

FRAME

FGL30040

WINDING

6S



MODELS FGL30040

REF: FGL30040W6S-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

<i>Line voltage on no load or balanced linear rated load</i>	
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	50Hz / 1500rpm					60Hz / 1800rpm					
Star	V	380	400	415	440	380	400	416	440	460	480

RATING

Power factor 0.8, Altitude <=1000m

Class H rise BR	125/40	kVA	105	105	105	95	103	112	119	120	126	131
		kW	84	84	84	76	82	89	95	96	101	105
Class H rise PR	150/40	kVA	111	111	111	100	109	118	127	128	134	139
		kW	89	89	89	80	87	95	101	102	107	111
Class H rise PR	163/27	kVA	116	116	116	104	113	123	131	132	139	144
		kW	92	92	92	83	91	98	105	106	111	115
Class F rise BR	105/40	kVA	96	96	96	86	94	102	109	110	115	119
		kW	76	76	76	69	75	81	87	88	92	95

EFFICIENCIES

Power factor 0.8

110% Class H BR	%	90.3	90.2	89.7	88.6	91.1	91.1	91.1	91.4	91.2	90.9
100% Class H BR	%	90.8	90.6	90.2	88.9	91.5	91.5	91.5	91.7	91.6	91.3
75% Class H BR	%	91.9	91.5	91.0	89.2	92.3	92.4	92.4	92.4	92.2	91.9
50% Class H BR	%	92.3	91.7	90.9	88.2	92.5	92.6	92.6	92.4	92.1	91.6
25% Class H BR	%	90.6	89.3	87.9	83.2	90.4	90.5	90.5	89.8	89.3	88.4

CHARACTERISTIC PARAMETERS

Reactance base class H BR rating

K_c	Short-circuit ratio		0.34	0.44	0.54	0.88	0.23	0.24	0.26	0.31	0.36	0.42
X_d	D-Axis synchronous reactance (unsaturated)	pu	3.97	3.59	3.33	2.67	4.68	4.58	4.52	4.07	3.90	3.72
X'_d	D-Axis transient reactance (saturated)	pu	0.17	0.16	0.14	0.12	0.20	0.20	0.20	0.18	0.17	0.16
X''_d	D-Axis sub-transient reactance (saturated)	pu	0.103	0.093	0.087	0.069	0.122	0.119	0.117	0.106	0.101	0.097
X_q	Q-Axis synchronous reactance (unsaturated)	pu	2.03	1.83	1.70	1.36	2.39	2.33	2.31	2.08	1.99	1.90
X''_q	Q-Axis sub-transient reactance (saturated)	pu	0.221	0.199	0.185	0.148	0.260	0.254	0.251	0.226	0.217	0.207
X_2	Negative-sequence reactance (saturated)	pu	0.162	0.146	0.136	0.109	0.191	0.187	0.184	0.166	0.159	0.152
X_0	Zero-sequence reactance (independent)	pu	0.007	0.006	0.006	0.005	0.008	0.008	0.008	0.007	0.007	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		2309						2309		
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	7.7	9.3	11.0	15.1	5.0	5.5	6.1	6.9	7.9	9.2
No load excitation current	A	0.66	0.80	0.94	1.30	0.43	0.47	0.52	0.59	0.68	0.79
Class H BR excitation voltage	V	35.5	38.0	41.4	46.6	27.7	29.4	31.0	31.3	33.7	36.8
Class H BR excitation current	A	3.05	3.26	3.55	4.00	2.38	2.52	2.66	2.69	2.89	3.16

WINDING RESISTANCE

At 20°C

Stator line-to-line (series star)	Ω	0.101	Exciter field - Shunt				Ω	11.7
Main field	Ω	2.35						

