



Specification Sheet for WorldWide Electric BBD6104

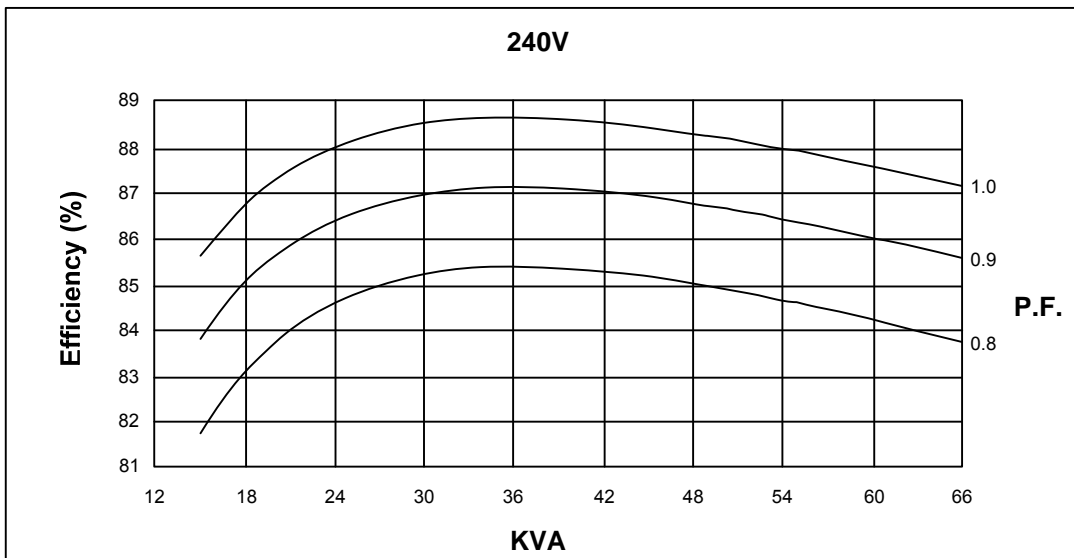
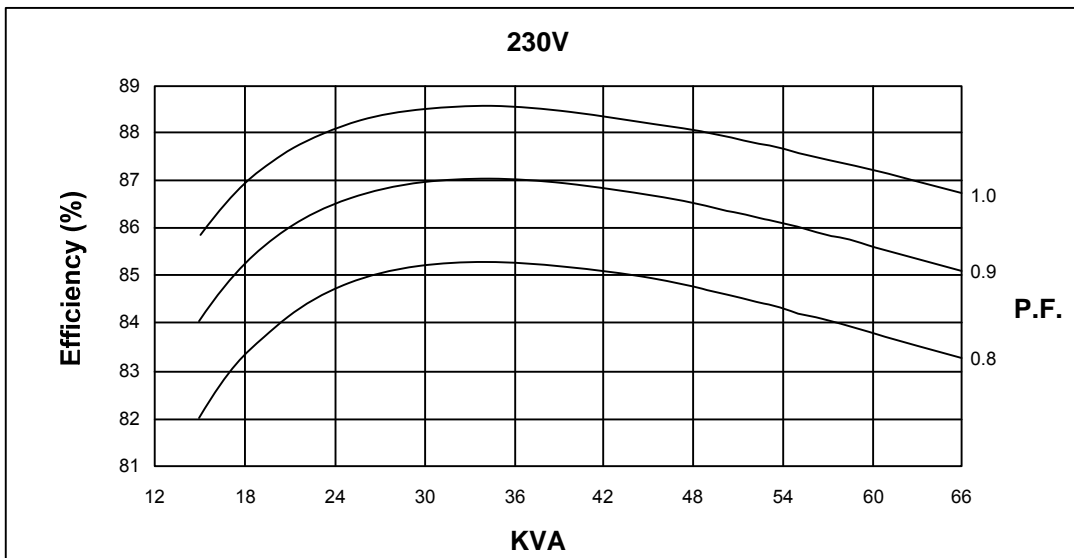
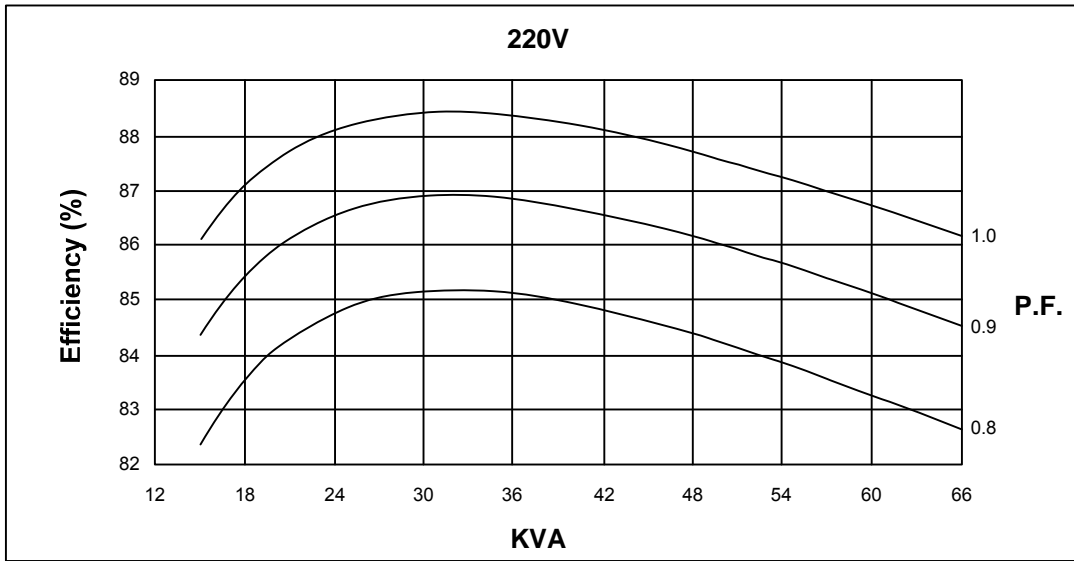
CONTROL SYSTEM	SELF-EXCITED		P.M.G.-EXCITED	
AUTOMATIC VOLTAGE REGULATOR	AGR460 (STD)	AGR440 (OPT)	AGR321	AGR341
VOLTAGE REGULATION	$\pm 1.0\%$		$\pm 0.5\%$	$\pm 1.0\%$
	WITH 4% ENGINE GOVERNING			
SUSTAINED SHORT CIRCUIT	NONE – SELF-EXCITED MACHINES CANNOT SUPPLY A SHORT-CIRCUIT CURRENT		SEE SHORT-CIRCUIT DECREMENT CURVES	
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	0.024 Ω /PHASE @ 22°C WIRED AS SERIES			
ROTOR WINDING RESISTANCE	0.83 Ω @ 22°C			
EXCITER STATOR RESISTANCE	20 Ω @ 22°C			
EXCITER ROTOR RESISTANCE	0.078 Ω /PHASE @ 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. 6312 - 2RS. (ISO)			
BEARING NON-DRIVE END	BALL. 6309 - 2RS. (ISO)			
	1 BEARING		2 BEARING	
WEIGHT COMP. GENERATOR	337 kg		350 kg	
WEIGHT WOUND STATOR	120 kg		120 kg	
