

---

---

**Fluid power systems and  
components — Cylinders —  
Identification code for mounting  
dimensions and mounting types**

*Transmissions hydrauliques et pneumatiques — Vérins — Code  
d'identification des dimensions de montage et des modes de fixation*

STANDARDSISO.COM : Click to view the full PDF of ISO 6099:2018



STANDARDSISO.COM : Click to view the full PDF of ISO 6099:2018



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2018

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Fax: +41 22 749 09 47  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

Published in Switzerland

# Contents

	Page
Foreword.....	iv
Introduction.....	v
<b>1 Scope.....</b>	<b>1</b>
<b>2 Normative references.....</b>	<b>1</b>
<b>3 Terms and definitions.....</b>	<b>1</b>
<b>4 Identification code for rod end types.....</b>	<b>1</b>
4.1 Reference points and letter codes.....	1
4.1.1 General.....	1
4.1.2 Plain rod end.....	2
4.1.3 Pin rod end.....	2
4.1.4 Female threaded rod end.....	2
4.1.5 Male threaded rod end.....	2
4.1.6 Wrench flat piston rod end or hook wrench holes.....	3
4.1.7 Grooved piston rod end — Alternative reference points.....	4
4.2 Identification code.....	5
<b>5 Letter code for identifying cylinder mounting, envelope and accessory dimensions.....</b>	<b>6</b>
5.1 General.....	6
5.2 Letter <i>U</i> .....	6
5.3 Letter <i>Z</i> .....	6
5.4 Letters <i>W, X, Y, Z</i> .....	6
5.5 Signs.....	6
5.6 Dimensioning.....	6
<b>6 Identification code for mounting types.....</b>	<b>8</b>
6.1 General.....	8
6.2 Mounting types.....	8
6.3 Letter codes of mounting and envelope dimensions according to cylinder mounting type.....	10
<b>7 Identification code for accessory types.....</b>	<b>35</b>
7.1 General.....	35
7.2 Accessory types.....	35
7.3 Letter codes of accessories according to accessory type.....	36
<b>8 Designation of the position of the ports in round and square types.....</b>	<b>44</b>
<b>9 Identification statement (Reference to this document).....</b>	<b>45</b>

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 131, *Fluid power systems*, Subcommittee SC 3, *Cylinders*.

This fifth edition cancels and replaces the fourth edition (ISO 6099:2009), which has been technically revised.

The main changes compared to the previous edition are as follows:

- Amendments have been made to figures.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

## Introduction

In fluid power systems, power is transmitted and controlled through a fluid (liquid or gas) under pressure within an enclosed circuit. Systems and their components are generally designed and marketed for a specific fluid pressure.

One such component is the fluid power cylinder. This is a device which converts power into linear mechanical force and motion. It consists of a movable element, i.e. a piston and piston rod, operating within a cylindrical bore.

Although this document provides a code and means of dimensioning for cylinder mounting, it is not intended that all dimensions be standardized. The code specified in this document is not to be considered as complete for the development of future interchangeability standards. It establishes uniform descriptions for dimensions and achieves conformity of language.

The code can be used for analogous dimensions when this involves neither confusion nor misunderstanding.

STANDARDSISO.COM : Click to view the full PDF of ISO 6099:2018

[STANDARDSISO.COM](https://standardsiso.com) : Click to view the full PDF of ISO 6099:2018

# Fluid power systems and components — Cylinders — Identification code for mounting dimensions and mounting types

## 1 Scope

This document establishes a convention for the identification of mounting dimensions and types used in the mounting of fluid power cylinders. It specifies a code for identifying cylinder mounting, envelope, accessory and connector dimensions, and for cylinder mounting and accessory types.

This document does not represent a standard list of all fluid power cylinder mounting and accessory types.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 5598, *Fluid power systems and components — Vocabulary*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 5598 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

## 4 Identification code for rod end types

### 4.1 Reference points and letter codes

#### 4.1.1 General

##### 4.1.1.1 First point of reference

Axial dimensions are determined from a reference point that is the same for all cylinders, whatever their mounting method. This theoretical reference point (TRP) is the point of force transfer from the piston rod to the movable element. This point of reference (TRP) is named the first TRP.

##### 4.1.1.2 Second point of reference

For double rod cylinders, the second TRP is defined by the letter code ZM directly attached to the first point of TRP (see [Figure 8](#)). This second TRP is used for accessories on the second rod side.

4.1.2 Plain rod end

For a plain rod end the reference point is located on the rod centreline at the end of the piston rod. See [Figure 1](#).

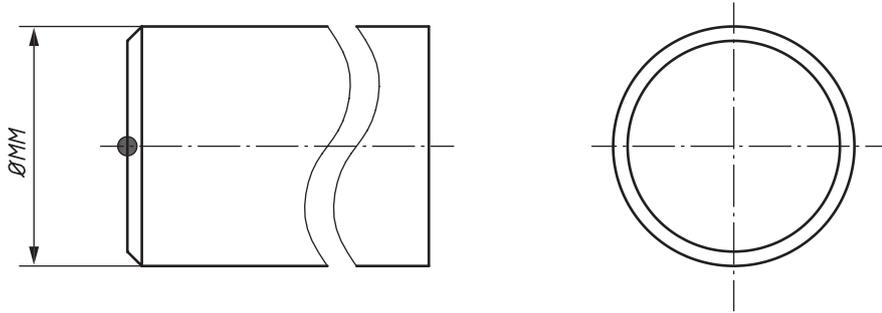


Figure 1 — RPE<sub>x</sub> — Plain rod end

4.1.3 Pin rod end

For a pin rod end, the reference point is located at the intersection of the pin and piston rod centrelines. See [Figure 2](#).

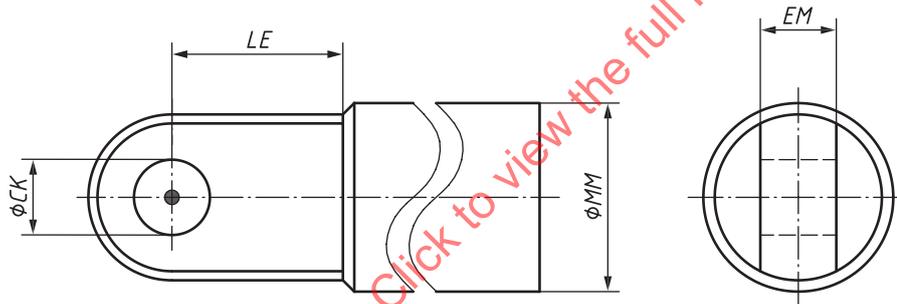


Figure 2 — RPR<sub>x</sub> — Pin rod end

4.1.4 Female threaded rod end

For a female threaded rod end, the reference point is located on the rod centreline at the end of the piston rod. See [Figure 3](#).

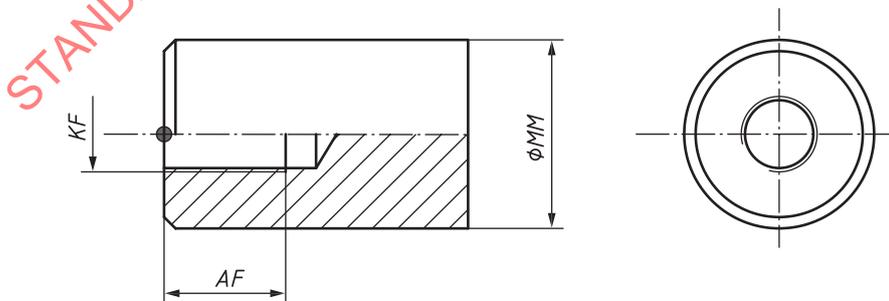


Figure 3 — RTF<sub>x</sub> — Female threaded rod end

4.1.5 Male threaded rod end

For a male threaded rod end, the reference point is located on the rod centreline, at the shoulder level. See [Figure 4](#).

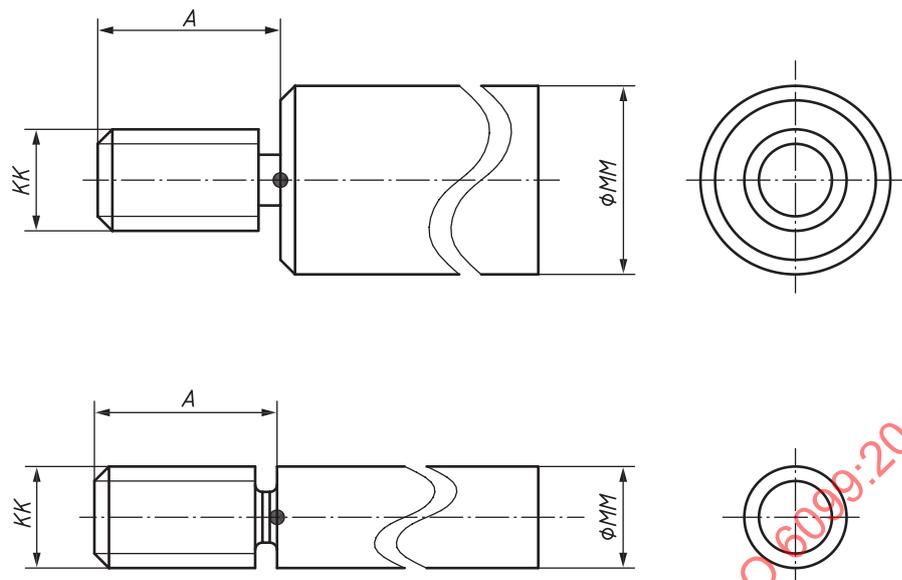
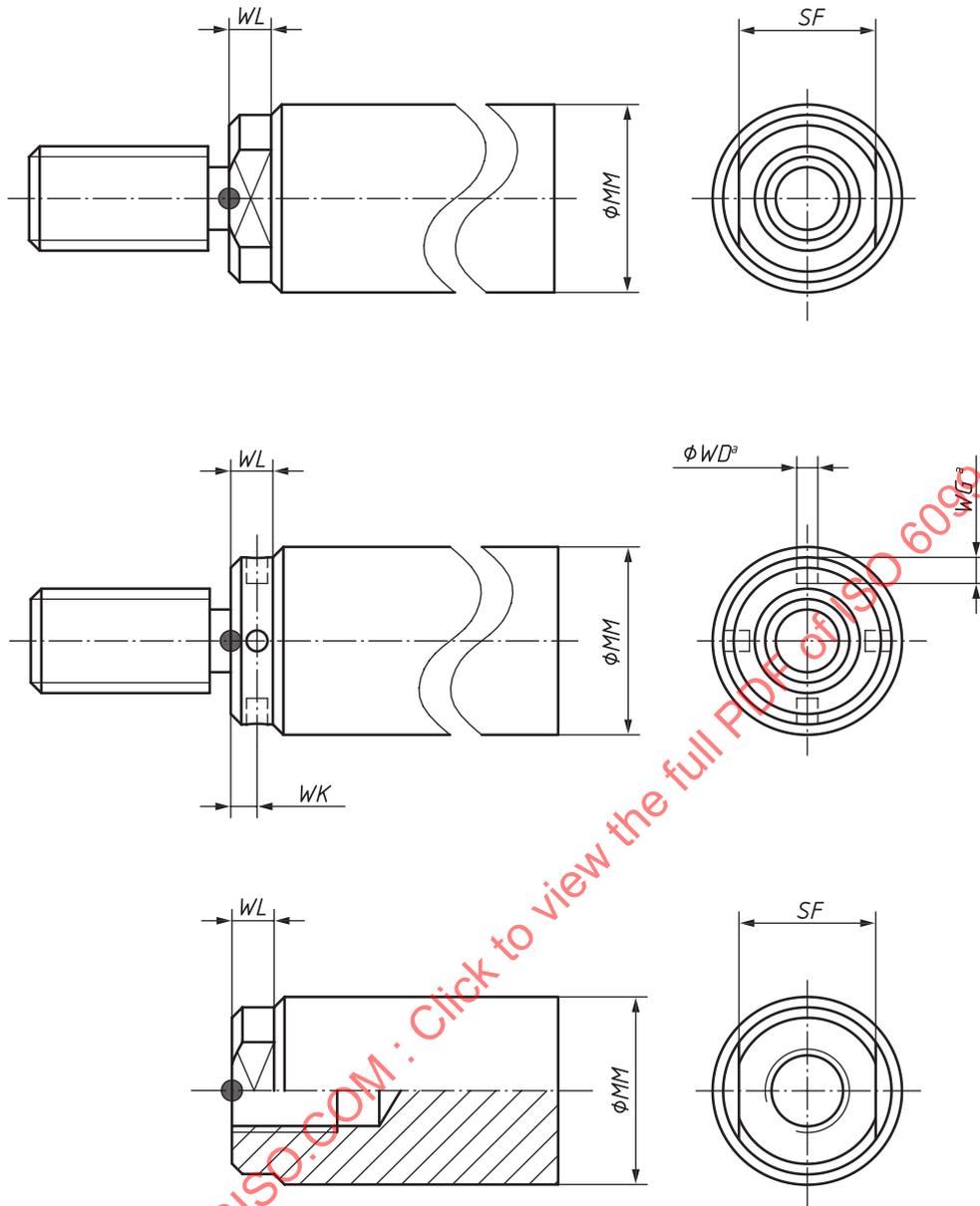


Figure 4 —  $RTM_x$  — Male threaded rod end

#### 4.1.6 Wrench flat piston rod end or hook wrench holes

For a wrench flat piston rod end or hook wrench holes piston rod end, the reference point is located on the rod centreline at the shoulder level. See [Figure 5](#).



a Optional.

Figure 5 — Wrench flat piston rod end or hook wrench holes

#### 4.1.7 Grooved piston rod end — Alternative reference points

For a grooved piston rod end, the reference point is either located on the rod centreline at the end of the piston rod (see [Figure 6](#)) or on the rod centreline at the shoulder level (see [Figure 7](#)).

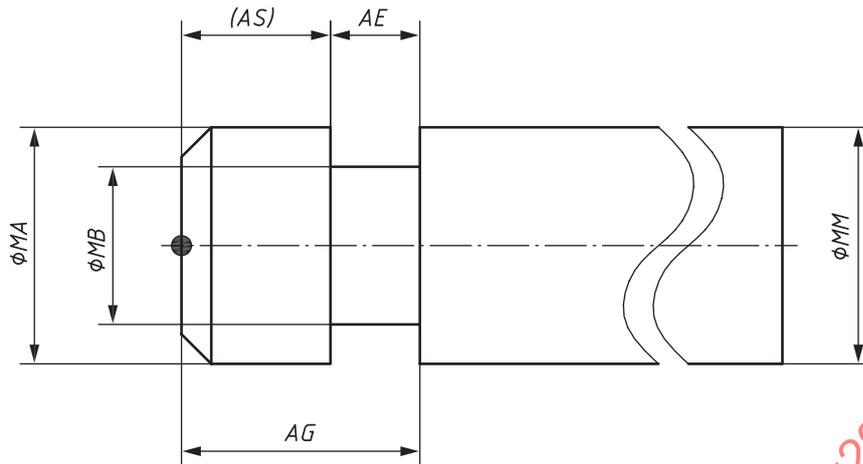


Figure 6 — RFE<sub>x</sub> — Grooved piston rod end with TRP at the end of the piston rod

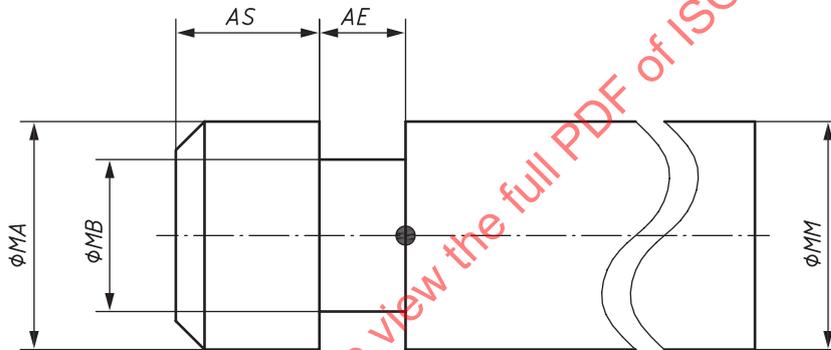


Figure 7 — RFS<sub>x</sub> — Grooved piston rod end with TRP at the shoulder level

#### 4.2 Identification code

Table 1 shows the identification code for the rod end types.

Table 1 — Identification code

Identification code	Description
RTM <sub>x</sub>	Male threaded rod end
RTF <sub>x</sub>	Female threaded rod end
RPE <sub>x</sub>	Plain rod end
RPR <sub>x</sub>	Pin rod end
RFE <sub>x</sub>	Grooved piston rod end with TRP at the end of the piston rod
RFS <sub>x</sub>	Grooved piston rod end with TRP at the shoulder level
x	Is designated for the wrench flats or hook wrench: 0 = none 1 = wrench flats 2 = hook wrench

## 5 Letter code for identifying cylinder mounting, envelope and accessory dimensions

### 5.1 General

The code for identifying cylinder mounting, envelope and accessory dimensions is composed of one or two letters and, in some cases, the signs: '+', '++' or '+/'.

For the meaning of these letters and signs, see [5.2](#) to [5.5](#).

### 5.2 Letter *U*

Any group of two letters beginning with *U* identifies an 'end view envelope' dimension.

### 5.3 Letter *Z*

Any group of two letters beginning with *Z* identifies a longitudinal envelope dimension.

### 5.4 Letters *W, X, Y, Z*

Any group of two letters beginning with *W, X, Y* or *Z* identifies a dimension end from the reference point.

### 5.5 Signs

The sign + after letters means that the stroke is to be added:

$ZJ + = ZJ$  plus stroke.

The sign ++ after letters means that twice the stroke is to be added:

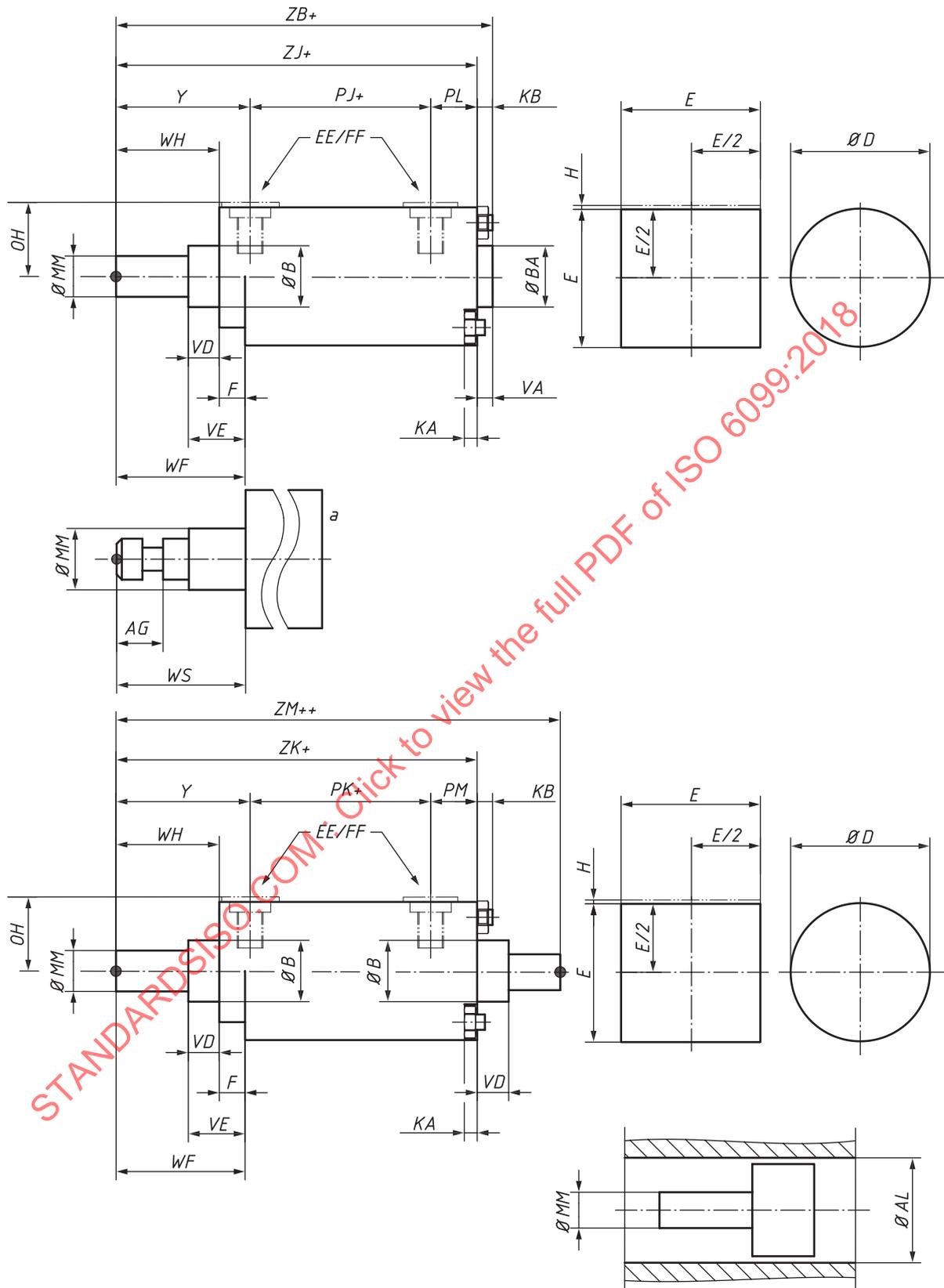
$ZM ++ = ZM$  plus twice the stroke.

The sign +/ after letters means that half the stroke is to be added:

$XV +/ = XV$  plus half the stroke.

### 5.6 Dimensioning

General dimensions are shown in [Figure 8](#).



a Refer to [Figure 6](#).

Figure 8 — Arrangement of general cylinder dimensions

## 6 Identification code for mounting types

### 6.1 General

The identification code for cylinder mounting types consists of two or three letters and a number.

EXAMPLE 1 Identification code for cylinder mounting types:

**MF1**

where:

M = mounting

F1 = flange type 1

EXAMPLE 2 Identification code for cylinder mounting types:

**MDF2**

where:

M = mounting

D = double rod cylinder

F2 = flange type 2

The following letters can be used in place of the letter designating flanges used in the above examples.

Letter	Mounting type
B	body
E	cap or head
F	flange (detachable)
P	pivot
R	threaded nose
S	foot or lugs
T	trunnion
X	studs or tie rods

### 6.2 Mounting types

The mounting types defined in this document with their identifying code are shown in [Table 2](#).

