Claims

1. ~~System for control of rotational speed and power on a heavy machine, more specifically on a rotating process machine (P), such as for example a turbine or a propeller, where the rotating process machine (P) is connected to at least one motor or generator (M1) through a shaft and arranged to rotate with a rotational speed given by the motor or generator (M1),~~
~~the motor or generator (M1) is connected to a control system (C) and the rotational speed of the motor or generator (M1) is arranged to be controlled by a control system (C) through said shaft,~~
~~characterized in that~~
~~the rotating process machine (P) comprises a load control (PC) arranged to be adjusted, the control system (C) is connected to the rotating process machine (P) and arranged to control the load control (PC) in the rotating process machine (P) to thereby achieve soft transitions between several selectable rotational speeds, and lower energy consumption by step by step adjusting the power and rotational speed of the motor or generator (M1) to varying energy requirements.~~A system for control of rotational speed and power on a heavy machine such as a rotating process machine, the system including:
at least one motor connected through a shaft on the rotating process machine, the rotating process machine arranged to rotate with a rotational speed given by the motor; and
a control system connected to and arranged to control the rotational speed of the motor,
the rotating process machine comprising an adjustable load control, wherein the control system is connected to the rotating process machine and controls the adjustable load control to thereby achieve soft transitions between several selectable rotational speeds, and lower energy consumption by step by step adjusting the power and rotational speed of the motor to varying energy requirements.

2. System according to claim 1,
wherein the control system ~~(C)~~ is connected to and arranged to control a first control board ~~(U1)~~,

and the first control board ~~(U1)~~ is connected to and arranged to control the motor ~~or generator (M1)~~.

3. System according to claim 2,
wherein the first control board ~~(U1)~~ comprises at least one set of thyristors ~~(T1)~~ and at least one sensor ~~(CS)~~, for example a current sensor.

4. System according to claim 3,
wherein the first control board ~~(U1)~~ also comprises at least two contactors ~~(S1, S2)~~.

5. System according to claim 2,
wherein the control board ~~(U1)~~ comprises at least two sets of thyristors ~~(T2, T3)~~ and at least two sensors ~~(CS)~~.

6. System according to claim 2,
wherein the control board ~~(U1)~~ comprises at least one frequency converter ~~(FC)~~ and at least one sensor ~~(CS)~~.

7. System according to claim 1,
wherein the system comprises at least a first motor ~~or generator (M1)~~ and at least one second motor ~~or generator (M2)~~ interconnected via a shaft,
the second motor ~~or generator (M2)~~ is arranged to assist the first motor or generator ~~(M1)~~ to reach high rotational speeds.

8. System according to claim 7,
wherein the first motor ~~or generator (M1)~~ and the second motor ~~or generator (M2)~~ are connected to and arranged to be controlled by a first and a second control board ~~(U1, U2)~~, respectively.

9. System according to claim 7,
wherein the first motor ~~or generator (M1)~~ has at least one first speed ~~(H)~~ and the second motor ~~or generator (M2)~~ has at least one second speed ~~(L)~~.

10. System according to claim 7,

wherein the first motor ~~or generator (M1)~~ has a power between three and ten times larger than the power of the second motor ~~or generator (M2)~~.

11. System according to claim 3 and 5,

wherein the thyristors ~~(T1, T2, T3)~~ are 3-phase anti-parallel connected thyristors or equivalent power semi-conductors.

12. System according to claim 1,

wherein the system is connected to an external power supply with the frequency 50 Hz.

13. System according to claim 1,

wherein the rotating process machine ~~(P)~~ has a power larger than for example 100 kW.

14. System according to claim 1,

wherein the control system ~~(C)~~ is connected to and arranged to control at least one clutch ~~(CL)~~.

15. System according to claim 1,

wherein the rotating process machine ~~(P)~~ is connected to a gear ~~(G),~~ and

the gear ~~(G)~~ is connected to the motor ~~or generator (M1)~~.

16. System according to claim 7,

wherein the rotating process machine ~~(P)~~ is connected to a gear ~~(G)~~,

the gear ~~(G)~~ is connected to the first motor ~~or generator (M1)~~ and the second motor ~~or generator (M2)~~.

17. System according to claim 1,

wherein a remote control system ~~(RC)~~ is connected to the system.

18. System according to claim 1,

wherein at least the one motor ~~or generator (M1)~~ is connected to a non-electric motor ~~or generator (HM)~~ via a shaft, the non-electric motor ~~(HM)~~ is controlled by the control system ~~(C)~~.

19. System according to claim 18,
wherein the non-electric motor ~~(HM)~~ is operated by a power supply ~~(S)~~.

20. System according to claim 18,
wherein the non-electric motor ~~(HM)~~ is connected to a rotational speed sensor ~~(SP)~~.