GS

Pinza pneumatica a 2 griffe ad azione parallela autocentrante (serie GS)

- Azionamento a doppio effetto.
- Meccanismo di regolazione del gioco esclusivo.
- Grande durata e affidabilità senza manutenzione.
- Diverse possibilità di fissaggio.
- Sensori magnetici opzionali.
- Disponibile anche con molla in chiusura (-NC) o in apertura (-NO).

2-jaw parallel self-centering pneumatic gripper (series GS)

- *Double acting.*
- *Exclusive backlash adjusting system.*
- *Long life and reliability, maintenance free.*
- *Various options for fastening.*
- *Optional proximity magnetic sensors.*
- *Spring closed (-NC) or spring open (-NO) option.*



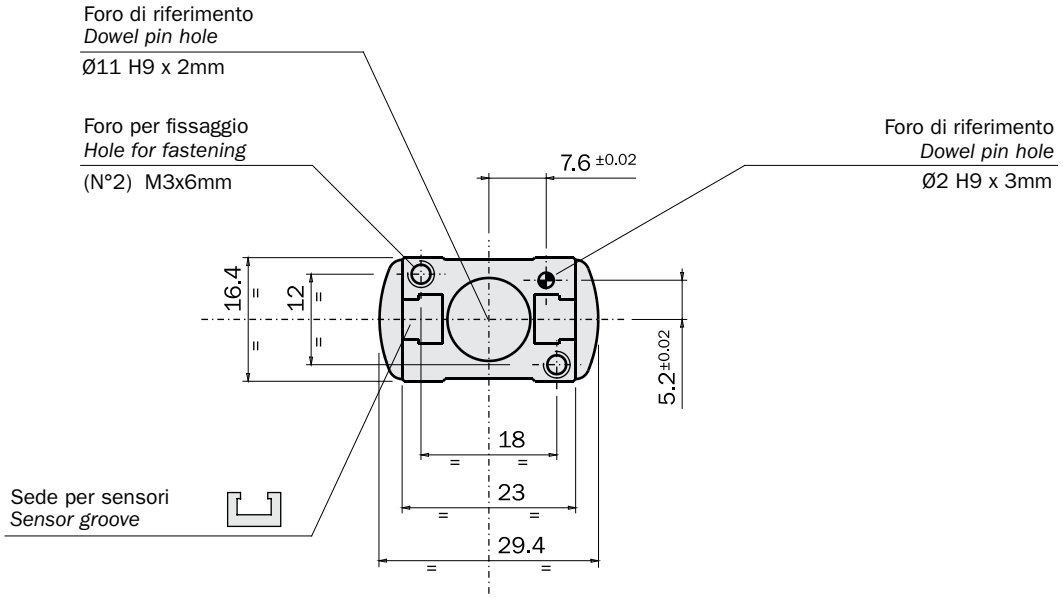
GS-10 **GS-16** **GS-20** **GS-25** **GS-32** **GS-40**

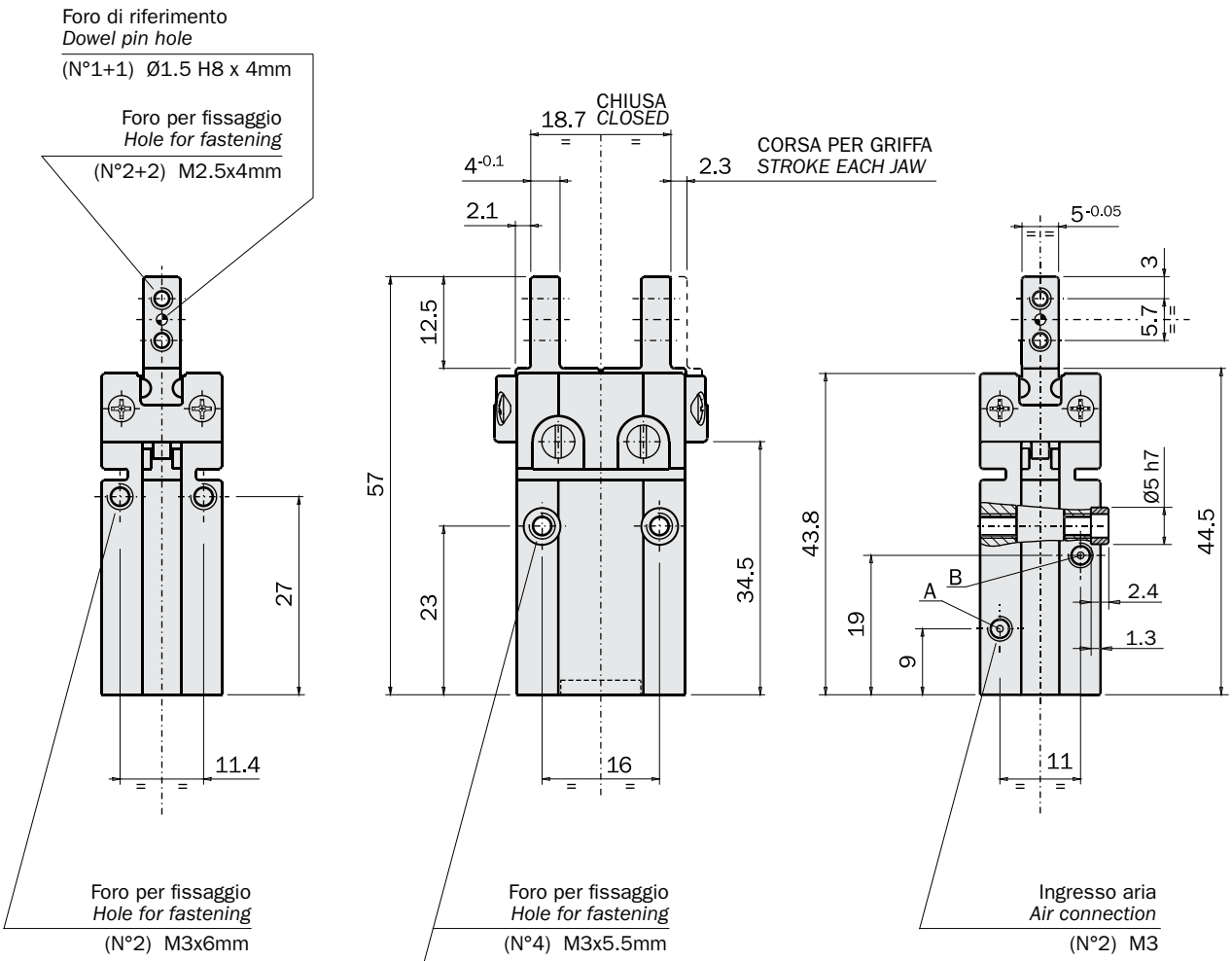
	GS-10	GS-16	GS-20	GS-25	GS-32	GS-40
Fluido *Medium*	Aria compressa filtrata, lubrificata / non lubrificata *Filtered, lubricated / non lubricated compressed air*					
Pressione di esercizio *Operating pressure range*	2.5 ÷ 8 bar	1.5 ÷ 8 bar			1 ÷ 8 bar	
Temperatura di esercizio *Operating temperature range*	5° ÷ 60°C.					
Forza di serraggio per griffa in apertura a 6 bar *Opening gripping force at 6 bar on each jaw*	18 N	50 N	106 N	141 N	250 N	350 N
Forza di serraggio totale in apertura a 6 bar *Opening total gripping force at 6 bar*	36 N	100 N	212 N	282 N	500 N	700 N
Forza di serraggio per griffa in chiusura a 6 bar *Closing gripping force at 6 bar on each jaw*	14 N	43 N	93 N	127 N	215 N	307 N
Forza di serraggio totale in chiusura a 6 bar *Closing total gripping force at 6 bar*	28 N	86 N	186 N	254 N	430 N	614 N
Corsa totale (±0.3 mm) *Total stroke*	4.6 mm	6.8 mm	10.4 mm	14.4 mm	22 mm	30 mm
Frequenza max funzionamento continuativo *Maximum working frequency*	3 Hz	3 Hz	2 Hz	2 Hz	2 Hz	2 Hz
Consumo d'aria per ciclo *Cycle air consumption*	0.7 cm^3	3 cm^3	7 cm^3	14 cm^3	28 cm^3	61 cm^3
Tempo di chiusura senza carico *Closing time without load*	0.01 s	0.02 s	0.05 s	0.07 s	0.09 s	0.12 s
Ripetibilità *Repetition accuracy*	0.02 mm	0.02 mm	0.02 mm	0.02 mm	0.02 mm	0.02 mm
Peso *Weight*	45 g	98 g	207 g	365 g	645 g	1155 g

09/2013

Dimensioni (mm) / *Dimensions (mm)*

GS-10





Aria compressa in A: apertura della pinza.
Aria compressa in B: chiusura della pinza.

