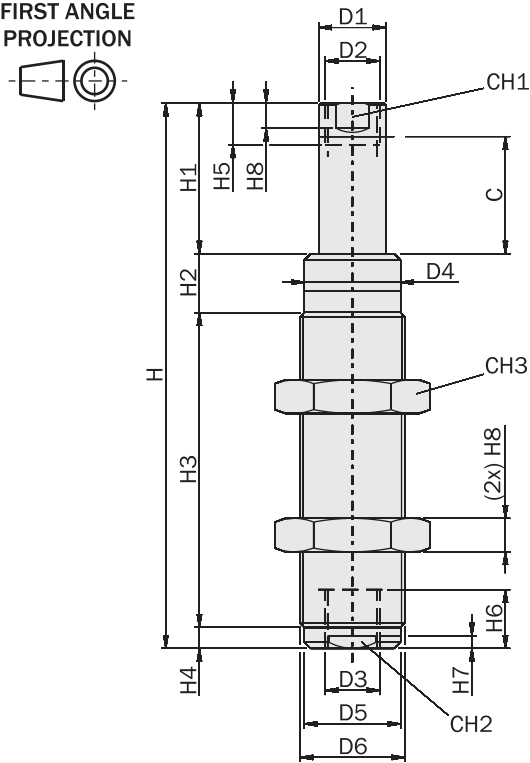
VSV

	VSF1215G	VSF1625G	VSF2035G	VSM1010G	VSM1215G	VSM1625G	VSM2035G	VSV1215G	VSV1625G	VSV2035G
H	53.5	82	123	51.5	58.5	90	123	61.2	90.7	123.7
H1	16	27	45	-	-	-	-	-	-	-
H2	27	40	60	22.5	27	40	60	27	40	60
H3	10.5	15	18	12	10.5	15	18	10.5	15	18
H4	4.5	7	8	5	4.5	7	8	4.5	7	8
H5	5.7	7.1	8.5	5.1	5.7	7.1	8.5	5.7	7.1	8.5
H6	-	-	-	10	16	27	37	-	-	-
H7	-	-	-	7	5	8	8	-	-	-
H8	-	-	-	4	4	6.5	6.5	-	-	-
H9	-	-	-	-	-	-	-	16	27	37
H10	-	-	-	-	-	-	-	6.7	7.2	7.2
H11	-	-	-	-	-	-	-	7.7	8.7	8.7
D	-	-	-	Ø8	Ø8	Ø13	Ø16.8	-	-	-
D1	Ø18	Ø24	Ø30	Ø16	Ø18	Ø24	Ø30	Ø18	Ø24	Ø30
D2	M5	G1/8"	G1/4"	M5	M5	G1/8"	G1/4"	M5	G1/8"	G1/4"
D3	M12x1	M16x1	M20x1.5	G1/8"	M12x1	M16x1	M20x1.5	M12x1	M16x1	M20x1.5
D4	-	-	-	-	-	-	-	Ø4	Ø8.5	Ø8.5
D5	-	-	-	-	-	-	-	Ø6	Ø11.8	Ø11.8
D6	M5	G1/8"	G1/8"	M5	M5	G1/8"	G1/8"	M5	G1/8"	G1/8"
CH1	-	-	-	6	-	-	-	-	-	-
CH2	15	19	24	13	15	19	24	15	19	24
CH3	12	15	18	8	12	15	18	12	15	18
CH4	8	12	16	8	8	12	16	8	12	16
C	15	25	35	10	15	25	35	15	25	35

