

FRAME 5014J / 5024J WINDING 6



MODELS LL5014J / LL5024J / LL5034J

REF: F5004HW6-5 SEP 2013

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	0.43 / 0.51

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	<4%
Telephone influence factor TIF (NEMA)	<50
Telephone harmonic factor THF (IEC)	<2%

LINE VOLTAGE

No overvoltage tolerance for 440V 50Hz excitation level

Frequency / speed	50Hz / 1500rpm					60Hz / 1800rpm					
	V	380	400	415	440	380	400	416	440	460	480
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

Power factor 0.8, Altitude <=1000m

Class	Rating	kVA	280	280	280	245	300	314	326	341	349	354
Class H rise BR	125/40	kVA	280	280	280	245	300	314	326	341	349	354
		kW	224	224	224	196	240	251	261	273	279	283
Class H rise PR	150/40	kVA	297	297	297	260	318	333	346	362	370	375
		kW	237	237	237	208	254	266	276	289	296	300
Class H rise PR	163/27	kVA	308	308	303	275	330	345	359	375	384	389
		kW	246	246	242	220	264	276	287	300	307	312
Class F rise BR	105/40	kVA	255	255	250	223	273	286	297	310	318	322
		kW	204	204	200	178	218	229	237	248	254	258

EFFICIENCIES

Power factor 0.8

Efficiency	Class	Rating	%	92.7	92.8	92.7	92.1	92.4	92.7	92.8	93.0	93.0	93.1
110%	Class H BR		%	92.7	92.8	92.7	92.1	92.4	92.7	92.8	93.0	93.0	93.1
100%	Class H BR		%	93.1	93.1	92.9	92.3	92.8	93.0	93.1	93.2	93.3	93.3
75%	Class H BR		%	93.7	93.6	93.3	92.2	93.5	93.6	93.7	93.8	93.7	93.6
50%	Class H BR		%	93.8	93.5	93.0	91.2	93.7	93.8	93.8	93.7	93.6	93.2
25%	Class H BR		%	92.0	91.2	90.2	86.8	91.9	91.8	91.8	91.5	91.1	90.4

CHARACTERISTIC PARAMETERS

Reactance base class H BR rating

Parameter	Description	Unit	0.38	0.47	0.56	0.89	0.25	0.27	0.29	0.32	0.38	0.44
K _c	Short-circuit ratio		0.38	0.47	0.56	0.89	0.25	0.27	0.29	0.32	0.38	0.44
X _d	D-Axis synchronous reactance (unsaturated)	pu	3.27	2.95	2.74	2.13	4.20	3.97	3.81	3.56	3.33	3.11
X' _d	D-Axis transient reactance (saturated)	pu	0.15	0.13	0.13	0.10	0.19	0.18	0.17	0.16	0.15	0.14
X'' _d	D-Axis sub-transient reactance (saturated)	pu	0.089	0.081	0.075	0.058	0.115	0.108	0.104	0.097	0.091	0.085
X _q	Q-Axis synchronous reactance (unsaturated)	pu	1.96	1.77	1.64	1.28	2.52	2.38	2.29	2.14	2.00	1.86
X'' _q	Q-Axis sub-transient reactance (saturated)	pu	0.111	0.100	0.093	0.072	0.142	0.134	0.129	0.120	0.113	0.105
X ₂	Negative-sequence reactance (saturated)	pu	0.099	0.089	0.083	0.065	0.127	0.120	0.115	0.108	0.101	0.094
X ₀	Zero-sequence reactance (independent)	pu	0.006	0.005	0.005	0.004	0.007	0.007	0.007	0.006	0.006	0.005
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		2175						2175		
T _a	Armature time constant	ms		15						15		
T _r	Voltage recovery time	ms		< 500						< 500		

EXCITATION VOLTAGE AND CURRENT

No load excitation voltage	V	8.4	9.9	11.3	14.9	5.9	6.4	6.9	7.7	8.6	9.8
No load excitation current	A	0.96	1.12	1.28	1.69	0.67	0.73	0.78	0.88	0.98	1.11
Class H BR excitation voltage	V	32.2	33.4	35.2	37.1	29.9	30.4	31.1	32.2	33.2	34.1
Class H BR excitation current	A	3.66	3.80	4.00	4.22	3.40	3.46	3.53	3.66	3.77	3.88

