

FRAME 1114M

WINDING 6



MODELS LL1114M/LL1124M

REF: F1114MW6-3 FEB 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	0.06/0.072

EXCITATION DETAILS			
Excitation system	SHUNT	AREP	
AVR model	R220	R438	
Sustained short-circuit current	-	300:10s	
Steady state voltage regulation	±0.5%	±0.5%	

WAVEFORM	
<i>Line voltage on no load or balanced linear rated load</i>	
Total harmonic content THC	<4%
Telephone influence factor TIF (NEMA)	<50
Telephone harmonic factor THF (IEC)	<2%

LINE VOLTAGE <i>No overvoltage tolerance for 440V 50Hz excitation level</i>											
Frequency / speed		50Hz / 1500rpm				60Hz / 1800rpm					
Series star	V	380	400	415	440	380	400	416	440	460	480
Series delta	V	220	230	240		220	230	240			
Parallel star	V		200	208	220		200	208	220	230	240

RATING <i>Power factor 0.8, Altitude <=1000m</i>												
Class H rise BR	125/40	kVA	20.0	20.0	20.0	19.0	25.0	25.5	26.0	26.0	26.0	26.0
		kW	16.0	16.0	16.0	15.2	20.0	20.4	20.8	20.8	20.8	20.8
Class H rise PR	150/40	kVA	21.2	21.2	21.2	20.1	26.5	27.0	27.6	27.6	27.6	27.6
		kW	17.0	17.0	17.0	16.1	21.2	21.6	22.1	22.1	22.1	22.1
Class H rise PR	163/27	kVA	22.0	22.0	22.0	20.9	27.5	28.1	28.6	28.6	28.6	28.6
		kW	17.6	17.6	17.6	16.7	22.0	22.4	22.9	22.9	22.9	22.9
Class F rise BR	105/40	kVA	18.2	18.2	18.2	17.3	22.8	23.2	23.7	23.7	23.7	23.7
		kW	14.6	14.6	14.6	13.8	18.2	18.6	18.9	18.9	18.9	18.9

EFFICIENCIES <i>Power factor 0.8</i>												
110%	Class H BR	%	86.5	86.7	86.5	85.9	85.5	86.0	86.4	86.9	87.2	87.3
100%	Class H BR	%	87.0	87.1	86.9	86.1	86.1	86.6	86.9	87.4	87.6	87.6
75%	Class H BR	%	87.9	87.7	87.3	86.1	87.6	87.9	88.1	88.2	88.2	88.1
50%	Class H BR	%	87.8	87.2	86.6	84.6	88.3	88.3	88.3	88.1	87.8	87.4
25%	Class H BR	%	84.1	82.8	81.6	78.1	85.9	85.5	85.2	84.3	83.5	82.5

CHARACTERISTIC PARAMETERS <i>Reactance base class H BR rating</i>												
K _c	Short-circuit ratio		0.53	0.62	0.72	0.97	0.32	0.35	0.38	0.44	0.51	0.57
X _d	D-Axis synchronous reactance (unsaturated)	pu	2.14	1.93	1.79	1.52	3.21	2.95	2.78	2.49	2.28	2.09
X' _d	D-Axis transient reactance (saturated)	pu	0.17	0.15	0.14	0.12	0.26	0.24	0.22	0.20	0.18	0.17
X'' _d	D-Axis sub-transient reactance (saturated)	pu	0.085	0.077	0.072	0.060	0.128	0.118	0.111	0.099	0.091	0.083
X _q	Q-Axis synchronous reactance (unsaturated)	pu	2.05	1.85	1.72	1.45	3.07	2.83	2.67	2.39	2.18	2.00
X' _q	Q-Axis sub-transient reactance (saturated)	pu	0.180	0.162	0.151	0.127	0.269	0.248	0.234	0.209	0.191	0.176
X ₂	Negative-sequence reactance (saturated)	pu	0.132	0.120	0.111	0.094	0.199	0.183	0.172	0.154	0.141	0.129
X ₀	Zero-sequence reactance (independent)	pu	0.007	0.006	0.006	0.005	0.010	0.010	0.009	0.008	0.007	0.007
T' _d	D-Axis transient time constant	ms		74						74		
T'' _d	D-Axis sub-transient time constant	ms		7.4						7.4		
T' _{do}	D-Axis open-circuit time constant	ms		927						927		
T _a	Armature time constant	ms		11.1						11.1		
T _r	Voltage recovery time	ms		< 300						< 300		

