



Specification Sheet for WorldWide Electric BBD7104

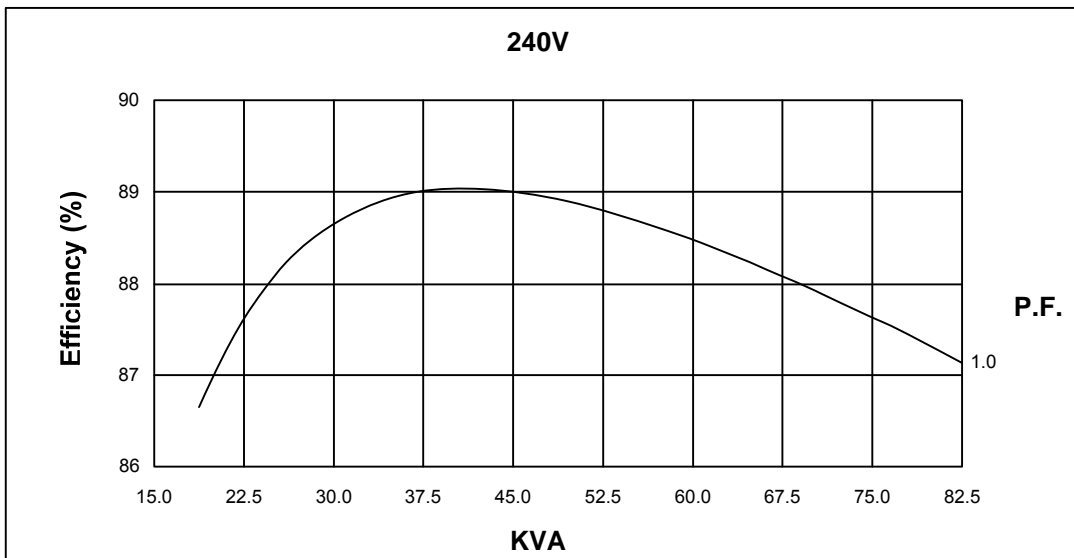
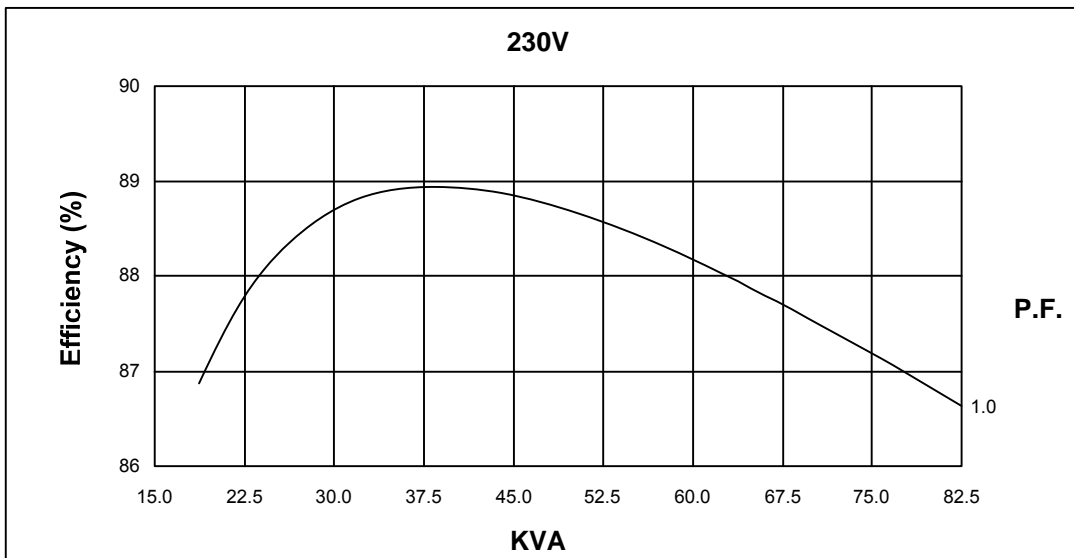
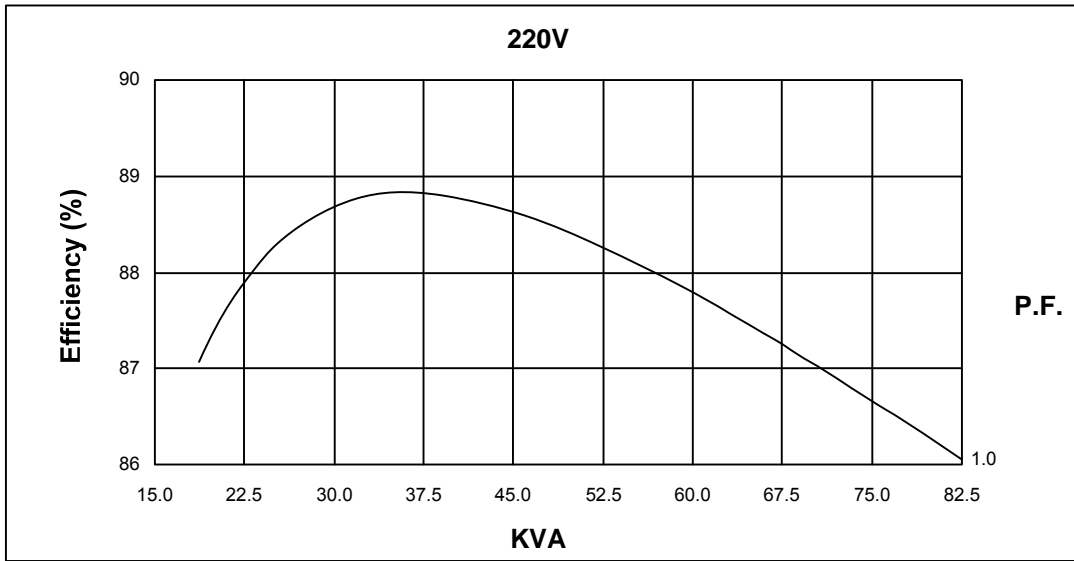
CONTROL SYSTEM	SELF-EXCITED		P.M.G.-EXCITED			
AUTOMATIC VOLTAGE REGULATOR	AGR460 (STD)	AGR440 (OPT)	AGR321		AGR341	
VOLTAGE REGULATION	± 1.0 %		± 0.5 %		± 1.0 %	
	WITH 4% ENGINE GOVERNING					
SUSTAINED SHORT CIRCUIT	NONE – SELF-EXCITED MACHINES CANNOT SUPPLY A SHORT-CIRCUIT CURRENT			SEE SHORT-CIRCUIT 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	0.019Ω/PHASE @ 22°C WIRED AS SERIES					
ROTOR WINDING RESISTANCE	0.94Ω @ 22°C					
EXCITER STATOR RESISTANCE	20Ω @ 22°C					
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	383 kg			400 kg		
WEIGHT WOUND STATOR	139 kg			139 kg		
WEIGHT WOUND ROTOR	126.75 kg			118.38 kg		
