

### General

This series of pneumatic cylinders is manufactured according to ISO 6431 standards adapted to VDMA 24562 and CNOMO/AFNOR 49003 that guarantee the interchangeability of the cylinders even without mounted anchoring.

It differs from the 1300 and 1303 series mainly due to the different pitch of the mounting holes on the end plates and of the barrel made of anodized and shaped aluminium; the tie rods have been eliminated for bores from 32 to 125 mm and the end covers are mounted directly on the barrel with special male/female screws, while for bore 160 and 200 mm it is still used the tie rods going through the barrel fixing holes.

The barrel is extruded on the inside to guarantee precision with low friction; oxydation hardens the sliding surface of the seals allowing work even without lubrication.

The magnetic piston can be mounted to activate the limit switch with Reed contact and all types of anchorings are available according to ISO-VDMA standards, that can be fixed to the end plates with socket head screws.

To order single acting cylinders (up to Ø 125, 50 mm maximum stroke), add to the code of the chosen cylinder abbreviation MA for the front spring and MP for the rear spring.

For example: **1320.32.50.01MA**    **1320.50.25.01MP**

### Construction characteristics

|                              |   |
|------------------------------|---|
| End plates                   | from Ø32 to Ø125: UNI 5079 aluminium alloy casting painted black by cataphoresis<br>from Ø160 to Ø200: UNI 3051 aluminium chilled painted black by cataphoresis   |
| Rod                          | Chromed AISI 303 stainless steel or C43 chromed steel   |
| Barrel                       | Aluminium alloy, anodized 25 micron Ra = 0,3 ÷ 0,5  |
| Cushion bushings             | Hardened aluminium  |
| Rod-guide bushing            | Self-lubricating sintered bronze  |
| Piston                       | Vulcanized NBR 80 shore rubber monobloc on steel core with incorporated plastoferrite permanent magnet. NBR 80 shore rubber monobloc on without magnet for the non magnetic version plus rear spacer<br>VITON® monobloc for high temperature, available on request for magnetic and non magnetic cylinder |
| Piston rod and cushion seals | Self-lubricating 90 shore mixing polyurethane (VITON® on request for high temperature)  |
| Other seals                  | Rubber NBR 80 shore   |
| Cushion adjustment screws    | Nickel-plated steel   |

### Technical characteristics

|                       |  |
|-----------------------|--|
| Fluid                 | filtered and preferably lubricated air           |
| Pressure              | 10 bar   |
| Operating temperature | -5°C ÷ +70°C (VITON®, 150°C)                     |
| Bore                  | Ø 32 - 40 - 50 - 63 - 80 - 100 - 125 - 160 - 200 |
| Cushioning length     | mm 28 - 32 - 32 - 40 - 44 - 50 - 55 - 55 - 55    |

**"Attention: Dry air must be used for application below 0°C"**

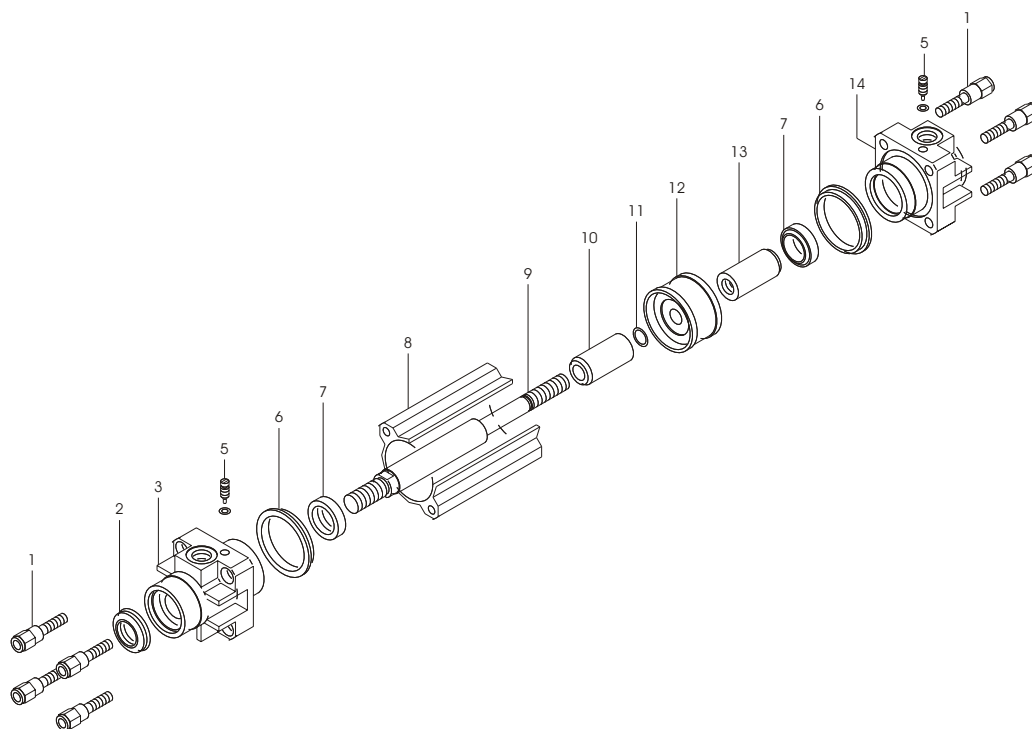
#### Standard strokes (for all diameters)

|                                   |
|-----------------------------------|
| from 0 up to 150, every 25 mm     |
| over 150 up to 500, every 50 mm   |
| over 500 up to 1000, every 100 mm |

