

FRAME FGL70030 WINDING 6S



MODELS FGL70030

REF: FGL70030W6S-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	Rating	kVA	830	835	830	730	830	870	905	960	1000	1045
Class H rise BR	125/40	kVA	830	835	830	730	830	870	905	960	1000	1045
		kW	664	668	664	584	664	696	724	768	800	836
Class H rise PR	150/40	kVA	880	885	880	774	880	922	959	1018	1060	1108
		kW	704	708	704	619	704	738	767	814	848	886
Class H rise PR	163/27	kVA	913	919	913	803	913	957	996	1056	1100	1150
		kW	730	735	730	642	730	766	796	845	880	920
Class F rise BR	105/40	kVA	755	760	755	664	755	792	824	874	910	951
		kW	604	608	604	531	604	633	659	699	728	761

EFFICIENCIES

Power factor 0.8

Efficiency	Class	%	93.5	93.7	93.8	94.1	93.2	93.4	93.5	93.7	93.8	93.8
110%	Class H BR	%	93.5	93.7	93.8	94.1	93.2	93.4	93.5	93.7	93.8	93.8
100%	Class H BR	%	93.8	94.0	94.1	94.2	93.5	93.7	93.9	94.0	94.1	94.1
75%	Class H BR	%	94.4	94.5	94.5	94.3	94.1	94.3	94.4	94.5	94.5	94.5
50%	Class H BR	%	94.7	94.6	94.5	93.8	94.1	94.2	94.3	94.3	94.3	94.3
25%	Class H BR	%	93.3	92.9	92.5	90.8	92.1	92.1	92.2	92.2	92.1	91.9

CHARACTERISTIC PARAMETERS

Reactance base class H BR rating

Parameter	Unit	0.31	0.35	0.41	0.59	0.23	0.25	0.26	0.29	0.31	0.34
K _c Short-circuit ratio		0.31	0.35	0.41	0.59	0.23	0.25	0.26	0.29	0.31	0.34
X _d D-Axis synchronous reactance (unsaturated)	pu	3.91	3.55	3.28	2.56	4.69	4.43	4.27	4.04	3.85	3.70
X' _d D-Axis transient reactance (saturated)	pu	0.19	0.17	0.16	0.12	0.22	0.21	0.20	0.19	0.18	0.18
X'' _d D-Axis sub-transient reactance (saturated)	pu	0.149	0.135	0.125	0.098	0.179	0.169	0.163	0.154	0.147	0.141
X _q Q-Axis synchronous reactance (unsaturated)	pu	1.99	1.81	1.67	1.31	2.39	2.26	2.18	2.06	1.97	1.89
X'' _q Q-Axis sub-transient reactance (saturated)	pu	0.167	0.152	0.140	0.110	0.201	0.190	0.183	0.173	0.165	0.158
X ₂ Negative-sequence reactance (saturated)	pu	0.158	0.144	0.133	0.104	0.190	0.180	0.173	0.164	0.156	0.150
X ₀ Zero-sequence reactance (independent)	pu	0.008	0.007	0.006	0.005	0.009	0.009	0.008	0.008	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		2094					2094			
T _a Armature time constant	ms		15					15			
T _r Voltage recovery time	ms		< 500					< 500			

EXCITATION VOLTAGE AND CURRENT

Parameter	Unit	11.8	13.1	14.3	17.1	8.8	9.5	10.0	11.0	11.9	13.1
No load excitation voltage	V	11.8	13.1	14.3	17.1	8.8	9.5	10.0	11.0	11.9	13.1
No load excitation current	A	1.02	1.13	1.24	1.48	0.76	0.82	0.87	0.95	1.03	1.13
Class H BR excitation voltage	V	55.1	55.9	56.7	53.9	48.6	49.4	50.5	52.4	54.4	57.3
Class H BR excitation current	A	4.77	4.84	4.91	4.67	4.21	4.28	4.37	4.54	4.71	4.96

WINDING RESISTANCE

At 20°C

Parameter	Ω	0.006	Exciter field - Shunt	Ω	11.6
Stator line-to-line (series star)	Ω	0.006	Exciter field - Shunt	Ω	11.6
Main field	Ω	0.44			

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.

