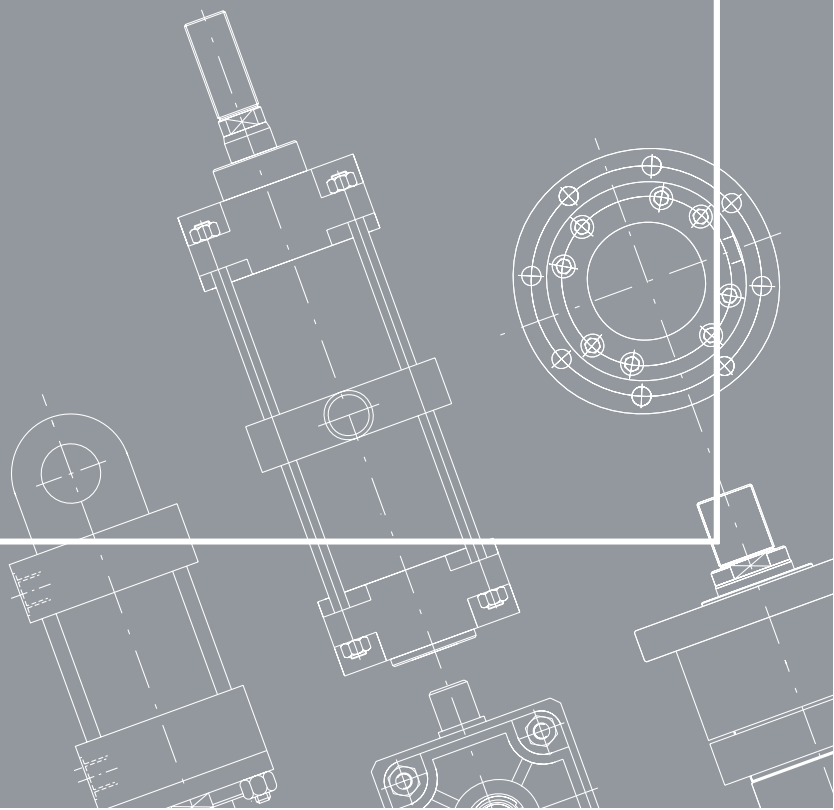


Pneumatic cylinder

I S O 6 4 3 1



INTRODUCTION:

The firm CMB produces pneumatic and hydraulic cylinders according to standardized international norms or upon request. Thanks to its twenty-year experience, its production is reliable and lasting for a large application field. With this particular aim, the new ISO 6431 SERIES of pneumatic cylinders, presents a functional character and has sizes which make of this type of cylinder one of the most complete and reliable production available on the market.

Always in the complete respect of the overall sizes concerning ISO 6431 VDMA norms, some non-standardized mountings have been added, so that the cylinders mountings possibility has been enlarged.

The particular choice of specific materials gives these cylinders the possibility to work also without lubricant (dry air). All cylinders can be supplied in magnetic version. The front cylinder head and the barrel conformation (up to d.125) gives the possibility of application when the cylinder environment has to be kept absolutely clean.

GENERAL FEATURES

- FRONT CYLINDER HEAD*: made of aluminium, worked by machine tool and sanded superficially.
- SEALS*: standard sizes, easy to find on the market, normally made of nitrile rubber and, upon request, in viton or polyurethane.
- HOUSING*: made of profile extruded, anodized aluminium up to d.125; round execution in aluminium with the same anodizing characteristics of profiles for d.160 and 200.
- RODS*: made of hard chrome plated steel; upon request in stainless steel.
- CUSHIONING*: all cylinders are supplied with cushionings, adjustable by screws.
- FASTENINGS*: made of steel or aluminium according to the type of application.

TECHNICAL FEATURES:

- WORKING PRESSURE*: min.1, max 10 bar
- FLUID* : filtered and/or not lubricated air.
- TEMPERATURE RANGE*: from 15°C +100°C (viton seals +180°C)
- SPEED*: max 1M/sec.
- STROKES*: min.1 mm., max.3000 mm.

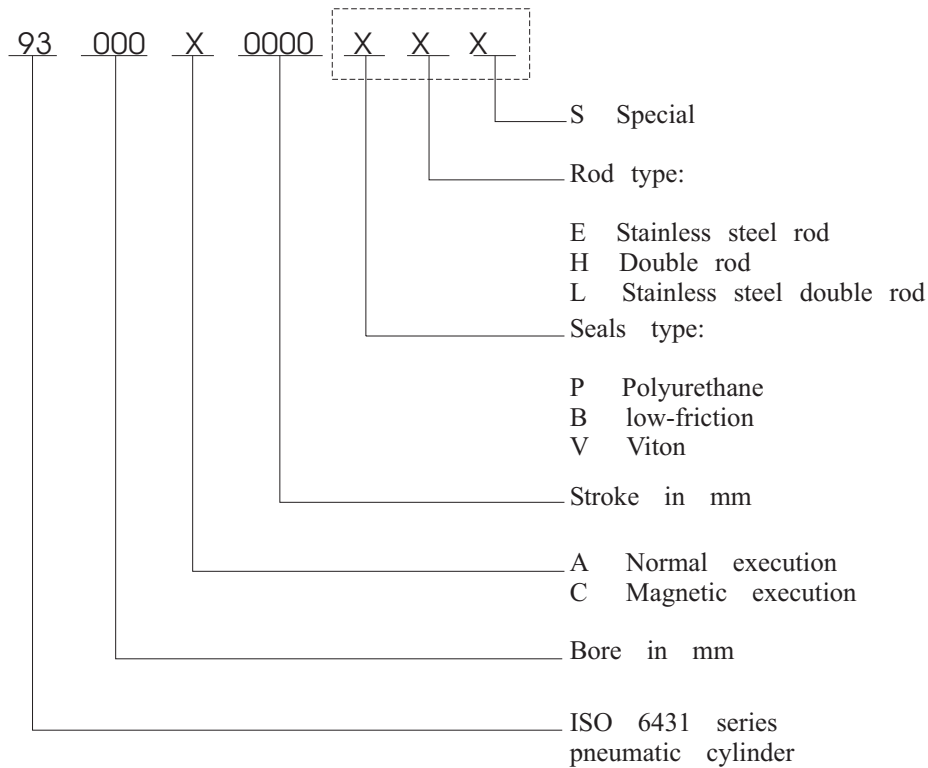
-*THE LENGHT OF THE CUSHIONING SLEEVE IS:*

| Bore | 32 | 40 | 50 | 63 | 80 | 100 | 125 | 160 | 200 |
|--------|----|----|----|----|----|-----|-----|-----|-----|
| Lenght | 22 | 22 | 22 | 27 | 27 | 27 | 27 | 37 | 37 |

-*AIR CONSUMPTION*: NL every 100 mm. of stroke with a complete cycle.

| Bore- bar | 32 | 40 | 50 | 63 | 80 | 100 | 125 | 160 | 200 |
|--------------|------|------|------|------|------|------|------|------|------|
| 1 | 0.3 | 0.45 | 0.73 | 1.17 | 1.19 | 3 | 4.76 | 7.8 | 12.3 |
| 2 | 0.4 | 0.68 | 1.1 | 1.65 | 2.9 | 4.5 | 7.2 | 11.7 | 18.5 |
| 3 | 0.6 | 0.9 | 1.47 | 2.34 | 3.86 | 6 | 9.5 | 15.6 | 24.6 |
| 4 | 0.75 | 1.13 | 1.83 | 2.92 | 4.82 | 7.39 | 11.9 | 19.5 | 30.8 |
| 5 | 0.9 | 1.36 | 2.2 | 3.51 | 5.8 | 9 | 14.3 | 23.4 | 37 |
| 6 | 1.05 | 1.58 | 2.57 | 4.09 | 6.76 | 10.5 | 16.7 | 27.3 | 43.1 |
| 7 | 1.2 | 1.8 | 2.94 | 4.67 | 7.74 | 12 | 19.1 | 31.2 | 49.3 |
| 8 | 1.35 | 2.03 | 3.31 | 5.25 | 8.7 | 13.5 | 21.5 | 35.1 | 55.4 |
| 9 | 1.52 | 2.26 | 3.66 | 5.85 | 9.66 | 15 | 23.8 | 39 | 48.9 |
| 10 | 1.64 | 2.48 | 4.04 | 6.43 | 10.6 | 16.5 | 26.2 | 48.9 | 67.7 |

Cylinder ordering code:



-For the magnetic execution, the viton seals version foresees the piston seals in NBR rubber.

-For standard cylinders don't specify the last 3 codes.

