

# Tie rods cylinders to ISO 15552 standard Ø 125 ÷ 320

# series XL

## DESCRIPTION

Cylinders series "XL" comply with ISO 15552 standard, being in this way completely interchangeable with the former cylinders to ISO 6431/VDMA 24562 standards. These cylinders are supplied cushioned as standard and, in the version with magnetic piston type can be supplied with magnetic sensors. Available also to directive 94/9/EC ("ATEX" - 2GD category).

## TECHNICAL DATA

|                                |  |
|--------------------------------|--|
| Operating pressure             | 1+10 bar   |
| Working temperature            | 0 ÷ +80°C (-30°C with dry air)<br>0 ÷ +150°C with seals for high temperatures (-10°C with dry air)   |
| Fluid                          | Filtered, unlubricated or continuous lubricated compressed air   |
| Versions                       | Double acting; Single acting front spring;<br>Single acting rear spring; Through rod;<br>Double push tandem; Double stroke tandem;<br>Opposed tandem |
| Bore                           | Ø125, 160, 200, 250, 320   |
| Port size                      | Ø 125 = G 1/2<br>Ø 160 - 200 = G 3/4<br>Ø 250 - 320 = G 1  |
| Standard strokes (mm)          | 25, 50, 75, 80, 100, 125, 150, 160, 175, 200,<br>250, 300, 320, 350, 400, 450, 500, 550, 600,<br>650, 700, 800, 900, 1000                            |
| Decelerators lenght (mm)       | Ø 125 160 200 250 320<br>mm 37 40 40 75 80   |
| Maximum stroke (mm)            | 3000   |
| Max. stroke single acting (mm) | 100  |

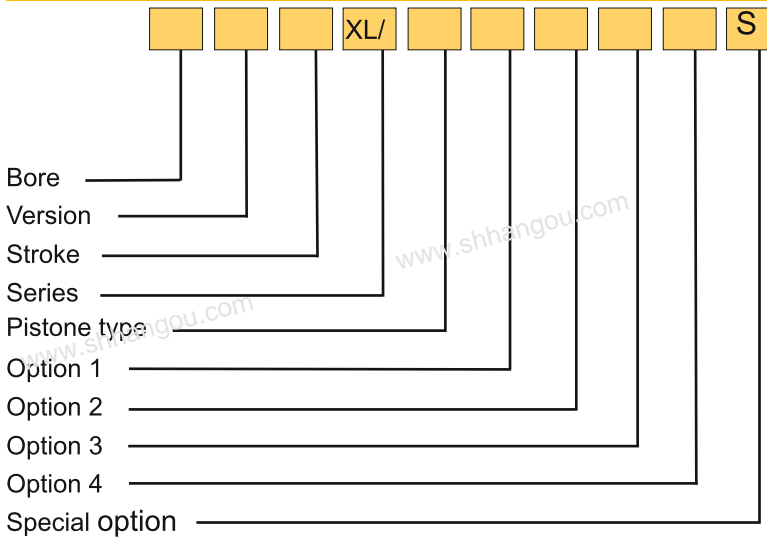


1

## MATERIALS

|                             |  |
|-----------------------------|--|
| End caps                    | Painted die-cast aluminium with chromate conversion coating                |
| Cylinder barrel             | Extruded profile, 20 µm anodized aluminium alloy                           |
| Tie rods, tie and rods nuts | Steel<br>Stainless steel (supplied upon request for tie rods and tie nuts) |
| Piston rod                  | C45 chromium-plated steel<br>AISI 303 rolled stainless steel               |
| Piston rod bearing          | Bronze-Iron 20%, sintered, self-lubricating                                |
| Decelerator ogives          | Aluminium alloy  |
| Piston                      | Die-cast aluminium alloy with chromate conversion coating                  |
| Seals                       | Polyurethane and NBR rubber<br>Viton® (only available Ø125 ÷ 200)          |

## ORDER KEY



**N.B.:** *Magnetic switch* FM100-FM157 (see chapter magnetic sensors from page 1.93 del CAT.08/EN)

- See technical data on page 0.12

## ORDER EXAMPLES

Cylinder Ø125, double acting, 100 mm stroke, non-magnetic piston type, ATEX: **125/100 XL/N/EX**  
Cylinder Ø320, through rod, stroke 150, magnetic piston type, stainless steel piston rod: **320R150 XL/M1**

## VERSION

|                                       |                                 |
|---------------------------------------|---------------------------------|
| / Double acting                       | <b>T</b> Double push tandem *   |
| <b>S</b> Single acting front spring * | <b>P</b> Double stroke tandem * |
| <b>Y</b> Single acting rear spring *  | <b>V</b> Opposed tandem *       |
| <b>R</b> Through rod                  |                                 |

## PISTON TYPE

|                       |                      |
|-----------------------|----------------------|
| <b>N</b> Non magnetic | <b>M</b> Magnetic ** |
|-----------------------|----------------------|

## OPTION 1

**Z** Fit for piston rod locking unit (only Ø125)

## OPTION 2

**1** Stainless steel piston rod and rod nut **3** Stainless steel piston rod and rod nut and Viton® seals\*  
**2** Viton® seals\*

## OPTION 3

**5** Extruded profile barrel (only Ø125)

## OPTION 4

**/EX** complies with the ATEX directive

II 2GDc T6 0°C<Ta<60°C from Ø 125 to Ø 200

II 2GDc T5 T100°C -20°C<Ta<80°C from Ø 250 to Ø 320

\* Available only for Ø 125 ÷ 200

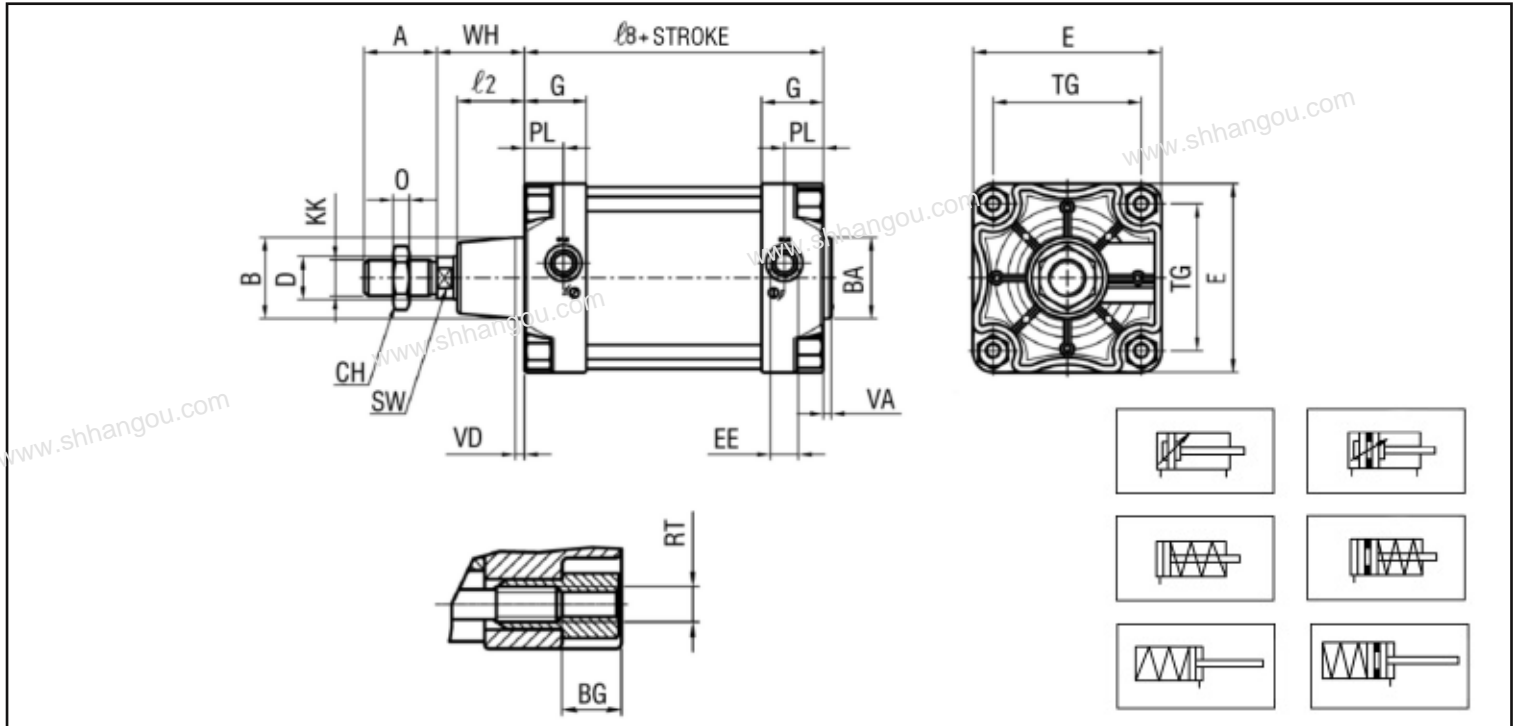
\*\* Available even with Viton® seals just for applications where is needed a chemical compatibility; not available for high temperature

