

METALIKA

COMPONENTS FOR INDUSTRY **KACIM**



2023 | Catalog | Check valve technology

WEH[®] Check valves

for liquid and gaseous media



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Overviews

of the WEH[®] Check valve product portfolio

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1.1 General information

Simply unbeatable – check valves for every application

As a leading manufacturer of fluid technology components WEH offers an extensive product range of high-performance check valves as well as special solutions developed individually according to our customers' specific needs.

WEH® Check valves are used in numerous industrial sectors, for example in general industry in mechanical engineering involving CNC and plant manufacturers, microwave plants, pump and compressor manufacturers and water treatment plants. They are also used in the pharmaceutical, chemical and food industries, medical technology (e.g. in autoclaves), conveyor technology or in the automotive industry. But they are also used as non-return protection in the gas sector.

Possible applications are just as varied as the design and material composition of the valves. Due to different requirements concerning temperature ranges, media mixtures, cracking pressures, materials, etc. in the various industries, WEH offers numerous designs and variants of check valves in various materials such as stainless steel, steel and brass.

WEH® Check valves were only developed for reliable return flow prevention. They are not designed to be used as filling or safety valves. The separation or shut off between different media or a medium and vacuum also does not represent a fundamental intended use. If you have such an application or a similar application, please contact us!

Only use WEH® Original parts and never use combinations of parts from different manufacturers. Do also not replace any WEH® Original parts for parts from different manufacturers.

Overview abbreviations / definitions

The abbreviations for media ports connections used in this catalogue are defined as follows:

Example: TVR200-S1-A01

| | |
|-----------|--------------|
| B1 | Media inlet |
| B2 | Media outlet |



For further abbreviations and definitions and their explanations, please see technical appendix on page 72.

1.2 Overview product families

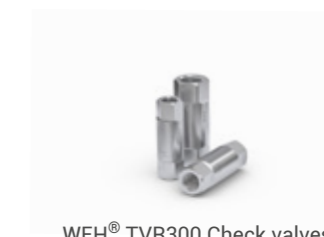
In the following you will find images of the different product families in the WEH® Check valve product portfolio. The table below contains the most important features of the WEH® Check valve product families.



WEH® TVR200 Check valves



WEH® TVR2 Check valves



WEH® TVR300 Check valves



WEH® TVR400 Screw-in valves



TVR60 Check valves



TVR61 Check valves

| Product family | Application | Pressure range | DN | Housing material | Connection types | Page |
|----------------|---|----------------|----------------|------------------|--|------|
| TVR200 | Check valves for general applications | 0 - 250 bar | 3 up to 6 mm | Stainless steel | Double ferrule fitting, female thread, male thread | 14 |
| TVR2 | Check valves for general applications | 0 - 250 bar | 10 up to 20 mm | Stainless steel | Double ferrule fitting, female thread, male thread | 32 |
| TVR300 | Miniature check valves for general applications | 0 - 100 bar | 3 up to 4 mm | Stainless steel | Female thread | 44 |
| TVR400 | Screw-in valves for general applications | 0 - 250 bar | 3.6 up to 7 mm | Stainless steel | Male thread | 50 |
| TVR60 | Check valves for simple applications | 0 - 300 bar | 4 up to 50 mm | Steel | Female thread | 56 |
| TVR61 | Check valves for simple applications | 0 - 40 bar | 10 up to 50 mm | Brass | Female thread | 62 |

1.3 Overview product series

In the following table you will find an overview of the available WEH® Check valve product series.

| Product series | Pressure range | Housing material | Connection types | Page |
|----------------|----------------|------------------|--|------|
| TVR200-S1 | 0 - 250 bar | Stainless steel | Double ferrule fitting Female thread Male thread | 18 |
| TVR2-S1 | 0 - 250 bar | Stainless steel | Double ferrule fitting Female thread Male thread | 36 |
| TVR300-S1 | 0 - 100 bar | Stainless steel | Female thread | 48 |
| TVR400-S1 | 0 - 250 bar | Stainless steel | Male thread | 54 |
| TVR60-S1 | 0 - 300 bar | Steel | Female thread | 60 |
| TVR61-S1 | 0 - 40 bar | Brass | Female thread | 66 |

1.4 Overview product series & connection configurations

In the following table you will find overviews of the available WEH® Check valve product series with the corresponding connection configuration.

Product series TVR200-S1

| Product series | Media inlet B1 | Media outlet B2 | Page |
|----------------|------------------------|------------------------|------|
| TVR200-S1-A01 | Double ferrule fitting | Double ferrule fitting | 20 |
| TVR200-S1-A02 | Female thread | Female thread | 22 |
| TVR200-S1-A03 | Male thread | Male thread | 24 |
| TVR200-S1-A10 | Double ferrule fitting | Female thread | 25 |
| TVR200-S1-A11 | Double ferrule fitting | Male thread | 26 |
| TVR200-S1-A12 | Female thread | Double ferrule fitting | 27 |
| TVR200-S1-A13 | Female thread | Male thread | 28 |
| TVR200-S1-A14 | Male thread | Double ferrule fitting | 29 |
| TVR200-S1-A15 | Male thread | Female thread | 30 |

Product series TVR2-S1

| Product series | Media inlet B1 | Media outlet B2 | Page |
|----------------|------------------------|------------------------|------|
| TVR2-S1-A01 | Double ferrule fitting | Double ferrule fitting | 38 |
| TVR2-S1-A02 | Female thread | Female thread | 39 |
| TVR2-S1-A03 | Male thread | Male thread | 40 |
| TVR2-S1-A10 | Double ferrule fitting | Female thread | 42 |
| TVR2-S1-A11 | Double ferrule fitting | Male thread | 42 |
| TVR2-S1-A12 | Female thread | Double ferrule fitting | 42 |
| TVR2-S1-A13 | Female thread | Male thread | 42 |
| TVR2-S1-A14 | Male thread | Double ferrule fitting | 42 |
| TVR2-S1-A15 | Male thread | Female thread | 42 |

Product series TVR300-S1

| Product series | Media inlet B1 | Media outlet B2 | Page |
|----------------|----------------|-----------------|------|
| TVR300-S1-A02 | Female thread | Female thread | 49 |

Product series TVR400-S1

| Product series | Media inlet B1 | Media outlet B2 | Page |
|----------------|----------------|-----------------|------|
| TVR400-S1-A20 | Male thread | - | 55 |

Product series TVR60-S1

| Product series | Media inlet B1 | Media outlet B2 | Page |
|----------------|----------------|-----------------|------|
| TVR60-S1-A02 | Female thread | Female thread | 61 |

Product series TVR61-S1

| Product series | Media inlet B1 | Media outlet B2 | Page |
|----------------|----------------|-----------------|------|
| TVR61-S1-A02 | Female thread | Female thread | 67 |

1.5 Overview connection sizes

In the following table you will find overviews of the available connection sizes of the WEH® Check valves.



Connection sizes double ferrule fitting

| Connection size B1 | Pressure range | Housing material | DN | Product series | Page |
|--------------------|----------------|------------------|--------------|----------------|------|
| Ø 6 mm | 0 - 250 bar | Stainless steel | 3 up to 5 mm | TVR200-S1 | 18 |
| Ø 8 mm | 0 - 250 bar | Stainless steel | 3 up to 6 mm | TVR200-S1 | 18 |
| Ø 10 mm | 0 - 250 bar | Stainless steel | 3 up to 6 mm | TVR200-S1 | 18 |
| Ø 12 mm | 0 - 250 bar | Stainless steel | 3 up to 6 mm | TVR200-S1 | 18 |
| | 0 - 250 bar | Stainless steel | 10 mm | TVR2-S1 | 36 |
| Ø 16 mm | 0 - 250 bar | Stainless steel | 14 mm | TVR2-S1 | 36 |



Connection sizes G-thread

| Connection size B1 | Pressure range | Housing material | DN | Product series | Page |
|--------------------|----------------|------------------|----------------|----------------|------|
| G1/8" | 0 - 100 bar | Stainless steel | 3 mm | TVR300-S1 | 48 |
| | 0 - 250 bar | Stainless steel | 3 up to 6 mm | TVR200-S1 | 18 |
| | 0 - 250 bar | Stainless steel | 3.6 mm | TVR400-S1 | 54 |
| | 0 - 300 bar | Steel | 4 mm | TVR60-S1 | 60 |
| G1/4" | 0 - 40 bar | Brass | 8 mm | TVR61-S1 | 66 |
| | 0 - 100 bar | Stainless steel | 4 mm | TVR300-S1 | 48 |
| | 0 - 250 bar | Stainless steel | 4 up to 6 mm | TVR200-S1 | 18 |
| | 0 - 250 bar | Stainless steel | 6 mm | TVR400-S1 | 54 |
| | 0 - 300 bar | Steel | 6 mm | TVR60-S1 | 60 |
| G3/8" | 0 - 40 bar | Brass | 10 mm | TVR61-S1 | 66 |
| | 0 - 250 bar | Stainless steel | 10 up to 14 mm | TVR2-S2 | 36 |
| | 0 - 250 bar | Stainless steel | 7 mm | TVR400-S1 | 54 |
| | 0 - 300 bar | Steel | 10 mm | TVR60-S1 | 60 |
| G1/2" | 0 - 40 bar | Brass | 15 mm | TVR61-S1 | 66 |
| | 0 - 250 bar | Stainless steel | 14 mm | TVR2-S1 | 36 |
| | 0 - 300 bar | Steel | 13 mm | TVR60-S1 | 60 |
| G3/4" | 0 - 30 bar | Brass | 20 mm | TVR61-S1 | 66 |
| | 0 - 250 bar | Stainless steel | 16 mm | TVR2-S1 | 36 |
| | 0 - 300 bar | Steel | 20 mm | TVR60-S1 | 60 |
| G1" | 0 - 30 bar | Brass | 25 mm | TVR61-S1 | 66 |
| | 0 - 250 bar | Stainless steel | 20 mm | TVR2-S1 | 36 |
| | 0 - 300 bar | Steel | 25 mm | TVR60-S1 | 60 |
| G1 1/4" | 0 - 25 bar | Brass | 32 mm | TVR61-S1 | 66 |
| | 0 - 300 bar | Steel | 32 mm | TVR60-S1 | 60 |
| G1 1/2" | 0 - 25 bar | Brass | 40 mm | TVR61-S1 | 66 |
| | 0 - 300 bar | Steel | 40 mm | TVR60-S1 | 60 |
| G2" | 0 - 20 bar | Brass | 50 mm | TVR61-S1 | 66 |
| | 0 - 200 bar | Steel | 50 mm | TVR60-S1 | 60 |

Connection sizes NPT-thread

| Connection size B1 | Pressure range | Housing material | DN | Product series | Page |
|--------------------|----------------|------------------|------|----------------|------|
| NPT 1/8" | 0 - 250 bar | Stainless steel | 6 mm | TVR200-S1 | 18 |
| NPT 1/4" | 0 - 250 bar | Stainless steel | 6 mm | TVR200-S1 | 18 |



Connection sizes metric thread

| Connection size B1 | Pressure range | Housing material | DN | Product series | Page |
|--------------------|----------------|------------------|--------|----------------|------|
| M10x1.0 | 0 - 250 bar | Stainless steel | 3.6 mm | TVR400-S1 | 54 |
| M14x1.5 | 0 - 250 bar | Stainless steel | 6 mm | TVR400-S1 | 54 |
| M18x1.5 | 0 - 250 bar | Stainless steel | 7 mm | TVR400-S1 | 54 |



1.6 Overview pressure ranges

In the following table you will find an overview of the available pressure ranges of the WEH® Check valve product portfolio.

| Pressure range | Housing material | DN | Product series | Page |
|----------------|------------------|----------------|----------------|------|
| 0 - 40 bar | Brass | 10 up to 50 mm | TVR61-S1 | 64 |
| 0 - 100 bar | Stainless steel | 3 up to 4 mm | TVR300-S1 | 46 |
| 0 - 250 bar | Stainless steel | 3 up to 6 mm | TVR200-S1 | 18 |
| | Stainless steel | 10 up to 20 mm | TVR2-S1 | 36 |
| | Stainless steel | 3.6 up to 7 mm | TVR400-S1 | 52 |
| 0 - 300 bar | Steel | 4 up to 50 mm | TVR60-S1 | 58 |

1.7 Overview housing material

In the following table you will find an overview of the available housing material of the WEH® Check valve product portfolio.

| Housing material | Pressure range | DN | Product series | Page |
|------------------|----------------|----------------|----------------|------|
| Stainless steel | 0 - 100 bar | 3 up to 4 mm | TVR300-S1 | 48 |
| | 0 - 250 bar | 3 up to 6 mm | TVR200-S1 | 18 |
| | 0 - 250 bar | 10 up to 20 mm | TVR2-S1 | 36 |
| | 0 - 250 bar | 3.6 up to 7 mm | TVR400-S1 | 54 |
| Steel | 0 - 300 bar | 4 up to 50 mm | TVR60-S1 | 60 |
| Brass | 0 - 40 bar | 10 up to 50 mm | TVR61-S1 | 66 |

1.8 Availability

In the following you will find the definition for the availability of our check valves in order to be able to offer you as a customer the greatest possible transparency in the procurement of your WEH® Check valve. The availability can be found in the 'AVL' feature in the respective ordering table.

WEH® Ready-Made [RM]

This product variant is in stock and therefore usually available at short notice. The average time* until the goods are ready for dispatch is 3 days.

WEH® At-Hand [AH]

This product variant can be configured individually after receiving your request. We achieve short delivery times for you on the basis of standardized components that are in stock.

After your order, the respective product variant is produced individually. The average time* until the goods are ready for dispatch is 10 days.

* The actual duration may vary depending on the respective volume of demand. The actual delivery time can be found in your offer / order confirmation.

1.9 Information on your request

In order to be able to process your inquiry successfully, we usually need the following information:

| | |
|---|-------------------------------------|
| 1. Media inlet B1: connection configuration / connection size | e.g. female thread G1/8" |
| 2. Media outlet B2: connection configuration / connection size | e.g. male thread G1/8" |
| 3. Nominal bore (required flow rate) | e.g. 10 mm |
| 4. Max. allowable operating pressure | e.g. 250 bar |
| 5. Cracking pressure | e.g. 0.1 bar |
| 6. Temperature range | e.g. -40 °C up to +200 °C |
| 7. Medium | e.g. air |
| 8. Housing material | e.g. stainless steel 1.4404 |
| 9. Sealing material | e.g. FKM |
| 10. Description of application | e.g. installation in a pipeline ... |
| 11. Demand / quantity | e.g. 50 units |

For reasons of precaution, we'd like to point out that

- a) regarding the delivery of each article acc. to the respective order confirmation - in particular concerning ECE / EC79 articles - WEH does not confirm the fulfilment of additional requirements of the concerned end customer,
- b) WEH is not subject to any external reporting obligation with regard to external change management (see page 74) and
- c) WEH does not confirm the replacement of the product in the form of a regular series delivery.

Exclusions acc. to a) - c) can be agreed with the conclusion of a customer-specific project with corresponding special conditions.

CHECK VALVES FOR GENERAL APPLICATIONS

TVR200 of stainless steel

for use with liquid and gaseous media

Features & benefits

- ▶ Stainless steel
- ▶ High leak tightness
- ▶ Valve seals are protected from media flow
- ▶ Wear and corrosion resistant
- ▶ Low-noise opening and closing
- ▶ Low cracking pressure
- ▶ Max. operating pressure up to 250 bar



» Product family TVR200

Description

The WEH® TVR200 Check valves made of stainless steel are ideal for applications with liquid and gaseous media up to max. 250 bar. The possible applications are just as varied as the design and the materials used. The check valves are available in various connection configurations, such as double ferrule fittings, female and male threads and a nominal bore of up to 6 mm. For larger nominal bores the WEH® TVR2 Check valve is available.

Due to the high quality materials they are extremely wear-resistant, corrosion-resistant and durable. The check valves, which are very silent in use even under high flow rates, are characterized in particular by their very low cracking pressure and their optimum tightness which depends, among other things, on the setting of the cracking pressure.

The WEH® TVR200 are equipped with a ball seal. The internal seals are arranged so that they are protected from the media flow. This prevents damage to the seals from any dirt particles on the sealing components within the unit.

