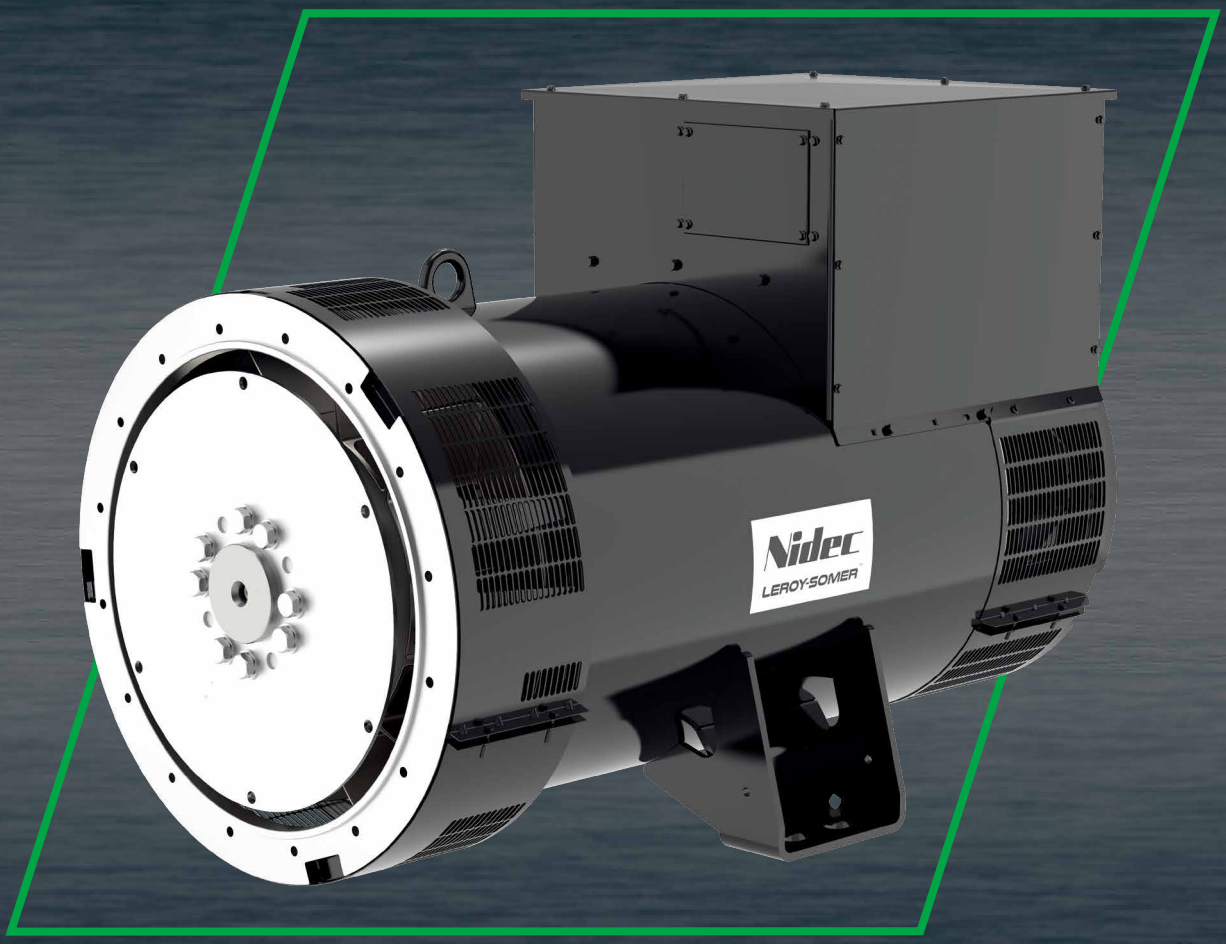
Nidec Power



Low Voltage Alternators - 4 pole

TAL-A49

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

Electrical and Mechanical data

LEROY-SOMER™

TAL-A49

Adapted to needs

The TAL alternator range is designed to meet the specific needs of telecommunications, commercial & industrial markets, as well as prime and stand-by power applications.

