

FRAME FGL20060 WINDING 6S



MODELS FGL20060

REF: FGL20060W6S-1 AUG 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	0.1 / 0.13

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	< 2.0%
Telephone influence factor TIF (NEMA)	< 50
Telephone harmonic factor THF (IEC)	< 2%

LINE VOLTAGE <i>No overvoltage tolerance for 440V 50Hz excitation level</i>												
Frequency / speed	V	50Hz / 1500rpm				60Hz / 1800rpm						
		380	400	415	440	380	400	416	440	460	480	
Star												

RATING <i>Power factor 0.8, Altitude <=1000m</i>												
Class H rise BR	125/40	kVA	43	45	45	39	46	49	50	54	57	57
		kW	34	36	36	31	37	39	40	43	45	45
Class H rise PR	150/40	kVA	46	48	48	41	49	51	53	57	60	60
		kW	36	38	38	33	39	41	42	45	48	48
Class H rise PR	163/27	kVA	47	50	50	43	51	53	55	59	62	62
		kW	38	40	40	34	40	43	44	47	50	50
Class F rise BR	105/40	kVA	39	41	41	36	42	44	46	49	51	51
		kW	31	33	33	28	34	35	36	39	41	41

EFFICIENCIES <i>Power factor 0.8</i>												
110%	Class H BR	%	88.6	88.8	89.0	89.6	88.2	88.5	88.8	89.0	89.1	89.5
100%	Class H BR	%	89.2	89.3	89.5	89.9	88.8	89.1	89.4	89.6	89.7	89.9
75%	Class H BR	%	90.5	90.5	90.5	90.3	90.2	90.4	90.6	90.7	90.8	90.8
50%	Class H BR	%	91.2	91.0	90.8	89.7	91.0	91.2	91.2	91.2	91.2	91.0
25%	Class H BR	%	89.6	89.1	88.4	85.5	89.6	89.6	89.5	89.3	89.1	88.5

CHARACTERISTIC PARAMETERS <i>Reactance base class H BR rating</i>												
K _c	Short-circuit ratio		0.34	0.38	0.42	0.60	0.25	0.26	0.28	0.30	0.32	0.36
X _d	D-Axis synchronous reactance (unsaturated)	pu	3.13	2.95	2.74	2.12	4.01	3.82	3.64	3.48	3.36	3.09
X' _d	D-Axis transient reactance (saturated)	pu	0.16	0.15	0.14	0.11	0.21	0.20	0.19	0.18	0.17	0.16
X'' _d	D-Axis sub-transient reactance (saturated)	pu	0.080	0.076	0.071	0.054	0.103	0.098	0.094	0.090	0.087	0.079
X _q	Q-Axis synchronous reactance (unsaturated)	pu	1.58	1.49	1.38	1.07	2.03	1.93	1.84	1.76	1.70	1.56
X'' _q	Q-Axis sub-transient reactance (saturated)	pu	0.113	0.107	0.099	0.077	0.145	0.138	0.132	0.126	0.122	0.112
X ₂	Negative-sequence reactance (saturated)	pu	0.095	0.090	0.084	0.064	0.122	0.116	0.111	0.106	0.103	0.094
X ₀	Zero-sequence reactance (independent)	pu	0.007	0.006	0.006	0.004	0.008	0.008	0.008	0.007	0.007	0.006
T' _d	D-Axis transient time constant	ms		50						50		
T'' _d	D-Axis sub-transient time constant	ms		5						5		
T' _{do}	D-Axis open-circuit time constant	ms		980						980		
T _a	Armature time constant	ms		8						8		
T _r	Voltage recovery time	ms		< 500						< 500		

EXCITATION VOLTAGE AND CURRENT											
No load excitation voltage	V	7.8	7.8	9.4	10.9	6.3	6.3	6.3	7.8	7.8	7.8
No load excitation current	A	0.50	0.50	0.60	0.70	0.40	0.40	0.40	0.50	0.50	0.50
Class H BR excitation voltage	V	32.8	34.4	34.4	31.3	31.3	31.3	32.8	32.8	34.4	34.4
Class H BR excitation current	A	2.10	2.20	2.20	2.00	2.00	2.00	2.10	2.10	2.20	2.20

