

Pinze ad espansione per interni serie MFD/MFU

- Nuovo concetto di pinza innovativa.
- Movimento verso il basso (MFD), o verso l'alto (MFU).
- La parte elastica può essere in Silicone o EPDM.
- Diametro di presa da 8 a 85 mm.
- Coni di centraggio opzionali.
- Sensori magnetici opzionali.
- Vari accessori disponibili per il fissaggio.

ID expansion grippers series MFD/MFU

- New concept for innovative air hands.
- Downward movement (MFD), or upward movement (MFU).
- The elastic part can be in Silicone or EPDM.
- Grip diameters from 8 to 85 mm.
- Optional nose cones for centering.
- Optional proximity magnetic sensors.
- Several mounting accessories.



MFD



MFU



M F D 1 6 E 0 2 C L

Direzione del movimento

Actuation direction

D - Verso il basso
D - Downward
U - Verso l'alto
U - Upward

Diametro nominale

Base diameter

08 - 10 - 12 - 14 - 16 - 18 - 22
27 - 33 - 41 - 47 - 51 - 63

Foro passante

I modelli ...HL sono dotati di un foro passante, che si può usare per immettere aria compressa o in depressione, allo scopo di raffreddare delle parti o di controllarne la tenuta.

Through hole

The ...HL models have a central through hole. It can be used to blow compressed air, or to provide vacuum, with the purpose to cool a part, or to check the sealing.

Alimentazione

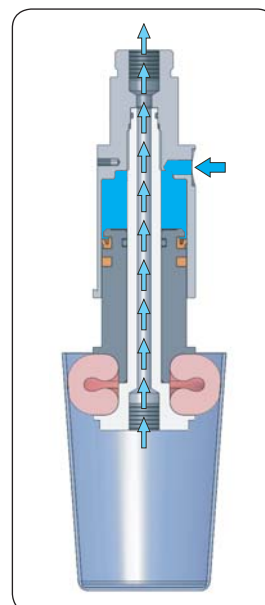
Air feeding

C - Con raccordo coassiale
C - With coaxial air fitting
H - Con raccordo laterale e foro passante
H - With side air fitting and through hole

Parte elastica

Elastic part

S01 - in Silicone rosso
in red Silicone
E02 - in EPDM nero
in black EPDM



Silicone o EPDM?

La parte elastica può essere in Silicone rosso o EPDM nero. Il Silicone può essere usato su un campo di temperature più ampio e garantisce una maggiore durata, ma non è adatto in alcuni settori merceologici, perchè rende difficoltosa la verniciatura o il rivestimento delle parti che tocca.

Invece l'EPDM non lascia impronte e assicura anche un maggior coefficiente di attrito.

La parte elastica in Silicone o EPDM è fornita come ricambio e può essere sostituita, quando usurata.

La vita media della parte elastica in EPDM è di circa 0.5 milioni di cicli.

La vita media della parte elastica in Silicone è di circa 1 milione di cicli.

Silicone or EPDM?

The elastic part can be in red Silicone, or black EPDM.

Silicone can be used over a wider temperature range and assures a longer life time, but it is not suitable in some industries, because it makes it difficult to paint or to coat the parts that are touched.

EPDM is mark-free and provides a higher coefficient of friction. The elastic part in Silicone or EPDM is available as a spare part and can be replaced, when worn out.

The expected medium life time of the elastic part in EPDM is about 0.5 million cycles.

The expected medium life time of the elastic part in Silicone is about 1 million cycles.

Ricambio per la parte elastica

Spare elastic part



Silicone
Silicone



EPDM

T	MFD / MFU												
	Ø8	Ø10	Ø12	Ø14	Ø16	Ø18	Ø22	Ø27	Ø33	Ø41	Ø47	Ø51	Ø63
-70°C +200°C	IF08S01	IF10S01	IF12S01U	IF14S01U	IF16S01U	IF18S01	IF22S01	IF27S01	IF33S01	IF41S01	IF47S01	IF51S01	IF63S01
-50°C +140°C	IF08E02	IF10E02	IF12E02U	IF14E02U	IF16E02U	IF18E02	IF22E02	IF27E02	IF33E02	IF41E02	IF47E02	IF51E02	IF63E02

T - Temperatura d'esercizio della parte elastica (5÷60°C per il corpo pinza)

T - Operating temperature of the elastic part (5÷60°C for the gripper body)

Coni di centraggio

Sono disponibili come accessori dei coni di centraggio in nylon, con la vite inox.

Per le taglie maggiori di 33, sono anche dotati del foro passante.

Centering cones

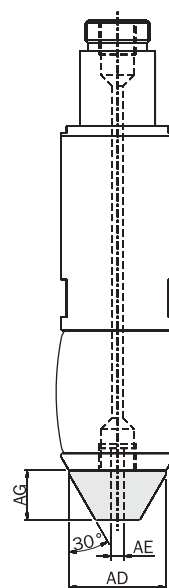
Centering cones in nylon with stainless screw are available as an option.

For sizes larger than 33, they are also provided with a through hole.



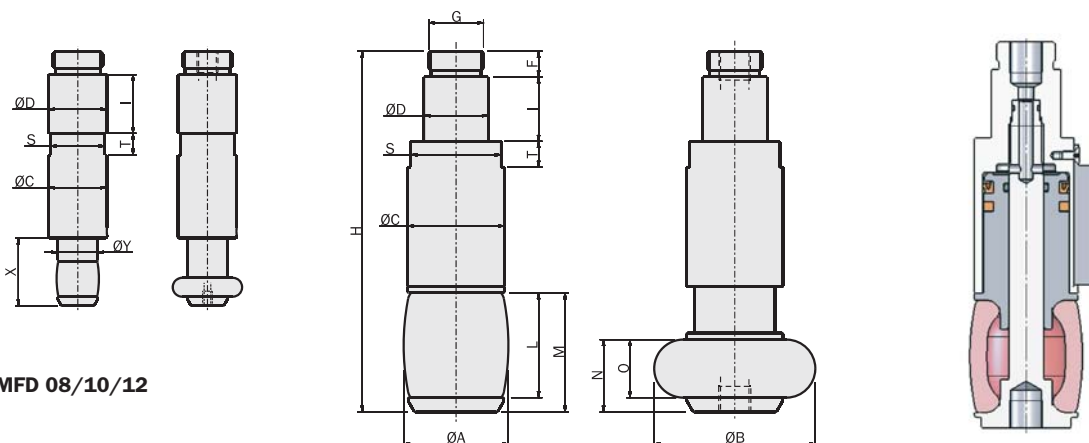
	MFC10	MFC12	MFC14	MFC18	MFC22	MFC27	MFC33	MFC41	MFC51	MFC63
Peso Weight	0.5 g	1 g	1 g	1.5 g	2 g	5 g	7 g	12 g	21 g	30 g
ØAD [mm]	7.8	10	11.8	15.5	18.8	21.3	28	37	47	56
ØAE [mm]	-	-	-	-	-	-	4	4	4	4
ØAG [mm]	2.9	3.5	4.5	6.5	8	9.5	12	19	26	30
MFD MFU	Ø10	Ø12	Ø14 Ø16	Ø18	Ø22	Ø27	Ø33	Ø41 Ø47	Ø51	Ø63

MFD / MFU



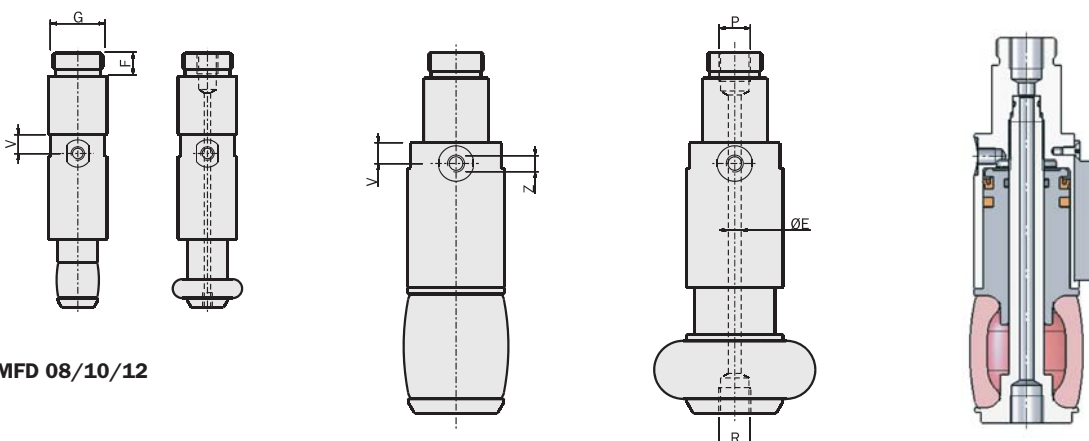
Dimensioni (mm) / Dimensions (mm)

