

**Device type****Liquid Cooling System type KONTRAC LCS**

1. LIQUID COOLING SYSTEM LAYOUT



2. CONVERTER DESCRIPTION

As a result of our own development, we design and manufacture liquid cooling systems for traction converters with power loss up to 80 kW. They use water to cool the converter power modules and the water itself is cooled by an air-to-water heat exchanger. Compact and light-weighted design achieved by custom-made heat exchangers is ensured enabling also easy and low cost maintenance. In our systems, stainless steel components and hoses are used ensuring corrosion free system.

Liquid cooling system type KONTRAC LCS is a compact single unit designed for installation as a standalone unit under floor or on the roof of the vehicle as well as inside converter. According to customer request different sensors could be used (temperature, pressure, flow) as well as two speed fan motors. Liquid cooling system consists from the following main parts:

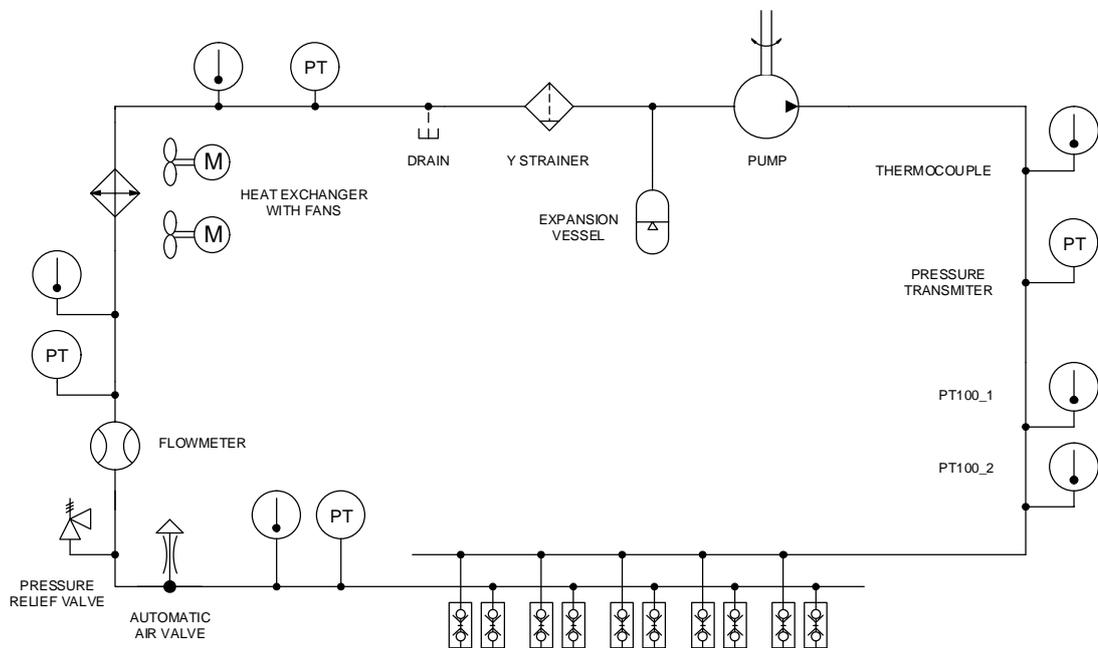
- heat exchanger with fans
- pump
- temperature, pressure and flow sensors
- safety and air vent valves
- expansion vessel
- liquid and electrical connectors

Date: 05. 2017.	Revision:	Written by: I. Ptiček	Checked by: B. Puškarić	Submitted by: M. Macan
--------------------	-----------	--------------------------	----------------------------	---------------------------

KONTRAC LCS main features are:

- High degree of functional integration
- Custom-made heat exchanger
- Different sensors
- Cooling fluid: ethylene glycol - water
- Two speed fan motors
- Stainless steel components and hoses (corrosion free)
- Easy maintenance

3. SCHEMATIC CIRCUIT



4. TECHNICAL DATA

Power:	up to 80 kW
Cooling fluid:	ethylene glycol – water
Sensors:	temperature, pressure, flow
Material:	steel, stainless steel
Mounting:	standalone unit or inside converter
Ambient temperature:	-40°C to +40°C