#### Stroke tolerance (ISO 15552)

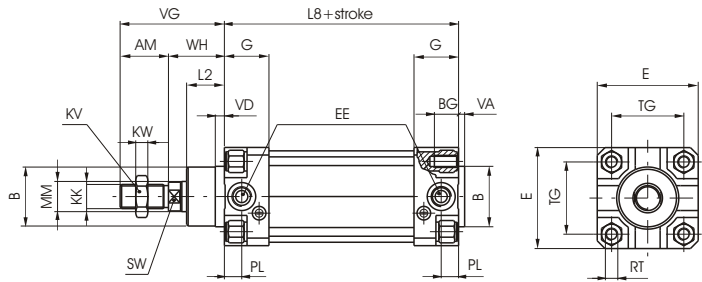
| Bore            | Stroke              | Tolerance |
|-----------------|---------------------|-----------|
| 32 - 40 - 50    | up to 500           | +2<br>0   |
|                 | over 500 up to 1250 | +3,2<br>0 |
| 63 - 80 - 100   | up to 500           | +2,5<br>0 |
|                 | over 500 up to 1250 | +4<br>0   |
| 125 - 160 - 200 | up to 500           | +4<br>0   |
|                 | over 500 up to 1250 | +5<br>0   |

Drawing



| Pos. | Description                 | N. Pieces |
|------|-----------------------------|-----------|
| 1    | Tie nut                     | 8         |
| 2    | Rod seal                    | 1         |
| 3    | Front cover                 | 1         |
| 5    | Cushioning adjustment screw | 2         |
| 6    | Cover seal                  | 2         |
| 7    | Cushion seal                | 2         |
| 8    | Barrel                      | 1         |
| 9    | Rod                         | 1         |
| 10   | Front bushing cushion       | 1         |
| 11   | Front bushing cushion seal  | 1         |
| 12   | Piston                      | 1         |
| 13   | Rear bushing cushion        | 1         |
| 14   | Rear cover                  | 1         |

**Basic version**

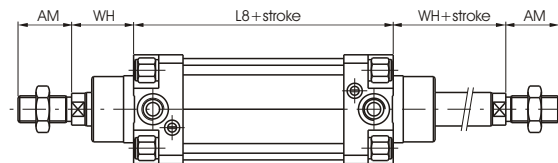


Ordering code

- 1319.Ø.stroke.01** magnetic chromed rod
- 1320.Ø.stroke.01** magnetic stainless steel chromed rod
- 1321.Ø.stroke.01** non magnetic chromed rod
- 13--.Ø.stroke.01V** non magnetic VITON® seals

This is the configuration that represents the basic cylinder according to ISO-VDMA standards. It can be directly anchored on machine parts using the four thread on the end cover. For other applications see the following pages where different types of attachments are

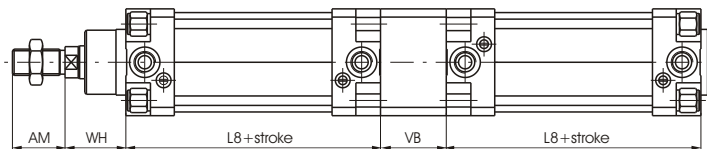
**Push/Pull version**



Ordering code

- 1319.Ø.stroke.02** magnetic chromed rod
- 1320.Ø.stroke.02** magnetic stainless steel chromed rod
- 1321.Ø.stroke.02** non magnetic chromed rod
- 13--.Ø.stroke.02V** non magnetic VITON® seals

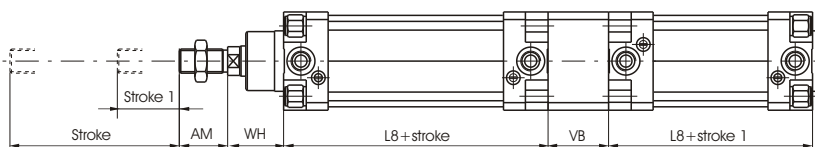
**Tandem push with a common rod**



Ordering code

- 1319.Ø.stroke.G** magnetic chromed rod
- 1320.Ø.stroke.G** magnetic stainless steel chromed rod
- 1321.Ø.stroke.G** non magnetic chromed rod

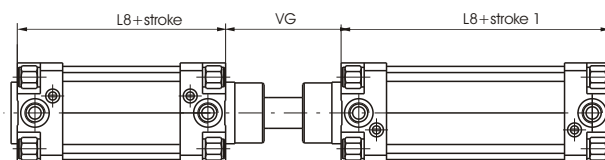
**Tandem push with independent rods**



Ordering code

- 1319.Ø.stroke.stroke1.F** magnetic chromed rod
- 1320.Ø.stroke.stroke1.F** magnetic stainless steel chromed rod
- 1321.Ø.stroke.stroke1.F** non magnetic stainless steel chromed rod

