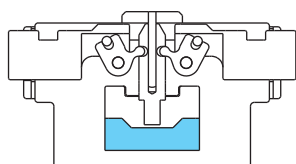
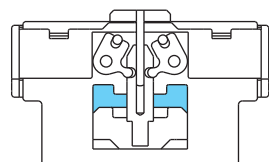


Serraggio

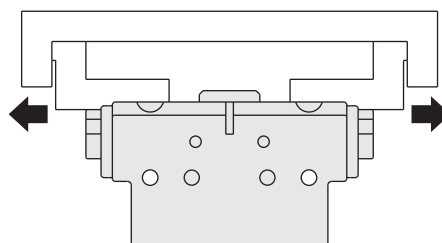
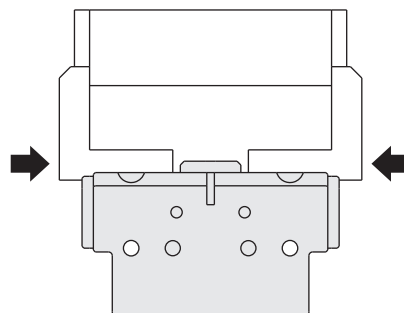
La pinza è a doppio effetto e può quindi essere usata per serrare il carico sia dall'esterno che dall'interno.
La forza di serraggio è maggiore in apertura.

 Camera in pressione
Pressurized chamber



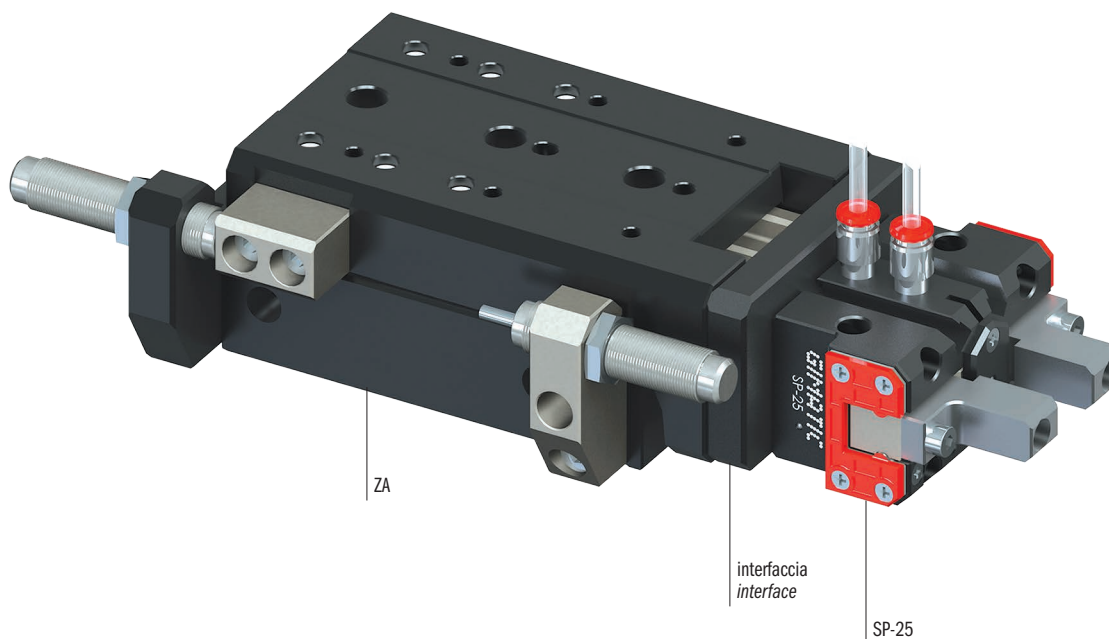
Gripping

The gripper is double-acting for either internal or external gripping applications.
The gripping force on opening is higher.