EXCITATION VOLTAGE AND CURRENT											
No load excitation voltage	V	8.9	9.9	11.0	13.3	6.6	7.1	7.6	8.3	9.2	9.9
No load excitation current	A	0.73	0.80	0.89	1.08	0.54	0.58	0.62	0.67	0.75	0.80
Class H BR excitation voltage	V	25.0	25.7	26.4	27.7	26.8	26.6	26.6	26.4	26.6	26.8
Class H BR excitation current	A	2.03	2.09	2.14	2.26	2.18	2.16	2.16	2.14	2.16	2.18

WINDING RESISTANCE <i>At 20°C</i>												
Stator line-to-line (series star)	Ω	0.560								Exciter field - Shunt	Ω	12.3
Main field	Ω	4.31								Exciter field - AREP	Ω	6.6

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.

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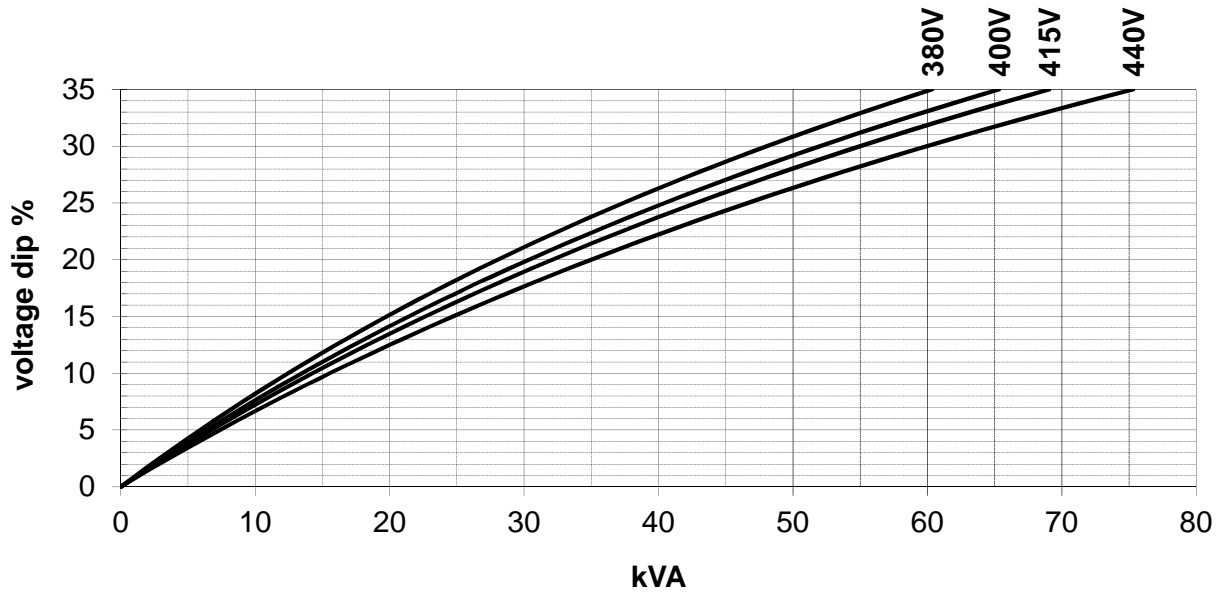


