

- All mountings can be used in explosives atmospheres, zones 1-21 and 2-22

## SPECIFICATIONS <sup>(1)</sup>

| Ø (mm) |     |     |     | Low feet<br>(set of 2 items)<br><b>MS1</b> |                 | High foot<br><b>MS3</b> |                 | Rectangular front or rear flange<br><b>MF1 - MF2</b> |  |
|--------|-----|-----|-----|--------------------------------------------|-----------------|-------------------------|-----------------|------------------------------------------------------|--|
| 449    | 453 | 454 | 450 | stamped sheet steel                        | stainless steel | light alloy             | steel           | stainless steel                                      |  |
| 20     | -   | -   | -   | P493AL124000A00                            | -               | -                       | P493AL126000A00 | -                                                    |  |
| 25     | -   | -   | -   | P493AM124000A00                            | -               | -                       | P493AM126000A00 | -                                                    |  |
| 32     | 32  | 32  | 32  | P493A3124000A00                            | P493A3124200A00 | P493A3125100A00         | P493A3126000A00 | P493A3126200A00                                      |  |
| 40     | 40  | 40  | 40  | P493A4124000A00                            | P493A4124200A00 | P493A4125100A00         | P493A4126000A00 | P493A4126200A00                                      |  |
| 50     | 50  | 50  | 50  | P493A5124000A00                            | P493A5124200A00 | P493A5125100A00         | P493A5126000A00 | P493A5126200A00                                      |  |
| 63     | 63  | 63  | 63  | P493A6124000A00                            | P493A6124200A00 | P493A6125100A00         | P493A6126000A00 | P493A6126200A00                                      |  |
| 80     | 80  | 80  | 80  | P493A8124000A00                            | P493A8124200A00 | P493A8125100A00         | P493A8126000A00 | P493A8126200A00                                      |  |
| 100    | 100 | 100 | 100 | P493A1124000A00                            | P493A1124200A00 | -                       | P493A1126000A00 | P493A1126200A00                                      |  |
| -      | -   | -   | 125 | P493AP124000A00                            | -               | -                       | P493AP126000A00 | -                                                    |  |
| -      | -   | -   | 160 | P493AQ124000A00                            | -               | -                       | P493AQ126000A00 | -                                                    |  |
| -      | -   | -   | 200 | P493AR124000A00                            | -               | -                       | P493AR126000A00 | -                                                    |  |

| Ø (mm)    |     |                 |                                | Centre trunnion<br><b>MT4</b> |                | Centre trunnion<br><b>MT4</b> |                                   | Support for centre trunnion<br>(set of 2 items)<br><b>AT4</b> |                 |
|-----------|-----|-----------------|--------------------------------|-------------------------------|----------------|-------------------------------|-----------------------------------|---------------------------------------------------------------|-----------------|
| 449       | 453 |                 |                                | delivered separately          | supplied loose | delivered separately          | supplied fixed /XV <sup>(2)</sup> |                                                               |                 |
| cast iron |     |                 |                                | cast iron                     |                | cast iron                     |                                   | aluminium                                                     |                 |
| 20        | -   | -               | -                              | -                             | -              | -                             | -                                 | -                                                             | -               |
| 25        | -   | -               | -                              | -                             | -              | -                             | -                                 | -                                                             | -               |
| 32        | 32  | P493B3111000A00 | See page:<br>P226-2 and P229-3 | -                             | -              | 32                            | P493A3113000A00                   | -                                                             | P493A3112100A00 |
| 40        | 40  | P493A4111000A00 |                                | -                             | -              | 40                            | P493A4113000A00                   | -                                                             | P493A4112100A00 |
| 50        | 50  | P493A5111000A00 |                                | -                             | -              | 50                            | P493A5113000A00                   | -                                                             | P493A5112100A00 |
| 63        | 63  | P493A6111000A00 |                                | -                             | -              | 63                            | P493A6113000A00                   | -                                                             | P493A6112100A00 |
| 80        | 80  | P493A8111000A00 |                                | -                             | -              | 80                            | P493A8113000A00                   | -                                                             | P493A8112100A00 |
| 100       | 100 | P493A1111000A00 |                                | -                             | -              | 100                           | P493A1113000A00                   | -                                                             | P493A1112100A00 |
| -         | -   | -               | -                              | -                             | -              | 125                           | P493AP113000A00                   | -                                                             | P493A1112100A00 |
| -         | -   | -               | -                              | -                             | -              | 160                           | P493AQ113000A00                   | -                                                             | P493AQ112100A00 |
| -         | -   | -               | -                              | -                             | -              | 200                           | P493AR113000A00                   | -                                                             | P493AQ112100A00 |

<sup>(1)</sup> Refer to the dimensional drawings on the following page.

NOTE: With the exception of the centre trunnion, mountings are delivered separately.

<sup>(2)</sup> Trunnion supplied fixed to the barrel: specify XV dimension when ordering.

Архангельск (8182)63-90-72  
Астана (7172)727-132  
Астрахань (8512)99-46-04  
Барнаул (3852)73-04-60  
Белгород (4722)40-23-64  
Брянск (4832)59-03-52  
Владивосток (423)249-28-31  
Волгоград (844)278-03-48  
Вологда (8172)26-41-59  
Воронеж (473)204-51-73  
Екатеринбург (343)384-55-89

Иваново (4932)77-34-06  
Ижевск (3412)26-03-58  
Казань (843)206-01-48  
Калининград (4012)72-03-81  
Калуга (4842)92-23-67  
Кемерово (3842)65-04-62  
Киров (8332)68-02-04  
Краснодар (861)203-40-90  
Красноярск (391)204-63-61  
Курск (4712)77-13-04  
Липецк (4742)52-20-81

Магнитогорск (3519)55-03-13  
Москва (495)268-04-70  
Мурманск (8152)59-64-93  
Набережные Челны (8552)20-53-41  
Нижний Новгород (831)429-08-12  
Новокузнецк (3843)20-46-81  
Новосибирск (383)227-86-73  
Омск (3812)21-46-40  
Новокузнецк (3843)20-46-81  
Орел (4862)44-53-42  
Оренбург (3532)37-68-04  
Пенза (8412)22-31-16

Пермь (342)205-81-47  
Ростов-на-Дону (863)308-18-15  
Рязань (4912)46-61-64  
Самара (846)206-03-16  
Санкт-Петербург (812)309-46-40  
Саратов (845)249-38-78  
Севастополь (8692)22-31-93  
Симферополь (3652)67-13-56  
Смоленск (4812)29-41-54  
Сочи (862)225-72-31  
Ставрополь (8652)20-65-13

Сургут (3462)77-98-35  
Тверь (4822)63-31-35  
Томск (3822)98-41-53  
Тула (4872)74-02-29  
Тюмень (3452)66-21-18  
Ульяновск (8422)24-23-59  
Уфа (347)229-48-12  
Хабаровск (4212)92-98-04  
Челябинск (351)202-03-61  
Череповец (8202)49-02-64  
Ярославль (4852)69-52-93

# REAR MOUNTINGS <sup>(1)</sup>



| Cap, detachable clevis                    |     |     |     |
|-------------------------------------------|-----|-----|-----|
| MP2                                       |     |     |     |
| Ø (mm)                                    |     |     |     |
| 449                                       | 453 | 454 | 450 |
| light alloy                               |     |     |     |
| 20                                        | -   | -   | -   |
| 25                                        | -   | -   | -   |
| 32                                        | 32  | 32  | 32  |
| 40                                        | 40  | 40  | 40  |
| 50                                        | 50  | 50  | 50  |
| 63                                        | 63  | 63  | 63  |
| 80                                        | 80  | 80  | 80  |
| 100                                       | 100 | 100 | 100 |
| -                                         | -   | -   | 125 |
| -                                         | -   | -   | 160 |
| -                                         | -   | -   | 200 |
| cast iron                                 |     |     |     |
| light alloy anticorrosion (NPC treatment) |     |     |     |
| stainless steel                           |     |     |     |
| P493A3121110A00                           |     |     |     |
| P493A4121110A00                           |     |     |     |
| P493A5121110A00                           |     |     |     |
| P493A6121110A00                           |     |     |     |
| P493A8121110A00                           |     |     |     |
| P493A1121110A00                           |     |     |     |
| P493AP121010A00                           |     |     |     |
| P493AQ121010A00                           |     |     |     |
| P493AR121010A00                           |     |     |     |



