



Generator Engine Performance Data

DONGFENG CUMMINS ENGINE Co.,LTD

Xiangfan, Hubei Province, China
http://www.dcec.com.cn

Basic Engine Model:

6BT5.9-G1

FR91589
FR92489

FR91589 @ 1500 RPM
FR92489 @ 1500 RPM

Configuration

D402078GX02

CPL Code

CPL: 3219

Revision

2009-3-15

Compression Ratio: **17.3:1**
Bore: **102 mm**
Stroke: **120 mm**
Governor Regulation: **≤8%**

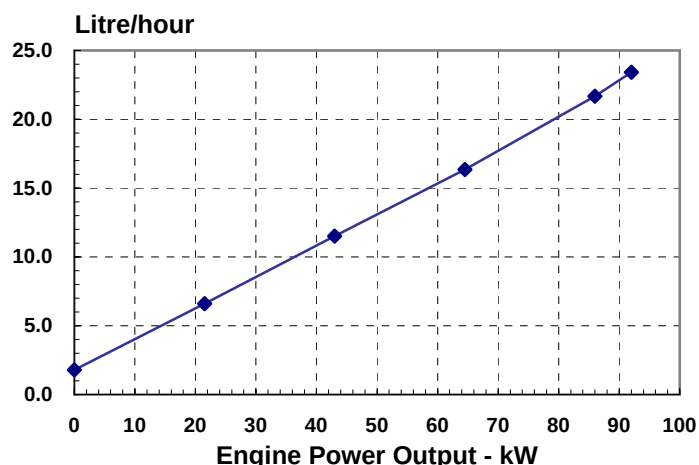
Aspiration: **Turbocharged**
Displacement: **5.9 L**
No. of Cylinders: **6**
Fuel System: **FR91589: WEIFU A/RSV Mechanical**
FR92489: BYC A/RSV Mechanical

All data is based on the engine operating with fuel system, water pump, and 10 in H₂O (2.488 kPa) inlet air restriction with 5.98 in (152mm) inner diameter, and with 2.01 in Hg (7 kPa) exhaust restriction with 4.02 in (102 mm) inner diameter; not included are alternator, fan, optional equipment and driven components. Coolant flows and heat rejection data based on coolants as 50% ethylene glycol/50% water. All data is subject to change without notice.

Engine Speed	Standby Power		Prime Power		Continuous Power	
RPM	kW	HP	kW	HP	kW	HP
1500	92	123	86	115	TBD	TBD

Engine Performance Data @ 1500 RPM

OUTPUT POWER			FUEL CONSUMPTION	
%	kW	HP	g/kW.h	L/h
STANDBY POWER				
100	92	123	210	23.4
PRIME POWER				
100	86	115	208	21.7
75	65	86	209	16.3
50	43	58	221	11.5
25	22	29	253	6.6
CONTINUOUS POWER				
TBD	TBD	TBD	TBD	TBD



Engine Performance Data @ 1800 RPM

Not Available at 1800 RPM

Not Available at 1800 RPM

Curves shown above represent gross engine performance capabilities obtained and corrected in accordance with GB/T18297 conditions of 100kPa (29.61 in. Hg) barometric pressure [80 m (263 ft.) altitude], 25°C (77°F) inlet air temperature, and 1 kPa (0.30 in. Hg) water vapor pressure with No.0 diesel fuel. The engine may be operated without changing the fuel setting up to 2200 m (7218ft.) altitude.

GENERAL ENGINE DATA

Approximate Engine Weight (wet).....	-kg	432
Mass Moment of Inertia of Rotating Components (No Flywheel).....	-kg·m ²	0.25
Center of Gravity from Front Face of Block.....	-mm	391
Center of Gravity above Crankshaft Centerline.....	-mm	140
Crankshaft Thrust Bearing Load Limit		
—Maximum Intermittent.....	-N	3425
—Maximum Continuous.....	-N	1112

ENGINE MOUNTING

Maximum (Static) Bending Moment at Front Support Mounting Surface.....	-N.m	435
Maximum (Static) Bending Moment at Side Pad Mounting Surface.....	-N.m	TBD
Maximum (Static) Bending Moment at Rear Face of Block.....	-N.m	1356
Moment of Inertia of Complete Engine		
— Roll Axis.....	-kg·m ²	16.5
— Pitch Axis.....	-kg·m ²	41.1
— Yaw Axis.....	-kg·m ²	35.4

EXHAUST SYSTEM

Maximum Back Pressure.....	-kPa	10
Exhaust Pipe Size Normally Acceptable.....	-mm	75
Maximum Static Supported Weight at the Turbocharger Outlet Flange.....	-N.m	13.5
Exhaust Manifold Insulation Acceptable.....	-Yes/No	No
Turbocharger Insulation Acceptable.....	-Yes/No	No

AIR INTAKE SYSTEM

Maximum Intake Air Restriction with Heavy Duty Air Cleaner		
— Dirty Element.....	-kPa	6
— Clean Element.....	-kPa	4
Minimum Dirt Holding Capacity with Heavy Duty Air Cleaner.....	-g/cfm	53
Maximum Temperature Rise from Ambient to the Inlet of the Turbocharger.....	-°C	17
Recommended intake piping size (inner diameter).....	-mm	76

LUBRICATION SYSTEM

Minimum Engine Oil Pressure for Engine Protection Devices:		
-Idle Speed.....	-kPa	207
-Governed Speed.....	-kPa	345
Maximum Oil Temperature	-°C	121
Oil Capacity with OP 9006 Oil Pan : High - Low.....	-litre	14.2 - 12.3
Minimum Required Lube System Capacity - Sump plus Filters.....	-litre	16.4
Angularity of Standard Oil Pan: (Values stated are for intermittent operation only):		
— Front Down.....	- °	40
— Front Up.....	- °	40
— Side to Side.....	- °	40

FUEL SYSTEM

Type Injection System.....	BYC A Direct Injection
Maximum Restriction at Lift Pump.....	-mmHg 102
Maximum Allowable Head on Injector Return Line (Consisting of Friction Head and Static Head)	
.....	-mmHg 508
Total Drain Flow (constant for all loads).....	-litre/hr 30

COOLING SYSTEM

Coolant Capacity - Engine Only.....	-litre	7.9
Maximum Coolant Friction Head External to Engine...-1800 rpm.....	-kPa	35
-1500 rpm.....	-kPa	28
Maximum Static Head of Coolant Above Engine Crank Centerline.....	-m	14
Standard Thermostat (Modulating) Range.....	-°C	82 - 95
Minimum Pressure Cap.....	-kPa	69
Maximum Top Tank Temperature for Standby / Prime Power.....	-°C	104 / 100

ELECTRICAL SYSTEM

Cranking Motor (Heavy Duty, Positive Engagement).....	-volt	12V	24V
Battery Charging System, Negative Ground.....	-ampere	63	40
Maximum Allowable Resistance of Cranking Circuit.....	-ohm	0.00075	0.002
Minimum Recommended Battery Capacity			
• Cold Soak @ 10 °F (-12 °C) and Above.....	-0°F CCA	800	400

Fuel Rating Option used for these Data: **FR91589 and FR92489**

Governed Engine Speed.....	-rpm
Engine Idle Speed.....	-rpm
Gross Engine Power Output.....	-kW
Piston Speed.....	-m/s
Friction Horsepower.....	-kW
Engine Water Flow to Engine:.....	-litre/sec.
Intake Air Flow.....	-litre/sec.
Exhaust Gas Flow.....	-litre/sec.
Exhaust Gas Temperature.....	-°C
Air to Fuel Ratio.....	-air:fuel
Radiated Heat to Ambient.....	-kW
Heat Rejection to Coolant.....	-kW
Heat Rejection to Exhaust.....	-kW

STANDBY POWER		PRIME POWER	
1800	1500	1800	1500
N/A	800 - 1000	N/A	800 - 1000
	92		86
	6		6
	12.7		12.7
	2.0		2.0
	103		100
	271		252
	510		480
	22.5 : 1		23.5 : 1
	21		19
	61		54
	92		82

ALL DATA CERTIFIED WITHIN 5%

TBD = To Be Decided

N/A = Not Applicable

N.A. = Not Available

All data is subject to change without notice, sorry for inform.

Dongfeng Cummins Engine Co., Ltd.

DSE6110/20 MKIII

AUTO START & AUTO MAINS (UTILITY) FAILURE CONTROL MODULES



DSE6110 MKIII



DSE6120 MKIII

KEY FEATURES

- 4-line back-lit LCD text display
- Multiple display languages
- Five-key menu navigation
- LCD alarm indication
- Customisable power-up text and screen images.
- DSENet® expansion compatibility
- Data logging facility
- Internal PLC editor
- Protections disable feature
- Fully configurable via PC using USB communications
- Front panel configuration with PIN protection
- Power save mode
- 3-phase generator sensing and protection
- 3-phase mains (utility) sensing and protection (DSE6120 MKIII only)
- Automatic load transfer control (DSE6120 MKIII only)
- Generator current and power monitoring (kW, kvar, kVA, pf)
- Mains (utility) current and power monitoring (kW, kvar, kVA, pf) (DSE6120 MKIII only)
- kW overload alarm
- Over current protection
- Breaker control via fascia buttons
- Fuel and start outputs configurable when using CAN
- 6 configurable DC outputs
- 4 configurable analogue/digital inputs
- Support for 0 V to 10 V & 4 mA to 20 mA sensors
- 8 configurable digital inputs
- CAN, MPU and alternator frequency speed sensing in one variant
- Real time clock
- Manual and automatic fuel pump control
- Engine pre-heat and post-heat functions
- Engine run-time scheduler
- Engine idle control for starting & stopping
- Fuel level alarms
- 3 configurable maintenance alarms
- Compatible with a wide range of CAN engines, including Tier 4 engine support
- Uses DSE Configuration Suite PC Software for simplified configuration
- Licence-free PC software
- IP65 rating (with optional gasket) offers increased resistance to water ingress
- Configurable CAN read & transmitted information.
- 1 alternative configuration.

KEY BENEFITS

- Automatically transfers between mains (utility) and generator (DSE6120 MKIII only) for convenience.
- Hours counter provides accurate information for monitoring and maintenance periods
- User-friendly set-up and button layout for ease of use
- Multiple parameters are monitored & displayed simultaneously for full visibility
- The module can be configured to suit a wide range of applications for user flexibility
- PLC editor allows user configurable functions to meet user specific application requirements.

SPECIFICATIONS

DC SUPPLY

CONTINUOUS VOLTAGE RATING

8 V to 35 V Continuous
5 V for up to 1 minute

CRANKING DROPOUTS

Able to survive 0 V for 100 mS, providing supply was at least 10 V before dropout and supply recovers to 5 V. This is achieved without the need for internal batteries. LEDs and backlight will not be maintained during cranking.

