



TREX Thermostatic Control Valve INSTALLATION & USER MANUAL

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Clorius
CONTROLS

TREX

Thermostatic Control Valve

WARNING INFORMATION



Warning! Media can be hot and cause burning.
Do use safety goggles and gloves.



Warning! Wrong installation can result in several damage or that the valve is not functioning correctly. These general instructions do not cover all possible operating scenarios.
For a more specific guidance about the usage of the valve or its qualification at the desired use, please contact BROEN.

TREX

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CLORIUS CONTROLS installation & user manual

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TREX

Thermostatic Control Valve

General information

TREX thermostatic valves are available in a wide range of sizes and settings to meet a wide range of fluid temperature control requirements.

These valves may be mounted in any position and use the proven reliability of the expanding wax principle to actuate the 3-way temperature element.

TREX thermostatic valves are designed for marine and industrial applications such as engines (LT/LH) compressors (gas and air), boilers, heating systems, generator sets and can be used to divert or mix liquids.

TREX thermostatic valves are very compact and robust, designed to fit in applications with high levels of vibration and do not require an external power source.

TREX thermostatic valves are available to suit a wide range of temperature applications and come in steel and aluminum with silicone rubber sealing.

Some applications require a leak hole in the element to ensure a small flow between ports A and C (see page 7).

TREX thermostatic valves are available with leak holes in a wide range of dimensions.

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Technical data

Valve size:	½"/DN15 ¾"/DN20 1"/DN25 1 ¼"/DN32 1 ½"/DN40
Connections:	BSPP ISO 7 Rp BSPT Rt/JIS thread NPT ASME B1.20.1 SAE J 1926-1 ORB
Materials:	Steel ST235, dimensions ½"/DN15 – 1 ½"/DN40 Aluminum AW 6082/T6, dimensions ¾"/DN20 and 1"/DN25
Color in steel:	Color body: RAL 7016 Dark Grey Color body adapter: RAL 9006 Light Grey
O-rings:	Silicone rubber
Cartridge:	PPS/GF40 Exchangeable – see spare parts section – page 14
Wax element:	Piston - Stainless steel, guide and cup - brass, internal sealing HNBR, paraffin
Weight:	1.75 – 1.95 kg for steel valves 0.8 – 1 kg for aluminum valves
Pressure:	Nominal pressure 232 PSI/16 bar Recommended pressure drop across the valve 0.5-7 PSI/0.3-0.5 bar
Mounting position:	Any direction

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Thermostatic Control Valve

Technical data continued

Temperature:

The TREX thermostatic valve is available in a wide range of temperature applications.

Available Temperature Settings	
75°F/24°C	140°F/60°C
84°F/29°C	150°F/66°C
95°F/35°C	160°F/71°C
100°F/38°C	171°F/77°C
109°F/43°C	175°F/79°C
120°F/49°C	180°F/82°C
129°F/54°C	190°F/88°C

Operating temperature:

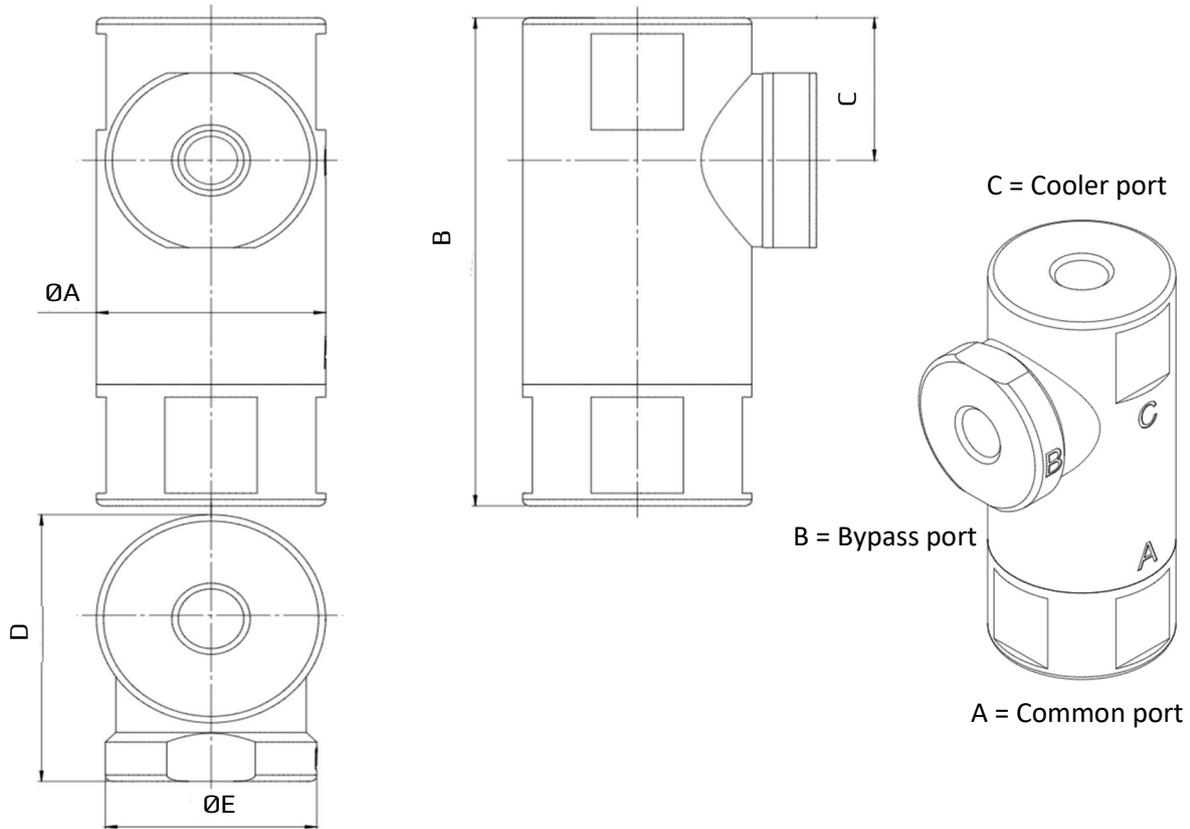
SoT = Start of opening temperature – the temperature at which the element starts the stroke.

FoT = Full opening temperature – the temperature at which the wax element is fully expanded.

Operating Temperature		
Control Temp.	SoT*	FoT*
77°F /24°C	70°F /21°C	88°F /31°C
84°F /29°C	79°F /26°C	97°F /36°C
95°F /35°C	90°F /32°C	108°F /42°C
100°F /38°C	95°F /35°C	113°F /45°C
109°F /43°C	104°F /40°C	122°F /50°C
120°F /49°C	115°F /46°C	133°F /56°C
129°F /54°C	124°F /51°C	142°F /61°C
140°F /60°C	133°F /56°C	154°F /68°C
150°F /66°C	145°F /63°C	163°F /73°C
160°F /71°C	154°F /68°C	172°F /78°C
171°F /77°C	165°F /74°C	183°F /84°C
190°F /88°C	185°F /85°C	203°F /95°C

TREX Thermostatic Control Valve

Technical data continued Valve Dimensions



Dimensions in inches/mm

DIMENSION	TREX THERMOSTATIC VALVE IN STEEL - SIZES				
	½"/DN15	¾"/DN20	1"/DN25	1 ¼"/DN32	1 ½"/DN40
ØA	3"/65mm	3"/65mm	3"/65mm	3"/65mm	3"/65mm
B	6"/152mm	6"/152mm	6"/152mm	6"/159mm	6"/159mm
C	1.5"/45mm	1.5"/45mm	1.5"/45mm	1.5"/38mm	1.5"/38mm
D	3"/83mm	3"/83mm	3"/83mm	4"/106mm	4"/106mm
ØE	2"/60mm	2"/60mm	2"/60mm	2"/60mm	2"/60mm

