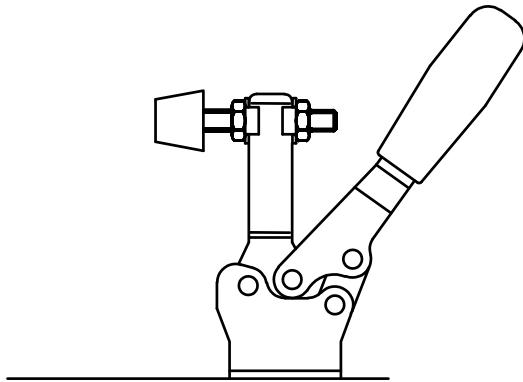
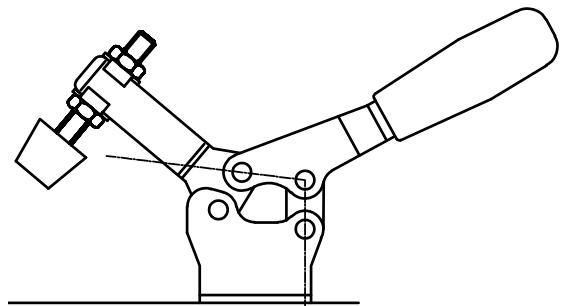


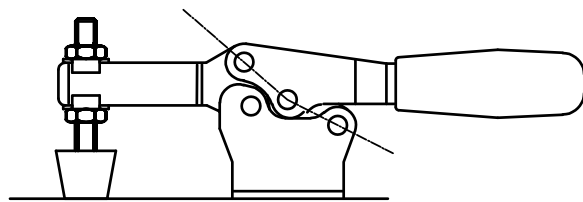
FEATURES



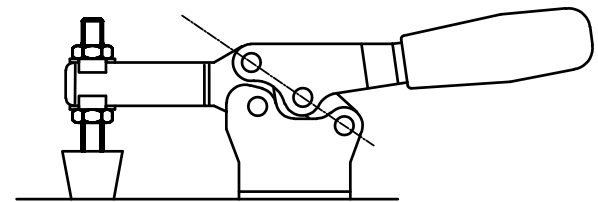
(fig. 1)



(fig. 2)



(fig. 3)



(fig. 4)

Using the toggle principle, the quick clamping tools have decisive advantages:

- The clamping lever is opened so as to completely clear the work surface, so that the work piece can be extracted from and/or placed in the equipment without difficulty (**fig. 1**).
- A small shift of the control lever is sufficient to bring the control lever to the work piece. The placement of three pivots (**fig. 2**) clearly shows that the force exerted by the clamping lever is transmitted to the control lever.
- In the **fig. 3** position, when the three pivots are aligned the maximum F_s clamping force is obtained (dead centre of the lever). The intensity of the F_s force exerted on the clamp depends on the:
 - 1) Force exerted on the control lever.
 - 2) Position of the pressure screw on the clamping lever. Since it is not possible to determine the

strength of the operator in manual, the tables indicate the F_s clamping force for pneumatic clamps only. In the maximum strength position (**fig. 3**), the clamping balance is unstable since opposing forces acting on the clamping lever can disengage the clamp.

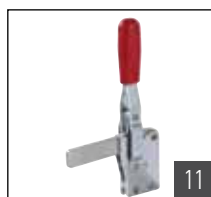
- If in the clamping position, the dead centre of the lever exceeds a certain limit (**fig. 4**), the clamping lever stops with a fixed stop and, thus obtains secure and irreversible clamping.

The strength that the clamp can receive in the closed position without permanent deformation is called F_h holding force. This is a feature variable for each clamp and depends on the size (sizes and geometry) of each clamp. The tables show the respective maximum F_h retaining force of the clamp including the safety factor. All forces are shown in daN. (decaNewton)=10 N (Newton)=1Kg. weight.

