

# Minicylinders Series 16, 24 and 25

Series 16:  $\varnothing$  8 - 10 - 12  
 Series 24:  $\varnothing$  16 - 20 - 25 magnetic  
 Series 25:  $\varnothing$  16 - 20 - 25 magnetic cushioned



1

MOVEMENT

- » Single and double-acting
- » Standard CETOP  
RP52P DIN/ISO 6432
- » Stainless steel rod and tube
- » Anodized AL end-blocks



**Minicylinders Series 16, 24 and 25 are manufactured according to the European Standard Specifications CETOP RP52-P and DIN/ISO 6432. The choice of materials and other design features have provided the basis for a complete range of versatile and reliable cylinders.**

The precise method of placing the tube at the end block ensures that all the parts are perfectly aligned. Since the Series 16 and 24 may be required to operate at very high speeds, a fixed mechanical cushioning has been fitted as standard in order to reduce wear by high impact loads.

Series 24 and 25 are suitable for mounting magnetic proximity switches. Series 25 has an adjustable pneumatic cushioning and a magnetic piston. Various mounting accessories are available to enable the cylinders to be fitted to suit the requirement of a particular application.

## GENERAL DATA

|                              |  |
|------------------------------|--|
| <b>Type of construction</b>  | flanged  |
| <b>Operation</b>             | single-acting or double-acting   |
| <b>Materials</b>             | end-blocks = anodized AL, tube and rod = stainless steel, piston = AL, seals = NBR - PU, other parts = see coding  |
| <b>Brackets</b>              | screw, flange, feet, trunnion  |
| <b>Stroke min - max</b>      | Series 16 $\varnothing$ 8 + $\varnothing$ 10: 10 - 250 mm / Series 16: $\varnothing$ 12: 10 - 300 mm / Series 24 & 25 $\varnothing$ 16: 10 - 600 mm; $\varnothing$ 20 - $\varnothing$ 25: 10 - 1000 mm |
| <b>Bores</b>                 | Series 16: $\varnothing$ 8, 10, 12 / Series 24 & 25: $\varnothing$ 16, 20, 25  |
| <b>Operating temperature</b> | 0°C + 80°C (with dry air -20°C)  |
| <b>Operating pressure</b>    | 1 + 10 bar (double-acting); 2 + 10 bar (single-acting)   |
| <b>Fluid</b>                 | filtered air, without lubrication. If lubricated air is used, it is recommended to use oil ISO VG32. Once applied the lubrication should never be interrupted.   |
| <b>Speed</b>                 | 10 + 1000 mm/sec (without load)  |

**STANDARD STROKES FOR MINICYLINDERS SERIES 16 - 24 and 25**

- = Double-acting
- ✕ = Single-acting

**STANDARD STROKES**

| Series | ∅  | 10 | 25 | 40 | 50 | 80 | 100 | 125 | 160 | 200 | 250 | 300 | 320 | 400 | 500 |
|--------|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 16     | 8  | ✕  | ✕  | ✕  | ✕  | ■  | ■   | ■   | ■   | ■   |     |     |     |     |     |
| 16     | 10 | ✕  | ✕  | ✕  | ✕  | ■  | ■   | ■   | ■   | ■   |     |     |     |     |     |
| 16     | 12 | ✕  | ✕  | ✕  | ✕  | ■  | ■   | ■   | ■   | ■   | ■   |     |     |     |     |
| 24     | 16 | ✕  | ✕  | ✕  | ✕  | ■  | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   |
| 24     | 20 | ✕  | ✕  | ✕  | ✕  | ■  | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   |
| 24     | 25 | ✕  | ✕  | ✕  | ✕  | ■  | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   |
| 25     | 16 | ■  | ■  | ■  | ■  | ■  | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   |
| 25     | 20 | ■  | ■  | ■  | ■  | ■  | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   |
| 25     | 25 | ■  | ■  | ■  | ■  | ■  | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   |

