

# Bimba ISO 6432 Cylinders



**BIMBA** meets YOUR NEEDS .....

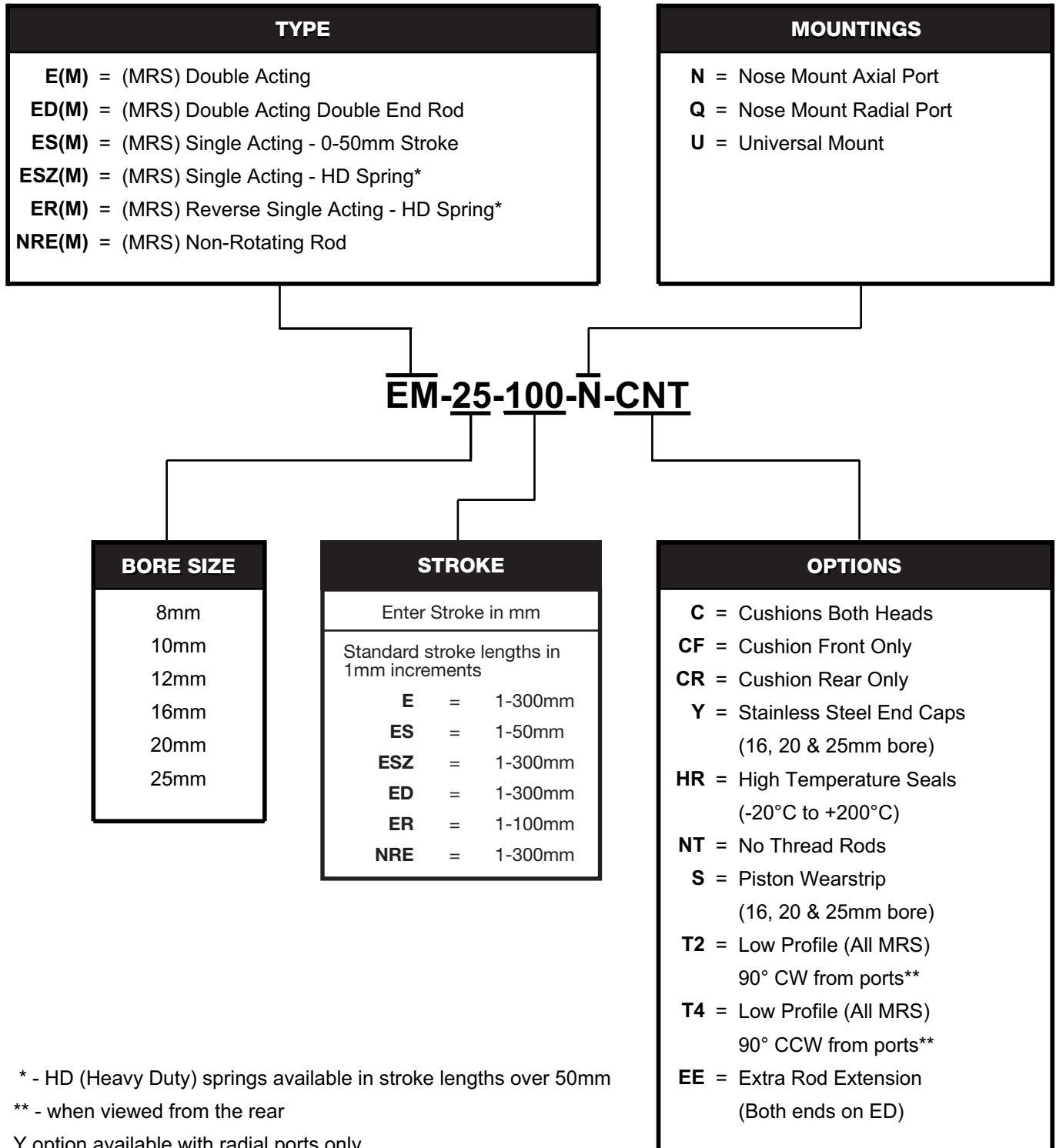
- **Reliable Service, World-Wide**
  - From a world-wide leader producing millions of actuators each year
- **Environmental**
  - Pre-lubricated for longer, maintenance free operation (1)
- **Noise Reduction**
  - Shock absorbing bumpers (2)
- **Performance And Quality Processes Throughout**
  - Roll formed threads (3)
  - High strength pistons permanently rivetted and sealed (4)
  - Roller burnished stainless steel rods
- **Productivity**
  - Advanced bearing and seal materials for higher speed applications (5)
- **Safety**
  - Double rolled construction (6)
  - Permanent mechanical retention; needles cannot blow out under pressure (7)
- **Reduced Envelope**
  - Space savings available resulting from smaller external dimensions
- **A Material For Any Application**
  - Heads available in Aluminium, Stainless Steel and Delrin®
- **Unique Customer Solutions**
  - Rapid design and delivery time for custom modifications

## How to Order

The Model Number for all Bimba ISO 6432 Cylinders consists of five Alpha-Numeric clusters. The first designates the *Type*, the second the *Bore Size*, the third the *Stroke Length*, the fourth the *Mounting* style, and the fifth the *Options*.

Please refer to the chart below for an explanation of the following model number:

**EM-25-100-N-CNT:** This is an ISO 6432 Type Cylinder with a magnet, with 25mm Bore Size, 100mm Stroke Size, Nose Mounted, and with Cushions in Both Heads and No Thread Rod.



## Compatibility Chart

Due to design or incompatibility restrictions, the following options may **NOT** be ordered in combination. For example stainless steel end cap may not be ordered with cushions.

Options NT and EE are available independently, with each other or with all viable option combinations.

| BORE | OPTION |        |        |     |     |
|------|--------|--------|--------|-----|-----|
|      | NRE    | C      | Y      | M   | S   |
| 8    | N/A    | N/A    | N/A    | N/A | N/A |
| 10   | N/A    | N/A    | N/A    | N/A | N/A |
| 12   | N/A    | N/A    | N/A    | N/A | N/A |
| 16   | C, Y   | NRE, Y | NRE, C | S   | M   |
| 20   | C, Y   | NRE, Y | NRE, C | S   | M   |
| 25   | C, Y   | NRE, Y | NRE, C | S   | M   |

## Conversion Tables

|                    | Metric Unit Of Measure | Metric To Imperial Conversion      | Imperial Unit Of Measure     | Imperial To Metric Conversion        |
|--------------------|------------------------|------------------------------------|------------------------------|--------------------------------------|
| <b>Force</b>       | Newtons (N)            | x 0.2248                           | Pounds (Lbs)                 | x 4.448                              |
| <b>Pressure</b>    | Bar (b)                | x 14.5                             | Pounds Per Square Inch (PSI) | x 0.069                              |
| <b>Measurement</b> | Millimetres            | x 0.03937                          | Inches                       | x 25.4                               |
| <b>Temperature</b> | Centigrade             | $\frac{9 \times ^\circ C}{5} + 32$ | Fahrenheit                   | $\frac{5 \times (^\circ F - 32)}{9}$ |

## General Specifications

|  | BORE  |    |    |    |    |    |
|--|---|----|----|----|----|----|
|  | 8   | 10 | 12 | 16 | 20 | 25 |
| <b>Cushion Length (mm) Each End</b>  | N/A   |    |    | 18 | 21 | 21 |
| <b>Operating Pressure Range</b><br>Maximum<br>Minimum - Double Acting          | 10 bar<br>0.5 bar                                     |    |    |    |    |    |
| <b>Operating Temperature Range</b><br>Standard Seals<br>High Temperature Seals | -10°C to +80°C<br>-20°C to +200°C                     |    |    |    |    |    |
| <b>Operating Media</b>   | Filtered Compressed Air/Lubricated or Non-Lubricated  |    |    |    |    |    |
| <b>Standard Stroke Lengths</b>   | See Table on page 2.2                                 |    |    |    |    |    |
| <b>Maximum Stroke Length*</b>  | 1000mm  |    |    |    |    |    |
| <b>Stroke Tolerance</b>  | +1.0mm/-0mm   |    |    |    |    |    |
| <b>Piston Speed</b>  | 5mm/s to 1000mm/s (Higher speed available on request) |    |    |    |    |    |
| <b>Life Expectancy</b>   | 3000km  |    |    |    |    |    |

\* Varies according to bore size, please consult your local BIMBA distributor.