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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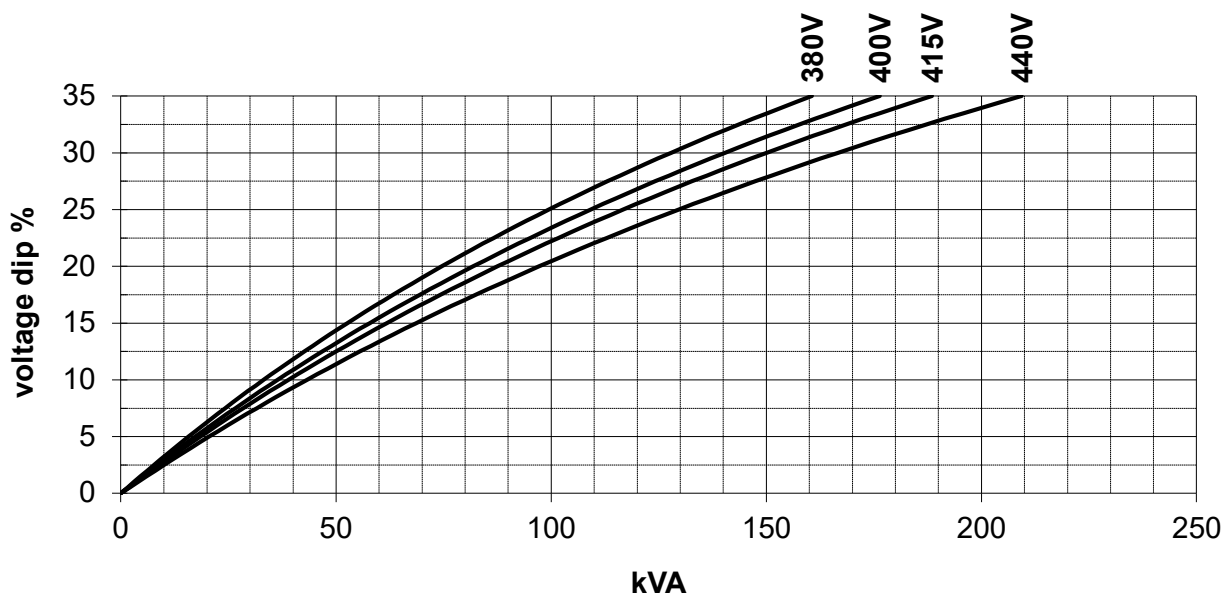
MODELS **FGL30040**

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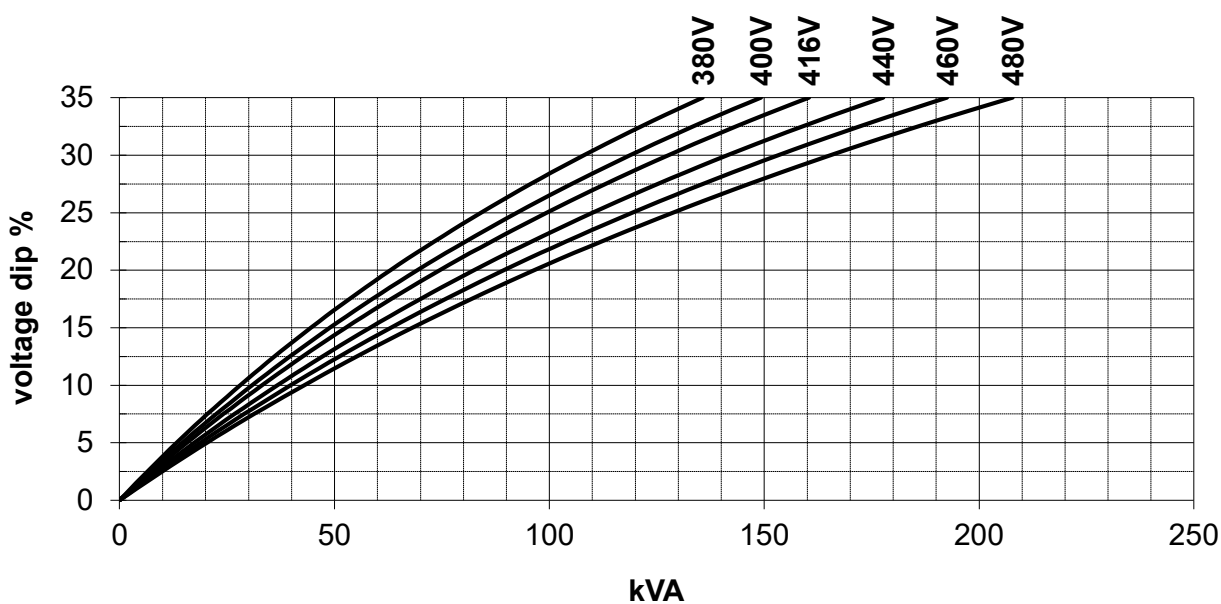
LOCKED ROTOR MOTOR STARTING CURVES

