

DATA SHEET

Synchronous Alternator



Customer	: HooverTec LLC	Notes:	
Customer reference	:		
Product line	: AG10 315MI50AI	Product code	: 13943315
Area classification	: Safe		1011327500

General data		Degree of protection	: IP23
Frame (IEC)	: 315	Mounting style	: B15T
Insulation Class	: 180°C (H)	Number of poles	: 4
THD (L-L, no load)	: ≤ 3%	Type of Pole	: Salient
Stator winding pitch	: 2/3	Rated speed - 50 Hz	: 1500 rpm
Altitude	: up to 1000 m.a.s.l	Nominal rotation - 60 Hz	: 1800 rpm
Number of Leads	: 12	Overspeed	: 2250 rpm
Power factor	: 0.8 to 1.0	Approx. weight	: 1380 kg
Excitation system	: Brushless with Auxiliary Coil	Overload	: 1.1x In per 1h each 6h
Cooling	: IC01	Momentary Overload	: 1.5x In per 30s

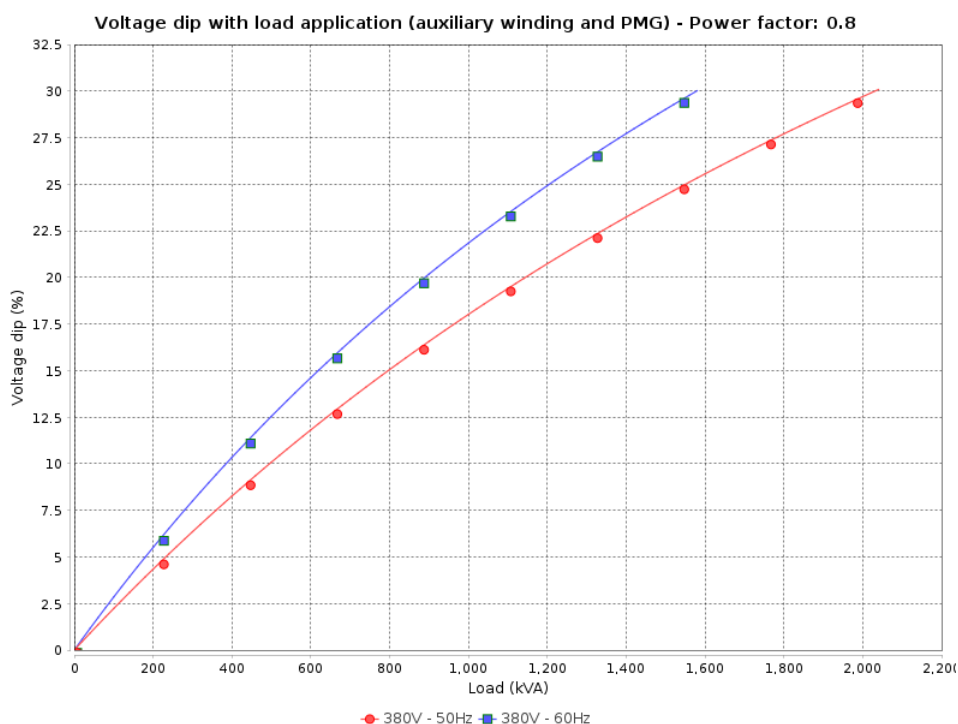
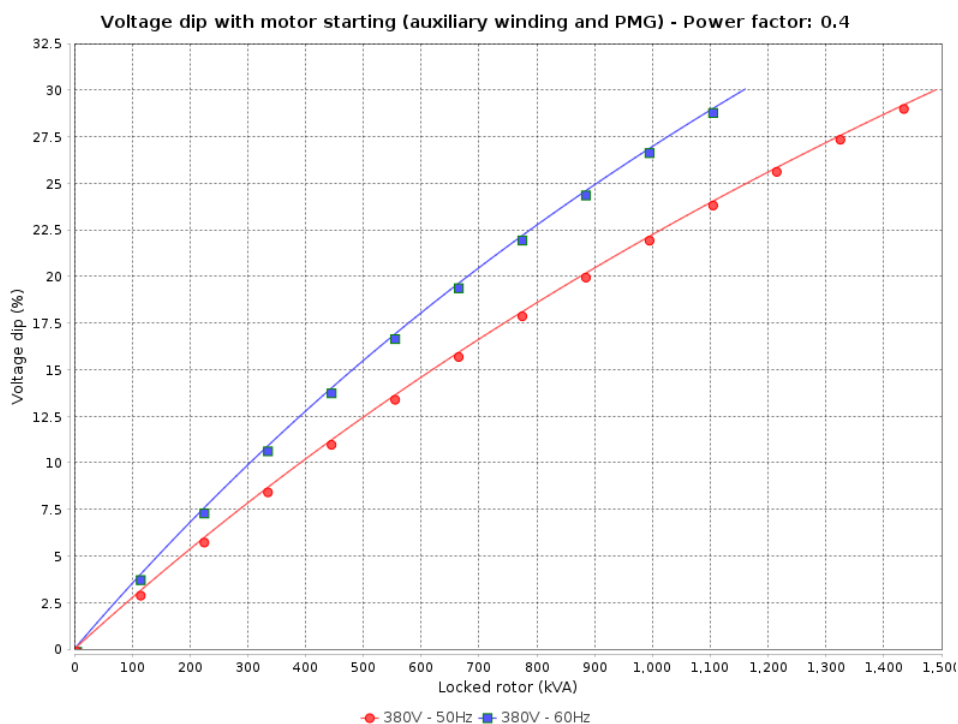
