

FRAME FGL70050 WINDING 6S



MODELS FGL70050

REF: FGL70050W6S-1 SEP 2020

WINDING DETAILS

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

MECHANICAL DETAILS

Standard protection	IP23
Overspeed	rpm 2250
Air flow 50Hz/60Hz	m ³ /s 1.0 / 1.2

EXCITATION DETAILS

Excitation system	SHUNT	PMG
AVR model	R150	R180
Sustained short-circuit current	-	270%:5s
Steady state voltage regulation	±1.0%	±1.0%

WAVEFORM

Line voltage on no load

Total harmonic content THC	< 3.5%
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
Star	V	220	230	240		220	230	240			
Delta	V										

RATING

Power factor 0.8, Altitude <=1000m

Class H rise BR	125/40	kVA	1010	1015	1015	910	1000	1055	1095	1155	1210	1265
		<i>kW</i>	808	812	812	728	800	844	876	924	968	1012
Class H rise PR	150/40	kVA	1071	1076	1076	965	1060	1118	1161	1224	1283	1341
		<i>kW</i>	856	861	861	772	848	895	929	979	1026	1073
Class H rise PR	163/27	kVA	1111	1117	1117	1001	1100	1161	1205	1271	1331	1392
		<i>kW</i>	889	893	893	801	880	928	964	1016	1065	1113
Class F rise BR	105/40	kVA	919	924	924	828	910	960	997	1051	1101	1151
		<i>kW</i>	735	739	739	662	728	768	797	841	881	921

EFFICIENCIES

Power factor 0.8

110%	Class H BR	%	94.8	95.0	95.1	95.2	94.5	94.7	94.8	95.0	95.1	95.1
100%	Class H BR	%	95.1	95.2	95.3	95.3	94.8	94.9	95.0	95.2	95.2	95.3
75%	Class H BR	%	95.6	95.6	95.6	95.3	95.2	95.4	95.4	95.5	95.6	95.5
50%	Class H BR	%	95.7	95.6	95.5	94.8	95.3	95.4	95.4	95.4	95.4	95.4
25%	Class H BR	%	94.6	94.2	93.8	92.2	93.7	93.7	93.7	93.6	93.6	93.4

CHARACTERISTIC PARAMETERS

Reactance base class H BR rating

K _c	Short-circuit ratio		0.28	0.32	0.36	0.51	0.22	0.23	0.24	0.27	0.29	0.31
X _d	D-Axis synchronous reactance (unsaturated)	pu	3.90	3.54	3.29	2.62	4.63	4.41	4.23	3.99	3.83	3.67
X' _d	D-Axis transient reactance (saturated)	pu	0.18	0.16	0.15	0.12	0.22	0.20	0.20	0.19	0.18	0.17
X'' _d	D-Axis sub-transient reactance (saturated)	pu	0.145	0.131	0.122	0.097	0.172	0.164	0.157	0.148	0.142	0.136
X _q	Q-Axis synchronous reactance (unsaturated)	pu	1.99	1.80	1.68	1.34	2.36	2.25	2.16	2.04	1.95	1.87
X'' _q	Q-Axis sub-transient reactance (saturated)	pu	0.158	0.143	0.133	0.106	0.188	0.179	0.172	0.162	0.155	0.149
X ₂	Negative-sequence reactance (saturated)	pu	0.152	0.137	0.128	0.102	0.180	0.171	0.164	0.155	0.149	0.143
X ₀	Zero-sequence reactance (independent)	pu	0.007	0.007	0.006	0.005	0.009	0.008	0.008	0.008	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		2154						2154		
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	9.6	10.6	11.4	13.4	7.4	7.9	8.3	9.0	9.7	10.6
No load excitation current	A	0.83	0.92	0.99	1.16	0.64	0.68	0.72	0.78	0.84	0.92
Class H BR excitation voltage	V	44.1	43.7	43.4	40.3	40.7	41.2	41.6	42.4	43.3	44.5
Class H BR excitation current	A	3.82	3.78	3.76	3.49	3.52	3.57	3.60	3.67	3.75	3.85

WINDING RESISTANCE

At 20°C

Stator line-to-line (series star)	Ω	0.004		Exciter field - Shunt	Ω	11.6
Main field	Ω	0.49				

