

FRAME FGL30100 WINDING 6S



MODELS FGL30100

REF: FGL30100W6S-1 SEP 2020

WINDING DETAILS

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

MECHANICAL DETAILS

Standard protection	IP23
Overspeed	rpm 2250
Air flow 50Hz/60Hz	m ³ /s 0.25 / 0.3

EXCITATION DETAILS

Excitation system	SHUNT	PMG
AVR model	R120	R180
Sustained short-circuit current	-	270%:5s
Steady state voltage regulation	±1.0%	±1.0%

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	
Star												

RATING

Power factor 0.8, Altitude <=1000m

Class H rise BR	125/40	kVA	150	150	150	135	160	170	177	185	188	188
		<i>kW</i>	120	120	120	108	128	136	142	148	150	150
Class H rise PR	150/40	kVA	159	159	159	143	170	180	188	196	199	199
		<i>kW</i>	127	127	127	114	136	144	150	157	159	159
Class H rise PR	163/27	kVA	165	165	165	149	176	187	195	204	207	207
		<i>kW</i>	132	132	132	119	141	150	156	163	165	165
Class F rise BR	105/40	kVA	137	137	137	123	146	155	161	168	171	171
		<i>kW</i>	109	109	109	98	116	124	129	135	137	137

EFFICIENCIES

Power factor 0.8

110% Class H BR	%	92.0	92.1	91.9	91.6	92.1	92.3	92.4	92.6	92.6	92.6
100% Class H BR	%	92.5	92.5	92.3	91.8	92.5	92.7	92.8	92.9	93.0	92.9
75% Class H BR	%	93.3	93.2	92.9	92.0	93.4	93.5	93.6	93.6	93.6	93.4
50% Class H BR	%	93.7	93.3	92.9	91.3	93.8	93.9	93.9	93.8	93.6	93.2
25% Class H BR	%	92.3	91.4	90.5	87.4	92.4	92.3	92.2	91.9	91.4	90.7

CHARACTERISTIC PARAMETERS

Reactance base class H BR rating

K _c	Short-circuit ratio		0.31	0.38	0.45	0.69	0.20	0.22	0.23	0.27	0.31	0.37
X _d	D-Axis synchronous reactance (unsaturated)	pu	3.98	3.60	3.34	2.67	5.10	4.89	4.71	4.40	4.09	3.76
X' _d	D-Axis transient reactance (saturated)	pu	0.19	0.17	0.16	0.13	0.24	0.23	0.22	0.21	0.19	0.18
X'' _d	D-Axis sub-transient reactance (saturated)	pu	0.113	0.102	0.095	0.076	0.145	0.139	0.134	0.125	0.116	0.107
X _q	Q-Axis synchronous reactance (unsaturated)	pu	2.03	1.83	1.70	1.36	2.60	2.49	2.40	2.24	2.09	1.92
X'' _q	Q-Axis sub-transient reactance (saturated)	pu	0.226	0.204	0.190	0.152	0.290	0.278	0.267	0.250	0.232	0.213
X ₂	Negative-sequence reactance (saturated)	pu	0.170	0.153	0.142	0.114	0.217	0.208	0.201	0.187	0.174	0.160
X ₀	Zero-sequence reactance (independent)	pu	0.008	0.007	0.006	0.005	0.010	0.010	0.009	0.009	0.008	0.007
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		2113						2113		
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	7.4	8.5	9.7	12.6	5.2	5.6	6.0	6.7	7.5	8.5
No load excitation current	A	0.57	0.66	0.75	0.97	0.40	0.43	0.46	0.52	0.58	0.66
Class H BR excitation voltage	V	35.1	36.1	37.9	39.1	31.4	32.5	33.3	34.4	35.2	36.1
Class H BR excitation current	A	2.71	2.79	2.93	3.02	2.43	2.51	2.57	2.66	2.72	2.79

WINDING RESISTANCE

At 20°C

Stator line-to-line (series star)	Ω	0.058		Exciter field - Shunt	Ω	12.9
Main field	Ω	3.15				

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.

Manufactured for FG Wilson by Leroy Somer - Nidec.

