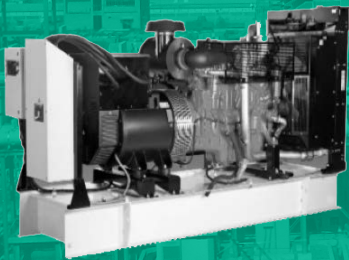


Model B

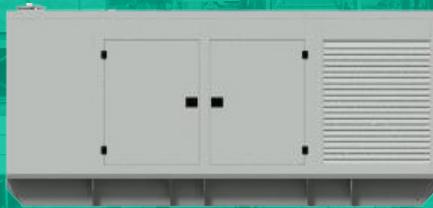
50Hz/60Hz switchable

516 kW @ 50Hz 400V

525kW @ 60Hz 480V



Open



Canopy



Container

Model B

		Prime		Standby	
Genset model		Model B		Model B	
380 V	50Hz	645.0 kVA	516.0 kW	710.0 kVA	568.0 kW
400 V	50Hz	645.0 kVA	516.0 kW	710.0 kVA	568.0 kW
415 V	50Hz	645.0 kVA	516.0 kW	710.0 kVA	568.0 kW
Genset model		Model B		Model B	
380 V	60Hz	660.0 kVA	528.0 kW	728.8 kVA	583.0 kW
480 V	60Hz	661.3 kVA	529.0 kW	730.0 kVA	584.0 kW

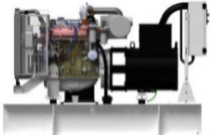
Ratings at 0.8pf

Prime: This rating is for the supply of continuous electrical power (at variable load) in lieu of commercially purchased power. There is no limitation on the annual hours of operation and 10% overload power can be supplied for one hour in twelve hours.

Standby: This rating is for the supply of continuous electrical power (at variable load) in the event of a utility power failure. No overload is permitted.

Engine	Scania	DC16-093A	DC13-072A
Number of cylinders		8 V	8 V
Cubic capacity	litre (cu inch)	16.4 (1000.79)	16.4 (1000.79)
Aspiration		Turbocharged	Turbocharged
Alternator		Newage Stamford	Newage Stamford
Frequency	Hz	50	60
Engine speed	rpm	1500	1800
Fuel consumption at full rating: Prime	litre /h (USgal /h)	129.30 (34.16)	136.90 (36.17)
Standby	litre /h (USgal /h)	143.03 (37.79)	154.50 (40.82)
Heat rejection to exhaust system (max)	kW (BTU /min)	443.00 (25213.35)	488.00 (27774.52)
Heat rejection to cooling system (max)	kW (BTU /min)	219.00 (12464.39)	242.00 (13773.43)
Total radiated heat (max)	kW (BTU /min)	58.00 (3301.07)	63.00 (3585.65)
Exhaust temperature (max)	deg C (deg F)	546.00 (1014.80)	536.00 (996.80)
Radiator cooling air flow	cu m /min (cfm)	604.80 (21358.51)	946.90 (33439.77)
with max Restriction	mm (inch) H ₂ O	20.00 (0.79)	20.00 (0.79)
Combustion air flow (max)	cu m /min (cfm)	35.92 (1268.51)	40.80 (1440.85)
Exhaust gas flow (max)	cu m /min (cfm)	108.35 (3826.38)	121.00 (4273.12)
with max allowable back pressure	mm (inch) H ₂ O	1000.00 (39.37)	1000.00 (39.37)

Note: Standard reference conditions: 25deg C (77deg F) air inlet temperature, 152.4m (500feet) above sea level, 60% relative humidity. All engine performance data based on the above mentioned maximum continuous ratings. Fuel consumption data at full load for diesel fuel with specific gravity of 0.85 and conforming to BS2869: 1998, class A2.

Model	Dimensions: mm (inch)	Weight: (kg)	Fuel tank: (L)
 Open	Length 3869 (152.3) Width 1316 (51.8) Height 2212 (87.1)	4150	940
 Canopy	Length 5400 (212.6) Width 1750 (68.9) Height 2100 (82.7)	6050	1020
 Container	Length 6060 (238.6) Width 2440 (90.1) Height 2590 (102.0)	6900	1200

Note: Above weights for Open/Canopy/Container are estimated figures, excluding fuel and options.

In line with our policy of continuous development, we reserve the right to change specification without notice.

Specification should be confirmed prior to purchase.

We have made every effort to provide accurate information. However we are not responsible for errors or omissions.



Technical data

DC16 093A, 558-634 kW / 640-720 kVA (engine ref. 02-54)

Emission compliance	Fuel injection system
Fuel optimized	PDE

	1500 rpm (50 Hz)		1800 rpm (60 Hz)		Unit
	PRP	ESP	PRP	ESP	
Gross power	558	614	576	634	kW
	640	706	652	720	kVA
Gross torque	3552	3909	3056	3363	Nm
Spec. fuel consumption					
full load	197	198	202	207	g/kWh
3/4 load	189	189	199	199	g/kWh
1/2 load	193	192	204	202	g/kWh
Heat rejection					
to coolant	189	219	209	242	kW
to exhaust gas	406	443	422	488	kW
to charge air	109	125	131	148	kW
to surrounding air	52	58	55	63	kW
Air consumption	41	44	47	50	kg/min
Air temperature					
upstream of charge air cooler	202	218	207	229	°C
downstream of charge air cooler	45	48	47	53	°C
Pressure in intake manifold	2.4	2.6	2.3	2.5	Bar
Pressure drop in charge air cooler	0.1	0.1	0.2	0.2	Bar
Exhaust flow	43	46	49	52	kg/min
Exhaust temperature	536	546	493	536	°C
Step load performance					
(According to class G2. See section 2 for more information.)	58	52	76	69	%
	322	322	438	438	kW

6A

Cooling performance

Cooling package 1.5 m², fan Ø965, ratio 1:0.9

1500 rpm (50 Hz)						1800 rpm (60 Hz)					
PRP			ESP			PRP			ESP		
Air-on temp* (°C)	Airflow (kg/s)	Rest-riction (Pa)	Air-on temp* (°C)	Airflow (kg/s)	Rest-riction (Pa)	Air-on temp* (°C)	Airflow (kg/s)	Rest-riction (Pa)	Air-on temp* (°C)	Airflow (kg/s)	Rest-riction (Pa)
56	7	350	7	53	350	60	16	260	56	16	260
61	10	250	10	57	250	64	19	150	60	19	150
64	17	100	17	60	100	69	20	100	64	20	100

Fan power losses (kW)

13	21
----	----



Basic dimensions

The basic dimensions are indicated with coordinates. The coordinate system is three dimensional and consists of three planes at straight angles to each other; x, y and z. The dimensions are indicated in mm from centre of the crankshaft.

DC16 093A

- 1** Air intake
(Ø 125 mm)

1	x	-522
	y	-75
	z	+760

- 2** Connection to charge air cooler
(Ø 101.6 mm), Prepared for cooling package - option.

2	x	-900
	y	-599
	z	+447

- 3** Connection from charge air cooler
(Ø 101.6 mm)

3	x	-1236
	y	-217
	z	+673

- 4** Exhaust outlet

4	x	-20
	y	-112
	z	+604

- 5** Coolant inlet (Ø 57 mm)

5	x	-1072
	y	+285
	z	-25

- 6** Coolant outlet (Ø 57 mm)

6	x	-1187
	y	+433
	z	204

- 7** Coolant drain

- 8** Coolant bleed pipe

- 9** Fuel filter

- 10** Oil filler

- 11** Oil dipstick

- 12** Oil drain plug

10	x	-812
	y	-448
	z	+542

12	x	-660
	y	-70
	z	-445

- 13** Battery connection + (M10)

- 14** Battery connectin - (M10)

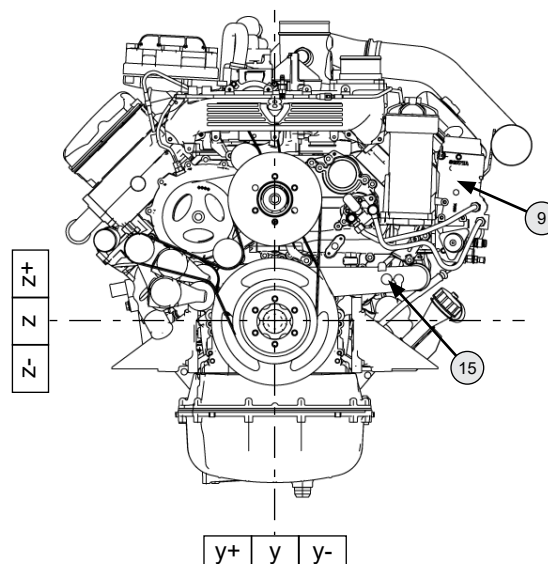
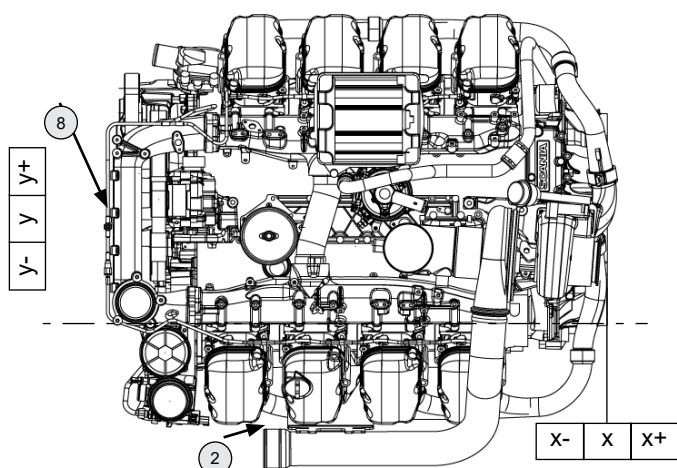
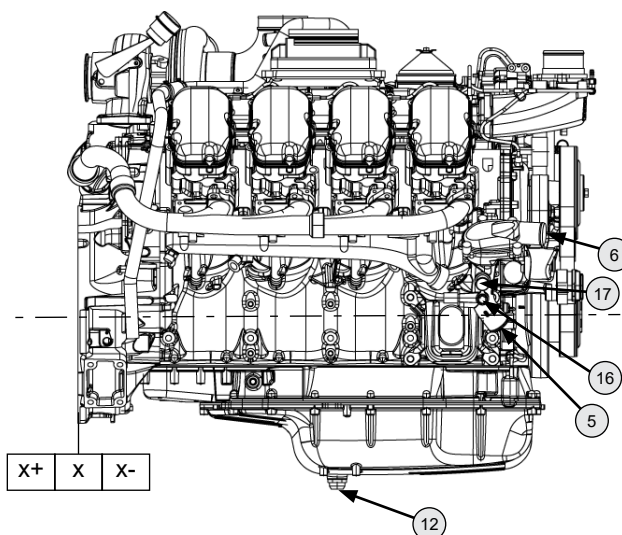
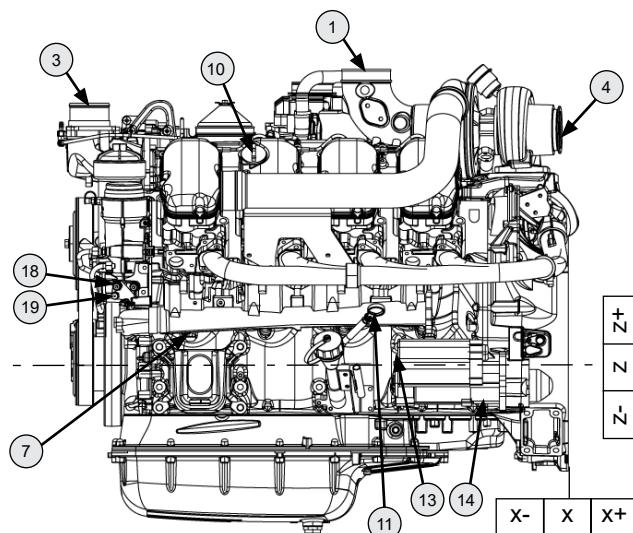
- 15** To cab heater (M18 x 1.5 or Ø16 mm hose)