Compliance with internationally recognized standards

4 Pole Altemators are in compliance to the main international standards and regulations: -IEC 60034, NEMA MG 1.32-33, BS 5000 Part 99, VDE 0530, ISO 8528/3 on request and depending on voltages, marin regulations, etc.
It can be integrated into a CE marked generator.
Alternators are designed, manufactured and marketed in an ISO 9001 and ISO14001 environments.





Electrical design

- Class H insulation
- Low voltage winding
- 6-terminal plate (adapted plate for 6 & 12 wires machine)
- Possibility of star and delta connection
- Optimized performance

Robust design

- Compact and rugged assembly to withstand engine vibrations
- Steel frame
- Cast iron flanges and shields
- Single bearing design to be suitable with most diesel engines
- Sealed for life bearing
- Direction of rotation clockwise

Excitation and regulation system suited to the application

	Excitation system					
	AVR	**SHUNT**	**AREP+** (option)	**PMG** (option)	**Remote voltage potentiometer**	**C.T. for paralleling**
Three-phase 6-wire	**R150**	Standard			√	
	R180		Standard	Standard	√	√
	D350	Option	Option	Option	√	√
Three-phase 12-wire*	**R150**	Standard			√	
	R250	Option			√	
	R180		Standard	Standard	√	√
	D350	Option	Option	Option	√	√

√ : Possible option *with larger terminal box

Compact terminal box

- Easy access to AVR and terminals
- Standard terminal box with possibility of mounting Measuring/ protection CT (Please consult Leroy Somer for CT type)
- Possibility of current transformer for parallel operation

Environment and protection

- The alternators are IP 23
- Standard winding protection for non-harsh environments with relative humidity ≤ 95%

Available options

- AREP+ & PMG
- 12-lead
- Customized painting
- Two-bearing version
- Space heater
- Droop kit for alternator paralleling
- CE mark
- Stator sensors
- Measuring/Protection CT (Please consult Leroy Somer for CT type)
- Voltage trimmer
- Winding protection for harsh environments and relative humidity greater than 95% (system 2 - 4) (system 2 and above protectionsystem will be proposed for rental application, prevented from potential hash environment)

General characteristics - 6 & 12-wire

Insulation class	H
Winding pitch	2/3 (Winding 6S or 6)
Number of wires	6 or 12
Protection	IP 23
Altitude	≤ 1000 m
Overspeed	2250 R.P.M.
Air flow (m^3/s)	1
Air flow (m^3/s)	1.2
AREP+ Short-circuit current = 2.7 In: 5 seconds (*)	

*D350: 2.7In 10 seconds

Excitation system 6 wire	SHUNT	AREP+ / PMG
AVR type	R150	R180
Excitation system 12 wire	SHUNT	AREP+ / PMG
AVR type	R150	R180
Voltage regulation (*)	± 0.8 %	± 0.5 %
Total Harmonic distortion THD (**) in no-load	< 3.5 %	
Total Harmonic distortion THD (**) in linear load	< 5 %	
Waveform: NEMA = TIF (**)	< 50	
Waveform: I.E.C. = THF (**)	< 2%	

(*) 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

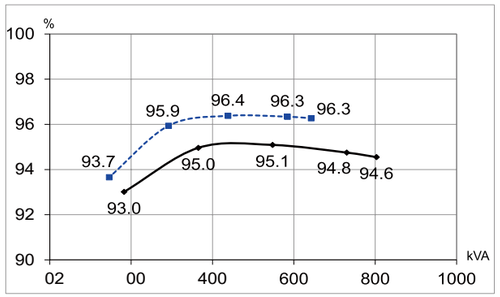
Duty / T° C		Continuous / 40 °C				Continuous / 40 °C				Stand-by / 40 °C				Stand-by / 27 °C			
Class / T° K		H / 125° K				F / 105° K				H / 150° K				H / 163° K			
Phase		**3 ph.**				**3 ph.**				**3 ph.**				**3 ph.**			
Y		380V	400V	415V	440V	380V	400V	415V	440V	380V	400V	415V	440V	380V	400V	415V	440V
Δ		220V	230V	240V		220V	230V	240V		220V	230V	240V		220V	230V	240V	
YY					220V				220V				220V				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