| Cap, detachable eye (trunnion)            |     |     |     |
|-------------------------------------------|-----|-----|-----|
| MP4                                       |     |     |     |
| Ø (mm)                                    |     |     |     |
| 449                                       | 453 | 454 | 450 |
| light alloy                               |     |     |     |
| 20                                        | -   | -   | -   |
| 25                                        | -   | -   | -   |
| 32                                        | 32  | 32  | 32  |
| 40                                        | 40  | 40  | 40  |
| 50                                        | 50  | 50  | 50  |
| 63                                        | 63  | 63  | 63  |
| 80                                        | 80  | 80  | 80  |
| 100                                       | 100 | 100 | 100 |
| -                                         | -   | -   | 125 |
| -                                         | -   | -   | 160 |
| -                                         | -   | -   | 200 |
| cast iron                                 |     |     |     |
| light alloy anticorrosion (NPC treatment) |     |     |     |
| stainless steel                           |     |     |     |
| P493AL122110A00                           |     |     |     |
| P493AM122110A00                           |     |     |     |
| P493A3122100A00                           |     |     |     |
| P493A4122100A00                           |     |     |     |
| P493A5122100A00                           |     |     |     |
| P493A6122100A00                           |     |     |     |
| P493A8122100A00                           |     |     |     |
| P493A1122100A00                           |     |     |     |
| P493AP122010A00                           |     |     |     |
| P493AQ122010A00                           |     |     |     |
| P493AR122010A00                           |     |     |     |



| Angular clevis bracket                    |     |     |     |
|-------------------------------------------|-----|-----|-----|
| AB7                                       |     |     |     |
| Ø (mm)                                    |     |     |     |
| 449                                       | 453 | 454 | 450 |
| light alloy                               |     |     |     |
| 20                                        | -   | -   | -   |
| 25                                        | -   | -   | -   |
| 32                                        | 32  | 32  | 32  |
| 40                                        | 40  | 40  | 40  |
| 50                                        | 50  | 50  | 50  |
| 63                                        | 63  | 63  | 63  |
| 80                                        | 80  | 80  | 80  |
| 100                                       | 100 | 100 | 100 |
| -                                         | -   | -   | 125 |
| -                                         | -   | -   | 160 |
| -                                         | -   | -   | 200 |
| cast iron                                 |     |     |     |
| light alloy anticorrosion (NPC treatment) |     |     |     |
| stainless steel                           |     |     |     |
| P493A3123100NPC                           |     |     |     |
| P493A4123100NPC                           |     |     |     |
| P493A5123100NPC                           |     |     |     |
| P493A6123100NPC                           |     |     |     |
| P493A8123100NPC                           |     |     |     |
| P493A1123100NPC                           |     |     |     |
| P493AP123010A00                           |     |     |     |
| P493AQ123010A00                           |     |     |     |
| P493AR123010A00                           |     |     |     |



Cap clevis for spherical eye or clevis bracket  
AB6



Cap eye with spherical eye <sup>(2)</sup>  
MP6



Angular clevis bracket spherical bearing <sup>(2)</sup>  
AB5

| steel           |  |  |  |
|-----------------|--|--|--|
| steel           |  |  |  |
| steel           |  |  |  |
| P493A3129000A00 |  |  |  |
| P493A4128000A00 |  |  |  |
| P493A5128000A00 |  |  |  |
| P493A6128000A00 |  |  |  |
| P493A8128000A00 |  |  |  |
| P493A1128000A00 |  |  |  |
| P493AP129000A00 |  |  |  |
| P493AP128000A00 |  |  |  |
| P493AP127000A00 |  |  |  |

<sup>(1)</sup> Refer to the dimensional drawings on the following page.

<sup>(2)</sup> These accessories allows accurate angular compensation adjustment spherical of 4°.

## ROD MOUNTINGS <sup>(1)</sup>

|            |            |            |            |                                                                                   |                        |                                                                                     |                        |                                                                                     |
|------------|------------|------------|------------|-----------------------------------------------------------------------------------|------------------------|-------------------------------------------------------------------------------------|------------------------|-------------------------------------------------------------------------------------|
|            |            |            |            |  |                        |  |                        |  |
|            |            |            |            | Femelle rod clevis <sup>(2)</sup><br><b>AP2</b>                                   |                        | Spherical rod end<br><b>AP6</b>                                                     |                        | Alignement compensator<br><sup>(3)</sup>                                            |
| Ø (mm)     |            |            |            | steel                                                                             | stainless steel        | steel                                                                               | stainless steel        | steel                                                                               |
| <b>449</b> | <b>453</b> | <b>454</b> | <b>450</b> |                                                                                   |                        |                                                                                     |                        |                                                                                     |
| 20-25      | -          | -          | -          | <b>P493AL431000A00</b>                                                            | -                      | <b>P493AL432000A00</b>                                                              |                        | -                                                                                   |
| 32-40      | 32         | 32         | 32         | <b>P493A3131000A00</b>                                                            | <b>P493A3131200A00</b> | <b>P493A3132000A00</b>                                                              | <b>P493A3132200A00</b> | <b>P493A3134000A00</b>                                                              |
| 50-63      | 40         | 40         | 40         | <b>P493A4131000A00</b>                                                            | <b>P493A4131200A00</b> | <b>P493A4132000A00</b>                                                              | <b>P493A4132200A00</b> | <b>P493A4134000A00</b>                                                              |
| 80-100     | 50-63      | 50-63      | 50-63      | <b>P493A5131000A00</b>                                                            | <b>P493A5131200A00</b> | <b>P493A5132000A00</b>                                                              | <b>P493A5132200A00</b> | <b>P493A5134000A00</b>                                                              |
| -          | 80-100     | 80-100     | 80-100     | <b>P493A8131000A00</b>                                                            | <b>P493A8131200A00</b> | <b>P493A8132000A00</b>                                                              | <b>P493A8132200A00</b> | <b>P493A8134000A00</b>                                                              |
| -          | -          | -          | 125        | <b>P493AP131000A00</b>                                                            | -                      | <b>P493AP132000A00</b>                                                              | -                      | <b>P493AP134000A00</b>                                                              |
| -          | -          | -          | 160-200    | <b>P493AQ131000A00</b>                                                            | -                      | <b>P493AQ132000A00</b>                                                              | -                      | -                                                                                   |

<sup>(1)</sup> Refer to the dimensional drawings on the following page.

<sup>(2)</sup> Ø125 to 200 mm: Clevis with axis locking pin

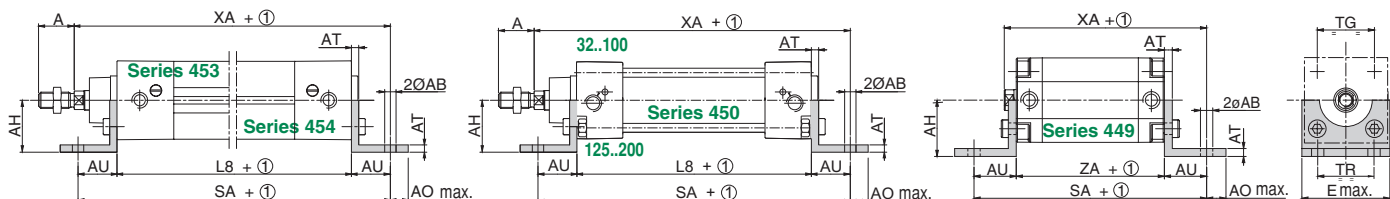
<sup>(3)</sup> This accessory allows accurate angular compensation adjustment spherical of 4° and radial of 0,7 mm.

