

FRAME FGL20080 WINDING 6S



MODELS FGL20080

REF: FGL20080W6S-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	58	60	60	52	59	62	65	69	75	75
		kW	46	48	48	42	47	50	52	55	60	60
Class H rise PR	150/40	kVA	62	64	64	55	63	66	69	73	80	80
		kW	49	51	51	44	50	53	55	58	64	64
Class H rise PR	163/27	kVA	64	66	66	57	65	68	72	76	83	83
		kW	51	53	53	46	52	55	57	61	66	66
Class F rise BR	105/40	kVA	53	55	55	47	54	56	59	63	68	68
		kW	42	44	44	38	43	45	47	50	55	55

EFFICIENCIES <i>Power factor 0.8</i>												
110%	Class H BR	%	89.3	89.4	89.5	89.9	89.3	89.6	89.8	90.0	89.9	90.1
100%	Class H BR	%	89.9	89.9	90.0	90.2	89.9	90.2	90.3	90.5	90.4	90.5
75%	Class H BR	%	91.1	91.0	91.0	90.5	91.1	91.3	91.4	91.5	91.4	91.4
50%	Class H BR	%	91.8	91.5	91.2	89.8	91.8	91.9	91.9	91.9	91.8	91.5
25%	Class H BR	%	90.3	89.6	88.8	85.6	90.4	90.3	90.2	89.9	89.8	89.0

CHARACTERISTIC PARAMETERS <i>Reactance base class H BR rating</i>												
K _c	Short-circuit ratio		0.34	0.37	0.43	0.63	0.25	0.27	0.28	0.31	0.32	0.36
X _d	D-Axis synchronous reactance (unsaturated)	pu	3.25	3.04	2.82	2.18	3.97	3.77	3.65	3.46	3.45	3.16
X' _d	D-Axis transient reactance (saturated)	pu	0.16	0.15	0.14	0.10	0.19	0.18	0.18	0.17	0.17	0.15
X'' _d	D-Axis sub-transient reactance (saturated)	pu	0.080	0.075	0.070	0.054	0.098	0.093	0.090	0.086	0.085	0.078
X _q	Q-Axis synchronous reactance (unsaturated)	pu	1.65	1.54	1.43	1.10	2.01	1.91	1.85	1.75	1.74	1.60
X'' _q	Q-Axis sub-transient reactance (saturated)	pu	0.112	0.105	0.098	0.075	0.137	0.130	0.126	0.120	0.119	0.109
X ₂	Negative-sequence reactance (saturated)	pu	0.096	0.090	0.084	0.064	0.118	0.112	0.108	0.103	0.102	0.094
X ₀	Zero-sequence reactance (independent)	pu	0.006	0.006	0.006	0.004	0.008	0.007	0.007	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		1032						1032		
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	7.0	8.8	8.8	10.6	5.3	7.0	7.0	7.0	7.0	8.8
No load excitation current	A	0.40	0.50	0.50	0.60	0.30	0.40	0.40	0.40	0.40	0.50
Class H BR excitation voltage	V	35.2	37.0	37.0	33.4	29.9	31.7	31.7	33.4	35.2	35.2
Class H BR excitation current	A	2.00	2.10	2.10	1.90	1.70	1.80	1.80	1.90	2.00	2.00

WINDING RESISTANCE <i>At 20°C</i>			Exciter field - Shunt			
Stator line-to-line (series star)	Ω	0.182			Ω	17.6
Main field	Ω	0.95				