## Weights

|                       | BORE |    |    |    |     |     |
|-----------------------|------|----|----|----|-----|-----|
|                       | 8    | 10 | 12 | 16 | 20  | 25  |
| Option N              | 20   | 22 | 41 | 53 | 102 | 149 |
| Option U              | 23   | 25 | 46 | 59 | 118 | 167 |
| Type ED               | 28   | 30 | 61 | 74 | 152 | 218 |
| adder per 10mm stroke | 2    | 2  | 4  | 5  | 8   | 11  |

Weights (approximate) are for zero stroke, in grams.

## Rod Buckling Formula

The maximum recommended cylinder stroke is dependent upon:

1. Mounting type
2. Rod diameter
3. Rod end connection

Using the following formula it is possible to determine the buckling load for a given stroke length of cylinder

$$BL = \frac{\pi^2 EJ}{(l \times M)^2 S}$$

$BL$  = Permissible Buckling Load (N)  
 $E$  = Young's Modulus of Elasticity (N/mm<sup>2</sup>)  
 $J$  = Moment of Inertia (mm<sup>4</sup>)  
 $l$  = Buckling Length = Stroke (mm)  
 $M$  = Stroke Multiplier (see table below)  
 $S$  = Safety Factor (recommended minimum 5)

### HOW TO CALCULATE ROD BUCKLING FORCES

#### EXAMPLE:

Q. What is the buckling load for a 25mm bore cylinder with a pivoted and guided load attached, stroke 200mm?

A. Using the formula:  $BL = \frac{\pi^2 EJ}{(l \times M)^2 S}$

$$E = 190.05 \times 10^3 \text{ N/mm}^2$$

$$l = 200 \text{ mm (stroke)}$$

$$M = 2 \text{ (for pivoted and guided load)}$$

$$S = 5 \text{ (safety factor)}$$

$$D = 10 \text{ mm (piston rod diameter for cylinder)}$$

$$J = \frac{\pi D^4}{64} = \frac{\pi 10^4}{64} = 490.87 \text{ mm}^4$$

$$BL = \frac{\pi^2 \times 190.05 \times 10^3 \times 490.9}{(2 \times 200)^2 \times 5} = 1150.9 \text{ N} = 1.15 \text{ kN}$$

| ROD END CONNECTION | CYLINDER MOUNTING | TYPE | STROKE MULTIPLIER |
|--------------------|-------------------|------|-------------------|
| FIXED & GUIDED     |                   | A    | 0.5               |
| PIVOTED & GUIDED   |                   | B    | 0.7               |
| FIXED & SUPPORTED  |                   | C    | 2                 |
| PIVOTED & GUIDED   |                   | C    | 2                 |

# Output Forces

Cylinder output forces can be determined in one of two ways:

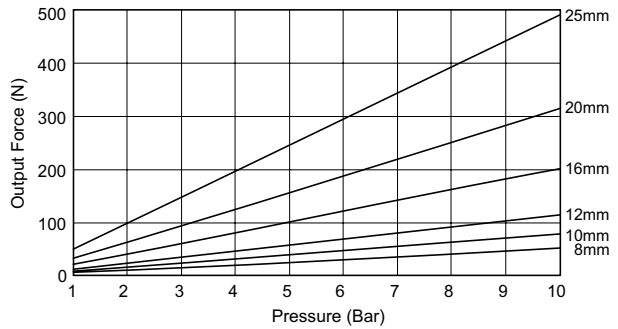
1. Calculation

$$\text{Cylinder Output Force (N)} = \text{Power Factor} \times \text{Pressure (bar)}$$

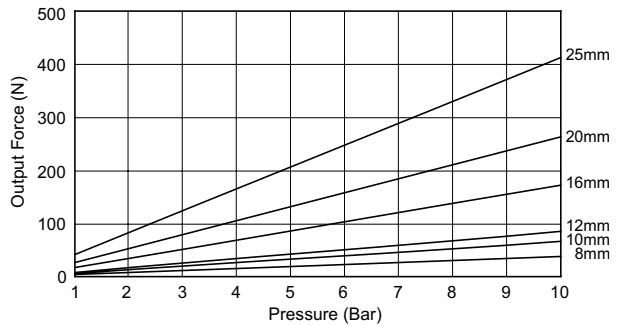
| BORE | POWER FACTOR |            |
|------|--------------|------------|
|      | EXTENSION    | RETRACTION |
| 8    | 5.3          | 4.0        |
| 10   | 7.9          | 6.6        |
| 12   | 11.3         | 8.5        |
| 16   | 20.1         | 17.3       |
| 20   | 31.4         | 26.1       |
| 25   | 49.1         | 41.2       |

2. Graph

Extend



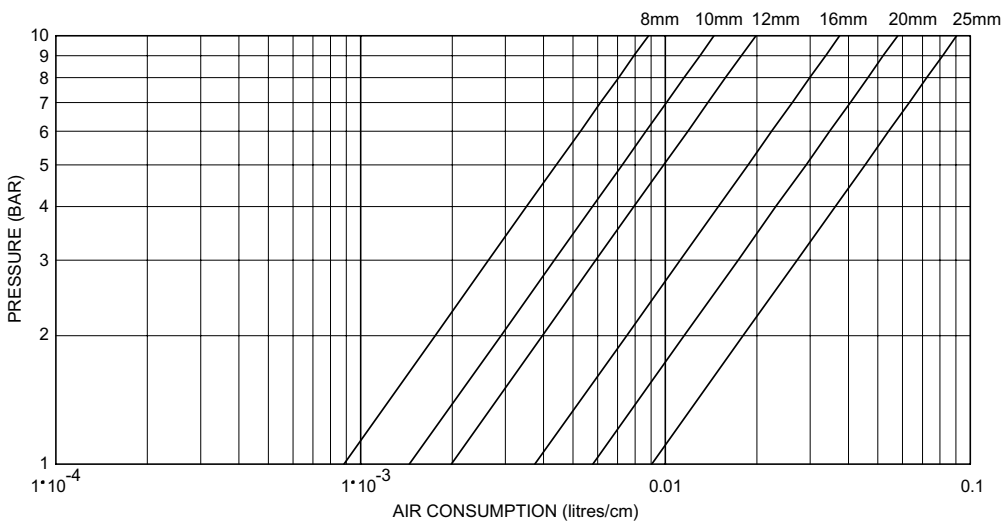
Retract



# Air Consumption Chart

The Air Consumption Chart is based on the following formula for a complete cylinder cycle (cylinder extends and retracts):

$$Q = \left[ \frac{\pi D^2}{4} + \left( \frac{\pi(D^2 - d^2)}{4} \right) \right] h p 10^{-6}$$



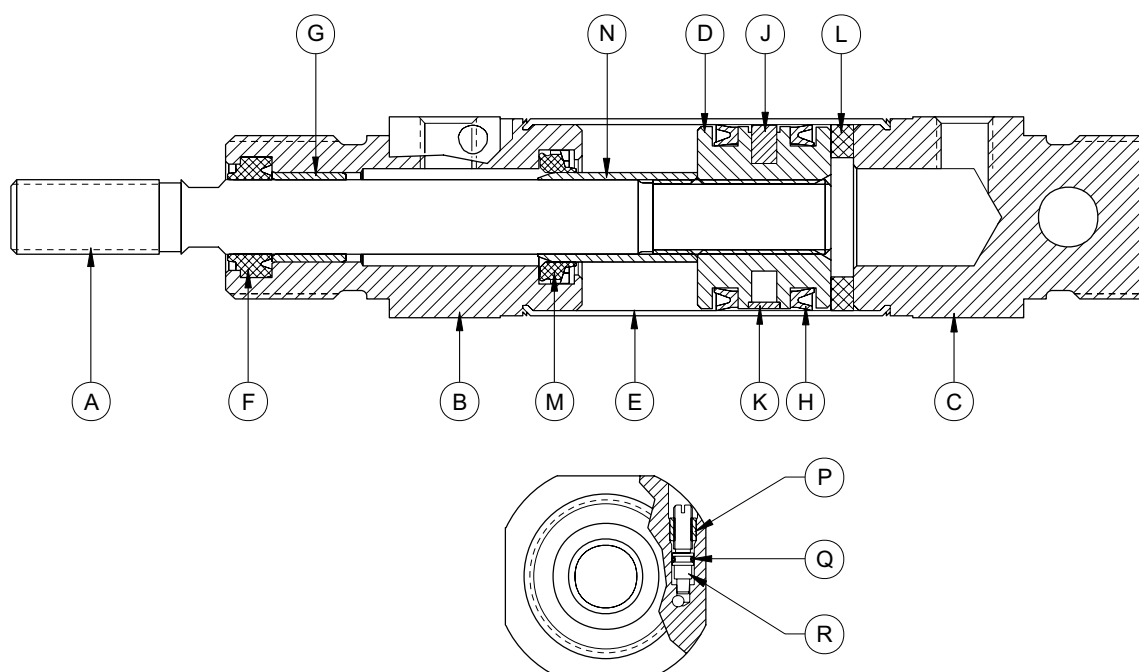
Draw a line across for the pressure used. Where this intersects the required bore size, draw a vertical line down. This will give you the air consumption. Multiply this by the stroke in cm, and this will give the air consumption per cycle.

