DESERT MACHINERY
آليات الصحراء

CUMMINS GENERATOR

153 KVA (123 KW)

(INDIA)

6BTAA5.9-G6

> Specification sheet

Our energy working for you.™

Description

The B5.9 engine has established an unrivalled reputation for reliability, incorporating features designed to maximise engine integration within OEM installation. The 6BTAA5.9-G6 CoolPac utilises the latest Cummins manufacturing processes and Quality Standards.

CE — This engine has been built to comply with CE certification.

ISO 9001 — This engine has been designed in facilities certified to ISO9001 and manufactured in facilities certified to ISO9001 or ISO 9002 orTS16949.

Features

Single Poly Vee belt drive for fan, alternator and water pump, with self-tensioning idler for minimum maintenance.

Rotary-type Bosch pump operates at high injection pressures for cleaner combustion and lower emissions.

Spin-on fuel filter and full-flow lubricating oil filter.

Top mounted Holset HX35 turbocharger for increased power, fuel economy, and lower smoke and noise levels.

CoolPac Integrated Design - Products are supplied complete with cooling package and air cleaner kit for a complete power package. Each component has been specifically developed and rigorously tested for G-Drive products, ensuring high performance, durability and reliability.

Service and Support - G-Drive products are backed by an uncompromising level of technical support and after sales service delivered through a world class service network.

1500 rpm (50 Hz Ratings)

Gross Engine Output			Typical Generator Set Output			
Standby	Prime	Base	Standby (ESP)		Prime (PRP)	
kWm/BHP			kWe	kVA	kWe	kVA
145/195	135/180	135/180	120	150	109	136

1800 rpm (60 Hz Ratings)

Gross Engine Output			Typical Generator Set Output			
Standby	Prime	Base	Standby (ESP)		Prime (PRP)	
kWm/BHP			kWe	kVA	kWe	kVA
160/215	150/205	145/195	135	169	123	153

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EMERS-5815a-EN (11/13)

General Engine Data

Type	4- cycle, In-line, 6- cylinder, Turbocharged and Charge Air Cooled, Diesel
Bore mm	102 mm (4.02 in.)
Stroke mm	120 mm (4.72 in.)
Displacement Litre	5.9 litre (360.0 $in.^3$)
Cylinder Block	Cast iron, 6 cylinder
Battery Charging Alternator	55 amps
Starting Voltage	12 volt, 55 Amp negative ground
Fuel System	Direct injection
Fuel Filter	Venturi Combo Stratapore Filter
Lube Oil Filter Type(s)	Venturi Combo Stratapore Filter
Lube Oil Capacity (l)	16.4
Flywheel Dimensions	SAE3/11.5

Coolpac Performance Data

Cooling System Design	Charged Air Cooled
Coolant Ratio	50% ethylene glycol; 50% water
Total Coolant Capacity (l)	21.4
Limiting Ambient Temp**	50 Degrees
Fan Power (kWm)	10
Cooling System Air Flow (m^3/s)**	3.7 for 60Hz & 2.7 for 50Hz
Air Cleaner Type (heavy duty)	Dry replaceable element with restriction indicator

** @ 13 mm H_20

Ratings Definitions

Emergency Standby Power (ESP):
Applicable for supplying power to varying electrical load for the duration of power interruption of a reliable utility source. Emergency Standby Power (ESP) is in accordance with ISO 8528. Fuel Stop power in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.

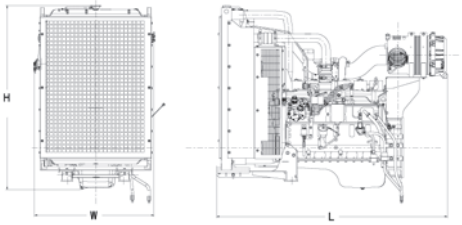
Limited-Time Running Power (LTP):
Applicable for supplying power to a constant electrical load for limited hours. Limited-Time Running Power (LTP) is in accordance with ISO 8528.

Prime Power (PRP):
Applicable for supplying power to varying electrical load for unlimited hours. Prime Power (PRP) is in accordance with ISO 8528. Ten percent overload capability is available in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.

Base Load (Continuous) Power (COP):
Applicable for supplying power continuously to a constant electrical load for unlimited hours. Continuous Power (COP) in accordance with ISO 8528, ISO 3046, AS 2789, DIN6271 and BS 5514.

Weight and Dimensions

	Length	Width	Height	Weight (dry)
	mm	mm	mm	kg
CoolPac	1723	896	1380	718



Fuel Consumption 1500 (50 Hz)

%	kWm	BHP	L/ph	US gal/ph
Standby Power				
100	145	195	37.05	9.89
Prime Power				
100	135	180	35.16	9.46
75	101	165	26.58	7.14
50	68	91	17.92	4.80
25	34	46	9.43	2.50
Continuous Power				
100	135	180	35.16	9.46

Fuel Consumption 1800 (60 Hz)

%	kWm	BHP	L/ph	US gal/ph
Standby Power				
100	160	215	41.14	10.86
Prime Power				
100	150	205	36.46	10.42
75	113	152	31.47	8.31
50	75	101	20.71	5.46
25	38	51	11.71	3.09
Continuous Power				
100	145	195	36.59	9.66

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EMERS-5815a-EN (11/13)

DSEGenset

DSE

DSE7310/20

AUTO START & AUTO MAINS FAILURE CONTROL MODULES

FEATURES

The DSE7310 is an Auto Start Control Module and the DSE7320 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, remote PC and via SMS text alerts (with external modem).

The DSE7320 will also monitor the mains (utility) supply. The modules include USB, RS232 and RS485 ports as well as 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 and dual mutual standby (DSE7310 only) to reduce engine wear.

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

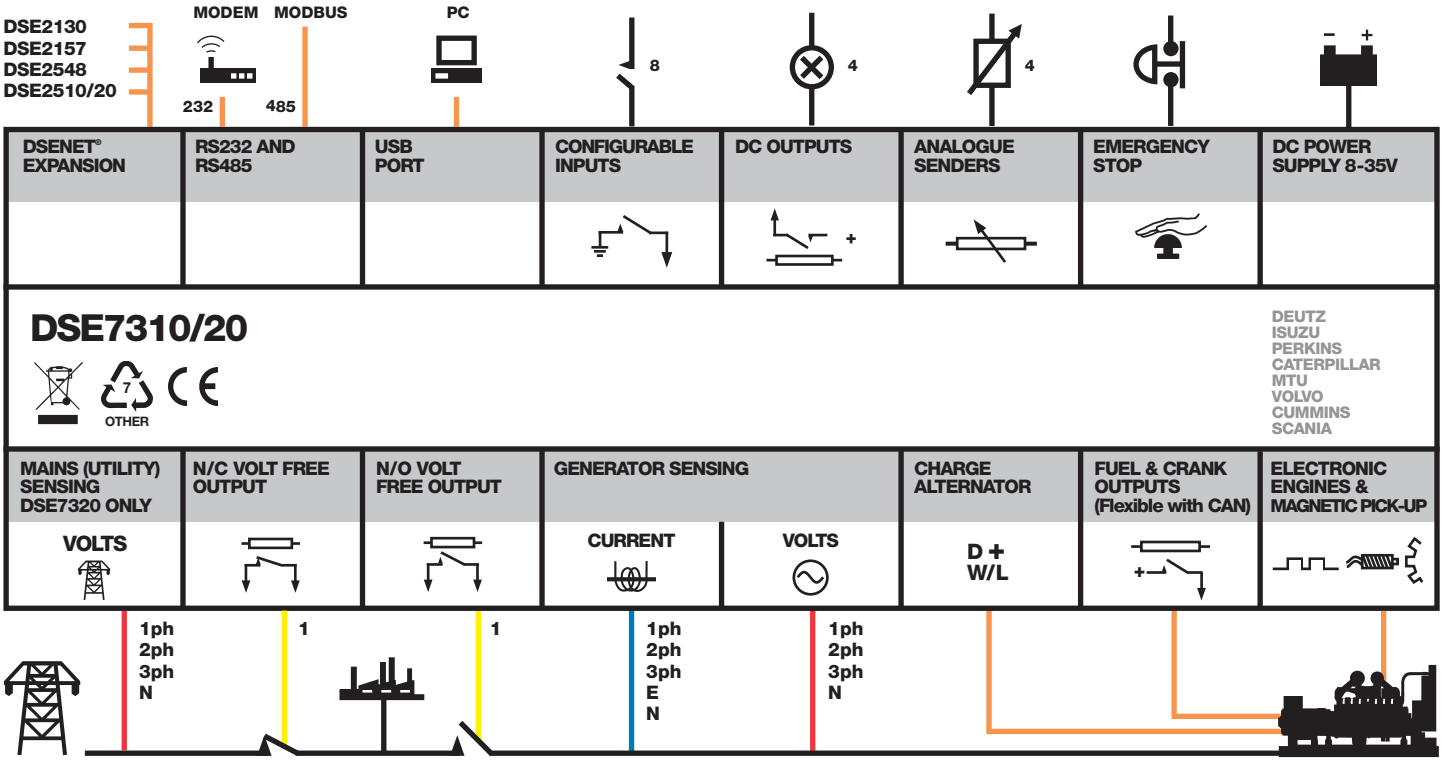
VIBRATION
BS EN 60068-2-6
Ten sweeps in each of three major axes
5 Hz to 8 Hz @ +/-7.5 mm,
8 Hz to 500 Hz @ 2 gn

HUMIDITY
BS EN 60068-2-30
Db Damp Heat Cyclic 20/55 °C @ 95% RH 48 Hours
BS EN 60068-2-78
Cab Damp Heat Static 40 °C @ 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 supplied sealing gasket.