Esempio di applicazione

Application example



Fissaggio

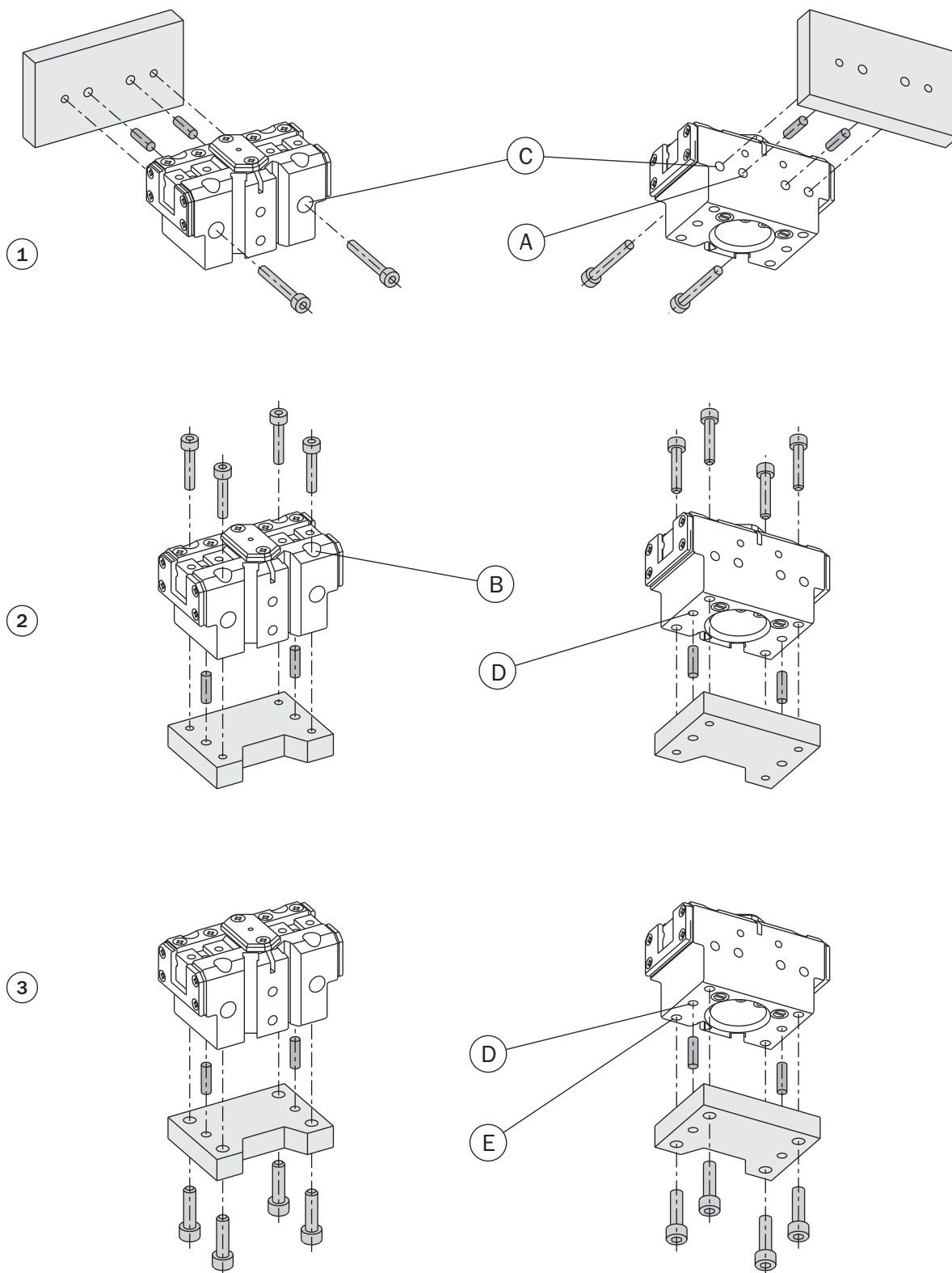
La pinza può essere montata in posizione fissa oppure su parti in movimento: in questo caso va considerata la forza d'inerzia cui la pinza ed il suo carico sono sottoposti.