- Q = Air volume per cm of stroke (L)
- D = Piston or piston rod diameter (mm)
- h = Stroke (mm)
- p = Operating pressure (bar)
- d = Piston rod diameter (mm)

EXAMPLE:

- Cylinder Stroke = 2.5cm
- Cylinder Bore = ø25mm
- Operating Pressure = 7 Bar
- Air Consumption = 0.158 Litres

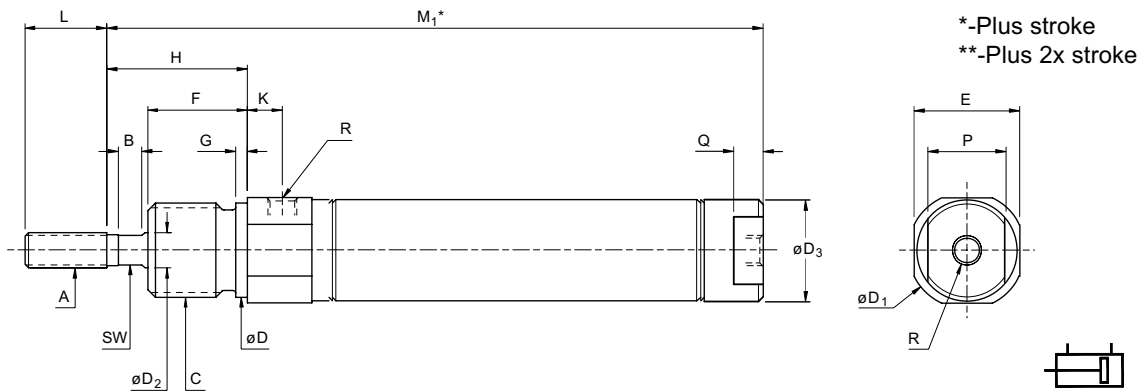
## Materials



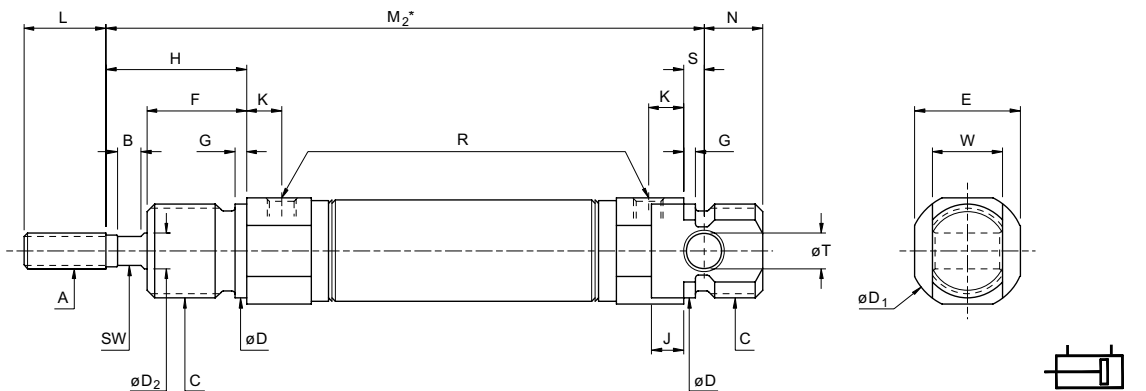
| ITEM | COMPONENT              | MATERIAL   |
|------|------------------------|--|
| A    | Piston Rod             | Stainless Steel (type 303 s31)   |
| B    | Rod Guide              | Aluminium Alloy (anodised)<br>Delrin® Plastic - (type PCE)<br>Stainless Steel - (option Y) |
| C    | Rear Head              | Aluminium Alloy (anodised)<br>Delrin® Plastic - (type PCE)<br>Stainless Steel - (option Y) |
| D    | Piston                 | Aluminium Alloy<br>Brass - (type ED)   |
| E    | Body                   | Stainless Steel (type 304)   |
| F    | Rod Seal/Rod Wiper     | Nitrile (NBR) or Fluoro-rubber (FPM) - (option HR)   |
| G    | Rod Bearing            | Self Lubricating Thermoplastic Alloy   |
| H    | Piston Seal            | Nitrile (NBR) or Fluoro-rubber (FPM) - (option HR)   |
| J    | Magnet                 | Neodymium Iron Boron<br>Nitrile  |
| K    | Piston Bearing Ring    | Carbon Filled PTFE   |
| L    | Bumper                 | Fluoro-rubber (FPM)  |
| M    | Cushion Seal           | Nitrile (NBR) - Standard<br>or Fluoro-rubber (FPM) - (option HR)                           |
| N    | Cushion Sleeve         | Aluminium Alloy  |
| P    | Cushion Screw Retainer | Aluminium Alloy (anodised)<br>Stainless Steel - (type PCE)                                 |
| Q    | Cushion o-ring         | Fluoro-rubber (FPM)  |
| R    | Cushion Screw          | Stainless Steel (type 303 s31)   |

**Double Acting**

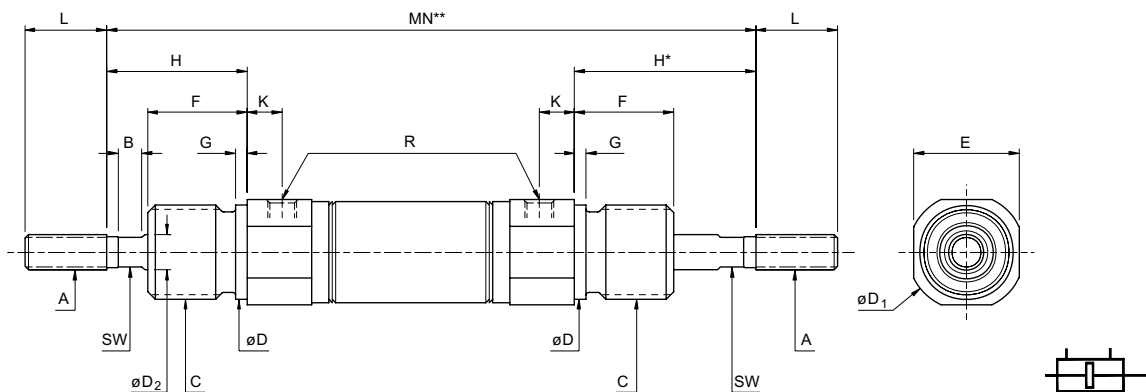
**NOSE MOUNT - N option**



**UNIVERSAL MOUNT - U option**



**DOUBLE ENDED**



| Bore | A <sup>6g</sup> | B | C <sup>6g</sup> | D  | D <sub>1</sub> | D <sub>2</sub> <sup>h8</sup> | D <sub>3</sub> | E  | F  | G | H  | J   | K | L  | P  | Q | N  | R      | S   | T <sup>H9</sup> | W <sup>d13</sup> | SW | M <sub>1</sub> | M <sub>2</sub> | MN  |
|------|-----------------|---|-----------------|----|----------------|------------------------------|----------------|----|----|---|----|-----|---|----|----|---|----|--------|-----|-----------------|------------------|----|----------------|----------------|-----|
| 8    | M4x0.7          | - | M12x1.25        | 12 | 17             | 4                            | 9              | 15 | 12 | 2 | 16 | 3   | 6 | 12 | 8  | 4 | 9  | M5x0.8 | 3   | 4               | 8                | -  | 56.5           | 64             | 77  |
| 10   | M4x0.7          | - | M12x1.25        | 12 | 17             | 4                            | 11             | 15 | 12 | 2 | 16 | 3   | 6 | 12 | 10 | 5 | 9  | M5x0.8 | 3   | 4               | 8                | -  | 58             | 64             | 77  |
| 12   | M6x1.0          | 4 | M16x1.5         | 16 | 20             | 6                            | 13             | 18 | 17 | 2 | 24 | 5.4 | 6 | 14 | 10 | 5 | 8  | M5x0.8 | 3.6 | 6               | 12               | 5  | 68.7           | 77             | 97  |
| 16   | M6x1.0          | 4 | M16x1.5         | 16 | 20             | 6                            | 17             | 18 | 17 | 2 | 24 | 5.5 | 6 | 14 | 13 | 5 | 10 | M5x0.8 | 3.5 | 6               | 12               | 5  | 74             | 84             | 104 |
| 20   | M8x1.25         | 4 | M22x1.5         | 22 | 28             | 8                            | 21             | 24 | 19 | 3 | 25 | 8   | 8 | 19 | 19 | 7 | 11 | G1/8   | 4   | 8               | 16               | 6  | 84.5           | 96             | 117 |
| 25   | M10x1.25        | 4 | M22x1.5         | 22 | 30             | 10                           | 26             | 27 | 22 | 3 | 30 | 6   | 8 | 20 | 22 | 8 | 11 | G1/8   | 6   | 8               | 16               | 8  | 92             | 106            | 130 |

