



POWER Gen

PREMIUM SERIES GENERATORS

Generator Specification Sheet

MODEL PG 13 AP



Powered by:

 **Perkins®**
STAMFORD



GENERATING SET PERFORMANCE	50Hz	60Hz
VOLTAGE	V400	
PHASES	Three	
PRIME RATED POWER	13.3kVA	
STANDBY RATED POWER	14.5kVA	
POWER FACTOR	0.80 PF	
FUEL USAGE @ 75%	2.8 L/hr	

The POWERGen Group Ltd:



POWERGen



POWERServ



POWERPump



POWERGenHire



POWERGen Group Ltd

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ENGINE

ENGINE	PERKINS	403C-15G
PERFORMANCE	50Hz	60Hz
BASELOAD RATED POWER	TBA	
PRIME RATED POWER	12.0KWm	
STANDBY RATED POWER	13.3KWm	
FUEL CONSUMPTION	254g/KWh @ 100% 258g/KWh @ 75% 291g/KWh @ 50%	
TYPE	Diesel 4 stroke	
ASPIRATION	Naturally aspirated	
INJECTION TYPE	Indirect injection	
ENGINE GOVERNOR	Mechanical governor	
CYLINDERS AND ARRANGEMENT	Three in line	
BORE AND STROKE	84mm x 90mm	
COMPRESSION RATIO	22.5 : 1	
ELECTRICAL SYSTEM VOLTAGE	12 volt	
BATTERY TYPE	Lead acid, 12V	
DERATING FOR TEMPERATURE	40 deg C	
DERATING FOR ALTITUDE	1000m	
DERATING FOR HUMIDITY	90%	

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ALTERNATOR**STAMFORD**

PERFORMANCE	50Hz	60Hz
MODEL	PI144D	
BASELOAD RATED POWER 40 deg C	18.2kVA	
PRIME RATED POWER 40 deg C	20.0kVA	
STANDBY RATED POWER 40 deg C	21.5kVA	
STANDBY RATED POWER 27 deg C	22.0kVA	
EFFICIENCY	85%	
STANDARD WING CONNECTIONS	Star Delta	
EXCITER	Self excited	
POLES	4 poles	
PHASES	Three phases	
WIRES	12 leads	
VOLTAGE REGULATION	+/- 1.5%	
INSULATION CLASS	Class H	
ENCLOSURE	IP23	
MAXIMUM OVERSPEED	150%	
STANDARD AVR MODEL	AS480	
OPTIONAL AVR MODEL	AS480 with EBS	
DERATING FOR TEMPERATURE	40 deg C	
DERATING FOR ALTITUDE	1000mm	

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DIMENSIONS AND CAPACITY

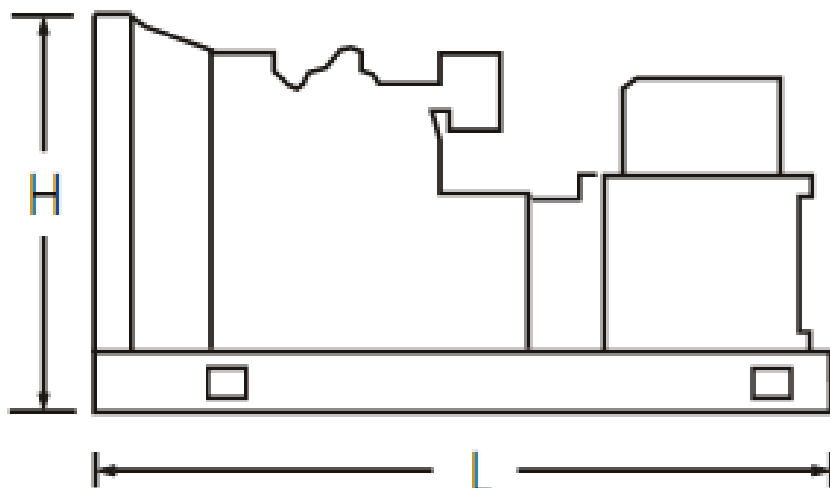
STANDARD MODELS

	INTEGRATED FUEL TANK CAPACITY		WEIGHT	DIMENSIONS		
	STANDARD	OPTIONAL	KG	LENGTH	WIDTH	HEIGHT
OPEN SKID TYPE	50	TBA	432kg	1565mm	730mm	1200mm

GENERATOR SET EQUIPMENT

STANDARD MODELS

- Heavy duty steel base frame
- Pad type anti- vibration dampers
- Integrated fuel tank, base mounted
- 12V battery
- Key start switch
- Emergency stop button
- Silencer industrial type (open skid type)



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InteliLite® AMF 20/AMF 25 Automatic Mains Failure Controller



AUTOMATIC MODELS- EQUIPMENT

4 poles ABB circuit breaker, electronic control unit ComAp AMF25, control panel box key, emergency stop button, water jacket heater,

AUTOMATIC MODELS- PROTECTORS

Low oil pressure, low fuel level, overload, over/ under frequency, low voltage, over/ under battery voltage belt breakage

AUTOMATIC MODELS- INSTRUMENTATION

Voltmeter, ammeter (3 phases), frequency meter, hour meter, battery voltage meter, fuel level

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400 Series

403C-15G

Diesel Engine – Electropak

13.3 kWm 1500 rev/min

15.9 kWm 1800 rev/min

22.9 kWm 3000 rev/min

Compact, efficient power

A class-leading engine package coupled with an innovative, newly designed cooling pack provides optimum power density, making installation and transportation easier and cheaper. This package has been specially designed to hit the key power nodes required by the power generation industry.

Quiet, clean power

The 403C-15G has an exceptionally low noise signature making it the ideal choice for power generation in any environment. A high compression ratio also ensures clean rapid starting in all conditions. Design features ensure maximum cleanliness in terms of emissions throughout the engines operating life.

Reliable power

Developed and tested using the latest engineering techniques this engine reliably provides power when you need it. Operating and maintenance costs are reduced through excellent fuel and oil economy whilst whole-life costs are enhanced by a 500 hour service interval and a 2 year warranty. Excellent service access further improves maintenance and support is provided by a worldwide network of 4000 distributors and dealers.

The Perkins 400 Series provides compact power from a robust family of 2, 3 and 4 cylinder diesel engines, designed to meet today's uncompromising demands within the power generation industry.

The 403C-15G is a compact 3-cylinder naturally aspirated diesel engine. It's premium features provide economic and durable operation for standby duty, low gaseous emissions, overall performance and reliability.

Engine Speed (rev/min)	Type of Operation	Typical Generator Output (Net)		Engine Power			
				Gross		Net	
		kVA	kWe	kWm	bhp	kWm	bhp
1500	Prime Power	13.3	10.6	12.2	16.4	12.0	16.1
	Standby (maximum)	14.5	11.6	13.5	18.1	13.3	17.8
1800	Prime Power	16.1	12.9	14.7	19.7	14.4	19.3
	Standby (maximum)	17.5	14.0	16.2	21.7	15.9	21.2
3000	Prime Power	22.4	17.9	21.7	29.1	20.7	27.8
	Standby (maximum)	24.1	19.2	23.9	32.1	22.9	31.0

The above ratings represent the engine performance capabilities to conditions specified in ISO 8528/1, ISO 3046/1:1986, BS 5514/1.

Derating may be required for conditions outside these; consult Perkins Engines Company Limited.

Generator powers are typical and are based on typical alternator efficiencies and a power factor (cos ϕ) of 0.8.

Fuel specification: BS 2869: Part 2 1998 Class A2 or ASTM D975 D2.

Lubricating oil: To API CH4/ACEA E5.

Rating Definitions

Prime Power: Power available at variable load in lieu of a main power network. Overload of 10% is permitted for 1 hour in every 12 hours operation.