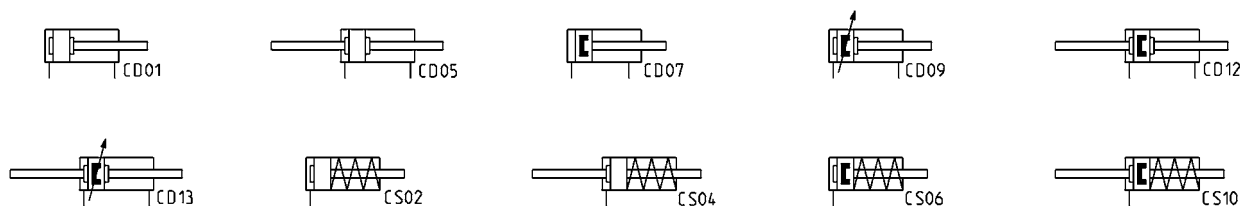
**CODING EXAMPLE**

|           |          |          |          |           |          |            |  |
|-----------|----------|----------|----------|-----------|----------|------------|--|
| <b>24</b> | <b>N</b> | <b>2</b> | <b>A</b> | <b>16</b> | <b>A</b> | <b>100</b> |  |
|-----------|----------|----------|----------|-----------|----------|------------|--|

|            |   |
|------------|---|
| <b>24</b>  | SERIES<br>16 = non magnetic<br>24 = magnetic<br>25 = magnetic adjustable cushioning   |
| <b>N</b>   | VERSION<br>N = standard   |
| <b>2</b>   | OPERATION<br>1 = single-acting, front spring, no cushion<br>2 = double-acting<br>3 = double-acting, through-rod<br>7 = single-acting, through-rod |
| <b>A</b>   | MATERIALS<br>A = rolled stainless steel AISI 303 rod, stainless steel AISI 304 tube, anodized AL end-blocks                                       |
| <b>16</b>  | BORE<br>08 = 8 mm - 10 = 10 mm - 12 = 12 mm - 16 = 16 mm - 20 = 20 mm - 25 = 25 mm  |
| <b>A</b>   | CONSTRUCTION<br>A = screw with ring + lock nut for rod<br>RL = cylinder with rod lock ø20 - ø25   |
| <b>100</b> | STROKE (see the table)  |
|            | = standard<br>V = rod seals FKM   |

**PNEUMATIC SYMBOLS**

The pneumatic symbols which have been indicated in the CODING EXAMPLE are shown below.



ACCESSORIES FOR MINICYLINDERS SERIES 16 - 24 - 25



Rear trunnion bracket  
Mod. I



Coupling piece Mod.  
GKF



Self aligning rod Mod.  
GK



Rod fork end Mod. G



Swivel ball joint Mod. GA



Front/rear flange mount  
Mod. E



Foot mount Mod. B



Nose nut Mod. V



Piston rod lock nut Mod.  
U

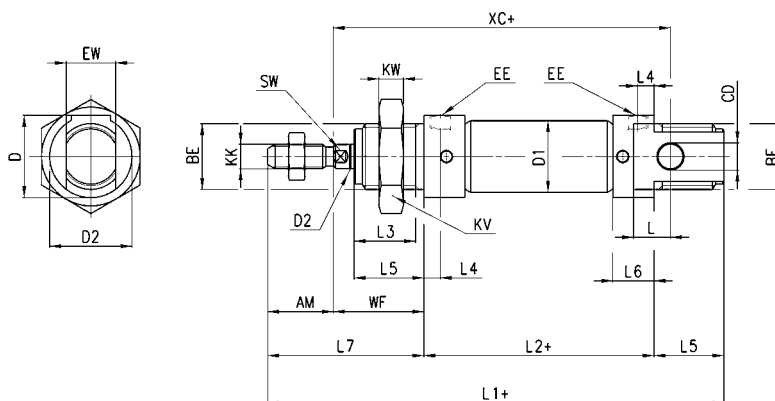


Piston rod socket joint  
Mod. GY



All accessories are supplied separately, except for Piston rod lock nut Mod. U and Nose nut Mod. V