WINDING RESISTANCE <i>At 20°C</i>											
Stator line-to-line (series star)	Ω	0.270									
Main field	Ω	0.84									
						Exciter field - Shunt				Ω	15.6

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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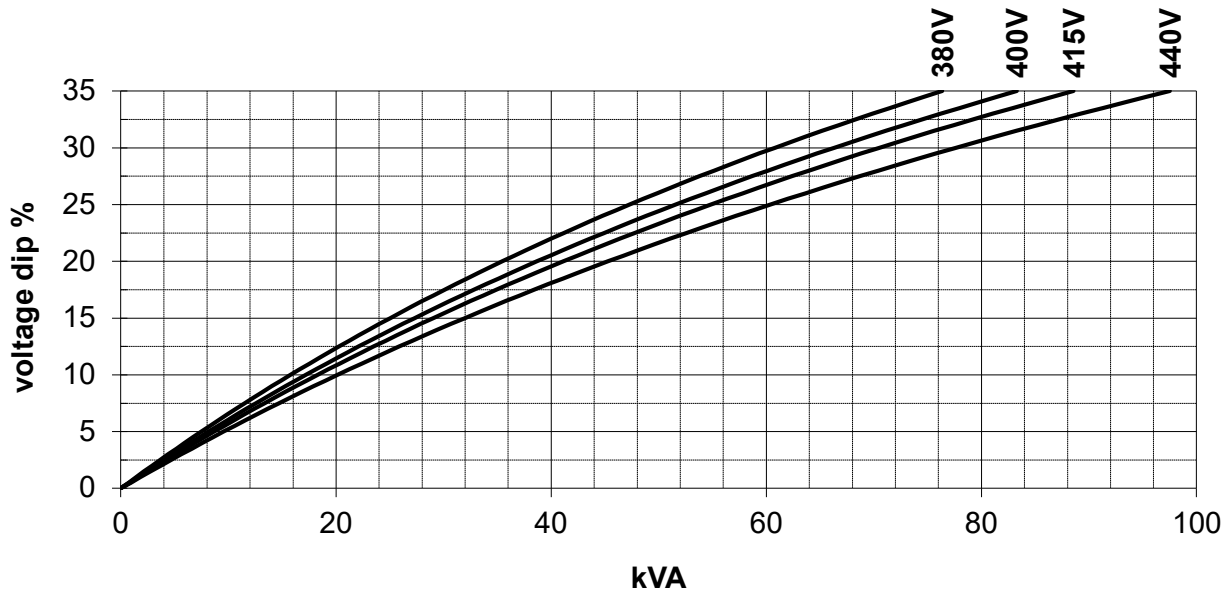
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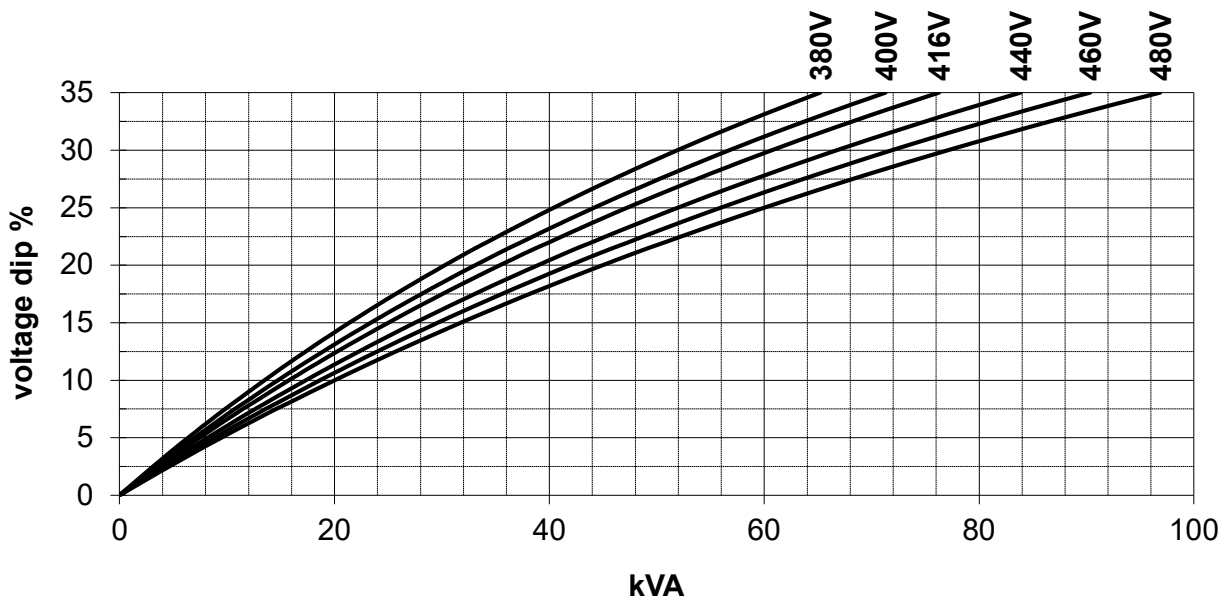
LOCKED ROTOR MOTOR STARTING CURVES

