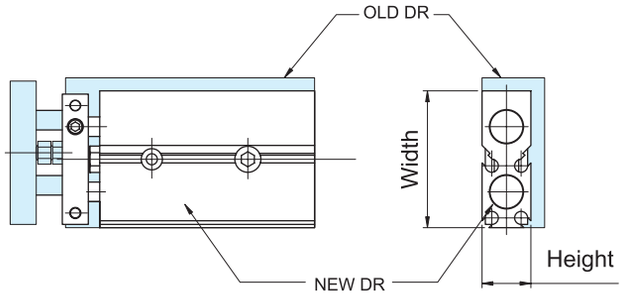
## Compact Type




## How to order

**DR S 10 50 RT 1**

**Bearing type**

| | |
|---|---|
| S | Slide bearing |
| L | Ball bushing bearing |

**Bore size/Stroke** (mm)

| Bore size | Standard strokes |
|---|---|
| 10 | 10,20,30,40,50,75 |
| 15 | 10,20,30,40,50,75,100 |
| 20 | |
| 25 | |
| 32 | |

**Auto switch type**

| Perpendicular | In-line | Style |
|---|---|---|
| RTV | RT | Reed switch |
| RTNV | RTN | NPN |
| RTPV | RTP | PNP |

(Reft to P.79 for detailed auto switch specifications)

**Number of auto switch**

## Specifications

| Model | DR-10 | DR-15 | DR-20 | DR-25 | DR-32 |
|---|---|---|---|---|---|
| Bore size (mm) | 10 | 15 | 20 | 25 | 32 |
| Fluid | Air (non-lube) | | | | |
| Proof pressure (MPa) | 1.05 | | | | |
| Maximum operating pressure (MPa) | 0.7 | | | | |
| Minimum operating pressure (MPa) | 0.1 | | 0.05 | | |
| Ambient and fluid temperature (°C) | -10°C~60°C (with no freezing) | | | | |
| Piston speed (mm/s) | 30 to 800 | 30 to 700 | | 30 to 600 | |
| Cushion | Rubber bumper on both sides | | | | |
| Stroke adjustable range (mm) | 0 to -5 compared to the standard stroke | | | | |
| Port size | M5x0.8 | | | | PT 1/8 |

* Note 1) The maximum piston speed shown in the table above is for extension.
The maximum piston speed for retraction is approximately 70% that for extension.

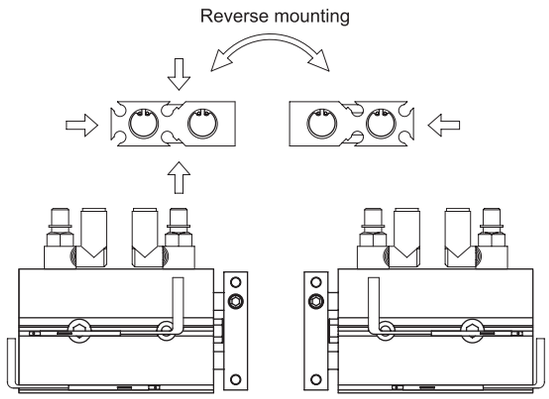
## Standard / Special Strokes

(mm)

| Model | Standard strokes | Special order - Long stroke |
|---|---|---|
| DR-10 | 10, 20, 30, 40, 50, 75 | 80 to150 |
| DR-15 | 10, 20, 30, 40, 50, 75, 100 | 110 to 150 |
| DR-20 | | 110 to 200 |
| DR-25 | | |
| DR-32 | | |

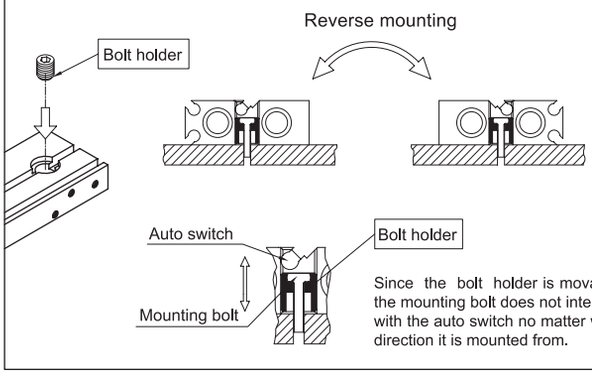
## Superior mounting

Auto switches can be installed from 3 directions.