## SPARE PARTS

### SEALS KIT

|  |                       |
|--|-----------------------|
| Polyuretane and NBR rubber                           | Ø/SG/XL               |
| Through rod and polyuretane and NBR rubber<br>Viton® | Ø/SG/R/XL<br>Ø/SG/XL2 |
| Through rod Viton®                                   | Ø/SG/R/XL2            |

### XL BASIC CYLINDER



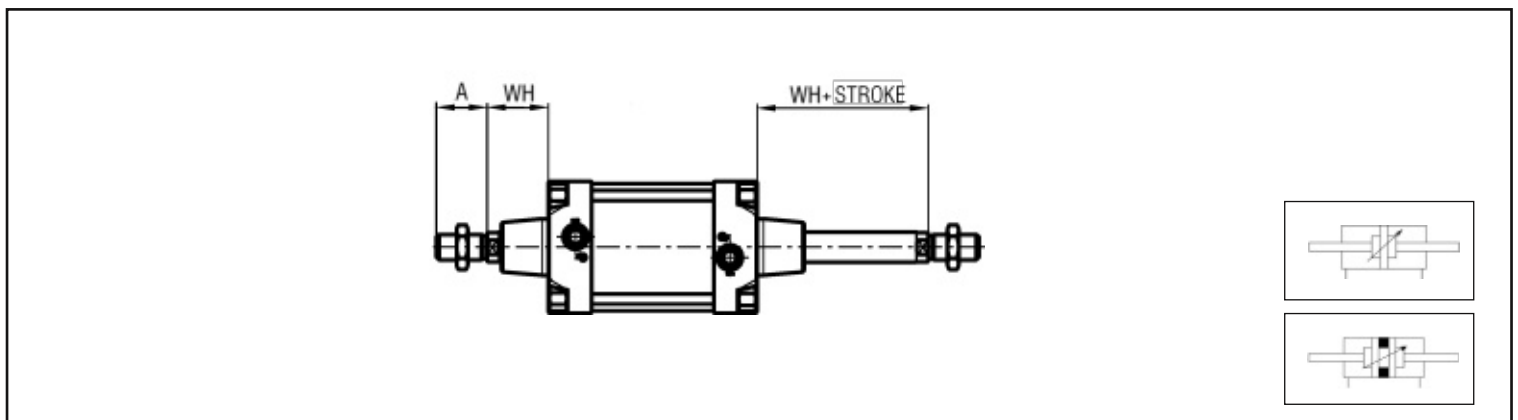
P.S.: Rod nut supplied as standard

### DIMENSIONS AND WEIGHTS BASIC CYLINDER

| Ø   | A* | BA*<br>B* | BG* | CH | RT* | E*  | EE*  | G  | D  | KK*   | l   | l2* | l8* | O  | PL* | SW* | TG* | VA* | VD | WB  | WH* | Weight (g) | Increase (g) every 10mm |
|-----|----|-----------|-----|----|-----|-----|------|----|----|-------|-----|-----|-----|----|-----|-----|-----|-----|----|-----|-----|------------|-------------------------|
| 125 | 54 | 60        | 20  | 41 | M12 | 140 | G1/2 | 46 | 32 | M27X2 | 268 | 50  | 160 | 12 | 29  | 27  | 110 | 6   | 7  | 205 | 65  | 6475       | 126                     |
| 160 | 72 | 65        | 24  | 55 | M16 | 180 | G3/4 | 50 | 40 | M36X2 | 310 | 60  | 180 | 15 | 30  | 36  | 140 | 6   | 6  | -   | 80  | 10850      | 210                     |
| 200 | 72 | 75        | 24  | 55 | M16 | 220 | G3/4 | 48 | 40 | M36X2 | 310 | 60  | 180 | 15 | 24  | 36  | 175 | 6   | 6  | -   | 95  | 15075      | 290                     |
| 250 | 84 | 90        | 25  | 65 | M20 | 268 | G1   | 54 | 50 | M42X2 | -   | 67  | 200 | 16 | 31  | 46  | 220 | 10  | 20 | -   | 105 | 28500      | 380                     |
| 320 | 96 | 110       | 28  | 75 | M24 | 340 | G1   | 66 | 63 | M48X2 | -   | 82  | 220 | 18 | 31  | 55  | 270 | 10  | 20 | -   | 120 | 48400      | 620                     |

