

Pinze ad espansione per interni serie IF

- Nuovo concetto di pinza brevettato.
- Movimento verso il basso (IFD), o verso l'alto (IFU).
- La parte elastica può essere in Silicone o EPDM.
- Diametro di presa da 8 a 85mm.
- Coni di centraggio opzionali.

ID expansion grippers series IF

- New patented concept for Air Hands.
- Downward movement (IFD), or Upward movement (IFU).
- The elastic part can be in Silicone or EPDM.
- Grip diameters from 8 to 85mm.
- Optional nose cones for centering.



IF T

Direzione del movimento

Actuation direction

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

Diametro nominale / Base diameter

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

Alimentazione / Air feeding

- C - Con raccordo coassiale
By inline air fitting
H - Con raccordo laterale e foro passante
By side air fitting and through hole
V - Con raccordo laterale, foro passante e cono di centraggio
By side air fitting, through hole and nose cone

Parte elastica / Elastic part

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

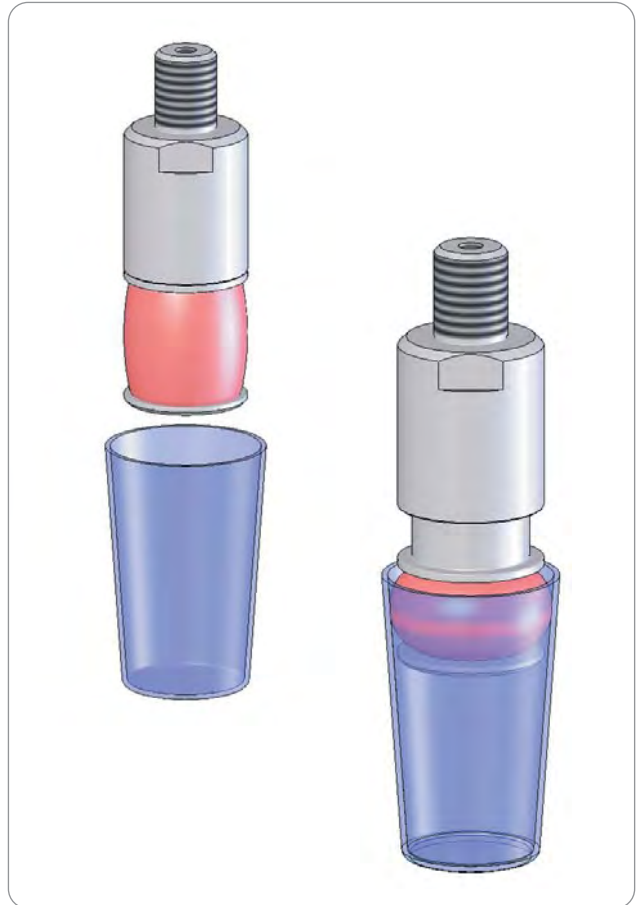
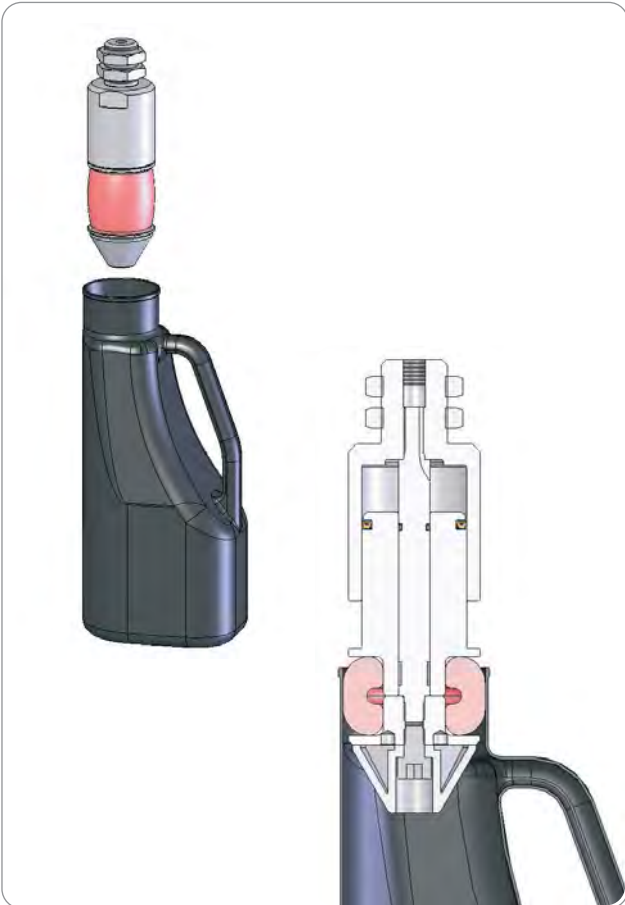
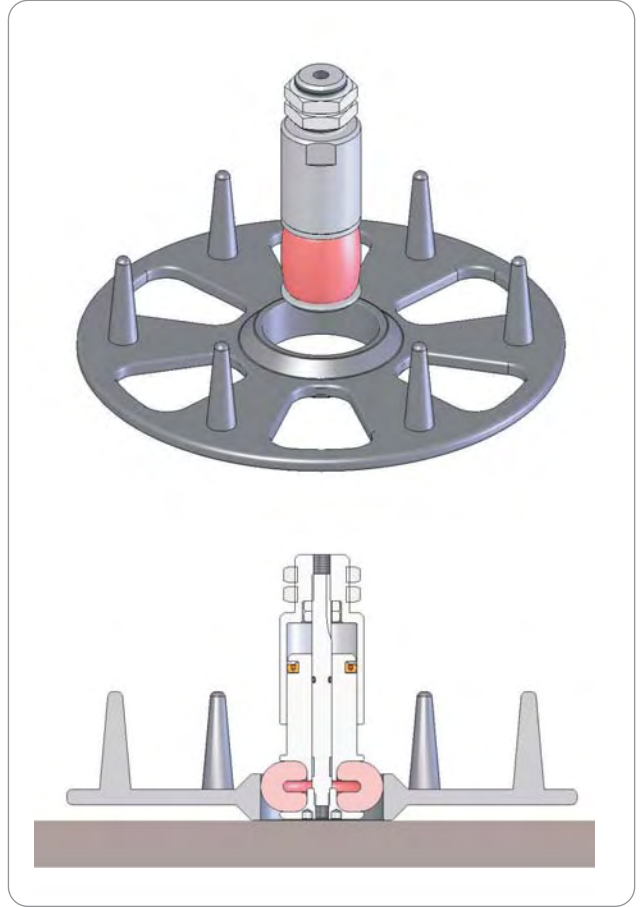
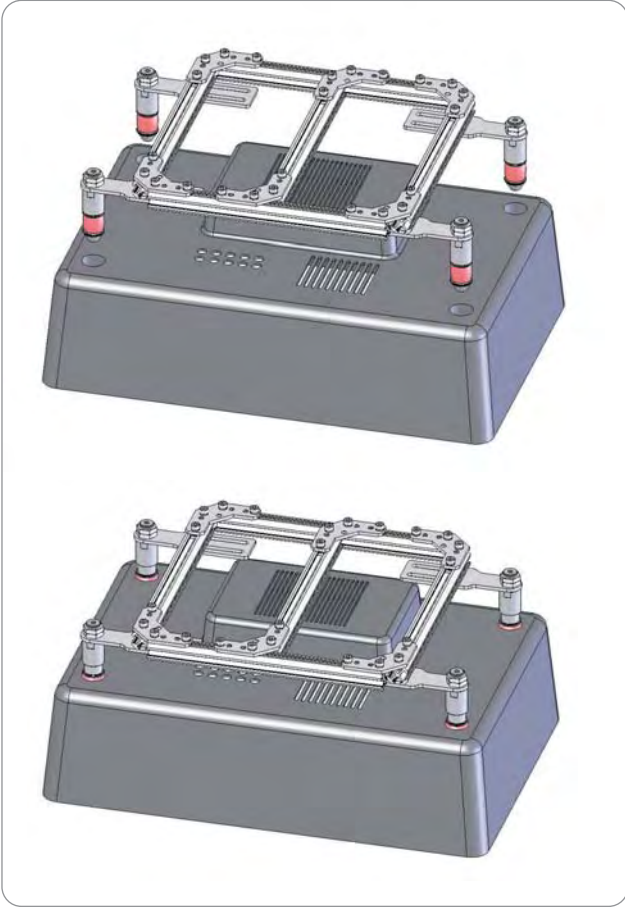
Peso / Weight	
IFD08S01CT	17 g
IFD08E02CT	17 g
IFD10S01CT	18 g
IFD10E02CT	18 g
IFD12S01CT	23 g
IFD12E02CT	21 g
IFD14S01CT	24 g
IFD14E02CT	22 g
IFD18S01CT	34 g
IFD18E02CT	36 g
IFD22S01CT	58 g
IFD22E02CT	60 g
IFD27S01CT	88 g
IFD27E02CT	92 g
IFD33S01CT	144 g
IFD33E02CT	142 g
IFD41S01CT	280 g
IFD41E02CT	265 g
IFD51S01CT	600 g
IFD51E02CT	595 g
IFD63S01CT	980 g
IFD63E02CT	970 g