WEIGHT WOUND ROTOR	110.7 kg		102.3 kg	
WR ² INERTIA	0.6071 kgm ²		0.5754 kgm ²	
SHIPPING WEIGHTS in a crate	360 kg		371 kg	
PACKING CRATE SIZE	105 x 57 x 96 (cm)		105 x 57 x 96 (cm)	
TELEPHONE INTERFERENCE	THF < 2%		TIF < 50	
COOLING AIR	0.281 m ³ /sec, 595 CFM			
VOLTAGE, SERIES	220	230	240	
VOLTAGE, PARALLEL	110	115	120	
KVA BASE RATING FOR REACTANCE VALUES	60	60	60	
X _d DIR. AXIS SYNCHRONOUS	2.95	2.70	2.48	
X' _d DIR. AXIS TRANSIENT	0.24	0.22	0.20	
X'' _d DIR. AXIS SUBTRANSIENT	0.17	0.15	0.14	
X _q QUAD. AXIS REACTANCE	1.36	1.25	1.14	
X' _q QUAD. AXIS SUBTRANSIENT	0.15	0.14	0.13	
X _L LEAKAGE REACTANCE	0.09	0.08	0.07	
X ₂ NEGATIVE SEQUENCE	0.15	0.14	0.13	
X ₀ ZERO SEQUENCE	0.11	0.10	0.10	
REACTANCES ARE SATURATED.	VALUES ARE PER UNIT AT RATING AND VOLTAGE INDICATED.			
T' _d TRANSIENT TIME CONST.	0.03 s			
T'' _d SUB-TRANSIENT TIME CONST.	0.008 s			
T' _{do} O.C. FIELD TIME CONST.	0.75 s			
T _a ARMATURE TIME CONST.	0.0065 s			
SHORT CIRCUIT RATIO	1/X _d			