...CL



MFD 08/10/12

...HL



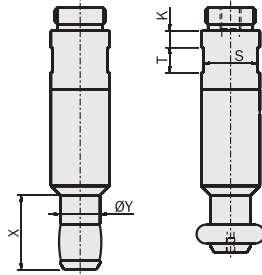
MFD 08/10/12

	m	ØA	ØB	ØC	ØD	ØE	F	G	H	I	L	M	N	O	P	R	S	T	V	Z	X	ØY
MFD08...CL MFD08...HL	15g	8	11	14	14	-1.5	5.5	M12x1	59.2	14	7	9.2	5.7	3.5	M5	M2	13	6	-4.5	-M3	14.7	7.6
MFD10...CL MFD10...HL	16g	10.5	13.5	14	14	-1.5	5.5	M12x1	60.7	14	8.5	10.7	6.7	4.5	M5	M2	13	6	-4.5	-M3	16.2	9.5
MFD12...CL MFD12...HL	17g	13	17	14	14	-2	5.5	M12x1	62	14	10.5	13	7.5	5	M5	M3	13	6	-4.5	-M3	16.8	11.8
MFD14...CL MFD14...HL	17g	15	19.5	14	14	-2	5.5	M12x1	62.3	14	13	15.8	8.8	6	M5	M3	13	6	-4.5	-M3	-	-
MFD16...CL MFD16...HL	17g	18	21.5	14	14	-2	5.5	M12x1	62.3	14	13	15.8	8.8	6	M5	M3	13	6	-4.5	-M3	-	-
MFD18...CL MFD18...HL	28g	19.5	25	18	14	-2.5	5.5	M12x1	70.5	14	16.5	19.5	12	9	M5	M3	16	6	-5.3	-M5	-	-
MFD22...CL MFD22...HL	43g	24	31.5	21.5	14	-2.5	5.5	M12x1	80	14	21	24.2	12.2	11	M5	M3	19	7	-5.5	-M5	-	-
MFD27...CL MFD27...HL	79g	28	37	25	20	-3	8	M17x1	98	20	26	30	18	14	G1/8	M5	22	8	-7	-M5	-	-
MFD33...CL MFD33...HL	118g	34	45	30	20	-4	8	M17x1	112	20	32.5	37	22.5	18	G1/8	G1/8	28	8	-6.5	-M5	-	-
MFD41...CL MFD41...HL	280g	42	54	40	30	-4.3	11	M27x1	142.5	30	39.5	45	29.5	24	G1/8	G1/8	36	11	-7.5	-M5	-	-
MFD47...CL MFD47...HL	280g	50	58	40	30	-4.3	11	M27x1	142.5	30	39.5	45	29.5	24	G1/8	G1/8	36	11	-7.5	-M5	-	-
MFD51...CL MFD51...HL	490g	54	68	50	30	-5.5	11	M27x1	168	30	48	55	37	30	G1/8	G1/8	45	13	-10.5	-G1/8	-	-
MFD63...CL MFD63...HL	800g	66	85	60	30	-6	11	M27x1	198	30	61	70	45	36	G1/8	G1/8	54	16	-14	-G1/8	-	-

m [Peso - Weight]

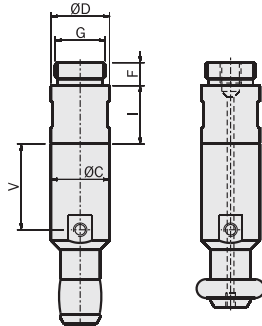
Dimensioni (mm) / Dimensions (mm)

...CL

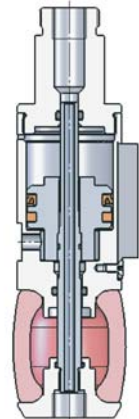
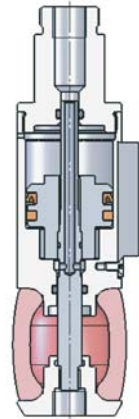
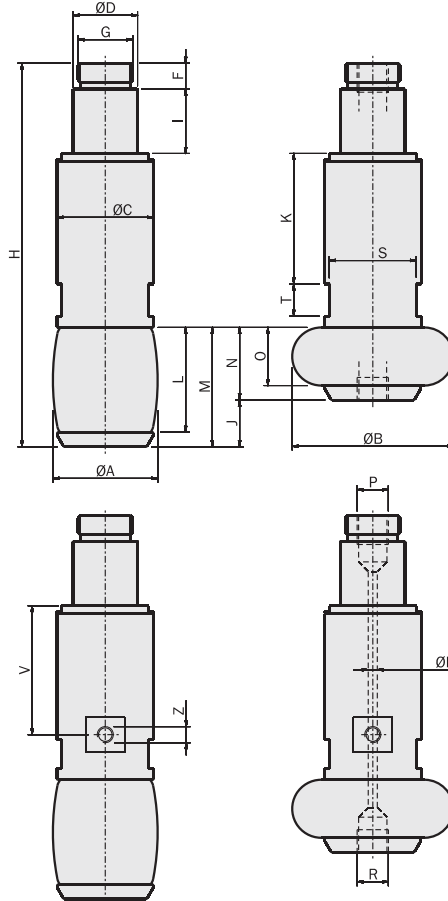


MFU 08/10/12

...HL



MFU 08/10/12



	m	ØA	ØB	ØC	ØD	ØE	F	G	H	I	J	K	L	M	N	O	P	R	S	T	V	Z	X	ØY
MFU08...CL MFU08...HL	16g	8	11	14	14	- 1.1	5.5	M12x1	61.5	14	3.5	4	7	9.2	5.7	3.5	M5	M2	13	6	- 20	- M3	16.3	7.6
MFU10...CL MFU10...HL	17g	10.5	13.5	14	14	- 1.1	5.5	M12x1	62.5	14	4	4	8.5	10.7	6.7	4.5	M5	M2	13	6	- 20.5	- M3	17.7	9.5
MFU12...CL MFU12...HL	18g	13	17	14	14	- 1.3	5.5	M12x1	65	14	5.5	4	10.5	13	7.5	5	M5	M3	13	6	- 21.5	- M3	20	11.8
MFU14...CL MFU14...HL	20g	15	19.5	14	14	- 1.3	5.5	M12x1	68.5	14	7	24.2	13	15.8	8.8	6	M5	M3	13	6	- 23.2	- M3	-	-
MFU16...CL MFU16...HL	20g	18	21.5	14	14	- 1.3	5.5	M12x1	68.5	14	7	24.2	13	15.8	8.8	6	M5	M3	13	6	- 23.2	- M3	-	-
MFU18...CL MFU18...HL	35g	19.5	25	18	14	- 1.3	5.5	M12x1	78	14	7.5	29	16.5	19.5	12	9	M5	M3	16	7	- 28	- M5	-	-
MFU22...CL MFU22...HL	50g	24	31.5	21.5	14	- 1.8	5.5	M12x1	86.5	14	10	31.8	21	24.2	14.2	11	M5	M3	20	8	- 31.5	- M5	-	-
MFU27...CL MFU27...HL	100g	28	37	25	20	- 2.5	8	M17x1	108	20	12	37.5	26	30	18	14	G1/8	M5	22	9	- 37	- M5	-	-
MFU33...CL MFU33...HL	130g	34	45	30	20	- 2.8	8	M17x1	119	20	14.5	40.5	32.5	37	22.5	18	G1/8	G1/8	28	10	- 40	- M5	-	-
MFU41...CL MFU41...HL	300g	42	54	40	30	- 4.5	11	M27x1	147	30	15.5	45	39.5	45	29.5	24	G1/8	G1/8	36	12	- 45	- M5	-	-
MFU47...CL MFU47...HL	300g	50	58	40	30	- 4.5	11	M27x1	147	30	15.5	45	39.5	45	29.5	24	G1/8	G1/8	36	12	- 45	- M5	-	-
MFU51...CL MFU51...HL	500g	54	68	50	30	- 5	11	M27x1	169	30	18	54	48	55	37	30	G1/8	G1/8	45	14	- 56.5	- G1/8	-	-
MFU63...CL MFU63...HL	785g	66	85	60	30	- 5	11	M27x1	194	30	25	62	61	70	45	36	G1/8	G1/8	54	16	- 64.5	- G1/8	-	-

m [Peso - Weight]

Diametri di presa

La taglia è indicata nel codice con un diametro nominale della parte elastica.

Ma ogni modello può lavorare fra un diametro minimo ed un diametro massimo.

Grip diameters

The gripper size is indicated in the gripper code with a nominal diameter of the elastic part.

Each model can work in a diameter range between a minimum and a maximum value.

		Diametro (mm) / Diameter (mm)											
		10	20	30	40	50	60	70	80				
Taglia MFD-MFU / MFD-MFU Size	08	8	11										
	10	10.5	13.5										
	12		13	17									
	14		15	19.5									
	16			18	21.5								
	18			19.5	25								
	22				24	31.5							
	27				28	37							
	33				34	45							
	41					42	54						
	47					50	58						
	51					54	68						
	63						66	85					

Fissaggio

La pinza può essere montata, con una staffa a cravatta, direttamente sul suo codolo [1].

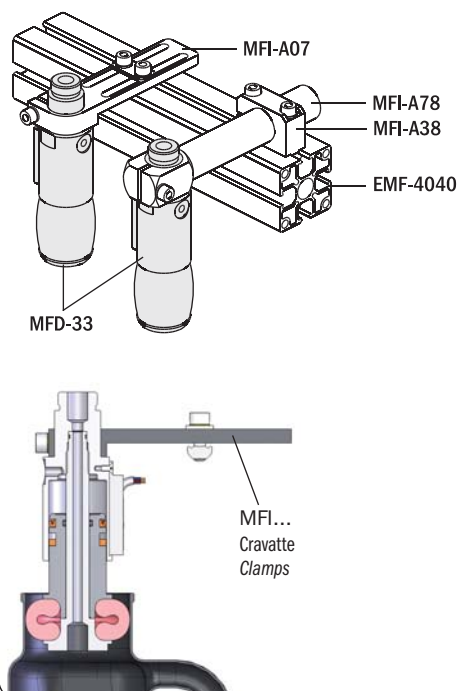
Con una staffa a cravatta, sulla prolunga opzionale [2]. Oppure attraverso i nipples filettati opzionali [3].

Fastening

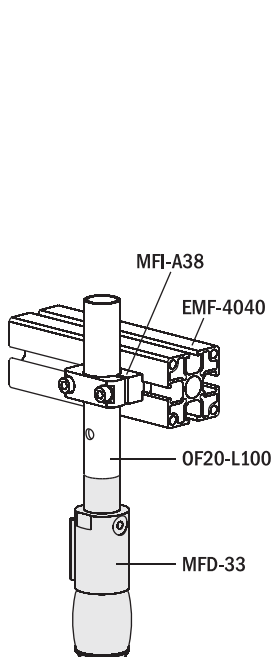
The gripper can be fitted with a clamp, either directly on its tail [1], or on the optional extension tube [2].

Alternatively, it can be fitted through the optional threaded nipples [3].

