



## Series ECOFLAT

Profiled tube has two "T" slots on the side hosting sensors 1580.\_, MRS.\_, MHS.\_ without adaptors.  
Two additional connections are also available on rear cap for cylinder feeding

### Construction characteristics

|                  |                                      |
|------------------|--------------------------------------|
| Barrel           | aluminium alloy anodised             |
| Piston seals     | PUR                                  |
| Piston rod seals | PUR (FPM upon request)               |
| Shock absorber   | NBR                                  |
| Pistons          | acetal resin, aluminium on request   |
| Piston rod       | C43 chromed steel or stainless steel |
| End caps         | anodized aluminium                   |
| Fixing screws    | zinc plated steel                    |

### Operational characteristics

|                     |   |
|---------------------|---|
| Fluid               | filtered and lubricated air or not (if lubricated the lubrication must be continuous) |
| Pressure            | 10 bar  |
| Working temperature | -5 °C ... +70 °C  |

Please follow the suggestions below to ensure a long life for these cylinders:

- use clean and lubricated air.
- correct alignment during assembly with regard to the applied load so as to avoid radial components or bending the rod.
- avoid high speeds together with long strokes and heavy loads: this would produce kinetic energy which the cylinder cannot absorb, especially if used as a limit stop (in this case use mechanical stop device).
- evaluate the environmental characteristics of cylinder used (high temperature, hard atmosphere, dust, humidity etc.).

**Please note: air must be dried for applications with lower temperature.**

Use hydraulic oils H class (ISO VG32) for correct continued lubrication.

### Maximum standard strokes

Size 25: 200 mm

Size 32 ... 63: 300 mm

On request are available strokes up to: 500 mm

### Sections (cm<sup>2</sup>)

| Size                          | 25   | 32   | 40    | 50    | 63    |
|-------------------------------|------|------|-------|-------|-------|
| Out stroke (cm <sup>2</sup> ) | 5,28 | 8,09 | 13,09 | 20,28 | 32,68 |
| In stroke (cm <sup>2</sup> )  | 4,49 | 6,96 | 11,08 | 17,14 | 29,54 |

In order to calculate the theoretical force generated by the unit, both outstroke and instroke, it is necessary to use the following equation:

$$\text{FORCE(Kg)} = \text{Surface (cm}^2\text{)} \times \text{Pressure(bar)}$$

It is also necessary to remember that the theoretical force must be reduced by 10-15% in order to account for the unit internal friction.

### Maximum rod radial movement (°)

| Size                | 25   | 32   | 40   | 50   | 63   |
|---------------------|------|------|------|------|------|
| rod radial movement | ±0.8 | ±0.7 | ±0.6 | ±0.5 | ±0.4 |

### Maximum torque applicable on the piston rod (Nm)

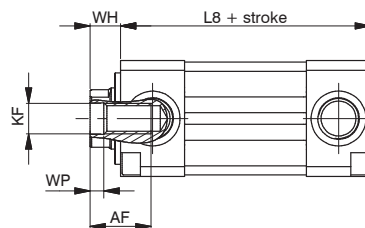
| Size           | 25  | 32 | 40  | 50  | 63  |
|----------------|-----|----|-----|-----|-----|
| Maximum torque | 0,8 | 1  | 1,3 | 1,8 | 2,1 |

The maximum torque values must also be accounted for while mounting accessories on the piston rod.

### Basic version "1" female rod

Coding: 13V.T.stroke.AP

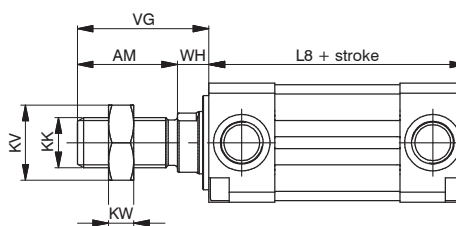
|   |                                   |
|---|-----------------------------------|
| V | VERSION                           |
|   | 70 = Magnetic chromed rod         |
|   | 71 = Magnetic stainless steel rod |
|   | 72 = Non magnetic chromed rod     |
| T | SIZE                              |
|   | 25 = Equivalent Ø25 piston area   |
|   | 32 = Equivalent Ø32 piston area   |
|   | 40 = Equivalent Ø40 piston area   |
|   | 50 = Equivalent Ø50 piston area   |
|   | 63 = Equivalent Ø63 piston area   |
| A | FEEDING                           |
|   | 1 = Side connection               |
| P | PISTON                            |
|   | = Standard version                |
|   | K = Version with aluminium piston |



