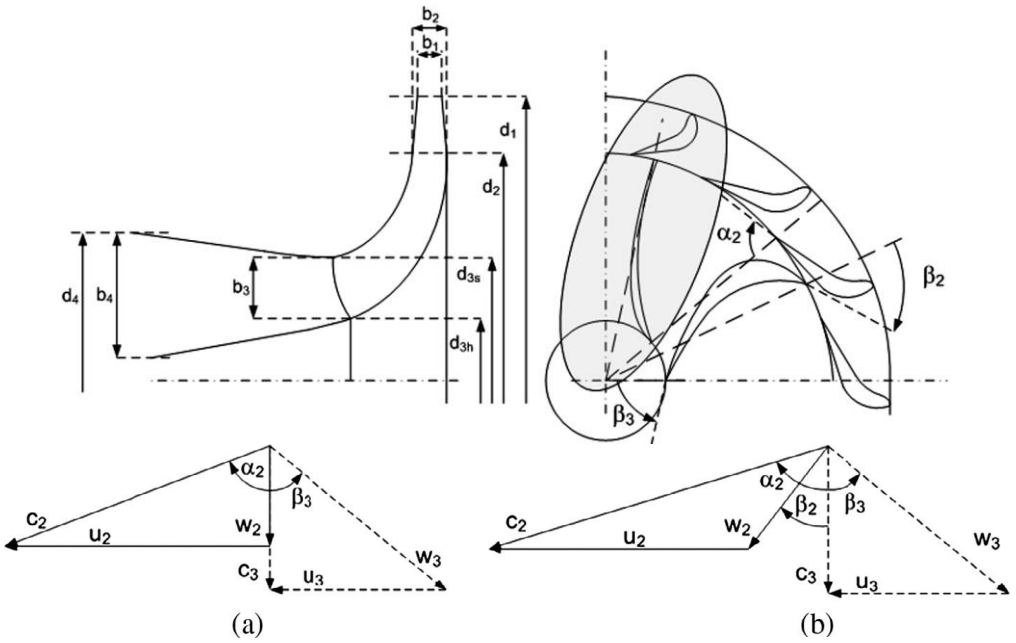
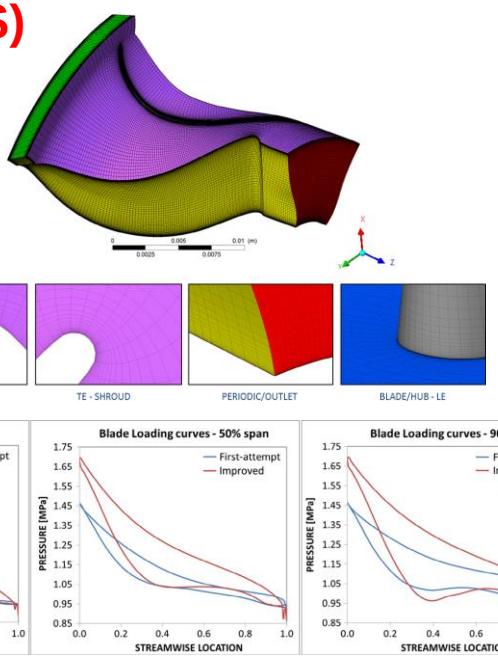
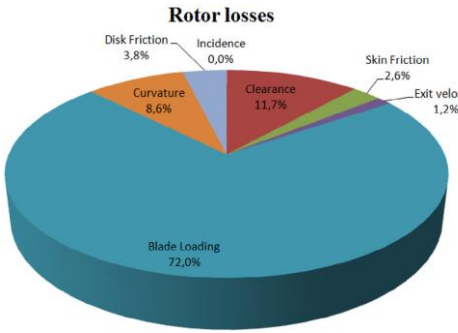
Mini and micro Expanders for ORCs
Radial turboexpanders