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VERTICAL B-F



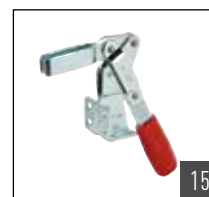
VERTICAL AL-EL



VERTICAL BL-FL



**VERTICAL
ELS-FLS**



VERTICALE AV-EV



**VERTICAL
AVF-EVF**



**VERTICAL
AVF-EVF**



VERTICAL F



**LONG LIFE
LLA-LLE**



**LONG LIFE
LLB-LLF**



**LONG LIFE
LSC-LSG**



LONG LIFE LSH



**LONG LIFE
ACCESSORIES**



HORIZONTAL M-O



HORIZONTAL N-P



**HORIZONTAL
ML-OL**



**HORIZONTAL
NL-PL**



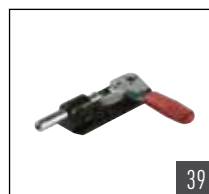
**HORIZONTAL
OLS-PLS**



HORIZONTAL MF



**PUSH AND PULL
STRAIGHT-LINE
ACTION
ASD-ASS**



**PUSH AND PULL
STRAIGHT-LINE
ACTION
ASD-ASS**



**ONLY PUSH
STRAIGHT-LINE
ACTION AS**



**PUSH AND PULL
STRAIGHT-LINE
ACTION
AS HEAVY-DUTY**



**PUSH AND PULL
STRAIGHT-LINE
ACTION AS**



LATCH T-TF



LATCH T-TF



LATCH TL-TFL



**LATCH
ACCESSORIES**



**LATCH T2
LIGHT**



**LATCH T2-T2S
HEAVY-DUTY**



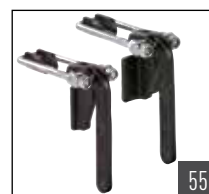
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**LATCH T6/T6S
HEAVY-DUTY**



**LATCH T3
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**LATCH T3/T3S
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LATCH T4



**LATCH
ACCESSORIES**



LATCH T5



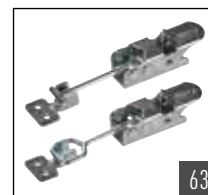
**LATCH T5
ACCESSORIES**



**LATCH T5
HEAVY-DUTY**



**LATCH E
LIGHT**



**TIRANTE EL
LIGHT**



**LATCH E-EL
ACCESSORIES**



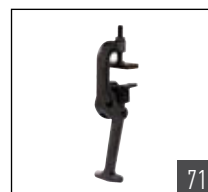
**VERTICAL
ROTATIONAL**



**HORIZONTAL
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**LATCH
ROTATIONAL**



ROTATIONAL C



**PNEUMATIC
AP3-EP3**



**PNEUMATIC
AP/EP**



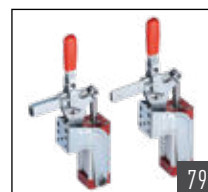
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**PNEUMATIC
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**PNEUMATIC
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**PNEUMATIC
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**PNEUMATICA
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**PNEUMATIC LPV
REINFORCED
HEAVY-DUTY**



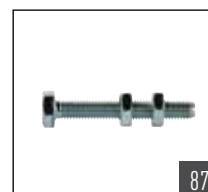
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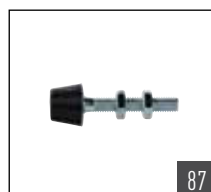
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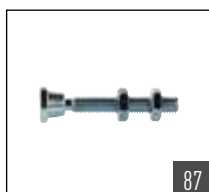
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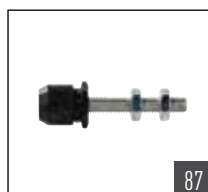
RIGID SPINDLE



