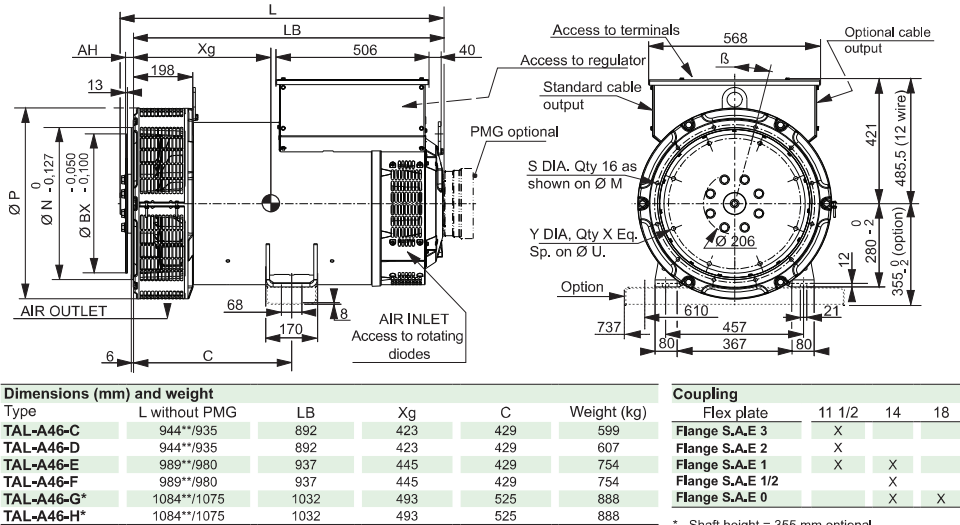


TAL-A46 - 180 to 410 kVA - 50 Hz / 225 to 512 kVA - 60 Hz

Low Voltage Alternators - 4 pole

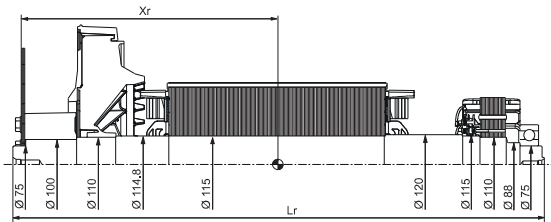
Single bearing general arrangement - 6 & 12-wire



Flange (mm)						Flex plate (mm)					
S.A.E.	P	N	M	S	β °	S.A.E.	BX	U	X	Y	AH
3	600***/641	409.575	428.625	11	15°	11 1/2	352.42	333.38	8	11	39.6
2	600***/641	447.675	466.725	11	15°	14	466.72	438.15	8	14	25.4
1	600***/641	511.175	530.225	12	15°	18****	571.5	542.92	6	17	15.7
1/2	648	584.2	619.125	14	15°						
0	710	647.7	679.45	14	11° 15'						

*** Specific dimension TAL A46C
**** Optional

Torsional analysis data



Centre of gravity: Xr (mm), Rotor length: Lr (mm), Weight: M (kg), Moment of inertia: J (kgm²): (4J = MD²)								
Flex plate S.A.E. 11 ½					Flex plate S.A.E. 14			
Type	Xr	Lr	M	J	Xr	Lr	M	J
TAL-A46-C	420	923	255	2.64	408	923	256	2.8
TAL-A46-D	420	923	255	2.64	408	923	256	2.8
TAL-A46-E	460	968	304	3.28	448	968	305	3.44
TAL-A46-F	460	968	304	3.28	448	968	305	3.44
TAL-A46-G	508	1063	358	3.97	497	1063	359	4.13
TAL-A46-H	508	1063	358	3.97	497	1063	359	4.13

NOTE : Dimensions are for information only and may be subject to modifications. Contractual 2D drawings can be downloaded from the Leroy-Somer site, 3D drawing files are available upon request.

*Please contact us for the double bearing dimension

TAL-A473 - 410 to 660 kVA - 50 Hz / 510 to 825 kVA - 60 Hz

Low Voltage Alternators - 4 pole

General characteristics

Insulation class	H	Excitation system 6 wire	SHUNT	AREP+ / PMG
Winding pitch	2/3 (wind.6S - 6-wire / wind.6 - 12-wire)	AVR type	R150	R180
Number of wires	6 (12 option)	Excitation system 12-wire (option)	SHUNT	AREP+ / PMG
Protection	IP 23	AVR type	R150	R180
Altitude	≤ 1000 m	Voltage regulation (*)	± 0.8 %	± 0.5 %
Overspeed	2250 R.P.M.	Total Harmonic Distortion THD (**) in no-load	< 2.5 %	
Air flow 50 Hz	0.9 m³/s	Total Harmonic Distortion THD (**) in linear load	< 5 %	
Air flow 60 Hz	1.1 m³/s	Waveform: NEMA = TIF (**)	< 50	
AREP+/PMG Short-circuit current = 2.7 In : 5 seconds (*)				Waveform: I.E.C. = THF (**) < 2%