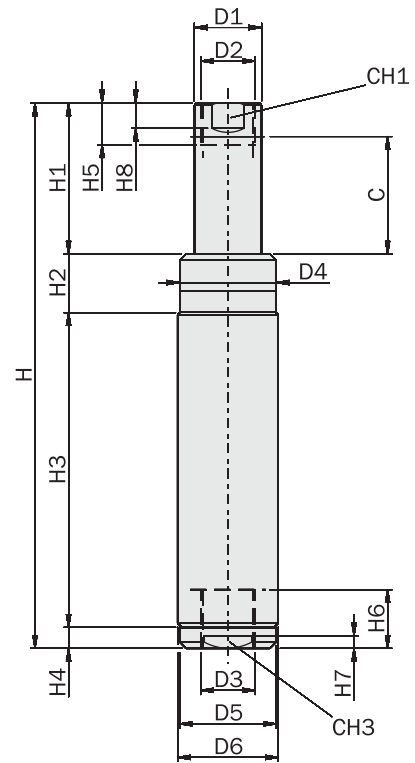
Dimensioni (mm) / Dimensions (mm)

**VSC
VSL**

FIRST ANGLE
PROJECTION



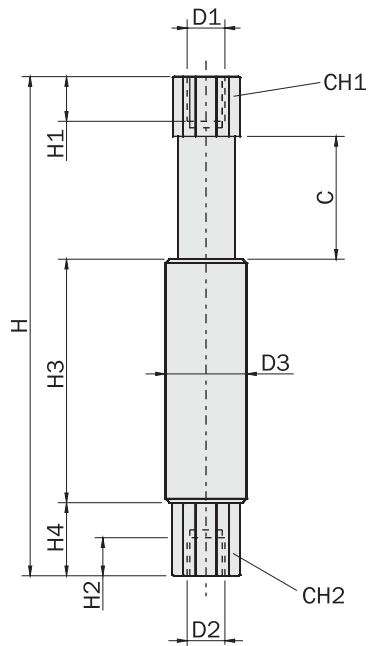
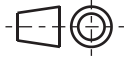
VSC



VSL

	VSC1620	VSC2230	VSC2530	VSL1620	VSL2030	VSL2430
H	100	130	130	100	130	130
H1	26	36	36	26	36	36
H2	12	14	14	12	14	14
H3	57	75	75	57	75	75
H4	5	5	5	5	5	5
H5	10	10	10	10	10	10
H6	14	14	14	14	14	14
H7	3	3	3	3	3	3
H8	5	6	6	5	6	6
D1	Ø8	Ø13	Ø16	Ø8	Ø13	Ø16
D2	M5	G1/8"	G1/4"	M5	G1/8"	G1/4"
D3	M5	G1/8"	G1/4"	M5	G1/8"	G1/4"
D4	Ø14.5	Ø20	Ø23	Ø14.5	Ø20	Ø23
D5	Ø14.5	Ø20	Ø23	Ø14.5	Ø20	Ø23
D6	M16x1	M22x1.5	M25x1.5	Ø16	Ø20	Ø24
CH1	7	12	14	7	12	14
CH2	13	16	20	13	16	20
CH3	19	27	32	-	-	-
C	20	30	30	20	30	30

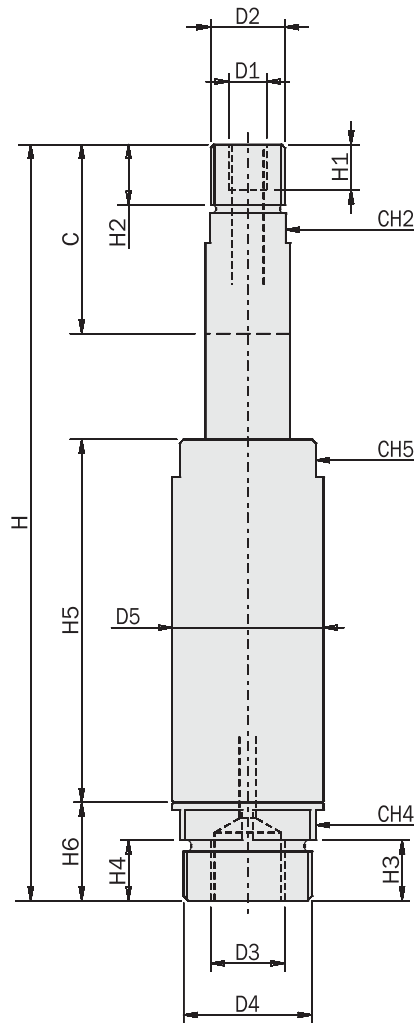
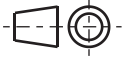
FIRST ANGLE
PROJECTION