**NEOPRENE
SPINDLE**



**ARTICULATED
SPINDLE**



**SPRING
SPINDLE**



**NEOPRENE
CAP**



**THREADED
NEOPRENE CAP**



**PROXIMITY
SWITCHES**



**ERGONOMIC
HANDLE**



**FLANGED
WASHERS**



**BOLT
RETAINER BAND**



EXTENSION



CROSS BAR



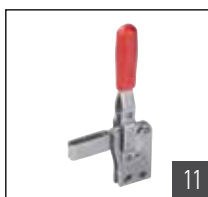
**ARTICULATED
CROSS BAR**

AISI 304/316 STAINLESS STEEL INDEX

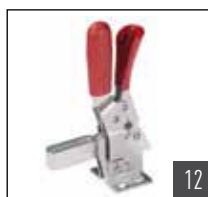
COMPANY WITH
QUALITY SYSTEM
CERTIFIED BY DNV GL
= ISO 9001 =



VERTICAL AX-EX



VERTICAL BX-FX



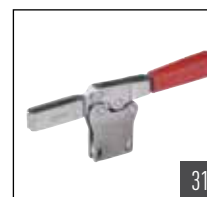
**VERTICAL
ALX-ELX**



**VERTICAL
BLX-FLX**



**HORIZONTAL
MX-OX**



**HORIZONTAL
NX-PX**



**HORIZONTAL
MLX-OLX**



**HORIZONTAL
NLX-PLX**



**HORIZONTAL
MFX**



**PUSH AND PULL
STRAIGHT-LINE
ACTION ASX**



LATCH TX-TFX



**LATCH
TLX-TFLX**



**LATCH
ACCESSORIES**



**LATCH T2X
LIGHT**



**LATCH T2X
HEAVY-DUTY**



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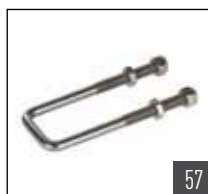
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**LATCH T6SX
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LATCH T3X



**LATCH
ACCESSORIES**



LATCH T5X



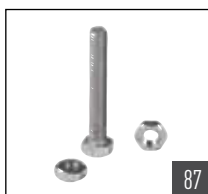
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ACCESSORIES**



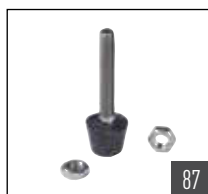
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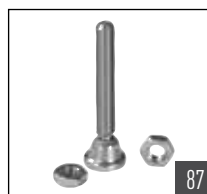
**LATCH ELX
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RIGID SPINDLE



**NEOPRENE
SPINDLE**



**ARTICULATED
SPINDLE**



**FLANGED
WASHERS**



**BOLT
RETAINER BAND**





VERTICAL SERIES

The clamping and control levers move in the same direction. When clamping is obtained, the control lever is in the vertical position. The light version of the series presented in this catalogue has a retaining force between 75 and 875 daN, while the heavy-duty version has a retaining force between 1000 and 3000 daN. The heavy-duty version is used when highly intense resistant forces are used, for example when closing jigs for foams, polyurethanes, etc. The clamps of this series are built to be easily disassembled for reworking of the individual elements depending on the requirements of use.

PERFORMANCE

FOR THE LIGHT SERIES: Components in case-hardening sheet steel. Hardened and tempered supporting pivots. Supporting bushes (for sizes from 130 daN and over) hardened by cementation and ground. The clamping lever is shorn and reinforced in the points of maximum stress. In the closing movement, it is guided laterally to ensure greater stability against possible transverse stresses. Finishing of the series: galvanized.

FOR THE HEAVY-DUTY SERIES: The pivots and supporting bushes are made of tempered and ground steel. The other parts are made of weldable steel. Finishing of the series: phosphated.

The red handles are made of polyurethane and are resistant to oils, solvents and other chemical agents.

In order to prevent accidental openings, caused by vibrations, some tools of this series are provided with a device called, "safety device", suitable for maintaining the clamp in a closed position. This device is also able to lock the tool in open position (Pat.Pend.)







LONG LIFE SERIES

REINFORCED LONG LIFE SERIES: the hot forged parts, as well as hardened and ground pivots and bushings, make this series suitable for heavy duty loads and a long operating life.

TOGGLE MECHANISM: the accessories such as clamping arm and control lever can be welded according to applications for use.