MAXIMUM OPERATING CURRENT

260 mA at 12 V, 150 mA at 24 V

MAXIMUM STANDBY CURRENT

145 mA at 12 V, 85 mA at 24 V

CHARGE FAIL/EXCITATION RANGE

0 V to 35 V

GENERATOR & MAINS (UTILITY)

VOLTAGE RANGE

15 V to 415 V AC (Ph to N)
26 V to 719 V AC (Ph to Ph)

FREQUENCY RANGE

3.5 Hz to 75 Hz

MAGNETIC PICKUP

VOLTAGE RANGE

+/- 0.5 V to 70 V

FREQUENCY RANGE

10,000 Hz (max)

INPUTS

DIGITAL INPUTS A TO H

Negative switching

ANALOGUE INPUTS A & D

Configurable as:
Negative switching digital input
0 V to 10 V sensor
4 mA to 20 mA sensor
Resistive sensor

ANALOGUE INPUTS B & C

Configurable as:
Negative switching digital input
Resistive sensor

OUTPUTS

OUTPUT A & B (FUEL & START)

10 A DC at supply voltage

AUXILIARY OUTPUTS C, D, E, F, G & H

2 A DC at supply voltage

DIMENSIONS

OVERALL

216 mm x 158 mm x 43 mm
8.5" x 6.2" x 1.5"

PANEL CUT-OUT

184 mm x 137 mm
7.2" x 5.3"

MAXIMUM PANEL THICKNESS

8 mm
0.3"

STORAGE TEMPERATURE RANGE

-40°C to +85°C
-40 °F to +185 °F

OPERATING TEMPERATURE RANGE

NON-HEATED DISPLAY VARIANT
-30°C to +70°C
-22 °F to +158 °F

HEATED DISPLAY VARIANT

-40 °C to +70 °C
-40 °F to +158 °F

RELATED MATERIALS

TITLE

DSE6110 MKIII & DSE6120 MKIII Installation Instructions
DSE6110 MKIII & DSE6120 MKIII Operator Manual
DSE6110 MKIII & DSE6120 MKIII Configuration Suite PC Manual

PART NO.

053-240
057-289
057-290

OPTIONAL PARTS

PART	PART NUMBER
IP65 Gasket	020-521

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DSE6110/20 MKIII

AUTO START & AUTO MAINS (UTILITY) FAILURE CONTROL MODULES

The DSE6110 MKIII is an Auto Start Control Module and the DSE6120 MKIII is an Auto Mains (Utility) Failure Control Module suitable for a wide variety of single, diesel or gas, gen-set applications.

Monitoring an extensive number of engine parameters, the modules will display warnings, shutdown and engine status information on the back-lit LCD screen, illuminated LEDs and remote PC.

The DSE6120 MKIII will also monitor the mains (utility) supply. The modules include USB connection and dedicated DSENet® terminals for system expansion.

Both modules are compatible with electronic (CAN) and non-electronic (magnetic pick-up/alternator sensing) engines and offer an extensive number of flexible inputs, outputs and extensive engine protections so the system can be easily adapted to meet the most demanding industry requirements.

The extensive list of features includes enhanced event and performance monitoring, remote communications & PLC functionality.

The modules can be easily configured using the DSE Configuration Suite PC software. Selected front panel editing is also available.

ENVIRONMENTAL TESTING STANDARDS

ELECTRO-MAGNETIC COMPATIBILITY

BS EN 61000-6-2
EMC Generic Immunity Standard for the Industrial Environment
BS EN 61000-6-4
EMC Generic Emission Standard for the Industrial Environment

ELECTRICAL SAFETY

BS EN 60950
Safety of Information Technology Equipment, including Electrical Business Equipment

TEMPERATURE

BS EN 60068-2-1
Ab/Ae Cold Test -30 °C
BS EN 60068-2-2
Bb/Be Dry Heat +70 °C

VIBRATION

BS EN 60068-2-6
Ten sweeps in each of three major axes
5 Hz to 8 Hz at +/-7.5 mm,
8 Hz to 500 Hz at 2 gn

HUMIDITY

BS EN 60068-2-30
Db Damp Heat Cyclic 20/55 °C
at 95% RH 48 Hours
BS EN 60068-2-78
Cab Damp Heat Static 40 °C
at 93% RH 48 Hours

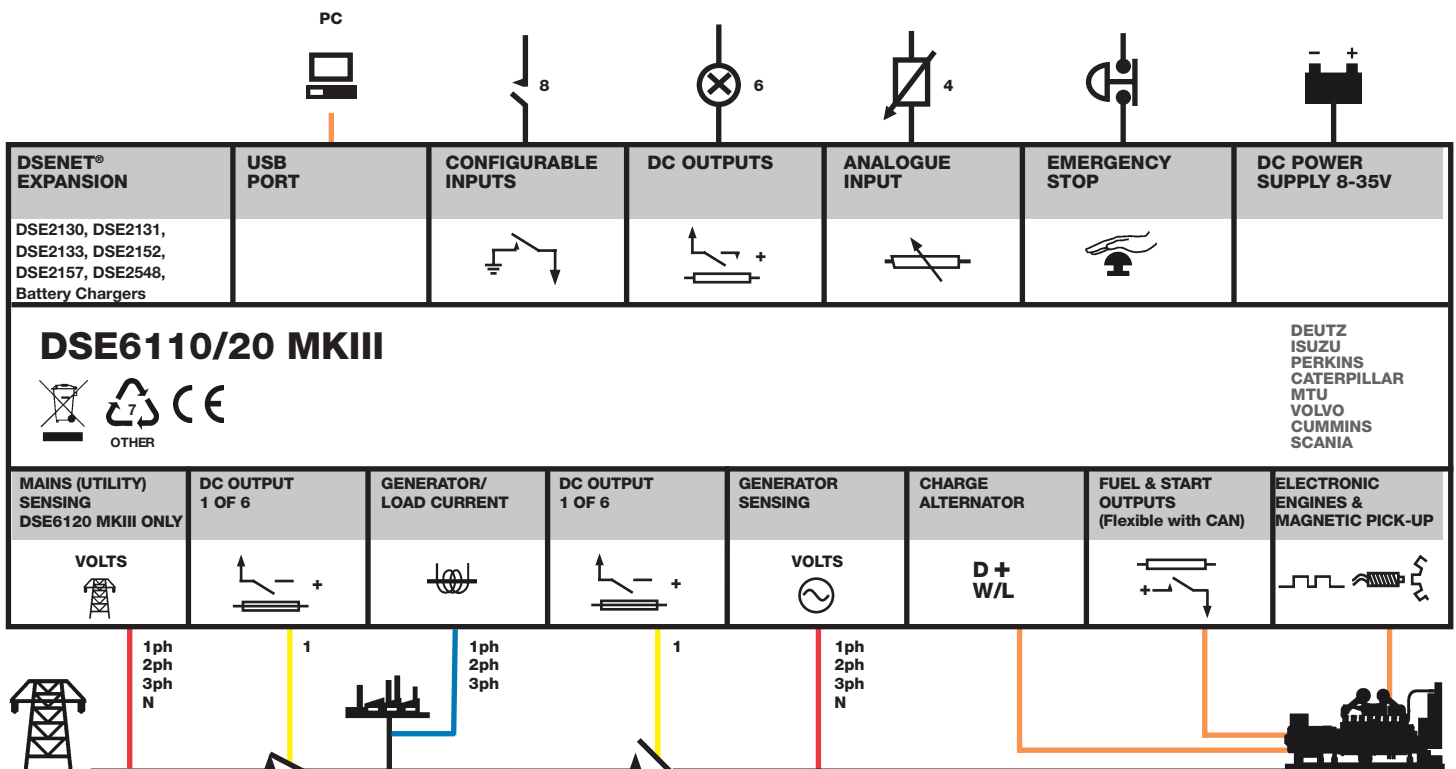
SHOCK

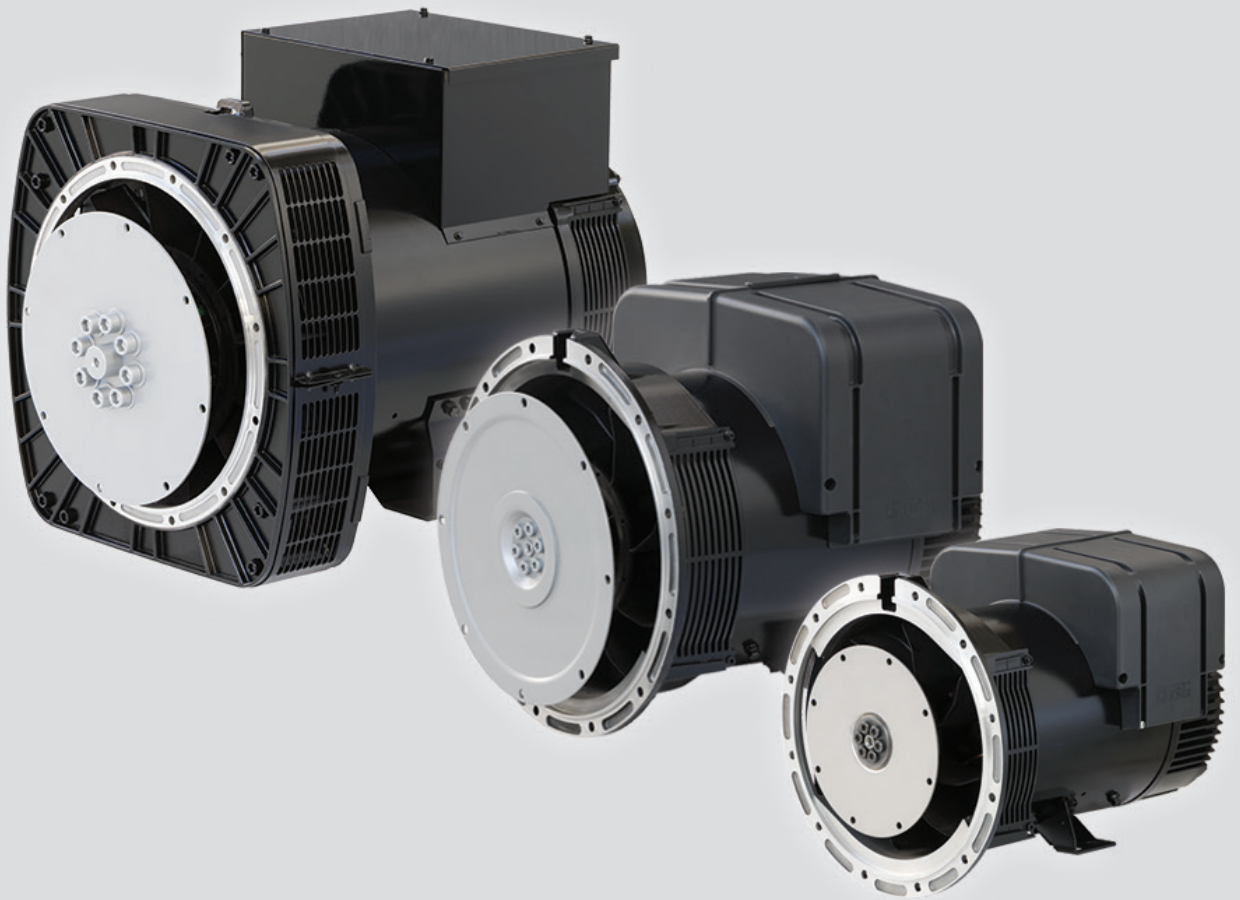
BS EN 60068-2-27
Three shocks in each of three major axes
15 gn in 11 ms

DEGREES OF PROTECTION PROVIDED BY ENCLOSURES

BS EN 60529
IP65 - Front of module when installed into the control panel with the optional sealing gasket.