Table 2 — Mounting types

Identification code	Description	Figure
MB1	Body, through bolt hole	<a href="#">Figure 9</a>
MDB1	Body, through bolt hole — double rod	<a href="#">Figure 10</a>
MB2	Round, through bolt hole	<a href="#">Figure 11</a>
MDB2	Round, through bolt hole — double rod	<a href="#">Figure 12</a>
ME5	Head, rectangular	<a href="#">Figure 13</a>
MDE5	Head, rectangular — double rod	<a href="#">Figure 14</a>
ME6	Cap, rectangular	<a href="#">Figure 15</a>
ME7	Head, round	<a href="#">Figure 16</a>
MDE7	Head, round — double rod	<a href="#">Figure 17</a>
ME8	Cap, round	<a href="#">Figure 18</a>
ME9	Head, square	<a href="#">Figure 19</a>
MDE9	Head, square — double rod	<a href="#">Figure 20</a>
ME10	Cap, square	<a href="#">Figure 21</a>
ME11	Head, square	<a href="#">Figure 22</a>
MDE11	Head, square — double rod	<a href="#">Figure 23</a>
ME12	Cap, square	<a href="#">Figure 24</a>
MF1	Head, rectangular flange	<a href="#">Figure 25</a>
MDF1	Head, rectangular flange — double rod	<a href="#">Figure 26</a>
MF2	Cap, rectangular flange	<a href="#">Figure 27</a>
MF3	Head, circular flange	<a href="#">Figure 28</a>
MDF3	Head, circular flange — double rod	<a href="#">Figure 29</a>
MF4	Cap, circular flange	<a href="#">Figure 30</a>
MF5	Head, square flange	<a href="#">Figure 31</a>
MDF5	Head, square flange — double rod	<a href="#">Figure 32</a>
MF6	Cap, square flange	<a href="#">Figure 33</a>
MF7	Head, circular flange centred on the rear side	<a href="#">Figure 34</a>
MDF7	Head, circular flange centred on the rear side — double rod	<a href="#">Figure 35</a>
MF8	Head, rectangular flange with two holes	<a href="#">Figure 36</a>
MP1	Cap, fixed clevis	<a href="#">Figure 37</a>
MP2	Cap, detachable clevis	<a href="#">Figure 38</a>
MP3	Cap, fixed plain eye	<a href="#">Figure 39</a>
MP4	Cap, detachable plain eye	<a href="#">Figure 40</a>
MP5	Cap, fixed eye with spherical bearing	<a href="#">Figure 41</a>
MP6	Cap, detachable eye with spherical bearing	<a href="#">Figure 42</a>
MP7	Head, detachable clevis	<a href="#">Figure 43</a>
MR3	Head, threaded	<a href="#">Figure 44</a>
MDR3	Head, threaded — double rod	<a href="#">Figure 45</a>
MR4	Cap, threaded	<a href="#">Figure 46</a>
MS1	End angles	<a href="#">Figure 47</a>
MDS1	End angles — double rod	<a href="#">Figure 48</a>
MS2	Side lugs	<a href="#">Figure 49</a>

Table 2 (continued)

Identification code	Description	Figure
MDS2	Side lugs — double rod	<a href="#">Figure 50</a>
MS3	Head angle	<a href="#">Figure 51</a>
MT1	Head, integral trunnion (male)	<a href="#">Figure 52</a>
MDT1	Head, integral trunnion (male) — double rod	<a href="#">Figure 53</a>
MT2	Cap, integral trunnion (male)	<a href="#">Figure 54</a>
MT4	Intermediate trunnion (male) fixed or mobile	<a href="#">Figure 55</a>
MDT4	Intermediate trunnion (male) fixed or mobile — double rod	<a href="#">Figure 56</a>
MT5	Head, detachable trunnion (male)	<a href="#">Figure 57</a>
MT6	Cap, detachable trunnion (male)	<a href="#">Figure 58</a>
MX1	Both ends studs or tie rods extended	<a href="#">Figure 59</a>
MDX1	Both ends studs or tie rods extended — double rod	<a href="#">Figure 60</a>
MX2	Cap studs or tie rods extended	<a href="#">Figure 61</a>
MDX2	Cap studs or tie rods extended — double rod	<a href="#">Figure 62</a>
MX3	Head studs or tie rods extended	<a href="#">Figure 63</a>
MX4	Both ends 2 studs or tie rods extended	<a href="#">Figure 64</a>
MDX4	Both ends 2 studs or tie rods extended — double rod	<a href="#">Figure 65</a>
MX5	Head, tapped	<a href="#">Figure 66</a>
MDX5	Head, tapped — double rod	<a href="#">Figure 67</a>
MX6	Cap, tapped	<a href="#">Figure 68</a>
MX7	Head, tapped, and cap studs or tie rods extended	<a href="#">Figure 69</a>
MDX7	Head, tapped, and cap studs or tie rods extended — double rod	<a href="#">Figure 70</a>
MX8	Head and cap, tapped	<a href="#">Figure 71</a>
MDX8	Head and cap, tapped — double rod	<a href="#">Figure 72</a>

6.3 Letter codes of mounting and envelope dimensions according to cylinder mounting type

The letter code for mounting and envelope dimensions according to cylinder mounting type is shown in [Figure 9](#) to [Figure 72](#), and the designation is given in [Tables 4](#) to [26](#).