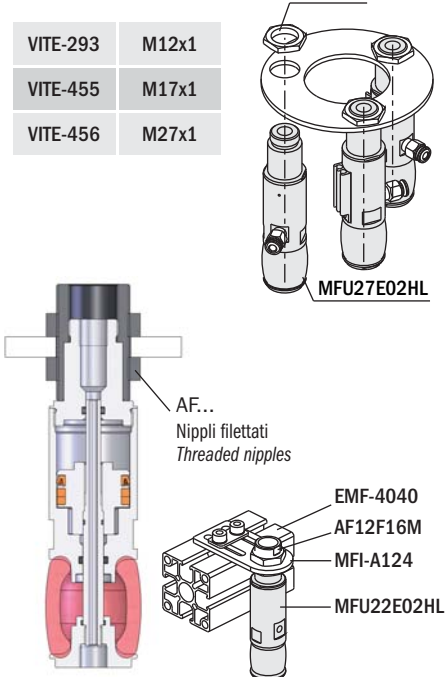
[1]



[2]



[3]



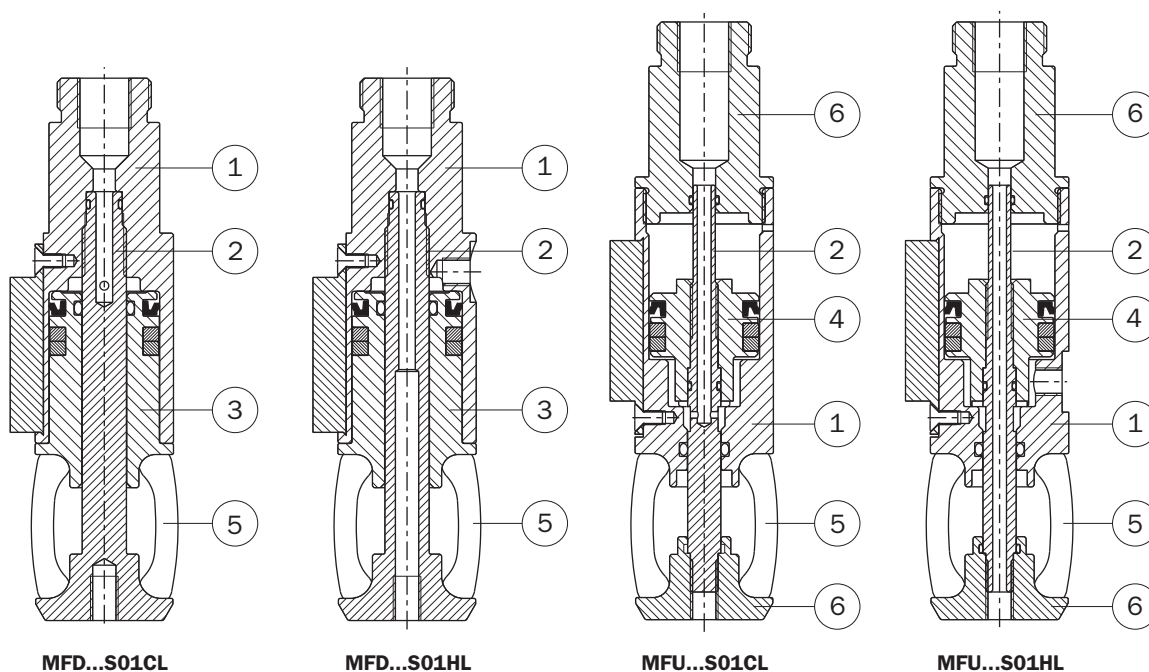
Applicazioni nell'industria alimentare

Le versioni S01, cioè quelle con la parte elastica in Silicone, sono adatte per la maggior parte delle applicazioni nell'industria alimentare, in quanto le parti che possono venire in contatto con l'alimento sono:

Food applications

The S01 versions, the ones with the elastic part in Silicone, are suitable for most of the food applications, as the parts intended to come into contact with food are:

1	Corpo <i>Housing</i>	EN AW-6026-T6	Alluminio ossidato ANSI/NSF 51 <i>Oxidized aluminum ANSI/NSF 51</i>
2	Stelo <i>Piston rod</i>	EN AW-6026-T6	Alluminio ossidato ANSI/NSF 51 <i>Oxidized aluminum ANSI/NSF 51</i>
3	Pistone MFD <i>Piston MFD</i>	POM-C	Resina acetica FDA CFR 21 Part section 177.2470 <i>Acetal FDA CFR 21 Part section 177.2470</i>
4	Pistone MFU <i>Piston MFU</i>	EN AW-6026-T6	Alluminio ossidato ANSI/NSF 51 <i>Oxidized aluminum ANSI/NSF 51</i>
5	Parte elastica <i>Elastic part</i>	VMQ	Elastomero Silicone FDA CFR 21 Part section 177.2600 <i>Elastomer Silicone FDA CFR 21 Part section 177.2600</i>
6	Terminale <i>End cap</i>	EN AW-6026-T6	Alluminio ossidato ANSI/NSF 51 <i>Oxidized aluminum ANSI/NSF 51</i>
	Grasso <i>Grease</i>	BERULUB FG-H 2 SL	Lubrificante NSF H1 Registration no. 135919 <i>Lubricant NSF H1 Registration no. 135919</i>

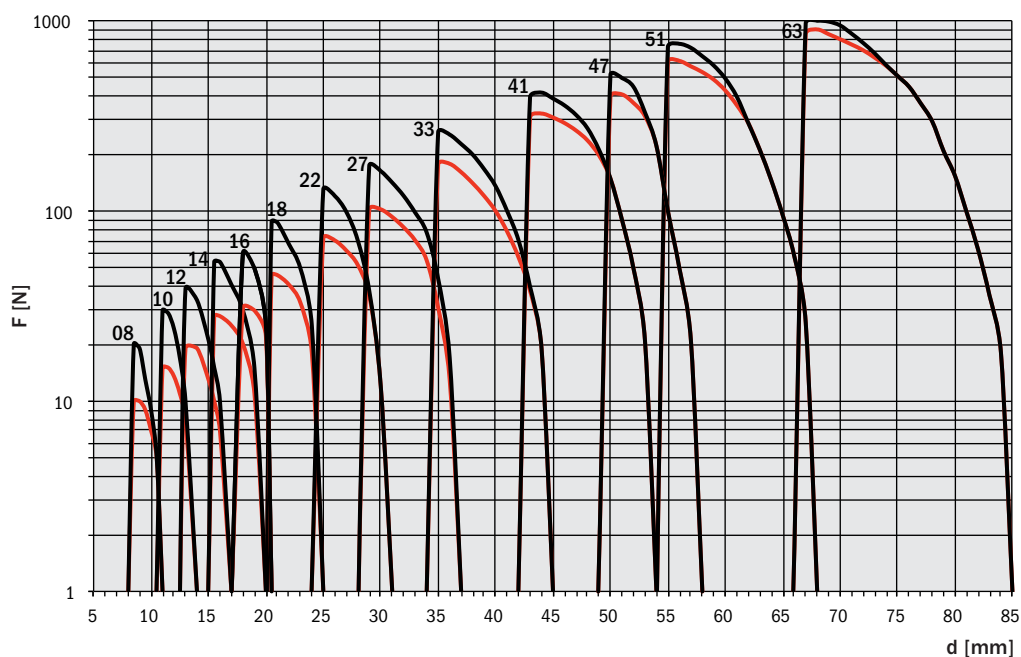
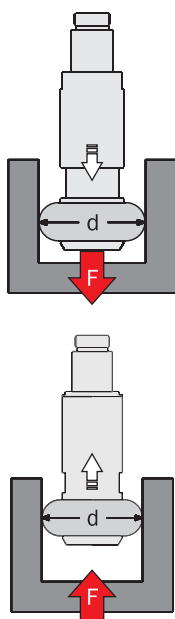
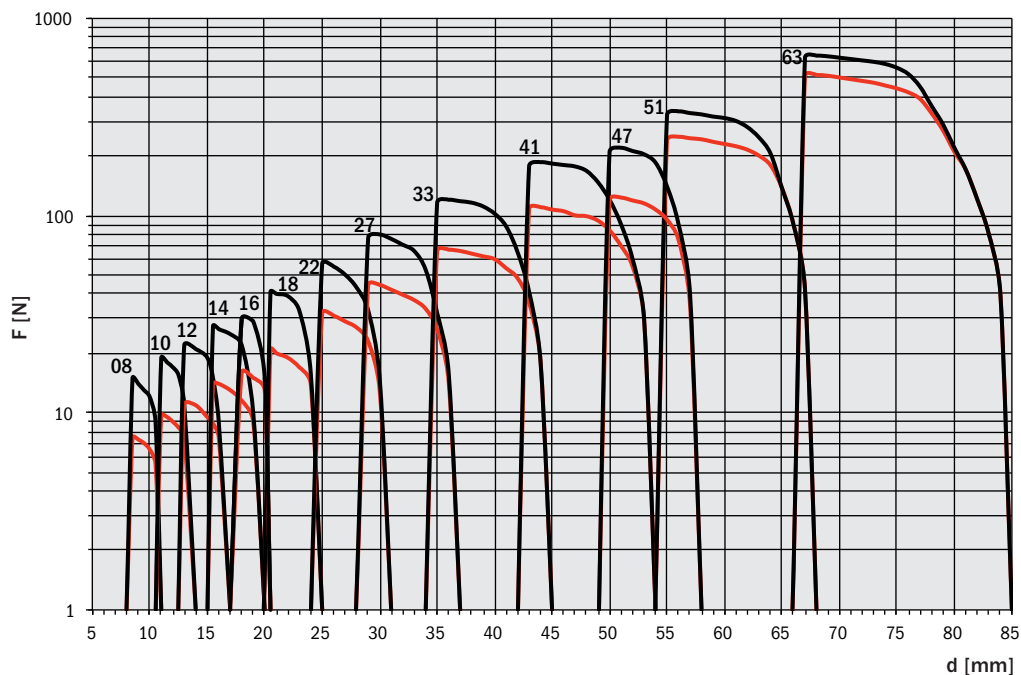
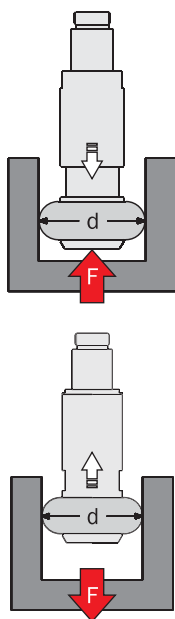


Forza di serraggio

La forza esercitata da una pinza MFD/MFU dipende da molteplici fattori. Principalmente il diametro dell'oggetto, ma anche la sua finitura superficiale, il coefficiente di attrito e la pressione di alimentazione. I grafici mostrano la forza di sfilamento (F) di un carico preso con la pinza a espansione, in funzione del diametro (d). Per le misurazioni sono stati usati anelli di alluminio, con rugosità $Ra=0.8$ e le pinze alimentate a 6 bar. Le linee nere si riferiscono alle pinze in EPDM e quelle rosse alle pinze in Silicone.