Ordering example:

ISO 6431 cylinders, bore 32, stroke 500, magnetic with double rod version: 93032C0500H

ISO 6431 cylinders, bore 100, stroke 50, standard version, viton seals and stainless steel double rod: 93100A0050VL

Mounting style ordering code:

93A000 Front flange MF1
 93B000 Rear flange MF2
 93C000 Cap fixed clevis MP2
 93E000 Rear clevis MP4
 93G000 Foot mounting MS1
 93H000 Center trunnion MT4
 93L000 Rear spherical bearing

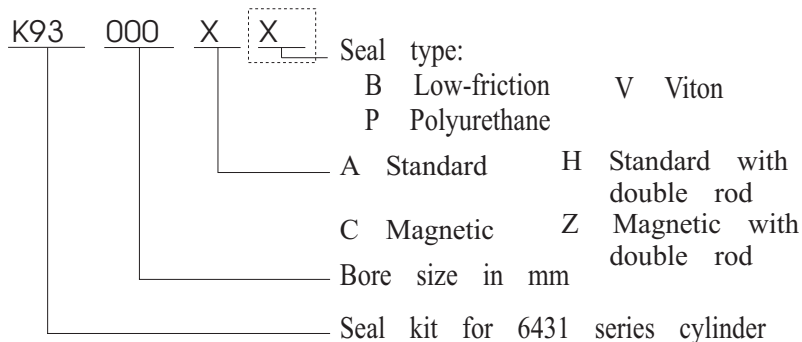
93P000 Self-aligning joints
 93S000 Rod clevis
 93T000 Rod eye with spherical bearing

YCA000 Square horizontal counterhinge
 YCD000 Normal vertical counterhinge

MA3GA3 Magnetic switch
 MA3GA4 PNP switch
 MA3GA5 NPN switch

M93G11 Fastening bracket for cylinder d. 32/40
 M93G12 Fastening bracket for cylinder d. 50/63/80
 M93G13 Fastening bracket for cylinder d. 100
 M93G15 Fastening bracket for cylinder d. 125
 MA3GAS Fastening bracket for cylinder d. 160/200

Seal kits ordering code:



Ordering example:

Seals kit ISO 6431 cylinders d.100, standard, with VITON seals:
 K93 100 A V

Seals kit ISO 6431 cylinders d.32, magnetic, with VITON seals:
 K93 032 C V

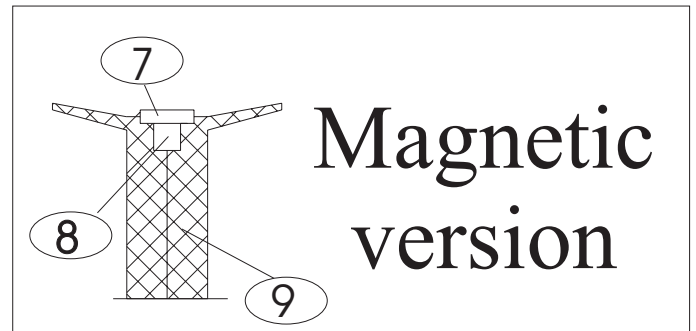
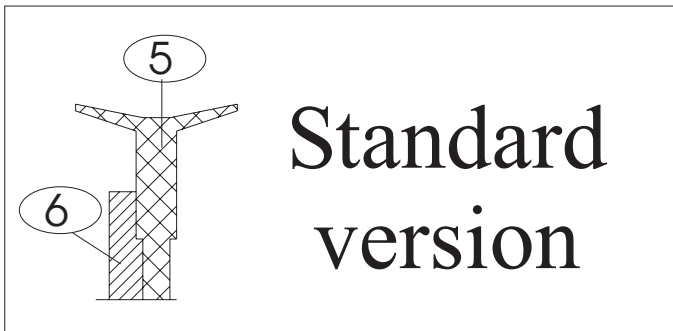
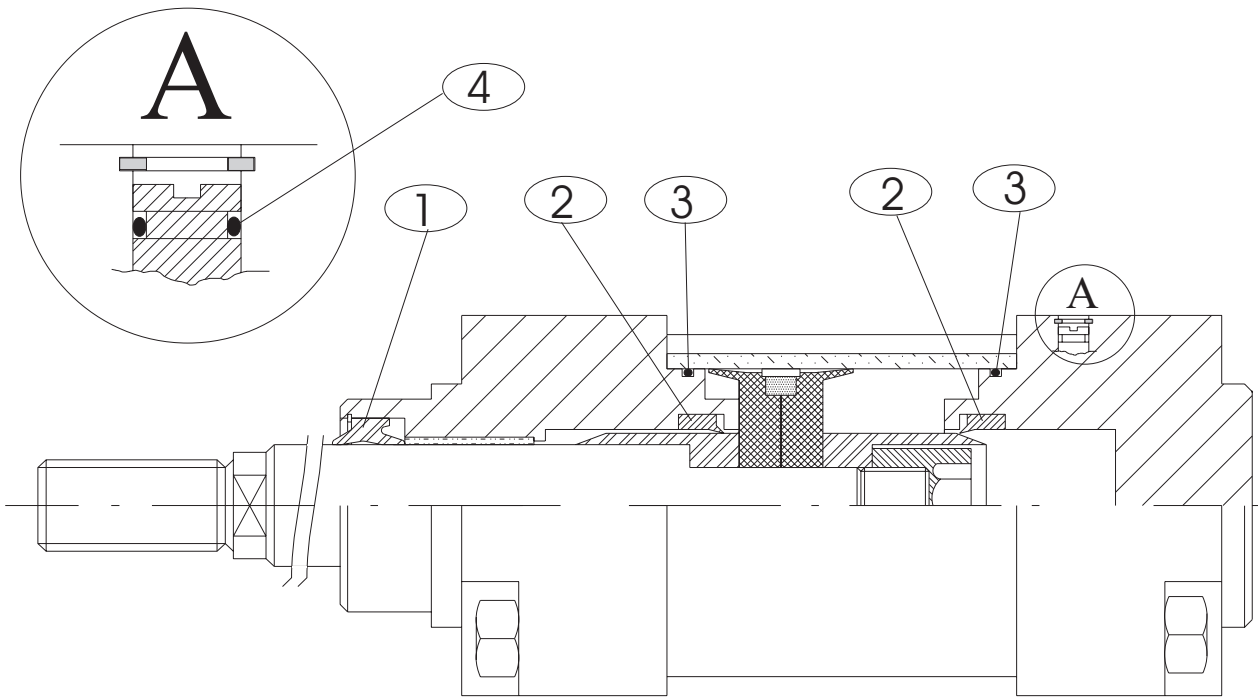
Theoretical push forces

| Bore Press. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|----------------|-----|-----|-----|------|------|------|------|------|------|------|
| 32 | 8 | 16 | 24 | 32 | 40 | 48 | 56 | 64 | 72 | 80 |
| 40 | 12 | 25 | 37 | 50 | 62 | 75 | 87 | 100 | 112 | 125 |
| 50 | 19 | 39 | 58 | 78 | 98 | 117 | 137 | 156 | 176 | 196 |
| 63 | 31 | 62 | 93 | 124 | 155 | 186 | 217 | 248 | 279 | 311 |
| 80 | 50 | 100 | 150 | 200 | 251 | 301 | 351 | 401 | 451 | 502 |
| 100 | 78 | 157 | 235 | 314 | 392 | 471 | 549 | 628 | 706 | 785 |
| 125 | 122 | 245 | 367 | 490 | 613 | 735 | 858 | 980 | 1103 | 1226 |
| 160 | 200 | 401 | 602 | 803 | 1004 | 1205 | 1406 | 1607 | 1808 | 2009 |
| 200 | 314 | 628 | 942 | 1256 | 1570 | 1884 | 2198 | 2512 | 2826 | 3140 |