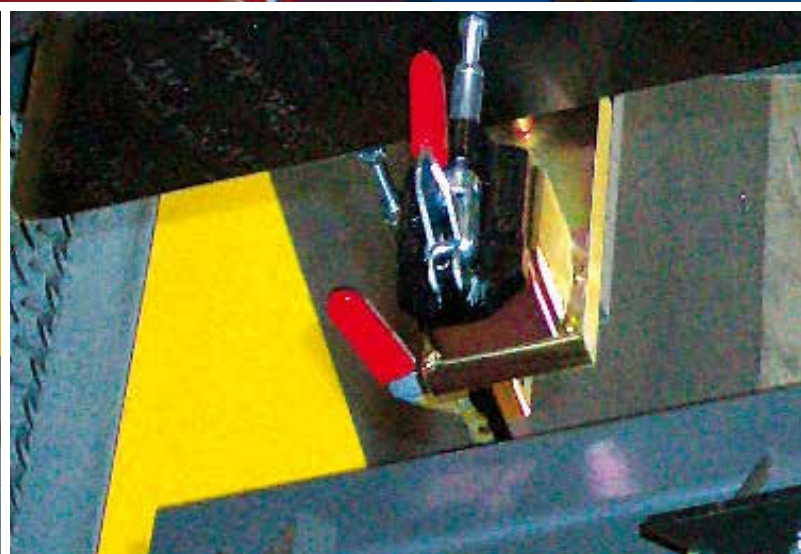
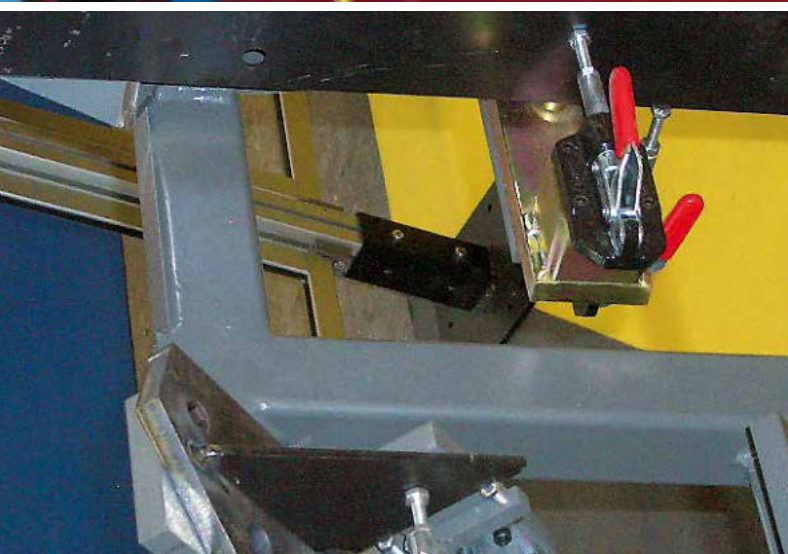
PECULIARITIES AND ADVANTAGES: • The clamping and control levers are forged. • All pivots are hardened and ground and flow into similar bushings. • Red, ergonomic and oil resistant handles. • The clamping arm guide is adjustable.

APPLICATIONS: For uses in medium and heavy duty clamping works, on welding jigs, carpentry works, moulds and generally when high clamping forces are needed and when there is strong repetitiveness of movements.

TOGGLE MECHANISM: Same peculiarities and applications as the previous vertical reinforced series. The design of these mechanisms is more versatile, being possible to weld the different parts and accessories and make up your clamp to better meet the requirements for all types of clamping needs.









HORIZONTAL SERIES

The control and clamping levers move in opposite directions. When clamping is obtained, the control lever is in the horizontal position. Available with clamping forces between 40 and 620 daN.

PERFORMANCE

Parts made of case-hardening sheet steel. Hardened and tempered supporting pivots. Supporting bushes (for sizes from 350 daN and over) undergo case-hardening and grinding. Finish: Galvanized. The shape of the tool ensures a safe distance between the clamping and control lever that prevents the operator's fingers from getting stuck during the opening of the tool.