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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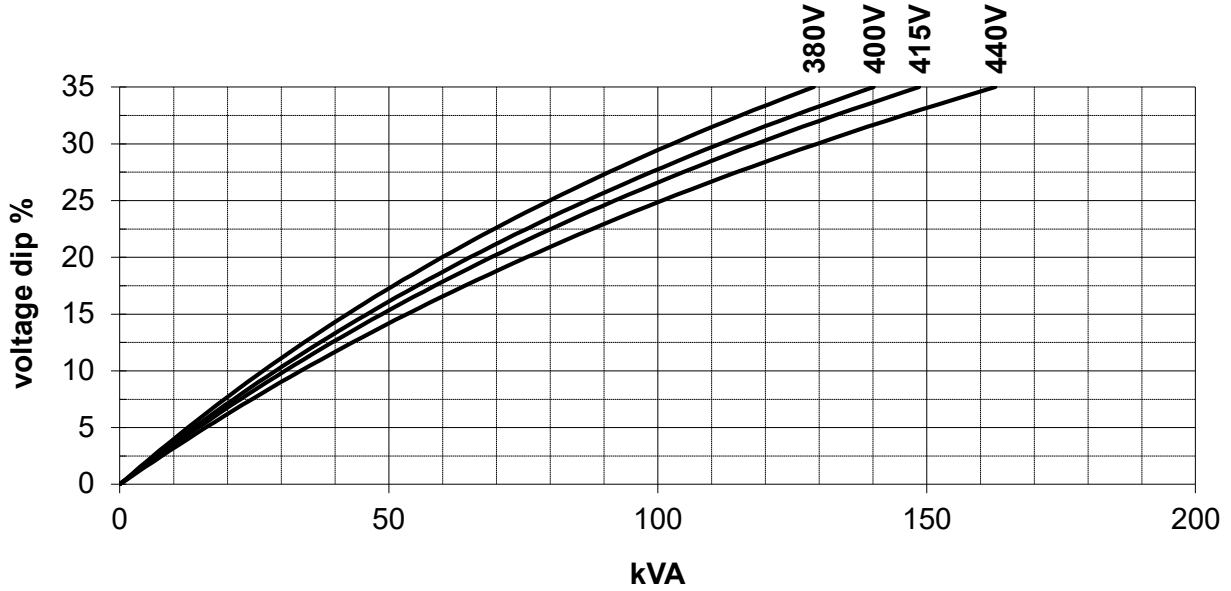
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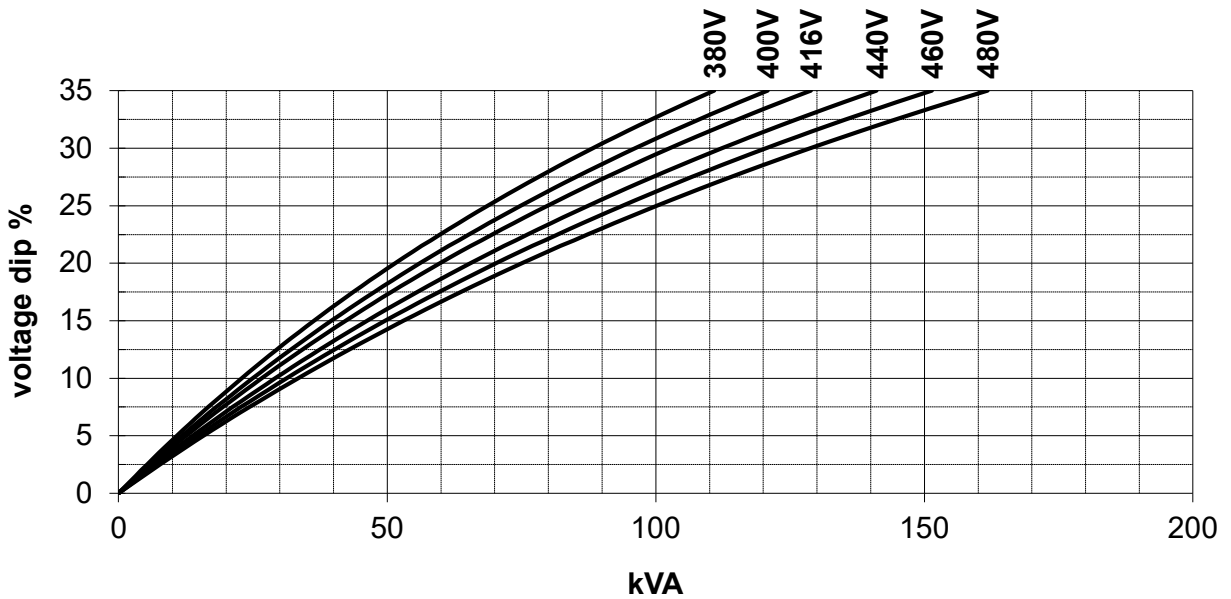
LOCKED ROTOR MOTOR STARTING CURVES

