

**THERMOSTATED JACKET
FOR PREPARATIVE COLUMNS
SEPARTHERM TJ 150**

*user
manual*



1. Description and use

Thermostated jacket SEPARTHERM TJ 150 is an universal jacket for heating or cooling of preparative liquid chromatography columns on temperatures between $-10\text{ }^{\circ}\text{C}$ and $+90\text{ }^{\circ}\text{C}$ using a circulating water which pressure is not higher than 0,2 bar.

The jacket is made of acrylic glass tube and polypropylene made flanges which are connected to the tube by stainless steel bolts. Whole column is inside the jacket connected by its bottom flange to the bottom flange of the jacket. Long connecting bolts are used as jacket legs too. They are fixed to polypropylene made basic plate equipped with five balls on its bottom side. Water from circulating device is coming to a bottom input in jacket bottom flange, then is moving up to the upper jacket flange where is an output.

It is necessary to note that TJ 150 jacket is designed to keep on the selected temperature the column itself. Nevertheless the column with the jacket is not a close system as the mobile phase is continuously flowing in and out of the column. This phenomenon can have essential influence on the real temperature inside the column. Depending on mobile phase flow rate and temperature may be necessary to use a special exchanger to reach its proper temperature.

2. Jacket design and assembling

The **TJ 01 150** (full jacket and column schema on Fig 1) consists of acrylic glass tube with wall thickness 5 mm which is provided by two PP made flanges. Each flange consists of two ring connected together by stainless steel bolts. Between these two rings is a rubber ring pressed to the groove in the tube. This is a way how flanges are fixed on the tube. There are holes in each flange to connect bottom and upper covering flanges. Each covering flange has on the front side a groove which is filled by a silicone rubber to seal the flange and the tube.

There are central holes with a bushings for 3,3 mm (1/8") O.D. Capillary on each side equipped with rubber sealings for input and output tubing. On the side of each covering flange is a hole for input and output of the liquid which is used to keep selected temperature of the column. They are equipped with a connecting tubes for 8 mm I.D. Flexible tubing.

There are four holes for connecting bolts in the bottom covering flange. These bolts are fixed to the column bottom flange. Between column and jacket flange are inserted stainless steel inserts in order to allow thermostating liquid flow. On the