Peso / Weight	
IFU08S01HT	21 g
IFU08E02HT	21 g
IFU10S01HT	23 g
IFU10E02HT	23 g
IFU12S01HT	25 g
IFU12E02HT	25 g
IFU14S01HT	27 g
IFU14E02HT	27 g
IFU18S01HT	46 g
IFU18E02HT	46 g
IFU22S01HT	71 g
IFU22E02HT	71 g
IFU27S01HT	109 g
IFU27E02HT	109 g
IFU33S01HT	174 g
IFU33E02HT	174 g
IFU41S01HT	301 g
IFU41E02HT	301 g
IFU51S01HT	580 g
IFU51E02HT	580 g
IFU63S01HT	952 g
IFU63E02HT	952 g

Peso / Weight	
IFU08S01VT	22 g
IFU08E02VT	22 g
IFU10S01VT	24 g
IFU10E02VT	24 g
IFU12S01VT	27 g
IFU12E02VT	27 g
IFU14S01VT	31 g
IFU14E02VT	31 g
IFU18S01VT	54 g
IFU18E02VT	54 g
IFU22S01VT	85 g
IFU22E02VT	85 g
IFU27S01VT	130 g
IFU27E02VT	130 g
IFU33S01VT	213 g
IFU33E02VT	213 g
IFU41S01VT	397 g
IFU41E02VT	397 g
IFU51S01VT	782 g
IFU51E02VT	782 g
IFU63S01VT	1260 g
IFU63E02VT	1260 g

Esempi di applicazione

Application examples





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.

Silicone or EPDM?

The elastic part can be in red Silicone, or black EPDM.
 Silicone provides a wider temperature range and it assures a longer life time, but it is not suitable in some industries, because it makes difficult to paint or to coat the handled parts.
 EPDM is Non-Marking and it provides a higher friction too.

Temperatura di esercizio / Temperature range

Corpo pinza Gripper body	Parte elastica Elastic part	
	-70° ÷ 200°C.	-50° ÷ 140°C.
5° ÷ 60°C.	<p>Silicone</p> 	<p>EPDM</p> 

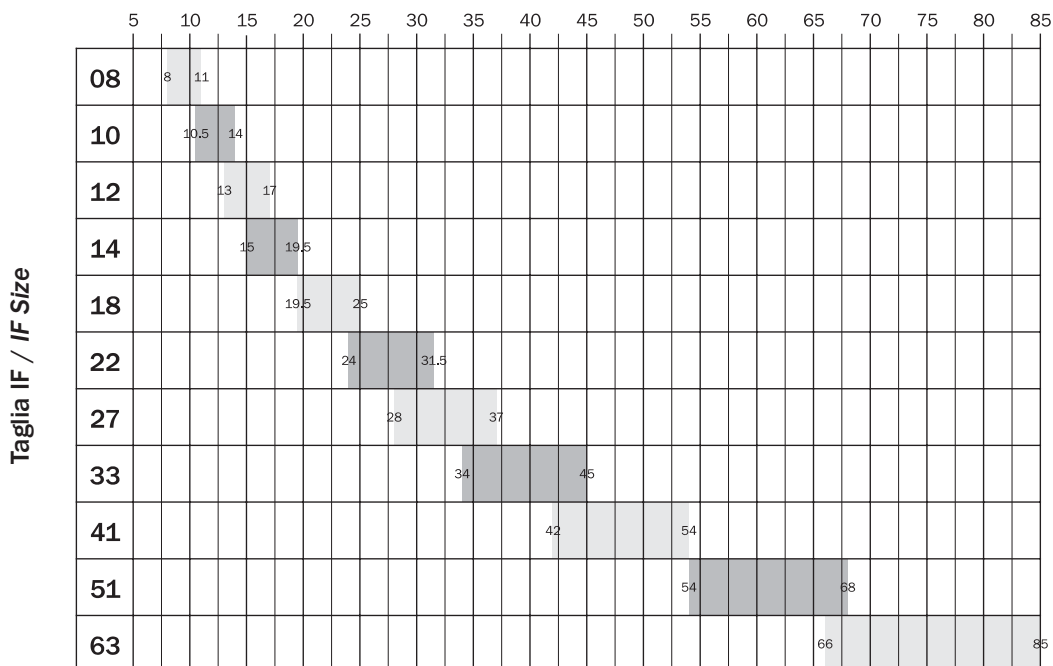
Diametri di presa

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 by a base diameter of the elastic part.
 But each model can work in a diameter range between a minimum and a maximum value.

Diametro / Diameter (mm)



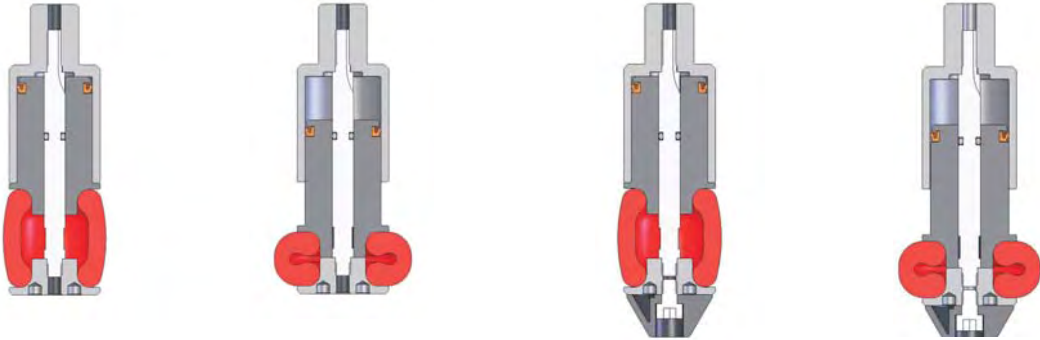
Coni di centraggio

I modelli IFD sono forniti con un cono stampato in nylon, che può essere facilmente aggiunto, quando necessario. I modelli IFU invece sono forniti in due versioni, con il cono in acciaio (IFU...VT), o senza (IFU...HT).