COMPREHENSIVE FEATURE LIST TO SUIT A WIDE VARIETY OF GEN-SET APPLICATIONS





Low Voltage Alternators - 4 pole

TAL A40 - TAL A42- TAL A44

Electrical and mechanical data

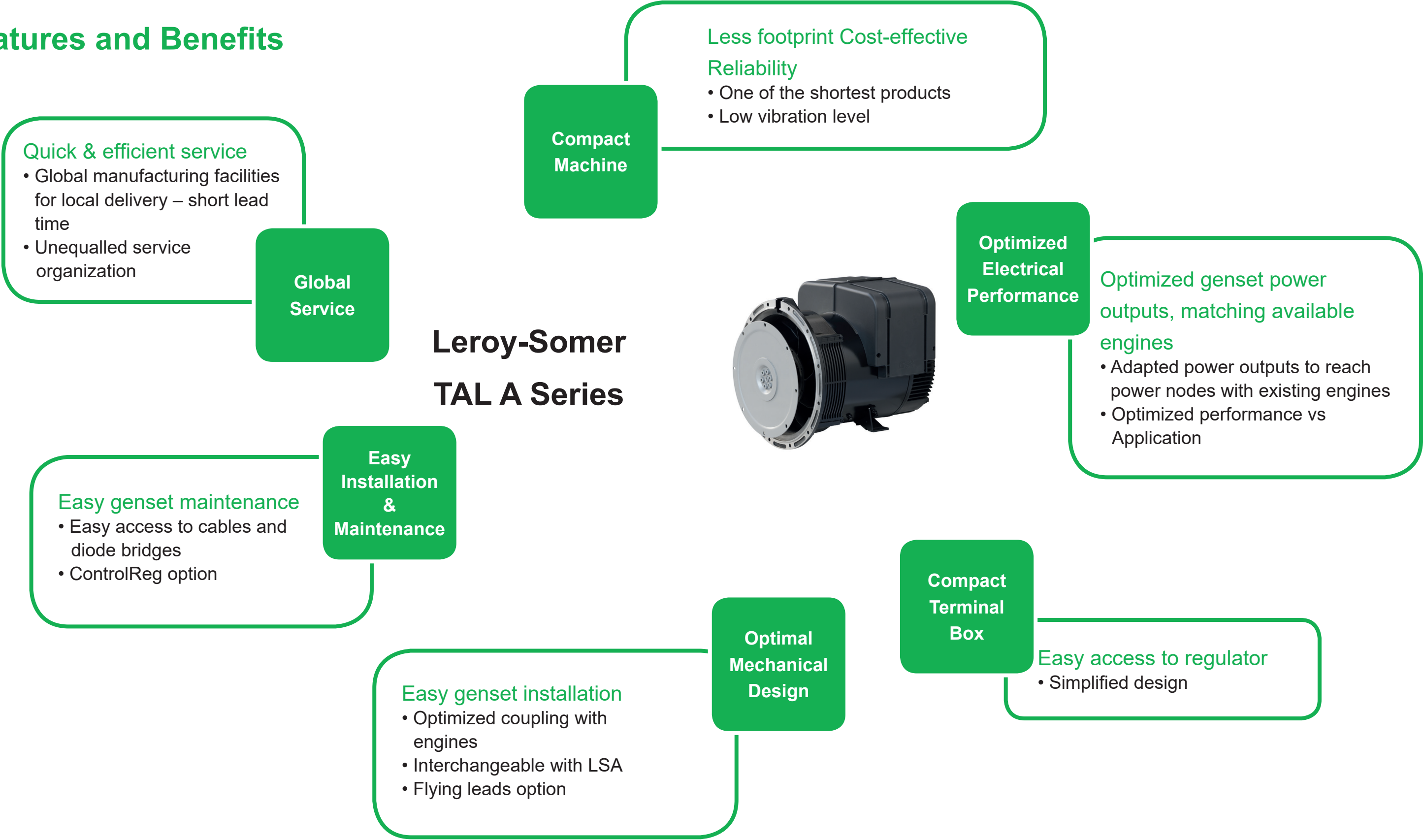
13 to 200 kVA - 50 Hz / 15.5 to 250 kVA - 60 Hz

LEROY-SOMER™

Nidec
— All for dreams

Product Feature

Features and Benefits



**Leroy-Somer
TAL A Series**



Low Voltage Alternators - 4 pole

TAL A40 - TAL A42 - TAL A44

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 Aletators 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, UL 1446, UL 1004 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
- 4-terminal plate
- Optimized performance

Robust design

- Compact and rugged assembly to withstand engine vibrations
- Steel frame
- Aluminum 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				Regulation options		
	AVR	SHUNT	AREP+ (option)	PMG (Option Except TAL A40)	UL _{C/US}	Remote voltage potentiometer	C.T. for paralleling
Three-phase 6-wire	R120	Standard					
	R150	Option				√	
	R180		Standard	Standard		√	√
	D350	Option	Option	Option	√	√	√
Three-phase 12-wire*	R120	Standard					
	R250	Option Except TAL A40/42			√	√	
	R180		Standard	Standard		√	√
Single-phase	D350	Option	Option	Option	√	√	√
	R121	Standard				√	
	R250	Option			√	√	

√ : Possible option

Compact terminal box

- Easy access to AVR and terminals

Environment and protection

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

Available options

- AREP+ & PMG (PMG suitable for TAL A42 and above)
- 12-lead (12-lead is standard option for TAL-A40 series)
- Customized painting
- Space heater
- Droop kit for alternator paralleling (AVR upgrade to R150)
- CE mark
- Stator sensors (TAL A44 only)
- Measuring/Protection CT (TAL A44 only, please consult Leroy Somer for CT type)
- Voltage trimmer (AVR upgrade to R150)
- Winding protection for harsh environments and relative humidity greater than 95% (system 2 - 4): de-rating ratio according to 3%



Low Voltage Alternators - 4 pole

TAL A40 - Three-phase 13 to 25 kVA - 50 Hz / 15 to 30 kVA - 60 Hz

General characteristics - 6 & 12-wire

Insulation class	H	Excitation system 6 wires	SHUNT	AREP+
Winding pitch	2/3 (wind.6S - 6-wire / wind.6 -12-wire)	AVR type	R120	R180
Number of wires	6 or 12	Excitation system 12 wires	SHUNT	AREP+
Protection	IP 23	AVR type	R120	R180
Altitude	≤ 1000 m	Voltage regulation (*)	± 1 %	
Overspeed	2250 R.P.M.	Total Harmonic distortion THD (**) in no-load	< 3.5 %	
Air flow 50 Hz (m³/s)	0.08	Total Harmonic distortion THD (**) in linear load	< 5 %	
Air flow 60 Hz (m³/s)	0.10	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 (**) between phases		

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:125K				F:105K				H:150K				H:163K			
Phase		3ph.		1ph.		3ph.		1ph.		3ph.		1ph.		3ph.		1ph.	
Y		380V	400V	415V		380V	400V	415V		380V	400V	415V		380V	400V	415V	
Δ		220V	230V	240V		220V	230V	240V		220V	230V	240V		220V	230V	240V	
YY		190V	200V	208V		190V	200V	208V		190V	200V	208V		190V	200V	208V	
ΔΔ		230V				230V				230V				230V			
TAL A40 C	kVA	13	13	13	7	12	12	12	6	13.5	13.5	13.5	7.5	14	14	14	8
	kW	10.4	10.4	10.4	5.6	9.6	9.6	9.6	4.8	10.8	10.8	10.8	6.0	11.2	11.2	11.2	6.4
TAL A40 D	kVA	15	15	15	9	13.5	13.5	13.5	8	15.8	15.8	15.8	9.5	16.5	16.5	16.5	10.3
	kW	12.0	12.0	12.0	7.2	10.8	10.8	10.8	6.4	12.6	12.6	12.6	7.6	13.2	13.2	13.2	8.2
TAL A40 E	kVA	17.5	17.5	17.5	10.5	16	16	16	9.5	18.4	18.4	18.4	11	19.3	19.3	19.3	12
	kW	14.0	14.0	14.0	8.4	12.8	12.8	12.8	7.6	14.7	14.7	14.7	8.8	15.4	15.4	15.4	9.6
TAL A40 F	kVA	20	20	20	12	18	18	18	11	21	21	21	12.5	22	22	22	13.4
	kW	16.0	16.0	16.0	9.6	14.4	14.4	14.4	8.8	16.8	16.8	16.8	10.0	17.6	17.6	17.6	10.8
TAL A40 G	kVA	25	25	25	15	22.5	22.5	22.5	13.5	26	26	26	16	27.5	27.5	27.5	16.6
	kW	20.0	20.0	20.0	12.0	18.0	18.0	18.0	10.8	20.8	20.8	20.8	12.8	22.0	22.0	22.0	13.3

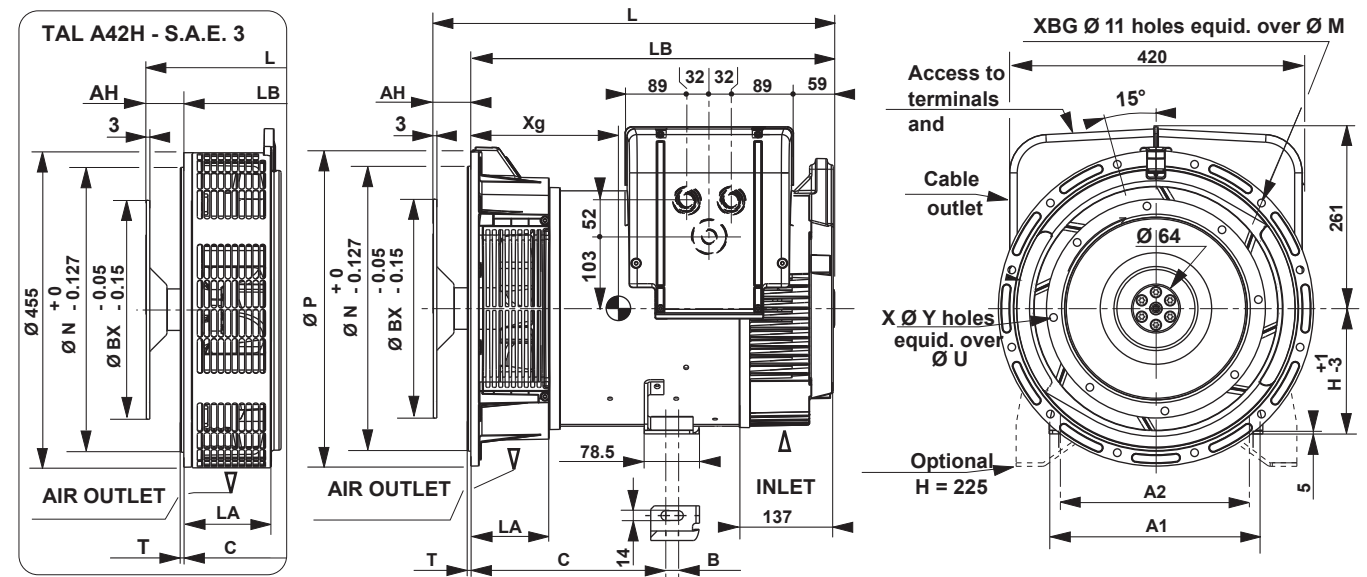
Ratings 60 Hz - 1800 R.P.M. - 6 & 12-wire