DIMENSION	TREX THERMOSTATIC VALVE IN ALUMINIUM - SIZES				
	½"/DN15	¾"/DN20	1"/DN25	1 ¼"/DN32	1 ½"/DN40
ØA	-	3"/65mm	3"/65mm	-	-
B	-	6"/160mm	6"/160mm	-	-
C	-	2"/54mm	2"/54mm	-	-
D	-	3"/86.5	3"/86.5	-	-
ØE	-	2"/60mm	2"/60mm	-	-

TREX Thermostatic Control Valve

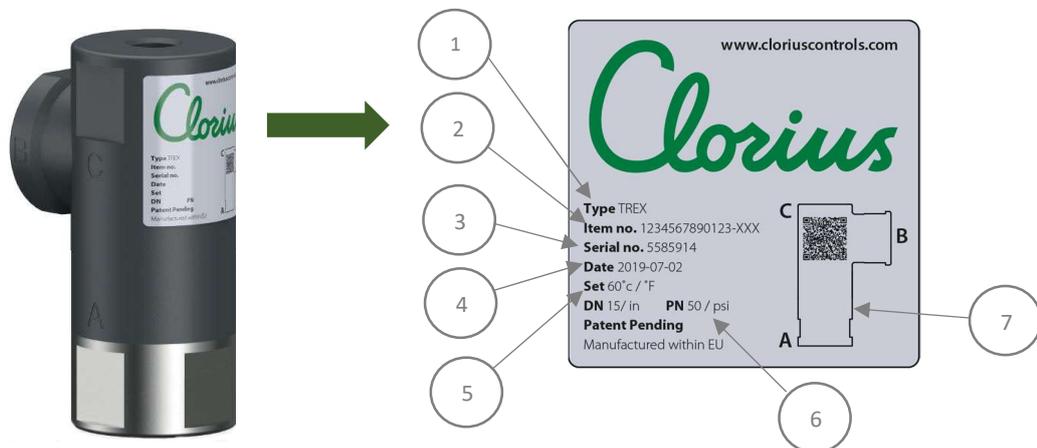
2. Transport, Storage and Marking

TREX thermostatic valve marking

TREX thermostatic valve marking always contains unique information that can be used during installation and identification of the valve.

In addition to mandatory information such as make, patent and manufacturing location place, the label contains the following information:

Label marking



Description of label information

Item 1: Valve type (name) – always TREX

Item 2: Item number

Item 3: Serial/Traceability number

Item 4: Production date

Item 5: Set control temperature in C°/F°

Item 6: Valve size (DN/INCH) and valve pressure (PN/PSI)

Item 7: Drawing of TREX thermostatic valve with QR Code

Note: All valves are marked with above information.

Scan the QR Code to display the Clorius Controls web link:

www.cloriuscontrols.com

TREX Thermostatic Control Valve

2. Transport, Storage and Marking continued

TREX thermostatic valve packaging marking:

TREX thermostatic valves are delivered in a single cardboard box – labeled with unique information such as item number, order number, serial number & valve description.



Clorius CONTROLS		THERMOSTATIC 3-WAY CONTROL VALVE	
	Type	TRES	
	Item no.	1234567890123-XXX	
	Serial no	XXXXXX	
	Date	YEAR-MONTH-DAY	
	Set	SET TEMPERATURE	
Size	VALVE SIZE/PRESSURE DNXX/PNXX		
ZL-XXXXXXXXXX	Order no.	XXXXXX	 SERIAL NUMBER XXXXXX

Storage

TRES thermostatic valves must be stored in a dry environment without humidity. The max. storage temperature should not exceed 86°F/30°C, for wax elements with SoT <40°C/104°F the max. storage temperature is 70°C/158°F. See also page 6 of the present manual.

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3. Installation and operation

Before installation

- 3.1 Remove all protection and packaging material from the valve.
- 3.2 Check label on the valve to verify serial number and item number.
- 3.3 Check valve for any damage that could have been caused during transportation and storage.
- 3.4 Familiarize yourself with the intended use, as described in the following sections.
- 3.5 Before installation, ensure that the valve is suitable for the intended purpose.
Always check temperature, operating pressure and material.
Check also that the intended pipes and fittings are suitable for the installation of the TREX thermostatic valve.
- 3.6 Check that the valve size has been selected in accordance with the anticipated flow rate through the valve.
- 3.7 When installing TREX thermostatic valves always read, understand and follow local requirements.
- 3.8 The TREX valve can be mounted in any direction.
However, it should not be subjected to excessive and improper treatment, also avoid stressing the valve body.