- 16** From cab heater (M18 x 1.5 or Ø16 mm hose)

- 17** Static line (M30x1.5 or Ø 25 mm hose)

- 18** Fuel inlet (Ø 12 mm)

- 19** Fuel return (Ø 12 mm)





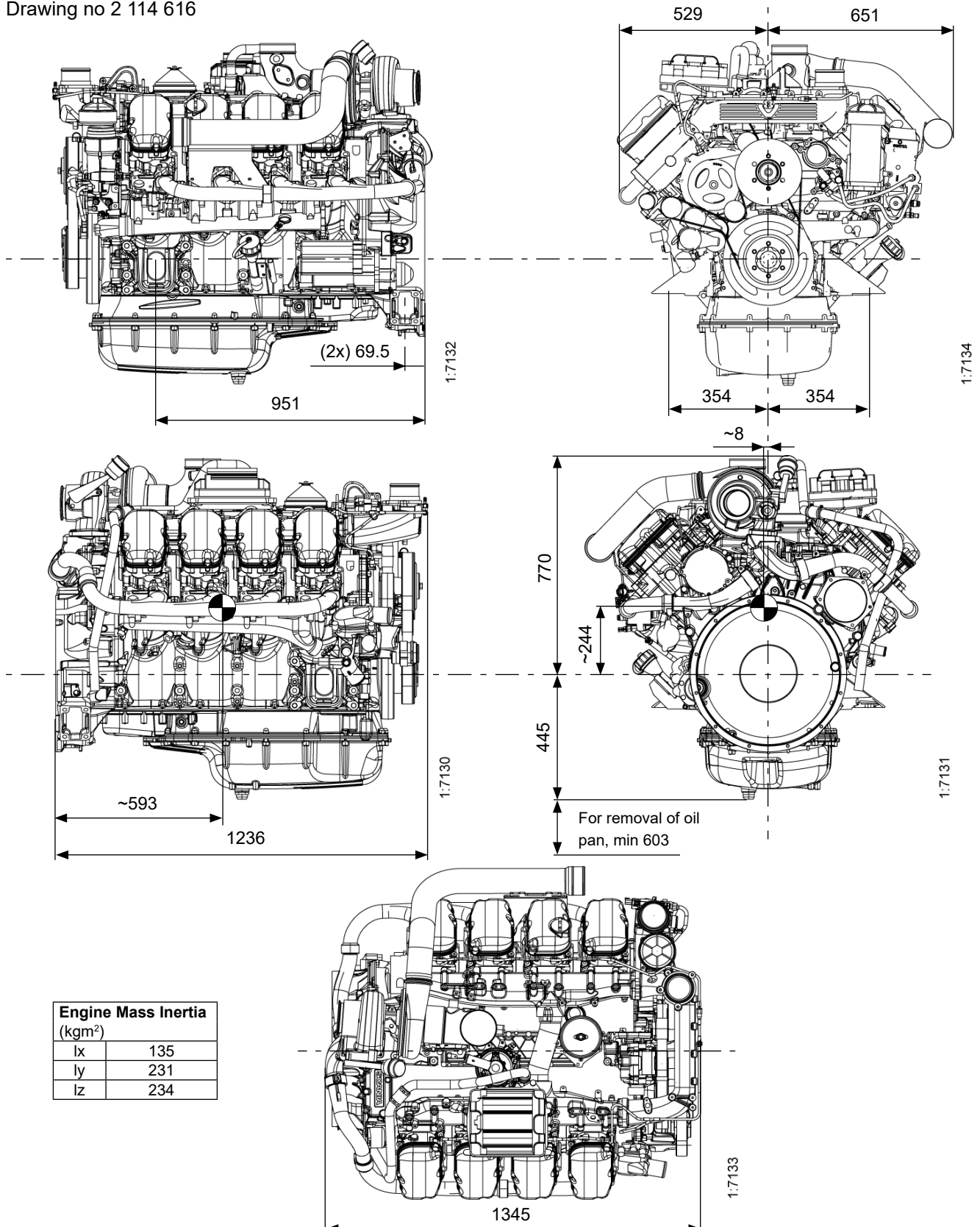
Dimensional drawings

All drawings are only intended as general sales information and must not be used for installation purposes.

The values for centre of gravity apply to engines with standard equipment including coolant. All dimensions are indicated in mm.

DC16 093A

Drawing no 2 114 616

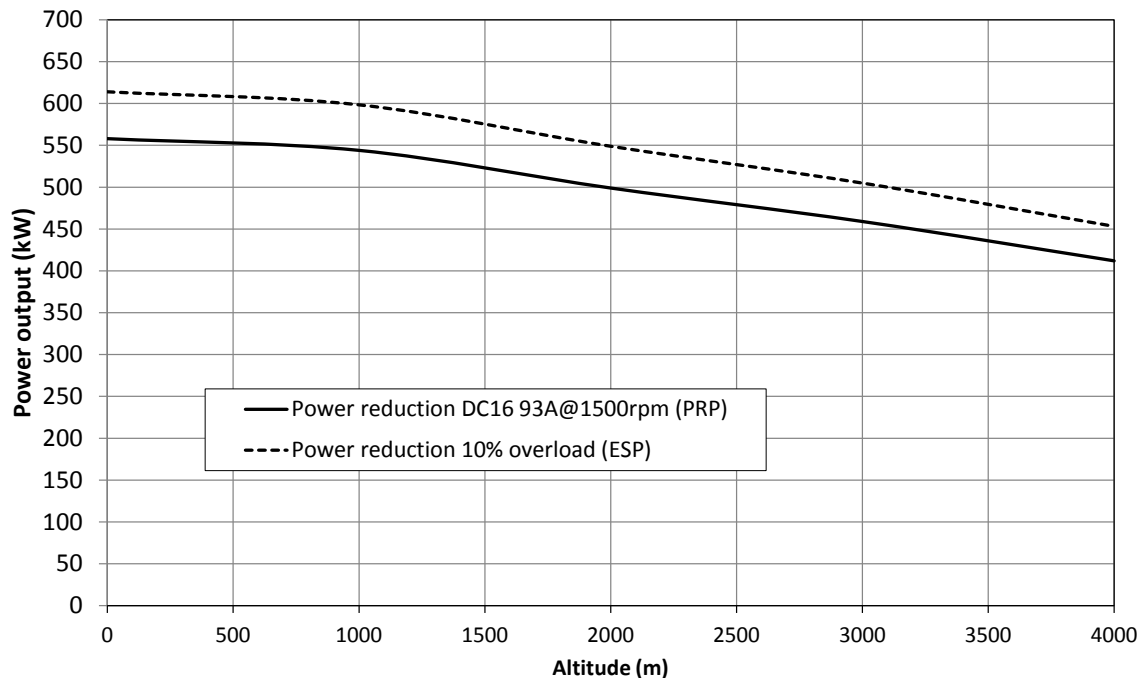


6A

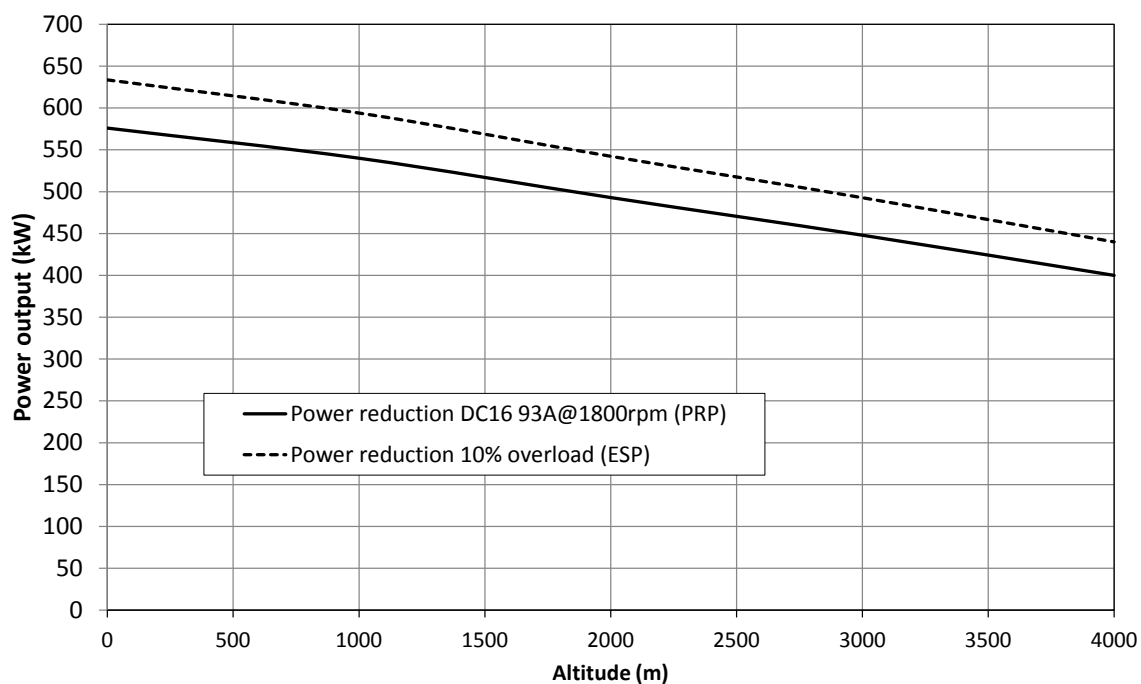
Engine Mass Inertia (kgm ²)	
Ix	135
Iy	231
Iz	234