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:125K						F:105K						H:150K					H:163K				
Phase		3ph.			1ph.			3ph.			1ph.			3ph.			1ph.		3ph.			1ph.	
Y		380V 416V 440V 480V						380V 416V 440V 480V						380V 416V 440V 480V					380V 416V 440V 480V				
Δ		220V 240V 254V 277V						220V 240V 254V 277V						220V 240V 254V 277V					220V 240V 254V 277V				
YY		190V 208V 220V 240V						190V 208V 220V 240V						190V 208V 220V 240V					190V 208V 220V 240V				
ΔΔ		240V						240V						240V					240V				
TAL A40 C	kVA	12	13.4	14	15.5	9		11	12	13	14	8		13	14	15	16	9.5	13.5	15	15.5	17	10
	kW	9.6	10.7	11.2	12.4	7.2		8.8	9.6	10.4	11.2	6.4		10.4	11.2	12.0	12.8	7.6	10.8	12.0	12.4	13.6	8.0
TAL A40 D	kVA	14	15.3	16	18	11.6		13	14	14.5	16.5	10.4		15	16	17	19	12	15.8	16.8	17.8	20	13
	kW	11.2	12.2	12.8	14.4	9.3		10.4	11.2	11.6	13.2	8.3		12.0	12.8	13.6	15.2	9.6	12.6	13.4	14.2	16.0	10.4
TAL A40 E	kVA	17	17.9	19	21	13		15	16	17	19	12		18	19	20	22	14	18.5	19.6	20.8	23	14
	kW	13.6	14.3	15.2	16.8	10.4		12.0	12.8	13.6	15.2	9.6		14.4	15.2	16.0	17.6	11.2	14.8	15.7	16.6	18.4	11.2
TAL A40 F	kVA	19	20.5	21.5	24	14		17	18.5	19.5	22	12.5		20	21.5	23	25	14.6	21	22.5	24	26	15
	kW	15.2	16.4	17.2	19.2	11.2		13.6	14.8	15.6	17.6	10.0		16.0	17.2	18.4	20.0	11.7	16.8	18.0	19.2	20.8	12.0
TAL A40 G	kVA	24	26	27	30	17		21	23.5	24	27	15.4		25	27	28.5	31.5	18	26	28.5	30	33	19
	kW	19.2	20.8	21.6	24.0	13.6		16.8	18.8	19.2	21.6	12.3		20.0	21.6	22.8	25.2	14.4	20.8	22.8	24.0	26.4	15.2

Low Voltage Alternators - 4 pole

TAL A42 - S Dedicated single-phase

Single bearing general arrangement



Dimensions (mm) and weight (kg)				
Type	L maxi	LB	Xg	Weight (kg)
TAL A42 A-S	565	503	237	117
TAL A42 B-S	565	503	242	122
TAL A42 C-S	565	503	252	133
TAL A42 D-S	610	548	275	165
TAL A42 E-S	610	548	275	165
TAL A42 F-S	650	588	287	181
TAL A42 G-S	650	588	295	186
TAL A42 H-S	680	618	310	187

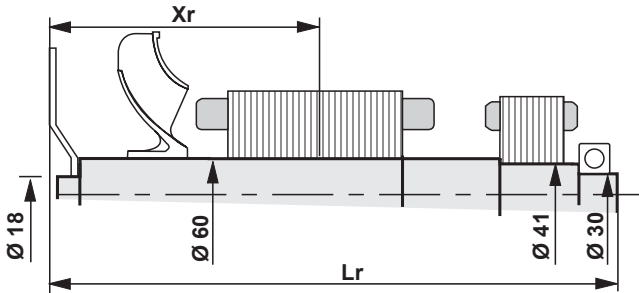
Shaft height (mm)		
	Standard	Option
H	180	225
Feet length		
C	260	299 (A, B, C) / 312.5
B	18	23
A1	307	400
A2	279	356

Coupling		
Flange	3	4
Flex plate		
11 1/2	x	-
10	x	x
8	-	x
7 1/2	-	x

Flange (mm)						
S.A.E.	P	N	M	XBG	T	LA
4	406	361.95	381	12	6	122
3	452	409.58	428.62	12	5	105.3
-	-	-	-	-	-	-

Flex plate (mm)					
S.A.E.	BX	U	X	Y	AH
11 1/2	352.42	333.38	8	11	39.6
10	314.32	295.28	8	11	53.8
8	263.52	244.48	6	11	62
7 1/2	241.3	222.25	8	9	30.2

Torsional 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. 7 1/2				S.A.E. 8				S.A.E. 10				S.A.E. 11 1/2			
Type	Xr	Lr	M	J	Xr	Lr	M	J	Xr	Lr	M	J	Xr	Lr	M	J
TAL A42 A-S	279	526.2	44.1	0.216	277	558	44.4	0.220	274	549.8	44.9	0.211	272	535.6	45.4	0.244
TAL A42 B-S	282	526.2	46.1	0.229	280	558	46.4	0.233	277	549.8	46.9	0.224	274	535.6	47.4	0.257
TAL A42 C-S	287	526.2	50.1	0.255	286	558	50.5	0.258	283	549.8	50.9	0.249	281	535.6	51.4	0.282
TAL A42 D-S	310	571.2	60.2	0.312	308	603	60.6	0.316	306	594.8	61	0.307	304	580.6	61.5	0.340
TAL A42 E-S	310	571.2	60.2	0.312	308	603	60.6	0.316	306	594.8	61	0.307	304	580.6	61.5	0.340
TAL A42 F-S	325	611.2	66.2	0.344	323	643	66.5	0.348	321	634.8	66.9	0.339	319	620.6	67.4	0.372
TAL A42 G-S	330	611.2	69.2	0.364	328	643	69.5	0.367	326	634.8	69.9	0.358	324	620.6	70.4	0.391
TAL A42 H-S	344	641.2	77.5	0.414	342	673	77.8	0.418	340	664.8	78.2	0.430	338	650.6	78.8	0.442

NOTE : Dimensions are for information only and may be subject to modifications. The torsional analysis of the transmission is imperative. All values are available upon request.

Low Voltage Alternators - 4 pole

TAL A44 - Three-phase 85 to 200 kVA - 50 Hz / 102 to 250 kVA - 60 Hz

General characteristics - 6 & 12-wire

Insulation class	H	Excitation system 6 wires	SHUNT	AREP+/PMG
Winding pitch	2/3 (wind.6S - 6-wire / wind.6 -12-wire)	AVR type	R120	R180
Number of wires	6 or 12	Excitation system 12 wires	SHUNT	AREP+/PMG
Protection	IP 23	AVR type	R120	R180
Altitude	≤ 1000 m	Voltage regulation (*)	± 1 %	
Overspeed	2250 R.P.M.	Total Harmonic distortion THD (**) in no-load	< 3.5 %	
Air flow 50 Hz (m³/s)	0.25*	Total Harmonic distortion THD (**) in linear load	< 5 %	
Air flow 60 Hz (m³/s)	0.30**	Waveform: NEMA = TIF (**)	< 50	
AREP+ Short-circuit current = 2.7 In: 5 seconds (***)		Waveform : I.E.C. : THF (**)	< 2%	

(*) 0.29 for L&M (**) 0.34 for L&M ***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:125K					F:105K					H:150K				H:163K					
Phase	3ph.			1ph.		3ph.			1ph.		3ph.			1ph.		3ph.			1ph.	
Y	380V	400V	415V	440V	230V *	380V	400V	415V	440V	230V *	380V	400V	415V	440V	230V *	380V	400V	415V	440V	230V *
Δ	220V	230V	240V			220V	230V	240V			220V	230V	240V			220V	230V	240V		
YY	190V	200V	208V	220V		190V	200V	208V	220V		190V	200V	208V	220V		190V	200V	208V	220V	
ΔΔ					230V					230V					230V					230V
TAL A44 C	kVA	81	85	85	42	73	76.5	76.5	38	85	89	89	44	88	93.5	93.5	46			
	kW	64.8	68.0	68.0	33.6	58.4	61.2	61.2	30.4	68.0	71.2	71.2	35.2	70.4	74.8	74.8	36.8			
TAL A44 D	kVA	100	100	95	48	90	90	86	43	105	105	100	50.5	110	110	105	53			
	kW	80.0	80.0	76.0	38.4	72.0	72.0	68.8	34.4	84.0	84.0	80.0	40.4	88.0	88.0	84.0	42.4			
TAL A44 E	kVA	119	125	119	60	107	112.5	107	54	124	131	124	63	130	137.5	130	66			
	kW	95.2	100.0	95.2	48.0	85.6	90.0	85.6	43.2	99.2	104.8	99.2	50.4	104.0	110.0	104.0	52.8			
TAL A44 H	kVA	137.5	137.5	128	67	124	125	115	60	142	142	135	70.5	151.5	151.5	141	74			
	kW	110.0	110.0	102.4	53.6	99.2	100.0	92.0	48.0	113.6	113.6	108.0	56.4	121.2	121.2	112.8	59.2			
TAL A44 J	kVA	143	150	143	73	129	135	129	66	150	158	150	77	157	165	157	80			
	kW	114.4	120.0	114.4	58.4	103.2	108.0	103.2	52.8	120.0	126.4	120.0	61.6	125.6	132.0	125.6	64.0			
TAL A44 K	kVA	161.5	170	161.5	80	145	153	145	72	170	179	170	84	178	187.5	178	88			
	kW	129.2	136.0	129.2	64.0	116.0	122.4	116.0	57.6	136.0	143.2	136.0	67.2	142.4	150.0	142.4	70.4			
TAL A44 L	kVA	180	180	180	90	164	164	164	82	191	191	191	95	200	200	200	99			
	kW	144.0	144.0	144	72.0	131.2	131.2	131.2	65.6	152.8	152.8	152.8	76.0	160.0	160.0	160.0	79.2			
TAL A44 M	kVA	192	200	200	100	175	182	182	91	204	212	212	106	211	220	220	110			
	kW	153.6	160.0	160.0	80.0	140.0	145.6	145.6	72.8	163.2	169.6	169.6	84.8	168.8	176.0	176.0	88.0			