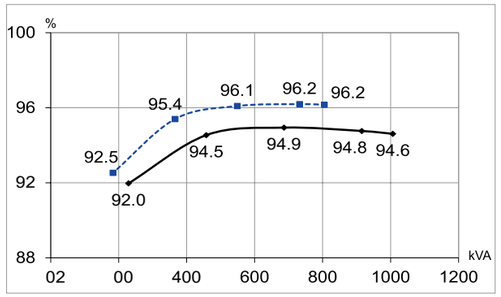
kVA / kW - P.F. = 0.8

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*

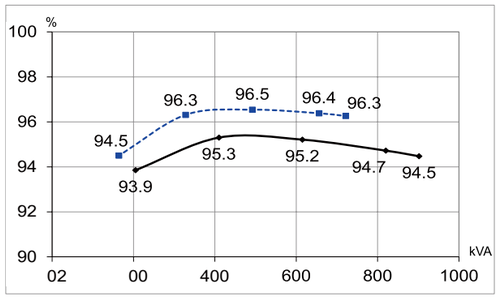
Efficiencies 400 V 50 Hz & 480 V - 60 Hz (— P.F.: 0.8) (····· P.F.: 1) - 6 & 12-wire



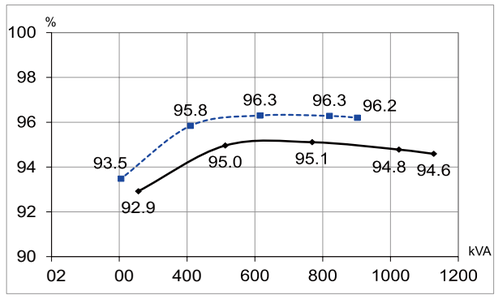
TAL-A49-B - 400V 50 Hz



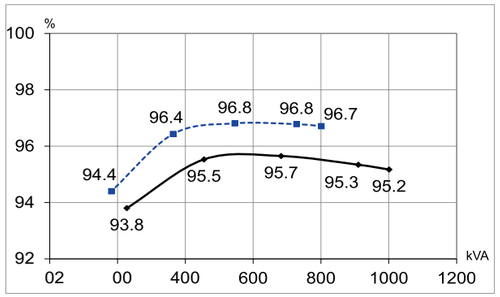
TAL-A49-B - 480V 60 Hz



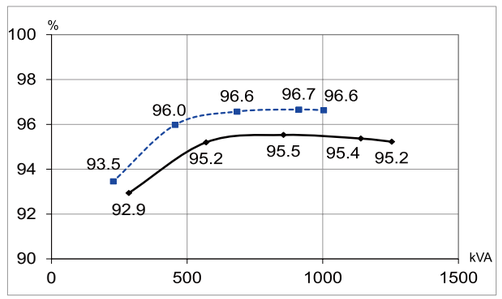
TAL-A49-C - 400V 50 Hz



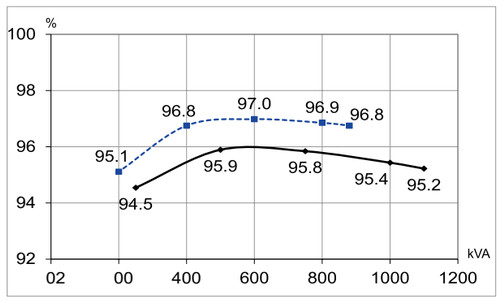
TAL-A49-C - 480V 60 Hz



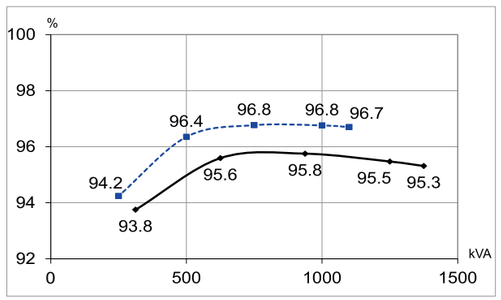
TAL-A49-D - 400V 50 Hz



TAL-A49-D - 480V 60 Hz



TAL-A49-E - 400V 50 Hz



TAL-A49-E - 480V 60 Hz

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

		B	C	D	E
Kcc	Short-circuit ratio	0.42	0.34	0.41	0.34
Xd	Direct-axis synchro. reactance unsaturated	294	348	303	348
Xq	Quadrature-axis synchro. reactance unsaturated	150	177	154	177
T'do	No-load transient time constant	2074	2094	2138	2153
X'd	Direct-axis transient reactance saturated	14.2	16.6	14.1	16.1
T'd	Short-circuit transient time constant	100	100	100	100
X"d	Direct-axis subtransient reactance saturated	11.3	13.3	11.3	12.9