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



ISSUE 6

DSEGenset

DSE7310/20

AUTO START & AUTO MAINS FAILURE CONTROL MODULES

FEATURES

DSE7310

DSE7320

KEY FEATURES

- 4-Line back-lit LCD text display
- Five key menu navigation
- Front panel editing with PIN protection
- Customisable status screens
- Power save mode
- Support for up to three remote display units
- 9 configurable inputs
- 8 configurable outputs
- Flexible sender inputs
- Configurable timers and alarms
- 3 configurable maintenance alarms
- Multiple date and time scheduler
- Configurable event log (250)
- Tier 4 CAN engine support
- Integral PLC editor
- Easy access diagnostic page
- CAN and Magnetic Pick-up/Alt. sensing
- Fuel usage monitor and low fuel alarms
- Charge alternator failure alarm
- Manual speed control (on compatible CAN engines)
- Manual fuel pump control
- Engine exerciser
- “Protections disabled” feature
- kW & kV Ar protection
- Reverse power (kW & kV Ar) protection
- LED and LCD alarm indication
- Power monitoring (kW h, kV Ar, kV A h, kV Ar h)
- Load switching (load shedding and dummy load outputs)
- Automatic load transfer (DSE7320)
- Unbalanced load protection
- Independent Earth Fault trip
- True dual mutual standby with load balancing timer (DSE7310 only)
- USB connectivity
- Backed up real time clock
- Fully configurable via DSE Configuration Suite PC software
- Configurable display languages
- Remote SCADA monitoring via DSE Configuration Suite PC software
- User selectable RS232 and RS485 communications
- Configurable Gencomm pages
- Advanced SMS messaging (additional external modem required)
- Start & stop capability via SMS messaging
- Additional display screens to help with modem diagnostics
- Idle control for starting & stopping.
- DSENet® expansion compatible

KEY BENEFITS

- 132 x 64 pixel ratio display for clarity
- Real-time clock provides accurate event logging
- Multiple date and time scheduler
- Set maintenance periods can be configured to maintain optimum engine performance
- Ethernet communications (via DSE860/865 modules), provides advanced remote monitoring at low cost
- Modules can be integrated into building management systems (BMS)
- Increased input and output expansion capability via DSENet®
- Licence-free PC software
- IP65 rating (with supplied gasket) offers increased resistance to water ingress
- PLC editor allows user configurable functions to meet specific application requirements

SPECIFICATION

DC SUPPLY

CONTINUOUS VOLTAGE RATING
8 V to 35 V Continuous

CRANKING DROPOUTS
Able to survive 0 V for 50 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
340 mA at 12 V, 160 mA at 24 V

MAXIMUM STANDBY CURRENT
160 mA at 12 V, 80 mA at 24 V

CHARGE FAIL/EXCITATION RANGE
0 V to 35 V

MAINS (UTILITY) DSE7320 ONLY

VOLTAGE RANGE
15 V - 333 V AC (L-N)

FREQUENCY RANGE
3.5 Hz to 75 Hz

OUTPUTS

OUTPUT A (FUEL)
15 A DC at supply voltage

OUTPUT B (START)
15 A DC at supply voltage

OUTPUTS C & D
8 A 250 V (Volt free)

AUXILIARY OUTPUTS E,F,G,H
2 A DC at supply voltage

GENERATOR

VOLTAGE RANGE
15 V - 333 V AC (L-N)

FREQUENCY RANGE
3.5 Hz to 75 Hz

MAGNETIC PICK UP

VOLTAGE RANGE
+/- 0.5 V to 70 V

FREQUENCY RANGE
10,000 Hz (max)

DIMENSIONS

OVERALL
240 mm x 181 mm x 42 mm
9.4” x 7.1” x 1.6”

PANEL CUT-OUT
220 mm x 160 mm
8.7” x 6.3”

MAXIMUM PANEL THICKNESS
8 mm
0.3”

RELATED MATERIALS

TITLE	PART NO’S
DSE7310 Installation Instructions	053-028
DSE7320 Installation Instructions	053-029
DSE7200/7300 Quick Start Guide	057-101
DSE7200/7300 Operator Manual	057-074
DSE7200/7300 Configuration Suite PC Manual	057-077

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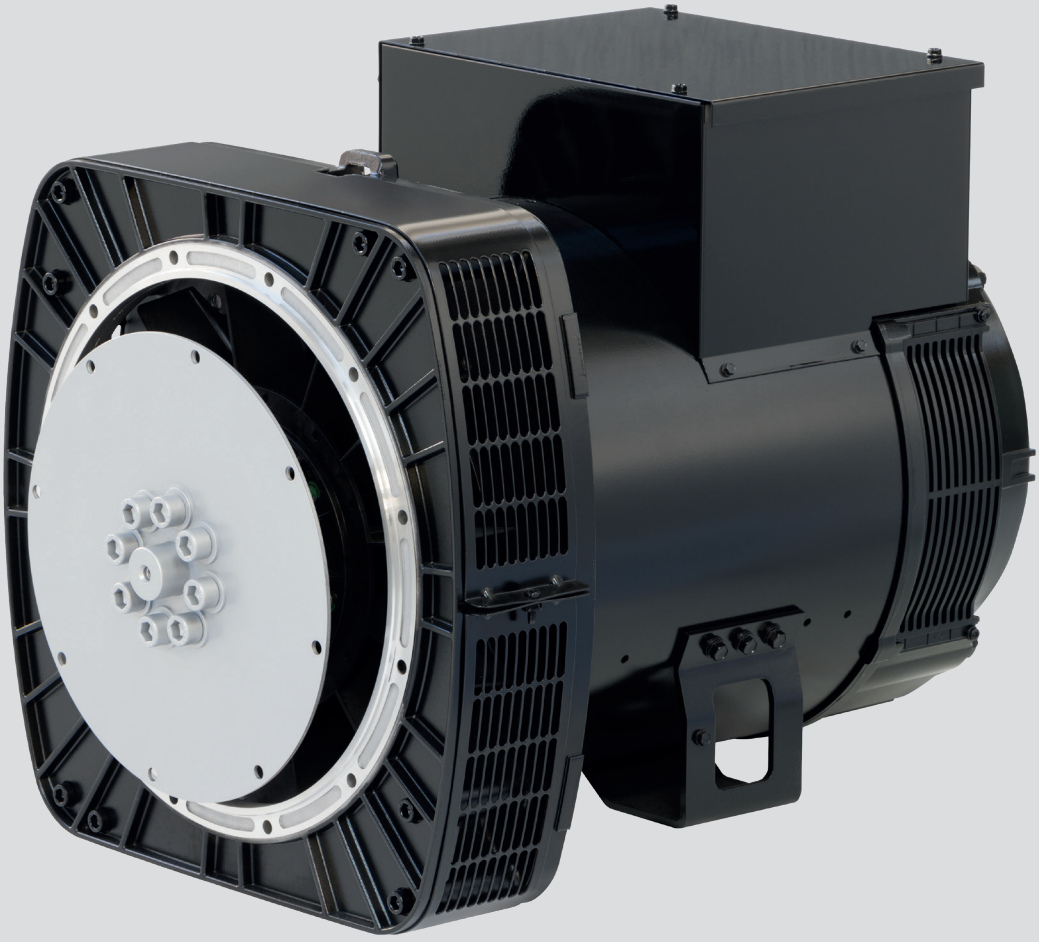
055-051/10/11 (11) US



TAL 044

Low Voltage Alternator - 4 pole

Three-phase 70 to 165 kVA - 50 Hz / 88 to 206 kVA - 60 Hz
Dedicated single-phase 57 to 82 kVA - 50 Hz / 80 to 125 kVA - 60 Hz
Electrical and mechanical data

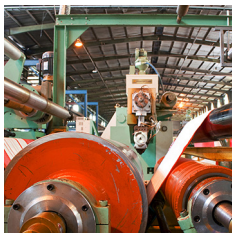
LEROY-SOMER™

Nidec
All for dreams

Adapted to needs

The TAL alternator range is designed to meet the needs of general applications such as prime power and stand-by.