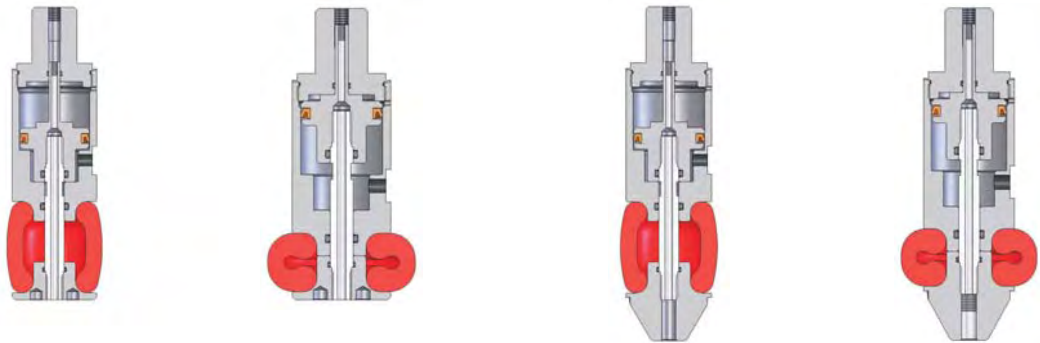
Centering nose cones

All the IFD models are provided with a nose cone (moulded in nylon). It can be easily added to the gripper, when necessary. On the contrary, the IFU models are supplied in two versions: with a steel cone (IFU...VT), or without (IFU...HT).

IFD



IFU

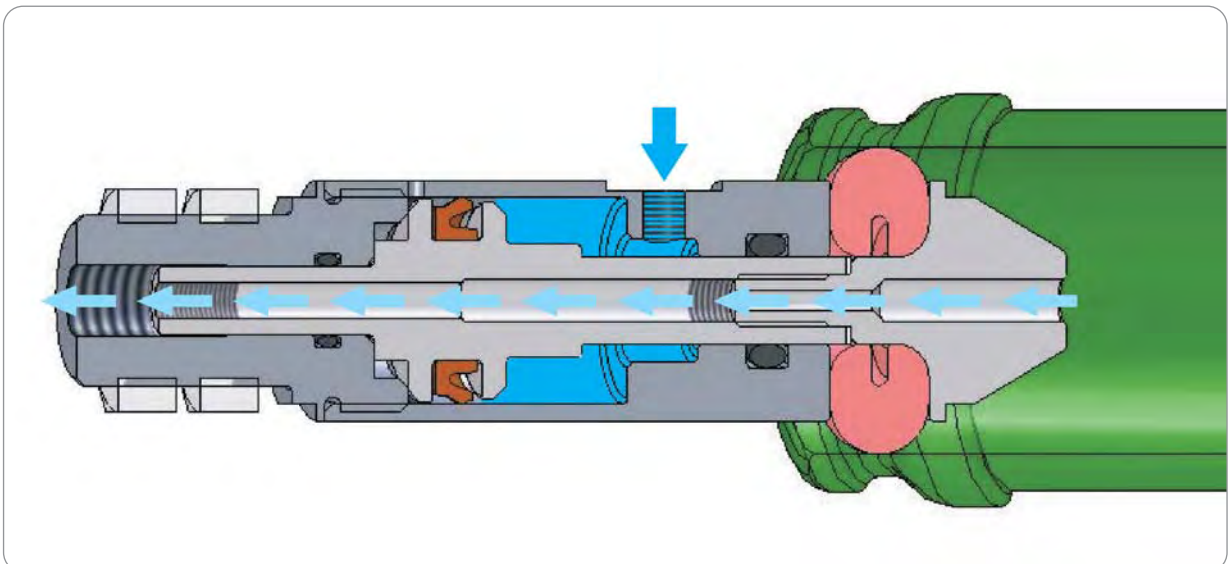


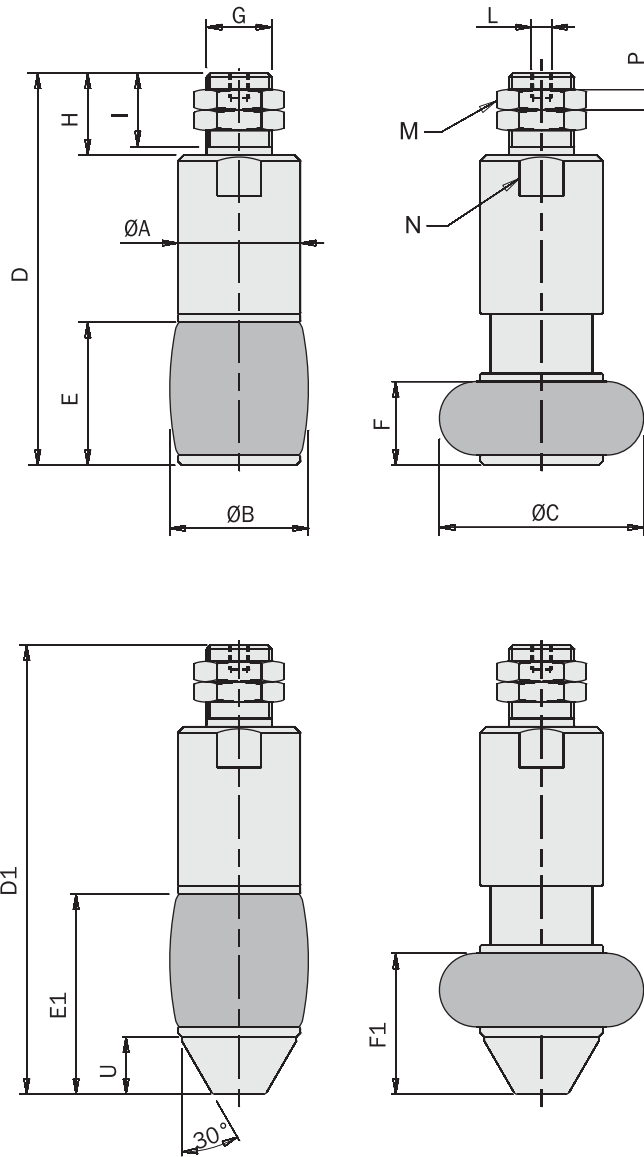
Foro passante

I modelli IFU 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 IFU 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 leakage.