T"d	Subtransient time constant	10	10	10	10
X"q	Quadrature-axis subtransient reactance saturated	12.8	14.9	12.4	14.1
Xo	Zero sequence reactance	0.59	0.69	0.59	0.67
X2	Negative sequence reactance saturated	12.1	14.11	11.92	13.53
Ta	Armature time constant	15	15	15	15
Other class H / 400 V data					
io (A)	No-load excitation current SHUNT/AREP+	1.07	0.96	1.1	0.89
ic (A)	On-load excitation current SHUNT/AREP+	3.73	3.97	3.91	3.69
uc (V)	On-load excitation voltage SHUNT/AREP+	41.9	44.4	43.6	40.9
ms	Response time (ΔU = 20% transient)	500	500	500	500
kVA	Start (ΔU = 20% cont. or ΔU = 30% trans.) SHUNT*	1325	1389	1560	1753
kVA	Start (ΔU = 20% cont. or ΔU = 30% trans.) AREP+*	1849	1920	2156	2402
%	Transient ΔU (on-load 4/4) SHUNT - P.F.: 0.8 $_{LAG}$	17.5	16.5	14.6	16.2
%	Transient ΔU (on-load 4/4) AREP+ - P.F.: 0.8 $_{LAG}$	11.5	13	11.5	12.7
W	No-load losses	9931	8807	10176	9543
W	Heat dissipation	32326	36543	35534	38279

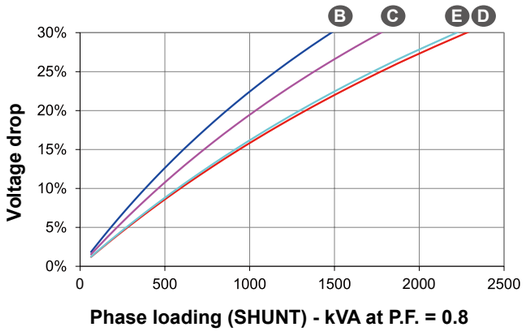
* P.F. = 0.6

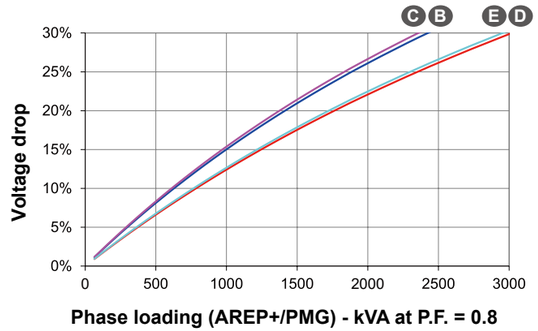
Reactances (%). Time constants (ms) - Class H / 480 V - 6 & 12-wire