*D350: 2.7In 10 seconds

(*) Steady state (**) Total harmonic distortion between phases, no-load or on-load (non-distorting)

Ratings 50 Hz - 1500 R.P.M.

kVA / kW - P.F. = 0.8																	
Duty / T° C	Continuous / 40 °C				Continuous / 40 °C				Stand-by / 40 °C				Stand-by / 27 °C				
Class / T° K	H / 125° K				F / 105° K				H / 150° K				H / 163° K				
Phase	3 ph.				3 ph.				3 ph.				3 ph.				
Y	380V	400V	415V	440V	380V	400V	415V	440V	380V	400V	415V	440V	380V	400V	415V	440V	
Δ	220V		230V	240V	220V		230V	240V	220V		230V	240V	220V		230V	240V	
YY (*)		200V		220V		200V		220V		200V		220V		200V		220V	
TAL-A473-A	kVA	390	410	410	400	355	375	375	364	413	435	435	424	429	450	450	440
	kW	312.0	328.0	328.0	320.0	284.0	300.0	300.0	291.2	330.4	348.0	348.0	339.2	343.2	360.0	360.0	352.0
TAL-A473-B	kVA	455	455	455	445	415	415	415	405	480	480	480	472	500	500	500	490
	kW	364.0	364.0	364.0	356.0	332.0	332.0	332.0	324.0	384.0	384.0	384.0	377.6	400.0	400.0	400.0	392.0
TAL-A473-C	kVA	500	500	500	455	455	455	455	414	530	530	530	482	550	550	550	500
	kW	400.0	400.0	400.0	364.0	364.0	364.0	364.0	331.0	424.0	424.0	424.0	386.0	440.0	440.0	440.0	400.0
TAL-A473-D	kVA	525	550	550	540	478	500	500	491	557	585	585	572	578	600	600	594
	kW	420.0	440.0	440.0	432.0	382.4	400.0	400.0	392.8	445.6	468.0	468.0	457.6	462.4	480.0	480.0	475.2
TAL-A473-E	kVA	600	600	600	500	545	545	545	455	635	635	635	530	660	660	660	550
	kW	480.0	480.0	480.0	400.0	436.0	436.0	436.0	364.0	508.0	508.0	508.0	424.0	528.0	528.0	528.0	440.0
TAL-A473-F	kVA	645	660	660	630	587	600	600	573	684	700	700	668	710	730	730	693
	kW	516.0	528.0	528.0	504.0	469.6	480.0	480.0	458.4	547.2	560.0	560.0	534.4	568.0	584.0	584.0	554.4

(*) 12-wire option

Ratings 60 Hz - 1800 R.P.M.

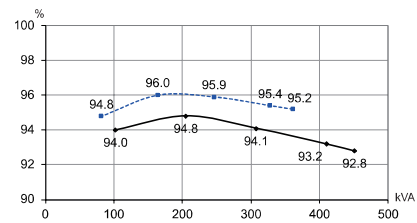
kVA / kW - P.F. = 0.8																			
Duty / T° C	Continuous / 40 °C					Continuous / 40 °C					Stand-by / 40 °C				Stand-by / 27 °C				
Class / T° K	H / 125° K					F / 105° K					H / 150° K				H / 163° K				
Phase	3 ph.					3 ph.					3 ph.				3 ph.				
Y	380V	416V	440V	480V		380V	416V	440V	480V		380V	416V	440V	480V		380V	416V	440V	480V
Δ	220V	240V				220V	240V				220V	240V				220V	240V		
YY (*)		208V	220V	240V			208V	220V	240V			208V	220V	240V			208V	220V	240V
TAL-A473-A	kVA	450	480	500	510	410	435	455	465	475	510	530	540	495	530	550	560		
	kW	360.0	384.0	400.0	408.0	328.0	348.0	364.0	372.0	380.0	408.0	424.0	432.0	396.0	424.0	440.0	448.0		
TAL-A473-B	kVA	475	510	530	570	430	465	480	520	505	540	560	605	525	560	585	625		
	kW	380.0	408.0	424.0	456.0	344.0	372.0	384.0	416.0	404.0	432.0	448.0	484.0	420.0	448.0	468.0	500.0		
TAL-A473-C	kVA	520	555	590	625	475	505	535	570	550	590	625	665	570	610	650	690		
	kW	416.0	444.0	472.0	500.0	380.0	404.0	428.0	456.0	440.0	472.0	500.0	532.0	456.0	488.0	520.0	552.0		
TAL-A473-D	kVA	560	610	630	690	510	555	575	630	595	645	670	730	615	670	695	750		
	kW	448.0	488.0	504.0	552.0	408.0	444.0	460.0	504.0	476.0	516.0	536.0	584.0	492.0	536.0	556.0	600.0		
TAL-A473-E	kVA	600	660	685	750	545	600	625	685	635	700	725	795	660	725	755	825		
	kW	480.0	528.0	548.0	600.0	436.0	480.0	500.0	548.0	508.0	560.0	580.0	636.0	528.0	580.0	604.0	660.0		
TAL-A473-F	kVA	650	715	755	825	590	650	685	750	690	760	800	875	720	785	830	910		
	kW	520.0	572.0	604.0	660.0	472.0	520.0	548.0	600.0	552.0	608.0	640.0	700.0	576.0	628.0	664.0	728.0		

