

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

D3-22 SP2-System Assembled

Due date of deliverable: month 14

Actual submission date: 2008-07-30

Start date of project: 2006-06-12

Duration: 48 months

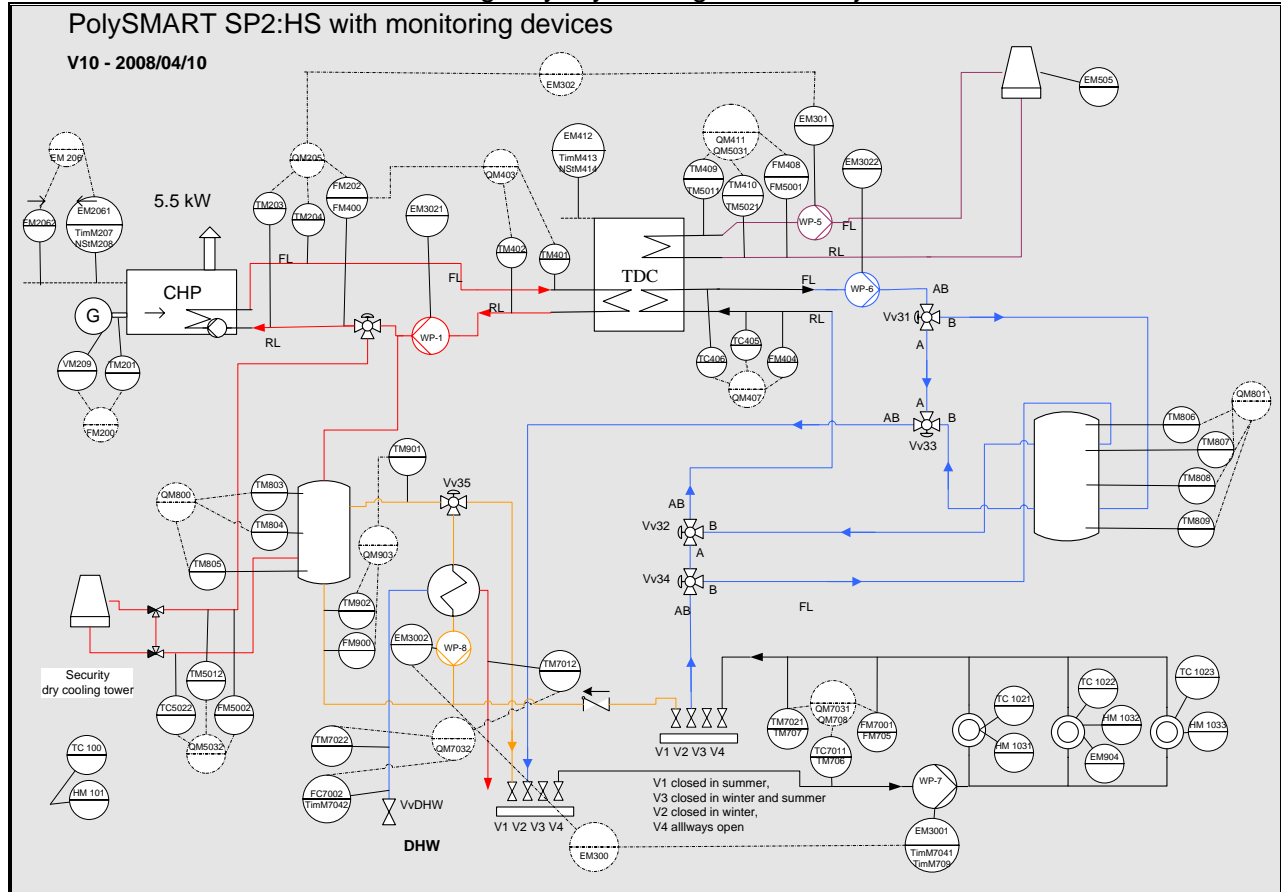
Organisation name of lead contractor for this deliverable: [Ikerlan](#)
[Revision \[final\]](#)

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 SPxx – system assembled/erected

1) Description of assembled system

The CHP outlet is directly connected to the TDC in order to reach the maximum temperature at TDC inlet driving circuit. In the return line there is a mixing valve that mixes water from the TDC outlet and from the hot storage in order to keep the CHP inlet below 78°C. In case of the hot tank reaches 78°C there is an emergency dry cooling tower to reject that waste excess heat.



Kind of load, building description

The installation is used to air-condition a corridor (60 m²) and the combustion laboratory (120m²) of Ikerlan facilities sited in Vitoria-Gasteiz, Araba, Spain (Latitude 42°51' N, Altitude 525 m). The building was built in 1999 following the NBE-CT-79. The number of degree days based on 18°C for cooling are 308 and for heating are 2100. A consumption of 200 litres/day of DHW has been added to the installation.

Heat and cold distribution system

Fan coils are used for corridor and there are radiant panels on the ceiling of the combustion laboratory.

Heat rejection

Dry air cooling tower is used for heat rejection. With 36 l/min water flow rate at 50°C and 7580 m³/hr air flow rate, at 35°C, the dsipation capacity is 20.6 kW.

mCHP

Senertec DACHS HKA G5.5. The nominal electricity capacity is 5.5 kW and the thermal capacity is 12.5 kW. It is fueled with Natural Gas. The electrical efficiency is 26.8% and global efficiency is 88%.

TDC

Rotartica 045. The cooling capacity is 4.5Kw and COP of 0.62 when the driving temperature is 90°C, recooling temperature is 35°C and the chilling temperature outlet is 12°C.

Storage

Hot storage tank 370 liters

Cold storage tank 1000 liters

Data acquisition system

Agilent and Field Point

Sensors

List of sensors from the CMD and SMD.

2) Pictures of assembled system