Compliant with international standards

The TAL range complies with international standards and regulations: IEC 60034 and derivative.
The range is designed, manufactured and marketed in an ISO 9001 and 14001 environment.

Electrical design

- Class H insulation
- Shunt excitation
- Low voltage winding:
  Three-phase 50 Hz: 380V - 400V - 415V - 440V / 220V - 230V - 240V
  60 Hz: 380V - 416V - 440V - 480V / 220V - 208V - 240V
  Single-phase 50 Hz: 230V
  60 Hz: 240V
- 4-terminal plates in 6-wire version
- Optimized performance

Robust design

- Compact and rugged assembly to withstand engine vibrations
- Steel frame
- Aluminum flanges and shields
- Single bearing design compatible with most diesel engines
- Sealed for life single bearing
- Direction of rotation: clockwise and counterclockwise without derating

Excitation and regulation system suited to the application

	Excitation system				Regulation options		
	AVR	**Shunt**	**AREP**	**PMG**	**$UL_{C/US}$**	**Remote voltage potentiometer**	**C.T. for paralleling**
Three-phase 6-wire	**R120**	Standard					
	R150	Option				√	
	R180		Standard	Standard		√	√
	R438		Option	Option	√	√	√
Three-phase 12-wire	**R120**	Standard					
	R250	Option			√	√	
	R180		Standard	Standard		√	√
	R438		Option	Option	√	√	√
Single-phase	**R121**	Standard				√	
	R250	Option			√	√	

√ : Possible option

Compact terminal box

- Easy access to AVR and terminals
- Possibility of current transformer for parallel operation

Environment and protection

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

Available options

- Three-phase 12-wire with 8-terminal plates
- AREP or PMG excitation
- ULc/us
- Customized painting (machine not painted as standard)
- Space heaters
- Flying leads
- Droop kit for alternator paralleling
- Dedicated single-phase
- Stator sensors
- Winding 8 optimized for three-phase 380V / 416V - 60Hz
- Winding protection for harsh environments and relative humidity greater than 95% (system 2 - 4 without derating): for TAL 044 K apply a derating coefficient of 0.97

TAL 044 - Three-phase 70 to 165 kVA - 50 Hz / 88 to 206 kVA - 60 Hz

General characteristics

Insulation class	H	Excitation system 6-wire	SHUNT / AREP
Winding pitch	2/3 (wind.6S - 6-wire / wind.6 - 12-wire)	AVR type	R120 / R180
Number of wires	6-wire (12-wire option)	Excitation system 12-wire (option)	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	< 2 %
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 second		Waveform: I.E.C. = FHT (**)	< 2%

(*) 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.				1 ph.	3 ph.				1 ph.	3 ph.				1 ph.	3 ph.				1 ph.
Y		380V	400V	415V	440V		380V	400V	415V	440V		380V	400V	415V	440V		380V	400V	415V	440V	
Δ		220V	230V	240V		230V	220V	230V	240V		230V	220V	230V	240V		230V	220V	230V	240V		230V
YY (*)					220V					220V					220V					220V	
ΔΔ (*)						230V					230V					230V					230V
TAL 044 A	kVA	70	**70**	70	63	42	64	**64**	64	57	38	74	**74**	74	67	45	77	**77**	77	69	46
	kW	*56*	*56*	*56*	*50*	*33.5*	*51*	*51*	*51*	*46*	*30.5*	*59*	*59*	*59*	*53*	*36*	*62*	*62*	*62*	*55*	*37*
TAL 044 B	kVA	80	**80**	80	72	48	73	**73**	73	66	44	85	**85**	85	76	51	88	**88**	88	79	53
	kW	*64*	*64*	*64*	*58*	*38.5*	*58*	*58*	*58*	*53*	*35*	*68*	*68*	*68*	*61*	*41*	*70*	*70*	*70*	*63*	*42*
TAL 044 C	kVA	90	**90**	90	81	54	82	**82**	82	74	49	95	**95**	95	86	57	100	**100**	100	89	59
	kW	*72*	*72*	*72*	*65*	*43*	*66*	*66*	*66*	*59*	*39*	*76*	*76*	*76*	*68*	*46*	*80*	*80*	*80*	*71*	*47*
TAL 044 D	kVA	100	**100**	100	90	60	91	**91**	91	82	55	106	**106**	106	95	64	110	**110**	110	99	66
	kW	*80*	*80*	*80*	*72*	*48*	*73*	*73*	*73*	*66*	*44*	*85*	*85*	*85*	*76*	*51*	*88*	*88*	*88*	*79*	*53*
TAL 044 E	kVA	125	**125**	125	113	67	114	**114**	114	103	61	133	**133**	133	120	71	138	**138**	138	124	74
	kW	*100*	*100*	*100*	*90*	*54*	*91*	*91*	*91*	*82*	*49*	*106*	*106*	*106*	*94*	*57*	*110*	*110*	*110*	*99*	*59*
TAL 044 H	kVA	135	**135**	135	122	73	123	**123**	123	111	66	143	**143**	143	129	77	150	**150**	150	134	80
	kW	*108*	*108*	*108*	*98*	*58*	*98*	*98*	*98*	*89*	*53*	*114*	*114*	*114*	*102*	*62*	*120*	*120*	*120*	*107*	*64*
TAL 044 J	kVA	150	**150**	150	135	80	137	**137**	137	123	73	159	**159**	159	143	85	165	**165**	165	149	88
	kW	*120*	*120*	*120*	*108*	*64*	*110*	*110*	*110*	*98*	*58*	*127*	*127*	*127*	*114*	*68*	*132*	*132*	*132*	*119*	*70*
TAL 044 K	kVA	165	**165**	165	138	88	150	**150**	150	126	80	175	**175**	175	150	93	182	**182**	182	157	97
	kW	*132*	*132*	*132*	*110*	*70*	*120*	*120*	*120*	*100*	*64*	*140*	*140*	*140*	*120*	*74*	*145*	*145*	*145*	*126*	*78*

(*) 12-wire option

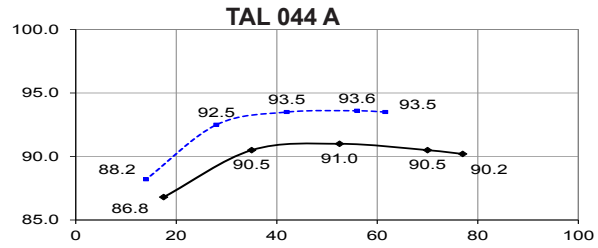
Ratings 60 Hz - 1800 R.P.M.

