

## Manufacturer's Declaration as per EU-Directives

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The manufacturer	<b>BRAY Armaturen &amp; Antriebe Europa, D47807 Krefeld</b>
declares for the product:	<b>for Check valves :</b> <b>Check valves Series 95</b> <ul style="list-style-type: none"> <li>• <b>with free hinged disk</b></li> </ul>
<p>These products meet requirements of the following European Directives as follows:</p> <p><b>Pressure Directive 97/23 EC (PED):</b>                  When Art 3 Clause 1.3 or Art. 3 Clause 3 of the Directive apply: The conformity with this clause of PED is declared.                  The conformity procedure as per PED 97/23 EC at the valve manufacture is                  for category I to III      Module H,                  for category IV              Not applicable for check valves</p> <p><b>Machinery Directive 2006/42 EC (MD)</b>                  A check valve is actuated by the flow in the pipe section and is a <b>not complete machine only</b> within the meaning of the European Machinery Directive 2006/42 EC and is destined to be installed at a pipe system.                  For the customer's risk analysis the Table at page 2 of this Declaration lists up some requirements of the MD in relation to the valve and shall be observed by the user.</p> <p>In relation to the Directives above shall be observed by the user:</p> <ol style="list-style-type: none"> <li>1. The user shall observe the „Valve destination“ as defined in the &lt;Instruction Check Valve OM0005E &gt; and shall observe all safety advices that may be relevant at use. Disregard of this advice can invalidate this declaration.</li> <li>2. The commissioning of the valve is not permitted as long as the conformity of the pipe system into which this unit is installed with all relevant European Directives is not yet declared by the person or institution responsible. The manufacturer BRAY has made and documented all necessary risk analysis – the responsible person is Mr. Franz Ritzberger at BRAY Armaturen &amp; Antriebe in Krefeld, Germany.</li> <li>3. The instruction OMD0005E for the valve shall be followed.</li> </ol> <p>Krefeld, den 30.09.2011</p> <p style="text-align: center;">_____</p> <p style="text-align: center;">Kurt Baier, General Manager</p> <p style="text-align: center;"></p>	

*Standards applied:*

<b>EN 13709</b>	<b>Steel Globe &amp; Check Valves</b>
<b>EN 12100</b>	<b>Safety of machinery – General</b>

*Type description & technical data:*

<b>BRAY-catalogue &lt;Series 95&gt;</b>
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*Manufacturer's Quality Management System*

*Register-N° and Name of the notified body*

<b>ISO 9001:2008</b>	<b>Bureau Veritas, Ltd. number 0062</b>
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## Operating Instructions for Check valves

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<b>Requirement EC 2006/42/Annex I</b>	<b>Check valves Series 95</b> • <b>with free hinged disk</b>
1.1.1, g) Valve destination	See original installation and service instruction OM0005E
1.1.2.,c) foreseeable misuse	See original installation and service instruction OM0005E
1.1.2.,d) protecting measures for personnel	Same as the pipe section into which the valve is installed.
1.1.2.,e) accessories for maintenance	No special tools are necessary.
1.1.3 material in contact with the fluid	The material of wetted parts (valve body and inside parts) in contact with the fluid is specified in the order acknowledgement and/or on the valve's marking. The relevant risk analysis is the responsibility of the user.
1.1.5 handling	See installation and service instruction OM0005E
1.3.2 withstand to stresses	For parts under pressure: See declaration of conformity to the PED 97/23/EC For functional parts: Ensured at contractual use of the valve.
1.3.4 sharp edges or angles	Requirements fulfilled.
1.3.7/.8 risks related to moving parts	Requirements are fulfilled at contractual use of the valve. No maintenance or service is allowed when the valve is pressurized and/or it is connected to the control system.
1.5.13 emission of dangerous substances	Not applicable at not dangerous compressed fluids.
1.6.1 maintenance	See installation and service instruction no. OM0005E
1.7.3 marking	Valve: see original installation and service instruction no OM0005E
1.7.4 service instruction	See original installation and service instruction no. OM0005E at standard valve destination. At any special application additional notes and warnings may be necessary but are in the responsibility of the user.
Requirements from Annex III	The valve is not a complete machine. No CE marking for conformity with the directive 2006/42/EG.
Requirements from Annexes IV, VIII & XI	Not applicable.
<b>Requirements as per EN 12100</b>	
1. Scope	Basis for the analysis is the Product description in the relevant BRAY catalogue sheet <i>Note:</i> <i>For the requirements as per clauses 4 to 6 of EN 12100 it is assumed that the user has made a risk analysis for the valve installed into the pipe section under the service conditions– such analysis is not possible for BRAY.</i>
3.20, 6.1 inherent design	The valve has been designed at the principles of <inherent safe design>.
Analyse as per clause 4, 5 and 6	The knowledge at the manufacturer BRAY as per ISO 9001 of documented malfunctions and misuse are the basis of this instruction.
5.3 Limits of the machine	The limits of the valve are defined as per clause A2 <Valve destination>
5.4 Decommissioning, waste management	Not in the responsibility of the manufacturer BRAY.
6.2.2 Geometric factors	The valve shell (body) encloses all moving parts of the valve: no risk at use as defined in clause A2 of this instruction OM0005E.
6.3 Technical protective devices	Not applicable.
6.4.5 Instruction	Valves operate automatically after installation into the pipe system. Necessary information for service and maintenance are included in section C of this instruction OM0005E.