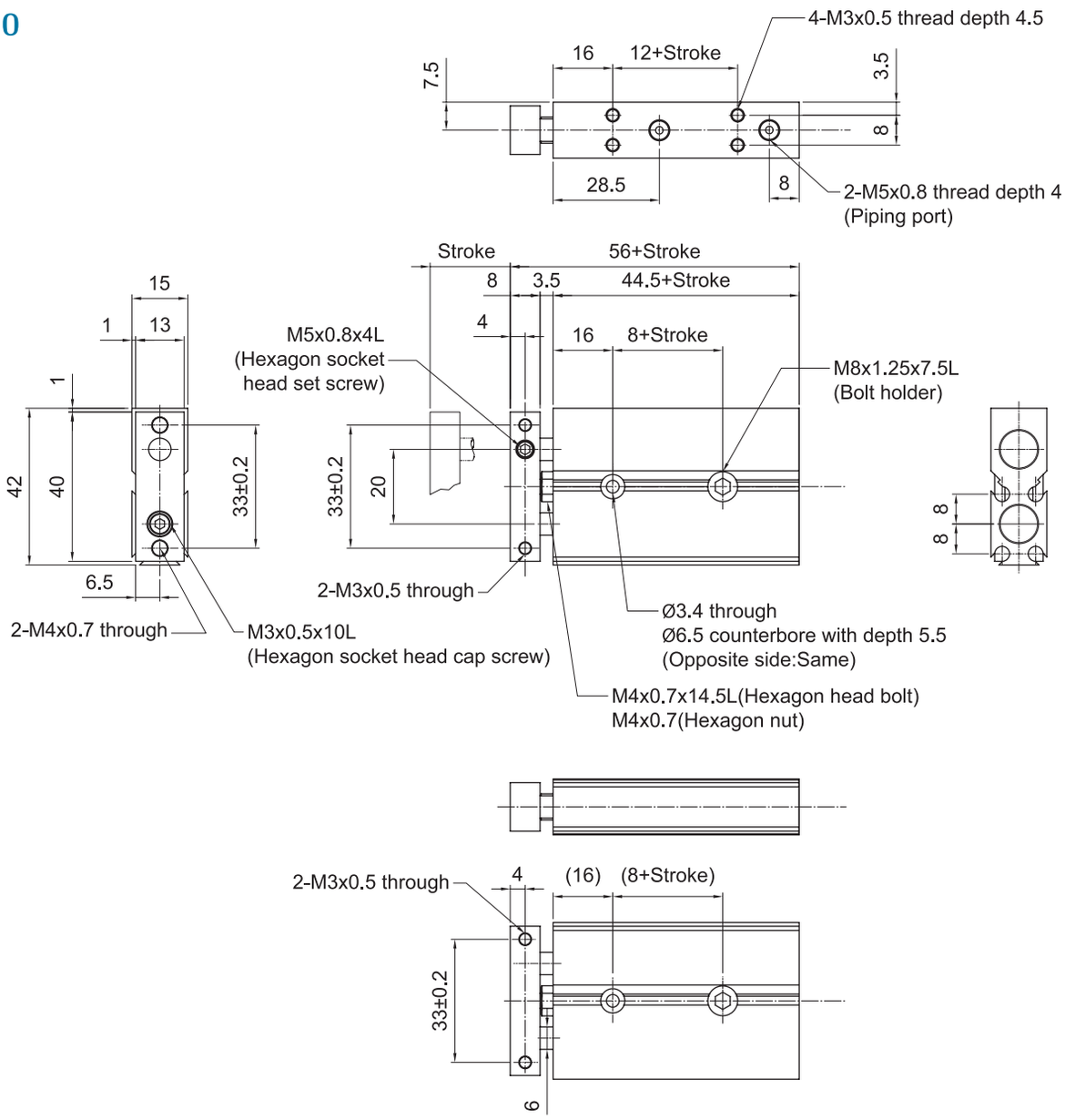

Symmetric mounting

### Reverse mounting mechanism

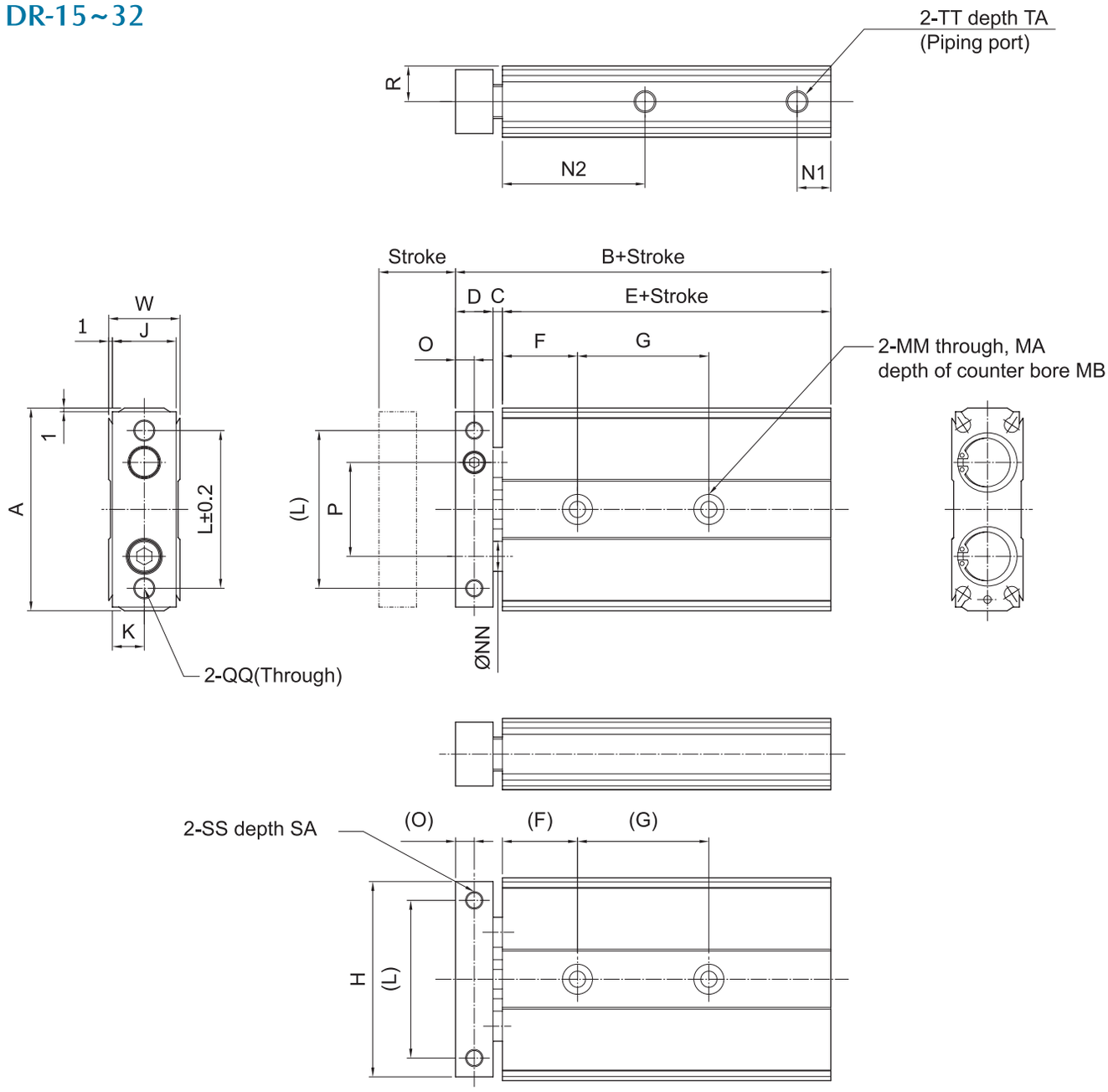



Since the bolt holder is movable, the mounting bolt does not interfere with the auto switch no matter what direction it is mounted from.

