



MODELS **LL5114J / LL5124J / LL5134J**

REF: F5104JW6-0 AUGUST 2016

WINDING DETAILS

Code	6	Insulation class	H
Phase	3	Leads	12
Pole number	4	Pitch	2/3

MECHANICAL DETAILS

Standard protection	IP23	
Overspeed	rpm	2250
Air flow 50Hz/60Hz	m ³ /s	0.48 / 0.58

EXCITATION DETAILS

Excitation system	SHUNT	AREP/PMG
AVR model	R250	R450M
Sustained short-circuit current	-	300%:10s
Steady state voltage regulation	±0.5%	±0.5%

WAVEFORM

Line voltage on no load or balanced linear rated load

Total harmonic content THC	<2%
Telephone influence factor TIF (NEMA)	<50
Telephone harmonic factor THF (IEC)	<2%

LINE VOLTAGE *No overvoltage tolerance for 440V 50Hz excitation level*

Frequency / speed	V	50Hz / 1500rpm				60Hz / 1800rpm							
		380	400	415	440	380	400	416	440	460	480		
Series star	V	220	230	240	220	230	240	220	230	240	220	230	240
Series delta	V	200	208	220	200	208	220	200	208	220	200	208	220
Parallel star	V	200	208	220	200	208	220	200	208	220	200	208	220

RATING *Power factor 0.8, Altitude <=1000m*

Class	rise	BR	125/40	150/40	163/27	105/40	kVA	290	300	300	259	297	313	325	344	359	375
Class H	rise	BR	125/40	150/40	163/27	105/40	kVA	290	300	300	259	297	313	325	344	359	375
							kW	232	240	240	207	238	250	260	275	288	300
Class H	rise	PR	150/40	163/27	105/40		kVA	307	318	318	275	315	331	345	364	381	398
							kW	246	254	254	220	252	265	276	292	305	318
Class H	rise	PR	163/27	105/40			kVA	319	330	330	285	327	344	358	378	395	413
							kW	255	264	264	228	261	275	286	303	316	330
Class F	rise	BR	105/40				kVA	264	273	273	236	270	284	296	313	327	341
							kW	211	218	218	189	216	228	237	250	262	273

EFFICIENCIES *Power factor 0.8*

Efficiency	Class	rise	BR	%	93.0	93.0	93.0	93.1	92.8	93.0	93.1	93.2	93.2	93.2	93.2	93.2	93.2
110%	Class H	BR		%	93.0	93.0	93.0	93.1	92.8	93.0	93.1	93.2	93.2	93.2	93.2	93.2	93.2
100%	Class H	BR		%	93.3	93.3	93.2	93.2	93.1	93.3	93.4	93.5	93.5	93.4	93.5	93.5	93.4
75%	Class H	BR		%	94.0	93.9	93.7	93.2	93.8	93.9	93.9	93.9	93.9	93.9	93.9	93.9	93.8
50%	Class H	BR		%	94.2	93.9	93.5	92.4	93.9	93.9	93.9	93.9	93.9	93.9	93.7	93.5	93.5
25%	Class H	BR		%	92.6	92.0	91.1	88.6	92.0	92.0	91.9	91.6	91.3	90.9	90.9	90.9	90.9

CHARACTERISTIC PARAMETERS *Reactance base class H BR rating*

Parameter	Description	Unit	0.38	0.45	0.53	0.84	0.26	0.29	0.31	0.34	0.38	0.44
K _c	Short-circuit ratio		0.38	0.45	0.53	0.84	0.26	0.29	0.31	0.34	0.38	0.44
X _d	D-Axis synchronous reactance (unsaturated)	pu	4.14	3.86	3.59	2.76	5.08	4.83	4.64	4.39	4.20	4.02
X' _d	D-Axis transient reactance (saturated)	pu	0.32	0.30	0.28	0.21	0.39	0.38	0.36	0.34	0.33	0.31
X'' _d	D-Axis sub-transient reactance (saturated)	pu	0.161	0.150	0.139	0.107	0.197	0.188	0.180	0.170	0.163	0.156
X _q	Q-Axis synchronous reactance (unsaturated)	pu	2.07	1.93	1.79	1.38	2.54	2.41	2.32	2.19	2.10	2.01
X'' _q	Q-Axis sub-transient reactance (saturated)	pu	0.201	0.188	0.174	0.134	0.247	0.234	0.225	0.213	0.204	0.195
X ₂	Negative-sequence reactance (saturated)	pu	0.257	0.240	0.223	0.171	0.316	0.300	0.289	0.273	0.261	0.250
X ₀	Zero-sequence reactance (independent)	pu	0.006	0.006	0.005	0.004	0.007	0.007	0.007	0.006	0.006	0.006
T' _d	D-Axis transient time constant	ms		100					100			
T'' _d	D-Axis sub-transient time constant	ms		10					10			
T' _{do}	D-Axis open-circuit time constant	ms		1288					1288			
T _a	Armature time constant	ms		15					15			
T _r	Voltage recovery time	ms		< 500					< 500			