(*) 12-wire option

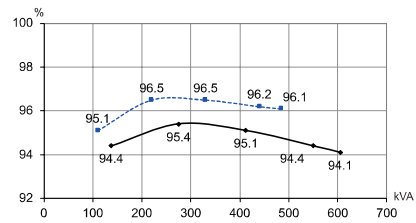
TAL-A473 - 410 to 660 kVA - 50 Hz / 510 to 825 kVA - 60 Hz

Low Voltage Alternators - 4 pole

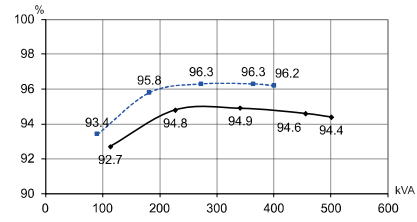
Efficiencies 400 V 50 Hz (— P.F.: 0.8)



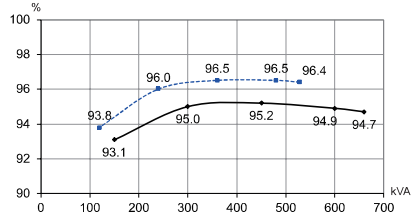
TAL-A473-A - 400V 50 Hz



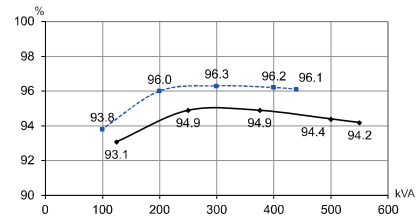
TAL-A473-D - 400V 50 Hz



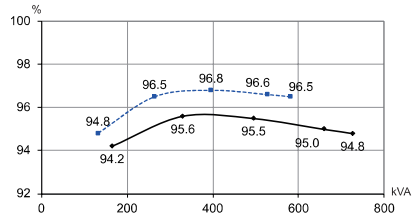
TAL-A473-B - 400V 50 Hz



TAL-A473-E - 400V 50 Hz



TAL-A473-C - 400V 50 Hz

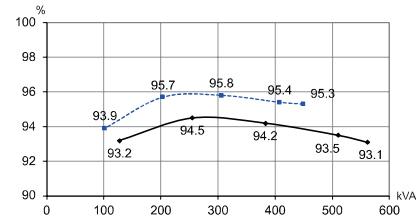


TAL-A473-F - 400V 50 Hz

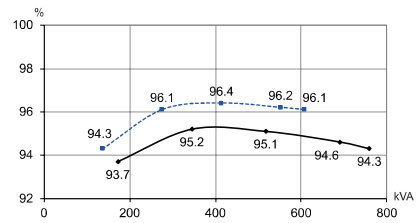
TAL-A473 - 410 to 660 kVA - 50 Hz / 510 to 825 kVA - 60 Hz

Low Voltage Alternators - 4 pole

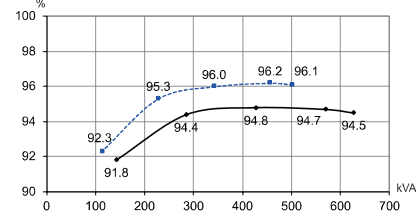
Efficiencies 480 V - 60 Hz (— P.F.: 0.8) (----- P.F.: 1) - 6 & 12-wire