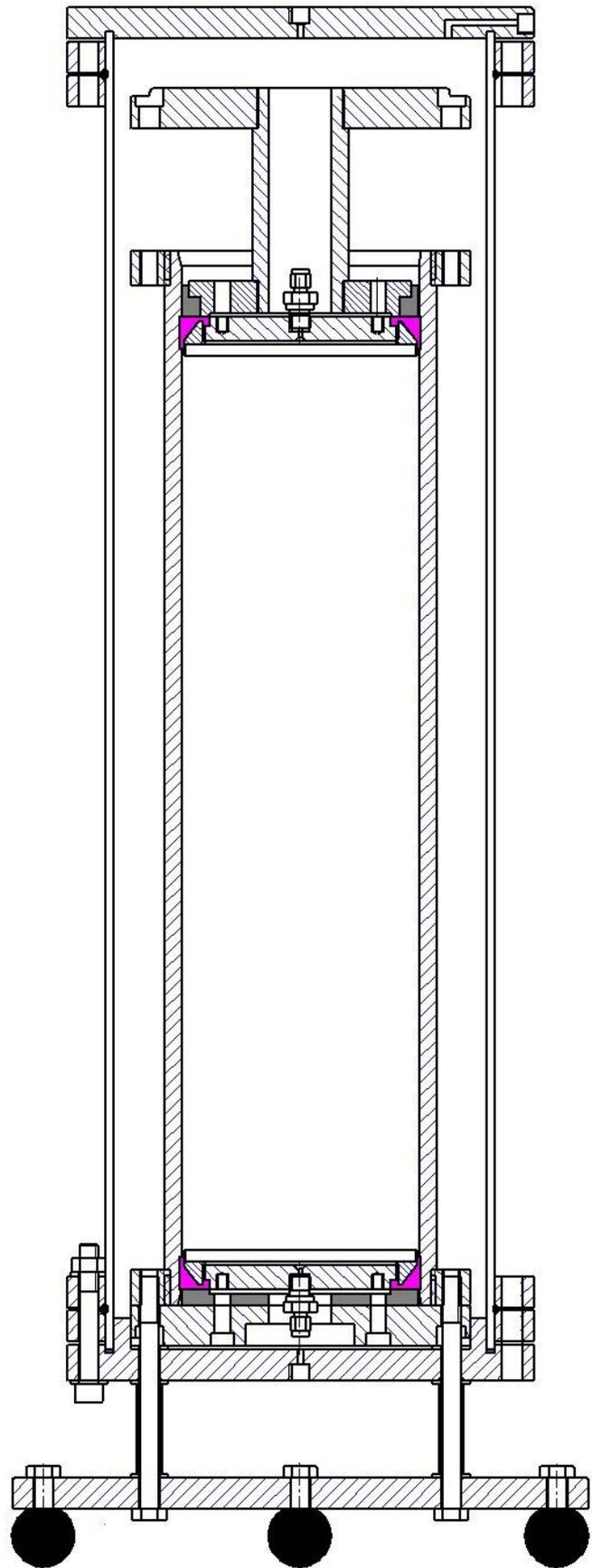


Fig. 1 Thermostating jacket design

outer side of jacket flange are on each bolt rubber rings, inserts and distance tubes. Finally bolts are going thru holes in basic polypropylene plate.

The assembling of the jacket on the column can be done for already packed column or it is connected with column packing process. This assembling method is describe in this manual and shown on pictures. Special care has to be taken to places which are critical for system sealness as shown on pictures 2 and 3. They must be clean and dry before assembling.

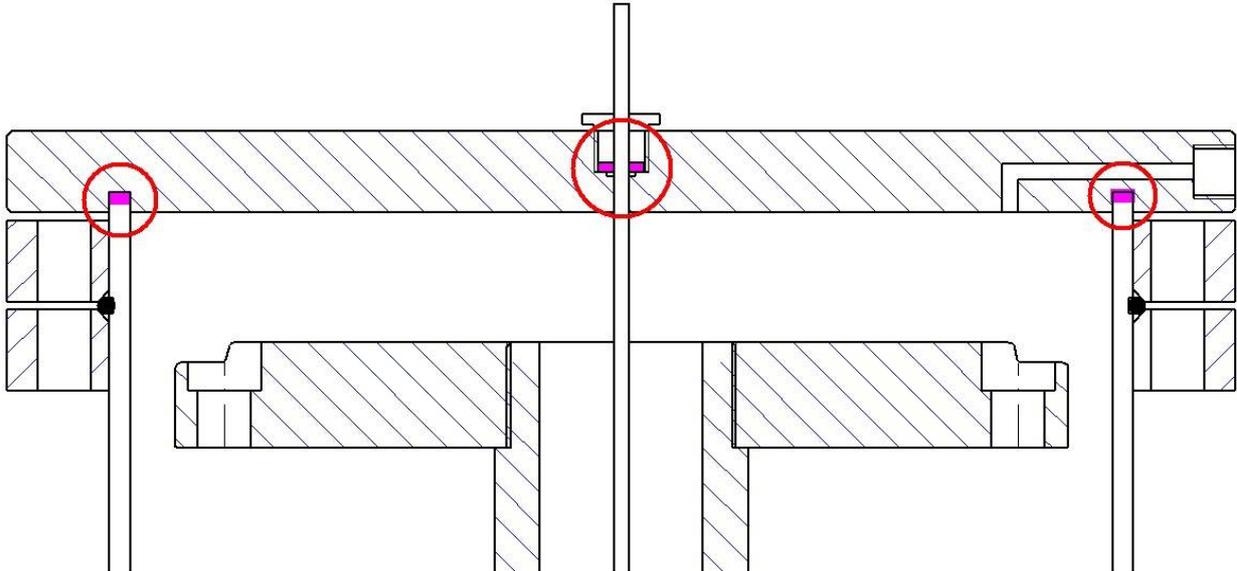


Fig. 2 Thermostating jacket upper flange design

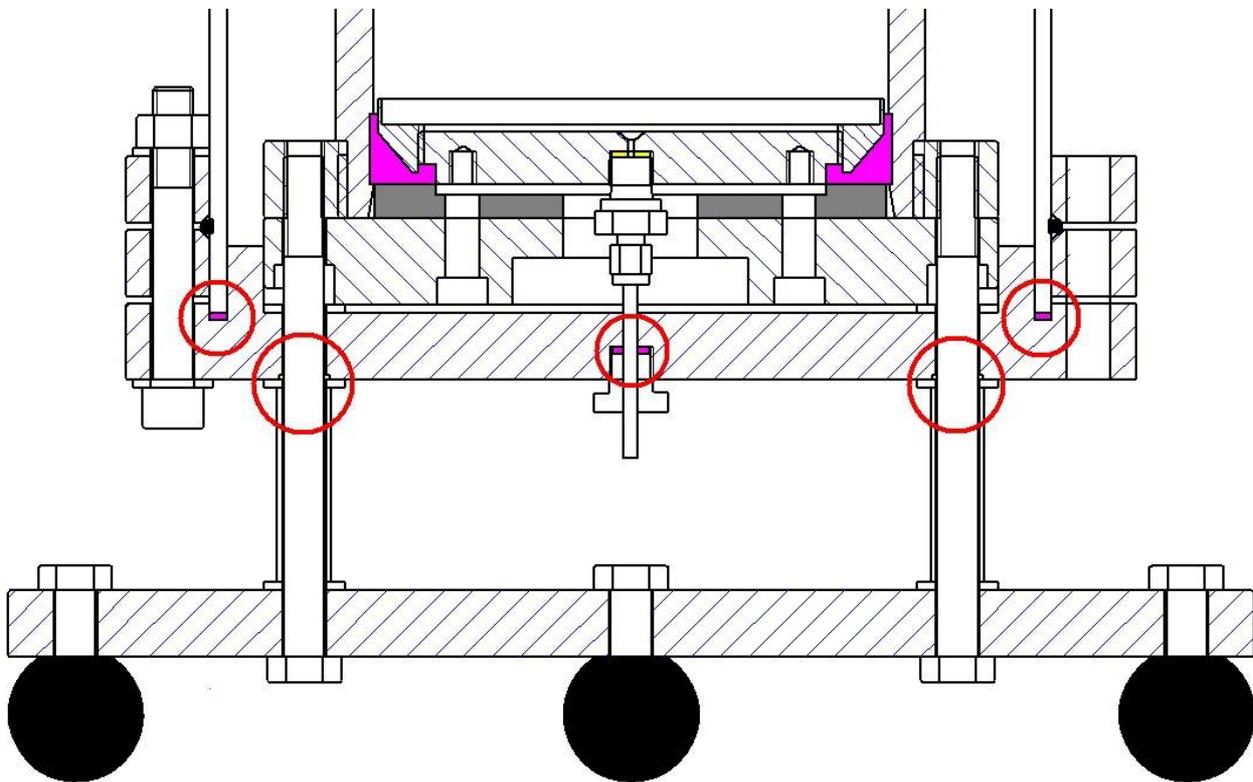


Fig. 3 Thermostating jacket bottom part design

The column bottom part is fully assembled and sealed, equipped with connecting output capillary. Four connecting bolts from the bottom flange are removed (Fig 4). The bottom covering jacket flange is placed onto the column flange (SS insert has to be under each hole). The basic jacket plate is equipped with four connecting bolts, inserts, distance tubes, next inserts and rubber rings. The column output capillary is sealed to the central port of the jacket flange.