### Basic version "2" male rod

Coding: 13V.T.stroke.AP

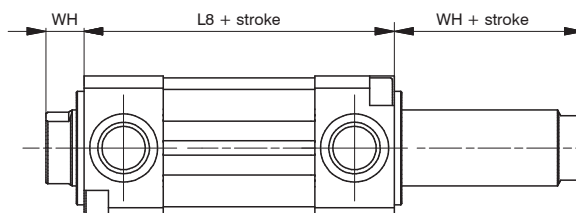
|   |                                   |
|---|-----------------------------------|
| V | VERSION                           |
|   | 70 = Magnetic chromed rod         |
|   | 71 = Magnetic stainless steel rod |
|   | 72 = Non magnetic chromed rod     |
| T | SIZE                              |
|   | 25 = Equivalent Ø25 piston area   |
|   | 32 = Equivalent Ø32 piston area   |
|   | 40 = Equivalent Ø40 piston area   |
|   | 50 = Equivalent Ø50 piston area   |
|   | 63 = Equivalent Ø63 piston area   |
| A | FEEDING                           |
|   | 2 = Side connection               |
| P | PISTON                            |
|   | = Standard version                |
|   | K = Version with aluminium piston |



### Female through rod cylinder version "3"

Coding: 13V.T.stroke.3P

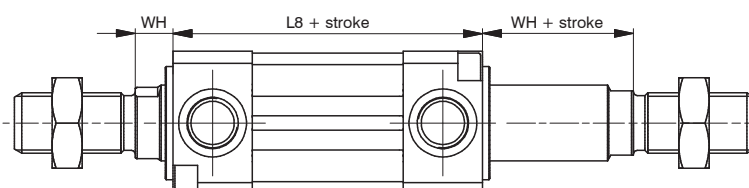
|   |                                   |
|---|-----------------------------------|
| V | VERSION                           |
|   | 70 = Magnetic chromed rod         |
|   | 71 = Magnetic stainless steel rod |
|   | 72 = Non magnetic chromed rod     |
| T | SIZE                              |
|   | 25 = Equivalent Ø25 piston area   |
|   | 32 = Equivalent Ø32 piston area   |
|   | 40 = Equivalent Ø40 piston area   |
|   | 50 = Equivalent Ø50 piston area   |
|   | 63 = Equivalent Ø63 piston area   |
| P | PISTON                            |
|   | = Standard version                |
|   | K = Version with aluminium piston |