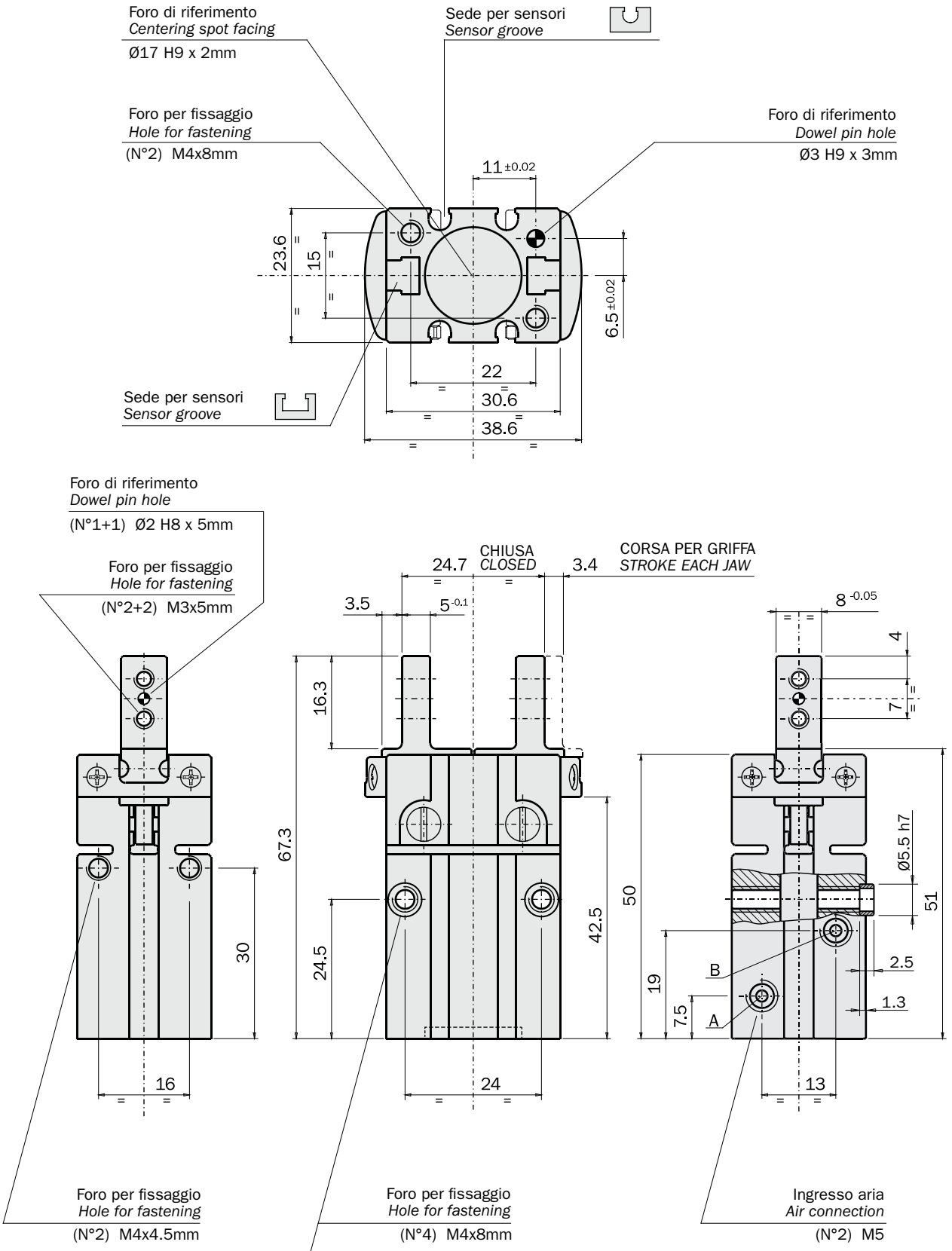
Compressed air in A: gripper opening.
Compressed air in B: gripper closing.

FIRST ANGLE PROJECTION

09/2013

Dimensioni (mm) / *Dimensions (mm)*

GS-16



FIRST ANGLE PROJECTION

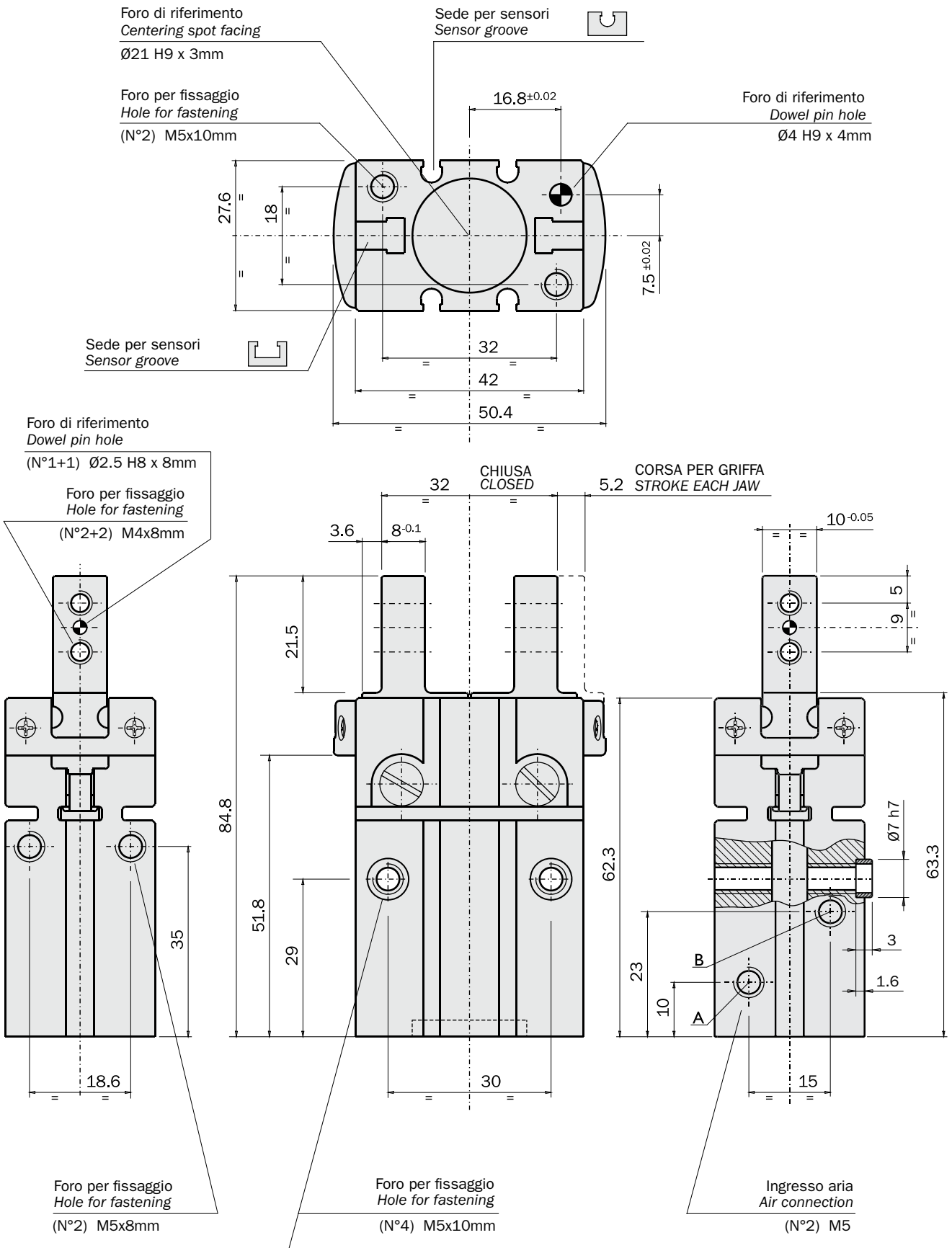
Aria compressa in A: apertura della pinza.
Aria compressa in B: chiusura della pinza.

Compressed air in A: gripper opening.
Compressed air in B: gripper closing.

09/2013

Dimensioni (mm) / *Dimensions (mm)*

GS-20



Aria compressa in A: apertura della pinza.
Aria compressa in B: chiusura della pinza.

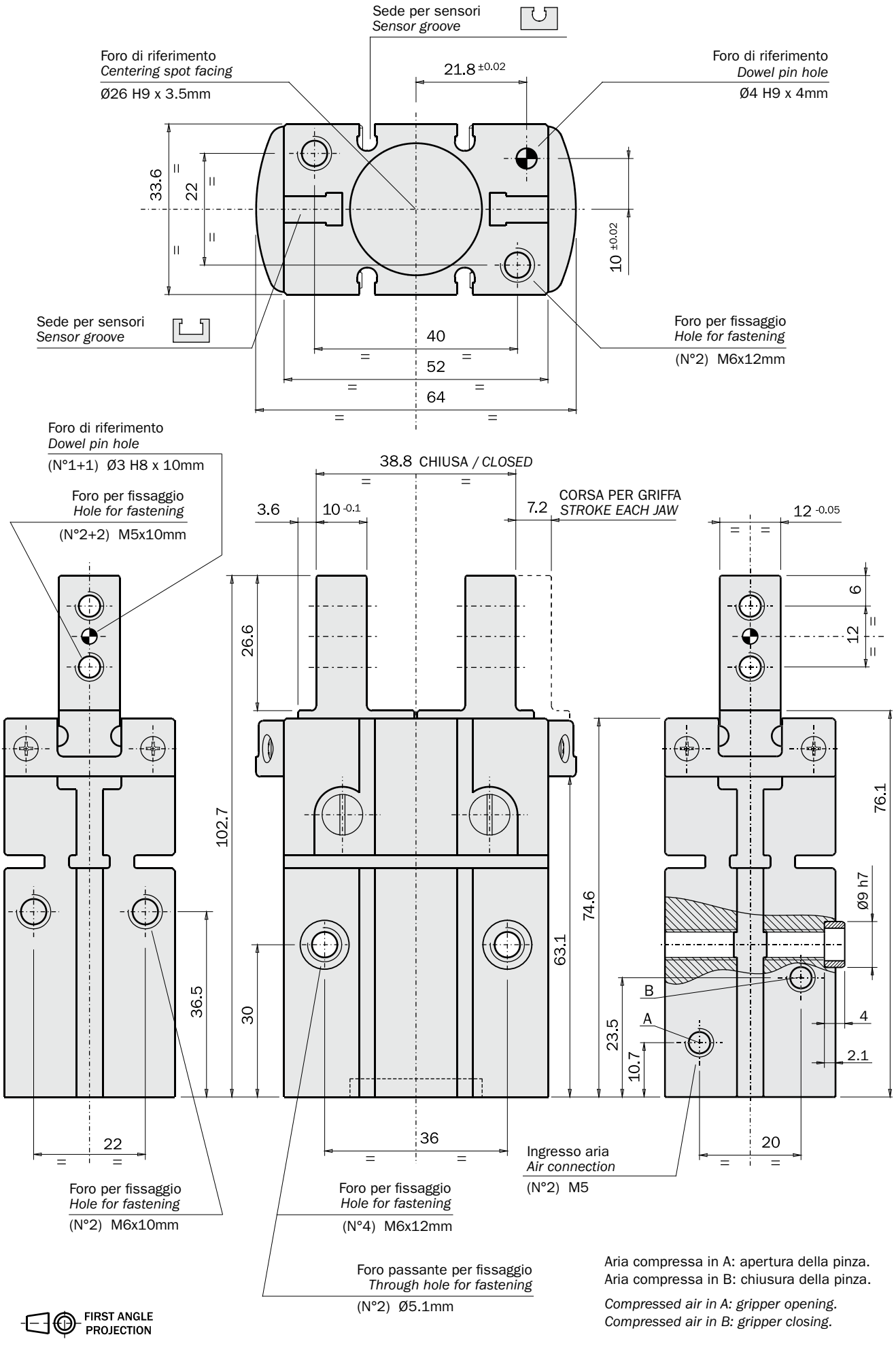
Compressed air in A: gripper opening.
Compressed air in B: gripper closing.

