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JIS B 0125-1 : 2020

(JFPA/JSA)

**Fluid power systems and components —  
Graphical symbols and circuit diagrams  
— Part 1: Graphical symbols for  
conventional use and data-processing  
applications**

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## Contents

|   |                                                                                                       | Page |
|---|-------------------------------------------------------------------------------------------------------|------|
|   | Introduction .....                                                                                    | 1    |
| 1 | Scope .....                                                                                           | 1    |
| 2 | Normative references .....                                                                            | 1    |
| 3 | Terms and definitions .....                                                                           | 2    |
| 4 | Identification statement (Reference to this Standard) .....                                           | 2    |
| 5 | General rules .....                                                                                   | 2    |
| 6 | Examples of hydraulic applications .....                                                              | 4    |
| 7 | Examples of pneumatic applications .....                                                              | 45   |
| 8 | Symbols of basic nature .....                                                                         | 71   |
| 9 | Application rules .....                                                                               | 97   |
|   | Annex A (informative) Recommendations for the creation of CAD symbols .....                           | 108  |
|   | Annex JA (informative) Comparison table between JIS and corresponding<br>International Standard ..... | 113  |

## Foreword

This Japanese Industrial Standard has been revised by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee as the result of proposal for revision of Japanese Industrial Standard submitted by Japan Fluid Power Association (JFPA)/Japanese Standards Association (JSA) with a draft being attached, based on the provision of Article 12, paragraph (1) of the Industrial Standardization Act applied mutatis mutandis pursuant to the provision of Article 16 of the said Act. This edition replaces the previous edition (**JIS B 0125-1:2007**), which has been technically revised.

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Attention is drawn to the possibility that some parts of this Standard may conflict with patent rights, published patent application or utility model rights. The relevant Minister and the Japanese Industrial Standards Committee are not responsible for identifying any of such patent rights, published patent application or utility model rights.

**JIS B 0125** series consists of the following 2 parts under the general title *Fluid power systems and components — Graphical symbols and circuit diagrams* :

*Part 1 : Graphic symbols for conventional use and data-processing applications*

*Part 2 : Circuit diagrams*

# Fluid power systems and components — Graphical symbols and circuit diagrams — Part 1 : Graphical symbols for conventional use and data-processing applications

## Introduction

This Japanese Industrial Standard has been prepared based on **ISO 1219-1 : 2012**, Edition 3, and its Amendment 1 : 2016 with some modifications of the technical contents mainly to reflect unique conditions in Japan. The amendment to the said International Standard has been incorporated into this Standard.

The vertical lines on both sides and dotted underlines indicate changes from the corresponding International Standard. A list of modifications with the explanations is given in Annex JA.

## 1 Scope

This Standard specifies graphic symbols for fluid power systems and components.

**NOTE** The International Standard corresponding to this Standard and the symbol of degree of correspondence are as follows.

ISO 1219-1 : 2012 *Fluid power systems and components — Graphical symbols and circuit diagrams — Part 1 : Graphical symbols for conventional use and data-processing applications* and Amendment 1 : 2016 (MOD)

In addition, symbols which denote the degree of correspondence in the contents between the relevant International Standards and **JIS** are IDT (identical), MOD (modified), and NEQ (not equivalent) according to **ISO/IEC Guide 21-1**.

## 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. The most recent editions of the standards (including amendments) indicated below shall be applied.

JIS B 0125-2 *Fluid power systems and components — Graphical symbols and circuit diagrams — Part 2 : Circuit diagrams*

**NOTE** Corresponding International Standard : ISO 1219-2 *Fluid power systems and components — Graphical symbols and circuit diagrams — Part 2 : Circuit diagrams*

JIS B 0142 *Fluid power systems and components — Vocabulary*

**NOTE** Corresponding International Standard : ISO 5598 *Fluid power systems and components — Vocabulary*

JIS B 8380 *Pneumatic fluid power — Identification of ports and control mechanisms of control valves and other components*

NOTE Corresponding International Standard : ISO 11727 *Pneumatic fluid power — Identification of ports and control mechanisms of control valves and other components*

JIS B 8669 *Hydraulic fluid power — Identification of valve ports, subplates, control devices and solenoids*

NOTE Corresponding International Standard : ISO 9461 *Hydraulic fluid power — Identification of valve ports, subplates, control devices and solenoids*

JIS Z 8222-1 *Design of graphical symbols for use in the technical documentation of products — Part 1 : Basic rules*

NOTE Corresponding International Standard : ISO 81714-1 *Design of graphical symbols for use in the technical documentation of products — Part 1 : Basic rules*

JIS Z 8222-2 *Design of graphical symbols for use in the technical documentation of products — Part 2 : Specification for graphical symbols in a computer sensible form, including graphical symbols for a reference library, and requirements for their interchange*

NOTE Corresponding International Standard : IEC 81714-2 *Design of graphical symbols for use in the technical documentation of products — Part 2 : Specification for graphical symbols in a computer sensible form, including graphical symbols for a reference library, and requirements for their interchange*

JIS Z 8316 *Technical drawings — General principles of presentation*

NOTE Corresponding International Standard : ISO 128 (all parts) *Technical drawings — General principles of presentation*

ISO 14617 (all parts) *Graphical symbols for diagrams*

### 3 Terms and definitions

For the purpose of this Standard, the terms and definitions given in **JIS B 0142** apply.

### 4 Identification statement (Reference to this Standard)

Use the following statement in test reports, catalogues and sales literature when claiming compliance with this Standard :

“Graphical symbols are in accordance with **JIS B 0125-1** *Fluid power systems and components — Graphical symbols and circuit diagrams — Part 1 : Graphical symbols for conventional use and data-processing applications.*”

### 5 General rules

**5.1** Symbols for components are created using the symbols of basic nature specified in this Standard and taking into account the rules given for their creation.

**5.2** Most symbols represent components and devices with specified functions. Some symbols represent instead functions or methods of operation.

**5.3** Symbols are not intended to show the actual construction of a component.

**5.4** Symbols of components show the de-energized (at-rest) position of a component. Symbols of components that do not have a clearly defined de-energized (at-rest) position shall be created according to the component-specific rules for the creation of symbols laid down in this Standard. The rules applicable to circuit diagrams are given in **JIS B 0125-2**.

**5.5** Symbols of components shall show all the connections provided.

**5.6** Symbols shall have all the required free spaces for indicating the port/connection designations and parameters such as pressure, flow, electrical connection, etc. or component settings.

**5.7** In accordance with **JIS Z 8222-1**, symbols of basic nature may be mirrored or turned when graphic symbols are being created.

**5.8** The symbols are shown in the original position as defined in **JIS Z 8222-1**. They may be mirrored or rotated in 90° increments without changing their meaning.

**5.9** If a symbol represents a fluid power component with two or more main functions that are connected to each other, the symbol shall be enclosed by a solid line.

NOTE 1 For example, the duty of control mechanisms on directional control valves and indication of clogging of a filter are not considered main functions.

NOTE 2 This is a change from the previous edition of this Standard (**JIS B 0125-1 : 2001**), in which the line was dash-dotted. The reason for the change is to improve clarity.

**5.10** Where two or more components are contained in one assembly, their symbols shall be enclosed by a dash-dotted line (see **7.4.4.17**).

**5.11** The dotted line used in this Standard is employed for representing adjacent basic elements or components. It is not used in graphic symbols.

**5.12** The graphical symbols in this Standard are drawn in accordance with **ISO 14617** (all parts) and the rules in **JIS Z 8222-1** and **JIS Z 8222-2**.

Graphical symbols in accordance with **ISO 14617** (all parts) are drawn with a module size  $M = 2.5$  mm and a line thickness of 0.25 mm. To minimize symbol size, graphical symbols in this Standard are drawn with a module size  $M = 2.0$  mm and a line thickness of 0.2 mm. For both module sizes, however, lettering shall be 2.5 mm high with a line thickness of 0.25 mm. It is possible to scale graphic symbols used on component labels or catalogues as required.

**5.13** Dimensions of lettering and port labelling should be roman letters.

**5.14** Each graphical symbol in this Standard is assigned a unique registration number according to **ISO 14617** (all parts). The variants are identified with V1, V2, V3 etc. after the registration number.

For registration numbers not yet specified in **ISO 14617** (all parts), a preliminary registration number is used.

For the field of fluid power the registration number is indicated by “F” for symbols of

basic nature and by “RF” for application rules shown in Clause 9 before the number.

Examples of symbols are indicated by “X”. The range from X10000 to X39999 is reserved for the field of fluid power technology.

