

Contract/Proposal No. 019988

POLYSMART

POLYgeneration with advanced Small and Medium scale thermally driven  
Air-conditioning and Refrigeration Technology

Integrated Project

Call: FP6-2004-TREN-3

Priority: SUSTDEV-1.1.4 - POLYGENERATION  
Demonstration Projects

## **D3-25 SP4b-System Assembled**

Due date of deliverable: month 16

Actual submission date: 2008-07-30

Start date of project: 2006-06-12

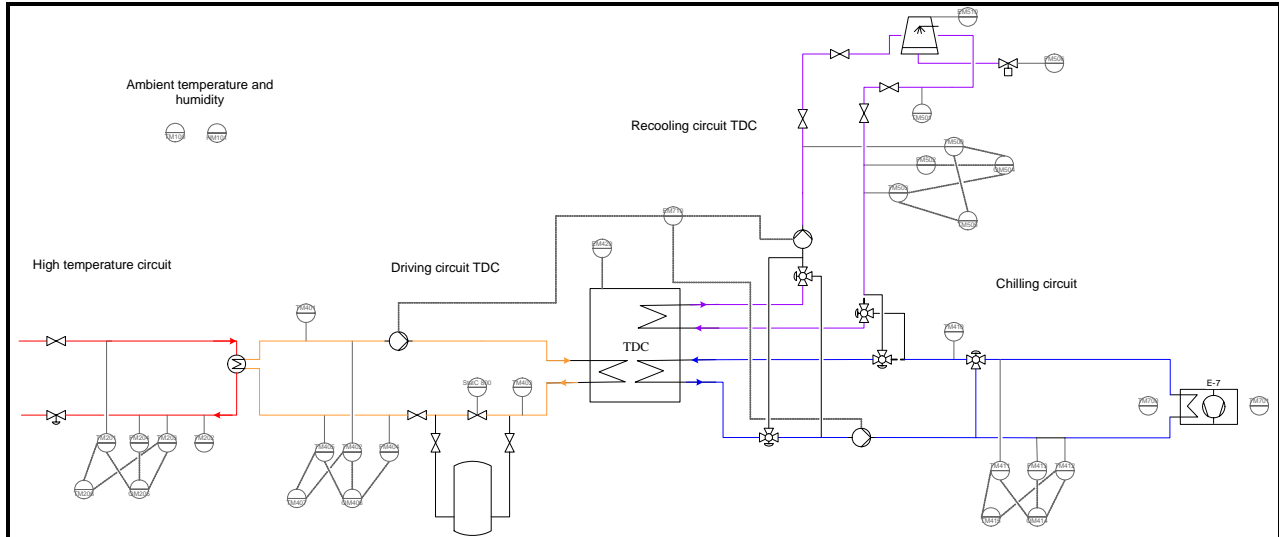
Duration: 48 months

Organisation name of lead contractor for this deliverable: ISE  
Revision: final]

Project co-funded by the European Commission within the Sixth Framework Programme (2002-2006)		
Dissemination Level		
PU	Public	X
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission	
CO	Confidential, only for members of the consortium (including the Commission Services)	

## Subproject SP4b – system assembled/erected Demonstration System in Ludwigshafen / Germany

### 1) Description of assembled system



#### Kind of load, building description

The load is an air handling unit supplying fresh air to the canteen of the company TWL. The capacity of the chiller is much smaller than the load, thus the full cooling power can be used.

#### Heat and cold distribution system

A water to air heat exchanger is installed in the air handling unit. Cold is distributed through the ventilation air.

#### Heat rejection

A 13.7kW dry heat rejection system with a water spray function for a maximum of 50h of operation a year is installed. The system is installed on the roof of the building.

#### mCHP

The chiller is connected to the district heating net of the company TWL. This heating net is fed by a central CHP plant operated with heat from a waste incineration plant.

#### TDC

One SorTech silica gel adsorption chillers with 5,5kW cooling power (SorTech ACS05).

#### Storage

One mixing storage is installed in the return line from the chiller in order to even out the temperature peaks during operation. No further storage is installed.

#### Data acquisition system

The data acquisition is integrated into the building control system and has been carried out by the company Kiebeck & Peter.

#### Sensors

Sensor installed are:

- 4 heat flow meters (including flow rate and two temperatures each),
- 8 additional temperature sensors
- two humidity sensors.
- 4 electricity meters

A complete list is contained in the document: 'PolySMART\_SMSdescription\_SP4b\_v0.xls'

## 2) Pictures of assembled system

Aerial view of the installation site:



CHP unit



Heat rejection system

Hydraulic installation with mixing storage



Connection to air handling unit



Dissemination panel