# Original-installation instruction for check valves with service / maintenance instruction and technical Annex

for a valve as <not complete machine> as per European Machinery Directive 2006/42/EG  
and per European Pressure Directive 97/23/EG

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## More information

This manual, BRAY-catalogue-pages and other information – even in other language – may be asked from [sales@bray.de](mailto:sales@bray.de) or from

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## A General

This instruction may support the user to store, install, start-up, use maintain and repair a BRAY-check valve Series 95.

The plant specific instructions and warnings shall be observed accordingly by the user as applicable for the check valve.

### A1 Pictograms

Warnings and notes of this manual are marked with pictograms:

 xxxxx	<b>Danger / Warning</b> Points out a dangerous situation which may cause personal injuries or death.
	<b>Advice</b> Has to be respected
	<b>Information</b> Information useful to follow

If these notes and warnings are not respected by the user, dangerous situations may occur and may invalidate the warranty of the manufacturer.

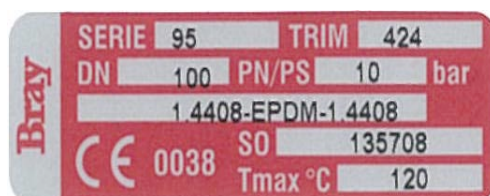
### A2 Valve destination

A BRAY-check valve **Series 95** conforms to ANSI B16.34 <Valves with flanged, welded and screwed ends> and EN13709 <Steel Globe & Check Valves> and is exclusively destined – after installation between flanges of a pipe system – to let pass media in the allowable pressure and temperature range or to stop the backflow. The valve opens automatically at the flow direction same as the “arrow”-direction marked at the body outside. In case of flow reversion, the valve closes automatically. This pressure and temperature range is defined in Annex D2 in relation to the body seat sealing materials.

All requirements of clauses B1 and C1 <Important information for the user> shall be observed

### A3 Marking of the valve

Each valve supplied is marked as follows:



**Valve marking (example)**


The marking shall not be damaged or covered (do not paint over!) to permit the valve identification if necessary.

### A4 Transport and storage



The valve shall be shipped and stored with care.

- A valve with undamaged packaging shall be in stored in a closed room until installation and shall be protected from harsh environmental conditions, such as dirt, debris and humidity. Units >25kg shall be stored and handled on a pallet to protect the good.
- An unpacked check valve shall be handled with the disk in TOP position only.
- Protect specifically the O-rings and the mating surfaces of the body flat surface from any damage at transport and installation.
- A check valve is supplied in closed position and shall be stored accordingly.

## B Installation into the pipe and functional check



	<p><i>This instruction includes safety recommendations for foreseeable risks at installation:</i> The user is responsible to complete this instruction with warning notes for system-specific aspects. All requirements of the system shall be observed.</p>
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### B1 Important safety warnings at installation

	<ul style="list-style-type: none"> <li>• Installation shall be performed by qualified personal. Qualified are those persons who, due to experience, can judge the risks and execute the work correctly and who are able to detect and eliminate possible risks.</li> <li>• A valve shall be assembled into the pipe system as supplied by BRAY – any modification without approval of BRAY is forbidden and terminates the manufacturer’s liability.</li> <li>• The valve marking shall fit to the plant system characteristics - see clause A3 &lt;valve marking&gt;.</li> </ul>
 <b>Danger</b>	<ul style="list-style-type: none"> <li>• A check valve shall not be installed as an end closing-valve at a pipe section under pressure.</li> </ul>



### B2 Preconditions to install the valve

- Ensure to observe the <Valve destination> specified in clause A2 and the valve materials to be suitable for the fluids in the plant – see the relevant valve markings (*see Fig. in clause A3*) and the pressure/temperature limits specified in Annex D2.
- The flanges mating surfaces shall be exactly plane and smooth and shall be free of grooves.
- A valve shall be transported to the place of installation in the original packaging – unpack it just before installation.
- Check and be sure, that the valve is free from damage at transport. Valves with visible damage shall not be installed.
- Check and be sure, that the valve inside is free from dirt, specifically free from sharp particles.
- The check valve has been supplied in „CLOSED“ position and shall be installed accordingly when setting it between the pipe flanges.

