



DAR AL-EBDA'A

POWER GENERATORS COMPANY



Perkins® TECHNICAL DATA SHEET

PL1000

Prime Power	Standby Power	Voltage/Ph	Hz/RPM	PF
1000 kVA/800 kW	1100kVA/880 kW	400/3Ph	50/1500	0.8

Prime power

unlimited hours usage with an average load factor of 80% of the published prime power over each 24 hours period. a 10% overload is available for 1 hour in every 12 hours operation.

The generator is working normally at 55 degrees with derating

Standby power

Limited to 500 hours annual usage with an average load factor of 80% of the published Standby power rating over each 24 hour

period. Up to 300 hours of annual usage may be run continuously. No overload is permitted on Standby power.

Available in 60HZ for all voltage ratings.

Standard Reference Condition

Note: Standard reference conditions 40°C (104°F) Air Inlet Temp, 100m (328 ft) A.S.L. 30% relative humidity.



Diesel Generator Set	
Engine Make /Model	PERKINS 4008-TAG2A
Alternator Make /Model	Leroy Somer TAL-049-E
Control Panel	DSE 7320 MKII
Base Frame / Silent Canopy	Robust Structure/ Corrosion Resistant
Circuit Breaker Type	3 Pole MCCB (4P Available as optional)
Built in Base Fuel Tank Capacity	N/A
Battery	Maintenance free Lead Acid

Dimensions	Length (cm)	Width (cm)	Height (cm)	Weight (KG)
Close Type	600	245	250	12611
Open Type	470	205	230	7611

ENGINE SPECIFICATIONS		LUBRICATION SYSTEM	
Engine Make Model	PERKINS 4008-TAG2A	Oil Filter Type	Spin-On Full Flow
No. of Cylinders	8 vertical in-line	Total Oil Capacity	153 L
Cycle	4 Stroke	Oil Type	API-CH-4 or ACEA E5
Aspiration	Turbocharged Cooling	AIR SYSTEM	
Cooling Method	Water cooled	Air Filter Type	Dry Element
Governing Type	Electronic	Combustion Air Flow (PRP)	75 m³/min
Governing Class	G2 - ISO 8528 Part 1	Combustion Air Flow (ESP)	80.5 m³/min
Compression Ratio	13.6:1	Max Air Filter Intake Restriction	3.7 kPa
Displacement	30.5 L		
Bore/Stroke	160 x 190 mm		
Dynamic Charging Alternator	55AMP, 24V		

COOLING SYSTEM		Exhaust System	
Total Coolant Capacity (L)	162 L	Muffler Type	Industrial Grade
Cooling Fan Air Flow	1095 m³/ min	Max. Back Pressure	8 kPa
Radiator Fan Load	27 kW	Exhaust Gas Flow (PRP/ESP)	200 m³/ min
Cooling system design	Above 50°C	Exhaust Gas Temperature	< 465°C
Heat Radiation to Room (PRP)	100 kW		

Comply with Standards	
ISO 3046, BS 5514, DIN 6271, NEMA-MGI, DIN EN, BS 5000, IEC 60034, IEC 60947-2	

PL Generator Set Reliable, Premium Power Supply

Features & Benefits:

- PL Gen set is driven by Perkins Engine, a world-renowned manufacturer with over 85 years of experience and a strong reputation for innovation, quality, and customer support across 182 countries through 3,500 outlets.
- PL Gen set is equipped with a Leroy Somer Alternator, one of the leading global alternator manufacturers, offering more than 99 years of experience, over 120 active patents, operations in more than 40 countries, and over 80 service centers.
- PL Gen set comes with a DSE Control System, supplied by one of the UK's leading manufacturers, with more than 40 years of expertise in advanced, reliable, and user-friendly generator controllers.
- Low fuel consumption, providing greater efficiency and reducing overall fuel operating costs.
- Compact and durable construction, minimizing transportation requirements and reducing storage expenses.
- Engineered with a space-efficient configuration, making it suitable for critical applications where installation space comes at a premium.
- Low noise and reduced vibration levels, ideal for sensitive and critical environments where noise control is essential.
- Easy servicing and extended operating life, helping reduce maintenance requirements and associated service costs.
- Every unit is rigorously tested, including load, cooling, vibration, and noise testing, before being delivered to the customer.
- Designed for simple operation and reliable performance, even under demanding environmental and harsh operating conditions.
- Fitted with a built-in fuel tank providing sufficient capacity for approximately 8 to 10 hours of operation.
- Fully engineered with a wide selection of optional accessories available to meet different operational requirements.

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Branch 1 - Iraq - Baghdad - Camp Sarah - Near Square52 - Opposite Al-Jumhuriya Preparatory Girls school
Branch 2 - Iraq - Baghdad - Khalid Ibn Al-Walid Street - Opposite the Martyrs Foundation



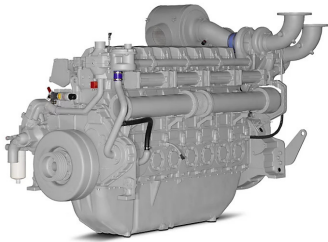
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Perkins® TECHNICAL DATA SHEET

PL1000



**Perkins Engine
4008-TAG2A**

Engine Fuel System

Recommended Fuel	Class A2 Diesel
Fuel Consumption Standby	240 L/hr
Fuel Consumption 100% PRP	215 L/hr
Fuel Consumption 75% PRP	162 L/hr
Fuel Consumption 50% PRP	111 L/hr



**Leroy Somer
TAL-049-E**

ALTERNATOR SPECIFICATIONS

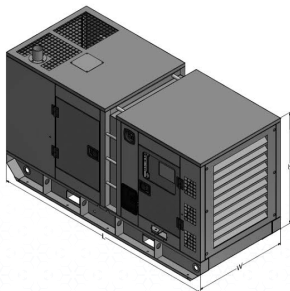
Alternator Make /Model	Leroy Somer TAL-049-E
AVR Model	R150
Number of Poles	4
Number of Winding Leads	6
Type of Bearing	Single Bearing
Insulation Class - Temp Rise	Cont. H - 125/40°C
Ingress Protection Rating	IP 23
Excitation System	Self Excited
Voltage Regulation	±1%
Harmonic Coefficient THF	< 2%
Tel. influence TIF	< 50
Cooling air flow	1.0 m³/ Sec



DSE 7320MKII

Controller Make & Model | DeepSea 7320MKII

Operation Mode	AMF
Display	Graphic Back-lit LCD (132x64) pixels
Ingress Protection Rating	IP65
Binary Inputs/Outputs	9 / 8
Analog Inputs	4
Measurement	Vac, A, Hz, kVA, kW, Vdc
Event Log	Alarms log, Hrs log
Communication	USB



Enclosure Type

Drainage	Fuel and Water Drainage Provision
Transportation	Tested Single Point Lifting Facility & Forklift Pockets
Ingress Protection	IP 23
Lifting	ISO Standard Lifting
Canopy RAL Color	RAL 9010 - Powder coated
Base frame RAL Color	RAL 9011 - Powder coated
Noise Pressure level	85 dBA @ 7 m

WARRANTY

1. WARRANTY POLICY

DPG generators are covered for 1,000 operating hours or one year, whichever comes first, against manufacturing defects. Warranty excludes improper fuel, misuse, incorrect operation, and maintenance-related failures. Minimum operating load: 60%.

2. DOCUMENTATION

Each generator is supplied with Operation & Maintenance Manual, GAD, Wiring Diagram, and FAT Report.