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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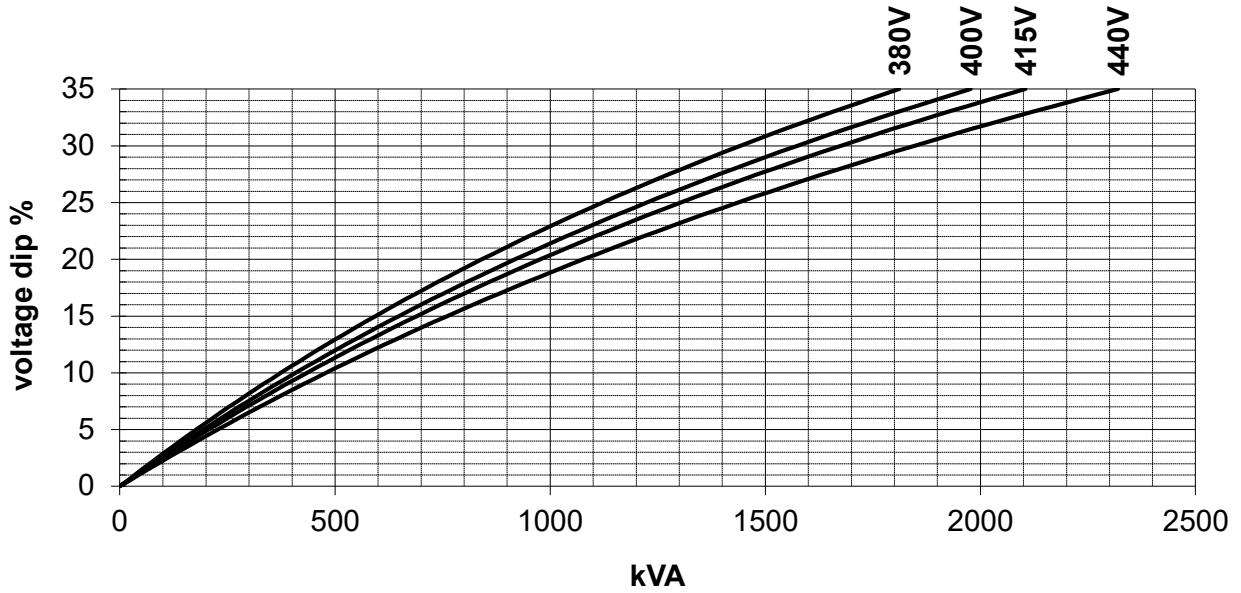
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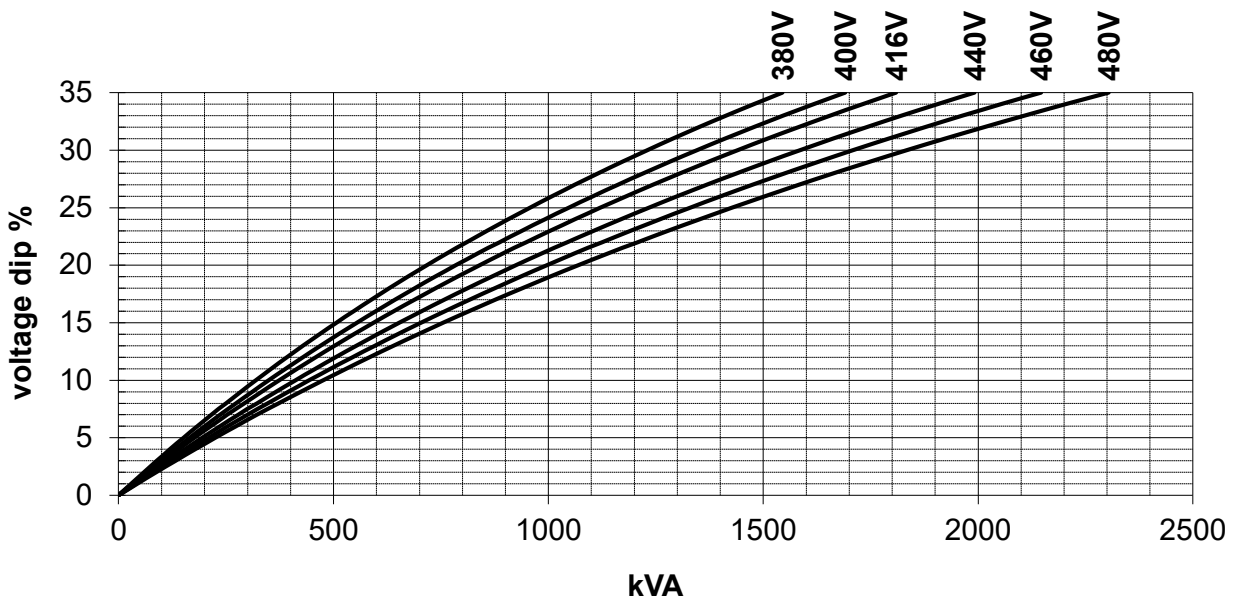
LOCKED ROTOR MOTOR STARTING CURVES

