

CHEMOPETROL plc TECHNICAL SERVICES	Standard Low Pressure Valves Technical Delivery Regulations (TDR)	N 11 740-1
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The standard is obligatory for all Company departments and the external organisations that order, receive and supply industrial valves.

The Company departments are obliged to familiarise with the standard all the external organisations that carry out these activities for them and for which the standard is also obligatory.

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1. General Provisions

1.1 Validity Scope

This standard applies for ordering, reception and supply of low pressure industrial valves in the basic standard design for general use (mediums, water, steam, non-aggressive gases etc.). The standard elaborates on and specifies general technical requirements of the basic N 11 740 standard.

1.1.1 Any changes and deviations from the TDR are only possible after mutual agreement between the vendor and the customer.

1.2 In orders for relevant types of valves any stricter technical requirements or specified data for individual types of industrial valves (valves, gate valves, non-return valves, taps etc.) must be stated.

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1.3 Orders

1.3.1 The following technical data is to be stated in the orders:

- a) The number of valves of the same type.
- b) The type of the valve and the number of the relevant dimension standard or technical conditions. If no standard or technical conditions are developed for the relevant valve, registration number as per the catalogue sheet can be stated.
- c) Nominal pressure (PN).
- d) Nominal internal diameter (DN).
- e) The type of process liquid (medium).
- f) Operation overpressure (the highest – the lowest) in MPa, or underpressure in kPa.
- g) Operation temperature (the highest – the lowest) in °C.
- h) The requested scope of acceptance/reception tests and the requested documentation type. This to be stated pursuant to ČSN 13 3060, Part 2, and ČSN 13 3060, Part 4. At the same time, it must be stated if the ordering party is to present during acceptance tests.
- i) Additional identification as per ČSN 13 3005-1, if so requested.
- j) Other important technical data or differing data.
- k) Advice stating that this standard applies for supply of valves.
- l) Special arrangements between the ordering party and the manufacturer/vendor.

1.4 The Manner and Scope of Production

The manufacturer selects the manner of production. Valves are manufactured in the scope of nominal internal diameters, nominal pressures and operation temperatures as per the relevant dimension standards or technical conditions stipulated for individual valve types.

1.5 Identification of Valves

1.5.1 The obligatory identification, which every valve must be provided with, must be pursuant to ČSN EN 19 (13 3004) and ČSN 13 3005-1.

The basic obligatory identification data on valves:

- Pre-poured (with internal diameters smaller than DN50 the data can only be punched or engraved) obligatory marks:

- a) Nominal internal diameter (DN)
- b) Nominal pressure (PN)
- c) Body material
- d) Manufacturer's logo or trademark
- e) Flow direction (arrow)

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1.5.1.1 Prospective number of pouring (of the body and lug - with PN40), if requested by the ordering party – for extra charge.

1.5.2 Labels as per ČSN 13 3007 serve for identification of valves. This standard specifies the scope of the technical data to be on the label.

1.5.3 The design of the obligatory and additional identification is as per ČSN 13 3005-1.

1.5.4 PN40 and higher PN valves shall be provided with the manufacturer's identification label bearing the manufacturing number of the valve (preceded by the year of manufacture (01 = 2001)). E.g. 01(04547), hence: a 7-digit number.

1.5.5 Identification of relief valves is stated in ČSN 13 4309-2. Identification of control valves is stated in ČSN 13 3005, Part 2.

1.5.6 The relief and reduction valves must be provided with the manufacturer's identification label with manufacturing number of the valve, regardless the PN value.

2. Technical Requirements

The industrial valves must comply with the requirements of the ČSN 13 3060, Part 1, Part 2 and ČSN 13 3060-4.

2.1 Material

The material of the bodies or the main parts of the valves is stated in the relevant dimension standards of valves, technical specifications of valves or the manufacturer's catalogue sheet. It is chosen with regard to the operation liquid and operation parameters (pressure and temperature).