FIRST ANGLE PROJECTION

09/2013

Dimensioni (mm) / *Dimensions (mm)*

GS-25



FIRST ANGLE PROJECTION

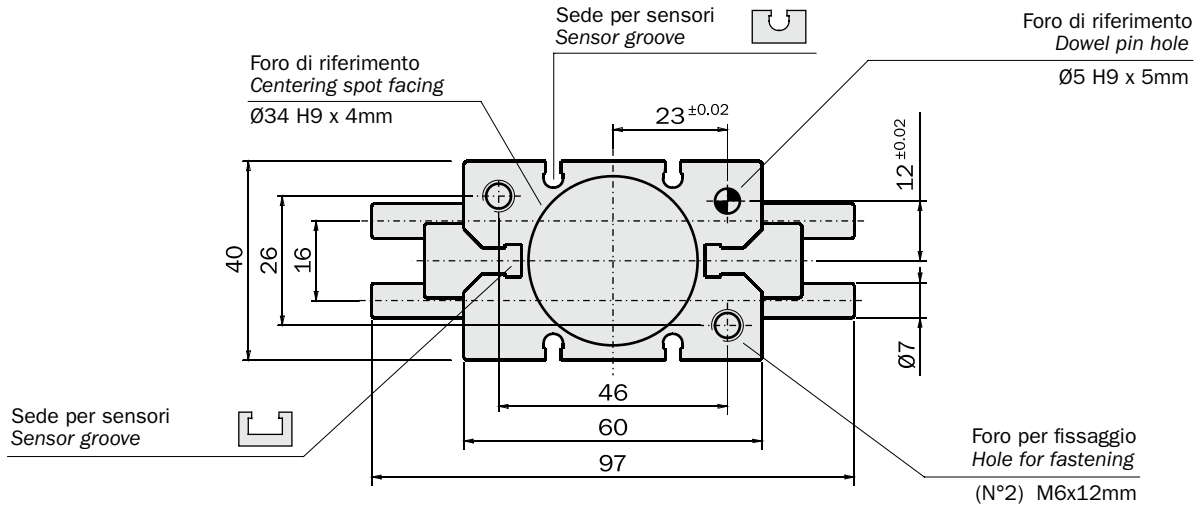
Aria compressa in A: apertura della pinza.
Aria compressa in B: chiusura della pinza.

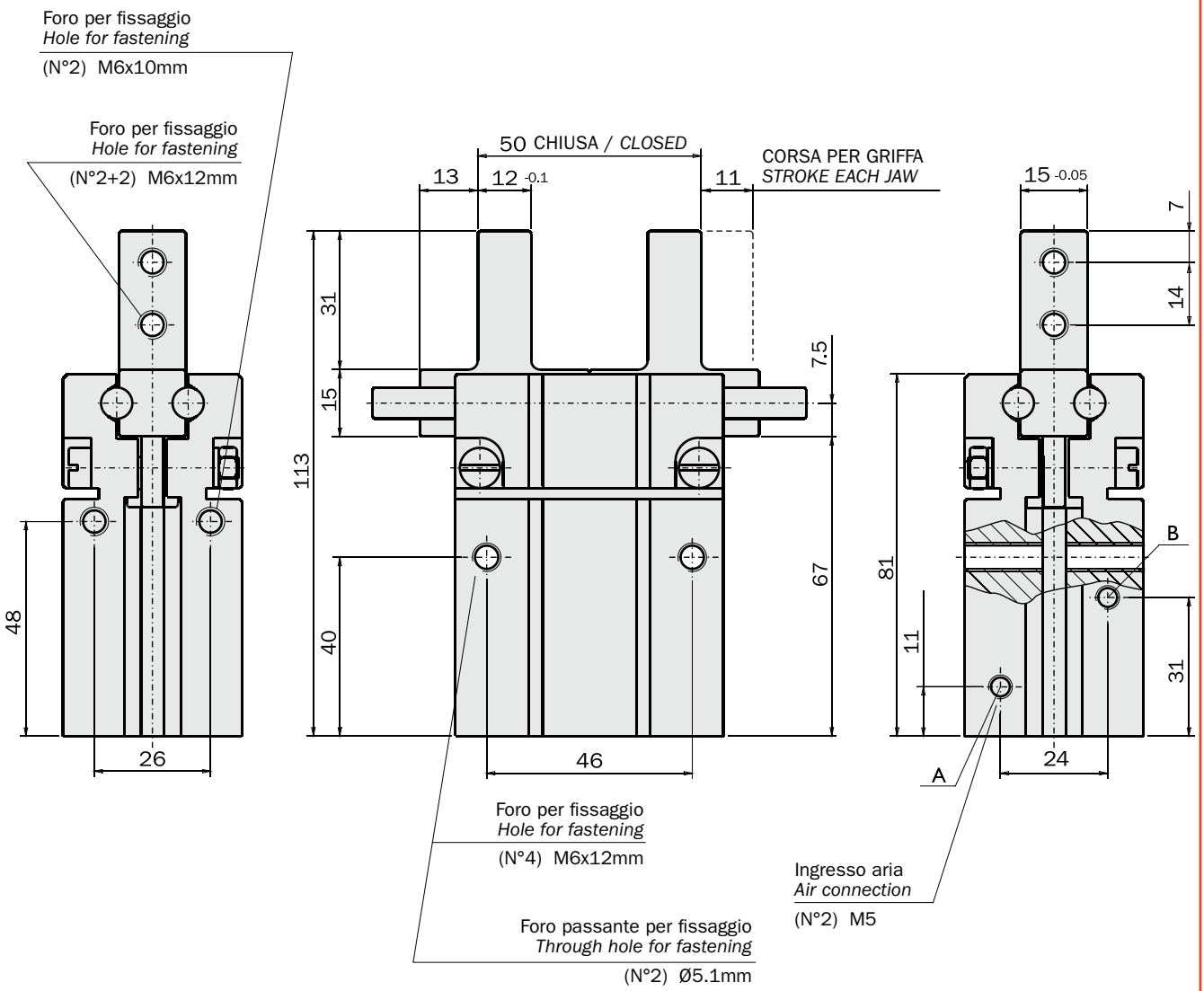
Compressed air in A: gripper opening.
Compressed air in B: gripper closing.

09/2013

Dimensioni (mm) / *Dimensions (mm)*

GS-32





Aria compressa in A: apertura della pinza.
Aria compressa in B: chiusura della pinza.

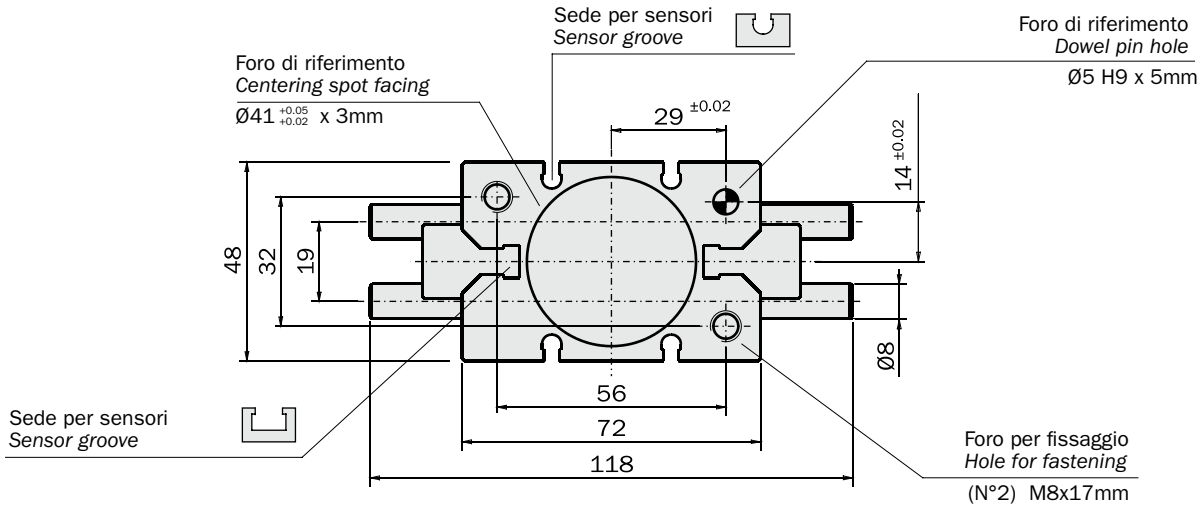
Compressed air in A: gripper opening.
Compressed air in B: gripper closing.