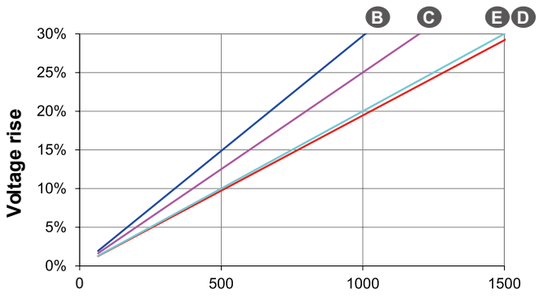
		B	C	D	E
Kcc	Short-circuit ratio	0.4	0.32	0.4	0.33
Xd	Direct-axis synchro. reactance unsaturated	307	362	317	363
Xq	Quadrature-axis synchro. reactance unsaturated	156	185	161	185
T'do	No-load transient time constant	2074	2094	2138	2153
X'd	Direct-axis transient reactance saturated	14.8	17.3	14.8	16.8
T'd	Short-circuit transient time constant	100	100	100	100
X"d	Direct-axis subtransient reactance saturated	11.8	13.8	11.8	13.4
T"d	Subtransient time constant	10	10	10	10
X"q	Quadrature-axis subtransient reactance saturated	13.4	15.5	13	14.7
Xo	Zero sequence reactance	0.61	0.72	0.61	0.7
X2	Negative sequence reactance saturated	12.64	14.7	12.44	14.1
Ta	Armature time constant	15	15	15	15
Other class H / 480 V data					
io (A)	No-load excitation current SHUNT/AREP+	1.07	0.96	1.09	0.89
ic (A)	On-load excitation current SHUNT/AREP+	3.8	4.04	3.97	3.74
uc (V)	On-load excitation voltage SHUNT/AREP+	43	45.5	44.6	41.9
ms	Response time (ΔU = 20% transient)	500	500	500	500
kVA	Start (ΔU = 20% cont. or ΔU = 30% trans.) SHUNT*	1625	1681	1954	2114
kVA	Start (ΔU = 20% cont. or ΔU = 30% trans.) AREP+*	2345	2297	2743	2893
%	Transient ΔU (on-load 4/4) SHUNT - P.F.: 0.8 $_{LAG}$	17.9	17.1	15.1	16.7
%	Transient ΔU (on-load 4/4) AREP+ - P.F.: 0.8 $_{LAG}$	11.9	13.4	11.9	13.1
W	No-load losses	14344	13640	15456	14627
W	Heat dissipation	40438	45078	44272	47348

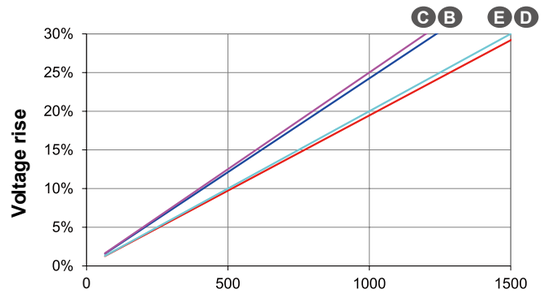
* P.F. = 0.6

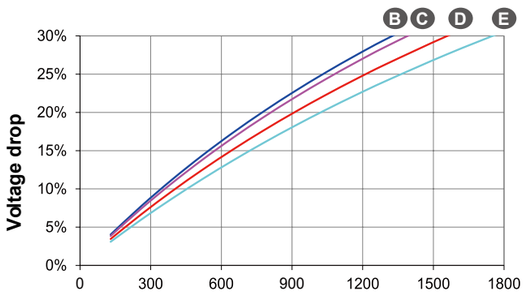
Transient voltage variation 400 V - 50 Hz - 6 & 12-wire