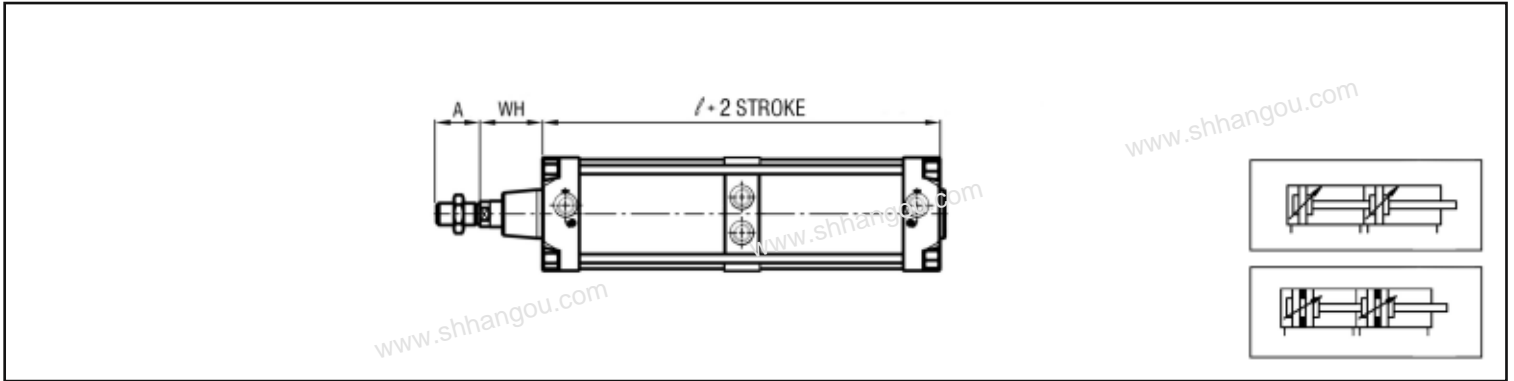
\* STANDARDIZED DIMENSIONS

### THROUGH ROD



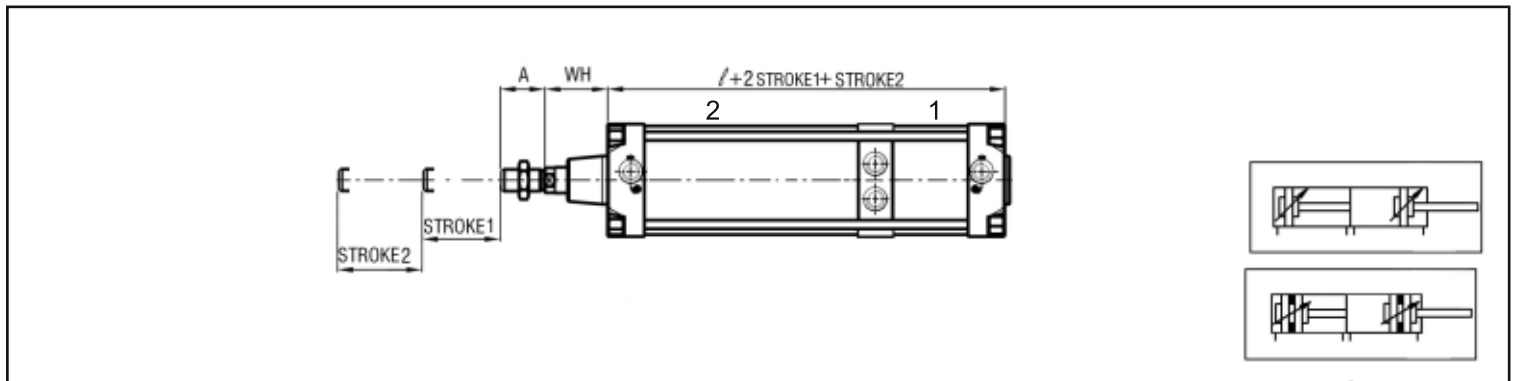
P.S.: Rod nuts supplied as standard

DOUBLE PUSH TANDEM



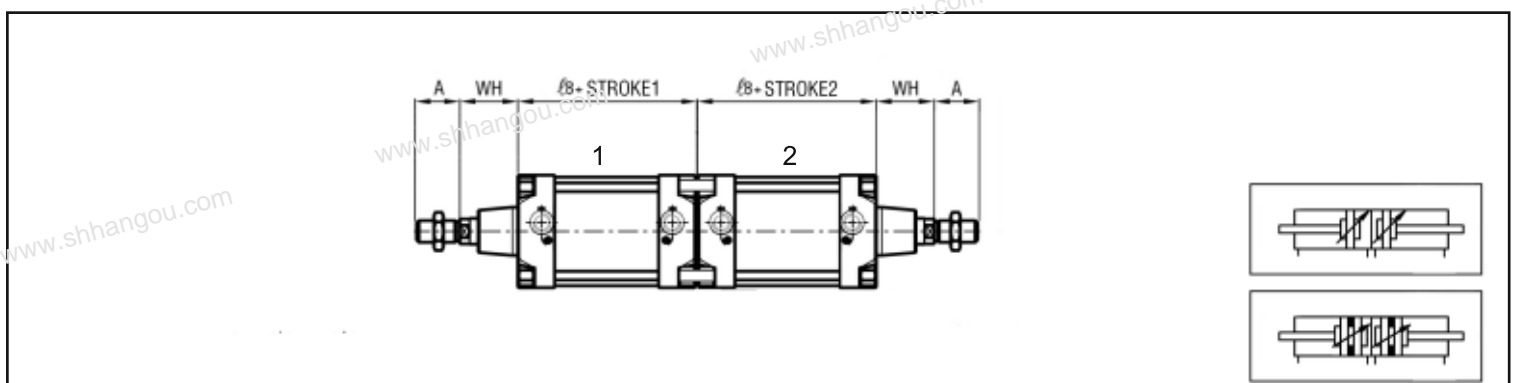
P.S.: Rod nut supplied as standard

DOUBLE STROKE TANDEM



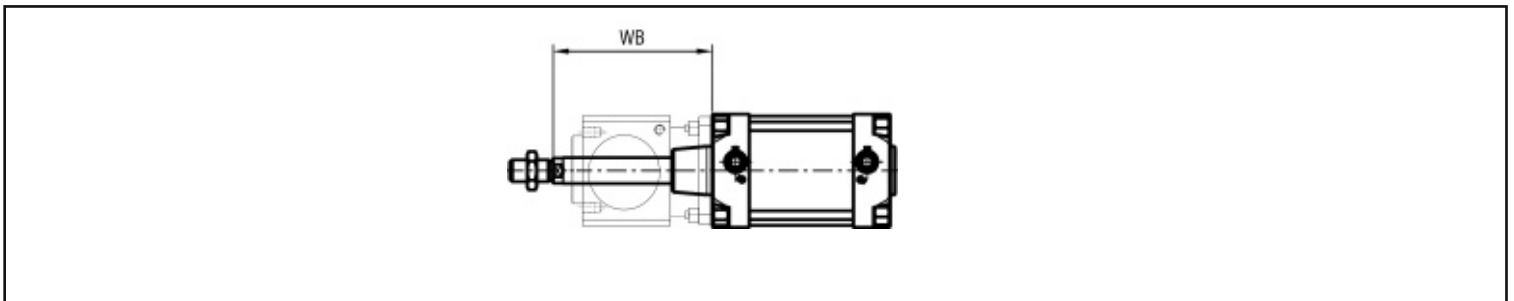
P.S.: Rod nut supplied as standard

OPPOSED TANDEM



P.S.: Rod nut supplied as standard

FIT FOR PISTON ROD LOCKING UNIT

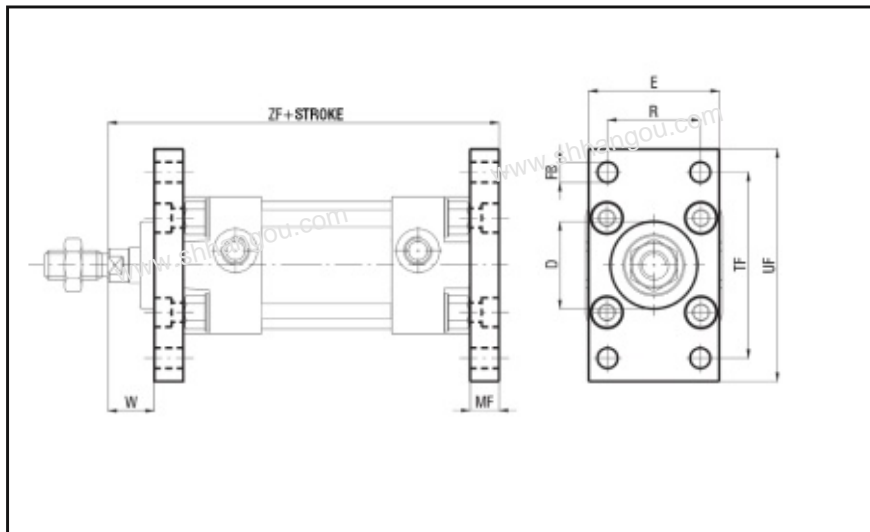


P.S.: Rod nut supplied as standard

1

### FLANGE - STEEL - CPUI/F Ø (supplied with screws)

| Ø   | D<br>H11 | FB<br>H13 | E   | MF<br>±0.2 | R<br>H13 | TF<br>JS14 | UF   |
|-----|----------|-----------|-----|------------|----------|------------|------|
| 125 | 60       | 16        | 140 | 20         | 90       | 180        | 205  |
| 160 | 65       | 18        | 180 | 20         | 115      | 230        | 260  |
| 200 | 75       | 22        | 220 | 25         | 135      | 230        | 260  |
| 250 | 90       | 26        | 285 | 25         | 220      | 330        | 400* |
| 320 | 110      | 33        | 350 | 30         | 270      | 400        | 470  |

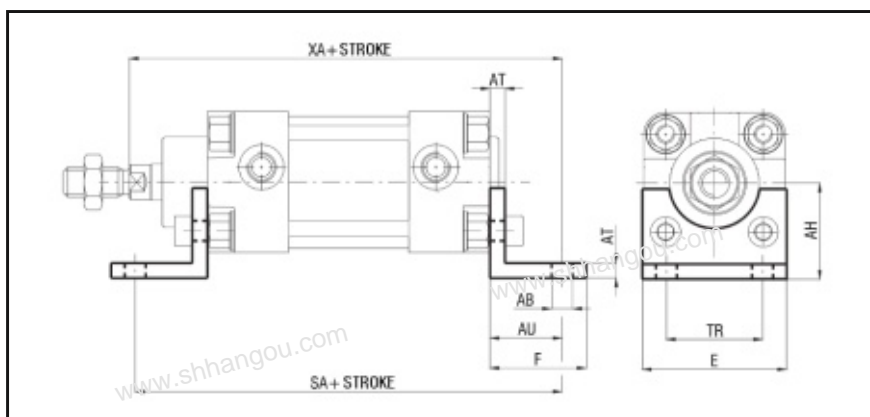


| Ø   | W  | ZF  | Weight<br>(g) |
|-----|----|-----|---------------|
| 125 | 45 | 245 | 3750          |
| 160 | 60 | 280 | 6350          |
| 200 | 75 | 300 | 11350         |
| 250 | 80 | 330 | 20100         |