DC16 093A



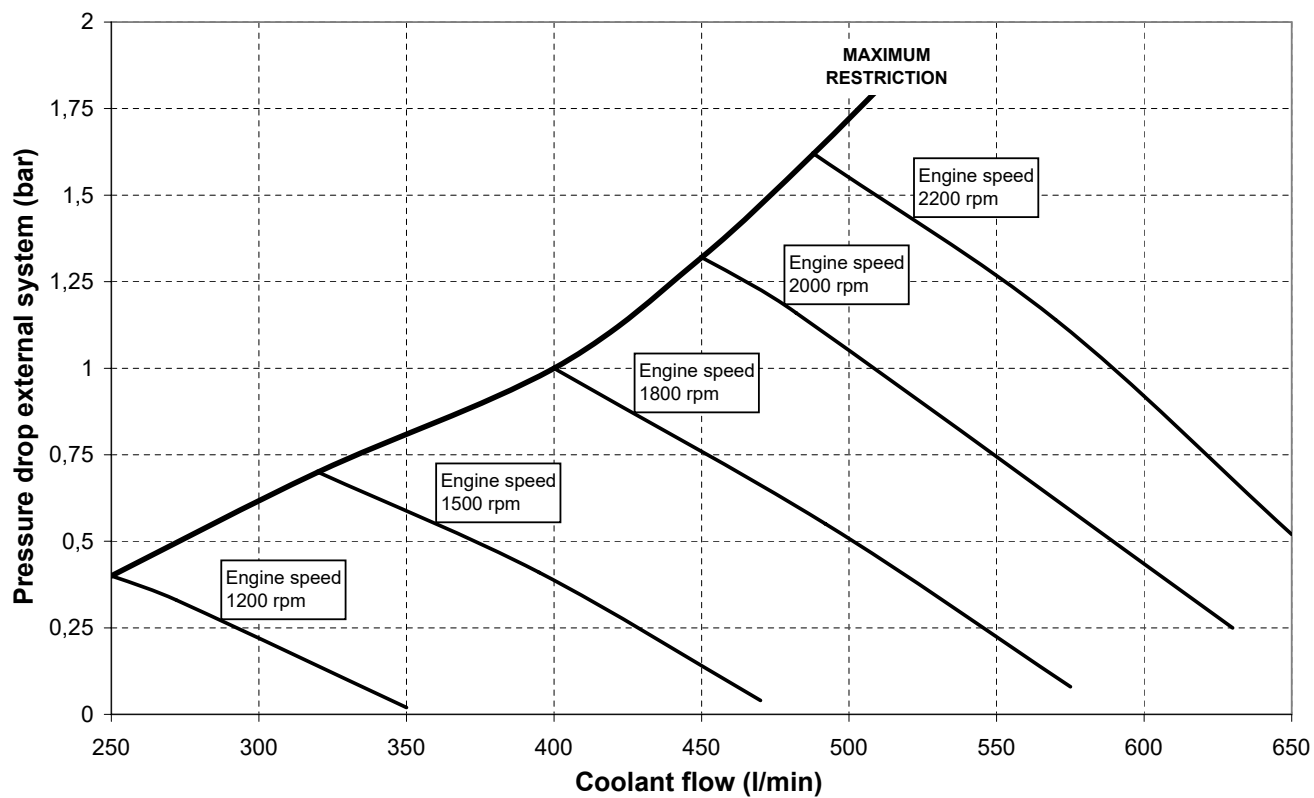
6_A





Coolant flow

The coolant flow depends on the pressure drop in the external system according to the graph below.
Valid for all DC16.





Exhaust noise

The table below presents unsilenced exhaust noise measured 1 m after the turbocharger at maximum power. Most important overall frequency range for exhaust noise is 50-500 Hz. Noise at higher frequencies is generally not induced by the engine gas pulsations but by the exhaust system itself, for example turbulent and whistle noise.

Engine size	Power (kW)	Engine speed (rpm)	Sound level (dB(A))	1/3 octave band (Hz)
D16	405	1500	116	100 + 200
		1800	119	125 + 250
	478-515	1500	118	100 + 200
		1800	121	125 + 250

Engine sound power level

The engine sound power level measurements are performed according to ISO 3744 with 10 microphones placed in a hemispherical pattern with the engine in the centre. There has been one exception concerning the radius of the hemisphere and that is that it has been limited by the dimensions of the test cell to 2 m, which is less than what is recommended in ISO 3744.

The sound power level measurements are made with the following test parameters:

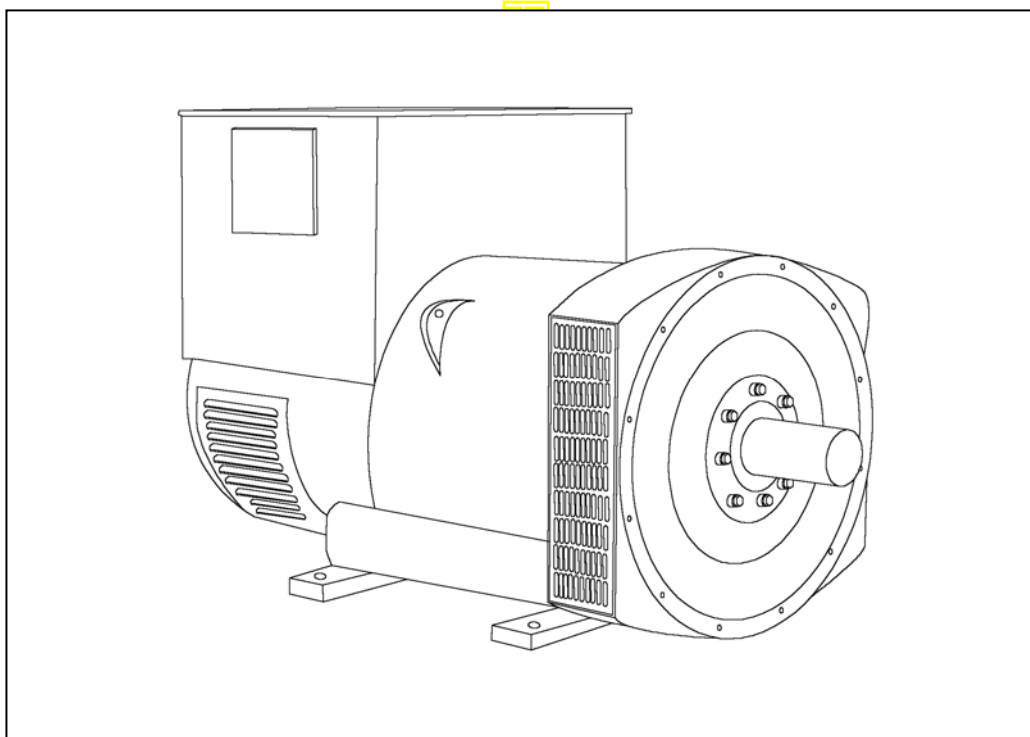
Frequency range: 0-16384 Hz
Frequency resolution: 1 Hz
Engine speed: 1500 rpm and 1800 rpm

The results of the sound power level measurements are presented on the following pages in several 1/3 octave band charts in dB(A). The bar furthest to the right in every chart shows the total level of all 1/3 octave band in dB(A).

STAMFORD®

HCI 534F/544F - Winding 311

Technical  Data Sheet



HCI534F/544F

SPECIFICATIONS & OPTIONS

STAMFORD

STANDARDS

Stamford industrial generators meet the requirements of BS EN 60034 and the relevant section of other international standards such as BS5000, VDE 0530, NEMA MG1-32, IEC34, CSA C22.2 100, AS1359.

Other standards and certifications can be considered on request.

VOLTAGE REGULATORS

AS440 AVR - STANDARD

With this self-excited system the main stator provides power via the Automatic Voltage Regulator (AVR) to the exciter stator. The high efficiency semi-conductors of the AVR ensure positive build-up from initial low levels of residual voltage.

The exciter rotor output is fed to the main rotor through a three-phase full-wave bridge rectifier. The rectifier is protected by a surge suppressor against surges caused, for example, by short circuit or out-of-phase paralleling.

The AS440 will support a range of electronic accessories, including a 'droop' Current Transformer (CT) to permit parallel operation with other ac generators.

MX341 AVR

This sophisticated AVR is incorporated into the Stamford Permanent Magnet Generator (PMG) control system.

The PMG provides power via the AVR to the main exciter, giving a source of constant excitation power independent of generator output. The main exciter output is then fed to the main rotor through a full wave bridge, protected by a surge suppressor. The AVR has in-built protection against sustained over-excitation, caused by internal or external faults. This de-excites the machine after a minimum of 5 seconds.

An engine relief load acceptance feature can enable full load to be applied to the generator in a single step.

If three-phase sensing is required with the PMG system the MX321 AVR must be used.

We recommend three-phase sensing for applications with greatly unbalanced or highly non-linear loads.

MX321 AVR

The most sophisticated of all our AVRs combines all the features of the MX341 with, additionally, three-phase rms sensing, for improved regulation and performance.

Over voltage protection is built-in and short circuit current level adjustments is an optional facility.

WINDINGS & ELECTRICAL PERFORMANCE

All generator stators are wound to 2/3 pitch. This eliminates triplen (3rd, 9th, 15th ...) harmonics on the voltage waveform and is found to be the optimum design for trouble-free supply of non-linear loads. The 2/3 pitch design avoids excessive neutral currents sometimes seen with higher winding pitches, when in parallel with the mains. A fully connected damper winding reduces oscillations during paralleling. This winding, with the 2/3 pitch and carefully selected pole and tooth designs, ensures very low waveform distortion.

TERMINALS & TERMINAL BOX

Standard generators are 3-phase reconnectable with 12 ends brought out to the terminals, which are mounted on a cover at the non-drive end of the generator. A sheet steel terminal box contains the AVR and provides ample space for the customers' wiring and gland arrangements. It has removable panels for easy access.

SHAFT & KEYS

All generator rotors are dynamically balanced to better than BS6861:Part 1 Grade 2.5 for minimum vibration in operation. Two bearing generators are balanced with a half key.

INSULATION/IMPREGNATION

The insulation system is class 'H'.

All wound components are impregnated with materials and processes designed specifically to provide the high build required for static windings and the high mechanical strength required for rotating components.

QUALITY ASSURANCE

Generators are manufactured using production procedures having a quality assurance level to BS EN ISO 9001.

The stated voltage regulation may not be maintained in the presence of certain radio transmitted signals. Any change in performance will fall within the limits of Criteria 'B' of EN 61000-6-2:2001. At no time will the steady-state voltage regulation exceed 2%.

DE RATES

All values tabulated on page 8 are subject to the following reductions

5% when air inlet filters are fitted.

3% for every 500 metres by which the operating altitude exceeds 1000 metres above mean sea level.

3% for every 5°C by which the operational ambient temperature exceeds 40°C.

Note: Requirement for operating in an ambient exceeding 60°C must be referred to the factory.

NB Continuous development of our products entitles us to change specification details without notice, therefore they must not be regarded as binding.

Front cover drawing typical of product range.

WINDING 311

CONTROL SYSTEM	SEPARATELY EXCITED BY P.M.G.		
A.V.R.	MX321	MX341	
VOLTAGE REGULATION	± 0.5 %	± 1.0 %	With 4% ENGINE GOVERNING
SUSTAINED SHORT CIRCUIT	REFER TO SHORT CIRCUIT DECREMENT CURVES (page 7)		

CONTROL SYSTEM	SELF EXCITED		
A.V.R.	AS440		
VOLTAGE REGULATION	± 1.0 %	With 4% ENGINE GOVERNING	
SUSTAINED SHORT CIRCUIT	SERIES 4 CONTROL DOES NOT SUSTAIN A SHORT CIRCUIT CURRENT		

INSULATION SYSTEM	CLASS H		
PROTECTION	IP23		
RATED POWER FACTOR	0.8		
STATOR WINDING	DOUBLE LAYER LAP		
WINDING PITCH	TWO THIRDS		
WINDING LEADS	12		

STATOR WDG. RESISTANCE	0.0037 Ohms PER PHASE AT 22°C SERIES STAR CONNECTED		
ROTOR WDG. RESISTANCE	2.16 Ohms at 22°C		
EXCITER STATOR RESISTANCE	17 Ohms at 22°C		
EXCITER ROTOR RESISTANCE	0.092 Ohms PER PHASE AT 22°C		
R.F.I. SUPPRESSION	BS EN 61000-6-2 & BS EN 61000-6-4, VDE 0875G, VDE 0875N. refer to factory for others		
WAVEFORM DISTORTION	NO LOAD < 1.5% NON-DISTORTING BALANCED LINEAR LOAD < 5.0%		
MAXIMUM OVERSPEED	2250 Rev/Min		
BEARING DRIVE END	BALL. 6220 (ISO)		
BEARING NON-DRIVE END	BALL. 6314 (ISO)		

	1 BEARING		2 BEARING	
WEIGHT COMP. GENERATOR	1685 kg		1694 kg	
WEIGHT WOUND STATOR	805 kg		805 kg	
WEIGHT WOUND ROTOR	684 kg		655 kg	
WR ² INERTIA	10.033 kgm ²		9.7551 kgm ²	
SHIPPING WEIGHTS in a crate	1775 kg		1780kg	
PACKING CRATE SIZE	166 x 87 x 124(cm)		166 x 87 x 124(cm)	
	50 Hz		60 Hz	
TELEPHONE INTERFERENCE	THF<2%		TIF<50	
COOLING AIR	1.035 m³/sec 2202 cfm		1.312 m³/sec 2780 cfm	

VOLTAGE SERIES STAR	380/220	400/231	415/240	440/254	416/240	440/254	460/266	480/277
VOLTAGE PARALLEL STAR	190/110	200/115	208/120	220/127	208/120	220/127	230/133	240/138
VOLTAGE SERIES DELTA	220/110	230/115	240/120	254/127	240/120	254/127	266/133	277/138
KVA BASE RATING FOR REACTANCE VALUES	670	670	670	650	738	775	800	825
Xd DIR. AXIS SYNCHRONOUS	2.90	2.62	2.43	2.10	3.33	3.13	2.95	2.80
X'd DIR. AXIS TRANSIENT	0.16	0.14	0.13	0.11	0.16	0.15	0.14	0.13
X''d DIR. AXIS SUBTRANSIENT	0.11	0.10	0.09	0.08	0.11	0.10	0.10	0.09
Xq QUAD. AXIS REACTANCE	2.42	2.19	2.03	1.75	2.66	2.50	2.36	2.23
X''q QUAD. AXIS SUBTRANSIENT	0.25	0.23	0.21	0.18	0.31	0.29	0.27	0.26
X _L LEAKAGE REACTANCE	0.05	0.04	0.04	0.03	0.05	0.05	0.04	0.04
X ₂ NEGATIVE SEQUENCE	0.18	0.16	0.15	0.13	0.21	0.20	0.19	0.18
X ₀ ZERO SEQUENCE	0.08	0.08	0.07	0.06	0.09	0.08	0.08	0.08

REACTANCES ARE SATURATED		VALUES ARE PER UNIT AT RATING AND VOLTAGE INDICATED	
T'd TRANSIENT TIME CONST.		0.08s	
T''d SUB-TRANSTIME CONST.		0.012s	
T'do O.C. FIELD TIME CONST.		2.5s	
Ta ARMATURE TIME CONST.		0.019s	
SHORT CIRCUIT RATIO		1/Xd	

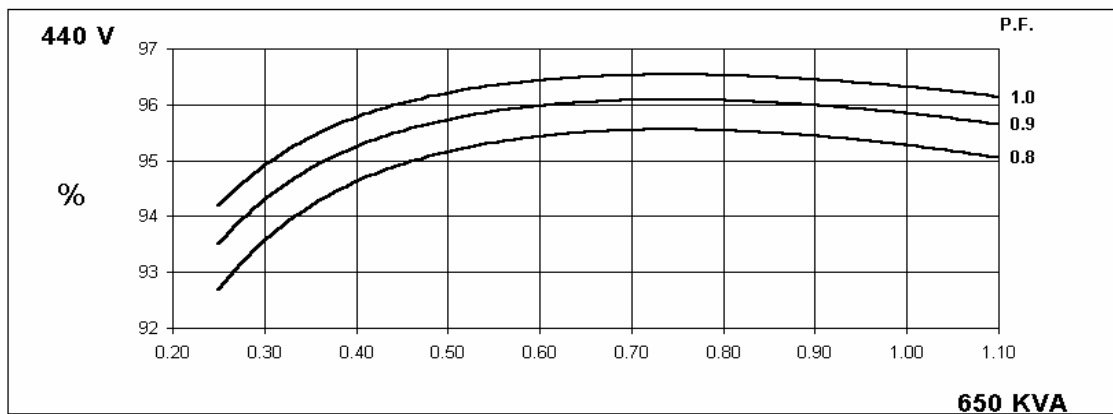
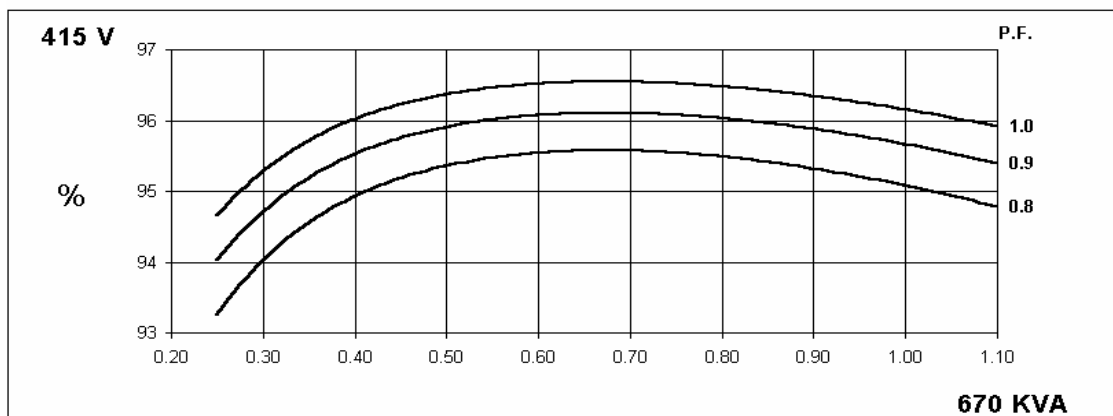
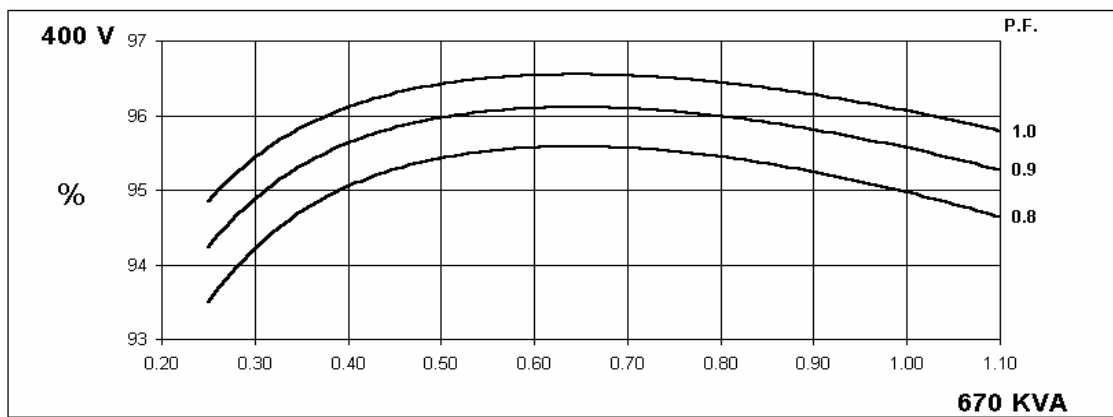
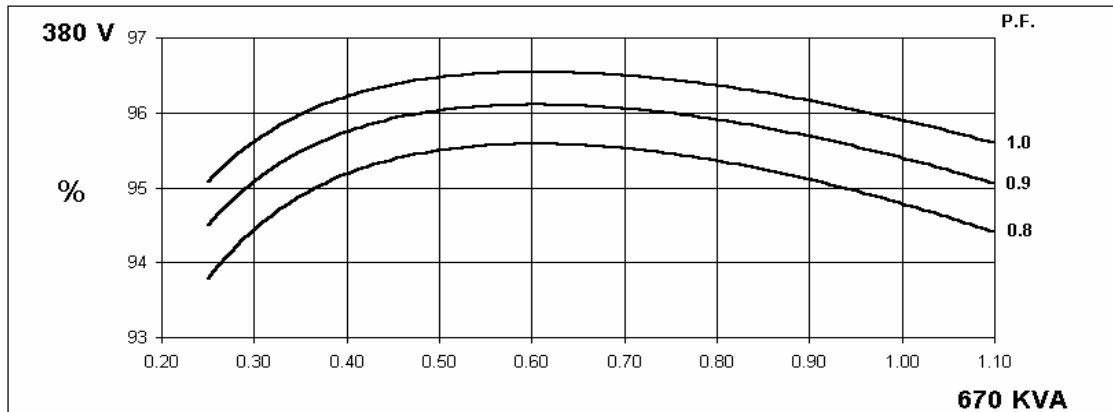
50
Hz