Theoretical pull forces

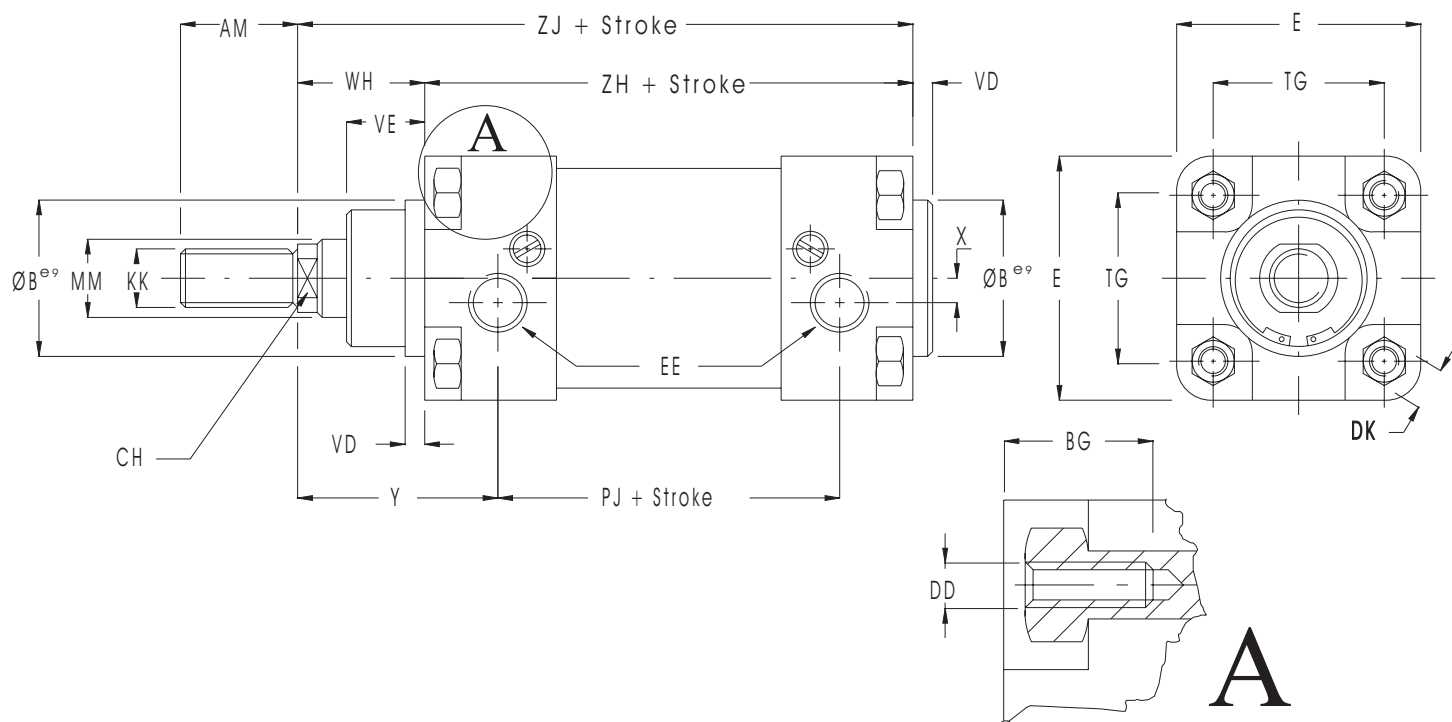
| Bore Press. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|----------------|-----|-----|-----|------|------|------|------|------|------|------|
| 32 | 7 | 14 | 21 | 28 | 35 | 41 | 48 | 55 | 62 | 69 |
| 40 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
| 50 | 17 | 34 | 51 | 68 | 85 | 102 | 119 | 136 | 153 | 170 |
| 63 | 27 | 54 | 82 | 109 | 136 | 163 | 191 | 218 | 245 | 273 |
| 80 | 46 | 93 | 140 | 185 | 232 | 278 | 324 | 371 | 417 | 464 |
| 100 | 71 | 143 | 215 | 285 | 357 | 428 | 499 | 571 | 642 | 714 |
| 125 | 115 | 231 | 346 | 462 | 577 | 693 | 808 | 924 | 1039 | 1155 |
| 160 | 188 | 376 | 565 | 753 | 942 | 1130 | 1318 | 1507 | 1695 | 1884 |
| 200 | 301 | 603 | 904 | 1205 | 1507 | 1808 | 2109 | 2411 | 2712 | 3014 |

* Forces given in Kg and pressure in Kg/cm²



| <i>Loc.</i> | <i>Description</i> | <i>Material</i> | <i>Q.ty</i> |
|-------------|--------------------|-----------------|-------------|
| 1 | Rod seal | Nitrile rubber | 1 |
| 2 | Damper seal | Nitrile rubber | 2 |
| 3 | O-ring | Nitrile rubber | 2 |
| 4 | O-ring | Nitrile rubber | 2 |
| 5 | Piston seal | Nitrile rubber | 1 |
| 6 | Stop tube seal | Aluminium | 1 |
| 7 | Guide ring | Acetalic resin | 1 |
| 8 | Magnetic insert | Plastoferrite | 1 |
| 9 | Piston seal | Nitrile rubber | 1 |

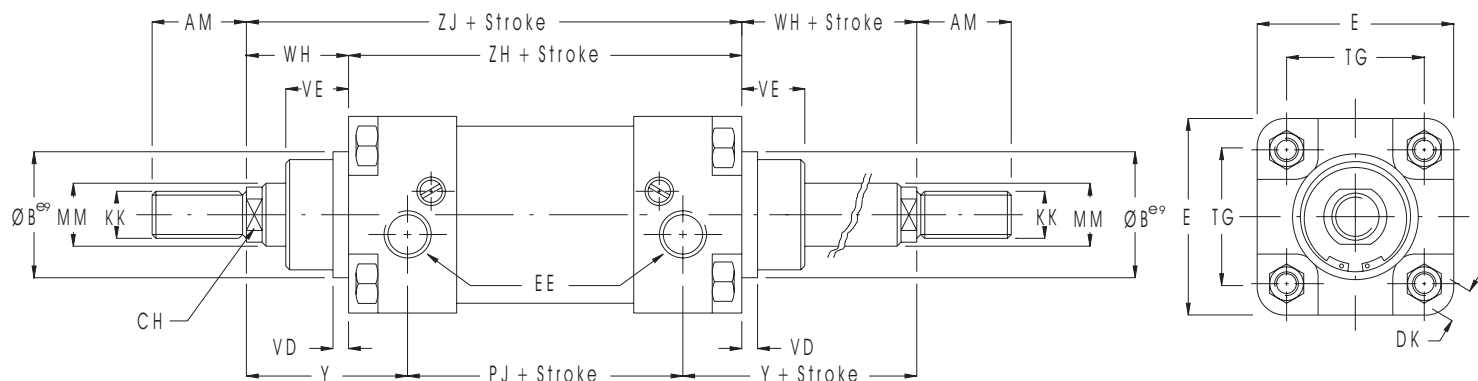
Basic version



| Bore | MM | KK | AM | B | VD | WH | VE | X | Y | CH | EE | E | TG | DD | BG | DK | ZJ | ZH | PJ |
|------|----|----------|----|----|----|----|----|----|------|----|------|-----|------|-----|----|----|-----|-----|-----|
| 32 | 12 | M10x1.25 | 22 | 30 | 4 | 26 | 18 | 5 | 39.5 | 8 | 1/8" | 45 | 32.5 | M6 | 13 | 10 | 120 | 94 | 67 |
| 40 | 16 | M12x1.25 | 24 | 35 | 4 | 30 | 20 | 5 | 45 | 12 | 1/4" | 50 | 38 | M6 | 13 | 10 | 135 | 105 | 75 |
| 50 | 20 | M16x1.5 | 32 | 40 | 4 | 37 | 25 | 3 | 51 | 16 | 1/4" | 65 | 46.5 | M8 | 16 | 14 | 143 | 106 | 78 |
| 63 | 20 | M16x1.5 | 32 | 45 | 4 | 37 | 25 | 3 | 53 | 16 | 3/8" | 75 | 56.5 | M8 | 16 | 14 | 158 | 121 | 89 |
| 80 | 25 | M20x1.5 | 40 | 45 | 4 | 46 | 32 | 3 | 64 | 20 | 3/8" | 95 | 72 | M10 | 21 | 17 | 174 | 128 | 92 |
| 100 | 25 | M20x1.5 | 40 | 55 | 4 | 51 | 35 | 0 | 71 | 20 | 1/2" | 115 | 89 | M10 | 21 | 17 | 189 | 138 | 98 |
| 125 | 30 | M27x2 | 54 | 60 | 5 | 65 | 42 | 0 | 90 | 24 | 1/2" | 140 | 110 | M12 | 21 | 19 | 225 | 160 | 110 |
| *160 | 40 | M36x2 | 72 | 65 | 7 | 80 | 25 | 11 | 113 | 32 | 3/4" | 180 | 140 | M16 | 18 | 24 | 260 | 180 | 114 |
| *200 | 40 | M36x2 | 72 | 65 | 7 | 95 | 25 | 11 | 128 | 32 | 3/4" | 220 | 175 | M16 | 18 | 24 | 275 | 180 | 114 |

