

AGN 156 – STAMFORD Alternators Direction of Rotation

DESCRIPTION

Some alternators within the STAMFORD range are fitted with a shaft mounted cooling fan that has inclined fan blades. This fan provides optimum cooling performance when the alternator is rotating in a clockwise Direction Of Rotation (DoR), when viewed from the Drive End (DE). Optimum performance includes a desire to operate at maximum efficiency and minimum noise. This is satisfied by having the fan’s blades backward inclined from a perfect radial position under the Generating Set’s normal DoR.

If it becomes necessary to run the alternator in an Anti-clockwise DoR, when viewed from the Drive End (DE), then the fan does not satisfy all aspects of optimum performance. Under this operating condition, the inclined fan blades are now forward inclined and so, change the alternator’s performance characteristics, as follows:

- The fan’s ability to move sufficient cooling air to keep the alternator operating temperatures within designed limits has now changed. Therefore; the alternator can no longer be operated at its published continuous Class ‘F’ or ‘H’ Industrial or Marine ratings without the need for a de-rate. These de-rates will also apply for operation at Stand-By ratings.

De-rates for anti-clockwise DoR by frame size:

S0/S1	5%
P0/P1	5%
UC 22 (S2)	0%
UC 27 (S3)	0%
UCD 27	Anti-clockwise DoR is not allowed
S4	0%
HC5 (S5)	0%
S6	5%

De-rates for anti-clockwise DoR by frame size:

P7 (Cores A/B/C/D/E/F/G)	10% with a standard fan
P7 Core H	Anti-clockwise DoR is not allowed
P7 (except H core)	0% with a dedicated fan factory fitted for ACW rotation
MV7	10%
P80	0% (A dedicated fan is factory fitted, depending on DoR requirement).

- The operating efficiency of the fan (only) will be reduced and therefore, it will absorb more of the engine's available power. The efficiency data published in technical data sheets is based on a clockwise DoR only.
- The noise level of the fan will slightly increase due the forward inclined blades creating a higher pressure at the blade tip. The broadband noise level may well increase by some 2dBA.

NOTE:

It must be remembered that when operating in an anti-clockwise DoR, the alternator's electrical output will have a 'reversed' phase rotation. This must be compensated for, by setting the appropriate phase rotation of the 'customer' connections. Refer to wiring diagram DA*-R01.