## DR-10



## DR-15~32




| Model | A | B | C | D | E | F | H | J | K | L | MA | MB | MM | N1 | N2 | NN | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DR-15 | 54 | 70 | 2.5 | 10 | 57.5 | 20 | 52 | 17 | 8.5 | 42 | 4.3 | 8 | 4.3 | 9 | 38 | 8 | 5 |
| DR-20 | 62 | 84 | 4.5 | 12 | 67.5 | 25 | 60 | 22 | 11 | 50 | 5.3 | 9.5 | 5.5 | 9 | 45 | 10 | 6 |
| DR-25 | 73 | 87 | 4.5 | 12 | 70.5 | 30 | 71 | 27 | 13.5 | 60 | 6.3 | 11 | 6.5 | 9 | 46 | 12 | 6 |
| DR-32 | 94 | 100.5 | 4 | 16 | 80.5 | 30 | 92 | 35 | 17.5 | 75 | 6.3 | 11 | 6.5 | 10 | 56 | 16 | 8 |

| Model | P | QQ | R | SA | SS | TA | TT | W |
|---|---|---|---|---|---|---|---|---|
| DR-15 | 25 | M5x0.8 | 9.5 | 6 | M4x0.7 | 4 | M5x0.8 | 19 |
| DR-20 | 29 | M5x0.8 | 12 | 6 | M4x0.7 | 4 | M5x0.8 | 24 |
| DR-25 | 35 | M6x1.0 | 14.5 | 7.5 | M5x0.8 | 4 | M5x0.8 | 29 |
| DR-32 | 45 | M6x1.0 | 18.5 | 7.5 | M5x0.8 | 5 | Rc 1/8 | 37 |

| Symbol / Stroke / Model | G | | | |
|---|---|---|---|---|
| | 10,20 | 30,40,50 | 75 | 100 |
| DR-15 | 25 | 35 | 45 | 55 |
| DR-20 | 30 | 40 | 60 | 60 |
| DR-25 | 30 | 40 | 60 | 60 |
| DR-32 | 40 | 50 | 70 | 70 |

## Specifications

| Bore size (mm) | Rod size (mm) | Operating direction | Piston area ($mm^2$) | Operating pressure (MPa) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 |
| DR-10 | 6 | OUT | 157 | 15.7 | 31.4 | 47.1 | 62.8 | 78.5 | 94.2 | 110 |
| | | IN | 100 | 10.0 | 20.0 | 30 | 40.0 | 50.0 | 60.0 | 70.0 |
| DR-15 | 8 | OUT | 353 | 35.3 | 70.6 | 106 | 141 | 177 | 212 | 247 |
| | | IN | 252 | 25.2 | 50.4 | 75.6 | 101 | 126 | 151 | 176 |
| DR-20 | 10 | OUT | 628 | 62.8 | 126 | 188 | 251 | 314 | 377 | 440 |
| | | IN | 471 | 47.1 | 94.2 | 141 | 188 | 236 | 283 | 330 |
| DR-25 | 12 | OUT | 982 | 98.2 | 196 | 295 | 393 | 491 | 589 | 687 |
| | | IN | 756 | 75.6 | 151 | 227 | 302 | 378 | 454 | 529 |
| DR-32 | 16 | OUT | 1608 | 161 | 322 | 482 | 643 | 804 | 965 | 1126 |
| | | IN | 1206 | 121 | 241 | 362 | 482 | 603 | 724 | 844 |

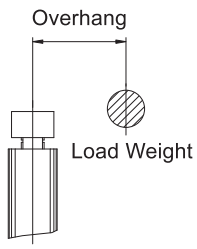
* Note) Theoretical output (N) = Pressure (MPa) x Piston area ($mm^2$)

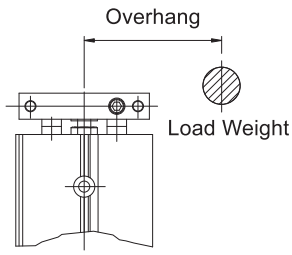
## Weights

(kg)