* Tie-rods execution

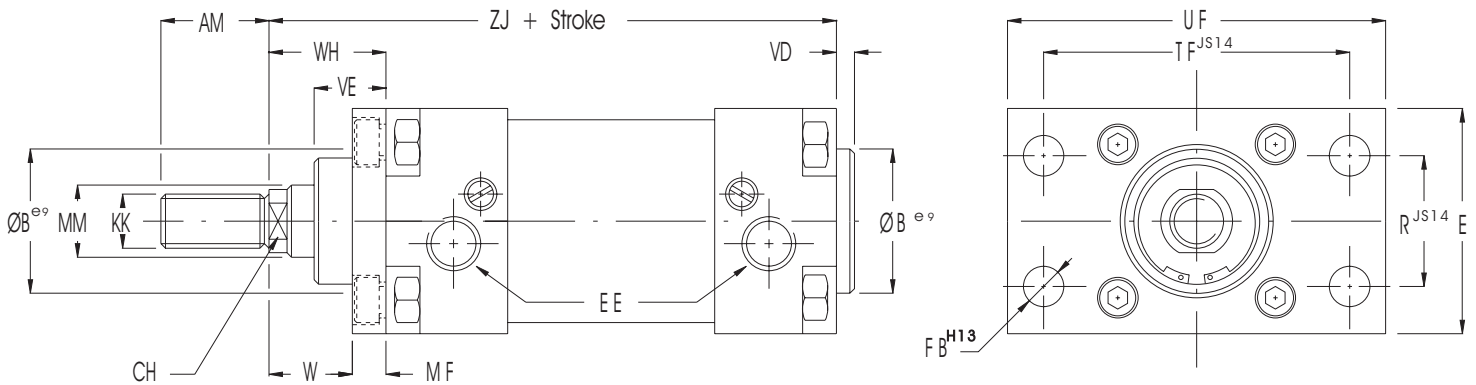
Basic version with double rod



| Bore | MM | KK | AM | B | VD | WH | VE | Y | X | CH | EE | E | TG | DK | ZH | PJ | ZJ |
|------|----|----------|----|----|----|----|----|------|----|----|------|-----|------|----|-----|-----|-----|
| 32 | 12 | M10x1.25 | 22 | 30 | 4 | 26 | 18 | 39.5 | 5 | 8 | 1/8" | 45 | 32.5 | 10 | 94 | 67 | 120 |
| 40 | 16 | M12x1.25 | 24 | 35 | 4 | 30 | 20 | 45 | 5 | 12 | 1/4" | 50 | 38 | 10 | 105 | 75 | 135 |
| 50 | 20 | M16x1.5 | 32 | 40 | 4 | 37 | 25 | 51 | 3 | 16 | 1/4" | 65 | 46.5 | 14 | 106 | 78 | 143 |
| 63 | 20 | M16x1.5 | 32 | 45 | 4 | 37 | 25 | 53 | 3 | 16 | 3/8" | 75 | 56.5 | 14 | 121 | 89 | 158 |
| 80 | 25 | M20x1.5 | 40 | 45 | 4 | 46 | 32 | 64 | 3 | 20 | 3/8" | 95 | 72 | 17 | 128 | 92 | 174 |
| 100 | 25 | M20x1.5 | 40 | 55 | 4 | 51 | 35 | 71 | 0 | 20 | 1/2" | 115 | 89 | 17 | 138 | 98 | 189 |
| 125 | 30 | M27x2 | 54 | 60 | 5 | 65 | 42 | 90 | 0 | 24 | 1/2" | 140 | 110 | 19 | 160 | 110 | 225 |
| *160 | 40 | M36x2 | 72 | 65 | 7 | 80 | 25 | 113 | 11 | 32 | 3/4" | 180 | 140 | 24 | 180 | 114 | 260 |
| *200 | 40 | M36x2 | 72 | 65 | 7 | 95 | 25 | 128 | 11 | 32 | 3/4" | 220 | 175 | 24 | 180 | 114 | 275 |

* Tie-rods execution

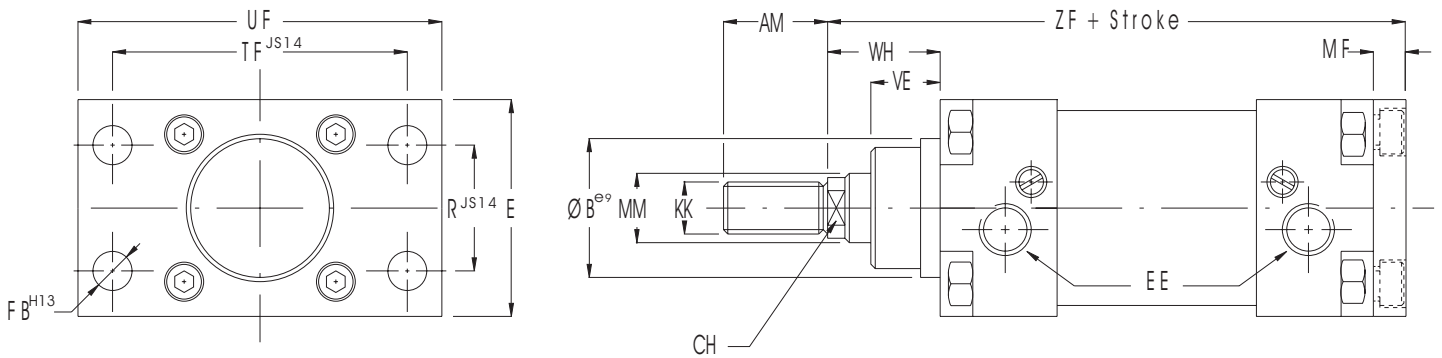
Front flange MF1



| Bore | MM | KK | AM | B | VD | WH | VE | W | MF | CH | EE | E | TF | UF | R | FB | ZJ |
|------|----|----------|----|----|----|----|----|----|----|----|------|-----|-----|-----|-----|----|-----|
| 32 | 12 | M10x1.25 | 22 | 30 | 4 | 26 | 18 | 16 | 10 | 8 | 1/8" | 45 | 64 | 80 | 32 | 7 | 124 |
| 40 | 16 | M12x1.25 | 24 | 35 | 4 | 30 | 20 | 20 | 10 | 12 | 1/4" | 50 | 72 | 90 | 36 | 9 | 135 |
| 50 | 20 | M16x1.5 | 32 | 40 | 4 | 37 | 25 | 25 | 12 | 16 | 1/4" | 65 | 90 | 110 | 45 | 9 | 143 |
| 63 | 20 | M16x1.5 | 32 | 45 | 4 | 37 | 25 | 25 | 12 | 16 | 3/8" | 75 | 100 | 120 | 50 | 9 | 158 |
| 80 | 25 | M20x1.5 | 40 | 45 | 4 | 46 | 32 | 30 | 16 | 20 | 3/8" | 95 | 126 | 153 | 63 | 12 | 174 |
| 100 | 25 | M20x1.5 | 40 | 55 | 4 | 51 | 35 | 35 | 16 | 20 | 1/2" | 115 | 150 | 178 | 75 | 14 | 189 |
| 125 | 30 | M27x2 | 54 | 60 | 5 | 65 | 42 | 45 | 20 | 24 | 1/2" | 140 | 180 | 220 | 90 | 16 | 225 |
| *160 | 40 | M36x2 | 72 | 65 | 7 | 80 | 25 | 60 | 20 | 32 | 3/4" | 180 | 230 | 270 | 115 | 18 | 260 |
| *200 | 40 | M36x2 | 72 | 65 | 7 | 95 | 25 | 70 | 25 | 32 | 3/4" | 220 | 270 | 320 | 135 | 22 | 270 |