Standby (maximum): Power available at variable load in the event of a main power network failure. No overload is permitted.

All information in this document is substantially correct at time of printing and may be altered subsequently

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400 Series

403C-15G

Standard Electropak Specification

Air inlet

- Mounted air filter

Fuel system

- Mechanically governed cassette type fuel injection pump
- Split element fuel filter

Lubrication system

- Wet steel sump with filler and dipstick
- Spin-on full-flow lub oil filter

Cooling system

- Thermostatically-controlled system with belt driven circulating pump and pusher fan
- Mounted radiator piping and guards

Electrical equipment

- 12 volt starter motor and 12 volt 55 amp alternator with DC output
- Oil pressure and coolant temperature switches
- 12 volt shut off solenoid energised to run
- Glow plug cold start aid and heater/starter switch

Flywheel and housing

1500/1800 rev/min

- High inertia flywheel to SAE J620 Size 7½ Heavy
- Flywheel housing SAE 4 Long

3000/3600 rev/min

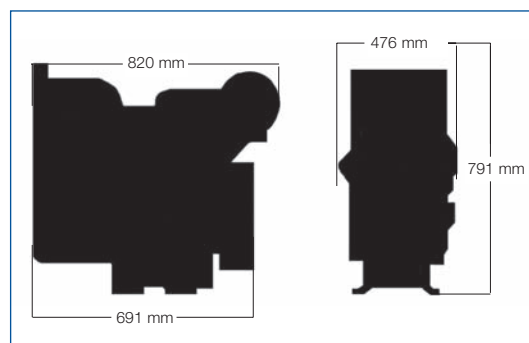
- High inertia flywheel to SAE J620 Size 7½ Light
- Flywheel housing SAE 4 Short

Mountings

- Front and rear engine mounting bracket

Literature

- User's Handbook



General Data

Number of cylinders	3
Cylinder arrangement	Vertical in-line
Cycle	4 stroke
Induction system	Natural aspiration
Combustion system	Indirect injection
Cooling system	Water-cooled
Bore and stroke	84 x 90 mm
Displacement	1496cc
Compression ratio	22.5:1
Direction of rotation	Anti-clockwise viewed on flywheel
Total coolant capacity	5.98 litres
Length	820 mm
Width	476 mm
Height	791 mm
Dry weight (engine)	197 kg
	(1500/1800 rev/min)
	175 kg
	(3000/3600 rev/min)

Final weight and dimensions will depend on completed specification.

Optional Equipment

- Exhaust silencer
- Workshop manual
- Parts book

Engine Speed	Fuel Consumption					
	1500 rev/min		1800 rev/min		3000 rev/min	
	g/kWh	l/hr	g/kWh	l/hr	g/kWh	l/hr
At Standby Power	258	4.1	249	4.8	264	7.5
At Prime Power	254	3.7	247	4.3	264	6.8
At 75% of Prime Power	258	2.8	249	3.3	284	5.5
At 50% of Prime Power	291	2.1	275	2.4	338	4.4