3. OPTIONAL FEATURES

Engine: Heavy-Duty Air Filter, Coolant/Oil Heater, Fuel & Water Separator, Oil Rotary Pump.

Alternator: Anti-Condensation Heater, PMG + AVR, Double Bearing, RTD Sensors.

Cooling & Control: 55°C or Remote Radiator, AMF/Parallel Operation, Remote Annunciator, 4-Pole Manual/Motorized Breaker.

ATS & Battery: Contactor or Motorized ATS, Nickel-Cadmium or Maintenance-Free Battery, Charger, Selector Switch and Current Meter. Exhaust: Residential, Critical or Hospital Grade Mufflers.

Available Voltages: 400/230V, 480/277V, 380/220V, 440/254V, 416/240V, 220/127V, 208/120V.

Due to continuous research & product development, we reserve the right to change specification with out notice

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Perkins® LEROY-SOMER™

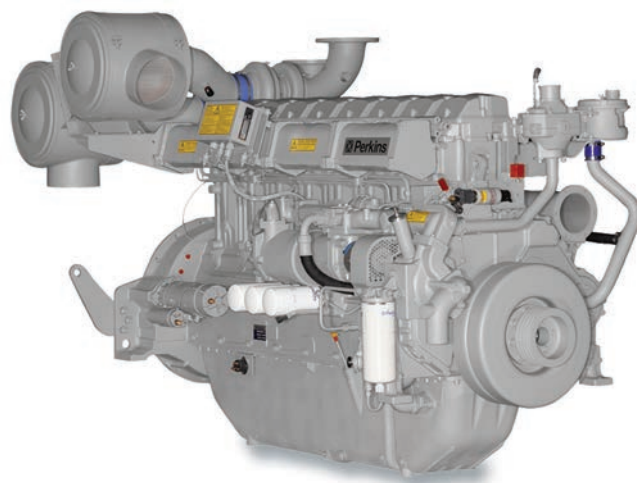


4000 Series 4008TAG2A Diesel Engine – Electropak

947 kWm @ 1500 rpm net standby power

The Perkins® 4000 Series family of 6, 8, 12 and 16 cylinder diesel engines was designed in advance of today's uncompromising demands within the power generation industry and includes superior performance and reliability.

The 4008TAG2A is a turbocharged and air-to-air charge cooled, 8 cylinder diesel engine offered with either temperate or tropical cooling. Its premium features and design provide economic and durable operation as well as an exceptional power to weight ratio, excellent load acceptance and improved gaseous emissions, plus the overall performance and reliability characteristics essential to the power generation market.



Specification		
Number of cylinders	8 vertical in-line	
Bore and stroke	160 x 190 mm	6.3 x 7.5 in
Displacement	30.561 litres	1845 in ³
Aspiration	Turbocharged and air-to-air charge cooled	
Cycle	4 stroke	
Combustion system	Direct injection	
Compression ratio	13.6:1	
Rotation	Anti-clockwise, viewed from flywheel end	
Total lubricating capacity	153 litres	40.4 US gal
Cooling system	Water-cooled	
Total coolant capacity	162 litres	42.8 US gal

www.perkins.com

Photographs are for illustrative purposes only and may not reflect final specification.
All information in this document is substantially correct at time of printing and may be altered subsequently.
Final weight and dimensions will depend on completed specification.

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 **Perkins®**

THE HEART OF EVERY GREAT MACHINE

4000 Series 4008TAG2A Diesel Engine – Electropak

947 kWm @ 1500 rpm net standby power

Features and benefits

Dependable power

- Individual 4 valve cylinder heads giving optimised gas flows
- Unit fuel injectors ensure ultra fine fuel atomisation and hence controlled rapid combustion
- Commonality of components with other engines in the 4000 Series family for reduced stocking levels
- Capable emissions of 1/2 TA Luft (1986)

Low operating costs

- Oil change service intervals are set at 500 hours as standard
- Designed to provide low cost of ownership, simple maintenance and reduced downtime
- Class leading warranty
- Prime power - 12 months unlimited hours. For engines that operate less than 6,000 hours the warranty is available for two years or until the application reaches 6,000 hours (whichever is sooner).

Standby power - three years or 1,500 hours (whichever is sooner).

See Perkins Warranty Policy for further details

- Perkins Platinum Protection - comprehensive cover from as little as 5 percent* of the cost of your engine

Talk to your local distributor or visit www.perkins.com/platinum for more details

World class product support

- Our experienced global network of distributors and dealers, fully trained engine experts deliver total service support around the clock, 365 days a year. They have a comprehensive suite of web based tools at their disposal, covering technical information, parts identification and ordering systems, all dedicated to maximising the productivity of your engine
- Perkins actively pursues product support excellence by insisting our distribution network invest in their territory to provide customers with a consistent quality of support across the globe
- Throughout the entire life of a Perkins engine, we provide access to genuine parts giving 100% reassurance that you receive the very best in terms of quality for lowest possible cost, wherever your Perkins powered machine is

To find your local distributor: www.perkins.com/distributor

*Terms and Conditions apply

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THE HEART OF EVERY GREAT MACHINE

4000 Series 4008TAG2A Diesel Engine – ElectropaK

947 kWm @ 1500 rpm net standby power

Technical information

Air inlet

- Mounted air filter and turbocharger

Fuel system

- Direct fuel injection system with fuel lift pump
- Digital governing to ISO 8528-5 Class G2 with isochronous capability
- Full-flow spin-on fuel oil filters

Lubrication system

- Wet full aluminium sump with filler and dipstick
- Full-flow spin-on oil filters

Cooling system

- Twin thermostats
- System designed for ambient temperatures of up to 50°C

Electrical equipment

- 24V starter motor and 24V alternator with integral regulator and DC output
- Turbine inlet temperature protection
- High coolant temperature protection switch
- Low oil pressure protection switch

Flywheel and housing

- Flywheel to SAE J620 size 18
- SAE 0 flywheel housing

Optional equipment

4 metre wiring harness

Secondary electric start

Immersion heater

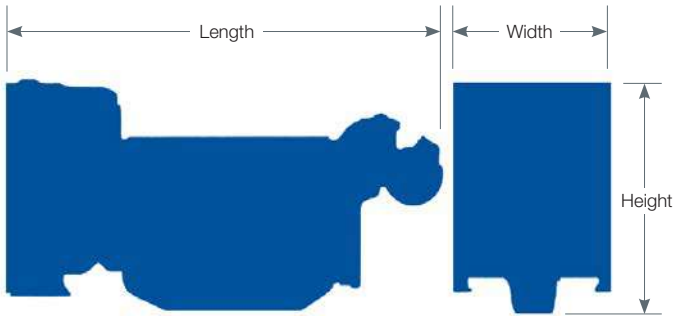
Single exhaust outlet pipe

Exhaust counter flanges

Temperate radiator kit

4000 Series 4008TAG2A Diesel Engine – ElectropaK

947 kWm @ 1500 rpm net standby power



Engine package weights and dimensions				
	Temperate cooling		Tropical cooling	
Length	3852 mm	151.7 in	3711 mm	146 in
Width	2046 mm	80.5 in	2046 mm	80.5 in
Height	2067 mm	81.3 in	2146 mm	84.5 in
Weight (dry)	4270 kg*	9414 lb	4320 kg*	9524 lb

* For fuel cooler, add 6 kg

4000 Series 4008TAG2A Diesel Engine – ElectropaK

947 kWm @ 1500 rpm net standby power

Speed rpm Radiator type	Type of operation	Typical generator output (Net)		Engine power			
				Gross		Net	
		kVA	kWe	kWm	hp	kWm	hp
1500 Tropical	Baseload power	809	647	719	964	681	913
	Prime power	1022	818	899	1206	861	1155
	Standby (maximum)	1125	900	985	1321	947	1270

The above ratings represent the engine performance capabilities guaranteed within plus or minus 3% at the reference conditions equivalent to those specified in ISO 8528/1, ISO 3046/1, BS5514/1.