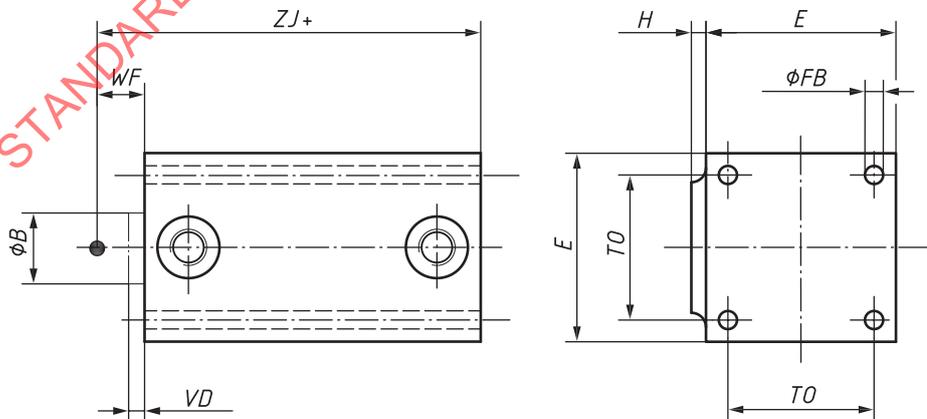


Figure 9 — MB1 — Body, through bolthole

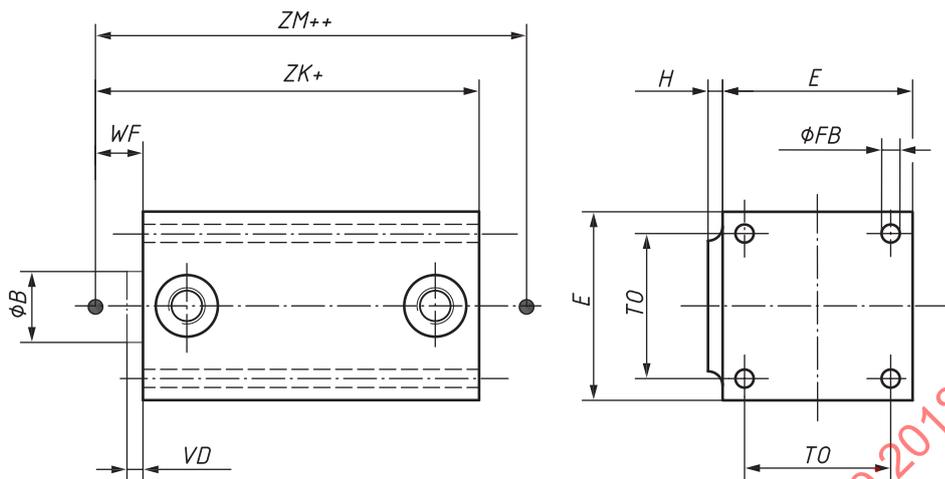


Figure 10 — MDB1 — Body, through bolthole — Double rod

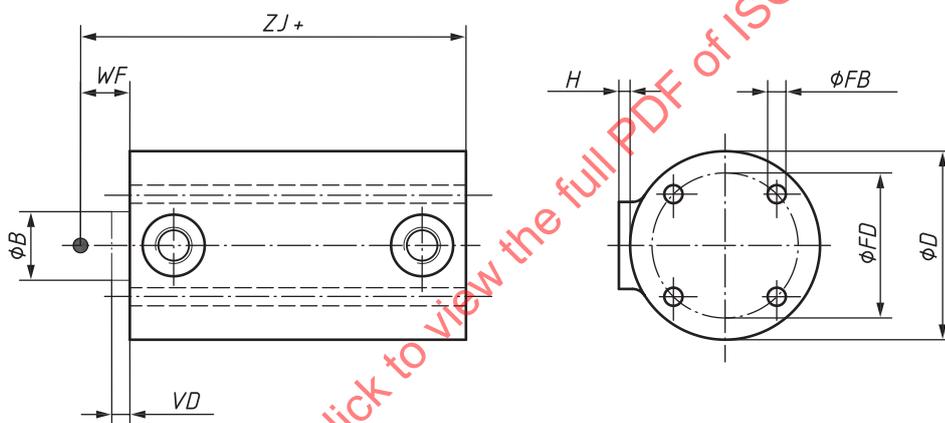


Figure 11 — MB2 — Round, through bolthole

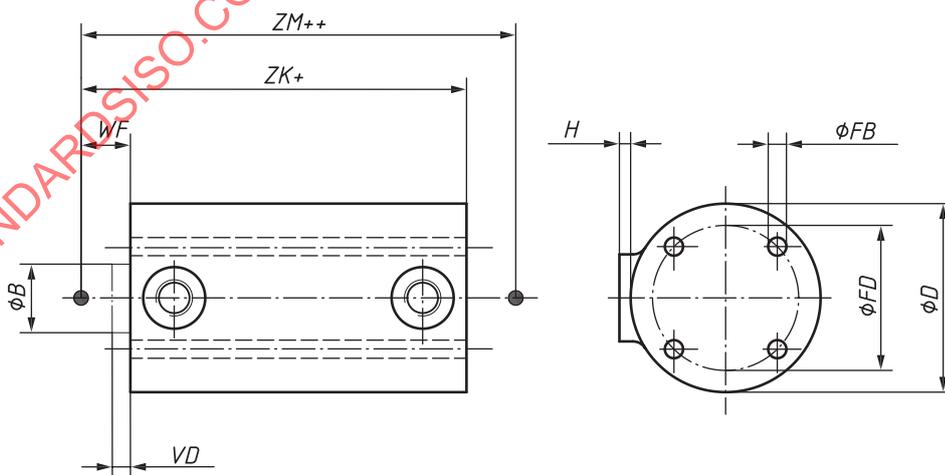


Figure 12 — MDB2 — Round, through bolthole — Double rod

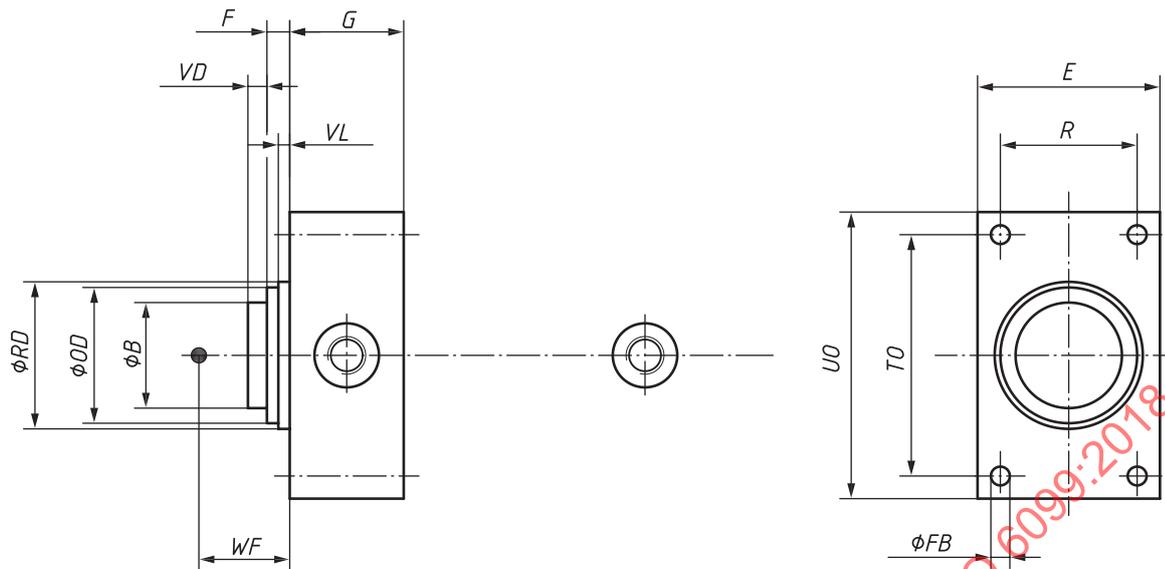


Figure 13 — ME5 — Head, rectangular

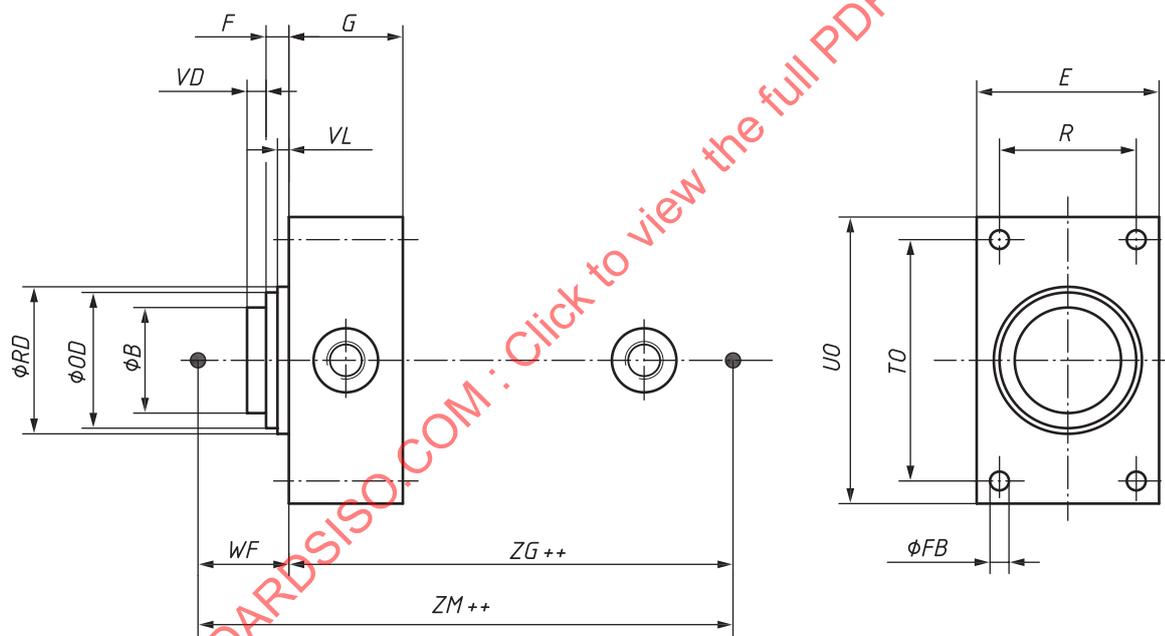


Figure 14 — MDE5 — Head, rectangular — Double rod

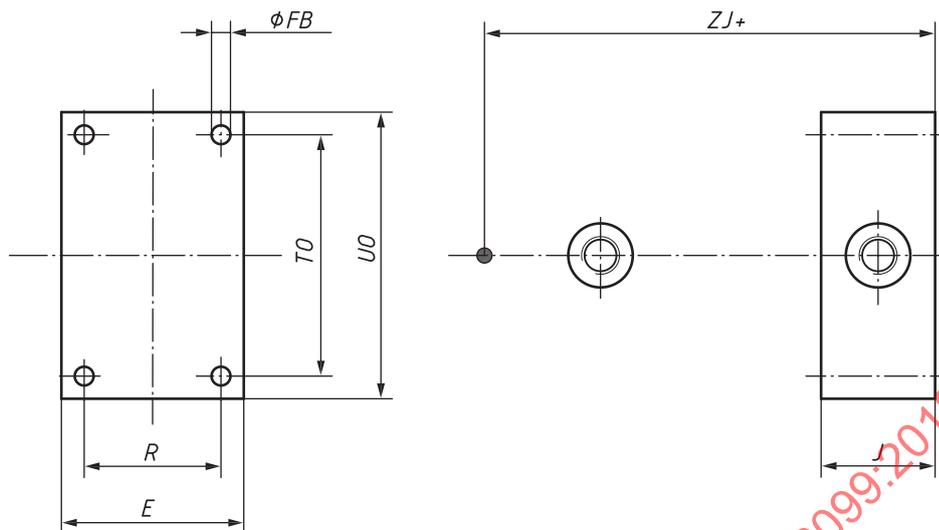


Figure 15 — ME6 — Cap, rectangular

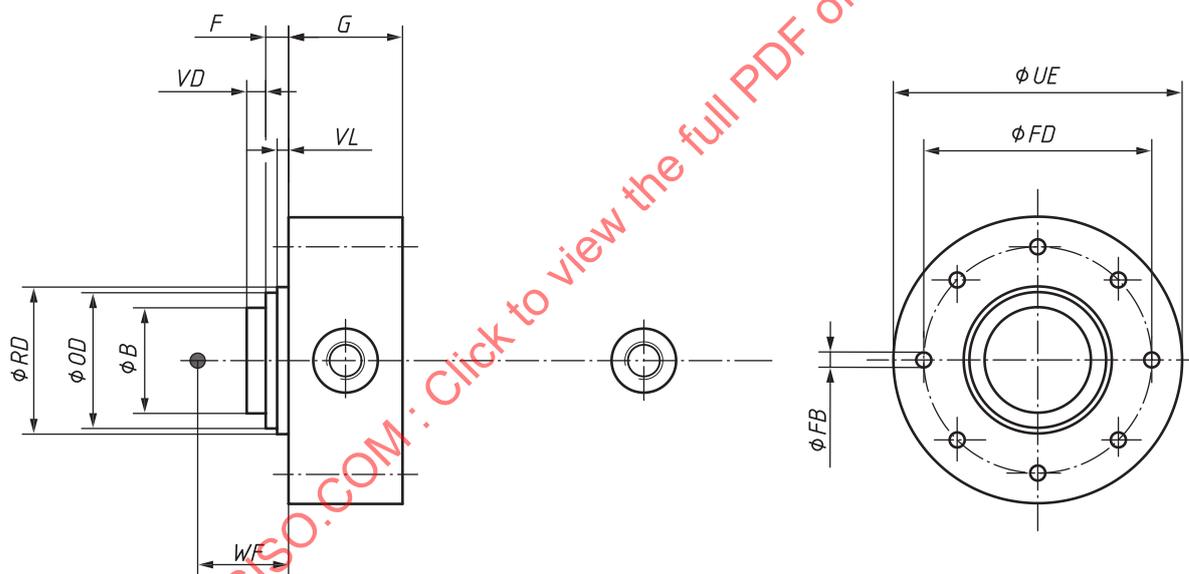


Figure 16 — ME7 — Head, round

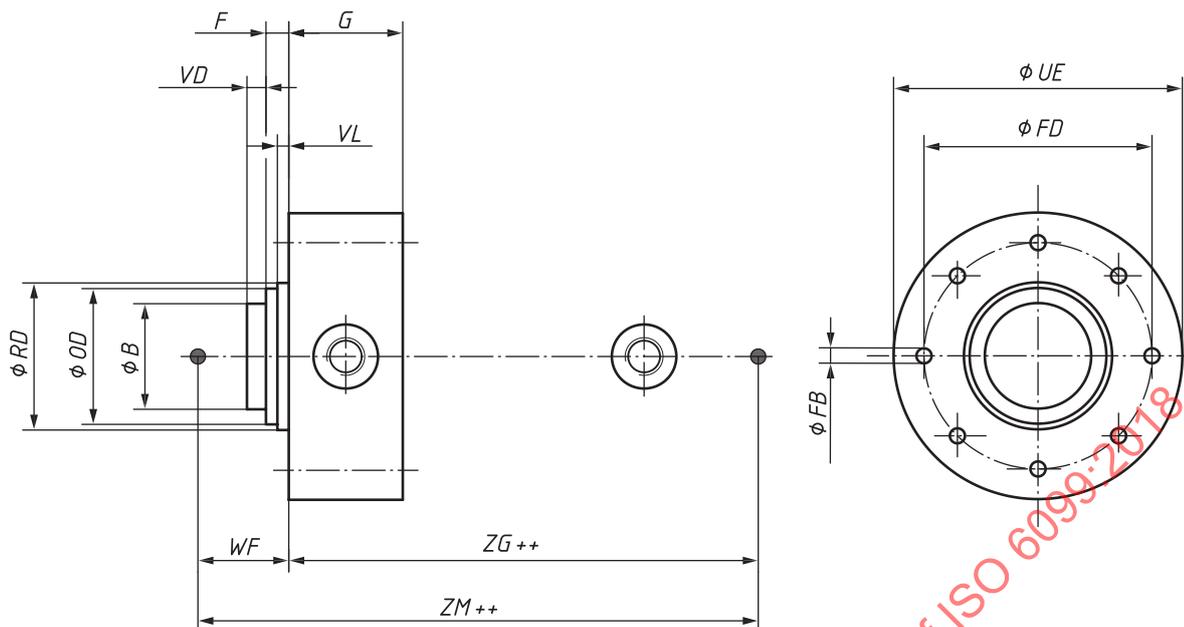


Figure 17 — MDE7 — Head, round — Double rod

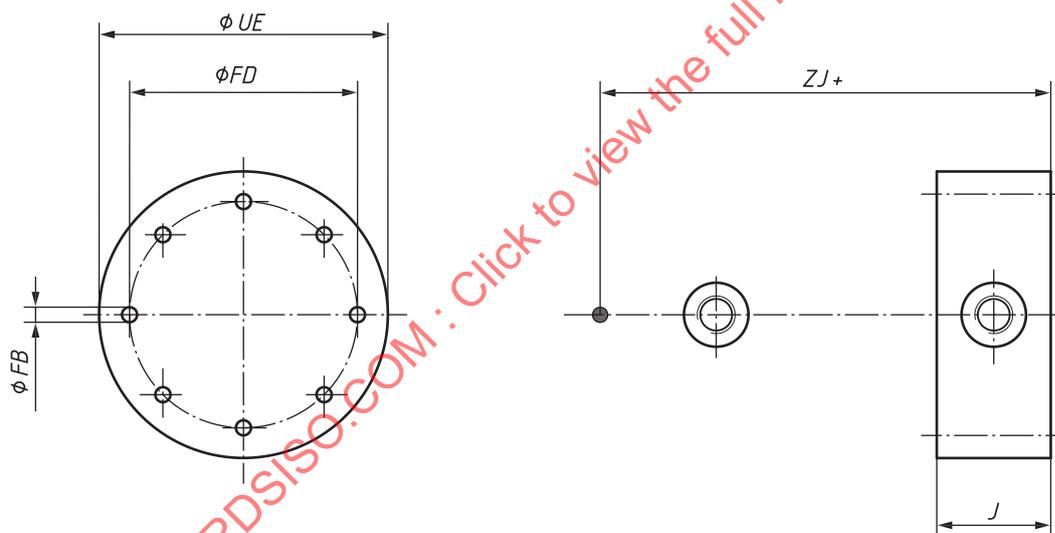


Figure 18 — ME8 — Cap, round

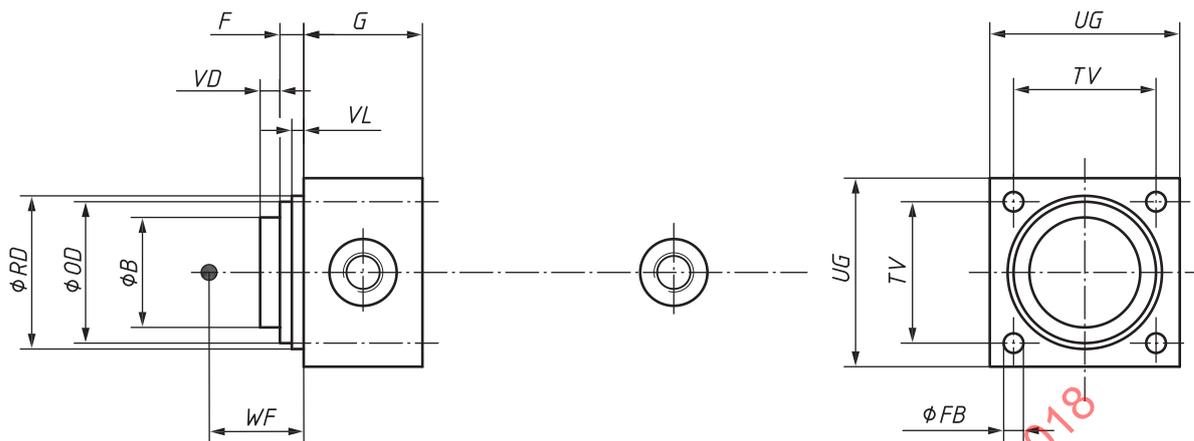


Figure 19 — ME9 — Head, square

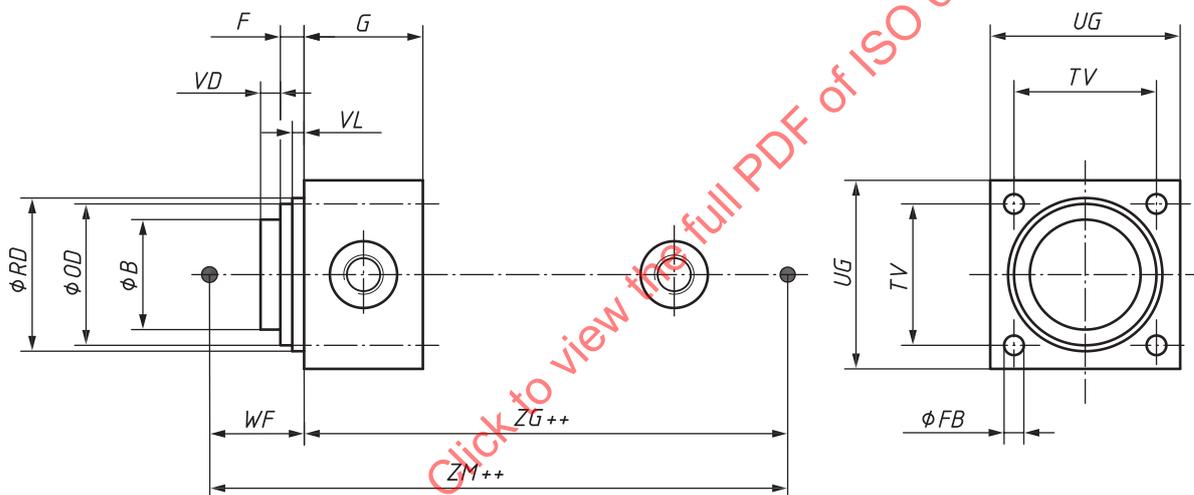


Figure 20 — MDE9 — Head, square — Double rod

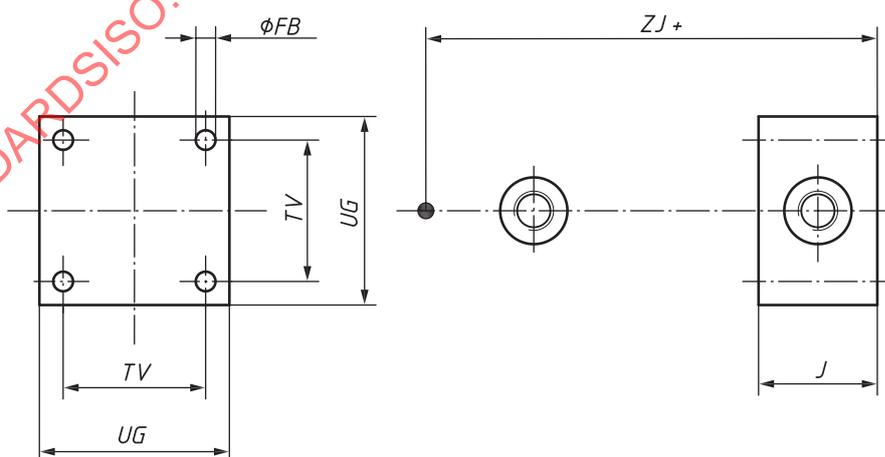


Figure 21 — ME10 — Cap, square

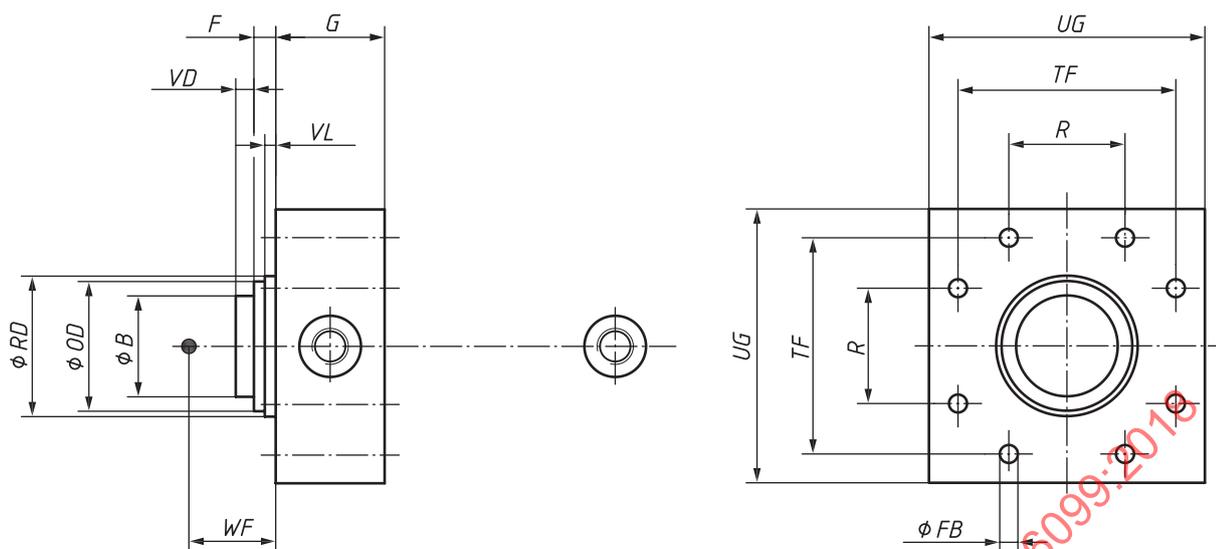


Figure 22 — ME11 — Head, square

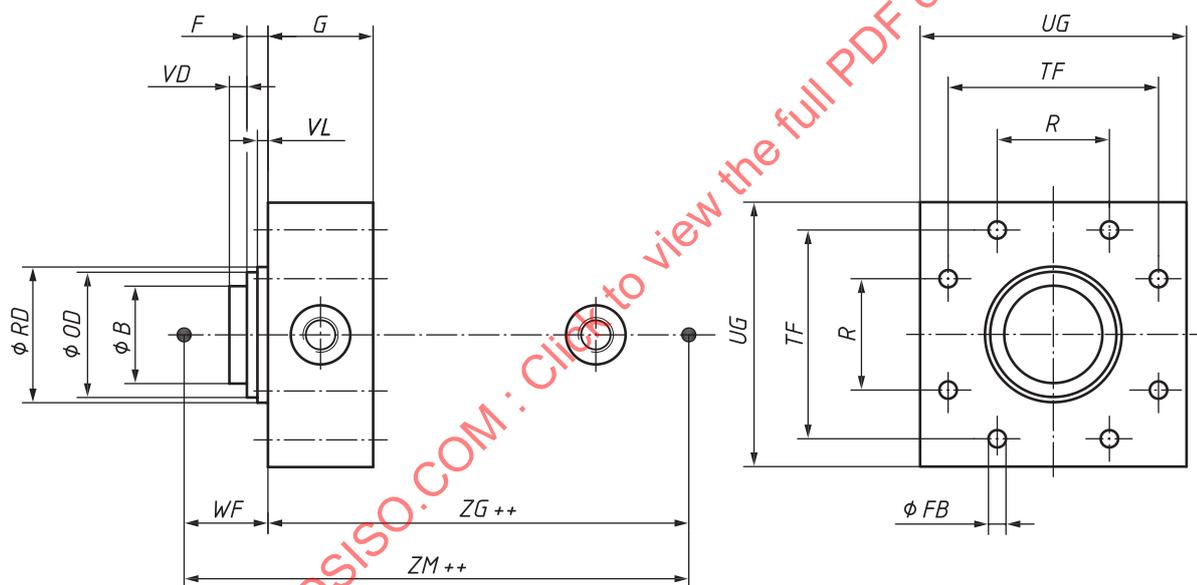


Figure 23 — MDE11 — Head, square — Double rod



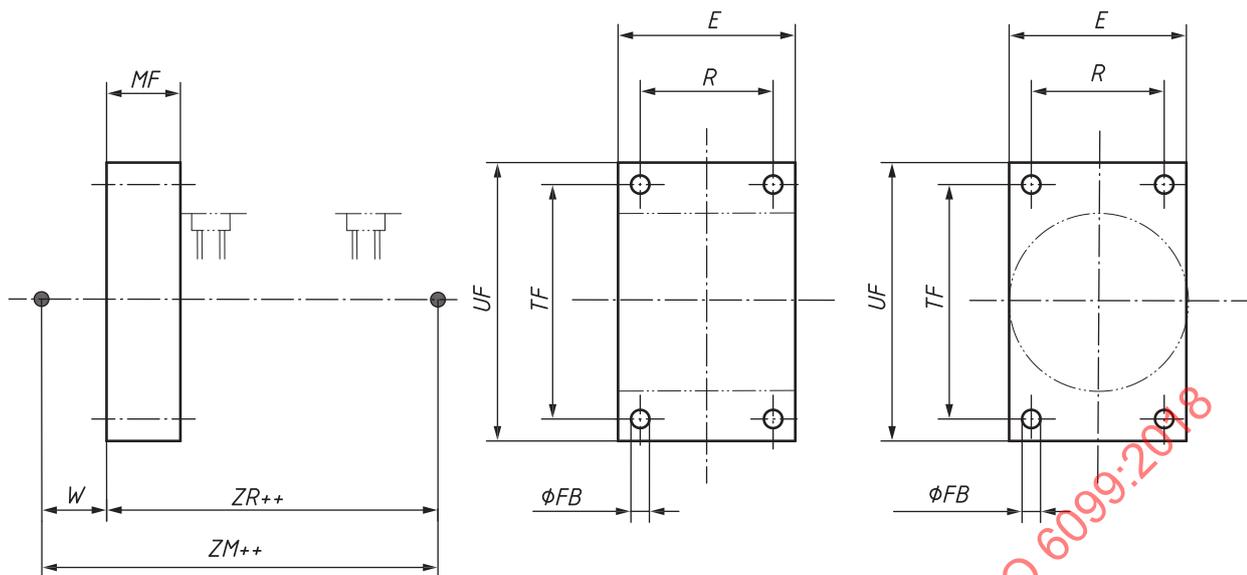


Figure 26 — MDF1 — Head, rectangular flange — Double rod

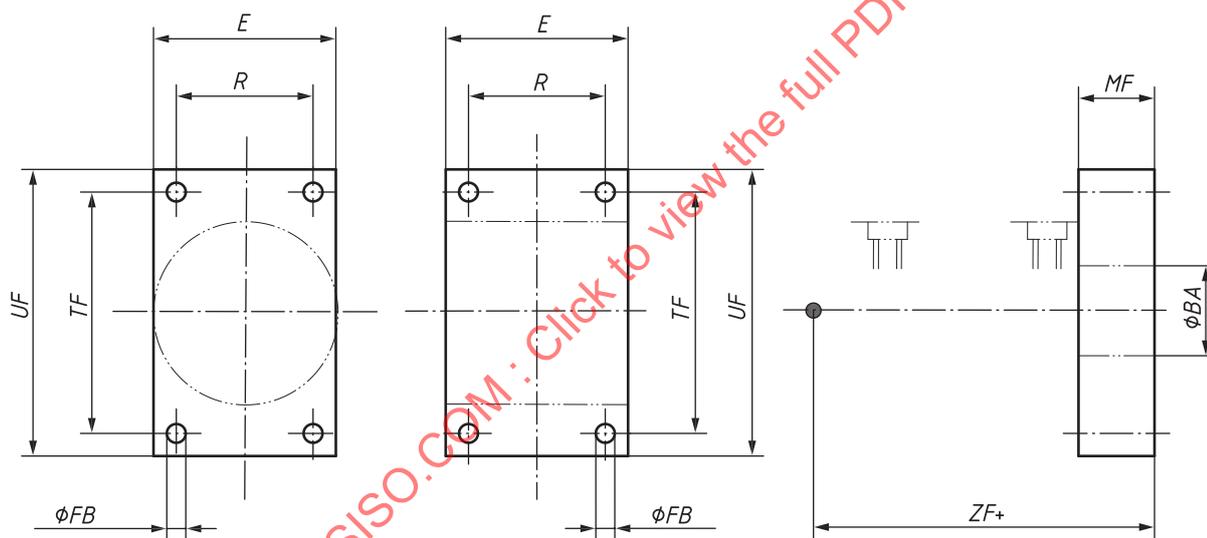