Power factor 0.6

50 Hz SHUNT



60 Hz SHUNT



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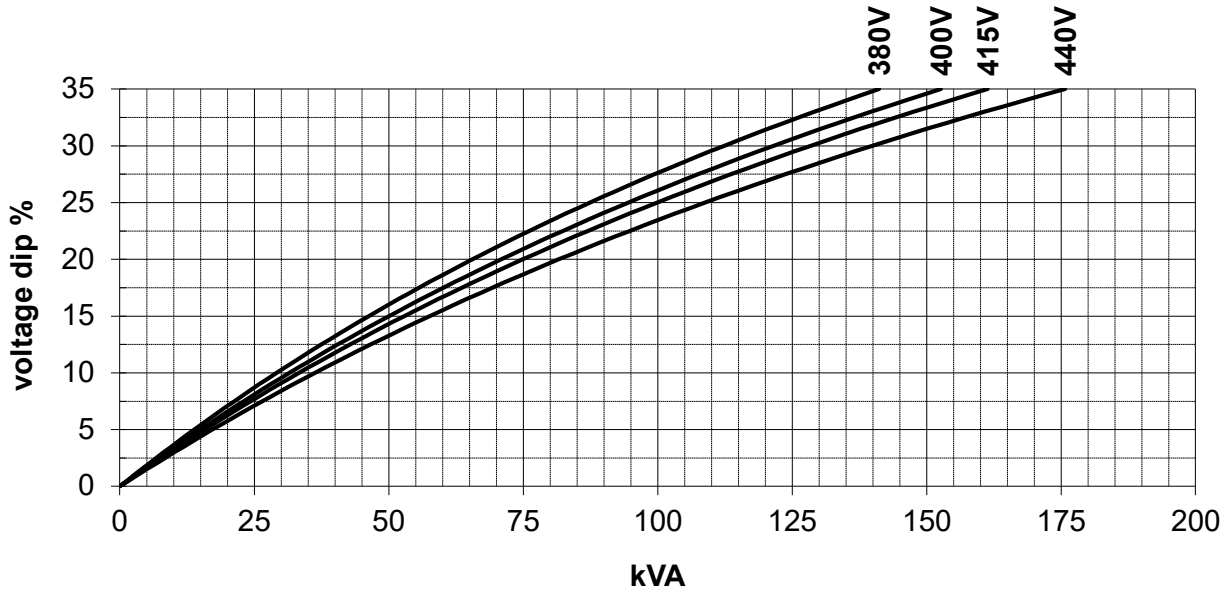
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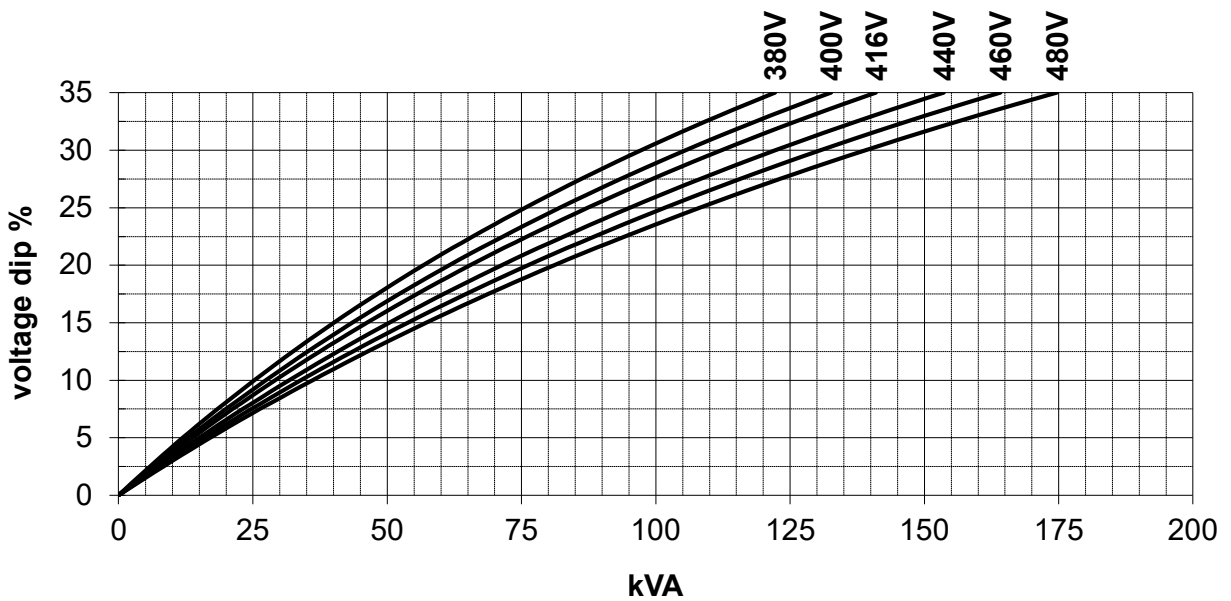
LOCKED ROTOR MOTOR STARTING CURVES