## 6 Examples of hydraulic applications

**Table 1 Examples of hydraulic applications**

| No.                             | Reg. No.                                               | Graphic | Description                                           |
|---------------------------------|--------------------------------------------------------|---------|-------------------------------------------------------|
| <b>6.1 Valves</b>               |                                                        |         |                                                       |
| <b>6.1.1 Control mechanisms</b> |                                                        |         |                                                       |
| <b>6.1.1.1</b>                  | <b>X10010</b><br><br>402V5<br>655V1<br>686V1<br>F041V1 |         | Control mechanism with detachable grip and detent     |
| <b>6.1.1.2</b>                  | <b>X10020</b><br><br>402V5<br>711V1<br>201V2           |         | Plunger with adjustable stroke limiter                |
| <b>6.1.1.3</b>                  | <b>X10030</b><br><br>402V5<br>655V1<br>684V1<br>F041V1 |         | Push/pull control mechanism with detent               |
| <b>6.1.1.4</b>                  | <b>X10040</b><br><br>402V2<br>681V2<br>F041V1<br>655V1 |         | Control mechanism with locking manual override        |
| <b>6.1.1.5</b>                  | <b>X10050</b><br><br>402V5<br>685V1<br>F041V1<br>655V1 |         | Turning control mechanism with five detent positions  |
| <b>6.1.1.6</b>                  | <b>X10060</b><br><br>402V5<br>2005V1<br>712V1          |         | Roller lever for actuation in one direction of travel |

Table 1 (continued)

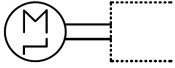
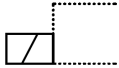
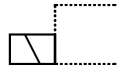
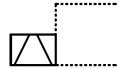
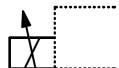
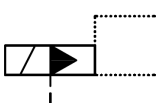
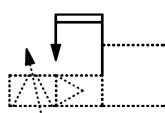
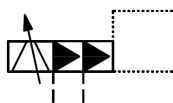
| No.      | Reg. No.                                                    | Graphic                                                                             | Description                                                                                                            |
|----------|-------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| 6.1.1.7  | <b>X10070</b><br>F019V1<br>211V1<br>402V5<br>F002V1         |    | Control mechanism using an electric stepping motor                                                                     |
| 6.1.1.8  | <b>X10110</b><br>101V2<br>212V1                             |    | Single-acting solenoid (push direction)                                                                                |
| 6.1.1.9  | <b>X10120</b><br>101V2<br>212V2                             |    | Single-acting solenoid (pull direction)                                                                                |
| 6.1.1.10 | <b>X10130</b><br>101V2<br>212V4                             |    | Double-acting solenoid                                                                                                 |
| 6.1.1.11 | <b>X10140</b><br>101V2<br>212V1<br>201V2                    |   | Single-acting proportional solenoid (push direction)                                                                   |
| 6.1.1.12 | <b>X10150</b><br>101V2<br>212V2<br>201V2                    |  | Single-acting proportional solenoid (pull direction)                                                                   |
| 6.1.1.13 | <b>X10160</b><br>101V2<br>212V4<br>201V2                    |  | Double-acting proportional solenoid                                                                                    |
| 6.1.1.14 | <b>X10180</b><br>101V2<br>212V1<br>243V1<br>F035V1          |  | Electrically operated hydraulic pilot stage (with external pilot supply)                                               |
| 6.1.1.15 | <b>X10190</b><br>402V1<br>241V1<br>401V1                    |  | Mechanical feedback                                                                                                    |
| 6.1.1.16 | <b>X10200</b><br>101V2<br>243V1<br>212V4<br>201V2<br>F035V1 |  | Double-acting proportional solenoid controlled mechanism with two successive pilot stages (with external pilot supply) |

**Table 1 (continued)**

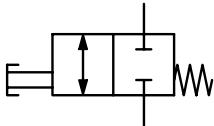
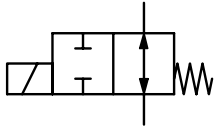
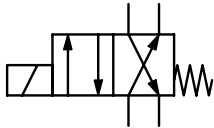
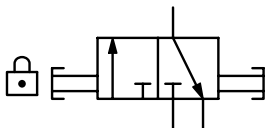
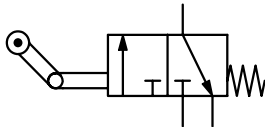
| No.                                     | Reg. No.                                                                                                | Graphic                                                                             | Description                                                                                                       |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| <b>6.1.2 Directional control valves</b> |                                                                                                         |                                                                                     |                                                                                                                   |
| <b>6.1.2.1</b>                          | <b>X10210</b><br><br>101V7<br>F028V1<br>2172V1<br>2002V1<br>402V5<br>682V1<br>401V2                     |    | 2/2 (two-port, two-position) directional control valve (a push control mechanism, spring return, normally closed) |
| <b>6.1.2.2</b>                          | <b>X10220</b><br><br>101V7<br>F028V1<br>2002V1<br>101V2<br>212V1<br>2172V1<br>401V2                     |    | 2/2 directional control valve (solenoid-actuated, spring return, normally open)                                   |
| <b>6.1.2.3</b>                          | <b>X10230</b><br><br>101V7<br>F026V1<br>F027V1<br>2002V1<br>101V2<br>212V1<br>401V2                     |  | 4/2 directional control valve (solenoid-actuated, spring return)                                                  |
| <b>6.1.2.4</b>                          | <b>X10260</b><br><br>101V7<br>F026V1<br>F027V1<br>2172V1<br>402V5<br>682V1<br>F039V1<br>401V2           |  | 3/2 lockout valve with padlock                                                                                    |
| <b>6.1.2.5</b>                          | <b>X10270</b><br><br>101V7<br>F026V1<br>F027V1<br>2172V1<br>2002V1<br>712V1<br>2005V1<br>402V5<br>401V2 |  | 3/2 directional control valve (controlled by a roller lever in one direction of travel and spring return)         |

Table 1 (continued)

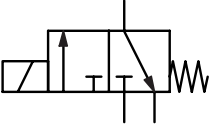
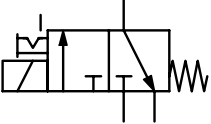
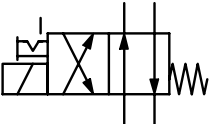
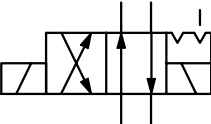
| No.            | Reg. No.                                                                                                                           | Graphic                                                                             | Description                                                                                                   |
|----------------|------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| <b>6.1.2.6</b> | <b>X10280</b><br><br>101V7<br>F026V1<br>F027V1<br>2172V1<br>2002V1<br>101V2<br>212V1<br>401V2                                      |    | 3/2 directional control valve<br>(controlled by a solenoid<br>and spring return)                              |
| <b>6.1.2.7</b> | <b>X10290</b><br><br>101V7<br>F026V1<br>F027V1<br>2172V1<br>2002V1<br>101V2<br>212V1<br>681V2<br>402V2<br>655V1<br>F041V1<br>401V2 |    | 3/2 directional control valve<br>(with single solenoid,<br>spring return, and manual<br>override with detent) |
| <b>6.1.2.8</b> | <b>X10320</b><br><br>101V7<br>101V2<br>F026V1<br>F027V1<br>2002V1<br>212V1<br>401V2<br>402V2<br>655V1<br>681V2<br>F041V1           |  | 4/2 directional control valve<br>(with single solenoid,<br>spring return, and manual<br>override with detent) |
| <b>6.1.2.9</b> | <b>X10330</b><br><br>101V7<br>F026V1<br>F027V1<br>101V2<br>212V1<br>655V1<br>F041V1<br>401V2                                       |  | 4/2 directional control valve<br>(directly controlled by two<br>solenoids, with detent)                       |

Table 1 (continued)

| No.             | Reg. No.                                                                                                         | Graphic | Description                                                                                                                                                                                                                         |
|-----------------|------------------------------------------------------------------------------------------------------------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>6.1.2.10</b> | <b>X10350</b><br><br>101V7<br>F026V1<br>F027V1<br>2002V1<br>101V2<br>243V1<br>212V1<br>401V2                     |         | 4/2 directional control valve<br>(controlled by solenoid and<br>hydraulic pilot, spring<br>return)                                                                                                                                  |
| <b>6.1.2.11</b> | <b>X10360</b><br><br>101V2<br>101V7<br>F026V1<br>F027V1<br>2002V1<br>212V1<br>2172V1<br>243V1<br>401V2<br>F035V1 |         | 4/3 directional control valve<br>(with electrical operation of<br>the pilot stage and<br>hydraulic operation of the<br>main stage, main stage and<br>pilot stage with<br>spring-centring, external<br>pilot supply and pilot drain) |
| <b>6.1.2.12</b> | <b>X10370</b><br><br>101V7<br>F026V1<br>F027V1<br>2172V1<br>2002V1<br>101V2<br>212V1<br>401V2                    |         | 4/3 directional control valve<br>(solenoid control,<br>spring-centring)                                                                                                                                                             |
| <b>6.1.2.13</b> | <b>X10380</b><br><br>101V7<br>F034V1<br>F027V1<br>2172V1<br>2002V1<br>243V1<br>401V2<br>422V1<br>501V2           |         | 4/2 directional control valve<br>(hydraulically controlled,<br>spring return)                                                                                                                                                       |

Table 1 (continued)