Frequency and number of phases		50 Hz				60 Hz			
		3ph		1ph	3ph		1ph		
Voltages (V)	Y (series star) connection	380	400	-	380	416	440	480	-
	YY (parallel star) connection	190	200	-	190	208	220	240	-
	Δ (series delta) connection	220	230	-	220	240	254	277	-
	ΔΔ (parallel delta) connection	110	115	-	110	120	127	138	-
	Zig-zag or single phase delta	-	-	-	190 - 200	-	-	-	220 - 240
Output power (kVA)	Continuous 80/40	440	440	254	420	454	480	520	277
	Continuous 105/40	504	504	291	481	520	563	596	325
	Continuous 125/40	550	550	318	525	568	600	650	346
	Standby 150/40	570	590	329	565	611	645	700	372
	Standby 163/27	590	610	341	585	637	670	750	387
Electrical data (FP=0.8 / Continuous 125/40 (H))	Xd(%) Dir. axis synchronous reactance	329.0	268.7	438.7	299.3	232.8	219.8	168.13	293.0
	X'd(%) Dir. axis transient reactance	14.9	13.0	19.9	18.3	15.8	14.9	13.17	19.9
	X''d(%) Dir. axis subtrans. reactance	12.7	11.0	17.0	15.7	13.5	12.7	11.15	17.0
	Xq(%) Quad. axis sync. reactance	74.2	57.4	99.0	111.2	112.0	77.8	58.24	103.7
	X''q(%) Quad. axis subtrans. react.	10.2	8.2	13.6	11.9	23.7	9.6	8.53	12.8
	X2(%) Negative sequence reactance	11.5	9.6	15.3	13.8	18.6	11.2	9.84	14.9
	X0(%) Zero sequence reactance	2.1	1.8	2.8	2.6	2.2	2.1	1.86	2.8
	T'd(ms) Short Circ.Trans.time const.	134.9	132.5	179.9	140.2	102.5	136.9	132.55	182.5
	T''d(ms) Short Circ. Sub. time const.	0.9	0.8	1.2	1.3	2.1	1.0	0.8	1.3
	T'do(ms) Open Circ. time const Trans	1380	1270	1840	1559	1351	1432	1270.27	1910
	T''do(ms) Open Circ. time const Subt	1.8	1.8	2.4	1.9	2.6	1.8	1.8	2.4
	Ta(ms) Armature time const.	18	16	24	22	19	18	15.81	24