Rating conditions: 25°C air inlet temperature, barometric pressure 100 kPa, relative humidity 30%. Please consult your distributor or the factory for ratings in other ambient conditions. **Note:** For full ratings please refer to Perkins Engines Company Limited. All electrical ratings are based on an average alternator efficiency and a power factor of 0.8. **Full specification:** BS2869: Class A1 + A2 or ASTM D975 No 2D.

Rating definitions

Baseload power: Power available for continuous full load operation. No overload is permitted. **Prime power:** Power available for variable load with an average load factor not exceeding 80% of the prime power rating in any 24 hour period. Overload of 10% permitted for one hour in every twelve hours operation. **Standby (maximum):** Power available at variable load in the event of a main power network failure up to a maximum of 500 hours per year. No overload is permitted.

Percent of prime power	Fuel consumption for temperate and tropical at 1500 rpm	
	g/kWh	l/hr
Standby (maximum)	209	240
Prime power	206	215
Continuous baseload power	206	172
75%	206	162
50%	207	111

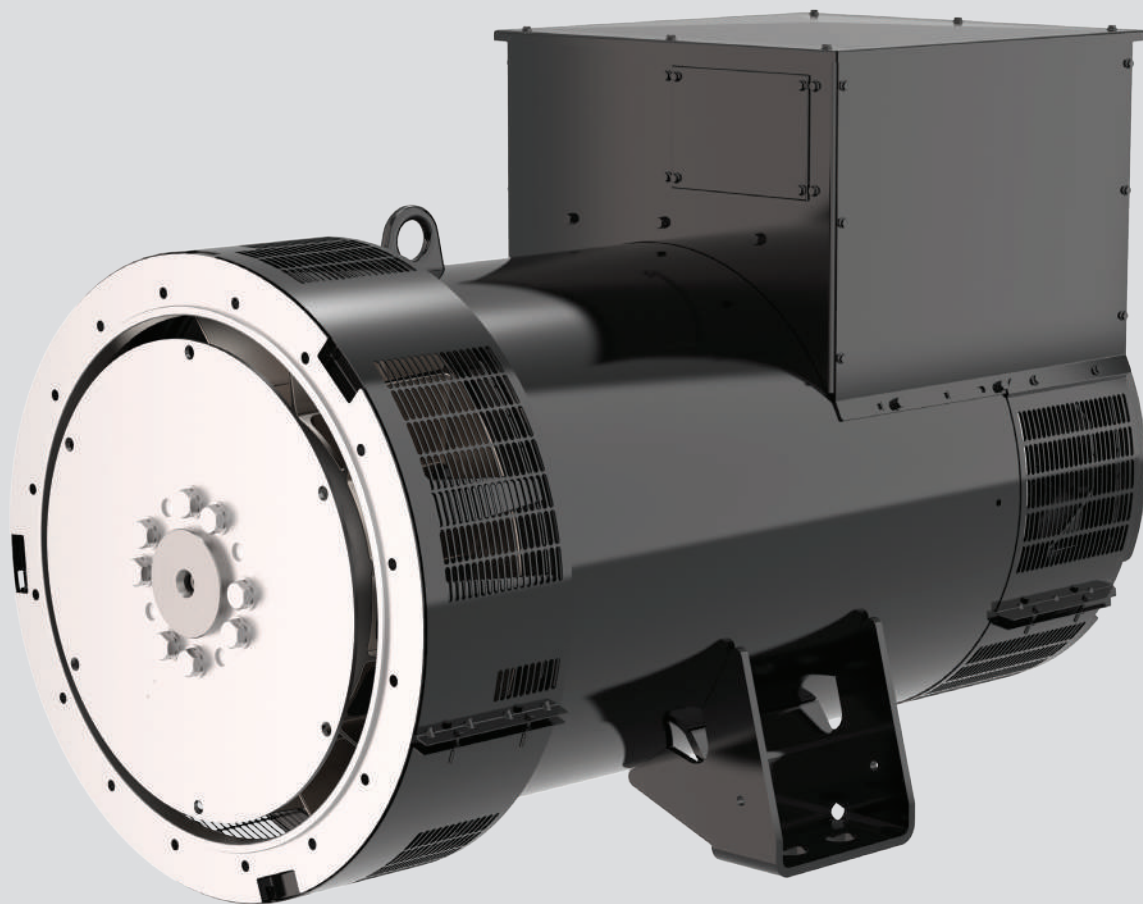
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THE HEART OF EVERY GREAT MACHINE



TAL 049

Low Voltage Alternator - 4 pole

730 to 1000 kVA - 50 Hz / 915 to 1250 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
- 6-terminal plates in 6-wire version or suitable for 12-wire option
- Optimized performance
- Complies with EN 61000-6-3, EN 61000-6-2, EN 55011, group 1 class B for European zone (EC marking)

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
- Standard direction of rotation: clockwise when looking at the drive end view (for anti-clockwise, derate the machine by 5%)

Excitation and regulation system suited to the application

	Excitation system				Regulation options		
	AVR	SHUNT	AREP+ (option)	PMG (option)	ULC/us	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

Compact terminal box

- Easy access to AVR and terminals
- Standard terminal box with possibility of mounting measurement CTs
- Possibility of current transformer for parallel operation

Environment and protection

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

Available options

- Three-phase 12-wire with 7-terminal plates
- AREP+ or PMG excitation
- ULC/us
- Customized painting
- Space heaters
- Droop kit for alternator paralleling
- Stator sensors
- Winding 8 optimized for three-phase 380V - 416 V / 60 Hz
- Winding protection for harsh environments and relative humidity greater than 95% (system 2 - 4 without derating)



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-wire (12-wire option)	Excitation system 12-wire (option)	SHUNT	AREP+ / PMG
Protection	IP 23	AVR type	R150	R180
Altitude	≤ 1000 m	Voltage regulation (*)	± 1 %	
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 second		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.