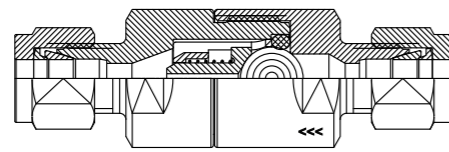
WEH® TVR200 Check valves are equipped with a FKM seal as standard. Other sealing materials are available on request. It is the customer's responsibility to clarify the media compatibility.

Intended use

The WEH® TVR200 Check valves were only developed for reliable return flow prevention in a gaseous or liquid media flow. They are not designed to be used as filling or safety valves. The separation or shut off between different media or a medium and vacuum also does not represent a fundamental intended use. If you have such an application or a similar application, please contact us!

The WEH® TVR200 Check valves are used in mechanical and plant engineering, chemical / pharmaceutical industry, conveyor technology, food industry, medical technology, etc.

Sealing concept



Ball seal construction

Flow values

In the table below you will find the flow rates of the various nominal bores of our WEH® TVR200 Stainless steel check valves.

| Nominal bore (DN) | Kv (Cv) value | Nominal bore (DN) | Kv (Cv) value |
|-------------------|---------------|-------------------|---------------|
| 3 mm | 0.17 (0.19) | 4 mm | 0.2 (0.2) |
| 5 mm | 0.4 (0.5) | 6 mm | 0.6 (0.7) |

The flow curves were determined on the basis of the DIN/EN 60534-2 standard and refer to a cavitation-free flow (water). System-sided constrictions at the inlet and outlet can reduce the flow rate.

» Product family TVR200

Overview product series

| Product series | Pressure range | Housing material | Connection types | Page |
|----------------|----------------|------------------|--|------|
| TVR200-S1 | 0 - 250 bar | Stainless steel | Double ferrule fitting Female thread Male thread | 18 |

Overview product series & connection configurations

| Product series | Media inlet B1 | Media outlet B2 | Page |
|----------------|------------------------|------------------------|------|
| TVR200-S1-A01 | Double ferrule fitting | Double ferrule fitting | 20 |
| TVR200-S1-A02 | Female thread | Female thread | 22 |
| TVR200-S1-A03 | Male thread | Male thread | 24 |
| TVR200-S1-A10 | Double ferrule fitting | Female thread | 25 |
| TVR200-S1-A11 | Double ferrule fitting | Male thread | 26 |
| TVR200-S1-A12 | Female thread | Double ferrule fitting | 27 |
| TVR200-S1-A13 | Female thread | Male thread | 28 |
| TVR200-S1-A14 | Male thread | Double ferrule fitting | 29 |
| TVR200-S1-A15 | Male thread | Female thread | 30 |

» Product series TVR200-S1 | 0 up to 250 bar

Technical data

The following illustrations are examples of WEH® Check valves of the TVR200 product family.



| Characteristics | Preferred variant space | Extended variant space |
|---|---|---|
| Product series | TVR200-S1 | TVR200-S1 |
| Connection configuration | A01, A02, A03 | A01, A02, A03, A10, A11, A12, A13, A14, A15 |
| Connection sizes for media inlet B1 / media outlet B2 | <ul style="list-style-type: none"> • Tube Ø 6 mm, Ø 8 mm, Ø 10 mm, Ø 12 mm • G1/8", G1/4" • NPT 1/8", NPT 1/4" | <ul style="list-style-type: none"> • Tube Ø 6 mm, Ø 8 mm, Ø 10 mm, Ø 12 mm • G1/8", G1/4" • NPT 1/8", NPT 1/4" |
| Nominal bore (DN) | Acc. to design | Acc. to design |
| Max. allowable operating pressure PS | 250 bar | 250 bar |
| Cracking pressure PC* | <ul style="list-style-type: none"> • 0.1 bar • 0.5 bar | <ul style="list-style-type: none"> • 0.1 bar • 0.2 bar • 0.5 bar • 1 bar |
| Temperature range | -40 °C up to +200 °C | Depending on sealing material |
| Leak rate | 1 x 10 ⁻⁴ mbar x l/s | 1 x 10 ⁻⁴ mbar x l/s |
| Housing material | Stainless steel | Stainless steel |
| Spring material | Stainless steel | Stainless steel |
| Sealing material DW | FKM | <ul style="list-style-type: none"> • FKM • EPDM |
| Lubricant | E99-4 | E99-4 |
| Sealing concept | Ball sealing | Ball sealing |
| Flow direction | B1 → B2 | B1 → B2 |

* Please note that the cracking pressures may differ due to tolerances. The cracking pressure basically applies to the horizontal mounting of the check valve. For other mounting directions, the values can differ.

Other designs on request

» Product series TVR200-S1 | 0 up to 250 bar

Possible connection configurations

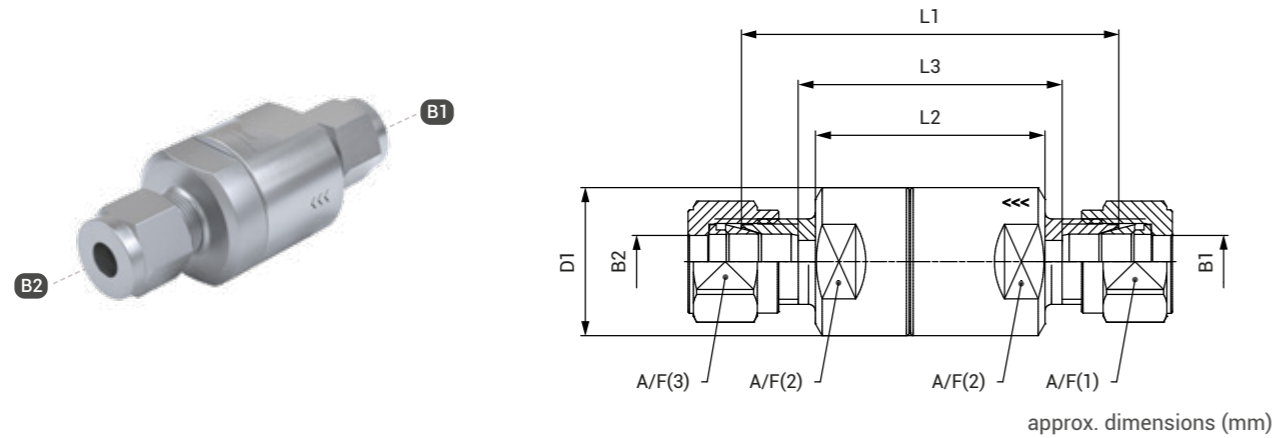
In addition to the table of technical characteristics (see page 18), the following possible connection configurations of WEH® Check valves of the TVR200 product family are listed. The connection configuration is part of the product series.

| Connection configuration | Media inlet B1 | Media outlet B2 |
|--------------------------|------------------------|------------------------|
| A01 | Double ferrule fitting | Double ferrule fitting |
| A02 | Female thread | Female thread |
| A03 | Male thread | Male thread |
| A10 | Double ferrule fitting | Female thread |
| A11 | Double ferrule fitting | Male thread |
| A12 | Female thread | Double ferrule fitting |
| A13 | Female thread | Male thread |
| A14 | Male thread | Double ferrule fitting |
| A15 | Male thread | Female thread |

» Product series **TVR200-S1** | 0 up to 250 bar

Ordering | TVR200-S1-A01 - double ferrule fitting on both sides

Inlet B1: double ferrule fitting / outlet B2: double ferrule fitting



B1 / B2: double ferrule fitting

Connection size: media inlet B1 = media outlet B2

Check valves of the preferred variant space:

| Part No. | B1 | B2 | DN | PC (bar) | DW | L1 | L2 | L3 | D1 | A/F(1) / A/F(3) | A/F(2) | AVL* |
|-----------|------|------|----|----------|-----|----|----|----|----|-----------------|--------|------|
| C1-170000 | Ø 6 | Ø 6 | 5 | 0.1 | FKM | 56 | 34 | 40 | 22 | 14 | 19 | RM |
| C1-170041 | Ø 6 | Ø 6 | 5 | 0.5 | FKM | 56 | 34 | 40 | 22 | 14 | 19 | AH |
| C1-170043 | Ø 8 | Ø 8 | 6 | 0.1 | FKM | 57 | 33 | 40 | 22 | 16 | 19 | RM |
| C1-170046 | Ø 8 | Ø 8 | 6 | 0.5 | FKM | 57 | 33 | 40 | 22 | 16 | 19 | RM |
| C1-170054 | Ø 10 | Ø 10 | 6 | 0.1 | FKM | 57 | 33 | 38 | 22 | 19 | 19 | RM |
| C1-170055 | Ø 10 | Ø 10 | 6 | 0.5 | FKM | 57 | 33 | 38 | 22 | 19 | 19 | AH |
| C1-170053 | Ø 12 | Ø 12 | 6 | 0.1 | FKM | 57 | 33 | 32 | 22 | 22 | 19 | RM |
| C1-170058 | Ø 12 | Ø 12 | 6 | 0.5 | FKM | 57 | 33 | 32 | 22 | 22 | 19 | AH |

* AVL: availability see page 12

» Product series **TVR200-S1** | 0 up to 250 bar

Connection size: media inlet B1 = media outlet B2 resp.
media inlet B1 ≠ media outlet B2

Configurable check valves of the extended variant space:

Below you will find possible examples of TVR200 check valves in the extended variant space. This offers further configuration options (connection configuration, connection size, cracking pressure, sealing material) beyond the preferred variant space.

| Part No. | B1 | B2 | DN | PC (bar) | DW | L1 | L2 | L3 | D1 | A/F(1) | A/F(2) | A/F(3) | AVL* |
|------------|------|------|----|----------|------|----|----|----|----|------------|--------|--------|------|
| On request | Ø 6 | Ø 6 | 5 | 0.1 | EPDM | | | | | On request | | | AH |
| On request | Ø 8 | Ø 8 | 6 | 1.0 | FKM | | | | | On request | | | AH |
| On request | Ø 10 | Ø 10 | 6 | 0.2 | EPDM | | | | | On request | | | AH |
| On request | Ø 8 | Ø 10 | 6 | 0.1 | FKM | | | | | On request | | | AH |
| On request | Ø 10 | Ø 8 | 6 | 0.5 | EPDM | | | | | On request | | | AH |
| On request | Ø 12 | Ø 10 | 6 | 0.2 | EPDM | | | | | On request | | | AH |

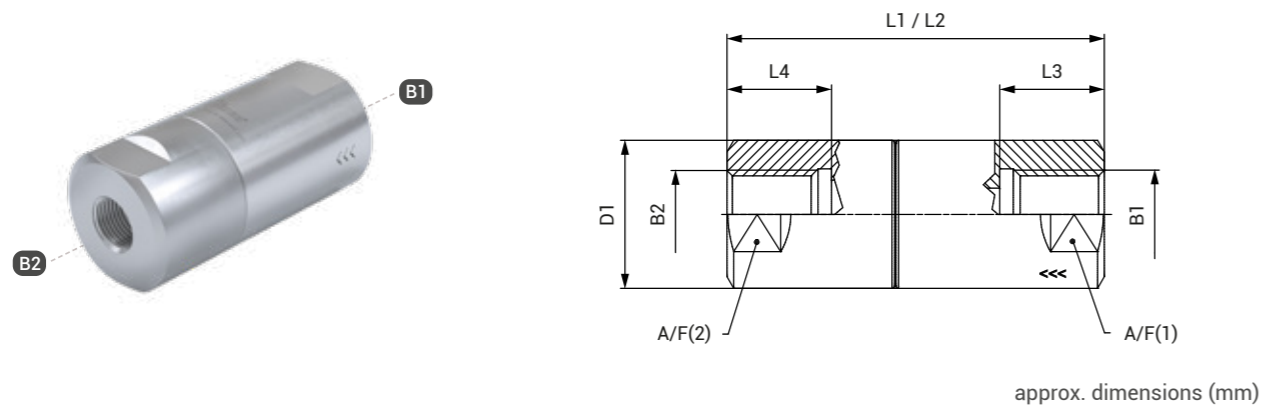
* AVL: availability see page 12

Further designs that do not correspond to the extended variant space can be requested individually. Please refer to *chapter 1.9 Information on your request*. Please note that the availability for individual, customer-specific check valves may vary.

» Product series **TVR200-S1** | 0 up to 250 bar

Ordering | TVR200-S1-A02 - female thread on both sides

Inlet B1: female thread / outlet B2: female thread



approx. dimensions (mm)

B1 / B2: Whitworth tube thread acc. to DIN EN ISO 228-1

Connection size: media inlet B1 = media outlet B2

Check valves of the preferred variant space:

| Part No. | B1 | B2 | DN | PC (bar) | DW | L1 / L2 | L3 / L4 | D1 | A/F(1) / A/F(2) | AVL* |
|-----------|-------|-------|----|----------|-----|---------|---------|----|-----------------|------|
| C1-170066 | G1/8" | G1/8" | 6 | 0.1 | FKM | 56 | 10 | 22 | 19 | RM |
| C1-170065 | G1/8" | G1/8" | 6 | 0.5 | FKM | 56 | 10 | 22 | 19 | AH |
| C1-165315 | G1/4" | G1/4" | 6 | 0.1 | FKM | 56 | 16 | 22 | 19 | RM |
| C1-170062 | G1/4" | G1/4" | 6 | 0.5 | FKM | 56 | 16 | 22 | 19 | RM |

* AVL: availability see page 12

Connection size: media inlet B1 = media outlet B2 resp.
media inlet B1 ≠ media outlet B2

Configurable check valves of the extended variant space:

Below you will find possible examples of TVR200 check valves in the extended variant space. This offers further configuration options (connection configuration, connection size, cracking pressure, sealing material) beyond the preferred variant space.

| Part No. | B1 | B2 | DN | PC (bar) | DW | L1 | L2 | L3 | L4 | D1 | A/F(1) | A/F(2) | AVL* |
|------------|-------|-------|----|----------|------|----|----|----|----|------------|--------|--------|------|
| On request | G1/8" | G1/8" | 6 | 0.1 | EPDM | | | | | On request | | | AH |
| On request | G1/4" | G1/4" | 6 | 0.2 | EPDM | | | | | On request | | | AH |
| On request | G1/8" | G1/4" | 6 | 1.0 | FKM | | | | | On request | | | AH |
| On request | G1/4" | G1/8" | 6 | 0.2 | EPDM | | | | | On request | | | AH |

* AVL: availability see page 12

Further designs that do not correspond to the extended variant space can be requested individually. Please refer to *chapter 1.9 Information on your request*. Please note that the availability for individual, customer-specific check valves may vary.