EXCITATION VOLTAGE AND CURRENT

Parameter	Unit	13.9	16.1	18.3	23.5	9.7	10.6	11.3	12.7	14.2	16.1
No load excitation voltage	V	13.9	16.1	18.3	23.5	9.7	10.6	11.3	12.7	14.2	16.1
No load excitation current	A	0.85	0.99	1.12	1.44	0.60	0.65	0.70	0.78	0.87	0.99
Class H BR excitation voltage	V	49.8	52.4	54.3	56.0	45.4	46.3	47.3	49.1	51.3	54.1
Class H BR excitation current	A	3.06	3.22	3.33	3.43	2.78	2.84	2.90	3.01	3.14	3.32

WINDING RESISTANCE *At 20°C*

Parameter	Unit	0.0233	Exciter field	Unit	16.31
Stator line-to-line (series star)	Ω	0.0233	Exciter field	Ω	16.31
Main field	Ω	0.31			

According to: IEC 60034, UTE NFC51.111, VDE 0530, BS 4999/5000, NEMA MG 1-33
 Values quoted are typical. In line with our policy of continuous improvement, we reserve the right to change specification without notice.

FRAME 5114J/ 5124J WINDING 6

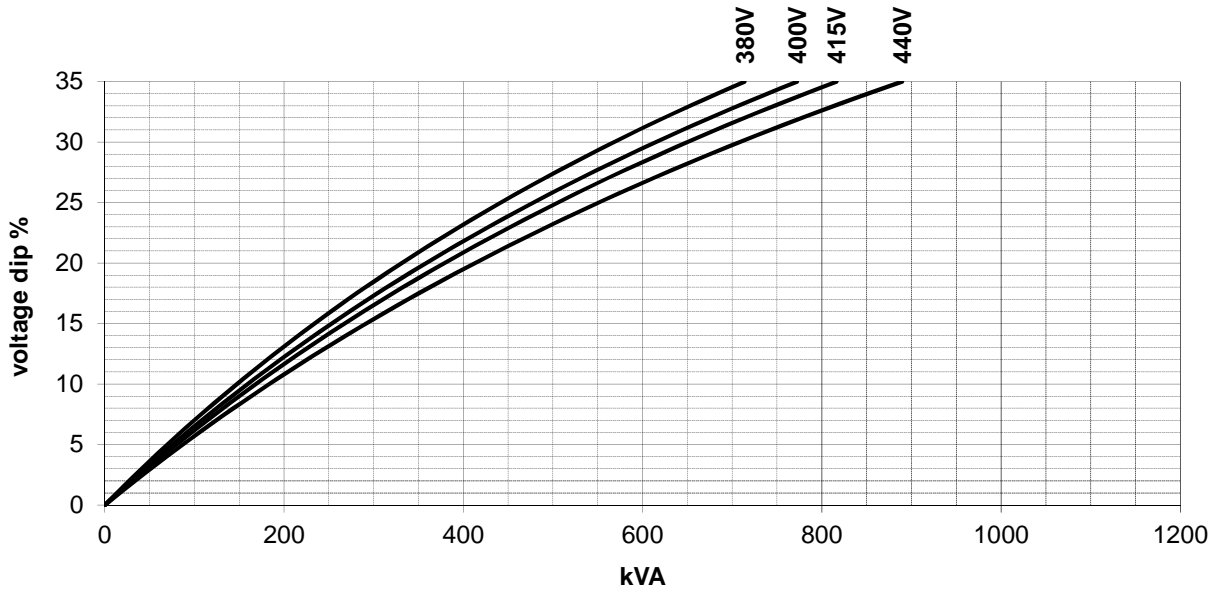


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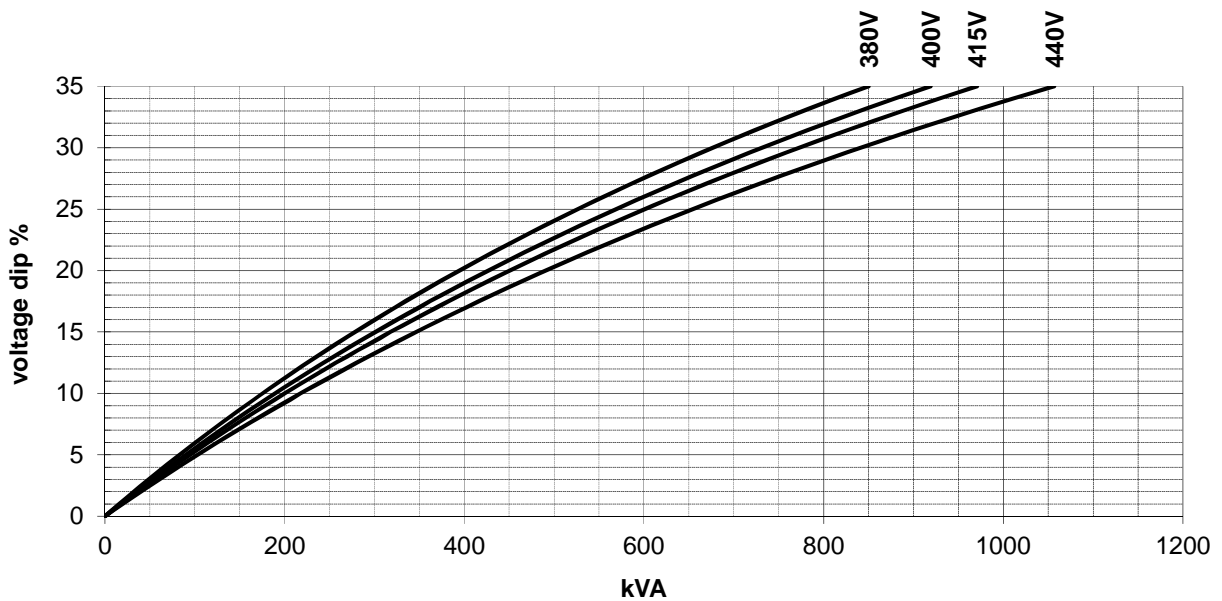
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LOCKED ROTOR MOTOR STARTING CURVES *Power factor 0.6*

50 Hz SHUNT



50 Hz AREP / PMG



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FRAME **5114J/ 5124J** **WINDING** **6**