	uc(V) Full load excitation voltage	80.0	65.0	80.0	67.0	61.6	52.0	65.0	52.0
	ic(A) Full load excitation current	3.5	2.7	3.5	2.8	3.0	3.0	3.7	3.0
ic(A) No load excitation current	0.8	0.9	1.1	0.7	0.8	0.8	0.95	1.1	
Icc(A) Sustained Short-Circ. Current	2507	2382	2382	2393	2365	2362	2345.49	2162	
Kcc Short-circuit ratio	0.3	0.37	0.23	0.33	0.43	0.46	0.59	0.34	
Efficiency (%)	Power factor	0.8	1.0	0.8	1.0	0.8	1.0	0.8	1.0
	25% of load	89.7	92	89.2	91.6	82.6	84.7	90.5	92.6
	50% of load	92.6	94.6	92.5	94.5	85.3	87.1	93.3	95
	75% of load	92.8	94.9	92.8	95	85.4	87.3	93.5	95.2
	100% of load	92.3	94.5	92.4	94.8	85	87	93	94.8
	125% of load	91.5	94	91.7	94.3	84.2	86.5	92.2	94.1

Other characteristics		Automatic voltage regulator		According to:	
Air flow	: 2.75 m³/s	Accuracy (stability)	: +/- 0.5%	IEC 60034	