	VSR1010	VSR1025	VSR1420	VSR1435	VSR2025	VSR2050
H	51	85.5	92.5	127.5	98.5	156
H1	6	6	10	10	10	10
H2	5	5	7	7	7	7
H3	21	40.5	38.5	58.5	49	81.5
H4	17	17	20	20	21	21
D1	M5	M5	G1/8"	G1/8"	G1/8"	G1/8"
D2	M5	M5	G1/8"	G1/8"	G1/8"	G1/8"
D3	Ø10	Ø10	Ø14	Ø14	Ø20	Ø20
CH1	8	8	12	12	16	16
CH2	8	8	12	12	16	16
C	10	25	20	35	25	50

Dimensioni (mm) / Dimensions (mm)

FIRST ANGLE PROJECTION



	VSS2025	VSS2050
H	100	150
H1	6	6
H2	8	8
H3	8	8
H4	8	8
H5	48	73
H6	13	13
D1	M5	M5
D2	G1/8"	G1/8"
D3	G1/8"	G1/8"
D4	M17x1	M17x1
D5	Ø20	Ø20
CH2	10	10
CH4	18	18
CH5	18	18
C	25	50

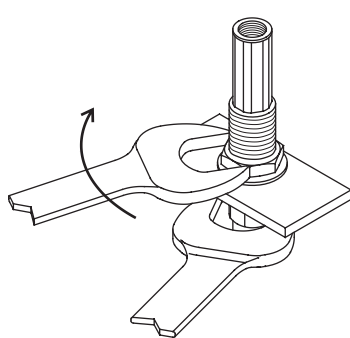
Avvertenze

- (1) Consultare la tabella delle coppie di serraggio consigliate.
- (2) Quando si avvita il nipplo, tenere la sospensione per il gambo.
- (3) Controllare (per VSF, VSM, VSV) il corretto posizionamento delle rondelle di sicurezza.
- (4) Per avere un movimento omogeneo, sulle VSF, VSM, VSV non si devono applicare coppie di torsione.

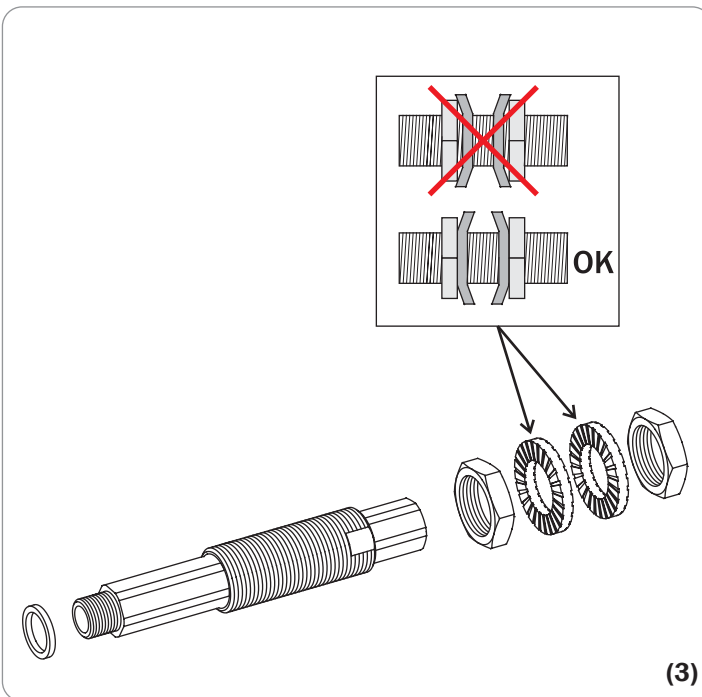
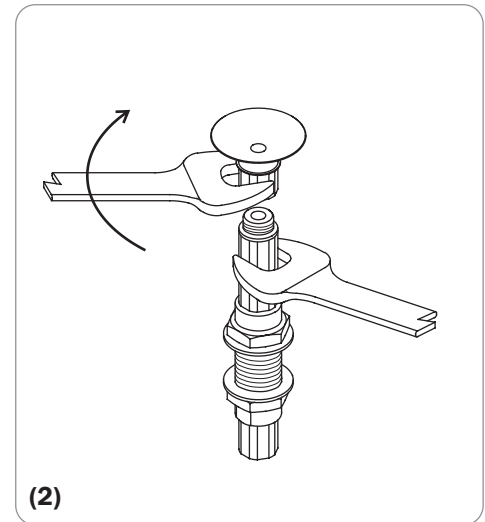
Cautions