* Tie-rods execution

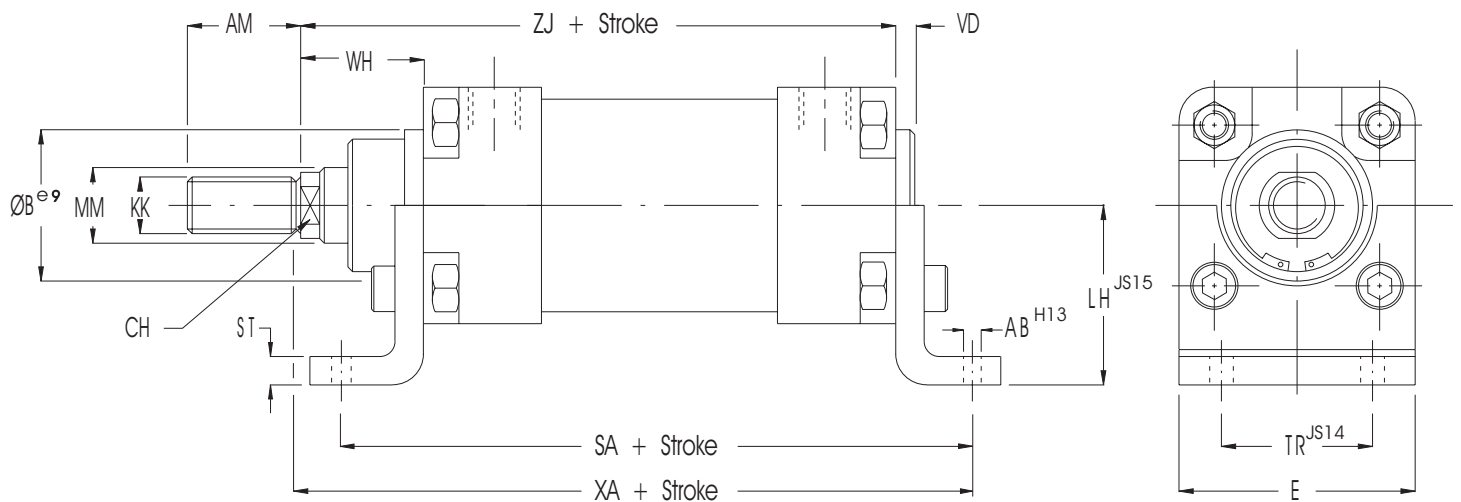
Rear flange MF2



| Bore | MM | KK | AM | B | E | WH | VE | ZF | MF | CH | FB | EE | TF | UF | R |
|------|----|----------|----|----|-----|----|----|-----|----|----|----|------|-----|-----|-----|
| 32 | 12 | M10x1.25 | 22 | 30 | 45 | 26 | 18 | 130 | 10 | 8 | 7 | 1/8" | 64 | 80 | 32 |
| 40 | 16 | M12x1.25 | 24 | 35 | 50 | 30 | 20 | 145 | 10 | 12 | 9 | 1/4" | 72 | 90 | 36 |
| 50 | 20 | M16x1.5 | 32 | 40 | 65 | 37 | 25 | 155 | 12 | 16 | 9 | 1/4" | 90 | 110 | 45 |
| 63 | 20 | M16x1.5 | 32 | 45 | 75 | 37 | 25 | 170 | 12 | 16 | 9 | 3/8" | 100 | 120 | 50 |
| 80 | 25 | M20x1.5 | 40 | 45 | 95 | 46 | 32 | 190 | 16 | 20 | 12 | 3/8" | 126 | 153 | 63 |
| 100 | 25 | M20x1.5 | 40 | 55 | 115 | 51 | 35 | 205 | 16 | 20 | 14 | 1/2" | 150 | 178 | 75 |
| 125 | 30 | M27x2 | 54 | 60 | 140 | 65 | 42 | 245 | 20 | 24 | 16 | 1/2" | 180 | 220 | 90 |
| *160 | 40 | M36x2 | 72 | 65 | 180 | 80 | 25 | 280 | 20 | 32 | 18 | 3/4" | 230 | 270 | 115 |
| *200 | 40 | M36x2 | 72 | 65 | 220 | 95 | 25 | 300 | 25 | 32 | 22 | 3/4" | 270 | 320 | 135 |

* Tie-rods execution

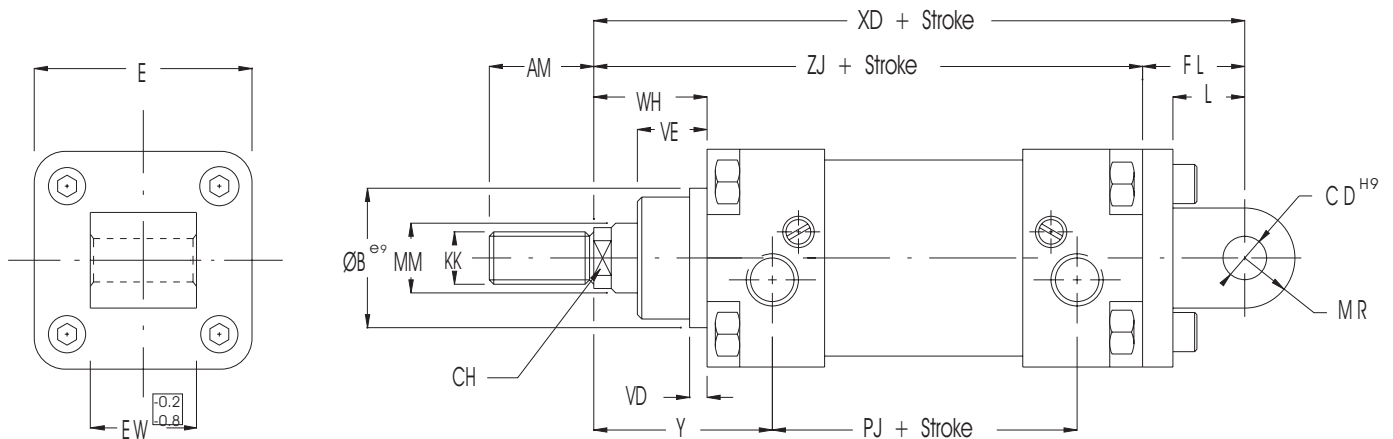
Foot mounting MS1



| Bore | MM | KK | AM | B | VD | E | ZJ | CH | WH | ST | SA | XA | TR | AB | LH |
|------|----|----------|----|----|----|-----|-----|----|----|----|-----|-----|-----|----|-----|
| 32 | 12 | M10x1.25 | 22 | 30 | 4 | 45 | 120 | 8 | 26 | 5 | 142 | 144 | 32 | 7 | 32 |
| 40 | 16 | M12x1.25 | 24 | 35 | 4 | 50 | 135 | 12 | 30 | 5 | 161 | 163 | 36 | 9 | 36 |
| 50 | 20 | M16x1.5 | 32 | 40 | 4 | 65 | 143 | 16 | 37 | 6 | 170 | 175 | 45 | 9 | 45 |
| 63 | 20 | M16x1.5 | 32 | 45 | 4 | 75 | 158 | 16 | 37 | 6 | 185 | 190 | 50 | 9 | 50 |
| 80 | 25 | M20x1.5 | 40 | 45 | 4 | 95 | 174 | 20 | 46 | 7 | 210 | 215 | 63 | 12 | 63 |
| 100 | 25 | M20x1.5 | 40 | 55 | 4 | 115 | 189 | 20 | 51 | 7 | 220 | 230 | 75 | 14 | 71 |
| 125 | 30 | M27x2 | 54 | 60 | 5 | 140 | 225 | 24 | 65 | 8 | 250 | 270 | 90 | 16 | 90 |
| *160 | 40 | M36x2 | 72 | 65 | 7 | 180 | 260 | 32 | 80 | 10 | 300 | 320 | 115 | 18 | 115 |
| *200 | 40 | M36x2 | 72 | 65 | 7 | 220 | 275 | 32 | 95 | 10 | 320 | 345 | 135 | 22 | 135 |