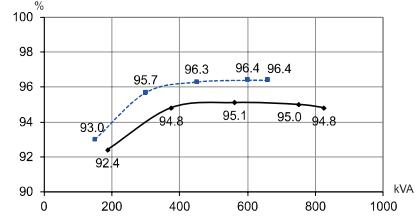
TAL-A473-A - 480V 60 Hz



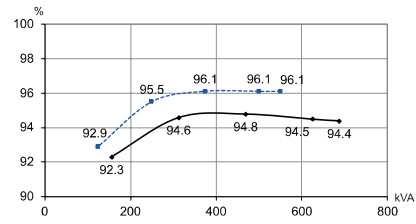
TAL-A473-D - 480V 60 Hz



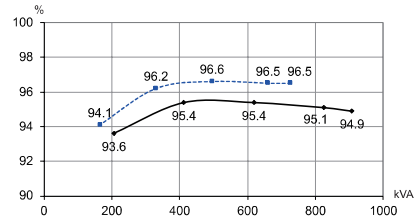
TAL-A473-B - 480V 60 Hz



TAL-A473-E - 480V 60 Hz



TAL-A473-C - 480V 60 Hz



TAL-A473-F - 480V 60 Hz

Reactances (%). Time constants (ms) - Class H / 400 V - 6 & 12-wire

		A	B	C	D	E	F
Kcc	Short-circuit ratio	0.25	0.52	0.47	0.32	0.55	0.41
Xd	Direct-axis synchro. reactance unsaturated	483	302	332	403	294	343
Xq	Quadrature-axis synchro. reactance unsaturated	246	154	169	205	150	175
T'do	No-load transient time constant	1968	1982	1982	1987	1994	1996
X'd	Direct-axis transient reactance saturated	24.5	15.2	16.7	20.3	14.7	17.2
T'd	Short-circuit transient time constant	100	100	100	100	100	100
X''d	Direct-axis subtransient reactance saturated	17.2	10.6	11.7	14.2	10.3	12
T''d	Subtransient time constant	10	10	10	10	10	10
X''q	Quadrature-axis subtransient reactance saturated	19.2	13.6	14.8	18.9	14.7	17.4
Xo	Zero sequence reactance unsaturated	1.02	0.63	0.69	0.84	0.61	0.71
X2	Negative sequence reactance saturated	18.23	12.15	13.35	16.6	12.52	14.74
Ta	Armature time constant	15	15	15	15	15	15

Other class H / 400 V data

io (A)	No-load excitation current SHUNT/AREP+	0.68	1.07	1.07	0.8	1.13	0.93
ic (A)	On-load excitation current SHUNT/AREP+	3.63	3.35	3.62	3.5	3.47	3.44
uc (V)	On-load excitation voltage SHUNT/AREP+	37.9	34.9	37.7	36.4	36	35.6
ms	Response time (ΔU = 20% transient)	500	500	500	500	500	500
kVA	Start (ΔU = 20% cont. or ΔU = 30% trans.) SHUNT/AREP+*	697/836	1026/1309	1029/1314	1125/1352	1284/1682	1398/1679
%	Transient ΔU (on-load 4/4) SHUNT/AREP+ - P.F.: 0.8 _{LAG}	16.5/14.4	16.3/14.9	17.1/15.6	14.4 /12.5	18/16.8	17.6/16.1
W	No-load losses	3935	6288	6288	5194	7696	6770
W	Heat dissipation	23728	20427	23283	25761	25676	27502

* P.F. = 0.6

Reactances (%). Time constants (ms) - Class H / 480 V - 6 & 12-wire

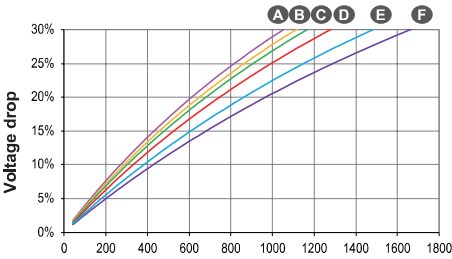
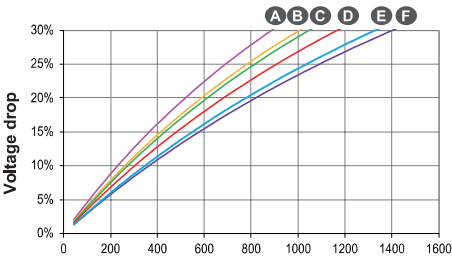
		A	B	C	D	E	F
Kcc	Short-circuit ratio	0.24	0.5	0.45	0.31	0.52	0.39
Xd	Direct-axis synchro. reactance unsaturated	501	315	345	422	309	361
Xq	Quadrature-axis synchro. reactance unsaturated	255	160	176	215	157	184
T'do	No-load transient time constant	1968	1982	1982	1987	1994	1996
X'd	Direct-axis transient reactance saturated	254	15.9	17.4	21.2	15.5	18
T'd	Short-circuit transient time constant	100	100	100	100	100	100
X''d	Direct-axis subtransient reactance saturated	17.8	11.1	12.2	14.8	10.8	12.6
T''d	Subtransient time constant	10	10	10	10	10	10
X''q	Quadrature-axis subtransient reactance saturated	19.9	14.2	15.6	19.8	15.4	18.3
Xo	Zero sequence reactance unsaturated	1.06	0.66	0.72	0.88	0.64	0.75
X2	Negative sequence reactance saturated	18.89	12.68	13.91	17.35	13.15	15.48
Ta	Armature time constant	15	15	15	15	15	15