WR ² INERTIA	0.7136 kgm ²			0.6818 kgm ²		
SHIPPING WEIGHTS in a crate	404 kg			420 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	
POWER FACTOR	0.8	1.0	0.8	1.0	0.8	1.0
KVA BASE RATING FOR REACTANCE VALUES	70	75	70	75	70	75
X _d DIR. AXIS SYNCHRONOUS	3.25	3.48	2.97	3.18	2.73	2.93
X' _d DIR. AXIS TRANSIENT	0.24	0.26	0.22	0.24	0.20	0.21
X'' _d DIR. AXIS SUBTRANSIENT	0.17	0.18	0.16	0.17	0.14	0.15
X _q QUAD. AXIS REACTANCE	1.49	1.60	1.36	1.46	1.25	1.34
X'' _q QUAD. AXIS SUBTRANSIENT	0.19	0.20	0.17	0.18	0.16	0.17
X _L LEAKAGE REACTANCE	0.09	0.10	0.08	0.09	0.08	0.09
X ₂ NEGATIVE SEQUENCE	0.19	0.20	0.17	0.18	0.16	0.17
X ₀ ZERO SEQUENCE	0.13	0.14	0.12	0.13	0.11	0.12
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.	0.007 s					
SHORT CIRCUIT RATIO	1/X _d					