FRAME FGL70030 WINDING 6S



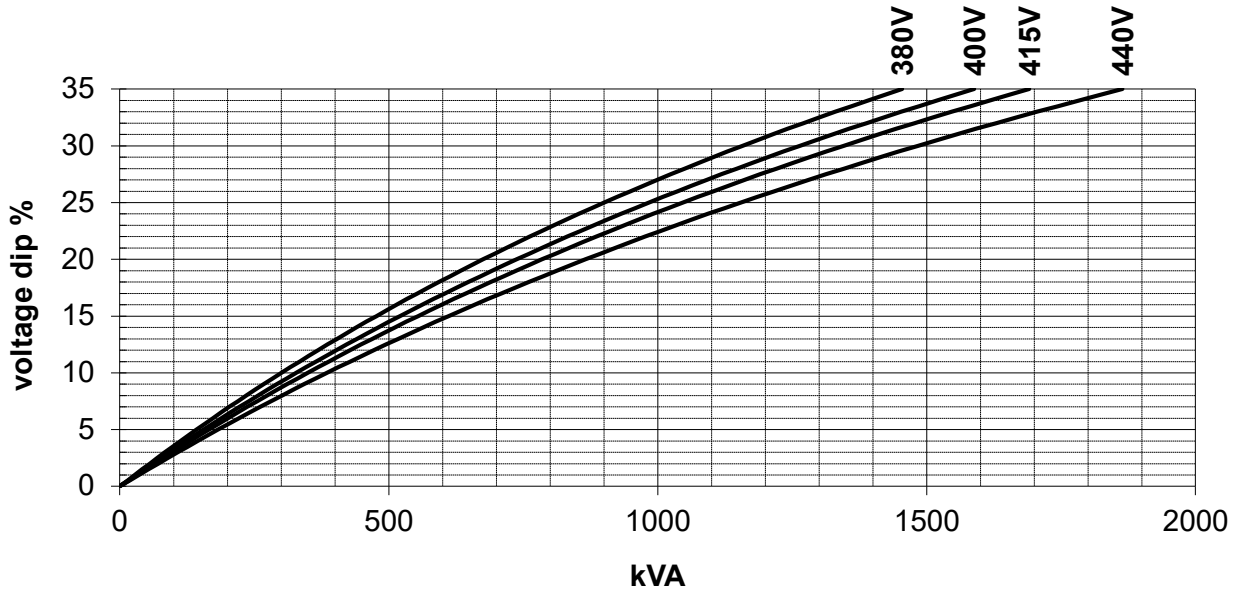
MODELS FGL70030

REF: FGL70030W6S-1 SEP 2020

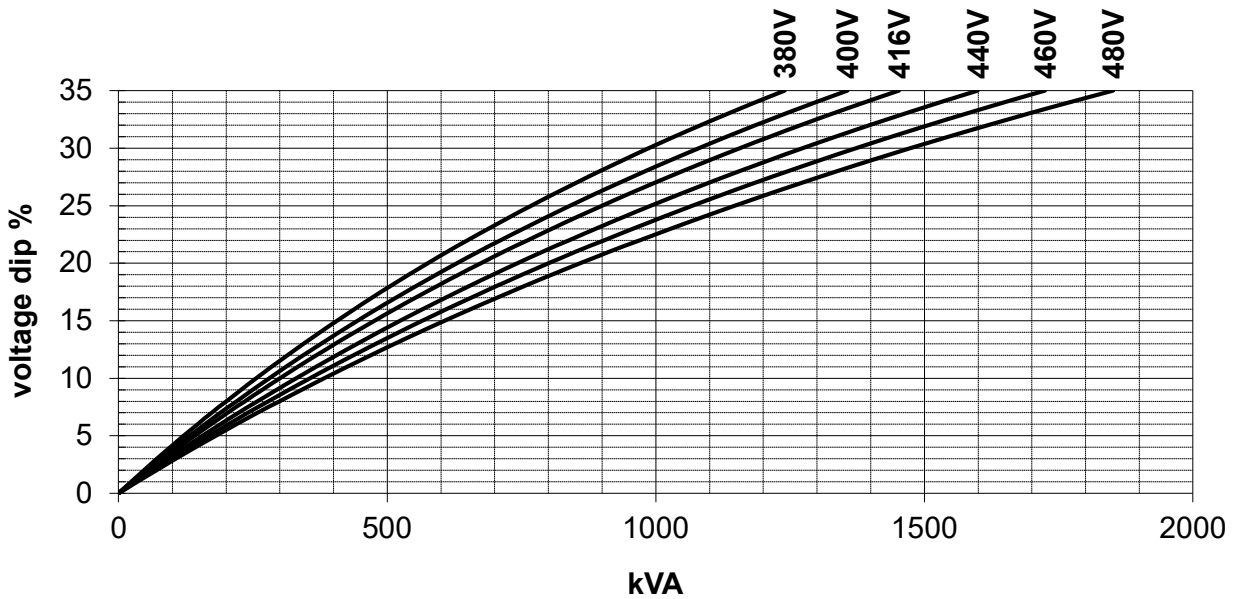
LOCKED ROTOR MOTOR STARTING CURVES

Power factor 0.6

50 Hz SHUNT



60 Hz SHUNT



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.