Gripping force

The force output of an MFD/MFU gripper depends on several variables. Mainly on the diameter of the picked object, but also on the surface finishing, the coefficient of friction and the air pressure. The graphs show the extraction force (F) on the gripped object as a function of its diameter (d). Measurements were performed with aluminum rings, with roughness $Ra=0.8$ while the grippers were fed with 6 bar compressed air. The black lines refer to the grippers in EPDM, while the red ones to the grippers in Silicone.



Connessione pneumatica

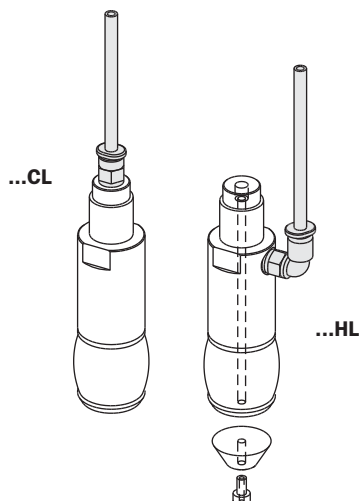
La pinza è azionata con aria compressa filtrata ($5\div 40\ \mu\text{m}$) non necessariamente lubrificata.

La scelta iniziale, lubrificata o non lubrificata, deve essere mantenuta per tutta la vita della pinza.

L'impianto pneumatico deve essere pressurizzato gradualmente, per evitare movimenti incontrollati.

La forza di serraggio può essere regolata con la pressione di alimentazione.

Il campo operativo è $4\div 8\ \text{bar}$.



Compressed air feeding

The compressed air feeding the gripper must be filtered ($5\div 40\ \mu\text{m}$) but not necessarily lubricated.

The type of medium selected at the start – lubricated or not lubricated – must be kept for the complete service life of the gripper.

The pneumatic circuit must be pressurized progressively, to avoid uncontrolled movements.

The gripping force can be adjusted by suitably adjusting the air pressure.

The pressure range is $4\div 8\ \text{bar}$.



Circuito pneumatico

Possibili inconvenienti sul circuito di alimentazione dell'aria compressa:

- 1- Oscillazioni di pressione.
- 2- Riempimento pinza vuota all'avvio.
- 3- Velocità di azionamento eccessiva.

Accorgimenti per risolvere i problemi:

- 1- Serbatoio esterno (A).
- 2- Valvola di avviamento progressivo (B).
- 3- Regolatori di flusso (C).

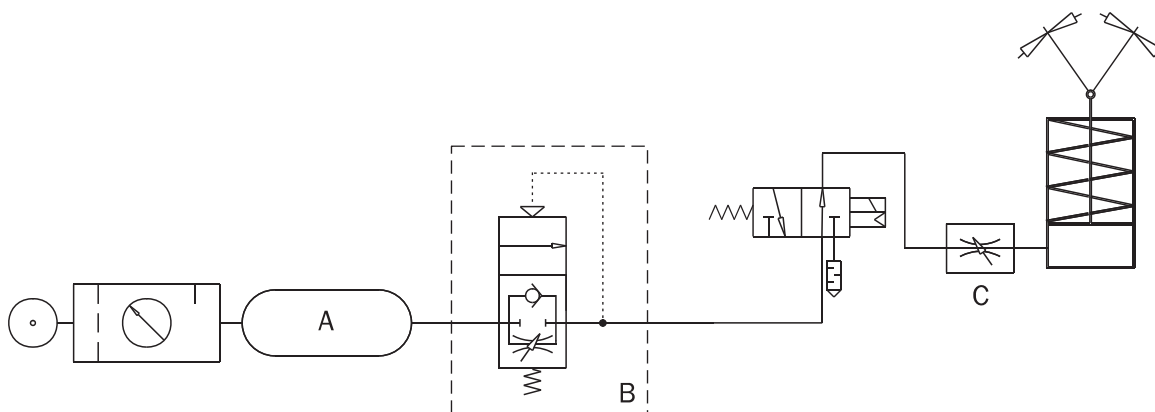
Pneumatic circuit

Possible problems on a compressed air circuit:

- 1- Pressure variation.
- 2- Pressurizing with empty cylinder.
- 3- Excessive speed of the jaws.

Possible solutions:

- 1- Compressed air storage (A).
- 2- Start-up valve (B).
- 3- Flow controller (C).



Manutenzione

Non è necessaria alcuna manutenzione periodica.
La parte elastica in Silicone o EPDM è fornita come ricambio e può essere sostituita, quando usurata.
Per smontarla la si può tagliare (nella direzione mostrata nella foto).
Il ricambio si può calzare senza smontare la pinza.
Non deve essere nè incollato, nè ingrassato.

Maintenance

No periodic maintenance is necessary.
The elastic part in Silicone or EPDM is available as a spare part and can be replaced, when worn out.
It can be cut (direction showed in the photo) to remove it from the gripper body.
It is not necessary to dismantle the gripper to fit the new elastic part.
It must not be glued nor greased.

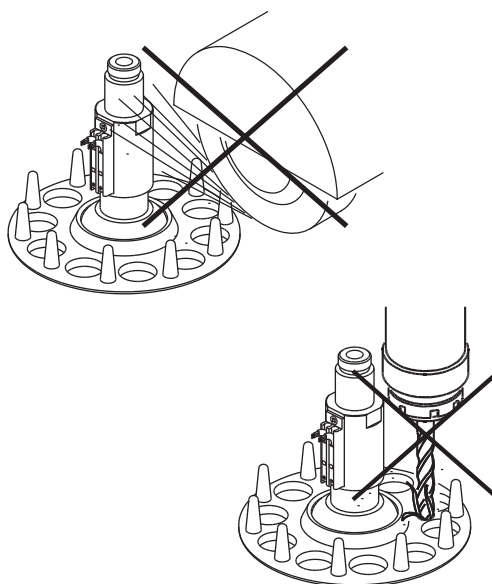
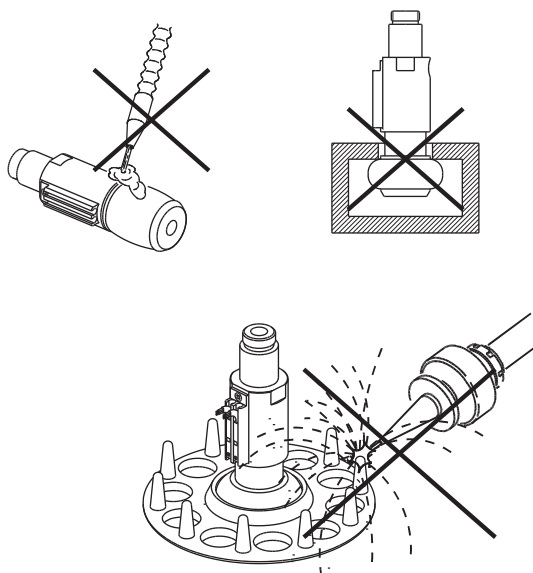


Avvertenze

Evitare il contatto con sostanze corrosive, spruzzi di saldatura, polveri abrasive, che potrebbero danneggiare la funzionalità della pinza.
Per nessun motivo, persone od oggetti estranei devono entrare nel raggio d'azione della pinza.
La pinza non deve essere messa in servizio prima che la macchina di cui fa parte sia stata dichiarata conforme alle disposizioni di sicurezza vigenti.

Caution

Avoid the gripper coming into contact with the following media: coolants which cause corrosion, grinding dust or glowing sparks.
Make sure that nobody can place his/her hand in the working area and there are no objects in the path of the gripper.
The gripper must not run before the whole machine, on which it is mounted, complies with the laws or safety norms of your country.



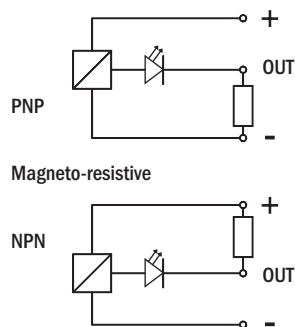
Sensori

Nelle taglie più grandi un magnete è integrato nel pistone.
E' disponibile un accessorio per montare i sensori della serie SN. Possono essere fissati uno o due sensori per pinza.

Sensors

In the larger sizes a magnet is integrated in the piston.
An optional housing for the sensors of the SN series is available.
One or two sensors can be fitted on a gripper.