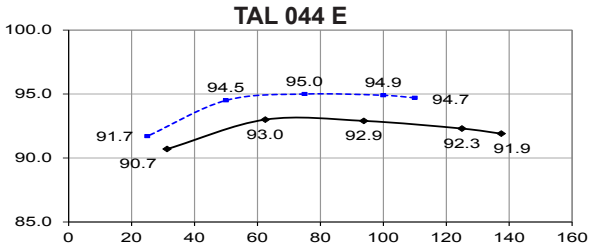
kVA / kW - P.F. = 0.8

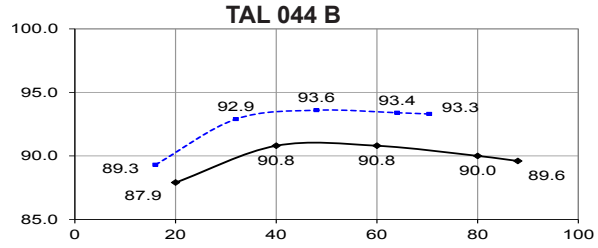
Duty / T° C		Continuous / 40 °C					Continuous / 40 °C					Stand-by / 40 °C					Stand-by / 27 °C				
Class / T° K		H / 125° K					F / 105° K					H / 150° K					H / 163° K				
Phase		3 ph.				1 ph.	3 ph.				1 ph.	3 ph.				1 ph.	3 ph.				1 ph.
Y		380V	416V	440V	480V		380V	416V	440V	480V		380V	416V	440V	480V		380V	416V	440V	480V	
Δ		220V	240V			240V	220V	240V			240V	220V	240V			240V	220V	240V			240V
YY (*)			208V	220V	240V			208V	220V	240V			208V	220V	240V			208V	220V	240V	
ΔΔ (*)						240V					240V					240V					240V
TAL 044 A	kVA	69	76	80	**88**	46	63	69	73	**80**	42	73	81	85	**93**	49	76	84	88	**97**	51
	kW	*55*	*61*	*64*	*70*	*37*	*50*	*55*	*58*	*64*	*33.6*	*58*	*65*	*68*	*74*	*39.2*	*61*	*67*	*70*	*78*	*41*
TAL 044 B	kVA	79	87	92	**100**	52	72	79	84	**91**	47	84	92	98	**106**	55	87	96	101	**110**	57
	kW	*63*	*70*	*74*	*80*	*42*	*58*	*63*	*67*	*73*	*37.6*	*67*	*74*	*78*	*85*	*44*	*70*	*77*	*81*	*88*	*46*
TAL 044 C	kVA	89	98	103	**113**	59	81	89	94	**103**	54	94	104	109	**120**	63	98	108	113	**124**	65
	kW	*71*	*78*	*82*	*90*	*47*	*65*	*71*	*75*	*82*	*43*	*75*	*83*	*87*	*96*	*50*	*78*	*86*	*90*	*99*	*52*
TAL 044 D	kVA	99	108	115	**125**	65	90	98	105	**114**	59	105	114	122	**133**	69	109	119	127	**138**	72
	kW	*79*	*86*	*92*	*100*	*52*	*72*	*78*	*84*	*91*	*47*	*84*	*91*	*98*	*106*	*55*	*87*	*95*	*102*	*110*	*58*
TAL 044 E	kVA	124	135	143	**156**	76	113	123	130	**142**	69	131	143	152	**165**	81	136	149	157	**172**	84
	kW	*99*	*108*	*114*	*125*	*61*	*90*	*98*	*104*	*114*	*55*	*105*	*114*	*122*	*132*	*65*	*109*	*119*	*126*	*138*	*67*
TAL 044 H	kVA	134	146	155	**169**	81	122	133	141	**154**	74	142	155	164	**179**	86	147	161	171	**186**	89
	kW	*107*	*117*	*124*	*135*	*65*	*98*	*106*	*113*	*123*	*59*	*114*	*124*	*131*	*143*	*69*	*118*	*129*	*137*	*149*	*71*
TAL 044 J	kVA	148	163	172	**188**	95	135	148	157	**171**	86	157	173	182	**199**	101	163	179	189	**207**	105
	kW	*118*	*130*	*138*	*150*	*76*	*108*	*118*	*126*	*137*	*69*	*126*	*138*	*146*	*159*	*81*	*130*	*143*	*151*	*166*	*84*
TAL 044 K	kVA	165	179	189	**206**	105	150	163	172	**187**	96	175	190	200	**218**	111	182	197	208	**227**	116
	kW	*132*	*143*	*151*	*165*	*84*	*118*	*130*	*138*	*150*	*77*	*138*	*152*	*160*	*174*	*89*	*143*	*158*	*166*	*182*	*93*

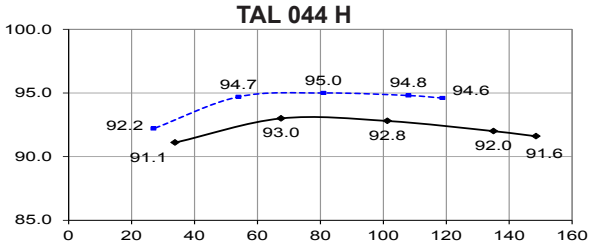
(*) 12-wire option

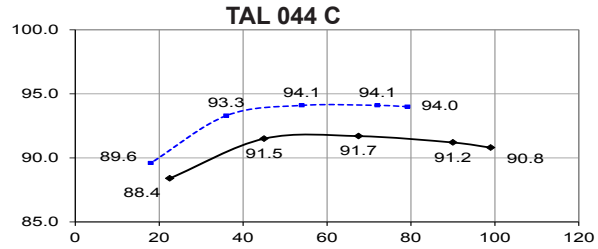
Efficiencies 400 V - 50 Hz (— P.F.: 0.8) (····· P.F.: 1)

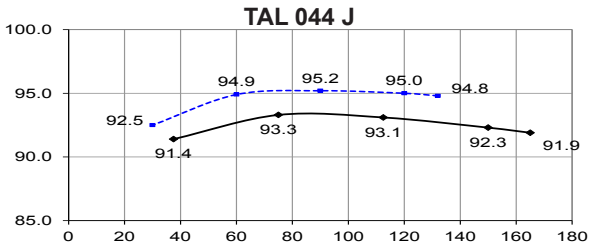


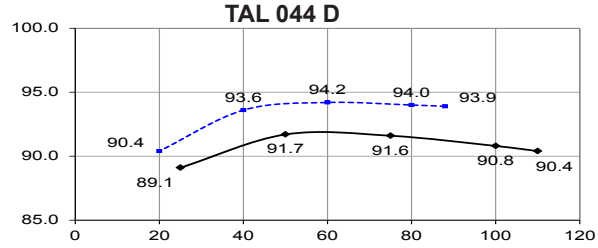


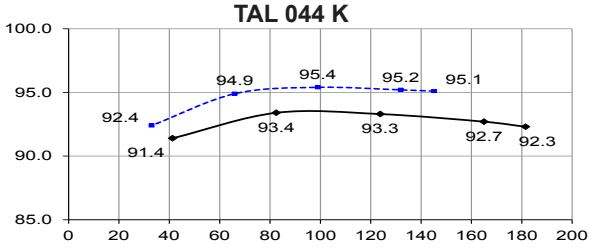












Reactances (%). Time constants (ms) - Class H / 400 V

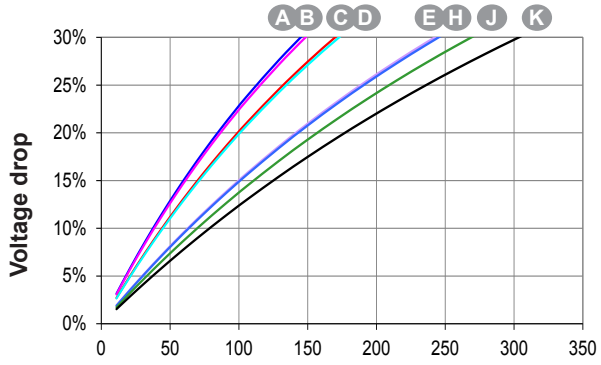
		A	B	C	D	E	H	J	K
Kcc	Short-circuit ratio	0.57	0.5	0.53	0.48	0.43	0.4	0.4	0.42
Xd	Direct-axis synchro. reactance unsaturated	294	336	307	341	334	361	359	343
Xq	Quadrature-axis synchro. reactance unsaturated	150	171	156	174	170	184	183	175
T'do	No-load transient time constant	2475	2475	2308	2308	2154	2154	2112	2077
X'd	Direct-axis transient reactance saturated	11.9	13.6	13.3	14.7	15.5	16.7	17	16.5
T'd	Short-circuit transient time constant	100	100	100	100	100	100	100	100
X"d	Direct-axis subtransient reactance saturated	7.1	8.1	7.9	8.8	9.3	10	10.2	9.9
T"d	Subtransient time constant	10	10	10	10	10	10	10	10
X"q	Quadrature-axis subtransient reactance saturated	16.1	18.3	17	18.9	18.9	20.4	20.4	19.5
Xo	Zero sequence reactance	0.49	0.56	0.55	0.61	0.64	0.69	0.7	0.68
X2	Negative sequence reactance saturated	11.62	13.28	12.53	13.92	14.12	15.25	15.31	14.74
Ta	Armature time constant	15	15	15	15	15	15	15	15

Other class H / 400 V data

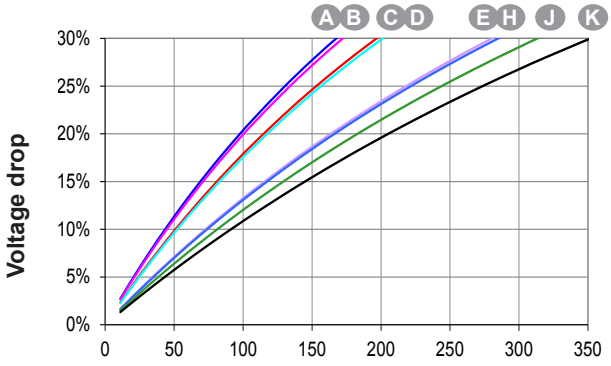
io (A)	No-load excitation current SHUNT and AREP	0.84/1.08	0.84/1.08	0.8/1.03	0.8/1.03	0.67/0.87	0.67/0.87	0.66/0.85	0.68/0.88
ic (A)	On-load excitation current SHUNT and AREP	2.6/3.35	2.95/3.8	2.75/3.54	3.08/3.96	2.57/3.31	2.78/3.59	2.79/3.6	2.82/3.63
uc (V)	On-load excitation voltage SHUNT and AREP	28.9/23.2	32.5/26.1	30.1/24.1	33.2/26.7	31.9/25.6	34.3/27.5	34.1/27.4	34.1/27.4
ms	Response time (ΔU = 20% transient)	500	500	500	500	500	500	500	500
kVA	Start (ΔU = 20% cont. or ΔU = 30% trans.) SHUNT*	124.4	123.9	143.1	143.2	204	204.8	224.9	253.8
kVA	Start (ΔU = 20% cont. or ΔU = 30% trans.) AREP*	149.2	149.4	171.4	171.2	246.2	245.1	269.1	296.2
%	Transient ΔU (on-load 4/4) SHUNT - P.F.: 0.8 $_{LAG}$	17.2	18.8	18.5	19.9	18.2	19.1	19.3	18.9
%	Transient ΔU (on-load 4/4) AREP - P.F.: 0.8 $_{LAG}$	15.2	16.6	16.4	17.6	16.1	16.9	17.1	16.7
W	No-load losses	1943	1943	2142	2142	2292	2292	2450	2755
W	Heat dissipation	5845	7033	6927	8059	8323	9340	9913	10366