Power factor 0.6

50 Hz SHUNT



60 Hz SHUNT



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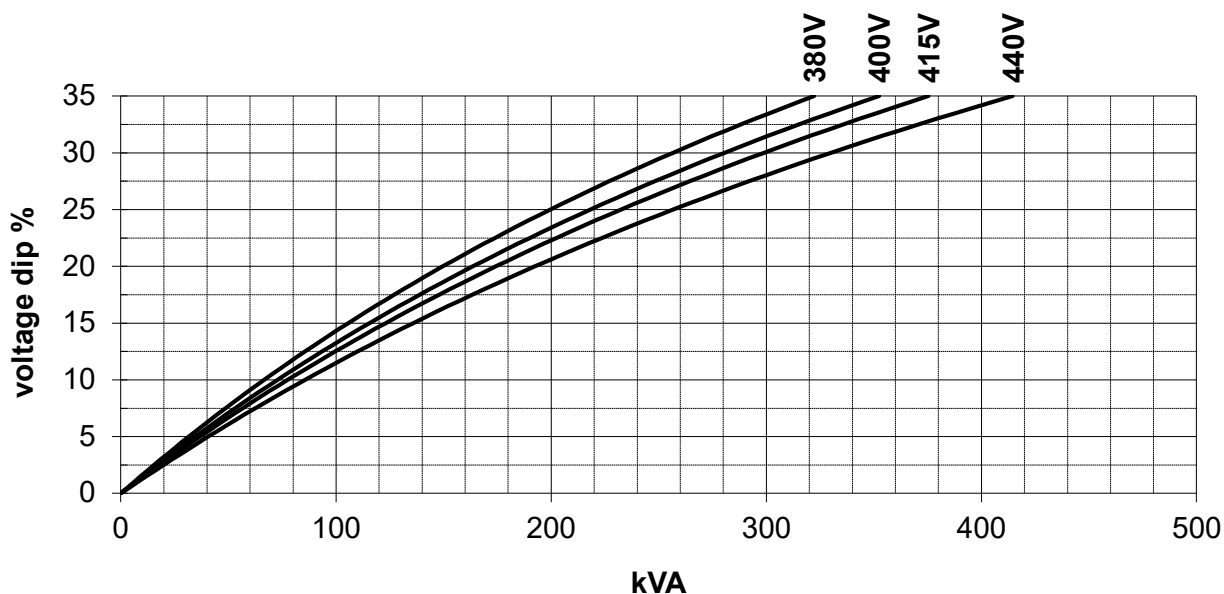
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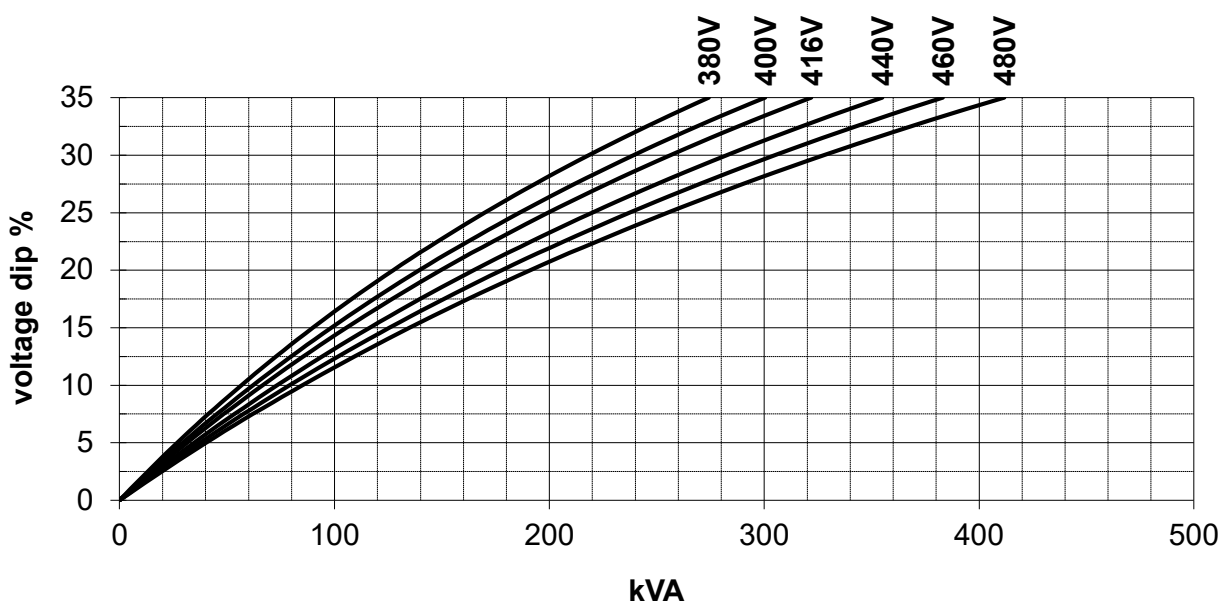
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Power factor 0.6