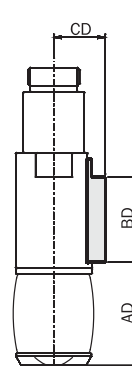
SN		
SN4N225-G	PNP	Cavo 2.5m / 2.5m Cable
SN4M225-G	NPN	Cavo 2.5m / 2.5m Cable
SN3N203-G	PNP	Connettore M8 / Snap M8 plug connector
SN3M203-G	NPN	Connettore M8 / Snap M8 plug connector



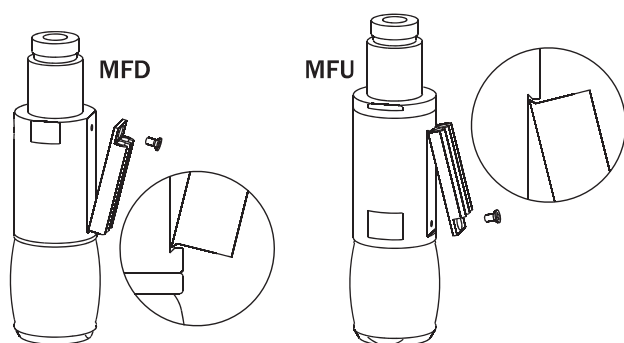
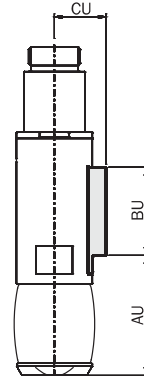
	MFD27-K	MFD33-K	MFD41-K	MFD51-K	MFD63-K
Peso Weight	4 g	5 g	5 g	6 g	7 g
AD [mm]	34	41.5	52	65	85.5
BD [mm]	28	34.5	40.5	49	54.5
CD [mm]	17	19.7	23.8	28.5	33.5
MFD	Ø27	Ø33	Ø41 Ø47	Ø51	Ø63

	MFU27-K	MFU33-K	MFU41-K	MFU51-K	MFU63-K
Peso Weight	4 g	5 g	5 g	6 g	7 g
AU [mm]	39.5	46.5	55.5	71.5	87.5
BU [mm]	29	33	36.5	39	45
CU [mm]	17	19.8	23.8	28.5	33.5
MFU	Ø27	Ø33	Ø41 Ø47	Ø51	Ø63

MFD



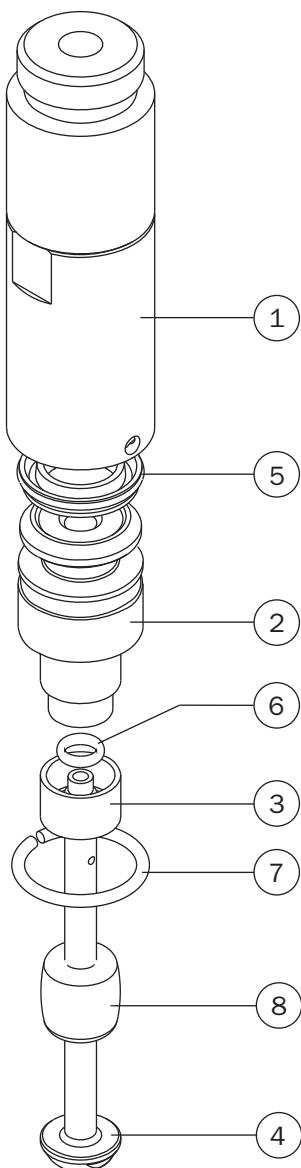
MFU



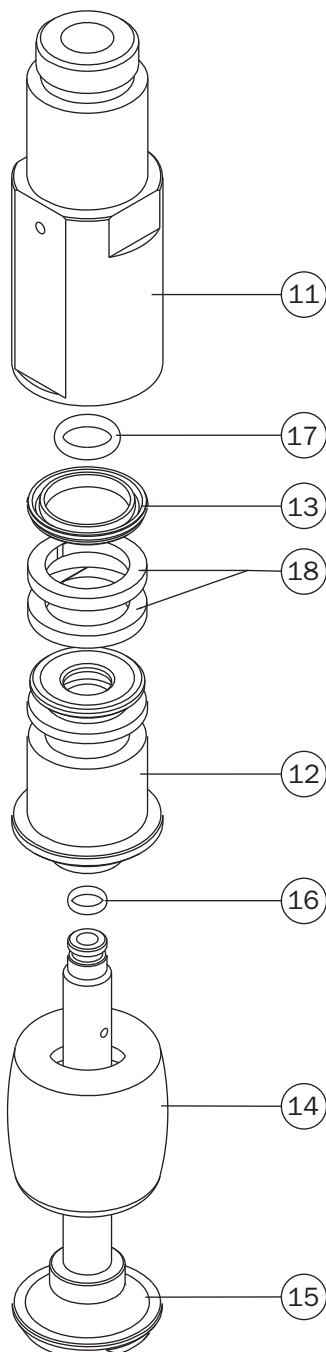
Vista esplosa / Exploded view

PINZE AD ESPANSIONE
AIR HANDS

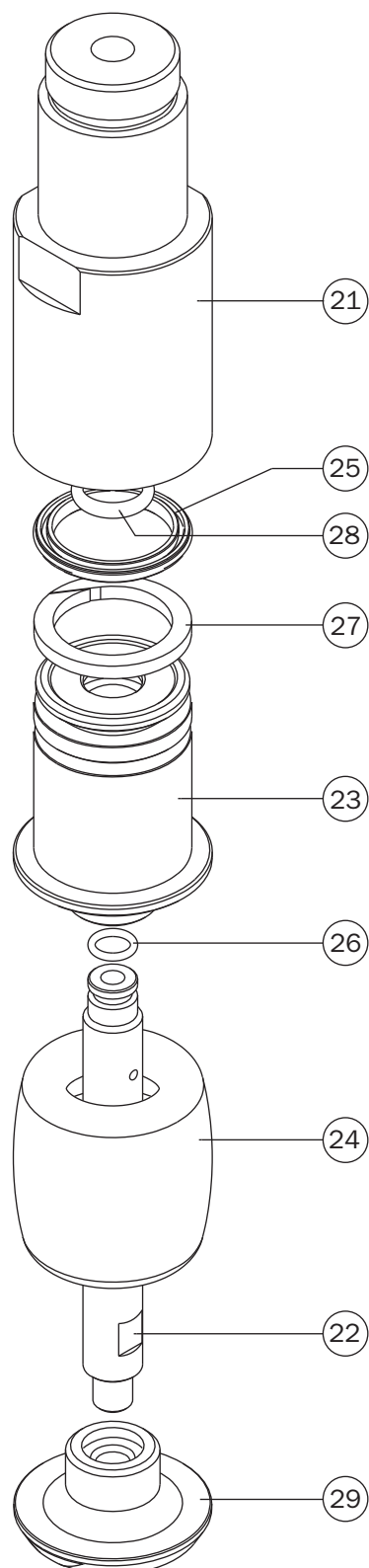
MFD08CL
MFD10CL



MFD12CL
MFD14CL
MFD16CL
MFD18CL
MFD22CL
MFD27CL
MFD33CL



MFD41CL
MFD47CL
MFD51CL
MFD63CL



Elenco delle parti / Part list

		MFD08CL	MFD10CL		
1	Corpo	MFD08-02	MFD08-02	Body	1
2	Pistone	FFD08-01	FFD10-02	Piston	2
3	Coperchio	IFD08-02	IFD10-03	Cover	3
4	Stelo pistone	FFD08-03	FFD10-05	Piston rod	4
5	Guarnizione dinamica	12x7x3 (GUAR-018)	12x7x3 (GUAR-018)	Dynamic gasket	5
6	O-Ring	1x3 (GUAR-082H)	1x3 (GUAR-082H)	O-Ring	6
7	Anello elastico	D1=12 DIN-7993B (SEEGER-027)	D1=12 DIN-7993B (SEEGER-027)	Snap-ring	7
8	Parte elastica	IF08-11	IF10-11	Elastic part	8

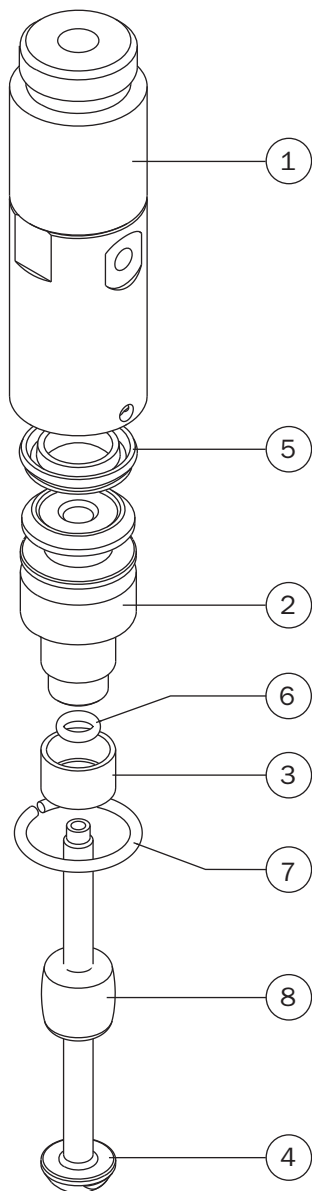
		MFD12CL	MFD14CL	MFD16CL	MFD18CL	MFD22CL	MFD27CL	MFD33CL		
11	Corpo	MFD12-02	MFD12-02	MFD12-02	MFD18-02	MFD22-02	MFD27-02	MFD33-01	Body	11
12	Pistone	FFD12-01	FFD14-02	FFD14-02	FFD18-02	FFD22-02	FFD27-03	FFD33-03	Piston	12
13	Guarnizione dinamica	12x7x3 (GUAR-018)	12x7x3 (GUAR-018)	12x7x3 (GUAR-018)	15x9x3 (GUAR-019)	18x12x3 (GUAR-133)	20x14x3 (GUAR-058)	25x19x3.5 (GUAR-064)	Dynamic gasket	13
14	Parte elastica	IF12-12	IF14-12	IF16-12	IF18-11	IF22-12	IF27-11	IF33-11	Elastic part	14
15	Stelo pistone	FFD12-03	FFD14-05	FFD14-05	FFD18-06	FFD22-06	FFD27-06	FFD33-06	Piston rod	15
16	O-Ring	-	-	-	-	-	1x4.5 (GUAR-171)	1x6 (GUAR-098)	O-Ring	16
17	O-Ring	1x4 (GUAR-091H)	1x4 (GUAR-091H)	1x4 (GUAR-091H)	1x5 (GUAR-021H)	1x6 (GUAR-098H)	1.78x7.66 (GUAR-045H)	1.78x9.25 (GUAR-065H)	O-Ring	17
18	Magnete	-	-	-	-	-	PAR-20-10B	PAR-25-10B	Magnet	18

		MFD41CL	MFD47CL	MFD51CL	MFD63CL		
21	Corpo	MFD41-02	MFD41-02	MFD51-02	MFD63-02	Body	21
22	Stelo pistone	FFD41-09	FFD41-09	FFD51-07	FFD63-07	Piston rod	22
23	Pistone	FFD41-03	FFD41-03	FFD51-03	FFD63-03	Piston	23
24	Parte elastica	IF41-11	IF47-11	IF51-11	IF63-11	Elastic part	24
25	Guarnizione dinamica	32x24x3.5 (GUAR-063)	32x24x3.5 (GUAR-063)	40x32x3.5 (GUAR-092)	50x42x3.5 (GUAR-114E)	Dynamic gasket	25
26	O-Ring	1.5x7 (GUAR-115)	1.5x7 (GUAR-115)	1.78x8.73 (GUAR-013)	1.78x9.25 (GUAR-065)	O-Ring	26
27	Magnete	FES-32-3-5	FES-32-3-5	RAD-40-10	FES-50-3-6	Magnet	27
28	O-Ring	2.62x11.91 (GUAR-033H)	2.62x11.91 (GUAR-033H)	2.62x15.08 (GUAR-105H)	2.62x15.88 (GUAR-169H)	O-Ring	28
29	Terminale	FFD41-04	FFD41-04	FFD51-04	FFD63-05	Rod cap	29