Specification Sheet for WorldWide Electric AG224F-4

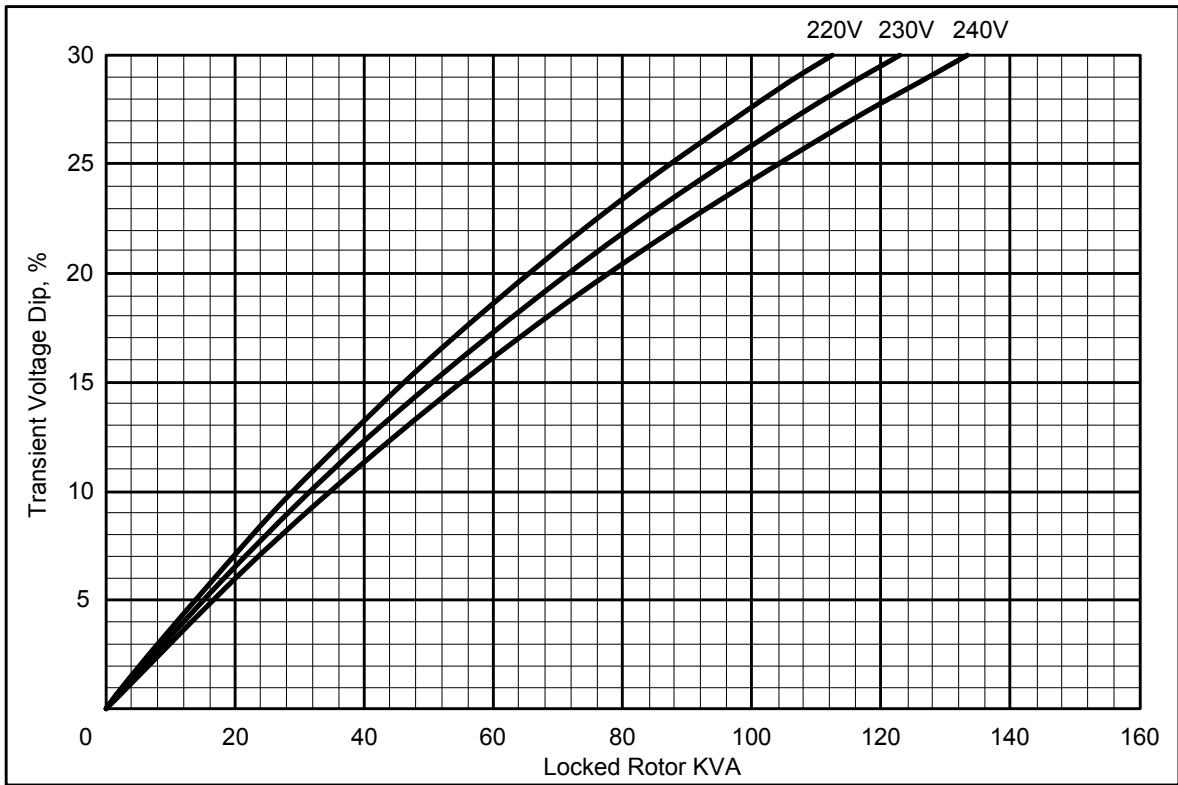
CONTROL SYSTEM	SELF-EXCITED		P.M.G.-EXCITED	
AUTOMATIC VOLTAGE REGULATOR	AGR460 (STD)	AGR440 (OPT)	AGR321	AGR341
VOLTAGE REGULATION	± 1.0 %		± 0.5 %	± 1.0 %
	WITH 4% ENGINE GOVERNING			
SUSTAINED SHORT CIRCUIT	NONE – SELF-EXCITED MACHINES CANNOT SUPPLY A SHORT-CIRCUIT CURRENT		SEE SHORT-CIRCUIT DECREMENT CURVES	
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	0.024Ω/PHASE @ 22°C WIRED AS SERIES			
ROTOR WINDING RESISTANCE	0.83Ω @ 22°C			
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EXCITER ROTOR RESISTANCE	0.078Ω/PHASE @ 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. 6312 - 2RS. (ISO)			
BEARING NON-DRIVE END	BALL. 6309 - 2RS. (ISO)			
	1 BEARING		2 BEARING	
WEIGHT COMP. GENERATOR	337 kg		350 kg	
WEIGHT WOUND STATOR	120 kg		120 kg	
WEIGHT WOUND ROTOR	110.7 kg		102.3 kg	
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COOLING AIR	0.281 m ³ /sec, 595 CFM			
VOLTAGE, SERIES	220	230	240	
VOLTAGE, PARALLEL	110	115	120	
KVA BASE RATING FOR REACTANCE VALUES	60	60	60	
X _d DIR. AXIS SYNCHRONOUS	2.95	2.70	2.48	
X' _d DIR. AXIS TRANSIENT	0.24	0.22	0.20	
X'' _d DIR. AXIS SUBTRANSIENT	0.17	0.15	0.14	
X _q QUAD. AXIS REACTANCE	1.36	1.25	1.14	
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X ₂ NEGATIVE SEQUENCE	0.15	0.14	0.13	
X ₀ ZERO SEQUENCE	0.11	0.10	0.10	
REACTANCES ARE SATURATED.	VALUES ARE PER UNIT AT RATING AND VOLTAGE INDICATED.			
T' _d TRANSIENT TIME CONST.	0.03 s			
T'' _d SUB-TRANSIENT TIME CONST.	0.008 s			
T' _{do} O.C. FIELD TIME CONST.	0.75 s			
T _a ARMATURE TIME CONST.	0.0065 s			
SHORT CIRCUIT RATIO	1/X _d			