50 Hz PMG



60 Hz PMG



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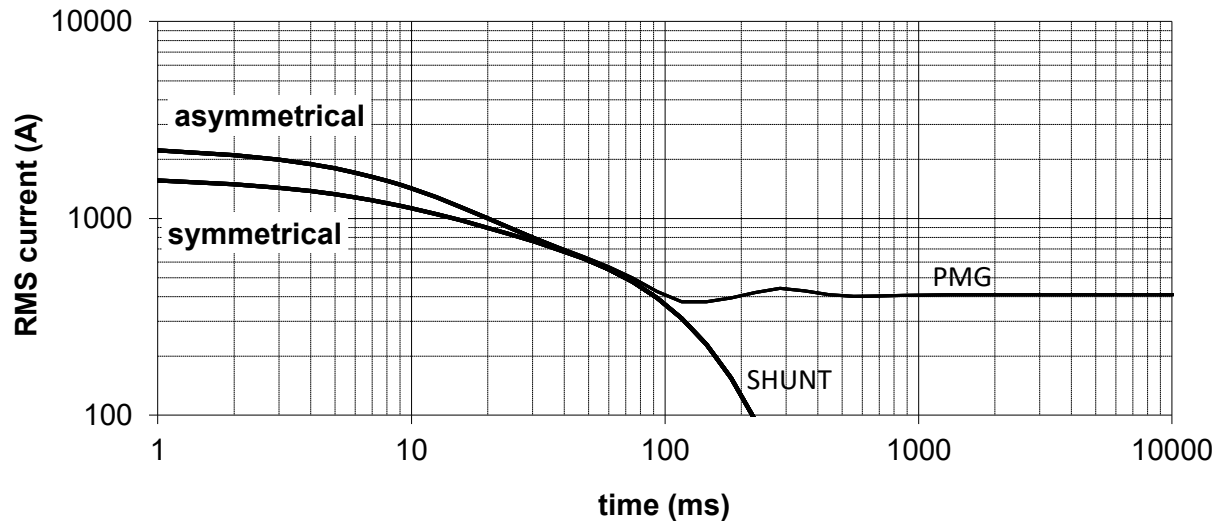
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THREE-PHASE SHORT-CIRCUIT DECREMENT CURVES

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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