Cost Reduction
Industrial Heat Pumps

Objective:
• The overall objective is to develop and implement heat pump technology that is able to generate heat in an economically feasible way for industrial applications, using waste heat.
• More specific, this project wants to demonstrate that a cost target of 150-200 €/kWth can be achieved.

Motivation:
• Heat pumps allow for the recycling of waste heat, by upgrading the temperature level of this waste heat.
• The CAPEX of industrial heat pumps presently hampers the widespread implementation of this technology.
• The broad implementation of heat pumps in the Dutch industrial sector can annually save a staggering 87 PJ of energy.

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Cluster: Utilities and Optimal use of Heat
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Partners: AkzoNobel, Bronswerk, Cosun, DOW, ECN, FME, IBK, ISPT, LambWeston, Smurfit Kappa, Tata
Budget: 689.381 €
Planning: October 2016 – December 2018

Project scope:
• End-user demands & system integration
• Cost reduction options (components, engineering, manufacturing, measurement & control)
• Experimental verification of two heat pump concepts (compression, thermoacoustic)
• Market potential & consortium for follow-up

Impression of full scale TA heat pump
TA compressor

Applicability:
• Targeted markets are the refining, chemical, food, paper & pulp and steel sector.
• Temperature levels up to 200°C.
• New worldwide business opportunities for equipment manufacturers and technology providers

Status & Outlook:
• Market potential & standard sizing determined
• Investment costs < 200 €/kWth seem feasible for compression heat pumps
• TA cost reduction study shows 270 €/kWth, further reduction needed
• TA experiments planned for Q4
• Compression heat pump experiments delayed