* Tie-rods execution

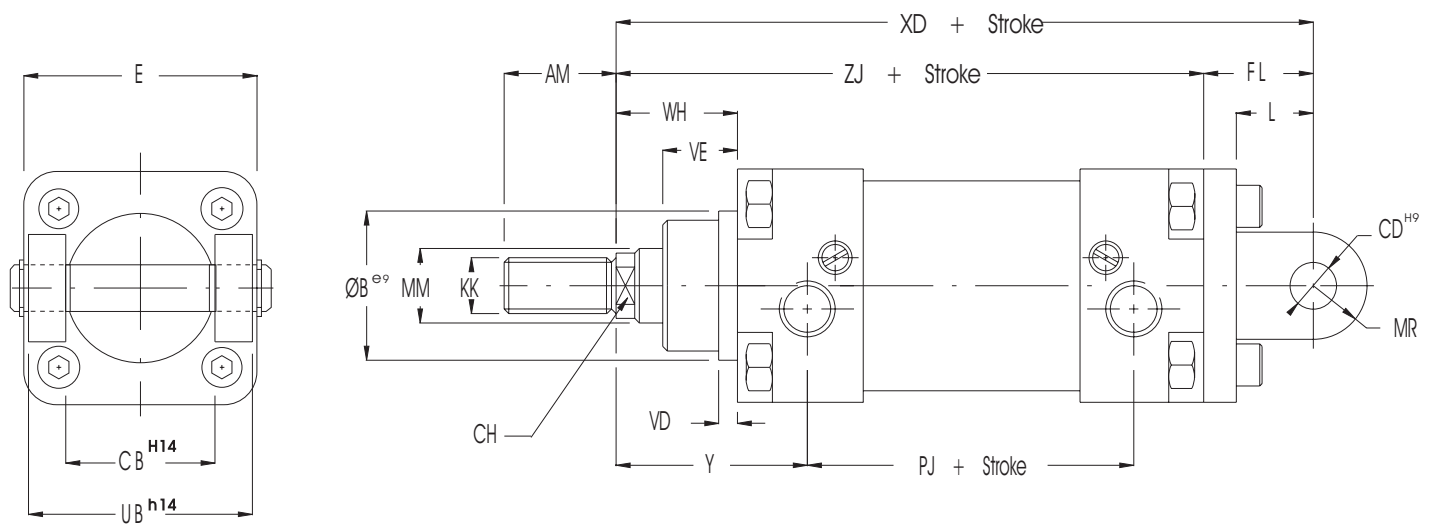
Rear clevis MP4



| Bore | MM | KK | AM | B | VD | WH | VE | CH | Y | PJ | E | L | XD | EW | MR | CD | FL | ZJ |
|------|----|----------|----|----|----|----|----|----|------|-----|-----|----|-----|----|----|----|----|-----|
| 32 | 12 | M10x1.25 | 22 | 30 | 4 | 26 | 18 | 8 | 39.5 | 67 | 45 | 12 | 142 | 26 | 11 | 10 | 22 | 120 |
| 40 | 16 | M12x1.25 | 24 | 35 | 4 | 30 | 20 | 12 | 45 | 75 | 50 | 15 | 160 | 28 | 13 | 12 | 25 | 135 |
| 50 | 20 | M16x1.5 | 32 | 40 | 4 | 37 | 25 | 16 | 51 | 78 | 65 | 15 | 170 | 32 | 13 | 12 | 27 | 143 |
| 63 | 20 | M16x1.5 | 32 | 45 | 4 | 37 | 25 | 16 | 53 | 89 | 75 | 20 | 190 | 40 | 17 | 16 | 32 | 158 |
| 80 | 25 | M20x1.5 | 40 | 45 | 4 | 46 | 32 | 20 | 64 | 92 | 95 | 20 | 210 | 50 | 17 | 16 | 36 | 174 |
| 100 | 25 | M20x1.5 | 40 | 55 | 4 | 51 | 35 | 20 | 71 | 98 | 115 | 25 | 230 | 60 | 21 | 20 | 41 | 189 |
| 125 | 30 | M27x2 | 54 | 60 | 5 | 65 | 42 | 24 | 90 | 110 | 140 | 30 | 275 | 70 | 26 | 25 | 50 | 225 |
| *160 | 40 | M36x2 | 72 | 65 | 7 | 80 | 25 | 32 | 113 | 114 | 180 | 35 | 315 | 90 | 30 | 30 | 55 | 260 |
| *200 | 40 | M36x2 | 72 | 65 | 7 | 95 | 25 | 32 | 128 | 114 | 220 | 35 | 335 | 90 | 30 | 30 | 60 | 275 |

* Tie-rods execution

Cap, fixed clevis MP2

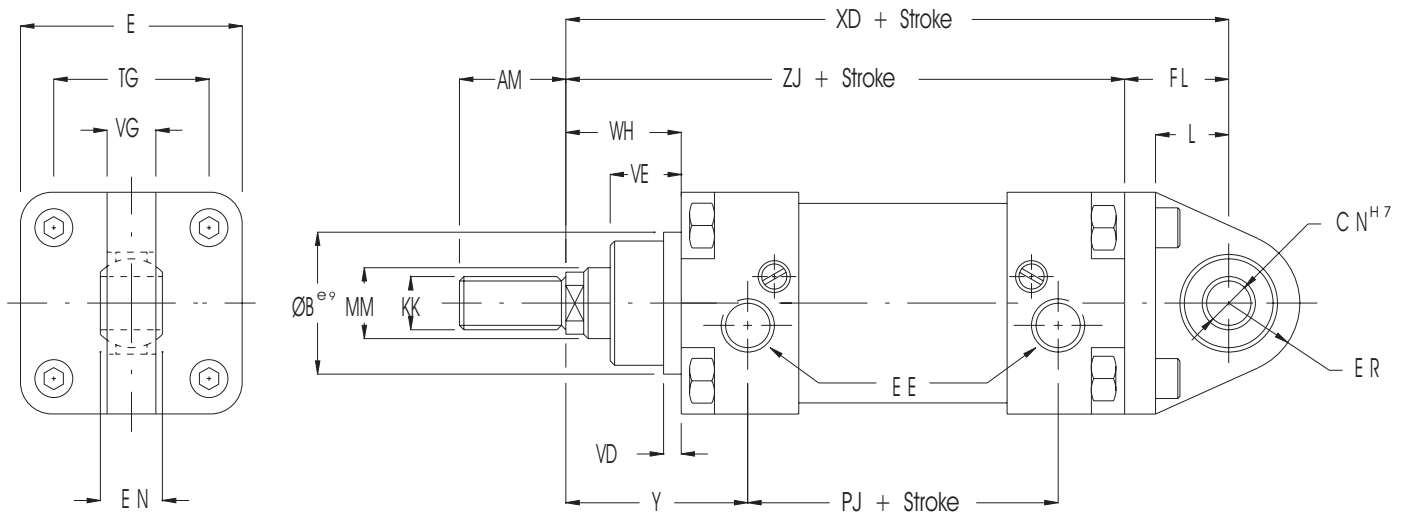


| Bore | MM | KK | AM | B | VD | WH | VE | CH | Y | PJ | L | E | XD | CB | UB | MR | CD | FL | ZJ |
|------|----|----------|----|----|----|----|----|----|------|-----|----|-----|-----|----|-----|----|----|----|-----|
| 32 | 12 | M10x1.25 | 22 | 30 | 4 | 26 | 18 | 8 | 39.5 | 67 | 12 | 45 | 142 | 26 | 45 | 11 | 10 | 22 | 120 |
| 40 | 16 | M12x1.25 | 24 | 35 | 4 | 30 | 20 | 12 | 45 | 75 | 15 | 50 | 160 | 28 | 52 | 13 | 12 | 25 | 135 |
| 50 | 20 | M16x1.5 | 32 | 40 | 4 | 37 | 25 | 16 | 51 | 78 | 15 | 65 | 170 | 32 | 60 | 13 | 12 | 27 | 143 |
| 63 | 20 | M16x1.5 | 32 | 45 | 4 | 37 | 25 | 16 | 53 | 89 | 20 | 75 | 190 | 40 | 70 | 17 | 16 | 32 | 158 |
| 80 | 25 | M20x1.5 | 40 | 45 | 4 | 46 | 32 | 20 | 64 | 92 | 20 | 95 | 210 | 50 | 90 | 17 | 16 | 36 | 174 |
| 100 | 25 | M20x1.5 | 40 | 55 | 4 | 51 | 35 | 20 | 71 | 98 | 25 | 115 | 230 | 60 | 110 | 21 | 20 | 41 | 189 |
| 125 | 30 | M27x2 | 54 | 60 | 5 | 65 | 42 | 24 | 90 | 110 | 30 | 140 | 275 | 70 | 130 | 26 | 25 | 50 | 225 |
| *160 | 40 | M36x2 | 72 | 65 | 7 | 80 | 25 | 32 | 113 | 114 | 35 | 180 | 315 | 90 | 170 | 31 | 30 | 55 | 260 |
| *200 | 40 | M36x2 | 72 | 65 | 7 | 95 | 25 | 32 | 128 | 114 | 35 | 220 | 335 | 90 | 170 | 31 | 30 | 60 | 275 |

