## E95 <br> Mechanical control lever

## Series of control levers with robust and essential design based on rack and pinion mechanism

This lever, which is indicated for heavy duty applications, is available in plane or swinging version, with or without adjustable friction, with or without detents in neutral and in many other positions. In case, E95 can be customized for the specific application. Neutral and reverse positions can be electrically signalled via micro-switch or via inductive sensor.


## TECHNICAL FEATURES

- It is possible to connect either push-pull or Flexball cables
- Different mounting positions: either side or top
- Maximum stroke: 85 mm
- Maximum working load (on the cable): 1000 N
- Lever ratio: 7.3:1
- Electrical signalling of the lever's position via micro-switch or via inductive sensor


## DIMENSIONS



## E95 SWINGING WITH NEUTRAL DETENT

When the lever is in the central position, the pin is inside the hole of the tempered plate and the lever is safety locked. To disengage the lever, the operator must push the lever outward in order to exit the pin from the hole.

When the control lever is in neutral position, the pin on the lever is forced to enter the hole on the mask (detail A) by a spring mounted inside the lever mechanism. The lever is then locked in neutral position.
To disengage the lever, it is sufficient to push the lever outwards forcing the pin outside the hole (picture 1 ).
Once back in neutral position, the pin will be forced into the hole and the lever will be locked.


## NEUTRAL DETENT MASK



CODES

| Version | How to fix | Thread M1/m1 | Code |
| :---: | :---: | :---: | :---: |
| Plane | Side fixing | M10/M6 | 9510-11X |
|  |  | M12/M6 | 9510-12X |
|  |  | M16/M8 | 9510-13X |
|  | Top fixing | M10/M6 | 9510-21X |
|  |  | M12/M6 | 9510-22X |
|  |  | M16/M8 | 9510-23X |
| Plane with friction | Side fixing | M10/M6 | 9511-11X |
|  |  | M12/M6 | 9511-12X |
|  |  | M16/M8 | 9511-13X |
|  | Top fixing | M10/M6 | 9511-21X |
|  |  | M12/M6 | 9511-22X |
|  |  | M16/M8 | 9511-23X |
| Swinging with neutral detent | Side fixing | M10/M6 | 9520-11X |
|  |  | M12/M6 | 9520-12X |
|  |  | M16/M8 | 9520-13X |
|  | Top fixing | M10/M6 | 9520-21X |
|  |  | M12/M6 | 9520-22X |
|  |  | M16/M8 | 9520-23X |
| Swinging with neutral detent and with friction | Side fixing | M10/M6 | 9521-11X |
|  |  | M12/M6 | 9521-12X |
|  |  | M16/M8 | 9521-13X |
|  | Top fixing | M10/M6 | 9521-22X |
|  |  | M12/M6 | 9521-23X |
|  |  | M16/M8 | 9521-23X |

## Note:

" X " identifies the assembly of the lever and the outgoing of the cable from the lever (which can be from left or right side). There are 10 different types of assembly of the lever and outgoing of the cable from the lever. For selection, please refer to "Fixing examples" at page 43 of "Industrial Products" catalogue.

## FIXING EXAMPLES

The numbers reported on each picture identify the assembly of the lever and the connection of cable onto the lever.


CABLES WHICH FIT WITH LEVER E95

| Type | A | F |
| :---: | :---: | :---: |
| V4 | $\mathrm{M} 10 / \mathrm{M} 6$ | $\mathrm{M} 5 \times 0.8$ |
| V 5 | $\mathrm{M} 12 / \mathrm{M} 6$ | $\mathrm{M} 6 \times 1$ |
| V 6 | $\mathrm{M} 12 / \mathrm{M} 6$ | $\mathrm{M} 6 \times 1$ |
| V 7 | $\mathrm{M} 12 / \mathrm{M} 6$ | $\mathrm{M} 6 \times 1$ |
| V 8 | $\mathrm{M} 16 / \mathrm{M} 8$ | $\mathrm{M} 8 \times 1.25$ |
| Flexball 70 | $\mathrm{M} 12 / \mathrm{M} 6$ | $\mathrm{M} 6 \times 1$ |
| Flexball 95 | $\mathrm{M} 16 / \mathrm{M} 8$ | $\mathrm{M} 10 \times 1.5$ |

Notes:

- "A" specifies cable lever side thread
- "F" specifies cable engine side thread


## OPTION



## Reverse and neutral switch option

On swinging control lever E95 series with neutral detent are available both the neutral ( N ) and/or the reverse ( R ) switches. The N switch operates around N detent while the $R$ switch operates as soon as neutral signal goes off, then in the full range of reverse stroke, according to the following scheme.

| N AND R SWITCH SPECIFICATION |  |
| :---: | :---: |
| Functioning | Momentary |
| IP degree | IP67 |
| Operating temp | $-40^{\circ} \mathrm{C}$ to $+85^{\circ} \mathrm{C}$ |
| Max current (resistive load) | 3 A up to 30 VDC |

$\square$

## SAFETY OPTIONS

"Dead man" and "pull to unlock" are the two safety features which can be implemented, either individually or together.
"Pull to unlock" is a mechanical function which obliges the operator to pull up the syringe in order to move out from Neutral position.
"Dead man" is an electrical function which is active only if the switch or push button is kept pressed. The "dead man" function can be implemented on whatever version of E95 series.




## HANDLE OPTION

Both plane and swinging control E95 series can mount handle type 1705, 1725 and 1730. The handle represented in the drawing (1725) can be equipped up to 4 front switches + 1 rear "dead man" switch. For more detailed information about the handle type, switches, cabling, refer to chapter 7.


PUSH-BUTTONS POSITION AND SPECIFICATION


## CODING SYSTEM

The following suffix must be added to the basic code of the standard lever E95 (page 42, at previous page).


S
defines the type and combination of signals:
$S=0$ without any switch (standard version)
S = 1 Neutral
$S=2$ Reverse
$S=3$ Neutral + Reverse

defines the type of handle
(for complete description of handles refer to Chapter 7 of the Industrial Catalogue):
$\mathrm{K}=0$ standard (no switches)
K = 1 "pull to unlock"
$\mathrm{K}=2$ "dead man"
K = 3 "pull to unlock" + "dead man"
$K=4$ ergonomic handle
$\square$ define the number, type and position of switches:

P1 = number of push buttons on the front
P2 = number of push buttons on the rear
In case of Multifunction handle, tick in the below table the position of the switches needed according to the drawing at previous page.

| 1 | 2 | 3 | 4 | 5 | $R$ |
| :--- | :--- | :--- | :--- | :--- | :--- |
|  |  |  |  |  |  |



A numbering system from 0 to 99 is used to define special projects, cable length, number of poles, type of connector, etc.