WINDING RESISTANCE

At 20° C

Stator line-to-line (series star)	Ω	0.0225		Exciter field	Ω	8.80
Main field	Ω	0.30				

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 **5014J / 5024J** **WINDING** **6**

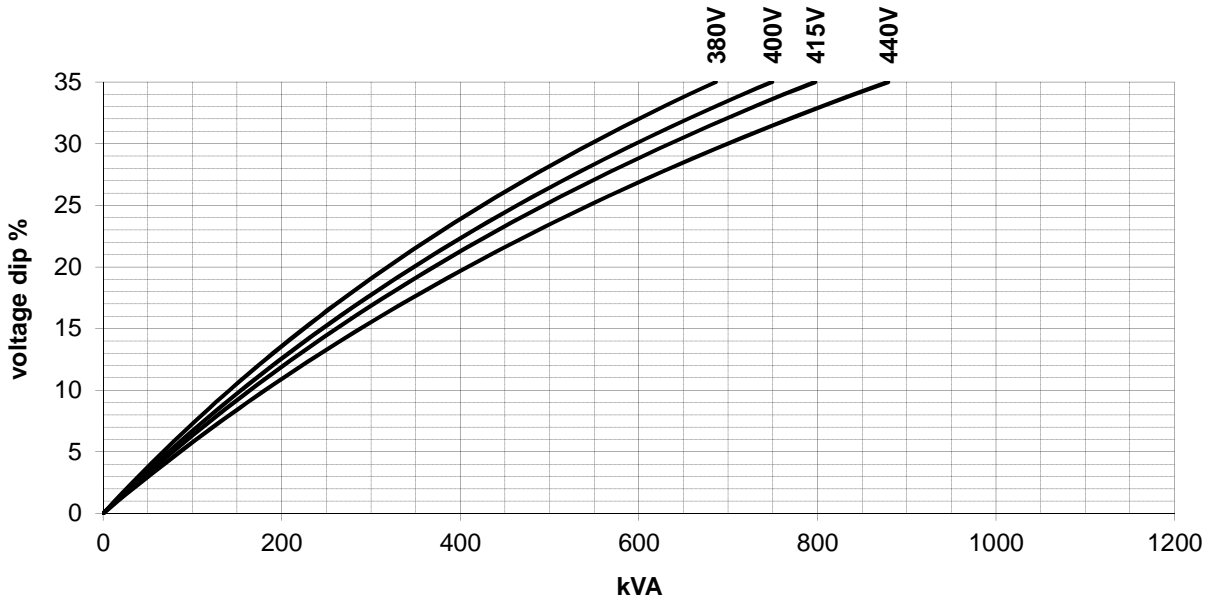


MODELS **LL5014J / LL5024J / LL5034J**

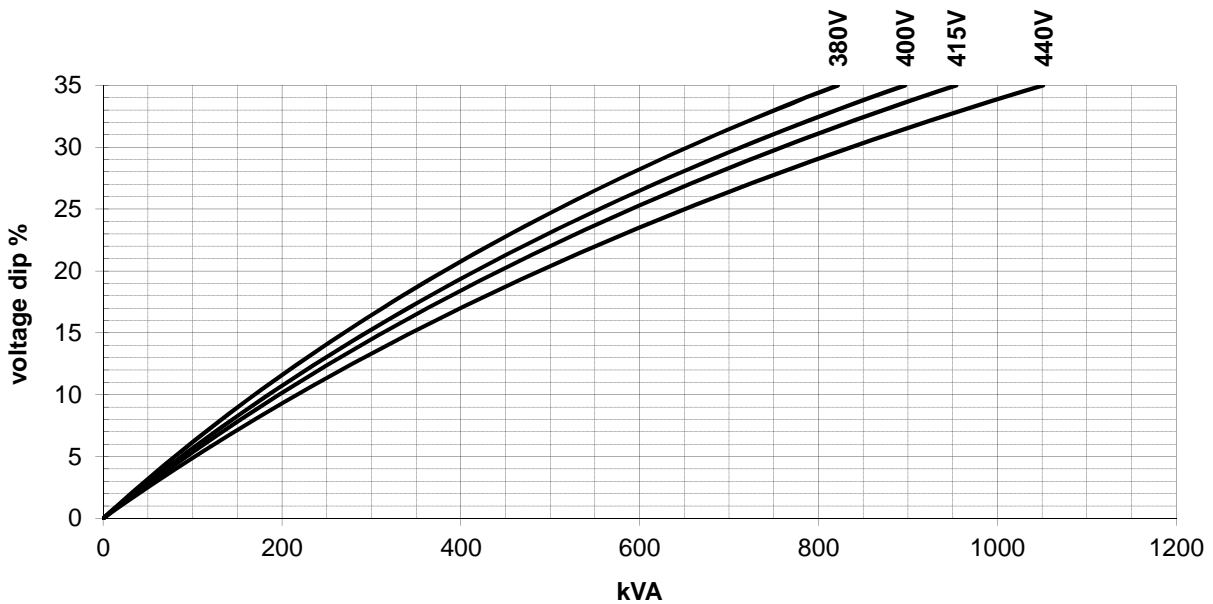
