

Proposals for a Master's thesis, 04.03.2026

Thermo-mechanical simulation and process optimization for welding a newly developed compressor model

Description

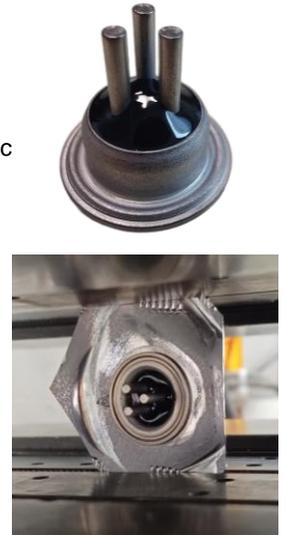
Electrical feedthroughs made of glass and metal ensure a reliable power supply to hermetic refrigerator compressors. These special feedthroughs connect the interior of the compressor to the external power supply. During the manufacturing process, these electrical feedthroughs are exposed to heat-induced stresses and strains that can lead to leaks.

As part of this master's thesis, hermetic electrical feedthroughs are to be welded into a flat sheet metal and their gas-tightness examined under various mechanical loads. The aim is to analyze the behavior of the feedthroughs in three states:

- Without tensile load (initial state),
- Under tensile load (during loading),
- After tensile load (after unloading).

The following points are to be addressed:

1. Literature research on hermetic compressors and electrical feedthroughs
2. Planning the test setup
3. Planning and manufacturing a test bench
4. Conducting the tests (tensile tests and leak tests)
5. Characterizing the samples after the test
6. Summarizing the results
7. Writing the master's thesis and a publication



Organisation

Supervisor: Assoc.Prof. Dipl.-Ing. Dr.techn. Norbert Enzinger, norbert.enzinger@tugraz.at
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Duration: immediately for at least 6 months, depending on assignment

Location: Working group Joining Technology, Kopernikusgasse 24, 8010 Graz

Compensation: € 3000,- (plus € 500,- success bonus)

Further Information

For further information please contact the secretariat of the institute or the supervisor.

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