ISO 6431

ISO 6432

Flat

Pneu-Turn

Ultram

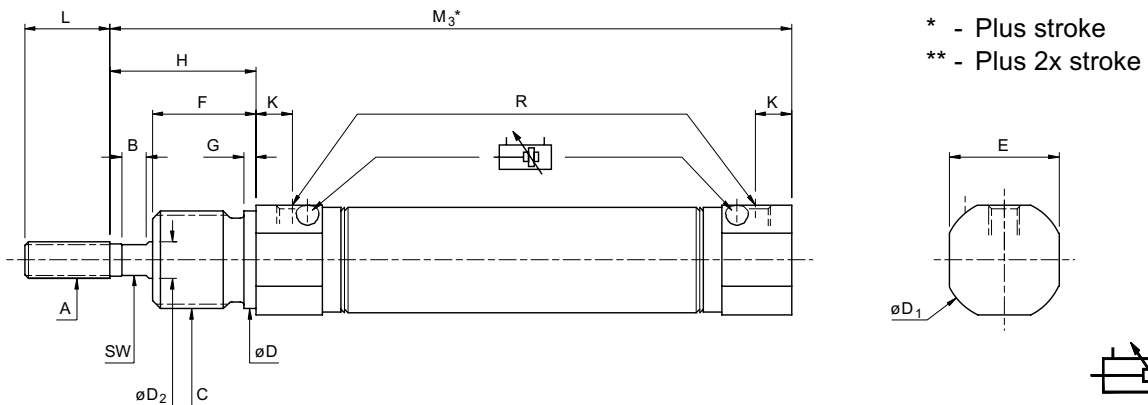
Flow Control

Position Sensing Solutions

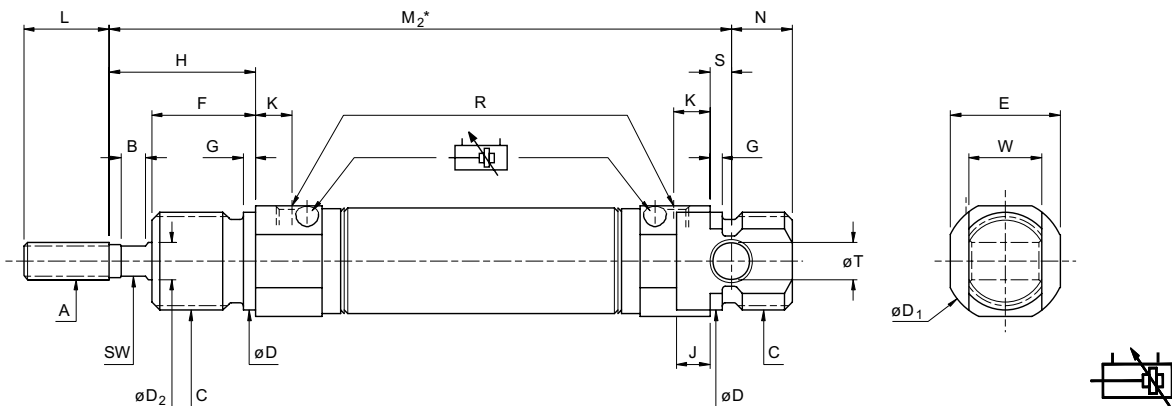
| Q option<br>Radially ported rear head available on non-cushioned cylinders.<br>The M <sub>1</sub> dimension increases by the amount shown alongside | Bore |     | Adder |     |
|---|------|-----|-------|-----|
|   | 8    | 4.5 | 16    | 6.5 |
|   | 10   | 3   | 20    | 7.5 |
|   | 12   | 4.7 | 25    | 8   |

## Double Acting - with adjustable cushioning

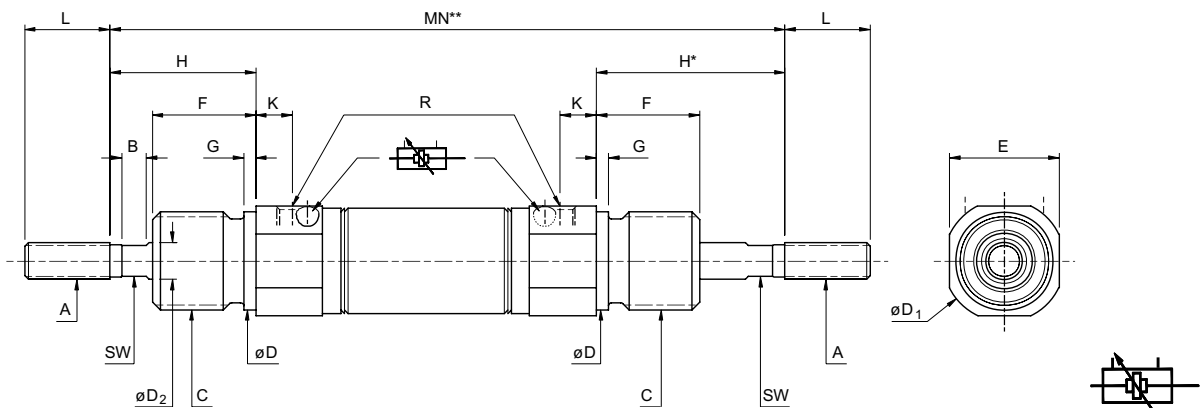
### NOSE MOUNT - N option



### UNIVERSAL MOUNT - U option



### DOUBLE ENDED

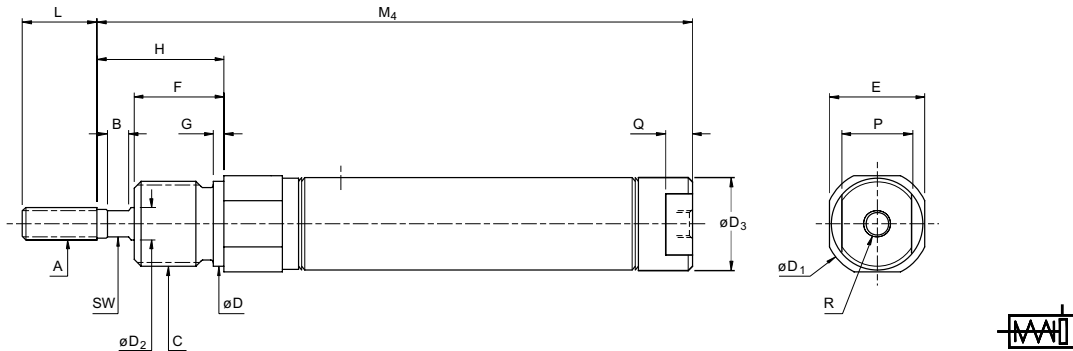


| Bore | A <sup>6g</sup> | B | C <sup>6g</sup> | D  | D <sub>1</sub> | D <sub>2</sub> <sup>h8</sup> | E  | F  | G | H  | J   | K | L  | N  | R      | S   | T <sup>H9</sup> | W <sup>d13</sup> | SW | M <sub>2</sub> | M <sub>3</sub> | MN  |
|------|-----------------|---|-----------------|----|----------------|------------------------------|----|----|---|----|-----|---|----|----|--------|-----|-----------------|------------------|----|----------------|----------------|-----|
| 16   | M6x1.0          | 4 | M16x1.5         | 16 | 20             | 6                            | 18 | 17 | 2 | 24 | 5.5 | 6 | 14 | 10 | M5x0.8 | 3.5 | 6               | 12               | 5  | 84             | 80.5           | 104 |
| 20   | M8x1.25         | 4 | M22x1.5         | 22 | 28             | 8                            | 24 | 19 | 3 | 25 | 8   | 8 | 19 | 11 | G1/8   | 4   | 8               | 16               | 6  | 96             | 92             | 117 |
| 25   | M10x1.25        | 4 | M22x1.5         | 22 | 30             | 10                           | 27 | 22 | 3 | 30 | 6   | 8 | 20 | 11 | G1/8   | 6   | 8               | 16               | 8  | 106            | 100            | 130 |