The clamping lever is guided in the locked position for additional stability any sideways movement.

In order to prevent accidental openings, caused by vibrations, some tools of this series are provided with a device called "safety device", suitable for maintaining the clamp in a closed position.





STRAIGHT-LINE ACTION SERIES

In this series, the circular movement of the control lever is transformed into a linear movement of the push rod. Except for models 120/AS and 300/AS, this series works and clamps either by pushing or pulling. The light version meets clamping requirements from 80 to 720 daN, while the heavy-duty series from 120 to 4500 daN.

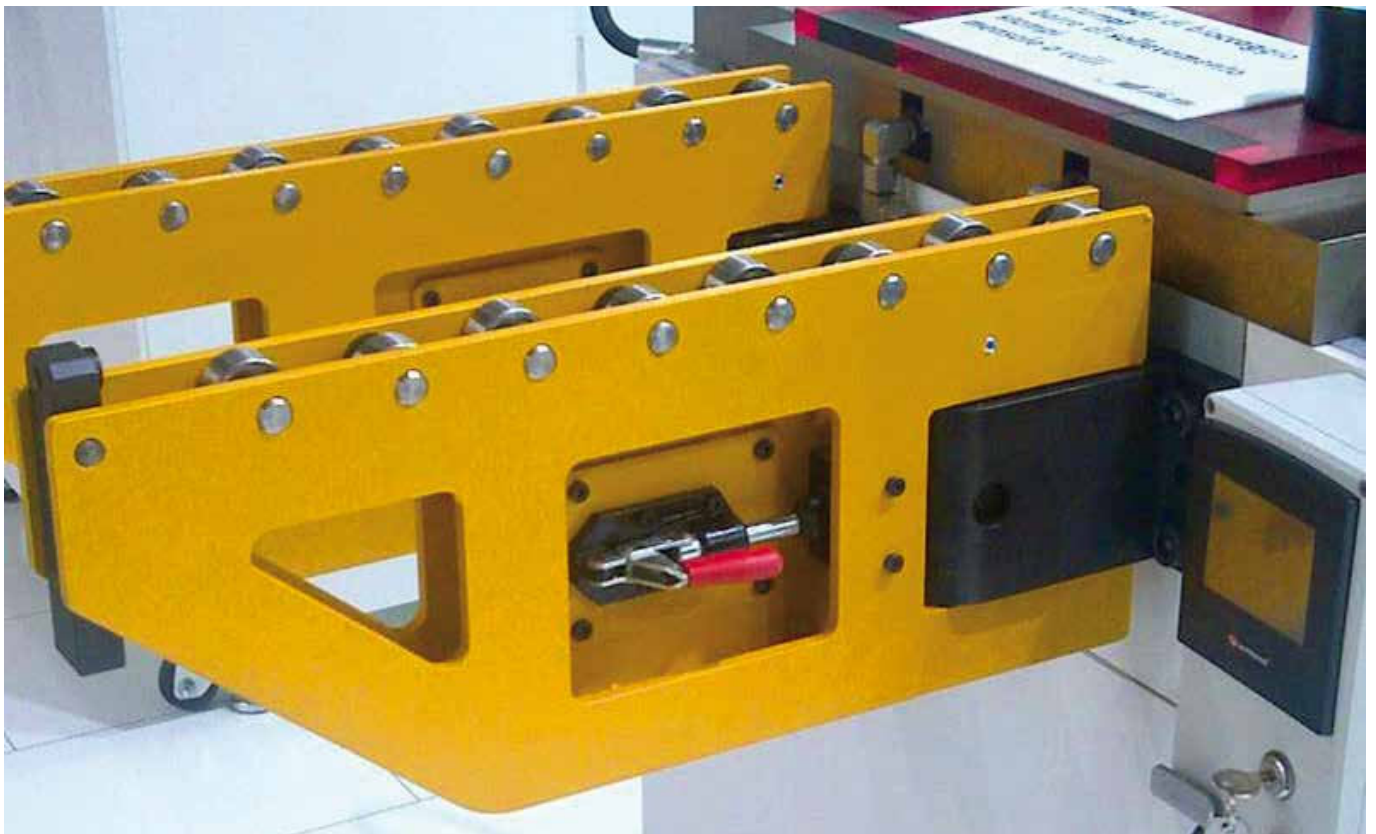
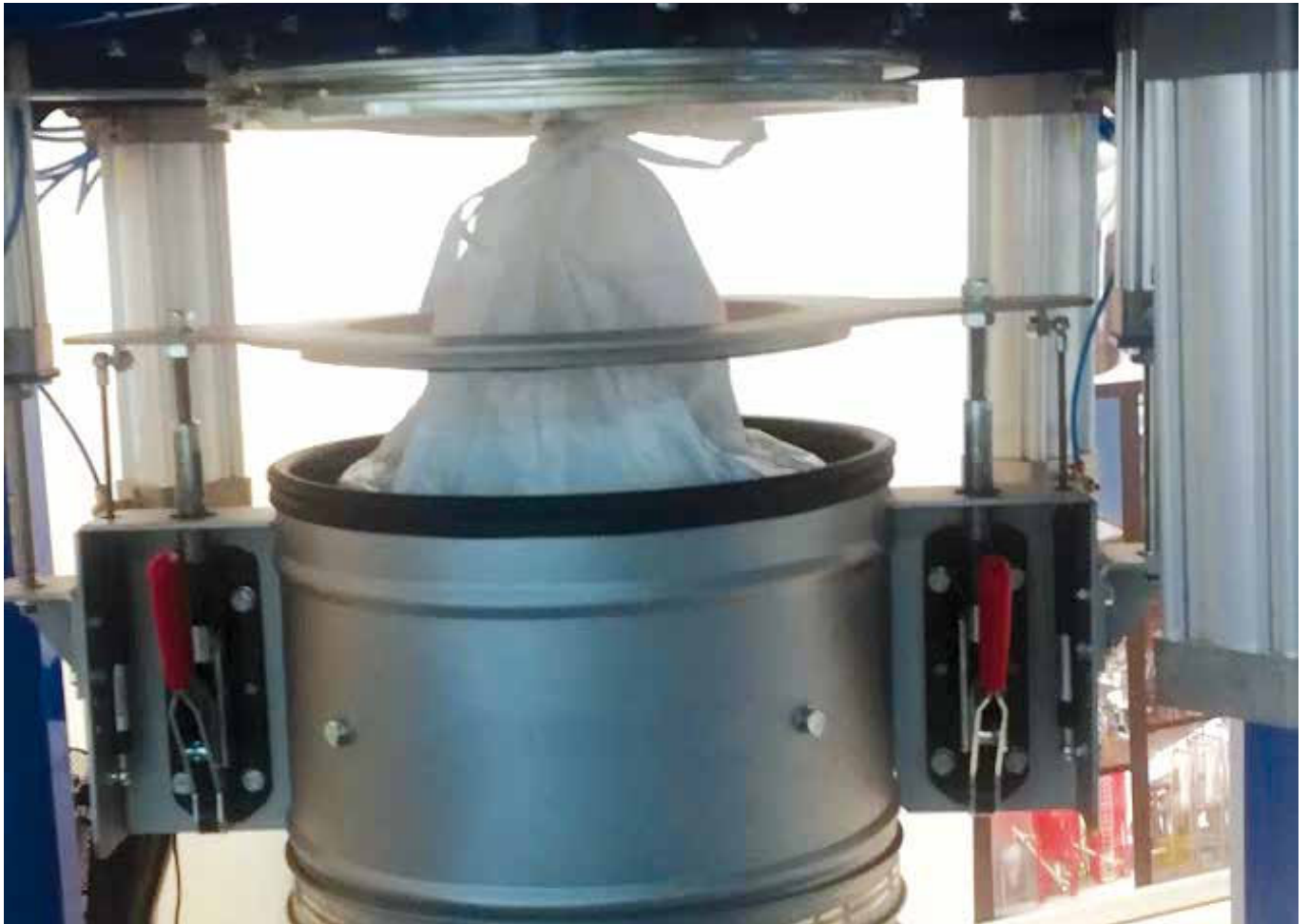
PERFORMANCE

FOR THE LIGHT SERIES: Push rod, guide sleeve and other parts in galvanized sheet steel.