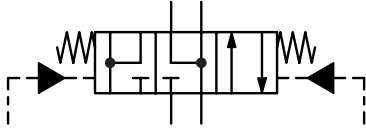
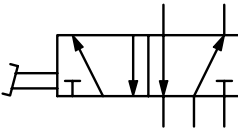
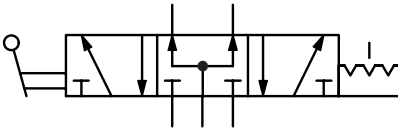
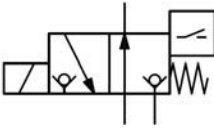
| No.             | Reg. No.                                                                                                                                | Graphic                                                                             | Description                                                                          |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| <b>6.1.2.14</b> | <b>X10390</b><br>101V7<br>F026V1<br>F034V1<br>2172V1<br>2002V1<br>243V1<br>401V2<br>422V1<br>501V2                                      |    | 4/3 directional control valve<br>(hydraulically controlled,<br>spring-centred)       |
| <b>6.1.2.15</b> | <b>X10400</b><br>101V8<br>F026V1<br>F027V1<br>2172V1<br>402V3<br>690V1<br>401V2                                                         |    | 5/2 directional control valve<br>(treadle-controlled)                                |
| <b>6.1.2.16</b> | <b>X10420</b><br>101V8<br>F032V1<br>242V1<br>F026V1<br>F027V1<br>2172V1<br>655V1<br>F041V1<br>688V1<br>401V2<br>101V3<br>402V4<br>501V2 |  | 5/3 directional control valve<br>(lever-controlled to each<br>position, with detent) |
| <b>6.1.2.17</b> | <b>X10480</b><br>101V7<br>F026V1<br>F027V1<br>2162V2<br>2163V2<br>101V2<br>212V1<br>101V5<br>F050V1<br>401V2<br><u>2002V1</u>           |  | 3/2 solenoid-actuated<br>poppet valve<br>(with limit switch)                         |

**Table 1 (continued)**

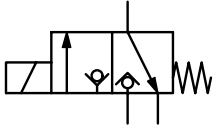
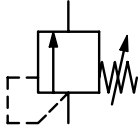
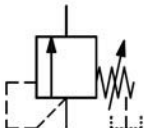
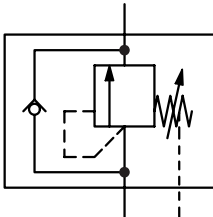
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|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------|
| <b>6.1.2.18</b>                      | <b>X10490</b><br><br>101V7<br>F026V1<br>F027V1<br>2162V2<br>2163V2<br>2002V1<br>101V2<br>212V1<br>401V2                                     |    | 3/2 solenoid-actuated poppet valve        |
| <b>6.1.3 Pressure control valves</b> |                                                                                                                                             |                                                                                     |                                           |
| <b>6.1.3.1</b>                       | <b>X10500</b><br><br>101V7<br>F026V1<br>2002V1<br>201V2<br>422V2<br>401V2                                                                   |    | Directly controlled pressure-relief valve |
| <b>6.1.3.2</b>                       | <b>X10510</b><br><br>101V7<br>F026V1<br>2002V1<br>422V2<br>401V2<br>F035V1<br>201V2                                                         |  | Sequence valve                            |
| <b>6.1.3.3</b>                       | <b>X10520</b><br><br>101V1<br>101V7<br>F026V1<br>2162V1<br>2163V1<br>422V2<br>501V1<br>401V1<br>422V1<br>2002V1<br>201V2<br>401V2<br>F035V1 |  | Sequence valve (with non-return valve)    |

Table 1 (continued)

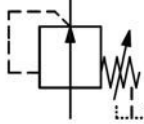
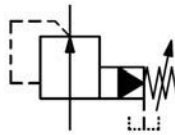
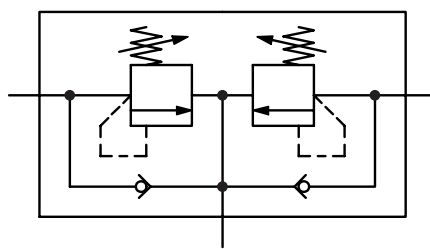
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|----------------|--------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| <b>6.1.3.4</b> | <b>X10550</b><br><br>101V7<br>F026V1<br>2002V1<br>201V2<br>422V3<br>401V2<br>F035V1                                      |    | Directly controlled pressure-reducing valve (with external drain)                           |
| <b>6.1.3.5</b> | <b>X10560</b><br><br>101V7<br>F026V1<br>101V2<br>243V1<br>2002V1<br>201V2<br>422V3<br>401V2<br>F035V1                    |    | Pilot-operated pressure-reducing valve (with external drain)                                |
| <b>6.1.3.6</b> | <b>X10580</b><br><br>101V7<br>101V1<br>F026V1<br>2002V1<br>201V2<br>422V2<br>2162V1<br>2163V1<br>501V1<br>401V1<br>401V2 |  | Braking valves (Pressure-relief and anti-cavitation valves for protecting two supply lines) |

**Table 1 (continued)**

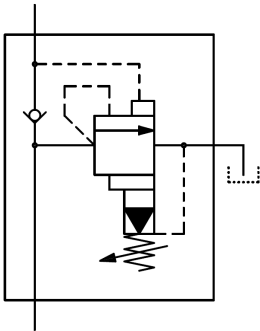
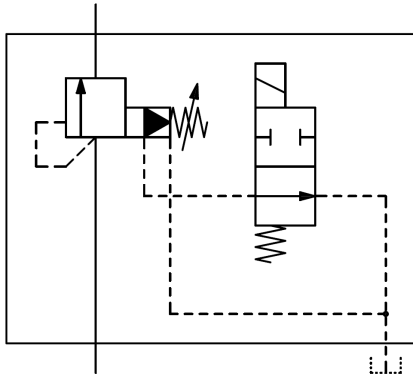
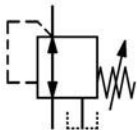
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|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| <b>6.1.3.7</b>                   | <b>X10590</b><br><br>101V7<br>101V1<br>F026V1<br>422V2<br>2177V1<br>101V2<br>243V1<br>2002V1<br>201V2<br>2162V1<br>2163V1<br>501V1<br>401V1<br>422V1<br>401V2 |    | Unload relief valve<br>(Accumulator-charging valve)                          |
| <b>6.1.3.8</b>                   | <b>X10600</b><br><br>101V7<br>F026V1<br>422V2<br>101V2<br>2002V1<br>201V2<br>2172V1<br>212V1<br>422V1<br>501V1<br>401V1<br>101V1<br>243V1<br>401V2<br>F035V1  |  | Pilot-controlled pressure-relief valve<br>(with electrically operated valve) |
| <b>6.1.3.9</b>                   | <b>X10610</b><br><br>101V7<br>F028V1<br>422V4<br>2002V1<br>201V2<br>401V2                                                                                     |  | Three-port pressure-reducing valve,<br>pressure-reducing valve with relief   |
| <b>6.1.4 Flow-control valves</b> |                                                                                                                                                               |                                                                                     |                                                                              |
| <b>6.1.4.1</b>                   | <b>X10630</b><br><br>401V1<br>2031V1<br>201V4                                                                                                                 |  | Variable throttle valve                                                      |

**Table 1 (continued)**

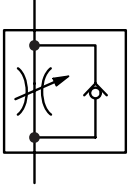
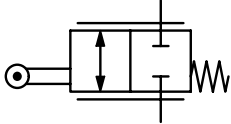
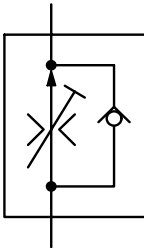
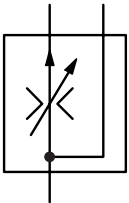
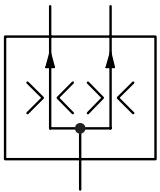
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|----------------|-------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| <b>6.1.4.2</b> | <b>X10640</b><br><br>401V1<br>2031V1<br>201V4<br>2162V1<br>2163V1<br>501V1<br>101V1<br>401V2          |    | Variable throttle valve<br>(with non-return valve)                             |
| <b>6.1.4.3</b> | <b>X10650</b><br><br>101V7<br>F028V1<br>2172V1<br>RF028<br>2002V1<br>402V5<br>712V1<br>401V2          |    | Deceleration valve, variable<br>throttle valve<br>(operated by roller plunger) |
| <b>6.1.4.4</b> | <b>X10660</b><br><br>F022V1<br>203V2<br>2162V1<br>2163V1<br>242V1<br>501V1<br>101V1<br>401V1<br>402V2 |  | Flow control valve with<br>bypass check valve<br>(preset)                      |
| <b>6.1.4.5</b> | <b>X10670</b><br><br>F022V1<br>201V3<br>242V1<br>501V1<br>101V1<br>401V1<br>402V2                     |  | Flow priority valve                                                            |
| <b>6.1.4.6</b> | <b>X10680</b><br><br>F022V1<br>242V1<br>101V1<br>401V1<br><del>501V1</del><br>401V2                   |  | Flow dividing valve                                                            |