- 1- Per fissare la pinza su un lato montare due viti nei fori passanti (C) e due spine nei fori calibrati (A).
- 2- Per fissare la pinza sul fondo usare quattro viti passanti attraverso i fori (B) e due spine nei fori calibrati (D).
- 3- Il fissaggio sul fondo è possibile anche usando le due spine nei fori calibrati (D) e quattro viti passanti nella piastra e avvitate in (E).

Fastening

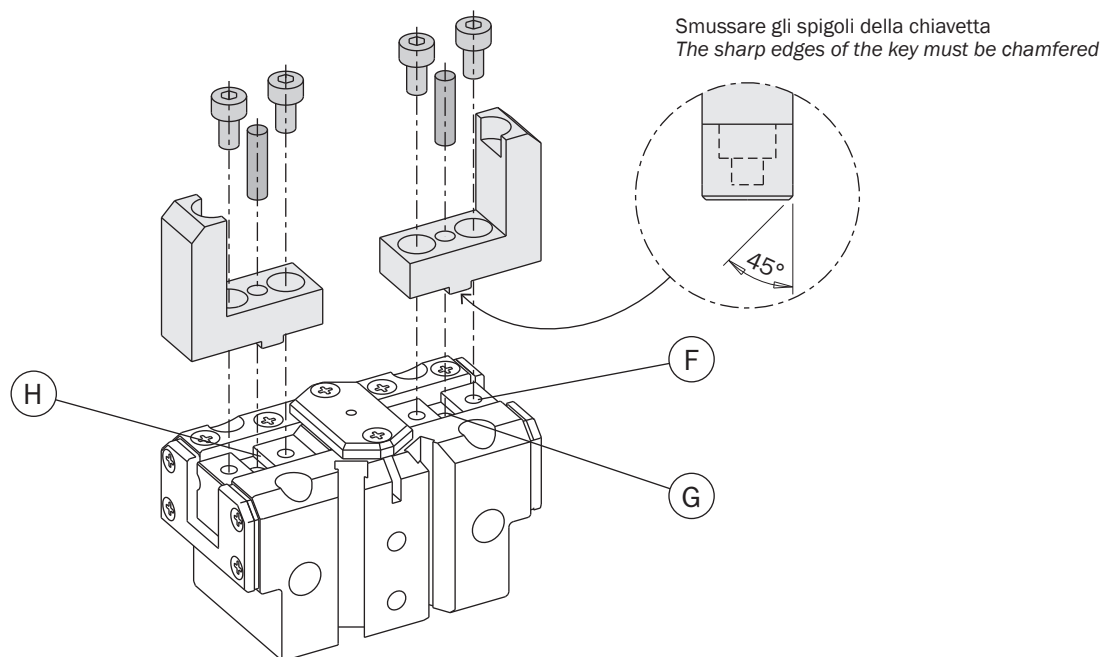
The gripper can be fastened to a static or moving part. When on a moving part, attention must be paid to the inertial force to which the gripper and its load are subjected.

- 1- To fasten the gripper on its side, insert two screws in the through holes (C) and two dowel pins in the dowel pin holes (A).
- 2- To fasten the gripper on its bottom, insert four screws in the through holes (B) and two dowel pins in the dowel pin holes (D).
- 3- The gripper can be fastened on its bottom also with the two dowel pins in the dowel pin holes (D) and four screws through the plate and screwed in (E).



Costruire le dita di presa il più possibile corte e leggere.
Fissarle con due viti nei fori filettati (F).
Per il centraggio sulle griffe utilizzare le scanalature calibrate (H)
ed i fori spina calibrati (G).