» Product series **TVR200-S1** | 0 up to 250 bar

B1 / B2: NPT thread (ANSI B 1.20.1-1983 (R1992))

Connection size: media inlet B1 = media outlet B2

Check valves of the preferred variant space:

| Part No. | B1 | B2 | DN | PC (bar) | DW | L1 / L2 | L3 / L4 | D1 | A/F(1) / A/F(2) | AVL* |
|-----------|----------|----------|----|----------|-----|---------|---------|----|-----------------|------|
| C1-169134 | NPT 1/8" | NPT 1/8" | 6 | 0.1 | FKM | 56 | 7 | 22 | 19 | ** |
| C1-170249 | NPT 1/8" | NPT 1/8" | 6 | 0.5 | FKM | 56 | 7 | 22 | 19 | ** |
| C1-169135 | NPT 1/4" | NPT 1/4" | 6 | 0.1 | FKM | 56 | 10 | 22 | 19 | ** |
| C1-170252 | NPT 1/4" | NPT 1/4" | 6 | 0.5 | FKM | 56 | 10 | 22 | 19 | ** |

* AVL: availability see page 12
** Availability on request

Connection size: media inlet B1 = media outlet B2 resp.
media inlet B1 ≠ media outlet B2

Configurable check valves of the extended variant space:

Below you will find possible examples of TVR200 check valves in the extended variant space. This offers further configuration options (connection configuration, connection size, cracking pressure, sealing material) beyond the preferred variant space.

| Part No. | B1 | B2 | DN | PC (bar) | DW | L1 | L2 | L3 | L4 | D1 | A/F(1) | A/F(2) | AVL* |
|------------|----------|----------|----|----------|------|----|----|----|----|------------|--------|--------|------|
| On request | NPT 1/8" | NPT 1/8" | 6 | 0.1 | EPDM | | | | | On request | | | ** |
| On request | NPT 1/4" | NPT 1/4" | 6 | 0.2 | EPDM | | | | | On request | | | ** |
| On request | NPT 1/8" | NPT 1/4" | 6 | 1.0 | FKM | | | | | On request | | | ** |
| On request | NPT 1/4" | NPT 1/8" | 6 | 0.2 | EPDM | | | | | On request | | | ** |

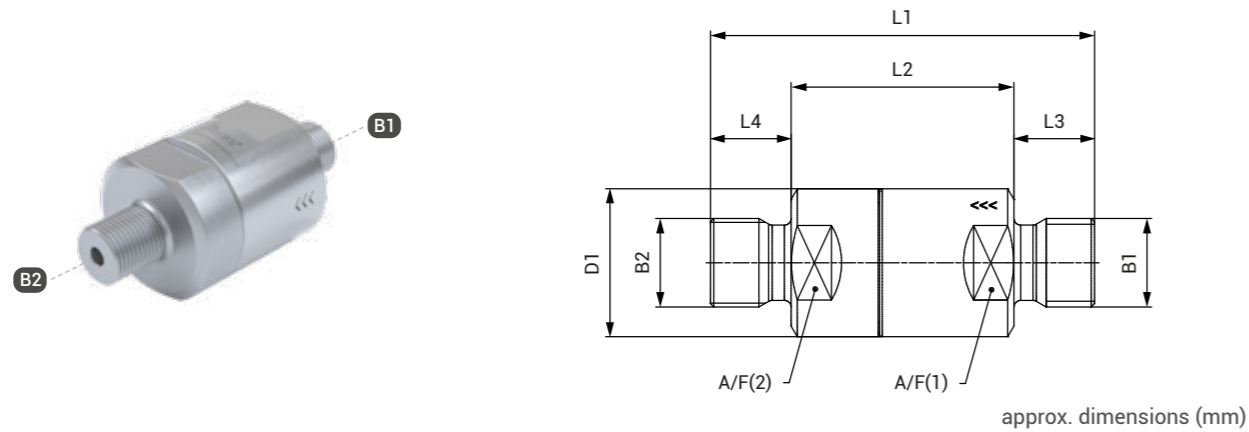
* AVL: availability see page 12
** Availability on request

Further designs that do not correspond to the extended variant space can be requested individually. Please refer to *chapter 1.9 Information on your request*. Please note that the availability for individual, customer-specific check valves may vary.

» Product series **TVR200-S1** | 0 up to 250 bar

Ordering | TVR200-S1-A03 - male thread on both sides

Inlet B1: male thread / outlet B2: male thread



B1 / B2: Whitworth tube thread acc. to DIN EN ISO 228-1

Connection size: media inlet B1 = media outlet B2

Check valves of the preferred variant space:

| Part No. | B1 | B2 | DN | PC (bar) | DW | L1 | L2 | L3 / L4 | D1 | A/F(1) / A/F(2) | AVL* |
|-----------|-------|-------|----|----------|-----|----|----|---------|----|-----------------|------|
| C1-170078 | G1/8" | G1/8" | 4 | 0.1 | FKM | 56 | 40 | 8 | 22 | 19 | RM |
| C1-170079 | G1/8" | G1/8" | 4 | 0.5 | FKM | 56 | 40 | 8 | 22 | 19 | AH |
| C1-170085 | G1/4" | G1/4" | 6 | 0.1 | FKM | 57 | 33 | 12 | 22 | 19 | RM |
| C1-170086 | G1/4" | G1/4" | 6 | 0.5 | FKM | 57 | 33 | 12 | 22 | 19 | AH |

* AVL: availability see page 12

Connection size: media inlet B1 = media outlet B2 resp.
media inlet B1 ≠ media outlet B2

Configurable check valves of the extended variant space:

Below you will find possible examples of TVR200 check valves in the extended variant space. This offers further configuration options (connection configuration, connection size, cracking pressure, sealing material) beyond the preferred variant space.

| Part No. | B1 | B2 | DN | PC (bar) | DW | L1 | L2 | L3 | L4 | D1 | A/F(1) | A/F(2) | AVL* |
|------------|-------|-------|----|----------|------|----|----|----|----|------------|--------|--------|------|
| On request | G1/8" | G1/8" | 4 | 0.1 | EPDM | | | | | On request | | | AH |
| On request | G1/4" | G1/4" | 5 | 0.2 | EPDM | | | | | On request | | | AH |
| On request | G1/8" | G1/4" | 4 | 1.0 | FKM | | | | | On request | | | AH |
| On request | G1/4" | G1/8" | 4 | 0.2 | EPDM | | | | | On request | | | AH |

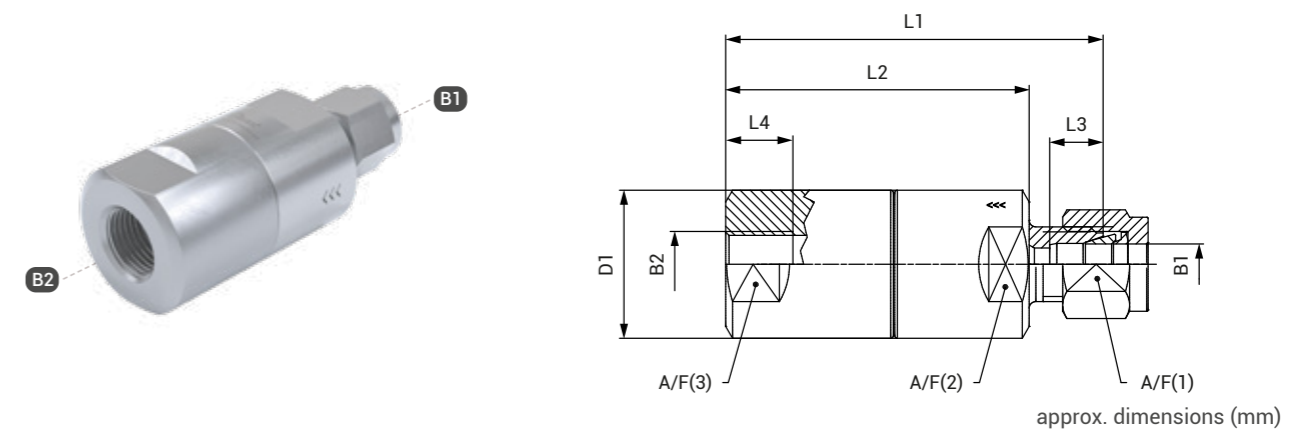
* AVL: availability see page 12

Further designs that do not correspond to the extended variant space can be requested individually. Please refer to chapter 1.9 Information on your request. Please note that the availability for individual, customer-specific check valves may vary.

» Product series **TVR200-S1** | 0 up to 250 bar

Ordering | TVR200-S1-A10 - double ferrule fitting / female thread

Inlet B1: double ferrule fitting / outlet B2: female thread



B1 = double ferrule fitting / B2 = Whitworth tube thread acc. to DIN EN ISO 228-1

Connection size: media inlet B1 ≠ media outlet B2

Configurable check valves of the extended variant space:

Below you will find possible examples of TVR200 check valves in the extended variant space. This offers further configuration options (connection configuration, connection size, cracking pressure, sealing material) beyond the preferred variant space.

| Part No. | B1 | B2 | DN | PC (bar) | DW | L1 | L2 | L3 | L4 | D1 | A/F(1) | A/F(2) | AVL* |
|------------|------|-------|----|----------|------|----|----|----|----|------------|--------|--------|------|
| On request | Ø 6 | G1/8" | 5 | 0.1 | FKM | | | | | On request | | | AH |
| On request | Ø 8 | G1/4" | 5 | 0.5 | FKM | | | | | On request | | | AH |
| On request | Ø 10 | G1/8" | 6 | 0.1 | FKM | | | | | On request | | | AH |
| On request | Ø 6 | G1/4" | 5 | 0.5 | EPDM | | | | | On request | | | AH |
| On request | Ø 8 | G1/8" | 6 | 1.0 | FKM | | | | | On request | | | AH |
| On request | Ø 10 | G1/4" | 6 | 0.2 | EPDM | | | | | On request | | | AH |

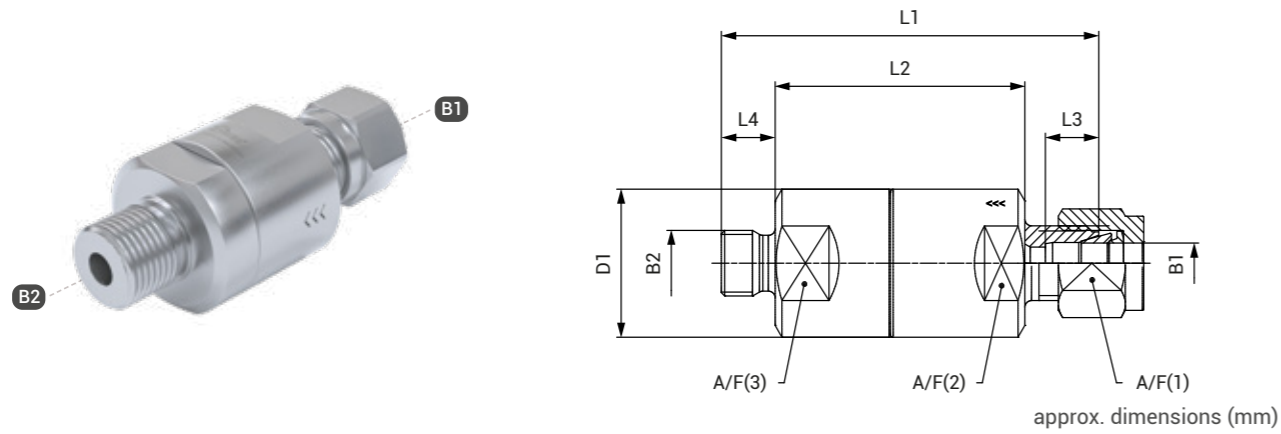
* AVL: availability see page 12

Further designs that do not correspond to the extended variant space can be requested individually. Please refer to chapter 1.9 Information on your request. Please note that the availability for individual, customer-specific check valves may vary.

» Product series **TVR200-S1** | 0 up to 250 bar

Ordering | TVR200-S1-A11 - double ferrule fitting / male thread

Inlet B1: double ferrule fitting / outlet B2: male thread



B1: double ferrule fitting / B2: Whitworth tube thread acc. to DIN EN ISO 228-1

Connection size: media inlet B1 ≠ media outlet B2

Configurable check valves of the extended variant space:

Below you will find possible examples of TVR200 check valves in the extended variant space. This offers further configuration options (connection configuration, connection size, cracking pressure, sealing material) beyond the preferred variant space.

| Part No. | B1 | B2 | DN | PC (bar) | DW | L1 | L2 | L3 | L4 | D1 | A/F(1) | A/F(2) | AVL* |
|------------|------|-------|----|----------|------|----|----|----|----|----|------------|--------|------|
| On request | ∅ 6 | G1/8" | 5 | 0.1 | FKM | | | | | | On request | | AH |
| On request | ∅ 8 | G1/4" | 5 | 0.5 | FKM | | | | | | On request | | AH |
| On request | ∅ 10 | G1/8" | 6 | 0.1 | FKM | | | | | | On request | | AH |
| On request | ∅ 6 | G1/4" | 5 | 0.5 | EPDM | | | | | | On request | | AH |
| On request | ∅ 8 | G1/8" | 6 | 1.0 | FKM | | | | | | On request | | AH |
| On request | ∅ 10 | G1/4" | 6 | 0.2 | EPDM | | | | | | On request | | AH |

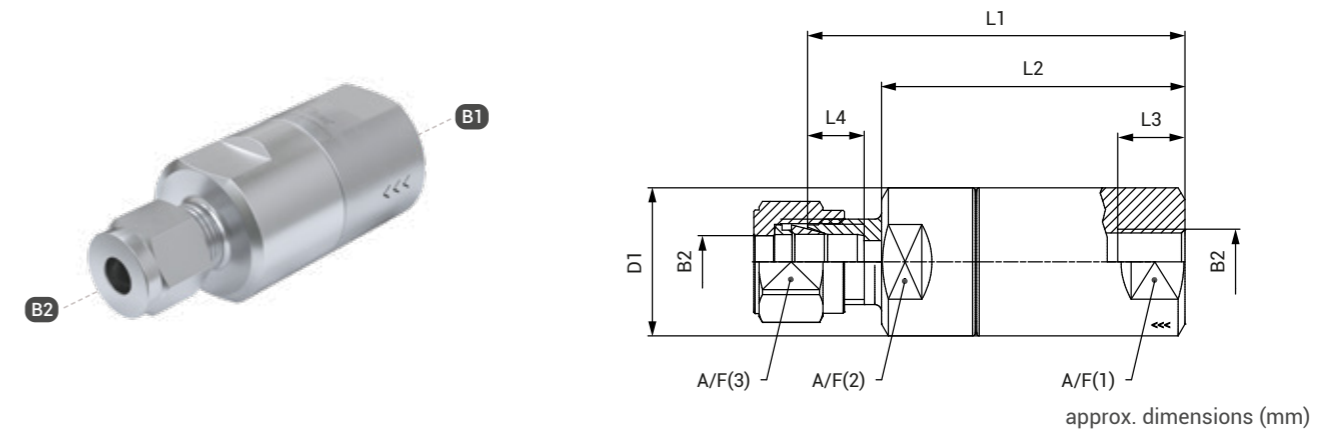
* AVL: availability see page 12

Further designs that do not correspond to the extended variant space can be requested individually. Please refer to *chapter 1.9 Information on your request*. Please note that the availability for individual, customer-specific check valves may vary.

» Product series **TVR200-S1** | 0 up to 250 bar

Ordering | TVR200-S1-A12 - female thread / double ferrule fitting

Inlet B1: female thread / outlet B2: double ferrule fitting



B1: Whitworth tube thread acc. to DIN EN ISO 228-1 / B2: double ferrule fitting

Connection size: media inlet B1 ≠ media outlet B2

Configurable check valves of the extended variant space:

Below you will find possible examples of TVR200 check valves in the extended variant space. This offers further configuration options (connection configuration, connection size, cracking pressure, sealing material) beyond the preferred variant space.

| Part No. | B1 | B2 | DN | PC (bar) | DW | L1 | L2 | L3 | L4 | D1 | A/F(1) | A/F(2) | AVL* |
|------------|-------|------|----|----------|------|----|----|----|----|----|------------|--------|------|
| On request | G1/8" | ∅ 8 | 6 | 0.1 | FKM | | | | | | On request | | AH |
| On request | G1/4" | ∅ 10 | 6 | 0.5 | FKM | | | | | | On request | | AH |
| On request | G1/8" | ∅ 12 | 6 | 0.1 | FKM | | | | | | On request | | AH |
| On request | G1/4" | ∅ 8 | 6 | 0.5 | EPDM | | | | | | On request | | AH |
| On request | G1/8" | ∅ 10 | 6 | 1.0 | FKM | | | | | | On request | | AH |
| On request | G1/4" | ∅ 12 | 6 | 0.2 | EPDM | | | | | | On request | | AH |

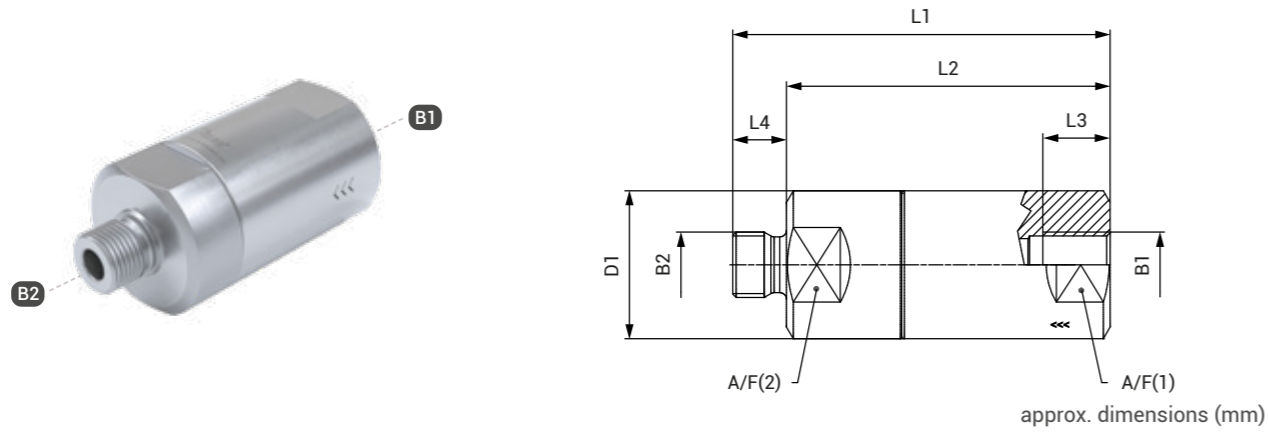
* AVL: availability see page 12

Further designs that do not correspond to the extended variant space can be requested individually. Please refer to *chapter 1.9 Information on your request*. Please note that the availability for individual, customer-specific check valves may vary.