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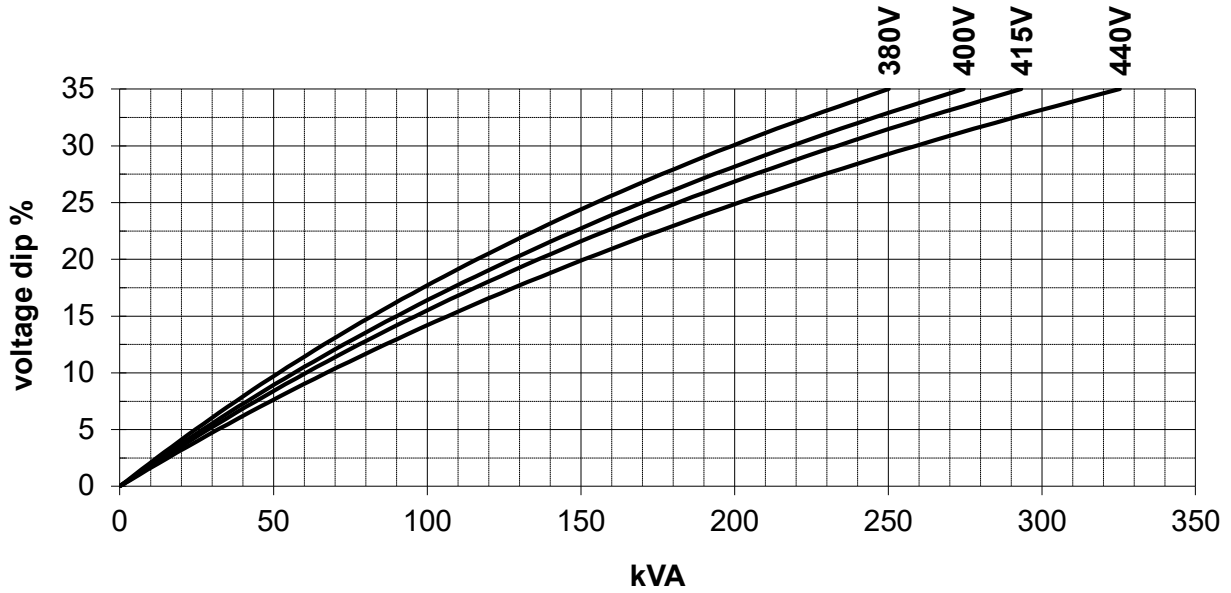
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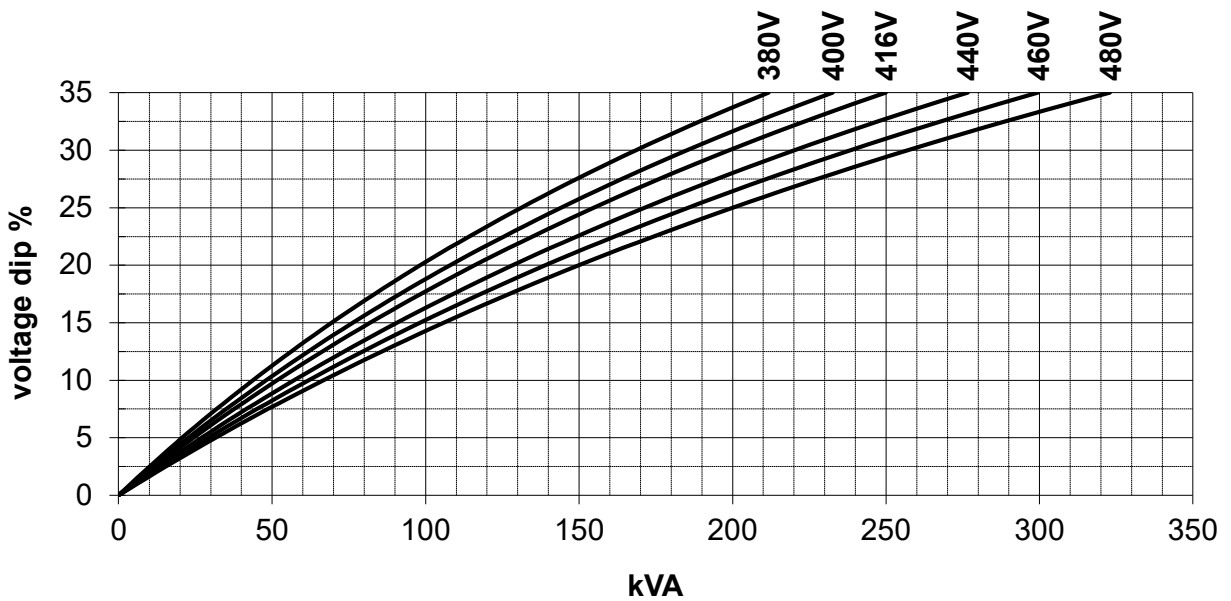
LOCKED ROTOR MOTOR STARTING CURVES