	<p><i>No gaskets are necessary at installation:</i> The O-rings integrated in the valve body are sufficient to seal the flange connection. The torque for the flange bolting shall be sufficient to bring the mating surfaces of the valve body and the pipe flanges in metal/metal contact.</p>
	<p><i>Before setting in the valve into the pipe section:</i> Inspect the pipe waterway at both adjacent pipe sections as well to free from dirt, rust, pipe scale, welding slag and any other foreign material.</p>

### B3 Steps at installation

- Ensure to install the check valve in the correct position:
  - ▶ The flow shall open the disk in the “arrow”-marked direction at the valve body outside only,
  - ▶ At a horizontal pipe the „eye-bolt“ shall point exactly upright – do not unscrew this eyebolt to indicate this correct installation position at any time later!
  - ▶ At a vertical pipe the disc shall be installed in the “TOP”-position only – any installation into a pipe **with flow downwards (even inclined downwards) is not allowed** and leads to malfunction (the check valve will not close at flow inversion).
- The pipe flanges shall be exactly in line and their mating surfaces shall be parallel.
- A valve shall be installed into a 1-3 mm gap between the pipe flanges with the disc closed. Take special care that the gap is sufficient to protect the O-ring gaskets from any damage at this step of installation. Centre the valve outside exactly at the counter-flange outside diameter.

	The pipe flange downstream shall have sufficient place for the valve disk that opens into the pipe. It must not be clamped or damaged at its outside diameter. At any doubt, ask <b>BRAY Armaturen &amp; Antriebe Europa</b> .
	<i>Before the first start-up of the pipe section:</i> Be sure the fluid to be free from dirt, rust, pipe scale, welding slag and any other foreign material, which may cause a leakage in the closed position of the check valve.

- Finally the torque for the flange bolting shall be sufficient to bring the mating surfaces of the valve body and the pipe flanges in metal/metal contact.

### **B4 Pressure test of the pipe system**

The valve has been pressure tested by the manufacturer as per EN12266-1 or ISO 5208. Observe at the pipe system pressure test to prevent functional overload of the check seal:

- **Valve in OPEN position:** The test pressure shall be limited to **1,5 x (PN or PS)** – see valve marking. (*PS = maximal admissible pressure at 20°C*).
- **Valve in CLOSED position (= pressure test against “arrow” marking):** The test pressure shall be limited to **1,1 x (PN or PS)**.

*NOTE: In this case no pressure testing of the pipe section behind the check valve!*

### **B5 Additional information Valve disassembling from the pipe section**


Observe the same safety measures as for the pipe system:

- Discharge the pressure and drain the pipe sections at both sides of the valve.
- Loosen the flange bolting, spread the connecting flanges 1- 3 mm and pull out the check valve. Take care that the O-rings in the valve body remain undamaged.


## C) Normal service and inspection

As per European Directives 97/23/EC (PED) the customer shall make a risk analysis for the pipe system. The manufacturer BRAY supplies the following documents for this task:

- This installation and service instruction,
- The <Manufacturer's Declaration to EC-Directives> - see the first page of this document.

	<p><i>This instruction includes safety notes for industrial application for any foreseeable risk at use of the valve.</i></p> <p>It is the responsibility of the user/layout engineer to complete this instruction with warning notes for plant-specific risks.</p>
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## C1 Important safety warnings at service and maintenance

	<ul style="list-style-type: none"> <li>• Service and maintenance shall be performed by qualified personal. Qualified are those persons who, due to experience, can judge the risks and execute the work correctly and who are able to detect and eliminate possible risks.</li> <li>• The valve function shall correspond to the “Valve destination” – see clause A2. The valve marking shall correspond to the plant system characteristics - see clause A3 &lt;valve marking&gt;.</li> <li>• A valve shall be assembled into the pipe system as supplied by BRAY – any modification without approval of BRAY is forbidden and terminates the manufacturer's liability.</li> </ul>
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## C2 Commissioning

A valve automatically opens at flow in the “arrow” direction (marked at the valve outside) and closes at inversion of the flow.

## C3 Maintenance

Regular maintenance is not required for check valves. At any not acceptable internal leakage to outside observe section C4 <Troubleshooting>.

At any inspection of the pipe section check that the flange connection at both sides of the valve body keeps tight.