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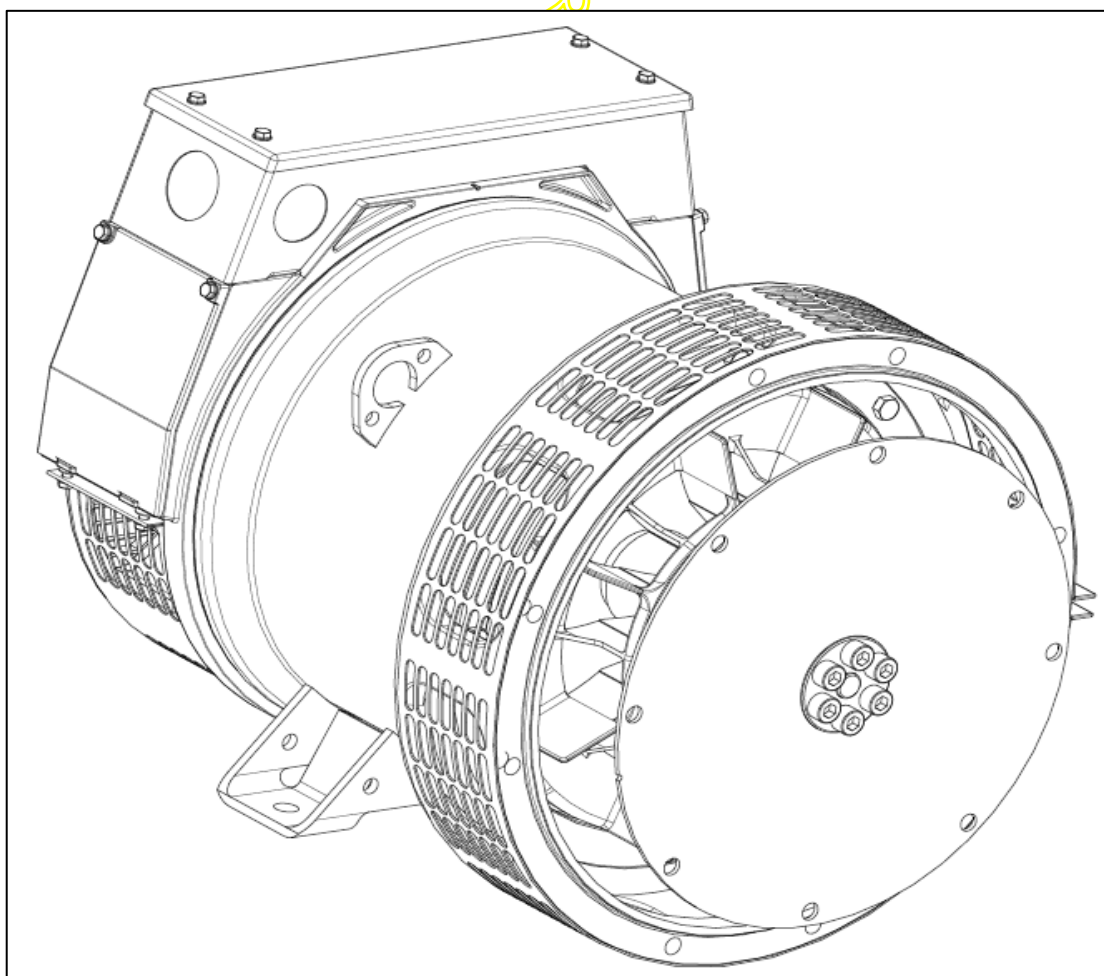


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STAMFORD[®]

PI144D - Winding 311

Technical Data Sheet



PI144D

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 REGULATOR

AS480 AVR fitted as STANDARD

With this self-excited system the main stator provides power via the 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 AS480 will support limited accessories, RFI suppression remote voltage trimmer and for the P1 range only a 'droop' Current Transformer (CT) to permit parallel operation with other ac generators.

The AVR is can be fitted to either side of the generator in its own housing in the non-drive end bracket.

Excitation Boost System (EBS) (OPTIONAL)

The EBS is a single, self-contained unit, attached to the non-drive end of the generator.

The EBS unit consists of the Excitation Boost Controller (EBC) and an Excitation Boost Generator (EBG). Under fault conditions, or when the generator is subjected to a large impact load such as a motor starting, the generator voltage will drop. The EBC senses the drop in voltage and engages the output power of the EBG. This additional power feeds the generator's excitation system, supporting the load until breaker discrimination can remove the fault or enable the generator to pick up a motor and drive the voltage recovery.

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 at the non-drive end of the generator. Dedicated single phase generators are also available. A sheet steel terminal box contains provides ample space for the customers' wiring and gland arrangements. Alternative terminal boxes are available for customers who want to fit additional components in the terminal box.

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 9 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.

5% For reverse rotation

(Standard rotation CW when viewed from DE)

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.