Other class H / 480 V data

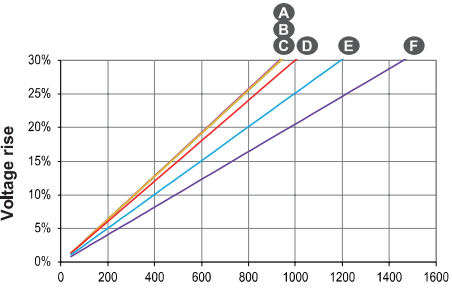
io (A)	No-load excitation current SHUNT/AREP+	0.68	1.07	1.07	0.8	1.11	0.92
ic (A)	On-load excitation current SHUNT/AREP+	3.7	3.41	3.68	3.58	3.5	3.49
uc (V)	On-load excitation voltage SHUNT/AREP+	38.8	35.7	38.5	37.4	36.5	36.3
ms	Response time (ΔU = 20% transient)	500	500	500	500	500	500
kVA	Start (ΔU = 20% cont. or ΔU = 30% trans.) SHUNT/AREP+*	834/1000	1270/1579	1267/1572	1348/1619	1598/1995	1660/1992
%	Transient ΔU (on-load 4/4) SHUNT/AREP+ - P.F.: 0.8 _{LAG}	17/14.8	16.6/15.2	17.4/15.9	14.9/12.9	18.5/17.2	18.1/16.5
W	No-load losses	6155	9429	9429	7916	11204	10008
W	Heat dissipation	28350	25384	28574	31485	31564	33709

* P.F. = 0.6

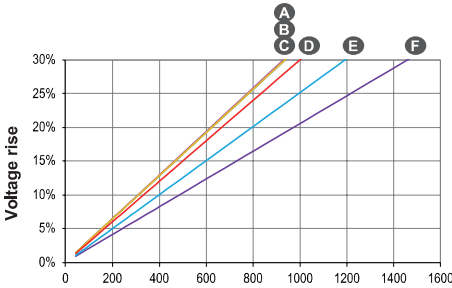
Transient voltage variation 400 V - 50 Hz - 6 & 12-wire



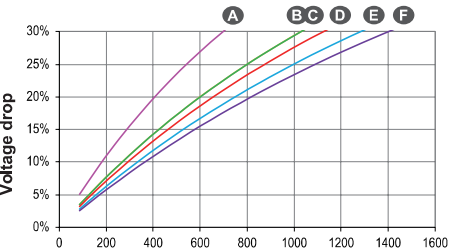
Phase loading (SHUNT) - kVA at 0.8 P.F.



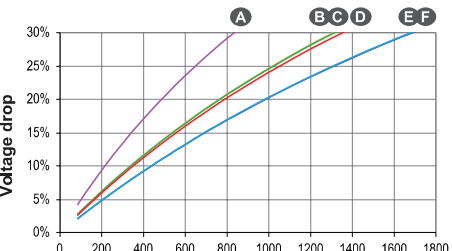
Phase loading (AREP+/PMG) - kVA at 0.8 P.F.



Load shedding (SHUNT) - kVA at 0.8 P.F.



Load shedding (AREP+/PMG) - kVA at 0.8 P.F.



Motor starting (SHUNT) - Locked rotor kVA at 0.6 P.F.

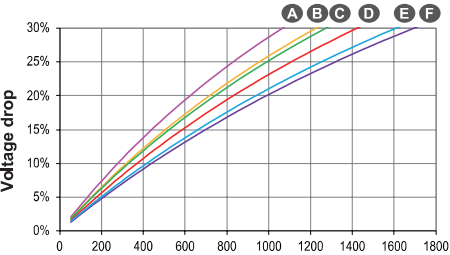
Motor starting (AREP+/PMG) - Locked rotor kVA at 0.6 P.F.

- For a starting P.F. other than 0.6, the starting kVA must be multiplied by $K = \text{Sine P.F.} / 0.8$
- For voltages other than 400V (Y), 230V (Δ) at 50 Hz, then kVA must be multiplied by $(400/U)^2$ or $(230/U)^2$.
- Transient performance of the PMG option, consult us.

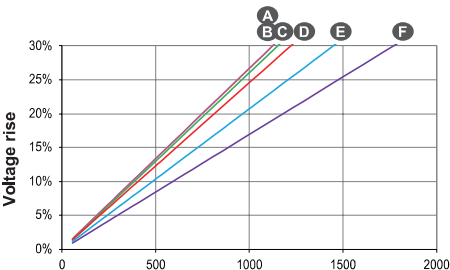
TAL-A473 - 410 to 660 kVA - 50 Hz / 510 to 825 kVA - 60 Hz