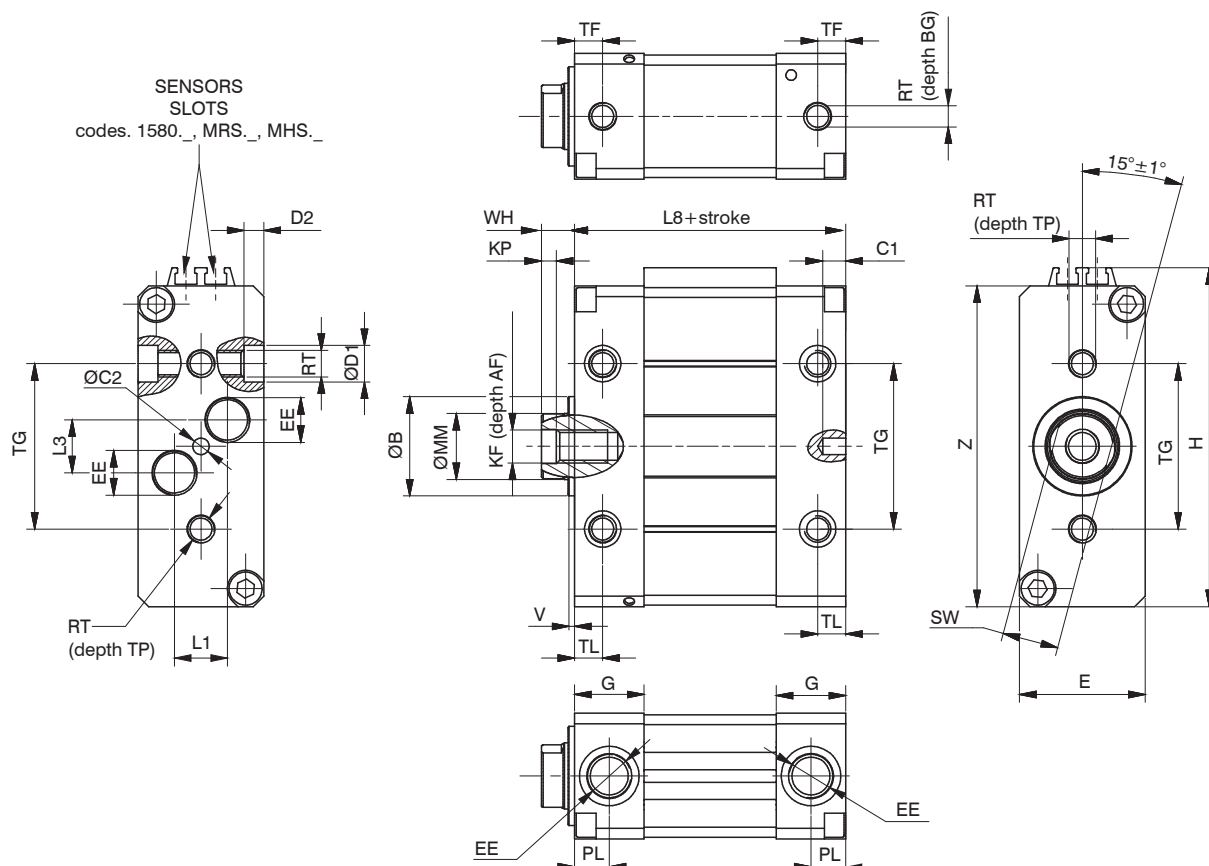


### Male through rod cylinder version "4"

Coding: 13V.T.stroke.4P

|   |                                   |
|---|-----------------------------------|
| V | VERSION                           |
|   | 70 = Magnetic chromed rod         |
|   | 71 = Magnetic stainless steel rod |
|   | 72 = Non magnetic chromed rod     |
| T | SIZE                              |
|   | 25 = Equivalent Ø25 piston area   |
|   | 32 = Equivalent Ø32 piston area   |
|   | 40 = Equivalent Ø40 piston area   |
|   | 50 = Equivalent Ø50 piston area   |
|   | 63 = Equivalent Ø63 piston area   |
| P | PISTON                            |
|   | = Standard version                |
|   | K = Version with aluminium piston |