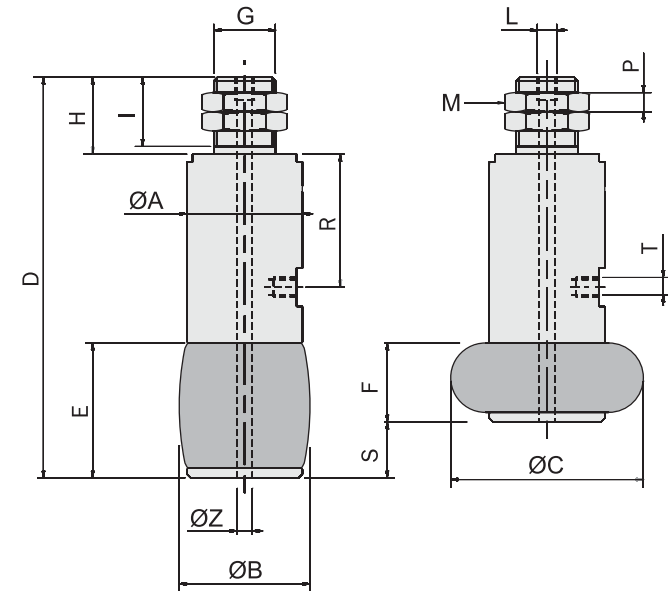




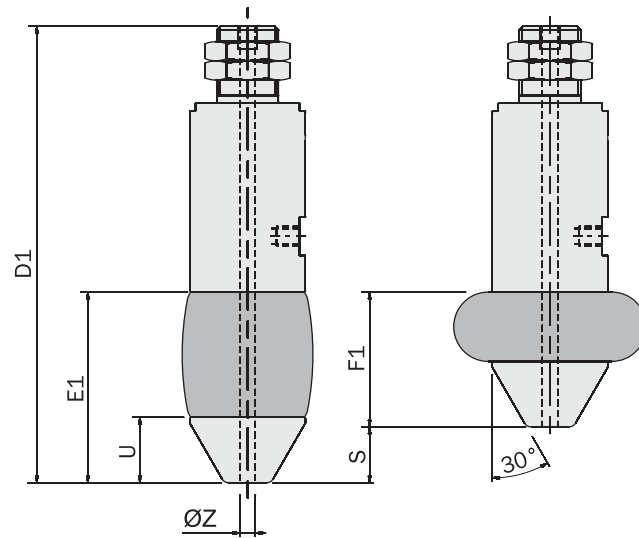
	ØA	ØB	ØC	D	E	F	G	H	I	L	M	N	P	U	D1	E1	F1
IFD08S01CT IFD08E02CT	14	8	11	47.5	8.5	4.5	M10x1	13	12	M5	13	13	3.5	3.5	51	12	8
IFD10S01CT IFD10E02CT	14	10.5	14	49	10	5.5	M10x1	13	12	M5	13	13	3.5	4	53	14	9.5
IFD12S01CT IFD12E02CT	14	13	17	50	12	6.5	M12x1	13	12	M5	13	13	3.5	5	55	17	11.5
IFD14S01CT IFD14E02CT	14	15	19.5	50	14.5	7.5	M12x1	13	12	M5	13	13	3.5	6	56	20.5	13.5
IFD18S01CT IFD18E02CT	18	19.5	25	56.5	18	10.5	M12x1	14	13	M5	15	17	4	8	64.5	26	18.5
IFD22S01CT IFD22E02CT	21.5	24	31.5	68	23	13	M14x1.5	15	13	M5	17	20	4	9.5	77.5	32.5	22.5
IFD27S01CT IFD27E02CT	25	28	37	78.5	28.5	16.5	M14x1.5	17	15	M5	17	23	4	11.5	90	40	28
IFD33S01CT IFD33E02CT	30	34	45	96	35	20.5	M16x1	20	18	M5	19	28	5	14	110	49	34.5
IFD41S01CT IFD41E02CT	40	42	54	117	42.5	27	M20x1.5	25	22	1/8 G	24	36	6	19	136	61.5	46
IFD51S01CT IFD51E02CT	50	54	68	146.5	51.5	33.5	M25x1.5	32	28	1/8 G	32	45	8	26	172.5	77.5	59.5
IFD63S01CT IFD63E02CT	60	66	85	173.5	65.5	40.5	M25x1.5	32	28	1/8 G	32	54	8	30	203.5	95.5	70.5

Dimensioni (mm) / Dimensions (mm)

IFU.....