Figure 27 — MF2 — Cap, rectangular flange

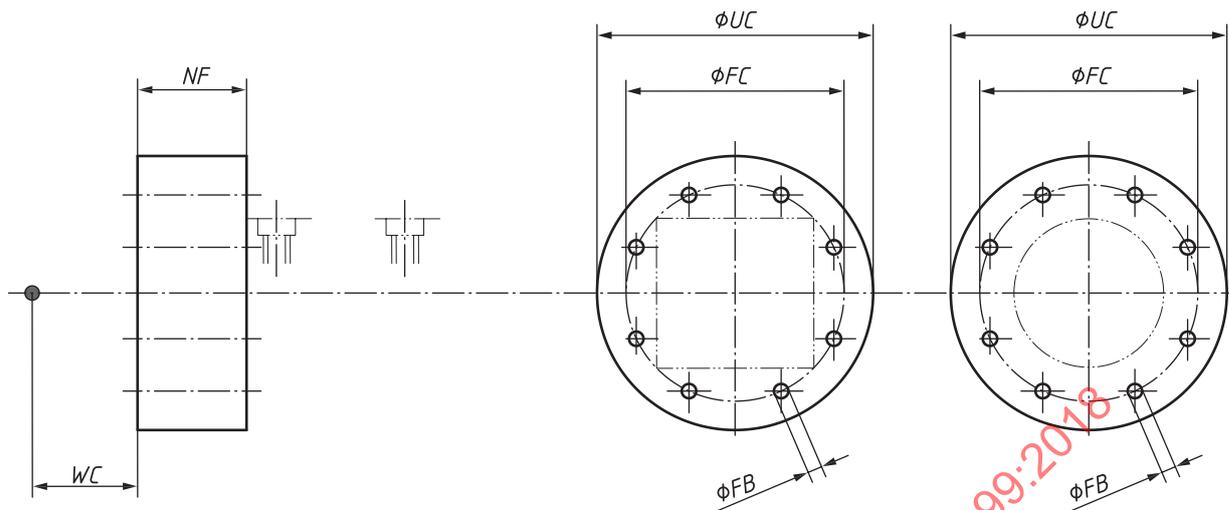


Figure 28 — MF3 — Head, circular flange

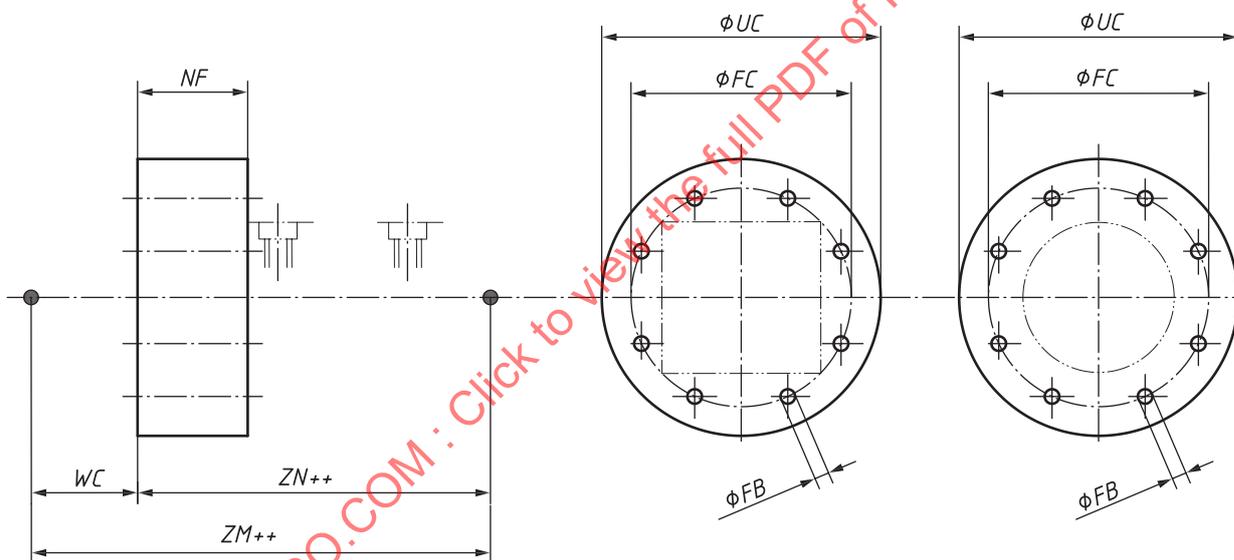


Figure 29 — MDF3 — Head, circular flange — Double rod

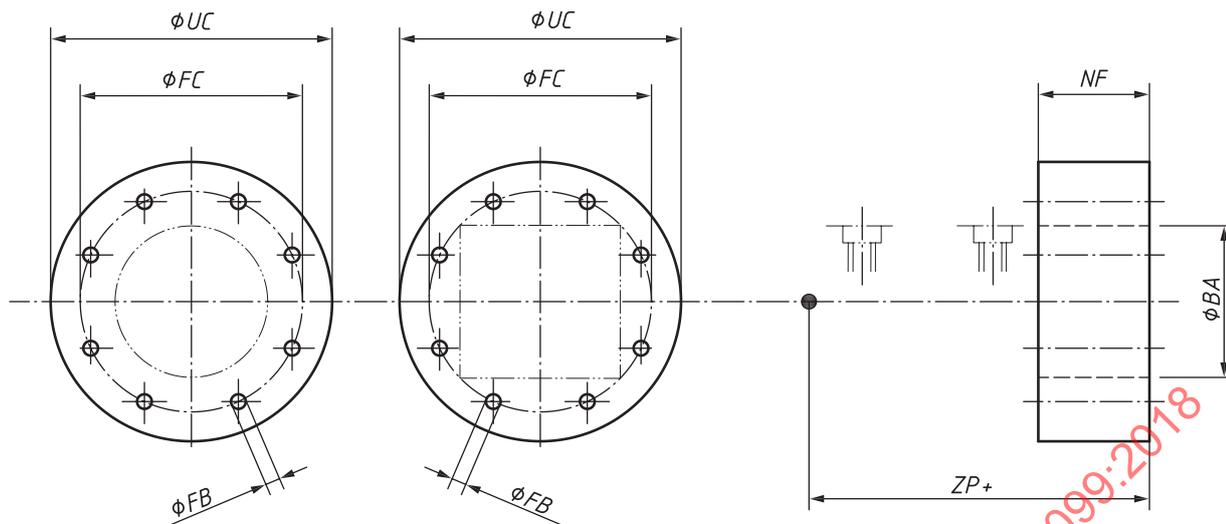


Figure 30 — MF4 — Cap, circular flange

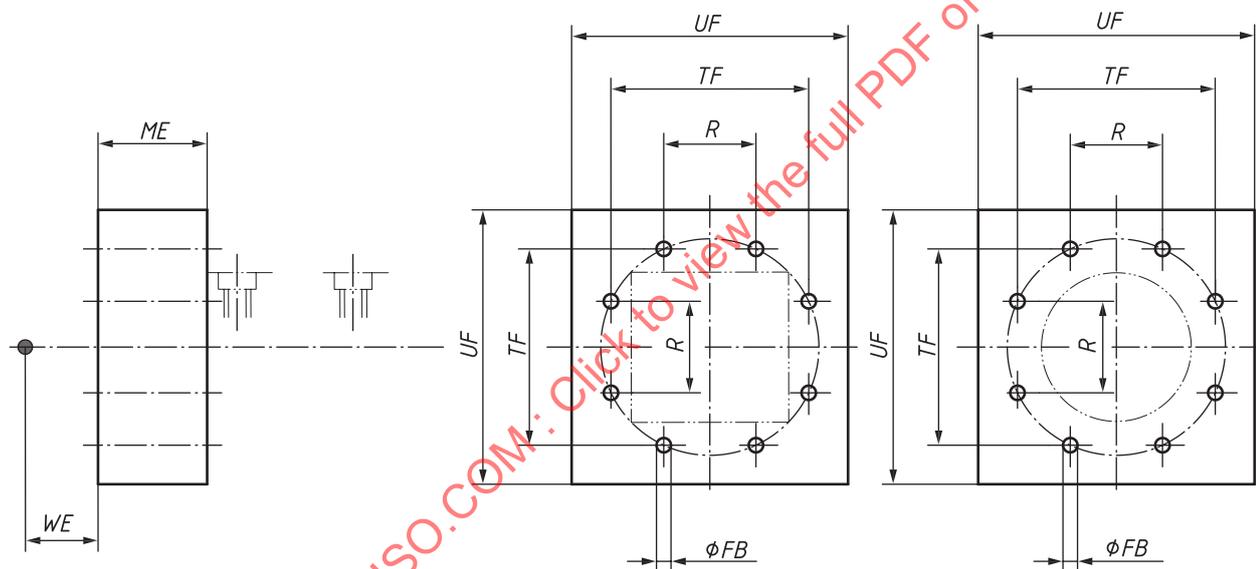


Figure 31 — MF5 — Head, square flange

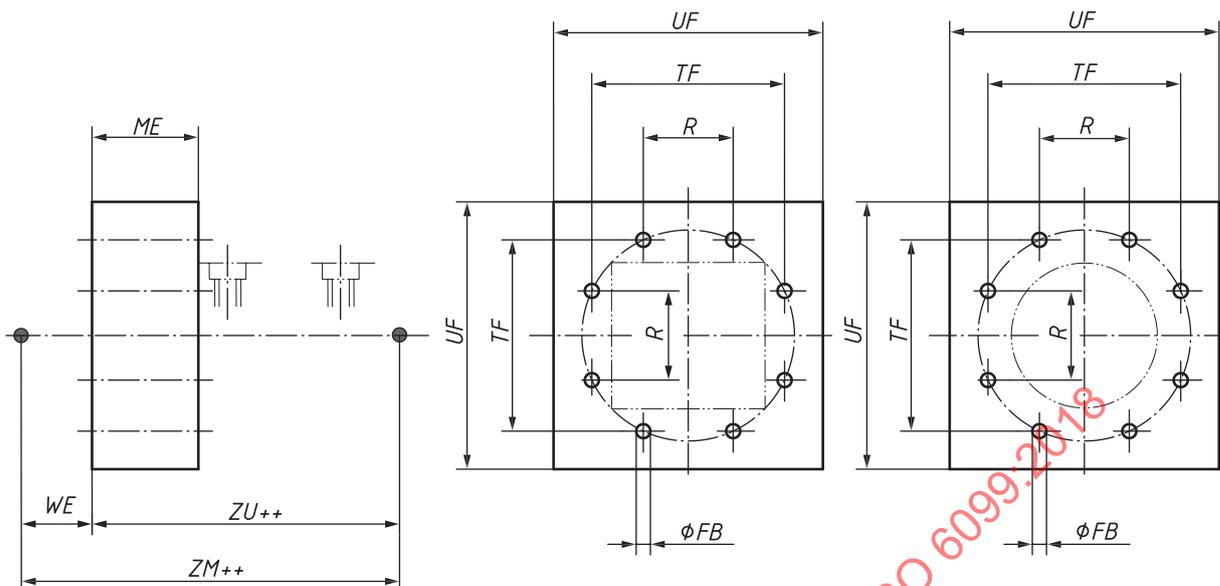


Figure 32 — MDF5 — Head, square flange — Double rod

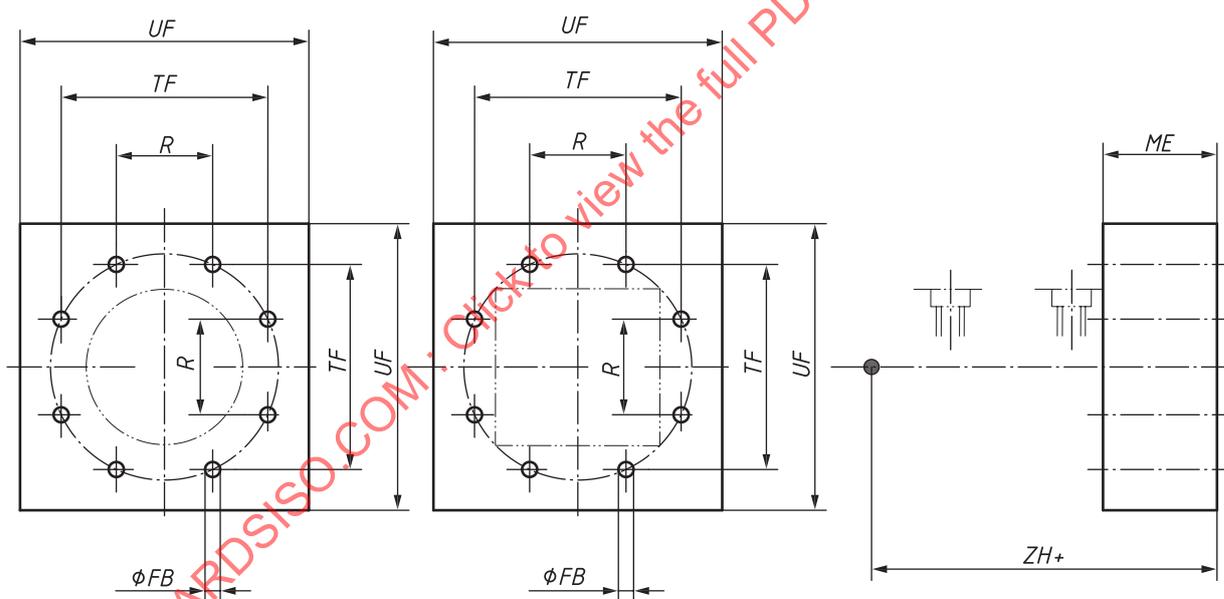


Figure 33 — MF6 — Cap, square flange

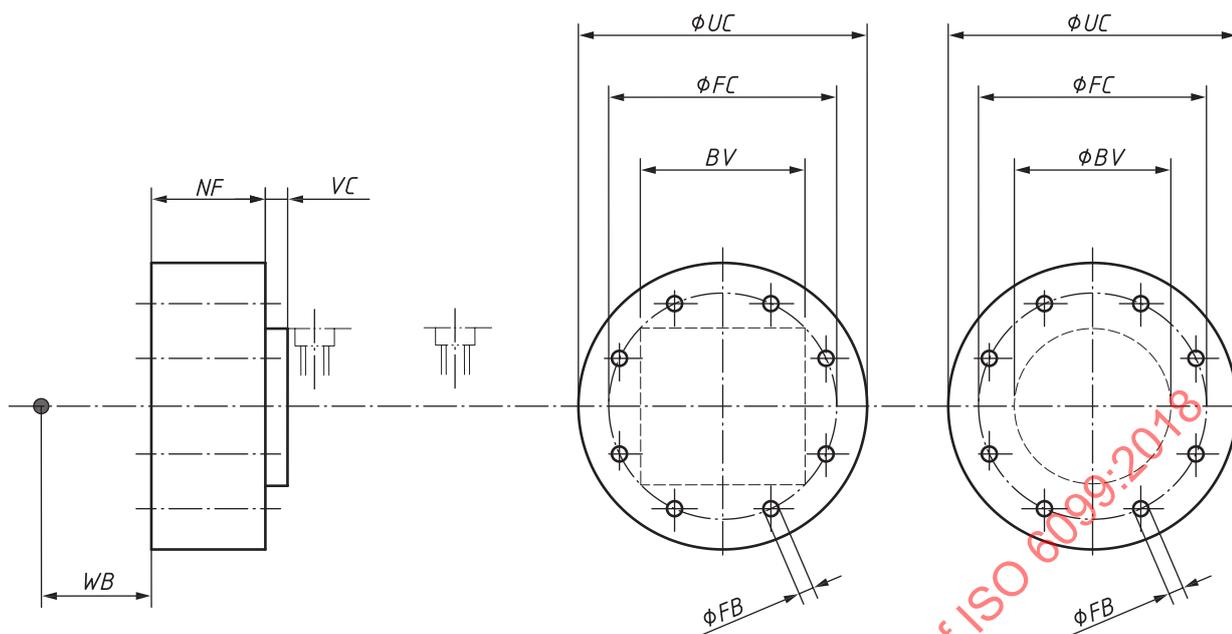


Figure 34 — MF7 — Head, circular flange centred on the rear side

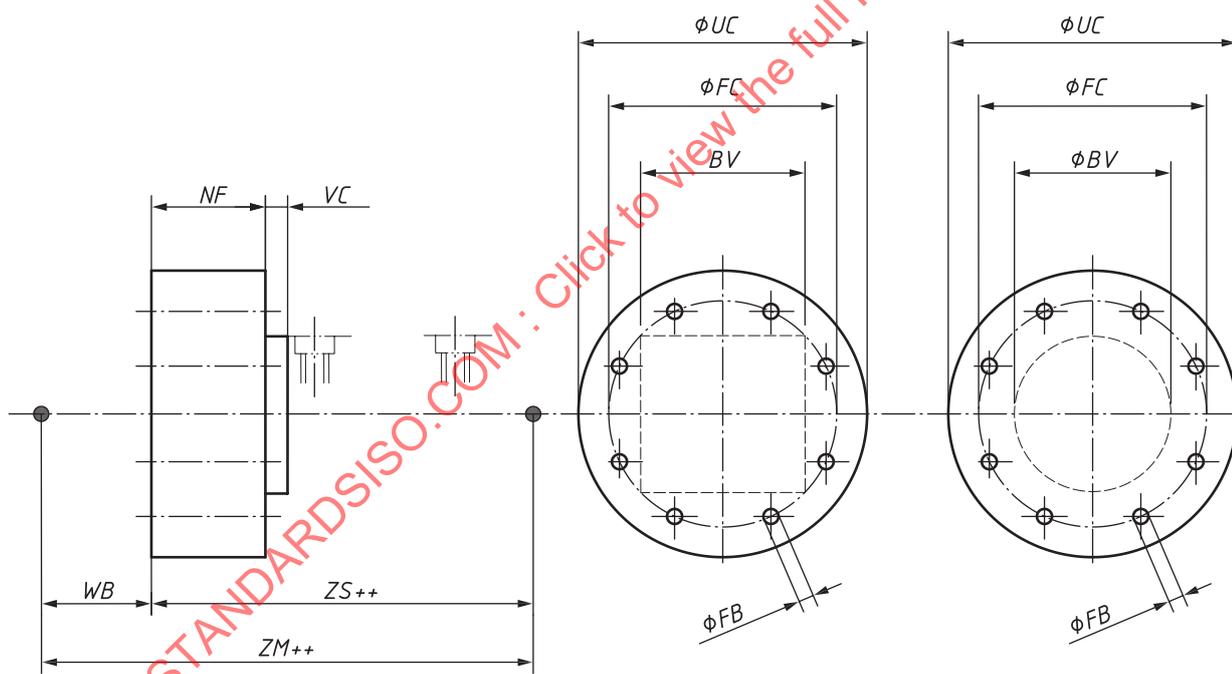


Figure 35 — MDF7 — Head, circular flange centred on the rear side — Double rod

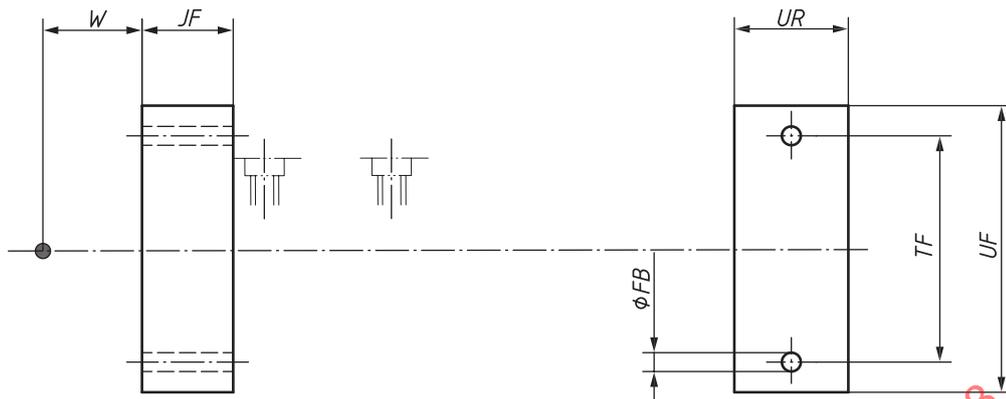


Figure 36 — MF8 — Head, rectangular flange with two holes

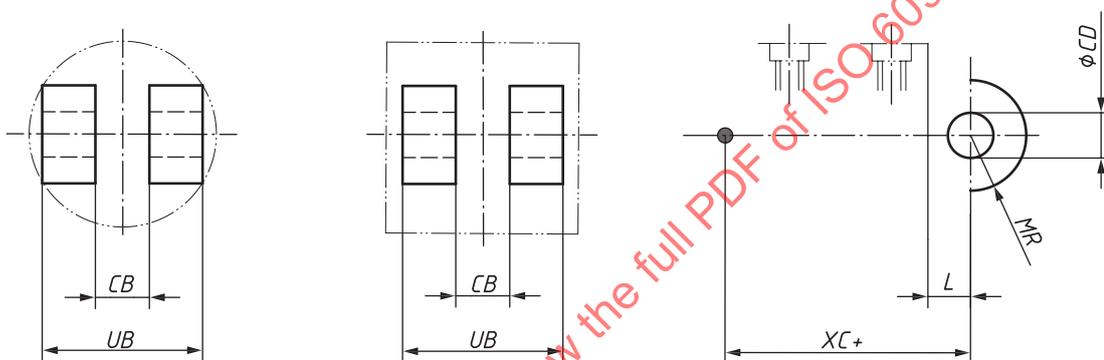


Figure 37 — MP1 — Cap, fixed clevis

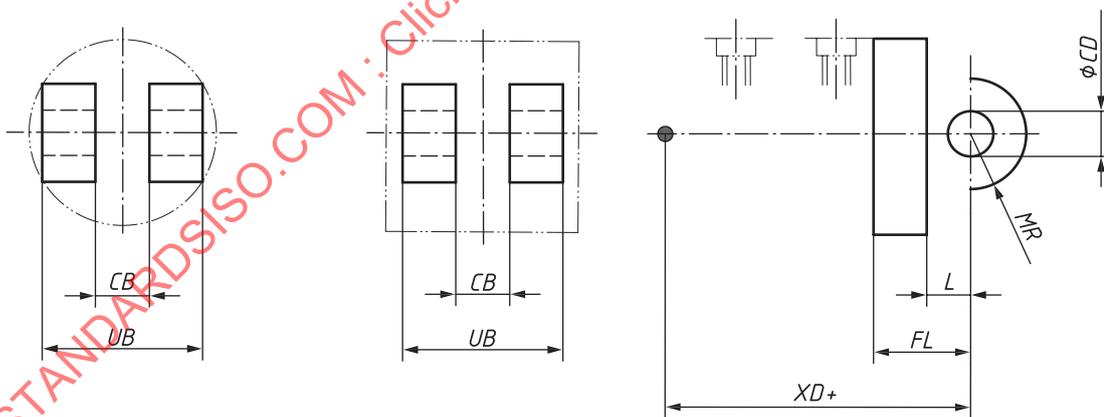


Figure 38 — MP2 — Cap, detachable clevis

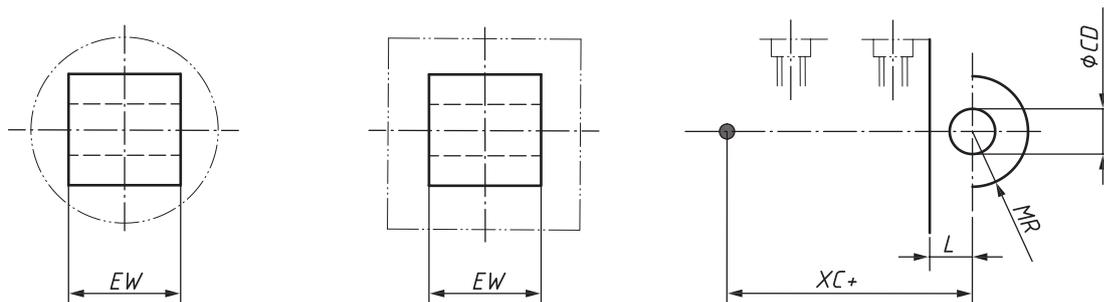


Figure 39 — MP3 — Cap, fixed plain eye

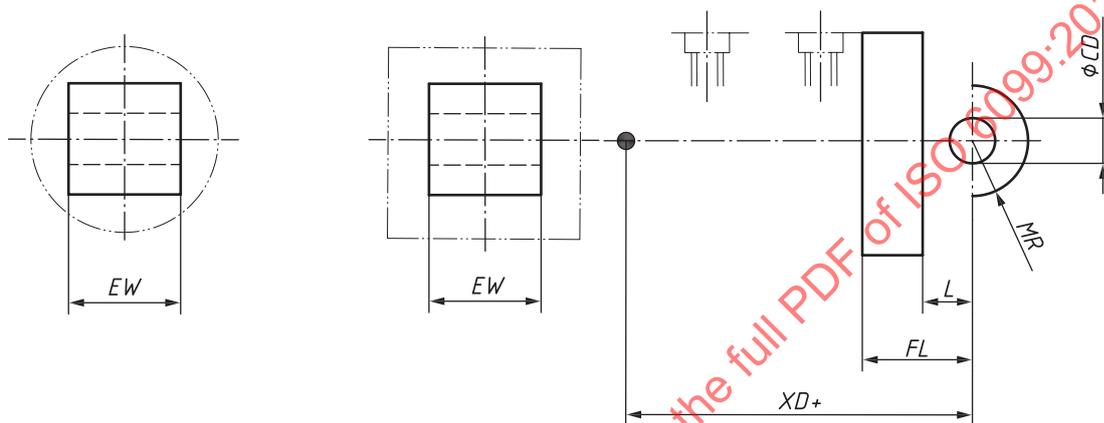


Figure 40 — MP4 — Cap, detachable plain eye

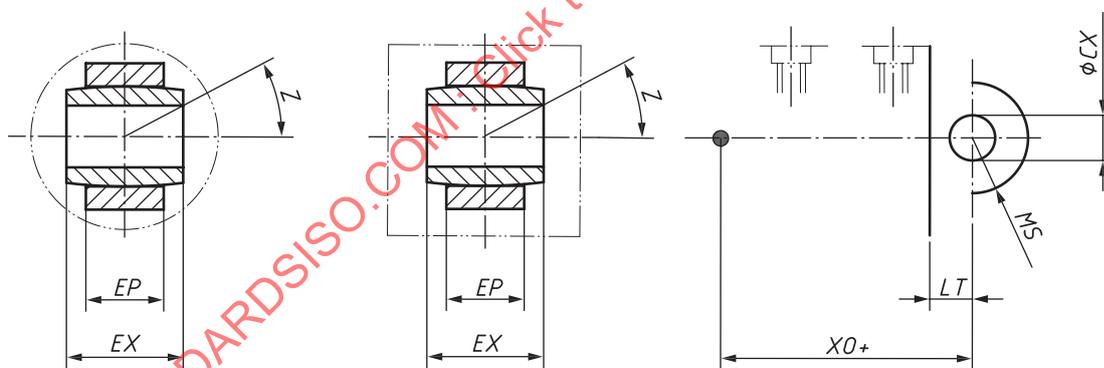


Figure 41 — MP5 — Cap, fixed eye with spherical bearing

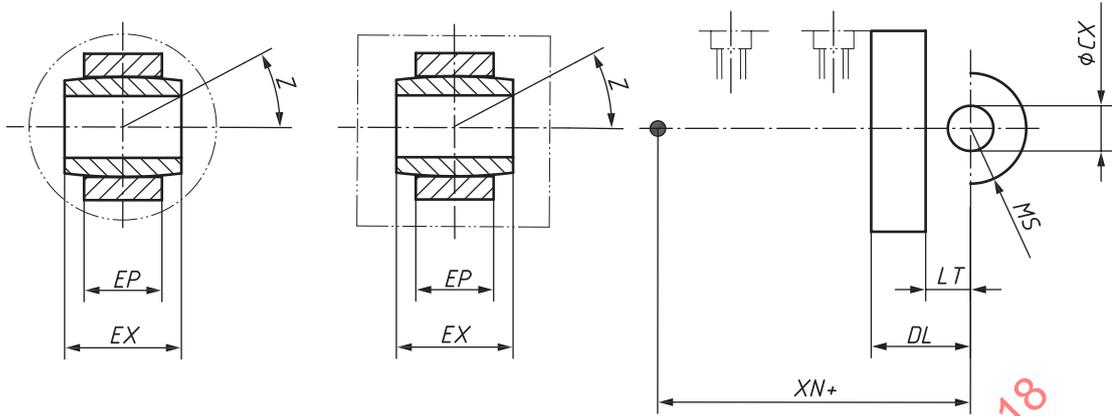


Figure 42 — MP6 — Cap, detachable eye with spherical bearing