| 320 | 90 | 370 | 31800         |

\* NOT TO ISO 15552 STANDARD

### FOOT - STEEL - CPUI/PB Ø (supplied with screws)

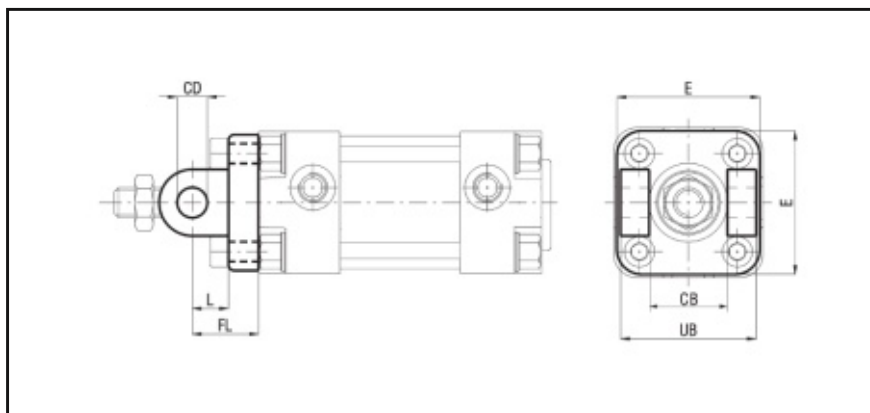
| Ø   | AB<br>H14 | AH<br>JS15 | AT | AU | E   | F   | SA  |
|-----|-----------|------------|----|----|-----|-----|-----|
| 125 | 16        | 90         | 8  | 45 | 140 | 70  | 250 |
| 160 | 18        | 115        | 10 | 60 | 180 | 75  | 300 |
| 200 | 24        | 135        | 12 | 70 | 220 | 100 | 320 |
| 250 | 26        | 165        | 14 | 75 | 270 | 100 | 400 |



| Ø   | TR<br>JS14 | XA  | Weight<br>(g) |
|-----|------------|-----|---------------|
| 125 | 90         | 270 | 1090          |
| 160 | 115        | 320 | 1188          |
| 200 | 135        | 345 | 3450          |
| 250 | 165        | 430 | 6600          |

### FRONT FEMALE HINGE - NOT TO ISO 15552 STANDARD - ALUMINIUM - CPUI/CFA Ø (supplied with screws)

| Ø   | CB | CD<br>H9 | E   | FL | L  | UB<br>h14 | Weight<br>(g) |
|-----|----|----------|-----|----|----|-----------|---------------|
| 125 | 70 | 25       | 140 | 50 | 30 | 130       | 1180          |
| 160 | 90 | 30       | 180 | 55 | 35 | 170       | 1780          |
| 200 | 90 | 30       | 220 | 60 | 35 | 170       | 2900          |

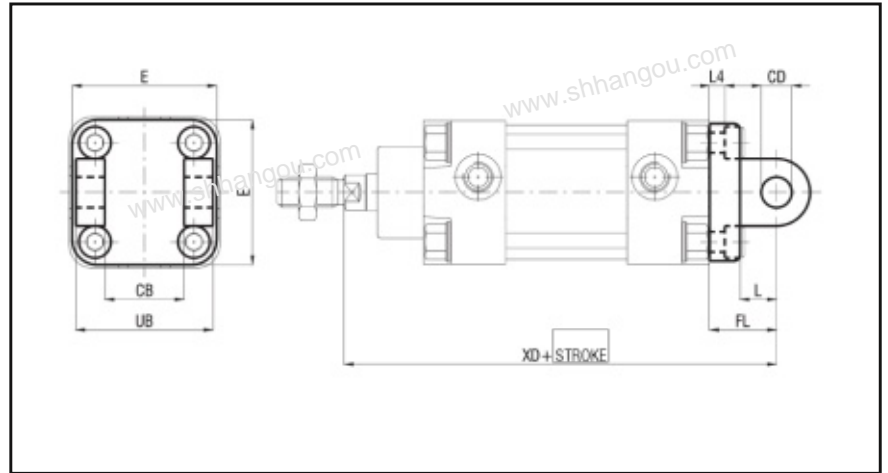


Fixings for cylinders Ø 125 ÷ 320  
to ISO 15552 standard

REAR FEMALE HINGE - ALUMINIUM - CPUI/CF Ø  
(supplied with screws) - STEEL - CPUI/CF Ø AC