**DIMENSIONS (mm), WEIGHT (kg)**

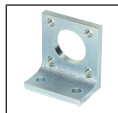


**MOUNTING**

Low feet  
**MS1**

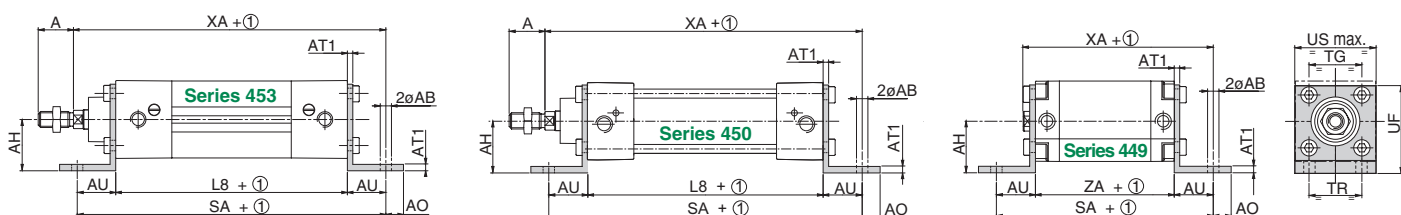


① Stroke



**MOUNTING**

High foot  
**MS3**



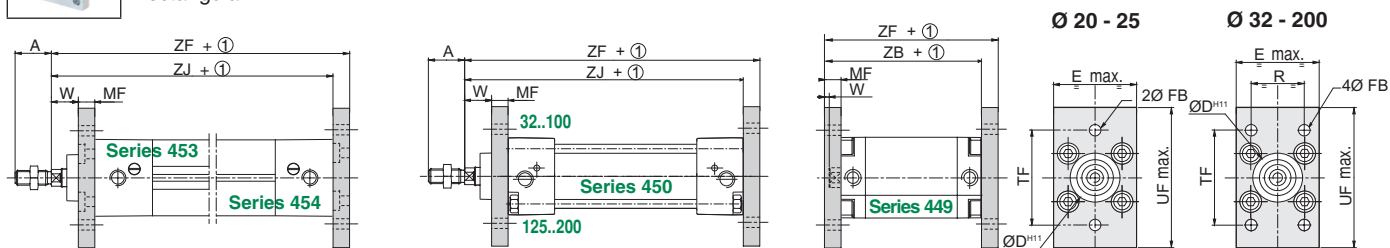
① Stroke

| Ø (mm) |     |     |     | ØAB  | A  | AO | AH  | AT | AT1 | AU | E   | L8  | SA  |             | TR  | TG   | UF  | US  | XA    |             | ZA | weight  |         |
|--------|-----|-----|-----|------|----|----|-----|----|-----|----|-----|-----|-----|-------------|-----|------|-----|-----|-------|-------------|----|---------|---------|
| 449    | 453 | 454 | 450 |      |    |    |     |    |     |    |     |     | 449 | 453/454/450 |     |      |     |     | 449   | 453/454/450 |    | 2 x MS1 | 1 x MS3 |
| 20     | -   | -   | -   | 7    | -  | 7  | 27  | 4  | -   | 16 | 38  | -   | 69  | -           | 22  | 22   | -   | -   | 59    | -           | 37 | 0,064   | -       |
| 25     | -   | -   | -   | 7    | -  | 7  | 29  | 4  | -   | 16 | 41  | -   | 71  | -           | 26  | 26   | -   | -   | 61    | -           | 39 | 0,076   | -       |
| 32     | 32  | 32  | 32  | 7    | 22 | 11 | 32  | 4  | 8   | 24 | 50  | 94  | 92  | 142         | 32  | 32,5 | 54  | 50  | 79    | 144         | 44 | 0,150   | 0,180   |
| 40     | 40  | 40  | 40  | 9    | 24 | 13 | 36  | 4  | 8   | 28 | 58  | 105 | 101 | 161         | 36  | 38   | 62  | 58  | 83    | 163         | 45 | 0,190   | 0,250   |
| 50     | 50  | 50  | 50  | 9    | 32 | 13 | 45  | 5  | 10  | 32 | 70  | 106 | 109 | 170         | 45  | 46,5 | 77  | 70  | 88    | 175         | 45 | 0,395   | 0,470   |
| 63     | 63  | 63  | 63  | 9    | 32 | 13 | 50  | 5  | 10  | 32 | 85  | 121 | 113 | 185         | 50  | 56,5 | 87  | 85  | 91,5  | 190         | 49 | 0,445   | 0,595   |
| 80     | 80  | 80  | 80  | 12   | 40 | 20 | 63  | 6  | 12  | 41 | 105 | 128 | 146 | 210         | 63  | 72   | 110 | 105 | 107,5 | 215         | 54 | 0,790   | 1,265   |
| 100    | 100 | 100 | 100 | 14,5 | 40 | 25 | 71  | 6  | 12  | 41 | 130 | 138 | 149 | 220         | 75  | 89   | 130 | 130 | 128,5 | 230         | 67 | 1,400   | -       |
| -      | -   | -   | 125 | 16,5 | 54 | 25 | 90  | 8  | 16  | 45 | 157 | 160 | -   | 250         | 90  | 110  | 161 | 157 | -     | 270         | -  | 2,330   | -       |
| -      | -   | -   | 160 | 18,5 | 72 | 25 | 115 | 10 | -   | 60 | 195 | 180 | -   | 300         | 115 | 140  | -   | -   | -     | 320         | -  | 4,860   | -       |
| -      | -   | -   | 200 | 24   | 72 | 35 | 135 | 12 | -   | 70 | 238 | 180 | -   | 320         | 135 | 175  | -   | -   | -     | 345         | -  | 7,900   | -       |



**MOUNTING**

Front or rear flange  
**MF1 - MF2**  
Rectangular



① Stroke

| Ø (mm) |     |     |     | A  | ØD | E   | ØFB | MF | R   | TF  | UF  | W   |             | ZB   | ZJ  | ZF   |             | weight |
|--------|-----|-----|-----|----|----|-----|-----|----|-----|-----|-----|-----|-------------|------|-----|------|-------------|--------|
| 449    | 453 | 454 | 450 |    |    |     |     |    |     |     |     | 449 | 453/454/450 |      |     | 449  | 453/454/450 |        |
| 20     | -   | -   | -   | -  | 16 | 38  | 6,6 | 8  | -   | 55  | 70  | 2   | -           | 43   | -   | 51   | -           | 0,016  |
| 25     | -   | -   | -   | -  | 16 | 41  | 6,6 | 8  | -   | 60  | 76  | 2   | -           | 45   | -   | 53   | -           | 0,020  |
| 32     | 32  | 32  | 32  | 22 | 30 | 50  | 7   | 10 | 32  | 64  | 86  | 3   | 16          | 55   | 120 | 65   | 130         | 0,190  |
| 40     | 40  | 40  | 40  | 24 | 35 | 58  | 9   | 10 | 36  | 72  | 96  | 3   | 20          | 55   | 135 | 65   | 145         | 0,245  |
| 50     | 50  | 50  | 50  | 32 | 40 | 70  | 9   | 12 | 45  | 90  | 115 | 4   | 25          | 56   | 143 | 67   | 155         | 0,500  |
| 63     | 63  | 63  | 63  | 32 | 45 | 85  | 9   | 12 | 50  | 100 | 130 | 4   | 25          | 59,5 | 158 | 71,5 | 170         | 0,580  |
| 80     | 80  | 80  | 80  | 40 | 45 | 105 | 12  | 16 | 63  | 126 | 165 | 6   | 30          | 66,5 | 174 | 82,5 | 190         | 1,390  |
| 100    | 100 | 100 | 100 | 40 | 55 | 130 | 14  | 16 | 75  | 150 | 187 | 6   | 35          | 77,5 | 189 | 93,5 | 205         | 1,630  |
| -      | -   | -   | 125 | 54 | 60 | 157 | 16  | 20 | 90  | 180 | 224 | -   | 45          | -    | 225 | -    | 245         | 4,270  |
| -      | -   | -   | 160 | 72 | 65 | 195 | 18  | 20 | 115 | 230 | 280 | -   | 60          | -    | 260 | -    | 280         | 6,880  |
| -      | -   | -   | 200 | 72 | 75 | 238 | 22  | 25 | 135 | 270 | 320 | -   | 70          | -    | 275 | -    | 300         | 12,330 |

**DIMENSIONS (mm), WEIGHT (kg)**



**MOUNTING**

Centre trunnion

**MT4**

(Series 449-453)

XV Dimension must be specified when ordering.