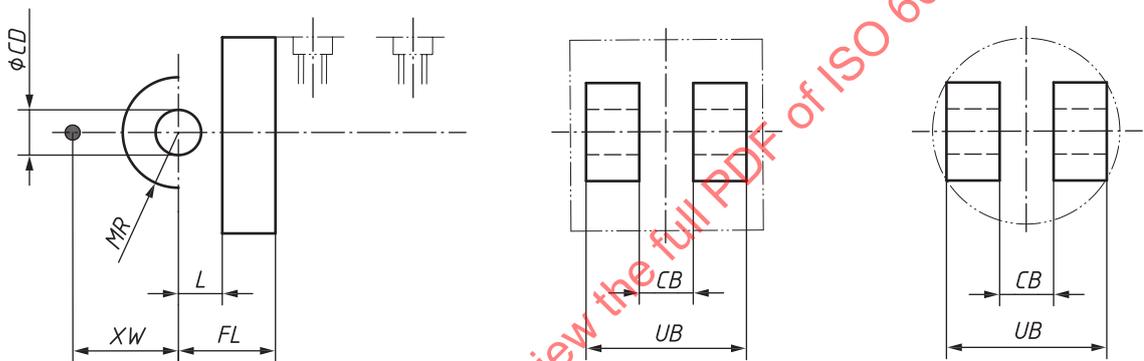


Figure 43 — MP7 — Head, detachable clevis

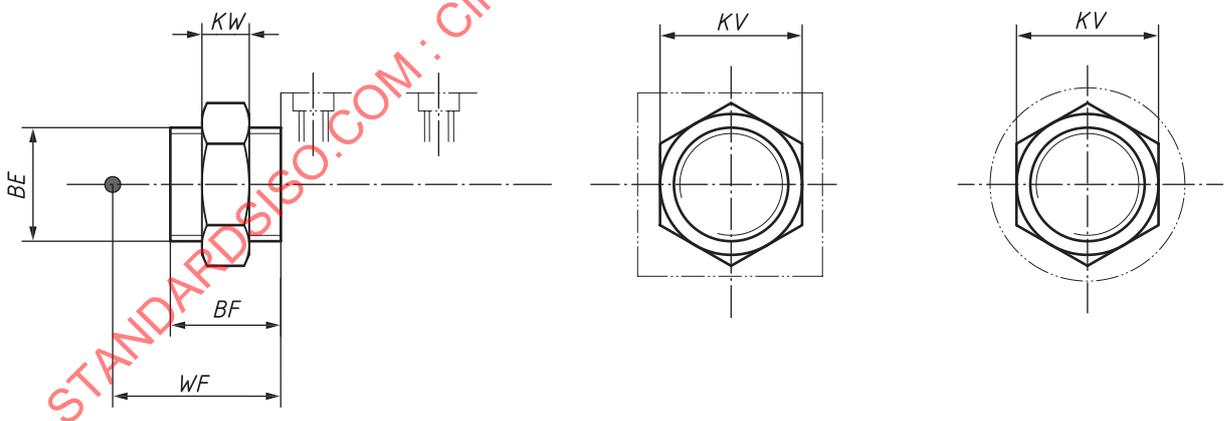


Figure 44 — MR3 — Head, threaded

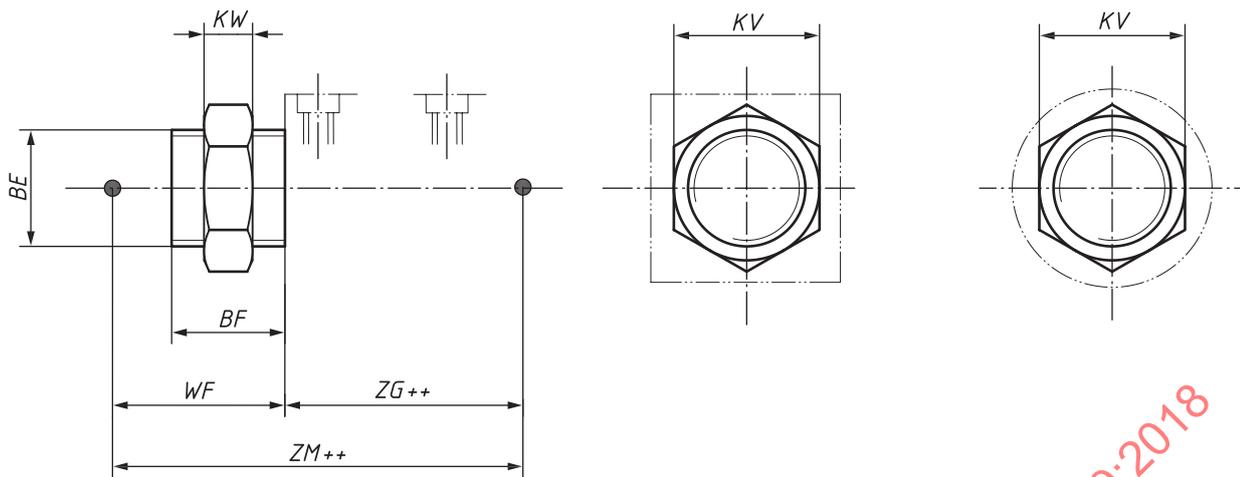


Figure 45 — MDR3 — Head, threaded — Double rod

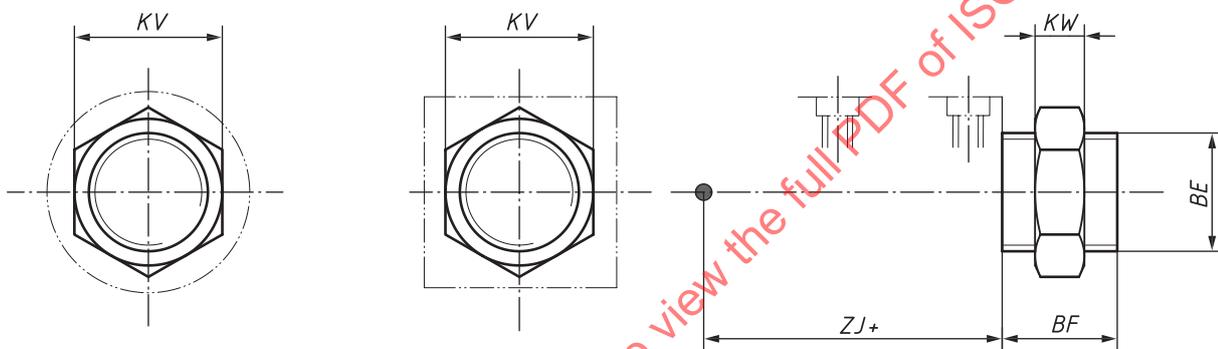


Figure 46 — MR4 — Cap, threaded

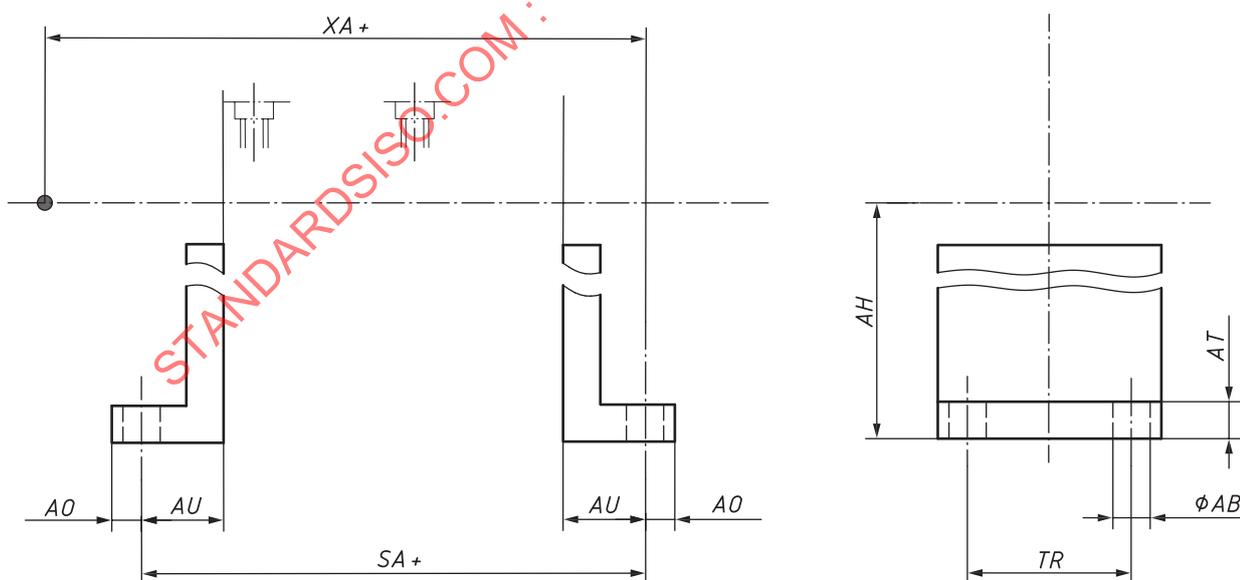


Figure 47 — MS1 — End angles

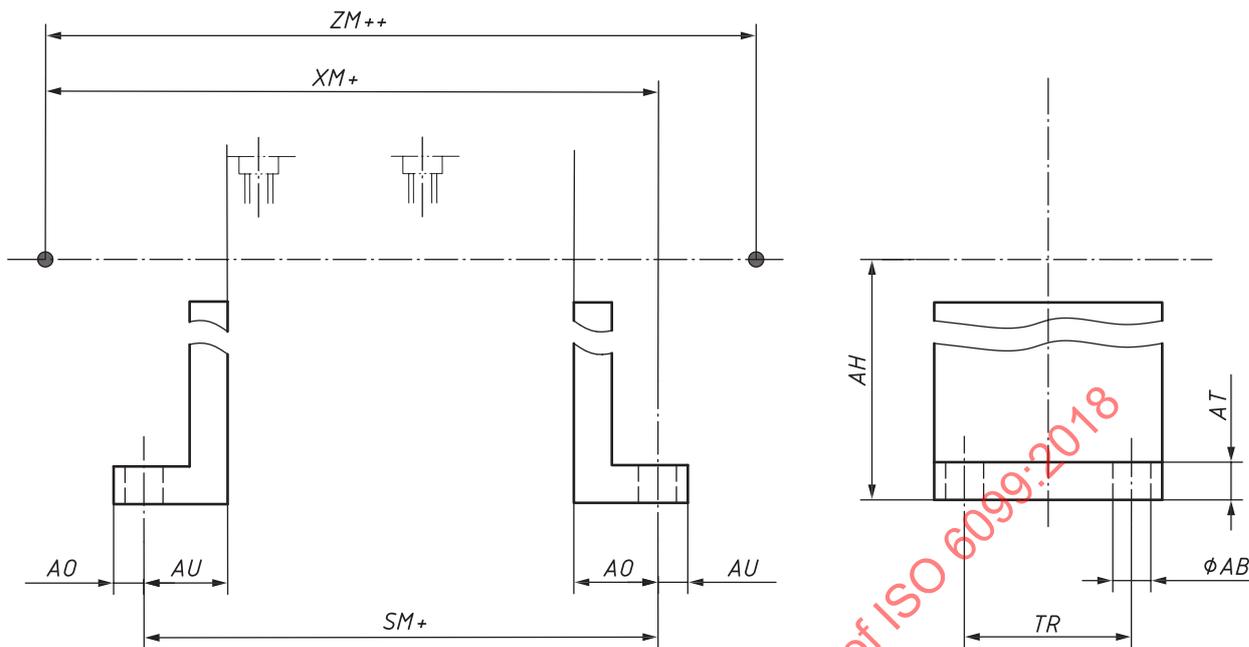


Figure 48 — MDS1 — End angles — Double rod

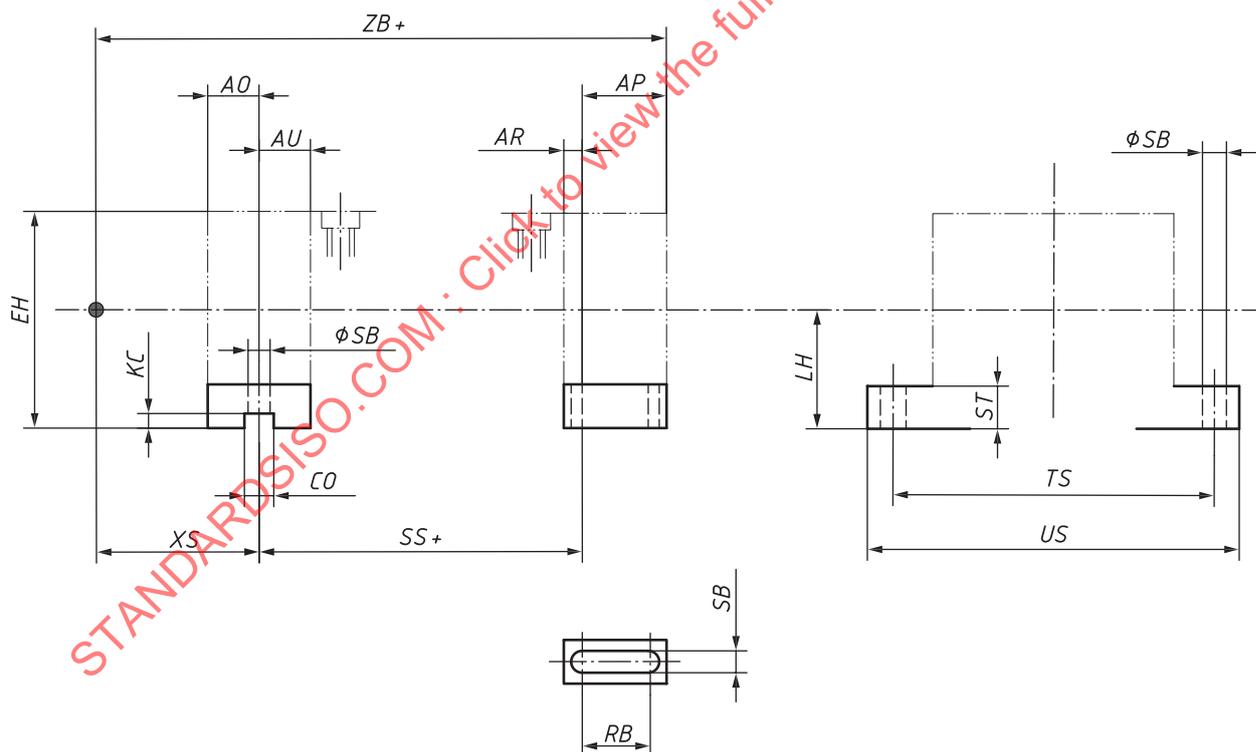


Figure 49 — MS2 — Side lugs

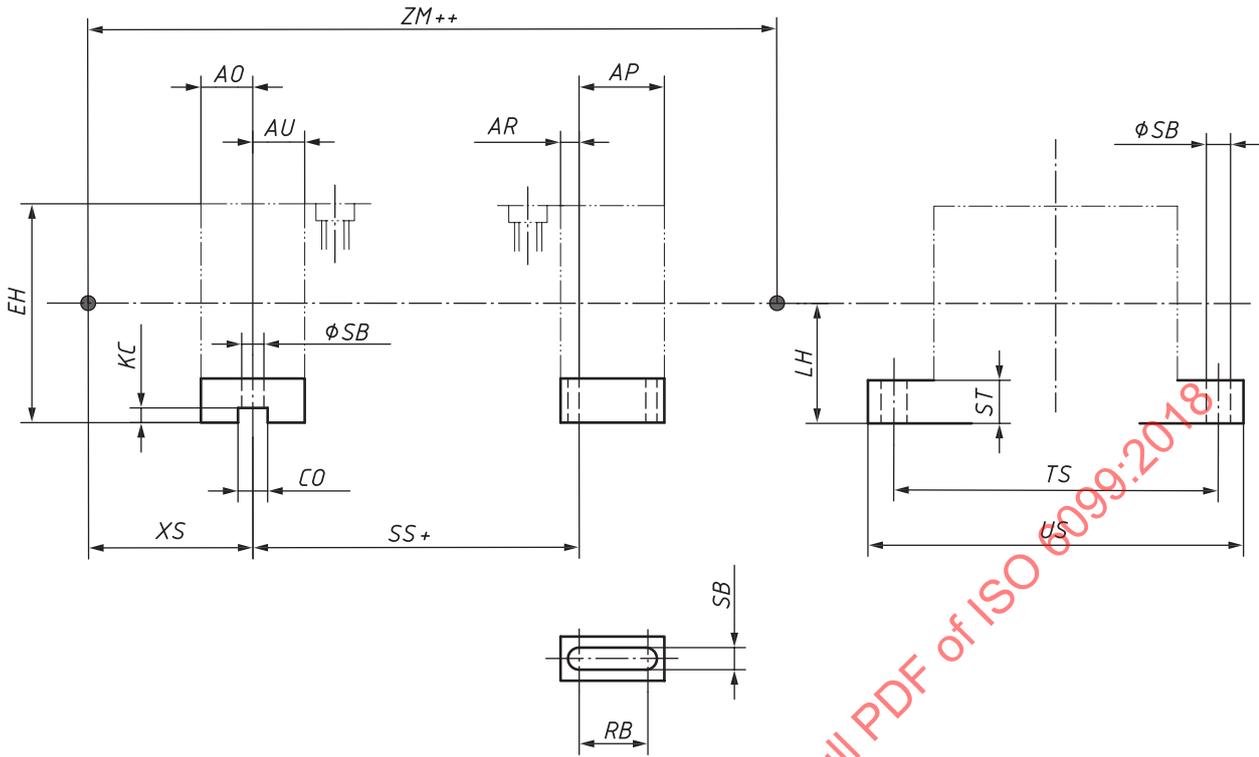


Figure 50 — MDS2 — Side lugs — Double rod

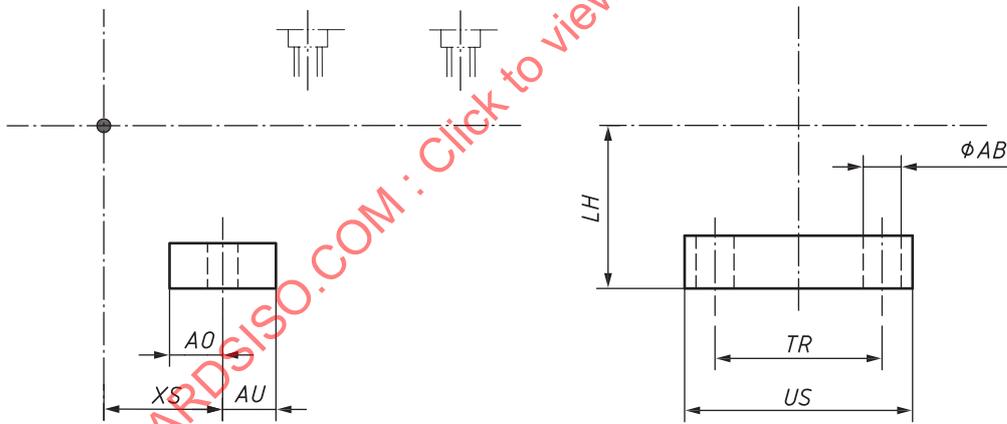


Figure 51 — MS3 — Head angle

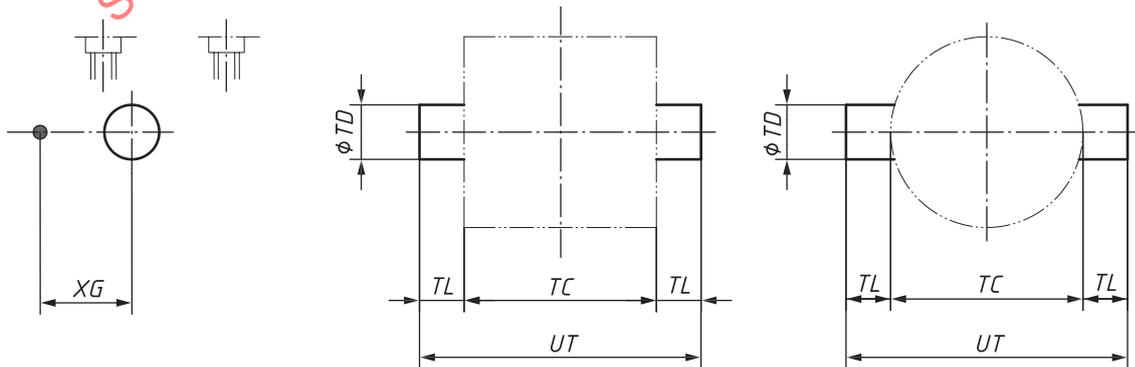


Figure 52 — MT1 — Head, integral trunnion (male)

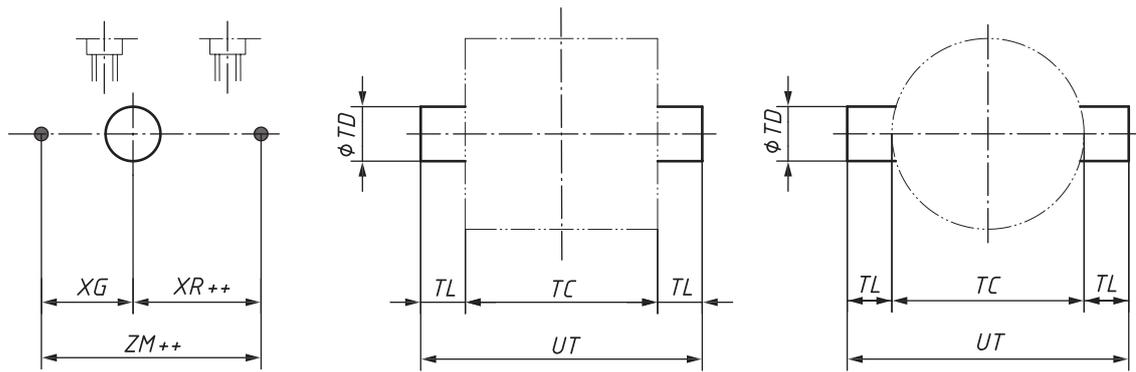


Figure 53 — MDT1 — Head, integral trunnion (male) — Double rod

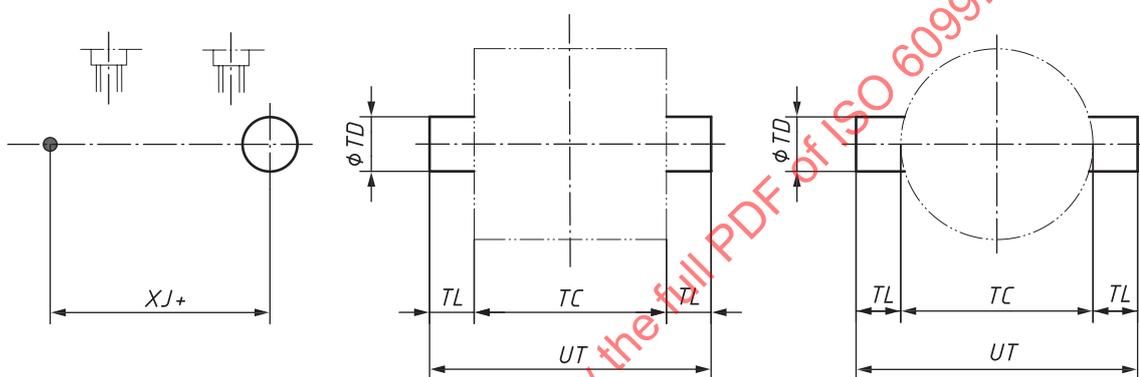


Figure 54 — MT2 — Cap, integral trunnion (male)

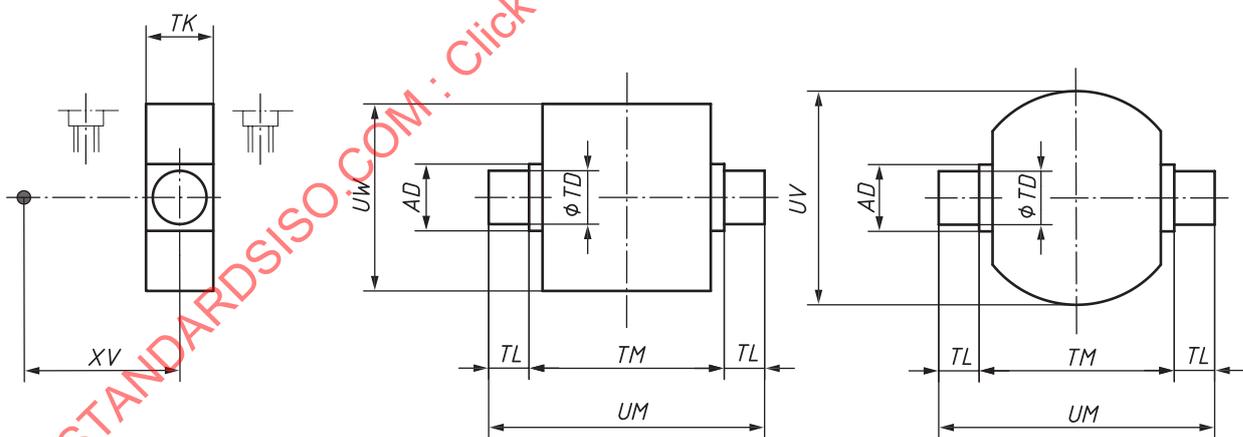


Figure 55 — MT4 — Intermediate trunnion (male) fixed or mobile

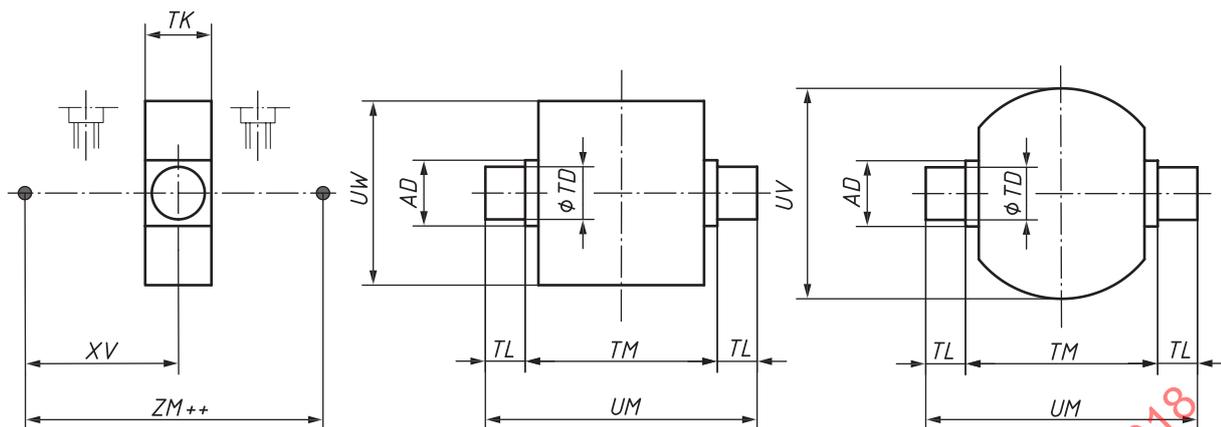


Figure 56 — MDT4 — Intermediate trunnion (male) fixed or mobile — Double rod

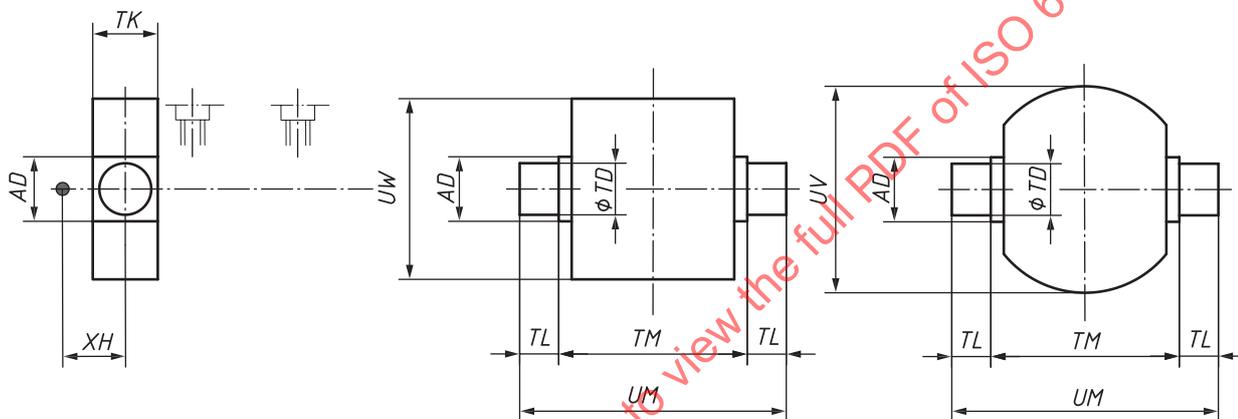


Figure 57 — MT5 — Head, detachable trunnion (male)

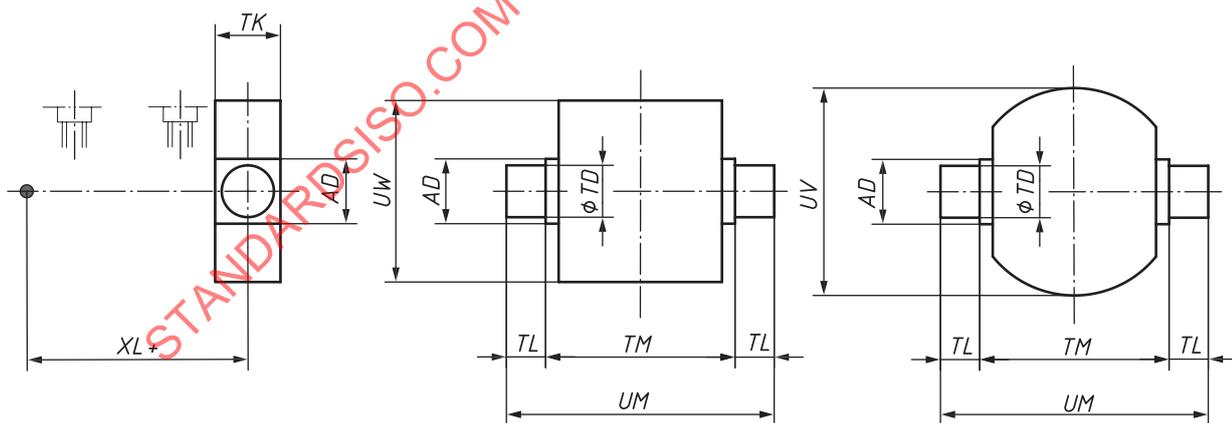


Figure 58 — MT6 — Cap, detachable trunnion (male)