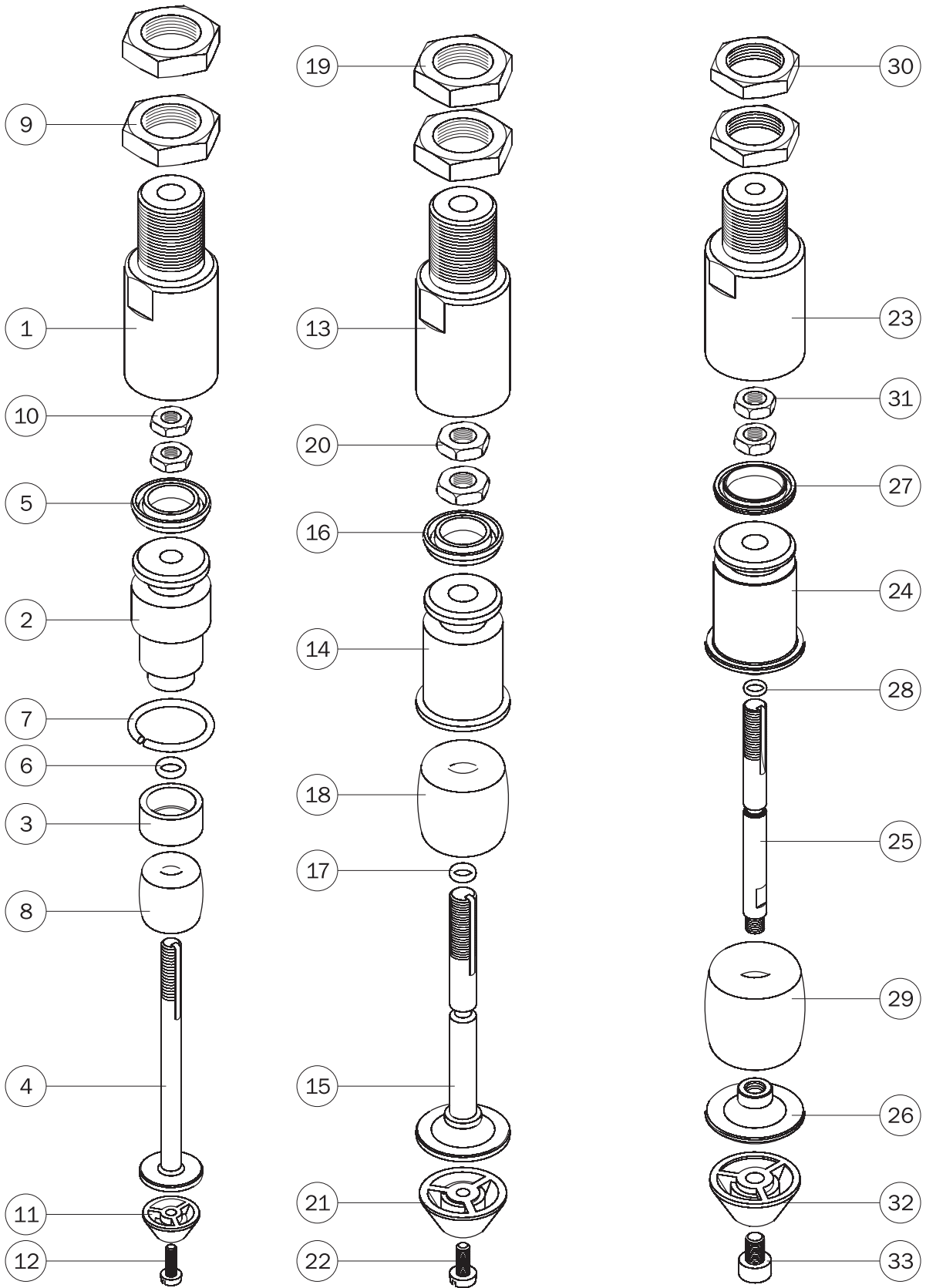


IFU.....HT



IFU.....VT

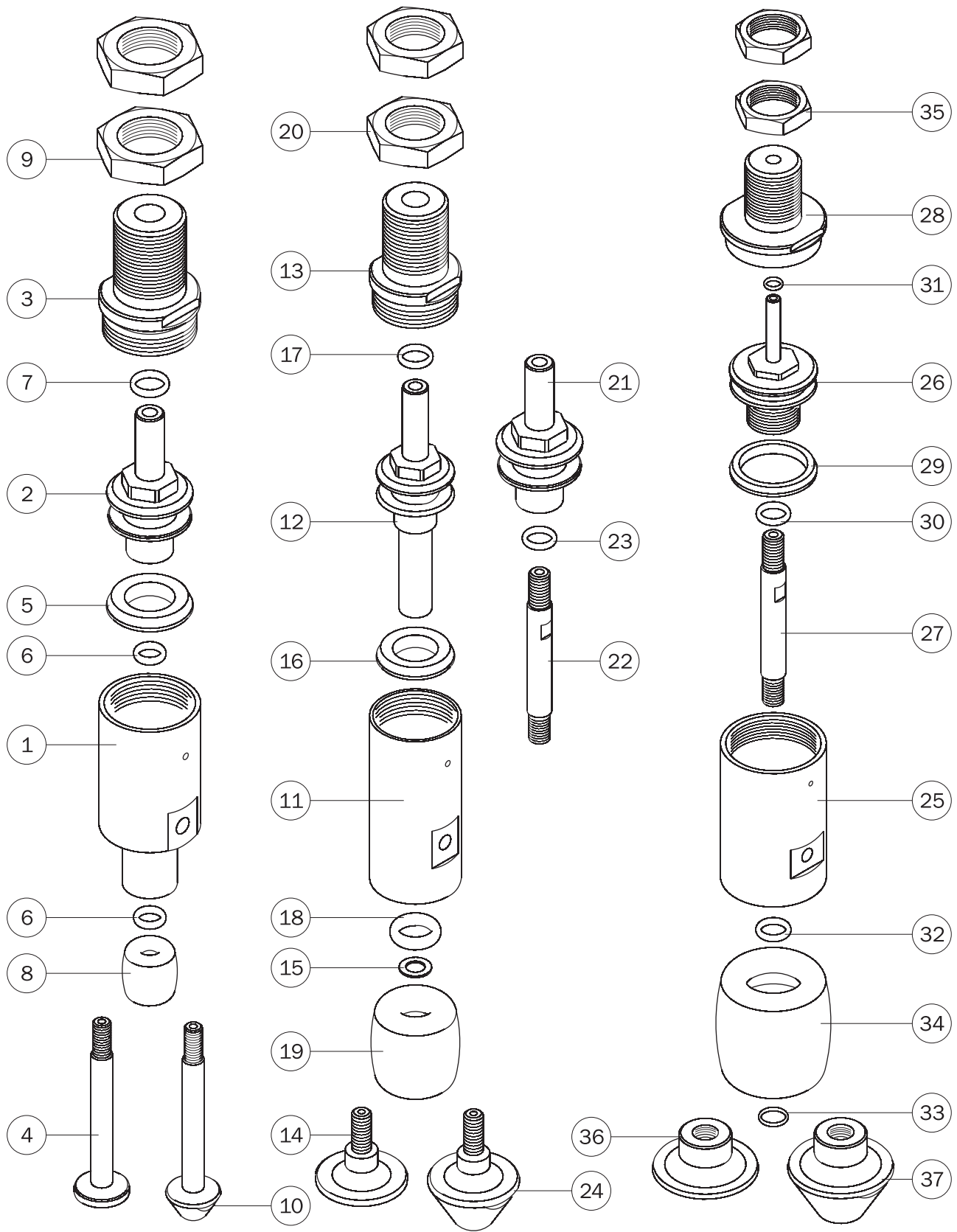
	ØA	ØB	ØC	D	E	F	G	H	I	L	M	N	P	R	S	T	ØZ	U	D1	E1	F1
IFU08...HT IFU08...VT	14	8	11	54	8.5	4.5	M10x1	13	12	M5	13	13	3.5	19.5	4	M3	1.1	4	56.5	11	7
IFU10...HT IFU10...VT	14	10.5	14	55	10	5.5	M10x1	13	12	M5	13	13	3.5	20	4.5	M3	1.1	5.5	59	14	9.5
IFU12...HT IFU12...VT	14	13	17	57	12	6.5	M10x1	13	12	M5	13	13	3.5	21	5.5	M3	1.1	6.8	62.3	17.3	11.8
IFU14...HT IFU14...VT	14	15	19.5	60	14.5	7.5	M10x1	13	12	M5	13	13	3.5	22.5	7	M3	1.1	8.3	66.8	21.3	14.3
IFU18...HT IFU18...VT	18	19.5	25	68	18	10.5	M12x1	14	13	M5	15	17	4	25	7.5	M5	1.1	10	76.5	26.5	19
IFU22...HT IFU22...VT	21.5	24	31.5	78	23	13	M14x1.5	15	13	M5	17	20	4	29	10	M5	1.1	12	88	33	23
IFU27...HT IFU27...VT	25	28	37	90	28.5	16.5	M14x1.5	17	15	M5	17	23	4	31	12	M5	2.1	14	101.5	40	28
IFU33...HT IFU33...VT	30	34	45	104	35	20.5	M16x1	20	18	M5	19	28	5	34.5	14.5	M5	2.1	17	118.5	49.5	35
IFU41...HT IFU41...VT	40	42	54	123	42.5	27	M20x1.5	25	22	1/8 G	24	36	6	39.5	15.5	M5	2.6	22	142	61.5	46
IFU51...HT IFU51...VT	50	54	68	149	51.5	33.5	M25x1.5	32	28	1/8 G	32	45	8	49	18	1/8 G	4.2	28	173.5	76	58
IFU63...HT IFU63...VT	60	66	85	175	65.5	40.5	M25x1.5	32	28	1/8 G	32	54	8	59	25	1/8 G	4.2	36	206.5	97	72



	IFD08	IFD10
1- Corpo Body	IFD10-01	IFD10-01
2- Pistone Piston	IFD08-01	IFD10-02
3- Coperchio Cover	IFD08-02	IFD10-03
4- Stelo pistone Piston rod	IFD08-03	IFD10-04
5- Guarnizione Gasket	12x7x3 (GUAR-018)	12x7x3 (GUAR-018)
6- O-Ring O-Ring	Ø1x3 (GUAR-082)	Ø1x3 (GUAR-082)
7- Seeger Snap-ring	Ø12 DIN 7993B	Ø12 DIN 7993 B
8- Parte elastica Elastic part	IF08S01 IF08E02	IF10S01 IF10E02
9- Dado Nut	M10x1	M10x1
10- Dado Nut	M3 DIN 439B	M3 DIN 439B
11- Centratore Nose cone	IFD08-04	IFD10-05
12- Vite Screw	M1.6x5 DIN 84A	M1.6x5 DIN 84 A