Low Voltage Alternators - 4 pole

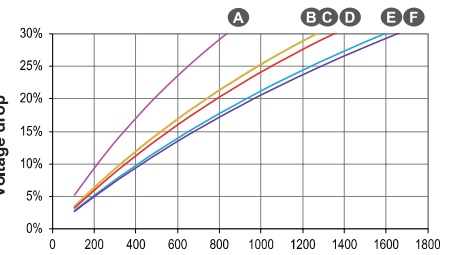
Transient voltage variation 480 V - 60 Hz - 6 & 12-wire



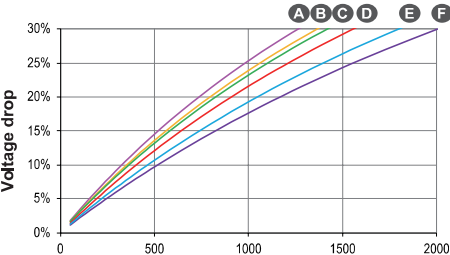
Phase loading (SHUNT) - kVA at 0.8 P.F.



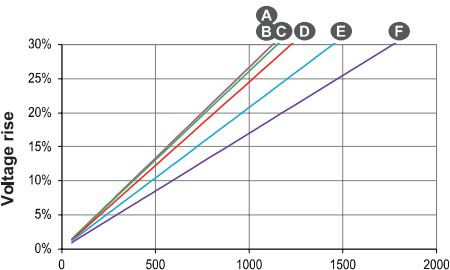
Load shedding (SHUNT) - kVA at 0.8 P.F.



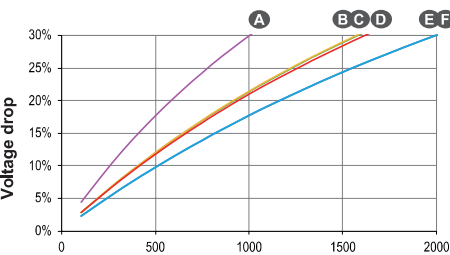
Motor starting (SHUNT) - Locked rotor kVA at 0.6 P.F.



Phase loading (AREP+/PMG) - kVA at 0.8 P.F.



Load shedding (AREP+/PMG) - kVA at 0.8 P.F.



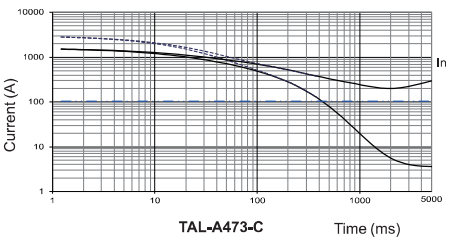
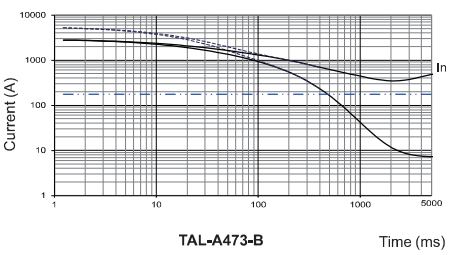
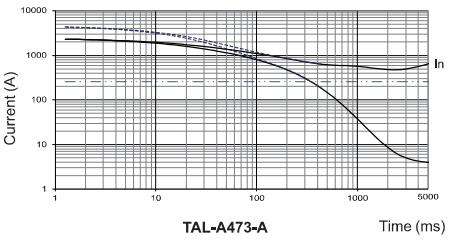
Motor starting (AREP+/PMG) - Locked rotor kVA at 0.6 P.F.

- For a starting P.F. other than 0.6, the starting kVA must be multiplied by $K = \text{Sine P.F.} / 0.8$
- For voltages other than 480V (Y), 277V (Δ), 240V (YY) at 60 Hz, then kVA must be multiplied by $(480/U)^2$ or $(277/U)^2$ or $(240/U)^2$.
- Transient performance of the PMG option, consult us.

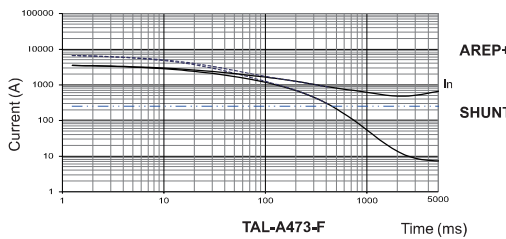
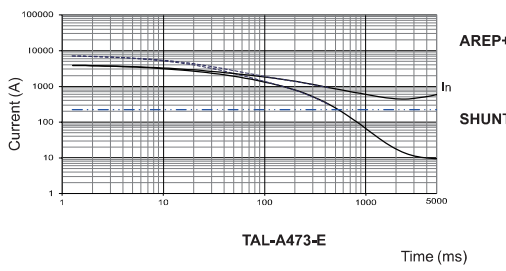
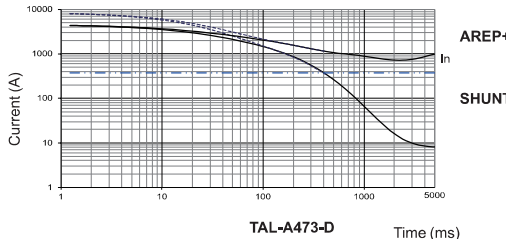
TAL-A473 - 410 to 660 kVA - 50 Hz / 510 to 825 kVA - 60 Hz