» Product series **TVR200-S1** | 0 up to 250 bar

Ordering | TVR200-S1-A13 - female thread / male thread

Inlet B1: female thread / outlet B2: male thread



B1 / B2: Whitworth tube thread acc. to DIN EN ISO 228-1

Connection size: media inlet B1 = media outlet B2 resp.
media inlet B1 ≠ media outlet B2

Configurable check valves of the extended variant space:

Below you will find possible examples of TVR200 check valves in the extended variant space. This offers further configuration options (connection configuration, connection size, cracking pressure, sealing material) beyond the preferred variant space.

| Part No. | B1 | B2 | DN | PC (bar) | DW | L1 | L2 | L3 | L4 | D1 | A/F(1) | A/F(2) | AVL* |
|------------|-------|-------|----|----------|------|----|----|----|----|----|--------|------------|------|
| On request | G1/8" | G1/8" | 3 | 0.1 | FKM | | | | | | | On request | AH |
| On request | G1/4" | G1/4" | 5 | 0.5 | FKM | | | | | | | On request | AH |
| On request | G1/8" | G1/8" | 3 | 0.1 | EPDM | | | | | | | On request | AH |
| On request | G1/4" | G1/4" | 5 | 0.2 | EPDM | | | | | | | On request | AH |
| On request | G1/8" | G1/4" | 5 | 1.0 | FKM | | | | | | | On request | AH |
| On request | G1/4" | G1/8" | 5 | 0.2 | EPDM | | | | | | | On request | AH |

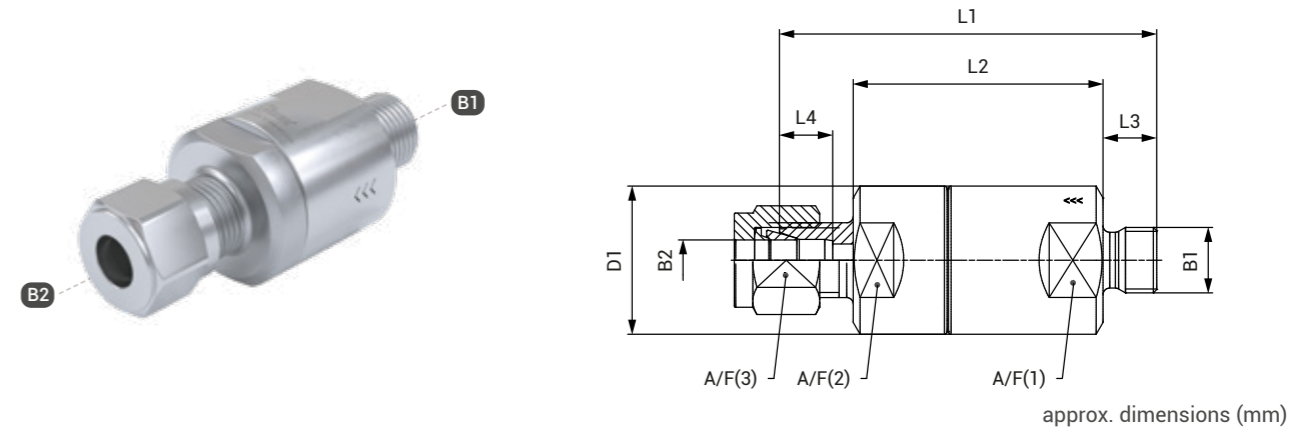
* AVL: availability see page 12

Further designs that do not correspond to the extended variant space can be requested individually. Please refer to *chapter 1.9 Information on your request*. Please note that the availability for individual, customer-specific check valves may vary.

» Product series **TVR200-S1** | 0 up to 250 bar

Ordering | TVR200-S1-A14 - male thread / double ferrule fitting

inlet B1: male thread / outlet B2: double ferrule fitting



B1: Whitworth tube thread acc. to DIN EN ISO 228-1 / B2: double ferrule fitting

Connection size: media inlet B1 ≠ media outlet B2

Configurable check valves of the extended variant space:

Below you will find possible examples of TVR200 check valves in the extended variant space. This offers further configuration options (connection configuration, connection size, cracking pressure, sealing material) beyond the preferred variant space.

| Part No. | B1 | B2 | DN | PC (bar) | DW | L1 | L2 | L3 | L4 | D1 | A/F(1) | A/F(2) | AVL* |
|------------|-------|------|----|----------|------|----|----|----|----|----|--------|------------|------|
| On request | G1/8" | ∅ 6 | 3 | 0.1 | FKM | | | | | | | On request | AH |
| On request | G1/4" | ∅ 8 | 5 | 0.5 | FKM | | | | | | | On request | AH |
| On request | G1/8" | ∅ 10 | 3 | 0.1 | FKM | | | | | | | On request | AH |
| On request | G1/4" | ∅ 12 | 5 | 0.1 | FKM | | | | | | | On request | AH |
| On request | G1/8" | ∅ 8 | 3 | 0.5 | EPDM | | | | | | | On request | AH |
| On request | G1/4" | ∅ 6 | 5 | 0.2 | FKM | | | | | | | On request | AH |
| On request | G1/8" | ∅ 10 | 3 | 1.0 | FKM | | | | | | | On request | AH |
| On request | G1/4" | ∅ 10 | 5 | 0.2 | EPDM | | | | | | | On request | AH |

* AVL: availability see page 12

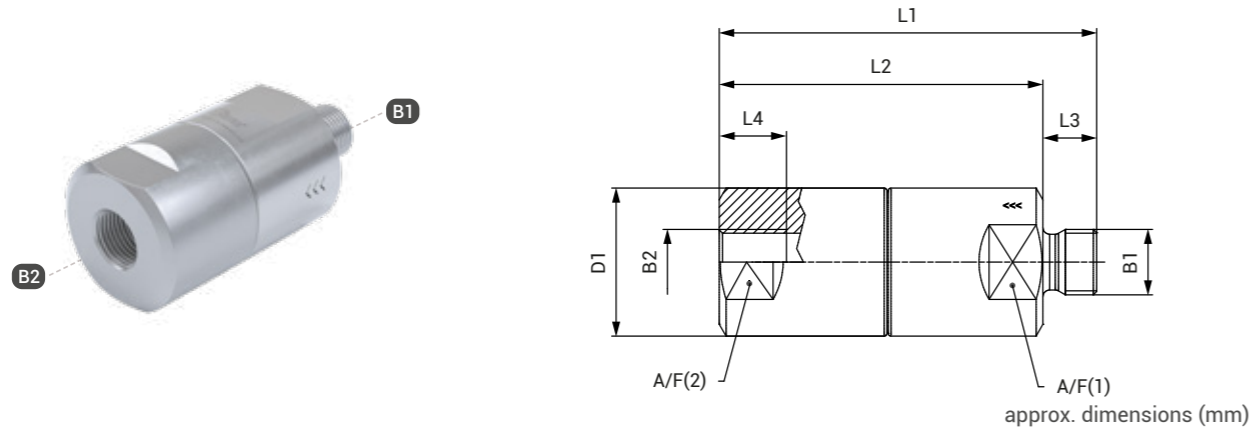
Further designs that do not correspond to the extended variant space can be requested individually. Please refer to *chapter 1.9 Information on your request*. Please note that the availability for individual, customer-specific check valves may vary.

» Product series **TVR200-S1** | 0 up to 250 bar

» Product series **TVR200-S1** | 0 up to 250 bar

Ordering | TVR200-S1-A15 - male thread / female thread

Inlet B1: male thread / outlet B2: female thread



B1 / B2: Whitworth tube thread acc. to DIN EN ISO 228-1

Connection size: media inlet B1 = media outlet B2 resp.
media inlet B1 ≠ media outlet B2

Configurable check valves of the extended variant space:

Below you will find possible examples of TVR200 check valves in the extended variant space. This offers further configuration options (connection configuration, connection size, cracking pressure, sealing material) beyond the preferred variant space.

| Part No. | B1 | B2 | DN | PC (bar) | DW | L1 | L2 | L3 | L4 | D1 | A/F(1) | A/F(2) | AVL* |
|------------|-------|-------|----|----------|------|----|----|----|----|----|--------|------------|------|
| On request | G1/8" | G1/8" | 3 | 0.1 | FKM | | | | | | | On request | AH |
| On request | G1/4" | G1/4" | 5 | 0.5 | FKM | | | | | | | On request | AH |
| On request | G1/8" | G1/8" | 3 | 0.1 | EPDM | | | | | | | On request | AH |
| On request | G1/4" | G1/4" | 5 | 0.2 | EPDM | | | | | | | On request | AH |
| On request | G1/8" | G1/4" | 5 | 1.0 | FKM | | | | | | | On request | AH |
| On request | G1/4" | G1/8" | 5 | 0.2 | EPDM | | | | | | | On request | AH |

* AVL: availability see page 12

Further designs that do not correspond to the extended variant space can be requested individually.

Please refer to *chapter 1.9 Information on your request*.

Please note that the availability for individual, customer-specific check valves may vary.

CHECK VALVES FOR GENERAL APPLICATIONS

TVR2 of stainless steel

for use with liquid and gaseous media

Features & benefits

- ▶ Stainless steel
- ▶ High leak tightness
- ▶ Valve seals are protected from media flow
- ▶ Wear and corrosion resistant
- ▶ Low-noise opening and closing
- ▶ Low cracking pressure
- ▶ Max. operating pressure up to 250 bar



» Product family TVR2

Description

The WEH® TVR2 Check valves made of stainless steel are ideal for applications with liquid and gaseous media up to max. 250 bar. The possible applications are just as varied as the design and the materials used.

The check valves are available in various connection configurations, such as double ferrule fittings, female and male threads and a nominal bore of up to 20 mm. For smaller nominal bores the WEH® TVR200 Check valve is available.

Due to the high quality materials they are extremely wear-resistant, corrosion-resistant and durable. The check valves, which are very silent in use even under high flow rates, are characterized in particular by their very low cracking pressure and their optimum tightness.

The WEH® TVR2 are equipped with a cone seal. The internal seals are arranged so that they are protected from the media flow. This prevents damage to the seals from any dirt particles on the sealing components within the unit.

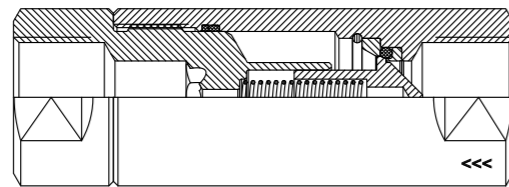
WEH® TVR2 Check valves are equipped with a FKM seal as standard. Other sealing materials are available on request. It is the customer's responsibility to clarify the media compatibility.

Intended use

The WEH® TVR2 Check valves were only developed for reliable return flow prevention in a gaseous or liquid media flow. They are not designed to be used as filling or safety valves. The separation or shut off between different media or a medium and vacuum also does not represent a fundamental intended use. If you have such an application or a similar application, please contact us!

The WEH® TVR2 Check valves are used in mechanical and plant engineering, chemical / pharmaceutical industry, conveyor technology, food industry, medical technology, etc.

Sealing concept



Cone seal construction

Flow values

In the table below you will find the flow rates of the various nominal bores of our WEH® TVR2 Stainless steel check valves.

| Nominal bore (DN) | Kv (Cv) value | Nominal bore (DN) | Kv (Cv) value |
|-------------------|---------------|-------------------|---------------|
| 10 mm | 3.0 (3.4) | 16 mm | 8.1 (9.4) |
| 14 mm | 7.4 (8.6) | 20 mm | 10.7 (12.4) |

The flow curves were determined on the basis of the DIN/EN 60534-2 standard and refer to a cavitation-free flow (water). System-sided constrictions at the inlet and outlet can reduce the flow rate.

» Product family TVR2

Overview product series

| Product series | Pressure range | Housing material | Connection types | Page |
|----------------|----------------|------------------|--|------|
| TVR2-S1 | 0 - 250 bar | Stainless steel | Double ferrule fitting Female thread Male thread | 36 |

Overview product series & connection configurations

| Product series | Media inlet B1 | Media outlet B2 | Page |
|----------------|------------------------|------------------------|------|
| TVR2-S1-A01 | Double ferrule fitting | Double ferrule fitting | 38 |
| TVR2-S1-A02 | Female thread | Female thread | 39 |
| TVR2-S1-A03 | Male thread | Male thread | 40 |
| TVR2-S1-A10 | Double ferrule fitting | Female thread | 42 |
| TVR2-S1-A11 | Double ferrule fitting | Male thread | 42 |
| TVR2-S1-A12 | Female thread | Double ferrule fitting | 42 |
| TVR2-S1-A13 | Female thread | Male thread | 42 |
| TVR2-S1-A14 | Male thread | Double ferrule fitting | 42 |
| TVR2-S1-A15 | Male thread | Female thread | 42 |

» Product series TVR2-S1 | 0 up to 250 bar

Technical data

The following illustrations are examples of WEH® Check valves of the TVR2 product family.



| Characteristics | Preferred variant space | Extended variant space |
|---|---|---|
| Product series | TVR2-S1 | TVR2-S1 |
| Connection configuration | A01, A02, A03 | A01, A02, A03, A10, A11, A12, A13, A14, A15 |
| Connection sizes for media inlet B1 / media outlet B2 | <ul style="list-style-type: none"> • Tube Ø 12 mm, Ø 16 mm • G3/8", G1/2", G3/4", G1" | On request |
| Nominal bore (DN) | Acc. to design | Acc. to design |
| Max. allowable operating pressure PS | 250 bar | 250 bar |
| Cracking pressure PC* | Acc. to design | Other cracking pressures on request |
| Temperature range | -20 °C up to +200 °C | Depending on sealing material |
| Leak rate | 1 x 10 ⁻⁴ mbar x l/s | 1 x 10 ⁻⁴ mbar x l/s |
| Housing material | Stainless steel | Stainless steel |
| Spring material | Stainless steel | Stainless steel |
| Sealing material DW | FKM | <ul style="list-style-type: none"> • FKM • Other sealing materials on request |
| Lubricant | E99-4 | E99-4 |
| Sealing concept | Cone sealing | Cone sealing |
| Flow direction | B1 → B2 | B1 → B2 |

* Please note that the cracking pressures may differ due to tolerances. The cracking pressure basically applies to the horizontal mounting of the check valve. For other mounting directions, the values can differ.