## Minicylinders Series 16, 24 and 25

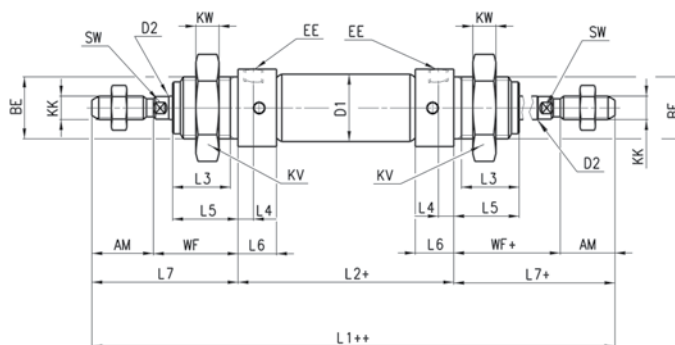


+ = add the stroke

## DIMENSIONS

| Mod.  | Ø  | EW | KW | BE       | KK       | CD | D1   | EE   | D2 | L1+   | XC+ | L2+  | AM | L3 | L4  | L5 | L  | WF | L6 | L7 | KV | SW | D    | D2 | cushion strokes front/rear |
|-------|----|----|----|----------|----------|----|------|------|----|-------|-----|------|----|----|-----|----|----|----|----|----|----|----|------|----|----------------------------|
| 16    | 8  | 8  | 7  | M12x1,25 | M4x0,7   | 4  | 9,3  | M5   | 4  | 86    | 64  | 46   | 12 | 10 | 4,5 | 12 | 6  | 16 | 9  | 28 | 19 | -  | 15   | 15 | - / -                      |
| 16    | 10 | 8  | 7  | M12x1,25 | M4x0,7   | 4  | 11,3 | M5   | 4  | 86    | 64  | 46   | 12 | 10 | 4,5 | 12 | 6  | 16 | 9  | 28 | 19 | -  | 15   | 15 | - / -                      |
| 16    | 12 | 12 | 8  | M16x1,5  | M6x1     | 6  | 13,3 | M5   | 6  | 105   | 75  | 50   | 16 | 15 | 4,5 | 17 | 9  | 22 | 9  | 38 | 24 | 5  | 20,5 | 20 | - / -                      |
| 24-25 | 16 | 12 | 8  | M16x1,5  | M6x1     | 6  | 17,3 | M5   | 6  | 111   | 82  | 56   | 16 | 15 | 5,5 | 17 | 9  | 22 | 10 | 38 | 24 | 5  | 20,5 | 20 | 10 / 10                    |
| 24-25 | 20 | 16 | 10 | M22x1,5  | M8x1,25  | 8  | 21,3 | G1/8 | 8  | 132   | 95  | 68   | 20 | 18 | 8   | 20 | 12 | 24 | 16 | 44 | 32 | 7  | 27   | 27 | 13 / 15                    |
| 24-25 | 25 | 16 | 10 | M22x1,5  | M10x1,25 | 8  | 26,5 | G1/8 | 10 | 141,5 | 104 | 69,5 | 22 | 20 | 8   | 22 | 12 | 28 | 16 | 50 | 32 | 9  | 27   | 27 | 16 / 14                    |