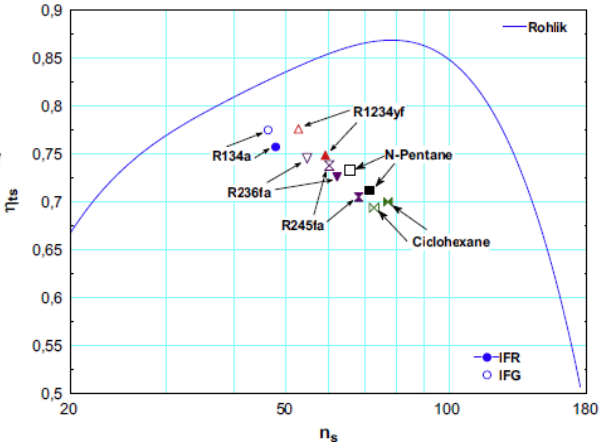
From accurate 0D design (real EOS with evaluation of losses) …

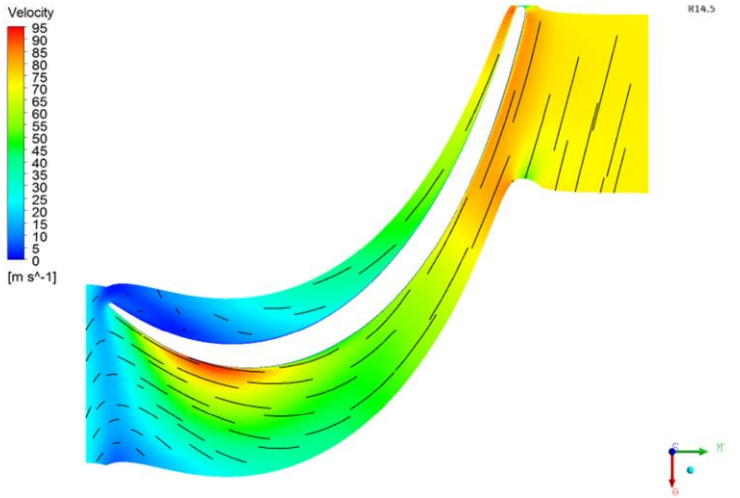


… to refined 3D design (real PR EOS)









Mini and micro Expanders for 2 phase organic fluids: Piston expanders

Project: EXP-HEAT

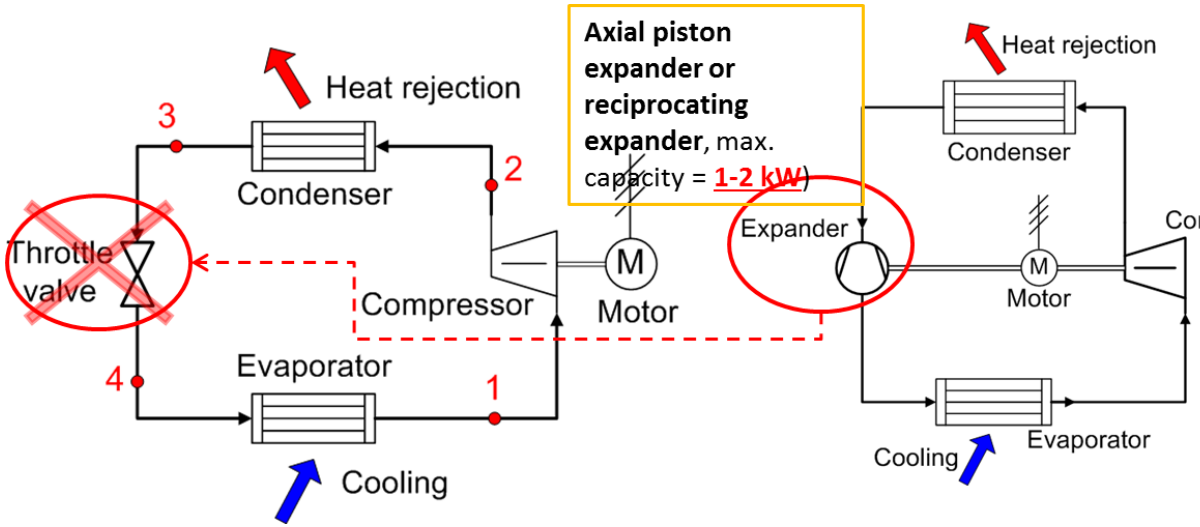
Energy recovery in new and retrofitted heat pumps using a dedicated expander concept

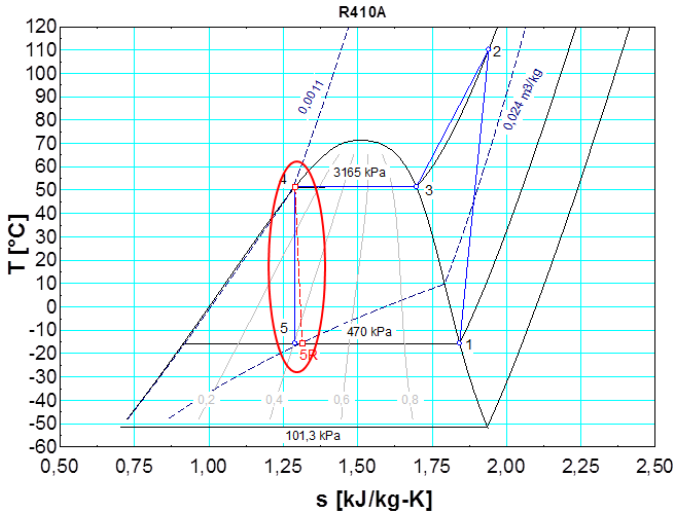
Grant agreement no: 605923

SEVENTH FRAMEWORK PROGRAMME

Objective

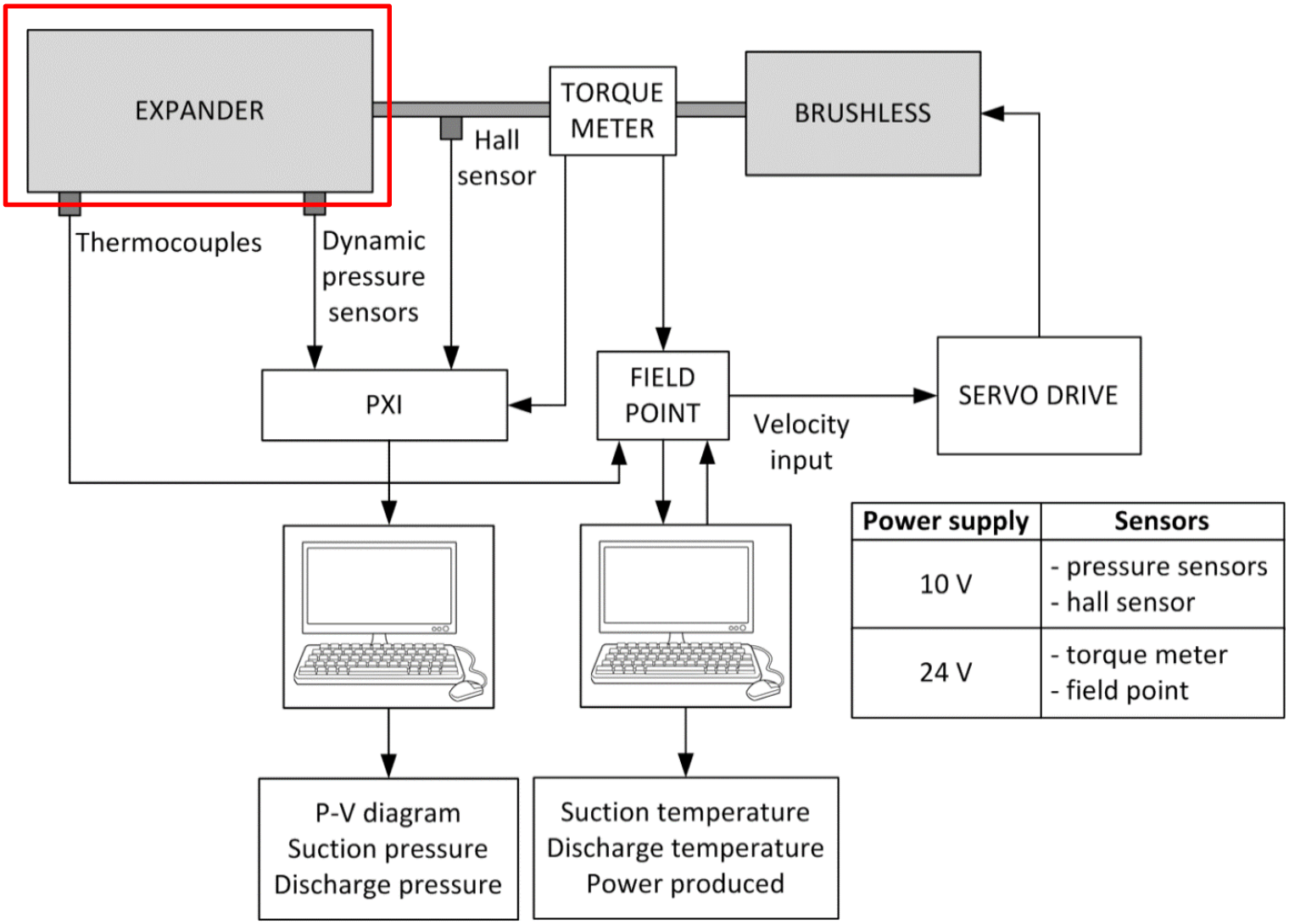
Development and test of a volumetric expander which is able to **exploit the condenser – evaporator pressure drop of heat pumps** (currently done into the dissipative throttling valve) to **reduce the compression power consumption**