The main feature of the ASD/ASS models is the low force application point as well as the very reduced vertical encumbrance. Models 80-165-340/AS have the possibility of front mounting with an external thread that enables rotation of the control lever to the most favourable position for use. The bracket increases the range of applications.

FOR THE HEAVY-DUTY SERIES: Hot forged ASTM A105 steel base body with manganese phosphated finishing for all sizes. Riveted pins for sizes 70-160-360. Pins with bushings hardened for the other sizes. Push rod and control lever in galvanized steel.









LATCH SERIES

The circular movement of the control lever is transformed into linear movement of the rod. This series is mostly used to fasten hinged lids and for containers. Available with forces from 160 to 1000 daN, and in the heavy-duty series from 1700 to 4000 daN. The push bars can be adjusted within the stroke (height D). The main features of the different models are:

FOR T - TF - TL - TFL - T2 MODELS: • Support base parallel to the force line of action. • In the closed position, the control lever is parallel to the support base.

FOR T3 MODELS: • Support base perpendicular to the force line of action. • In the closed position, the control lever is parallel to the support base.

FOR T4 MODELS: • Support base perpendicular to the force line of action. • In the closed position, the control lever is perpendicular to the support base.

FOR T5 - T6 MODELS: • If the tool is used on machines or in applications with strong stress or vibrations, (in which an accidental and undesired opening is likely), it is necessary to ensure a secure grip by means of a latch.

FOR E MODELS: • The ET and EG models allow safe clamping in mainly static uses, while the ETL and EGL models can operate even in the presence of strong vibrations thanks to the safety lever against accidental opening.

















ROTATIONAL SERIES

The rotational moulding of plastics requires clamping devices able to work in a quick and safe way at very high temperatures (240-300°C.) without any hesitation when opening and clamping. So, we have achieved a full series of clamps suitable to this type of work. This series is in part a spin off from the Speedy Block's mass production with the contribution of suitable alterations (couplings with different tolerances, modified geometries, different finishings, etc.), and it has been optimized following the suggestions and expectations of the users which urged their design.







PNEUMATIC SERIES

This series combines the advantages of toggle action (even in case of pressure loss the tool remains closed) with the possibilities offered by the pneumatics:

- Constant FS clamping force independent of the operation.
- Possibility of actuating several devices at the same time.
- Possibility of actuating various points; remote control performed also by machines.
- Several versions are available with magnetic cylinders that enable positioning control without contacts, to obtain electric command impulses in certain clamping situations.

The pneumatic series also contains vertical and push rod series with Fs clamping forces between 50 and 240 daN and Fh retaining forces from 70 to 450 daN for the light series; and Fs from 87 daN to 430 daN with Fh from 220 to 2000 daN for the heavy-duty series. The use of a filter - reducer - lubricator group is essential for a long and smooth operation of the cylinder, while for a long duration of the mechanical components we recommend using suitable flow regulators and calibrating the speed of the motions desired, starting from a low speed and gradually increasing this speed. The cylinders of the heavy-duty series (1000-2000/EPM/EPVM) already mount these flow regulators on the heads and they can be adjusted using a screw on the side of the air supply. For all the other cylinders, a fixed pin is present in the back head to slow down the stroke during the opening phase. Operating pressure between 2-6 bar. Ambient temperature $-30^{\circ} + 80^{\circ}\text{C}$. The Fs forces indicated in the catalogue were measured at a pressure of 4 bar.

PERFORMANCE

LIGHT SERIES: Components in case-hardening sheet steel. Hardened and tempered supporting pivots. Supporting bushes (for sizes from 200 daN and over) undergo case-hardening and grinding.

