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All about e-mobility

Test bench cooling system PKS1

for the cooling of test specimen (e. g. electric motors, inverters, ...)

Main features

- Two identical cooling modules in one combined appliance
- Connection of 2 test specimens to separate cooling circuits
- Cooling of test specimens (e. g. electric motors with/without gears, inverters, ...) using liquid cooling media
- 60 kW cooling capacity per cooling module
- Control via master-master-bridge EL6695 (Beckhoff)

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Technical data:

Mains voltage:	3 AC400 V, N, PE (V00=standard) 3 AC480 V (V01) 50 – 60 Hz
Power requirement:	approx. 2 kVA (with 2 cooling modules)
Drip tray:	max. 18 Ltr collection volume (horizontal position)
Environment:	max. 5 ... 40 °C, no condensation
Control cabinet:	protection class IP54
Control:	coupling to master-master bridge EL6695 (Beckhoff)
Operational readiness:	approx. 1,5 min. after Power On
Connectors:	RJ45 for EtherCat (XEC) and remote desktop panel (XLAN) Binder 6-pol socket for emergency stop loop, plug-in status, ext. level

Cooling water recooling system (“house water connection”):

Flow:	4 ... 6 bar (58 ... 87 psi), 20 ... 32 °C, Ethylene glycol/water 50%/50%, Customer supplied
Return:	0 ... 1,5 bar (21.7 psi)
Connection:	RP 1½″ external thread
Water requirement:	approx. 150 L/min (with 2 cooling modules) for thermal power to be dissipated max. 2x 60 kW

Per cooling module:

Cooling capacity:	min. 60 kW, @ 65 °C coolant temperature
Temperature control:	set point 25 – 80 °C, depending on domestic water flow temp. and cooling capacity
Flow rate:	10 to 70 L/min at 3.0 bar (43.5 psi) external pressure drop
Pump pressure:	max. 5.5 bar at 0 L/Min (pump CME3-4)
Sensor system:	Volume flow SM8020 (ifm) Pressure flow/return PN7093 (ifm) Temperature flow/return TN2415 (ifm) Fill level tank float switch
Cooling medium:	Ethylene glycol/water 50%/50% (customer supplied)
Cooling circuits:	2 outputs for main and auxiliary cooling circuit Volume flow divisible by manually operated shut-off valves
Pressure reducer:	backpressure setting 2.5 bar (36 psi, YM domestic water)
Expansion tank:	filling volume 8 Ltr max. overpressure 100 kPa (14,5 psi)
Connection outlets:	G 1″ female thread (ball valve with socket connection)

Dimensions and weight:

Dimensions:	approx. 92 x 92 x 205 (W x D x H in cm) Outer dimensions incl. protrusions for cable holders, water connections, eyebolts etc.
Weight:	approx. 390 kg