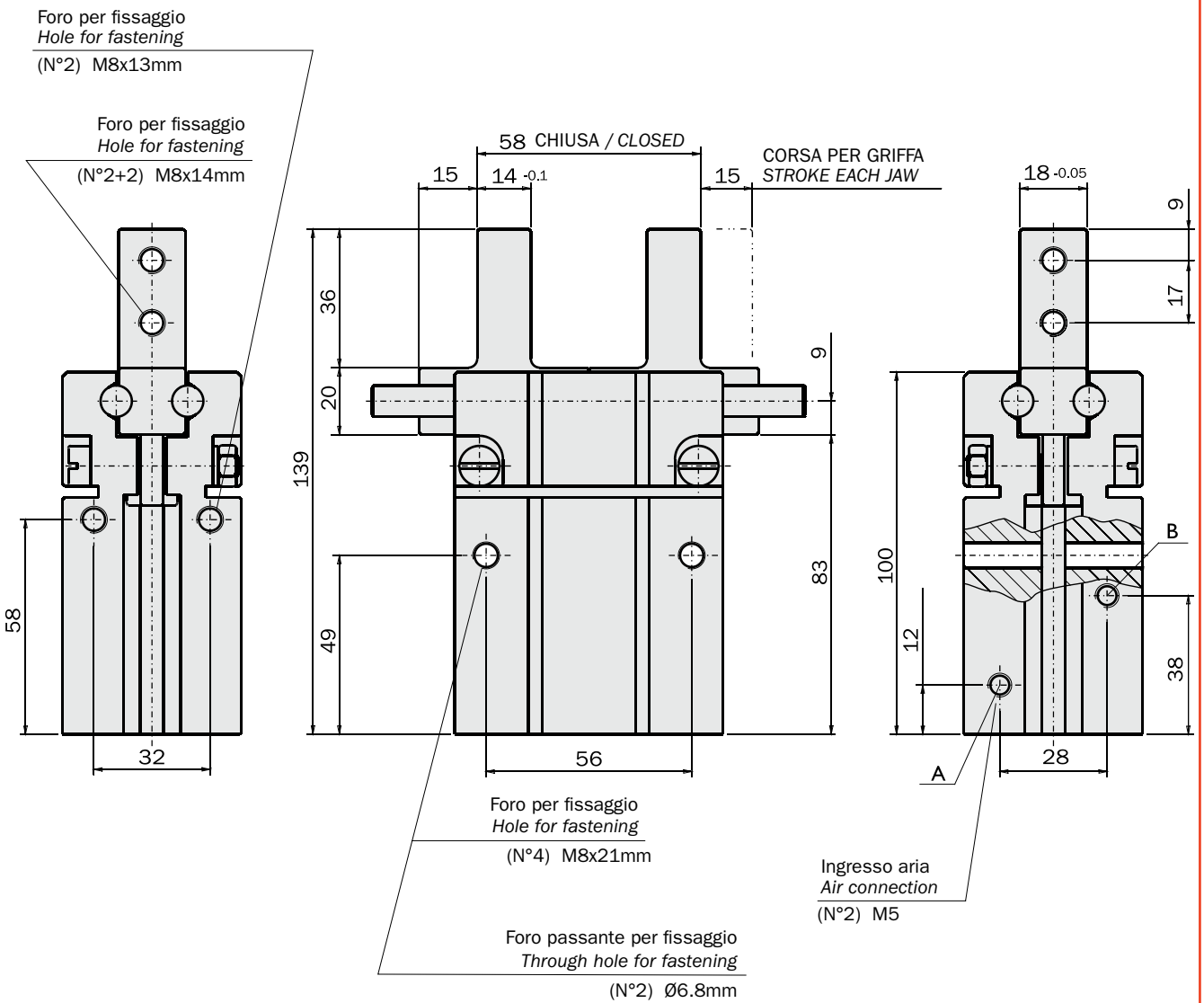
FIRST ANGLE PROJECTION

09/2013

Dimensioni (mm) / *Dimensions (mm)*

GS-40





Aria compressa in A: apertura della pinza.
Aria compressa in B: chiusura della pinza.

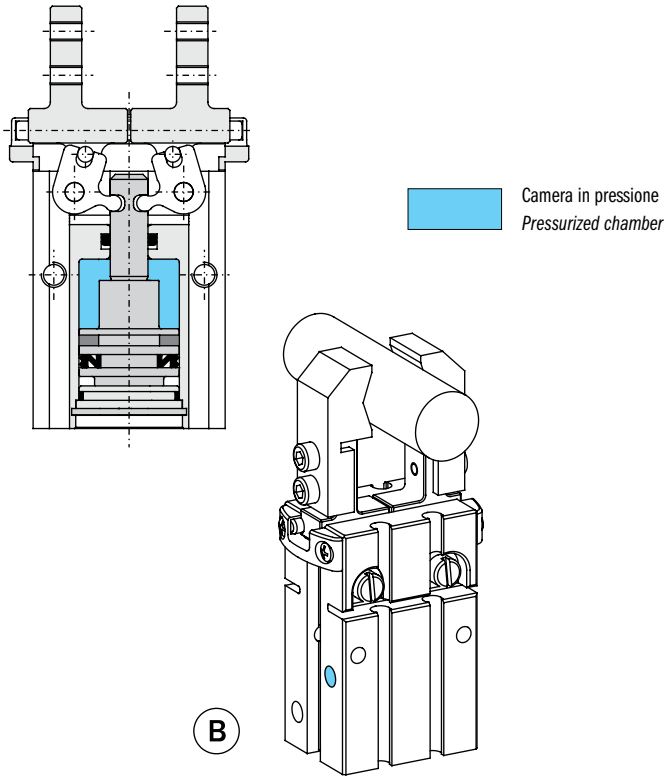
Compressed air in A: gripper opening.
Compressed air in B: gripper closing.

FIRST ANGLE PROJECTION

09/2013

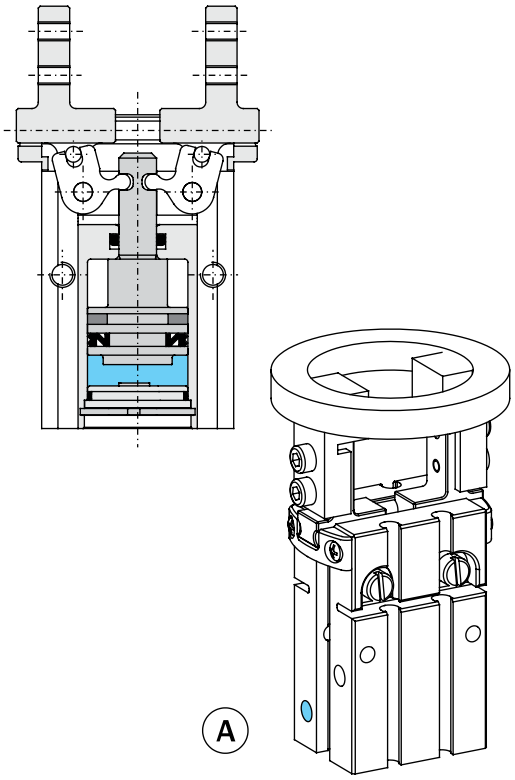
Serraggio

La pinza è a doppio effetto e può quindi essere usata per serrare il carico sia dall'esterno (B) che dall'interno (A).
La forza di serraggio è maggiore in apertura.



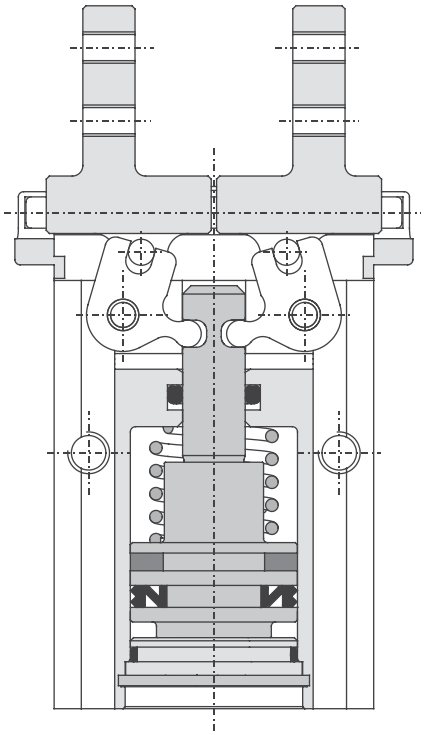
Gripping

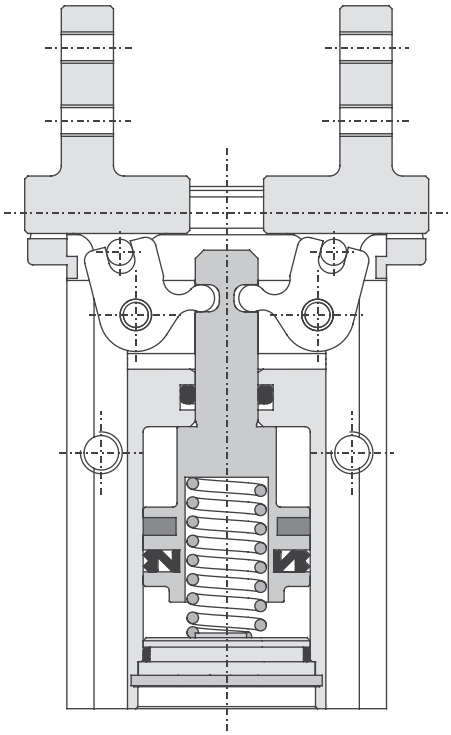
The gripper is double-acting for either internal (A) or external (B) gripping applications. The opening force is higher.