* L,M Only

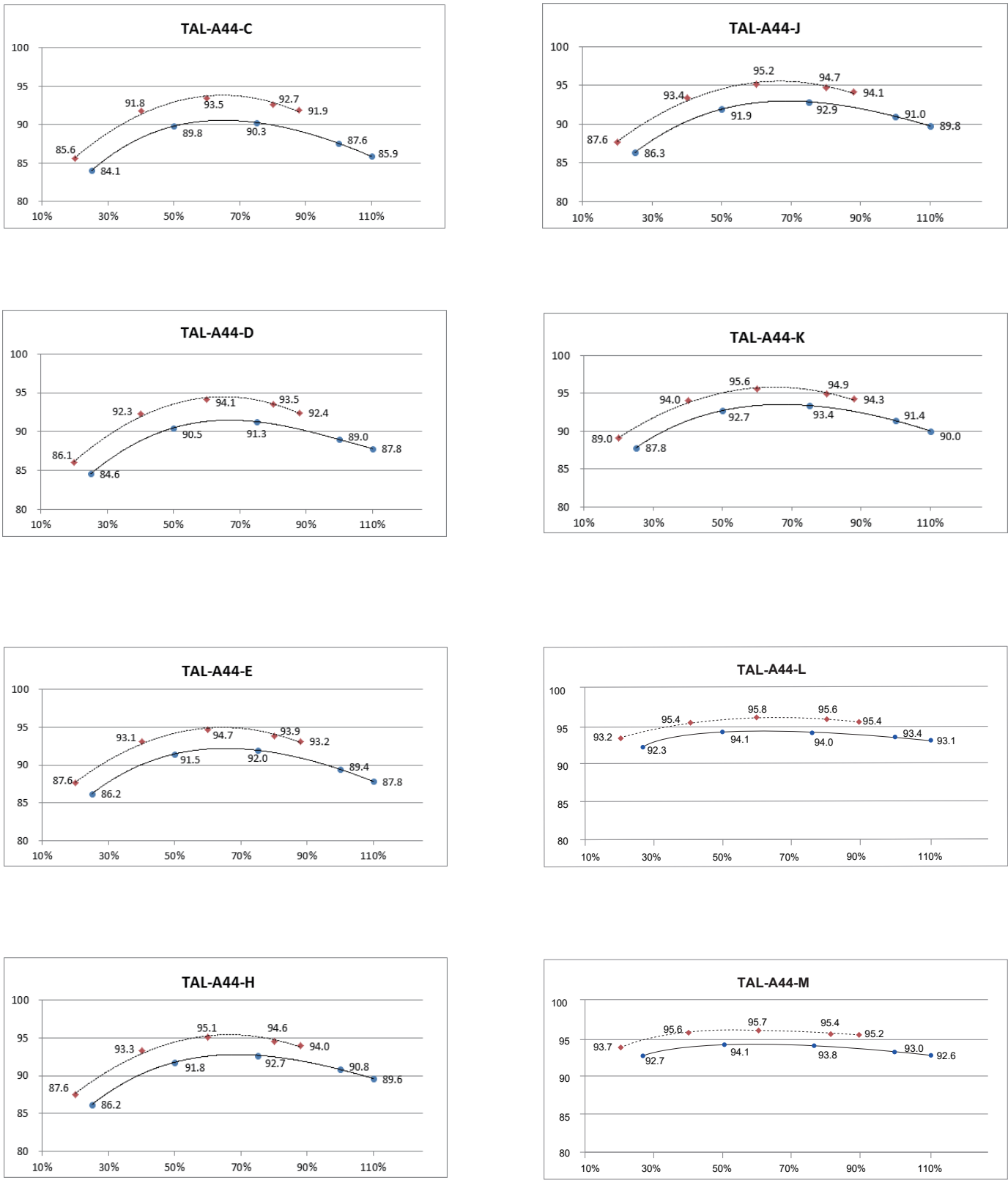
Ratings 60 Hz - 1800 R.P.M. - 6 & 12-wire

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:125K					F:105K					H:150K					H:163K				
Phase		3ph.			1ph.		3ph.			1ph.		3ph.			1ph.		3ph.			1ph.	
Y		380V 416V 440V 480V					380V 416V 440V 480V					380V 416V 440V 480V					380V 416V 440V 480V				
Δ		220V 240V 254V 277V					220V 240V 254V 277V					220V 240V 254V 277V					220V 240V 254V 277V				
YY		190V 208V 220V 240V					190V 208V 220V 240V					190V 208V 220V 240V					190V 208V 220V 240V				
ΔΔ		240V					240V					240V					240V				
TAL A44 C	kVA	81	88	93	102	52	72.5	79.5	83.5	92	47	85	93	97	107	54.6	89	97	102	112	57
	kW	64.8	70.4	74.4	81.6	41.6	58.0	63.6	66.8	73.6	37.6	68.0	74.4	77.6	85.6	43.7	71.2	77.6	81.6	89.6	45.6
TAL A44 D	kVA	95	104	109	120	65	85	93.5	98	108	58.5	100	109	115	126	68	104	114	120	132	72
	kW	76.0	83.2	87.2	96.0	52.0	68.0	74.8	78.4	86.4	46.8	80.0	87.2	92.0	100.8	54.4	83.2	91.2	96.0	105.6	57.6
TAL A44 E	kVA	119	130	137	150	76	107	117	123	135	68.4	124	136	143	158	80	130	143	150	165	83
	kW	95.2	104.0	109.6	120.0	60.8	85.6	93.6	98.4	108.0	54.7	99.2	108.8	114.4	126.4	64.0	104.0	114.4	120.0	132.0	66.4
TAL A44 H	kVA	130	143	150	165	81	117	129	135	150	73	137	150	158	173	85	143	157	165	182	89
	kW	104.0	114.4	120.0	132.0	64.8	93.6	103.2	108.0	120.0	58.4	109.6	120.0	126.4	138.4	68.0	114.4	125.6	132.0	145.6	71.2
TAL A44 J	kVA	142	156	164	180	95	128	140	147	162	85.5	149	164	172	189	100	156	171	180	198	105
	kW	113.6	124.8	131.2	144.0	76.0	102.4	112.0	117.6	129.6	68.4	119.2	131.2	137.6	151.2	80.0	124.8	136.8	144.0	158.4	84.0
TAL A44 K	kVA	161	177	186	204	105	145	159	167	184	94.5	169	185	195	214	110	177	194	204	224	115
	kW	128.8	141.6	148.8	163.2	84.0	116.0	127.2	133.6	147.2	75.6	135.2	148.0	156.0	171.2	88.0	141.6	155.2	163.2	179.2	92.0
TAL A44 L	kVA	180	195	210	225	113	164	177	191	205	102	191	207	223	239	119	200	215	231	250	124
	kW	144.0	156.0	168.0	180.0	90.4	131.2	141.6	152.8	164.0	81.6	152.8	165.6	178.4	191.2	95.2	160.0	172.0	184.8	200.0	99.2
TAL A44 M	kVA	200	215	230	250	125	182	196	209	228	114	212	228	244	265	133	220	237	253	275	136
	kW	160.0	172.0	184.0	200.0	100.0	145.6	156.8	167.2	182.4	91.2	169.6	182.4	195.2	212.0	106.4	176.0	189.6	202.4	220.0	108.8

Low Voltage Alternators - 4 pole

TAL A44 - Three-phase 85 to 200 kVA - 50 Hz / 102 to 250 kVA - 60 Hz

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



Low Voltage Alternators - 4 pole

TAL A44 - Three-phase 85 to 200 kVA - 50 Hz / 102 to 250 kVA - 60 Hz

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



Low Voltage Alternators - 4 pole

TAL A44 - Three-phase 85 to 200 kVA - 50 Hz / 102 to 250 kVA - 60 Hz

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

		TAL A44 C	TAL A44 D	TAL A44 E	TAL A44 H	TAL A44 J	TAL A44 K	TAL A44 L	TAL A44 M
Kcc	Short-circuit ratio	0.50	0.59	0.4	0.56	0.61	0.37	0.37	0.33
Xd	Direct-axis synchro.reactance unsaturated	321	303	365	307	290	373	373	381
Xq	Quadrature-axis synchro. rectance unsaturated	193	182	219	184	174	224	175	194
T'do	No-load transient time constant	1747	1796	2211	1952	2013	2077	2025	2025
X'd	Direct-axis transient reactance saturated	17.7	17.2	16.4	16.1	15.0	16.6	16.9	18.8
T'd	Short-circuit transient time constant	100	100	100	100	100	100	100	100
X''d	Direct-axis subtransient reactance saturated	10.6	10.3	9.8	9.6	9.0	9.9	10.1	11.3
T''d	Subtransient time constant	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
X''q	Quadrature-axis subtransient reactance saturated	21.0	20.4	19.4	19.1	17.8	19.7	19.7	21.9
Xo	Zero sequence reactance saturated	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.78
X2	Negative sequence reactance saturated	15.8	15.4	14.6	14.4	13.4	14.8	14.95	16.62
Ta	Armature time constant	15	15	15	15	15	15	15	15

Other class H/400V data		TAL A44 C	TAL A44 D	TAL A44 E	TAL A44 H	TAL A44 J	TAL A44 K	TAL A44 L	TAL A44 M
ms	Response time ($\Delta U=20\%$)	500	500	500	500	500	500	500	500
W	No-load losses	1890	2213	2503	2436	2533	2954	2665	2665
W	Heat dissipation	9625	9888	11256	11145	11868	12796	10134	11895