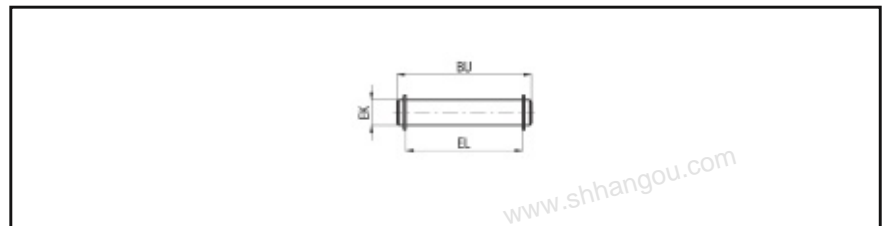
| Ø   | CB  | CD<br>H9 | E   | FL | L  | L4 | UB<br>h14 |
|-----|-----|----------|-----|----|----|----|-----------|
| 125 | 70  | 25       | 140 | 50 | 30 | 10 | 130       |
| 160 | 90  | 30       | 180 | 55 | 35 | 10 | 170       |
| 200 | 90  | 30       | 220 | 60 | 35 | 11 | 170       |
| 250 | 110 | 40       | 268 | 70 | 59 | -  | 200       |
| 320 | 120 | 45       | 340 | 80 | 65 | -  | 220       |

| Ø   | XD  | Weight<br>Alu. (g) | Weight<br>Steel (g) |
|-----|-----|--------------------|---------------------|
| 125 | 275 | 1180               | 3350                |
| 160 | 315 | 1750               | 5750                |
| 200 | 335 | 2900               | 8900                |
| 250 | 375 | 10870              | 15900               |
| 320 | 420 | 19940              | 30750               |



PIVOT FOR REAR FEMALE HINGE (ALUMINIUM) - GALVANIZED STEEL - CPU/CPUI/SEC Ø  
(STEEL) - GALVANIZED NITRIDED STEEL - CPU/CPUI/SEC Ø AC

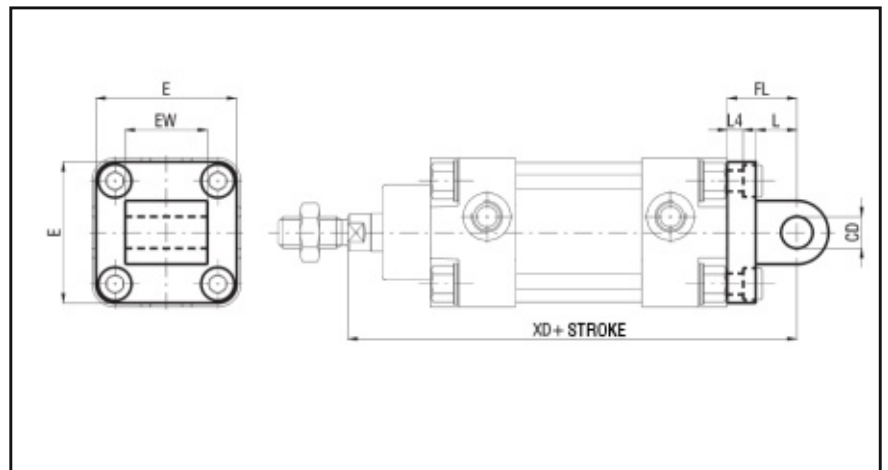
| Ø   | BU  | EK<br>f7 | EL    | Weight<br>(g) |
|-----|-----|----------|-------|---------------|
| 125 | 139 | 25       | 132   | 530           |
| 160 | 178 | 30       | 171.5 | 978           |
| 200 | 178 | 30       | 171.5 | 978           |
| 250 | 214 | 40       | 202   | 1800          |
| 320 | 234 | 45       | 222   | 2500          |



MALE HINGE - ALUMINIUM - CPUI/CM Ø  
(Supplied with screw) - STEEL - CPUI/CM Ø AC

| Ø   | CD<br>H9 | E   | EW  | FL | L  | L4 | XD  |
|-----|----------|-----|-----|----|----|----|-----|
| 125 | 25       | 140 | 70  | 50 | 30 | 10 | 275 |
| 160 | 30       | 180 | 90  | 55 | 35 | 10 | 315 |
| 200 | 30       | 220 | 90  | 60 | 35 | 11 | 335 |
| 250 | 40       | 268 | 110 | 70 | 47 | 11 | 375 |
| 320 | 45       | 340 | 120 | 80 | 52 | 15 | 420 |

| Ø   | Weight<br>Alu. (g) | Weight<br>Steel (g) |
|-----|--------------------|---------------------|
| 125 | 1264               | 3740                |
| 160 | 1846               | 5890                |
| 200 | 2950               | 8470                |
| 250 | 14670              | 16850               |
| 320 | 26128              | 31750               |

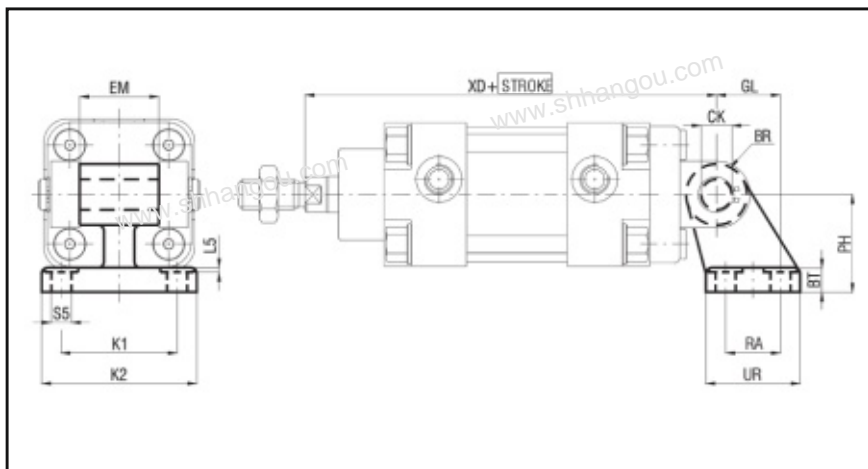


### SQUARE JOINT

- ALUMINIUM - CPUI/AS Ø

| Ø   | PH<br>JS15 | CK<br>H9 | EM | GL<br>JS14 | RA<br>JS14 | UR  | BT | L5  |
|-----|------------|----------|----|------------|------------|-----|----|-----|
| 125 | 90         | 25       | 70 | 70         | 60         | 90  | 20 | 3,2 |
| 160 | 115        | 30       | 90 | 97         | 88         | 126 | 25 | 4   |
| 200 | 135        | 30       | 90 | 105        | 90         | 130 | 30 | 4   |

| Ø   | BR   | S5<br>H13 | K1<br>JS14 | K2  | XD  | Weight<br>(g) |
|-----|------|-----------|------------|-----|-----|---------------|
| 125 | 22,5 | 14        | 94         | 124 | 275 | 826           |
| 160 | 31,5 | 14        | 118        | 156 | 315 | 2600          |
| 200 | 31,5 | 18        | 122        | 162 | 335 | 3250          |