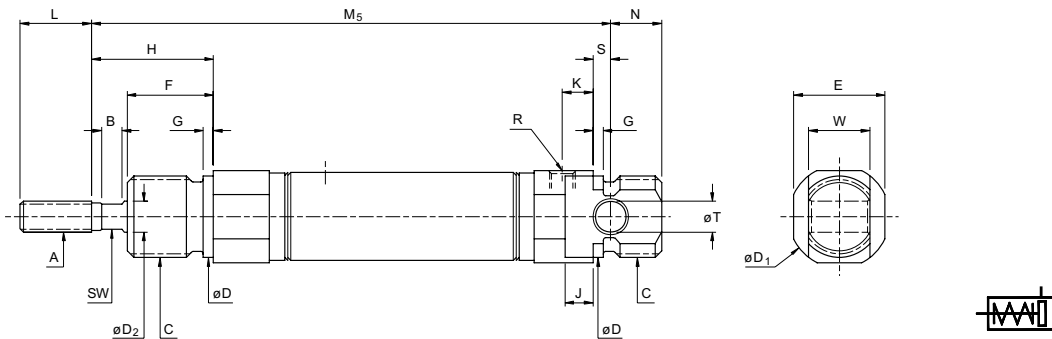
## Single Acting - spring to retract (ESZ)

The ESZ & ER series offer a heavier spring force than the ES, and the flexibility of strokes exceeding 50mm.

### NOSE MOUNT - N option

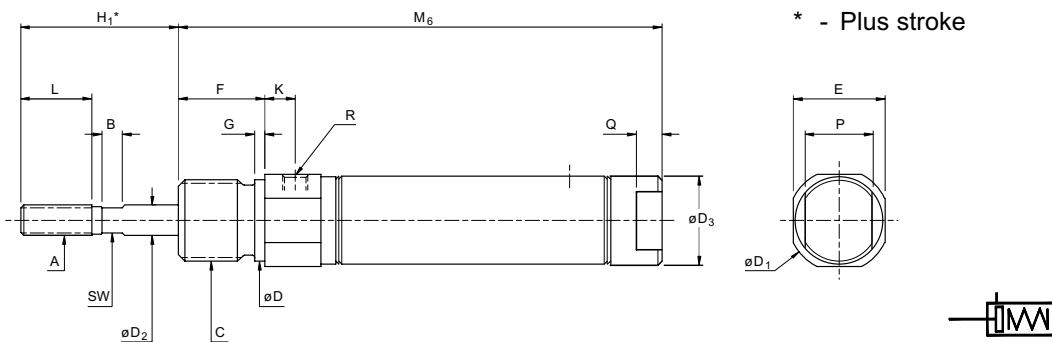


### UNIVERSAL MOUNT - U option

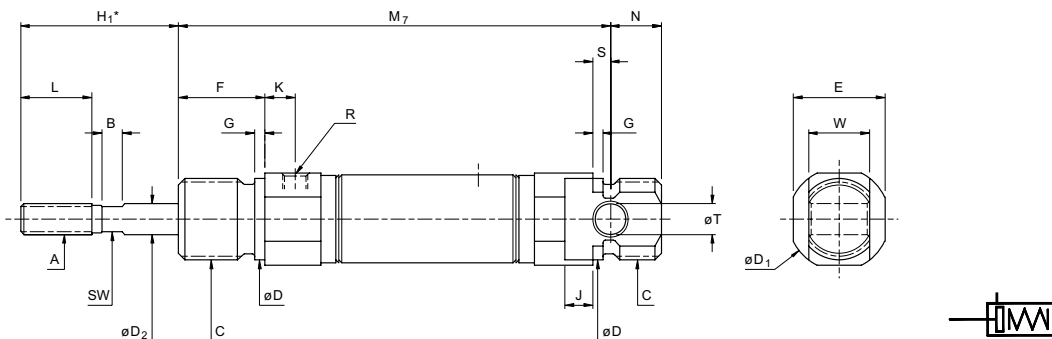


## Single Acting - spring to extend (ER)

### NOSE MOUNT - N option



### UNIVERSAL MOUNT - U option



See following page for dimensional tables

| Bore | A <sup>6g</sup> | B | C <sup>6g</sup> | D  | D <sub>1</sub> | D <sub>2</sub> <sup>h8</sup> | D <sub>3</sub> | E  | F  | G | H  | H <sub>1</sub> | J   | K | L  | N  | P  | Q | R      | S   | T <sup>H9</sup> | W <sup>d13</sup> | SW |
|------|-----------------|---|-----------------|----|----------------|------------------------------|----------------|----|----|---|----|----------------|-----|---|----|----|----|---|--------|-----|-----------------|------------------|----|
| 8    | M4x0.7          | - | M12x1.25        | 12 | 17             | 4                            | 9              | 15 | 12 | 2 | 16 | 16             | 3   | 6 | 12 | 9  | 8  | 4 | M5x0.8 | 3   | 4               | 8                | -  |
| 10   | M4x0.7          | - | M12x1.25        | 12 | 17             | 4                            | 11             | 15 | 12 | 2 | 16 | 16             | 3   | 6 | 12 | 9  | 10 | 5 | M5x0.8 | 3   | 4               | 8                | -  |
| 12   | M6x1.0          | 4 | M16x1.5         | 16 | 20             | 6                            | 13             | 18 | 17 | 2 | 24 | 21             | 5.4 | 6 | 14 | 8  | 10 | 5 | M5x0.8 | 3.6 | 6               | 12               | 5  |
| 16   | M6x1.0          | 4 | M16x1.5         | 16 | 20             | 6                            | 17             | 18 | 17 | 2 | 24 | 21             | 5.5 | 6 | 14 | 10 | 13 | 5 | M5x0.8 | 3.5 | 6               | 12               | 5  |
| 20   | M8x1.25         | 4 | M22x1.5         | 22 | 28             | 8                            | 21             | 24 | 19 | 3 | 25 | 27             | 8   | 8 | 19 | 11 | 19 | 7 | G1/8   | 4   | 8               | 16               | 6  |
| 25   | M10x1.25        | 4 | M22x1.5         | 22 | 30             | 10                           | 26             | 27 | 22 | 3 | 30 | 28             | 6   | 8 | 20 | 11 | 22 | 8 | G1/8   | 6   | 8               | 16               | 8  |

## Calculating Cylinder Lengths

In order to provide greater customer flexibility, Bimba ESZ and ER cylinders can be fitted with multiple springs. To calculate the length ("M" dimension), use the following formula based on the table below:

### Example 1: ESZ-25-78-U

ESZ-25-\_-U Base length ( $M_5$ ) = 103mm  
 Multiplier = Stroke ÷ Increment =  $78 \div 25 = 3.12$   
 Multiplier = 3 (always round down)  
 Multiplier x Adder =  $3 \times 47 = 141$ mm  
 Add Base Length =  $141 + 103 = 244$

Add whole stroke increment:  
 Stroke – (Multiplier x 25) =  $78 - 75 = 3$

ESZ-25-78-U =  $244 + 3 = 247$

### Example 2: ER-12-86-N

ER-12-86-N Base length ( $M_6$ ) = 60.2mm  
 Multiplier = Stroke ÷ Increment =  $86 \div 12.5 = 6.88$   
 Multiplier = 6 (always round up)  
 Multiplier x Adder =  $6 \times 29 = 174$ mm  
 Add Base Length =  $174 + 60.2 = 234.2$