HEAVY-DUTY SERIES: Base made of black varnished spheroidal cast iron. Other parts made of galvanized (weldable) steel. Supporting pivots undergo case hardening.

REINFORCED HEAVY-DUTY SERIES: Base body made of black phosphated steel sheet; cemented and ground support pins and bushes.

Double-acting cylinder with adjustable shock absorption. The tools of this series are built so as to be easily disassembled: the pivots are fixed axially with seeger rings.





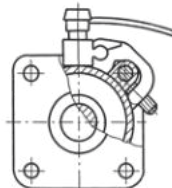
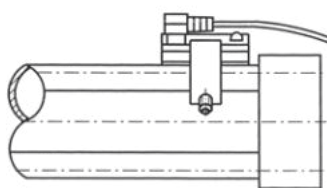
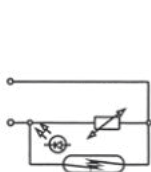


THE PROXIMITY SWITCHES

The proximity switches are sensors capable of detecting the presence of a magnetic field and report it through an electric pulse. The tools of this series are provided with magnetic cylinders that, since they are related by relative proximity switches, provide electric command and/or control impulses when activated. Since it is equipped with luminous LEDs, it operates at a minimum voltage of 3 V, and in case of series connection, the voltage drop will be 3 V. for each. It is good practice to use a connecting cable that is as short as possible since this could harm the operation of the sensor due to the capacity of the cable, which is directly proportional to its length. For example, for a 10 meter cable we recommend the series application to an inductor sensor that eliminates the effects of the capacity of the cable. DC positive pole must always be connected to the brown wire. We recommend keeping an adequate distance between the electric cables and large ferrous objects as this could cause disturbances to the sensor due to the effects of mutual induction. The sensors are in a condition to receive a signal at a speed of 1 m/s.

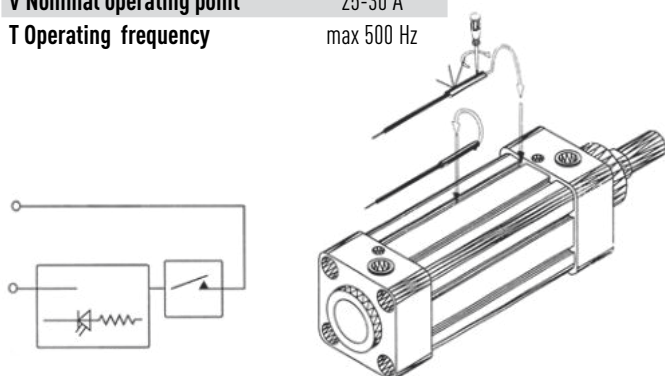
ELECTRICAL DATA

DC Voltage	3-110 V
AC Voltage	3-110 V
Current at 25°	0,3 A
Power	10 VA
Connection time	0,6 mS
Disconnection time	0,1 mS
Connection point	110 Gauss
Disconnection point	60 Gauss
Electrical life (pulses)	10 ⁷
Contact resistance	0,1 Ohm

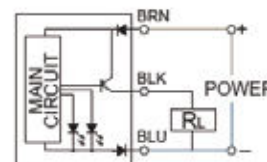


ELECTRICAL DATA

DC Voltage	3-110V
AC Voltage	3-110 V
Current at 25°	200 mA
Power	6 w
Connection time	0,5 mS
Disconnection time	0,1 mS
Connection point	110 Gauss
Disconnection point	60 Gauss
Electrical life (pulses)	10 ⁷
Contact resistance	0,1 Ohm
Voltage drop	< 3
V Nominal operating point	25-30 A
T Operating frequency	max 500 Hz



CONNECTION BOARD



ELECTRICAL DATA

Switch logic	Electronic normally open
Model	PNP
Operating voltage	10 ~ 28 V DC
Operating current	80 mA max
Power	2 W max
Red Led indicator	unstable reading rang
Green Led	stable reading range
Operating temperature	-10 ~ 60 °C



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