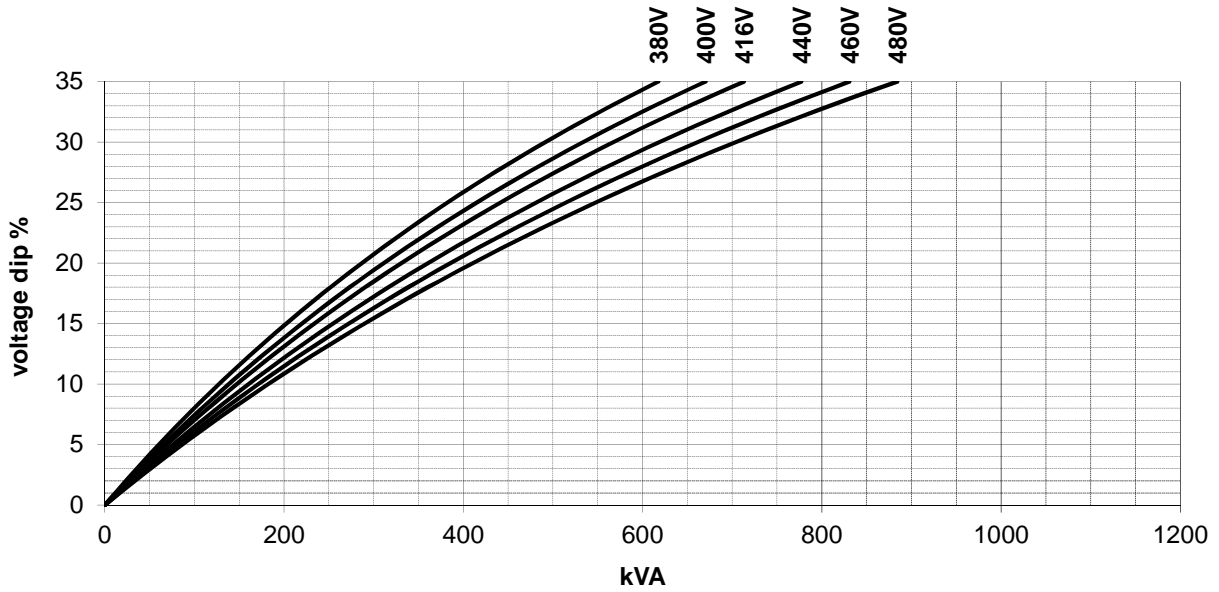


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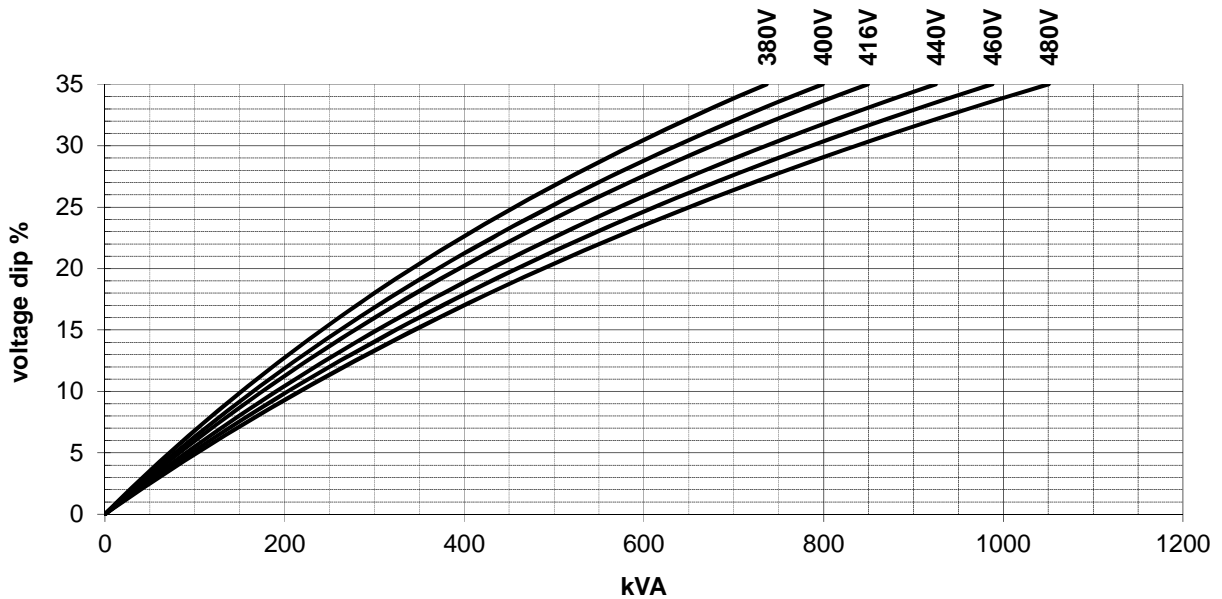
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LOCKED ROTOR MOTOR STARTING CURVES *Power factor 0.6*

60 Hz SHUNT



60 Hz AREP / PMG



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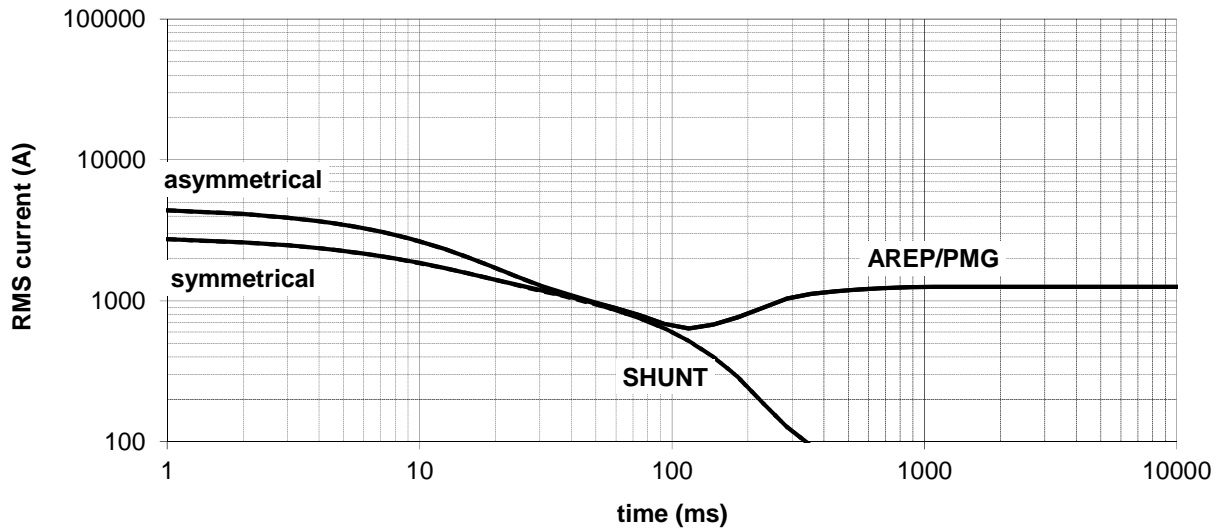


THREE-PHASE SHORT-CIRCUIT DECREMENT CURVES

No-load excitation at rated speed

400V 50Hz, 480V 60Hz

Series Star



Multiplication Factors

50Hz Voltages	380	400	415	440
Multiplication Factor	0.95	1.00	1.04	1.10

Apply factor up to 2xT'd, remainder of curve unchanged

60Hz Voltages	380	400	416	440	460	480
Multiplication Factor	0.79	0.83	0.87	0.92	0.96	1.00

Apply factor up to 2xT'd, remainder of curve unchanged

Winding Connection	Series Star	Parallel Star	Series Delta
Multiplication Factor	1.00	2.00	1.73

Apply factor to the complete curve

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