*The gripping fingers must be as short and light as possible.
Fasten them with two screws in the threaded holes (F).
For a precise positioning on the jaws use the key slots (H) and
the dowel pin holes (G).*



	SP-20	SP-25	SP-32	SP-40
A	Ø3H8 x 5 mm	Ø4H8 x 4 mm	Ø4H8 x 6 mm	Ø5H8 x 6 mm
B	Ø3.3 mm	Ø4.2 mm	Ø4.2 mm	Ø5 mm
C	Ø3.3 mm	Ø4.2 mm	Ø5.3 mm	Ø6.5 mm
D	Ø3H8 x 5 mm	Ø4H8 x 10 mm	Ø4H8 x 7 mm	Ø5H8 x 6 mm
E	M4x6 mm	M5x12 mm	M5x14 mm	M6x19 mm
F	M3x7 mm	M4x8 mm	M5x10 mm	M6x12 mm
G	Ø4H8 x 6 mm	Ø4H8 x 6.5 mm	Ø5H8 x 9 mm	Ø6H8 x 10 mm
H	$5^{+0.02}_{+0.05} \times 2$ mm	$5^{+0.02}_{+0.05} \times 2.5$ mm	$6^{+0.02}_{+0.05} \times 3$ mm	$8^{+0.02}_{+0.05} \times 3$ mm

Forza di serraggio

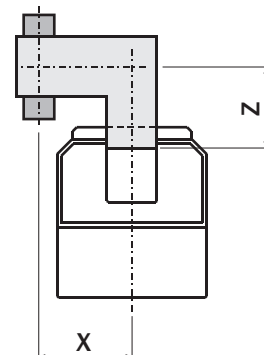
I grafici mostrano la forza media per griffa espressa dalla pinza in funzione della pressione, del braccio di leva Z e del disassamento del punto di presa X.

Gripping force

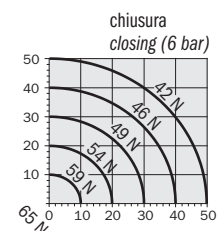
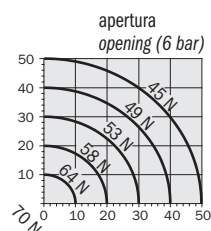
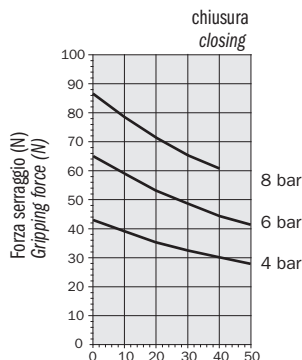
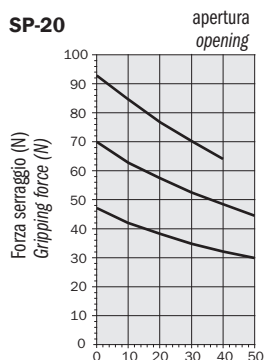
The graphs show the average gripping force on each jaw, as function of the operating pressure, of the gripping tool length Z and of the off-set position of the gripping point X.

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

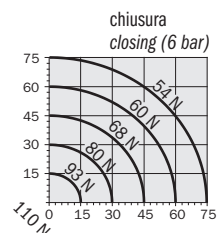
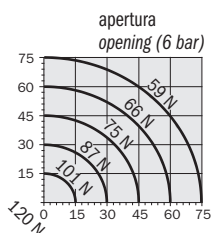
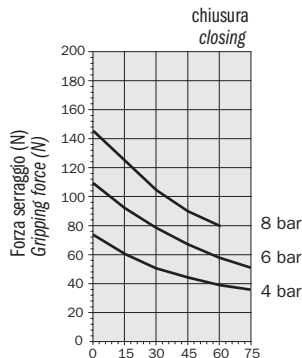
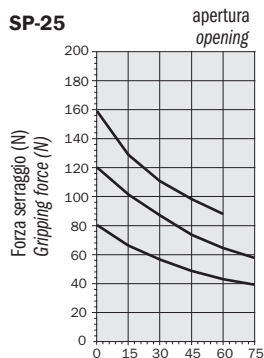
The force shown in these graphs refers to one jaw. The total force is double.