Mini and micro Expanders for 2 phase organic fluids: Piston expanders

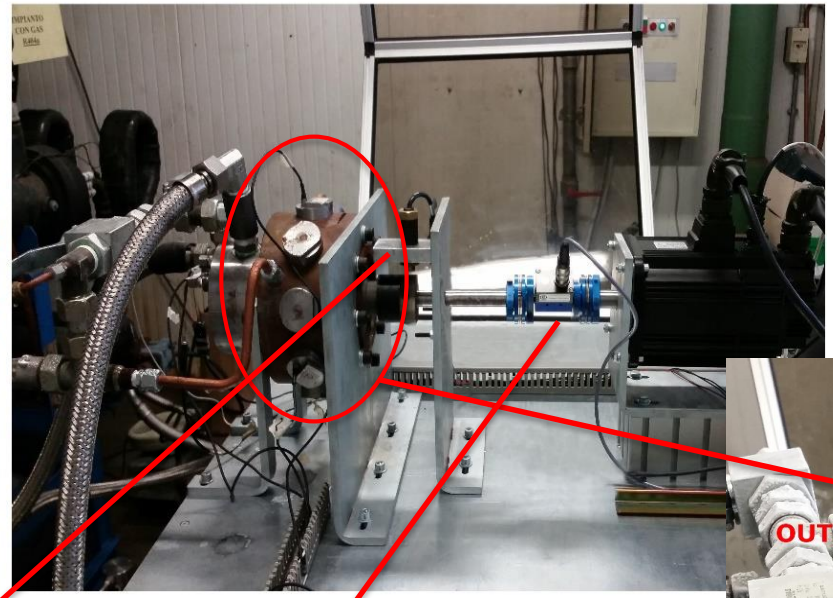
Data acquisition chain

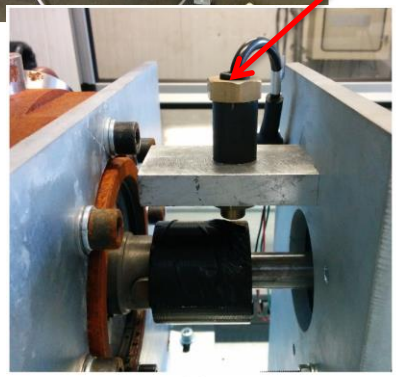


Power supply	Sensors
10 V	- pressure sensors - hall sensor
24 V	- torque meter - field point

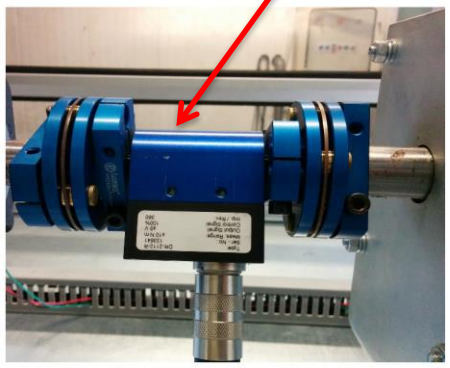
Mini and micro Expanders for 2 phase organic fluids: Piston expanders

Expander test equipment





(a)



(b)

Mini and micro Expanders for 2 phase Transcritical CO2: Piston expanders

Trans – Supercritical CO2 test rig at LINEA Lab