2.1.1 The material of individual parts of the valves must be stated in the commercial-technical documentation.

2.2 Connection Dimensions

2.2.1 Flange Design

The connection dimensions of the flange nozzles of valves must comply with ČSN EN 1092-1 (13 1170) or ČSN 13 1060 (the year of 1984), with arrangement of the sealing surfaces as per ČSN EN 1092-1 (13 1170) or ČSN 13 1061 (the year of 1984) or DIN2526 and DIN2501.

The parameter of the relevant modification shall be stated in individual orders.

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2.3 Construction Lengths of Valves

The construction lengths of metal valves, including their tolerances, are based on ČSN EN 558-1 (13 3031) for valves identified as PN, or on ČSN EN 558-2 (13 3032) for valves identified as "Class", or ČSN 13 3041.

2.3.1 The construction lengths are stated either in the relevant dimension standard of the valve, if it has been developed, or in the Catalogue Sheet of Valves.

2.3.2 Prospective deviations must be mutually agreed to and stated in the order.

2.4 The Surface of Valves

2.4.1 For the purpose of transportation and storage, the valves are provided with basic protective outer paint (save the function surfaces) in agreed shade, which paint is 1-layer paint and the material of the paint must be such that it can be diluted in water and its thermal resistance must be up to 150°C (for paints with resistance up to 400°C RAL 9006 (aluminium-white) shall be used).

2.4.2 The surfaces that are not painted are preserved with water-expulsion means guaranteeing storage lifetime of 12 months.

2.4.3 The movable parts (depending on the type of load: spindles, spindle nuts, axial bearings etc.) are preserved with plastic lubricants identified as per international classification NLGI 2 K3 F-30 or NLGI 2 KP F2 N-25.

2.5 Sealing Surfaces and Packings Spaces

2.5.1 The Sealing Seats of Valves

The function sealing surfaces must have the prescribed roughness of surface (e.g. final treatment by lapping), may not be damaged and must be preserved and guarantee the requested tightness.

2.5.2 Packings Spaces

The diameters and sizes of the packing spaces (chambers) must be as per ČSN 02 9012 or DIN 3780. It is also possible to request that the size design of packings and their tolerances be as per the Chemopetrol Litvínov standard N 13 020-1 (this must be stated in order or contractually agreed to).

2.5.2.1 The packings spaces must be sealed with asbestos-free flex made of expanded graphite.

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2.5.3 Valve Bonnet/Cover Sealing Connections (Systems)

The principles of selection of dimensions for the bonnet sealing connection with the relevant modification of the sealing surface must be pursuant to **ČSN EN 1092-1 (13 1170)**, or **ČSN 13 1061 (year of 1984)** or **DIN 2526**.

2.5.3.1 Gaskets must be made of expanded graphite without metal inserts for pressures within PN40, whilst for pressures PN40 and higher pressure metal inserts must be present.

3. Testing

Testing of valves is carried out as per ČSN 13 3060, Part 2.

3.1 Types of Tests

3.1.1 As per the purpose: manufacturing check
reception/acceptance

3.1.2 As per type: strength and impermeability
seizing
tightness of closure

3.1.3 As per manner: under cold conditions
under hot conditions
special

3.2 If, as per pre-agreed arrangement, a customer's representative takes part in manufacturing test of finished valves, this test is also considered to be reception test.

3.3 Valves must be checked concerning strength and impermeability with water under cold conditions using the testing overpressure for the relevant nominal pressure as per ČSN 13 0010.

3.4 The tests concerning the tightness of the closure and seizing under cold conditions must be carried out applying the testing overpressure that is equal to the highest operation overpressure for the relevant nominal PN pressure of the valve as per ČSN 13 0010.

3.5 The tests under hot conditions are carried out applying the testing overpressure equal to the highest operation overpressure for the relevant nominal PN pressure as per ČSN 13 0010 at the relevant highest operation temperature.

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3.6 Evaluation of the tightness of the valves is carried out as per ČSN 13 3060, Part 2 or as per the technical delivery conditions of the valves specified through the relevant ČSN standard (e.g. block valves as per ČSN 13 3501, relief valves as per ČSN 13 4309-2, gate valves as per ČSN 13 3701 etc.).