	IFD12	IFD14
13- Corpo Body	IFD14-01	IFD14-01
14- Pistone Piston	IFD12-01	IFD14-02
15- Stelo pistone Piston rod	IFD12-02	IFD14-03
16- Guarnizione Gasket	12x7x3 (GUAR-018)	12x7x3 (GUAR-018)
17- O-Ring O-Ring	Ø1x2 (GUAR-130)	Ø1x2 (GUAR-130)
18- Parte elastica Elastic part	IF12S01 IF12E02	IF14S01 IF14E02
19- Dado Nut	M12x1	M12x1
20- Dado Nut	M4 DIN 439B	M4 DIN 439B
21- Centratore Nose cone	IFD12-03	IFD14-04
22- Vite Screw	M2x5 DIN 84A	M2x5 DIN 84A

	IFD18	IFD22	IFD27	IFD33	IFD41	IFD51	IFD63
23- Corpo Body	IFD18-01	IFD22-01	IFD27-01	IFD33-01	IFD41-01	IFD51-01	IFD63-01
24- Pistone Piston	IFD18-02	IFD22-02	IFD27-02	IFD33-02	IFD41-02	IFD51-02	IFD63-02
25- Stelo pistone Piston rod	IFD18-03	IFD22-03	IFD27-03	IFD33-03	IFD41-03	IFD51-03	IFD63-03
26- Terminale Rod cap	IFD18-04	IFD22-04	IFD27-04	IFD33-04	IFD41-04	IFD51-04	IFD63-04
27- Guarnizione Gasket	15x9x3 (GUAR-019)	18x12x3 (GUAR-133)	20x14x3 (GUAR-058)	25x19x3.5 (GUAR-064)	32x24x3.5 (GUAR-063)	40x32x3.5 (GUAR-092)	50x42x3.5 (GUAR-114E)
28- O-Ring O-Ring	Ø1x2 (GUAR-130)	Ø1x3 (GUAR-082)	Ø1x4 (GUAR-091)	Ø1.78x3.69 (GUAR-044)	Ø1.78x4.48 (GUAR-029)	Ø1.78x8.73 (GUAR-013)	Ø2.62x9.19 (GUAR-134)
29- Parte elastica Elastic part	IF18S01 IF18E02	IF22S01 IF22E02	IF27S01 IF27E02	IF33S01 IF33E02	IF41S01 IF41E02	IF51S01 IF51E02	IF63S01 IF63E02
30- Dado Nut	M12x1	M14x1.5	M14x1.5	M16x1	M20x1.5	M25x1.5	M25x1.5
31- Dado Nut	M4 DIN 439B INOX	M5 DIN 934 INOX	/	/	/	/	/
32- Centratore Nose cone	IFD18-05	IFD22-05	IFD27-05	IFD33-08	IFD41-05	IFD51-05	IFD63-06
33- Vite Screw	M3x5 DIN 912	M4x6 DIN 912	M5x8 DIN 912	M5x8 DIN 912	M6x10 DIN 912	M8x12 DIN 912	M10x16 DIN 912



Elenco delle parti / Parts

IFU.....

	IFU08	IFU10
1- Corpo Body	IFU08-03	IFU10-01
2- Pistone Piston	IFU08-02	IFU08-02
3- Testata Head	IFU08-01	IFU08-01
4- Stelo pistone (solo ...HT) Piston rod (only for ...HT)	IFU08-04	IFU10-02
5- Guarnizione Gasket	12x7x3 (GUAR-018)	12x7x3 (GUAR-018)
6- O-Ring O-Ring	Ø1x3 (GUAR-082)	Ø1x3 (GUAR-082)
7- O-Ring O-Ring	Ø1x4 (GUAR-091)	Ø1x4 (GUAR-091)
8- Parte elastica Elastic part	IF08S01 IF08E02	IF10S01 IF10E02
9- Dado Nut	M10x1	M10x1
10- Centratore (solo ...VT) Nose cone (only for ...VT)	IFU08-05	IFU10-03

	IFU12	IFU14	IFU18	IFU22
11- Corpo Body	IFU12-01	IFU14-01	IFU18-01	IFU22-01
12- Pistone Piston	IFU12-02	IFU14-02	IFU18-03	/
13- Testata Head	IFU08-01	IFU08-01	IFU18-02	IFU22-02
14- Terminale (solo ...HT) Rod cap (only ...HT)	IFU12-03	IFU14-03	IFU18-04	IFU22-05
15- Distanziale Spacer	GUAR-067	GUAR-067	GUAR-067	GUAR-067
16- Guarnizione Gasket	12x7x3 (GUAR-018)	12x7x3 (GUAR-018)	15x9x3 (GUAR-019)	18x12x3 (GUAR-133)
17- O-Ring O-Ring	Ø1x4 (GUAR-091)	Ø1x4 (GUAR-091)	Ø1x4 (GUAR-091)	Ø1x4 (GUAR-091)
18- O-Ring O-Ring	Ø1.78x4.48 (GUAR-029)	Ø1.78x4.48 (GUAR-029)	Ø1.78x4.48 (GUAR-029)	Ø1.78x4.48 (GUAR-029)
19- Parte elastica Elastic part	IF12S01 IF12E02	IF14S01 IF14E02	IF18S01 IF18E02	IF22S01 IF22E02
20- Dado Nut	M10x1	M10x1	M12x1	M14x1.5
21- Pistone Piston	/	/	/	IFU22-03
22- Stelo pistone Piston rod	/	/	/	IFU22-04
23- O-Ring O-Ring	/	/	/	Ø1x5 (GUAR-021)
24- Centratore (solo ...VT) Nose cone (only for ...VT)	IFU12-04	IFU14-04	IFU18-05	IFU22-06

	IFU27	IFU33	IFU41	IFU51	IFU63
25- Corpo Body	IFU27-01	IFU33-01	IFU41-01	IFU51-01	IFU63-01
26- Pistone Piston	IFU27-03	IFU33-03	IFU41-03	IFU51-03	IFU63-03
27- Stelo pistone Piston rod	IFU27-04	IFU33-04	IFU41-04	IFU51-04	IFU63-04
28- Testata Head	IFU27-02	IFU33-02	IFU41-02	IFU51-02	IFU63-02
29- Guarnizione Gasket	20x14x3 (GUAR-058)	25x19x3.5 (GUAR-064)	32x24x3.5 (GUAR-063)	40x32x3.5 (GUAR-092)	50x42x3.5 (GUAR-114E)
30- O-Ring O-Ring	Ø1.78x6.07 (GUAR-039)	Ø1.78x6.75 (GUAR-012)	Ø2.62x7.6 (GUAR-060)	Ø2.62x11.91 (GUAR-033)	Ø2.62x13.95 (GUAR-138)
31- O-Ring O-Ring	Ø1x4 (GUAR-091)	Ø1x4 (GUAR-091)	Ø1.78x6.07 (GUAR-039)	Ø2.62x7.6 (GUAR-060)	Ø2.62x7.6 (GUAR-060)
32- O-Ring O-Ring	Ø1.78x6.07 (GUAR-039)	Ø1.78x6.75 (GUAR-012)	Ø2.62x7.6 (GUAR-060)	Ø2.62x11.91 (GUAR-033)	Ø2.62x13.95 (GUAR-138)
33- O-Ring O-Ring	Ø1x6 (GUAR-098)	Ø1x7 (GUAR-136)	Ø1.78x7.66 (GUAR-045)	Ø2x12 (GUAR-088)	Ø1.78x14 (GUAR-007)
34- Parte elastica Elastic part	IF27S01 IF27E02	IF33S01 IF33E02	IF41S01 IF41E02	IF51S01 IF51E02	IF63S01 IF63E02
35- Dado Nut	M14x1.5	M16x1	M20x1.5	M25x1.5	M25x1.5
36- Terminale (solo ...HT) Rod cap (only for ...HT)	IFU27-05	IFU33-05	IFU41-05	IFU51-05	IFU63-05
37- Centratore (solo ...VT) Nose cone (only for ...VT)	IFU27-06	IFU33-06	IFU41-06	IFU51-06	IFU63-06