## Minicylinders Series 16, 24 and 25 - through-rod


 + = add the stroke  
 ++ = add the stroke two times

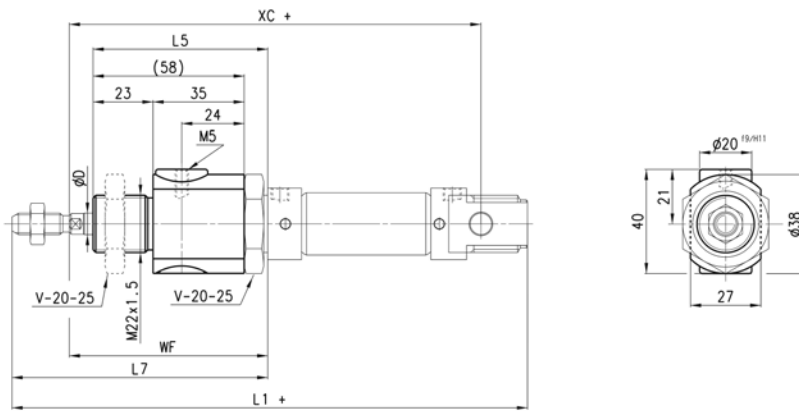
## DIMENSIONS

| Mod.  | Ø  | KW | BE       | KK       | ØD1  | EE   | ØD2 | L1++  | L2+  | AM | L3 | L4  | L5 | WF+ | L6 | L7+ | KV | SW | cushion strokes front/rear |
|-------|----|----|----------|----------|------|------|-----|-------|------|----|----|-----|----|-----|----|-----|----|----|----------------------------|
| 16    | 8  | 7  | M12x1,25 | M4x0,7   | 9,3  | M5   | 4   | 102   | 46   | 12 | 10 | 4,5 | 12 | 16  | 9  | 28  | 19 | -  | - / -                      |
| 16    | 10 | 7  | M12x1,25 | M4x0,7   | 11,3 | M5   | 4   | 102   | 46   | 12 | 10 | 4,5 | 12 | 16  | 9  | 28  | 19 | -  | - / -                      |
| 16    | 12 | 8  | M16x1,5  | M6x1     | 13,3 | M5   | 6   | 126   | 50   | 16 | 15 | 4,5 | 17 | 22  | 9  | 38  | 24 | 5  | - / -                      |
| 24-25 | 16 | 8  | M16x1,5  | M6x1     | 17,3 | M5   | 6   | 132   | 56   | 16 | 15 | 5,5 | 17 | 22  | 10 | 38  | 24 | 5  | 10 / 10                    |
| 24-25 | 20 | 10 | M22x1,5  | M8x1,25  | 21,3 | G1/8 | 8   | 156   | 68   | 20 | 18 | 8   | 20 | 24  | 16 | 44  | 32 | 7  | 13 / 15                    |
| 24-25 | 25 | 10 | M22x1,5  | M10x1,25 | 26,5 | G1/8 | 10  | 169,5 | 69,5 | 22 | 20 | 8   | 22 | 28  | 16 | 50  | 32 | 9  | 16 / 14                    |

Minicylinders Series 16, 24 and 25 with rod lock (Mod. RLC)



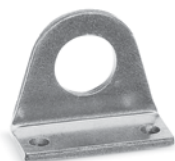
+ = add the stroke



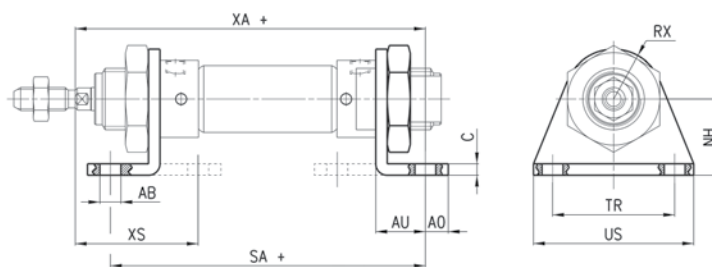
| DIMENSIONS |                 |    |    |    |     |       |       |
|------------|-----------------|----|----|----|-----|-------|-------|
| ∅          | <sup>g7</sup> D | WF | L5 | L7 | XC+ | L1+   | F (N) |
| 20         | 8               | 74 | 70 | 94 | 145 | 182   | 300   |
| 25         | 10              | 76 | 70 | 98 | 152 | 189,5 | 400   |

**Foot mount Mod. B**

Material: zinc-plated steel.