TREX Thermostatic Control Valve

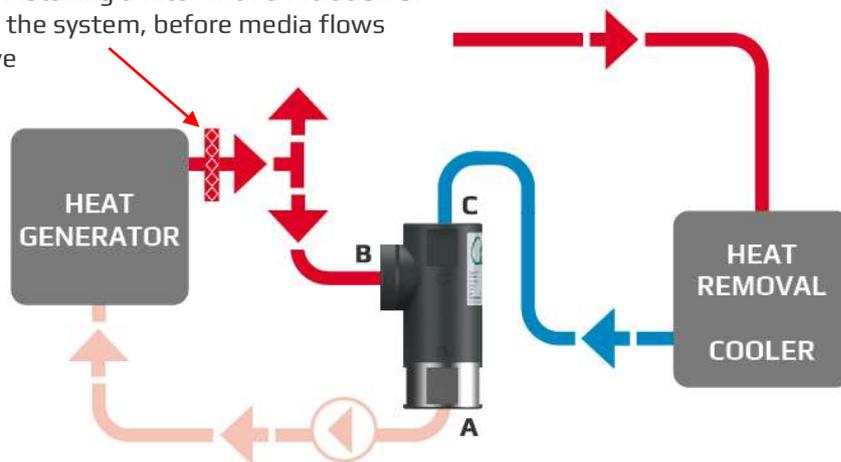
Installation Diagram

Diverting and Mixing applications

MIXING SETUP

The hot media enters port B and port C is closed. If the temperature rises, port B begins to close and port C begins to open, forcing the water through the cooler. Port A allows the mixed media to return to the heat generator at the controlled temperature.

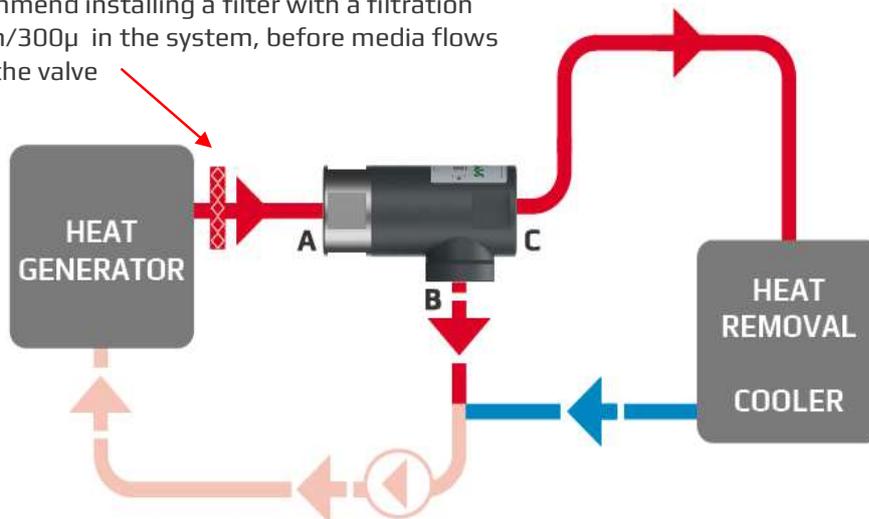
We recommend installing a filter with a filtration of 0,3mm/300 μ in the system, before media flows through the valve



DIVERTING SETUP

The hot media enters in port A and, depending on the temperature, is led to the cooler via port C or returns to the heat generator via port B.

