WKM

Thermal process technology
Environmental simulation
Project planning

Whatever you are going to simulate.

We project it.

Checklist

Conditioning systems for liquid media

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In order to advise you correctly and to be able to submit the desired offer for your specific need, we ask you, as far as possible, to answer the following questions. Thank you in advance. If you have any questions for answering the checklist, please contact us at +49 5145-28666-10.

Contact data

Company _____

Name _____

E-mail _____

Phone no. _____ Country _____

Street _____ House no. _____

Postcode _____ Place _____

Task

What should be heated and / or cooled?

_____

_____

_____

Brief description of your consumers / test specimen:

_____

_____

_____

In which temperature range should your consumer be conditioned?

of _____ °C to _____ °C

Type of structure

☐ Standard frame construction ☐ Set up in control cabinet housing ☐ Free cooling unit

☐ Outdoors installation ☐ Cooling system and temperature / Volume flow control unit separated

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Which heat carrier should or can be used?

☐ Water ☐ Water/glycol ☐ Thermal oil ☐ _____

Mixture ratio _____

Which minimum heating or cooling capacity is required from the tempering system?

(see Orientation Guide)

Heating capac. _____ kW No. of circuits _____

Cooling perf. _____ kW at _____ °C No. of circuits _____

Cooling perf. _____ kW at _____ °C No. of circuits _____

Cooling perf. _____ kW at _____ °C No. of circuits _____

On-site existing connections

☐ Compressed air. _____ bar

☐ Electrical _____ volt

☐ Cooling water inlet _____ °C Return _____ °C

☐ Brine inlet _____ °C Return _____ °C

☐ Other _____

Distance between the test specimen and heating / cooling system?

Distance (in metres) _____ Other _____

Which volume flow rate or which pressure should the pump provide at which temperature?

Volume flow rate _____ l/min with counter pressure of _____ bar at temperature of _____ °C

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Additional information for calculation of the power (kW):

Material of the test specimen
or the consumer to be tempered _____

Mass of the test specimen (unit in kg) _____ kg
(incl. piping of test specimen to the heating/coolingsystem;
for possible layout of the temperature gradients) _____

Volume of the test specimen (unit in l) _____ l
(test specimen and piping)

Pressure loss of the test specimen (unit bar) _____ bars
(plus piping to test specimen, valves, at max.
volume flow rate) _____

Other _____

_____

Which regulation is required?

- ☐ Initial flow temperature control
- ☐ Initial pressure control
- ☐ Pressure limitation
- ☐ Other _____
- ☐ Volume flow control
- ☐ Differential pressure control over the consumer circuit
- ☐ Maximum pressure control / Transfer control

Which interfaces are required?

- ☐ External setpoint pre-set for temperature, flow, pressure
- ☐ Read out actual values
- ☐ 0 ... 10 V
- ☐ 4 ... 20 m A
- ☐ Other _____
- ☐ BUS
- ☐ EtherNet
- ☐ EtherCAT
- ☐ PROFINET

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Piping layout Orientation Guide (ISO-pipe in standard wall thickness (acc. to DIN EN 10220))

Nominal values DN mm	Pipe thread R inch	Inside diameter Dr mm	Outside diameter D mm	Inside cross-section q cm^2		Contents l_1 1/m	Volume flow rate at 1 l/min Q1 l/min / m/s
06	1/8	7	10.2	0.39	=	0.039	2.33
08	1/4	9.9	13.5	0.77	=	0.077	4.66
10	3/8	13.6	17.2	1.45	=	0.145	8.66
15	1/2	17.3	21.3	2.35	=	0.235	14.16
20	3/4	22.3	26.9	3.90	=	0.390	23.33
25	1	28.5	33.7	6.38	=	0.638	38.33
32	1 1/4	37.2	42.4	10.88	=	1.088	65.33
40	1 1/2	43.1	48.3	4.59	=	1.459	87.5
50	2	54.5	60.3	23.31	=	2.331	140

Orientation guide for determining the heating and cooling capacity of your consumers

(Required power in kW to heat or cool off 100 kg of a substance)

	1 min	30 min	60 min	120 min
Medium				
Water	70	2.3	1.2	0.6
Thermal oil	42	1.4	0.7	0.35
Goods				
Aluminium	15	0.49	0.24	0.12
Stainless steel	8.5	0.28	0.14	0.07
Steel	8.2	0.27	0.14	0.07

Notes

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