 Supplied with:  
 2x feet  
 1x front end cap nut  
 mod. V

+ = add the stroke


**DIMENSIONS**

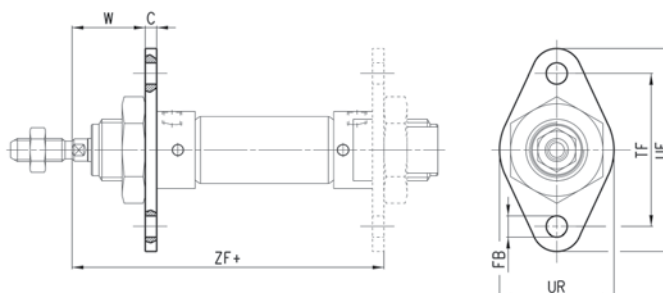
| Mod.           | ∅    | TR | US | ∅AB | C   | NH | AO  | AU   | RX | XA+   | SA+   | XS   |
|----------------|------|----|----|-----|-----|----|-----|------|----|-------|-------|------|
| <b>B-8-10</b>  | 8-10 | 25 | 35 | 4,5 | 2,5 | 16 | 4,5 | 10,5 | 10 | 72,5  | 67    | 54   |
| <b>B-12-16</b> | 12   | 32 | 42 | 5,5 | 3   | 20 | 6   | 13   | 13 | 82,5  | 71    | 64   |
| <b>B-12-16</b> | 16   | 32 | 42 | 5,5 | 3   | 20 | 6   | 13   | 13 | 91    | 82    | 68   |
| <b>B-20-25</b> | 20   | 40 | 54 | 6,6 | 4   | 25 | 8   | 16   | 20 | 108   | 100   | 80   |
| <b>B-20-25</b> | 25   | 40 | 54 | 6,6 | 4   | 25 | 8   | 16   | 20 | 113,5 | 101,5 | 85,5 |

**Front/rear flange mount Mod. E**

Material: zinc-plated steel.



+ = add the stroke


**DIMENSIONS**

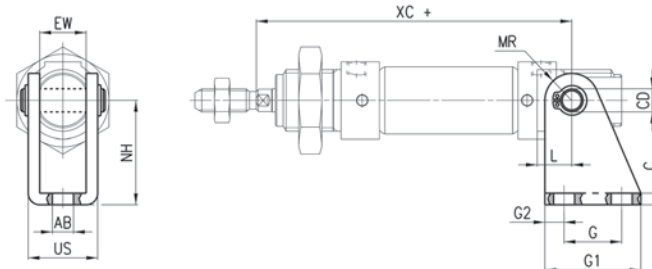
| Mod.           | ∅    | C   | ∅FB | TF | UF | UR | W    | ZF    |
|----------------|------|-----|-----|----|----|----|------|-------|
| <b>E-8-10</b>  | 8-10 | 2,5 | 4,5 | 30 | 25 | 40 | 13,5 | 64,5  |
| <b>E-12-16</b> | 12   | 3   | 5,5 | 40 | 30 | 53 | 19   | 75    |
| <b>E-12-16</b> | 16   | 3   | 5,5 | 40 | 30 | 53 | 19   | 81    |
| <b>E-20-25</b> | 20   | 4   | 6,6 | 50 | 40 | 66 | 20   | 96    |
| <b>E-20-25</b> | 25   | 4   | 6,6 | 50 | 40 | 66 | 24   | 101,5 |

Rear trunnion bracket Mod. I

Material: zinc-plated steel.



+ = add the stroke



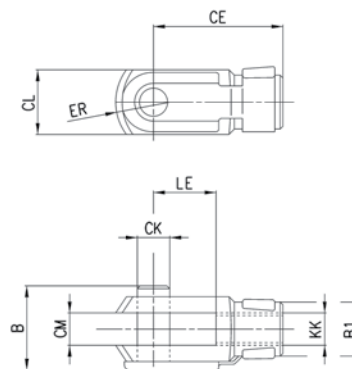
DIMENSIONS

| Mod.    | ∅    | G1 | G    | G2  | ∅CD | ∅AB | C   | NH | EW | US   | MR | XC+ | L  |
|---------|------|----|------|-----|-----|-----|-----|----|----|------|----|-----|----|
| I-8-10  | 8-10 | 20 | 12,5 | 3,5 | 4   | 4,5 | 2,5 | 24 | 8  | 13,1 | 5  | 64  | 6  |
| I-12-16 | 12   | 25 | 15   | 5   | 6   | 5,5 | 3   | 27 | 12 | 18,1 | 7  | 75  | 9  |
| I-12-16 | 16   | 25 | 15   | 5   | 6   | 5,5 | 3   | 27 | 12 | 18,1 | 7  | 82  | 9  |
| I-20-25 | 20   | 32 | 20   | 6   | 8   | 6,6 | 4   | 30 | 16 | 24,1 | 10 | 95  | 12 |
| I-20-25 | 25   | 32 | 20   | 6   | 8   | 6,6 | 4   | 30 | 16 | 24,1 | 10 | 104 | 12 |

Rod fork end Mod. G

ISO 8140

Material: zinc-plated steel.