**MOUNTING**

Centre trunnion

**MT4**

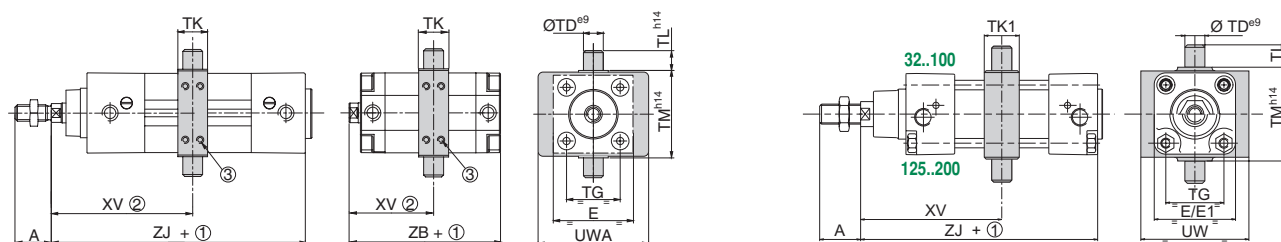
(Series 450)

XV Dimension must be specified when ordering.

Series 453

Series 449

Series 450

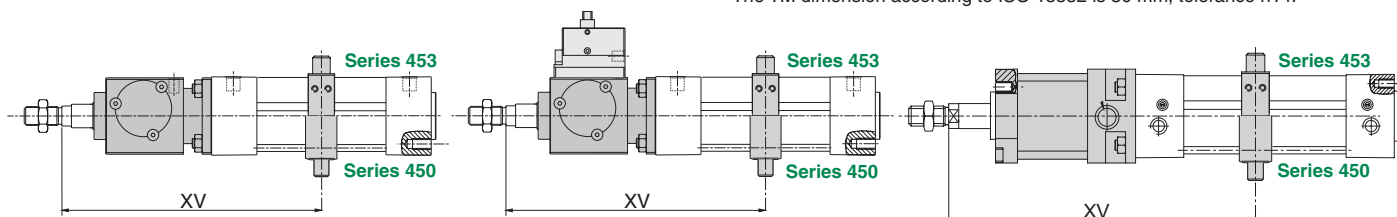


| Ø (mm) |     |     | A  | E    | E1<br>(1) | TD | TG   | TK | TK1 | TL | TM     | UW  | UWA | ZB   | ZJ  | XV min. |     |     | XV max. (+ stroke) |     |     | min. stroke | weight  |      |
|--------|-----|-----|----|------|-----------|----|------|----|-----|----|--------|-----|-----|------|-----|---------|-----|-----|--------------------|-----|-----|-------------|---------|------|
| 449    | 453 | 450 |    |      |           |    |      |    |     |    |        |     |     |      |     | 449     | 453 | 450 | 449                | 453 | 450 | 449         | 449/453 | 450  |
| 32     | 32  | 32  | 22 | 46,5 | 48        | 12 | 32,5 | 20 | 22  | 12 | 50 (2) | 55  | 65  | 55   | 120 | 32      | 71  | 72  | 26                 | 76  | 75  | 5           | 0,185   | 0,2  |
| 40     | 40  | 40  | 24 | 52   | 54        | 16 | 38   | 20 | 28  | 16 | 63     | 58  | 75  | 55   | 135 | 32      | 79  | 83  | 27                 | 86  | 82  | 5           | 0,33    | 0,4  |
| 50     | 50  | 50  | 32 | 64   | 66        | 16 | 46,5 | 20 | 28  | 16 | 75     | 68  | 90  | 56   | 143 | 33      | 86  | 90  | 28                 | 95  | 91  | 5           | 0,475   | 0,5  |
| 63     | 63  | 63  | 32 | 74   | 78        | 20 | 56,6 | 25 | 35  | 20 | 90     | 84  | 100 | 59,5 | 158 | 35      | 89  | 94  | 30                 | 107 | 102 | 5           | 0,57    | 0,9  |
| 80     | 80  | 80  | 40 | 92   | 96        | 20 | 72   | 25 | 35  | 20 | 110    | 102 | 130 | 66,5 | 174 | 40      | 102 | 107 | 35                 | 119 | 114 | 5           | 1,12    | 1,1  |
| 100    | 100 | 100 | 40 | 109  | 115       | 25 | 89   | 30 | 40  | 25 | 132    | 145 | 140 | 87,5 | 189 | 45      | 109 | 114 | 42                 | 132 | 127 | 5           | 1,52    | 1,86 |
| -      | -   | 125 | 54 | 145  | -         | 25 | 110  | 40 | 40  | 25 | 160    | 175 | 175 | -    | 225 | -       | -   | 135 | -                  | -   | 156 | -           | -       | 2,55 |
| -      | -   | 160 | 72 | 180  | -         | 32 | 140  | 50 | 50  | 32 | 200    | 220 | 220 | -    | 260 | -       | -   | 160 | -                  | -   | 181 | -           | -       | 4,7  |
| -      | -   | 200 | 72 | 220  | -         | 32 | 175  | 50 | 50  | 32 | 250    | 260 | 260 | -    | 275 | -       | -   | 174 | -                  | -   | 197 | -           | -       | 4,2  |

<sup>(1)</sup> Applies to 450 series with options AT1, AT2, HTP, FPM, FFP and NPC.

<sup>(2)</sup> TM dimension is 53 for series 449 and 453, in Ø32.

The TM dimension according to ISO 15552 is 50 mm, tolerance h14.



| STATIC ROD-LOCKING DEVICE |     |         |     |                    |     | DYNAMIC ROD-LOCKING DEVICE |     |                    |     |
|---------------------------|-----|---------|-----|--------------------|-----|----------------------------|-----|--------------------|-----|
| Ø (mm)                    |     | XV min. |     | XV max. (+ stroke) |     | XV min.                    |     | XV max. (+ stroke) |     |
| 453                       | 450 | 453     | 450 | 453                | 450 | 453                        | 450 | 453                | 450 |
| 32                        | 32  | 131     | 132 | 136                | 135 | -                          | -   | -                  | -   |
| 40                        | 40  | 149     | 153 | 156                | 152 | 174                        | 178 | 181                | 177 |
| 50                        | 50  | 176     | 180 | 185                | 181 | 198                        | 202 | 207                | 203 |
| 63                        | 63  | 179     | 184 | 197                | 192 | 209                        | 214 | 227                | 222 |
| 80                        | 80  | 212     | 217 | 229                | 224 | 242                        | 247 | 259                | 254 |
| 100                       | 100 | 219     | 224 | 242                | 237 | 259                        | 264 | 282                | 277 |

① Stroke

② Except when XV dimension is specified when ordering, the position of the trunnion may be adjusted along the unit. Consequently, the centre trunnion is not screwed on and must be adjusted after delivery.

③ 8 locking screws.

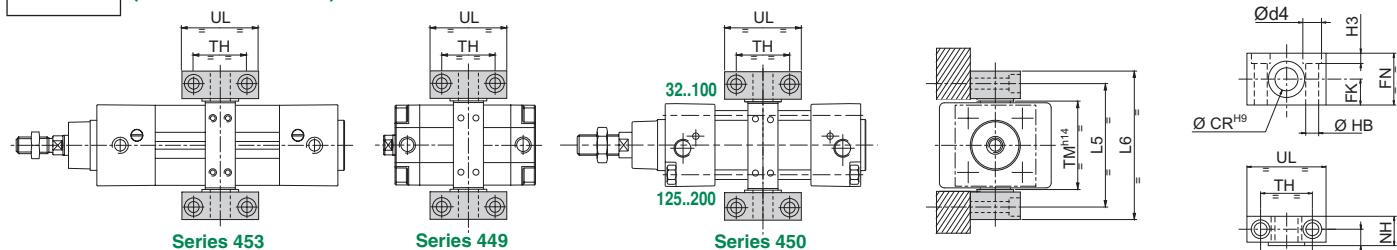


**MOUNTING**

Support for centre trunnion (set of 2 items)