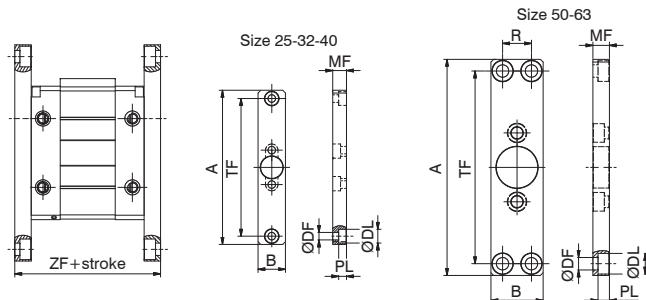
| Size       |             |   |          | 25       | 32       | 40       | 50      | 63      |
|------------|-------------|---|----------|----------|----------|----------|---------|---------|
| AM         |             |   |          | 22       | 22       | 24       | 32      | 32      |
| AF         |             |   |          | 12       | 14       | 16       | 20      | 20      |
| Ø B (h9)   |             |   |          | 16       | 20       | 25       | 30      | 30      |
| BG         |             |   |          | 8        | 9        | 9        | 12      | 14      |
| C1         |             |   |          | 7        | 7        | 7        | 7       | 7       |
| C2 (H9)    |             |   |          | 4        | 4        | 4        | 5       | 5       |
| Ø D1       |             |   |          | 8        | 10       | 10       | 11      | 15      |
| D2         |             |   |          | 4        | 4        | 5        | 6       | 6       |
| E          |             |   |          | 20       | 24       | 30       | 38      | 50      |
| EE         |             |   |          | M5       | G1/8"    | G1/8"    | G1/4"   | G1/4"   |
| G          |             |   |          | 12       | 17       | 17       | 21      | 21      |
| H          |             |   |          | 56,5     | 65,5     | 82,5     | 102,5   | 127     |
| KF         |             |   |          | M5       | M6       | M8       | M10     | M10     |
| KK         |             |   |          | M10x1,25 | M10x1,25 | M12x1,25 | M16x1,5 | M16x1,5 |
| KP         |             |   |          | 2        | 2,5      | 3        | 4,5     | 4,5     |
| KV         |             |   |          | 17       | 17       | 19       | 24      | 24      |
| KW         |             |   |          | 6        | 6        | 7        | 8       | 8       |
| L1         |             |   |          | 6        | 7,5      | 7,5      | 16      | 19      |
| L3         |             |   |          | 10       | 14,5     | 14,5     | 16      | 21      |
| L8         |             |   |          | 62       | 72       | 76       | 82      | 82      |
| Ø MM       |             |   |          | 10       | 12       | 16       | 20      | 20      |
| PL         |             |   |          | 6,5      | 8,5      | 8,5      | 10,5    | 10,5    |
| RT         |             |   |          | M5       | M6       | M6       | M8      | M10     |
| SW (H13)   |             |   |          | 8        | 10       | 13       | 17      | 17      |
| TF         |             |   |          | 5        | 8,5      | 8,5      | 8,5     | 8,5     |
| TG         |             |   |          | 25       | 32       | 40       | 50      | 60      |
| TL         |             |   |          | 5        | 8,5      | 8,5      | 8,5     | 8,5     |
| TP         |             |   |          | 8        | 9        | 9        | 12      | 14      |
| V          |             |   |          | 2        | 2        | 2        | 2       | 2       |
| VG         |             |   |          | 30       | 30       | 33       | 42      | 42      |
| WH         |             |   |          | 8        | 8        | 9        | 10      | 10      |
| Z          |             |   |          | 51       | 60       | 77       | 97      | 1215    |
| Weight (g) | Version     | 1 | Stroke 0 | 180      | 285      | 482      | 848     | 1350    |
|            |             | 2 | Stroke 0 | 203      | 309      | 520      | 929     | 1431    |
|            | every 10 mm |   |          | 22       | 29       | 49       | 79      | 118     |
| Weight (g) | Version     | 3 | Stroke 0 | 195      | 314      | 534      | 959     | 1478    |
|            |             | 4 | Stroke 0 | 242      | 362      | 610      | 1096    | 1615    |
|            | every 10 mm |   |          | 28       | 38       | 65       | 103     | 143     |



### Front and rear flanges

Coding: 1370.1.03

| SIZE         |
|--------------|
| 25 = Size 25 |
| 32 = Size 32 |
| 40 = Size 40 |
| 50 = Size 50 |
| 63 = Size 63 |



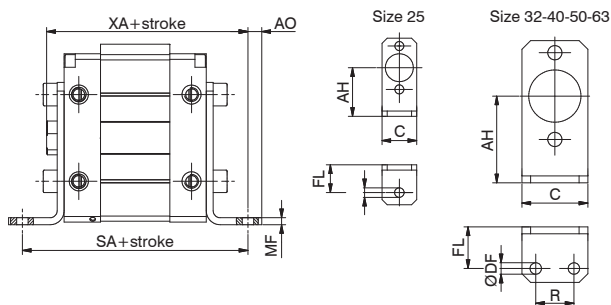
Brackets used to anchor the cylinder parallel to the mounting plane. Manufactured from steel with a rust proof protective treatment. Mounted to the cylinder end caps with bolts.

