

**Technical Data Sheet for AvK-Alternators**

FM 7.3-5

Date:	01/08/12	Customer:	Rolls Royce
Project No.:	P-12.10952/N	AvK Reference:	1-442-0001301-2

Object data:

Site:		Prime Mover:	Diesel engine
Application:	Marine	Manufacturer:	Rolls Royce

Generator data:

Generator:	DIG 150 m/6 W	Poles:	6	Standards:	IEC 60034; DNV
Rated power:	4114 kVA	2880 kWe	2981 kWm		
Power factor:	0.70				
Power at pf 1,0	2915 kVA	2915 kWe	2981 kWm		
Rated voltage:	6 kV				
Speed:	1000 1/min				
Frequency:	50 Hz			Voltage range / frequency range:	
Rated current:	395.9 A			Zone A according IEC 60034-1 (dU = +/-5%, df = +/-2%)	

Winding pitch:	ca. 5/6				
Insulation class:	Stator: Class F	Rotor: Class F		Temperature rise:	F

Ambient temperature:	45 °C	Environment:	Standard environment
Site altitude:	0 m		
Enclosure:	IP44	Filter:	

Cooling:	IC 81W - watercooled				
Coolant:	Freshwater	Temperature	38 °C	Temperature Air inlet	48 °C
		Coolant:		generator:	
		Cooling air vol.:	3.5 m³/s	Cooling water quantity:	13.2 m³/h
Moment of inertia (I):	448 kgm²	Weight:	15100 Kg	Losses (environment):	9 KW
				Losses (cooling):	92 kW

Wires:	4 terminals, starpoint connected in terminal box
Operation mode:	Island mode with identical generators in parallel
Regulators:	
Voltage regulator:	DECS 100

Electrical data: (acc. IEC)

Efficiencies:	110%	100%	75%	50%	25%
Power factor 0.8	96,85	97	96,83	96,02	94,15
Power factor 0.9	97,27	97,4	97,15	96,25	94,25
Power factor 1.0	97,68	97,79	97,47	96,47	94,35
Efficiencies for power factor: 0.7	96.43	96.61	96.51	95.8	94.05

Reactances and time constants

	unsaturated	saturated		unsaturated	saturated					
X _d	1.72	1.55 p.u.	X _q	0.86	0.84 p.u.	T _{d0'}	3.1 s	T _{d0''}	0.02994 s	
X _{d'}	0.259	0.259 p.u.	X _{q'}	0.86	0.84 p.u.	T _{d'}	0.47 s	T _{q0'}	0.4 s	
X _{d''}	0.190	0.173 p.u.	X _{q''}	0.190	0.190 p.u.	T _{d''}	0.02 s	T _{q0''}	0.18105 s	
X ₂	0.199	0.181 p.u.	X ₀	0.057	0.052 p.u.	T _a	0.08 s	T _{q'}	0.4 s	
X _{1s}	n.a.	0.104 p.u.						T _{q''}	0.04 s	

Short circuit ratio saturated: 0.65 Z_n 8.751 Ohm**Short circuit data:**

Initial short circuit current (3-phase):	I _{k''}	2288 A	
Max. peak current (3-phase):	I _S	5824 A	
Sustained short circuit current:	I _k	1188 A	3 x rated current for max.10 s
Initial short circuit torque:	M _{k2}	295.2 kNm	
	M _{k3}	177.1 kNm	
Max. faulty synchron moment:	M _f	634.7 kNm	
Rated kVA torque:	M _{SN}	39.29 kNm	
Rated torque	M _N	27.50 kNm	
Shaft torque	M _{Sh}	28.46 kNm	

Load application:

max. load application: 2383 kVA (corresponds to 57,91 % von 4114 kVA) for Power factor 0.4 15% transient voltage drop	Power: 4114 kVA Power factor: 0.7 transient voltage drop: -21.3 %
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Remarks: