

with regard to the flow through the cooling bodies 38. However, there is no need that the valves are operated by the controller 14, instead they may only be adjusted once to set the relative flows through the coolant channels through the motor/generator 10 and the cooling components 38.

Fig. 3 shows the motor/generator 10 of the UPS-system in a top view, and **Fig. 4** in a sectional view along a vertical section line A-A according to Fig. 3. The motor/generator 10 comprises a housing 39 in the middle of which a stator 40 is arranged. Around the stator 40, a rotor 42 is mounted in rotation bearings 43 and 44 rotating about a vertical rotation axis 41. The rotor 42 is mechanically coupled to a flywheel 45, which rotates with the rotor 42 about the rotation axis 41. In operation of the motor/generator 10 as a motor, the flywheel 45 is rotated about the rotation axis 41 to store kinetic energy in the flywheel 45. This kinetic energy may be re-transformed into electric energy, when the motor/generator 10 is operated as a generator. The coolant channels 46 of the coolant circuit 35 through the motor/generator 10 include housing channels 47 through the housing 39 and for cooling the housing 39, and stator channels 48 through the stator 40. Further, **Fig. 4** shows a lower vertical support 49 via which the motor/generator 10 is mounted in the partial cabinet 17 of the machine cabinet 16.

CLAIMS

1. UPS-system (1), in which the following components are arranged in a machine cabinet (16):
 - an AC-to-DC converter (7) having a power output stage (33) and connected to a DC voltage link (33) on its output side,
 - a DC-to-AC converter (8) having a further power output stage (33) and connected to the DC voltage link (9) on its input side,
 - a bidirectional DC-to-AC converter (51) having an even further power output stage (33) and connected to the DC voltage link (9),
 - a bypass (11) to the AC-to-DC converter (7) and the DC-to-AC converter (8) connected in series, in which a bypass switch (12) is arranged,
 - a controller (14) for the AC-to-DC converter (7), the DC-to-AC converter (8), and the bypass switch (12) and
 - a blower (24) drawing air out of surroundings (25) of the machine cabinet (16) through air filters (26) into the machine cabinet (16), blowing the air within the machine cabinet (16) through a heat exchanger (27) and ejecting the air out of the machine cabinet (16) again,
 - a coolant circuit (35), in which the heat exchanger (27) is arranged together with a coolant pump (37) and cooling bodies (38) for the power output stages (33),

characterized in

- that a motor/generator (10) having a rotor (42) to which a flywheel (45) is mechanically coupled is connected to the bidirectional DC-to-AC converter (51) at its AC side,
 - that coolant channels (46) through the motor/generator (10) are arranged in the coolant circuit (35), wherein the coolant channels (46) include stator channels (48) which run through a stator (40) of the motor/generator (10).
2. UPS-system (1) according to claim 1, **characterized in** that the coolant channels (46) include housing channels (47) which run through a housing (39) of the motor/generator (10).
 3. UPS-system (1) according to claim 2, **characterized in** that the housing (39) encloses the rotor (42) and the flywheel (45) coupled thereto.

that they lead a third partial flow (31) of the air through the machine cabinet (16) around the bypass switch (12).

13. UPS-system (1) according to any of the claims 10 to 12, **characterized in** that the blower (24) and the further air guiding devices are arranged and designed such that they merge all partial flows (28, 29, 30, 31) upon entry of the air in the blower (27), wherein the heat exchanger (27) is optionally arranged downstream of the blower (24).

14. UPS-system (1) according to any of the preceding claims, **characterized in** that the machine cabinet (16) comprises two partial cabinet (17, 18) arranged side by side, wherein a partition wall (19) of the machine cabinet (16) is formed by two overlapping walls (20, 21) of the partial cabinets (17, 18) having aligned air passage openings (22, 23).

15. UPS-system (1) according to claims 14, **characterized in** that the one partial cabinet (17) encloses the motor/generator (10), the blower (24), the heat exchanger (27) and the coolant pump (37), and that the other partial cabinet (18) encloses the power output stages (33), filter inductors (34) of the AC-to-DC converter (7) and/or the DC-to-AC converter (8), the bypass switch (12) and the controller (14).