| Size | 25  | 32  | 40  | 50  | 63  |
|------|-----|-----|-----|-----|-----|
| A    | 112 | 130 | 146 | 157 | 157 |
| B    | 20  | 24  | 30  | 38  | 50  |
| QDF  | 5.5 | 6.6 | 6.6 | 9   | 9   |
| QDL  | 10  | 11  | 11  | 15  | 15  |
| PL   | 5.7 | 6.5 | 6.3 | 8.3 | 8.3 |
| MF   | 10  | 10  | 10  | 12  | 15  |
| R    | /   | /   | /   | 21  | 33  |
| TF   | 100 | 115 | 132 | 140 | 140 |
| ZF   | 82  | 92  | 96  | 106 | 112 |

### Foot

Coding: 1370.1.05/1F

| SIZE         |
|--------------|
| 25 = Size 25 |
| 32 = Size 32 |
| 40 = Size 40 |
| 50 = Size 50 |
| 63 = Size 63 |



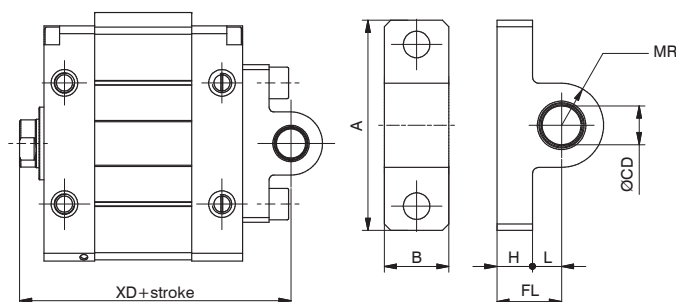
Brackets used to anchor the cylinder parallel to the mounting plane. Manufactured from steel with a rust proof protective treatment. Mounted to the cylinder end caps with bolts.

| Size | 25  | 32  | 40  | 50  | 63  |
|------|-----|-----|-----|-----|-----|
| AH   | 28  | 32  | 40  | 50  | 63  |
| AO   | 7   | 5.5 | 7   | 8   | 10  |
| C    | 20  | 24  | 30  | 38  | 50  |
| QDF  | 5.5 | 5.5 | 5.5 | 6.6 | 9   |
| FL   | 16  | 18  | 20  | 24  | 27  |
| MF   | 3   | 3   | 4   | 4   | 4   |
| R    | /   | 13  | 16  | 22  | 30  |
| SA   | 94  | 108 | 116 | 130 | 136 |
| XA   | 86  | 98  | 105 | 116 | 119 |

### Rear male clevis

Coding: 1370.1.09/1F

| SIZE         |
|--------------|
| 25 = Size 25 |
| 32 = Size 32 |
| 40 = Size 40 |
| 50 = Size 50 |
| 63 = Size 63 |



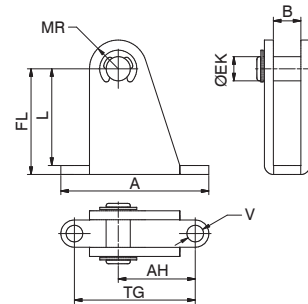
This type of mounting allows anchorage of the cylinder either parallel or right angle to plane; the cylinder rod can oscillate and self-align as necessary when under load.

| Size     | 25  | 32   | 40   | 50  | 63  |
|----------|-----|------|------|-----|-----|
| A        | 37  | 44   | 52   | 65  | 78  |
| B        | 9   | 10.5 | 10.5 | 20  | 25  |
| QCD (H7) | 8   | 10   | 12   | 12  | 16  |
| FL       | 14  | 15   | 18   | 20  | 24  |
| H        | 6   | 9    | 9    | 11  | 11  |
| L        | 8   | 6    | 9    | 9   | 13  |
| MR       | 7.5 | 10   | 13   | 13  | 17  |
| XD       | 84  | 95   | 103  | 112 | 116 |