We recommend installing a filter with a filtration of 0,3mm/300 μ in the system, before media flows through the valve



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4. Caution

- 4.1 **Do not** use the TREX thermostatic valve for any other purposes other than to control temperature in fresh water, cooling water and lubricating oils.
- Typical applications include water jackets, lubricating oil, cooling systems, mixing and diverting of fluids in process control and industrial applications. Do not use other types of media, as this might cause internal corrosion and damage sealings.
- 4.2 **It is recommended** to use filters with a filtration of 0,3mm/300µ.
- 4.3 **Always install** the TREX thermostatic valve in the system so that cavitation is avoided.
To avoid cavitation, raise/increase the static pressure in the system.
- 4.4 **Overheating the** wax element may damage it: Do not overheat the wax element beyond +30°C/54°F. For the individual FoT temperatures refer to the table on page 6 of the present manual.
- 4.5 **Chemicals in** media will damage the cartridge/O-rings and block movement. **Damage** to the cartridge will result in internal leakage.
- 4.6 **Differential pressure:** Use the valve within the specified range in order to obtain optimal temperature control.
- 4.7 **The TREX** thermostatic valves are designed to provide 3-way fluid temperature control for diverting or mixing applications.
- 4.8 **The thermostatic** cartridge in a TREX thermostatic valve is fully enclosed and factory set. The cartridge can be replaced under maintenance, but the replacement should have same specifications as the old cartridge, although this requires removal of the valve from its pipework.
- 4.9 **Do not replace** the existing wax element with a new cartridge with different specifications. If another temperature set point is required, please order a completely new TREX thermostatic valve.

Valve sizes and other technical data are available on page 5 and available temperatures settings on page 6.

TREX Thermostatic Control Valve

5. Service and maintenance

Picture 1

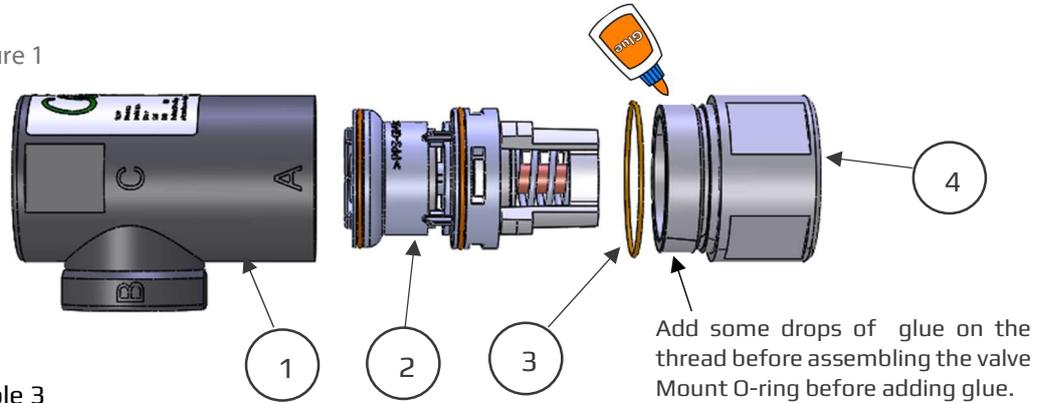
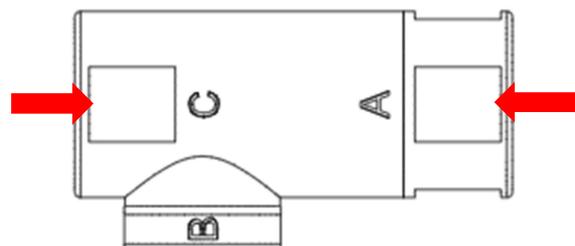


Table 3

BOM			
Item	Description	Item No	Spares (Yes/No)
1	TREX body	-	No
2	Cartridge	See page 14	Yes
3	O-ring silicone rubber - Ø50.52 X Ø1.78	See page 14	Yes
4	TREX adapter	-	No

See page 14 for spares

- 5.1 **The recommended valve** service interval is every 2 years.
- 5.2 **When assembling and disassembling** the TREX thermostatic valve always clean the valve for impurities and check parts for damage.
- 5.3 **The O-ring** secures the valve against external leakage. The O-ring must be replaced when the valve is removed from its assembly position and disassembled. Always use the O-Ring type, as stated in item 4 of Table 3.
- 5.4 **Replace Cartridge** (item 2 of Table 3) with a new one **If the temperature is unreliable.**
- 5.5 **When the valve** is assembled with new O-ring and cartridge, we recommend using a locking compound to reassemble the valve, such as Tree Bond 1305 or similar.
- 5.6 **Always use the** wrench flats on the valve when assembling or removing it from the system.