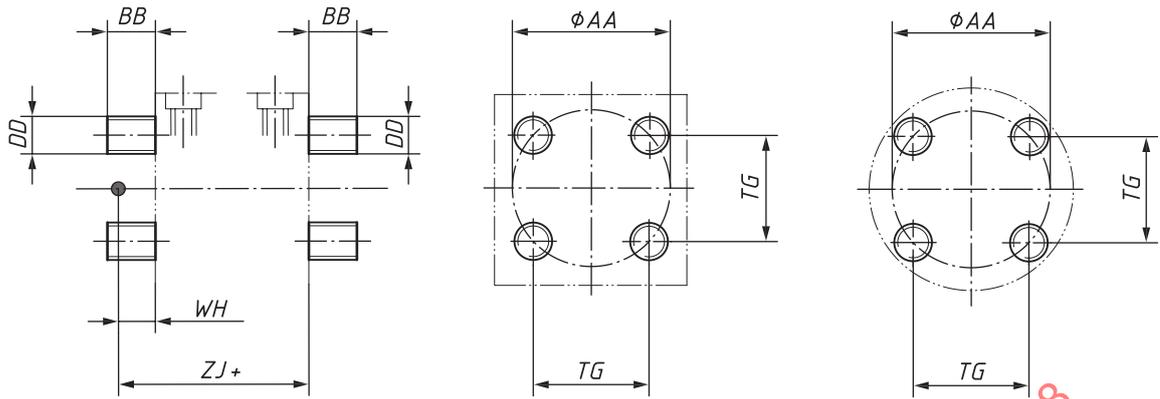


Figure 59 — MX1 — Both ends studs or tie rods extended

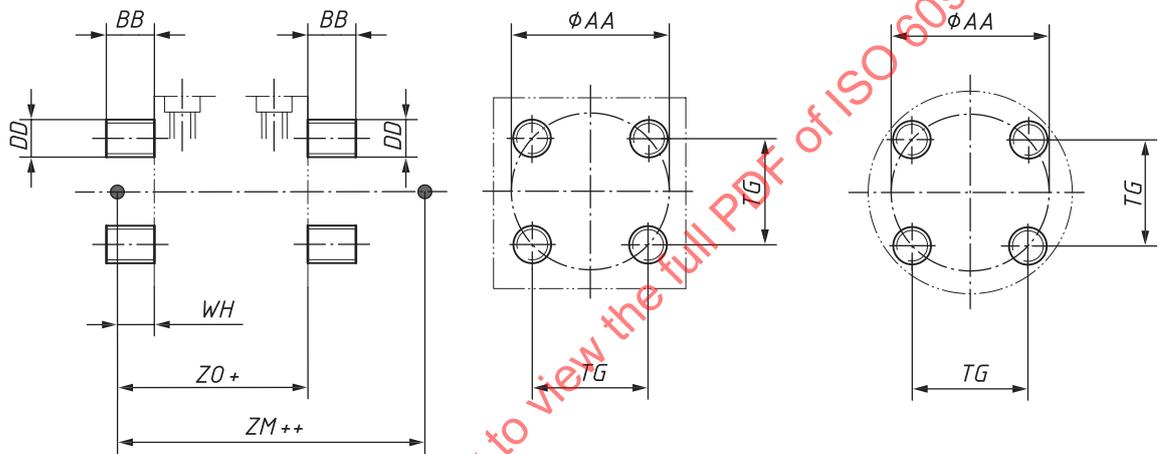


Figure 60 — MDX1 — Both ends studs or tie rods extended — Double rod

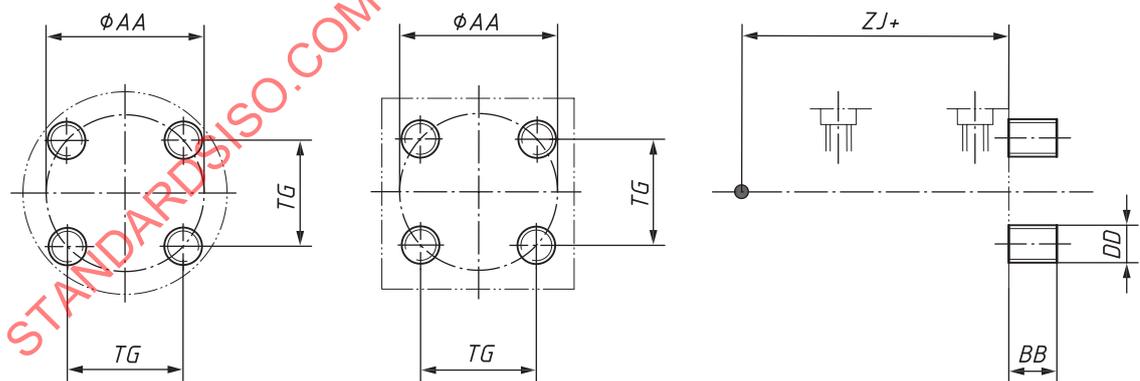


Figure 61 — MX2 — Cap studs or tie rods extended

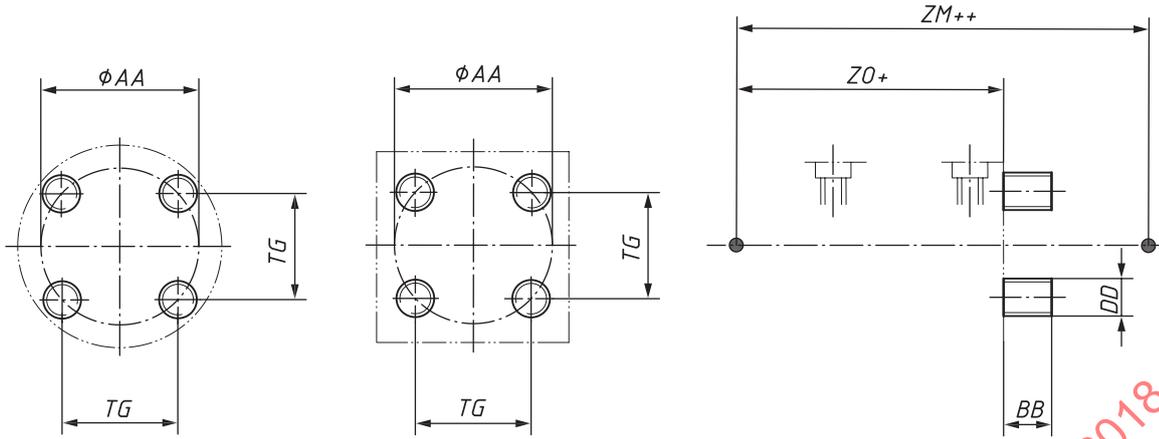


Figure 62 — MDX2 — Cap studs or tie rods extended — Double rod

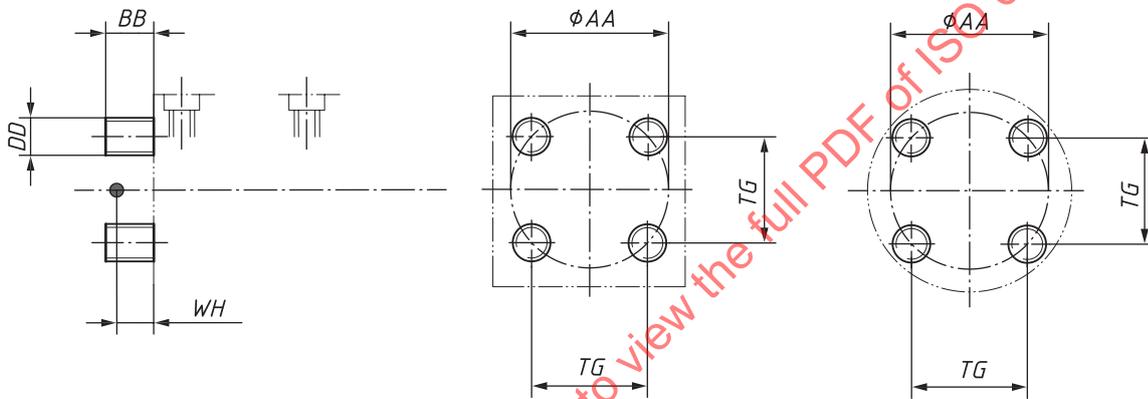


Figure 63 — MX3 — Head studs or tie rods extended

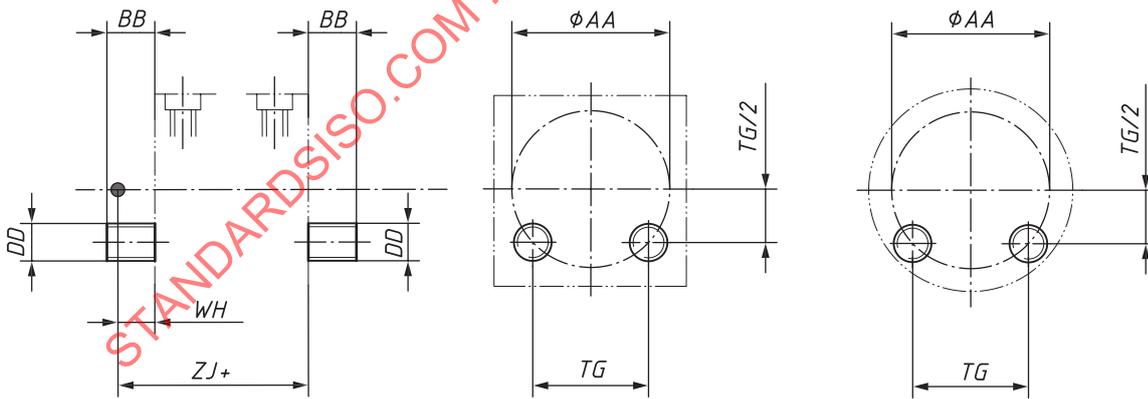


Figure 64 — MX4 — Both ends 2 studs or tie rods extended

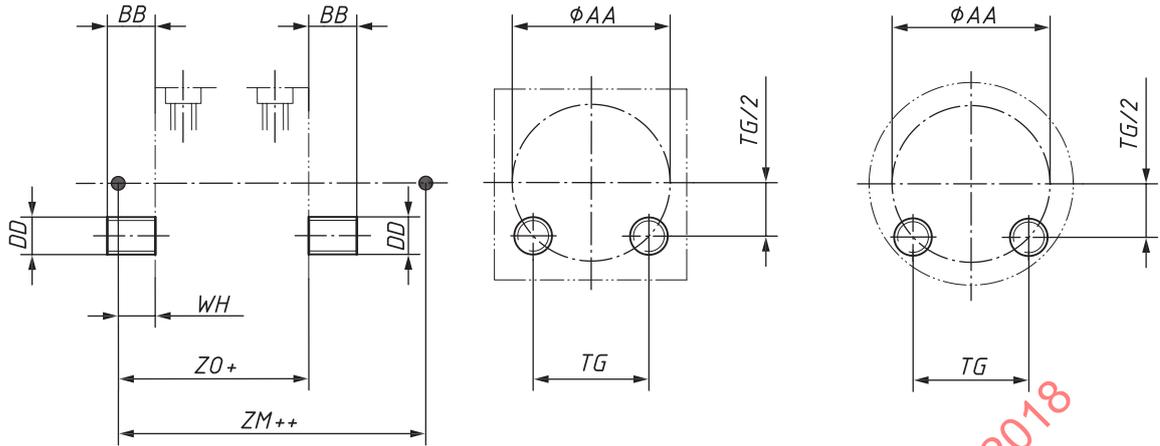


Figure 65 — MDX4 — Both ends 2 studs or tie rods extended — Double rod

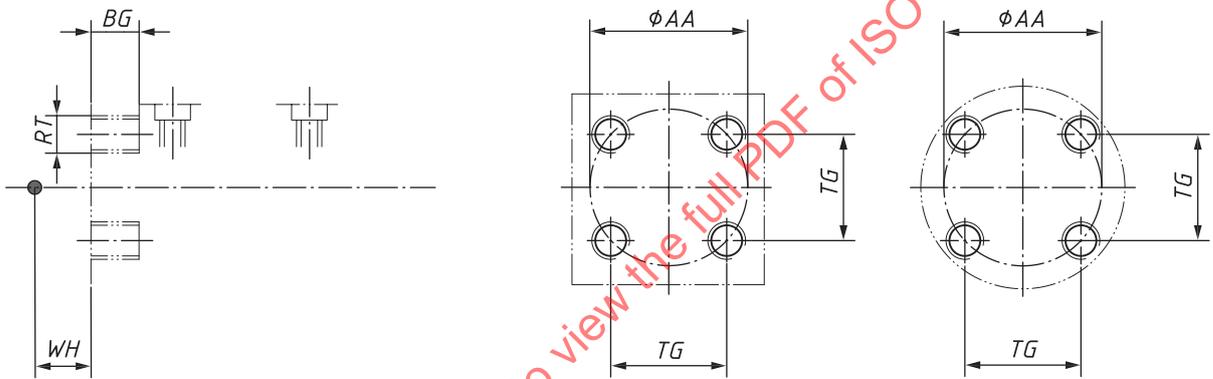


Figure 66 — MX5 — Head, tapped

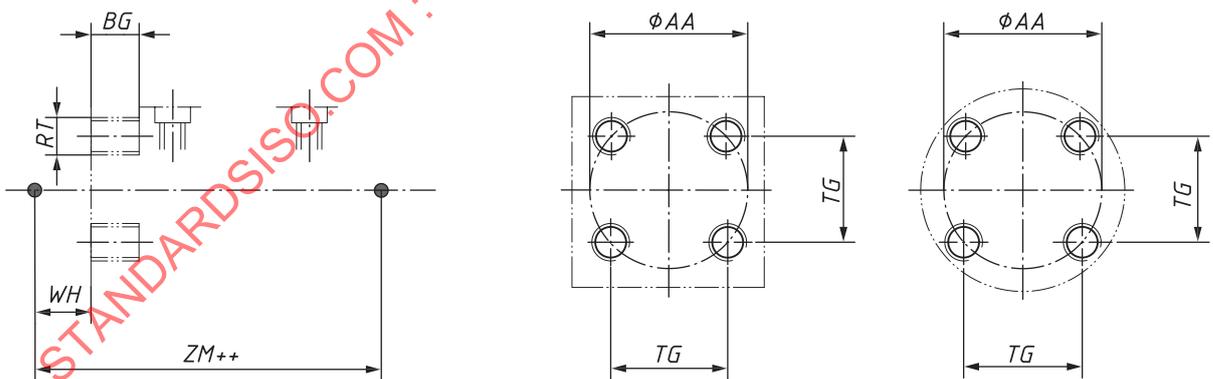


Figure 67 — MDX5 — Head, tapped — Double rod

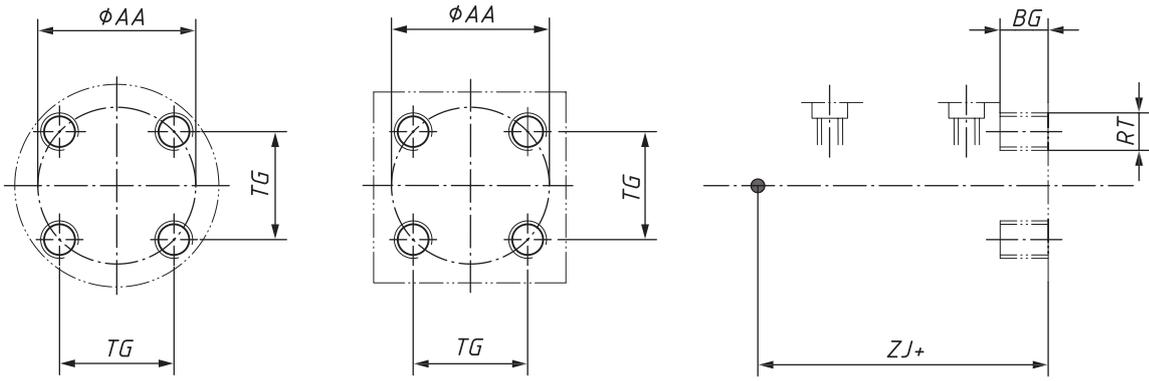


Figure 68 — MX6 — Cap, tapped

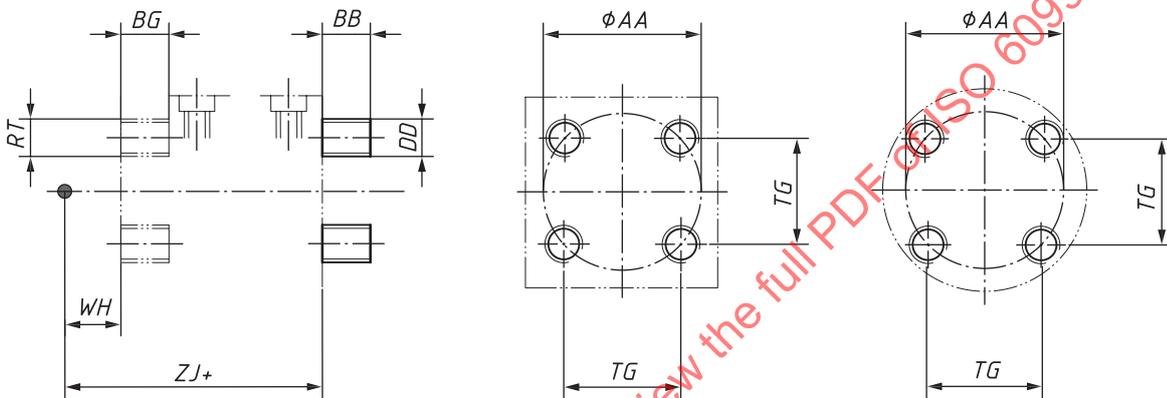


Figure 69 — MX7 — Head, tapped, and cap studs or tie rods extended

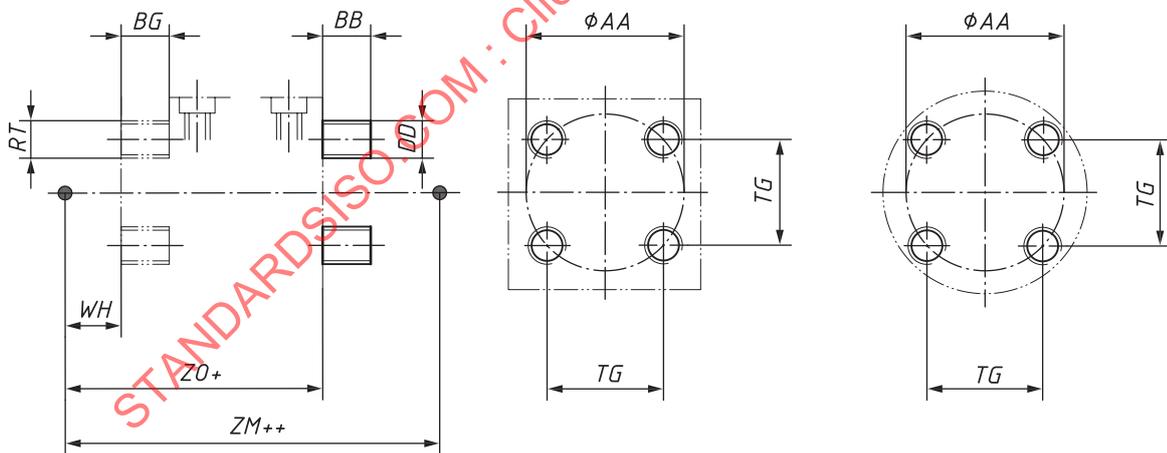


Figure 70 — MDX7 — Head, tapped, and cap studs or tie rods extended — Double rod

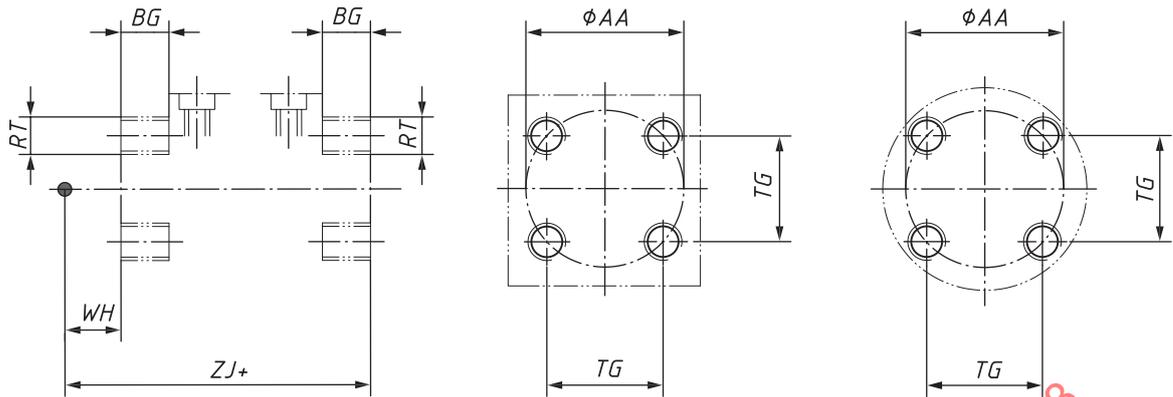


Figure 71 — MX8 — Head and cap, tapped

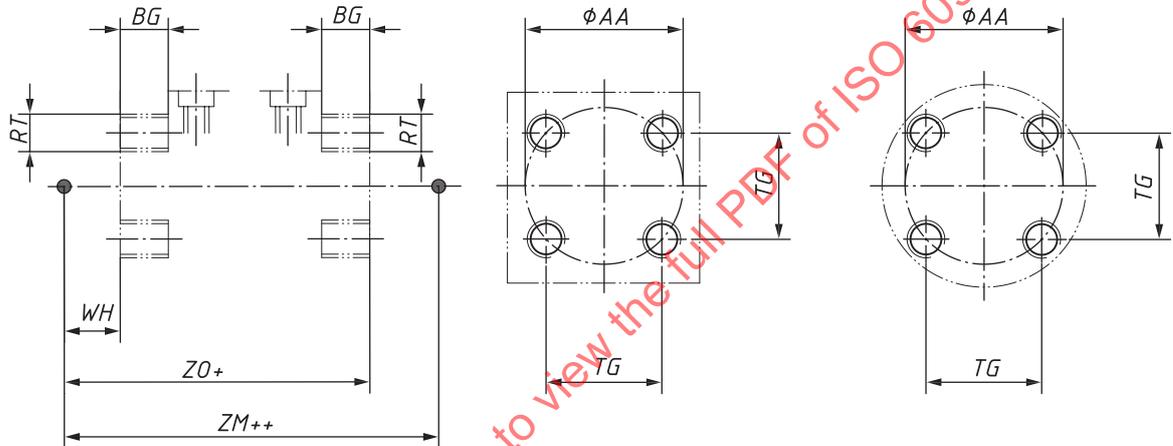


Figure 72 — MDX8 — Head and cap, tapped — Double rod

## 7 Identification code for accessory types

### 7.1 General

The identification code for cylinder accessory types consists of two letters and a number.

EXAMPLE Identification code for accessory types

**AP2**

where:

A = accessory

P2 = rod clevis, female thread

### 7.2 Accessory types

[Table 3](#) shows the accessory types defined in this document with their identification code.

Table 3 — Accessory types

Identification code	Description	Figure	With split pins	With rings	With locking plate	With key way	With centre hole
			-S	-R	-L <sup>a</sup>	-K <sup>a</sup>	-H <sup>a</sup>
AA4	Pivot pin, plain	84, 86, 90	-S	-R	-L		
AA6	Pivot pin, spherical bearing	85, 87, 88	-S	-R	-L		
AB2	Eye bracket, straight	77				-K	
AB3	Clevis bracket, plain eye, angled	79			-L	-K	-H
AB4	Clevis bracket, plain eye, straight	78			-L	-K	-H
AB5	Clevis bracket, spherical eye, in angle	81			-L	-K	-H
AB6	Clevis bracket, spherical eye, straight	80			-L	-K	-H
AB7	Eye bracket, in angle	91				-K	
AF3	Rod flange, circular	82					
AL6	Locking plate for pivot pin	89					
AP2	Rod clevis, female thread	74			-L		
AP4	Rod eye plain, female thread	75					
AP6	Rod eye spherical, female thread	76					
AT4	Trunnion bracket	83					

<sup>a</sup> See [Figure 73](#).

EXAMPLE **AB4-L-K** Accessory Clevis bracket, straight with locking plate and key way.