Add whole stroke increment:  
 Stroke – (Multiplier x 12.5) =  $86 - 75 = 11$

ER-12-86-N =  $234.2 - 11 = 223.2$

|    | ESZ - Single Acting, Rod To Retract |                    |       |           | ER - Single Acting, Rod To Extend |                    |       |           |
|----|-------------------------------------|--------------------|-------|-----------|-----------------------------------|--------------------|-------|-----------|
|    | M <sub>4</sub> (N)                  | M <sub>5</sub> (U) | Adder | Increment | M <sub>6</sub> (N)                | M <sub>7</sub> (U) | Adder | Increment |
| 8  | 63.8                                | 71.3               | 20.8  | 12.5      | 51.5                              | 59                 | 20.8  | 12.5      |
| 10 | 57                                  | 63                 | 24    |           | 53                                | 59                 | 29    |           |
| 12 | 67.2                                | 75.5               | 26.5  |           | 60.2                              | 68.5               | 29    |           |
| 16 | 72                                  | 82                 | 48.5  | 25        | 65                                | 75                 | 49    | 25        |
| 20 | 81.5                                | 93                 | 46.5  |           | 75.5                              | 87                 | 49    |           |
| 25 | 89                                  | 103                | 47    |           | 81                                | 95                 | 41.7  |           |

## Spring Forces

| Bore | ES (available up to 50mm stroke) |      |      | ESZ & ER       |                            |                |
|------|----------------------------------|------|------|----------------|----------------------------|----------------|
|      | Preload At Strokes (N)           |      |      | Final Load (N) | Preload At 10mm Stroke (N) | Final Load (N) |
|      | 10mm                             | 25mm | 50mm |                |                            |                |
| 8    | 5.1                              | 4.2  | 2.6  | 5.7            | 1.8                        | 8              |
| 10   | 5.1                              | 4.2  | 2.6  | 5.7            | 3.1                        | 8              |
| 12   | 5.8                              | 4.4  | 3.1  | 6.2            | 4.9                        | 16             |
| 16   | 5.8                              | 4.4  | 3.1  | 6.2            | 8.9                        | 22.7           |
| 20   | 20                               | 16.5 | 11.1 | 22             | 12                         | 31.7           |
| 25   | 28                               | 23.1 | 15.6 | 31.1           | 12                         | 39.2           |

**Accessories - Carbon Steel**

ISO 6431

ISO 6432

Flat

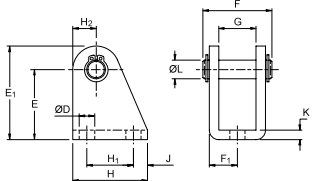
Pneu-Turn

Ultram

Flow Control

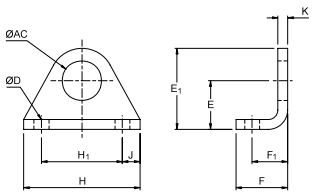
Position Sensing Solutions

**CLEVIS FOOT**



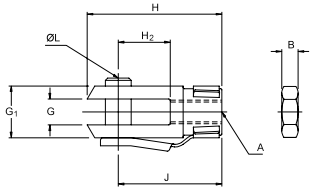
| Bore   | Type  | D   | E  | E <sub>1</sub> | F    | F <sub>1</sub> | G    | H  | H <sub>1</sub> | H <sub>2</sub> | J | K   | L |
|--------|-------|-----|----|----------------|------|----------------|------|----|----------------|----------------|---|-----|---|
| 8, 10  | CFB-1 | 4.5 | 24 | 29             | 17   | 6.5            | 8.1  | 20 | 12.5           | 5              | 4 | 2.5 | 4 |
| 12, 16 | CFB-2 | 5.5 | 27 | 34             | 23   | 9              | 12.1 | 25 | 15             | 7              | 5 | 3   | 6 |
| 20, 25 | CFB-3 | 6.6 | 30 | 40             | 29.5 | 12             | 16.1 | 32 | 20             | 10             | 6 | 4   | 8 |

**FOOT MOUNTING**



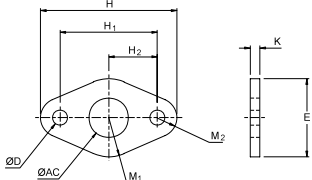
| Bore   | Type | AC   | D   | E  | E <sub>1</sub> | F  | F <sub>1</sub> | H  | H <sub>1</sub> | J   | K   |
|--------|------|------|-----|----|----------------|----|----------------|----|----------------|-----|-----|
| 8, 10  | FB-1 | 12.1 | 4.6 | 15 | 25             | 16 | 11             | 36 | 25             | 5.5 | 3   |
| 12, 16 | FB-2 | 16.1 | 5.6 | 20 | 33             | 20 | 14             | 45 | 32             | 6.5 | 4   |
| 20, 25 | FB-3 | 22.1 | 6.6 | 25 | 40             | 24 | 17             | 56 | 40             | 8   | 4.5 |

**ROD CLEVIS**



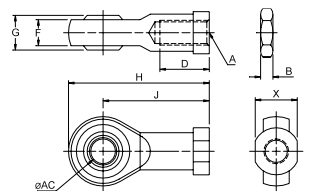
| Bore   | Type        | A        | B   | G  | G <sub>1</sub> | H  | H <sub>2</sub> | J  | L  |
|--------|-------------|----------|-----|----|----------------|----|----------------|----|----|
| 8, 10  | RC-M4x0.7   | M4x0.7   | 3.2 | 4  | 8              | 21 | 8              | 16 | 84 |
| 12, 16 | RC-M6x1.0   | M6x1.0   | 5   | 6  | 12             | 31 | 12             | 24 | 6  |
| 20     | RC-M8x1.25  | M8x1.25  | 4   | 8  | 16             | 42 | 16             | 32 | 8  |
| 25     | RC-M10x1.25 | M10x1.25 | 5   | 10 | 20             | 52 | 24             | 40 | 10 |

**FLANGE MOUNTING**



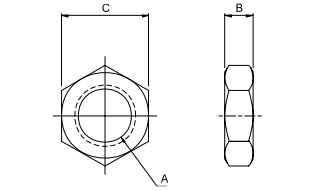
| Bore   | Type | AC   | D   | E  | H  | H <sub>1</sub> | H <sub>2</sub> | K   | M <sub>1</sub> | M <sub>2</sub> |
|--------|------|------|-----|----|----|----------------|----------------|-----|----------------|----------------|
| 8, 10  | MF-1 | 12.1 | 4.6 | 24 | 42 | 30             | 15             | 3   | 12             | 6              |
| 12, 16 | MF-2 | 16.1 | 5.6 | 28 | 54 | 40             | 20             | 4   | 14             | 7              |
| 20, 25 | MF-3 | 22.1 | 6.6 | 38 | 66 | 50             | 25             | 4.5 | 19             | 8              |

**SPHERICAL ROD EYE**



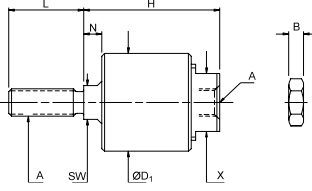
| Bore   | Type         | A        | AC | B   | D  | F    | G  | H  | J  | X  |
|--------|--------------|----------|----|-----|----|------|----|----|----|----|
| 8, 10  | SRE-M4x0.7   | M4x0.7   | 5  | 3.2 | 10 | 6    | 8  | 36 | 27 | 9  |
| 12, 16 | SRE-M6x1.0   | M6x1.0   | 6  | 5   | 12 | 6.75 | 9  | 40 | 30 | 11 |
| 20     | SRE-M8x1.25  | M8x1.25  | 8  | 4   | 16 | 9    | 12 | 48 | 36 | 14 |
| 25     | SRE-M10x1.25 | M10x1.25 | 10 | 5   | 20 | 10.5 | 14 | 57 | 43 | 17 |

**ROD/MOUNTING NUT**



| Bore   | Type | A        | B   | C  | Type | A        | B       | C       |    |    |
|--------|------|----------|-----|----|------|----------|---------|---------|----|----|
| 8, 10  | RN-1 | M4x0.7   | 3.2 | 7  | MN-1 | M12x1.25 | 7       | 19      |    |    |
| 12, 16 | RN-2 | M6x1.0   | 5   | 10 |      | MN-2     | M16x1.5 | 8       | 24 |    |
| 20     | RN-3 | M8x1.25  | 4   | 13 |      |          | MN-3    | M22x1.5 | 10 | 32 |
| 25     | RN-4 | M10x1.25 | 5   | 17 |      |          |         |         |    |    |