**Table 1 (continued)**

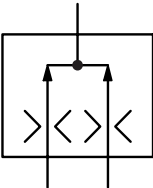
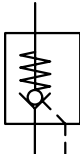
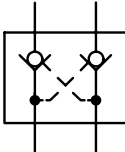
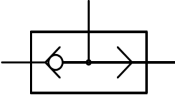
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|-----------------------------------------------------------|-----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------|
| <b>6.1.4.7</b>                                            | <b>X10690</b><br><br>F022V1<br>242V1<br>101V1<br>401V1<br>501V1<br>401V2                      |    | Flow combining valve                   |
| <b>6.1.5 Non-return (check) valves and shuttle valves</b> |                                                                                               |                                                                                     |                                        |
| <b>6.1.5.1</b>                                            | <b>X10700</b><br><br>2162V1<br>2163V1<br>401V1                                                |    | Non-return valve (without spring)      |
| <b>6.1.5.2</b>                                            | <b>X10710</b><br><br>2162V1<br>2163V1<br>401V1<br>2002V1                                      |    | Non-return valve (with spring)         |
| <b>6.1.5.3</b>                                            | <b>X10720</b><br><br>2162V1<br>2163V1<br>401V1<br>422V1<br>2002V1<br>101V1<br>401V2<br>F035V1 |  | Pilot-operated non-return valve        |
| <b>6.1.5.4</b>                                            | <b>X10730</b><br><br>101V1<br>2162V1<br>2163V1<br>422V1<br>401V1<br>501V1<br>401V2            |  | Pilot-operated double non-return valve |
| <b>6.1.5.5</b>                                            | <b>X10740</b><br><br>101V16<br>2162V1<br>2163V1<br>501V2<br>401V1<br>401V2                    |  | Shuttle valve                          |

Table 1 (continued)

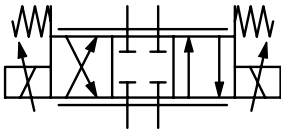
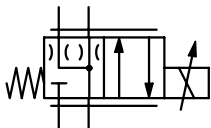
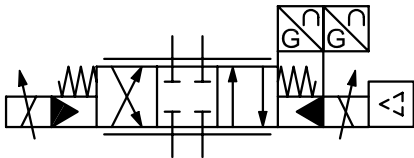
| No.                                                  | Reg. No.                                                                                                                                                                                            | Graphic                                                                             | Description                                                                                                                               |
|------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| <b>6.1.6 Proportional directional control valves</b> |                                                                                                                                                                                                     |                                                                                     |                                                                                                                                           |
| <b>6.1.6.1</b>                                       | <b>X10760</b><br><br>101V7<br>F026V1<br>F027V1<br>2172V1<br>RF028<br>101V2<br>212V1<br>201V2<br>2002V1<br>RF011<br>401V2                                                                            |    | Proportional directional control valve (directly controlled, four-port and three-position, and spring centre)                             |
| <b>6.1.6.2</b>                                       | <b>X10770</b><br><br>101V7<br>F026V1<br>2031V2<br>RF028<br>2172V1<br>101V2<br>212V1<br>201V2<br>2002V1<br>F034V1<br>501V2<br>401V2                                                                  |   | Proportional directional control valve (directly controlled, four-port and two-position, and spring return)                               |
| <b>6.1.6.3</b>                                       | <b>X10780</b><br><br>101V7<br>F026V1<br>F027V1<br>RF028<br>101V2<br>243V1<br>212V1<br>201V2<br>2002V1<br>753V1<br>F045V1<br>234V1<br>401V2<br>101V5<br>F052V1<br>2172V1<br>F046V1<br>RF011<br>401V1 |  | Proportional directional control valve (pilot-operated, with position feedback of the main and pilot valves, with integrated electronics) |

**Table 1 (continued)**

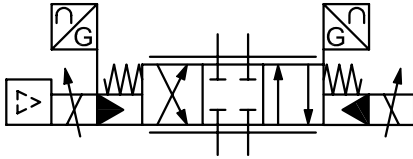
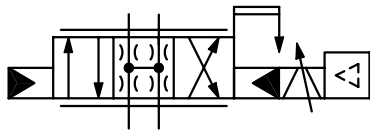
| No.            | Reg. No.      | Graphic                                                                             | Description                                                                                                                |
|----------------|---------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| <b>6.1.6.4</b> | <b>X10790</b> |    | Servo-valve<br>(pilot-operated, with<br>position feedback of the<br>main and pilot valves, with<br>integrated electronics) |
| <b>6.1.6.5</b> | <b>X10800</b> |  | Servo-valve<br>(pilot-operated, with<br>mechanical feedback of the<br>pilot valve, with integrated<br>electronics)         |

Table 1 (continued)

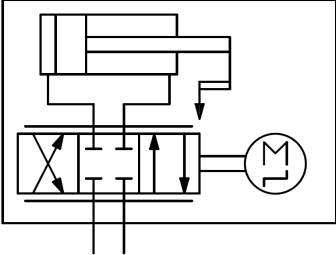
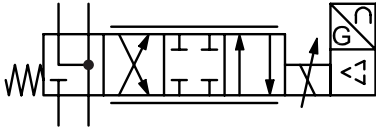
| No.            | Reg. No.                                                                                                                                                                                    | Graphic                                                                             | Description                                                                                                                                  |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| <b>6.1.6.6</b> | <b>X10810</b><br><br>101V7<br>F026V1<br>F027V1<br>2172V1<br>RF028<br>101V13<br>F004V1<br>101V14<br>402V1<br>241V1<br>F019V1<br>211V1<br>F002V1<br>402V5<br>101V1<br>401V1<br>401V2          |    | Electro-hydraulic linear drive<br>(consisting of cylinder with servo-valve and stepping motor, mechanical feedback of the cylinder position) |
| <b>6.1.6.7</b> | <b>X10820</b><br><br>101V7<br>F026V1<br>F027V1<br>2172V1<br>RF028<br>F034V1<br>2002V1<br>101V2<br>212V1<br>201V2<br>101V5<br>F052V1<br>753V1<br>F045V1<br>234V1<br>501V2<br>401V2<br>F046V1 |  | Servo-valve<br>(with preferred position in case of a power failure, electrical feedback and integral electronics)                            |

**Table 1 (continued)**

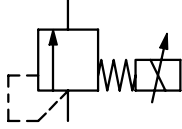
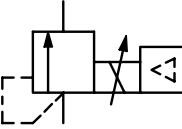
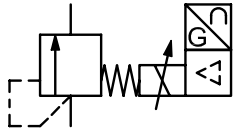
| No.                                               | Reg. No.                                                                                                                                             | Graphic                                                                             | Description                                                                                                                                  |
|---------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| <b>6.1.7 Proportional pressure control valves</b> |                                                                                                                                                      |                                                                                     |                                                                                                                                              |
| <b>6.1.7.1</b>                                    | <b>X10830</b><br><br>101V7<br>F026V1<br>422V2<br>2002V1<br>101V2<br>212V1<br>201V2<br>401V2                                                          |    | Proportional pressure-relief valve<br>(directly controlled, in which the solenoid controls the valve poppet by means of a spring)            |
| <b>6.1.7.2</b>                                    | <b>X10840</b><br><br>101V7<br>F026V1<br>422V2<br>101V2<br>212V1<br>201V2<br>401V2<br>101V5<br>F052V1                                                 |    | Proportional pressure-relief valve<br>(directly controlled by a solenoid acting on a valve poppet, with integral electronics)                |
| <b>6.1.7.3</b>                                    | <b>X10850</b><br><br>101V7<br>F026V1<br>422V2<br>F046V1<br>2002V1<br>101V2<br>212V1<br>201V2<br>101V5<br>F052V1<br>753V1<br>F045V1<br>234V1<br>401V2 |  | Proportional pressure-relief valve<br>(directly controlled, with closed-loop position control of the solenoid and with integral electronics) |

Table 1 (continued)

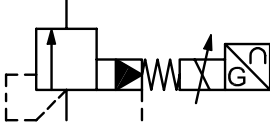
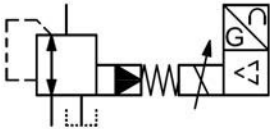
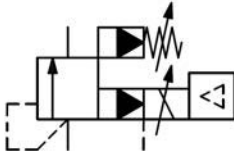
| No.     | Reg. No.                                                                                                                                                  | Graphic                                                                             | Description                                                                                                                                                                                                                    |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6.1.7.4 | <b>X10860</b><br>101V7<br>F026V1<br>422V2<br>2002V1<br>101V2<br>212V1<br>201V2<br>401V2<br>243V1<br>753V1<br>F045V1<br>234V1<br>F046V1<br>F035V1          |    | Proportional pressure-relief valve<br>(pilot-operated and solenoid controlled with electrical sensing of the solenoid position, with external pilot drain)                                                                     |
| 6.1.7.5 | <b>X10870</b><br>101V7<br>F028V1<br>422V4<br>101V2<br>243V1<br>2002V1<br>212V1<br>201V2<br>101V5<br>F052V1<br>753V1<br>F045V1<br>234V1<br>401V2<br>F046V1 |  | Three-port proportional pressure-reducing valve<br>(solenoid controlled, with closed-loop position control of the solenoid and integrated electronics)                                                                         |
| 6.1.7.6 | <b>X10880</b><br>101V7<br>F026V1<br>101V2<br>243V1<br>212V1<br>201V2<br>101V5<br>F052V1<br>422V2<br>401V2<br>2002V1<br>F035V1                             |  | Proportional pressure-relief valve<br>(pilot-operated and solenoid controlled, with additional pilot stage for manual pressure adjustment or maximum pressure-relief function, with integral electronics, with external drain) |