FRAME FGL70030 WINDING 6S



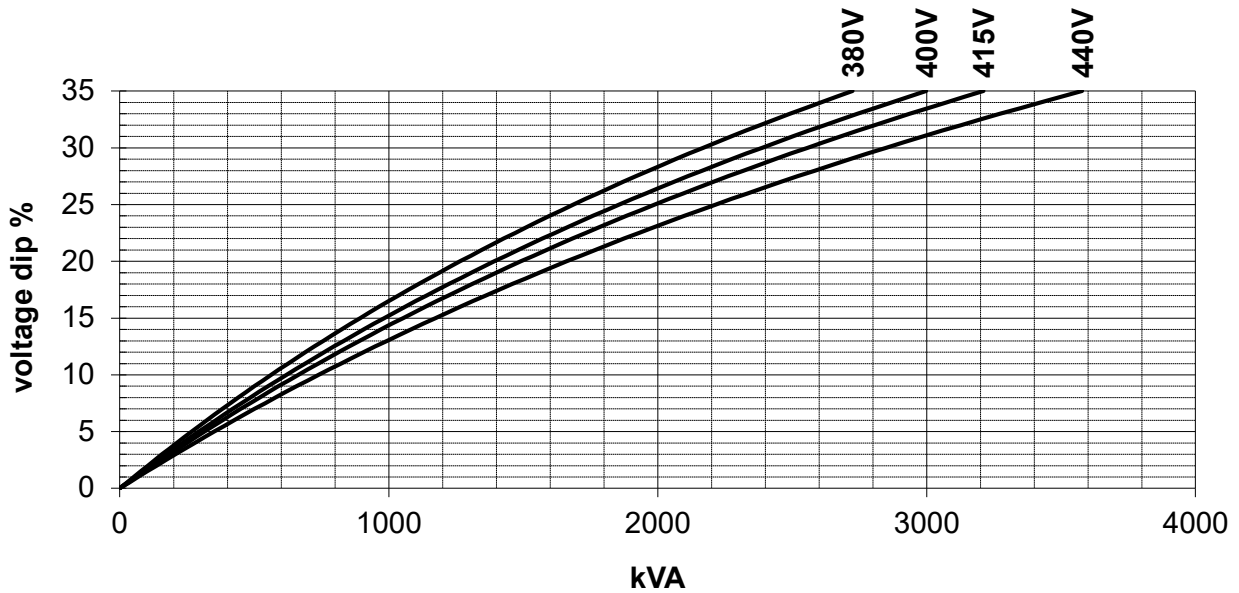
MODELS FGL70030

REF: FGL70030W6S-1 SEP 2020

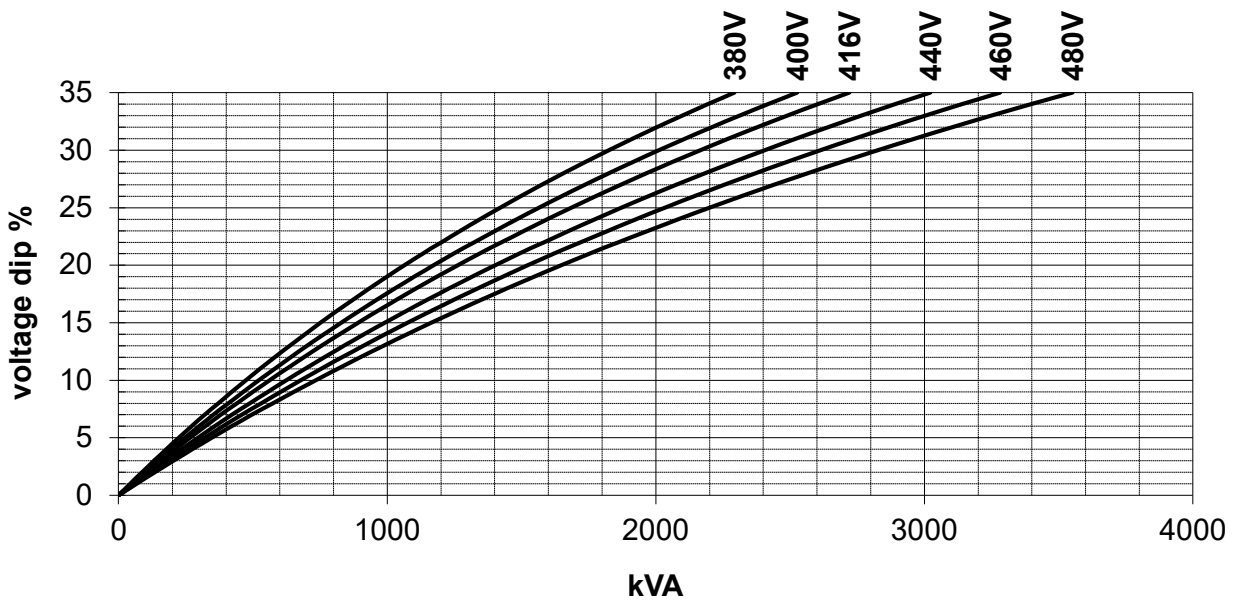
LOCKED ROTOR MOTOR STARTING CURVES

Power factor 0.6

50 Hz PMG



60 Hz 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.