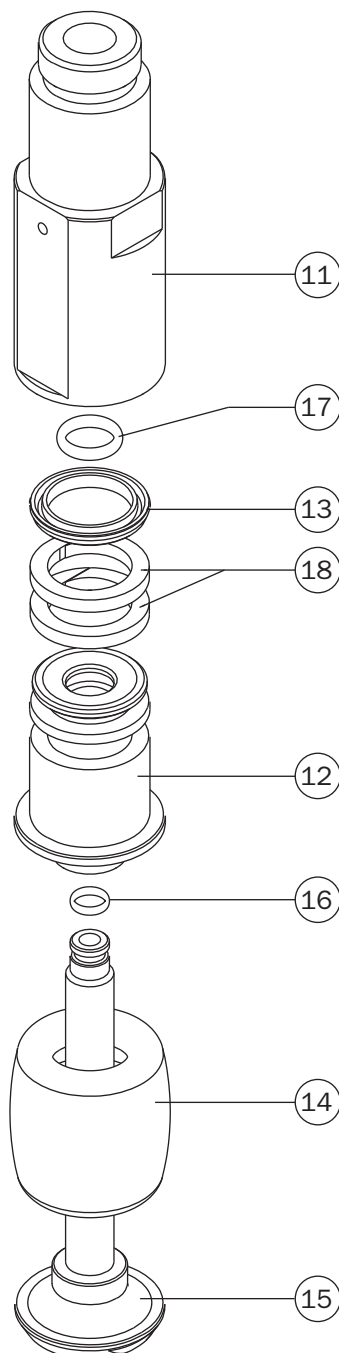
Vista esplosa / Exploded view

PINZE AD ESPANSIONE
AIR HANDS

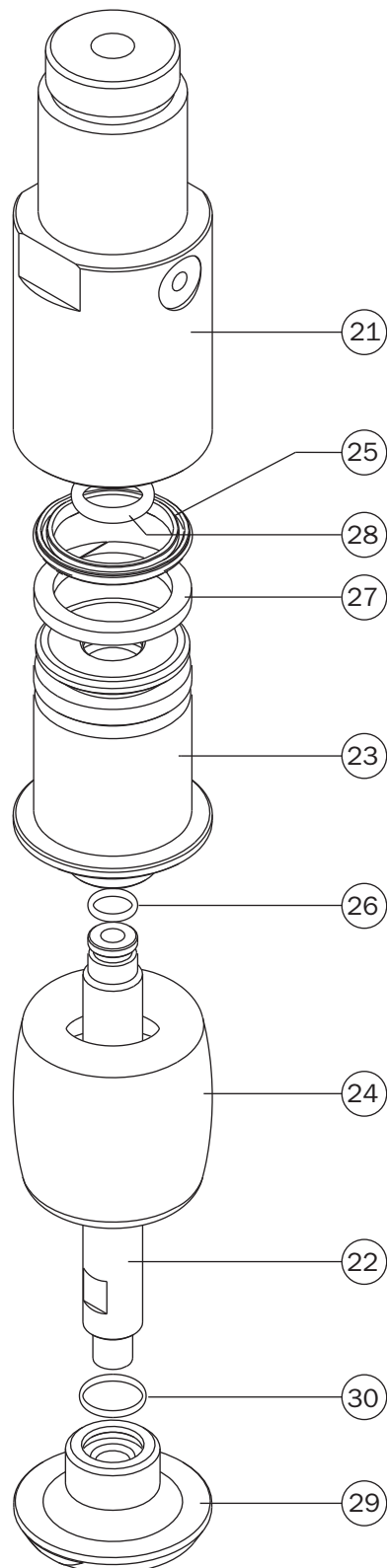
MFD08HL
MFD10HL



MFD12HL
MFD14HL
MFD16HL
MFD18HL
MFD22HL
MFD27HL
MFD33HL



MFD41HL
MFD47HL
MFD51HL
MFD63HL



Elenco delle parti / Part list

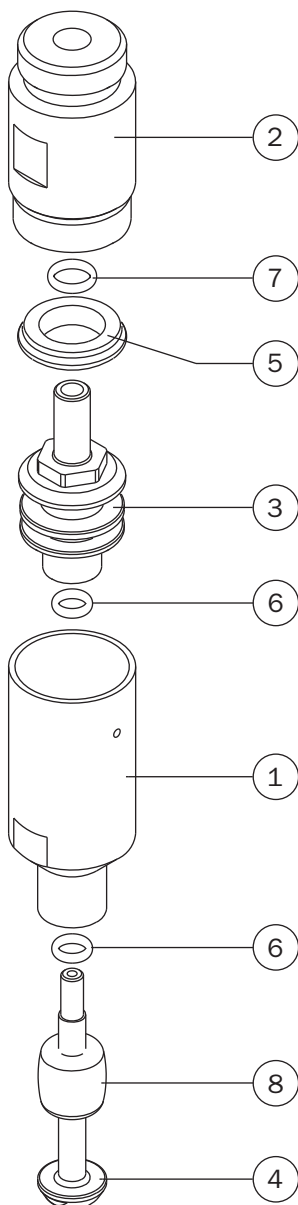
		MFD08HL	MFD10HL		
1	Corpo	MFD08-01	MFD08-01	Body	1
2	Pistone	MFD08-01	MFD10-02	Piston	2
3	Coperchio	IFD08-02	IFD10-03	Cover	3
4	Stelo pistone	FFD08-02	FFD10-03	Piston rod	4
5	Guarnizione dinamica	12x7x3 (GUAR-018)	12x7x3 (GUAR-018)	Dynamic gasket	5
6	O-Ring	1x3 (GUAR-082H)	1x3 (GUAR-082H)	O-Ring	6
7	Anello elastico	D1=12 DIN-7993B (SEEGER-027)	D1=12 DIN-7993B (SEEGER-027)	Snap-ring	7
8	Parte elastica	IF08-11	IF10-11	Elastic part	8

		MFD12HL	MFD14HL	MFD16HL	MFD18HL	MFD22HL	MFD27HL	MFD33HL		
11	Corpo	MFD12-01	MFD12-01	MFD12-01	MFD18-01	MFD22-01	MFD27-01	MFD33-03	Body	11
12	Pistone	FFD12-01	FFD14-02	FFD14-02	FFD18-02	FFD22-02	FFD27-03	FFD33-03	Piston	12
13	Guarnizione dinamica	12x7x3 (GUAR-018)	12x7x3 (GUAR-018)	12x7x3 (GUAR-018)	15x9x3 (GUAR-019)	18x12x3 (GUAR-133)	20x14x3 (GUAR-058)	25x19x3.5 (GUAR-063)	Dynamic gasket	13
14	Parte elastica	IF12-12	IF14-12	IF16-12	IF18-11	IF22-12	IF27-11	IF33-11	Elastic part	14
15	Stelo pistone	FFD12-02	FFD14-03	FFD14-03	FFD18-03	FFD22-03	FFD27-02	FFD33-02	Piston rod	15
16	O-Ring	-	-	-	-	-	1x4.5 (GUAR-171)	1x6 (GUAR-098)	O-Ring	16
17	O-Ring	1x4 (GUAR-091H)	1x4 (GUAR-091H)	1x4 (GUAR-091H)	1x5 (GUAR-021H)	1x6 (GUAR-098H)	1.78x7.66 (GUAR-045H)	1.78x9.25 (GUAR-065H)	O-Ring	17
18	Magnete	-	-	-	-	-	PAR-20-10B	PAR-25-10B	Magnet	18

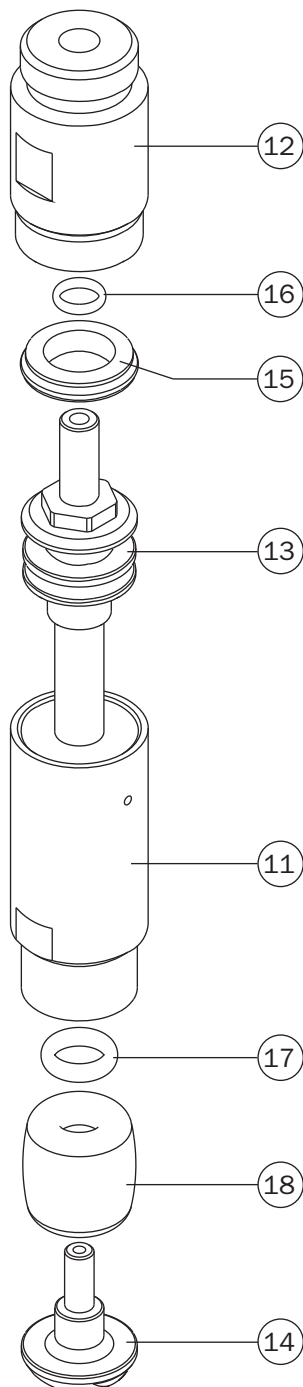
		MFD41HL	MFD47HL	MFD51HL	MFD63HL		
21	Corpo	MFD41-01	MFD41-01	MFD51-01	MFD63-01	Body	21
22	Stelo pistone	FFD41-02	FFD41-02	FFD51-02	FFD63-02	Piston rod	22
23	Pistone	FFD41-03	FFD41-03	FFD51-03	FFD63-03	Piston	23
24	Parte elastica	IF41-11	IF47-11	IF51-11	IF63-11	Elastic part	24
25	Guarnizione dinamica	32x24x3.5 (GUAR-063)	32x24x3.5 (GUAR-063)	40x32x3.5 (GUAR-092)	50x42x3.5 (GUAR-114E)	Dynamic gasket	25
26	O-Ring	1.5x7 (GUAR-115)	1.5x7 (GUAR-115)	1.78x8.73 (GUAR-013)	1.78x9.25 (GUAR-065)	O-Ring	26
27	Magnete	FES-32-3-5	FES-32-3-5	RAD-40-10	FES-50-3-6	Magnet	27
28	O-Ring	2.62x11.91 (GUAR-033H)	2.62x11.91 (GUAR-033H)	2.62x15.08 (GUAR-105H)	2.62x15.88 (GUAR-169H)	O-Ring	28
29	Terminale	FFD41-04	FFD41-04	FFD51-04	FFD63-05	Rod cap	29
30	O-Ring	1x2 (GUAR-071)	1x2 (GUAR-071)	1.78x14 (GUAR-007)	1.78x15.6 (GUAR-023)	O-Ring	30