Power factor 0.6

50 Hz SHUNT



60 Hz SHUNT



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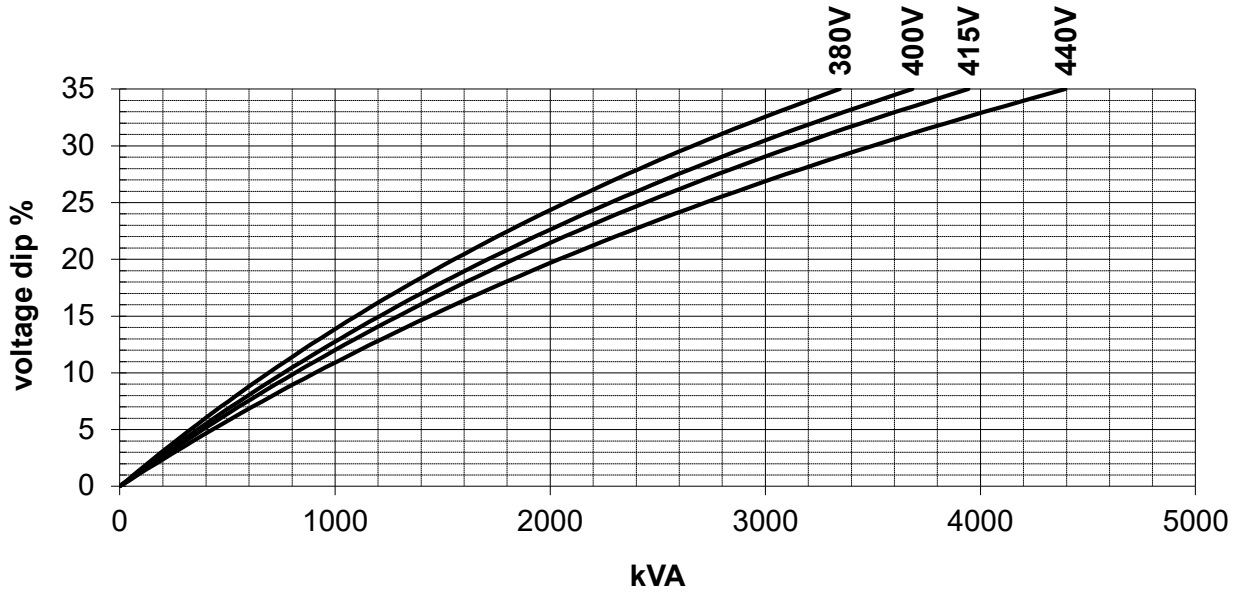
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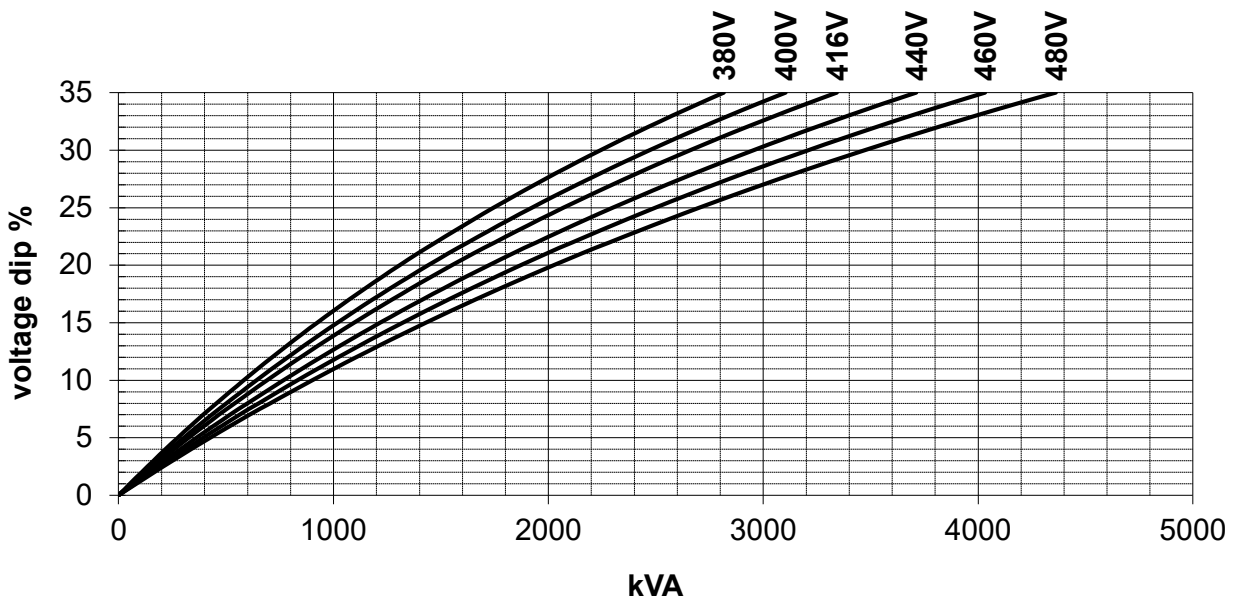
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Power factor 0.6