**ROD COUPLER**



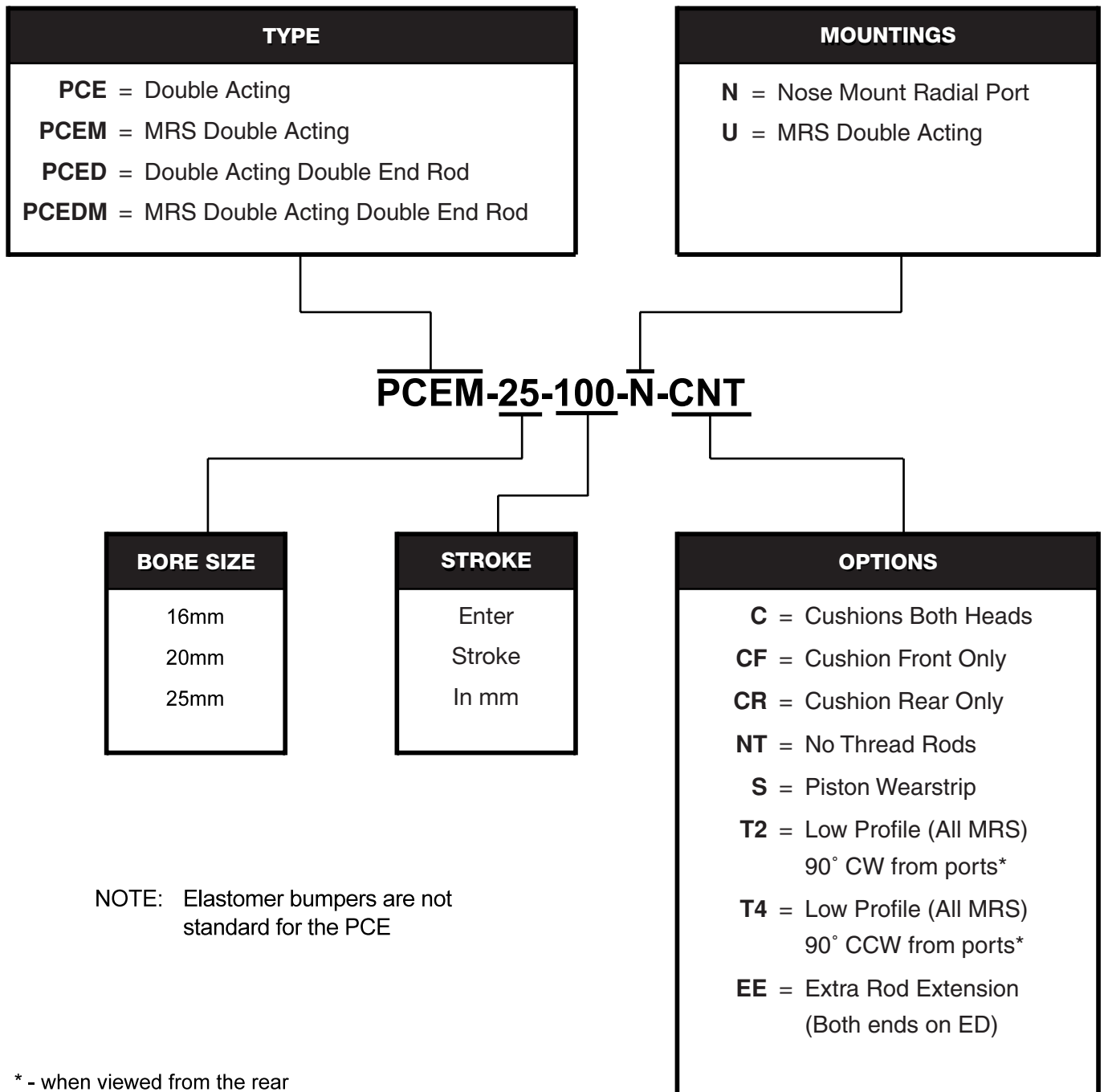
| Bore    | Type        | A        | B   | D <sub>1</sub> | H  | L  | N   | SW   | X    |
|---------|-------------|----------|-----|----------------|----|----|-----|------|------|
| 8, 10   | AC-M4x0.7   | M4x0.7   | 3.2 | 14             | 24 | 14 | 6.5 | -    | 11.3 |
| 12, 16  | AC-M6x1.0   | M6x1.0   | 5   | 17             | 24 | 16 | 5   | 5    | 10   |
| 20      | AC-M8x1.25  | M8x1.25  | 4   | 29             | 40 | 22 | 5.3 | 10   | 17   |
| 25, 32  | AC-M10x1.25 | M10x1.25 | 5   | 29             | 40 | 24 | 5.3 | 10   | 17   |
| 40      | AC-M12x1.25 | M12x1.25 | 7   | 32             | 47 | 24 | 8.2 | 13   | 20   |
| 50, 63  | AC-M16x1.5  | M16x1.5  | 8   | 32             | 48 | 32 | 10  | 13.5 | 20   |
| 80, 100 | AC-M20x1.5  | M20x1.5  | 9   | 45             | 57 | 40 | 10  | 21   | 28   |

## How to Order

The Model Number for all Bimba PCE Cylinders consists of five Alpha-Numeric clusters. The first designates the *Type*, the second the *Bore Size*, the third the *Stroke Length*, the fourth the *Mounting* style, and the fifth the *Options*

Please refer to the charts below for an explanation of the following model number:

**PCEM-25-100-N-CNT:** This is a PCE Type Cylinder with a magnet, with 25mm Bore Size, 100mm Stroke Size, Nose Mounted, and with Cushions in Both Heads and no Rod Threads.



## General Specifications



*The Bimba PCE cylinder has stainless steel body, stainless steel rod and Delrin® end caps. It is ideal for applications or operating environments that require exposure to moisture, lubricants and specific solvents.*

ISO 6431

ISO 6432

|                                    | BORE   |    |    |
|------------------------------------|--|----|----|
|                                    | 16   | 20 | 25 |
| Cushion Length (mm) Each End       | 18   | 21 | 21 |
| Head Material                      | Delrin® Plastic type 150SA                           |    |    |
| Operating Pressure<br>Max.<br>Min. | 7 bar<br>0.5 bar                                     |    |    |
| Operating Temperature Range        | -10°C to +80°C                                       |    |    |
| Operating Media                    | Filtered Compressed Air/Lubricated or Non-Lubricated |    |    |
| Standard Stroke Lengths            | 1mm to 300mm   |    |    |
| Maximum Stroke Length*             | 1000mm   |    |    |
| Stroke Tolerance                   | +1.0mm/-0mm  |    |    |
| Piston Speed                       | 5mm/s to 1000mm/s                                    |    |    |
| Life Expectancy                    | 3000km   |    |    |

Flat

Pneu-Turn

Ultran

\* Varies according to bore size, please consult your local BIMBA distributor.

## Weights

|                       | Bore |     |     |
|-----------------------|------|-----|-----|
|                       | 16   | 20  | 25  |
| Option N              | 40   | 77  | 117 |
| Option U              | 43   | 85  | 126 |
| Type ED               | 57   | 116 | 176 |
| adder per 10mm stroke | 5    | 8   | 11  |

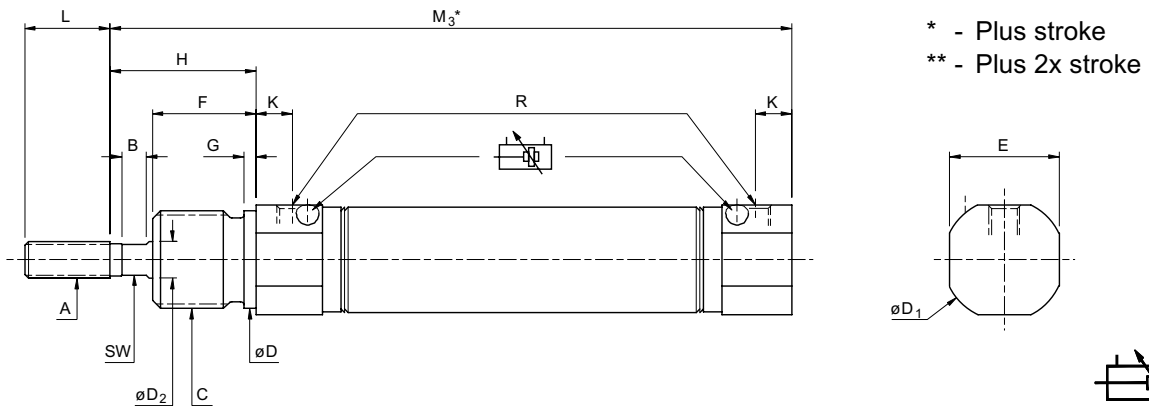
Weights (approximate) are for zero stroke, in grams.