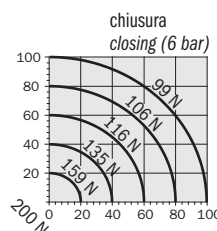
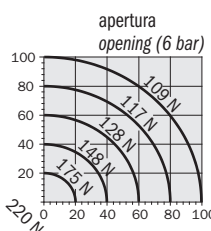
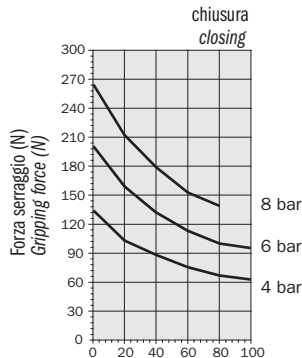
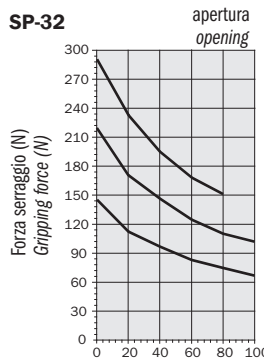
SP-20



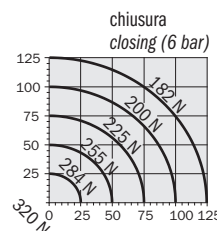
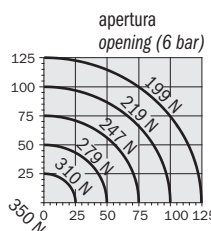
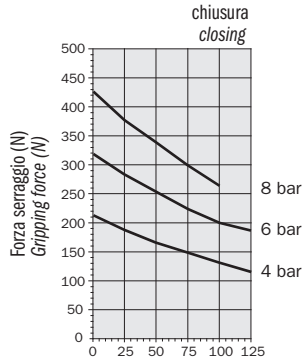
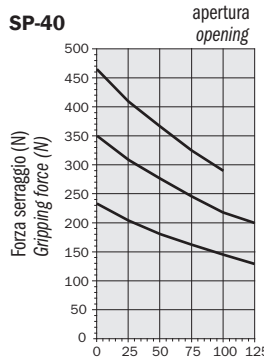
SP-25



SP-32



SP-40



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 , $M_x s$, $M_y s$, $M_z s$, sono i carichi massimi ammissibili in condizioni statiche, cioè con le griffe ferme.

F_d , $M_x d$, $M_y d$, $M_z d$, sono i carichi massimi ammissibili in condizioni dinamiche, cioè con le griffe in movimento.

m , è il massimo peso ammissibile su ogni dito di presa quando la pinza è utilizzata senza regolazione di velocità; per dita più pesanti si deve diminuire la velocità delle griffe agendo sui regolatori di flusso (non forniti).

Safety loads

Check the table for the maximum permitted loads.

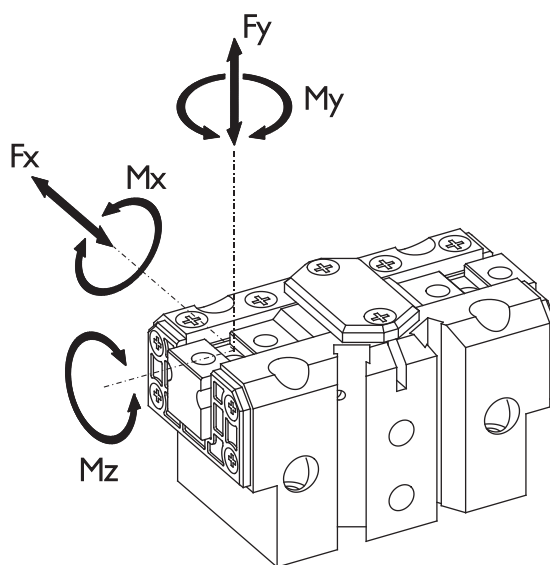
Excessive forces or torques can damage the gripper, cause operation problems and endanger the safety of the operator.