Other designs on request

» Product series TVR2-S1 | 0 up to 250 bar

Possible connection configurations

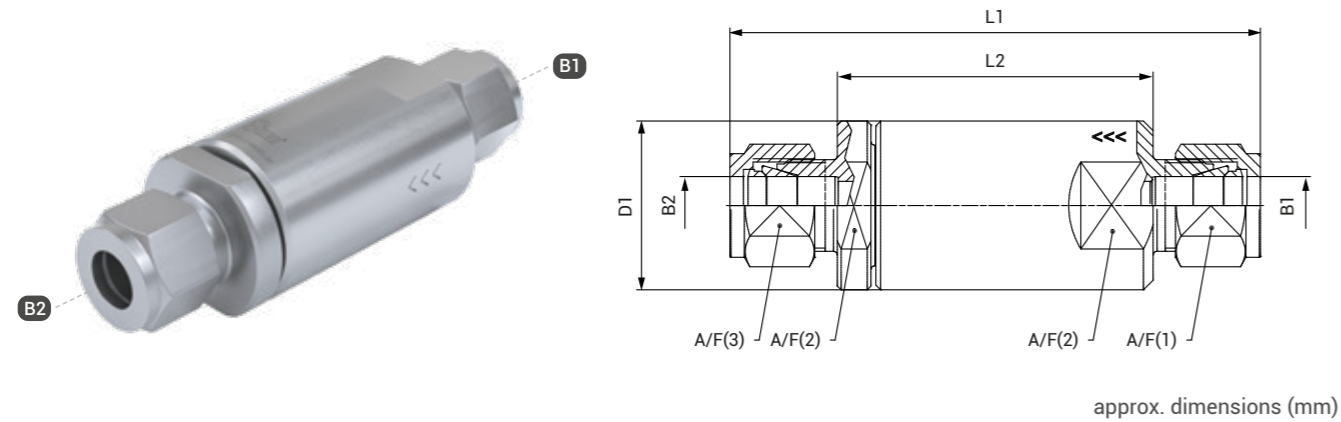
In addition to the table of technical characteristics (see page 36), the following possible connection configurations of WEH® Check valves of the TVR2 product family are listed. The connection configuration is part of the product series.

| Connection configuration | Media inlet B1 | Media outlet B2 |
|--------------------------|------------------------|------------------------|
| A01 | Double ferrule fitting | Double ferrule fitting |
| A02 | Female thread | Female thread |
| A03 | Male thread | Male thread |
| A10 | Double ferrule fitting | Female thread |
| A11 | Double ferrule fitting | Male thread |
| A12 | Female thread | Double ferrule fitting |
| A13 | Female thread | Male thread |
| A14 | Male thread | Double ferrule fitting |
| A15 | Male thread | Female thread |

» Product series **TVR2-S1** | 0 up to 250 bar

Ordering | TVR2-S1-A01 - double ferrule fitting on both sides

Inlet B1: double ferrule fitting / outlet B2: double ferrule fitting



B1 / B2: Double ferrule fitting

Connection size: media inlet B1 = media outlet B2

Check valves of the preferred variant space:

| Part No. | B1 | B2 | DN | PC (bar) | DW | L1 | L2 | D1 | A/F(1) / A/F(3) | A/F(2) | AVL* |
|----------------------|------|------|----|----------|-----|-----|------|----|-----------------|--------|------|
| C1-171809 | Ø 12 | Ø 12 | 10 | 0.5 | FKM | 110 | 65.5 | 35 | 22 | 30 | ** |
| C20015-X1-X01 | Ø 16 | Ø 16 | 14 | 0.5 | FKM | 110 | 65.5 | 35 | 25 | 30 | ** |

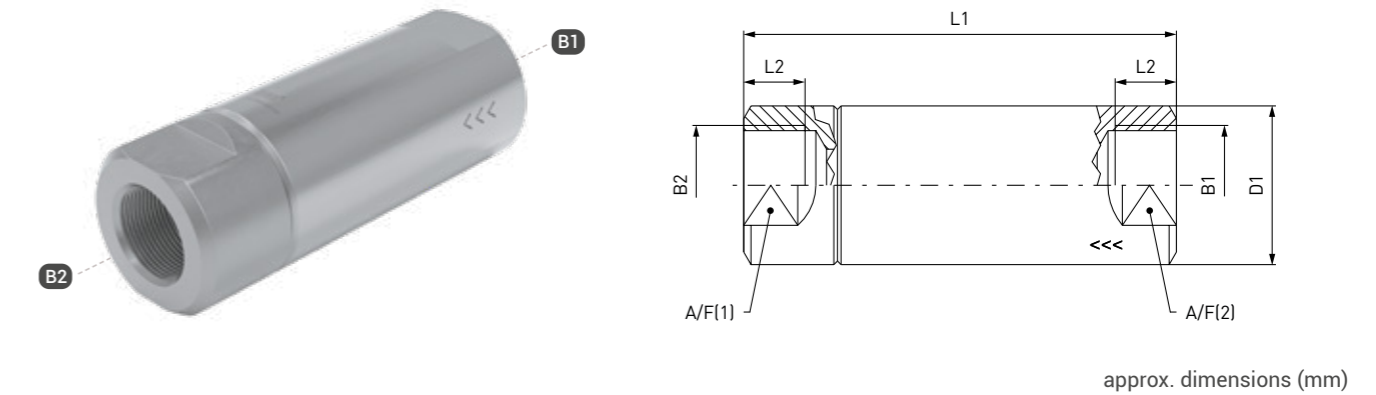
* AVL: availability see page 12

** Availability on request

» Product series **TVR2-S1** | 0 up to 250 bar

Ordering | TVR2-S1-A02 - female thread on both sides

Inlet B1: female thread / outlet B2: female thread



B1 / B2: Whitworth tube thread acc. to DIN EN ISO 228-1

Connection size: media inlet B1 = media outlet B2

Check valves of the preferred variant space:

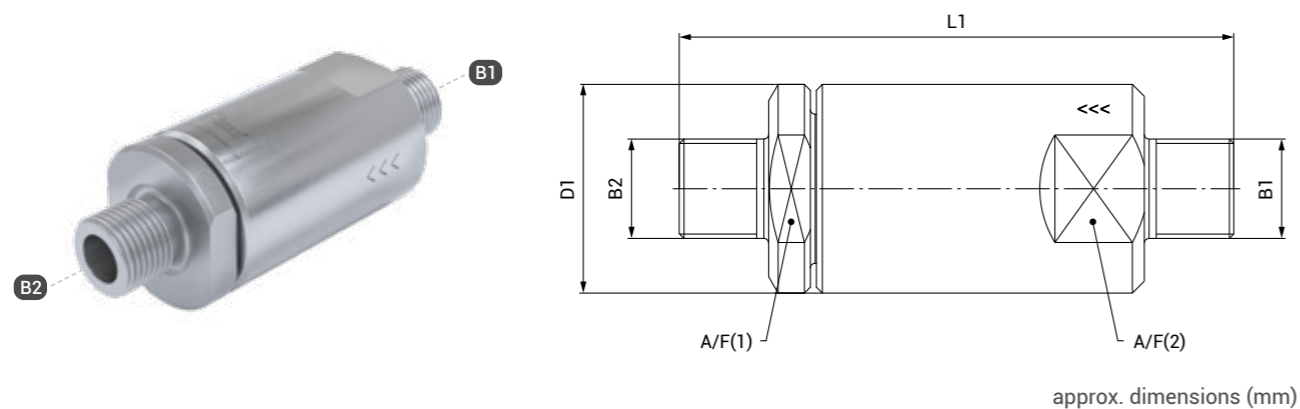
| Part No. | B1 | B2 | DN | PC (bar) | DW | L1 | L2 | D1 | A/F(1) / A/F(2) | AVL* |
|----------------------|-------|-------|----|----------|-----|-----|----|----|-----------------|------|
| C20002-X2-X01 | G3/8" | G3/8" | 14 | 0.1 | FKM | 95 | 17 | 35 | 30 | RM |
| C20003-X2-X01 | G1/2" | G1/2" | 14 | 0.5 | FKM | 95 | 17 | 35 | 30 | RM |
| C20004-X2-X01 | G3/4" | G3/4" | 16 | 0.5 | FKM | 110 | 17 | 39 | 34 | RM |
| C20005/1-X01 | G1" | G1" | 20 | 1.0 | FKM | 120 | 18 | 48 | 41 | RM |

* AVL: availability see page 12

» Product series **TVR2-S1** | 0 up to 250 bar

Ordering | TVR2-S1-A03 - male thread on both sides

Inlet B1: male thread / outlet B2: male thread



B1 / B2: Whitworth tube thread acc. to DIN EN ISO 228-1

Connection size: media inlet B1 = media outlet B2

Check valves of the preferred variant space:

| Part No. | B1 | B2 | DN | PC (bar) | DW | L1 | D1 | A/F(1) / A/F(2) | AVL* |
|------------|-------|-------|----|----------|-----|-----|----|-----------------|------|
| C20203 | G3/8" | G3/8" | 10 | 0.1 | FKM | 93 | 35 | 30 | ** |
| C20204-X01 | G1/2" | G1/2" | 14 | 0.5 | FKM | 95 | 35 | 30 | RM |
| C20205-X01 | G3/4" | G3/4" | 16 | 0.5 | FKM | 110 | 39 | 34 | ** |
| C20206 | G1" | G1" | 20 | 1.0 | FKM | 124 | 48 | 41 | ** |

* AVL: availability see page 12

** Availability on request

» Product series **TVR2-S1** | 0 up to 250 bar

» Product series TVR2-S1 | 0 up to 250 bar

Ordering | Extended variant space

Configurable check valves of the extended variant space.

Check valves of the extended variant space offer further configuration options beyond the preferred variant space.

The following characteristics are configurable:

- Connection configurations
- Connection sizes for media ports (B1 / B2)
- Cracking pressure
- Sealing material

For this, please select the technical characteristics from the table below and request your WEH® TVR2 Check valve. The following illustrations are examples of WEH® Check valves of the TVR2 product family.



Further designs that do not correspond to the extended variant space can be requested individually.

Please refer to *chapter 1.9 Information on your request*.

Please note that the availability for individual, customer-specific check valves may vary.

Technical data

| Characteristics | Extended variant space |
|---|---|
| Product series | TVR2-S1 |
| Connection configuration | A01, A02, A03, A10, A11, A12, A13, A14, A15 |
| Connection sizes for media inlet B1 / media outlet B2 | <ul style="list-style-type: none"> • Tube Ø 12 mm, Ø 16 mm • G3/8", G1/2", G3/4", G1" |
| Nominal bore (DN) | Acc. to design |
| Max. allowable operating pressure PS | 250 bar |
| Cracking pressure PC* | On request |
| Temperature range | Depending on sealing material |
| Leak rate | 1 x 10 ⁻⁴ mbar x l/s |
| Housing material | Stainless steel |
| Spring material | Stainless steel |
| Sealing material DW | On request |
| Lubricant | E99-4 |
| Sealing concept | Ball sealing |
| Flow direction | B1 → B2 |

* Please note that the cracking pressures may differ due to tolerances. The cracking pressure basically applies to the horizontal mounting of the check valve. For other mounting directions, the values can differ.

Other designs on request

» Product series TVR2-S1 | 0 up to 250 bar

Possible connection configurations

In addition to the table of technical characteristics (see page 42), the following possible connection configurations of WEH® Check valves of the TVR2 product family are listed. The connection configuration is part of the product series.

| Connection configuration | Media inlet B1 | Media outlet B2 |
|--------------------------|------------------------|------------------------|
| A01 | Double ferrule fitting | Double ferrule fitting |
| A02 | Female thread | Female thread |
| A03 | Male thread | Male thread |
| A10 | Double ferrule fitting | Female thread |
| A11 | Double ferrule fitting | Male thread |
| A12 | Female thread | Double ferrule fitting |
| A13 | Female thread | Male thread |
| A14 | Male thread | Double ferrule fitting |
| A15 | Male thread | Female thread |

MINIATURE CHECK VALVES FOR GENERAL APPLICATIONS

TVR300 of stainless steel

for use with liquid and gaseous media

Features & benefits

- ▶ Stainless steel
- ▶ High leak tightness
- ▶ Valve seals are protected from media flow
- ▶ Wear and corrosion resistant
- ▶ Low-noise opening and closing
- ▶ Low cracking pressure
- ▶ Max. operating pressure up to 100 bar



» Product family TVR300

Description

The WEH® TVR300 Miniature check valves made of stainless steel are ideal for applications with liquid and gaseous media up to max. 100 bar. The possible applications are just as varied as the design and the materials used. The check valves are available with female thread on both sides and a nominal bore of up to 4 mm.

Due to the high quality materials they are extremely wear-resistant, corrosion-resistant and durable. The miniature check valves, which are very silent in use even under high flow rates, are characterized in particular by their very low cracking pressure and their optimum tightness.

The WEH® TVR300 are equipped with a ball seal. The internal seals are arranged so that they are protected from the media flow. This prevents damage to the seals from any dirt particles on the sealing components within the unit.

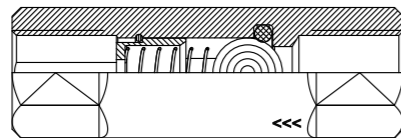
WEH® TVR300 Check valves are equipped with a FKM seal as standard. Other sealing materials are available on request. It is the customer's responsibility to clarify the media compatibility.

Intended use

The WEH® TVR300 Miniature check valves were only developed for reliable return flow prevention in a gaseous or liquid media flow. They are not designed to be used as filling or safety valves. The separation or shut off between different media or a medium and vacuum also does not represent a fundamental intended use. If you have such an application or a similar application, please contact us!

The WEH® TVR300 Miniature check valves are used in mechanical and plant engineering, chemical / pharmaceutical industry, conveyor technology, food industry, medical technology, etc.

Sealing concept



Ball seal construction

Flow values

In the table below you will find the flow rates of the various nominal bores of our WEH® TVR300 Stainless steel check valves.

| Nominal bore (DN) | Kv (Cv) value | Nominal bore (DN) | Kv (Cv) value |
|-------------------|---------------|-------------------|---------------|
| 3 mm | 0.17 (0.19) | 4 mm | 0.2 (0.2) |

The flow curves were determined on the basis of the DIN/EN 60534-2 standard and refer to a cavitation-free flow (water). System-sided constrictions at the inlet and outlet can reduce the flow rate.

» Product family TVR300

Overview product series

| Product series | Pressure range | Housing material | Connection types | Page |
|----------------|----------------|------------------|------------------|------|
| TVR300-S1 | 0 - 100 bar | Stainless steel | Female thread | 48 |

Overview product series & connection configurations

| Product series | Media inlet B1 | Media outlet B2 | Page |
|----------------|----------------|-----------------|------|
| TVR300-S1-A02 | Female thread | Female thread | 49 |

» Product series **TVR300-S1** | 0 up to 100 bar

Technical data

The following illustrations are examples of WEH® Check valves of the TVR300 product family.



| Characteristics | Preferred variant space | Extended variant space |
|---|---------------------------------|-------------------------------------|
| Product series | TVR300-S1 | TVR300-S1 |
| Connection configuration | A02 | A02 |
| Connection sizes for media inlet B1 / media outlet B2 | G1/8", G1/4" | G1/8", G1/4" |
| Nominal bore (DN) | Acc. to design | Acc. to design |
| Max. allowable operating pressure PS | 100 bar | 100 bar |
| Cracking pressure PC* | Acc. to design | Other cracking pressures on request |
| Temperature range | -40 °C up to +200 °C | Depending on sealing material |
| Leak rate | 1 x 10 ⁻⁴ mbar x l/s | 1 x 10 ⁻⁴ mbar x l/s |
| Housing material | Stainless steel | Stainless steel |
| Spring material | Stainless steel | Stainless steel |
| Sealing material DW | FKM | • FKM • EPDM |
| Lubricant | E99-4 | E99-4 |
| Sealing concept | Ball sealing | Ball sealing |
| Flow direction | B1 → B2 | B1 → B2 |

* Please note that the cracking pressures may differ due to tolerances. The cracking pressure basically applies to the horizontal mounting of the check valve. For other mounting directions, the values can differ.

Other designs on request

Possible connection configurations

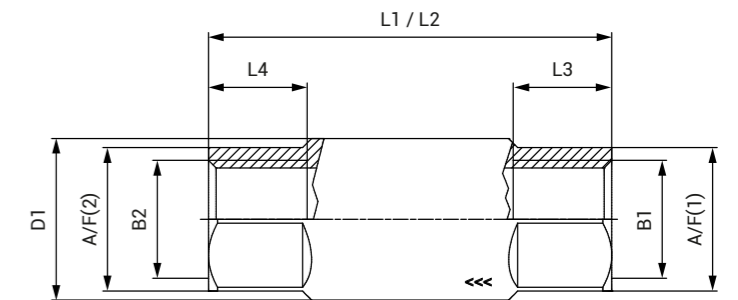
In addition to the table of technical characteristics (see above), the following possible connection configurations of WEH® Check valves of the TVR300 product family are listed. The connection configuration is part of the product series.

| Connection configuration | Media inlet B1 | Media outlet B2 |
|--------------------------|----------------|-----------------|
| A02 | Female thread | Female thread |

» Product series **TVR300-S1** | 0 up to 100 bar

Ordering | TVR300-S1-A02 - female thread on both sides

Inlet B1: female thread / outlet B2: female thread



approx. dimensions (mm)

B1 / B2: Whitworth tube thread acc. to DIN EN ISO 228-1

Connection size: media inlet B1 = media outlet B2

Check valves of the preferred variant space:

| Part No. | B1 | B2 | DN | PC (bar) | DW | L1 / L2 | L3 / L4 | D1 | A/F(1) / A/F(2) | AVL* |
|-----------|-------|-------|----|----------|-----|---------|---------|----|-----------------|------|
| C1-170235 | G1/8" | G1/8" | 3 | 0.2 | FKM | 45 | 10.5 | 15 | 13 | RM |
| C1-170240 | G1/4" | G1/4" | 4 | 0.1 | FKM | 45 | 11 | 18 | 16 | RM |

* AVL: availability see page 12

Connection size: media inlet B1 = media outlet B2 resp.

media inlet B1 ≠ media outlet B2

Configurable check valves of the extended variant space:

Below you will find possible examples of TVR300 check valves in the extended variant space. This offers further configuration options (connection configuration, connection size, cracking pressure, sealing material) beyond the preferred variant space.

| Part No. | B1 | B2 | DN | PC (bar) | DW | L1 | L2 | L3 | L4 | D1 | A/F(1) | A/F(2) | AVL* |
|------------|-------|-------|----|----------|------|----|----|----|----|------------|--------|--------|------|
| On request | G1/8" | G1/8" | 3 | 0.1 | EPDM | | | | | On request | | | AH |
| On request | G1/4" | G1/4" | 4 | 0.2 | EPDM | | | | | On request | | | AH |
| On request | G1/8" | G1/4" | 3 | 1.0 | FKM | | | | | On request | | | AH |
| On request | G1/4" | G1/8" | 3 | 0.2 | EPDM | | | | | On request | | | AH |

* AVL: availability see page 12

Further designs that do not correspond to the extended variant space can be requested individually.