A richiesta è disponibile la versione con la molla in chiusura (-NC) o in apertura (-NO).

It is also available, on request, with a closing (-NC) or opening (-NO) spring.





Fissaggio

La pinza può essere montata in posizione fissa oppure su parti in movimento: in questo caso va considerata la forza d'inerzia cui la pinza ed il suo carico sono sottoposti.

1- Per fissare la pinza sul lato più largo utilizzare due viti passanti nella piastra ed avvitate nel foro filettato (A) della pinza.
Usare le 2 boccole (J) per il centraggio, dove presenti.

2- Il fissaggio sul lato largo è possibile anche utilizzando due viti (B) passanti attraverso i fori (A). In questo caso l'utilizzo di sensori nelle cave rettangolari può essere impossibile.
Usare le 2 boccole (J) per il centraggio, dove presenti.

3- Per fissare la pinza sul lato più stretto utilizzare due viti passanti nella piastra ed avvitate nel foro filettato (E) della pinza.

4- Per fissare la pinza sul fondo utilizzare due viti passanti nella piastra ed avvitate nel foro filettato (C), una spina nel foro calibrato (D) ed una pastiglia di centraggio nella lamatura centrale (H). In questo caso si deve prevedere lo spazio per i sensori (X e Y).

Fastening

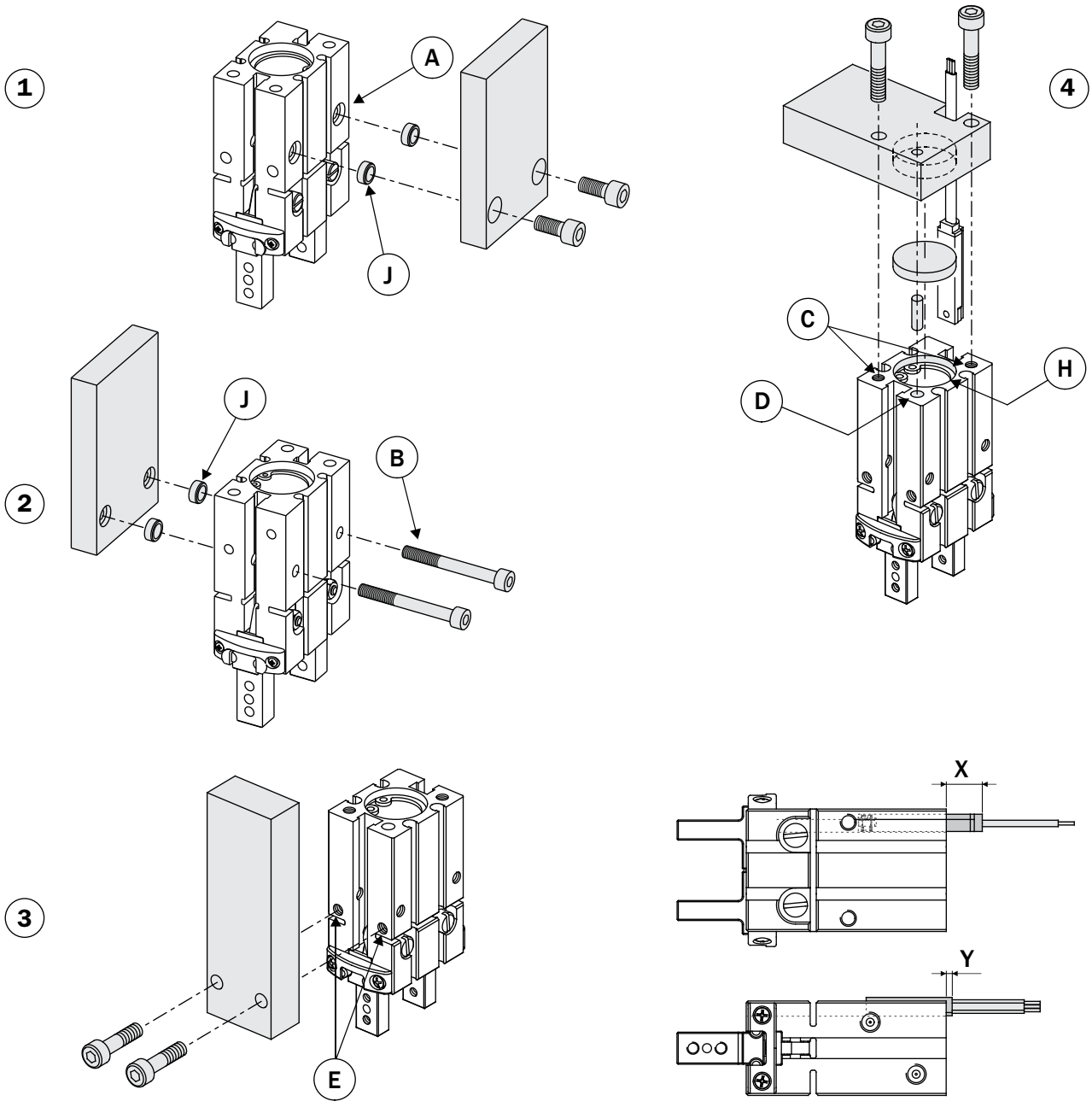
The gripper can be fastened to a static or moving part. When on a moving part, you must pay attention to the forces created by inertia over the gripper and its load.

1- To fasten the gripper on the wider side, use a plate with two through holes and two screws to be screwed on the threaded holes (A) on the gripper housing.
Use 2 centering sleeves (J), where available.

2- It is possible to fasten the gripper on the wider side also with two screws (B) passing through the threaded holes (A).
In this case sensors on the T-slot could be unusable.
Use 2 centering sleeves (J), where available.

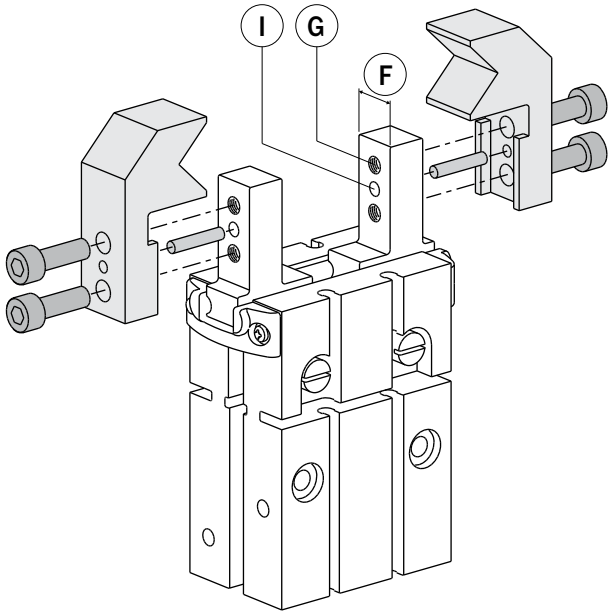
3- To fasten the gripper on the narrow side, two screws passing through the holes on the plate, must be screwed into the threaded holes (E) on the gripper housing.

4- The gripper can be fastened on the bottom as well, using two screws passing through the holes on the plate and screwed into the threaded holes (C) on the gripper housing.
For the reference use a pin on the dowel pin hole (D) and a centering disc in the spot face (H). In this case the necessary room for sensor must be provided (X and Y).



Costruire le dita di presa il più possibile corte e leggere.
Fissarle con due viti nei fori filettati (G).
Per il centraggio sulle griffe si può fare riferimento alla quota calibrata (F), oppure ai fori spina (I).

The gripping tools must be as short and light as possible.
They must be fastened by two screws (G).
For a precise positioning on the jaw use the calibrated dimension (F), or the dowel pin holes (I).



	GS-10	GS-16	GS-20	GS-25	GS-32	GS-40
A	M3x5.5 mm	M4x8 mm	M5x10 mm	M6x12 mm	M6x12 mm	M8x21 mm
B	M2.5x22 mm	M3x30 mm	M4x35 mm	M5x45 mm	M5x50 mm	M6x60 mm
C	M3x6 mm	M4x8 mm	M5x10 mm	M6x12 mm	M6x12 mm	M8x17 mm
D	Ø2H9 x 3 mm	Ø3H9 x 3 mm	Ø4H9 x 4 mm	Ø4H9 x 4 mm	Ø5H9 x 5 mm	Ø5H9 x 5 mm
E	M3x6 mm	M4x4.5 mm	M5x8 mm	M6x10 mm	M6x10 mm	M8x21 mm
F	$5^{-0.05}$ mm	$8^{-0.05}$ mm	$10^{-0.05}$ mm	$12^{-0.05}$ mm	$15^{-0.05}$ mm	$18^{-0.05}$ mm
G	M2.5x4 mm	M3x5 mm	M4x8 mm	M5x10 mm	M6x12 mm	M8x14 mm
H	Ø11H9 x 2 mm	Ø17H9 x 2 mm	Ø21H9 x 3 mm	Ø26H9 x 3.5 mm	Ø34H9 x 4 mm	$Ø41^{+0.02}_{+0.05}$ x 3 mm
I	Ø1.5H8 x 4 mm	Ø2H8 x 5 mm	Ø2.5H8 x 8 mm	Ø3H8 x 10 mm	Ø4H8 x 12 mm	Ø5H8 x 14 mm

Sensori / *Sensors*

SC	-	X=2 mm	X=0 mm	X=0 mm	X=0 mm	X=0 mm
SL	X=10 mm + cable	X=10 mm + cable	X=9 mm + cable	X=7 mm + cable	X=7 mm + cable	X=7 mm + cable
SN	-	X=0 mm	X=0 mm	X=0 mm	X=0 mm	X=0 mm
SS	X=2 mm + cable	X=Y=3 mm + cable	X=Y=1 mm + cable	X=Y=1 mm + cable	cable	cable

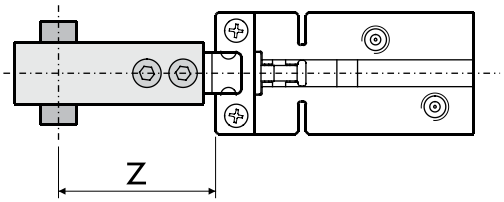
Forza di serraggio

I grafici mostrano la forza per griffa espressa dalla pinza in funzione della pressione e del braccio di leva Z.