Exciter stator winding resistance at 20°C	: 15.26 ohm	Rated current	: 5 A	NBR 5117	
Stator winding resistance at 20°C	: 0.00466 ohm	Analog input	: Yes	NEMA MG1	
Rotor winding resistance	: 1.85 ohm	Digital input	: No	VDE530	
Stator winding layers	: 2	Peak current	: 7 A/10 s	ISO 8528	
Inertia WR²	: 6.84 kgm²	Droop / TC	: Yes	CSA	
NDE Bearing	: 6316 2RS	Dynamic recovery	: 8 to 500 ms		
DE bearing		U/F	: Yes		
Flange	: SAE 1	Internal voltage adjustment	: +/- 15%		
Coupling disc	: SAE 14	External voltage adjustment	: +/- 10%		
		Transient recovery time for ΔU=20%	: 500 ms		

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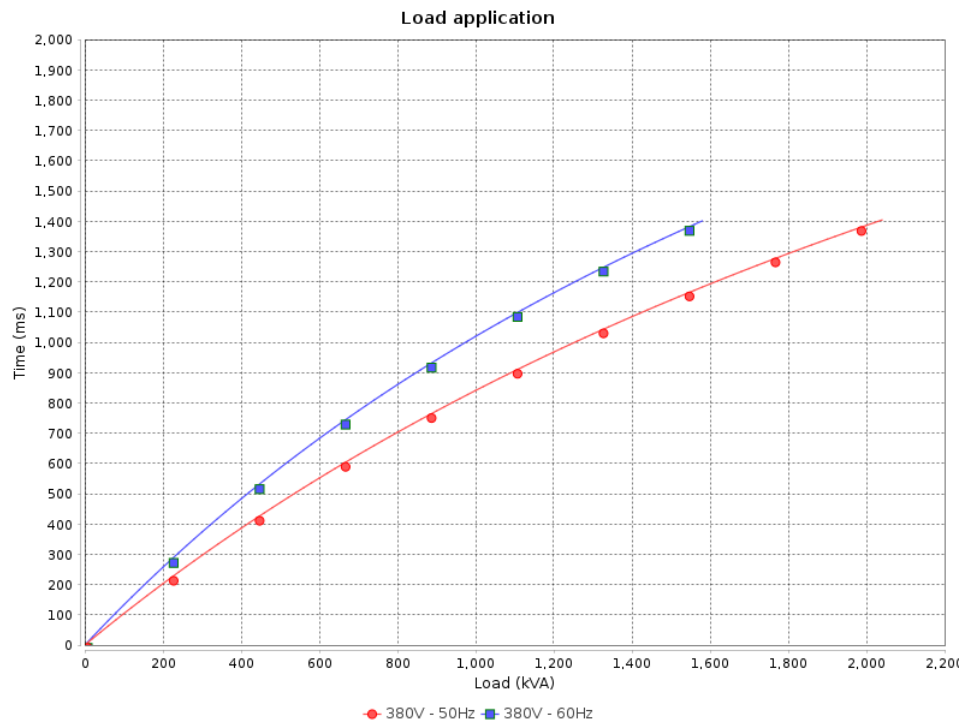
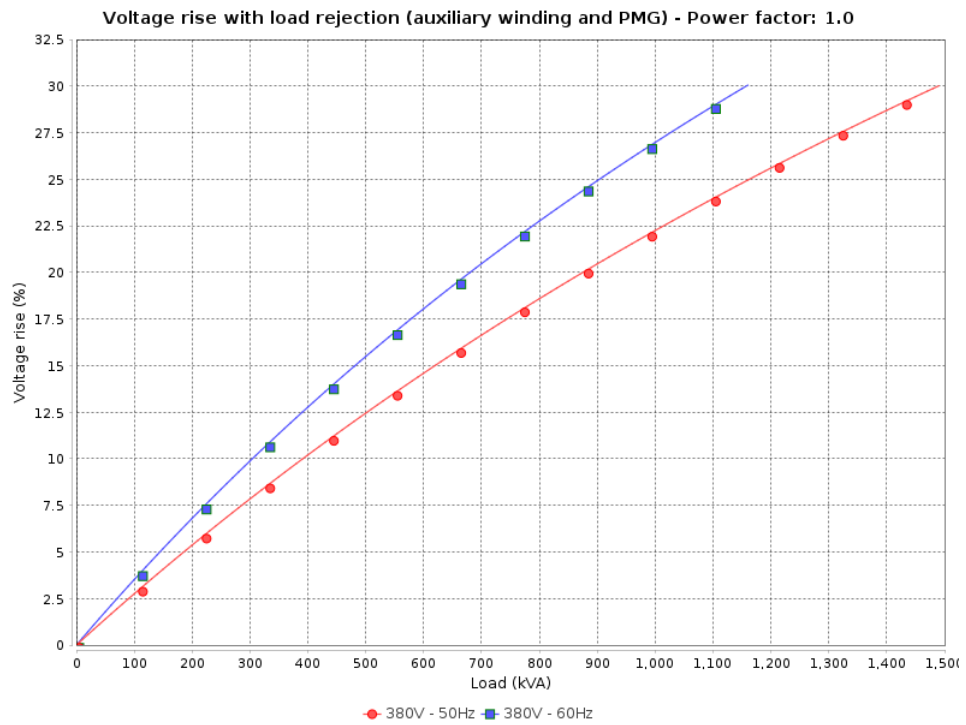
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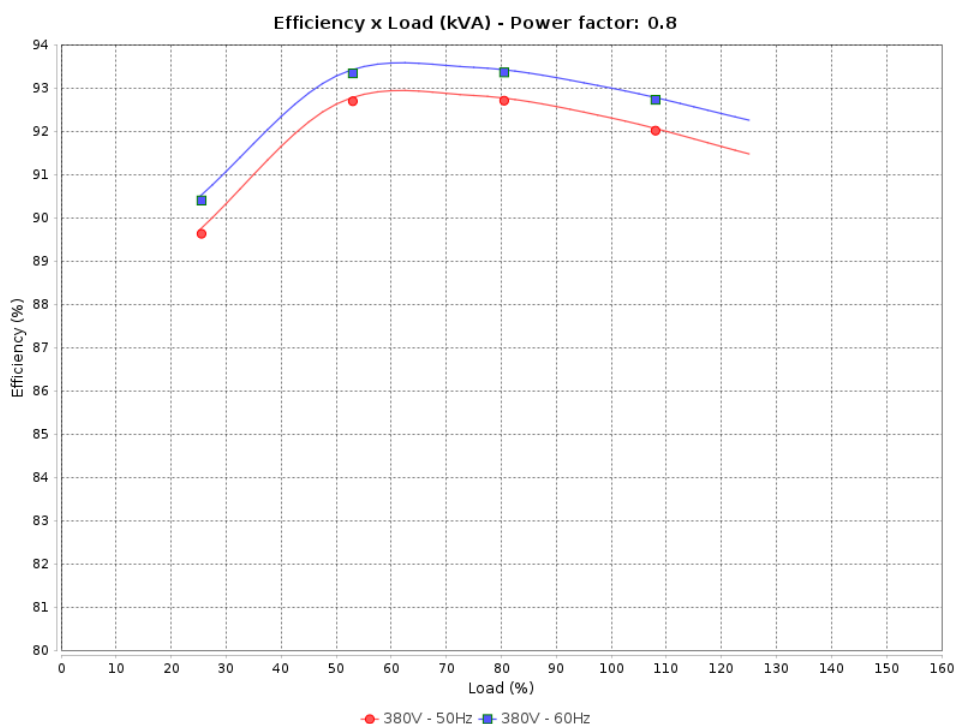
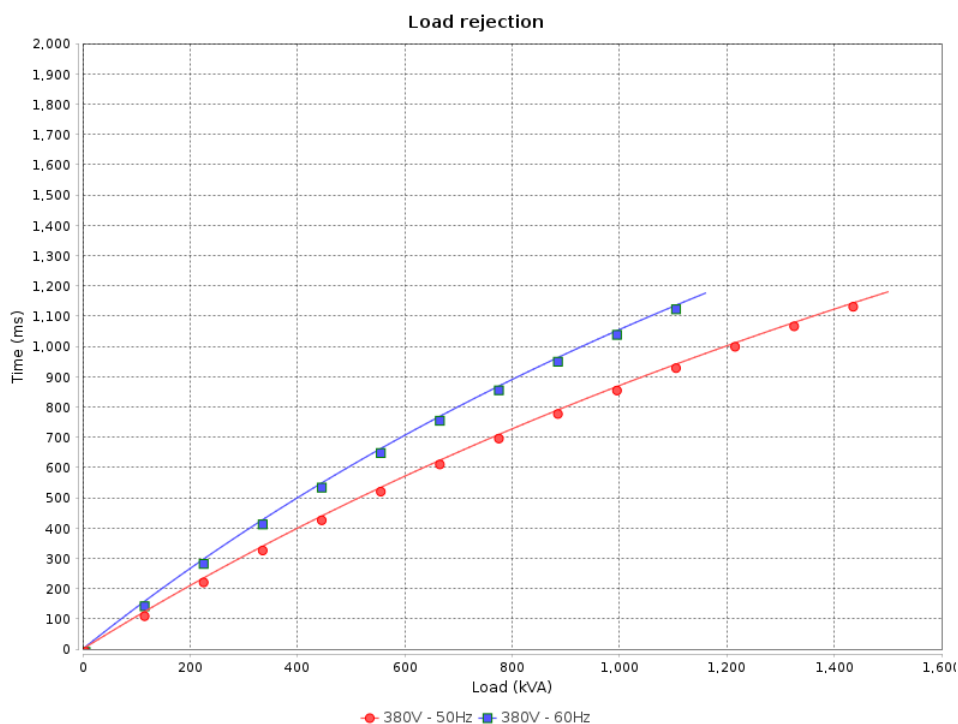