REF: F5004HW6-5 SEP 2013

LOCKED ROTOR MOTOR STARTING CURVES *Power factor 0.6*

50 Hz SHUNT



50 Hz AREP / PMG



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 5014J / 5024J WINDING 6

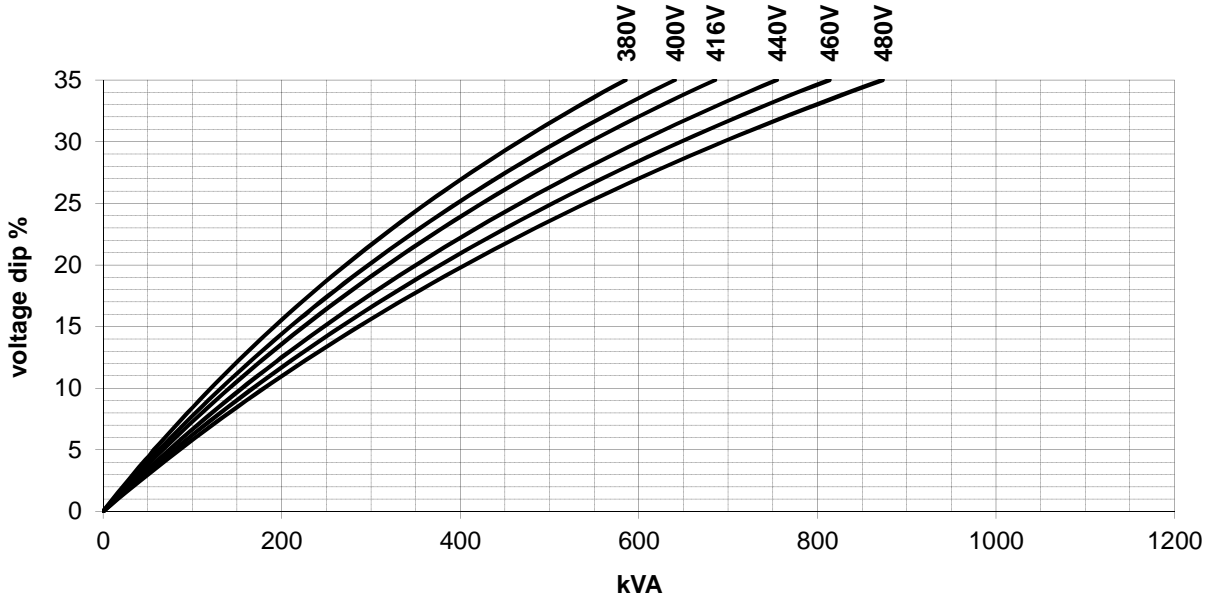


MODELS LL5014J / LL5024J / LL5034J

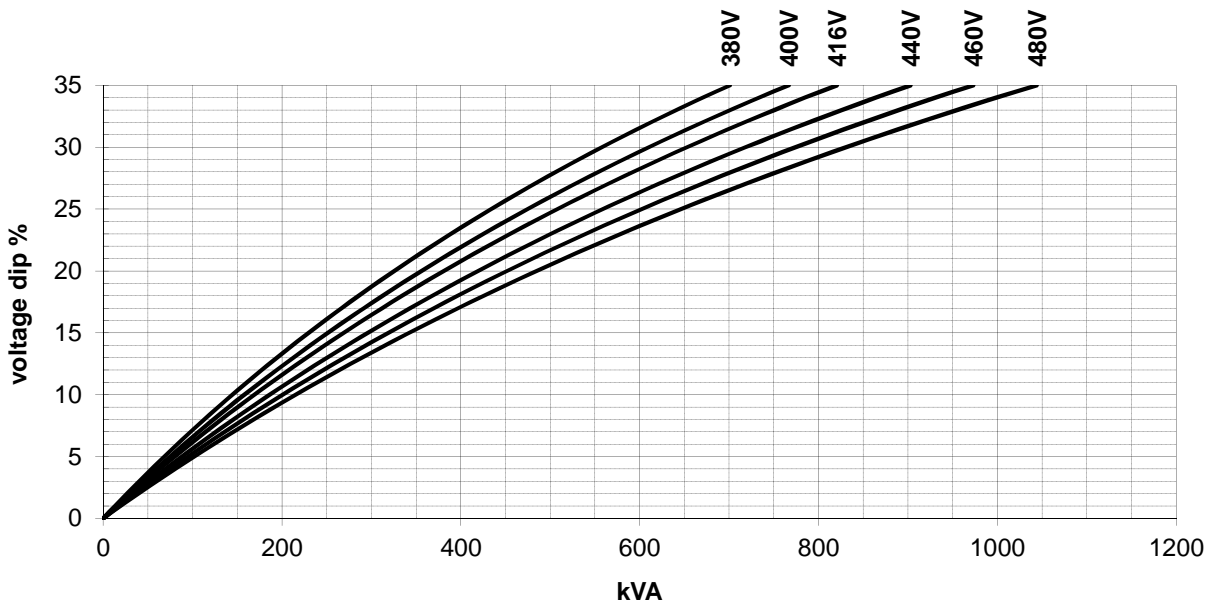
REF: F5004HW6-5 SEP 2013