**Table 1 (continued)**

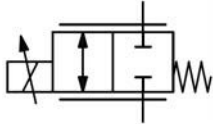
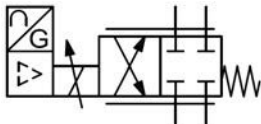
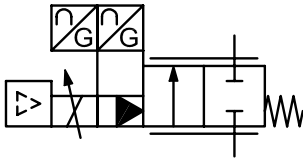
| No.                                           | Reg. No.                                                                                                                                                                                  | Graphic                                                                             | Description                                                                                                                         |
|-----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| <b>6.1.8 Proportional flow control valves</b> |                                                                                                                                                                                           |                                                                                     |                                                                                                                                     |
| <b>6.1.8.1</b>                                | <b>X10890</b><br><br>101V7<br>F028V1<br>2172V1<br>RF028<br>2002V1<br>101V2<br>212V1<br>201V2<br>401V2                                                                                     |    | Proportional flow-control valve (directly controlled)                                                                               |
| <b>6.1.8.2</b>                                | <b>X10900J1</b><br><br>101V7<br>F027V1<br>2172V1<br>RF028<br>2002V1<br>101V2<br>212V1<br>201V2<br>101V5<br>F052V1<br>753V1<br>F045V1<br>234V1<br>401V2<br>F046V1                          |   | Proportional flow-control valve (directly controlled, with closed-loop position control of the solenoid and integrated electronics) |
| <b>6.1.8.3</b>                                | <b>X10910</b><br><br>101V7<br>F026V1<br>2172V1<br>RF028<br>2002V1<br>101V2<br>243V1<br>212V1<br>201V2<br>753V1<br>F045V1<br>234V1<br>101V5<br>F052V1<br>401V2<br>RF011<br>F046V1<br>401V1 |  | Proportional flow-control valve (pilot-operated, with position feedback of the main and pilot stage, integrated electronics)        |

Table 1 (continued)

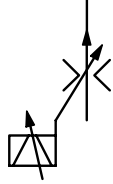
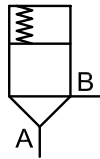
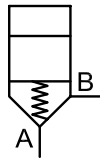
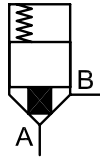
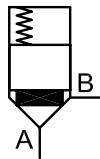
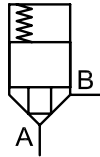
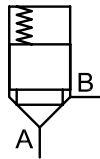
| No.                                            | Reg. No.                                                                          | Graphic                                                                             | Description                                                                                                        |
|------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| 6.1.8.4                                        | <b>X10920</b><br><br>201V3<br>242V1<br>101V2<br>212V4<br>201V2<br>401V1<br>F022V1 |    | Adjustable-orifice flow-control valve (using a proportional solenoid that is not affected by changes in viscosity) |
| <b>6.1.9 Two-port slip-in cartridge valves</b> |                                                                                   |                                                                                     |                                                                                                                    |
| 6.1.9.1                                        | <b>X10930</b><br><br>F010V1<br>101V9<br>2002V2<br>401V2                           |    | Insert (normally-closed, area ratio 1)                                                                             |
| 6.1.9.2                                        | <b>X10940</b><br><br>F010V1<br>101V9<br>2002V2<br>401V2                           |   | Insert (normally-open, area ratio 1)                                                                               |
| 6.1.9.3                                        | <b>X10950</b><br><br>F010V1<br>F011V1<br>2002V2<br>401V2<br>RF037                 |  | Insert (with throttle nose, with area ratio $\leq 0.7$ )                                                           |
| 6.1.9.4                                        | <b>X10960</b><br><br>F010V1<br>F012V1<br>2002V2<br>401V2<br>RF037                 |  | Insert (with throttle nose, with area ratio $> 0.7$ and $< 1$ )                                                    |
| 6.1.9.5                                        | <b>X10970</b><br><br>F010V1<br>F011V1<br>2002V2<br>401V2                          |  | Insert (with area ratio $\leq 0.7$ )                                                                               |
| 6.1.9.6                                        | <b>X10980</b><br><br>F010V1<br>F012V1<br>2002V2<br>401V2                          |  | Insert (with area ratio $> 0.7$ and $< 1$ )                                                                        |

Table 1 (continued)

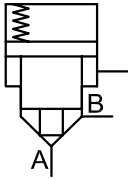
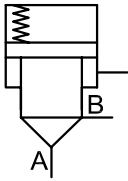
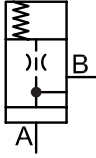
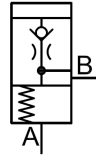
| No.      | Reg. No.                                                                                                          | Graphic                                                                             | Description                                                                                                    |
|----------|-------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| 6.1.9.7  | <b>X10990</b><br><br>F013V1<br>F014V1<br>2002V2<br>401V2                                                          |    | Insert<br>(active-control)                                                                                     |
| 6.1.9.8  | <b>X11000</b><br><br>F013V1<br>F015V1<br>2002V2<br>401V2                                                          |    | Insert<br>(active-control, with area ratio 1)                                                                  |
| 6.1.9.9  | <b>X11010</b><br><br>F010V1<br>F011V1<br>2002V2<br>2031V2<br>401V2<br>RF034<br>422V1                              |    | Insert<br>[internal pilot supply, with replaceable orifice (restrictor)]                                       |
| 6.1.9.10 | <b>X11020</b><br><br>101V10<br>101V11<br>2002V2<br>2031V2<br>401V1<br>501V2<br>401V2<br>422V1                     |  | Insert<br>(pressure-relief functions, spool design, normally closed)                                           |
| 6.1.9.11 | <b>X11030</b><br><br>101V10<br>101V11<br>2002V2<br>2031V2<br>2162V2<br>401V1<br>422V1<br>501V2<br>401V2<br>2163V2 |  | Insert<br>(pressure-reducing valve cartridge, spool design, normally closed, with integrated non-return valve) |

Table 1 (continued)

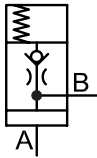
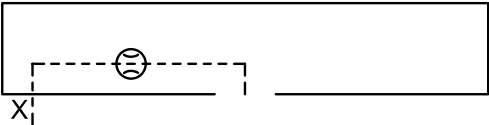
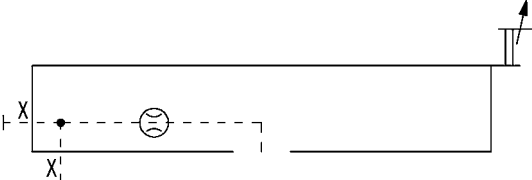
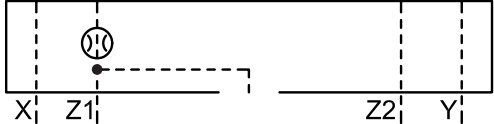
| No.      | Reg. No.                                                                                                          | Graphic                                                                              | Description                                                                                                              |
|----------|-------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| 6.1.9.12 | <b>X11040</b><br><br>101V10<br>101V11<br>2002V2<br>2031V2<br>2162V2<br>401V1<br>422V1<br>501V2<br>401V2<br>2163V2 |     | Insert<br>(pressure-reducing valve<br>cartridge, spool design,<br>normally open, with<br>integrated non-return<br>valve) |
| 6.1.9.13 | <b>X11050</b><br><br>F016V1                                                                                       |    | Control cover<br>(without pilot ports)                                                                                   |
| 6.1.9.14 | <b>X11060</b><br><br>F016V1<br>2031V2<br>RF034<br>422V1<br>F035V1                                                 |   | Control cover<br>(with pilot port)                                                                                       |
| 6.1.9.15 | <b>X11070</b><br><br>F016V1<br>2031V2<br>RF034<br>2172V1<br>F020V1<br>201V1<br>501V1<br>422V1<br>401V1<br>F035V1  |  | Control cover<br>(with pilot port, with<br>adjustable stroke limiter<br>and remote-control port)                         |
| 6.1.9.16 | <b>X11080</b><br><br>F016V1<br>2031V2<br>RF034<br>501V1<br>422V1<br>F035V1                                        |  | Control cover<br>(with mounting face for<br>switching valve)                                                             |