HCI534F/544F

Winding 311

STAMFORD

THREE PHASE EFFICIENCY CURVES



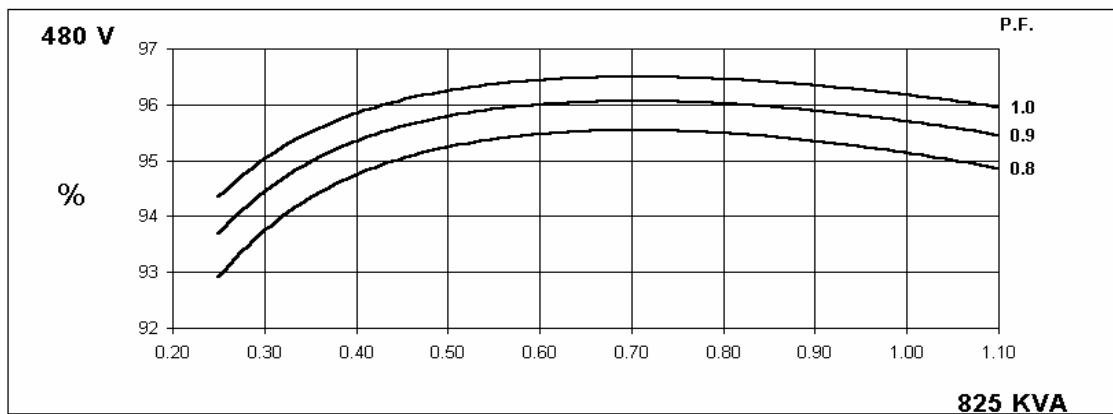
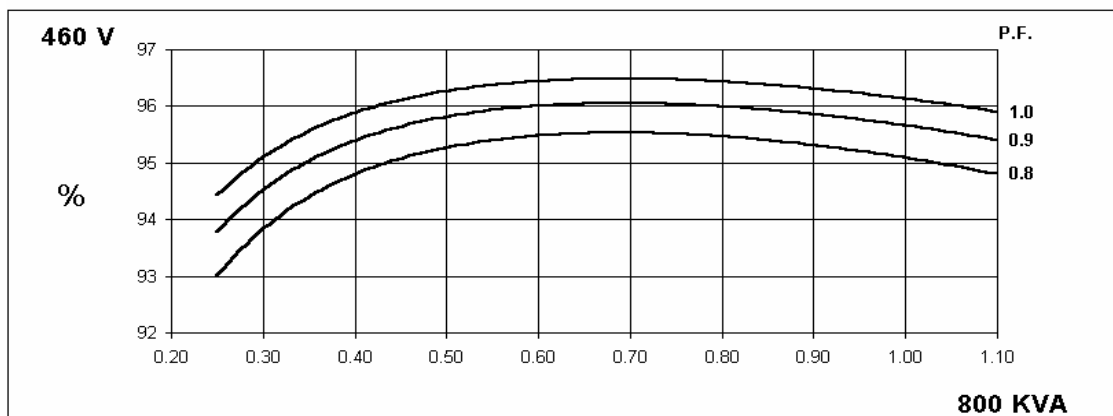
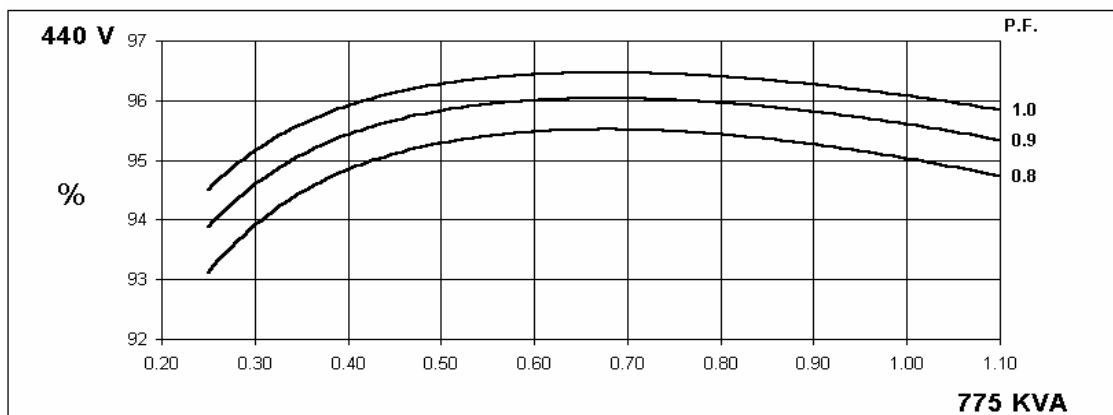
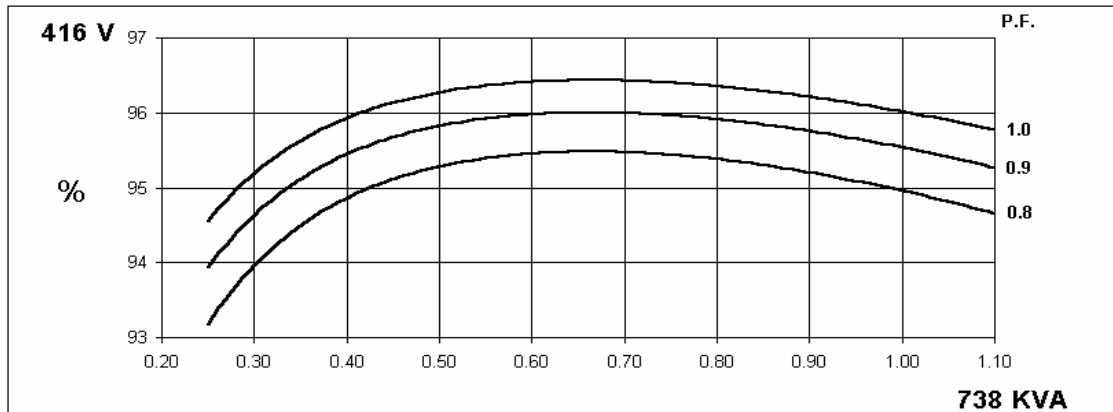
60
Hz

HCI534F/544F

Winding 311

STAMFORD

THREE PHASE EFFICIENCY CURVES

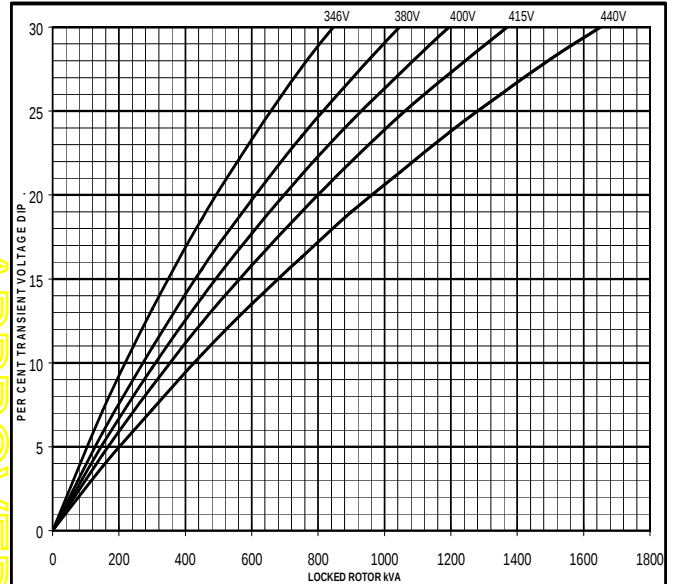
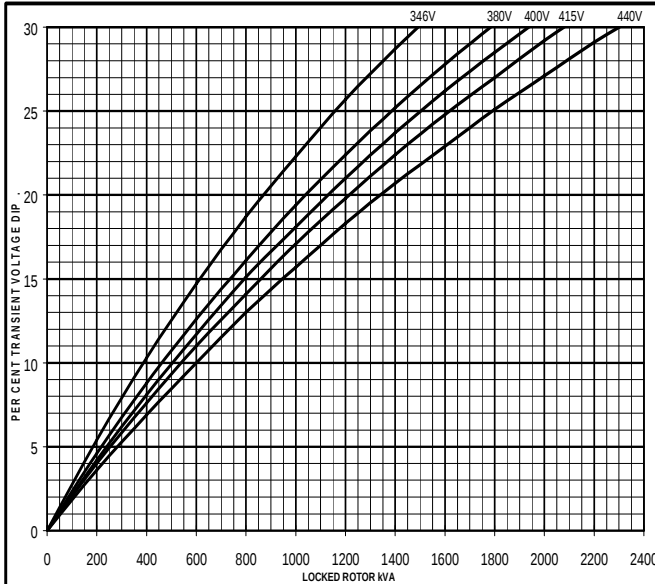


Locked Rotor Motor Starting Curve

50
Hz

MX

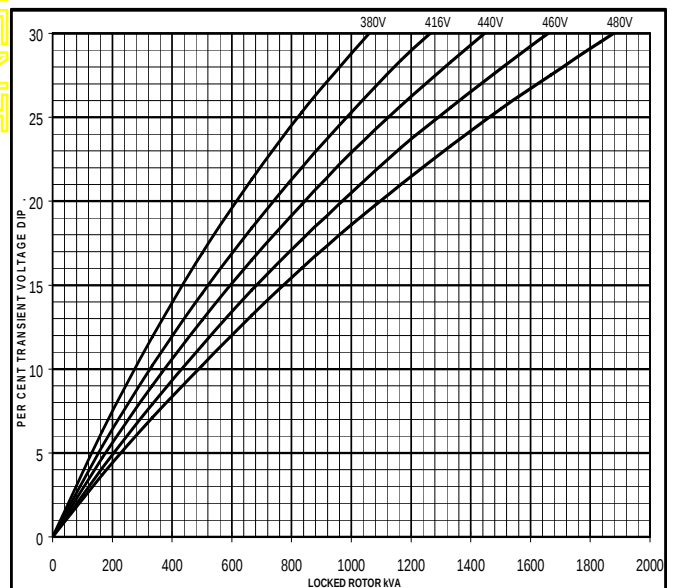
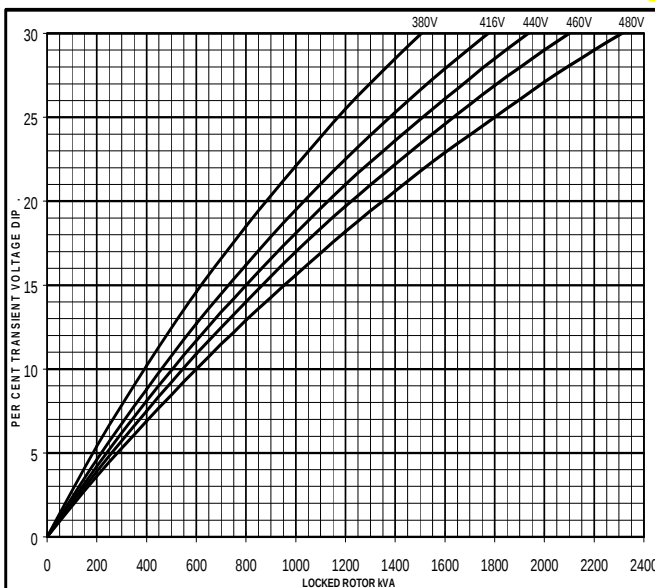
SX