Power factor 0.6

50 Hz SHUNT



60 Hz SHUNT



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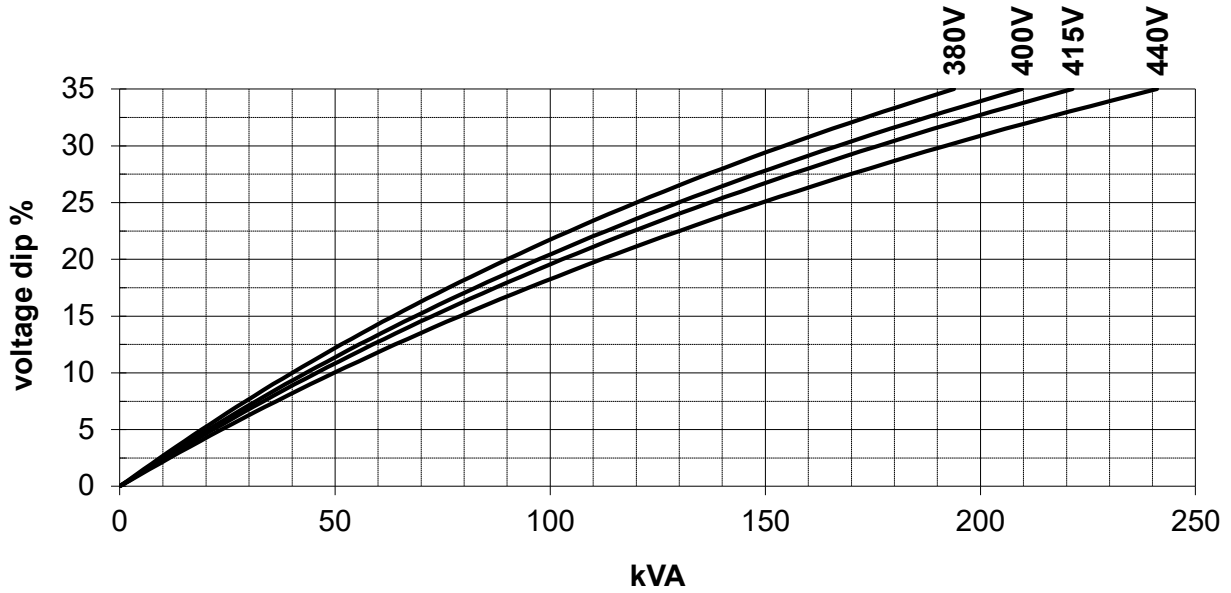
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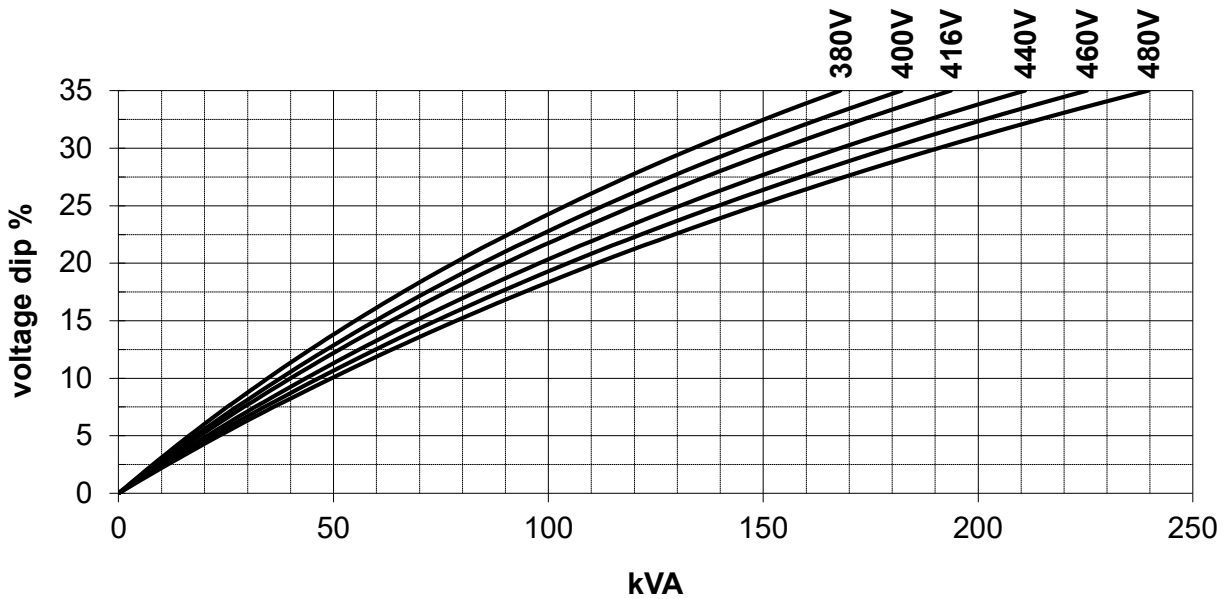
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Power factor 0.6