Please refer to chapter 1.9 Information on your request.

Please note that the availability for individual, customer-specific check valves may vary.

SCREW-IN VALVES FOR GENERAL APPLICATIONS

TVR400 of stainless steel

for hydraulic and pneumatic applications

Features & benefits

- ▶ Soft-sealing → high leak tightness, low leakage
- ▶ Compact and space-saving
- ▶ Flow in screwing direction
- ▶ Use at high temperatures and pressure peaks up to 250 bar
- ▶ High flow rate
- ▶ Easy installation



» Product family TVR400

Description

The WEH® TVR400 Screw-in valves are mechanical shut-off valves which allow free media flow in the screwing direction of screw rotation and which shut off the media flow in the other direction.

Their compact design means that they have a small footprint and are therefore very economical. Unlike valve concepts with metallic sealing, the TVR400 screw-in valves are soft-sealing. Sealing is provided by a spring-loaded sealing cone with o-ring. Therefore, the WEH® Valves are characterized by a high leak tightness, combined with a high flow rate.

The WEH® Screw-in valves can be easily screwed into internally threaded bores using an Allen key. TVR400 valves are made of high quality stainless steel and are therefore very durable and wear-resistant. They are especially low-noise in operation.

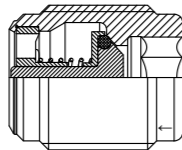
WEH® TVR400 Screw-in valves are equipped with a FKM seal as standard. Other sealing materials are available on request. It is the customer's responsibility to clarify the media compatibility.

Intended use

The WEH® TVR400 Screw-in valves were only developed for reliable return flow prevention in a gaseous or liquid media flow. They are not designed to be used as filling or safety valves. The separation or shut off between different media or a medium and vacuum also does not represent a fundamental intended use. If you have such an application or a similar application, please contact us!

The WEH® TVR400 Check valves are suitable for hydraulic and pneumatic applications in mechanical and plant engineering, conveyor technology and medical technology as well as in the chemical and pharmaceutical industry.

Sealing concept



Cone seal construction

Flow values

In the table below you will find the flow rates of the various nominal bores of our WEH® TVR400 Stainless steel screw-in valves.

| Nominal bore (DN) | Kv (Cv) value | Nominal bore (DN) | Kv (Cv) value | Nominal bore (DN) | Kv (Cv) value |
|-------------------|---------------|-------------------|---------------|-------------------|---------------|
| 3.6 mm | 0.286 (0.331) | 6 mm | 0.640 (0.743) | 7 mm | 1.203 (1.395) |

The flow curves were determined on the basis of the DIN/EN 60534-2 standard and refer to a cavitation-free flow (water). System-sided constrictions at the inlet and outlet can reduce the flow rate.

» Product family TVR400

Overview product series

| Product series | Pressure range | Housing material | Connection types | Page |
|----------------|----------------|------------------|------------------|------|
| TVR400-S1 | 0 - 250 bar | Stainless steel | Male thread | 54 |

Overview product series & connection configurations

| Product series | Media inlet B1 | Page |
|----------------|----------------|------|
| TVR400-S1-A20 | Male thread | 55 |

» Product series TVR400-S1 | 0 up to 250 bar

Technical data

The following illustrations are examples of WEH® Check valves of the TVR400 product family.



| Characteristics | Preferred variant space | Extended variant space |
|--------------------------------------|--|--|
| Product series | TVR400-S1 | TVR400-S1 |
| Connection configuration | A20 | A20 |
| Connection sizes for media inlet B1 | <ul style="list-style-type: none"> G1/8", G1/4", G3/8" M10x1.0 M14x1.5 M18x1.5 | <ul style="list-style-type: none"> G1/8", G1/4", G3/8" M10x1.0 M14x1.5 M18x1.5 |
| Nominal bore (DN) | Acc. to design | Acc. to design |
| Max. allowable operating pressure PS | 250 bar | 250 bar |
| Cracking pressure PC | 0.5 ± 0.2 bar | Other cracking pressures on request |
| Temperature range | -20 °C up to +200 °C | Depending on sealing material |
| Leak rate | 1 x 10 ⁻³ mbar x l/s | 1 x 10 ⁻³ mbar x l/s |
| Housing material | Stainless steel | Stainless steel |
| Spring material | Stainless steel | Stainless steel |
| Sealing material DW | FKM | <ul style="list-style-type: none"> FKM EPDM |
| Sealing concept | Cone sealing (with internal o-ring) | Cone sealing (with internal o-ring) |
| Flow direction | In screwing direction | In screwing direction |

Other designs on request

Possible connection configurations

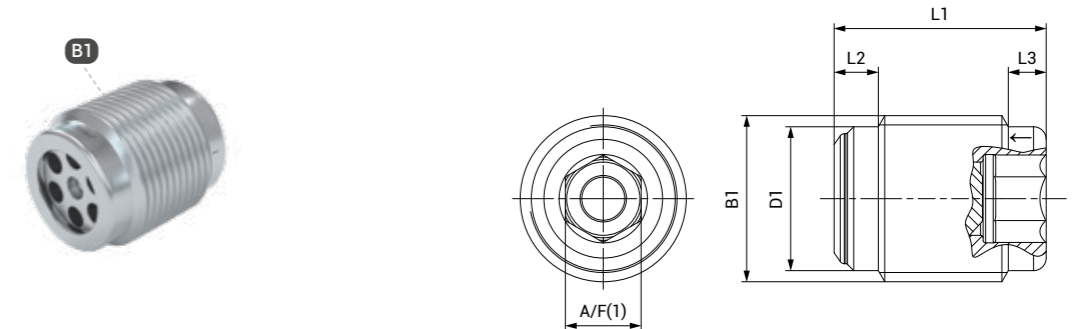
In addition to the table of technical characteristics (see above), the following possible connection configurations of WEH® Check valves of the TVR400 product family are listed. The connection configuration is part of the product series.

| Connection configuration | Media inlet B1 |
|--------------------------|----------------|
| A20 | Male thread |

» Product series TVR400-S1 | 0 up to 250 bar

Ordering | TVR400-S1-A20 - male thread

Inlet B1: male thread



approx. dimensions (mm)

B1 / B2: Whitworth tube thread acc. to DIN EN ISO 228-1

Check valves of the preferred variant space:

| Part No. | B1 | DN | PC (bar) | DW | L1 | L2 | L3 | D1 | A/F(1) | AVL* |
|-----------|-------|-----|-----------|-----|------|-----|----|------|--------|------|
| C1-109260 | G1/8" | 3.6 | 0.5 ± 0.2 | FKM | 15.5 | 3 | 2 | 8.5 | 5 | RM |
| C1-136902 | G1/4" | 6 | 0.5 ± 0.2 | FKM | 17 | 3.5 | 3 | 11.5 | 6 | RM |
| C1-109268 | G3/8" | 7 | 0.5 ± 0.2 | FKM | 20 | 3.5 | 3 | 14.5 | 8 | RM |

* AVL: availability see page 12

B1: Metric ISO thread acc. to DIN 13

Check valves of the preferred variant space:

| Part No. | B1 | DN | PC (bar) | DW | L1 | L2 | L3 | D1 | A/F(1) | AVL* |
|-----------|---------|-----|-----------|-----|------|-----|----|------|--------|------|
| C1-109280 | M10x1.0 | 3.6 | 0.5 ± 0.2 | FKM | 15.5 | 3 | 2 | 8.5 | 5 | RM |
| C1-109284 | M14x1.5 | 6 | 0.5 ± 0.2 | FKM | 17 | 3.5 | 3 | 11.5 | 6 | RM |
| C1-109288 | M18x1.5 | 7 | 0.5 ± 0.2 | FKM | 20 | 3.5 | 3 | 14.5 | 8 | RM |

* AVL: availability see page 12

Configurable check valves of the extended variant space:

Below you will find possible examples of TVR400 check valves in the extended variant space. This offers further configuration options (connection configuration, connection size, cracking pressure, sealing material) beyond the preferred variant space.

| Part No. | B1 | DN | PC (bar) | DW | L1 | L2 | L3 | D1 | A/F(1) | AVL* |
|------------|---------|-----|-----------|------|----|----|----|------------|--------|------|
| On request | G1/8" | 3.6 | 0.5 ± 0.2 | EPDM | | | | On request | | AH |
| On request | G3/8" | 7 | 0.2 | EPDM | | | | On request | | AH |
| On request | M14x1.5 | 6 | 0.1 | FKM | | | | On request | | AH |

* AVL: availability see page 12

Further designs that do not correspond to the extended variant space can be requested individually. Please refer to *chapter 1.9 Information on your request*. Please note that the availability for individual, customer-specific check valves may vary.

CHECK VALVES FOR SIMPLE APPLICATIONS

TVR60 of steel

for oil hydraulic and pneumatic applications

Features & benefits

- ▶ Galvanized steel
- ▶ Prevents fluid return into the circuit
- ▶ Metallic sealing, without o-ring
- ▶ High resistance to pressure peaks



» Product family TVR60

Description

The TVR60 galvanized steel check valves are specially developed for oil-hydraulic applications, often used in industry and agriculture.

TVR60 check valves are equipped with a metallic seal as standard. Elastomeric sealing materials on request. It is the customer's responsibility to clarify the media compatibility.

Intended use

The TVR60 check valves were only developed for reliable return flow prevention. They are not designed to be used as filling or safety valves. The separation or shut off between different media or a medium and vacuum also does not represent a fundamental intended use.

If you have such an application or a similar application, please contact us!

The TVR60 check valves are suitable for hydraulic (oils of fluid group 2 as defined in the Pressure Equipment Directive 2014/64/EU) and pneumatic applications in industry, agriculture and the construction machinery sector.

» Product family TVR60

Overview product series

| Product series | Pressure range | Housing material | Connection types | Page |
|----------------|----------------|------------------|------------------|------|
| TVR60-S1 | 0 - 300 bar | Steel | Female thread | 60 |

Overview product series & connection configurations

| Product series | Media inlet B1 | Media outlet B2 | Page |
|----------------|----------------|-----------------|------|
| TVR60-S1-A02 | Female thread | Female thread | 61 |

» Product series **TVR60-S1** | 0 up to 300 bar

Technical data

The following illustrations are examples of check valves of the TVR60 product family.



| Characteristics | Preferred variant space | Extended variant space |
|---|---|--|
| Product series | TVR60-S1 | TVR60-S1 |
| Connection configuration | A02 | A02 |
| Connection sizes for media inlet B1 / media outlet B2 | G1/8", G1/4", G3/8", G1/2", G3/4", G1", G1 1/4", G1 1/2", G2" | <ul style="list-style-type: none"> G1/8", G1/4", G3/8", G1/2", G3/4", G1", G1 1/4", G1 1/2", G2" NPT thread on request |
| Nominal bore (DN) | Acc. to design | Acc. to design |
| Max. allowable operating pressure PS | 300 bar, acc. to design | 300 bar, acc. to design |
| Cracking pressure PC | 0.35 bar | 0.35 bar |
| Temperature range | -20 °C up to max. +300 °C | Depending on sealing material |
| Housing material | Galvanized steel | Galvanized steel |
| Sealing material DW | Metallic | <ul style="list-style-type: none"> Metallic Elastomeric sealing materials on request |
| Sealing concept | Metallic sealing, without o-ring | Metallic sealing, without o-ring |
| Flow direction | B1 → B2 | B1 → B2 |

Designs with other connection sizes or elastomeric sealing materials on request

Possible connection configurations

In addition to the table of technical characteristics (see above), the following possible connection configurations of check valves of the TVR60 product family are listed. The connection configuration is part of the product series.

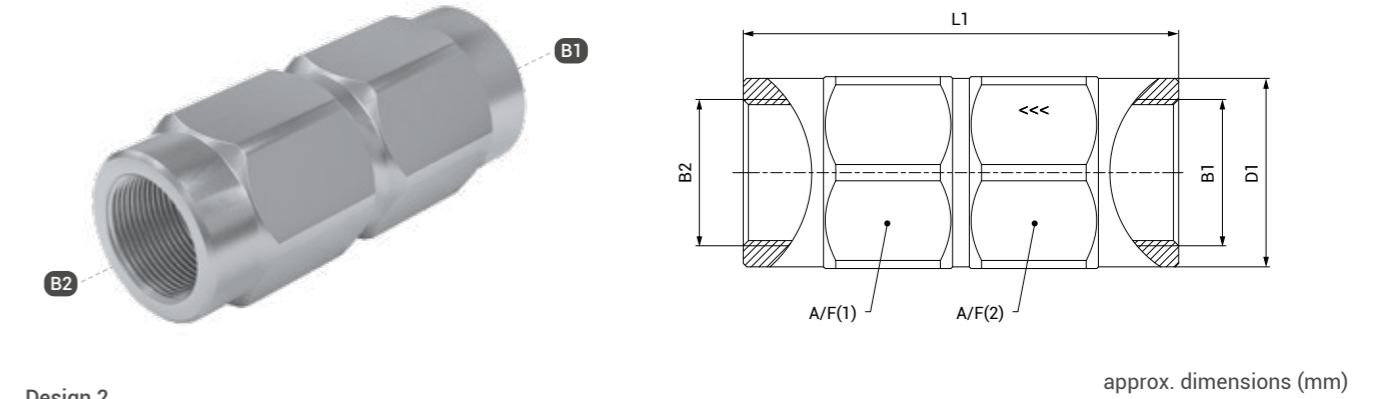
| Connection configuration | Media inlet B1 | Media outlet B2 |
|--------------------------|----------------|-----------------|
| A02 | Female thread | Female thread |

» Product series **TVR60-S1** | 0 up to 300 bar

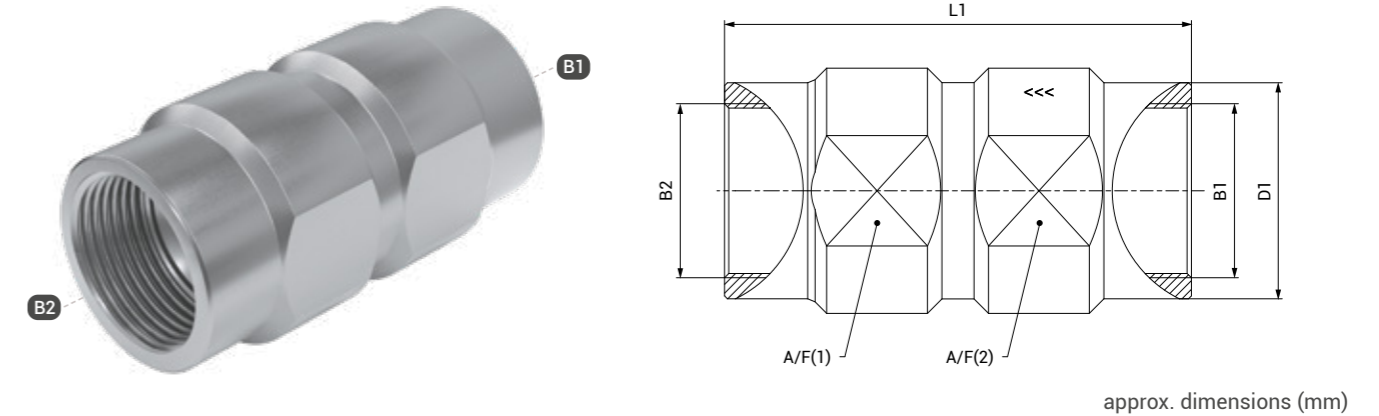
Ordering | TVR60-S1-A02 - female thread on both sides