Low Voltage Alternators - 4 pole

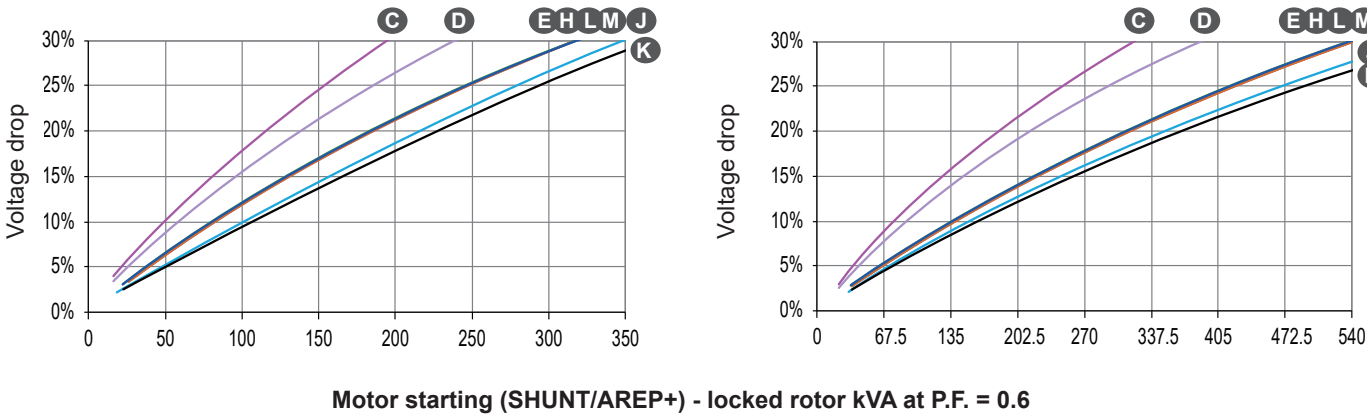
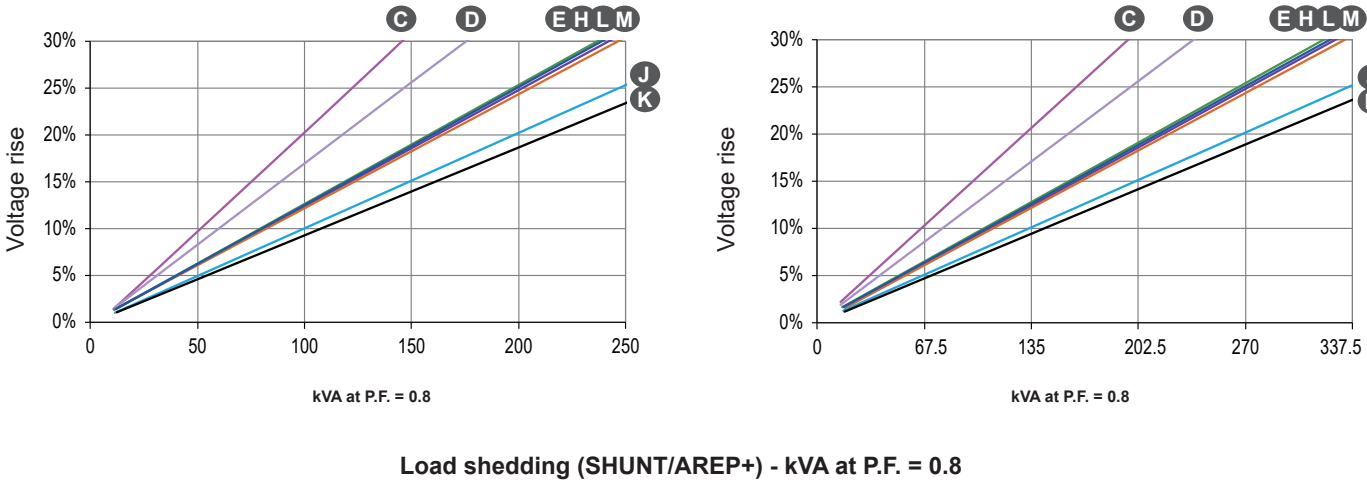
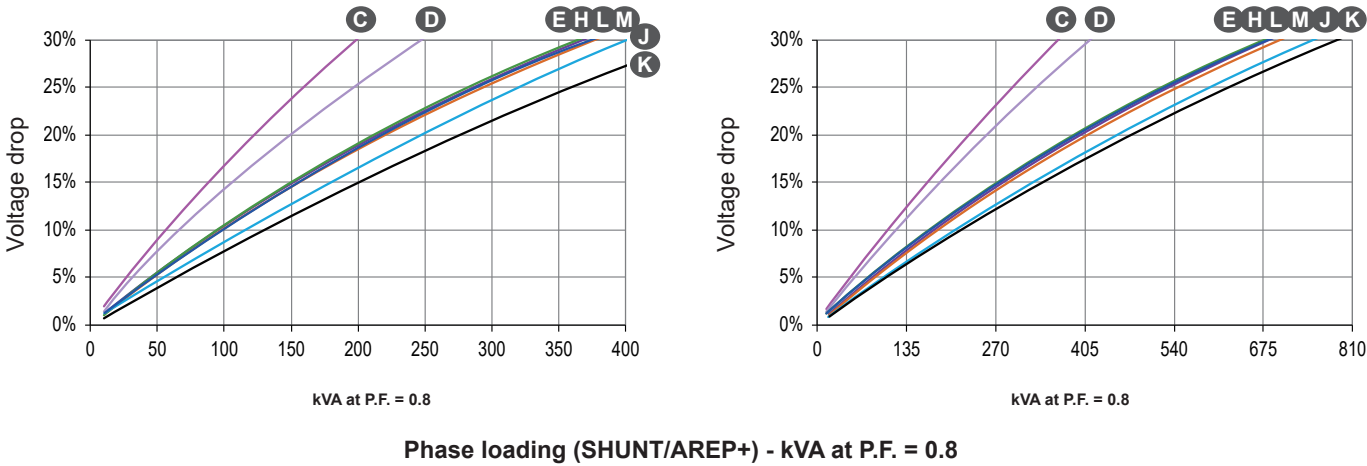
TAL A44 - Three-phase 85 to 200 kVA - 50 Hz / 102 to 250 kVA - 60 Hz

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

		TAL A44 C	TAL A44 D	TAL A44 E	TAL A44 H	TAL A44 J	TAL A44 K	TAL A44 L	TAL A44 M
Kcc	Short-circuit ratio	0.50	0.59	0.4	0.56	0.61	0.37	0.36	0.32
Xd	Direct-axis synchro.reactance unsaturated	321	303	365	307	290	373	358	397
Xq	Quadrature-axis synchro. rectance unsaturated	193	182	219	184	174	224	182	202
T'do	No-load transient time constant	1747	1796	2211	1952	2013	2077	2025	2025
X'd	Direct-axis transient reactance saturated	17.7	17.2	16.4	16.1	15.0	16.6	17.6	19.6
T'd	Short-circuit transient time constant	100	100	100	100	100	100	100	100
X''d	Direct-axis subtransient reactance saturated	10.6	10.3	9.8	9.6	9.0	9.9	10.6	11.7
T''d	Subtransient time constant	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
X''q	Quadrature-axis subtransient reactance saturated	21.0	20.4	19.4	19.1	17.8	19.7	20.5	22.8
Xo	Zero sequence reactance saturated	0.6	0.6	0.6	0.6	0.6	0.7	0.73	0.81
X2	Negative sequence reactance saturated	15.8	15.4	14.6	14.4	13.4	14.8	15.59	17.32
Ta	Armature time constant	15	15	15	15	15	15	15	15

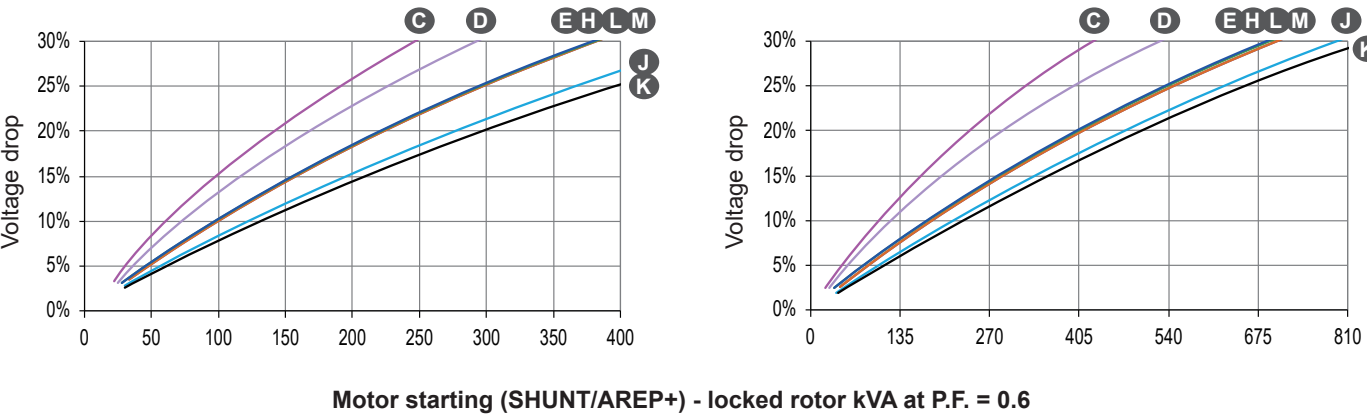
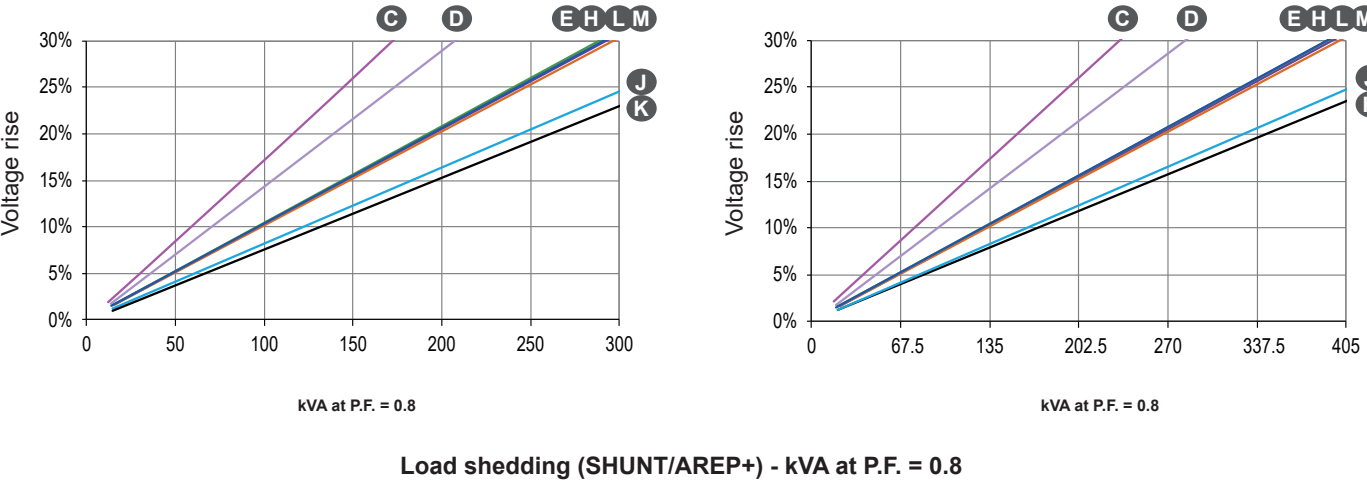
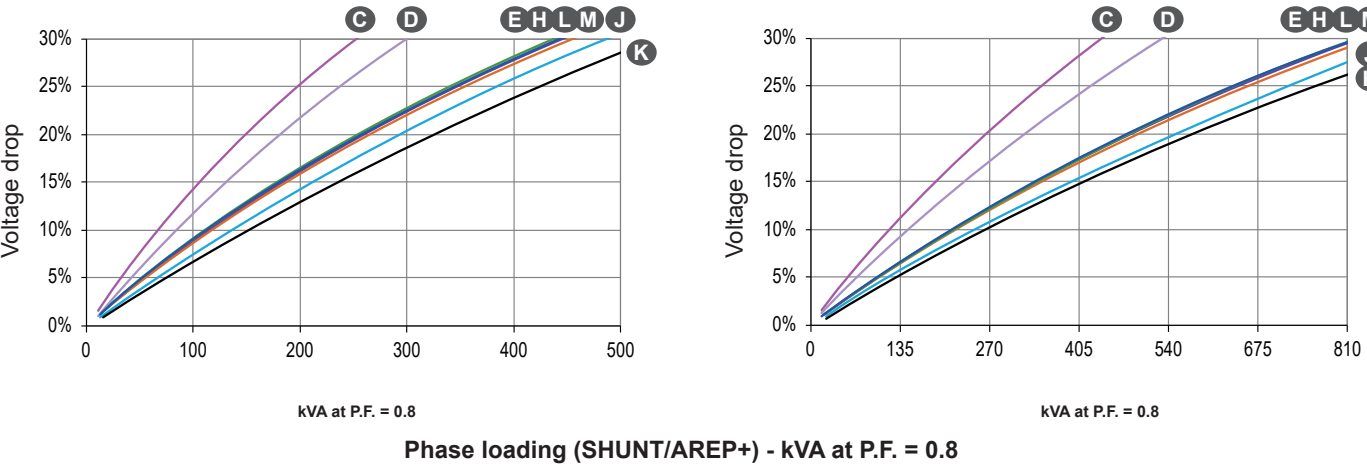
Other class H/480V data		TAL A44 C	TAL A44 D	TAL A44 E	TAL A44 H	TAL A44 J	TAL A44 K	TAL A44 L	TAL A44 M
ms	Response time ($\Delta U=20\%$)	500	500	500	500	500	500	500	500
W	No-load losses	2722	3187	3604	3508	3647	4253	3923	3923
W	Heat dissipation	10395	10667	12217	12105	12863	13807	12145	14130