Forza di serraggio

La forza esercitata da una pinza IF 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

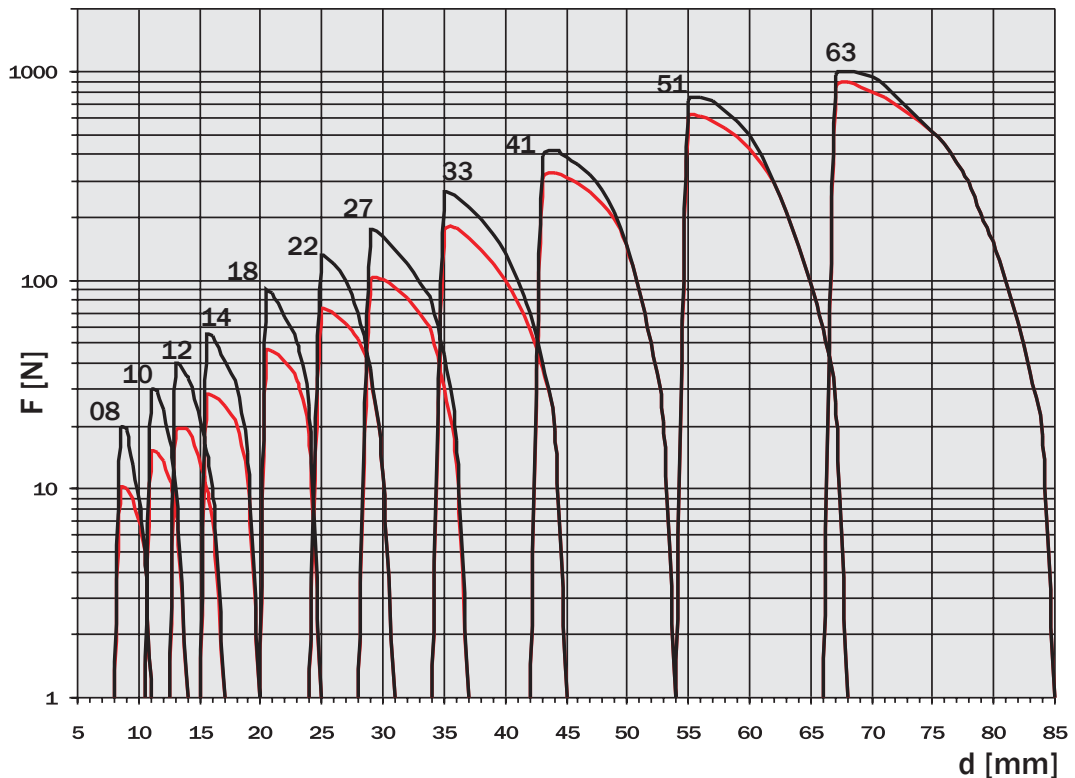
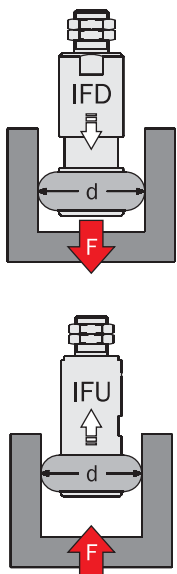
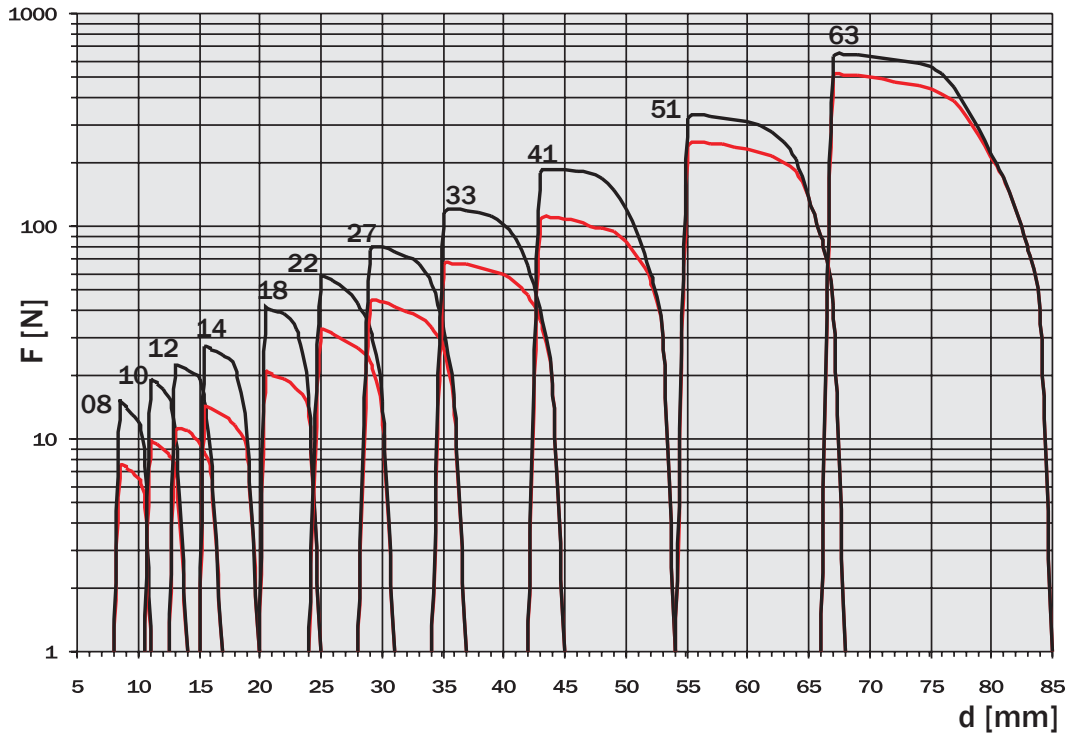
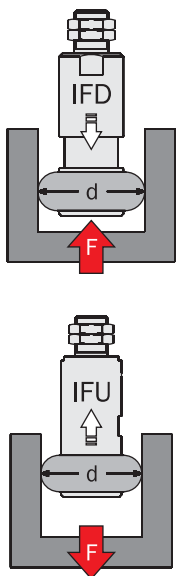
The force output of an IF gripper depends on several variables.

Basically on the diameter of the picked object, but also on the surface finishing, the friction and the air pressure.

The graphs show the extraction force (F) on the gripped object as a function of its diameter (d).