*Tie-rods execution



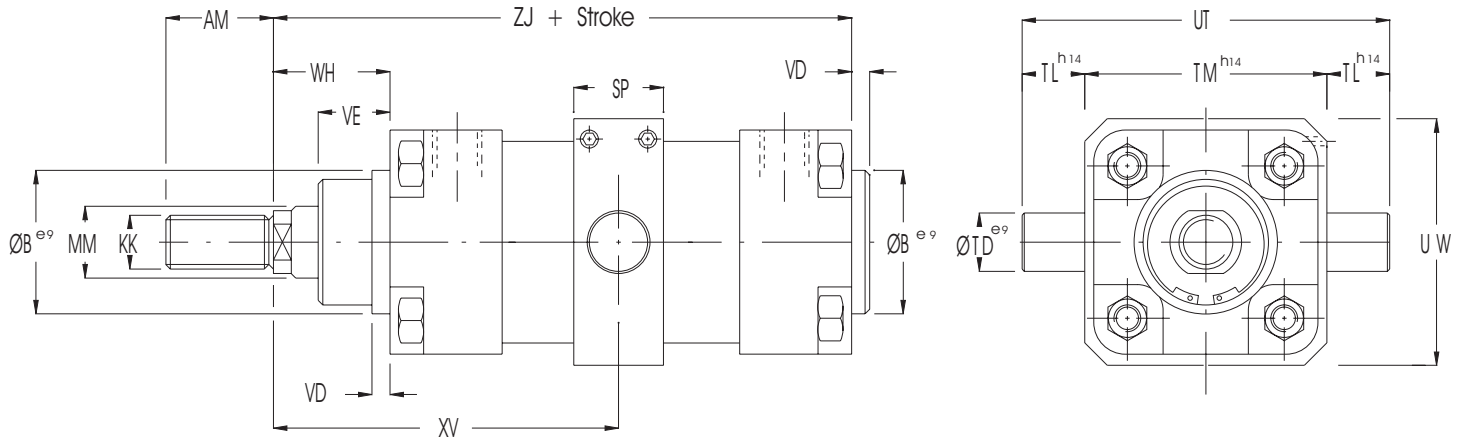
Rear spherical bearing



| Bore | MM | KK | AM | B | VD | WH | VE | PJ | Y | ZJ | EE | E | TG | VG | EN | FL | CN | XD | ER | L |
|------|----|----------|----|----|----|----|----|-----|------|-----|------|-----|------|----|----|----|----|-----|----|----|
| 32 | 12 | M10x1.25 | 22 | 30 | 4 | 26 | 18 | 67 | 39.5 | 120 | 1/8" | 45 | 32.5 | 10 | 14 | 22 | 10 | 142 | 16 | 12 |
| 40 | 16 | M12x1.25 | 24 | 35 | 4 | 30 | 20 | 75 | 45 | 135 | 1/4" | 50 | 38 | 12 | 16 | 25 | 12 | 160 | 19 | 15 |
| 50 | 20 | M16x1.5 | 32 | 40 | 4 | 37 | 25 | 78 | 51 | 143 | 1/4" | 65 | 46.5 | 12 | 16 | 27 | 12 | 170 | 20 | 15 |
| 63 | 20 | M16x1.5 | 32 | 45 | 4 | 37 | 25 | 89 | 53 | 158 | 3/8" | 75 | 56.5 | 15 | 21 | 32 | 16 | 190 | 24 | 20 |
| 80 | 25 | M20x1.5 | 40 | 45 | 4 | 46 | 32 | 92 | 64 | 174 | 3/8" | 95 | 72 | 15 | 21 | 36 | 16 | 210 | 30 | 20 |
| 100 | 25 | M20x1.5 | 40 | 55 | 4 | 51 | 35 | 98 | 71 | 189 | 1/2" | 115 | 89 | 18 | 25 | 41 | 20 | 230 | 30 | 25 |
| 125 | 30 | M27x2 | 54 | 60 | 5 | 65 | 42 | 110 | 90 | 225 | 1/2" | 140 | 110 | 22 | 31 | 50 | 25 | 275 | 36 | 30 |
| *160 | 40 | M36x2 | 72 | 65 | 7 | 80 | 25 | 114 | 113 | 260 | 3/4" | 180 | 140 | 25 | 37 | 55 | 30 | 315 | 36 | 35 |
| *200 | 40 | M36x2 | 72 | 65 | 7 | 95 | 25 | 114 | 128 | 275 | 3/4" | 220 | 175 | 25 | 37 | 60 | 30 | 335 | 36 | 35 |

* Tie-rods execution

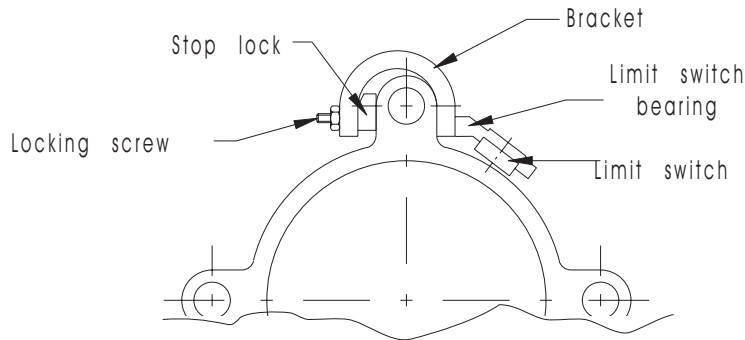
Centre trunnion mounting MT4



| Bore | MM | KK | AM | B | VD | WH | VE | ZJ | CH | TL | TM | UW | UT | SP | TD | XV min. |
|------|----|----------|----|----|----|----|----|-----|----|----|-----|-----|-----|----|----|------------|
| 32 | 12 | M10x1.25 | 22 | 30 | 4 | 26 | 18 | 120 | 8 | 12 | 50 | 64 | 74 | 30 | 12 | 67 |
| 40 | 16 | M12x1.25 | 24 | 35 | 4 | 30 | 20 | 135 | 12 | 16 | 63 | 70 | 95 | 30 | 16 | 73 |
| 50 | 20 | M16x1.5 | 32 | 40 | 4 | 37 | 25 | 143 | 16 | 16 | 73 | 80 | 105 | 40 | 16 | 87 |
| 63 | 20 | M16x1.5 | 32 | 45 | 4 | 37 | 25 | 158 | 16 | 20 | 90 | 90 | 130 | 40 | 20 | 90 |
| 80 | 25 | M20x1.5 | 40 | 45 | 4 | 46 | 32 | 174 | 20 | 20 | 108 | 120 | 148 | 50 | 20 | 109 |
| 100 | 25 | M20x1.5 | 40 | 55 | 4 | 51 | 35 | 189 | 20 | 25 | 131 | 145 | 181 | 50 | 25 | 117 |
| 125 | 30 | M27x2 | 54 | 60 | 5 | 65 | 42 | 225 | 24 | 25 | 160 | 149 | 210 | 50 | 25 | 139 |
| *160 | 40 | M36x2 | 72 | 65 | 7 | 80 | 25 | 260 | 32 | 32 | 200 | 200 | 264 | 40 | 32 | 160 |
| *200 | 40 | M36x2 | 72 | 65 | 7 | 95 | 25 | 275 | 32 | 32 | 250 | 250 | 314 | 40 | 32 | 170 |

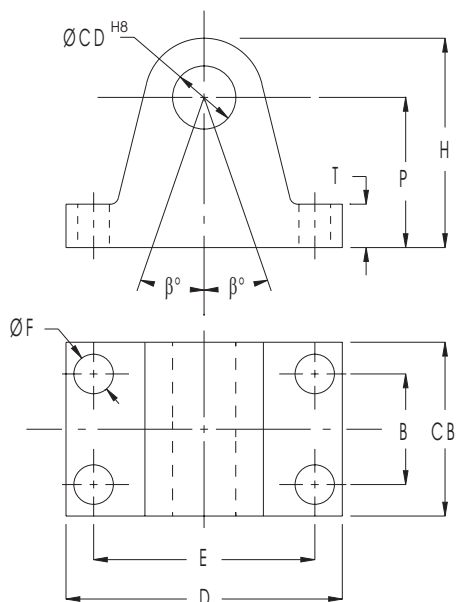
*Tie-rods execution

Magnetic switches



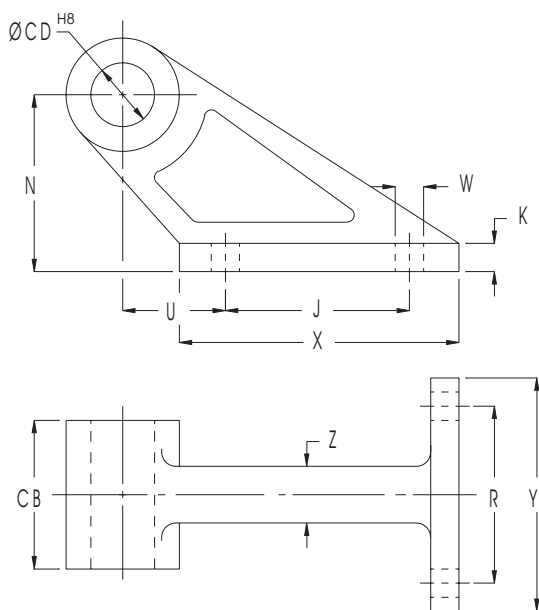
| <i>Technical data</i> | <i>MA3GA3</i> | <i>MA3GA4</i> | <i>MA3GA5</i> |
|-------------------------------|---------------|----------------------|----------------------|
| Contact | NA reed | NA electronic (Hall) | NA electronic (Hall) |
| Current I_{max} (mA) | 1000 | 300 | 300 |
| Tension V_{min} (V) | 2.5 | 10 | 10 |
| Tension V_{max} (V) | 250 | 30 | 30 |
| Max power (W/VA) | 50/50 | --- | --- |
| Connection | 2 wires | 3 wires PNP | 3 wires NPN |
| Conjuntion | Connector | dir. cable | dir. cable |
| LED | red | red | red |
| Cable material | PVC | PVC | PVC |
| Sez. cond. (mm ²) | 0.34 | 0.14 | 0.14 |
| | | | |