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6. Spare parts

Dimensions

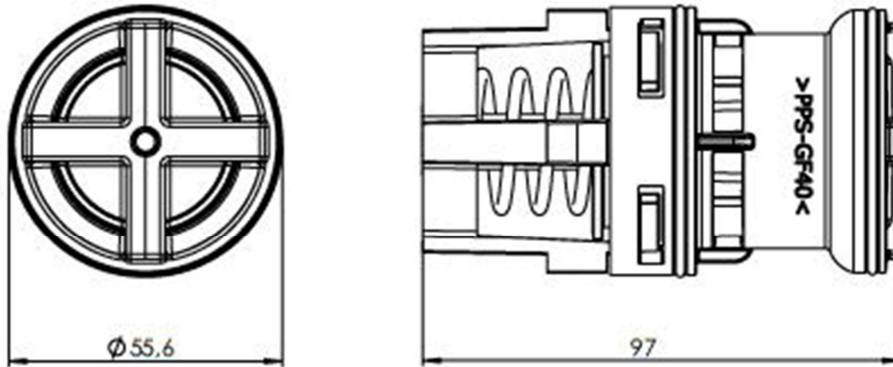
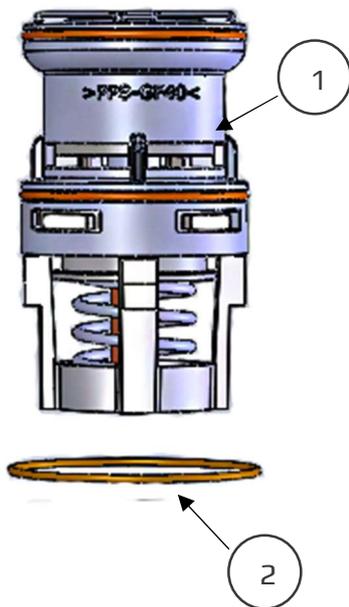


Table 4



Spare Part for Cartridge			
Pos	Description	Item No	Spares Yes/No
1	SPARE PART - CARTRIDGE ELF243	2993002	Yes
	SPARE PART - CARTRIDGE ELF245	2993004	Yes
	SPARE PART - CARTRIDGE ELF246	2993006	Yes
	SPARE PART - CARTRIDGE ELF248	2993008	Yes
	SPARE PART - CARTRIDGE ELF250	2993010	Yes
	SPARE PART - CARTRIDGE ELF251	2993012	Yes
	SPARE PART - CARTRIDGE ELF252	2993014	Yes
	SPARE PART - CARTRIDGE ELF254	2993016	Yes
	SPARE PART - CARTRIDGE ELF256	2993018	Yes
	SPARE PART - CARTRIDGE ELF257	2993020	Yes
	SPARE PART - CARTRIDGE ELF259	2993024	Yes
	SPARE PART - CARTRIDGE ELF261	2993028	Yes
	SPARE PART - CARTRIDGE ELF274	2993030	Yes
2	O-ring silicone Ø50.52 X Ø1.78	-	Yes

NOTE: For spare part orders, contact Clorius Controls mail@cloriuscontrols.com

TREX

Thermostatic Control Valve

7. Contact

Denmark

Clorius Controls
Skovvej 30
DK5610 Assens
Tel: +45 77 32 31 30

USA

Clorius Control - USA
27657 Commerce Oaks Drive
Oak Ridge North, TX 77385
Tel: +1 920 350 3622

Poland

Clorius Controls – Poland
UL. Strefowa 19
58-200 Dzierżoniów
Tel: +48 74 832 79 51

China

Room 1910-1911, Unicom International
Tower, No 547 West Tian Mu Road
Shanghai 200070 P.R. China
Tel: +86 21 33 030 279

Or write to Clorius Controls: mail@cloriuscontrols.com

See also www.cloriuscontrols.com for further information

End of manual