Low Voltage Alternators - 4 pole

3-phase short-circuit curves at no load and rated speed (star connection Y) - 6 & 12-wire



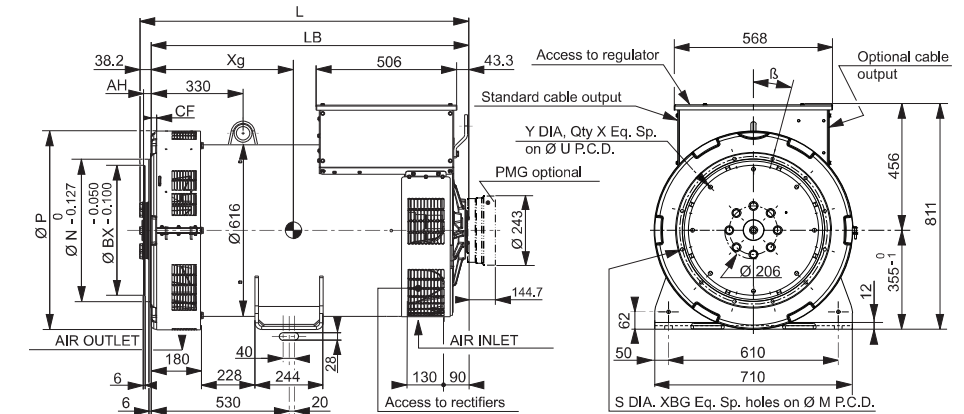
Symmetrical _____
Asymmetrical -----



TAL-A473 - 410 to 660 kVA - 50 Hz / 510 to 825 kVA - 60 Hz

Low Voltage Alternators - 4 pole

Single bearing general arrangement - 6 & 12-wire



Dimensions (mm) and weight

Type	L without PMG maxi*	LB	Xg	Weight (kg)
TAL-A473-A	1048	996	450	1013
TAL-A473-B-C	1108	1056	484	1142
TAL-A473-D	1208	1156	515	1230
TAL-A473-E	1228	1176	543	1366
TAL-A473-F	1228	1176	553	1414

* L maxi = LB + AH maxi + 13

Coupling

Flex plate	11 ½	14	18
Flange S.A.E 1	X	X	
Flange S.A.E ½		X	
Flange S.A.E 0		X	X

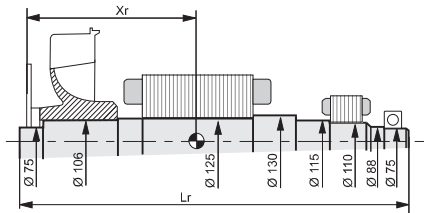
Flange (mm)

S.A.E.	P	N	M	XBG	S	β°	CF
1	713	511.175	530.225	12	12	15°	15
1/2	713	584.2	619.125	12	14	15°	22
0	713	647.7	679.45	16	14	11° 15'	42

Flex plate (mm)

S.A.E.	BX	U	X	Y	AH
11 1/2	352.42	333.38	8	11	39.6
14	466.72	438.15	8	14	25.4
18	571.5	542.92	6	17	15.7

Torsional analysis data



Centre of gravity: Xr (mm), Rotor length: Lr (mm), Weight: M (kg), Moment of inertia: J (kgm²): (4J = MD²)

Flex plate	S.A.E. 11 ½				S.A.E. 14				S.A.E. 18			
Type	Xr	Lr	M	J	Xr	Lr	M	J	Xr	Lr	M	J
TAL-A473-A	437	1036	413	6.7	421	1023	414	6.77	411	1015	414	7.03
TAL-A473-B-C	473	1096	456	7.3	457	1083	456	7.41	447	1075	457	7.67
TAL-A473-D	503	1196	491	7.8	487	1183	492	7.88	477	1175	492	8.14
TAL-A473-E	534	1216	545	8.7	518	1203	546	8.83	508	1195	546	9.09
TAL-A473-F	544	1216	563	9.1	529	1203	564	9.18	519	1195	564	9.44

NOTE : Dimensions are for information only and may be subject to modifications. Contractual 2D drawings can be downloaded from the Leroy-Somer site, 3D drawing files are available upon request.