F_s , $M_x s$, $M_y s$, $M_z s$, are the maximum permitted loads under static conditions, that is with motionless jaws.

F_d , $M_x d$, $M_y d$, $M_z d$, are the maximum permitted loads under dynamic conditions, that is with running jaws.

m , is the maximum permitted weight of each gripping finger, when the gripper works without speed adjustment.

If the weight of the gripping fingers is over the permitted value, it is necessary to decrease the jaw speed by acting on the flow controllers (not supplied).



	SP-20	SP-25	SP-32	SP-40
$F_x s$	100 N	200 N	300 N	400 N
$F_y s$	100 N	200 N	300 N	400 N
$M_x s$	3 Nm	6 Nm	13 Nm	30 Nm
$M_y s$	3 Nm	6 Nm	13 Nm	30 Nm
$M_z s$	3 Nm	6 Nm	13 Nm	30 Nm
$F_x d$	1 N	2 N	3 N	4 N
$F_y d$	1 N	2 N	3 N	4 N
$M_x d$	5 Ncm	12 Ncm	24 Ncm	40 Ncm
$M_y d$	5 Ncm	12 Ncm	24 Ncm	40 Ncm
$M_z d$	5 Ncm	12 Ncm	24 Ncm	40 Ncm
m	100 g	200 g	300 g	400 g

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).

Oppure si alimenta direttamente dai fori inferiori (C e D) rimuovendo i tappi.

Aria compressa in A o C: apertura della pinza.

Aria compressa in B o D: chiusura della pinza.

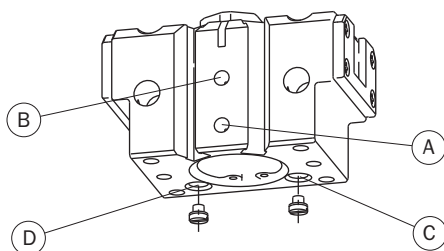
Pneumatic connection

The gripper is driven by compressed air through the side ports (A and B) using air fittings and relevant hoses (not supplied). Alternatively, the gripper is fed through the lower holes (C and D), after removing the caps.

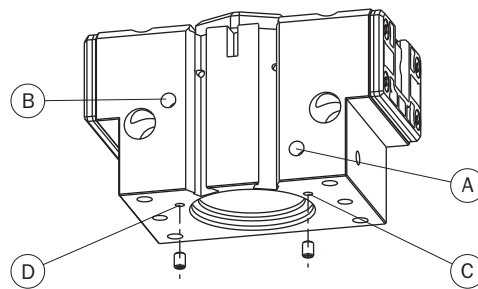
Compressed air in A or C: gripper opening.

Compressed air in B or D: gripper closing.

SP-20/SP-25



SP-32/SP-40



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).

La pinza è azionata con aria compressa filtrata 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.

Pneumatic circuit

Possible problems on a compressed air circuit:

- 1- Pressure variations.
- 2- Pressurising the empty gripper at start-up.
- 3- Sudden lack of pressure.
- 4- Excessive drive speed.

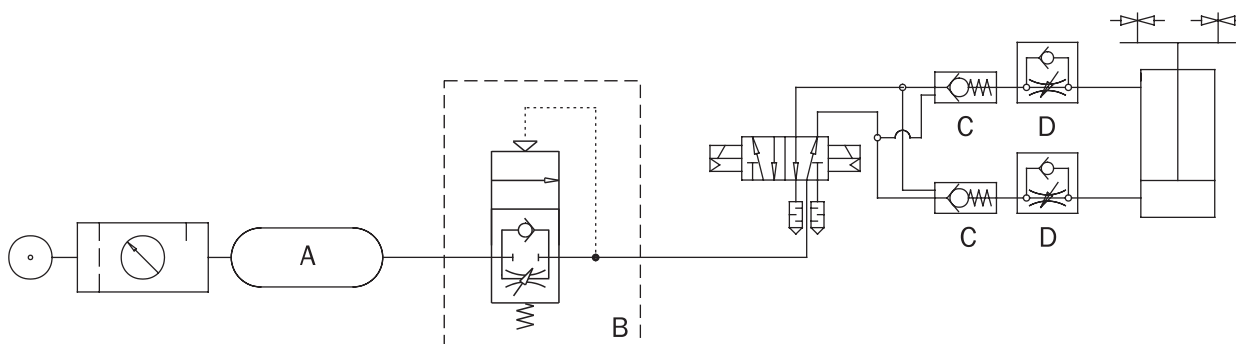
Possible solutions to the above issues:

- 1- External compressed air storage (A).
- 2- Start-up valve (B).
- 3- Safety valves (C).
- 4- Flow controllers (D).

The gripper is driven by filtered compressed air not necessarily lubricated.

The initial choice on air lubrication (lubricated or not) must be kept for the entire service life of the gripper.

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



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.

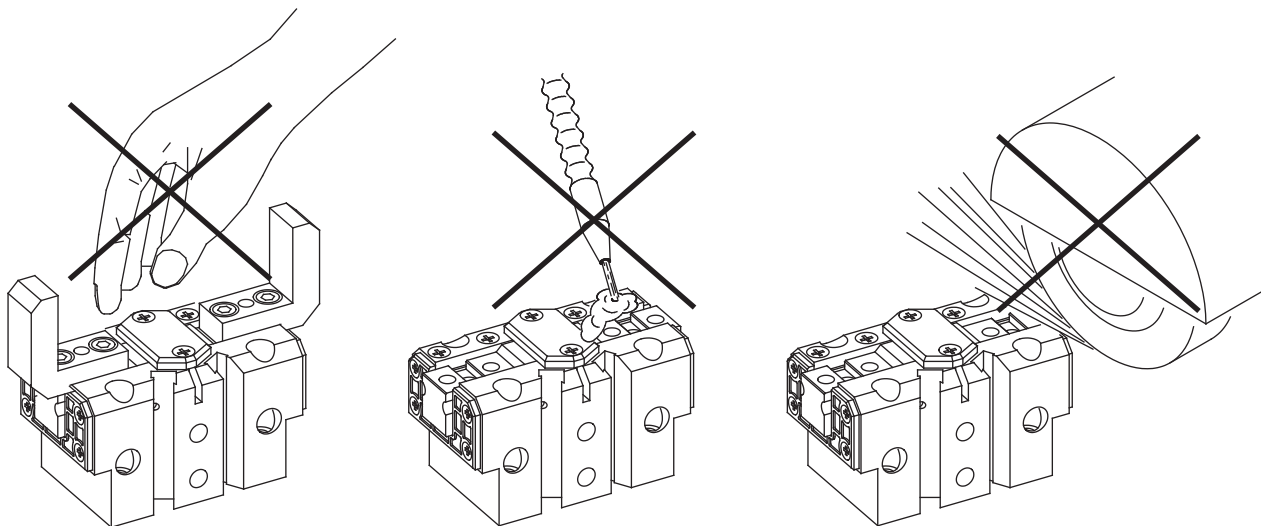
La pinza non deve essere messa in servizio prima che la macchina di cui fa parte sia stata dichiarata conforme alle disposizioni di sicurezza vigenti.

Caution

Never let the unit come into contact with corrosive substances, soldering splashes or abrasive powders as they will damage the gripper.

Never let non-authorised persons or objects be within the operating range of the gripper.

Never operate the gripper on a machine that does not comply with the safety standards and laws of your country.



Manutenzione

La pinza va ingrassata ogni 10 milioni di cicli con:

- BERULUB FG-H 2 SL

(Lubrificante NSF H1 Registrazione No. 135919).

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:

- BERULUB FG-H 2 SL

(Lubricant NSF H1 Registration No. 135919).

The play of the jaws, indicated below, is factory-set.

NEVER USE THE ADJUSTING SCREWS TO MODIFY IT.