50 Hz PMG



60 Hz PMG



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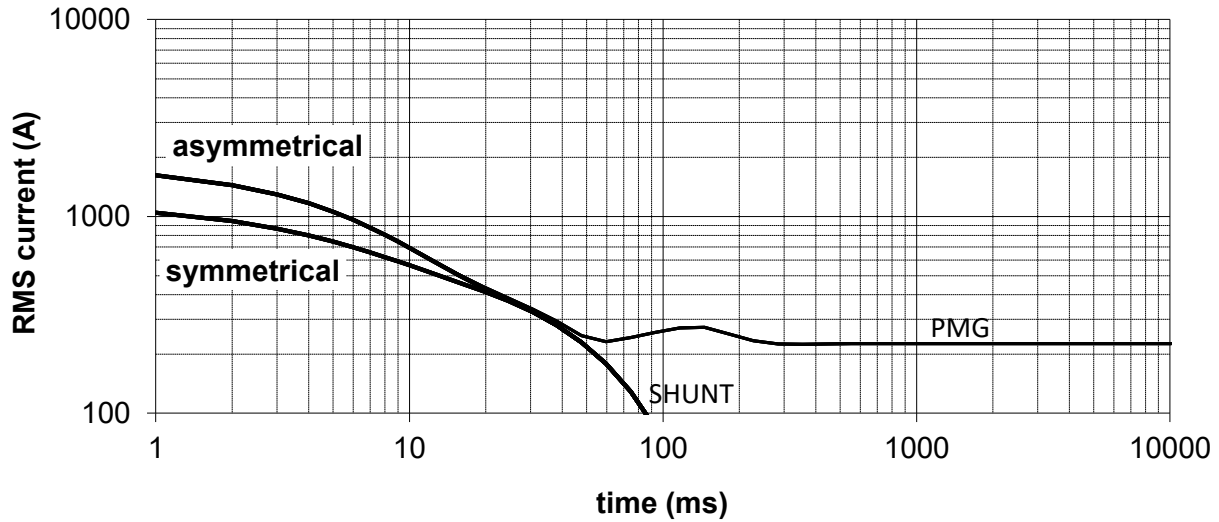
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THREE-PHASE SHORT-CIRCUIT DECREMENT CURVES

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

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