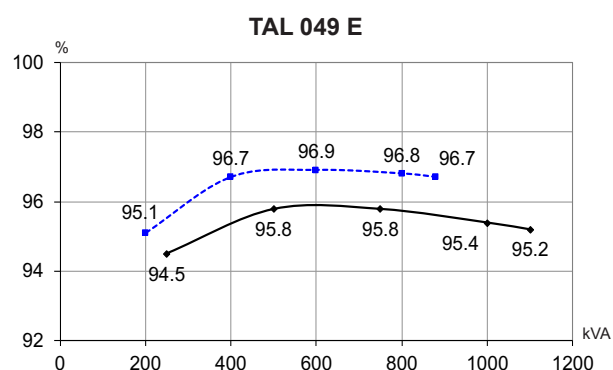
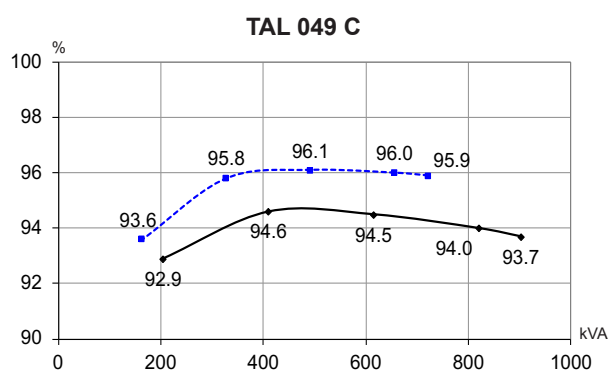
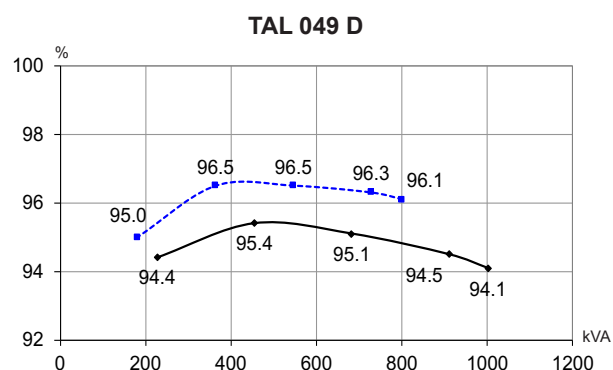
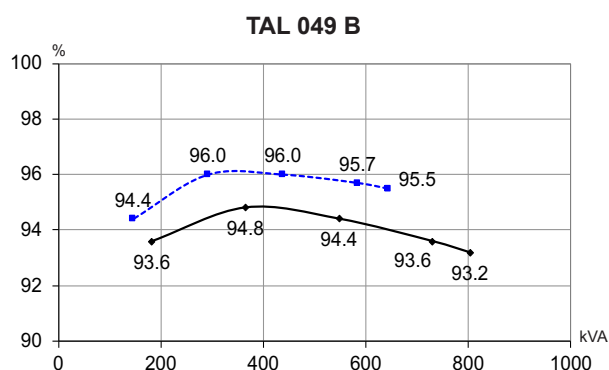
kVA / kW - P.F. = 0.8																
Duty / T° C	Continuous / 40 °C				Continuous / 40 °C				Stand-by / 40 °C				Stand-by / 27 °C			
Class / T° K	H / 125° K				F / 105° K				H / 150° K				H / 163° K			
Phase	3 ph.				3 ph.				3 ph.				3 ph.			
Y	380V	400V	415V	440V	380V	400V	415V	440V	380V	400V	415V	440V	380V	400V	415V	440V
Δ	220V	230V	240V		220V	230V	240V		220V	230V	240V		220V	230V	240V	
YY (*)	220V				220V				220V				220V			
TAL 049 B kVA	730	730	730	665	665	665	665	605	775	775	775	705	805	805	805	730
kW	584	584	584	532	532	532	532	484	620	620	620	564	644	644	644	584
TAL 049 C kVA	820	820	820	810	745	745	745	735	870	870	870	860	910	910	910	890
kW	656	656	656	648	596	596	596	588	696	696	696	688	728	728	728	712
TAL 049 D kVA	910	910	910	820	830	830	830	745	965	965	965	870	1010	1010	1010	900
kW	728	728	728	656	664	664	664	596	772	772	772	696	808	808	808	720
TAL 049 E kVA	1000	1000	1000	950	910	910	910	865	1060	1060	1060	1005	1100	1100	1100	1045
kW	800	800	800	760	728	728	728	692	848	848	848	804	880	880	880	836

(*) 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 049 B kVA	725	795	840	915	660	725	765	835	770	845	890	970	800	875	925	1005
kW	580	636	672	732	528	580	612	668	616	676	712	776	640	700	740	804
TAL 049 C kVA	815	890	940	1025	740	810	855	935	865	945	995	1085	895	980	1040	1130
kW	652	712	752	820	592	648	684	748	692	756	796	868	716	784	832	904
TAL 049 D kVA	905	990	1045	1140	825	900	950	1035	960	1050	1110	1210	1000	1090	1155	1255
kW	724	792	836	912	660	720	760	828	768	840	888	968	800	872	924	1004
TAL 049 E kVA	990	1083	1146	1250	900	985	1045	1140	1050	1150	1215	1325	1089	1192	1260	1375
kW	792	866	917	1000	720	788	836	912	840	920	972	1060	871	954	1008	1100

(*) 12-wire option

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

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

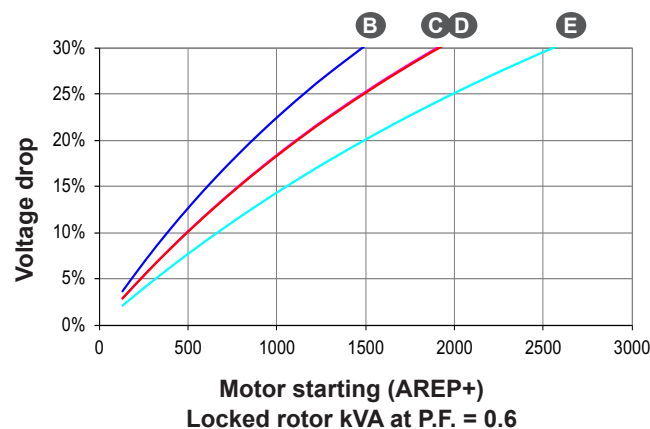
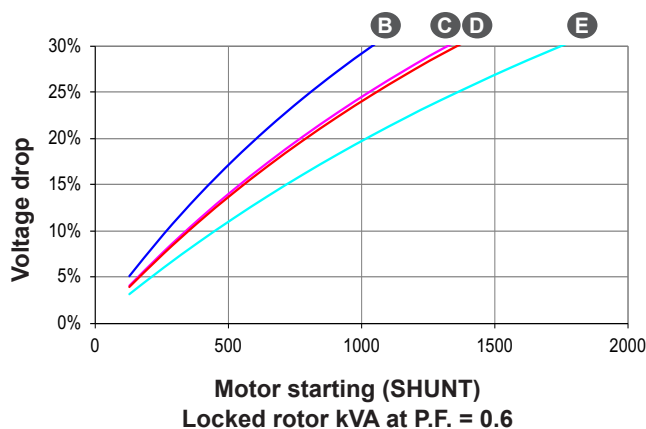
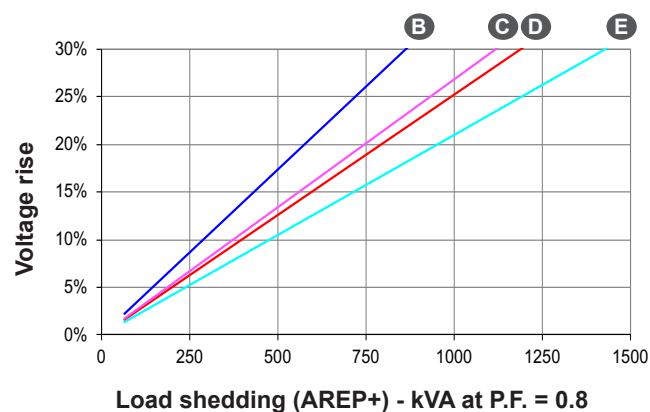
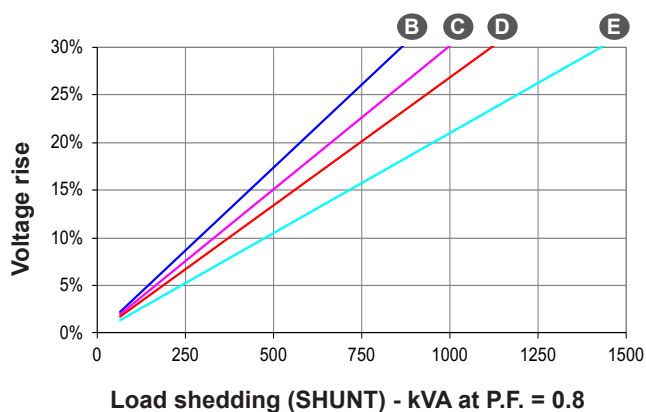
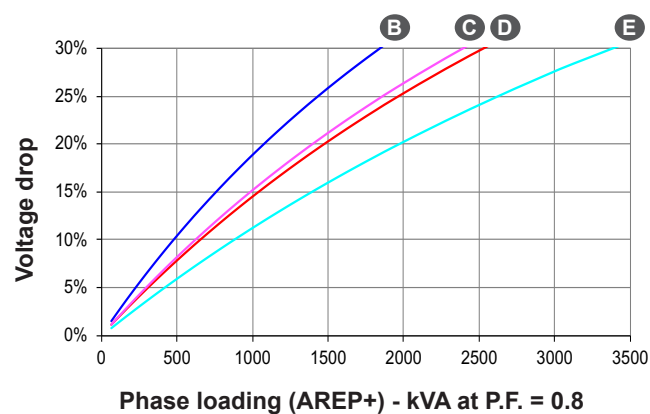
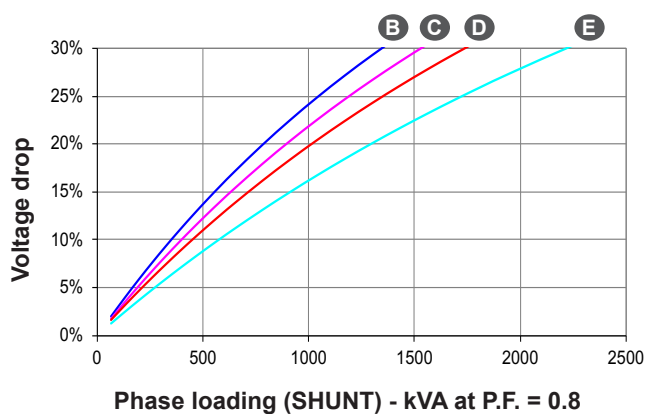
		B	C	D	E
Kcc	Short-circuit ratio	0.28	0.37	0.28	0.34
Xd	Direct-axis synchro. reactance unsaturated	403	330	402	348
Xq	Quadrature-axis synchro. reactance unsaturated	205	168	205	177
T'do	No-load transient time constant	2028	2074	2108	2153
X'd	Direct-axis transient reactance saturated	19.8	15.9	19	16.1
T'd	Short-circuit transient time constant	100	100	100	100
X''d	Direct-axis subtransient reactance saturated	15.9	12.7	15.2	12.9
T''d	Subtransient time constant	10	10	10	10
X''q	Quadrature-axis subtransient reactance saturated	18.3	14.4	16.9	14.1
Xo	Zero sequence reactance	0.82	0.66	0.79	0.67
X2	Negative sequence reactance saturated	17.12	13.59	16.11	13.53
Ta	Armature time constant	15	15	15	15