Table 1 (continued)

| No.             | Reg. No.                                                                                                                   | Graphic | Description                                                                       |
|-----------------|----------------------------------------------------------------------------------------------------------------------------|---------|-----------------------------------------------------------------------------------|
| <b>6.1.9.17</b> | <b>X11090</b><br><br>F016V1<br>2031V2<br>RF034<br>101V16<br>2162V1<br>2163V1<br>501V2<br>401V1<br>422V1<br>F035V1          |         | Control cover<br>( <u>pilot operated with</u><br><u>non-return valve</u> )        |
| <b>6.1.9.18</b> | <b>X11100</b><br><br>F016V1<br>2031V2<br>RF034<br>101V16<br>2162V1<br>2163V1<br>501V2<br>401V1<br>422V1<br>501V1<br>F035V1 |         | Control cover<br>(with shuttle valve)                                             |
| <b>6.1.9.19</b> | <b>X11110</b><br><br>F016V1<br>2031V2<br>RF034<br>101V16<br>2162V1<br>2163V1<br>501V2<br>401V1<br>422V1<br>F035V1          |         | Control cover<br>(with mounting face for<br>switching valve and shuttle<br>valve) |

Table 1 (continued)

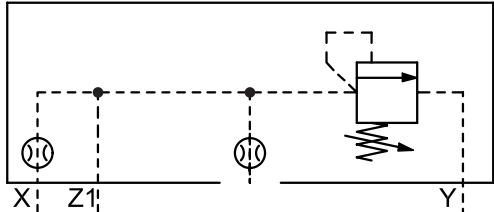
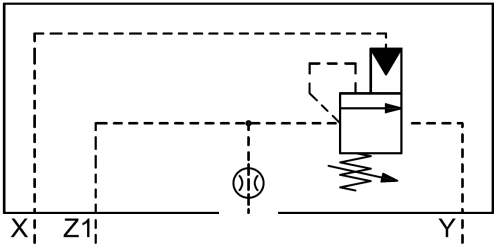
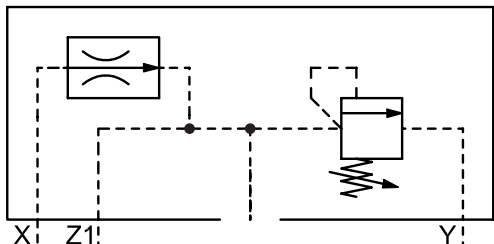
| No.      | Reg. No.                                                                                                                                    | Graphic                                                                              | Description                                                                                                     |
|----------|---------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| 6.1.9.20 | <b>X11120</b><br><br>F016V1<br>2031V2<br>RF034<br>501V1<br>101V7<br>F026V1<br>2002V1<br>422V2<br>201V2<br>422V1<br>F035V1                   |    | Control cover<br>(with pressure-relief<br>function)                                                             |
| 6.1.9.21 | <b>X11130</b><br><br>F016V1<br>2031V2<br>RF034<br>501V1<br>101V7<br>F026V1<br>2002V1<br>422V2<br>101V2<br>243V1<br>201V2<br>422V1<br>F035V1 |   | Control cover<br>(with pressure-relief<br>function and hydraulic<br>unloading)                                  |
| 6.1.9.22 | <b>X11140</b><br><br>F016V1<br>501V1<br>101V7<br>F026V1<br>2002V1<br>422V2<br>2031V1<br>242V1<br>201V2<br>422V1<br>101V1<br>F035V1<br>401V1 |  | Control cover<br>(with pressure-relief<br>function with a flow-control<br>valve for limiting the pilot<br>flow) |

**Table 1 (continued)**

| No.             | Reg. No.                                                                                                                                                                            | Graphic | Description                                                           |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-----------------------------------------------------------------------|
| <b>6.1.9.23</b> | <b>X11150</b><br><br>F016V1<br>2031V2<br>RF034<br>2172V1<br>F020V1<br>201V1<br>501V1<br>422V1<br>401V1<br>F010V1<br>F011V1<br>2002V2<br>401V2<br>F035V1<br>RF037                    |         | Two-port cartridge valve<br>(with stroke limiter)                     |
| <b>6.1.9.24</b> | <b>X11160</b><br><br>101V7<br>F026V1<br>F027V1<br>101V2<br>212V1<br>2002V1<br>F016V1<br>2031V2<br>RF034<br>501V1<br>422V1<br>F010V1<br>F011V1<br>2002V2<br>401V2<br>101V1<br>F035V1 |         | Two-port cartridge valve<br>(with built-in directional control valve) |

Table 1 (continued)

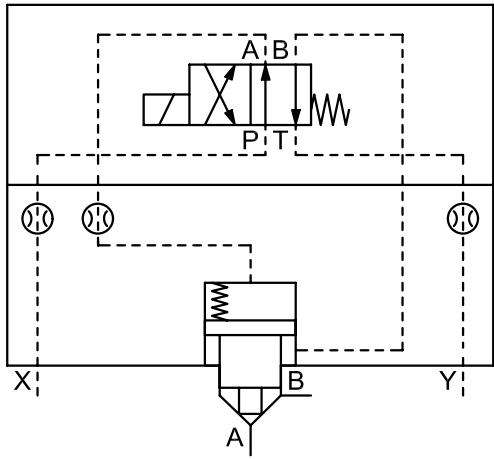
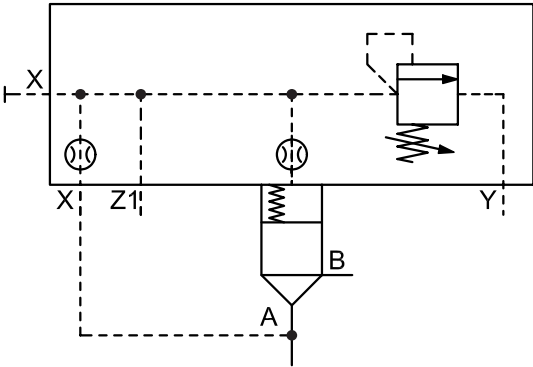
| No.      | Reg. No. | Graphic                                                                              | Description                                                                            |
|----------|----------|--------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| 6.1.9.25 | X11170   |    | Two-port cartridge valve with active control (with built-in directional control valve) |
| 6.1.9.26 | X11180   |  | Two-port cartridge valve (with pressure-relief function)                               |

Table 1 (continued)

| No.             | Reg. No.      | Graphic | Description                                                                                                  |
|-----------------|---------------|---------|--------------------------------------------------------------------------------------------------------------|
| <b>6.1.9.27</b> | <b>X11190</b> |         | Two-port cartridge valve (with pressure-relief function and selectable second pressure stage)                |
| <b>6.1.9.28</b> | <b>X11200</b> |         | Two-port cartridge valve (with proportional pressure adjustment and manual maximum pressure-relief function) |

Table 1 (continued)