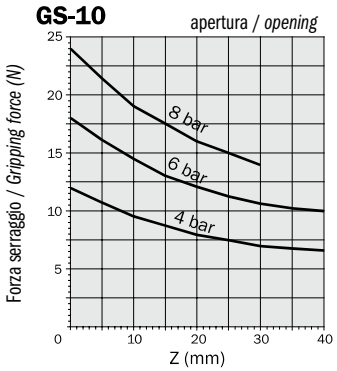
Gripping force

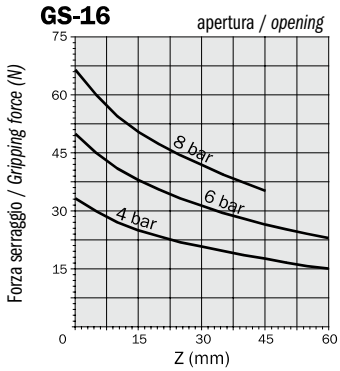
The graphs show the gripping force on each jaw, as a function of the operating pressure and the gripping tool length Z.

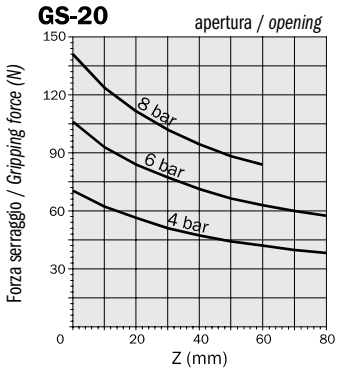
La forza indicata in questi grafici è riferita alla singola griffa. La forza totale è il doppio.

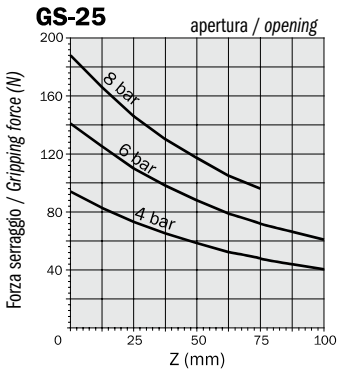


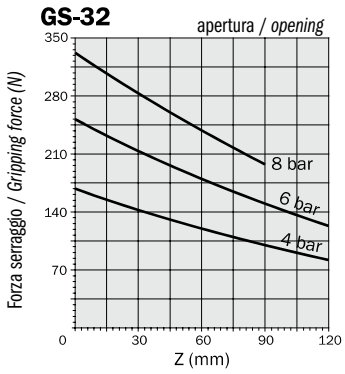
The force shown in these graphs refers to one jaw. The total force is double.

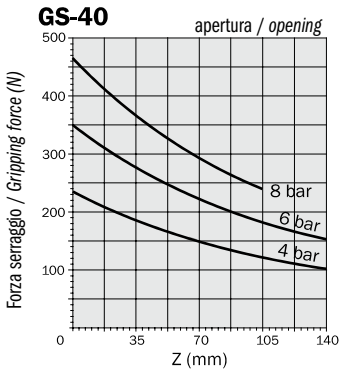


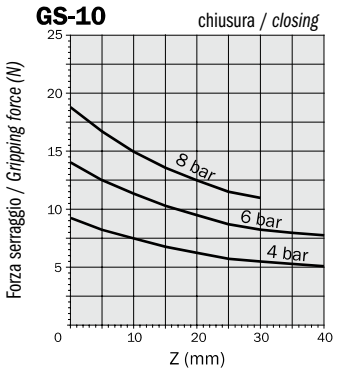


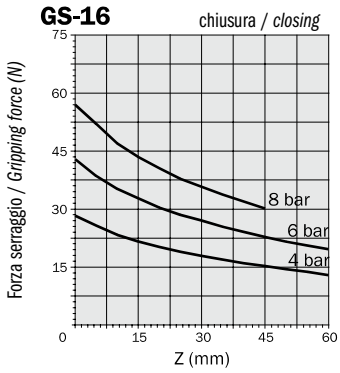


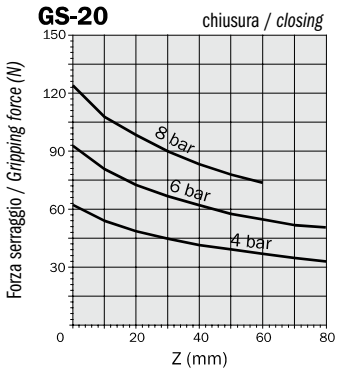


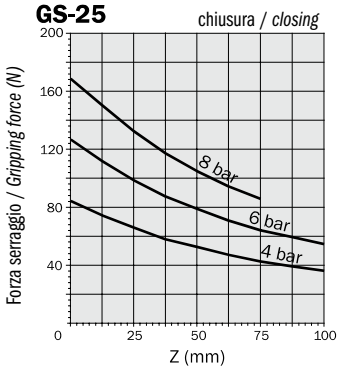


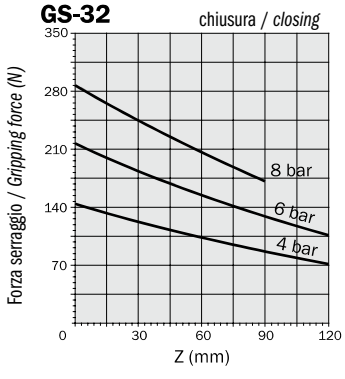


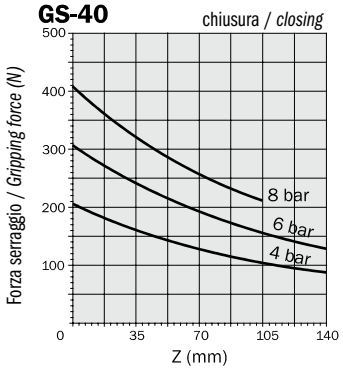










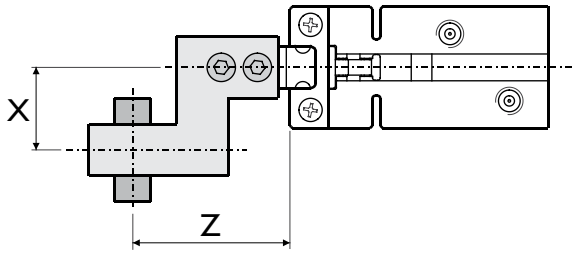


Forza di serraggio

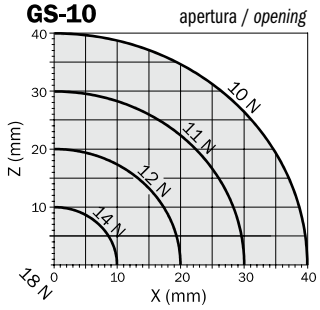
I grafici mostrano la forza per griffa espressa dalla pinza a 6 bar in funzione del braccio Z e del disassamento del punto di presa X.

Gripping force

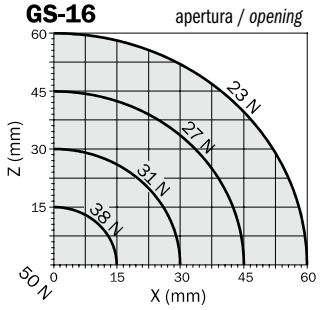
The graphs show the gripping force on each jaw, as a function of the gripping tool length Z and the overhanging X at 6 bar.