Other class H / 400 V data

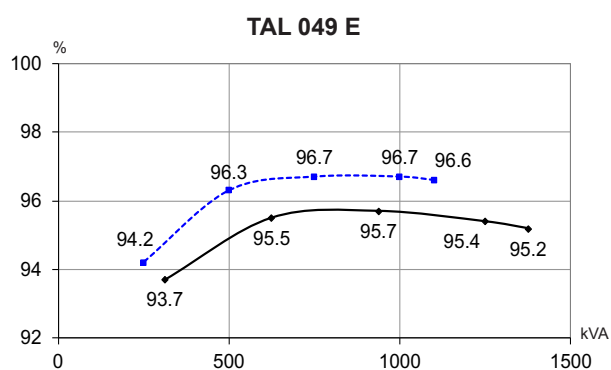
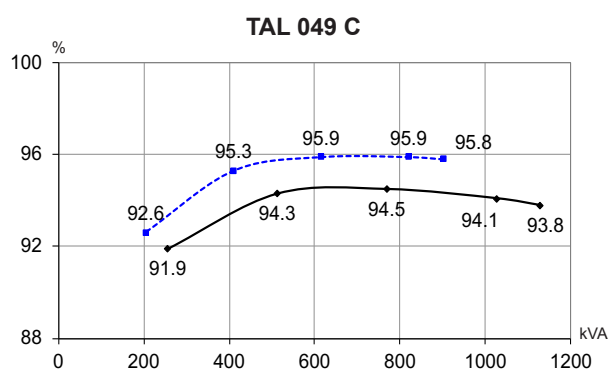
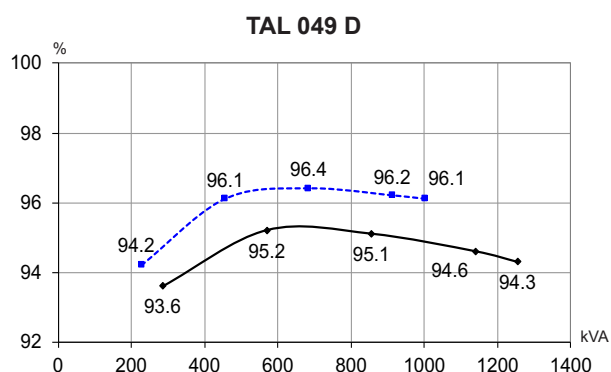
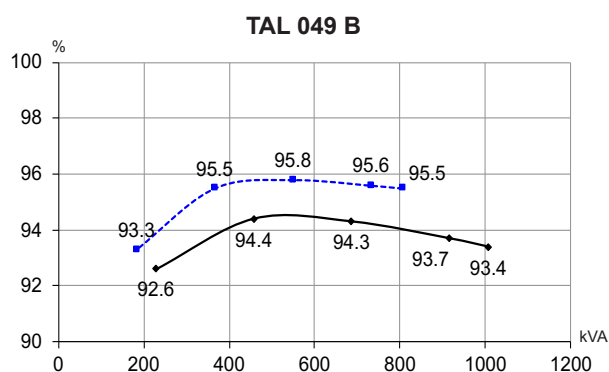
io (A)	No-load excitation current SHUNT/AREP+	0.79	1.11	0.81	0.9
ic (A)	On-load excitation current SHUNT/AREP+	4.03	4.62	4.03	3.62
uc (V)	On-load excitation voltage SHUNT/AREP+	45.7	52.2	45.4	40.9
ms	Response time ($\Delta U = 20\%$ transient)	500	500	500	500
kVA	Start ($\Delta U = 20\%$ cont. or $\Delta U = 30\%$ trans.) SHUNT*	1040	1324	1354	1753
kVA	Start ($\Delta U = 20\%$ cont. or $\Delta U = 30\%$ trans.) AREP+*	1478	1897	1913	2553
%	Transient ΔU (on-load 4/4) SHUNT - P.F.: 0.8 _{LAG}	19	18.7	18.4	16.2
%	Transient ΔU (on-load 4/4) AREP+ - P.F.: 0.8 _{LAG}	14.5	12.3	14.1	11.3
W	No-load losses	7774	10303	8474	9556
W	Heat dissipation	39596	41666	42360	38187

* P.F. = 0.6

Transient voltage variation 400 V - 50 Hz



- 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.