**AT4**

(Series 449-453-450)



| Ø (mm) |     |     | C    | ØCR | Ød4 | FK | FN | HB   | H3   | L5  | L6  | NH   | TH | TM                | UL | weight |
|--------|-----|-----|------|-----|-----|----|----|------|------|-----|-----|------|----|-------------------|----|--------|
| 449    | 453 | 450 |      |     |     |    |    |      |      |     |     |      |    |                   |    |        |
| 32     | 32  | 32  | 10,5 | 12  | 11  | 15 | 30 | 6,6  | 6,8  | 74  | 89  | 18   | 32 | 50 <sup>(2)</sup> | 46 | 0,12   |
| 40     | 40  | 40  | 12   | 16  | 15  | 18 | 36 | 9    | 9    | 87  | 105 | 21   | 36 | 63                | 55 | 0,23   |
| 50     | 50  | 50  | 12   | 16  | 15  | 18 | 36 | 9    | 9    | 99  | 117 | 21   | 36 | 75                | 55 | 0,23   |
| 63     | 63  | 63  | 13   | 20  | 18  | 20 | 40 | 11   | 11   | 116 | 136 | 23   | 40 | 90                | 65 | 0,33   |
| 80     | 80  | 80  | 13   | 20  | 18  | 20 | 40 | 11   | 11   | 136 | 156 | 23   | 40 | 110               | 65 | 0,33   |
| 100    | 100 | 100 | 16   | 25  | 20  | 25 | 50 | 13,5 | 13   | 164 | 189 | 28,5 | 50 | 132               | 75 | 0,58   |
| -      | -   | 125 | 16   | 25  | 20  | 25 | 50 | 13,5 | 13   | 192 | 219 | 28,5 | 50 | 160               | 75 | 0,58   |
| -      | -   | 160 | 22,5 | 32  | 26  | 30 | 60 | 17,5 | 17,5 | 245 | 280 | 40   | 60 | 200               | 92 | 1,03   |
| -      | -   | 200 | 22,5 | 32  | 26  | 30 | 60 | 17,5 | 17,5 | 295 | 330 | 40   | 60 | 250               | 92 | 1,03   |

<sup>(2)</sup> TM dimension is 53 for series 449 and 453, in Ø32.

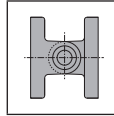
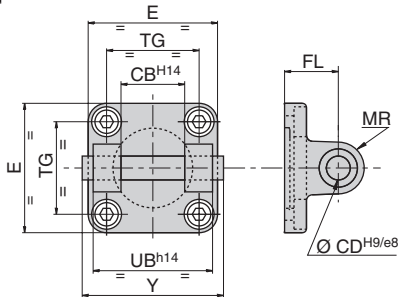
**DIMENSIONS (mm), WEIGHT (kg)**



**REAR MOUNTING**

Cap, detachable clevis

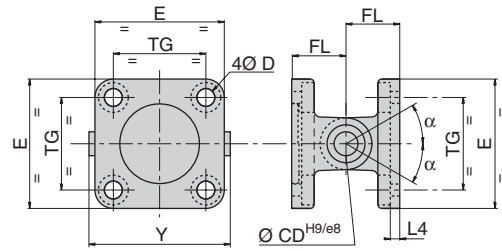
**MP2**



**MP2 + MP4**

Cap, detachable clevis

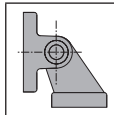
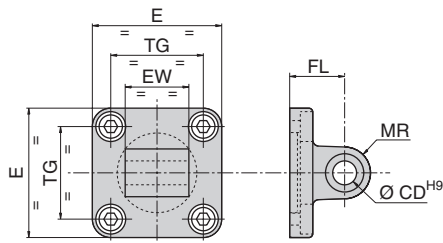
+  
Cap, detachable eye (trunnion)



**REAR MOUNTING**

Cap, detachable eye (trunnion)

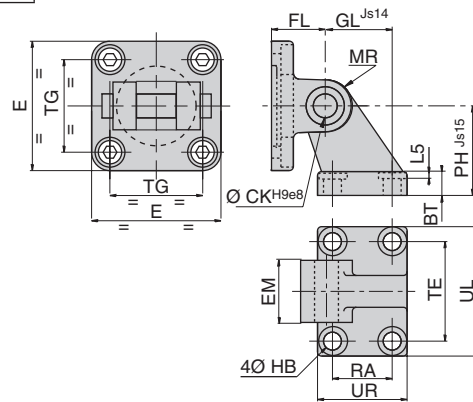
**MP4**



**MP2 + AB7**

Cap, detachable clevis

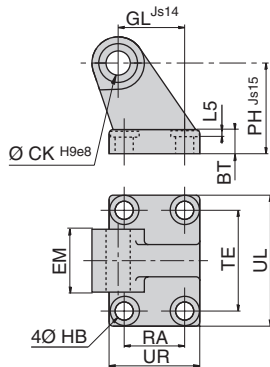
+  
Angular clevis bracket



**REAR MOUNTING**

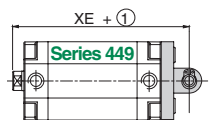
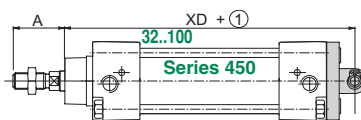
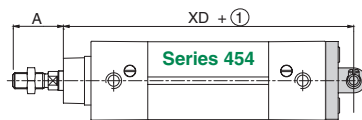
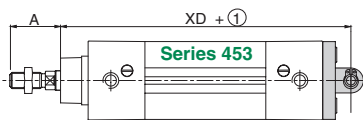
Angular clevis bracket

**AB7**



① Stroke

| Ø<br>(mm) |     |     |     |       | weight      |       |      |           |       |     |                 |       |       |
|-----------|-----|-----|-----|-------|-------------|-------|------|-----------|-------|-----|-----------------|-------|-------|
|           |     |     |     |       | light alloy |       |      | cast iron |       |     | stainless steel |       |       |
| 449       | 453 | 454 | 450 |       | MP2         | MP4   | AB7  | MP2       | MP4   | AB7 | MP2             | MP4   | AB7   |
| 20        | -   | -   | -   | -     | -           | 0,085 | -    | -         | -     | -   | -               | -     | -     |
| 25        | -   | -   | -   | -     | -           | 0,092 | -    | -         | -     | -   | -               | -     | -     |
| 32        | 32  | 32  | 32  | 0,105 | 0,085       | 0,16  | -    | -         | -     | -   | 0,41            | 0,41  | 0,16  |
| 40        | 40  | 40  | 40  | 0,15  | 0,092       | 0,23  | -    | -         | -     | -   | 0,67            | 0,67  | 0,24  |
| 50        | 50  | 50  | 50  | 0,24  | 0,17        | 0,39  | -    | -         | -     | -   | 0,97            | 0,97  | 0,42  |
| 63        | 63  | 63  | 63  | 0,37  | 0,25        | 0,57  | -    | -         | -     | -   | 1,585           | 1,585 | 0,525 |
| 80        | 80  | 80  | 80  | 0,635 | 0,445       | 0,95  | -    | -         | -     | -   | 3,46            | 3,46  | 1,055 |
| 100       | 100 | 100 | 100 | 0,99  | 0,755       | 0,5   | -    | -         | -     | -   | 5,35            | 5,35  | 1,36  |
| -         | -   | -   | 125 | -     | -           | -     | 3,57 | 3,1       | 6,61  | -   | -               | -     | -     |
| -         | -   | -   | 160 | -     | -           | -     | 6,66 | 5,22      | 12,47 | -   | -               | -     | -     |
| -         | -   | -   | 200 | -     | -           | -     | 9,89 | 7,78      | 16,76 | -   | -               | -     | -     |