60
Hz

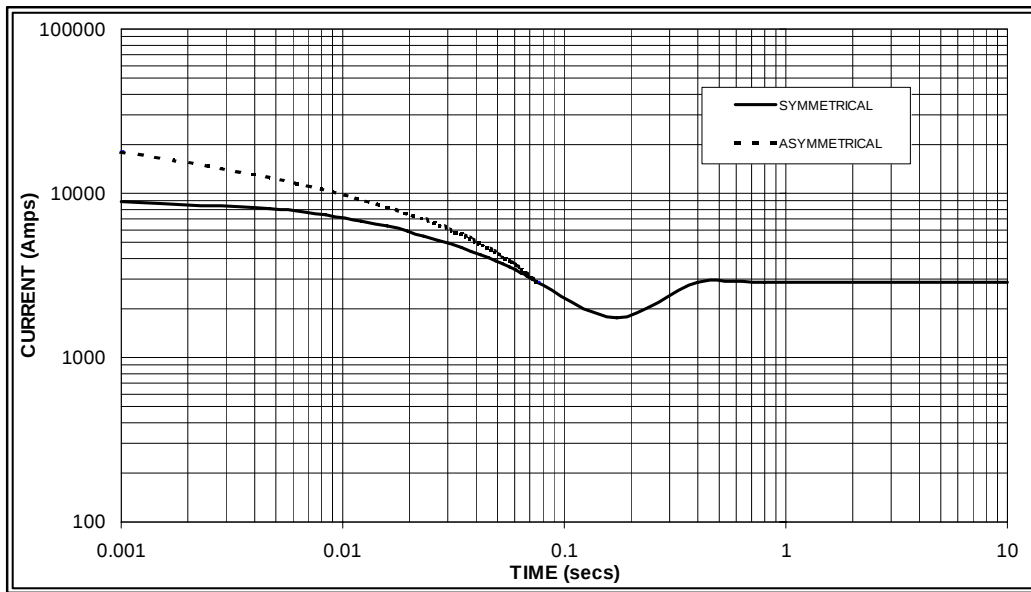
MX

SX



**Three-phase Short Circuit Decrement Curve. No-load Excitation at Rated Speed
Based on star (wye) connection.**

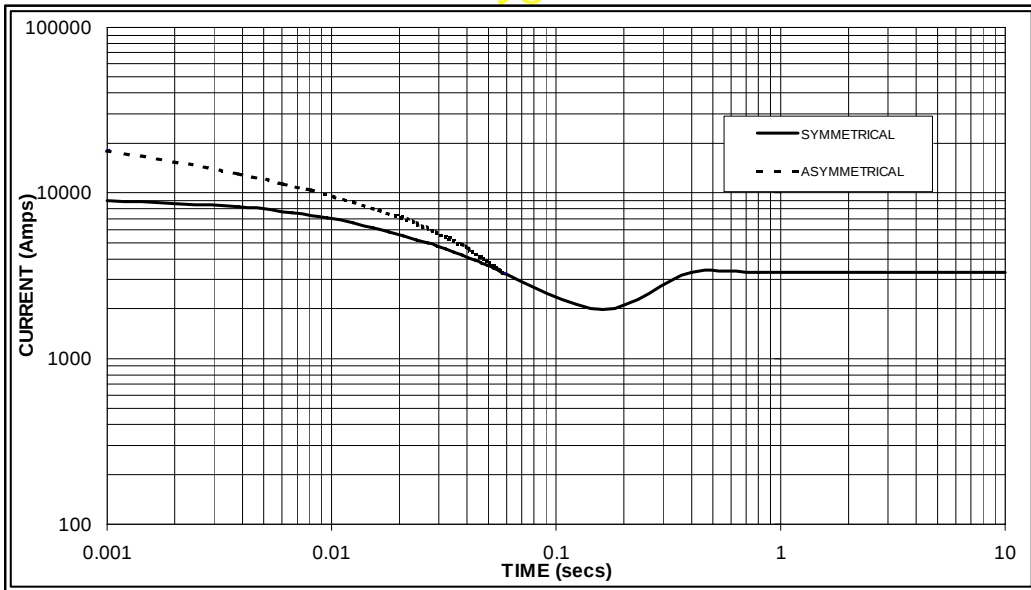
**50
Hz**



Sustained Short Circuit = 2,900 Amps



**60
Hz**



Sustained Short Circuit = 3,300 Amps

Note 1

The following multiplication factors should be used to adjust the values from curve between time 0.001 seconds and the minimum current point in respect of nominal operating voltage :

50Hz		60Hz	
Voltage	Factor	Voltage	Factor
380v	X 1.00	416v	X 1.00
400v	X 1.06	440v	X 1.06
415v	X 1.09	460v	X 1.12
440v	X 1.12	480v	X 1.20

The sustained current value is constant irrespective of voltage level

Note 2

The following multiplication factor should be used to convert the values calculated in accordance with NOTE 1 to those applicable to the various types of short circuit :

	3-phase	2-phase L-L	1-phase L-N
Instantaneous	x 1.00	x 0.87	x 1.30
Minimum	x 1.00	x 1.80	x 3.20
Sustained	x 1.00	x 1.50	x 2.50
Max. sustained duration	10 sec.	5 sec.	2 sec.

All other times are unchanged

Note 3

Curves are drawn for Star (Wye) connected machines. For other connections the following multipliers should be applied to current values as shown :

Parallel Star = Curve current value X 2

Series Delta = Curve current value X 1.732

HCI534F/544F

Winding 311 0.8 Power Factor

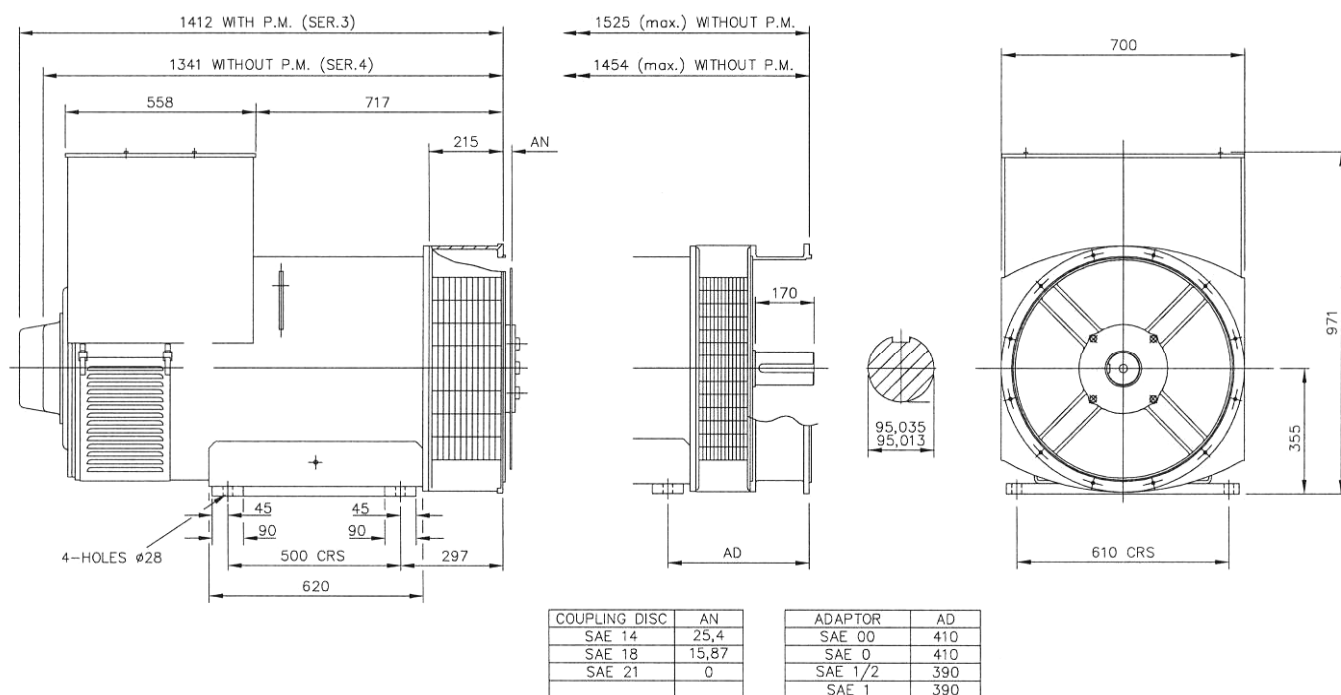
STAMFORD

RATINGS

Class - Temp Rise		Cont. F - 105/40°C				Cont. H - 125/40°C				Standby - 150/40°C				Standby - 163/27°C			
50 Hz	Series Star (V)	380	400	415	440	380	400	415	440	380	400	415	440	380	400	415	440
	Parallel Star (V)	190	200	208	220	190	200	208	220	190	200	208	220	190	200	208	220
	Series Delta (V)	220	230	240	254	220	230	240	254	220	230	240	254	220	230	240	254
	kVA	620	620	620	600	670	670	670	650	710	710	710	690	738	738	738	715
	kW	496	496	496	480	536	536	536	520	568	568	568	552	590	590	590	572
	Efficiency (%)	95.0	95.2	95.3	95.4	94.8	95.0	95.1	95.3	94.6	94.8	94.9	95.1	94.4	94.6	94.8	95.1
	kW Input	522	521	520	503	565	564	564	546	600	599	599	580	625	624	623	601