## Rear clevis

Coding: 1370.1.09F

| SIZE         |
|--------------|
| 25 = Size 25 |
| 32 = Size 32 |
| 40 = Size 40 |
| 50 = Size 50 |
| 63 = Size 63 |



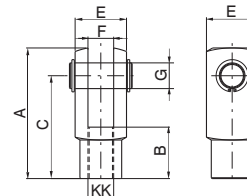
To be used in conjunction with 09/1 clevis. Similar to type 08 but includes a hinge pin. This type of mounting allows anchorage of the cylinder either parallel or right angle to plane; the cylinder rod can oscillate and selfalign as necessary when under load. Manufactured from sheet metal with rust proof protective treatment.

| Size | 25   | 32   | 40   | 50   | 63   |
|------|------|------|------|------|------|
| A    | 49   | 60   | 60   | 46   | 60   |
| AH   | 25.5 | 33   | 29.5 | 24   | 32   |
| B    | 9.1  | 10.6 | 10.6 | 20.1 | 25.1 |
| ØEK  | 8    | 10   | 12   | 12   | 16   |
| FL   | 35   | 42   | 51   | 55   | 68   |
| L    | 32   | 38   | 47   | 50   | 63   |
| MR   | 9.5  | 11   | 14   | 14   | 18   |
| TG   | 40   | 50   | 50   | 30   | 40   |
| ØV   | 5.5  | 6.6  | 6.6  | 9    | 11   |

## Fork with pin

Coding: 1320.1.13F

| SIZE                |
|---------------------|
| 32 = Size 25 and 32 |
| 40 = Size 40        |
| 50 = Size 50        |
| 63 = Size 63        |



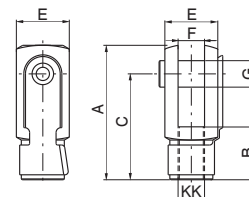
Element that when screwed to the rod consents a regular functioning even when there are significant lateral forces as the connection point. Made of zincplated steel.

| Bore       | 25       | 32       | 40       | 50      | 63      |
|------------|----------|----------|----------|---------|---------|
| A          | 52       | 52       | 62       | 83      | 83      |
| B          | 20       | 20       | 24       | 32      | 32      |
| C          | 40       | 40       | 48       | 64      | 64      |
| E          | 20       | 20       | 24       | 32      | 32      |
| F(B12)     | 10       | 10       | 12       | 16      | 16      |
| G          | 10       | 10       | 12       | 16      | 16      |
| KK         | M10X1.25 | M10X1.25 | M12X1.25 | M16X1.5 | M16X1.5 |
| Weight (g) | 100      | 100      | 140      | 340     | 340     |

## Fork with clips

Coding: 1320.1.13/1F

| SIZE                |
|---------------------|
| 32 = Size 25 and 32 |
| 40 = Size 40        |
| 50 = Size 50        |
| 63 = Size 63        |



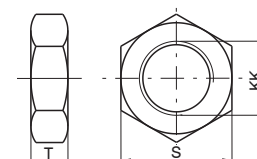
Element that when screwed to the rod consents a regular functioning even when there are significant lateral forces as the connection point. Made of zincplated steel.

| Bore       | 25       | 32       | 40       | 50      | 63      |
|------------|----------|----------|----------|---------|---------|
| A          | 52       | 52       | 62       | 83      | 83      |
| B          | 20       | 20       | 24       | 32      | 32      |
| C          | 40       | 40       | 48       | 64      | 64      |
| E          | 20       | 20       | 24       | 32      | 32      |
| F(B12)     | 10       | 10       | 12       | 16      | 16      |
| G          | 10       | 10       | 12       | 16      | 16      |
| KK         | M10X1.25 | M10X1.25 | M12X1.25 | M16X1.5 | M16X1.5 |
| Weight (g) | 100      | 100      | 140      | 340     | 340     |

## Nuts

Coding: 1320.1.18F

| SIZE                |
|---------------------|
| 32 = Size 25 and 32 |
| 40 = Size 40        |
| 50 = Size 50        |
| 63 = Size 63        |