| Ø<br>(mm) |     |     |     | A  | BT | CB<br>EM | CD<br>CK | D   | E<br>max. | EW | FL | GL  | HB  | L4  | L5  | MR | PH  | RA | TE  | TG   | UB  | UR  | UL  | XD  | XE  | Y   | α   |
|-----------|-----|-----|-----|----|----|----------|----------|-----|-----------|----|----|-----|-----|-----|-----|----|-----|----|-----|------|-----|-----|-----|-----|-----|-----|-----|
| 449       | 453 | 454 | 450 |    |    |          |          |     |           |    |    |     |     |     |     |    |     |    |     |      |     |     |     |     |     |     |     |
| 20        | -   | -   | -   | -  | -  | -        | 8        | -   | 38        | 16 | 20 | -   | -   | -   | -   | 9  | -   | -  | -   | 22   | -   | -   | -   | -   | 63  | -   | -   |
| 25        | -   | -   | -   | -  | -  | -        | 8        | -   | 41        | 16 | 20 | -   | -   | -   | -   | 9  | -   | -  | -   | 26   | -   | -   | -   | -   | 65  | -   | -   |
| 32        | 32  | 32  | 32  | 22 | 8  | 26       | 10       | 6,6 | 50        | 26 | 22 | 21  | 6,6 | 5,5 | 1,6 | 11 | 32  | 18 | 38  | 32,5 | 45  | 31  | 51  | 142 | 73  | 56  | 45° |
| 40        | 40  | 40  | 40  | 24 | 10 | 28       | 12       | 6,6 | 58        | 28 | 25 | 24  | 6,6 | 5,5 | 1,6 | 13 | 36  | 22 | 41  | 38   | 52  | 35  | 54  | 160 | 77  | 63  | 50° |
| 50        | 50  | 50  | 50  | 32 | 12 | 32       | 12       | 9   | 70        | 32 | 27 | 33  | 9   | 6,5 | 1,6 | 13 | 45  | 30 | 50  | 46,5 | 60  | 45  | 65  | 170 | 80  | 71  | 40° |
| 63        | 63  | 63  | 63  | 32 | 12 | 40       | 16       | 9   | 85        | 40 | 32 | 37  | 9   | 6,5 | 1,6 | 17 | 50  | 35 | 52  | 56,5 | 70  | 50  | 67  | 190 | 89  | 81  | 55° |
| 80        | 80  | 80  | 80  | 40 | 14 | 50       | 16       | 11  | 105       | 50 | 36 | 47  | 11  | 10  | 2,5 | 17 | 63  | 40 | 66  | 72   | 90  | 60  | 86  | 210 | 100 | 101 | 45° |
| 100       | 100 | 100 | 100 | 40 | 15 | 60       | 20       | 11  | 130       | 60 | 41 | 55  | 11  | 10  | 2,5 | 21 | 71  | 50 | 76  | 89   | 110 | 70  | 96  | 230 | 118 | 128 | 35° |
| -         | -   | -   | 125 | 54 | 20 | 70       | 25       | 14  | 157       | 70 | 50 | 70  | 14  | 10  | 3,2 | 26 | 90  | 60 | 94  | 110  | 130 | 90  | 124 | 275 | -   | 149 | 30° |
| -         | -   | -   | 160 | 72 | 25 | 90       | 30       | 18  | 195       | 90 | 55 | 97  | 18  | 10  | 4   | 31 | 115 | 88 | 118 | 140  | 170 | 126 | 156 | 315 | -   | 183 | 30° |
| -         | -   | -   | 200 | 72 | 30 | 90       | 30       | 18  | 238       | 90 | 60 | 105 | 18  | 11  | 4   | 31 | 135 | 90 | 122 | 175  | 170 | 130 | 162 | 335 | -   | 183 | 30° |

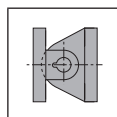
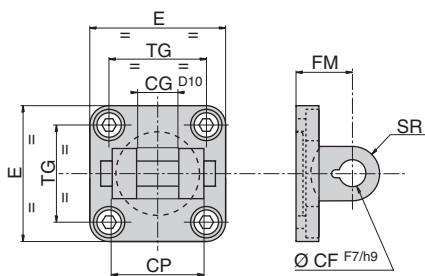
**DIMENSIONS (mm), WEIGHT (kg)**



**REAR MOUNTING**

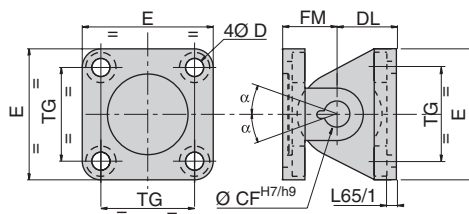
Cap clevis for spherical eye or clevis bracket

**AB6**



**AB6 + MP6**

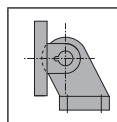
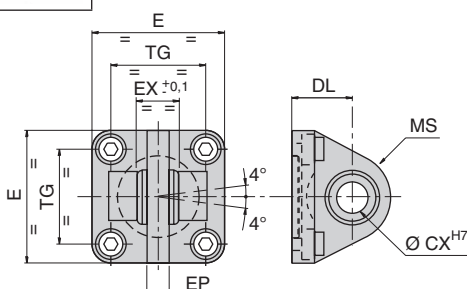
Cap clevis for spherical eye or clevis bracket  
+ Cap eye with spherical eye



**REAR MOUNTING**

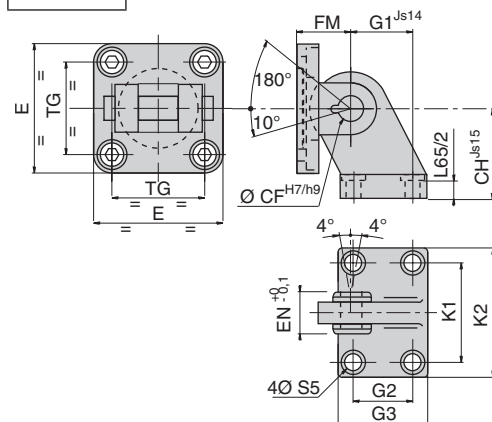
Cap eye with spherical eye

**MP6**



**AB6 + AB5**

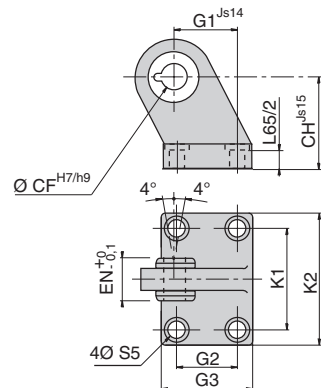
Cap clevis for spherical eye or clevis bracket  
+ Angular clevis bracket spherical bearing



**REAR MOUNTING**

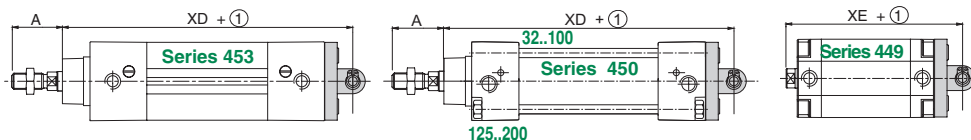
Angular clevis bracket spherical bearing

**AB5**



| Ø<br>(mm) |     |     |     | weight<br>steel |       |       |
|-----------|-----|-----|-----|-----------------|-------|-------|
| 449       | 453 | 454 | 450 | AB6             | AB5   | MP6   |
| 20        | -   | -   | -   | -               | -     | -     |
| 25        | -   | -   | -   | -               | -     | -     |
| 32        | 32  | -   | 32  | 0,190           | 0,180 | 0,180 |
| 40        | 40  | -   | 40  | 0,300           | 0,230 | 0,290 |
| 50        | 50  | -   | 50  | 0,460           | 0,450 | 0,420 |
| 63        | 63  | -   | 63  | 0,680           | 0,520 | 0,650 |
| 80        | 80  | -   | 80  | 1,460           | 0,940 | 1,210 |
| 100       | 100 | -   | 100 | 2,130           | 1,070 | 1,870 |
| -         | -   | -   | 125 | 4,240           | 2,470 | 3,640 |
| -         | -   | -   | 160 | -               | -     | -     |
| -         | -   | -   | 200 | -               | -     | -     |