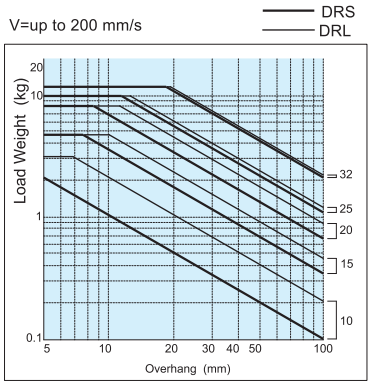
| Model | | Standard strokes (mm) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 10 | 20 | 30 | 40 | 50 | 75 | 100 |
| DR-10 | S | 0.10 | 0.11 | 0.13 | 0.14 | 0.16 | 0.20 | – |
| | L | 0.11 | 0.12 | 0.14 | 0.15 | 0.17 | 0.21 | – |
| DR-15 | S | 0.20 | 0.22 | 0.24 | 0.26 | 0.28 | 0.34 | 0.39 |
| | L | 0.22 | 0.24 | 0.26 | 0.28 | 0.30 | 0.36 | 0.41 |
| DR-20 | S | 0.35 | 0.37 | 0.40 | 0.42 | 0.45 | 0.51 | 0.58 |
| | L | 0.38 | 0.40 | 0.43 | 0.45 | 0.48 | 0.54 | 0.61 |
| DR-25 | S | 0.51 | 0.54 | 0.58 | 0.62 | 0.66 | 0.75 | 0.85 |
| | L | 0.52 | 0.55 | 0.59 | 0.63 | 0.67 | 0.76 | 0.86 |
| DR-32 | S | 1.02 | 1.08 | 1.13 | 1.19 | 1.25 | 1.39 | 1.53 |
| | L | 1.03 | 1.09 | 1.14 | 1.20 | 1.26 | 1.40 | 1.54 |

## Vertical Mounting

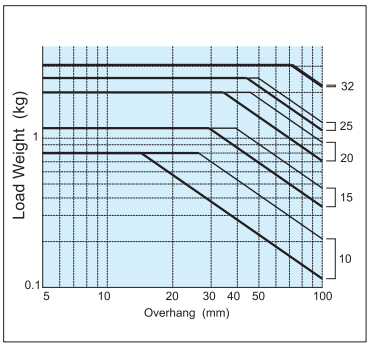


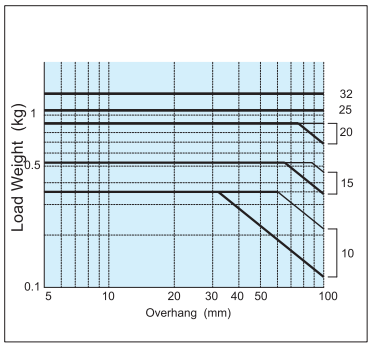

V=up to 200 mm/s



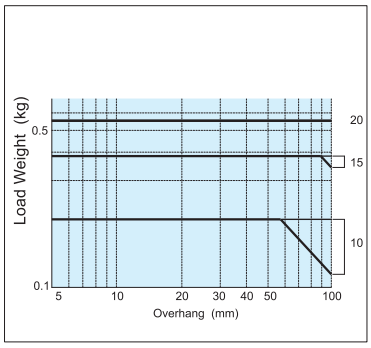

V=up to 400 mm/s




V=up to 600 mm/s

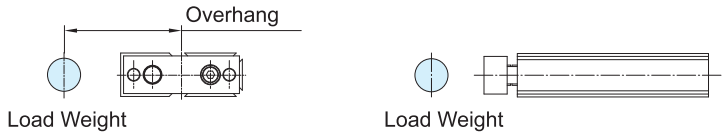



V=up to 800 mm/s
(up to 700 mm/s for 15, 20)

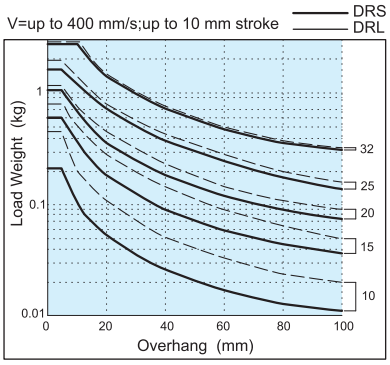



Note) V= 700 mm/s for 15, 20.