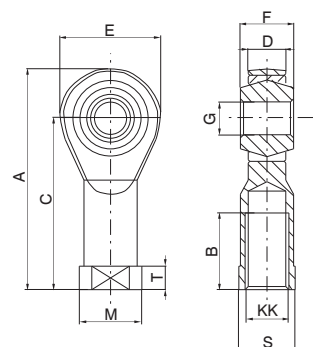
Used to block the position of the fork.

| Bore       | 25       | 32       | 40       | 50      | 63      |
|------------|----------|----------|----------|---------|---------|
| S          | 17       | 17       | 19       | 24      | 24      |
| T          | 6        | 6        | 7        | 8       | 8       |
| KK         | M10X1.25 | M10X1.25 | M12X1.25 | M16X1.5 | M16X1.5 |
| Weight (g) | 15       | 15       | 20       | 20      | 20      |

### Ball joint

Coding: 1320. **T**.32F

|          |                     |
|----------|---------------------|
|          | SIZE                |
|          | 32 = Size 25 and 32 |
| <b>T</b> | 40 = Size 40        |
|          | 50 = Size 50        |
|          | 63 = Size 63        |

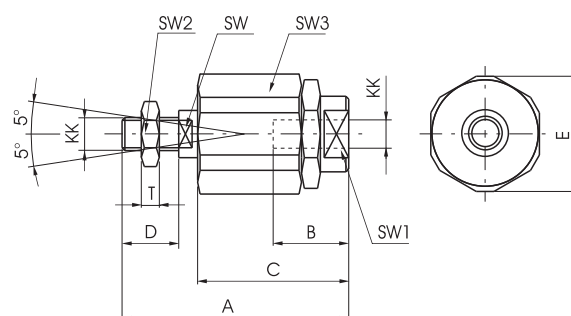


| Bore       | 25       | 32       | 40       | 50      | 63      |
|------------|----------|----------|----------|---------|---------|
| A          | 57       | 57       | 66       | 85      | 85      |
| B          | 20       | 20       | 22       | 28      | 28      |
| C          | 43       | 43       | 50       | 64      | 64      |
| D (-0.1)   | 10.5     | 10.5     | 12       | 15      | 15      |
| E          | 28       | 28       | 32       | 42      | 42      |
| F          | 14       | 14       | 16       | 21      | 21      |
| G (H7)     | 10       | 10       | 12       | 16      | 16      |
| KK         | M10x1.25 | M10x1.25 | M12x1.25 | M16x1.5 | M16x1.5 |
| M          | 19       | 19       | 22       | 27      | 27      |
| S          | 17       | 17       | 19       | 22      | 22      |
| T          | 6.5      | 6.5      | 6.5      | 8       | 8       |
| Weight (g) | 76       | 76       | 110      | 220     | 220     |

### Self-aligning joint

Coding: 1320. **T**.33F

|          |                     |
|----------|---------------------|
|          | SIZE                |
|          | 32 = Size 25 and 32 |
| <b>T</b> | 40 = Size 40        |
|          | 50 = Size 50        |
|          | 63 = Size 63        |



| Bore       | 25       | 32       | 40       | 50      | 63      |
|------------|----------|----------|----------|---------|---------|
| A          | 71       | 71       | 75       | 103     | 103     |
| B          | 20       | 20       | 20       | 32      | 32      |
| C          | 46       | 46       | 46       | 63      | 63      |
| D          | 20       | 20       | 24       | 32      | 32      |
| E          | 32       | 32       | 32       | 45      | 45      |
| KK         | M10x1.25 | M10x1.25 | M12x1.25 | M16x1.5 | M16x1.5 |
| SW         | 12       | 12       | 12       | 20      | 20      |
| SW1        | 19       | 19       | 19       | 27      | 27      |
| SW2        | 17       | 17       | 19       | 24      | 24      |
| SW3        | 30       | 30       | 30       | 41      | 41      |
| T          | 6        | 6        | 7        | 8       | 8       |
| Weight (g) | 220      | 220      | 230      | 660     | 660     |