Normal vertical counterhinge



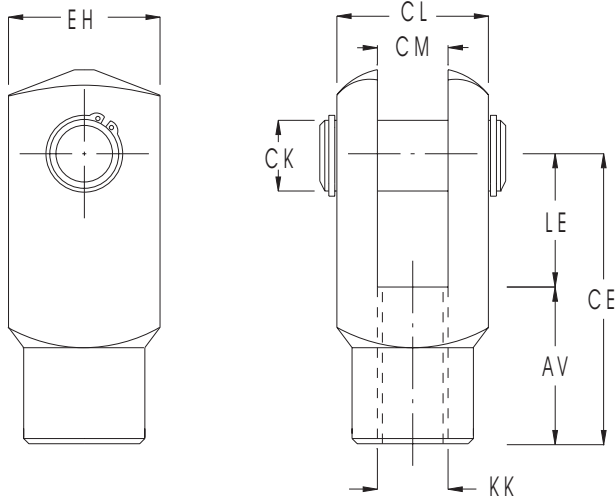
| Bore | CB | B | D | E | F | H | P | CD | T | β° |
|------|----|----|-----|-----|----|------|----|----|----|----|
| 32 | 26 | 0 | 40 | 28 | 7 | 28 | 18 | 10 | 8 | 30 |
| 40 | 28 | 16 | 52 | 38 | 9 | 38 | 26 | 12 | 10 | 25 |
| 50 | 32 | 16 | 52 | 38 | 9 | 38 | 26 | 12 | 10 | 30 |
| 63 | 40 | 25 | 75 | 54 | 11 | 50 | 34 | 16 | 12 | 30 |
| 80 | 50 | 25 | 75 | 54 | 11 | 50 | 34 | 16 | 12 | 30 |
| 100 | 60 | 32 | 115 | 90 | 14 | 63.5 | 41 | 20 | 16 | 30 |
| 125 | 70 | 32 | 115 | 90 | 14 | 63.5 | 41 | 25 | 16 | 30 |
| 160 | 90 | 43 | 180 | 150 | 18 | 80 | 55 | 30 | 20 | 30 |
| 200 | 90 | 43 | 180 | 150 | 18 | 80 | 55 | 30 | 20 | 30 |

Square horizontal counterhinge



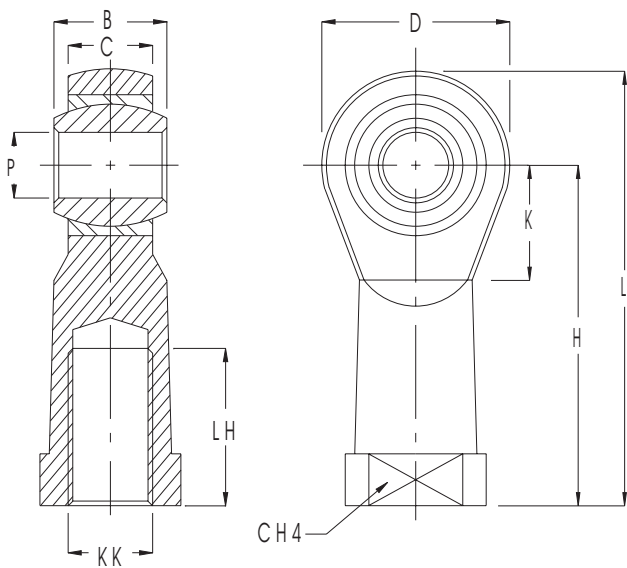
| Bore | CB | R | X | J | W | U | K | N | CD | Z | Y |
|------|----|----|-----|-----|----|----|----|-----|----|----|-----|
| 32 | 26 | 25 | 37 | 20 | 7 | 18 | 8 | 32 | 10 | 10 | 41 |
| 40 | 28 | 32 | 54 | 32 | 9 | 25 | 10 | 45 | 12 | 12 | 52 |
| 50 | 32 | 32 | 54 | 32 | 9 | 25 | 10 | 45 | 12 | 12 | 52 |
| 63 | 40 | 40 | 75 | 50 | 11 | 32 | 12 | 63 | 16 | 15 | 63 |
| 80 | 50 | 40 | 75 | 50 | 11 | 32 | 12 | 63 | 16 | 15 | 63 |
| 100 | 60 | 50 | 103 | 70 | 14 | 40 | 16 | 90 | 20 | 22 | 80 |
| 125 | 70 | 50 | 103 | 70 | 14 | 40 | 16 | 90 | 25 | 22 | 80 |
| 160 | 90 | 63 | 154 | 110 | 18 | 50 | 20 | 140 | 30 | 25 | 110 |
| 200 | 90 | 63 | 154 | 110 | 18 | 50 | 20 | 140 | 30 | 25 | 110 |

Rod clevis

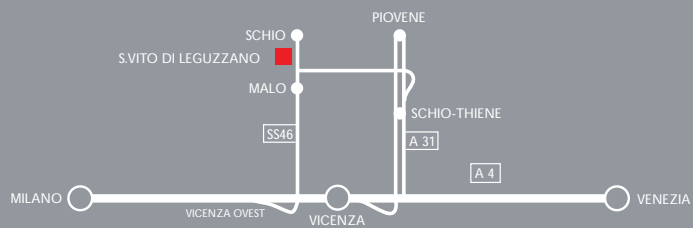


| Bore | KK | CL | CM | EH | CE | LE | AV | CK |
|------|----------|----|----|----|-----|----|----|----|
| 32 | M10x1.25 | 20 | 10 | 20 | 40 | 20 | 20 | 10 |
| 40 | M12x1.25 | 24 | 12 | 24 | 48 | 24 | 24 | 12 |
| 50 | M16x1.5 | 32 | 16 | 32 | 64 | 32 | 32 | 16 |
| 63 | M16x1.5 | 32 | 16 | 32 | 64 | 32 | 32 | 16 |
| 80 | M20x1.5 | 40 | 20 | 40 | 80 | 40 | 40 | 20 |
| 100 | M20x1.5 | 40 | 20 | 40 | 80 | 40 | 40 | 20 |
| 125 | M27x2 | 55 | 30 | 55 | 110 | 54 | 56 | 30 |
| 160 | M36x2 | 70 | 35 | 70 | 144 | 72 | 72 | 35 |
| 200 | M36x2 | 70 | 35 | 70 | 144 | 72 | 72 | 35 |

Rod eye with spherical bearing



| Bore | KK | P | C | B | LH | D | K | H | L | CH4 |
|------|----------|----|------|----|----|----|----|-----|-----|-----|
| 32 | M10x1.25 | 10 | 10.5 | 14 | 20 | 28 | 15 | 43 | 57 | 17 |
| 40 | M12x1.25 | 12 | 12 | 16 | 22 | 32 | 17 | 50 | 66 | 19 |
| 50 | M16x1.5 | 16 | 15 | 21 | 28 | 42 | 23 | 64 | 85 | 22 |
| 63 | M16x1.5 | 16 | 15 | 21 | 28 | 42 | 23 | 64 | 85 | 22 |
| 80 | M20x1.5 | 20 | 18 | 25 | 33 | 50 | 27 | 77 | 102 | 30 |
| 100 | M20x1.5 | 20 | 18 | 25 | 33 | 50 | 27 | 77 | 102 | 30 |
| 125 | M27x2 | 30 | 25 | 37 | 51 | 70 | 36 | 110 | 145 | 41 |
| 160 | M36x2 | 35 | 28 | 43 | 56 | 80 | 41 | 125 | 165 | 50 |
| 200 | M36x2 | 35 | 28 | 43 | 56 | 80 | 41 | 125 | 165 | 50 |



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