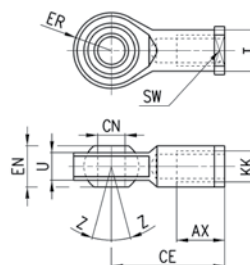
DIMENSIONS

| Mod.    | ∅     | ∅CK | LE | CM | CL | ER | CE | KK       | B  | ∅B1 |
|---------|-------|-----|----|----|----|----|----|----------|----|-----|
| G-8-10  | 8-10  | 4   | 8  | 4  | 8  | 5  | 16 | M4x0,7   | 11 | 8   |
| G-12-16 | 12-16 | 6   | 12 | 6  | 12 | 7  | 24 | M6x1     | 16 | 10  |
| G-20    | 20    | 8   | 16 | 8  | 16 | 10 | 32 | M8x1,25  | 22 | 14  |
| G-25-32 | 25    | 10  | 20 | 10 | 20 | 12 | 40 | M10x1,25 | 26 | 18  |

Swivel ball joint Mod. GA

ISO 8139

Material: zinc-plated steel.



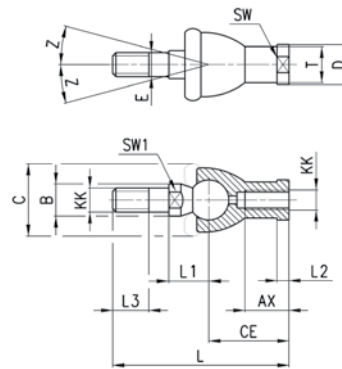
DIMENSIONS

| Mod.     | ∅     | ∅CN <sup>(H7)</sup> | U    | EN | ER | AX | CE | KK       | ∅T   | Z    | SW |
|----------|-------|---------------------|------|----|----|----|----|----------|------|------|----|
| GA-8-10  | 8-10  | 5                   | 6    | 8  | 9  | 10 | 27 | M4x0,75  | 9    | 6,5° | 9  |
| GA-12-16 | 12-16 | 6                   | 7    | 9  | 10 | 12 | 30 | M6X1     | 10   | 6,5° | 11 |
| GA-20    | 20    | 8                   | 9    | 12 | 12 | 16 | 36 | M8X1,25  | 12,5 | 6,5° | 14 |
| GA-32    | 25    | 10                  | 10,5 | 14 | 14 | 20 | 43 | M10X1,25 | 15   | 6,5° | 17 |

**Piston rod socket joint Mod. GY**

ISO 8139

Material: zama and zinc-plated steel.

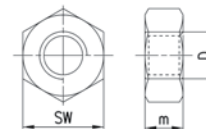

**DIMENSIONS**

| Mod.            | ∅     | KK       | L  | CE | L2  | AX | E  | ∅B | ∅C | ∅T   | ∅D | L1   | L3 | SW1 | SW | Z  |
|-----------------|-------|----------|----|----|-----|----|----|----|----|------|----|------|----|-----|----|----|
| <b>GY-12-16</b> | 12-16 | M6X1     | 55 | 28 | 5   | 15 | 6  | 10 | 20 | 10   | 13 | 12,2 | 11 | 8   | 11 | 15 |
| <b>GY-20</b>    | 20    | M8X1,25  | 65 | 32 | 5   | 16 | 8  | 12 | 24 | 12,5 | 16 | 16   | 12 | 10  | 14 | 15 |
| <b>GY-32</b>    | 25    | M10X1,25 | 74 | 35 | 6,5 | 18 | 10 | 14 | 28 | 15   | 19 | 19,5 | 15 | 11  | 17 | 15 |

**Piston rod lock nut Mod. U**

UNI EN ISO 4035

Material: zinc-plated steel.