* P.F. = 0.6

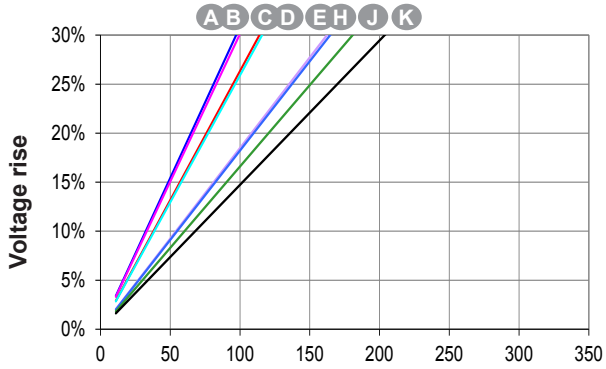
Transient voltage variation 400V - 50 Hz



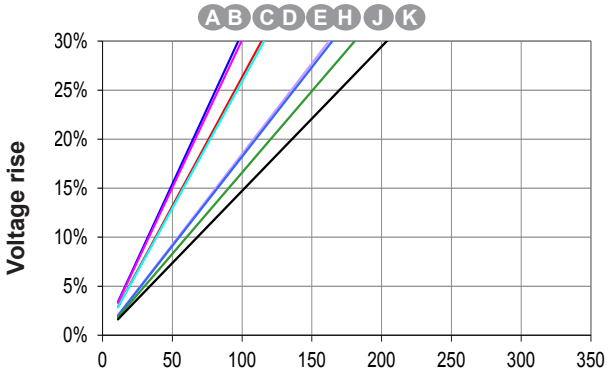
Phase loading (SHUNT) - kVA at P.F. = 0.8



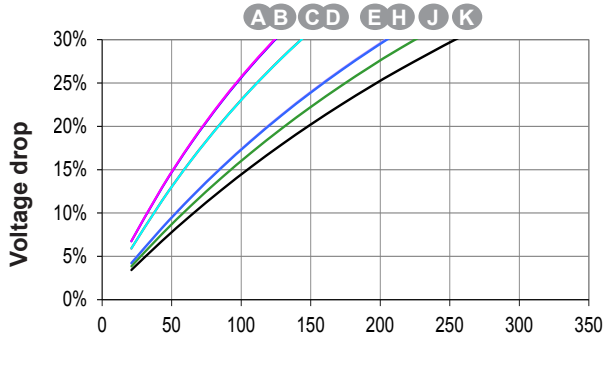
Phase loading (AREP) - kVA at P.F. = 0.8



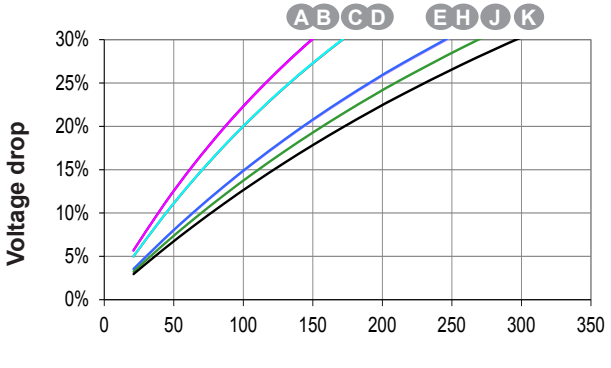
Load shedding (SHUNT) - kVA at P.F. = 0.8



Load shedding (AREP) - kVA at P.F. = 0.8



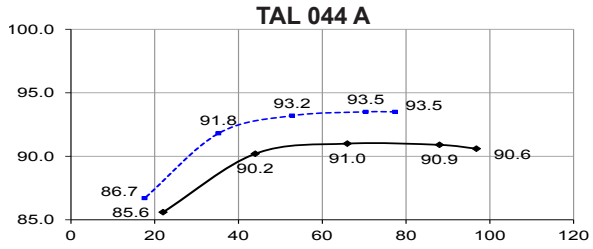
Motor starting (SHUNT)
Locked rotor kVA at P.F. = 0.6

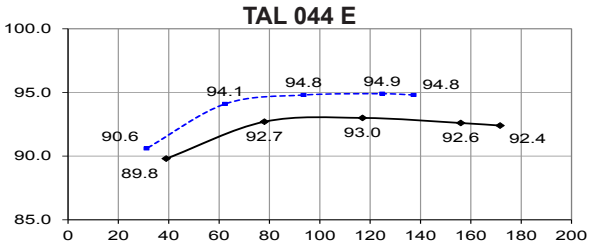


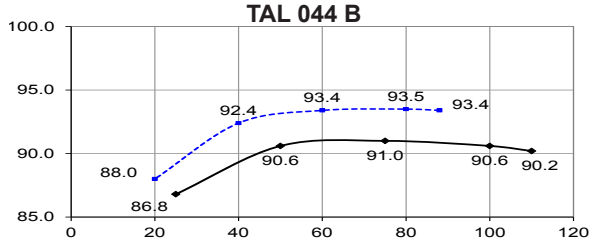
Motor starting (AREP)
Locked rotor kVA at P.F. = 0.6

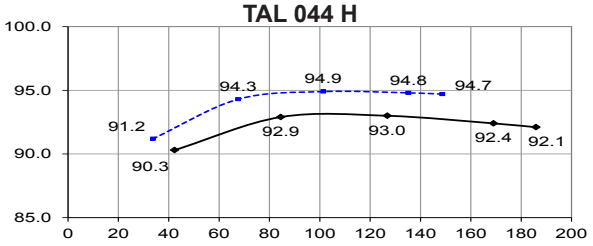
1) For a starting P.F. other than 0.6, the starting kVA must be multiplied by K = Sine P.F. / 0.8
2) For voltages other than 400V (Y), 230V (Δ) at 50 Hz, then kVA must be multiplied by $(400/U)^2$ or $(230/U)^2$.

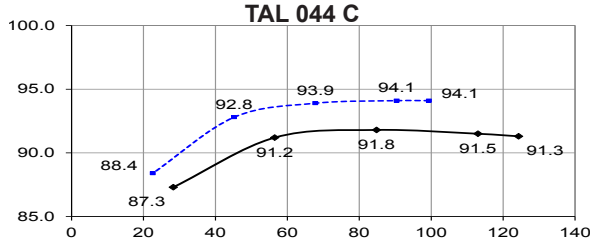
Efficiencies 480 V - 60 Hz (— P.F.: 0.8) (····· P.F.: 1)