60 Hz	Series Star (V)	416	440	460	480	416	440	460	480	416	440	460	480	416	440	460	480
	Parallel Star (V)	208	220	230	240	208	220	230	240	208	220	230	240	208	220	230	240
	Delta (V)	240	254	266	277	240	254	266	277	240	254	266	277	240	254	266	277
	kVA	688	719	731	750	738	775	800	825	781	819	848	875	806	844	878	906
	kW	550	575	585	600	590	620	640	660	625	655	678	700	645	675	702	725
	Efficiency (%)	95.1	95.2	95.3	95.3	95.0	95.0	95.1	95.1	94.8	94.9	94.9	95.0	94.7	94.8	94.8	94.9
	kW Input	579	604	614	630	621	653	673	694	659	690	715	737	681	712	741	764

DIMENSIONS



APPROVED DOCUMENT

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HC5F-311-TD-EN-SG-A

DSE7410/20 MKII

AUTO START & AUTO MAINS FAILURE CONTROL MODULES

DSE7420 MKII

DSE7410 MKII



KEY FEATURES

- 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 upto 20 parameters
- Internal PLC editor
- Protections disable feature
- Fully configurable via PC using USB, RS232, RS485 and ethernet communication
- Front panel configuration with multi-level PIN protection
- Power save mode
- 3 phase generator sensing and protection
- 3 phase mains (utility) sensing and protection (DSE7420 MKII only)
- Automatic load transfer control (DSE7420 MKII only)
- Generator current and power monitoring (kW, kvar, kVA, pf)
- Mains current and power monitoring (kW, kvar, kVA, pf) (DSE7420 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
- Support for 3 kΩ resistive 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, RS485 & ethernet communication ports
- True dual mutual standby using RS232 or RS485 for accurate hours balancing.
- MODBUS RTU & TCP support with configurable MODBUS pages.
- SNMP GET, SET and TRAP support built in.
- 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
- J1939-75 support & CAN alarm ignore function
- 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 & TCP
- Configurable CAN parameters to read and display CAN information from external CAN devices.

KEY BENEFITS

- Automatically transfers between mains (utility) and generator (DSE7420 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 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

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, B, E & F

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

ANALOGUE INPUTS C & D

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

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

DSE7410 MKII & DSE7420 MKII Installation Instructions
DSE7410 MKII & DSE7420 MKII Operator Manual
DSE7410 MKII & DSE7420 MKII Configuration Suite PC Manual

PART NO.

053-191
057-263
057-262

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DSE8610

SYNCHRONISING AUTO START LOAD SHARE CONTROL MODULE

FEATURES



The DSE8610 is an easy to use Synchronising Auto Start Control Module suitable for use in a multi-generator loadshare system, designed to synchronise up to 32 generators including electronic and non-electronic engines.

The DSE8610 monitors the generator and indicates operational status and fault conditions, automatically starting or stopping the engine on load demand or fault condition.

System alarms are annunciated on the LCD screen (multiple language options available), illuminated LED and audible sounder.

The event log will record 250 events to facilitate easy maintenance. An extensive number of fixed and flexible monitoring, metering and protection features are included as well as comprehensive communication and system expansion options.

Using the DSE PC Configuration Suite Software allows easy alteration of the operational sequences, timers and alarms. With all communication ports capable of being active at the same time, the DSE8610 is ideal for a wide variety of demanding load share applications.

KEY LOAD SHARE FEATURES:

- Peak lopping/sharing (with DSExx60)
- Sequential set start
- Manual voltage/frequency adjustment
- R.O.C.O.F. and vector shift protection
- Generator load demand
- Automatic hours run balancing
- Mains (Utility) de-coupling
- Mains (Utility) de-coupling test mode
- Dead bus sensing
- Bus failure detection
- Direct governor and AVR control
- Volts and frequency matching
- kW and kV Ar load sharing
- Dead bus synchronising

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
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
5Hz to 8Hz @ +/-7.5mm, 8Hz to 500Hz @ 2gn

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

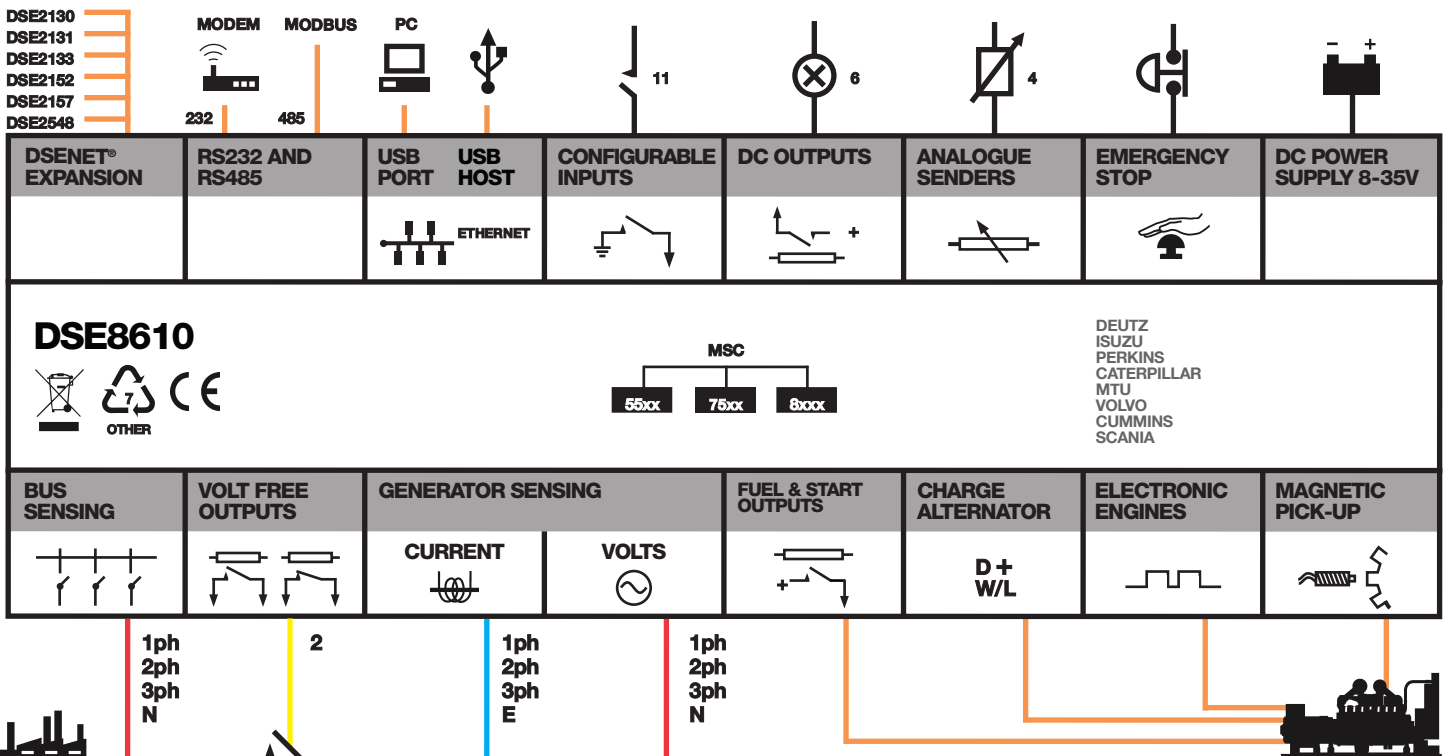
SHOCK

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

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 LOAD SHARE APPLICATIONS



DSE8610

SYNCHRONISING AUTO START LOAD SHARE CONTROL MODULE

FEATURES



KEY FEATURES

- Comprehensive synchronising & loadsharing capabilities
- Built-in governor and AVR control
- Base load (kW export) functionality
- Positive & negative kVAr export control
- Mains (utility) de-coupling protection
- Generator power (kW, kV Ar, kV A & pf) monitoring
- Overload (kW & kV Ar) protection
- Reverse power (kW & kV Ar) protection
- Unbalanced load protection
- Independent earth fault protection
- Advanced integral PLC editor
- 11 Configurable inputs
- 8 Configurable outputs
- Configurable flexible sensor inputs
- DSENet® expansion compatibility
- User configurable RS232, RS485 and Ethernet communications
- Remote SCADA monitoring via various DSE software applications
- MODBUS RTU & TCP support
- User configurable MODBUS pages
- Advanced SMS control and fault messaging (additional GSM modem required)
- Easy access diagnostic pages including modem diagnostic pages
- Data logging and trending
- CAN, MPU and Frequency speed sensing
- Tier 4 CAN engine support
- "Protections disabled" feature
- Front panel editing with PIN protection
- Fully configurable using DSE Configuration Suite PC software via USB
- 4 Line back-lit LCD text display
- LED and LCD alarm indication
- Configurable display languages
- USB connectivity
- Customisable status screens
- Five key menu navigation
- 3 Configurable maintenance alarms
- Multiple date and time run scheduler
- Manual fuel pump control
- Fuel usage monitor and low fuel level protection
- Charge alternator failure protection
- Load switching (load shedding and dummy load control)
- Configurable event log (250)
- Backed up real time clock

KEY BENEFITS

- Compatible in load share systems containing DSE5500, DSE7500 and DSE8600 series. Contact DSE for further details
- 132 x 64 pixel ratio display for clarity
- Real-time clock provides accurate event logging
- Ethernet communication, provides built in advanced remote monitoring.
- Can be integrated into building management systems (BMS) and programmable logic control (PLC)
- Increased input and output expansion capability via DSENet®
- Licence-free PC software
- IP65 rating (with supplied gasket) offers increased resistance to water ingress
- Advanced Internal PLC editor allows user configurable functions to meet specific application requirements.