Flow Control

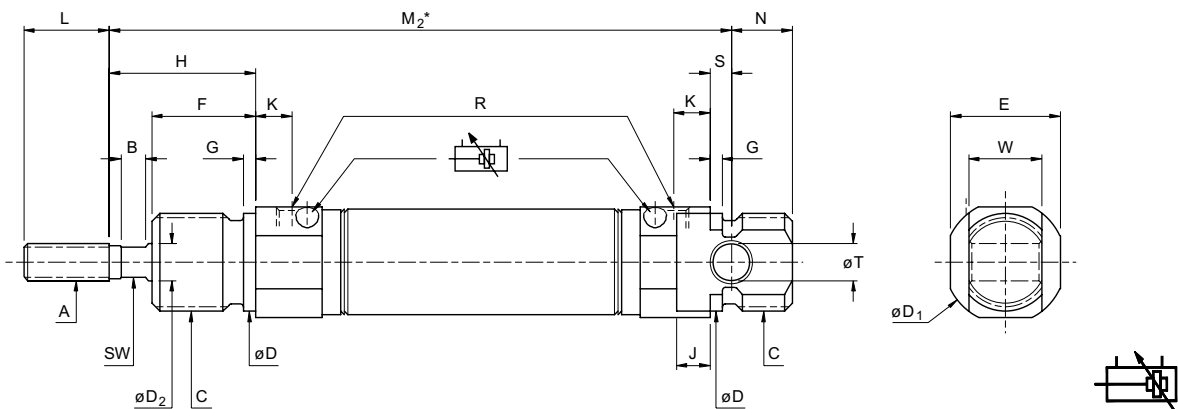
Position Sensing Solutions

## Double Acting - with adjustable cushioning

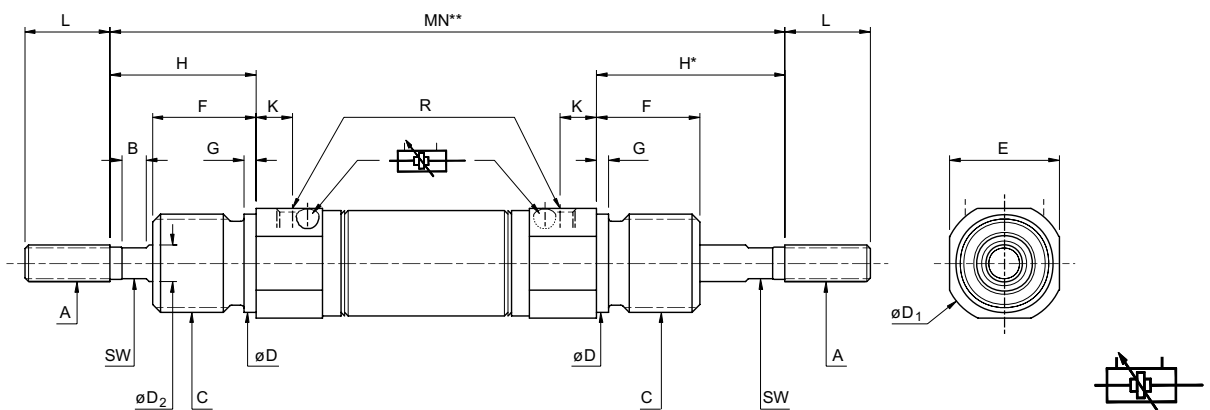
### NOSE MOUNT - N option



### UNIVERSAL MOUNT - U option



### DOUBLE ENDED



| Bore | A <sup>6g</sup> | B | C <sup>6g</sup> | D  | D <sub>1</sub> | D <sub>2</sub> <sup>h8</sup> | E  | F  | G | H  | J   | K | L  | N  | R      | S   | T <sup>H9</sup> | W <sup>d13</sup> | SW | M <sub>2</sub> | M <sub>3</sub> | MN  |
|------|-----------------|---|-----------------|----|----------------|------------------------------|----|----|---|----|-----|---|----|----|--------|-----|-----------------|------------------|----|----------------|----------------|-----|
| 16   | M6x1.0          | 4 | M16x1.5         | 16 | 20             | 6                            | 18 | 17 | 2 | 24 | 5.5 | 6 | 14 | 10 | M5x0.8 | 3.5 | 6               | 12               | 5  | 84             | 80.5           | 104 |
| 20   | M8x1.25         | 4 | M22x1.5         | 22 | 28             | 8                            | 24 | 19 | 3 | 25 | 8   | 8 | 19 | 11 | G1/8   | 4   | 8               | 16               | 6  | 96             | 92             | 117 |
| 25   | M10x1.25        | 4 | M22x1.5         | 22 | 30             | 10                           | 27 | 22 | 3 | 30 | 6   | 8 | 20 | 11 | G1/8   | 6   | 8               | 16               | 8  | 106            | 100            | 130 |

**Accessories - Stainless Steel**

ISO 6431

ISO 6432

Flat

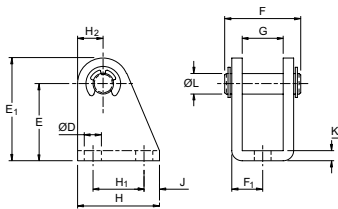
Pneu-Turn

Ultran

Flow Control

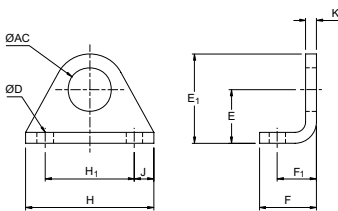
Position Sensing Solutions

**PIVOT BRACKET**



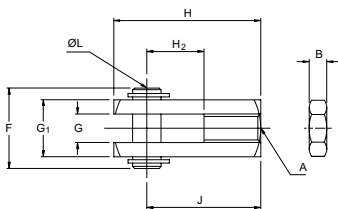
| Bore   | Type     | D   | E  | E <sub>1</sub> | F    | F <sub>1</sub> | G    | H  | H <sub>1</sub> | H <sub>2</sub> | J | K | L |
|--------|----------|-----|----|----------------|------|----------------|------|----|----------------|----------------|---|---|---|
| 16     | CFB-2-SS | 5.6 | 27 | 34             | 24   | 9              | 12.5 | 25 | 15             | 7              | 5 | 3 | 6 |
| 20, 25 | CFB-3-SS | 6.6 | 30 | 40             | 30.5 | 12             | 16.5 | 32 | 20             | 10             | 6 | 4 | 8 |

**FOOT MOUNTING BRACKET**



| Bore   | Type    | AC   | D   | E  | E <sub>1</sub> | F  | F <sub>1</sub> | H  | H <sub>1</sub> | J | K |
|--------|---------|------|-----|----|----------------|----|----------------|----|----------------|---|---|
| 16     | FB-2-SS | 16.1 | 5.6 | 20 | 33             | 20 | 14             | 42 | 32             | 5 | 4 |
| 20, 25 | FB-3-SS | 22.1 | 6.6 | 25 | 40             | 25 | 17             | 54 | 40             | 7 | 5 |

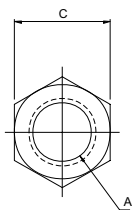
**ROD CLEVIS BRACKET**



| Bore | Type    | A        | B | F  | G  | G <sub>1</sub> | H  | H <sub>2</sub> | J  | L  |
|------|---------|----------|---|----|----|----------------|----|----------------|----|----|
| 16   | RC-2-SS | M6x1.0   | 5 | 16 | 6  | 12             | 31 | 12             | 24 | 6  |
| 20   | RC-3-SS | M8x1.25  | 4 | 20 | 8  | 16             | 42 | 16             | 32 | 8  |
| 25   | RC-4-SS | M10x1.25 | 5 | 26 | 10 | 20             | 52 | 24             | 40 | 10 |

**ROD NUT**

| Bore | Type    | A          | B | C  |
|------|---------|------------|---|----|
| 16   | RN-2-SS | M6 x 1.0   | 5 | 10 |
| 20   | RN-3-SS | M8 x 1.25  | 4 | 13 |
| 25   | RN-4-SS | M10 x 1.25 | 5 | 17 |



**MOUNTING NUT**

| Bore   | Type    | A         | B  | C  |
|--------|---------|-----------|----|----|
| 16     | MN-2-SS | M16 x 1.5 | 8  | 24 |
| 20, 25 | MN-3-SS | M22 x 1.5 | 10 | 32 |