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



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

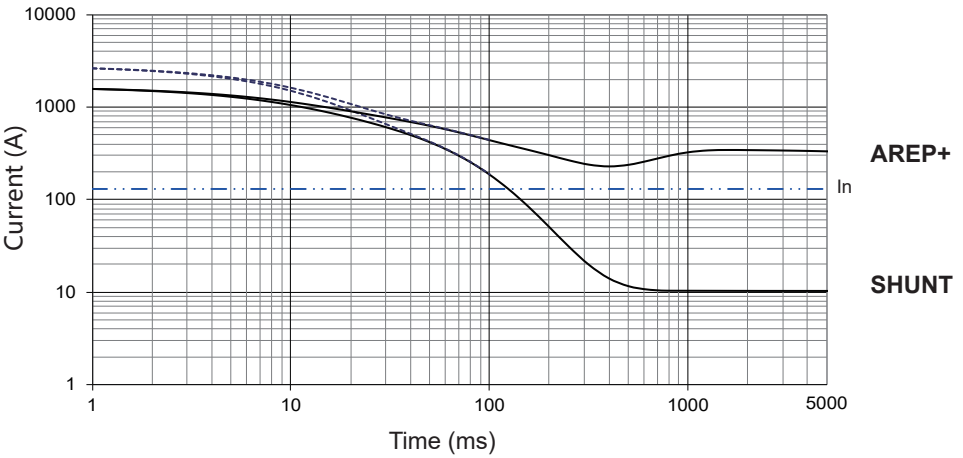
Transient voltage variation 480V - 60 Hz - 6-wire



1) For a starting P.F. other than 0.6, the starting kVA must be multiplied by $K = \text{Sine P.F.} / 0.8$
2) 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 $(240/U)^2$.

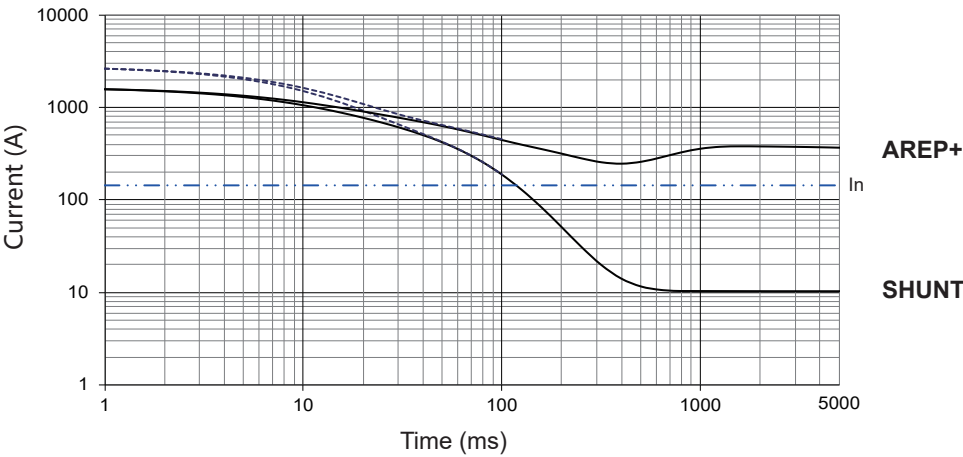
TAL A44 C

Symmetrical -----
Asymmetrical - - -



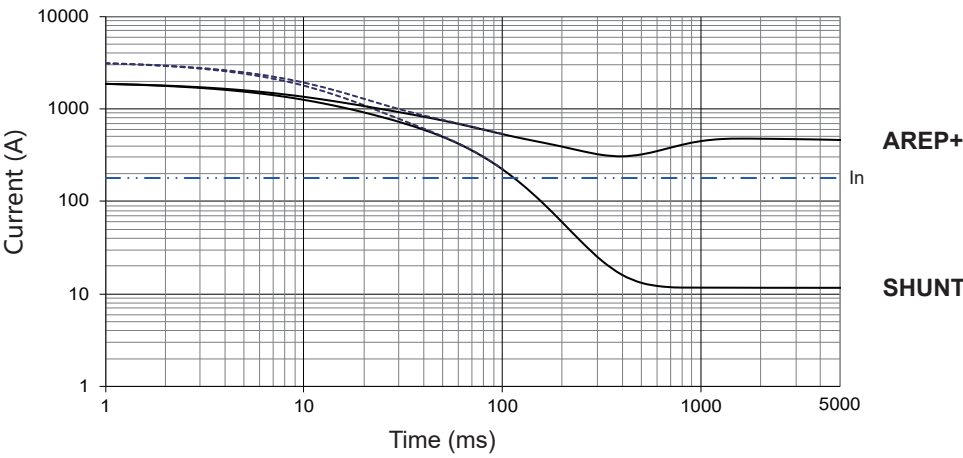
TAL A44 D

Symmetrical -----
Asymmetrical - - -



TAL A44 E

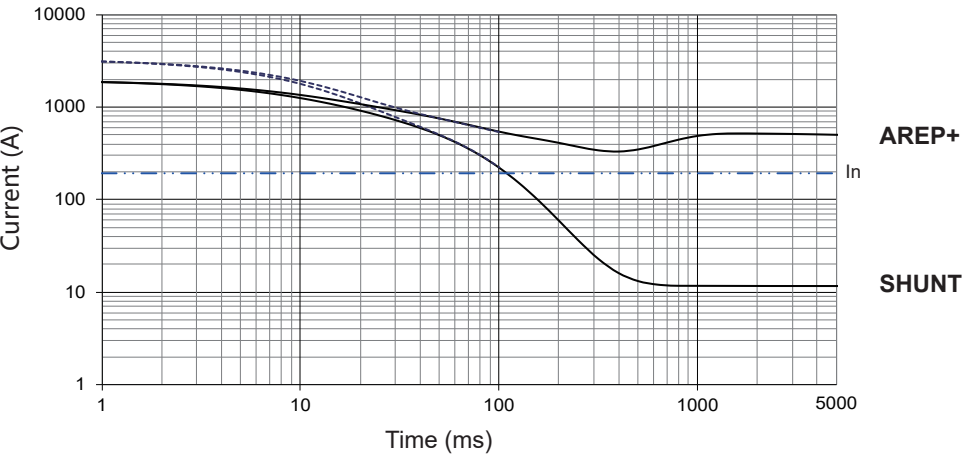
Symmetrical -----
Asymmetrical - - -



Influence due to connection
For (Δ) connection, use the following multiplication factor:
- Current value x 1.732.