### NARROW REAR FEMALE HINGE

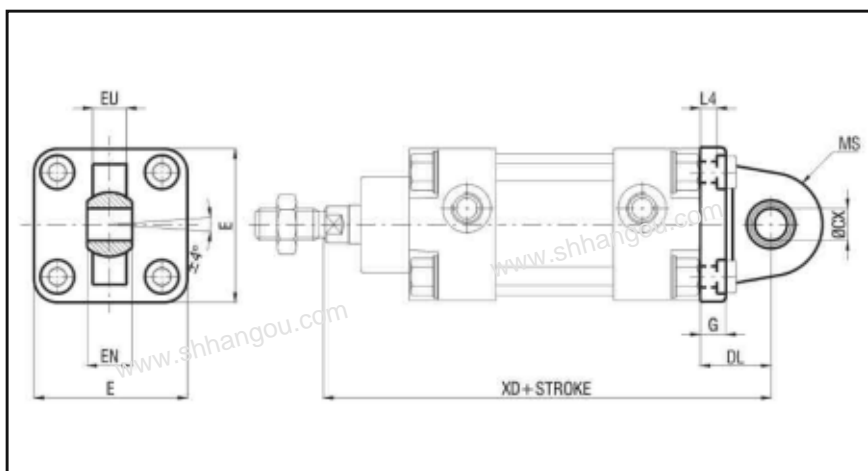
- ALUMINIUM - CPUI/CFS Ø

(supplied with screws)

- STEEL - CPUI/CFS Ø AC (only for Ø 125)

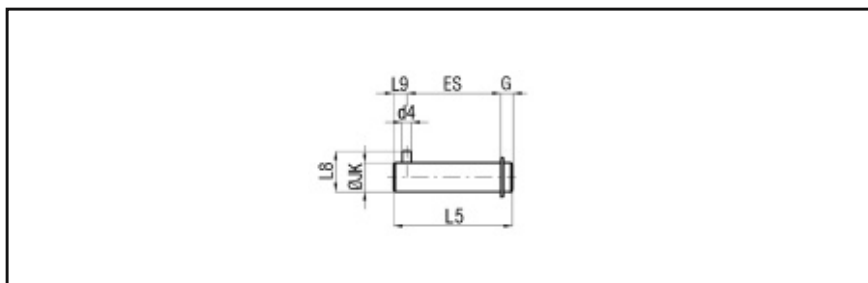
| Ø   | CG<br>D10 | CP<br>d12 | B3  | Ø CF<br>F7 | E   | FM | L10 | L11 |
|-----|-----------|-----------|-----|------------|-----|----|-----|-----|
| 125 | 37        | 97        | 6.3 | 30         | 140 | 50 | 20  | 39  |
| 160 | 43        | 122       | 6.3 | 35         | 180 | 55 | 20  | 44  |
| 200 | 43        | 122       | 6.3 | 35         | 220 | 60 | 25  | 44  |

| Ø   | L4 | XD  | Weight<br>Alu. (g) | Weight<br>Steel (g) |
|-----|----|-----|--------------------|---------------------|
| 125 | 10 | 275 | 1100               | 3550                |
| 160 | 10 | 315 | 2000               | -                   |
| 200 | 11 | 335 | 3300               | -                   |



### NON-ROTATING PIVOT FOR NARROW REAR FEMALE HINGE - GALVANIZED NITRIDED STEEL - CPUI/SEC Ø AT

| Ø   | d4<br>H12 | ØJK<br>f7 | L8 | ES  | L9 | L5  | G | Weight<br>(g) |
|-----|-----------|-----------|----|-----|----|-----|---|---------------|
| 125 | 6         | 30        | 36 | 94  | 9  | 110 | 7 | 606           |
| 160 | 6         | 35        | 41 | 119 | 9  | 135 | 7 | 974           |
| 200 | 6         | 35        | 41 | 119 | 9  | 135 | 7 | 974           |



# Accessories

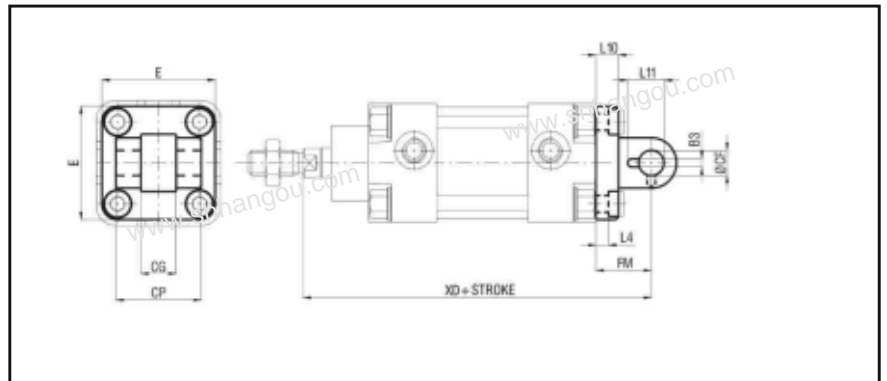
## Fixings for cylinders Ø 125 ÷ 320 to ISO 1552 standard

**NARROW MALE HINGE WITH ARTICULATED HEAD (ISO 12240)**  
(supplied with screws)

- ALUMINIUM - CPUI/CMSS Ø
- STEEL - CPUI/CMSS Ø AC (only for Ø 125)

| Ø   | ØCX<br>H7 | E   | EN | MS | EU | G  | DL |
|-----|-----------|-----|----|----|----|----|----|
| 125 | 30        | 140 | 37 | 40 | 25 | 20 | 50 |
| 160 | 35        | 180 | 43 | 45 | 28 | 20 | 55 |
| 200 | 35        | 220 | 43 | 48 | 28 | 25 | 60 |

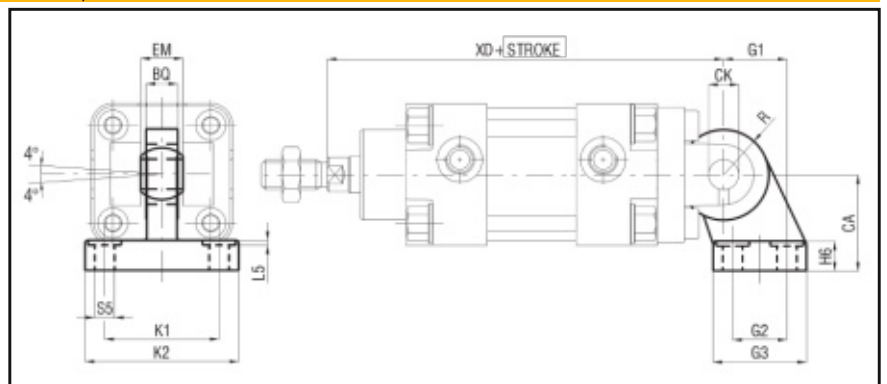
| Ø   | L4 | XD  | Weight<br>Alu.(g) | Weight<br>Steel(g) |
|-----|----|-----|-------------------|--------------------|
| 125 | 10 | 275 | 1410              | 3500               |
| 160 | 10 | 315 | 2385              | -                  |
| 200 | 11 | 335 | 3860              | -                  |



**SQUARE JOINT WITH ARTICULATED HEAD (ISO 12240) - STEEL - CPUI/ASSS Ø AC**

| Ø   | CA | BQ | CK | EM | G1 | G2 | G3 | H6 |
|-----|----|----|----|----|----|----|----|----|
| 125 | 90 | 25 | 30 | 37 | 70 | 60 | 90 | 20 |

| Ø   | K1 | K2  | L5  | R  | S5   | XD  | Weight<br>(g) |
|-----|----|-----|-----|----|------|-----|---------------|
| 125 | 94 | 124 | 3,2 | 40 | 13,5 | 275 | 3000          |

