



Specification Sheet for WorldWide Electric AFD4104

CONTROL SYSTEM	SELF-EXCITED					
AUTOMATIC VOLTAGE REGULATOR	AGR460 (STANDARD)			AGR440 (OPTIONAL)		
VOLTAGE REGULATION	$\pm 1.0\%$			$\pm 1.0\%$		
SUSTAINED SHORT CIRCUIT	NONE – SELF-EXCITED MACHINES CANNOT SUPPLY A SHORT-CIRCUIT CURRENT					
INSULATION SYSTEM	CLASS H					
PROTECTION	IP23					
RATED POWER FACTOR	0.8					
STATOR WINDING	SINGLE LAYER CONCENTRIC					
WINDING PITCH	TWO-THIRDS					
NUMBER OF WINDING LEADS	4					
STATOR WINDING RESISTANCE	0.19 Ω @ 22°C WIRED AS SERIES					
ROTOR WINDING RESISTANCE	0.56 Ω @ 22°C					
EXCITER STATOR RESISTANCE	19 Ω @ 22°C					
EXCITER ROTOR RESISTANCE	0.134 Ω @ 22°C					
R.F.I. SUPPRESSION	BS EN 61000-6-2 & BS EN 61000-6-4, VDE 0875G, VDE 0875N. Consult the factory for others.					
WAVEFORM DISTORTION	NO LOAD < 1.5% NON-DISTORTING BALANCED LINEAR LOAD < 5.0%					
MAXIMUM OVERSPEED	2250 Rev/Min					
BEARING DRIVE END	BALL. 6309 - 2RS (ISO)					
BEARING NON-DRIVE END	BALL. 6306 - 2RS (ISO)					
	1 BEARING			2 BEARING		
WEIGHT COMP. GENERATOR	109 kg			112 kg		
WEIGHT WOUND STATOR	34.5 kg			34.5 kg		
WEIGHT WOUND ROTOR	33.72 kg			34.5 kg		
WR ² INERTIA	0.1278 kgm ²			0.1279 kgm ²		
SHIPPING WEIGHTS in a crate	116 kg			122 kg		
PACKING CRATE SIZE	64 x 54 x 72 (cm)			64 x 54 x 72 (cm)		
TELEPHONE INTERFERENCE	THF < 2%			TIF < 50		
COOLING AIR	0.09 m ³ /sec, 191 CFM					
VOLTAGE, SERIES	220		230		240	
VOLTAGE, PARALLEL	110		115		120	
POWER FACTOR	0.8	1.0	0.8	1.0	0.8	1.0
KVA BASE RATING FOR REACTANCE VALUES	13.5	16.5	13.5	16.5	13.5	16.5
X _d DIR. AXIS SYNCHRONOUS	1.688	2.063	1.544	1.887	1.418	1.733
X' _d DIR. AXIS TRANSIENT	0.171	0.209	0.157	0.192	0.144	0.176
X'' _d DIR. AXIS SUBTRANSIENT	0.108	0.132	0.099	0.121	0.091	0.111
X _q QUAD. AXIS REACTANCE	0.838	1.024	0.767	0.937	0.704	0.860
X'' _q QUAD. AXIS SUBTRANSIENT	0.194	0.237	0.177	0.216	0.163	0.199
X _L LEAKAGE REACTANCE	0.068	0.083	0.062	0.076	0.057	0.070
X ₂ NEGATIVE SEQUENCE	0.162	0.198	0.148	0.181	0.136	0.166
X ₀ ZERO SEQUENCE	0.073	0.089	0.066	0.081	0.061	0.075
REACTANCES ARE SATURATED.	VALUES ARE PER UNIT AT RATING AND VOLTAGE INDICATED.					
T' _d TRANSIENT TIME CONST.	0.018 s					
T'' _d SUB-TRANSIENT TIME CONST.	0.0045 s					
T' _{do} O.C. FIELD TIME CONST.	0.35 s					
T _a ARMATURE TIME CONST.	0.0055 s					
SHORT CIRCUIT RATIO	1/X _d					

50 Hz. RATINGS

Class	F						H					
Temp Rise	105°C R/R (40°C)						125°C R/R (40°C)					
Power Factor	0.8			1.0			0.8			1.0		
Series Voltage	220	230	240	220	230	240	220	230	240	220	230	240
Parallel Voltage	110	115	120	110	115	120	110	115	120	110	115	120
KVA Output	10.0	10.0	10.0	11.8	11.8	11.8	10.8	10.8	10.8	13.0	13.0	13.0
kW Output	8.0	8.0	8.0	11.8	11.8	11.8	8.6	8.6	8.6	13.0	13.0	13.0
Efficiency, %	76.4	77.2	77.7	79.7	80.4	81.1	75.9	76.6	77.2	78.8	79.6	80.4
kW Input	10.5	10.4	10.3	14.8	14.7	14.5	11.3	11.2	11.1	16.5	16.3	16.2

60 Hz. RATINGS

Class	F						H					
Temp Rise	105°C R/R (40°C)						125°C R/R (40°C)					
Power Factor	0.8			1.0			0.8			1.0		
Series Voltage	220	230	240	220	230	240	220	230	240	220	230	240
Parallel Voltage	110	115	120	110	115	120	110	115	120	110	115	120
KVA Output	12.3	12.3	12.3	15.0	15.0	15.0	13.5	13.5	13.5	16.5	16.5	16.5
kW Output	9.8	9.8	9.8	15.0	15.0	15.0	10.8	10.8	10.8	16.5	16.5	16.5
Efficiency, %	76.4	77.2	77.7	79.7	80.4	81.1	75.9	76.6	77.2	78.8	79.6	80.4
kW Input	12.8	12.7	12.7	18.8	18.7	18.5	14.2	14.1	14.0	20.9	20.7	20.5