Fig. 4 Column bottom end

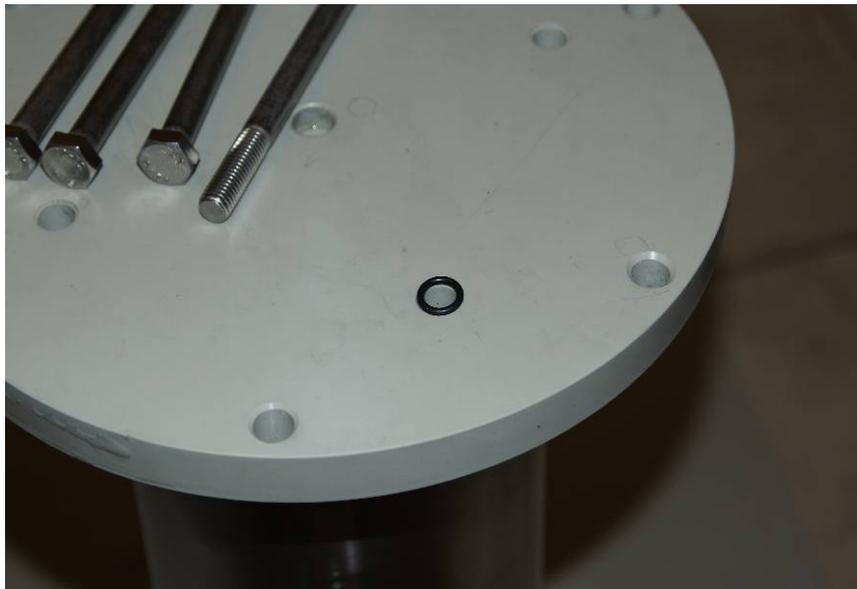


Fig. 5 Jacket bottom flange on the column



Fig. 6 Basic plate assembling to the column

When the plate and flange are fixed to the column bottom end, the whole set can be turned on new legs (see Fig. 7, 8).

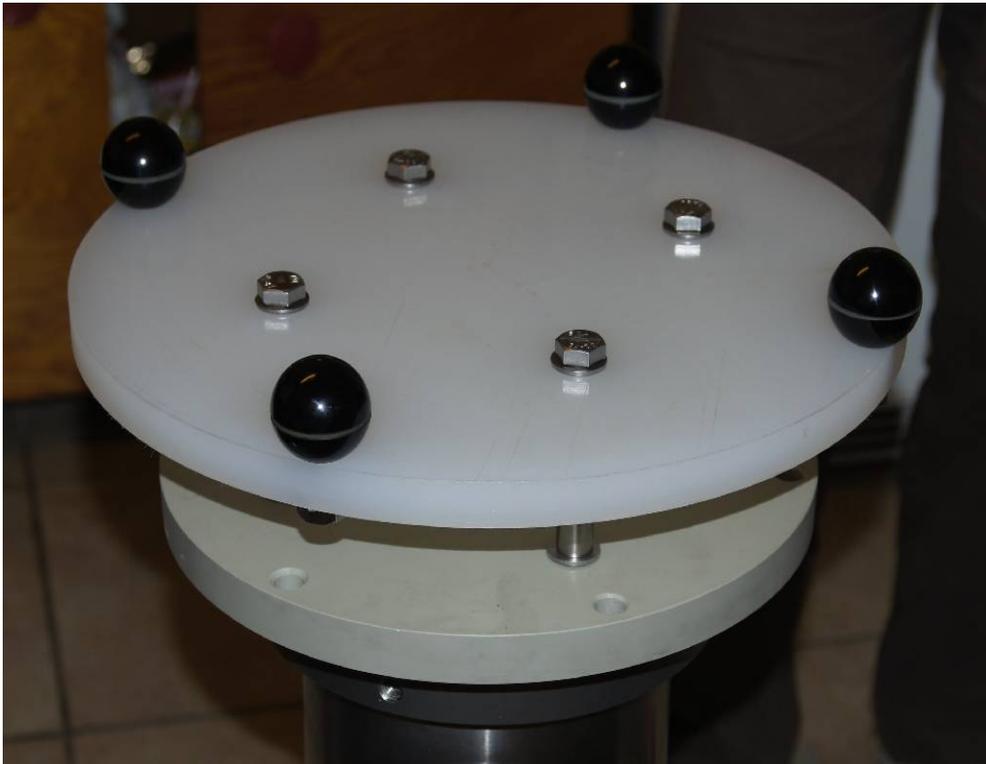


Fig. 7 Assembled bottom side



Fig. 8 Column on jacket legs

In this position column can be packed by sedimentation, closed, conditioned and tested. Finally the tube and upper parts of the jacket are connected to the system. Initially the tube (it is symmetrical) is connected to the bottom jacket flange using stainless steel bolts M12 with nuts. It is necessary to take care and not to tighten these bolts too much as silicone seal in the jacket flange is soft.

When the tube is assembled, the upper flange is connected the same way. The input capillary is in the central hole in the flange and tightened. Next set of bolts is used to fix the upper covering flange. The system is now ready to be connected to the circulating device.



Fig. 9 Thermostating jacket – tube assembled



Fig. 10 Thermostating jacket fully assembled

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