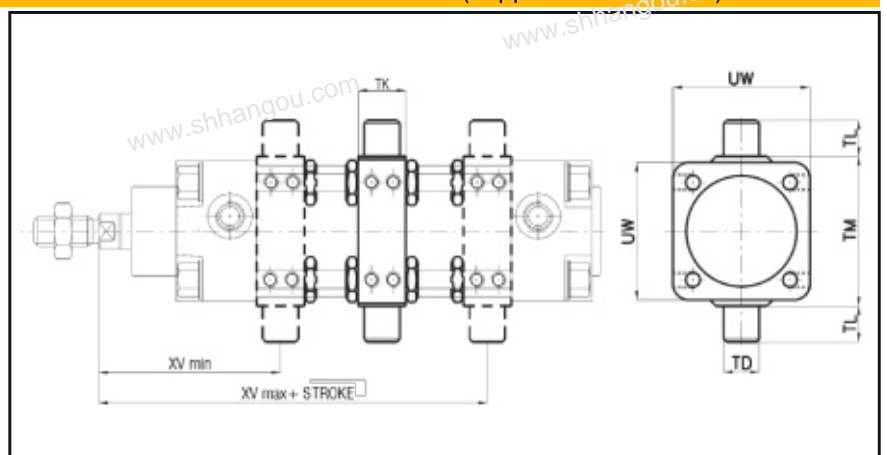


**INTERMEDIATE HINGE - STEEL - EXTRUDED TUBE WITH TIE RODS - CX/CPUI/CT Ø (supplied with dowels)**

| Ø   | TK | TD | TL  | TM  | UW  | XV  | XV  | Weight<br>(g) |
|-----|----|----|-----|-----|-----|-----|-----|---------------|
|     |    | e9 | h14 | h14 |     | min | max |               |
| 125 | 32 | 25 | 25  | 160 | 155 | 127 | 163 | 2600          |
| 160 | 40 | 32 | 32  | 200 | 190 | 150 | 190 | 4300          |
| 200 | 40 | 32 | 32  | 250 | 240 | 163 | 207 | 7540          |
| 250 | 50 | 40 | 40  | 320 | 295 | 184 | 226 | 12920         |
| 320 | 70 | 50 | 50  | 400 | 370 | 212 | 248 | 25280         |

P.S.: - ADJUSTABLE POSITION (fixing through dowels)  
- FIXED POSITION (specify dimension "XV", fixed on cylinder with completed threaded and galvanized rods type "S6", see on page 0.12)

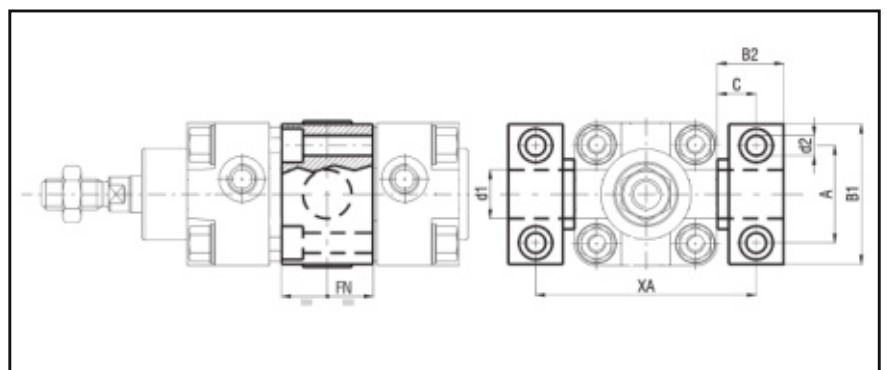
**ASSEMBLY (FIXED):** CX/CPUI/CT/Ø+cylinders series XL S6  
type MF/CX/CPUI/CT Ø



**SUPPORT FOR INTERMEDIATE HINGE - STEEL - CPUI/SCT Ø**

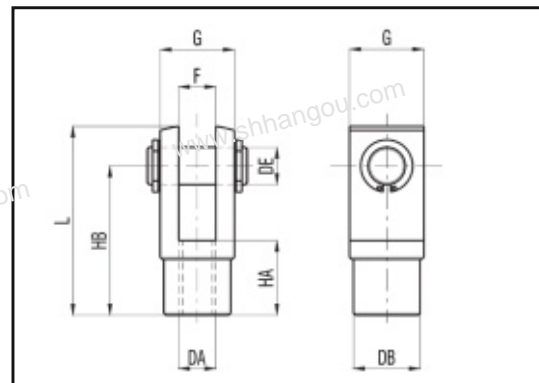
| Ø         | A  | B1  | B2   | C    | d1 | d2  | FN | XA      |
|-----------|----|-----|------|------|----|-----|----|---------|
|           |    |     |      |      | F7 | H13 |    |         |
| 125       | 50 | 75  | 28,5 | 16   | 25 | 14  | 50 | 192     |
| 160 - 200 | 60 | 92  | 40   | 22,5 | 32 | 18  | 60 | 245-295 |
| 250       | 90 | 140 | 56   | 31   | 40 | 22  | 90 | 360     |

| Ø         | Weight<br>(g) |
|-----------|---------------|
| 125       | 2600          |
| 160 - 200 | 4300          |
| 250       | 25280         |



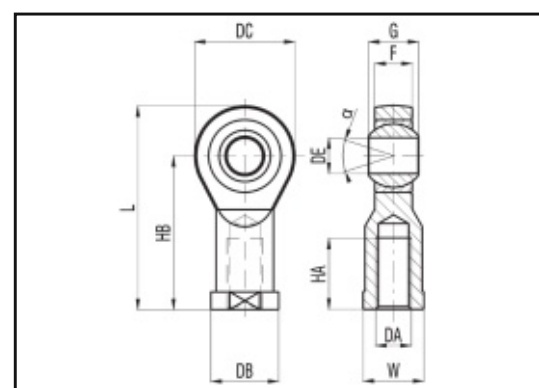
### FEMALE PISTON ROD CLEVIS WITH PIN AND SNAP RING TO ISO 8140 - STEEL - M27x2 + M36x2

| Ø       | DA    | DB | DE | F<br>b12 | G  | HA | HB  | L   | Weight<br>(g) | Type    |
|---------|-------|----|----|----------|----|----|-----|-----|---------------|---------|
| 125     | M27X2 | 48 | 30 | 30       | 55 | 54 | 110 | 148 | 2100          | FFP27X2 |
| 160-200 | M36X2 | 60 | 35 | 35       | 70 | 72 | 144 | 188 | 3900          | FFP36X2 |
| 250     | M42X2 | 70 | 40 | 40       | 85 | 84 | 168 | 232 | 5300          | FFP42X2 |
| 320     | M48X2 | 82 | 50 | 50       | 96 | 96 | 192 | 265 | 7900          | FFP48X2 |