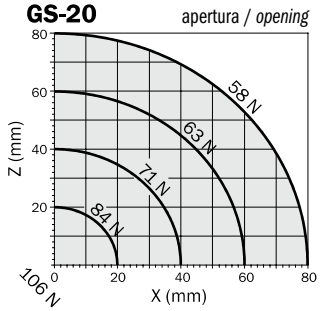
GS-10 apertura / *opening*



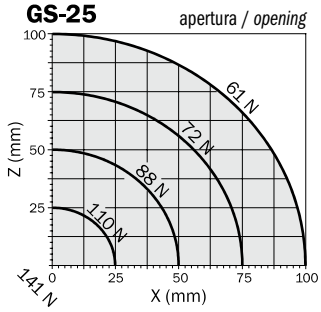
GS-16 apertura / *opening*



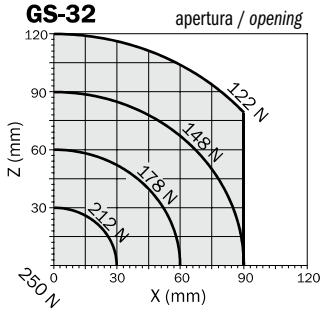
GS-20 apertura / *opening*



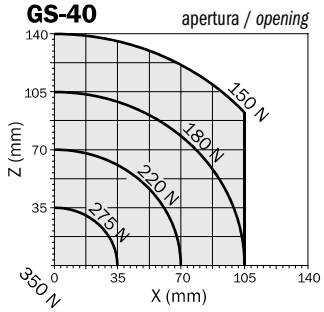
GS-25 apertura / *opening*



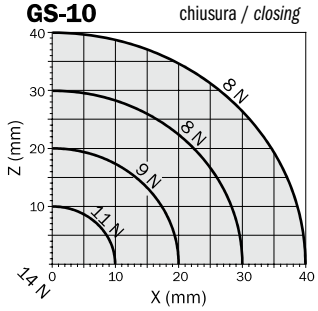
GS-32 apertura / *opening*



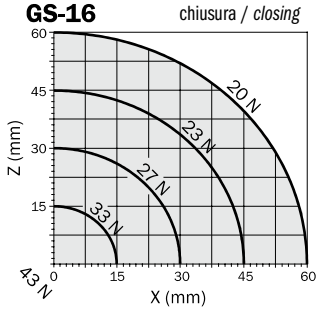
GS-40 apertura / *opening*



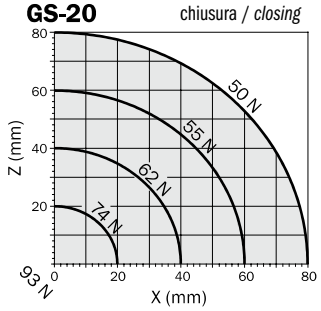
GS-10 chiusura / *closing*



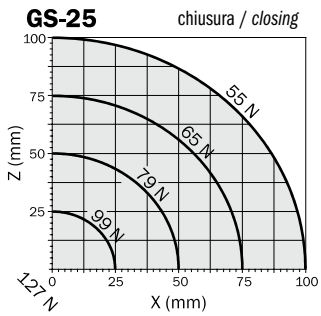
GS-16 chiusura / *closing*



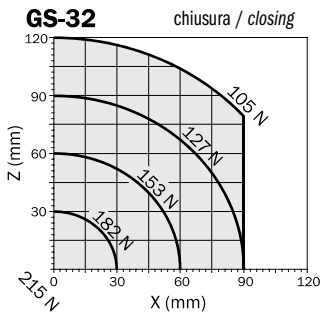
GS-20 chiusura / *closing*



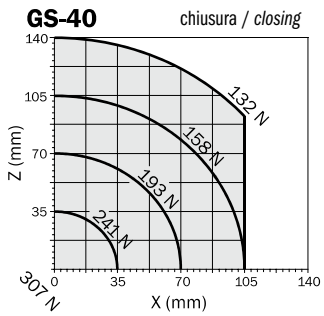
GS-25 chiusura / *closing*



GS-32 chiusura / *closing*



GS-40 chiusura / *closing*



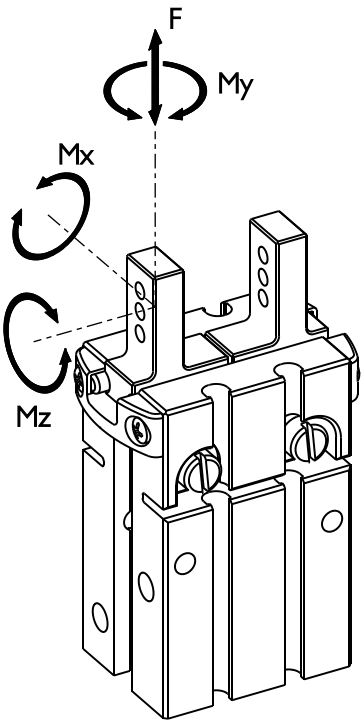
GS

Carichi di sicurezza

Consultare la tabella per i carichi massimi ammissibili.
Forze e coppie eccessive possono danneggiare la pinza e causare difficoltà di funzionamento compromettendo la sicurezza dell'operatore.
F s, Mx s, My s, Mz s, sono i carichi massimi ammissibili in condizioni statiche, cioè con le griffe ferme.
F d, Mx d, My d, Mz d, sono i carichi massimi ammissibili in condizioni dinamiche, cioè con le griffe in movimento.
Inoltre sono riportate le masse ammissibili (m) per ogni dito di presa in funzione del tempo di apertura o chiusura. Usare i regolatori di flusso (non forniti) per ottenere la velocità desiderata.

Safety loads

Check the table for maximum permitted loads.
Excessive forces or torques can damage the gripper, cause functioning troubles and endanger the safety of the operator.
F s, Mx s, My s, Mz s, are maximum permitted static loads.
Static means with motionless jaws.
F d, Mx d, My d, Mz d, are maximum permitted dynamic loads.
Dynamic means with running jaws.
The following tables show the specified maximum loads (m) on each gripping tool as function of closing or opening time. Use flow controllers (not supplied) to get the proper speed.



	GS-10	GS-16	GS-20	GS-25	GS-32	GS-40
F s	25 N	50 N	75 N	125 N	200 N	300 N
Mx s	0.4 Nm	1.5 Nm	5 Nm	8 Nm	18 Nm	30 Nm
My s	0.4 Nm	1.5 Nm	5 Nm	8 Nm	12 Nm	20 Nm
Mz s	0.4 Nm	1.5 Nm	5 Nm	8 Nm	18 Nm	30 Nm
F d	0.4 N	0.8 N	1.5 N	2.5 N	3.5 N	4.5 N
Mx d	0.4 Ncm	1.5 Ncm	5 Ncm	8 Ncm	18 Ncm	30 Ncm
My d	0.4 Ncm	1.5 Ncm	5 Ncm	8 Ncm	18 Ncm	30 Ncm
Mz d	0.4 Ncm	1.5 Ncm	5 Ncm	8 Ncm	18 Ncm	30 Ncm
m 0.2s	40 g	80 g	150 g	250 g	350 g	450 g
m 0.12s	35 g	65 g	125 g	200 g	250 g	300 g
m 0.09s	30 g	55 g	100 g	150 g	200 g	-
m 0.07s	25 g	45 g	75 g	100 g	-	-
m 0.05s	20 g	35 g	50 g	-	-	-
m 0.02s	15 g	25 g	-	-	-	-
m 0.01s	10 g	-	-	-	-	-

Sensori

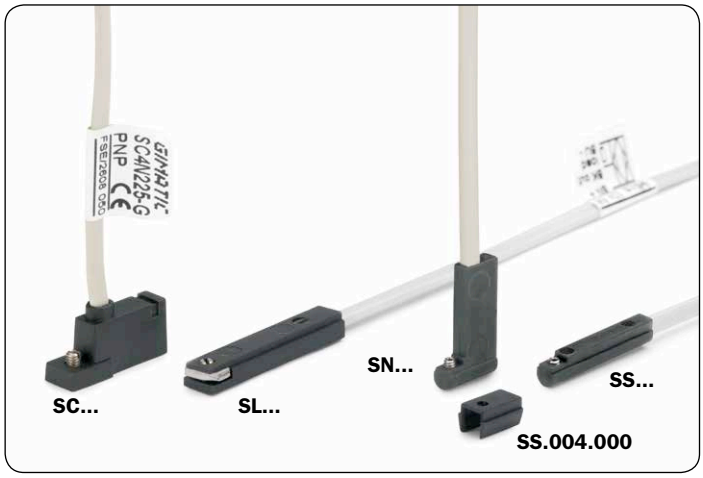
Il rilevamento della posizione di lavoro è affidato a uno o più sensori magnetici di prossimità (opzionali), che rilevano la posizione attraverso il magnete sul pistone.
Quindi, per un corretto funzionamento, è da evitare l'impiego in presenza di forti campi magnetici od in prossimità di grosse masse di materiale ferromagnetico.

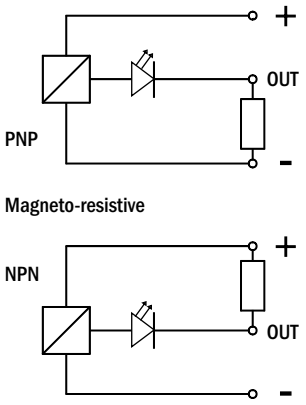
Sensors

The operating position can be checked by one or more magnetic sensors (optional), that detect the position by the magnet on the piston inside.
Therefore a near big mass of ferromagnetic material or intense magnetic fields may cause sensing troubles.