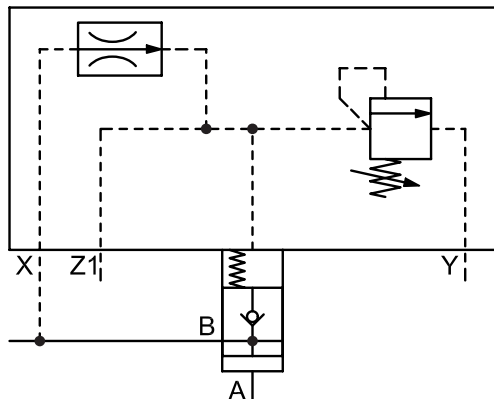
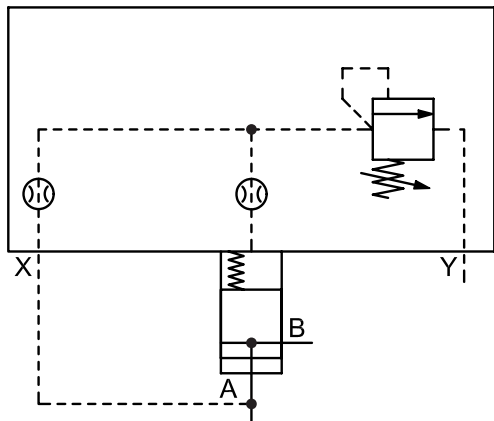
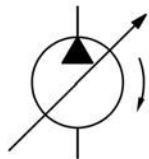
| No.                  | Reg. No.      | Graphic                                                                              | Description                                                                                                    |
|----------------------|---------------|--------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| 6.1.9.29             | <b>X11210</b> |    | Two-port cartridge valve (with pressure-reducing function and flow-control valve, controlled by high pressure) |
|                      | F016V1        |                                                                                      |                                                                                                                |
|                      | 501V1         |                                                                                      |                                                                                                                |
|                      | 101V7         |                                                                                      |                                                                                                                |
|                      | F026V1        |                                                                                      |                                                                                                                |
|                      | 2002V1        |                                                                                      |                                                                                                                |
|                      | 422V2         |                                                                                      |                                                                                                                |
|                      | 401V2         |                                                                                      |                                                                                                                |
|                      | 2031V1        |                                                                                      |                                                                                                                |
|                      | 242V1         |                                                                                      |                                                                                                                |
|                      | 101V10        |                                                                                      |                                                                                                                |
|                      | 101V11        |                                                                                      |                                                                                                                |
|                      | 2002V2        |                                                                                      |                                                                                                                |
|                      | 2162V2        |                                                                                      |                                                                                                                |
|                      | 401V1         |                                                                                      |                                                                                                                |
|                      | 422V1         |                                                                                      |                                                                                                                |
|                      | 201V2         |                                                                                      |                                                                                                                |
|                      | 2163V2        |                                                                                      |                                                                                                                |
|                      | 101V1         |                                                                                      |                                                                                                                |
|                      | 501V2         |                                                                                      |                                                                                                                |
|                      | F035V1        |                                                                                      |                                                                                                                |
| 6.1.9.30             | <b>X11220</b> |  | Two-port cartridge valve (with pressure-reducing function, controlled by low pressure)                         |
|                      | F016V1        |                                                                                      |                                                                                                                |
|                      | 2031V2        |                                                                                      |                                                                                                                |
|                      | RF034         |                                                                                      |                                                                                                                |
|                      | 501V1         |                                                                                      |                                                                                                                |
|                      | 101V7         |                                                                                      |                                                                                                                |
|                      | F026V1        |                                                                                      |                                                                                                                |
|                      | 2002V1        |                                                                                      |                                                                                                                |
|                      | 422V2         |                                                                                      |                                                                                                                |
|                      | 401V2         |                                                                                      |                                                                                                                |
|                      | 101V10        |                                                                                      |                                                                                                                |
|                      | 101V11        |                                                                                      |                                                                                                                |
|                      | 2002V2        |                                                                                      |                                                                                                                |
|                      | 401V1         |                                                                                      |                                                                                                                |
|                      | 201V2         |                                                                                      |                                                                                                                |
|                      | 501V2         |                                                                                      |                                                                                                                |
|                      | 422V1         |                                                                                      |                                                                                                                |
|                      | F035V1        |                                                                                      |                                                                                                                |
| 6.2 Pumps and motors |               |                                                                                      |                                                                                                                |
| 6.2.1                | <b>X11230</b> |   | Variable-displacement pump<br>[one direction of rotation, clockwise ( <u>right-hand</u> )]                     |
|                      | 2065V1        |                                                                                      |                                                                                                                |
|                      | 243V1         |                                                                                      |                                                                                                                |
|                      | 201V5         |                                                                                      |                                                                                                                |
|                      | 401V2         |                                                                                      |                                                                                                                |
|                      | 255V1         |                                                                                      |                                                                                                                |

Table 1 (continued)

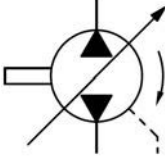
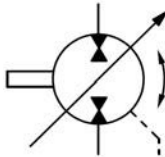
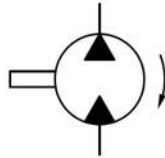
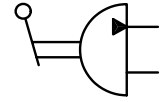
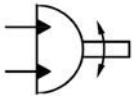
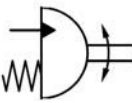
| No.          | Reg. No.                                                                                     | Graphic                                                                             | Description                                                                                                                                                |
|--------------|----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>6.2.2</b> | <b>X11240</b><br><br>2065V1<br>243V1<br>F017V1<br>201V5<br>401V2<br>255V1<br>422V1<br>F035V1 |    | Variable-displacement pump<br>[with two directions of flow, external drain line, and one direction of rotation, clockwise ( <u>right-hand</u> )]           |
| <b>6.2.3</b> | <b>X11250</b><br><br>2065V1<br>243V2<br>F017V1<br>201V5<br>401V2<br>256V1<br>422V1<br>F035V1 |    | Variable-displacement pump/motor<br>(with two directions of flow, two-directions of rotation, external drain line, <u>usable as pump or motor</u> )        |
| <b>6.2.4</b> | <b>X11260</b><br><br>2065V1<br>243V1<br>F017V1<br>401V2<br>255V1                             |  | Fixed displacement pump/motor<br>[with one direction of flow, one direction of rotation, clockwise ( <u>right hand</u> ), <u>usable as pump or motor</u> ] |
| <b>6.2.5</b> | <b>X11270</b><br><br>F003V1<br>243V2<br>402V4<br>688V1<br>401V2                              |  | Pump with a limited swivel angle (lever-operated)                                                                                                          |
| <b>6.2.6</b> | <b>X11280</b><br><br>F003V1<br>256V1<br>F017V1<br>401V2<br><u>243V2</u>                      |  | Rotary actuator (double-acting)                                                                                                                            |
| <b>6.2.7</b> | <b>X11290</b><br><br>F003V1<br>256V1<br>F017V1<br>401V2<br>2002V1<br><u>243V2</u>            |  | Rotary actuator (single-acting)                                                                                                                            |

Table 1 (continued)

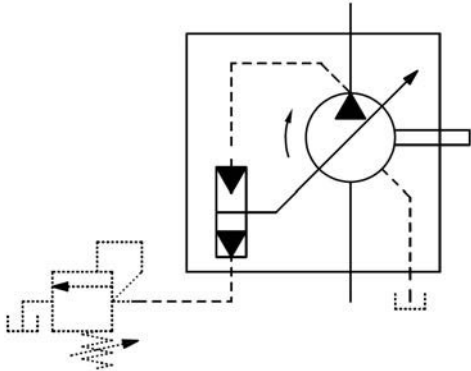
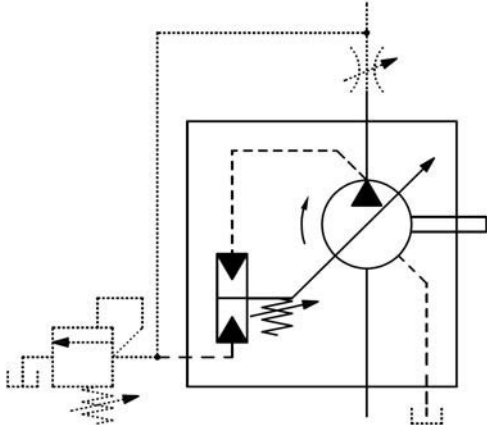
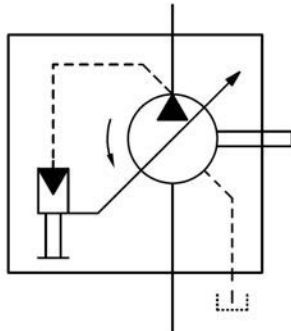
| No.           | Reg. No.                                                                                                                                   | Graphic                                                                             | Description                                                                                                                                                        |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>6.2.8</b>  | <b>X11300</b><br><br>2065V1<br>F017V1<br>201V5<br>401V2<br>255V1<br>422V1<br>101V2<br>101V1<br>243V1<br>401V1<br>F035V1                    |   | Variable-displacement pump<br>[pilot-operated, with pressure compensation, one direction of rotation, clockwise ( <u>right hand</u> ), and an external drain line] |
| <b>6.2.9</b>  | <b>X11310</b><br><br>2065V1<br>F017V1<br>201V5<br>401V2<br>255V1<br>422V1<br>101V2<br>101V1<br>243V1<br>2002V1<br>201V2<br>401V1<br>F035V1 |  | Variable-displacement pump<br>[load-sensing control, one drive direction, clockwise ( <u>right hand</u> ), and an external drain line]                             |
| <b>6.2.10</b> | <b>X11320</b><br><br>2065V1<br>F017V1<br>201V5<br>401V2<br>255V2<br>422V1<br>101V2<br>101V1<br>243V1<br>402V5<br>681V2<br>401V1<br>F035V1  |  | Variable-displacement pump<br>[with mechanical/hydraulic servo-control, one drive direction, counter-clockwise ( <u>left hand</u> ) and an external drain line]    |

Table 1 (continued)

