



Contribution ID: 270

Type: **not specified**

The helium turbo circulator – the heart of cooling systems

Monday, 17 September 2018 11:00 (2 hours)

In few last decades, great attention was paid to development in the field of fusion technology. Currently, the International Thermonuclear Experimental Reactor (ITER) is under construction followed by Demonstration Power Station (DEMO) which should be first nuclear fusion power plant in the world. Both of these facilities have one point in common – high power density and thus great demands to supporting cooling systems. Therefore, hand in hand with development of fusion technology, it is also necessary to pay attention to cryogenic, refrigeration and cooling technologies. The paper presents development of helium Turbo Circulator (TC) installed in the form of two pieces in experimental testing facility Helium LOop KARlsruhe (HELOKA) in Germany and as one piece in Helium For FUSion (HEFUS-3) located at ENEA Brasimone, Italy. All installed TCs have output power 232 kW and were/are used in pressured helium circuits for cooling mock-ups of important ITER parts – Test Blanket Module (TBM) and Tested Diverter Module (TDM). Simultaneously, the paper summarizes gained experience and deals with a concept of bigger TCs which could be used in real cooling systems for cooling Inboard Blankets (IB), diverters and Outboard Blankets (OB) of fusion reactor in ITER and DEMO project.

Co-author: KROUPA, Martin (Rotary Machines Workgroup ATEKO a.s.)

Presenter: KROUPA, Martin (Rotary Machines Workgroup ATEKO a.s.)

Session Classification: P1