Power factor 0.6

50 Hz SHUNT



60 Hz SHUNT



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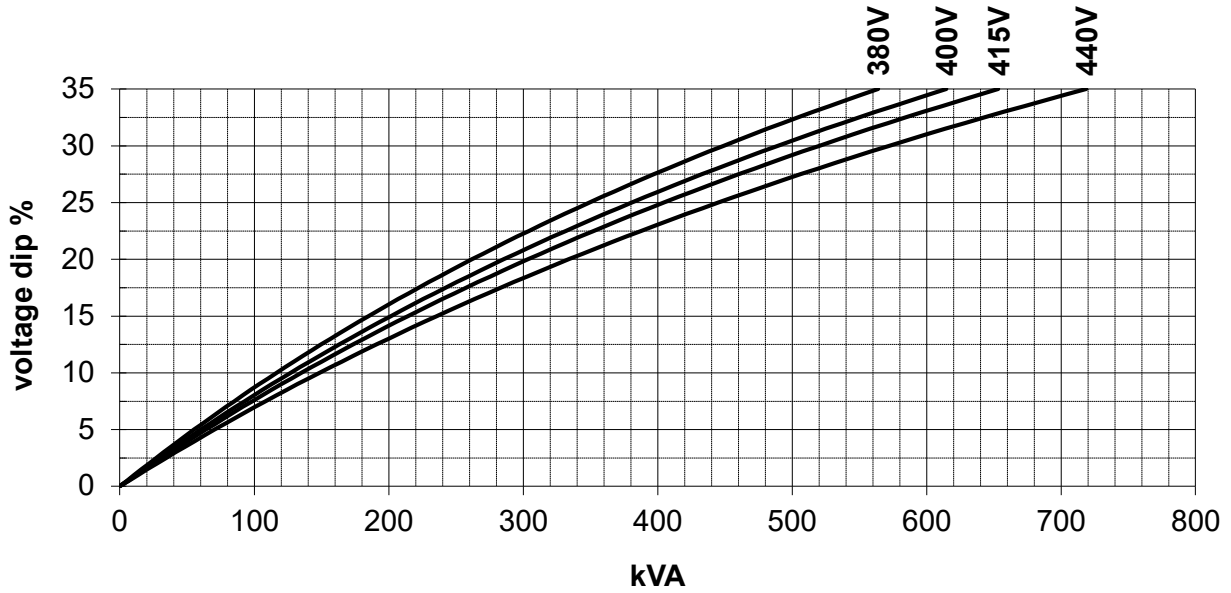
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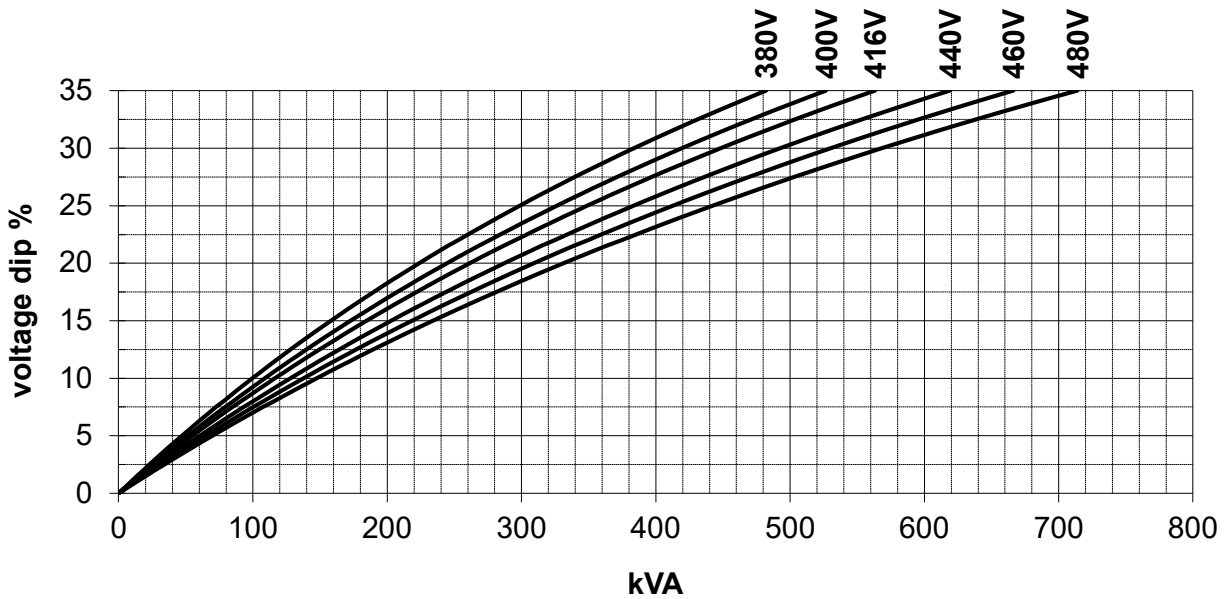
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50 Hz PMG