### 7.3 Letter codes of accessories according to accessory type

For the letter code for accessories, according to type, see [Figure 73](#) to [Figure 91](#).

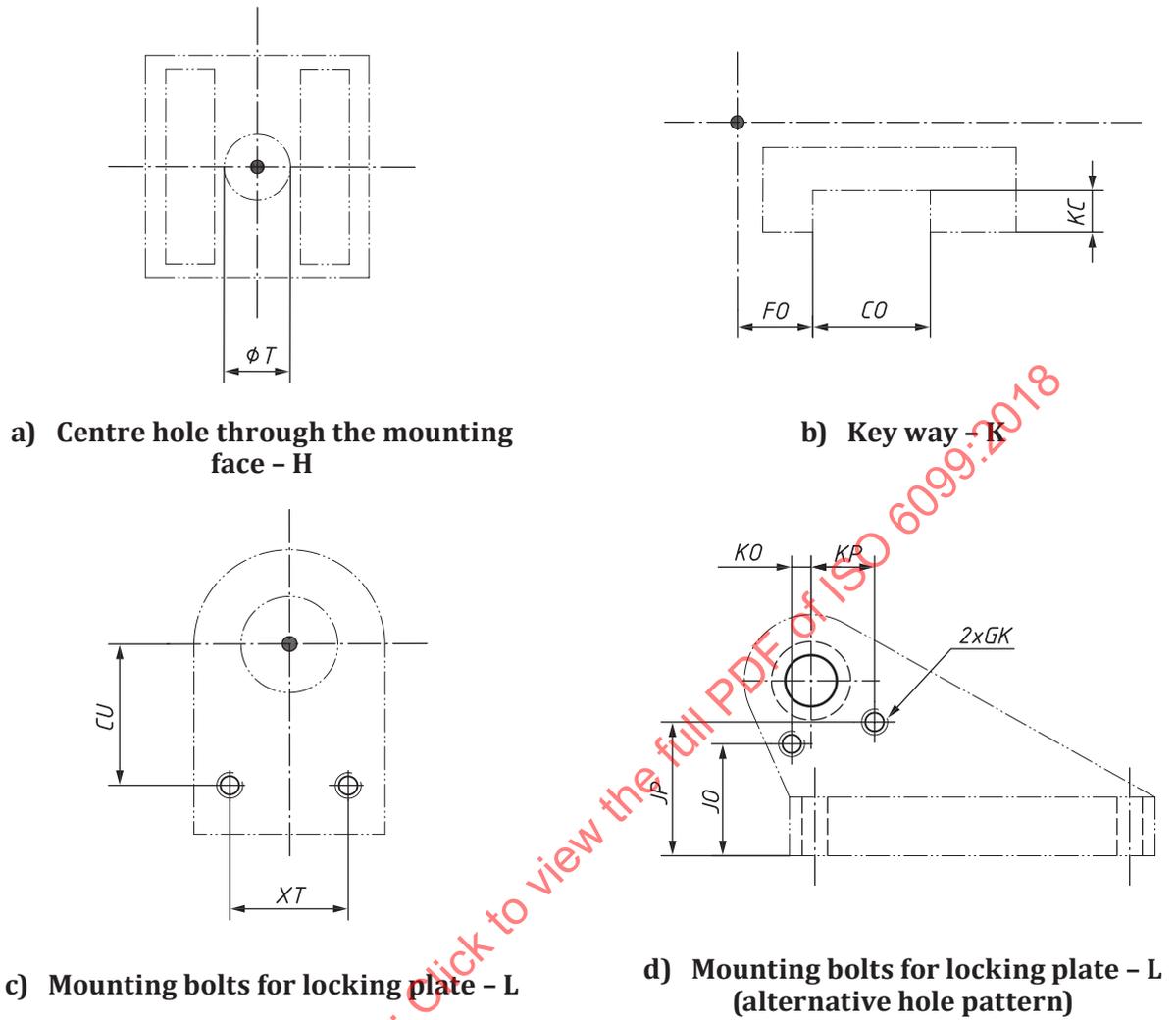


Figure 73 — Optional function for accessories

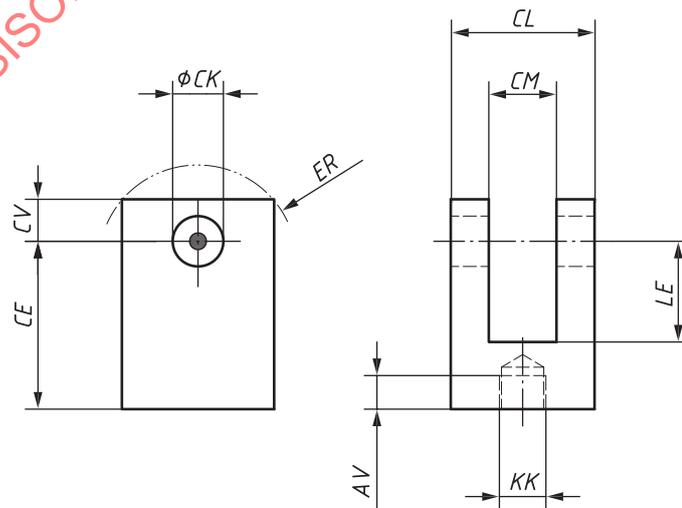


Figure 74 — AP2 — Rod clevis, female thread

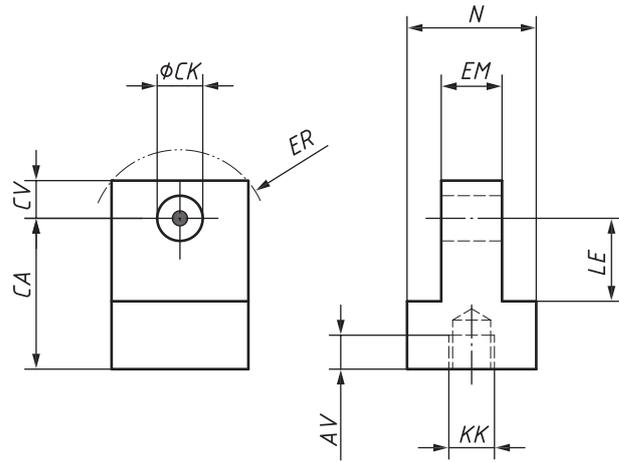


Figure 75 — AP4 — Rod eye plain, female thread

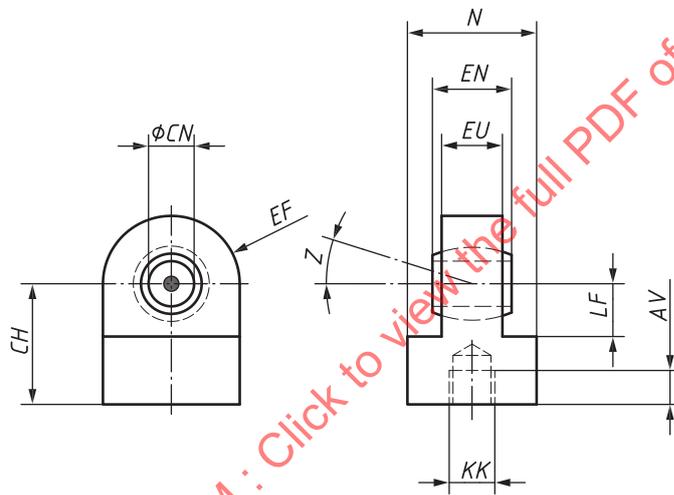


Figure 76 — AP6 — Rod eye spherical, female thread

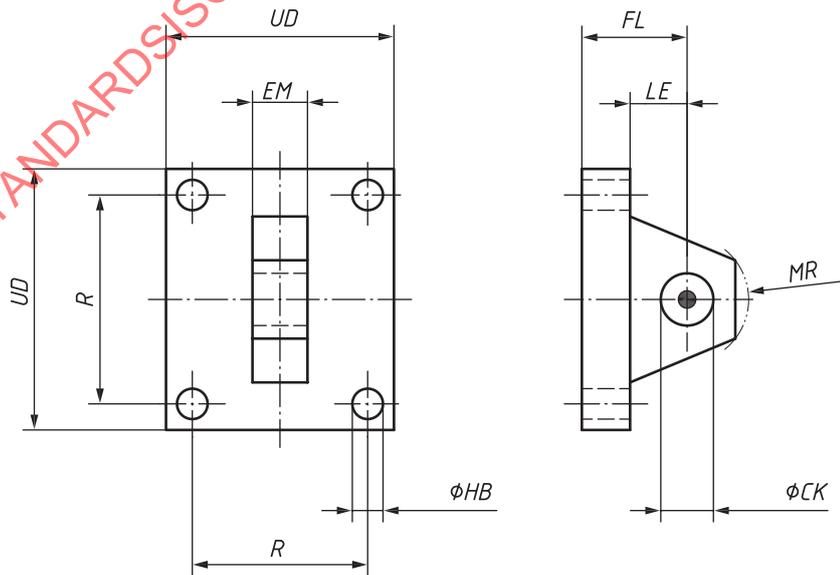


Figure 77 — AB2 — Eye bracket, straight

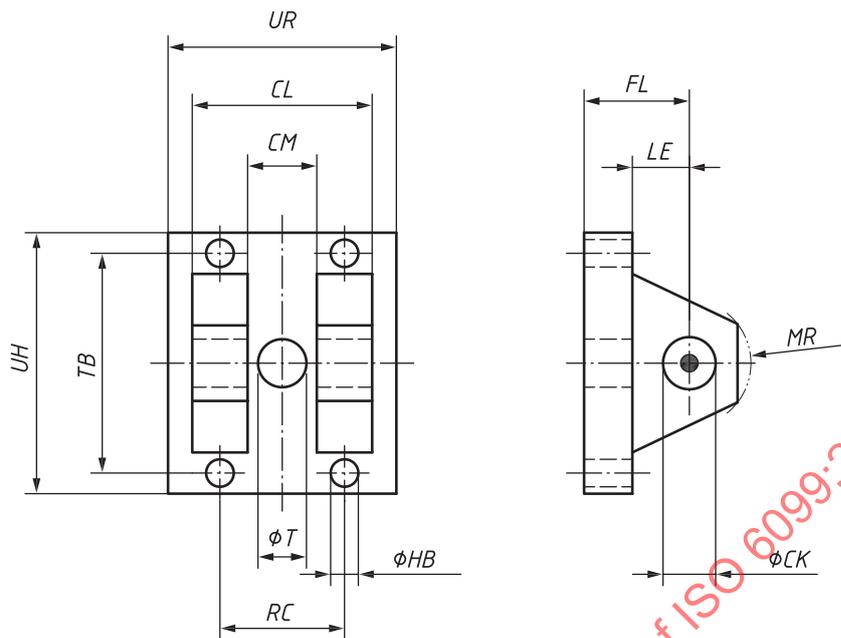


Figure 78 — AB4 — Clevis bracket, plain eye, straight

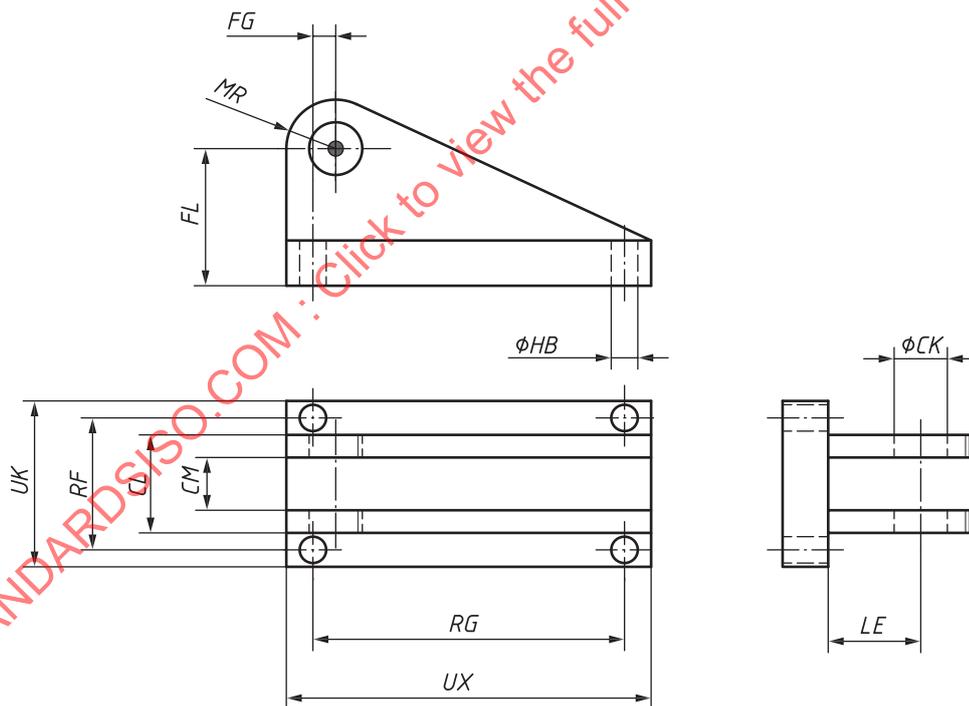


Figure 79 — AB3 — Clevis bracket, plain eye, angled

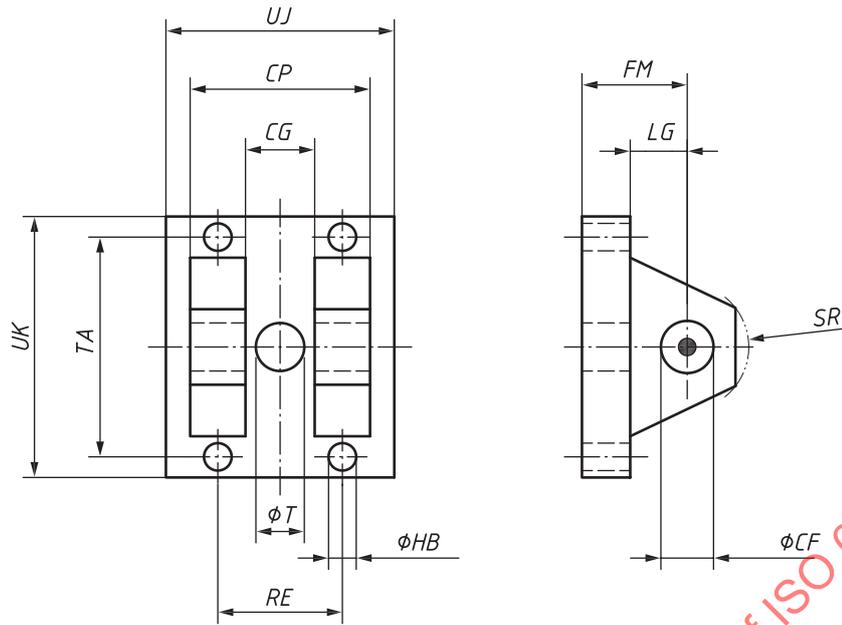


Figure 80 — AB6 — Clevis bracket, spherical eye, straight

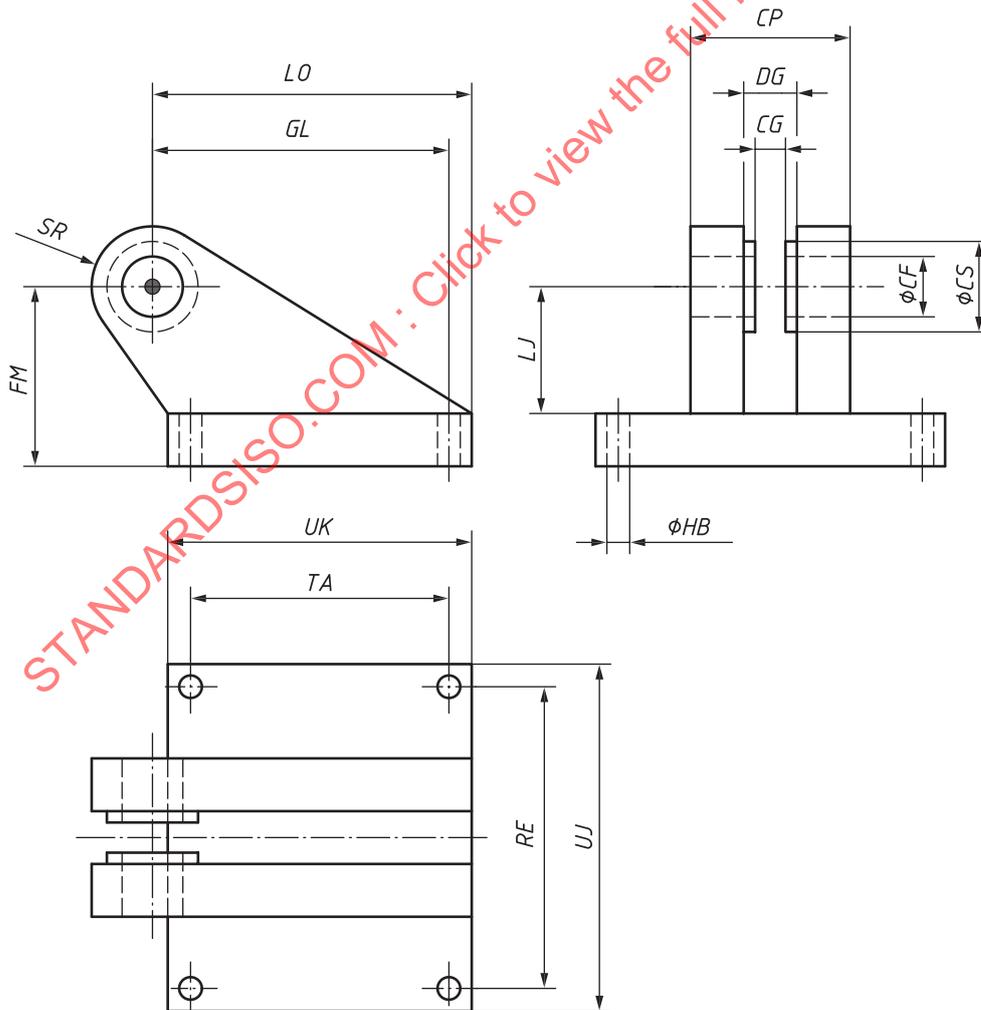


Figure 81 — AB5 — Clevis bracket, spherical eye, in angle

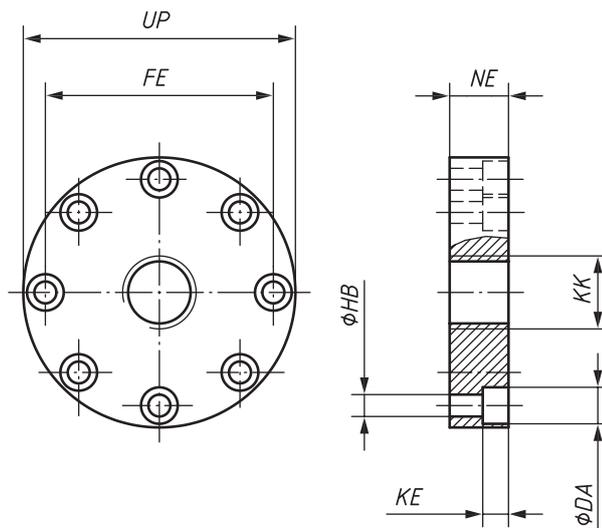


Figure 82 — AF3 — Rod flange, circular

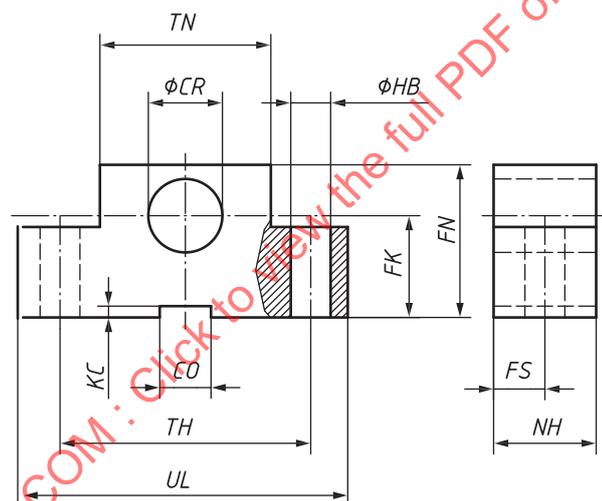


Figure 83 — AT4 — Trunnion bracket

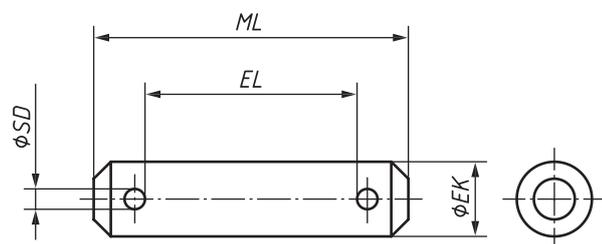


Figure 84 — AA4 - S — Pivot pin, plain, split pins

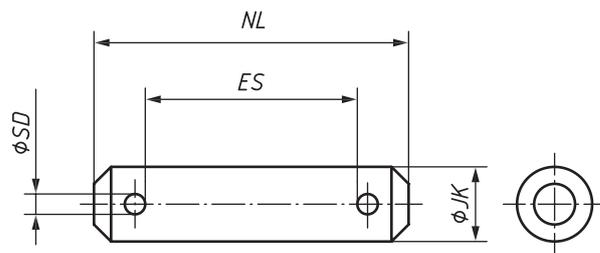


Figure 85 — AA6 - S — Pivot pin, spherical bearing, split pins

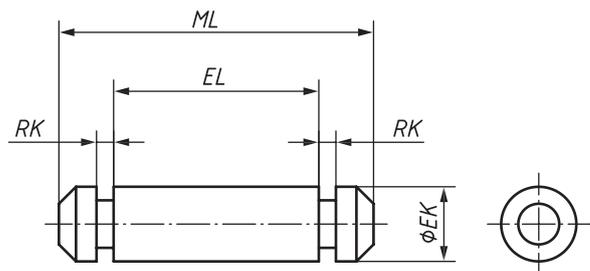


Figure 86 — AA4 - R — Pivot pin, plain, rings

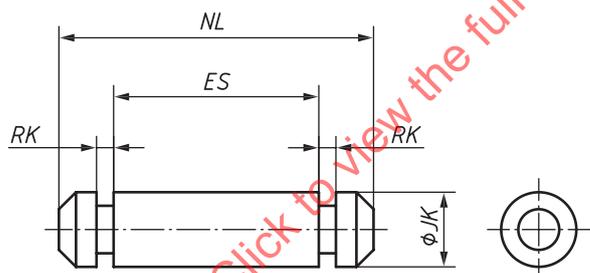


Figure 87 — AA6 - R — Pivot pin, spherical bearing, rings

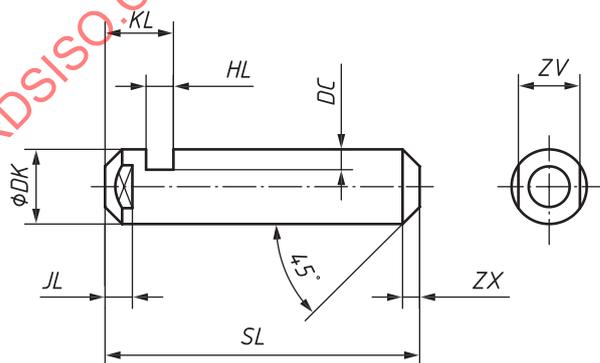
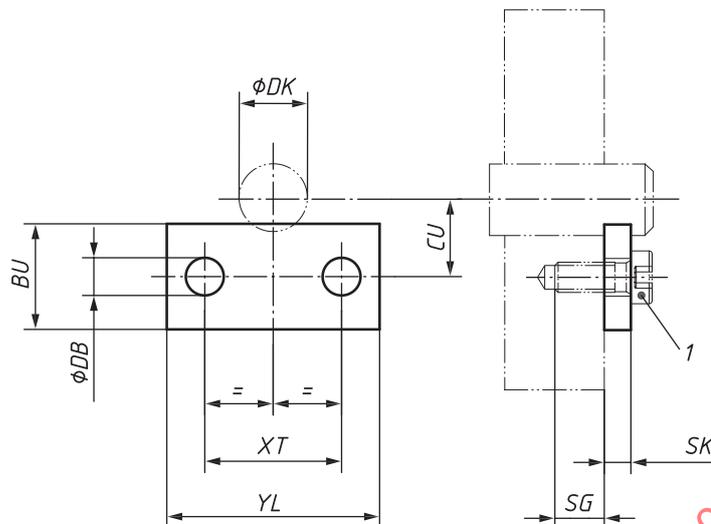
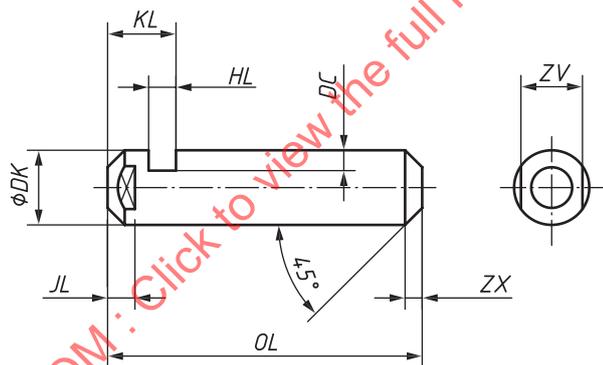