3.7 The delivery must also include testing protocol as per ČSN 13 3060-4.

3.8 Testing Liquids

Whenever possible, valves are tested using the testing mediums for which they are earmarked. If they are not available, they are tested using such liquids that will prove best the appropriateness of the valve for the requested use. I.e. the mediums may not feature lower permeability than the medium for which the valve is earmarked. Usual testing liquids are: cold water, hot water, steam, air, nitrogen, kerosene etc.

3.9 Checks of dimensions and external inspections of the valves are carried out as per ČSN 13 3060, Part 2, Article 5.

3.9.1 Non-prescribed dimensions are determined as per ČSN ISO 2768-1 (01 4240) for non-prescribed limit deviations of length and angle dimensions in the “m” (medium) precision class.

4. Reception and Supply

4.1 Reception of valves is carried out as per ČSN 13 3060, Part 2.

4.1.2 Participation of a responsible customer’s representative during reception (reception tests) is to be stated in the order – see 1.2.1–h) of this standard, whenever the customer/the ordering party requires this presence.

4.2 Supply of valves is carried out as per ČSN 13 3060, Part 2. The valves must be supplied in complete state (with relevant documentation) – in accordance with the wording of the purchase contract.

4.2.1 If so requested, the supply must include declaration on compliance pursuant to the 22/1997 Act (an act on technical requirements on products).

4.2.2 The supplied valves must comply with the provisions of the 102/2001 Act (an act on general safety of products). Any changes or modifications carried out in excess of these technical supply conditions or assembly and operation regulations must be consulted within the guarantee period with the vendor/manufacturer.

4.2.3 The assembly and operation regulations, which are part of the supply, must include the properties of the valve, installation manual, commissioning manual, and manner of usage or repairs.

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4.2.4 The relief valves are supplied as per ČSN 13 4309-2, including documentation.

4.2.5 The supplier guarantees that all seals and sealing connections are asbestos-free and that each valve has been duly tested and provided with test protocol.

4.2.6 Valve spares, such as spindles, plugs, sealings or gaskets etc. are not parts of the supply and must be ordered separately.

4.2.7 After mutual agreement to these TDR between the vendor and the customer, the vendor/manufacture has responsibility, during the guarantee period, for proper function of the valve and, hence, reserves the right to ban the ordering party to carry out actions that might influence the valve as a whole (save tightening the packings).

5. Documentation Handed Over

On the basis of the ordering party's requirement the manufacturer/vendor shall hand over the documentation concerning the valve pursuant to ČSN 13 3060-4, which shall be done in the following scope.

5.1 Certificates

- Document A: Certificate on the Quality and Completeness (for valves with manufacturing No.)
- Printed form, stamp (on the bill of delivery – for valves without manufacturing No.)

5.2 Accompanying Technical Documentation

- Document B: Sketch with breakdown of items and technical description with installation manual and operation manual.
- Document C: Protocol on tests.
- Document CA: Certificate on the material quality.
- Document D: Material specification.
- Document E: Record on the valve welds.

5.2.1 In the order the requirement on supply of the documents will be expressed through the letter identifying the document type (behind the hyphen behind ČSN 13 3060). Unless contractually agreed otherwise, the vendor will only provide the Document A.

Example: The request to provide documents B, C and D will be as follows:
ČSN 13 3060-B,C,D.

5.2.2 For PN16 valves, documentation will be supplied as per ČSN 13 3060-B and A – a stamp on the bill of delivery.

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5.2.3 For valves PN40 and higher the following documentation will be provided: ČSN 13 3060-B,C,A – stamp on bill of delivery, if requested.

At delivery of Document C or adequate 3.1.B inspection certificate as per ČSN EN 10204 (42 0009) the manufacturer must always provide label with manuf. No. on the valve.

5.2.4 The documentation for relief valves is developed and supplied as per ČSN 13 4309-2.

5.2.5 The PN16, and higher, valves with servo-drive will be delivered including the drive test protocol. If the valve with drive is modified and completed at the vendor's, the supply must include a certificate on the quality and completeness of the valve and the drive test protocol.