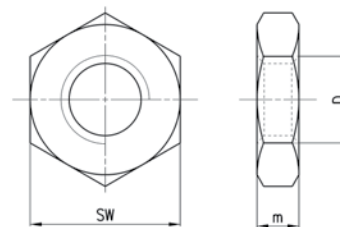

**DIMENSIONS**

| Mod.           | ∅     | D        | m | SW |
|----------------|-------|----------|---|----|
| <b>U-8-10</b>  | 8-10  | M4X0,7   | 3 | 7  |
| <b>U-12-16</b> | 12-16 | M6X1     | 4 | 10 |
| <b>U-20</b>    | 20    | M8X1,25  | 5 | 13 |
| <b>U-25-32</b> | 25    | M10X1,25 | 6 | 17 |

**Nose nut Mod.V**

UNI EN ISO 4035

Material: zinc-plated steel.

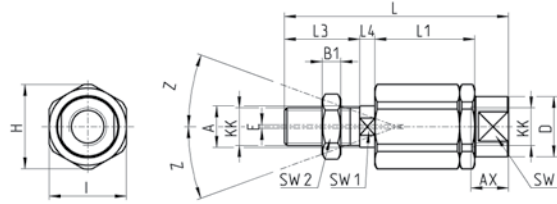

**DIMENSIONS**

| Mod.           | ∅     | D        | m  | SW |
|----------------|-------|----------|----|----|
| <b>V-8-10</b>  | 8-10  | M12X1,25 | 5  | 19 |
| <b>V-12-16</b> | 12-16 | M16X1,5  | 6  | 24 |
| <b>V-20-25</b> | 20-25 | M22X1,5  | 10 | 32 |



Self aligning rod Mod. GK

Material: zinc-plated steel.

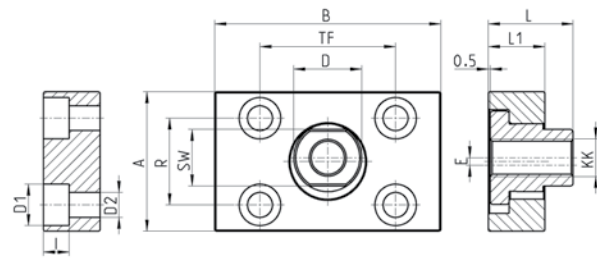
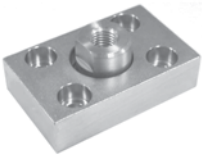


DIMENSIONS

| Mod.            | ∅     | KK       | L    | L1 | L3 | L4  | ∅A | ∅D   | H  | I  | SW | SW1 | SW2 | B1 | AX | Z | E |
|-----------------|-------|----------|------|----|----|-----|----|------|----|----|----|-----|-----|----|----|---|---|
| <b>GK-20</b>    | 20    | M8x1,25  | 57   | 26 | 21 | 5   | 8  | 12,5 | 19 | 17 | 11 | 7   | 13  | 4  | 16 | 4 | 2 |
| <b>GK-25-32</b> | 25-32 | M10x1,25 | 71,5 | 35 | 20 | 7,5 | 14 | 22   | 32 | 30 | 19 | 12  | 17  | 5  | 22 | 4 | 2 |

Coupling piece Mod. GKF

Material: zinc-plated steel.



DIMENSIONS

| Mod.             | ∅  | KK       | A  | B  | R  | TF | L    | L1 | I   | ∅ D | ∅ D1 | ∅ D2 | SW | E   |
|------------------|----|----------|----|----|----|----|------|----|-----|-----|------|------|----|-----|
| <b>GKF-20</b>    | 20 | M8x1,25  | 30 | 35 | 20 | 25 | 22,5 | 10 | -   | 14  | 5,5  | -    | 13 | 1,5 |
| <b>GKF-25-32</b> | 25 | M10x1,25 | 37 | 60 | 23 | 36 | 22,5 | 15 | 6,8 | 18  | 11   | 6,6  | 15 | 2   |