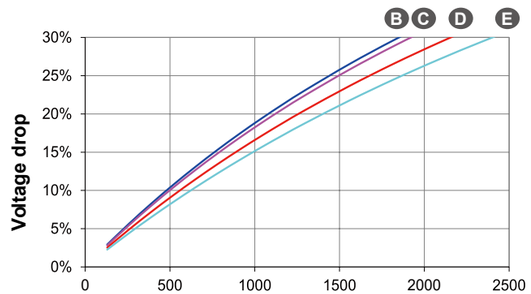




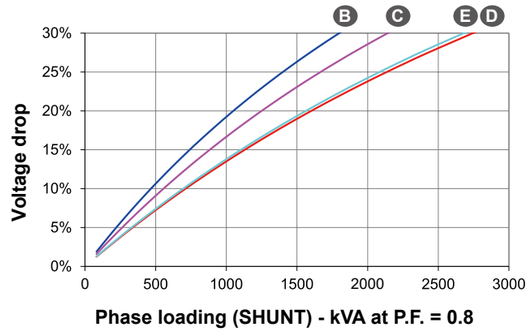


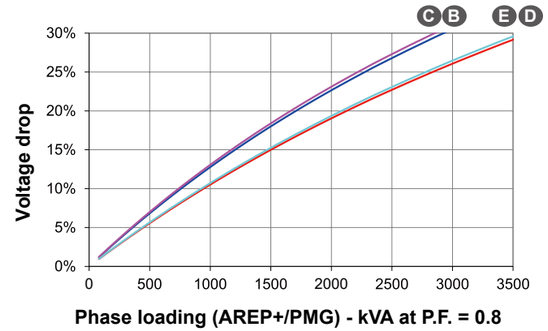


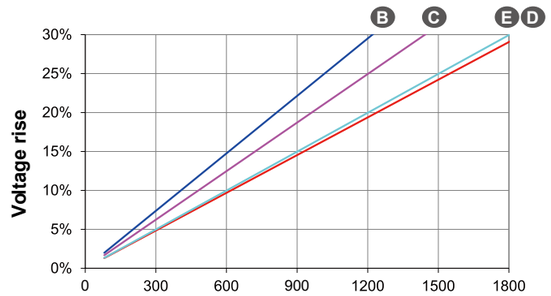


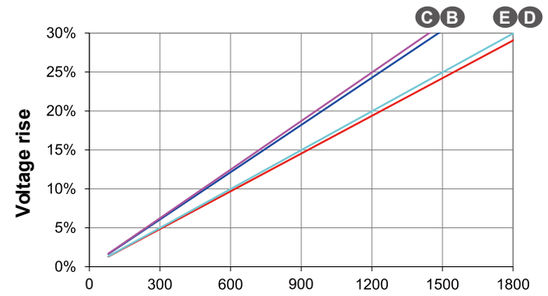


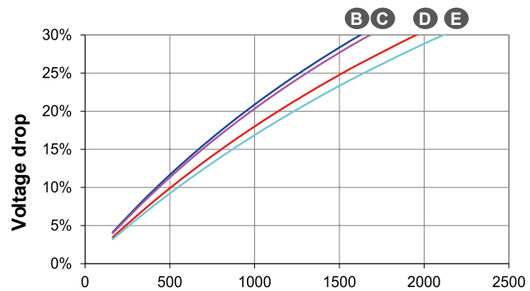
Transient voltage variation 480 V - 60 Hz - 6 & 12-wire