Vista esplosa / Exploded view

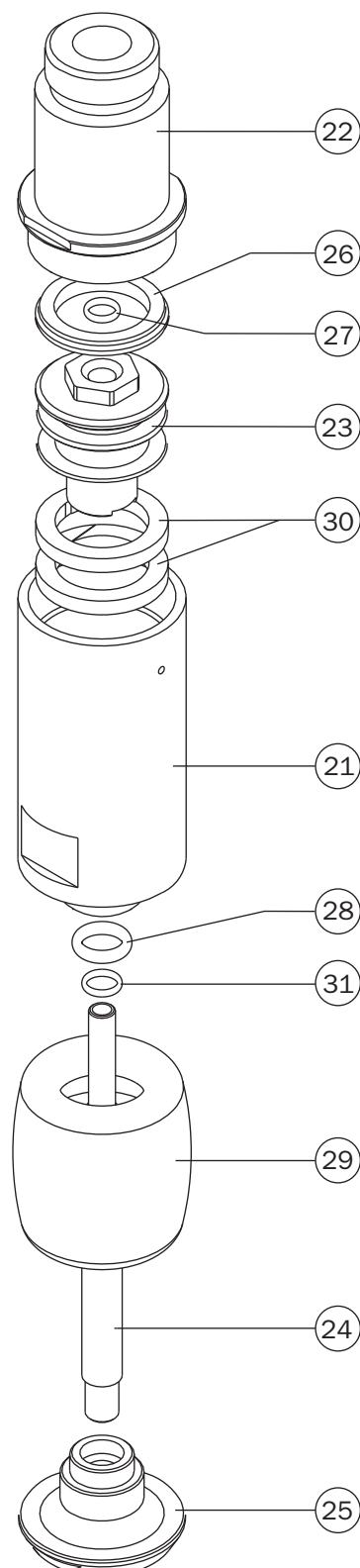
MFU08CL
MFU10CL



MFU12CL
MFU14CL
MFU16CL
MFU18CL



MFU22CL
MFU27CL
MFU33CL
MFU41CL
MFU47CL
MFU51CL
MFU63CL



Elenco delle parti / Part list

		MFU08CL	MFU10CL		
1	Corpo	FFU08-06	FFU10-04	Body	1
2	Testata	MFU08-01	MFU08-01	Head	2
3	Pistone	FFU08-02	FFU08-02	Piston	3
4	Stelo pistone	FFU08-05	FFU10-03	Piston rod	4
5	Guarnizione dinamica	12x7x3 (GUAR-018)	12x7x3 (GUAR-018)	Dynamic gasket	5
6	O-Ring	1x3 (GUAR-082H)	1x3 (GUAR-082H)	O-Ring	6
7	O-Ring	1x4 (GUAR-091H)	1x4 (GUAR-091H)	O-Ring	7
8	Parte elastica	IF08-11	IF10-11	Elastic part	8

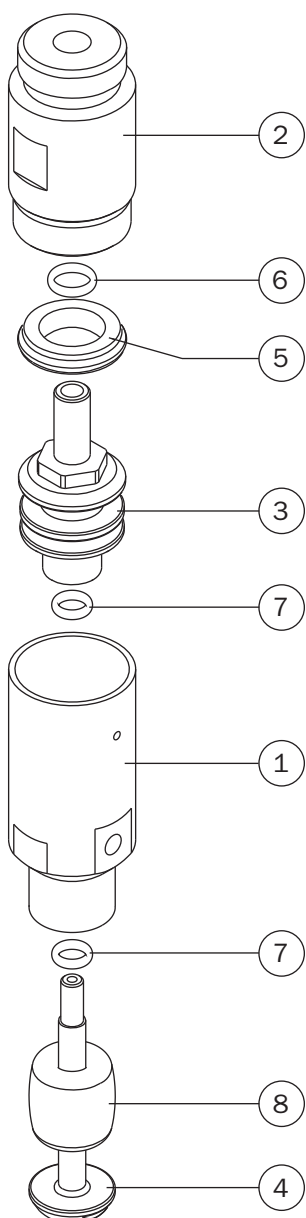
		MFU12CL	MFU14CL	MFU16CL	MFU18CL		
11	Corpo	FFU12-04	FFU14-04	FFU14-04	FFU18-05	Body	11
12	Testata	MFU08-01	MFU08-01	MFU08-01	MFU18-01	Head	12
13	Pistone	FFU12-05	FFU14-05	FFU14-05	FFU18-06	Piston	13
14	Terminale	FFU12-03	FFU14-03	FFU14-03	FFU18-04	Rod cap	14
15	Guarnizione dinamica	12x7x3 (GUAR-018)	12x7x3 (GUAR-018)	12x7x3 (GUAR-018)	15x9x3 (GUAR-019)	Dynamic gasket	15
16	O-Ring	1x4 (GUAR-091H)	1x4 (GUAR-091H)	1x4 (GUAR-091H)	1x4 (GUAR-091H)	O-Ring	16
17	O-Ring	1x4.48 (GUAR-029H)	1x4.48 (GUAR-029H)	1x4.48 (GUAR-029H)	1x4.48 (GUAR-029H)	O-Ring	17
18	Parte elastica	IF12-12	IF14-12	IF16-12	IF18-11	Elastic part	18

		MFU22CL	MFU27CL	MFU33CL	MFU41CL	MFU47CL	MFU51CL	MFU63CL		
21	Corpo	FFU22-07	FFU27-07	FFU33-07	FFU41-07	FFU41-07	FFU51-07	FFU63-07	Body	21
22	Testata	MFU22-01	MFU27-01	MFU33-01	MFU41-01	MFU41-01	MFU51-01	MFU63-01	Head	22
23	Pistone	FFU22-03	FFU27-03	FFU33-03	FFU41-03	FFU41-03	FFU51-03	FFU63-03	Piston	23
24	Stelo pistone	FFU22-06	FFU27-08	FFU33-08	FFU41-08	FFU41-08	FFU51-08	FFU63-08	Piston rod	24
25	Terminale	FFU22-05	FFU27-05	FFU33-05	FFU41-05	FFU41-05	FFU51-05	FFU63-05	Rod cap	25
26	Guarnizione dinamica	18x12x3 (GUAR-133P)	20x14x3 (GUAR-058)	25x19x3.5 (GUAR-064)	32x24x3.5 (GUAR-063)	32x24x3.5 (GUAR-063)	40x32x3.5 (GUAR-092)	50x42x3.5 (GUAR-114E)	Dynamic gasket	26
27	O-Ring	1x3 (GUAR-082H)	1x4 (GUAR-091H)	1x4.48 (GUAR-029H)	2.62x7.6 (GUAR-060H)	2.62x7.6 (GUAR-060H)	2.62x7.6 (GUAR-060H)	2.62x7.6 (GUAR-060H)	O-Ring	27
28	O-Ring	1x5 (GUAR-021)	1.78x6.07 (GUAR-039H)	1.78x6.75 (GUAR-012H)	1.78x10.82 (GUAR-080H)	1.78x10.82 (GUAR-080H)	2.62x11.91 (GUAR-033H)	2.62x13.95 (GUAR-141H)	O-Ring	28
29	Parte elastica	IF22-12	IF27-11	IF33-11	IF41-11	IF47-11	IF51-11	IF63-11	Elastic part	29
30	Magnete	-	PAR-20-10B	PAR-25-10B	FES-32-3-5	FES-32-3-5	RAD-40-10	FES-50-3-6	Magnet	30
31	O-Ring	1x4.48 (GUAR-029H)	1x4 (GUAR-091H)	1x5 (GUAR-021)	1x9 (GUAR-168)	1x9 (GUAR-168)	1x10 (GUAR-089)	1x12 (GUAR-071)	O-Ring	31