Aluminum rings, with roughness Ra=0.8 have been used for the measurements and the grippers supplied with 6 bar compressed air.

The black lines refer to the grippers in EPDM, the red ones to the grippers in Silicone.



Connessione pneumatica

La pinza è azionata con aria compressa filtrata (5-40 µm) 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 4-8 bar

Compressed air feeding

The compressed air, must be filtered from 5 to 40 µm. Maintain the medium selected at the start, lubricated or not, 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 the air pressure. The pressure range is 4-8 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).

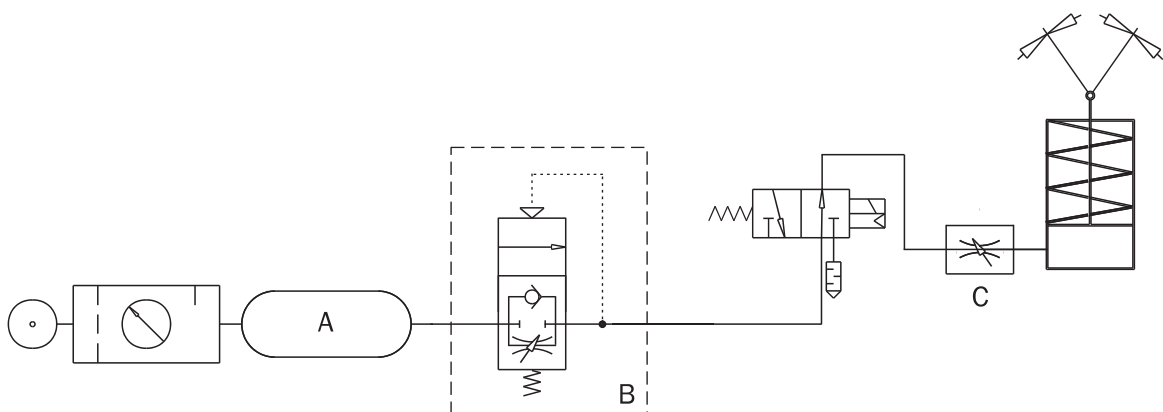
Pneumatic circuit

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 (eccetto la IFU...VT).
 Non deve essere nè incollato, nè ingrassato.
 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.

Maintenance

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

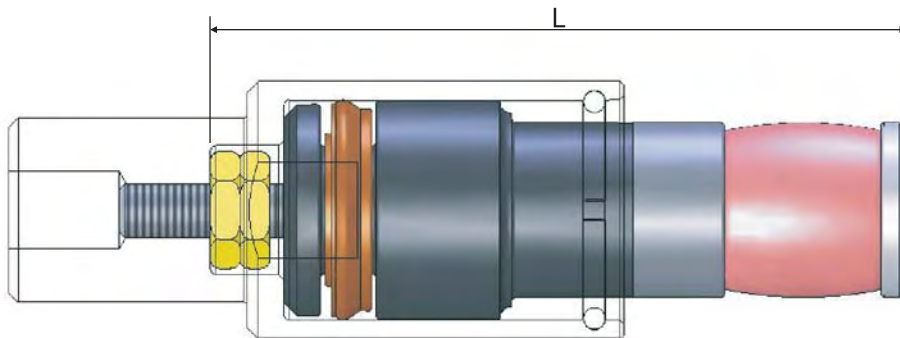


Quando è necessario smontare l'unità, al rimontaggio si devono osservare alcune precauzioni:

- 1 Verificare la quota dello stelo indicata nella tabella sottostante.
- 2 Incollare le filettature con frena filetti medio.
- 3 Ingrassare le guarnizioni con Molykote PG75.
- 4 Non sporcare la parte elastica nè con la colla, nè con il grasso.

When the unit needs to be disassembled, it is necessary to observe these cautions while reassembling:

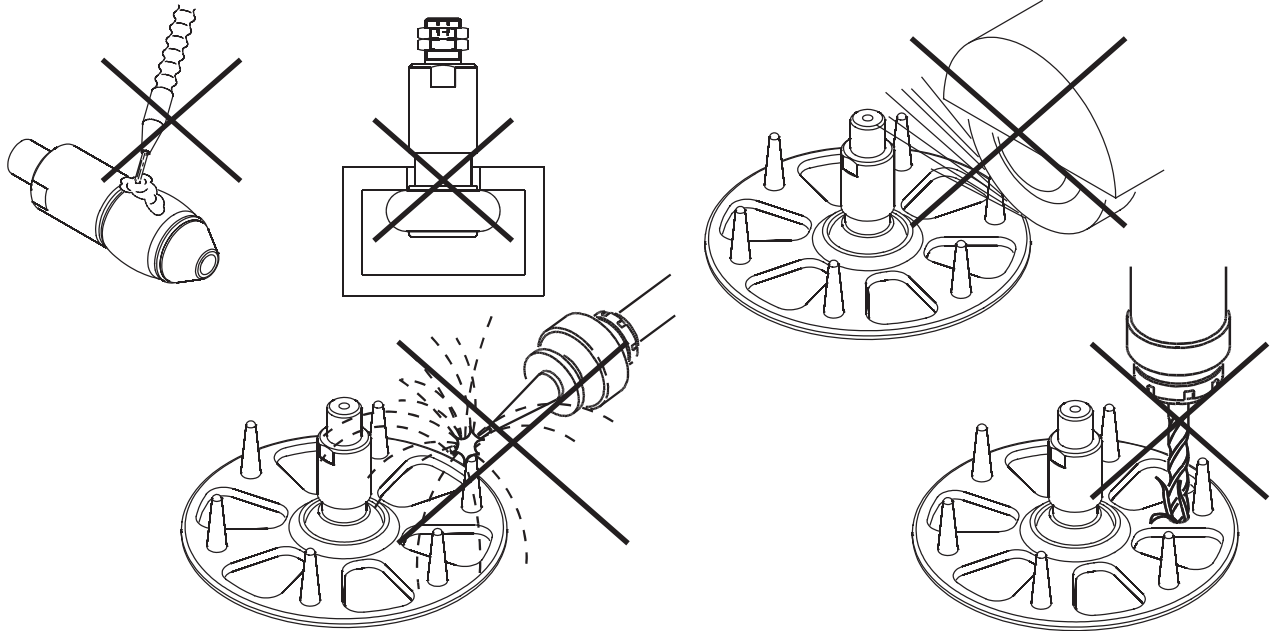
- 1 Check the rod dimension in the enclosed table.
- 2 Glue the threads with an anaerobic adhesive (medium resistance).
- 3 Grease the seals with Molykote PG75.
- 4 Do not glue or grease the elastic part.



	IFD08	IFD10	IFD12	IFD14	IFD18	IFD22
L	36.5 mm	38 mm	39.5 mm	39.5 mm	45.5 mm	56.1 mm

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.

Versioni speciali

Consultate Gimatic se il prodotto di serie non soddisfa le vostre necessità.
 Diverse altre opzioni sono possibili.

Special options

Consult Gimatic if the standard product doesn't satisfy your necessities.
 Several other options are possible.

IFU con regolazione della corsa.
 IFU with stroke adjustment.



IFU con foro passante per il raffreddamento ad aria.
 IFU with the through hole for air cooling.



IFU con sensori magnetici.
 IFU with magnet detection.



Staffa per la presa esterna a tre punti.
 Bracket for 3-point OD gripping.