EXPANSION DEVICES

- DSE124 CAN/MSC Extender
- DSE2130 Input Expansion Module
- DSE2131 Ratio-metric Input Expansion Module
- DSE2133 RTD & Thermo-couple Expansion Module
- DSE2152 Ratio-metric Output Expansion Module
- DSE2157 Output Expansion Module
- DSE2548 LED Expansion Module

RELATED MATERIALS

TITLE

DSE8610 Installation Instructions
DSE8610 Operator Manual
DSE8600 PC Configuration Suite Manual
DSE8660 Date Sheet

PART NO'S

053-069
057-115
057-119
055-086

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

MAXIMUM OPERATING CURRENT

460 mA at 12 V, 245 mA at 24 V

MAXIMUM STANDBY CURRENT

375 mA at 12 V, 200 mA at 24 V

CHARGE FAIL/EXCITATION RANGE

0 V to 35 V

OUTPUTS

OUTPUT A (FUEL)

15 A DC at supply voltage

OUTPUT B (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

GENERATOR & BUS

VOLTAGE RANGE
15 V to 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)

BUILT-IN GOVERNOR CONTROL MINIMUM LOAD IMPEDANCE
1000Ω
Fully isolated

GAIN VOLTAGE
0 V to 10 V DC
Fully isolated

OFFSET VOLTAGE
+/- 10 V DC
Fully isolated

BUILT-IN AVR CONTROL MINIMUM LOAD IMPEDANCE
1000Ω
Fully isolated

GAIN VOLTAGE
0 V to 10 V DC
Fully isolated

OFFSET VOLTAGE
+/- 10 V DC
Fully isolated

DIMENSIONS

OVERALL
240 mm x 181 mm x 42 mm
9.4" x 6.8" x 1.6"

PANEL CUTOUT
220 mm x 160 mm
8.7" x 6.3"

MAXIMUM PANEL THICKNESS
8 mm
0.3"

OPERATING TEMPERATURE RANGE
-30 °C to +70 °C

STORAGE TEMPERATURE RANGE
-40 °C to +85 °C

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DSE8660

AUTO TRANSFER SWITCH & MAINS CONTROL MODULE

FEATURES



The DSE8660 is an easy-to-use single or multi-mains controller with automatic transfer switch capability. Designed to synchronise single or multiple DSE8610s and DSE8680s with single or multiple mains (utility) supplies, the DSE8660 will automatically control the change over from mains (utility) to generator supply or run generators in synchronisation with the mains (utility) to provide no-break, peak lopping and peak shaving power solutions.

The module can indicate operational status and fault conditions on the LCD screen (multiple languages available), by illuminated LED, audible sounder and SMS messaging.

Comprehensive communications are also available via RS232, RS485 & Ethernet for remote PC control and monitoring, and integration into building management systems. The comprehensive event log will record up to 250 events to facilitate maintenance.

An extensive number of fixed and flexible monitoring and protection features are included. Easy alteration of the sequences, timers and alarms can be made using the DSE PC Configuration Suite Software. Selected configuration is also available via the module's front panel.

With all communication ports capable of being active at the same time, the DSE8xxx Series is ideal for a wide variety of demanding load share applications.

KEY LOAD SHARE FEATURES (WITH DSE8x10) :

- Peak lopping/shaving
- Sequential set start
- Manual voltage/frequency adjustment
- R.O.C.O.F. and vector shift protection
- Generator load demand
- Automatic hours run balancing
- Mains (Utility) de-coupling
- Mains (Utility) de-coupling test mode
- Bus failure detection
- Volts and frequency matching.
- kW & kV Ar load sharing

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
5Hz to 8Hz @ +/-7.5mm, 8Hz to 500Hz @ 2gn

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

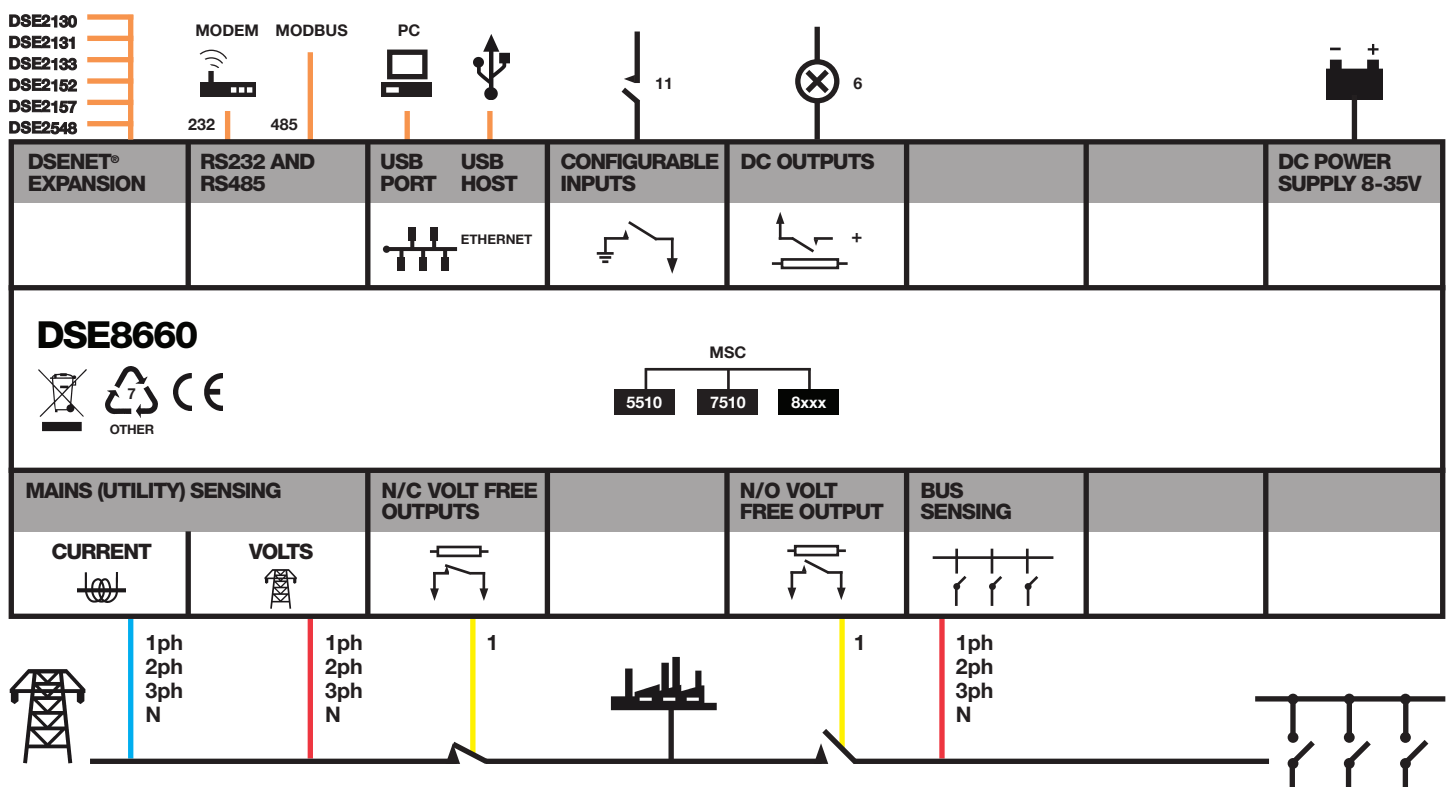
SHOCK

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

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 LOAD SHARE APPLICATIONS



DSE8660

AUTO TRANSFER SWITCH & MAINS CONTROL MODULE

FEATURES



KEY FEATURES

- Mains (utility) failure detection
- Mains (utility) power monitoring (kW, kV Ar, kV A and pf)
- Comprehensive synchronising and loadsharing capabilities
- Base load (kW export) functionality
- Positive & negative kVar export control
- Peak lopping & shaving functionality
- Mains (utility) kW export protection
- Mains (utility) de-coupling protection
- Advanced integral PLC editor
- User configurable RS232, RS485 & Ethernet communications
- MODBUS RTU & TCP support
- User configurable MODBUS pages
- Advanced SMS control and fault messaging (additional GSM modem required)
- DSENet expansion compatible
- Data logging and trending
- 4-Line back-lit LCD text display
- Multiple display languages

- Five key menu navigation
- Front panel editing with PIN protection
- Customisable status screens
- Configurable inputs (11)
- Configurable outputs (8)
- Configurable timers and alarms
- Multiple entry scheduler
- Configurable event log (250)
- Easy access diagnostic pages
- LED and LCD alarm indication
- USB connectivity
- Backed up real time clock
- Fully configurable via DSE Configuration Suite PC Software

KEY BENEFITS

- A single flexible solution for multiple applications
- Compatible with DSE5510, DSE7510 & DSE8x10 series of modules
- 132 x 64 pixel ratio display for clarity
- Real-time clock provides accurate event logging
- Ethernet communication provides built in advanced remote monitoring.

- Can be integrated into building management systems (BMS) and programmable logic control (PLC)
- Increased input and output expansion capability via DSENet®
- Licence-free PC software
- IP65 rating (with supplied gasket) offers increased resistance to water ingress
- Advanced Internal PLC editor allows user configurable functions to meet specific application requirements.

EXPANSION DEVICES

- DSE124 CAN/MSX Extender
- DSE2130 Input Expansion Module
- DSE2131 Ratiometric Input Expansion Module
- DSE2133 RTD & Thermocouple Expansion Module
- DSE2152 Analogue Output Expansion Module
- DSE2157 Output Expansion Module
- DSE2548 LED Expansion Module

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

MAINS (UTILITY)

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

FREQUENCY RANGE
3.5 Hz to 75 Hz

BUS

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

FREQUENCY RANGE
3.5 Hz to 75 Hz

OUTPUTS

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

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

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"

OPERATING TEMPERATURE RANGE
-30°C to +70°C

STORAGE TEMPERATURE RANGE
-40°C to +85°C

RELATED MATERIALS

TITLE

DSE8660 Installation Instructions
DSE8660 Operator Manual
DSE8600 PC Configuration Suite Manual
DSE8610 Data Sheet
DSE8680 Data Sheet
DSE8700 Data Sheet
DSE8810 Data Sheet
DSE8860 Data Sheet

PART NO'S

053-070
057-120
057-119
055-083
055-091
055-090
055-116
055-139

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DSE8003 MKII

7" COLOUR MULTI-SET REMOTE OVERVIEW DISPLAY



KEY FEATURES

- Multiple modules (max 20) within the same load sharing system can be viewed on the 8003's front screen.
- Touch-screen enabled.
- RS232, RS485 and Ethernet communications.
- Audible alarm.
- Front panel mounting.
- Protected front panel configuration.
- Remote monitoring.
- System monitoring.
- Enhanced graphical user interface.
- Powerful processor for fast operating response times.

KEY BENEFITS

- Compatible with DSE86XX MKII load share modules.
- Data communication link allows remote system management.
- 800 x 480 pixels for high screen resolution.

SPECIFICATIONS

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

MAXIMUM OPERATING CURRENT
300 mA at 12V, 150 mA at 24V

OUTPUTS
ALARM OUTPUTS C & D
2 A DC at supply voltage

DIMENSIONS
OVERALL
310 mm x 160 mm x 40 mm
12.2" x 6.3" x 1.5"

PANEL CUTOUT
282 mm x 136 mm
11.1" x 5.3"

OPERATING TEMPERATURE RANGE
-30 °C to +70 °C
-22 °F to +158 °F

STORAGE TEMPERATURE RANGE
-40 °C to +85 °C
-40 °F to +185 °F

RELATED MATERIALS

TITLE

DSE8003 MKII Installation Instructions
DSE8005 SCADA Suite Manual
DSE8610 MKII Data Sheet
DSE8660 MKII Data Sheet

PART NO.

053-231
057-128
055-204
055-169

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