① Stroke



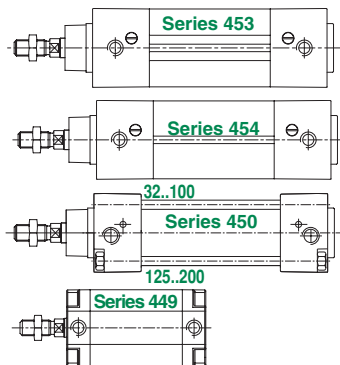
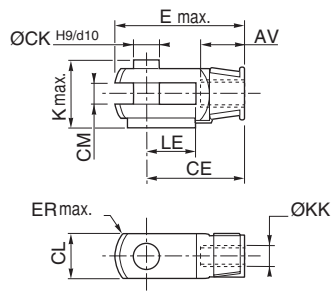
| Ø<br>(mm) |     |     |     | A  | CG | CH | CP | CX<br>CF | DL<br>FM | E<br>max. | EN<br>EX | EP   | G1 | G2 | G3<br>max. | K1 | K2<br>max. | L65/1 | L65/2 | MS<br>max. | TG   | SR<br>max. | S5<br>D | XD  | XE  | α   |
|-----------|-----|-----|-----|----|----|----|----|----------|----------|-----------|----------|------|----|----|------------|----|------------|-------|-------|------------|------|------------|---------|-----|-----|-----|
| 449       | 453 | 454 | 450 |    |    |    |    |          |          |           |          |      |    |    |            |    |            |       |       |            |      |            |         |     |     |     |
| 20        | -   | -   | -   | -  | -  | -  | -  | -        | -        | -         | -        | -    | -  | -  | -          | -  | -          | -     | -     | -          | -    | -          | -       | -   | -   | -   |
| 25        | -   | -   | -   | -  | -  | -  | -  | -        | -        | -         | -        | -    | -  | -  | -          | -  | -          | -     | -     | -          | -    | -          | -       | -   | -   | -   |
| 32        | 32  | -   | 32  | 22 | 14 | 32 | 34 | 10       | 22       | 50        | 14       | 10,5 | 21 | 18 | 31         | 38 | 51         | 5,5   | 8,5   | 15         | 32,5 | 11         | 6,6     | 142 | 73  | 40° |
| 40        | 40  | -   | 40  | 24 | 16 | 36 | 40 | 12       | 25       | 58        | 16       | 12   | 24 | 22 | 35         | 41 | 54         | 5,5   | 8,5   | 18         | 38   | 13         | 6,6     | 160 | 77  | 45° |
| 50        | 50  | -   | 50  | 32 | 21 | 45 | 45 | 16       | 27       | 70        | 21       | 15   | 33 | 30 | 45         | 50 | 65         | 6,5   | 10    | 20         | 46,5 | 18         | 9       | 170 | 80  | 35° |
| 63        | 63  | -   | 63  | 32 | 21 | 50 | 51 | 16       | 32       | 85        | 21       | 15   | 37 | 35 | 50         | 52 | 67         | 6,5   | 10    | 23         | 56,5 | 18         | 9       | 190 | 89  | 50° |
| 80        | 80  | -   | 80  | 40 | 25 | 63 | 65 | 20       | 36       | 105       | 25       | 18   | 47 | 40 | 60         | 66 | 86         | 10    | 11,5  | 27         | 72   | 22         | 11      | 210 | 100 | 40° |
| 100       | 100 | -   | 100 | 40 | 25 | 71 | 75 | 20       | 41       | 130       | 25       | 18   | 55 | 50 | 70         | 76 | 96         | 10    | 12,5  | 30         | 89   | 22         | 11      | 230 | 118 | 30° |
| -         | -   | -   | 125 | 54 | 37 | 90 | 97 | 30       | 50       | 157       | 37       | 25   | 70 | 60 | 90         | 94 | 124        | 10    | 16,5  | 40         | 110  | 30         | 14      | 275 | -   | 25° |
| -         | -   | -   | 160 | 72 | -  | -  | -  | -        | -        | -         | -        | -    | -  | -  | -          | -  | -          | -     | -     | -          | -    | -          | -       | 315 | -   | -   |
| -         | -   | -   | 200 | 72 | -  | -  | -  | -        | -        | -         | -        | -    | -  | -  | -          | -  | -          | -     | -     | -          | -    | -          | -       | 335 | -   | -   |

**DIMENSIONS (mm), WEIGHT (kg)**



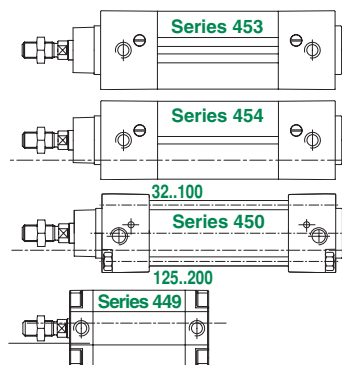
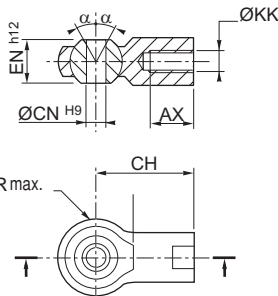
**ROD MOUNTING**

Female rod clevis  
AP2



**ROD MOUNTING**

Spherical rod end  
AP6

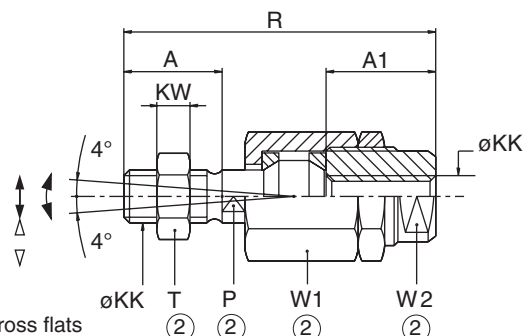


| Ø<br>(mm) |     |     |     | AV<br>AX | CE  | CH  | ØCK | CL | CM                           | ØCN | E<br>max. | EN | ER<br>max. | K  | ØKK      | LE | α  | weight |      |                 |      |
|-----------|-----|-----|-----|----------|-----|-----|-----|----|------------------------------|-----|-----------|----|------------|----|----------|----|----|--------|------|-----------------|------|
| 449       | 453 | 454 | 450 |          |     |     |     |    |                              |     |           |    |            |    |          |    |    | steel  |      | stainless steel |      |
|           |     |     |     |          |     |     |     |    |                              |     |           |    |            |    |          |    |    | AP2    | AP6  | AP2             | AP6  |
| 20        | -   | -   | -   | 15       | 32  | 36  | 8   | 16 | 8 <sup>+0,5<br/>+0,15</sup>  | 8   | 42        | 12 | 12         | 22 | M8x1,25  | 16 | 4° | 0,08   | 0,04 | -               | -    |
| 25        | -   | -   | -   | 15       | 32  | 36  | 8   | 16 | 8 <sup>+0,5<br/>+0,15</sup>  | 8   | 42        | 12 | 12         | 22 | M8x1,25  | 16 | 4° | 0,08   | 0,04 | -               | -    |
| 32        | 32  | 32  | 32  | 20       | 40  | 43  | 10  | 20 | 10 <sup>+0,5<br/>+0,15</sup> | 10  | 56        | 14 | 14         | 26 | M10x1,25 | 20 | 4° | 0,1    | 0,07 | 0,09            | 0,08 |
| 40        | -   | -   | -   | 20       | 40  | 43  | 10  | 20 | 10 <sup>+0,5<br/>+0,15</sup> | 10  | 56        | 14 | 14         | 26 | M10x1,25 | 20 | 4° | 0,1    | 0,07 | -               | -    |
| -         | 40  | 40  | 40  | 22       | 48  | 50  | 12  | 24 | 12 <sup>+0,5<br/>+0,15</sup> | 12  | 67        | 16 | 16         | 32 | M12x1,25 | 24 | 4° | 0,15   | 0,12 | 0,16            | 0,12 |
| 50        | -   | -   | -   | 22       | 48  | 50  | 12  | 24 | 12 <sup>+0,5<br/>+0,15</sup> | 12  | 67        | 16 | 16         | 32 | M12x1,25 | 24 | 4° | 0,15   | 0,12 | -               | -    |
| -         | 50  | 50  | 50  | 28       | 64  | 64  | 16  | 32 | 16 <sup>+0,5<br/>+0,15</sup> | 16  | 89        | 21 | 21         | 41 | M16x1,5  | 32 | 4° | 0,33   | 0,22 | 0,31            | 0,23 |
| 63        | -   | -   | -   | 22       | 48  | 50  | 12  | 24 | 12 <sup>+0,5<br/>+0,15</sup> | 12  | 67        | 16 | 16         | 32 | M12x1,25 | 24 | 4° | 0,15   | 0,12 | -               | -    |
| -         | 63  | 63  | 63  | 28       | 64  | 64  | 16  | 32 | 16 <sup>+0,5<br/>+0,15</sup> | 16  | 89        | 21 | 21         | 41 | M16x1,5  | 32 | 4° | 0,33   | 0,22 | 0,31            | 0,23 |
| 80        | -   | -   | -   | 28       | 64  | 64  | 16  | 32 | 16 <sup>+0,5<br/>+0,15</sup> | 16  | 89        | 21 | 21         | 41 | M16x1,5  | 32 | 4° | 0,33   | 0,22 | -               | -    |
| -         | 80  | 80  | 80  | 33       | 80  | 77  | 20  | 40 | 20 <sup>+0,5<br/>+0,15</sup> | 20  | 112       | 25 | 25         | 48 | M20x1,5  | 40 | 4° | 0,67   | 0,39 | 0,67            | 0,42 |
| 100       | -   | -   | -   | 28       | 64  | 64  | 16  | 32 | 16 <sup>+0,5<br/>+0,15</sup> | 16  | 89        | 21 | 21         | 41 | M16x1,5  | 32 | 4° | 0,33   | 0,22 | -               | -    |
| -         | 100 | 100 | 100 | 33       | 80  | 77  | 20  | 40 | 20 <sup>+0,5<br/>+0,15</sup> | 20  | 112       | 25 | 25         | 48 | M20x1,5  | 40 | 4° | 0,67   | 0,39 | 0,67            | 0,42 |
| -         | -   | -   | -   | 125      | 110 | 110 | 30  | 55 | 30 <sup>+0,5<br/>+0,15</sup> | 30  | 155       | 37 | 35         | 65 | M27x2    | 54 | 4° | 1,81   | 1,6  | -               | -    |
| -         | -   | -   | -   | 160      | 144 | 125 | 35  | 70 | 35 <sup>+0,5<br/>+0,15</sup> | 35  | 201       | 43 | 40         | 84 | M36x2    | 72 | 4° | 3,85   | 1,6  | -               | -    |
| -         | -   | -   | -   | 200      | 144 | 125 | 35  | 70 | 35 <sup>+0,5<br/>+0,15</sup> | 35  | 201       | 43 | 40         | 84 | M36x2    | 72 | 4° | 3,85   | 1,6  | -               | -    |