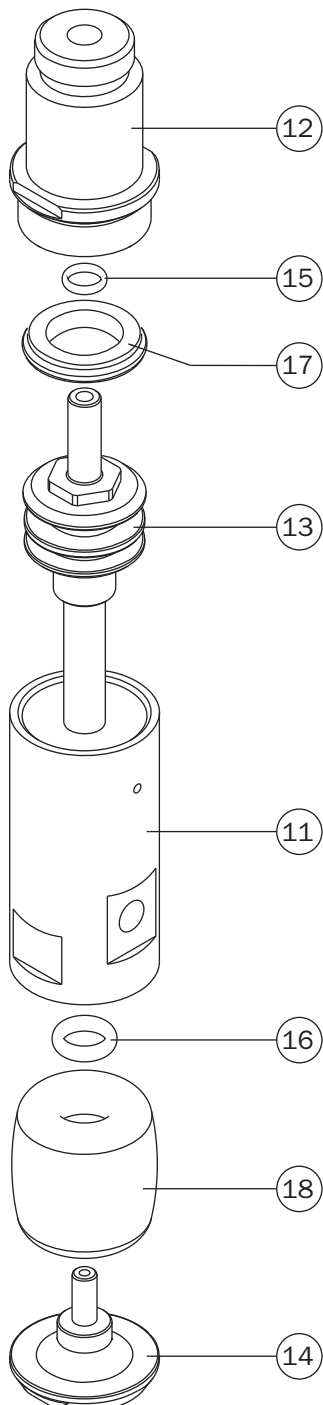
PINZE AD ESPANSIONE
AIR HANDS

Vista esplosa / Exploded view

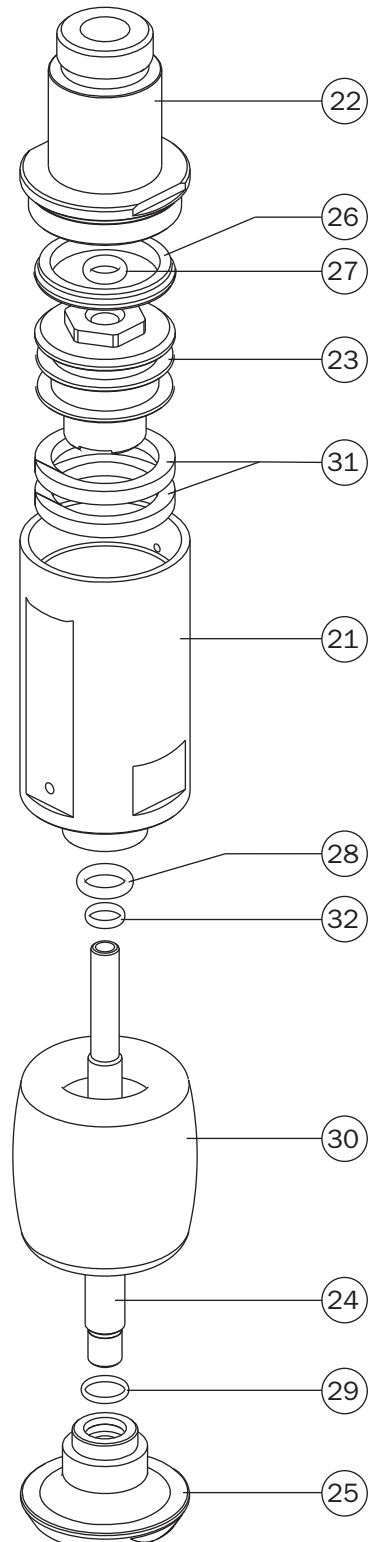
MFU08HL
MFU10HL



MFU12HL
MFU14HL
MFU16HL
MFU18HL



MFU22HL
MFU27HL
MFU33HL
MFU41HL
MFU47HL
MFU51HL
MFU63HL



Elenco delle parti / Part list

		MFU08HL	MFU10HL		
1	Corpo	FFU08-03	FFU10-01	Body	1
2	Testata	MFU08-01	MFU08-01	Head	2
3	Pistone	FFU08-02	FFU08-02	Piston	3
4	Stelo pistone	FFU08-04	FFU10-02	Piston rod	4
5	Guarnizione dinamica	12x7x3 (GUAR-018)	12x7x3 (GUAR-018)	Dynamic gasket	5
6	O-Ring	1x4 (GUAR-091H)	1x4 (GUAR-091H)	O-Ring	6
7	O-Ring	1x3 (GUAR-082H)	1x3 (GUAR-082H)	O-Ring	7
8	Parte elastica	IF08-11	IF10-11	Elastic part	8

		MFU12HL	MFU14HL	MFU16HL	MFU18HL		
11	Corpo	FFU12-01	FFU14-01	FFU14-01	FFU18-01	Body	11
12	Testata	MFU08-01	MFU08-01	MFU08-01	MFU18-01	Head	12
13	Pistone	FFU12-02	FFU14-02	FFU14-02	FFU18-03	Piston	13
14	Terminale	FFU12-03	FFU14-03	FFU14-03	FFU18-04	Rod cap	14
15	O-Ring	1x4 (GUAR-091H)	1x4 (GUAR-091H)	1x4 (GUAR-091H)	1x4 (GUAR-091H)	O-Ring	15
16	O-Ring	1x4.48 (GUAR-029H)	1x4.48 (GUAR-029H)	1x4.48 (GUAR-029H)	1x4.48 (GUAR-029H)	O-Ring	16
17	Guarnizione dinamica	12x7x3 (GUAR-018)	12x7x3 (GUAR-018)	12x7x3 (GUAR-018)	15x9x3 (GUAR-019)	Dynamic gasket	17
18	Parte elastica	IF12-12	IF14-12	IF16-12	IF18-11	Elastic part	18

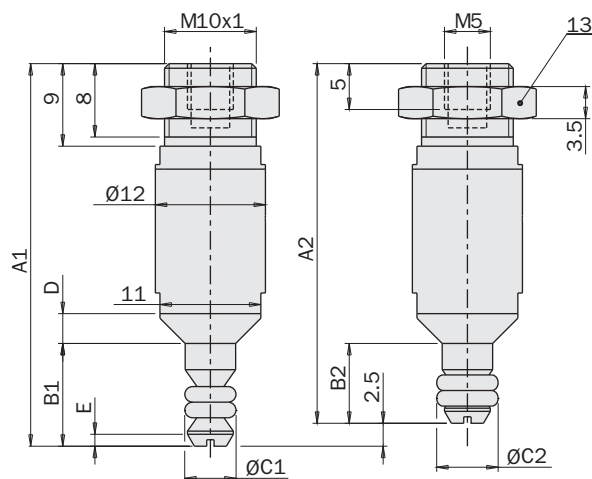
		MFU22HL	MFU27HL	MFU33HL	MFU41HL	MFU47HL	MFU51HL	MFU63HL		
21	Corpo	FFU22-01	FFU27-01	FFD33-01	FFU41-01	FFU41-01	FFU51-01	FFU63-01	Body	21
22	Testata	MFU22-01	MFU27-01	MFU33-01	MFU41-01	MFU41-01	MFU51-01	MFU63-01	Head	22
23	Pistone	FFU22-03	FFU27-03	FFU33-03	FFU41-03	FFU41-03	FFU51-03	FFU63-01	Piston	23
24	Stelo pistone	FFU22-04	FFU27-04	FFU33-04	FFU41-04	FFU41-04	FFU51-04	FFU63-04	Piston rod	24
25	Terminale	FFU22-05	FFU27-05	FFU33-05	FFU41-05	FFU41-05	FFU51-05	FFU63-05	Rod cap	25
26	Guarnizione dinamica	18x12x3 (GUAR-133P)	20x14x3 (GUAR-058)	25x19x3.5 (GUAR-064)	32x24x3.5 (GUAR-063)	32x24x3.5 (GUAR-063)	40x32x3.5 (GUAR-092)	50x42x3.5 (GUAR-114E)	Dynamic gasket	26
27	O-Ring	1x3 (GUAR-082H)	1x4 (GUAR-091H)	1.78x4.48 (GUAR-029H)	2.62x7.6 (GUAR-060H)	2.62x7.6 (GUAR-060H)	2.62x7.6 (GUAR-060H)	2.62x7.6 (GUAR-060H)	O-Ring	27
28	O-Ring	1x5 (GUAR-021)	1.78x6.07 (GUAR-039H)	1.78x6.75 (GUAR-012H)	1.78x10.82 (GUAR-080H)	1.78x10.82 (GUAR-080H)	2.62x11.91 (GUAR-033H)	2.62x13.95 (GUAR-141H)	O-Ring	28
29	O-Ring	-	1x6 (GUAR-098)	1x7 (GUAR-136)	1.78x10.82 (GUAR-080)	1.78x10.82 (GUAR-080)	2x12 (GUAR-088)	1.78x14 (GUAR-007)	O-Ring	29
30	Parte elastica	IF22-12	IF27-11	IF33-11	IF41-11	IF47-11	IF51-11	IF63-11	Elastic part	30
31	Magnete	-	PAR-20-10B	PAR-25-10B	FES-32-3-5	FES-32-3-5	RAD-40-10	FES-50-3-6	Magnet	31
32	O-Ring	1.78x4.48 (GUAR-029H)	1x4 (GUAR-091H)	1x5 (GUAR-021)	1x9 (GUAR-168)	1x9 (GUAR-168)	1x10 (GUAR-089)	1x12 (GUAR-071)	O-Ring	32

Micro pinze ad espansione per interni serie IFU

- Nuovo concetto di pinza innovativa.
- Movimento verso l'alto.
- La parte elastica può essere in Silicone o NBR.
- Diametro di presa da 4.5 a 8.7 mm.

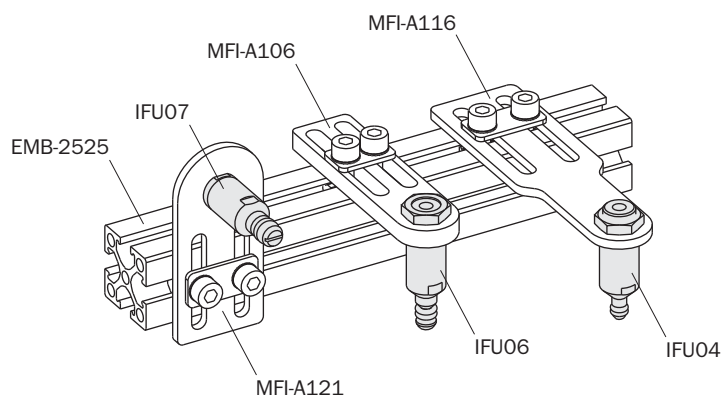
ID expansion micro grippers series IFU

- New concept for innovative air hands.
- Upward movement.
- The elastic part can be in Silicone or NBR.
- Grip diameters from 4.5 to 8.7 mm.



	IFU04S01RT IFU04N03RT	IFU05S01RT IFU05N03RT	IFU06S01RT IFU06N03RT	IFU07S01RT IFU07N03RT
A1	40.9	41.7	42	42
A2	38.4	39.2	39.5	39.5
B1	9.9	11.2	11.5	11.5
B2	7.4	8.7	9	9
C1	Ø4.5	Ø5.6	Ø6.6	Ø7.6
C2	Ø5.4	Ø6.7	Ø7.6	Ø8.7
X1	3	3.4	3.4	3.4
X2	2.7	3.4	3.4	3.4
W1	4	4.8	5.1	5.1
W2	2.7	3.6	3.8	3.9
D	3.75x45°	3.25x45°	2.75x45°	2.4x45°
E	1x60°	1.3x60°	1.4x60°	1.5x60°
Peso Weight	7g	7g	8g	9g

Esempi di utilizzo / Application examples



This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.