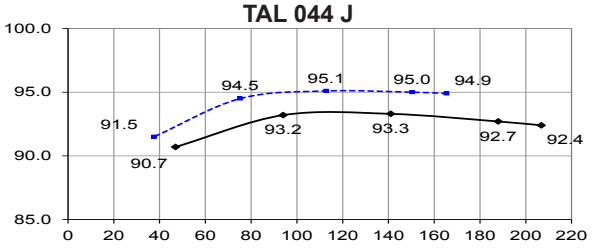


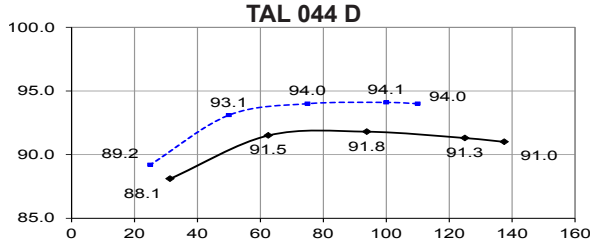


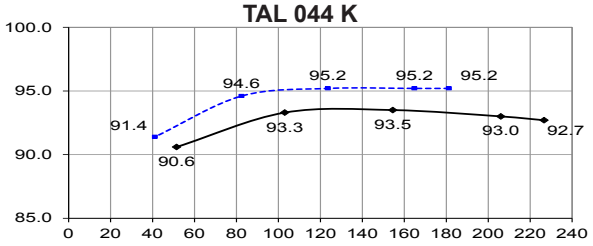












Reactances (%). Time constants (ms) - Class H / 480 V

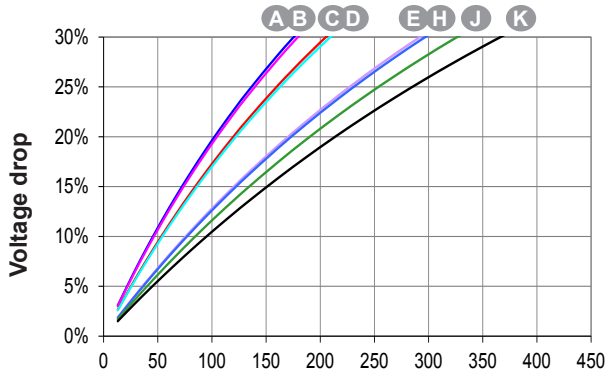
		A	B	C	D	E	H	J	K
Kcc	Short-circuit ratio	0.55	0.48	0.5	0.46	0.41	0.38	0.38	0.41
Xd	Direct-axis synchro. reactance unsaturated	308	350	321	355	348	377	375	356
Xq	Quadrature-axis synchro. reactance unsaturated	157	178	164	181	177	192	191	182
T'do	No-load transient time constant	2475	2475	2308	2308	2154	2154	2112	2077
X'd	Direct-axis transient reactance saturated	12.4	14.1	13.9	15.4	16.1	17.5	17.7	17.1
T'd	Short-circuit transient time constant	100	100	100	100	100	100	100	100
X"d	Direct-axis subtransient reactance saturated	7.4	8.5	8.3	9.2	9.7	10.5	10.6	10.3
T"d	Subtransient time constant	10	10	10	10	10	10	10	10
X"q	Quadrature-axis subtransient reactance saturated	16.8	19.1	17.8	19.7	19.6	21.3	21.3	20.3
Xo	Zero sequence reactance	0.51	0.59	0.58	0.64	0.67	0.72	0.74	0.71
X2	Negative sequence reactance saturated	12.17	13.83	13.1	14.49	14.69	15.91	15.99	15.34
Ta	Armature time constant	15	15	15	15	15	15	15	15

Other class H / 480 V data

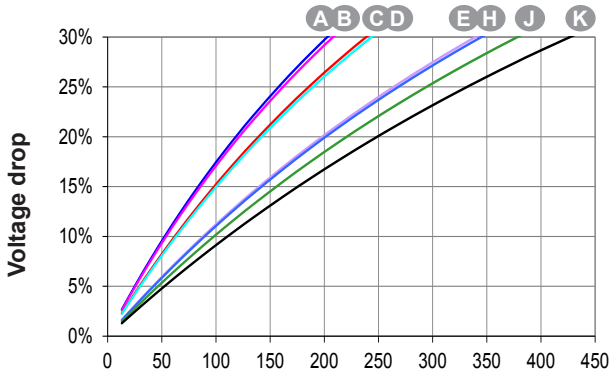
io (A)	No-load excitation current SHUNT and AREP	0.84/1.08	0.84/1.08	0.79/1.02	0.79/1.02	0.67/0.87	0.67/0.87	0.66/0.85	0.68/0.87
ic (A)	On-load excitation current SHUNT and AREP	2.6/3.34	2.91/3.76	2.72/3.51	3.01/3.88	2.58/3.32	2.79/3.59	2.79/3.6	2.79/3.59
uc (V)	On-load excitation voltage SHUNT and AREP	29.3/23.5	32.6/26.2	30.3/24.4	33.3/26.7	32.4/26	34.8/28	34.7/27.8	34.4/27.6
ms	Response time (ΔU = 20% transient)	500	500	500	500	500	500	500	500
kVA	Start (ΔU = 20% cont. or ΔU = 30% trans.) SHUNT*	149.1	149.5	171.6	171.8	246.2	245.6	269.7	304.1
kVA	Start (ΔU = 20% cont. or ΔU = 30% trans.) AREP*	178.7	179	205.3	206.5	294.8	295.6	322.4	366.4
%	Transient ΔU (on-load 4/4) SHUNT - P.F.: 0.8 $_{LAG}$	17.7	19.3	19.1	20.4	18.6	19.7	19.9	19.4
%	Transient ΔU (on-load 4/4) AREP - P.F.: 0.8 $_{LAG}$	15.7	17.1	16.9	18.1	16.5	17.4	17.6	17.2
W	No-load losses	2868	2868	3156	3156	3387	3387	3611	4040
W	Heat dissipation	7047	8289	8303	9490	9876	11039	11750	12269

* P.F. = 0.6

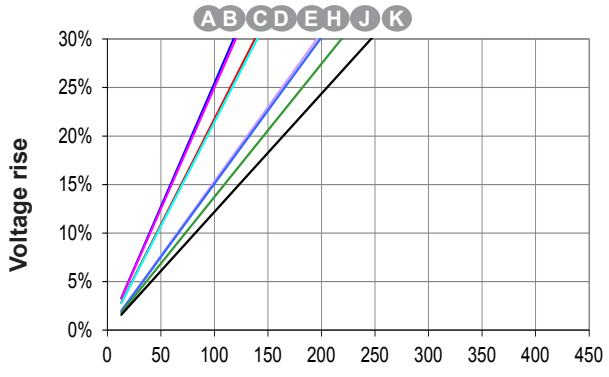
Transient voltage variation 480V - 60 Hz



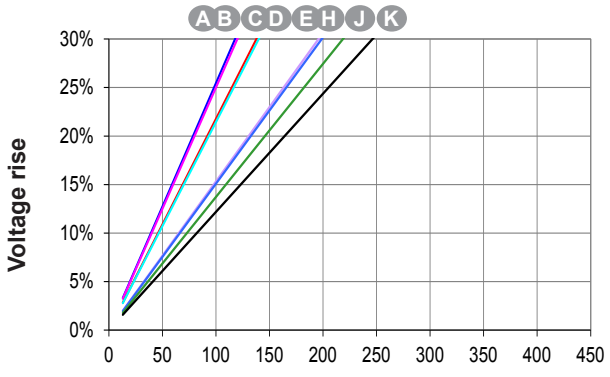
Phase loading (SHUNT) - kVA at P.F. = 0.8



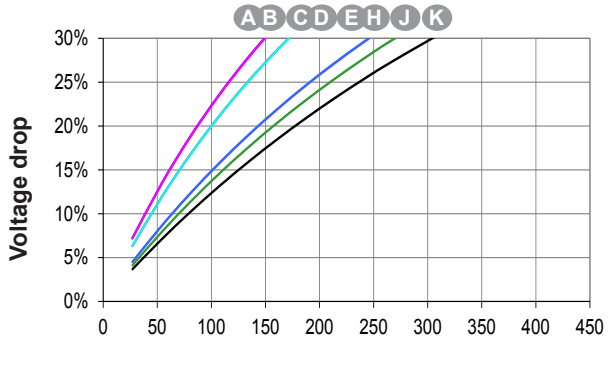
Phase loading (AREP) - kVA at P.F. = 0.8



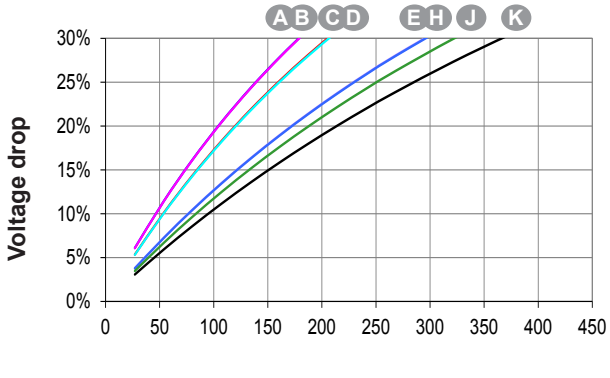
Load shedding (SHUNT) - kVA at P.F. = 0.8



Load shedding (AREP) - kVA at P.F. = 0.8



Motor starting (SHUNT)
locked rotor kVA at P.F. = 0.6



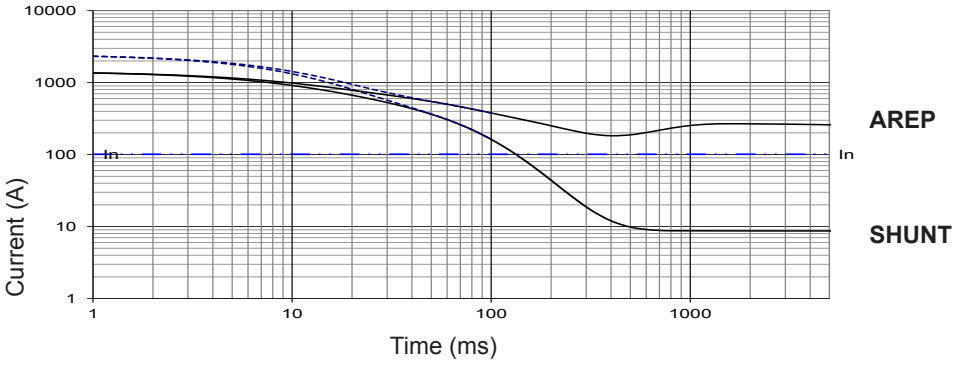
Motor starting (AREP)
Locked rotor kVA at P.F. = 0.6