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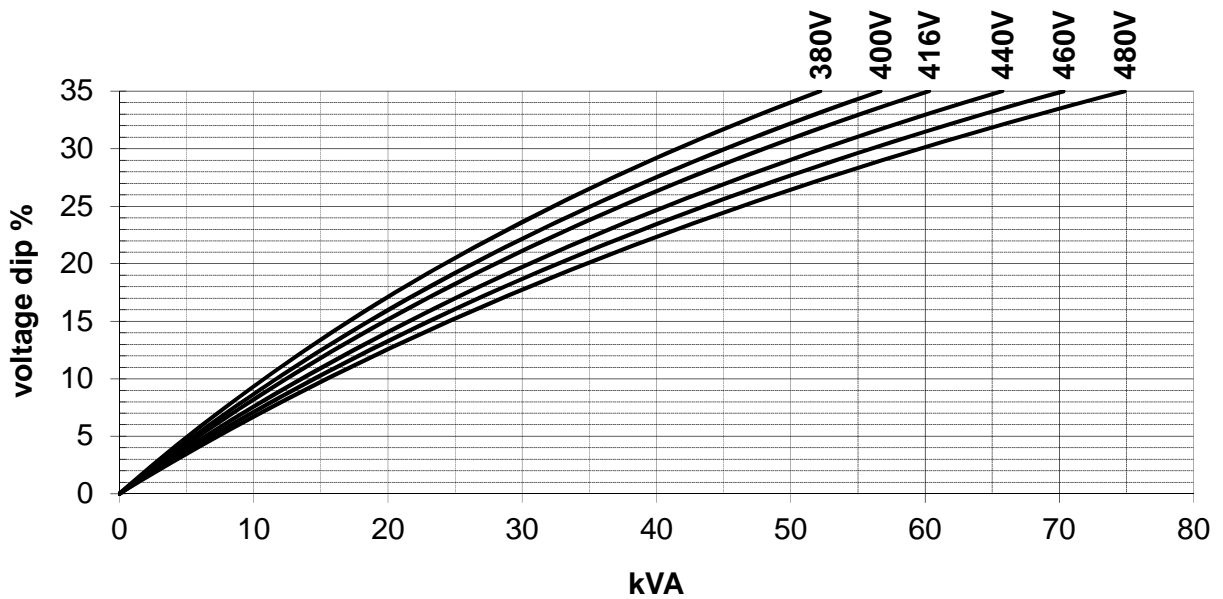
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LOCKED ROTOR MOTOR STARTING CURVES *Power factor 0.6*

50 Hz SHUNT/AREP



60 Hz SHUNT/AREP



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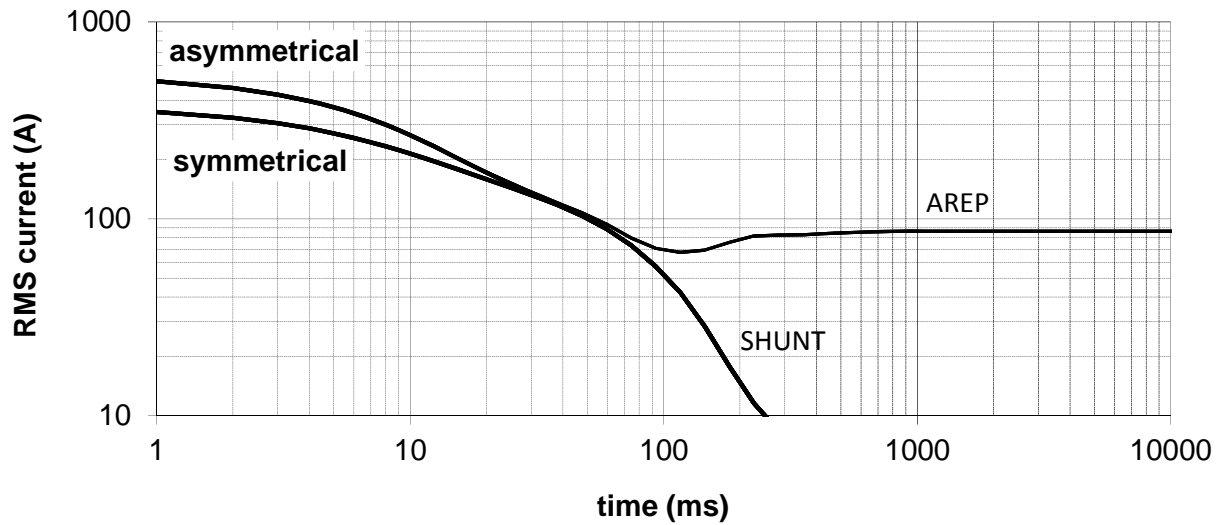


THREE-PHASE SHORT-CIRCUIT DECREMENT CURVES

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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