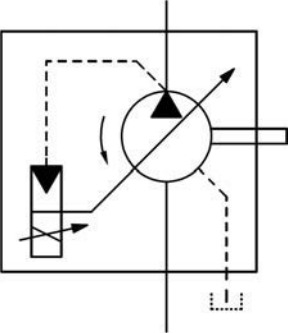
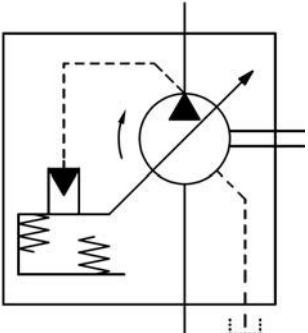
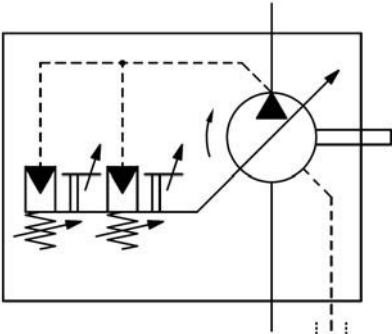
| No.           | Reg. No.                                                                                                                                                               | Graphic                                                                             | Description                                                                                                                                                                                                |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>6.2.11</b> | <b>X11330</b><br><br>2065V1<br>F017V1<br>201V5<br>401V2<br>255V2<br>422V1<br>101V2<br>101V1<br>243V1<br>212V1<br>201V2<br>401V1<br>F035V1                              |    | Variable-displacement pump<br>[with electro-hydraulic servo control ( <u>electric control</u> ), one drive direction, counter-clockwise ( <u>left-hand</u> ) and an external drain line]                   |
| <b>6.2.12</b> | <b>X11340</b><br><br>2065V1<br>F017V1<br>201V5<br>401V2<br>422V1<br>101V2<br>101V1<br>243V1<br>2002V1<br>401V1<br>255V1<br>F035V1                                      |   | Variable-displacement pump<br>[with power control, one drive direction, clockwise ( <u>right-hand</u> ) and an external drain line]                                                                        |
| <b>6.2.13</b> | <b>X11350</b><br><br>2065V1<br>F017V1<br>201V5<br>401V2<br>255V1<br>422V1<br>101V2<br>101V1<br>243V1<br>2002V1<br>201V2<br>F020V1<br>201V1<br>501V1<br>401V1<br>F035V1 |  | Variable-displacement pump<br>[with a two-stage adjustable stroke limited pressure/flow control, internal pilot-operated, one drive direction, clockwise ( <u>right-hand</u> ) and an external drain line] |

Table 1 (continued)

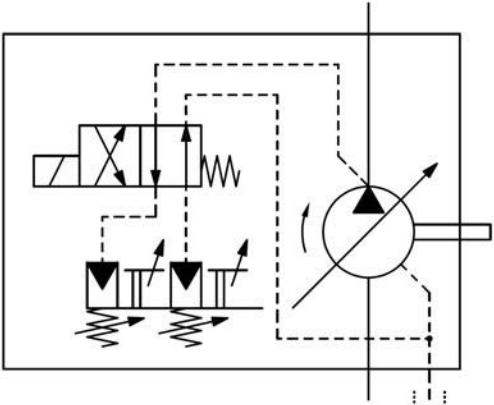
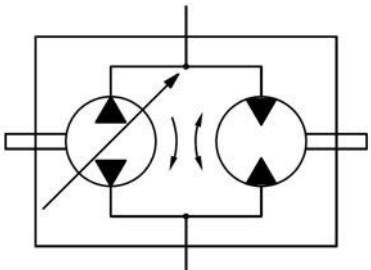
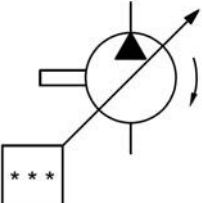
| No.           | Reg. No.                                                                                                                                                                                                 | Graphic                                                                             | Description                                                                                                                                                                                                      |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>6.2.14</b> | <b>X11360</b><br>2065V1<br>F017V1<br>201V5<br>401V2<br>255V1<br>422V1<br>101V2<br>101V1<br>243V1<br>2002V1<br>201V2<br>F020V1<br>201V1<br>501V1<br>101V7<br>F026V1<br>F027V1<br>212V1<br>401V1<br>F035V1 |   | Variable-displacement pump<br>[with a two-stage adjustable limited-stroke pressure/flow-control element, electrical switchover, one drive direction, clockwise ( <u>right-hand</u> ) and an external drain line] |
| <b>6.2.15</b> | <b>X11370</b><br>2065V1<br>243V1<br>F017V1<br>201V5<br>255V1<br>101V1<br>401V1<br>256V1<br><u>401V2</u><br><u>501V1</u>                                                                                  |  | Hydrostatic transmission<br>(drive unit consisting of one reversible, variable-displacement pump with one input direction of rotation and one fixed displacement motor with two output directions of rotation)   |
| <b>6.2.16</b> | <b>X11380</b><br>2065V1<br>243V1<br>F017V1<br>201V5<br>401V2<br>101V7<br>255V1                                                                                                                           |  | Variable-displacement pump<br>[with one drive direction, clockwise ( <u>right-hand</u> ) and description of the control and adjustment elements]                                                                 |

Table 1 (continued)

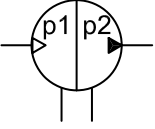
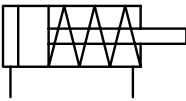
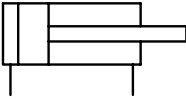
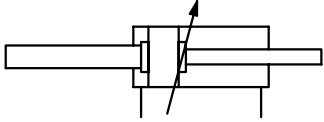
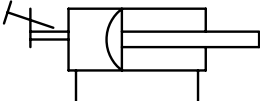
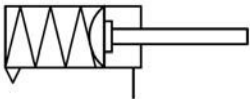
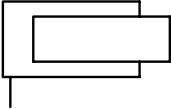
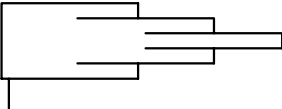
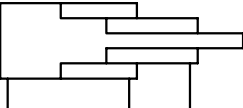
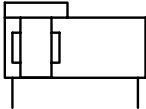
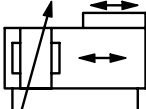
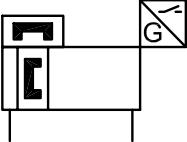
| No.                  | Reg. No.                                                                               | Graphic                                                                             | Description                                                                                                                                          |
|----------------------|----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>6.2.17</b>        | <b>X11430</b><br><br>2065V1<br>243V2<br>244V2<br>401V2<br>401V1                        |    | Pressure intensifier,<br>continuous<br>(converts a pneumatic<br>pressure p1 into a higher<br>hydraulic pressure p2)                                  |
| <b>6.3 Cylinders</b> |                                                                                        |                                                                                     |                                                                                                                                                      |
| <b>6.3.1</b>         | <b>X11440</b><br><br>101V13<br>2002V3<br>101V14<br>F004V1<br>401V2                     |    | Single-rod cylinder<br>(single-acting, return<br>stroke by spring force,<br>spring chamber with<br>connection)                                       |
| <b>6.3.2</b>         | <b>X11450</b><br><br>101V13<br>101V14<br>F004V1<br>401V2                               |    | Single-rod cylinder<br>(double-acting)                                                                                                               |
| <b>6.3.3</b>         | <b>X11460</b><br><br>101V13<br>101V14<br>F004V1<br>F004V2<br>101V19<br>201V7<br>401V2  |  | Double-rod cylinder<br>(double-acting, with<br>different piston-rod<br>diameters, cushioning on<br>both sides with adjustment<br>on right side only) |
| <b>6.3.4</b>         | <b>X11470</b><br><br>101V13<br>F006V1<br>F004V1<br>401V2<br>F020V1<br>203V1            |  | Diaphragm cylinder<br>(double-acting, diaphragm<br>cylinder with preset stroke<br>limiter)                                                           |
| <b>6.3.5</b>         | <b>X11480</b><br><br>101V13<br>F004V1<br>F006V1<br>101V19<br>2002V3<br>2174V1<br>401V2 |  | Diaphragm cylinder<br>(single-acting, with<br>cushioning on rod end,<br>vented cap end)                                                              |

Table 1 (continued)

| No.           | Reg. No.                                                                                       | Graphic                                                                             | Description                                                                                                                  |
|---------------|------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| <b>6.3.6</b>  | <b>X11490</b><br><br>101V22<br>101V18<br>401V2                                                 |    | Plunger cylinder<br>(single-acting)                                                                                          |
| <b>6.3.7</b>  | <b>X11500</b><br><br>101V22<br>F004V1<br>F004V3<br>401V2                                       |    | Telescopic cylinder<br>(single-acting)                                                                                       |
| <b>6.3.8</b>  | <b>X11510</b><br><br>101V22<br>F005V1<br>F005V2<br>401V2                                       |    | Telescopic cylinder<br>(double-acting)                                                                                       |
| <b>6.3.9</b>  | <b>X11520</b><br><br>101V13<br>101V14<br>101V19<br>101V20<br>401V2                             |   | Band-type rodless cylinder<br>(double-acting, with<br>end-position cushioning on<br>both sides of the piston)                |
| <b>6.3.10</b> | <b>X11530</b><br><br>101V13<br>101V14<br>101V19<br>101V20<br>201V7<br>245V1<br>401V2           |  | Cable-type rodless cylinder<br>(double-acting, with<br>adjustable end-position<br>cushioning on both sides of<br>the piston) |
| <b>6.3.11</b> | <b>X11540</b><br><br>101V13<br>101V14<br>753V1<br>F045V1<br>F048V1<br>326V1<br>401V2<br>F046V1 |  | Rodless cylinder<br>(double-acting,<br>magnetic-type, with<br>position switch on<br>right-hand end only)                     |