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

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

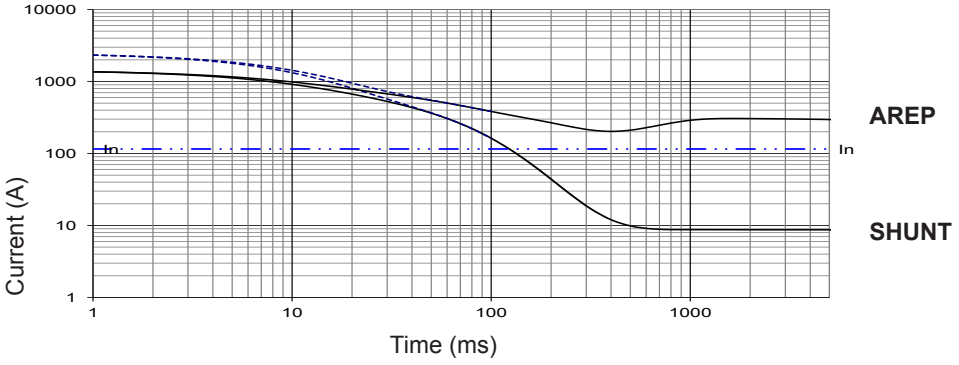
TAL 044 A

Symmetrical ——
Asymmetrical - - -



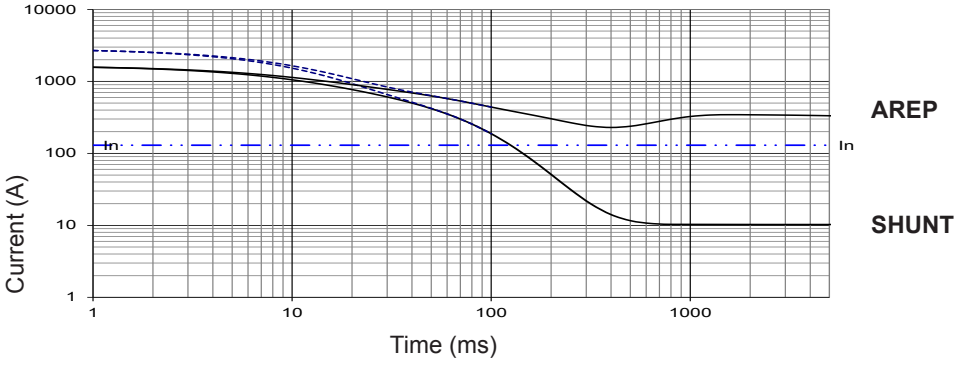
TAL 044 B

Symmetrical ——
Asymmetrical - - -



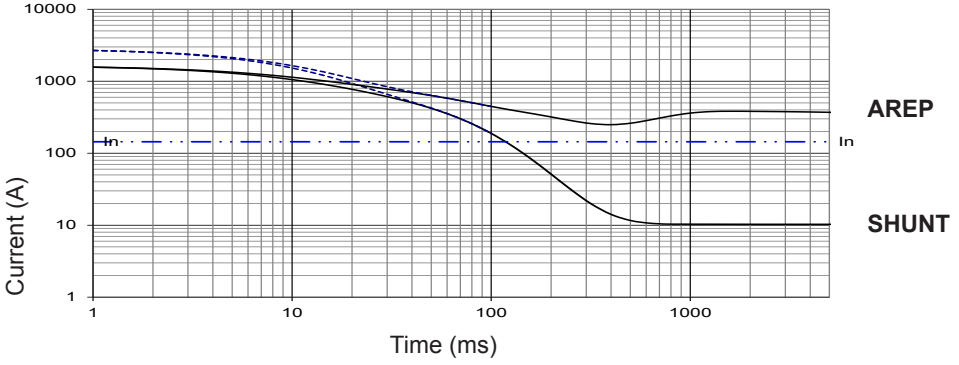
TAL 044 C

Symmetrical ——
Asymmetrical - - -



TAL 044 D

Symmetrical ——
Asymmetrical - - -

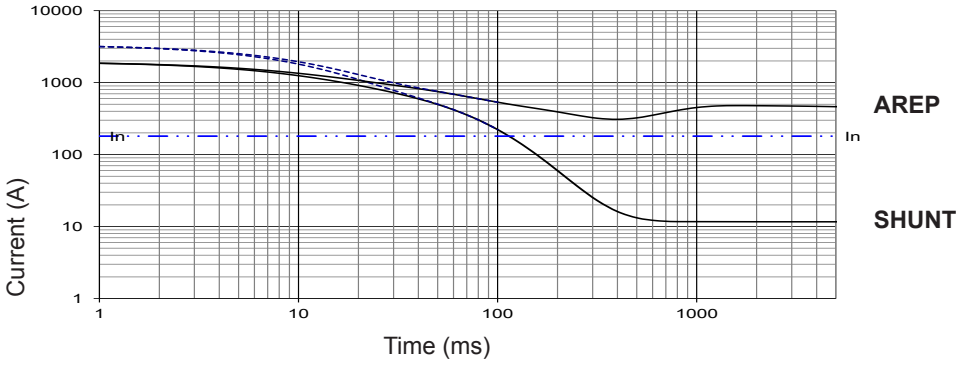


Influence due to connection
For (Δ) connection, use the following multiplication factor:
- Current value x 1.732.

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

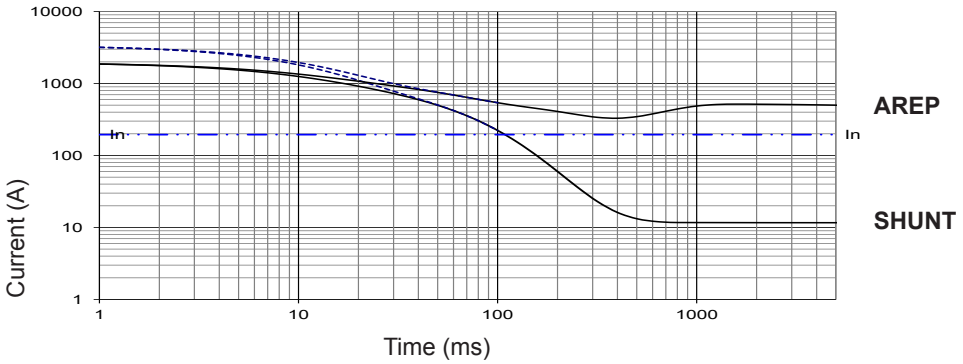
TAL 044 E

Symmetrical ——
Asymmetrical - - -



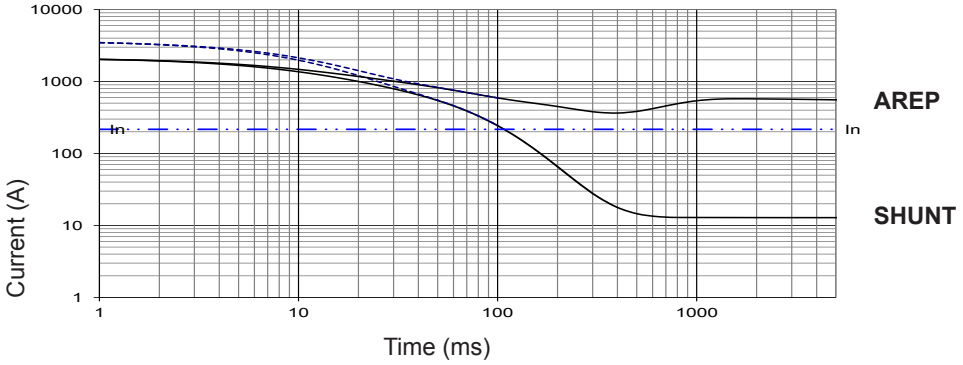
TAL 044 H

Symmetrical ——
Asymmetrical - - -



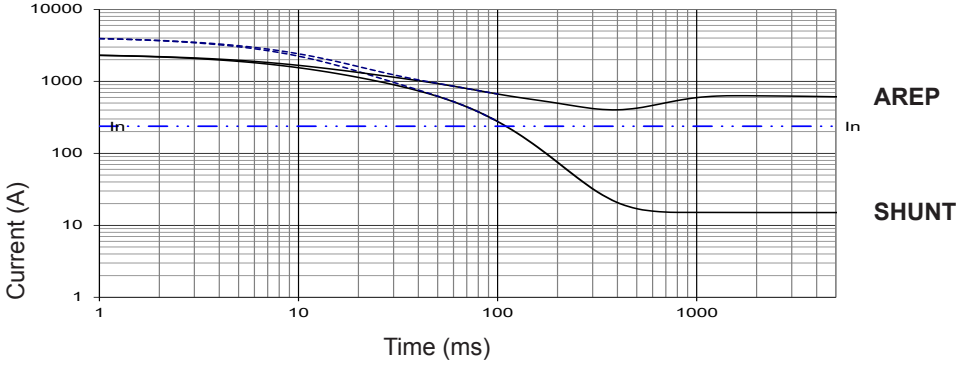
TAL 044 J

Symmetrical ——
Asymmetrical - - -



TAL 044 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	

General characteristics

Insulation class	H	Excitation system	SHUNT
Winding pitch	2/3 (wind. M 50Hz, M1 60Hz)	AVR type	R121
Number of wires	4	Voltage regulation (*)	± 1 %
Protection	IP 23	Total Harmonic Distortion THD (**) in no-load	< 3.5 %
Altitude	≤ 1000 m	Total Harmonic Distortion THD (**) in linear load	< 5 %
Overspeed	2250 R.P.M.	Waveform: NEMA = TIF (**)	< 100
Air flow (m^3/s)	**50 Hz:** 0.25 - **60 Hz:** 0.30	Waveform: I.E.C. = FHT (**)	< 2 %