I sensori utilizzabili sono:

Use sensors:

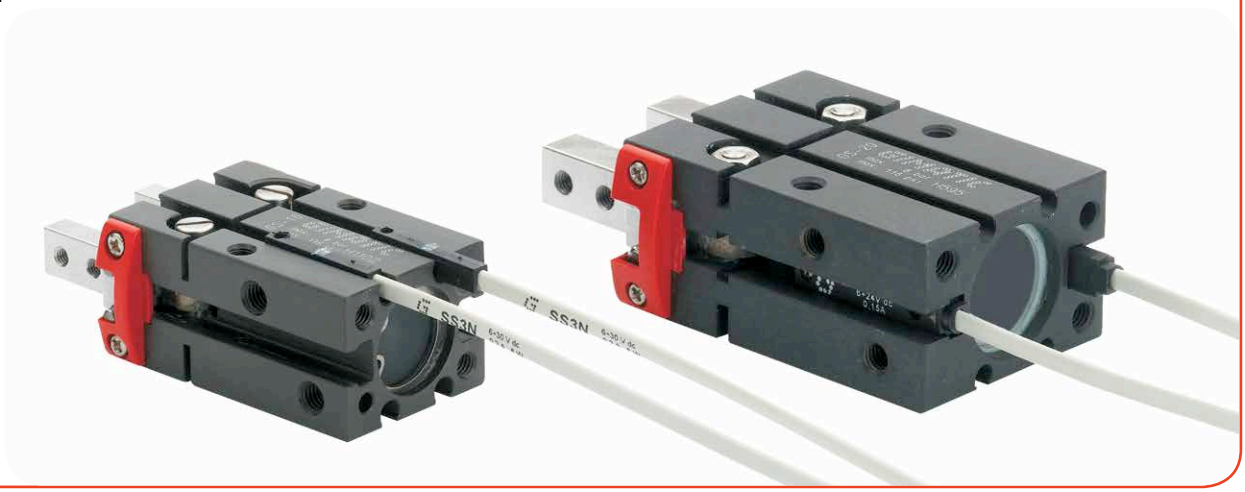




			GS-10	GS-16 / GS-20 /GS-25 / GS-32 / GS-40	
SC4N225Y	PNP	Cavo 2.5m / 2.5m cable	☐	☐	☑
SC3N203Y	PNP	Connettore M8 / M8 snap plug connector	☐	☐	☑
SL4N225-G	PNP	Cavo 2.5m / 2.5m cable	☑	☐	☑
SL4M225-G	NPN	Cavo 2.5m / 2.5m cable	☑	☐	☑
SL3N203-G	PNP	Connettore M8 / M8 snap plug connector	☑	☐	☑
SL3M203-G	NPN	Connettore M8 / M8 snap plug connector	☑	☐	☑
SN4N225-G	PNP	Cavo 2.5m / 2.5m cable	☐	☑	☐
SN4M225-G	NPN	Cavo 2.5m / 2.5m cable	☐	☑	☐
SN3N203-G	PNP	Connettore M8 / M8 snap plug connector	☐	☑	☐
SN3M203-G	NPN	Connettore M8 / M8 snap plug connector	☐	☑	☐
SS4N225-G	PNP	Cavo 2.5m / 2.5m cable	☑ (1)	☑	☑ (1)
SS4M225-G	NPN	Cavo 2.5m / 2.5m cable	☑ (1)	☑	☑ (1)
SS3N203-G	PNP	Connettore M8 / M8 snap plug connector	☑ (1)	☑	☑ (1)
SS3M203-G	NPN	Connettore M8 / M8 snap plug connector	☑ (1)	☑	☑ (1)

(1)
Utilizzando l'adattatore (SS.004.000) fornito nella confezione K-SENS.

(1)
By the adapter (SS.004.000) provided with the pack K-SENS.

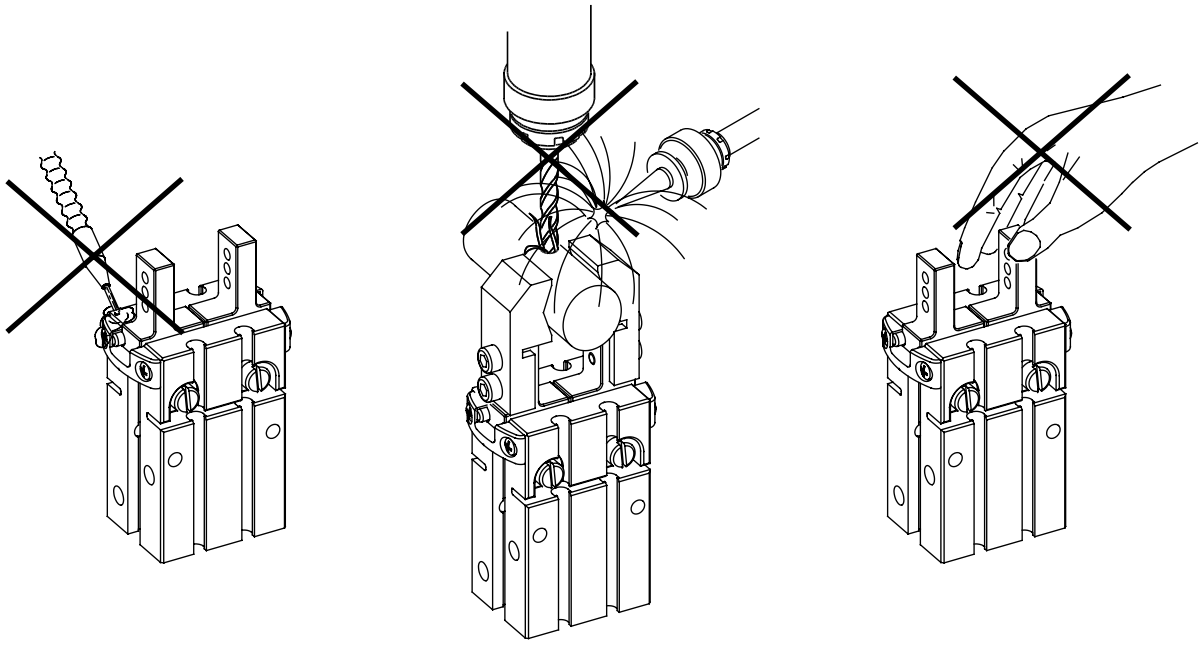


Avvertenze

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 between the gripping tools 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.



Manutenzione

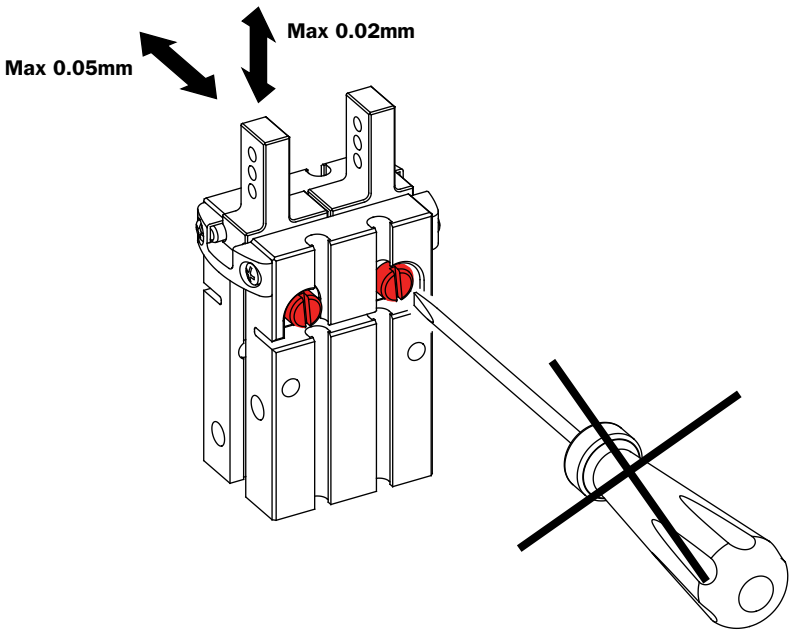
La pinza va ingrassata ogni 10 milioni di cicli con:
- Molykote DX (parti metalliche);
- Molykote PG75 (guarnizioni).

Il gioco delle griffe, indicato qui sotto, viene regolato in fabbrica.
NON USARE MAI LE VITI DI REGOLAZIONE PER MODIFICARLO.

Maintenance

Grease the gripper after 10 million cycles with:
- *Molykote DX (metal on metal);*
- *Molykote PG75 (gaskets).*

The jaw backlash, showed in the picture below, is set in factory. NEVER USE THE ADJUSTING SCREWS TO MODIFY IT.



Connessione pneumatica

La pinza si alimenta con aria compressa dai fori laterali (A e B) montandovi i raccordi dell'aria ed i relativi tubi (non forniti).

Aria compressa in A: apertura della pinza.
Aria compressa in B: chiusura della pinza.

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.

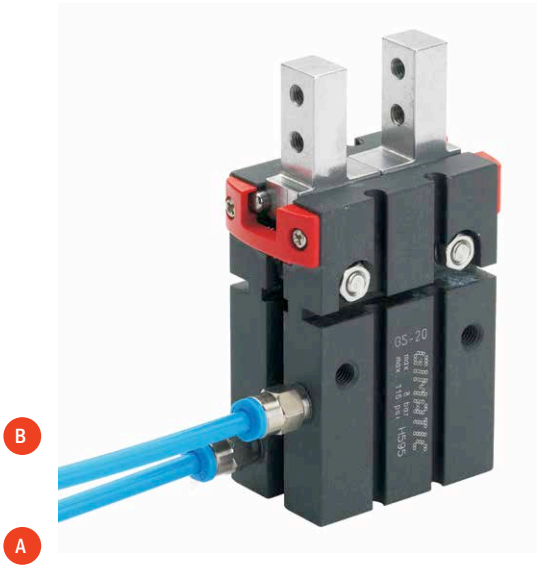
Compressed air feeding

The compressed air feeding can be accomplished on the lateral air ports (A and B) with fittings and hoses (not supplied).

Compressed air in A: gripper opening.
Compressed air in B: gripper closing.

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.



Circuito pneumatico

Possibili inconvenienti sul circuito di alimentazione dell'aria compressa:
1- Oscillazioni di pressione.
2- Riempimento pinza vuota all'avvio.
3- Improvvisa mancanza di pressione.
4- Velocità di azionamento eccessiva.

Accorgimenti per risolvere i problemi:
1- Serbatoio esterno (A).
2- Valvola di avviamento progressivo (B).
3- Valvole di sicurezza (C).
4- Regolatori di flusso (D).

Pneumatic circuit

Possible problems on a compressed air circuit:
1- Pressure variation.
2- Pressurizing with empty cylinder.
3- Sudden pressure black-out.
4- Excessive speed of the jaws.

Possible solutions:
1- Compressed air storage (A).
2- Start-up valve (B).
3- Safety valve (C).
4- Flow controller (D).