Specification Sheet for WorldWide Electric AG224G-4

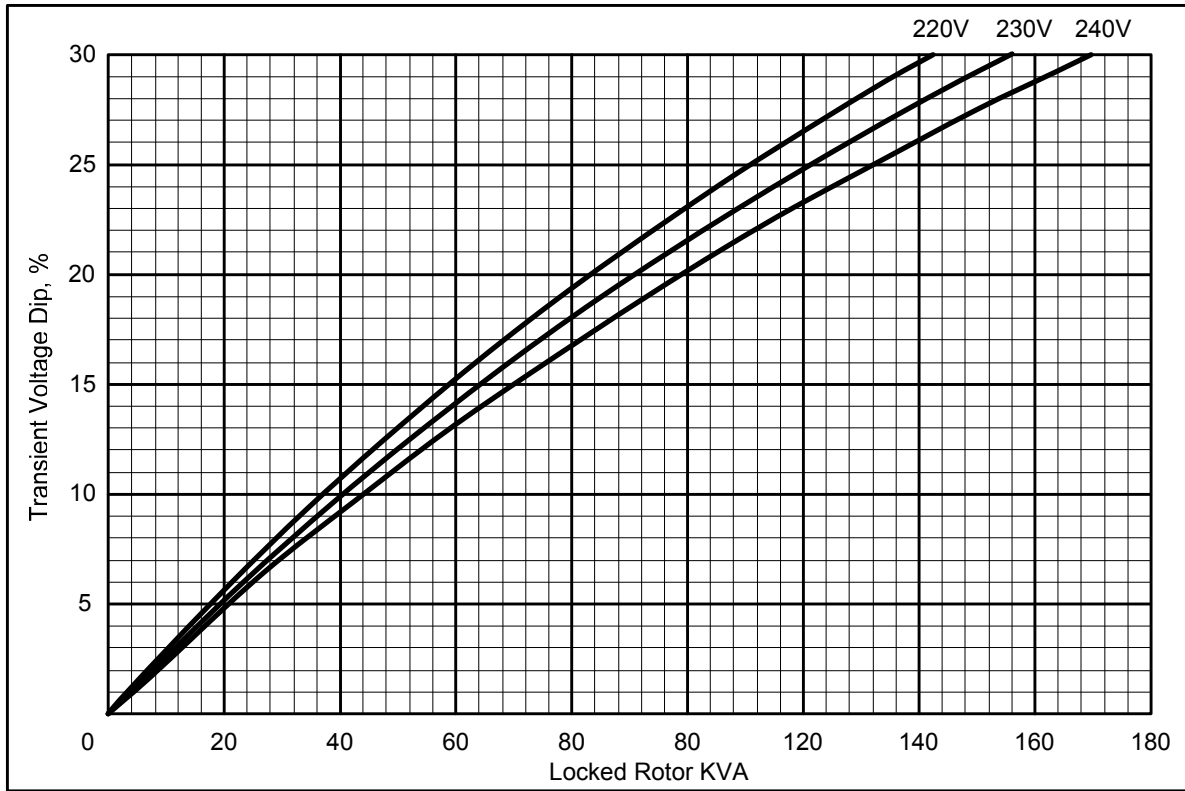
CONTROL SYSTEM	SELF-EXCITED				P.M.G.-EXCITED			
AUTOMATIC VOLTAGE REGULATOR	AGR460 (STD)		AGR440 (OPT)		AGR321		AGR341	
VOLTAGE REGULATION	$\pm 1.0\%$				$\pm 0.5\%$		$\pm 1.0\%$	
	WITH 4% ENGINE GOVERNING							
SUSTAINED SHORT CIRCUIT	NONE – SELF-EXCITED MACHINES CANNOT SUPPLY A SHORT-CIRCUIT CURRENT				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	0.019 Ω /PHASE @ 22°C WIRED AS SERIES							
ROTOR WINDING RESISTANCE	0.94 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	383 kg				400 kg			
WEIGHT WOUND STATOR	139 kg				139 kg			
WEIGHT WOUND ROTOR	126.75 kg				118.38 kg			
WR ² INERTIA	0.7136 kgm ²				0.6818 kgm ²			
SHIPPING WEIGHTS in a crate	404 kg				420 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			
POWER FACTOR	0.8	1.0	0.8	1.0	0.8	1.0		
KVA BASE RATING FOR REACTANCE VALUES	70	75	70	75	70	75		
X _d DIR. AXIS SYNCHRONOUS	3.25	3.48	2.97	3.18	2.73	2.93		
X' _d DIR. AXIS TRANSIENT	0.24	0.26	0.22	0.24	0.20	0.21		
X'' _d DIR. AXIS SUBTRANSIENT	0.17	0.18	0.16	0.17	0.14	0.15		
X _q QUAD. AXIS REACTANCE	1.49	1.60	1.36	1.46	1.25	1.34		
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X _L LEAKAGE REACTANCE	0.09	0.10	0.08	0.09	0.08	0.09		
X ₂ NEGATIVE SEQUENCE	0.19	0.20	0.17	0.18	0.16	0.17		
X ₀ ZERO SEQUENCE	0.13	0.14	0.12	0.13	0.11	0.12		
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.	0.007 s							
SHORT CIRCUIT RATIO	1/X _d							