*Please contact us for the double bearing dimension

TAL-A49 - 750 to 1000 kVA - 50 Hz / 915 to 1250 kVA - 60 Hz

Low Voltage Alternators - 4 pole

General characteristics - 6 & 12-wire

Insulation class	H	Excitation system 6 wire	SHUNT	AREP+ / PMG
Winding pitch	2/3 (Winding 6S or 6)	AVR type	R150	R180
Number of wires	6 or 12	Excitation system 12 wire	SHUNT	AREP+ / PMG
Protection	IP 23	AVR type	R150	R180
Altitude	≤ 1000 m	Voltage regulation (*)	± 0.8 %	± 0.5 %
Overspeed	2250 R.P.M.	Total Harmonic distortion THD (**) in no-load	< 3.5 %	
Air flow (m³/s)	1	Total Harmonic distortion THD (**) in linear load	< 5 %	
Air flow (m³/s)	1.2	Waveform: NEMA = TIF (**)	< 50	
AREP+ Short-circuit current = 2.7 In: 5 seconds (*)		Waveform: I.E.C. = THF (**)	< 2%	

*D350: 2.7In 10 seconds

(*) Steady state (**) Total harmonic distortion between phases, no-load or on-load (non-distorting)

Ratings 50 Hz - 1500 R.P.M. - 6 & 12-wire

kVA / kW - P.F. = 0.8																	
Duty / T° C		Continuous / 40 °C				Continuous / 40 °C				Stand-by / 40 °C				Stand-by / 27 °C			
Class / T° K		H / 125° K				F / 105° K				H / 150° K				H / 163° K			
Phase		3 ph.				3 ph.				3 ph.				3 ph.			
Y		380V	400V	415V	440V	380V	400V	415V	440V	380V	400V	415V	440V	380V	400V	415V	440V
Δ		220V	230V	240V		220V	230V	240V		220V	230V	240V		220V	230V	240V	
YY			200V		220V		200V		220V		200V		220V		200V		220V
TAL-A49-B	kVA	750	750	750	680	680	680	680	620	800	800	800	750	825	825	825	785
	kW	600.0	600.0	600.0	544.0	544.0	544.0	544.0	496.0	640.0	640.0	640.0	600.0	660.0	660.0	660.0	628.0
TAL-A49-C	kVA	820	820	820	810	745	745	745	735	870	870	870	860	910	910	910	890
	kW	656.0	656.0	656.0	648.0	596.0	596.0	596.0	588.0	696.0	696.0	696.0	688.0	728.0	728.0	728.0	712.0
TAL-A49-D	kVA	910	910	910	820	830	830	830	745	965	965	965	870	1010	1010	1010	900
	kW	728.0	728.0	728.0	656.0	664.0	664.0	664.0	596.0	772.0	772.0	772.0	696.0	808.0	808.0	808.0	720.0
TAL-A49-E	kVA	1000	1000	1000	950	910	910	910	865	1060	1060	1060	1005	1100	1100	1100	1045
	kW	800.0	800.0	800.0	760.0	728.0	728.0	728.0	692.0	848.0	848.0	848.0	804.0	880.0	880.0	880.0	836.0

Ratings 60 Hz - 1800 R.P.M. - 6 & 12-wire

kVA / kW - P.F. = 0.8																	
Duty / T° C		Continuous / 40 °C				Continuous / 40 °C				Stand-by / 40 °C				Stand-by / 27 °C			
Class / T° K		H / 125° K				F / 105° K				H / 150° K				H / 163° K			
Phase		3 ph.				3 ph.				3 ph.				3 ph.			
Y		380V	416V	440V	480V	380V	416V	440V	480V	380V	416V	440V	480V	380V	416V	440V	480V
Δ		220V	240V			220V	240V			220V	240V			220V	240V		
YY			208V	220V	240V		208V	220V	240V		208V	220V	240V		208V	220V	240V
TAL-A49-B	kVA	745	815	860	940	670	730	775	845	790	865	910	995	820	895	945	1030
	kW	596.0	652.0	688.0	752.0	536.0	584.0	620.0	676.0	632.0	692.0	728.0	796.0	656.0	716.0	756.0	824.0
TAL-A49-C	kVA	815	890	940	1025	740	810	855	935	865	945	995	1085	895	980	1040	1130
	kW	652.0	712.0	752.0	820.0	592.0	648.0	684.0	748.0	692.0	756.0	796.0	868.0	716.0	784.0	832.0	904.0
TAL-A49-D	kVA	905	990	1045	1140	825	900	950	1035	960	1050	1110	1210	1000	1090	1155	1255
	kW	724.0	792.0	836.0	912.0	660.0	720.0	760.0	828.0	768.0	840.0	888.0	968.0	800.0	872.0	924.0	1004.0
TAL-A49-E	kVA	990	1083	1146	1250	900	985	1045	1140	1050	1150	1215	1325	1089	1192	1260	1375
	kW	792.0	866.4	916.8	1000.0	720.0	788.0	836.0	912.0	840.0	920.0	972.0	1060.0	871.2	953.6	1008.0	1100.0