## C4 Troubleshooting

Kind of fault	Measures
Leakage at the pipe connection	<p>Tighten the flange bolting check valve / counterflanges: Tighten crossover up to metallic contact of the mating surfaces.</p> <p><i>If this is in vain:</i> Disassemble the valve and check: The &lt;mating surfaces&gt; of the pipe flanges shall be exactly parallel with mating surfaces smooth and free of grooves.</p> <p>The O-rings in the check valve body shall be undamaged. <i>If damaged:</i> <b>Replace the O-ring(s), ask BRAY for spare parts.</b></p>
Leakage at the valve seat,  other malfunction	<p><i>Ask BRAY for spare parts:</i> Disassemble the valve, observe Clause B5 &lt;Valve disassembling&gt; and disassemble the check valve: Clean all inside surfaces, if possible lubricate the hinge pin and replace all rubber sealing parts.</p> <p>At re-installation follow clause B3.</p> <p><b>NOTE: At storage protect any rubber sealing parts from UV- and/or full sunlight.</b></p>

Order spare parts from BRAY only with all information from the valve marking – see clause A3

## D) Annex Technical & Project Data

Note:

This clause is no integral part of the „**Original Installation Instruction**“ but is an extract from the BRAY catalogue-sheet < Check Valves>. More details may be found in this document.

### D1 Technical Specification

The valves conform to

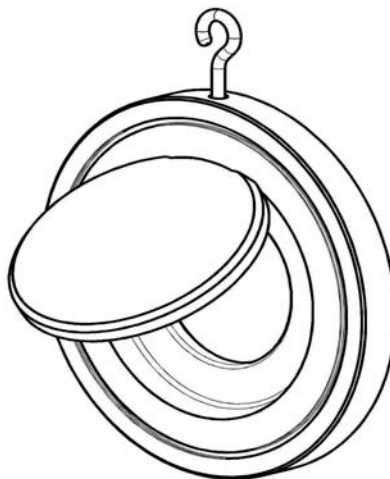
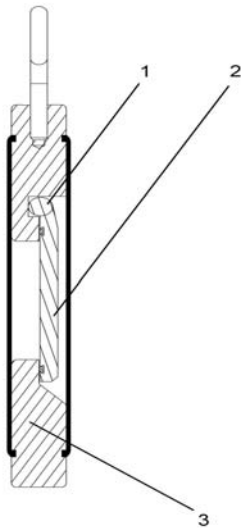
- ▶ ANSI B16.34 <Valves with flanged/welded and screwed ends>
- ▶ EN 13709 <Steel Globe & Check Valves>

### D2 Pressure-/Temperature limits

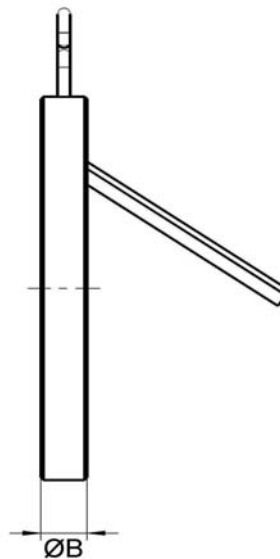
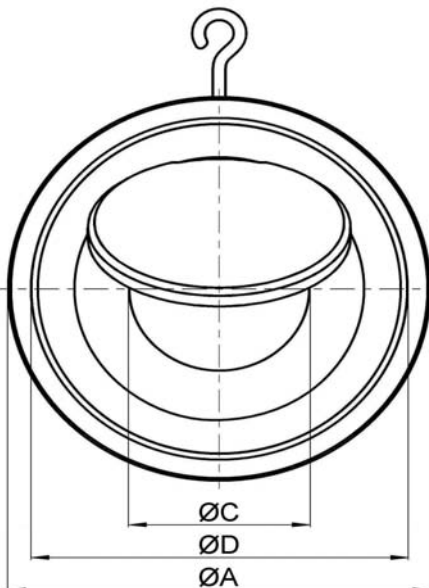
The O-rings in the check valve body & disk limit the maximum service temperature of the fluid to:

Pressure all Series:	PS <sub>max</sub> PN6	PS <sub>max</sub> PN10	PS <sub>max</sub> PN16	PS <sub>max</sub> class 150
		6 bar	10 bar	16 bar
Valve O-ring material				
EPDM	120 °C	120 °C	120 °C	120 °C
Buna-N	90 °C	90 °C	90 °C	90 °C
FPM	150°C	150°C	150°C	150°C
PTFE	200°C	200°C	200°C	200°C
seat 18/8 CrNi steel	300°C	300°C	300°C	300°C

### D3 Drawing / Part Lists



Item No.	Description	No. Off
1	Seat	1
2	Disc	1
3	Body	1



DN	Flange connection					B	C	D
	PN10	PN16	PN25	PN40	ANSI150			
32	85	85	85	85	74	15	18	59
40	95	95	95	95	75	16	22	72
50	109	109	109	109	76	14	32	86
65	129	129	129	129	124	14	40	109
80	144	144	144	144	137	14	54	119
100	164	164	164	164	175	18	70	146
125	195	195	195	195	197	18	92	173
150	220	220	220	220	222	20	112	197
200	275	275	286	294	279	22	154	255
250	330	331	344	356	340	26	192	312
300	380	386	404	421	410	32	227	363
350	440	446	461	478	451	38	266	416
400	491	499	518	550	514	44	310	467