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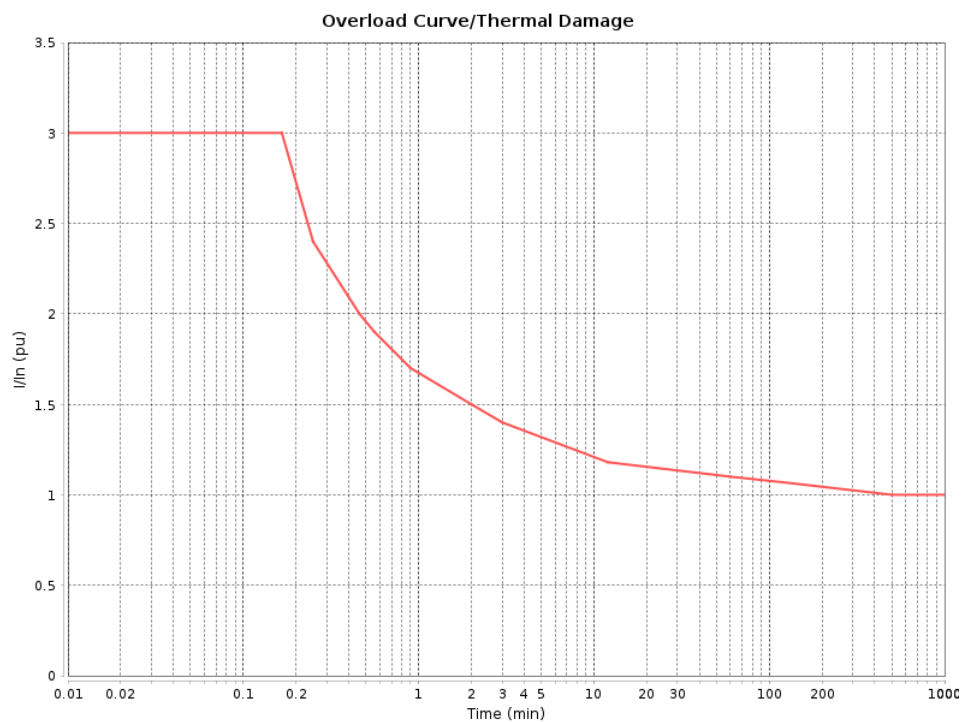
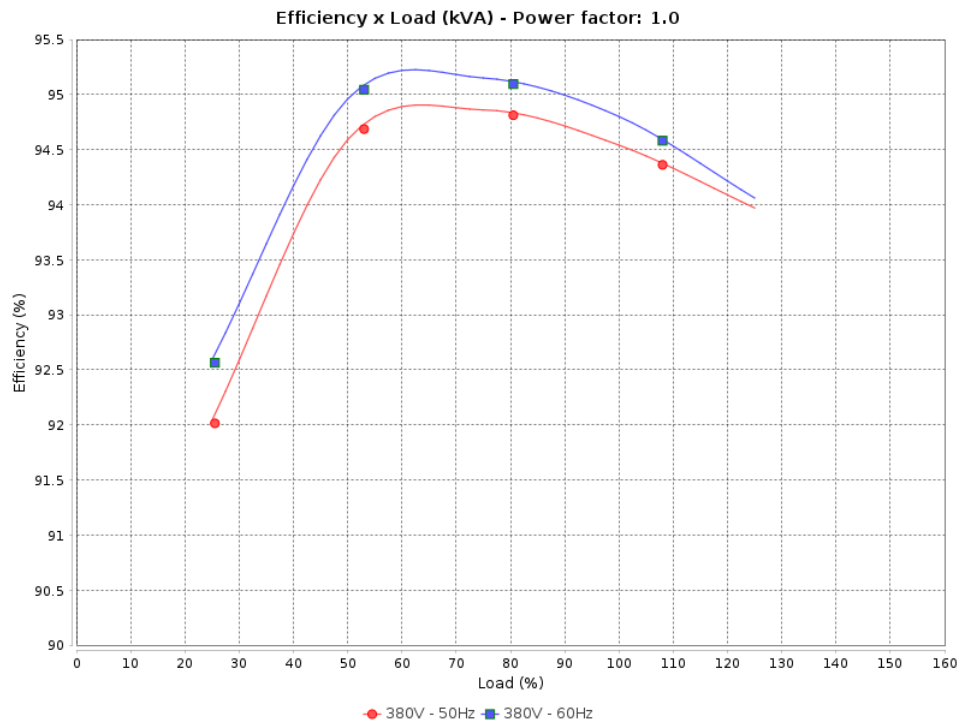
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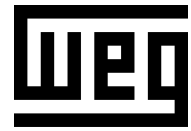
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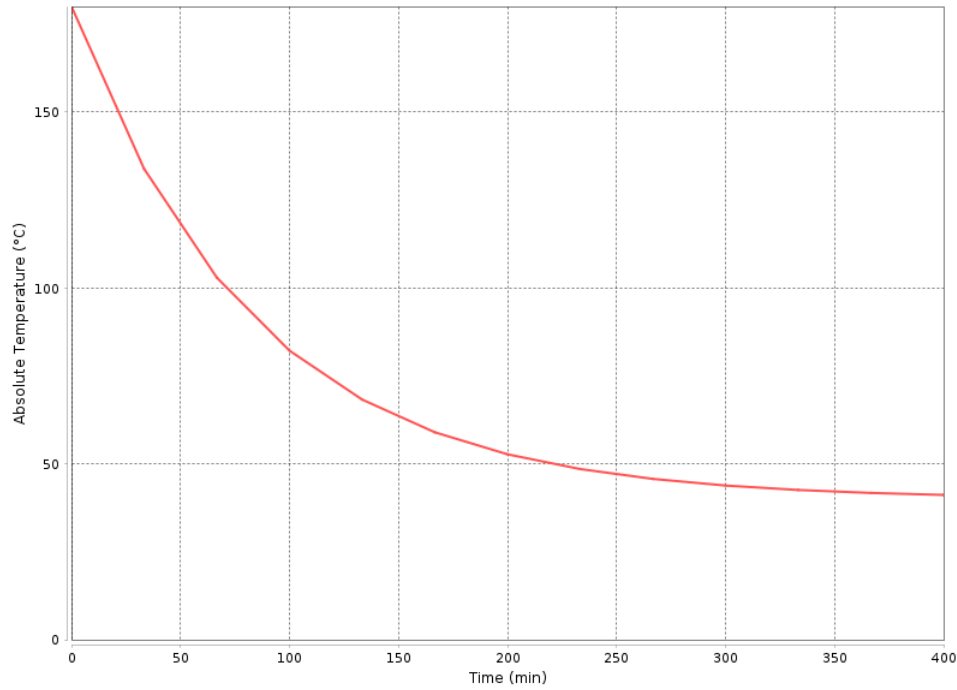
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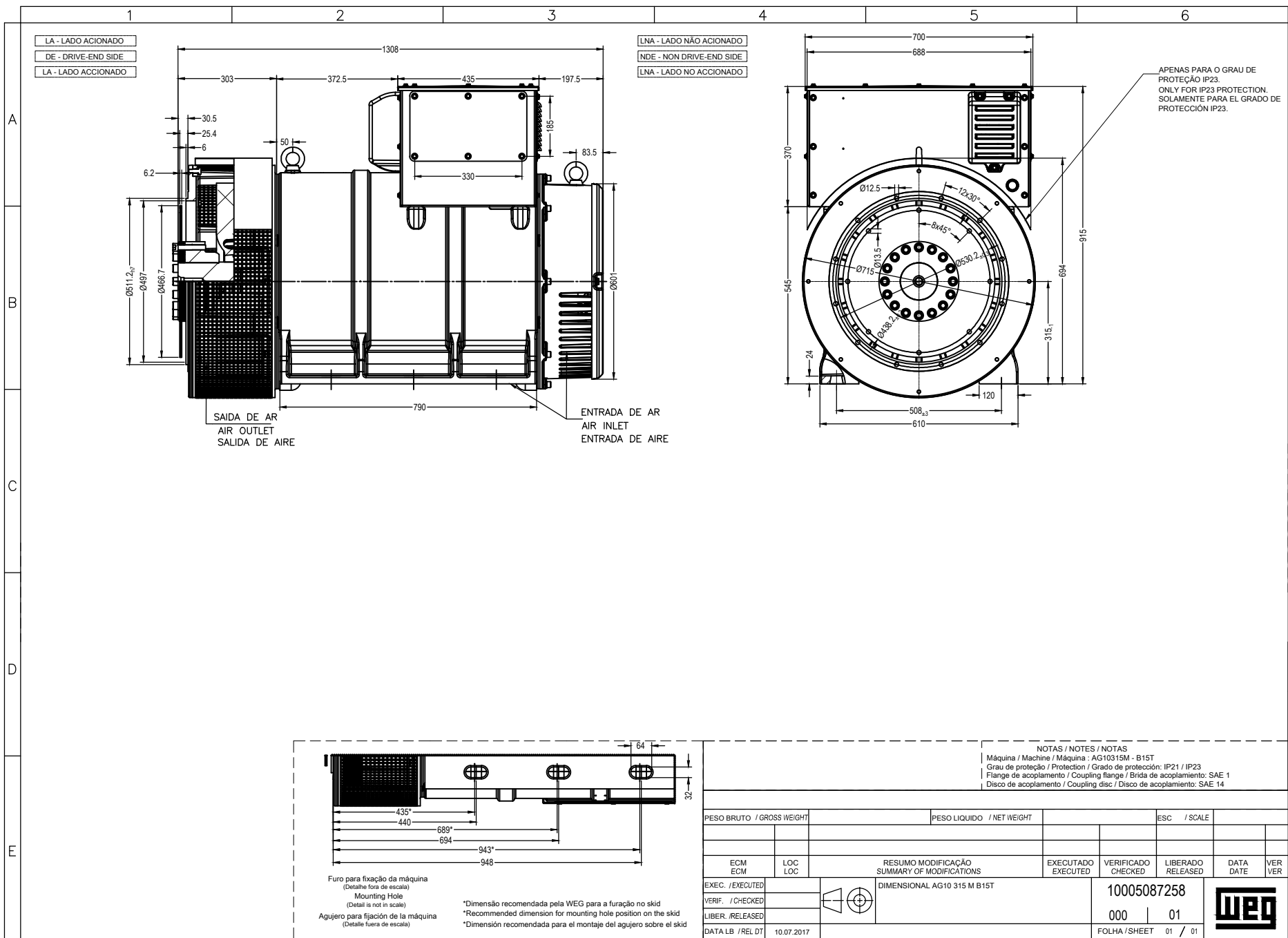
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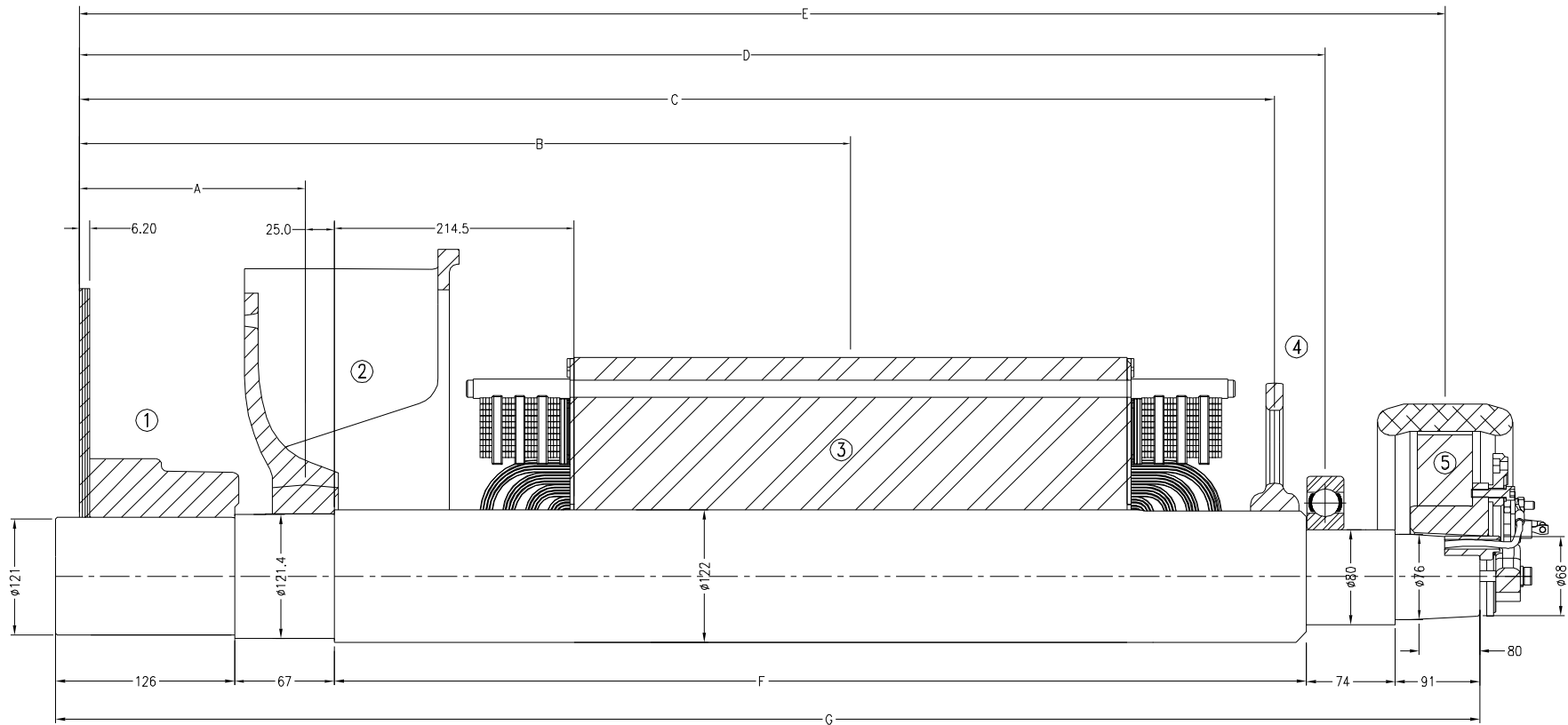


Cooling curve



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TIPO/AG10	DISCO	DIMENSÕES: mm / DIMENSIONS: mm						1		2		3		4		5		Total Weight	Total Mom. Iner.	
TYPE/AG10	DISCS	A	B	C	D	E	F	G	WEIGHT kg	MOMENT kgmm ²	WEIGHT kg	MOMENT kgmm ²	WEIGHT kg	MOMENT kgmm ²	WEIGHT kg	MOMENT kgmm ²	WEIGHT kg	MOMENT kgmm ²	kg	J kgm ²