5.2.6 Certificate documentation as per the specification in the order shall be an inseparable part of delivery of the valves. Technical documentation as per ČSN 13 3060-B shall be added to each delivery.

5.2.7 Certificate on quality and completeness and the accompanying technical documentation will be supplied together with the supply of the valves by the manufacturer/vendor – one counterpart.

5.2.8 The manufacturer/vendor shall file for each documented valve agreed to in contract the technical documentation including test certificates, metallurgy certificates, X-ray images etc.

6. Packaging, Protection and Transport

The packaging, protection and transport of valves shall be pursuant to ČSN 13 3060, Part 3.

6.1 Before dispatch the non-painted surfaces (sealing surfaces etc.) must be deprived of impurities, appropriately preserved and provided with caps, which will prevent entry of impurities and damage to these function surfaces of valves.

7. Appendix: List of Standards and Documents Referred

ČSN 13 3060 Part 1 Industrial Valves. Technical Regulations. General Provisions.

ČSN 13 3060 Part 2 Industrial Valves. Technical Regulations. Checks of Valves.

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ČSN 13 3060 Part 3	Industrial Valves. Technical Regulations. Packaging, Transport, Storage, Assembly and Repairs.
ČSN 13 3060-4	Industrial Valves. Technical Regulations. Part 4: Documentation of Valves.
ČSN ISO 2768-1 (01 4240)	General Tolerances. Non-prescribed Limit Deviations of Length and Angle Dimensions.
ČSN 02 9010	Sealing. Diameters of Sealing Spaces.
ČSN 13 0010	Pipes and Valves. Nominal Pressures and Operation Overpressures.
ČSN 13 1060 (1984)	Pipes and Valves. Metal Flanges. Connection Dimensions.
ČSN 13 1061 - 1984	Pipes and Valves. Metal Flanges. Shapes and Dimensions of Sealing Surfaces.
ČSN EN 1092-1 (13 1170)	Flanges and Flanged Connections. Round Flanges for Pipes, Valves, Fittings and Accessories with PN Identification – Part 1: Steel Flanges.
ČSN EN 19 (13 3004) - 1994	Identification of Industrial Valves for General Use.
ČSN EN 19 (13 3004)	Industrial Valves. Identification of Metal Valves.
ČSN 13 3005-1	Industrial Valves. Identification. Part 1: General Technical Requirements.
ČSN 13 3005 Part 2	Industrial Valves. Identification of Industrial Valves. Requirements Concerning Identification of Control Valves.
ČSN 13 3007	Industrial Valves. Valve Labels. Basic Provisions
ČSN EN 558-1 (13 3031)	Industrial Valves. Construction Lengths of Metal Valves for Use in Pipeline Systems. Part 1: PN-Identified Valves.
ČSN EN 558-2 (13 3032)	Industrial Valves. Construction Lengths of Metal Valves for Use in Pipeline Systems Connected with Flanges. Part 2: Class-Identified Valves.
ČSN 13 3041	Industrial Valves. Flanged, Flanged-Free and Welded Valves. Determination of Construction Length and its Tolerance.
ČSN 13 35 01	Industrial Valves. Block Valves. Technical Delivery Regulations.
ČSN 13 3701	Industrial Valves. Gate Valves. Technical Delivery Regulations.

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ČSN 13 4309-2	Industrial Valves. Relief Valves. Part 2: Technical Requirements.
ČSN EN 10204	Metal Products. Types of Check Documents.
N 11 740	Low Pressure Valve. TDR.
N 13 020-1	Repairs and Maintenance of Industrial Valves. (Providing with Appropriate Sealings).
DIN 2501 Blatt 1	Flanges. Connection Dimensions.
DIN 2526	Flanges. Shapes of Sealing Surfaces.
DIN 3780	Sealing. Diameters of Packings and Corresponding Thickness of Sealing. Construction Sheet.
The 22/1997 Act	An act on technical requirements on products.
The 102/2001 Act	An act on general safety of products.

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