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

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

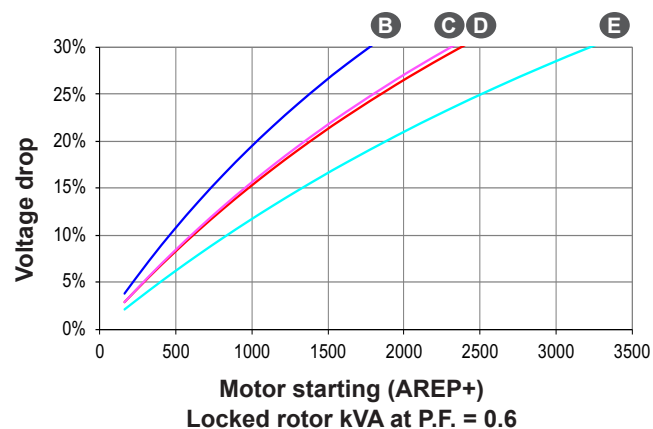
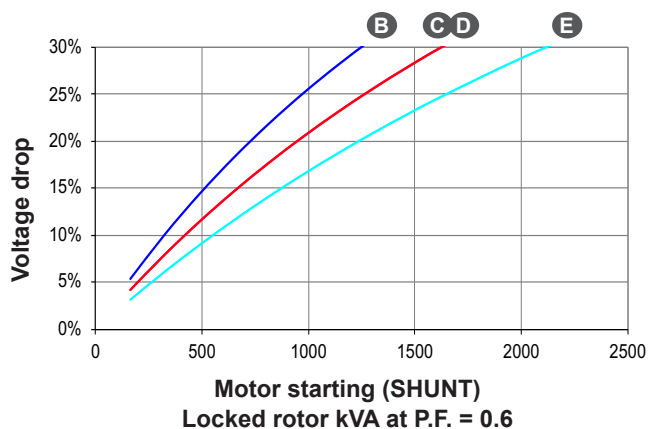
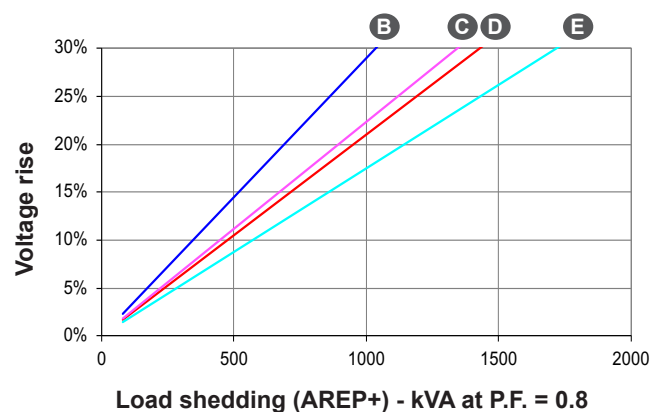
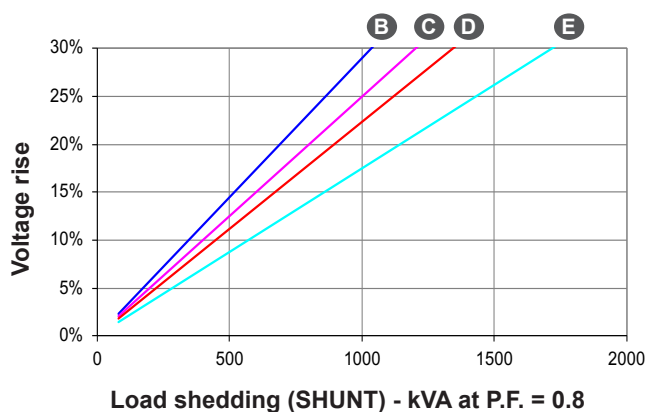
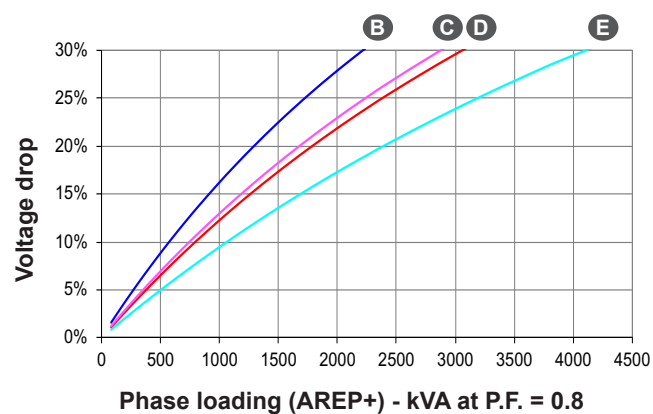
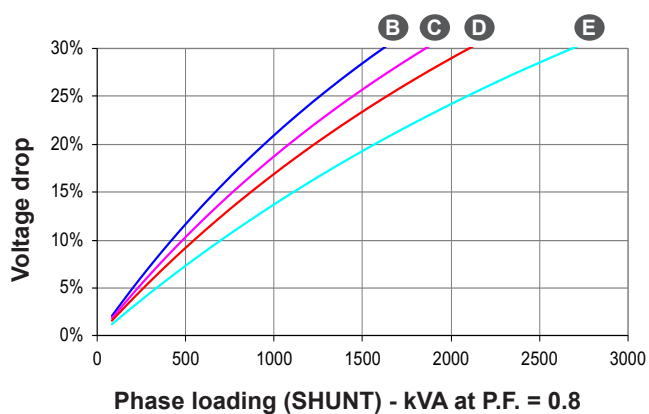
		B	C	D	E
Kcc	Short-circuit ratio	0.27	0.36	0.27	0.33
Xd	Direct-axis synchro. reactance unsaturated	421	344	419	363
Xq	Quadrature-axis synchro. reactance unsaturated	214	175	214	185
T'do	No-load transient time constant	2028	2074	2108	2153
X'd	Direct-axis transient reactance saturated	20.7	16.6	19.9	16.8
T'd	Short-circuit transient time constant	100	100	100	100
X''d	Direct-axis subtransient reactance saturated	16.6	13.2	15.9	13.4
T''d	Subtransient time constant	10	10	10	10
X''q	Quadrature-axis subtransient reactance saturated	19.1	15	17.7	14.7
Xo	Zero sequence reactance	0.86	0.69	0.82	0.7
X2	Negative sequence reactance saturated	17.89	14.16	16.82	14.1
Ta	Armature time constant	15	15	15	15

Other class H / 480 V data

io (A)	No-load excitation current SHUNT/AREP+	0.79	1.11	0.81	0.9
ic (A)	On-load excitation current SHUNT/AREP+	4.15	4.72	4.13	3.69
uc (V)	On-load excitation voltage SHUNT/AREP+	47.2	53.6	46.8	41.9
ms	Response time ($\Delta U = 20\%$ transient)	500	500	500	500
kVA	Start ($\Delta U = 20\%$ cont. or $\Delta U = 30\%$ trans.) SHUNT*	1247	1626	1624	2114
kVA	Start ($\Delta U = 20\%$ cont. or $\Delta U = 30\%$ trans.) AREP+*	1770	2373	2307	3224
%	Transient ΔU (on-load 4/4) SHUNT - P.F.: 0.8 _{LAG}	19.6	19.2	19	16.7
%	Transient ΔU (on-load 4/4) AREP+ - P.F.: 0.8 _{LAG}	15	12.6	14.5	11.7
W	No-load losses	12224	15725	13141	14640
W	Heat dissipation	48486	51103	51860	47175