315M_50	SAE 18	178.0	582.5	—	1079.5	1185.0	882.0	1240.0	35.1	0.705	23.9	0.988	285.6	5.609	—	—	27.4	0.23	372.0	7.294
315M_60			582.5	—															372.0	7.294
315M_70			647.5	—															454.8	8.559
315L_80			687.5	—															518.1	10.041
315L_90			717.5	—															558.5	10.558

TIPO/AG10	DISCO	DIMENSÕES: mm / DIMENSIONS: mm						1		2		3		4		5		Total Weight	Total Mom. Iner.	
TYPE/AG10	DISCS	A	B	C	D	E	F	G	WEIGHT kg	MOMENT kgmm ²	WEIGHT kg	MOMENT kgmm ²	WEIGHT kg	MOMENT kgmm ²	WEIGHT kg	MOMENT kgmm ²	WEIGHT kg	MOMENT kgmm ²	kg	J kgm ²
315M_50	SAE 14	178.0	582.5	—	1079.5	1185.0	882.0	1240.0	30.9	0.423	23.9	0.988	285.6	5.609	—	—	27.4	0.23	367.8	7.012
315M_60			582.5	—															367.8	7.012
315M_70			647.5	—															450.6	8.279
315M_80			687.5	—															513.9	9.759
315L_90			717.5	—															554.3	10.278

TIPO/AG10	DISCO	DIMENSÕES: mm / DIMENSIONS: mm						1		2		3		4		5		Total Weight	Total Mom. Iner.	
TYPE/AG10	DISCS	A	B	C	D	E	F	G	WEIGHT kg	MOMENT kgmm ²	WEIGHT kg	MOMENT kgmm ²	WEIGHT kg	MOMENT kgmm ²	WEIGHT kg	MOMENT kgmm ²	WEIGHT kg	MOMENT kgmm ²	kg	J kgm ²
315M_50	SAE 11,5	178.0	582.5	—	1079.5	1185.0	882.0	1240.0	27.4	0.271	23.9	0.988	285.6	5.609	—	—	27.4	0.23	364.3	6.860
315M_60			582.5	—															364.3	6.860
315M_70			647.5	—															447.1	8.125
315M_80			687.5	—															510.4	9.607
315L_90			717.5	—															550.8	10.124

PESO BRUTO		PESO LÍQUIDO		ESC		NOME	
ESCALA	UNID.	EMISSÃO FINAL / IMPRIM. EXTERNA		E REVISÃO		VERIFICADO	
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