SINGLE-PHASE EFFICIENCY CURVES FOR 06 WINDING

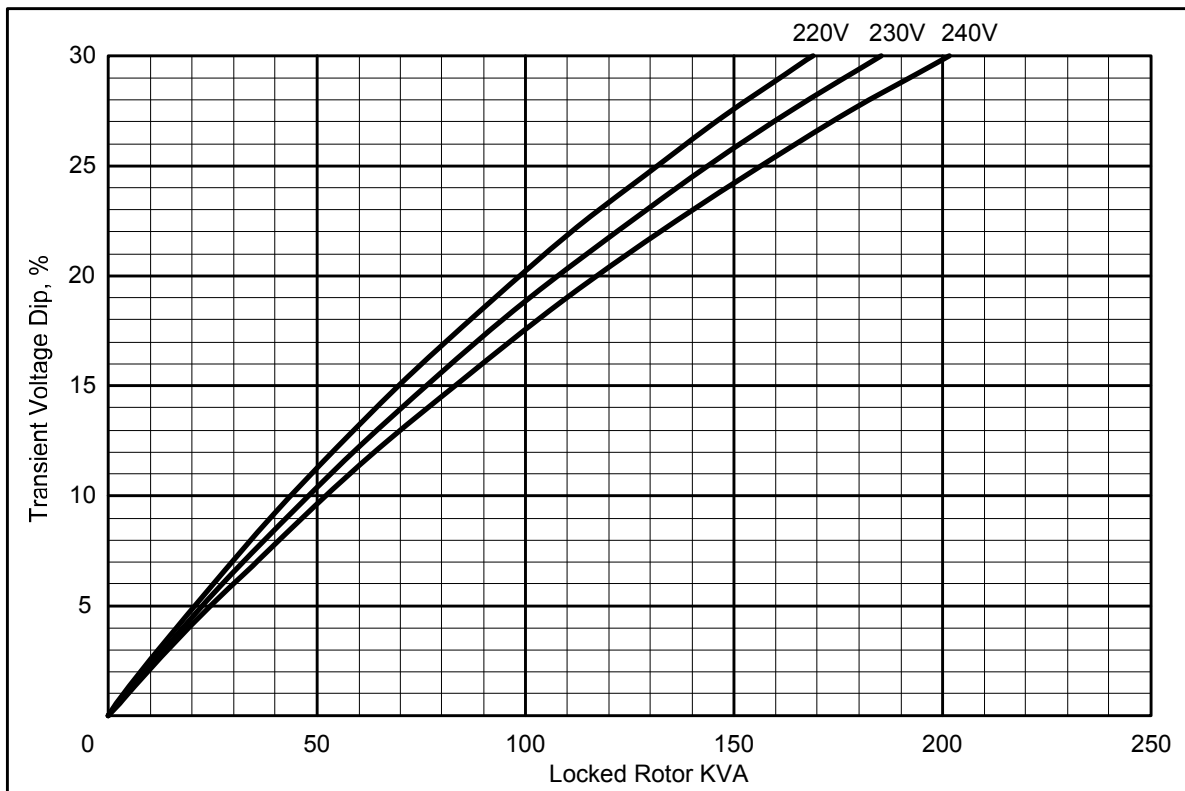


LOCKED ROTOR MOTOR STARTING CURVES

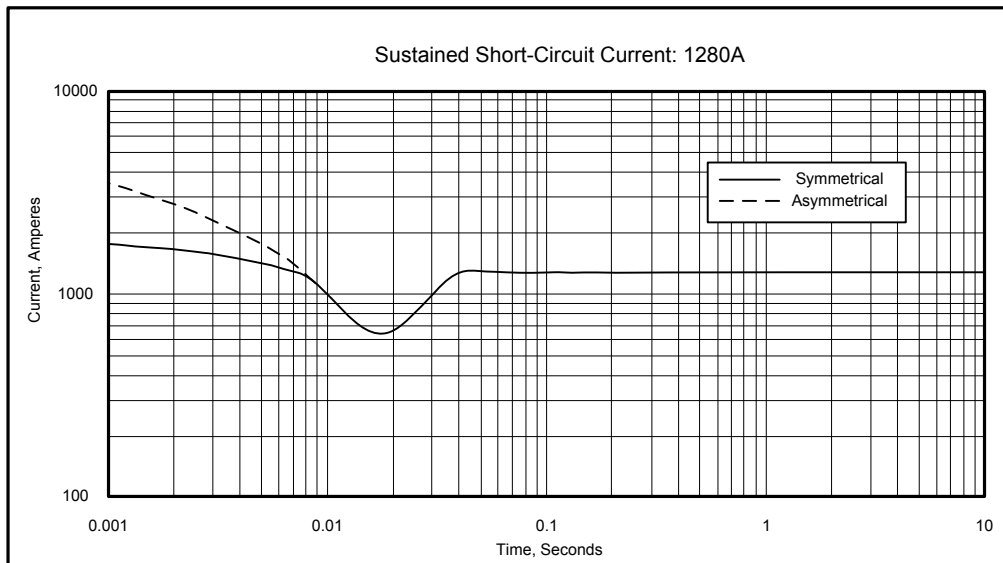
AGR460 & AGR440
(Self-Excited)



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	54.0	54.0	54.0	54.0	54.0	54.0	60.0	60.0	60.0	60.0	60.0	60.0
kW Output	43.2	43.2	43.2	54.0	54.0	54.0	48.0	48.0	48.0	60.0	60.0	60.0
Efficiency, %	84.1	84.6	84.9	87.4	87.8	88.2	83.7	84.2	84.7	86.7	87.2	87.6
kW Input	51.4	51.1	50.9	61.8	61.5	61.2	57.3	57.0	56.7	69.2	68.8	68.5

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	65.6	65.6	65.6	65.6	65.6	65.6	70.0	70.0	70.0	75.0	75.0	75.0
kW Output	52.5	52.5	52.5	65.6	65.6	65.6	56.0	56.0	56.0	75.0	75.0	75.0
Efficiency, %	84.1	84.6	84.9	87.4	87.8	88.2	83.7	84.2	84.7	86.7	87.2	87.6
kW Input	62.4	62.1	61.8	75.1	74.7	74.4	66.9	66.5	66.1	86.5	86.0	85.6