* P.F. = 0.6

Transient voltage variation 480 V - 60 Hz

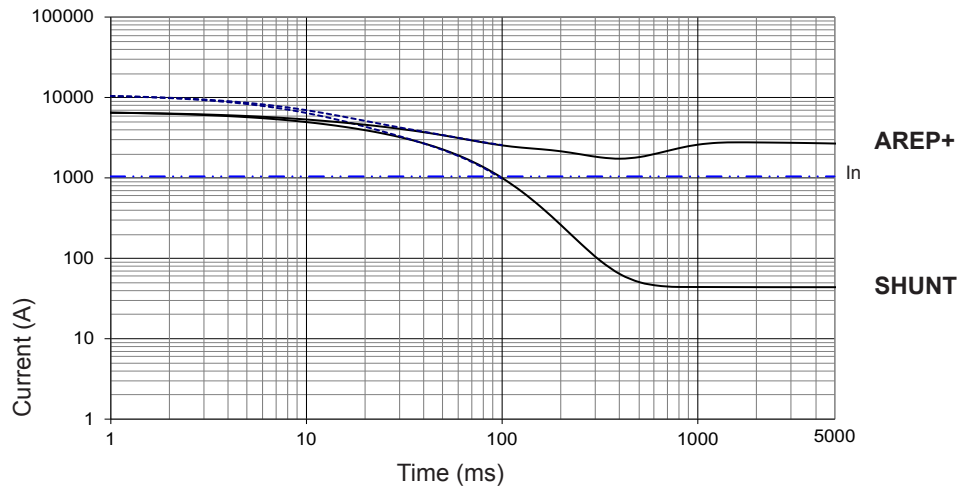


- For a starting P.F. other than 0.6, the starting kVA must be multiplied by $K = \text{Sine P.F.} / 0.8$
- For voltages other than 480V (Y), 277V (Δ), 240V (YY) at 60 Hz, then kVA must be multiplied by $(480/U)^2$ or $(277/U)^2$ or $(240/U)^2$.
- Transient performance of the PMG option, consult us.

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

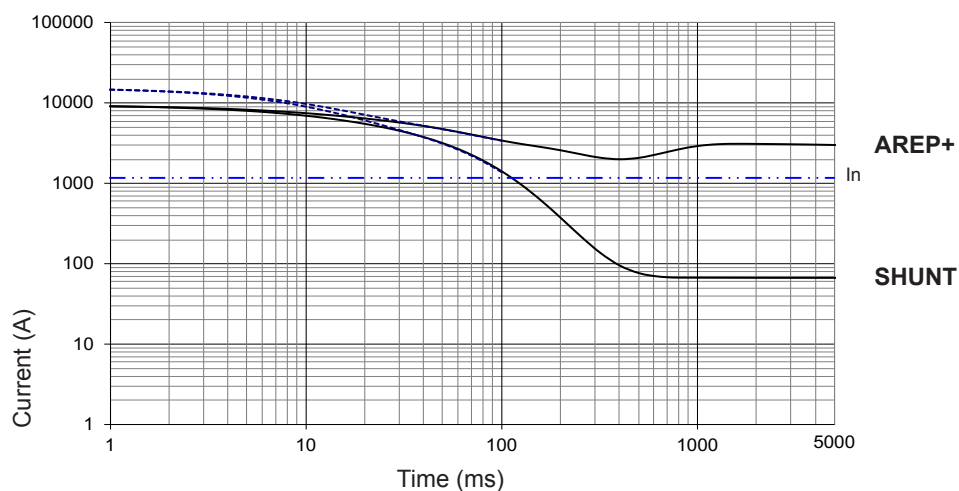
TAL 049 B

Symmetrical —
Asymmetrical - - -



TAL 049 C

Symmetrical —
Asymmetrical - - -



Influence due to connection

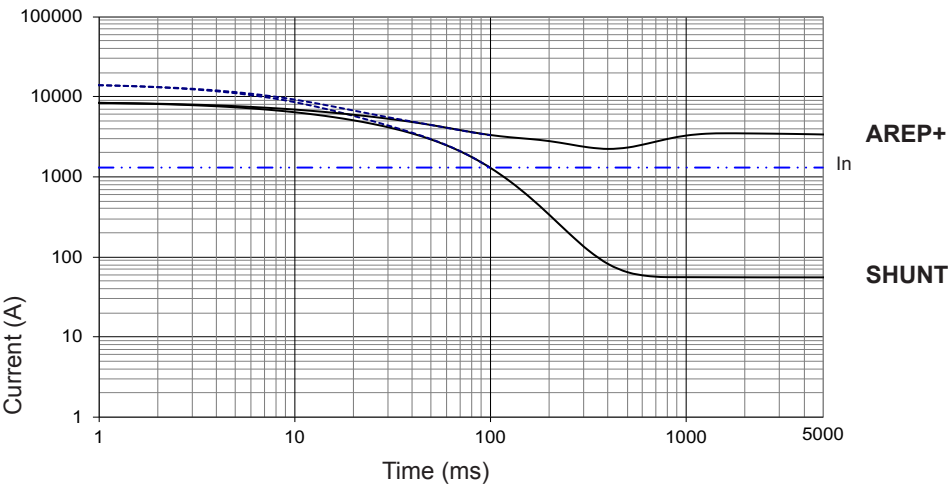
For (Δ) connection, use the following multiplication factor:

- Current value x 1.732.