- (1) Check the table for the suggested tightening torque values.
- (2) Hold the suspension from the leg, when mounting a nipple.
- (3) Check (for VSF, VSM, VSV) the correct positioning of the safety washers.
- (4) For a smooth movement, on the VSF, VSM, VSV torsion torques must not be applied.

Coppia / Torque	
	[Nm]
VSF1215G	9
VSF1625G	12
VSF2035G	18
<hr/>	
VSM1010G	8
VSM1215G	9
VSM1625G	12
VSM2035G	18
<hr/>	
VSV1215G	9
VSV1625G	12
VSV2035G	18
<hr/>	
VSC1620	20
VSC2230	30
VSC2530	35



(1)

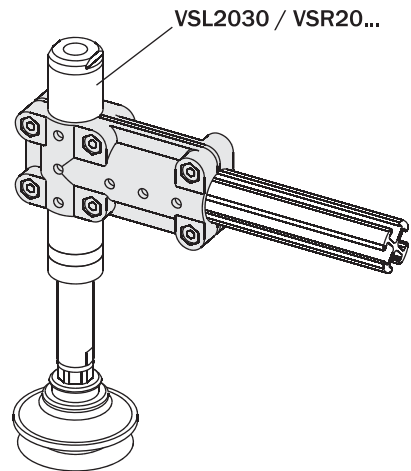


Fissaggio

Fastening

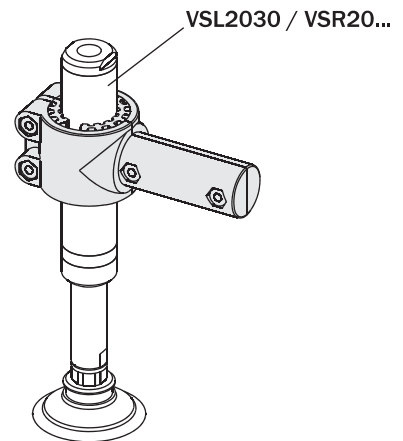
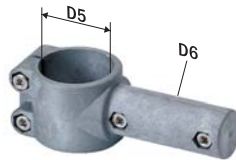
Giunto angolare (kit con 2 semicorpi + viti)
T connector (2 half-pieces + screws)

	D2[mm]	m[g]
MFP-A02	Ø20	53
MFM-A02	Ø20	200
MFP-A09	Ø30	82
MFM-A09	Ø30	328



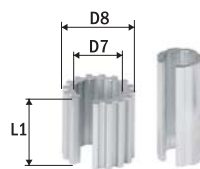
Staffa (kit con 2 semicorpi + viti)
Mounting bracket (2 half-pieces + screws)

	D5[mm]	D6[mm]	m [g]
MFP-A08	Ø30	Ø20	48



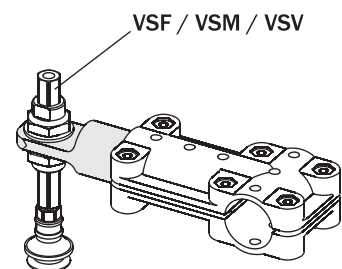
Riduzione
Adapter

	D7[mm]	D8[mm]	L1[mm]	m [g]
MFM-A10-20	Ø20	Ø30	20	13
MFM-A10-30	Ø20	Ø30	30	21
MFM-A10-48	Ø20	Ø30	48	33