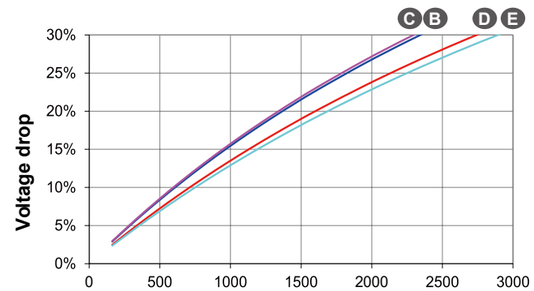




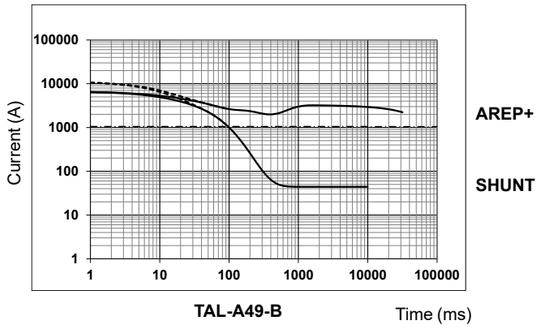




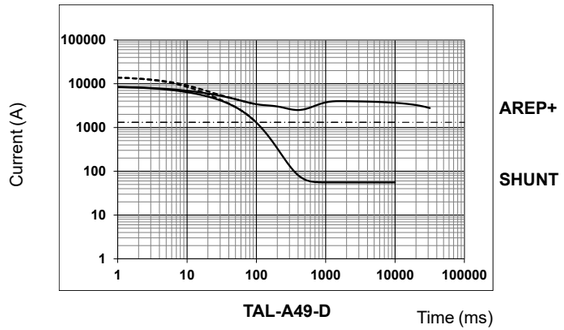




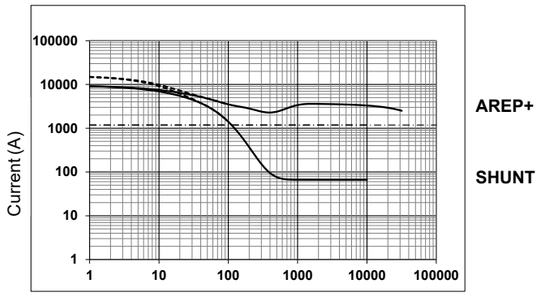
3-phase short-circuit curves at no load and rated speed (star connection Y) - 6 & 12-wire



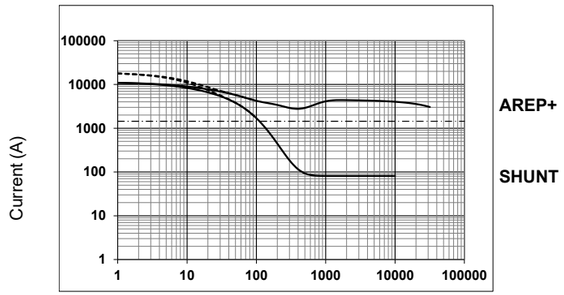
TAL-A49-B



TAL-A49-D



TAL-A49-C Time (ms)

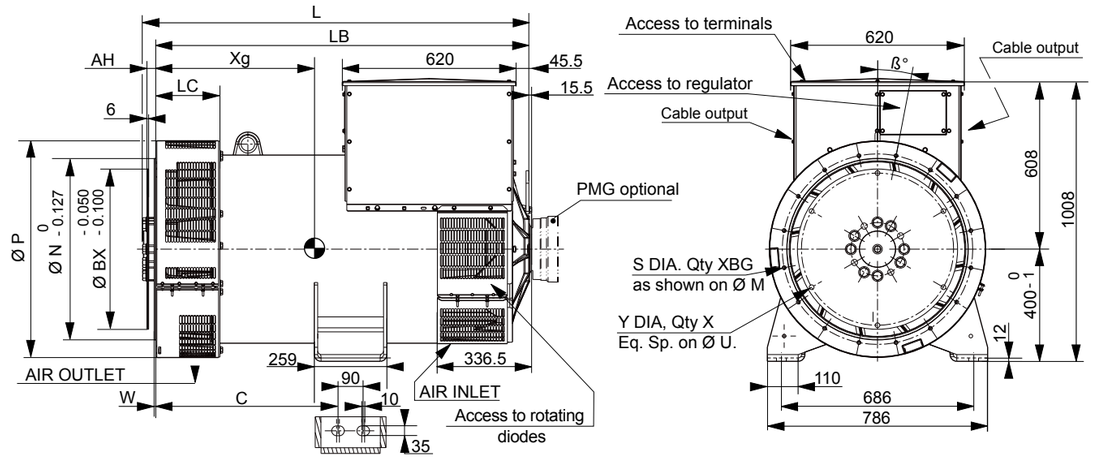


TAL-A49-E Time (ms)