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

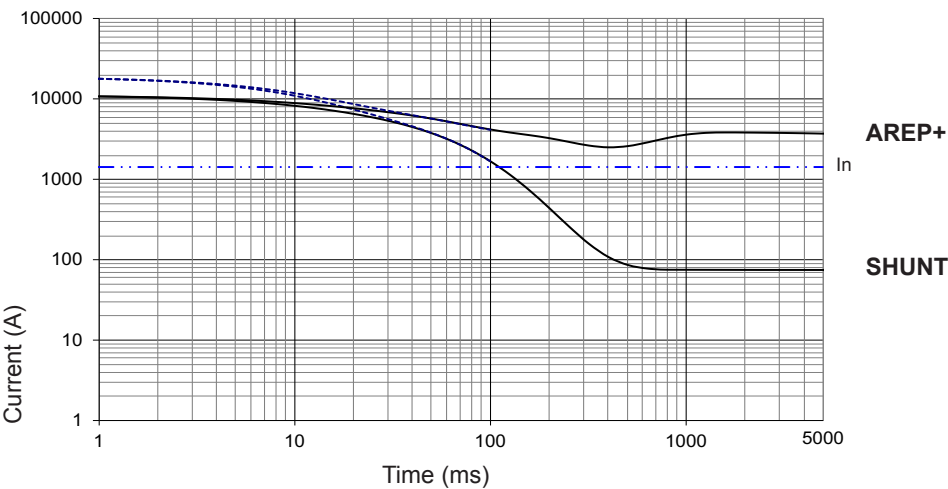
TAL 049 D

Symmetrical —
Asymmetrical - - -



TAL 049 E

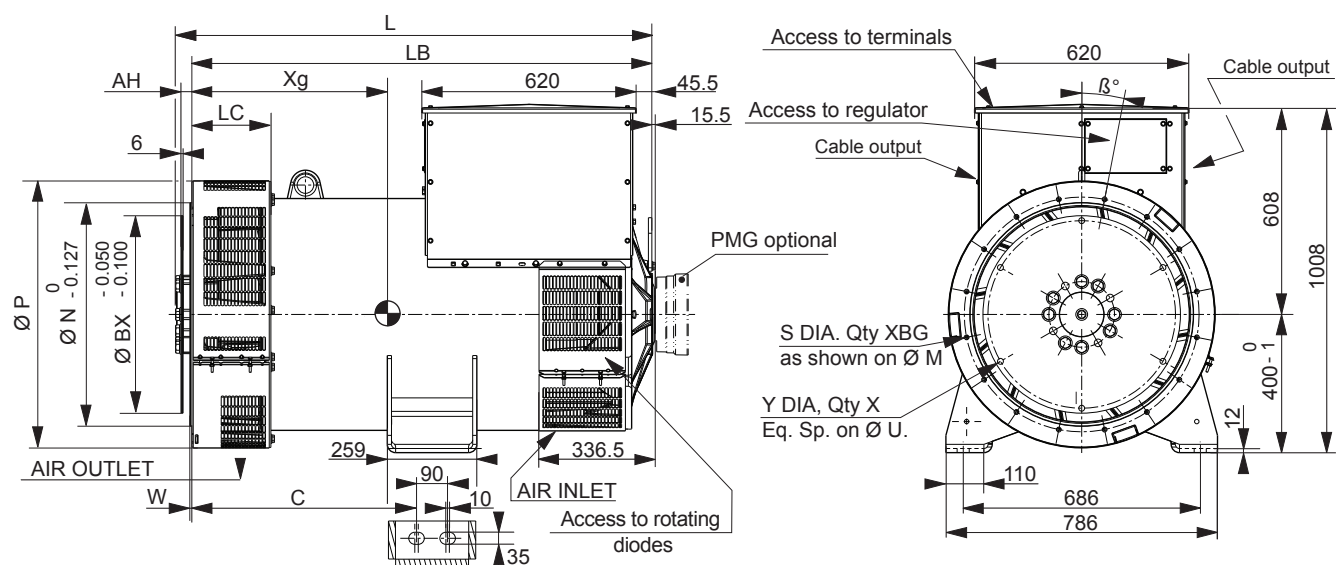
Symmetrical —
Asymmetrical - - -



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	

Single bearing general arrangement



Dimensions (mm) and weight

Type	L without PMG max.	LB max.	C	Xg	Weight (kg)
TAL 049 B	1372	1331	650	629	1574
TAL 049 C	1372	1331	650	636	1635
TAL 049 D	1462	1421	650	673	1788
TAL 049 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

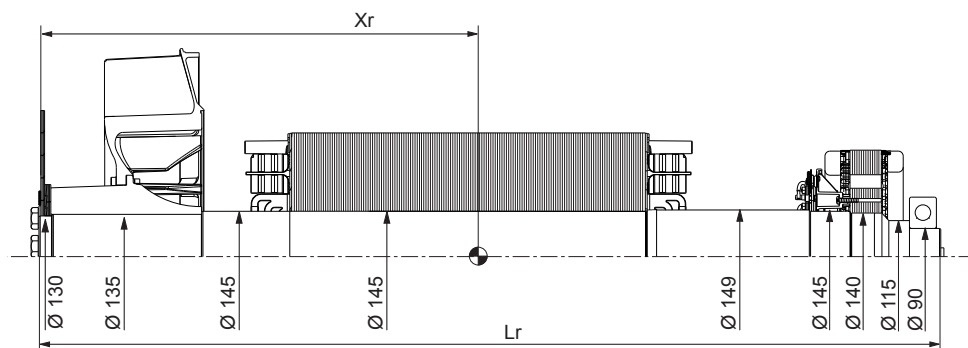
Flange (mm)

S.A.E.	P	N	M	LC	XBG	W	β°
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 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. 14				S.A.E. 18			
Type	Xr	Lr	M	J	Xr	Lr	M	J
TAL 049 B	626	1345	602	9.61	614	1345	604	9.87
TAL 049 C	634	1345	628	10.16	622	1345	630	10.42
TAL 049 D	671	1435	684	11.12	659	1435	686	11.38
TAL 049 E	681	1435	701	11.48	669	1435	703	11.74

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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Nidec
All for dreams

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Capital social : 65 800 512 €, RCS Angoulême 338 567 258.

DSE7310/20 MKII

AUTO START & AUTO MAINS FAILURE CONTROL MODULES



KEY FEATURES

- Configurable power-up mode
- MPU fail delay
- Enhanced graphical user interface
- Drag & drop advanced PLC editor
- MSC ID within PLC GenComm override
- 4-Line back-lit LCD text display
- Multiple Display Languages
- Five key menu navigation
- LCD alarm indication
- Heated display option available
- Customisable power-up text and images
- DSENet expansion compatibility
- Data logging facility
- Internal PLC editor
- Protections disable feature
- Fully configurable via PC using USB, RS232 & RS485 communication
- Front panel configuration with PIN protection
- Power save mode
- 3 phase generator sensing and protection
- 3 phase mains (utility) sensing and protection (DSE7320 MKII only)
- Automatic load transfer control (DSE7320 MKII only)
- Generator current and power monitoring (kW, kvar, kVA, pf)
- Mains current and power monitoring (kW, kvar, kVA, pf) (DSE7320 MKII only)
- kW and kvar overload and reverse power alarms
- Over current protection
- Unbalanced load protection
- Independent earth fault protection
- Breaker control via fascia buttons
- Fuel and start outputs configurable when using CAN
- 6 configurable DC outputs
- 2 configurable volt-free relay outputs
- 6 configurable analogue/digital inputs
- Support for 0 V to 10 V & 4 mA to 20 mA sensors
- 8 configurable digital inputs
- Configurable 5 stage dummy load and load shedding outputs
- 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 usage monitor and low fuel level alarms
- Simultaneous use of RS232 and RS485 communication ports
- True dual mutual standby using RS232 or RS485 for accurate engine hours balancing.
- MODBUS RTU support with configurable MODBUS pages.
- Advanced SMS messaging (additional external modem required)
- Start & stop capability via SMS messaging
- 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 supplied gasket) offers increased resistance to water ingress
- Modules can be integrated into building management systems (BMS) using MODBUS RTU

KEY BENEFITS

- Automatically transfers between mains (utility) and generator (DSE7320 MKII 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 upto 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

510 mA at 12 V, 240 mA at 24 V

MAXIMUM STANDBY CURRENT

330 mA at 12 V, 160 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 & F

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

ANALOGUE INPUTS B, C, D & E

Configurable as:
Negative switching digital input
Resistive sensor

OUTPUTS

OUTPUT A & B (FUEL & START)

15 A DC at supply voltage

OUTPUTS C & D

8 A AC at 250 V AC (Volt-free)

AUXILIARY OUTPUTS E, F, G, H, I & J

2 A DC at supply voltage

DIMENSIONS

OVERALL

245 mm x 184 mm x 51 mm
9.6" x 7.2" x 2.0"

PANEL CUT-OUT

220 mm x 160 mm
8.7" x 6.3"

MAXIMUM PANEL THICKNESS

8 mm
0.3"

STORAGE TEMPERATURE RANGE

-40°C to +85°C
-40 °F to +185 °F

OPERATING TEMPERATURE RANGE

-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

DSE7310 MKII & DSE7320 MKII Installation Instructions
DSE7310 MKII & DSE7320 MKII Operator Manual
DSE7310 MKII & DSE7320 MKII Configuration Suite PC Manual

PART NO.

053-181
057-253
057-243

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DSE7310/20 MKII

AUTO START & AUTO MAINS FAILURE CONTROL MODULES

The DSE7310 MKII is an Auto Start Control Module and the DSE7320 MKII 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 MKII 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. Dual mutual standby is now available on both the DSE7310 MKII & DSE7320 MKII using RS232 or RS485 communications. This provides for a simpler and more convenient installation with more advanced features such as true engine hours balancing.

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 supplied sealing gasket.

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