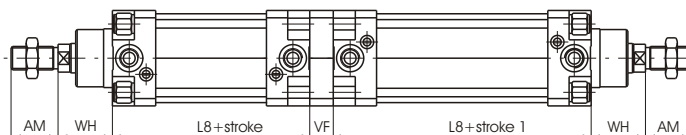
**Opposed tandem with common rods**



Ordering code

**1319.Ø.stroke.stroke1.D** magnetic chromed rod  
**1320.Ø.stroke.stroke1.D** magnetic stainless steel chromed rod  
**1321.Ø.stroke.stroke1.D** non magnetic chromed rod

**Tandem with opposed rods**



Ordering code

**1319.Ø.stroke.stroke1.E** magnetic chromed rod  
**1320.Ø.stroke.stroke1.E** magnetic stainless steel chromed rod  
**1321.Ø.stroke.stroke1.E** non magnetic chromed rod

**Table of dimensions**

|               |             |          |         |         |         |         |        |        |        |       |
|---------------|-------------|----------|---------|---------|---------|---------|--------|--------|--------|-------|
| Bore          | 32          | 40       | 50      | 63      | 80      | 100     | 125    | 160    | 200    |       |
| AM            | 22          | 24       | 32      | 32      | 40      | 40      | 54     | 72     | 72     |       |
| B (d 11)      | 30          | 35       | 40      | 45      | 45      | 55      | 60     | 65     | 75     |       |
| BG            | 12          | 12       | 16      | 16      | 20      | 20      | 20     | 24     | 24     |       |
| E             | 46          | 52       | 65      | 75      | 95      | 115     | 140    | 180    | 220    |       |
| EE            | G 1/8"      | G 1/4"   | G 1/4"  | G 3/8"  | G 3/8"  | G 1/2"  | G 1/2" | G 3/4" | G 3/4" |       |
| G             | 25          | 29       | 29,5    | 36      | 36      | 40      | 45     | 49     | 49     |       |
| KK            | M10x1,25    | M12x1,25 | M16x1,5 | M16x1,5 | M20x1,5 | M20x1,5 | M27x2  | M36x2  | M36x2  |       |
| KV            | 17          | 19       | 24      | 24      | 30      | 30      | 41     | 55     | 55     |       |
| KW            | 6           | 7        | 8       | 8       | 9       | 9       | 12     | 18     | 18     |       |
| L 2           | 16          | 20       | 25      | 25      | 32      | 35      | 45     | 50     | 60     |       |
| L 8 *         | 94          | 105      | 106     | 121     | 128     | 138     | 160    | 180    | 180    |       |
| MM            | 12          | 16       | 20      | 20      | 25      | 25      | 32     | 40     | 40     |       |
| PL            | 9           | 11,5     | 13      | 14      | 16      | 18      | 19     | 24     | 25     |       |
| RT            | M6          | M6       | M8      | M8      | M10     | M10     | M12    | M16    | M16    |       |
| SW            | 10          | 13       | 17      | 17      | 22      | 22      | 27     | 32     | 32     |       |
| TG            | 32,5        | 38       | 46,5    | 56,5    | 72      | 89      | 110    | 140    | 175    |       |
| VA            | 4           | 4        | 4       | 4       | 4       | 4       | 6      | 5      | 5      |       |
| VB            | 25          | 30       | 40      | 40      | 50      | 50      | 75     | 70     | 75     |       |
| VD            | 5           | 6        | 6       | 6       | 10      | 10      | 12     | 10     | 10     |       |
| VF            | 12          | 12       | 16      | 16      | 20      | 20      | 25     | 30     | 30     |       |
| VG            | 48          | 54       | 69      | 69      | 86      | 91      | 119    | 152    | 167    |       |
| WH            | 26          | 30       | 37      | 37      | 46      | 51      | 65     | 80     | 95     |       |
| Weight<br>gr. | stroke 0    | 480      | 730     | 1150    | 1600    | 2800    | 3600   | 7800   | 15000  | 21500 |
|               | every 10 mm | 25       | 32      | 56      | 60      | 90      | 100    | 140    | 265    | 325   |

**“L8” dimensions for “rear spring” and “front spring”**

|                        |     |     |     |     |     |     |     |
|------------------------|-----|-----|-----|-----|-----|-----|-----|
| Bore                   | 32  | 40  | 50  | 63  | 80  | 100 | 125 |
| L 8 (Stroke 51 ÷ 100)  | 134 | 150 | 151 | 166 | 183 | 193 | 230 |
| L 8 (Stroke 101 ÷ 150) | 174 | 195 | 196 | 211 | 238 | 248 | 300 |
| L 8 (Stroke 151 ÷ 200) | 214 | 240 | 241 | 256 | 293 | 303 | 370 |