Supporto per sospensione
Holder for suspensions

	D11[mm]	D12[mm]	m[g]
MFM-A19	Ø10.5	Ø20	52
MFM-A20	Ø12.5	Ø20	52
MFM-A21	Ø14.5	Ø20	52
MFM-A22	Ø16.5	Ø30	84
MFM-A23	Ø20.5	Ø30	86

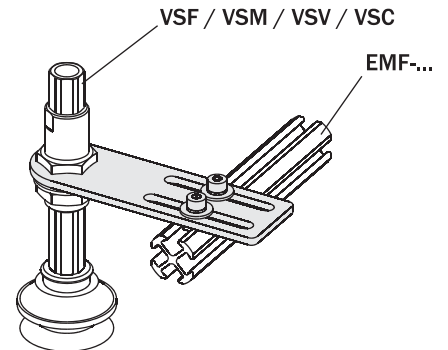


Fissaggio

Fastening

Staffa per il montaggio della sospensione su profili EMF
Suspension mounting bracket to use with profiles EMF

	EMF	D13[mm]	m[g]
MFM-A60	Ø14/Ø20	Ø10.5	57
MFM-A61	Ø14/Ø20	Ø12.5	57
MFM-A62	Ø14/Ø20	Ø14.5	60
MFM-A63	Ø14/Ø20	Ø16.5	62
MFM-A64	Ø14/Ø20	Ø20.5	62
MFM-A65	Ø30	Ø10.5	66
MFM-A66	Ø30	Ø12.5	66
MFM-A67	Ø30	Ø14.5	68
MFM-A68	Ø30	Ø16.5	70
MFM-A69	Ø30	Ø20.5	70
MFM-A74	Ø20	Ø22.5	90
MFM-A75	Ø20	Ø25.5	90
MFM-A76	Ø30	Ø22.5	105
MFM-A77	Ø30	Ø25.5	100
MFM-A78	Ø50	Ø10.5	165
MFM-A79	Ø50	Ø12.5	165
MFM-A80	Ø50	Ø14.5	170
MFM-A81	Ø50	Ø16.5	175
MFM-A82	Ø50	Ø20.5	170
MFM-A83	Ø50	Ø22.5	175
MFM-A84	Ø50	Ø25.5	170



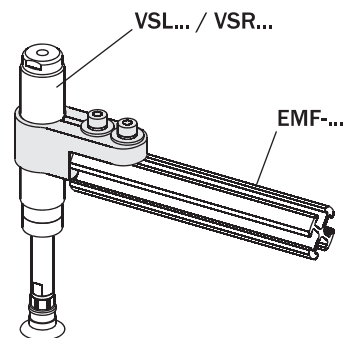
Estruso
Profile

	D15[mm]	L3[mm]	m[g]
EMF-14-1000	Ø14	1000	270
EMF-20-1000	Ø20	1000	310
EMF-30-1000	Ø30	1000	710
EMF-50-2000	Ø50	1000	4400



Cravatta per il montaggio delle sospensioni non filettate su profili EMF
Clamp connector for non-threaded suspension mounting on EMF profiles

	EMF	D20[mm]	m[g]
MFM-A58	Ø20	Ø14	30
MFM-A70	Ø30	Ø14	30
MFM-A88	Ø20	Ø16	30
MFM-A89	Ø30	Ø16	40
MFM-A90	Ø20	Ø20	35
MFM-A91	Ø30	Ø20	40
MFM-A92	Ø20	Ø24	35
MFM-A93	Ø30	Ø24	40
MFM-A59	Ø50	Ø50	240
MFM-A103	Ø14/Ø20	Ø10	25



Staffa per il montaggio delle cravatte su profili
Bracket for the suspension connector mounting on profiles

	EMF	m[g]
MFM-A97	Ø30	150
MFM-A98	Ø50	180