50 Hz PMG



60 Hz PMG



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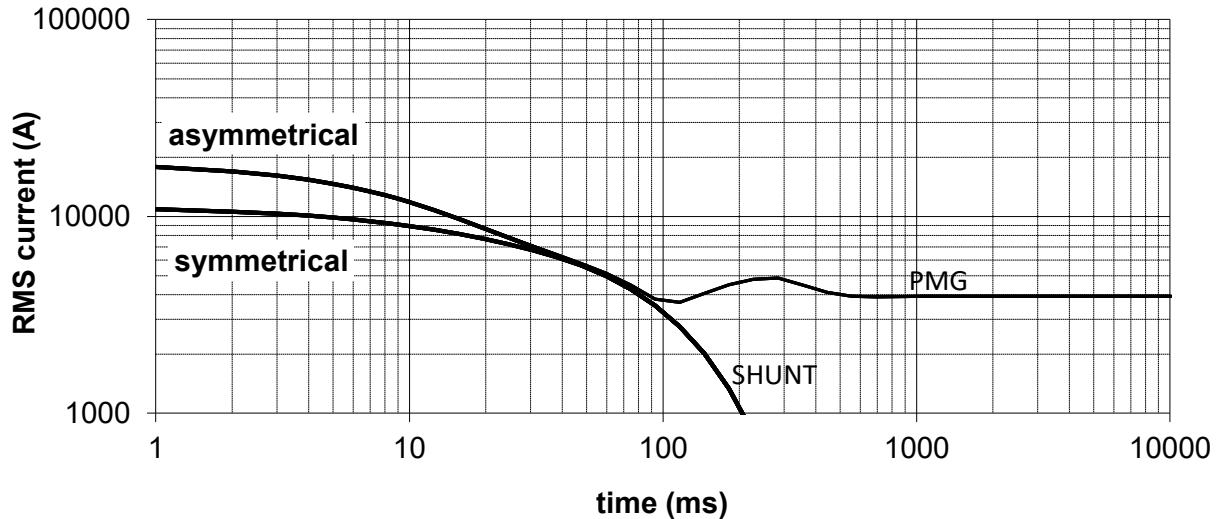
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THREE-PHASE SHORT-CIRCUIT DECREMENT CURVES

No-load excitation at rated speed

400V 50Hz, 480V 60Hz

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	Star	Delta
Multiplication Factor	1.00	1.73

Apply factor to the complete curve

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