LOCKED ROTOR MOTOR STARTING CURVES *Power factor 0.6*

60 Hz SHUNT



60 Hz AREP / PMG



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.

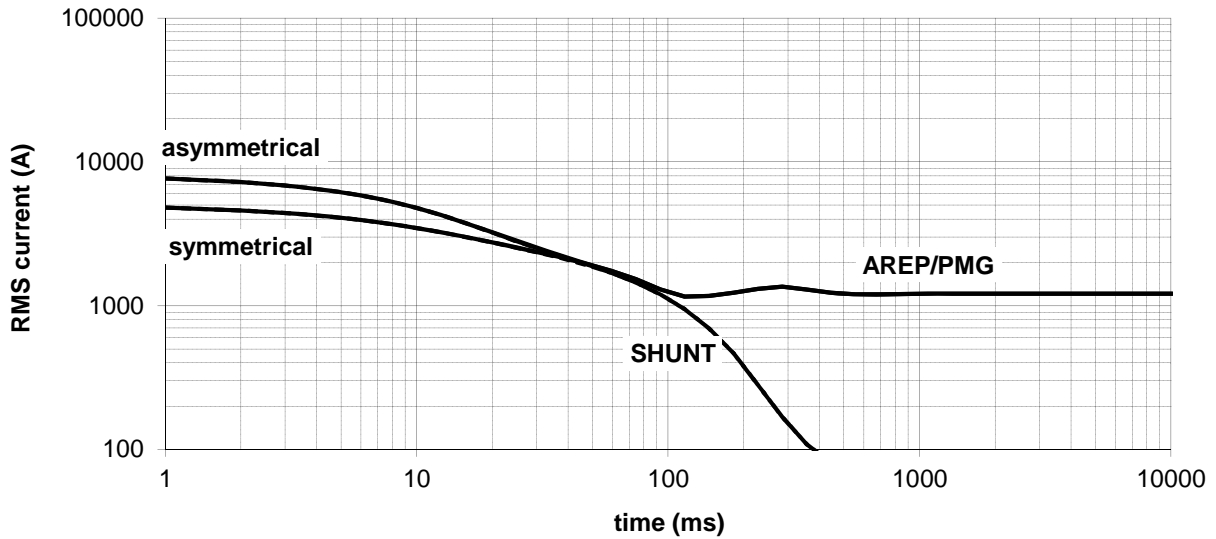


THREE-PHASE SHORT-CIRCUIT DECREMENT CURVES

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

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.