Inlet B1: female thread / outlet B2: female thread

Design 1



Design 2



B1 / B2: Whitworth tube thread acc. to DIN EN ISO 228-1

Connection size: media inlet B1 = media outlet B2

Check valves of the preferred variant space:

| Part No. | Design | B1 | B2 | DN | PS (bar) | PC (bar) | DW | L1 | D1 | A/F(1) / A/F(2) | AVL* |
|------------|--------|---------|---------|----|----------|----------|----------|-----|------|-----------------|------|
| C1-90389 | 1 | G1/8" | G1/8" | 4 | 300 | 0.35 | Metallic | 44 | 15 | 14 | RM |
| C1-90390 | 1 | G1/4" | G1/4" | 6 | 300 | 0.35 | Metallic | 56 | 18.5 | 19 | RM |
| C1-90391 | 1 | G3/8" | G3/8" | 10 | 300 | 0.35 | Metallic | 70 | 21.5 | 22 | RM |
| C1-90392 | 1 | G1/2" | G1/2" | 13 | 300 | 0.35 | Metallic | 77 | 29.5 | 30 | RM |
| C1-90393 | 1 | G3/4" | G3/4" | 20 | 300 | 0.35 | Metallic | 90 | 35 | 36 | RM |
| C1-90394 | 1 | G1" | G1" | 25 | 300 | 0.35 | Metallic | 106 | 44.5 | 46 | RM |
| C1-90395** | 1 | G1 1/4" | G1 1/4" | 32 | 300 | 0.35 | Metallic | 125 | 54 | 55 | RM |
| C1-90396** | 1 | G1 1/2" | G1 1/2" | 40 | 300 | 0.35 | Metallic | 140 | 59 | 60 | RM |
| C1-90397** | 2 | G2" | G2" | 50 | 200 | 0.35 | Metallic | 160 | 74 | 75 | RM |

* AVL: availability see page 12

** only suitable for media of fluid group 2 as defined in the Pressure Equipment Directive 2014/64/EU

CHECK VALVES FOR SIMPLE APPLICATIONS

TVR61 of brass

for hydraulic and pneumatic applications

Features & benefits

- ▶ Brass
- ▶ Full flow, large flow capacity
- ▶ Minimum pressure loss
- ▶ Compact dimensions
- ▶ Average leak tightness
- ▶ Low-noise opening and closing



» Product family TVR61

Description

The TVR61 check valves are particularly quiet in operation and are characterized by a high flow rate. The valves can be installed in any position. Only the direction of flow must be observed.

TVR61 check valves are equipped with a FKM seal as standard. Other sealing materials are available on request. It is the customer's responsibility to clarify the media compatibility.

Intended use

The TVR61 check valves were only developed for reliable return flow prevention. They are not designed to be used as filling or safety valves. The separation or shut off between different media or a medium and vacuum also does not represent a fundamental intended use.

If you have such an application or a similar application, please contact us!

The TVR61 check valves are suitable for hydraulic (oils of fluid group 2 as defined in the Pressure Equipment Directive 2014/64/EU) and pneumatic applications in plant engineering as well as for air conditioning, heating installations and systems with submersible pumps and pressure vessels.

Flow values

In the table below you will find the flow rates of the various nominal bores of our TVR61 Brass check valves.

| Nominal bore (DN) | Kv (Cv) value | Nominal bore (DN) | Kv (Cv) value | Nominal bore (DN) | Kv (Cv) value |
|-------------------|---------------|-------------------|---------------|-------------------|---------------|
| 8 mm | 6.9 (8.0) | 20 mm | 11.4 (13.3) | 40 mm | 48.8 (56.9) |
| 10 mm | 6.9 (8.0) | 25 mm | 14.5 (16.9) | 50 mm | 68.9 (80.3) |
| 15 mm | 8.8 (10.3) | 32 mm | 27.4 (31.9) | | |

The flow curves were determined on the basis of the DIN/EN 60534-2 standard and refer to a cavitation-free flow (water). System-sided constrictions at the inlet and outlet can reduce the flow rate.

» Product family TVR61

Overview product series

| Product series | Pressure range | Housing material | Connection types | Page |
|----------------|----------------|------------------|------------------|------|
| TVR61-S1 | 0 - 40 bar | Brass | Female thread | 66 |

Overview product series & connection configurations

| Product series | Media inlet B1 | Media outlet B2 | Page |
|----------------|----------------|-----------------|------|
| TVR61-S1-A02 | Female thread | Female thread | 67 |

» Product series TVR61-S1 | 0 up to 40 bar

Technical data

The following illustrations are examples of check valves of the TVR61 product family.



| Characteristics | Preferred variant space | Extended variant space |
|---|--|-------------------------------|
| Product series | TVR61-S1 | TVR61-S1 |
| Connection configuration | A02 | A02 |
| Connection sizes for media inlet B1 / media outlet B2 | G1/4", G3/8", G1/2", G3/4", G1", G1 1/4", G1 1/2", G2" | On request |
| Nominal bore (DN) | Acc. to design | Acc. to design |
| Max. allowable operating pressure PS | 20 to 40 bar, acc. to design | Other pressure on request |
| Cracking pressure PC | 0.025 bar | 0.025 bar |
| Temperature range | -20 °C up to +100 °C, acc. to application | Depending on sealing material |
| Housing material | Brass | Brass |
| Spring material | Stainless steel | Stainless steel |
| Sealing material DW | FKM | • FKM • NBR on request |
| Sealing concept | Cone sealing | Cone sealing |
| Flow direction | B1 → B2 | B1 → B2 |

Designs with other connection sizes, other operating pressures or NBR sealing material on request

Possible connection configurations

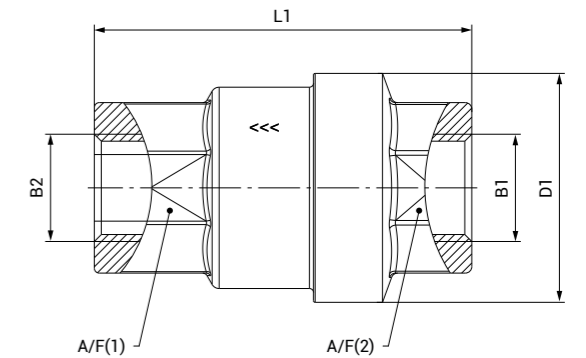
In addition to the table of technical characteristics (see above), the following possible connection configurations of check valves of the TVR61 product family are listed. The connection configuration is part of the product series.

| Connection configuration | Media inlet B1 | Media outlet B2 |
|--------------------------|----------------|-----------------|
| A02 | Female thread | Female thread |

» Product series TVR61-S1 | 0 up to 40 bar

Ordering | TVR61-S1-A02 - female thread on both sides

Inlet B1: female thread / outlet B2: female thread



approx. dimensions (mm)

B1 / B2: Whitworth tube thread acc. to DIN EN ISO 228-1

Connection size: media inlet B1 = media outlet B2

Check valves of the preferred variant space:

| Part No. | B1 | B2 | DN | PS (bar) | PC (bar) | DW | L1 | D1 | A/F(1) / A/F(2) | AVL* |
|----------|---------|---------|----|----------|----------|-----|------|------|-----------------|------|
| C1-89289 | G1/4" | G1/4" | 10 | 40 | 0.025 | FKM | 46.5 | 28 | 21 | RM |
| C1-89290 | G3/8" | G3/8" | 10 | 40 | 0.025 | FKM | 46.5 | 28 | 21 | RM |
| C1-89292 | G1/2" | G1/2" | 15 | 40 | 0.025 | FKM | 48 | 34 | 26 | RM |
| C1-89293 | G3/4" | G3/4" | 20 | 30 | 0.025 | FKM | 59 | 41.5 | 32 | RM |
| C1-89294 | G1" | G1" | 25 | 30 | 0.025 | FKM | 67 | 50 | 39 | RM |
| C1-89295 | G1 1/4" | G1 1/4" | 32 | 25 | 0.025 | FKM | 76 | 60.5 | 49 | RM |
| C1-89296 | G1 1/2" | G1 1/2" | 40 | 25 | 0.025 | FKM | 90 | 73.5 | 56 | RM |
| C1-89297 | G2" | G2" | 50 | 20 | 0.025 | FKM | 101 | 89 | 69 | RM |

* AVL: availability see page 12

» Examples for special check valves

Check valves as individual as our customers.

WEH specializes in developing customer-tailored solutions. Here are some examples of customer-specific special solutions. This is just a small selection. Over the past few years we have developed many special solutions in cooperation with our customers. We also have the right solution for you too. Please contact us!

Flange valve



- Flange connection on both sides acc. to DIN 1092-1
- Materials: all stainless steel
- Sealing material: FFKM
- Cracking pressure: approx. 0.10 - 0.50 bar
- Nominal bore (DN): approx. 25 mm
- Other designs on request

Flange insert valve



- Customer specific flange connection
- Materials: Alloy C4
- Sealing material: metallic sealing
- Cracking pressure: approx. 0.025 bar
- Nominal bore (DN): approx. 25 mm
- Other designs on request

Cartridge check valve



- Inlet: UNF 1/4"-28 female thread
- Outlet: bore Ø 8 mm
- Materials: all stainless steel
- Sealing material: FFKM
- Cracking pressure: approx. 0.14 bar - 0.35 bar
- Nominal bore (DN): approx. 4 mm
- Other designs on request

Gas check valve



- UNF 1 3/8"-12 male thread on both sides
- Materials: brass, inner parts of stainless steel
- Sealing material: PEEK
- Cracking pressure: approx. 0.15 bar
- Nominal bore (DN): approx. 12 mm
- Other designs on request

» Other products

Other products of WEH Precision Connectors



Catalogue no. 35 - Connection solutions in general:
WEH® Connectors for pressure-tight connections in seconds to threads, beads, tubes, etc.



Catalogue no. 20 - Connection solutions for the gas industry:
WEH® Connectors for pressure-tight connections in seconds for gaseous applications

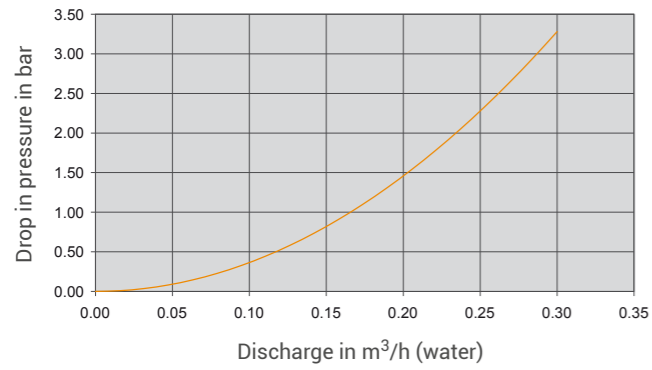


Catalogue no. 40 - Refrigeration and air conditioning:
WEH® Connectors for filling, evacuating and testing of refrigeration and air conditioning components

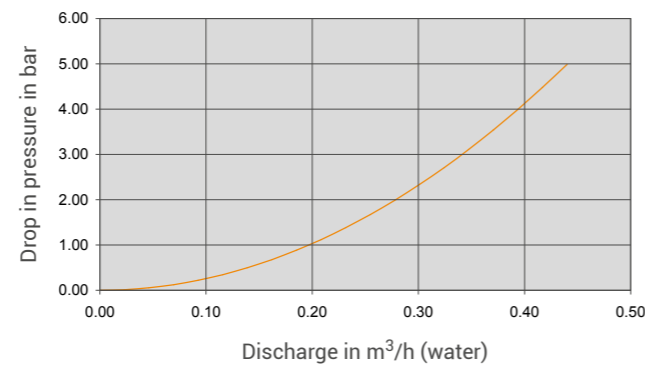
» Flow curves

The flow curves were determined on the basis of the DIN/EN 60534-2 standard and refer to a cavitation-free flow (water). System-sided constrictions at the inlet and outlet can reduce the flow rate.

TVR200 (DN = 3 mm): $K_v = 0.17$ ($C_v = 0.19$)

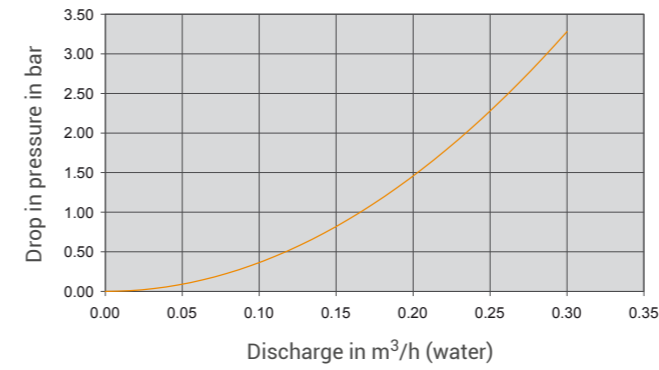


TVR200 (DN = 4 mm): $K_v = 0.2$ ($C_v = 0.2$)

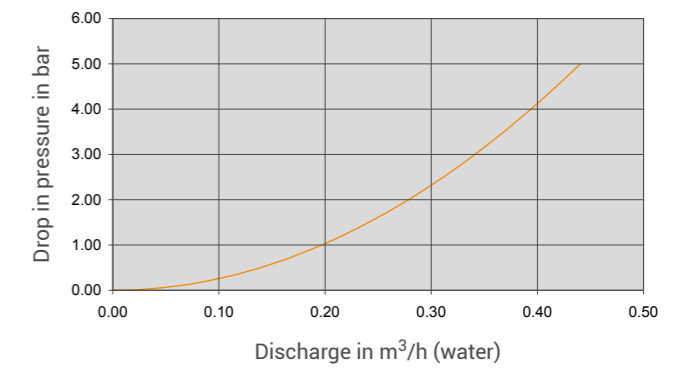


» Flow curves

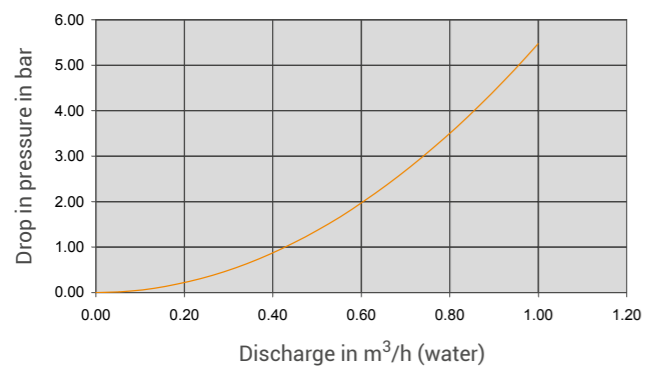
TVR300 (DN = 3 mm): $K_v = 0.17$ ($C_v = 0.19$)



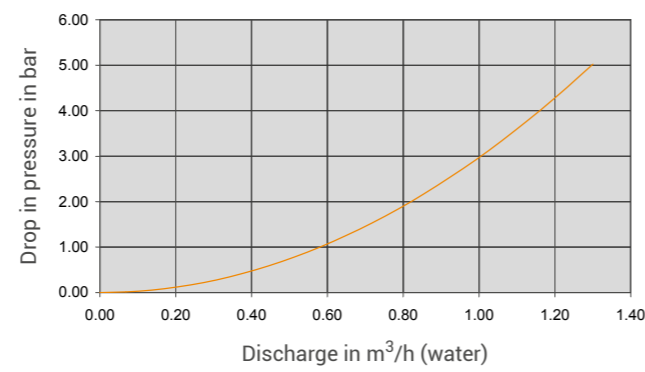
TVR300 (DN = 4 mm): $K_v = 0.2$ ($C_v = 0.2$)