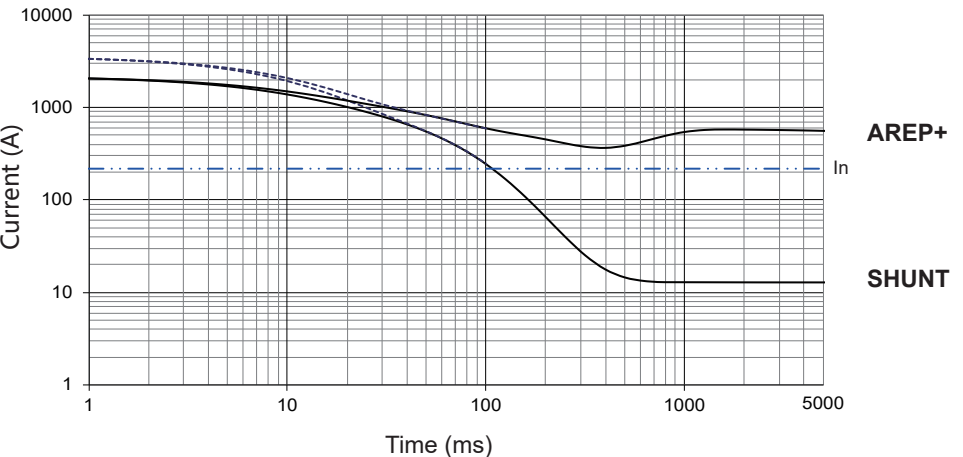
TAL A44 H

Symmetrical -----
Asymmetrical - - -



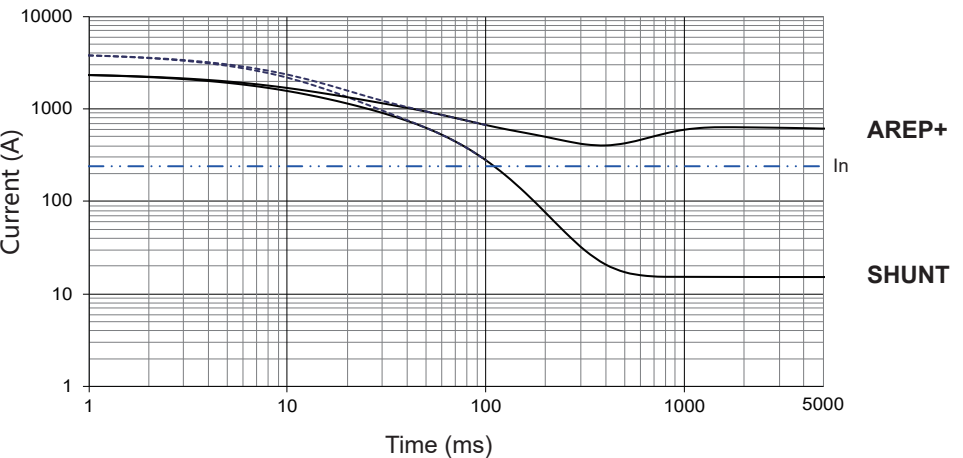
TAL A44 J

Symmetrical -----
Asymmetrical - - -



TAL A44 K

Symmetrical -----
Asymmetrical - - -

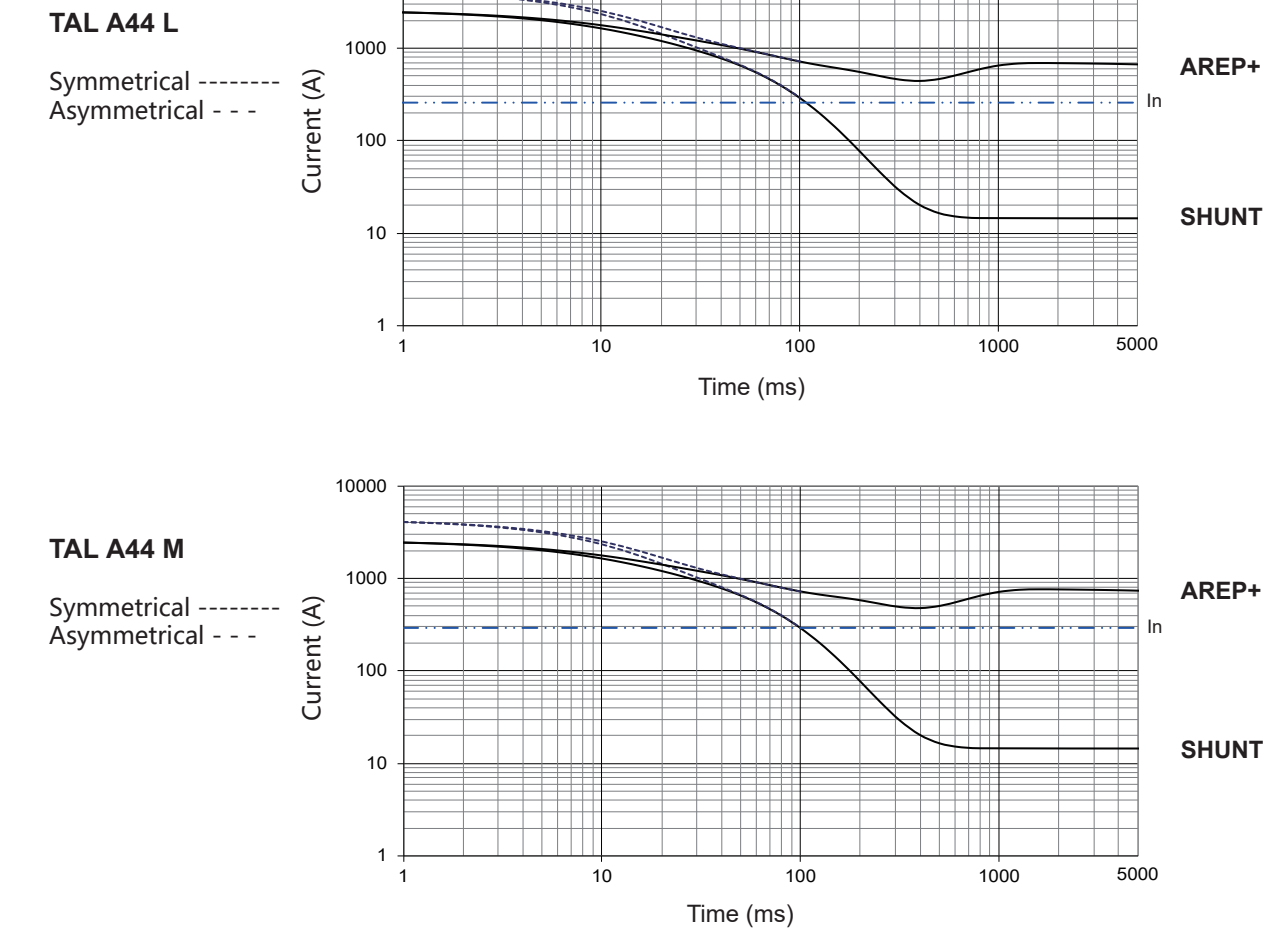


Influence due to short-circuit
Curves are based on a three-phase short-circuit.
For other types of short-circuit,
use the following multiplication factors.

	3 - phase	2 - phase L / L	1 - phase L / N
Instantaneous (max.)	1	0.87	1.3
Continuous	1	1.5	2.2
Maximum duration		1.5	

Low Voltage Alternators - 4 pole

TAL A44 - Three-phase 85 to 200 kVA - 50 Hz / 102 to 250 kVA - 60 Hz



Influence due to connection
For (Δ) connection, use the following multiplication factor:
- Current value x 1.732.

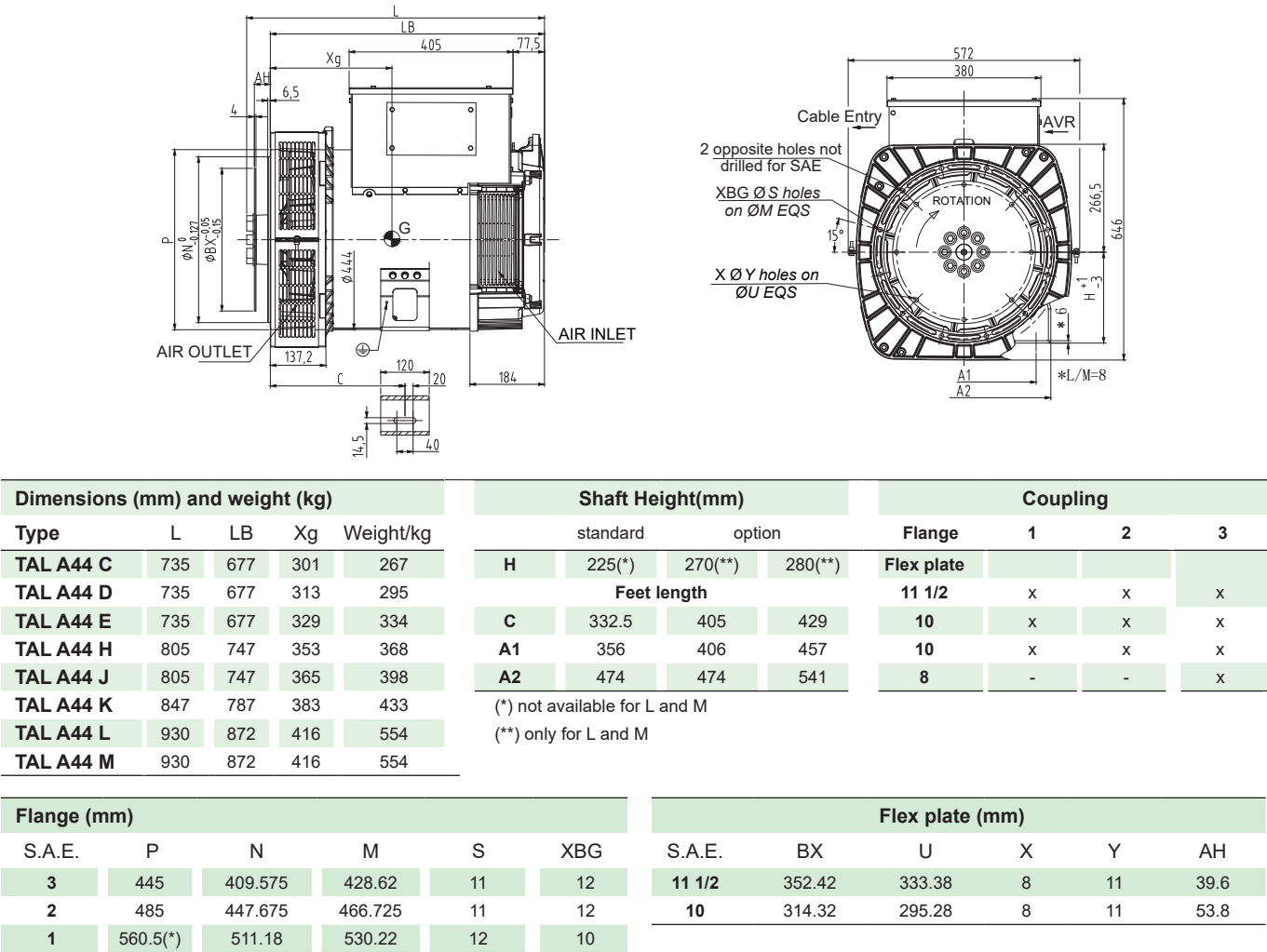
Influence due to short-circuit
Curves are based on a three-phase short-circuit.
For other types of short-circuit,
use the following multiplication factors.

	3 - phase	2 - phase L / L	1 - phase L / N
Instantaneous (max.)	1	0.87	1.3
Continuous	1	1.5	2.2
Maximum duration		1.5	

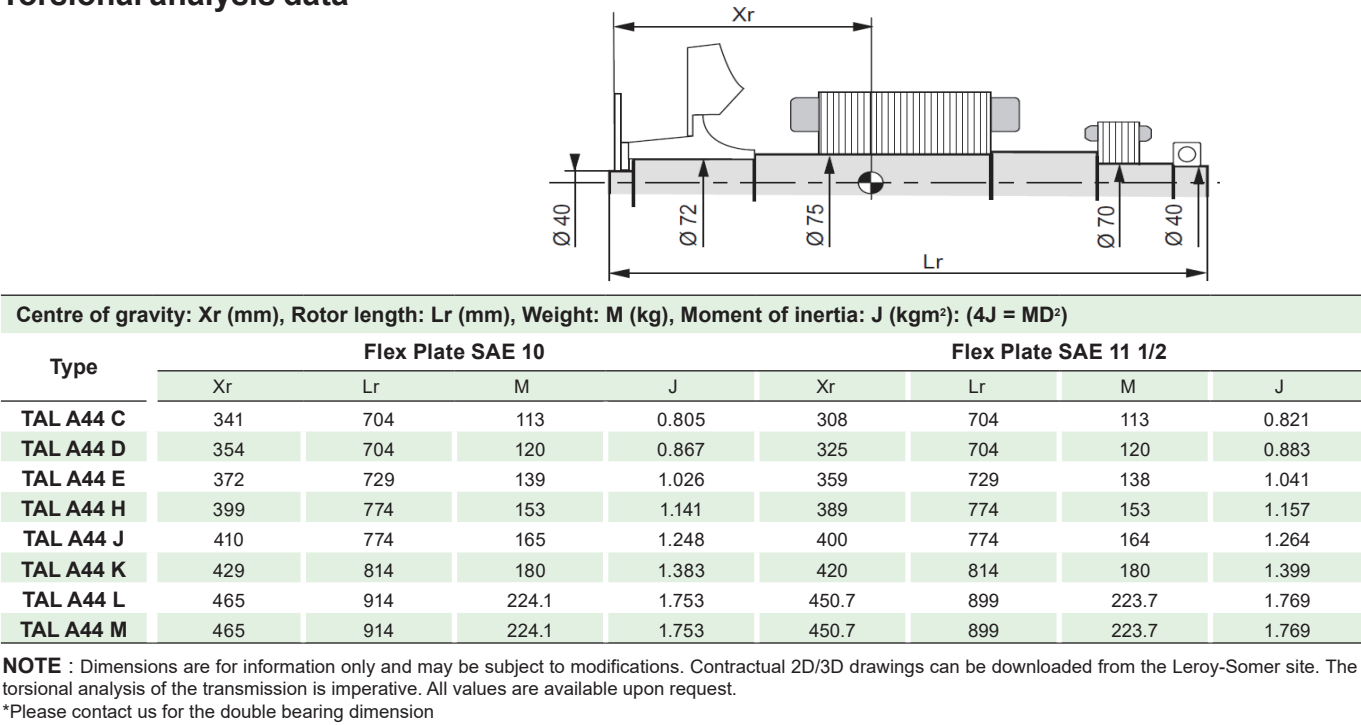
Low Voltage Alternators - 4 pole

TAL A44 - Three-phase 85 to 200 kVA - 50 Hz / 102 to 250 kVA - 60 Hz

Single bearing general arrangement - 4, 6 & 12-wire



Torsional analysis data



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