Figure 88 — AA6 - L — Pivot pin, spherical bearing, locking plate

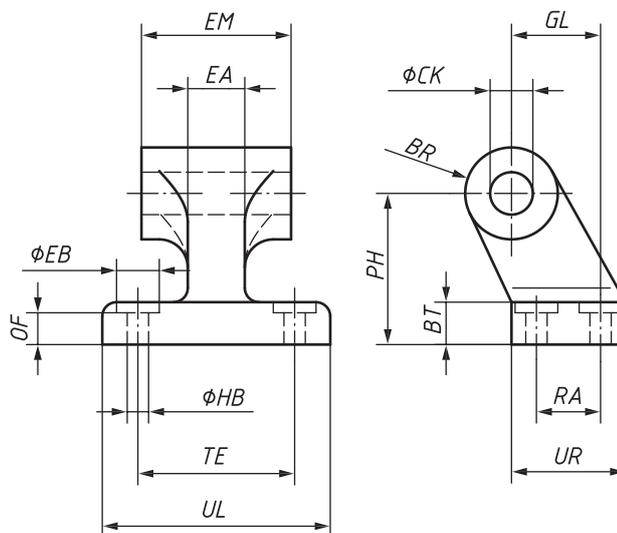


**Key**  
1 screw

**Figure 89 — AL6 — Locking plate for pivot pin**



**Figure 90 — AA4 - L — Pivot pin, plain, locking plate**

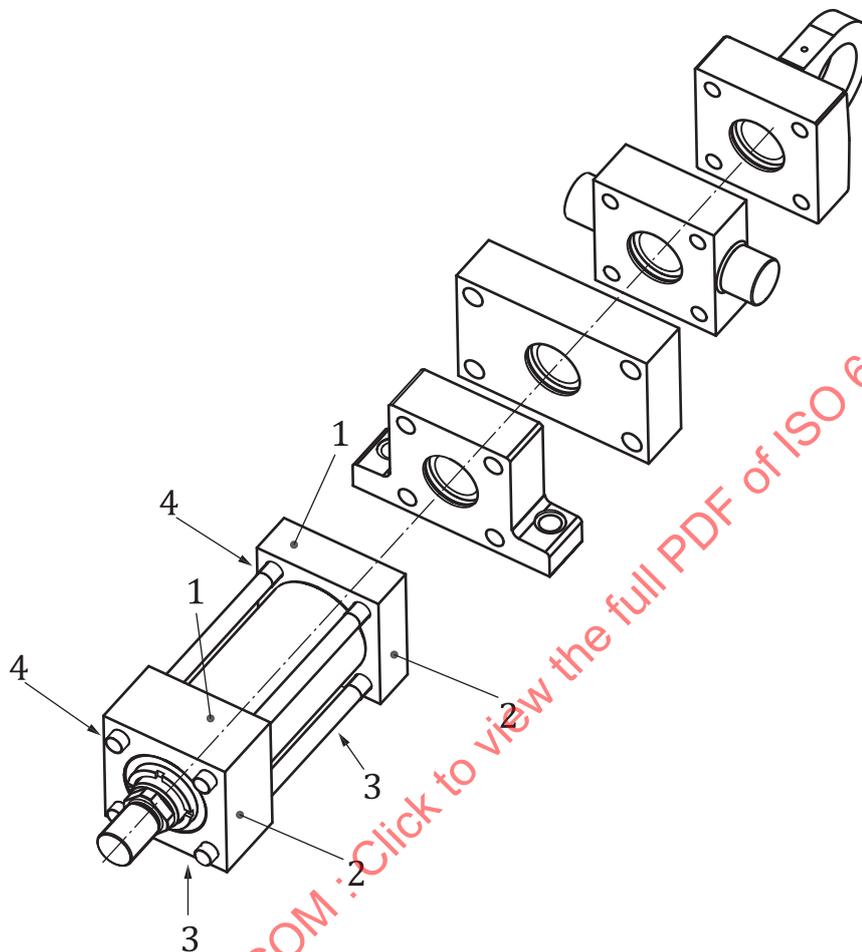


**Figure 91 — AB7 — Eye bracket, in angle**

## 8 Designation of the position of the ports in round and square types

The designation of the port position can be described for the head and end cap of the cylinder.

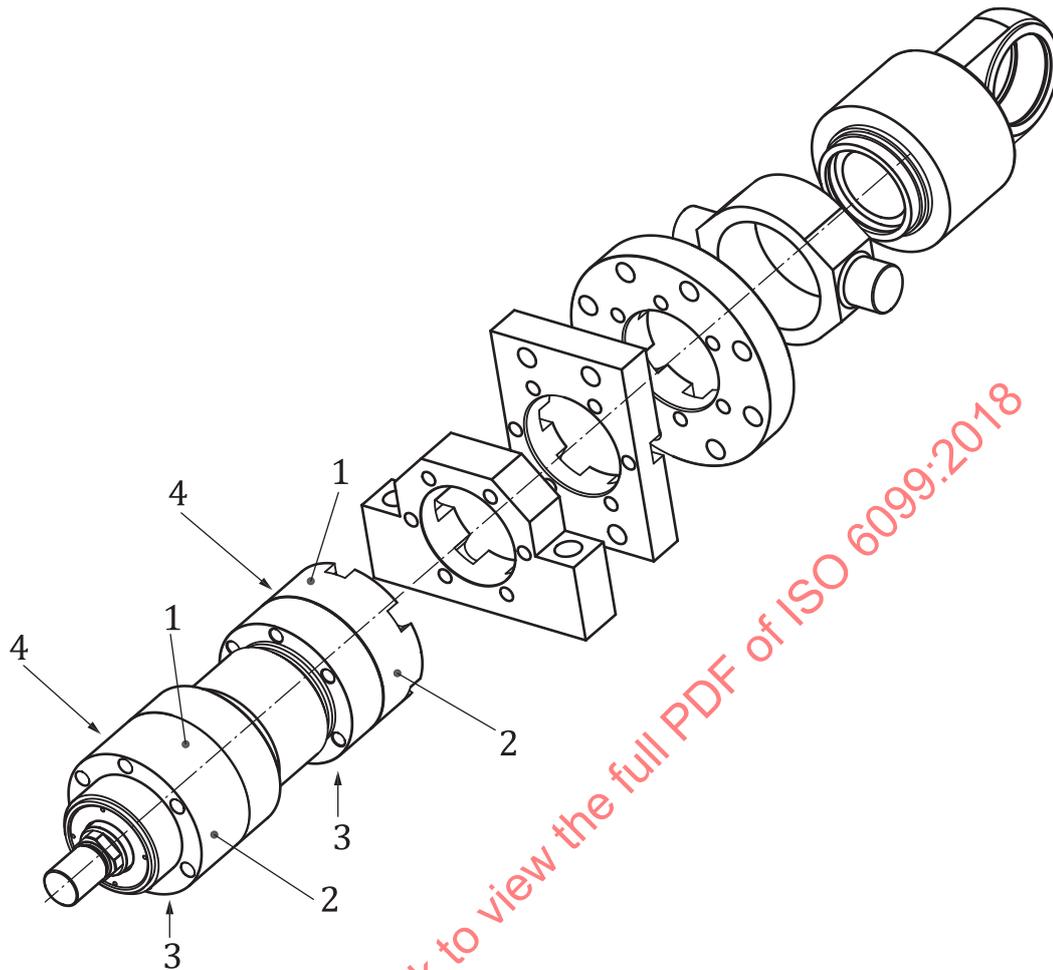
For square type cylinders, port position 1 to port position 4 can be selected as shown in [Figure 92](#).



**Figure 92 — Port position for square type cylinders**

**EXAMPLE 1** Example for the designation of the port position: Port position 1.

For round type cylinders, port position 1 to port position 4 can be selected, as shown in [Figure 93](#) or as a sector between two positions.



**Figure 93 — Port position for round type cylinders**

EXAMPLE 2 Example for the designation of the port position: Port position between 1 and 2.

## 9 Identification statement (Reference to this document)

It is recommended that manufacturers, who have chosen to conform to this document, use the following statement in test reports, catalogues and sales literature:

“Cylinder mounting identification code in accordance with ISO 6099, *Fluid power systems and components — Cylinders — Identification code for mounting dimensions and mounting types.*”

Table 4 — Letter code listing

Symbol	Designation
<i>A</i>	Thread length of externally threaded rod end (rod end dimensions)
<i>B</i>	Diameter of head end pilot (general dimensions — MB1 — MDB1 — MB2 — MDB2 — ME5 — MDE5 — ME7 — MDE7 — ME9 — MDE9 — ME11 — MDE11)
<i>C</i>	
<i>D</i>	Ends outer diameter (general dimensions — MB2 — MDB2)
<i>E</i>	End view dimensions (general dimensions — MB1 — MDB1 — ME5 — MDE5 — ME6 — MF1 — MDF1 — MF2)
<i>F</i>	Thickness of retainer plate (general dimensions — ME5 — MDE5 — ME7 — MDE7 — ME9 — MDE9 — ME11 — MDE11)
<i>G</i>	Head thickness (ME5 — MDE5 — ME7 — MDE7 — ME9 — MDE9 — ME11 — MDE11)
<i>H</i>	Increase dimension <i>E</i> to facilitate ports (general dimensions — MB1 — MDB1 — MB2 — MDB2)
<i>J</i>	Cap thickness (ME6 — ME8 — ME10 — ME12)
<i>K</i>	
<i>L</i>	Clearance around pivot axis (MP1 — MP2 — MP3 — MP4 — MP7)
<i>M</i>	
<i>N</i>	Width of rod eye (AP4 — AP6)
<i>O</i>	
<i>P</i>	
<i>R</i>	Distance between mounting holes (AB2 — ME5 — MDE5 — ME6 — MF1 — MDF1 — MF2 — MF5 — MDF5 — MF6 — ME11 — MDE11 — ME12)
<i>S</i>	
<i>T</i>	Clearance hole through the mounting face (AB4 — AB6)
<i>U</i>	
<i>V</i>	
<i>W</i>	Distance between TRP and mounting face (MF1 — MDF1 — MF8)
<i>X</i>	
<i>Y</i>	Distance between TRP and head port (general dimensions)
<i>Z</i>	Tilting angle (AP6 — MP5 — MP6)

Table 5 — Letter code list — Symbol A

Symbol 2nd letter	Designation
<i>A</i>	
<i>AA</i>	Pitch circle diameter of studs or tie rods (for reference only) (MX1 — MDX1 — MX2 — MDX2 — MX3 — MX4 — MDX4 — MX5 — MDX5 — MX6 — MX7 — MDX7 — MX8 — MDX8)
<i>BA</i>	Diameter of cap pilot (general dimensions — MF2 — MF4)
<i>CA</i>	Distance between TRP and pivot axis (AP4)
<i>DA</i>	Counter sunk diameter for mounting screws (AF3)
<i>EA</i>	Rib thickness (AB7)
<i>FA</i>	
<i>GA</i>	
<i>HA</i>	
<i>JA</i>	
<i>KA</i>	Nut height, recessed (general dimensions)
<i>LA</i>	
<i>MA</i>	Flange diameter (rod end dimensions)
<i>NA</i>	
<i>OA</i>	
<i>PA</i>	
<i>RA</i>	Longitudinal distance (AB7)
<i>SA</i>	Longitudinal distance between mounting holes (MS1)
<i>TA</i>	Distance between mounting holes (AB5 — AB6)
<i>UA</i>	
<i>VA</i>	Cap pilot extension (general dimensions)
<i>WA</i>	
<i>XA</i>	Distance between TRP and rear mounting holes (MS1)
<i>YA</i>	
<i>ZA</i>	

Table 6 — Letter code list — Symbol *B*

Symbol 2nd letter <i>B</i>	Designation
<i>AB</i>	Mounting holes diameter (MS1 — MDS1 — MS3)
<i>BB</i>	Length of stud or tie rod extension (MX1 — MDX1 — MX2 — MDX2 — MX3 — MX4 — MDX4 — MX7 — MDX7)
<i>CB</i>	Clevis slot width (MP1 — MP2 — MP7)
<i>DB</i>	Mounting holes for diameter locking plate (AL6)
<i>EB</i>	Diameter of mounting hole spot facing (AB7)
<i>FB</i>	Mounting holes diameter (MB1 — MDB1 — MB2 — MDB2 — ME5 — MDE5 — ME6 — ME7 — MDE7 — ME8 — ME9 — MDE9 — ME10 — ME11 — MDE11 — ME12 — MF1 — MDF1 — MF2 — MF3 — MDF3 — MF4 — MF5 — MDF5 — MF6 — MF7 — MDF7 — MF8)
<i>GB</i>	
<i>HB</i>	Mounting holes diameter (AB2 — AB3 — AB4 — AB5 — AB6 — AB7 — AF3 — AT4)
<i>JB</i>	
<i>KB</i>	Nut height, exposed (general dimensions)
<i>LB</i>	
<i>MB</i>	Groove diameter (rod end dimensions)
<i>NB</i>	
<i>OB</i>	
<i>PB</i>	
<i>RB</i>	Length of slotted hole (MS2 — MDS2)
<i>SB</i>	Mounting hole diameter or width of slot (MS2 — MDS2)
<i>TB</i>	Distance between mounting holes (AB4)
<i>UB</i>	Envelope distance (MP1 — MP2 — MP7)
<i>VB</i>	
<i>WB</i>	Distance between TRP and mounting face (MF7 — MDF7)
<i>XB</i>	
<i>YB</i>	
<i>ZB</i>	Distance between TRP and cap end extremity (general dimensions — MS2)

Table 7 — Letter code list — Symbol *C*

Symbol 2nd letter	Designation
<i>C</i>	
<i>AC</i>	
<i>BC</i>	
<i>CC</i>	
<i>DC</i>	Groove depth clevis bracket (AA4-L — AA6-L)
<i>EC</i>	
<i>FC</i>	Pitch circle diameter (MF3 — MDF3 — MF4 — MF7 — MDF7)
<i>GC</i>	
<i>HC</i>	
<i>JC</i>	
<i>KC</i>	Groove depth for key way (MS2 — MDS2 — AB3 — AB5—AB7—AT4)
<i>LC</i>	
<i>MC</i>	
<i>NC</i>	
<i>OC</i>	
<i>PC</i>	
<i>RC</i>	Distance between mounting holes (AB4)
<i>SC</i>	
<i>TC</i>	Distance between trunnion bases (MT1 — MDT1 — MT2)
<i>UC</i>	Envelope diameter (MF3 — MDF3 — MF4 — MF7 — MDF7)
<i>VC</i>	Extension of pilot on flange (MF7 — MDF7)
<i>WC</i>	Distance between TRP and mounting face (MF3 — MDF3)
<i>XC</i>	Distance between TRP and pivot axis (MP1 — MP3)
<i>YC</i>	
<i>ZC</i>	

Table 8 — Letter code list — Symbol *D*

Symbol 2nd letter <i>D</i>	Designation
<i>AD</i>	Dimension of trunnion holder (MT4 — MDT4 — MT5 — MT6)
<i>BD</i>	
<i>CD</i>	Diameter of pivot hole (MP1 — MP2 — MP3 — MP4 — MP7)
<i>DD</i>	Thread size (MX1 — MDX1 — MX2 — MDX2 — MX3 — MX4 — MDX4 — MX7 — MDX7)
<i>ED</i>	
<i>FD</i>	Pitch circle diameter of holes (ME7 — MDE7 — ME8 — MB2 — MDB2)
<i>GD</i>	
<i>HD</i>	
<i>JD</i>	
<i>KD</i>	
<i>LD</i>	
<i>MD</i>	
<i>ND</i>	
<i>OD</i>	Diameter for reducing length of centring RD (ME5 — MDE5 — ME7 — MDE7 — ME9 — MDE9 — ME11 — MDE11)
<i>PD</i>	
<i>RD</i>	Diameter of retainer plate (ME5 — MDE5 — ME7 — MDE7 — ME9 — MDE9 — ME11 — MDE11)
<i>SD</i>	Diameter of hole (AA4-S — AA6-S)
<i>TD</i>	Diameter of trunnion pins (MT1 — MDT1 — MT2 — MT4 — MDT4 — MT5 — MT6)
<i>UD</i>	Envelope length (AB2)
<i>VD</i>	Pilot extension past retainer plate (general dimensions — MB1 — MDB1 — MB2 — MDB2 — ME5 — MDE5 — ME7 — MDE7 — ME9 — MDE9 — ME11 — MDE11)
<i>WD</i>	Diameter hole for hook wrench holes (rod end dimensions)
<i>XD</i>	Distance between TRP and pivot axis (MP2 — MP4)
<i>YD</i>	
<i>ZD</i>	

Table 9 — Letter code list — Symbol *E*

Symbol 2nd letter <i>E</i>	Designation
<i>AE</i>	Groove width (rod end dimensions)
<i>BE</i>	Mounting thread size (MR3 — MDR3 — MR4)
<i>CE</i>	Distance between TRP and pivot axis (AP2)
<i>DE</i>	
<i>EE</i>	Port size (tapped, general dimensions)
<i>FE</i>	Pitch diameter of mounting holes (AF3)
<i>GE</i>	
<i>HE</i>	
<i>JE</i>	
<i>KE</i>	Depth of tapped mounting holes (AF3)
<i>LE</i>	Clearance around pivot axis (rod end dimensions — AB2 — AB3 — AB4 — AP2 — AP4)
<i>ME</i>	Thickness of flange (MF5 — MDF5 — MF6)
<i>NE</i>	Width of rod flange (AF3)
<i>OE</i>	
<i>PE</i>	
<i>RE</i>	Distance between mounting holes (AB5 — AB6)
<i>SE</i>	
<i>TE</i>	Transversal distance between mounting holes (AB7)
<i>UE</i>	Envelope diameter (ME7 — MDE7 — ME8)
<i>VE</i>	Head end pilot extension past head (general dimensions, $VE = VD + F$ )
<i>WE</i>	Distance between TRP and mounting face (MF5 — MDF5)
<i>XE</i>	
<i>YE</i>	
<i>ZE</i>	

Table 10 — Letter code list — Symbol *F*

Symbol 2nd letter <i>F</i>	Designation
<i>AF</i>	Thread length of tapped rod end (rod end dimensions)
<i>BF</i>	Length of mounting screw (MR3 — MDR3 — MR4)
<i>CF</i>	Diameter of pivot hole (AB5 — AB6)
<i>DF</i>	
<i>EF</i>	Clearance radius of pivot axis (AP6)
<i>FF</i>	Flange port size (general dimensions)
<i>GF</i>	
<i>HF</i>	
<i>JF</i>	Thickness of flange (MF8)
<i>KF</i>	Thread size in tapped rod end (rod end dimensions)
<i>LF</i>	Clearance around pivot axis (AP6)
<i>MF</i>	Thickness of flange (MF1 — MDF1 — MF2)
<i>NF</i>	Thickness of flange (MF3 — MDF3 — MF4 — MF7 — MDF7)
<i>OF</i>	Distance from spot face to head of brackets (AB7)
<i>PF</i>	
<i>RF</i>	Distance of mounting holes (AB3)
<i>SF</i>	Width of wrench flat (rod end dimensions)
<i>TF</i>	Distance between mounting holes (ME11 — MDE11 — ME12 — MF1 — MDF1 — MF2 — MF5 — MDF5 — MF6 — MF8)
<i>UF</i>	Envelope length (MF1 — MDF1 — MF2 — MF5 — MDF5 — MF6 — MF8)
<i>VF</i>	
<i>WF</i>	Distance between TRP and head of mounting face (general dimensions — MB1 — MDB1 — MB2 — MDB2 — ME5 — MDE5 — ME7 — MDE7 — ME9 — MDE9 — ME11 — MDE11 — MR3 — MDR3)
<i>XF</i>	
<i>YF</i>	
<i>ZF</i>	Distance between TRP and back face of rear flange (MF2)

Table 11 — Letter code list — Symbol *G*

Symbol 2nd letter <i>G</i>	Designation
<i>AG</i>	Dimension from TRP to shoulder of piston rod (rod end dimensions)
<i>BG</i>	Depth of tapped mounting holes (MX5 — MDX5 — MX6 — MX7 — MDX7 — MX8 — MDX8)
<i>CG</i>	Clevis bracket for spherical bearing slot (AB5 — AB6)
<i>DG</i>	Clearance around pivot axis (AB5)
<i>EG</i>	
<i>FG</i>	Distance between studs and mounting holes (AB3)
<i>GG</i>	
<i>HG</i>	
<i>JG</i>	
<i>KG</i>	
<i>LG</i>	Clearance around pivot axis (AB6)
<i>MG</i>	
<i>NG</i>	
<i>OG</i>	
<i>PG</i>	
<i>RG</i>	Distance of mounting bolts (AB3)
<i>SG</i>	Threaded depth for screw locking plate (AL6)
<i>TG</i>	Distance between studs or tie rods (MX1 — MDX1 — MX2 — MDX2 — MX3 — MX4 — MDX4 — MX5 — MDX5 — MX6 — MX7 — MDX7 — MX8 — MDX8)
<i>UG</i>	Envelope length (ME9 — MDE9 — ME10 — ME11 — MDE11 — ME12)
<i>VG</i>	
<i>WG</i>	Depth of holes for hook wrench (rod end dimensions)
<i>XG</i>	Distance between TRP and trunnion axis (MT1 — MDT1)
<i>YG</i>	
<i>ZG</i>	Distance between mounting face and opposite rod shoulder (MDE5 — MDE7 — MDE9 — MDE11 — MDR3)

Table 12 — Letter code list — Symbol *H*

Symbol 2nd letter <i>H</i>	Designation
<i>AH</i>	Centreline height (MS1 — MDS1)
<i>BH</i>	
<i>CH</i>	Distance between TRP and pivot axis (AP6)
<i>DH</i>	
<i>EH</i>	Height of the detachable side lugs (MS2 — MDS2)
<i>FH</i>	
<i>GH</i>	
<i>HH</i>	
<i>JH</i>	
<i>KH</i>	
<i>LH</i>	Centreline height (MS2 — MDS2 — MS3)
<i>MH</i>	
<i>NH</i>	Thickness of trunnion bracket (AT4)
<i>OH</i>	Height of port face from centre line of cylinder (general dimensions)
<i>PH</i>	Centreline height of cylinder with mountings (AB7)
<i>RH</i>	
<i>SH</i>	
<i>TH</i>	Distance of mounting bolts (AT4)
<i>UH</i>	Envelope length (AB4)
<i>VH</i>	
<i>WH</i>	Distance between TRP and mounting face (general dimensions — MX1 — MDX1 — MX3 — MX4 — MDX4 — MX5 — MDX5 — MX7 — MDX7 — MX8 — MDX8)
<i>XH</i>	Distance between TRP and trunnion axis (MT5)
<i>YH</i>	
<i>ZH</i>	Distance between TRP and back face of rear flange (MF6)