Power factor 0.6

50 Hz PMG



60 Hz PMG



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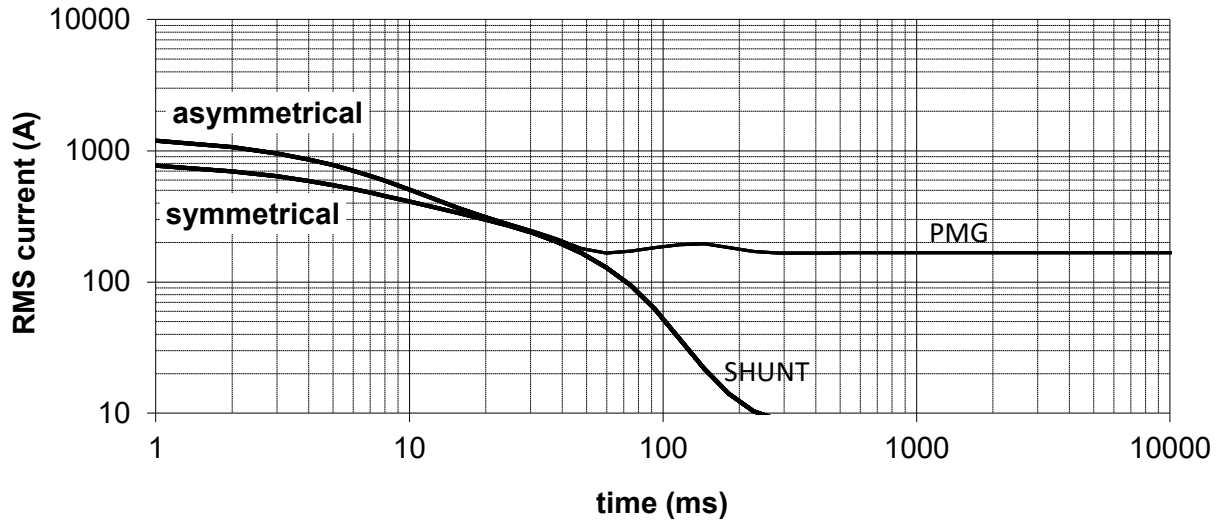
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THREE-PHASE SHORT-CIRCUIT DECREMENT CURVES

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

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