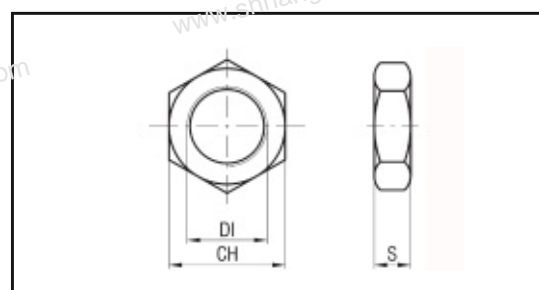
### SELF-LUBRICATING PISTON ROD EYE TO DIN ISO 12240 STANDARD - STEEL

| Ø       | DA    | DB | DC | DE<br>H7 | F  | G  | HA | HB  | L   | W  | α  | Weight<br>(g) | Type      |
|---------|-------|----|----|----------|----|----|----|-----|-----|----|----|---------------|-----------|
| 125     | M27X2 | 50 | 70 | 30       | 25 | 37 | 51 | 110 | 145 | 41 | 17 | 1200          | FF27x2/SS |
| 160-200 | M36X2 | 58 | 80 | 35       | 28 | 43 | 56 | 125 | 165 | 50 | 16 | 1600          | FF36x2/SS |



### ROD NUT - STEEL

| Ø       | DI    | CH | S  | Weigh<br>(g) | Type    |
|---------|-------|----|----|--------------|---------|
| 125     | M27X2 | 41 | 12 | 90           | DST27X2 |
| 160-200 | M36X2 | 55 | 15 | 190          | DST36X2 |
| 250     | M42X2 | 65 | 16 | 310          | DST42X2 |
| 320     | M48X2 | 75 | 18 | 460          | DST48X2 |



### MAGNETIC SENSORS SERIES FM100 - FM157

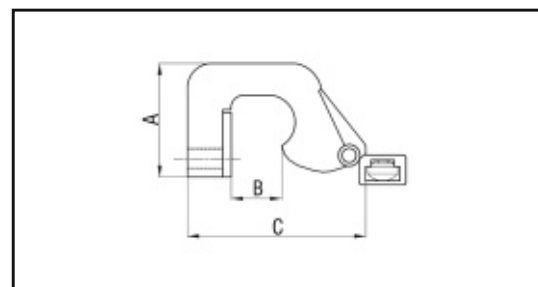
See chapter magnetic sensors from page 1.93 of the general catalog (CAT.08/EN)

### MAGNETIC SENSOR SERIES FM100 - FM157 FIXING BRACKETS

For Ø125 ÷ 200 see chapter magnetic sensors from page 1.93 of the general catalog (CAT.08/EN)

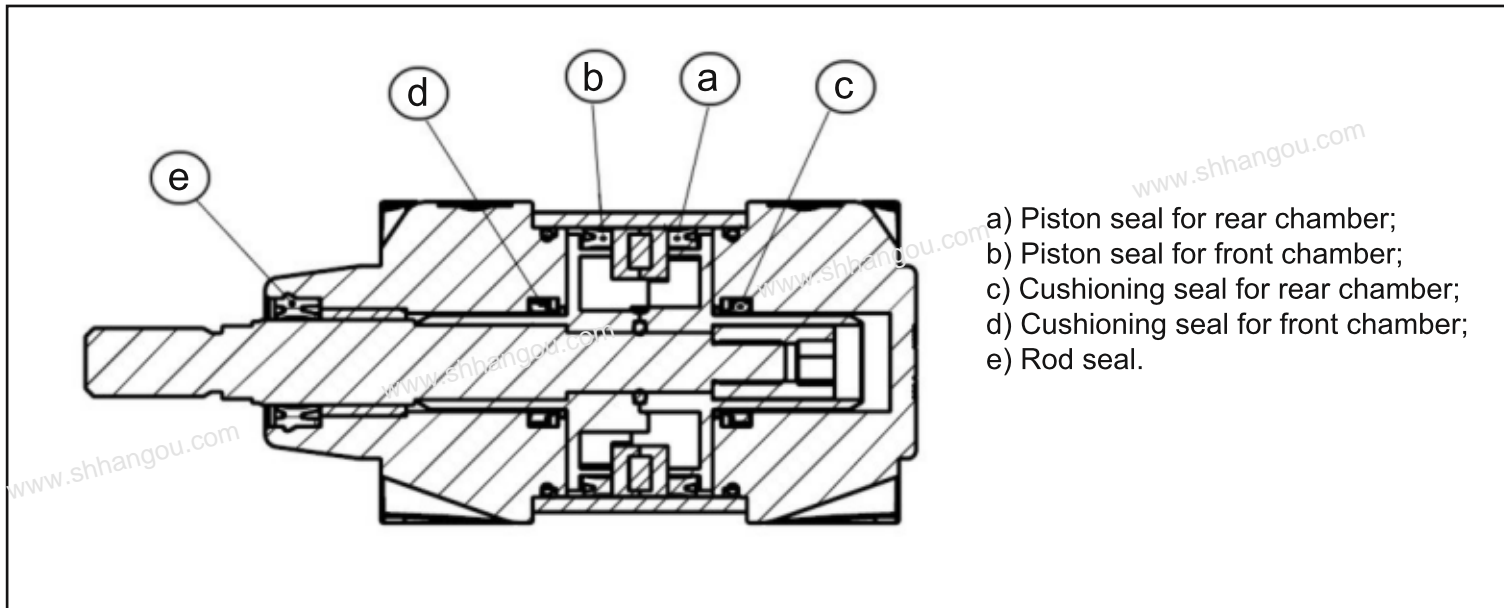
### SENSOR FIXING BRACKETS - ALUMINIUM - SQ (Supplied with adapter for magnetic sensors series FM100)

| Ø   | A  | B    | C  | Type    |
|-----|----|------|----|---------|
| 250 | 26 | 20.5 | 42 | SQ250/A |
| 320 | 26 | 25.5 | 42 | SQ320/A |





SEALS FOR LOW FRICTION CYLINDERS



APPLICATIONS

| DESCRIPTION                           | OPTION | SEALS     |
|---------------------------------------|--------|-----------|
| Rear chamber                          | SA     | a         |
| Rear chamber + cushioning             | SB     | a + c     |
| Rear chamber + rod seals              | SC     | a + e     |
| Rear chamber + cushioning + rod seals | SD     | a + c + e |
| Front chamber                         | SE     | b + e     |
| Front chamber + cushioning            | SF     | b + e + d |

DESCRIPTION

The low friction cylinders series "XT", "X" and "XL" (available from Ø 125 to Ø 200), are used as "dancers" or "enlarger stretchers" cylinders, but they are just single acting cylinders without the return spring. As indicated in the previous table, we can have different applications, combining properly the various seals inserted in the cylinder.

The application called as option "SA" is the main one, because, using just the seal "a", it's the one that offers the lowest internal friction.

The "SB" option uses the pneumatic cushioning for an emergency situation, to avoid crushes in the case of the breakdown of the plant.

In the options "SC" and "SD", the rod seal avoids to the impurities to go into the cylinder.

In the option "SE" the pressurized chamber is the front one and in the option "SF" the pressurized chamber is still the front one but with the pneumatic cushioning for an emergency situation.

ATTENTION: For the applications please consider the cylinder as single acting without spring.

ORDER EXAMPLE

Cylinder Ø50, double acting, 100 mm stroke, magnetic piston type, rear chamber and cushioning seals:

**50/100 XT/M SB**

Cylinder Ø125, double acting, 200 mm stroke, magnetic piston type, front chamber and cushioning seals:

**125/200 XL/M SF**