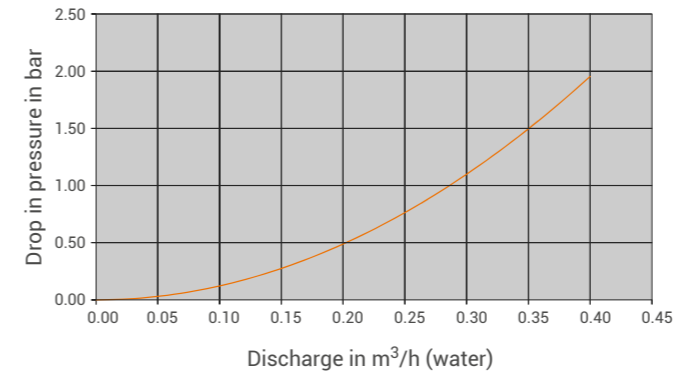
TVR200 (DN = 5 mm): $K_v = 0.4$ ($C_v = 0.5$)



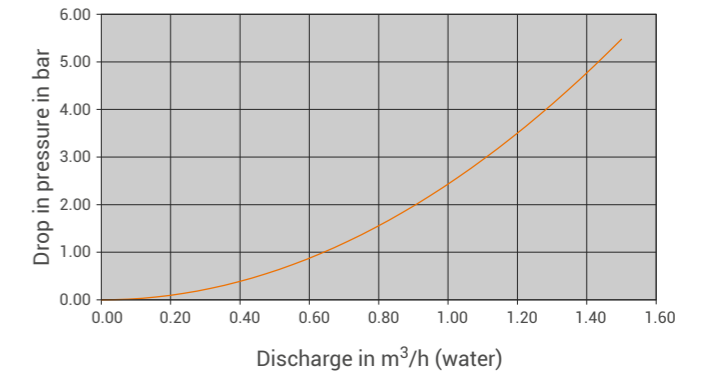
TVR200 (DN = 6 mm): $K_v = 0.6$ ($C_v = 0.7$)



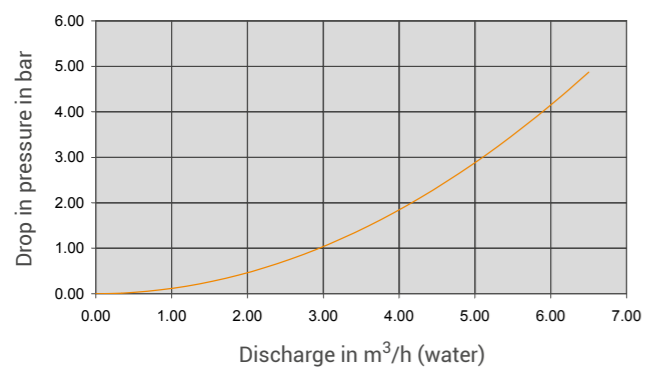
TVR400 (DN = 3.6 mm): $K_v = 0.286$ ($C_v = 0.331$)



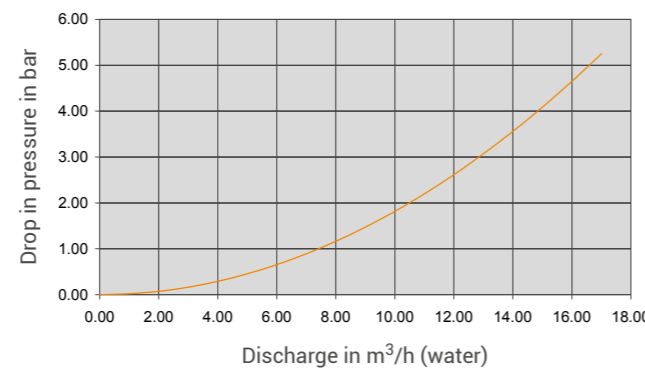
TVR400 (DN = 6 mm): $K_v = 0.640$ ($C_v = 0.743$)



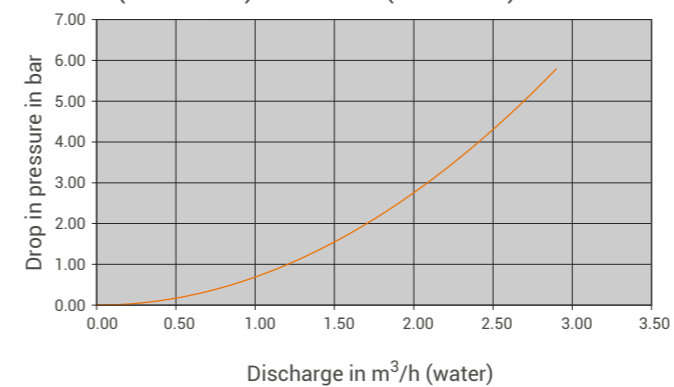
TVR2 (DN = 10 mm): $K_v = 3.0$ ($C_v = 3.4$)



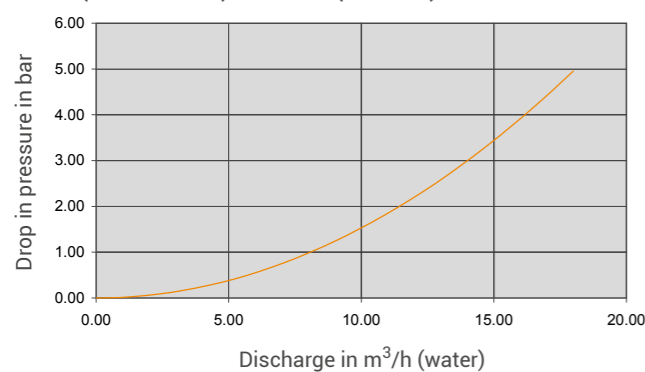
TVR2 (DN = 14 mm): $K_v = 7.4$ ($C_v = 8.6$)



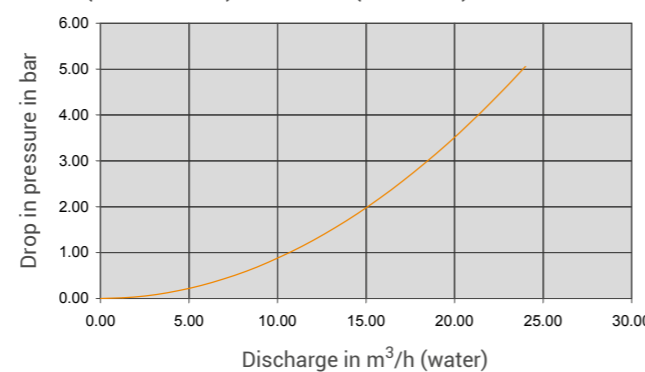
TVR400 (DN = 7 mm): $K_v = 1.203$ ($C_v = 1.395$)



TVR2 (DN = 16 mm): $K_v = 8.1$ ($C_v = 9.4$)



TVR2 (DN = 20 mm): $K_v = 10.7$ ($C_v = 12.4$)



» Technical appendix

Definitions

| Abbreviation | Definition | |
|--------------------------------|--|--|
| Pressure specifications | | |
| PN | Nominal pressure | Nominal pressure after temperature compensation at 15 °C (59 °F) |
| PS | Max. allowable operating pressure | Maximum allowable operating pressure acc. to Pressure Equipment Directive 2014/68/EU, Article 2 paragraph 8 |
| PT | Hydrostatic test pressure | Hydrostatic test pressure acc. to Pressure Equipment Directive 2014/68/EU, Annex I no. 7.4 |
| PP | Pilot pressure | Actuation pressure for hydraulic and pneumatic components |
| PC | Cracking pressure | Pressure at which the check valve opens and the first indication of flow occurs |
| WP | Working pressure | 'Working pressure' means the maximum pressure to which a component is designed to be subjected to and which is the basis for determining the strength of the component under consideration |
| MAWP | Max. allowable working pressure | Max. allowable operating pressure at which the weakest point of the system or the vessel (e.g. cylinder valve) can operate at a certain temperature during normal operation |
| Dimensions | | |
| L1, L2, L3 ... | Length specification | |
| D1, D2, D3 ... | Diameter specification | |
| A/F(1), A/F(2) ... | Wrench size specification | |
| Ports | | |
| A / X | Customer-specific port (test piece, sample, cylinder valve, handwheel respiratory protective equipment) | |
| B1, B2, B3 ... | Media ports | |
| C1, C2, C3 ... | Gas recirculation ports | |
| P1, P2, P3 ... | Pilot pressure ports | |
| MA1, MA2 ... | Measuring ports | |
| Q | Drain port filter | |
| G | Mounting bores | |
| Others | | |
| DN | Nominal size (DN) acc. to Pressure Equipment Directive 2014/68/EU, whereby the largest, pressurized diameter of the media or pilot pressure connections of the WEH® Device (A, B1, B2, B3 or C1, C2, C3 and P1, P2, P3) which faces the customer's pipe system, is relevant. | |
| µm | Max. diameter of the filtered particle | |
| Kv | Is the discharge of water in m ³ /h at a pressure drop of 1 bar (14.5 psi), acc. to DIN/EN 60534-2 | |
| Cv | Is the discharge of water in gallons per minute at a pressure drop of 1 psi, acc. to DIN/EN 60534-2 | |
| IR | Infrared data interface | |
| ENR | Exchangeable data interface (exchangeable nozzle receiver) | |
| TS | Maximum allowable temperature acc. to Pressure Equipment Directive 2014/68/EU, Article 2 paragraph 9 | |

» Technical appendix

Definitions

| Abbreviation | Definition |
|-----------------|--|
| Breakaway force | Is the force range, in which the breakaway releases |
| NC | Normally closed (initial position of shut-off valve) |
| NO | Normally open (initial position of shut-off valve) |

Technical explanations

| Term | Definition |
|-----------------------------------|---|
| Temperature range | Is the temperature range in which the WEH® Product can be used. |
| Media temperature range | Is the temperature range of the medium used, which can flow through the WEH® Product (may change depending on the time of measurement). |
| Ambient temperature range | Is the temperature range of the environment in which the WEH® Product can be used. |
| Leak rate | Is the maximum external leak rate, which the WEH® Product exhibits in delivery condition. |
| Internal leak rate | The internal leak rate depends, among other things, on type of application, medium and pressure difference on the WEH® Product. On request it can be specified more precisely. |
| Max. side load | Is the max. allowable sum of all external forces that may act on the device under intended use. Note: External forces can affect the life time of WEH® Products and can cause damage. Tensile and transverse loads as well as vibrations and pressure impacts need to be considered, e.g. by user side measures such as on site mountings and similar. Therefore, lateral forces such as whipping hoses or other equipment must be avoided. WEH® Products should be installed in such a way, that lateral forces which could lead to leakage or damage can not occur. Special applications require a special consultation before selecting the product. |
| Products with pneumatic actuation | The customer has to ensure there is adequate axial movement when pneumatically actuated WEH® Products are used in automated systems, see maximum side load. Ideally the products should be mounted with a floating joint or introduced individually to prevent the possibly existing clamping jaws getting blocked or jammed in the thread of the test piece. |
| Sealing material | On request the WEH® Product can be adapted to customer specific applications regarding to the sealing materials used. The clarification of the media compatibility and suitability of the adapted WEH® Product for the final application is always the responsibility of the end user. |
| Corrosion resistant | WEH® Products are designed for use in temperate climate zones - with low levels of humidity and salinity in the air. An accelerated formation of rust or corrosion may occur at or near the sea. Therefore, reduce the inspection interval recommended for normal use and send in the WEH® Product for maintenance immediately if you notice increased soot, rust or corrosion. |
| Storage / life time of components | There are certain requirements for every WEH® Product. WEH® Products are generally products which may be subject to wear and fatigue during operation and depending on your individual application/use. For details - in particular regarding the corresponding minimum inspection and maintenance intervals - please refer to the respective operating instructions for the WEH® Product. |

» Technical appendix

Further explanations

| Subject | Definition |
|---|--|
| Technical data | Unless otherwise stated, the technical data in catalogs, data sheets and operating instructions are based on tests with nitrogen that are in the development phase or at the end of development. Leakage data are based on measurements with helium. |
| Intended use | For the intended use of WEH® Products, please refer to the respective operating instructions. The following applications are generally excluded for WEH® H ₂ and CNG products, unless these are expressly permitted in the operating instructions: <ul style="list-style-type: none"> • aerospace applications, e.g. in aircrafts • shipping applications • applications offshore and in littoral areas • applications within defense and weapons technology |
| Safe product selection | Our WEH® Products are designed to be operated by qualified professional users (insofar as WEH® Products are also designed to be operated by other users in individual cases, this is explicitly stated in the corresponding operating instructions). Please note that WEH does not know your system and therefore - also due to the large number of different potential applications of WEH® Products - cannot perform tests on all potential types of application. You alone are responsible for the selection, configuration and suitability of WEH® Products, especially according to the requirements of your system. Before purchasing WEH® Products, please particularly ensure that our products are compatible with your intended use, your performance data, your material and fluids, your system concept and your system limits according to our product specifications. Please also consider your technical and legal requirements for operation, handling and maintenance. The quality and safety of WEH® Products is our highest priority. For this reason, WEH® Products may not be used outside the specifications in the relevant data sheets and product descriptions. If you are not sure whether the WEH® Product is suitable for your system and intended use, please contact us in advance. We also strongly recommend that you refrain from using third-party spare parts or a combination of WEH® Products with unsuitable third-party products. You alone are responsible for reviewing the suitability of third-party products. WEH® Products and WEH® Spare parts comply with our quality and safety standards. |
| Explanation on the Pressure Equipment Directive | In general, WEH® Products with a maximum allowable operating pressure of more than 0.5 bar (PS) fall within the scope of application of the Pressure Equipment Directive 2014/68/EU, are generally classified as pressure accessories in accordance with Article 2 (5) of the same and are considered to be similar to piping. These WEH® Products may not be used as safety accessories. Furthermore, it is pointed out, that these WEH® Products are designed and placed on the market in accordance with the requirements of Article 4 (3) of the Pressure Equipment Directive 2014/68/EU. For some products a different classification and/or categorisation is required or can be conducted on request. In these cases, if legally required, a conformity assessment procedure in accordance with Annex III of the Pressure Equipment Directive 2014/68/EU can and will also be conducted and the conformity can be declared by means of an EU Declaration of Conformity in accordance with Annex IV of the Pressure Equipment Directive 2014/68/EU. In these cases, the EU Declaration of Conformity is enclosed with the product. |
| External change management | WEH reserves the right to update, optimise and adjust its products continuously. This may result in corresponding changes of the product. Customers will be informed proactively or unsolicited by WEH only in individual cases about product updates, product optimisations and/or product adaptations that have been carried out. You are free to contact WEH at any time to request information about any product updates, product optimisations and/or product adjustments. |

» Brochure data

This catalog was created diligently and on the basis of decades of experience.

All information/recommendations in this catalog are non-binding and are particularly subject to possible deviations or changes. For any binding information/recommendations, please refer to the verified information/recommendations in our individual orders. Particularly, due to the wide range of possible applications of WEH® Products and the unknown parameters and operating conditions linked to them, the accuracy and/or completeness of the information/recommendations in this catalog cannot be guaranteed with respect to certain individual cases. In doing so, we would like to refer once again to the information/recommendations provided in individual orders.

The application limits indicated in this catalog (e.g. for pressure, temperature, etc.) are generally theoretical values determined in a test environment. As the concrete operating conditions could differ, we cannot ensure that these values apply to a specific customer application. During the practical use, you should particularly consider that the mutual influence of operational parameters could result in changes of the maximum values. Especially, in case of any unusual operating conditions, please contact WEH before using any WEH® Products. We therefore strongly recommend that you also require any necessary binding information/recommendations to be included by us in the individual orders.

Furthermore, we point out that we cannot assume any warranty or accept any responsibility for printing errors, incomplete information or misinterpretations. Illustrations and/or images are particularly provided for illustrative purposes only and may differ in some details from the actual product. Moreover, dimensions and other technical details in this catalog are non-binding information and are provided for illustrative purposes only. The product's exact form and design result exclusively from the specific individual order. In particular, certain information/recommendations in the catalog only become integral part of the contract if they have been expressly contractually agreed.

Only the latest version of our catalog and other product related documents is valid and applicable. Please ensure that you always use the latest catalog's and documents' versions. Please feel free to contact WEH at any time and request the latest versions.

Our General Terms and Conditions and the Agreement on Protection of Know-How and Quality Assurance shall apply to deliveries and other services, unless expressly agreed otherwise.

In principle, we do not accept the General Terms and Conditions of our customers or third parties. Thank you for your understanding.

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