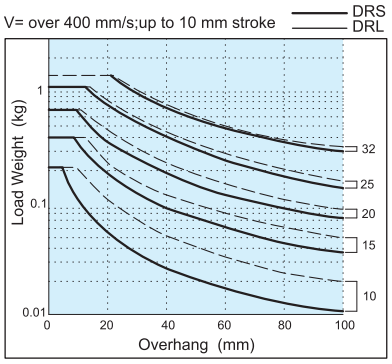
## Horizontal Mounting



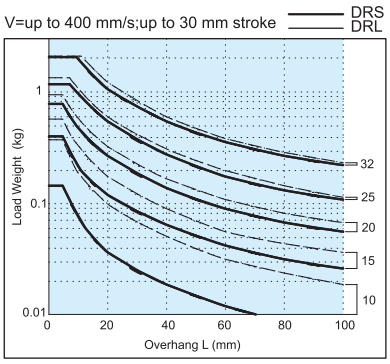

V=up to 400 mm/s;up to 10 mm stroke



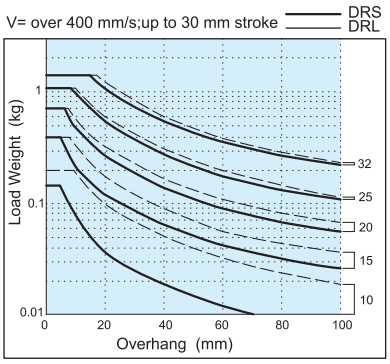

V= over 400 mm/s;up to 10 mm stroke



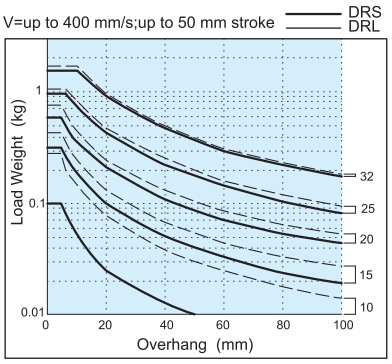

V=up to 400 mm/s;up to 30 mm stroke



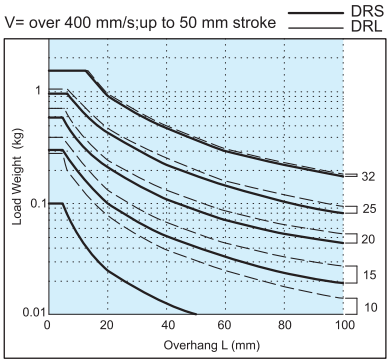

V= over 400 mm/s;up to 30 mm stroke



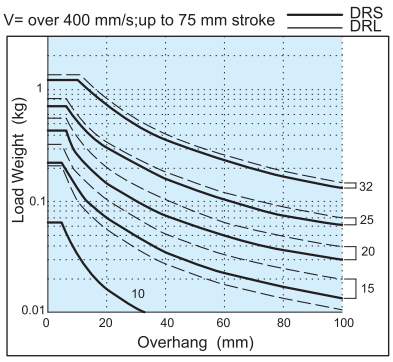

V=up to 400 mm/s;up to 50 mm stroke



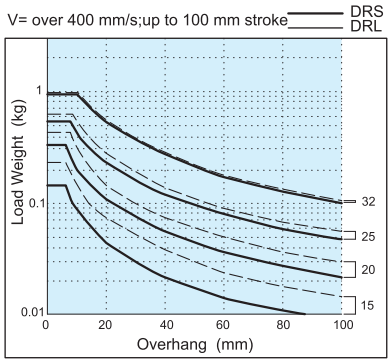

V= over 400 mm/s;up to 50 mm stroke




V= over 400 mm/s;up to 75 mm stroke




V= over 400 mm/s;up to 100 mm stroke

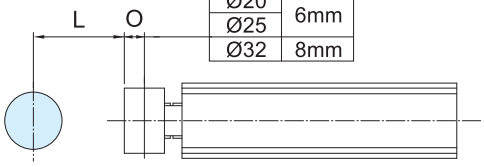



### Caution

When the cylinder is horizontally mounted and the plate end does not reach the load's center of gravity, use the formula below to calculate the imaginary stroke L'that includes the distance between the loade's center of gravity and the plate end. Select the graph that corresponds to the imaginary stroke L'.

Imaginary stroke L' = (stroke) + O + L

| | |
|---|---|
| Ø10 | 4mm |
| Ø15 | 5mm |
| Ø20 | 6mm |
| Ø25 | |
| Ø32 | 8mm |




### (Example)

If using DR15 x 10 and L=15mm

imaginary stroke L' = 10 + 5 + 15 = 30

Therefore, the graph used for your model selection should be the one for DR15 (up to 30 mm stroke)