Manufactured for FG Wilson by Leroy Somer - Nidec.

FRAME FGL70030 WINDING 6S



MODELS FGL70030

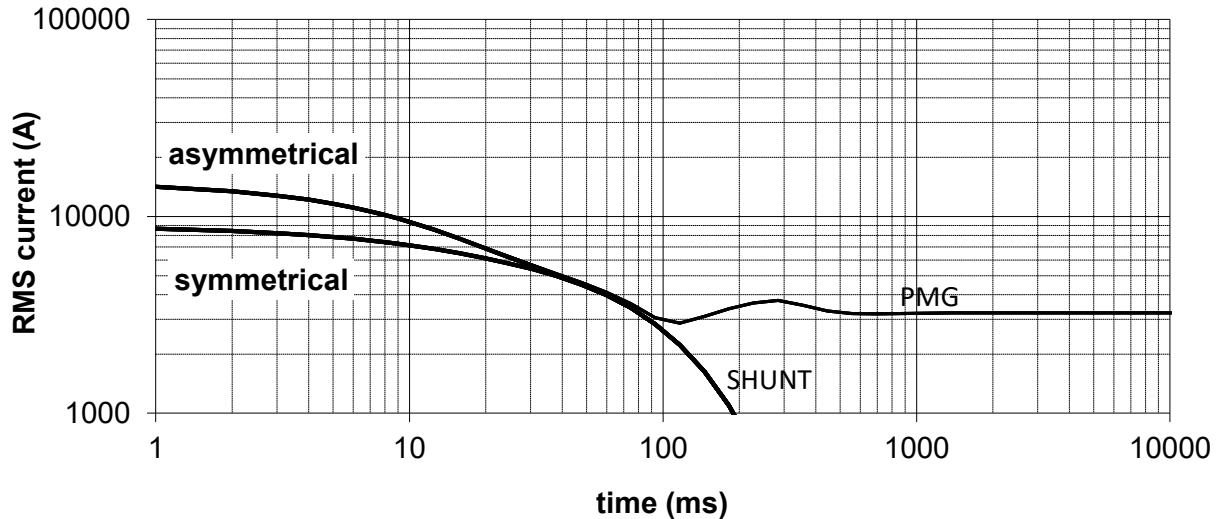
REF: FGL70030W6S-1 SEP 2020

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

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.