60 Hz PMG



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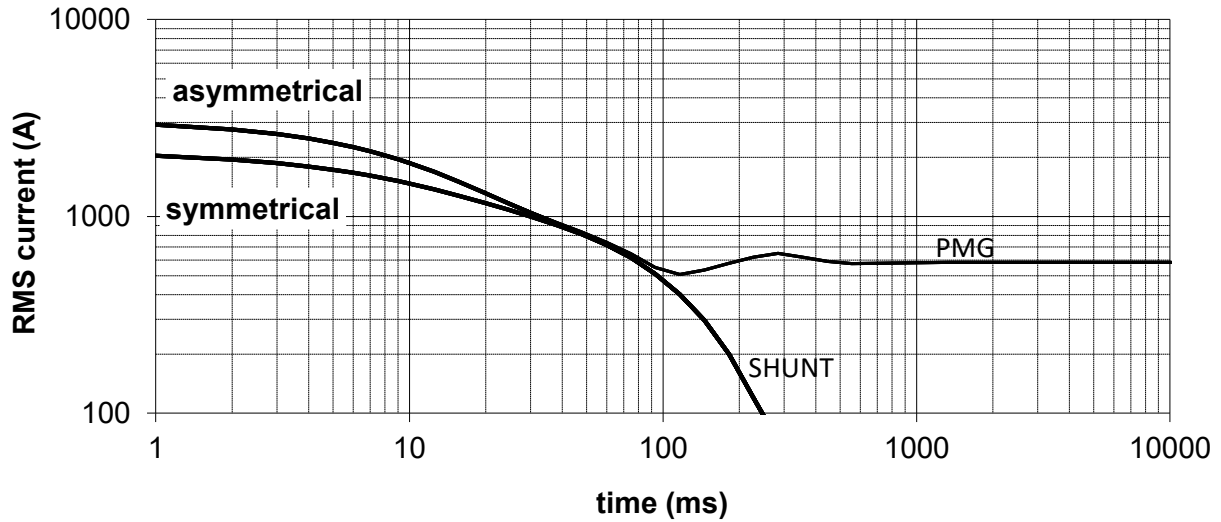
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THREE-PHASE SHORT-CIRCUIT DECREMENT CURVES

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

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