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

Ratings / Efficiencies 50 Hz - 1500 R.P.M. - Winding M

kVA / kW - P.F. = 1(*)						
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	
Serie (SE)	230 V	η %	230 V	230 V	230V	η %
TAL 044 C	57	91	52	60	63	90.7
TAL 044 D1	69	91.5	63	73	76	91.1
TAL 044 E	-	-	-	-	-	-
TAL 044 J	82	92.3	75	87	90	92
TAL 044 K	-	-	-	-	-	-

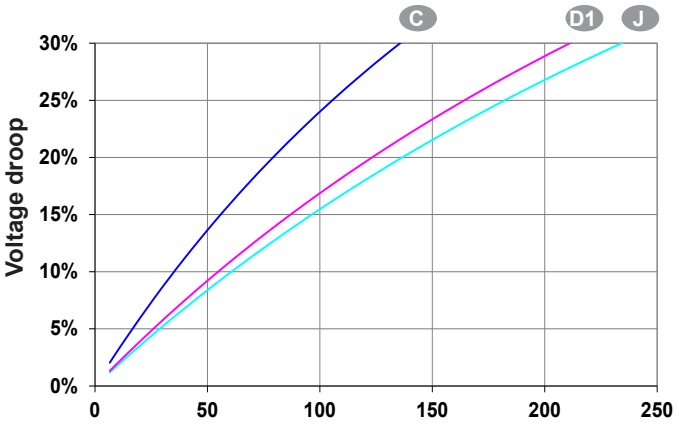
(*) For P.F. 0.8: derating 15%

Ratings / Efficiencies 60 Hz - 1800 R.P.M. - Winding M1

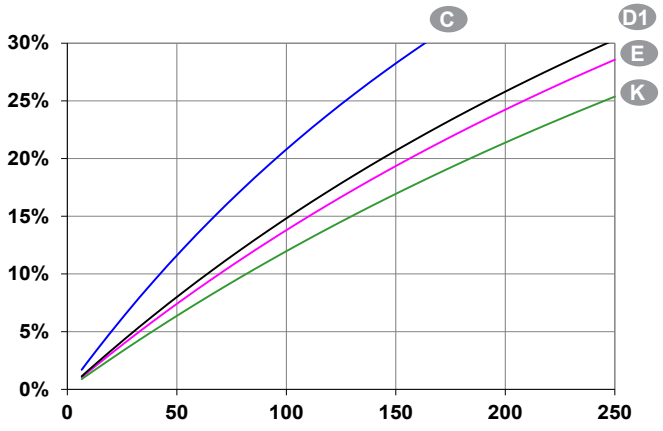
kVA / kW - P.F. = 1(*)						
Duty / T° C	Continuous / 40 °C		Continuous / 40 °C	Stand-by / 40 °C	Stand-by / 27 °C	
Class / T° K	H / 125° K		F / 105° K	H / 150° K	H / 163° K	
Serie (SE)	240 V	η %	240 V	240 V	240V	η %
TAL 044 C	80	90	73	85	88	89.7
TAL 044 D1	100	90	91	106	110	89.7
TAL 044 E	115	90.7	105	122	127	90.2
TAL 044 J	-	-	-	-	-	-
TAL 044 K	125	91.7	114	133	138	91.4

(*) For P.F. 0.8: derating 15%

Starting motor 230V - 50Hz

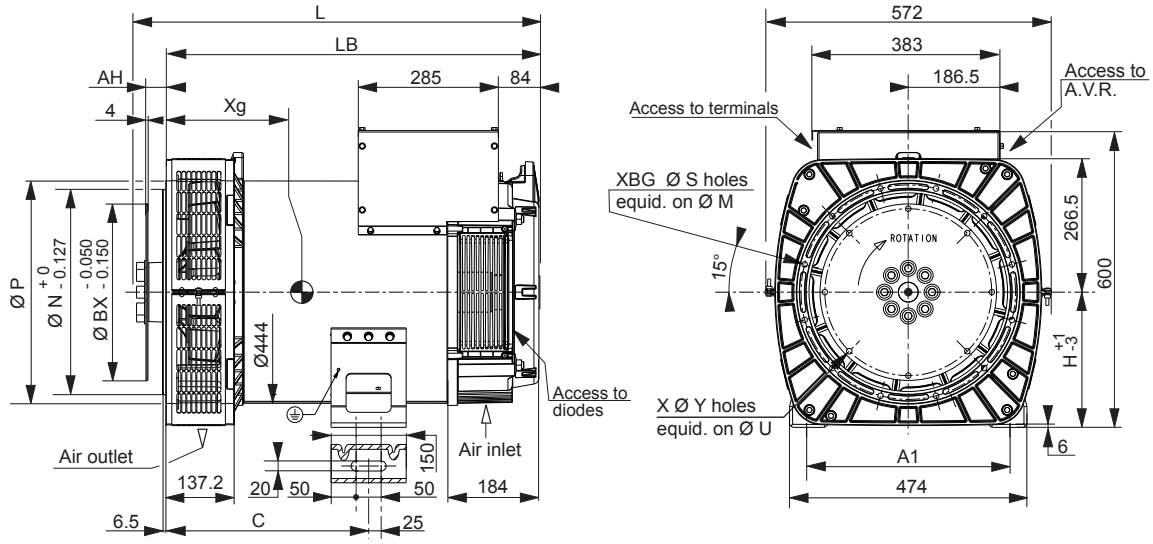


Starting motor 240V - 60Hz



Locked rotor kVA at PF : 0.9

Single bearing general arrangement



Dimensions (mm) and weight				
Type	L maxi	LB	Xg	Weight/kg
TAL 044 A	750	677	293	262
TAL 044 B	750	677	293	262
TAL 044 C	750	677	313	295
TAL 044 D	750	677	313	295
TAL 044 D1	750	677	313	295
TAL 044 E	820	747	353	368
TAL 044 H	820	747	353	368
TAL 044 J	820	747	365	398
TAL 044 K	860	787	383	433

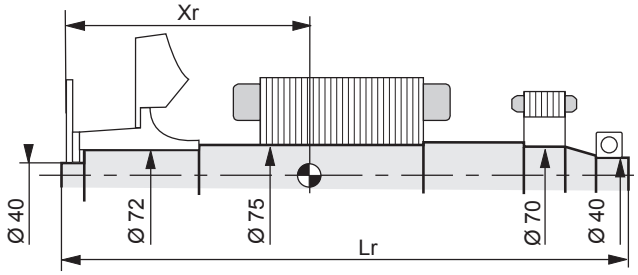
Shaft height (mm)		
	Standard	Option
H	**270**	225
	Feet length	
C	405	332.5
A1	406	356

Coupling			
Flange	**1**	**2**	**3**
Flex plate			
11 1/2	x	x	x
10	x	x	x

Flange (mm)					
S.A.E.	P	N	M	S	XBG
3	445	409.58	428.62	11	12
2	485	447.68	466.72	11	12
1	560.5	511.18	530.23	12	10

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

Torsional data



Centre of gravity: Xr (mm), Rotor length: Lr (mm), Weight: M (kg), Moment of inertia: J (kgm²): (4J = MD²)								
Flex plate	Flex plate S.A.E. 10				Flex plate S.A.E. 11 1/2			
Type	Xr	Lr	M	J	Xr	Lr	M	J
TAL 044 A	344.7	704	107.2	0.770	332.1	704	106.8	0.769
TAL 044 B	344.7	704	107.2	0.770	332.1	704	106.8	0.769
TAL 044 C	355.2	704	121	0.894	342.4	704	120.6	0.893
TAL 044 D	355.2	704	121	0.894	342.4	704	120.6	0.893
TAL 044 D1	376.1	704	139.1	1.051	363.2	704	138.7	1.050
TAL 044 E	400.2	774	153.7	1.167	387.2	774	153.3	1.166
TAL 044 H	400.2	774	153.7	1.167	387.2	774	153.3	1.166
TAL 044 J	411.0	774	165.5	1.274	398.0	774	165.1	1.273
TAL 044 K	431.0	814	180.6	1.409	417.9	814	180.2	1.408

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.

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