Symmetrical _____
Asymmetrical ---------

TAL-A49 - 750 to 1000 kVA - 50 Hz / 915 to 1250 kVA - 60 Hz
Low Voltage Alternators - 4 pole

Single bearing general arrangement - 6 & 12-wire



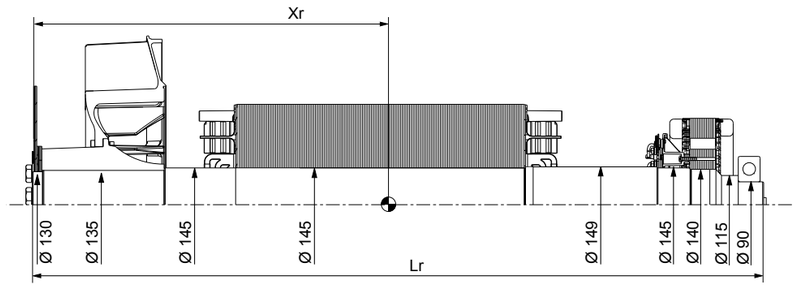
Dimensions (mm) and weight					
Type	L without PMG	LB	C	Xg	Weight (kg)
TAL-A49-B	1372	1331	650	629	1574
TAL-A49-C	1372	1331	650	636	1635
TAL-A49-D	1462	1421	650	673	1788
TAL-A49-E	1462	1421	650	681	1837

Coupling		
Flex plate	14	18
Flange S.A.E 1	X	
Flange S.A.E 1/2	X	
Flange S.A.E 0	X	X
Flange S.A.E 00		X

Flange (mm)							
S.A.E.	P	N	M	LC	XBG	W	ß°
1	773	511.175	530.225	228.5	12	6	15°
1/2	773	584.2	619.125	228.5	12	6	15°
0	773	647.7	679.45	228.5	16	6	11° 15'
00	883	787.4	850.9	245	16	7	11°15'

Flex plate (mm)					
S.A.E.	BX	U	X	Y	AH
14	466.7	438.15	8	14	25.4
18	571.5	542.92	6	17	15.7

Torsional analysis data



	Xr	Lr	M	J	Xr	Lr	M	J
TAL-A49-B	625	1351	623	9.99	614	1351	625	10.25
TAL-A49-C	633	1351	640	10.35	622	1351	642	10.61
TAL-A49-D	671	1441	697	11.34	659	1441	699	11.60
TAL-A49-E	679	1441	724	11.92	667	1441	726	12.18

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

Product Feature

Features and Benefits

Compact Machine

Less footprint Cost-effective Reliability
- One of the shortest products
- Low vibration level

Global Service

Quick & efficient service
- Global manufacturing facilities for local delivery – short lead time
- Unequalled service organization

Leroy-Somer

TAL A Series

Optimized Electrical Performance

Optimized genset power outputs, matching available engines
- Adapted power outputs to reach power nodes with existing engines
- Optimized performance vs Application

Easy Installation & Maintenance

Easy genset maintenance
- Easy access to cables and diode bridges

Optimal Mechanical Design

Easy genset installation
- Optimized coupling with engines
- Interchangeable with LSA
- Flying leads option

Compact Terminal Box

Easy access to regulator
- Simplified design

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Connect with us at:

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Share Capital: 32,239,235 €, RCS Angoulême 338 567 258.

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