SINGLE-PHASE EFFICIENCY CURVES FOR 06 WINDING

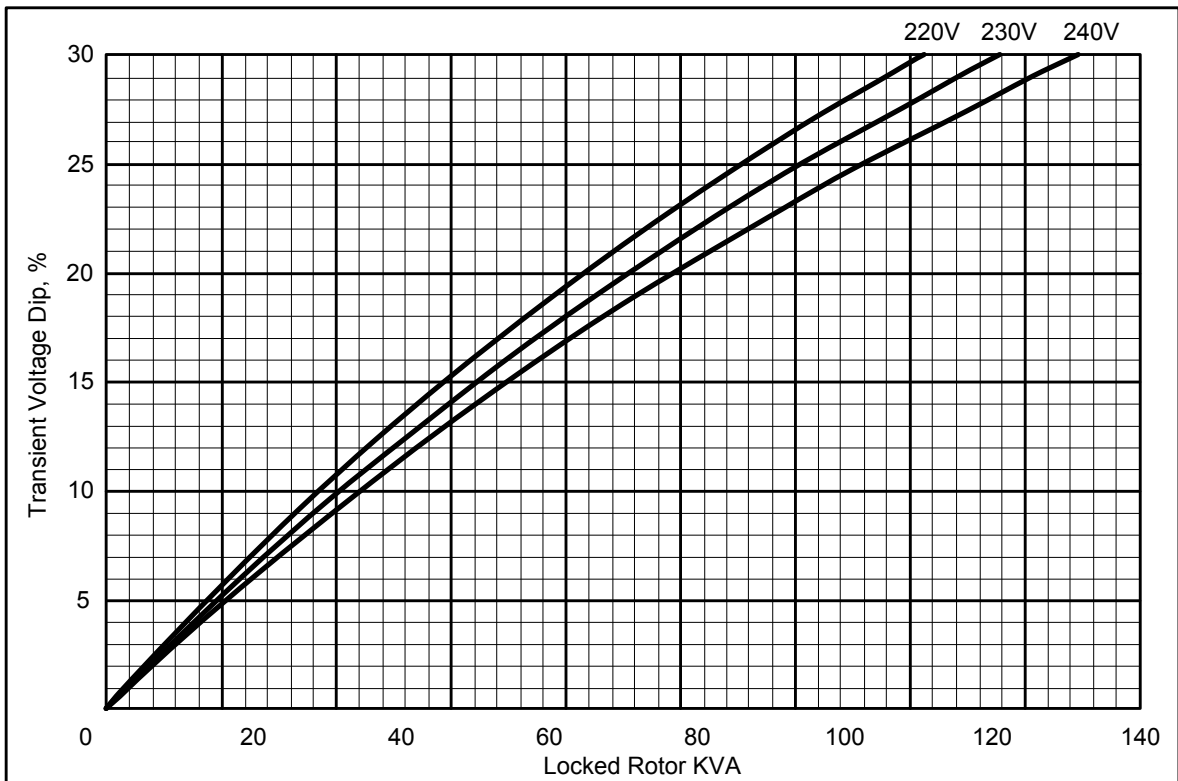


LOCKED ROTOR MOTOR STARTING CURVES

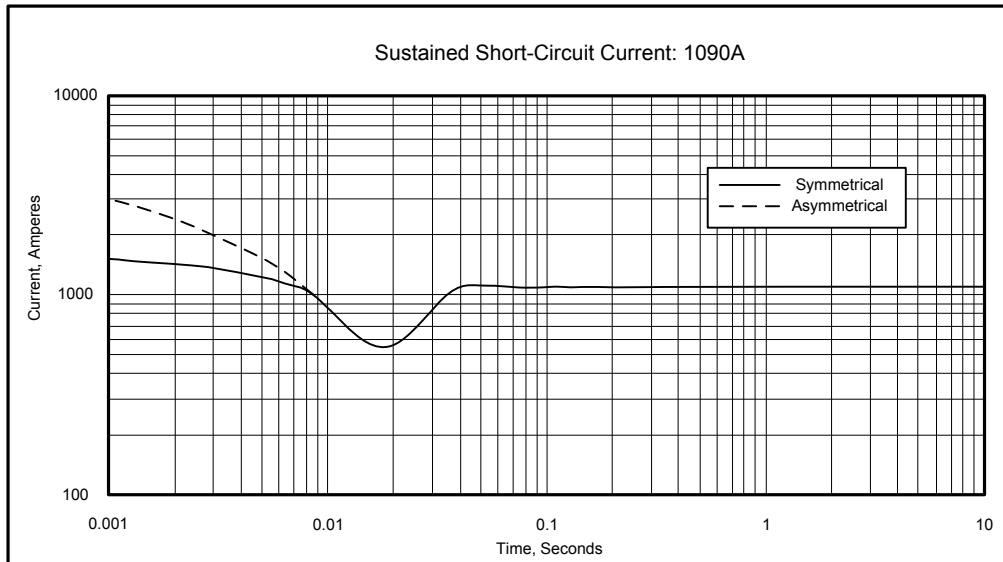
AGR460 & AGR440
(Self-Excited)



AGR341 & AGR321
(P.M.G.-Excited)



Single-Phase Short-Circuit Current Decrement Curve
 No-Load Excitation at Rated Speed
 Based on Series Connection



Note: Use the multiplication factors given in the table below to factor curve values between 0.001 seconds and the minimum current point with respect to nominal operating voltage. The sustained current value remains constant regardless of the voltage level.

For a Voltage of	Multiple By
220VAC	1.00
230VAC	1.05
240VAC	1.09

RATINGS at 50Hz

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	45.0	45.0	45.0	45.0	45.0	45.0	50.0	50.0	50.0	50.0	50.0	50.0
kW Output	36.0	36.0	36.0	45.0	45.0	45.0	40.0	40.0	40.0	50.0	50.0	50.0
Efficiency, %	80.5	81.1	81.6	87.0	87.4	87.8	83.3	83.8	84.2	86.7	87.2	87.6
kW Input	44.7	44.4	44.1	51.7	51.5	51.3	48.0	47.7	47.5	57.7	57.3	57.1

RATINGS at 60Hz

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	56.9	56.9	56.9	56.9	56.9	56.9	60.0	60.0	60.0	60.0	60.0	60.0
kW Output	45.5	45.5	45.5	56.9	56.9	56.9	48.0	48.0	48.0	60.0	60.0	60.0
Efficiency, %	80.5	81.1	81.6	87.0	87.4	87.8	83.3	83.8	84.2	86.7	87.2	87.6
kW Input	54.5	54.2	53.9	65.4	65.1	64.8	57.6	57.3	57.0	69.2	68.8	68.5