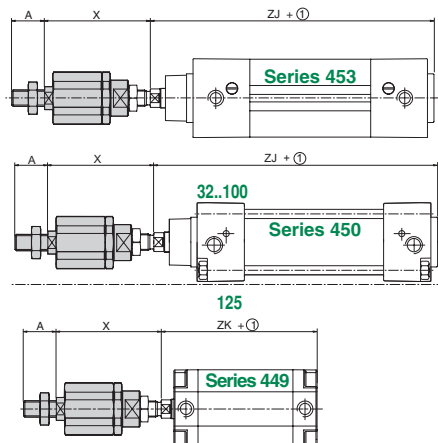
**ROD MOUNTING**

Alignment compensator



① Stroke

② Width across flats



| Ø<br>(mm) |     |     | A  | A1 | P  | ØKK |    |    |          | KW       |   | R    |      | T    |    | W1 |    | W2 |    | X<br>min. | ZJ | ZK  | radial<br>compensation<br>(mm) |    | spherical angular<br>compensation<br>(°) |     | weight |      |
|-----------|-----|-----|----|----|----|-----|----|----|----------|----------|---|------|------|------|----|----|----|----|----|-----------|----|-----|--------------------------------|----|------------------------------------------|-----|--------|------|
| 449       | -   | -   | ●  | -  | ●  | -   | ●  | -  | ●        | -        | ● | -    | ●    | -    | ●  | -  | ●  | -  | ●  | -         | ●  | -   | ●                              | ●  | -                                        | ●   |        |      |
| -         | 453 | 450 | -  | ●  | -  | ●   | -  | ●  | -        | ●        | - | ●    | -    | ●    | -  | ●  | -  | ●  | -  | ●         | -  | ●   | -                              | ●  | ●                                        |     |        |      |
| 20        | -   | -   | 16 | -  | 18 | -   | 7  | -  | M8x1,25  | -        | 4 | -    | 55   | -    | 13 | -  | 17 | -  | 10 | -         | 45 | -   | -                              | 43 | 0,5                                      | -   | 4      | 0,06 |
| 25        | -   | -   | 16 | -  | 18 | -   | 7  | -  | M8x1,25  | -        | 4 | -    | 55   | -    | 13 | -  | 17 | -  | 10 | -         | 45 | -   | -                              | 45 | 0,5                                      | -   | 4      | 0,06 |
| 32        | 32  | 32  | 20 | 20 | 22 | 22  | 12 | 12 | M10x1,25 | M10x1,25 | 5 | 5    | 71,5 | 71,5 | 16 | 16 | 30 | 30 | 19 | 19        | 57 | 57  | 120                            | 51 | 0,7                                      | 0,7 | 4      | 0,22 |
| 40        | 40  | 40  | 22 | 24 | 26 | 23  | 12 | 12 | M10x1,25 | M12x1,25 | 6 | 7    | 73   | 75   | 17 | 19 | 30 | 30 | 19 | 19        | 58 | 57  | 135                            | 52 | 0,7                                      | 0,7 | 4      | 023  |
| 50        | 50  | 50  | 24 | 32 | 26 | 32  | 12 | 20 | M12x1,25 | M16x1,5  | 7 | 8    | 77   | 103  | 19 | 24 | 30 | 41 | 19 | 27        | 59 | 79  | 143                            | 53 | 0,7                                      | 1   | 4      | 0,66 |
| 63        | 63  | 63  | 24 | 32 | 26 | 32  | 12 | 20 | M12x1,25 | M16x1,5  | 7 | 8    | 77   | 103  | 19 | 24 | 30 | 41 | 19 | 27        | 59 | 79  | 158                            | 57 | 0,7                                      | 1   | 4      | 0,66 |
| 80        | 80  | 80  | 32 | 40 | 34 | 39  | 19 | 20 | M16x1,5  | M20x1,5  | 8 | 10   | 106  | 119  | 24 | 30 | 42 | 41 | 30 | 27        | 82 | 89  | 174                            | 64 | 1                                        | 1   | 4      | 0,7  |
| 100       | 100 | 100 | 32 | 40 | 34 | 39  | 19 | 20 | M16x1,5  | M20x1,5  | 8 | 10   | 106  | 119  | 24 | 30 | 42 | 41 | 30 | 27        | 82 | 89  | 189                            | 77 | 1                                        | 1   | 4      |      |
| -         | -   | 125 | -  | 54 | -  | 40  | -  | 24 | -        | M27x2    | - | 13,5 | -    | 147  | -  | 41 | -  | 65 | -  | 54        | -  | 107 | 225                            | -  | -                                        | 1   | 4      | 1,7  |

Архангельск (8182)63-90-72  
Астана (7172)727-132  
Астрахань (8512)99-46-04  
Барнаул (3852)73-04-60  
Белгород (4722)40-23-64  
Брянск (4832)59-03-52  
Владивосток (423)249-28-31  
Волгоград (844)278-03-48  
Вологда (8172)26-41-59  
Воронеж (473)204-51-73  
Екатеринбург (343)384-55-89

Иваново (4932)77-34-06  
Ижевск (3412)26-03-58  
Казань (843)206-01-48  
Калининград (4012)72-03-81  
Калуга (4842)92-23-67  
Кемерово (3842)65-04-62  
Киров (8332)68-02-04  
Краснодар (861)203-40-90  
Красноярск (391)204-63-61  
Курск (4712)77-13-04  
Липецк (4742)52-20-81

Магнитогорск (3519)55-03-13  
Москва (495)268-04-70  
Мурманск (8152)59-64-93  
Набережные Челны (8552)20-53-41  
Нижний Новгород (831)429-08-12  
Новокузнецк (3843)20-46-81  
Новосибирск (383)227-86-73  
Омск (3812)21-46-40  
Орел (4862)44-53-42  
Оренбург (3532)37-68-04  
Пенза (8412)22-31-16

Пермь (342)205-81-47  
Ростов-на-Дону (863)308-18-15  
Рязань (4912)46-61-64  
Самара (846)206-03-16  
Санкт-Петербург (812)309-46-40  
Саратов (845)249-38-78  
Севастополь (8692)22-31-93  
Симферополь (3652)67-13-56  
Смоленск (4812)29-41-54  
Сочи (862)225-72-31  
Ставрополь (8652)20-65-13

Сургут (3462)77-98-35  
Тверь (4822)63-31-35  
Томск (3822)98-41-53  
Тула (4872)74-02-29  
Тюмень (3452)66-21-18  
Ульяновск (8422)24-23-59  
Уфа (347)229-48-12  
Хабаровск (4212)92-98-04  
Челябинск (351)202-03-61  
Череповец (8202)49-02-64  
Ярославль (4852)69-52-93