APPROVED DOCUMENT

PI144D

WINDING 311

STAMFORD

CONTROL SYSTEM	STANDARD AS480 AVR (SELF EXCITED)							
VOLTAGE REGULATION	± 1.0 %							
SUSTAINED SHORT CIRCUIT	SELF EXCITED MACHINES DO NOT SUSTAIN A SHORT CIRCUIT CURRENT							

CONTROL SYSTEM	AS480 AVR WITH OPTIONAL EXCITATION BOOST SYSTEM (EBS)							
SUSTAINED SHORT CIRCUIT	REFER TO SHORT CIRCUIT DECREMENT CURVE (page 8)							

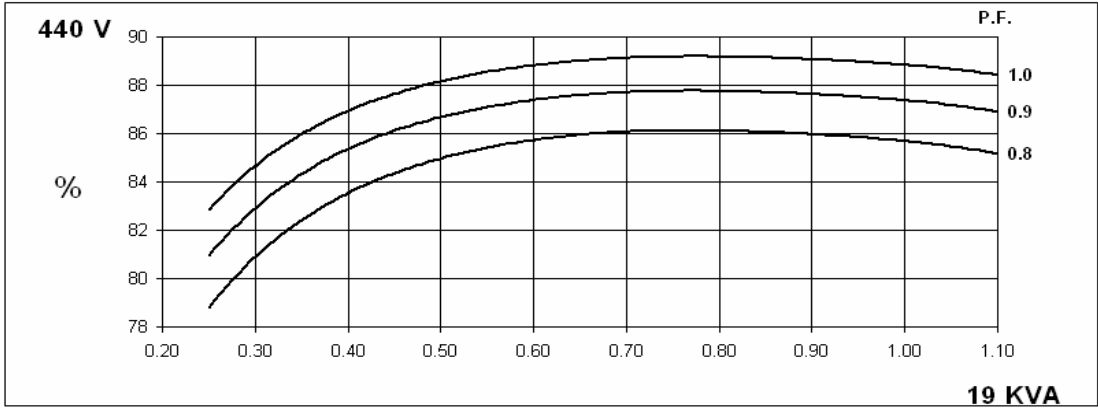
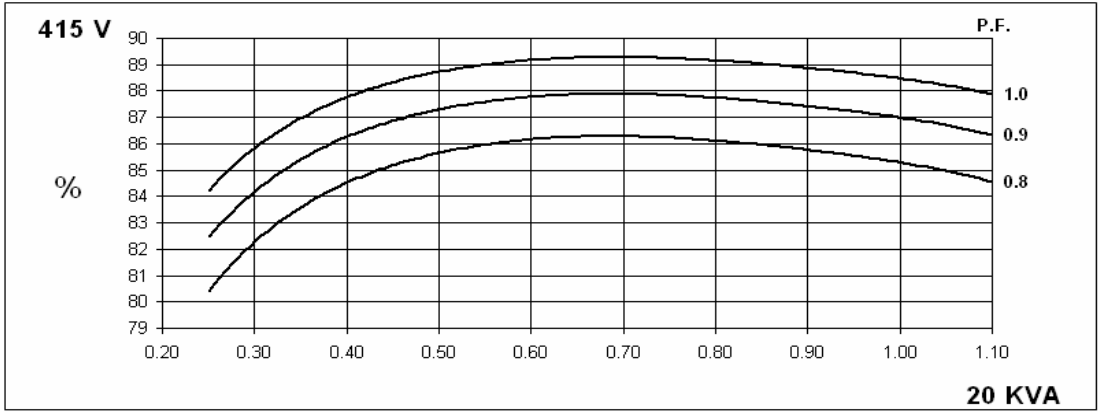
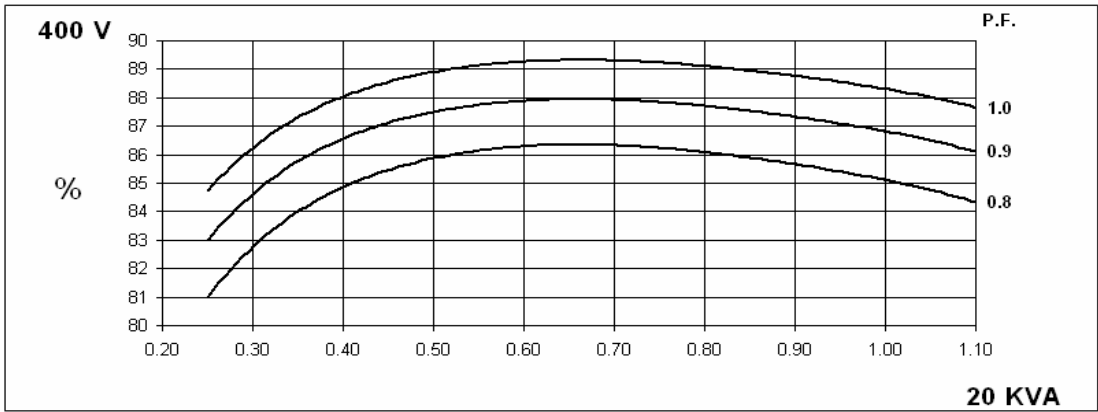
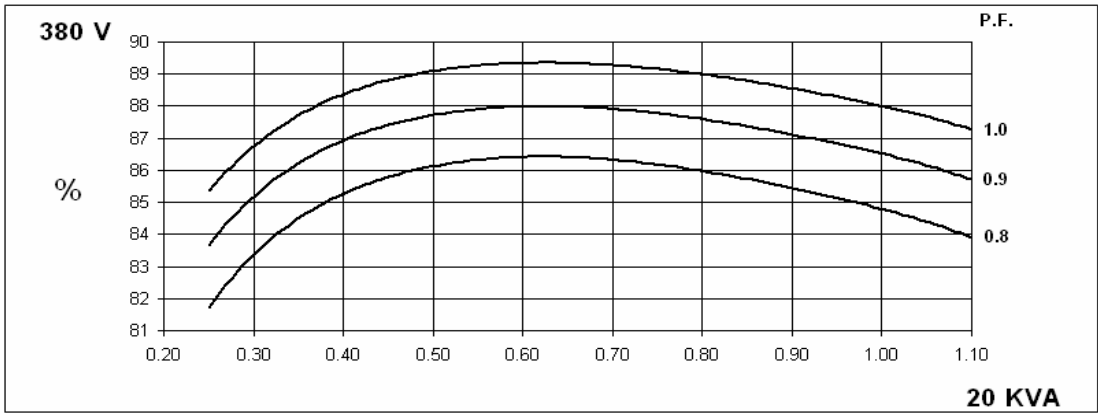
STATOR WINDING	DOUBLE LAYER CONCENTRIC							
WINDING PITCH	TWO THIRDS							
WINDING LEADS	12							
STATOR WDG. RESISTANCE	0.377 Ohms PER PHASE AT 22°C SERIES STAR CONNECTED							
ROTOR WDG. RESISTANCE	0.657 Ohms at 22°C							
EXCITER STATOR RESISTANCE	18.5 Ohms at 22°C							
EXCITER ROTOR RESISTANCE	0.228 Ohms PER PHASE AT 22°C							
EBS STATOR RESISTANCE	12.9 Ohms 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. 6309 - 2RS. (ISO)							
BEARING NON-DRIVE END	BALL. 6306 - 2RS. (ISO)							
	1 BEARING				2 BEARING			
	WITH EBS	WITHOUT EBS	WITH EBS	WITHOUT EBS	WITH EBS	WITHOUT EBS	WITH EBS	WITHOUT EBS
WEIGHT COMP. GENERATOR	120.5 kg	118.8 kg	123.5 kg	121.8 kg	123.5 kg	121.8 kg	123.5 kg	121.8 kg
WEIGHT WOUND STATOR	44 kg	44 kg	44 kg	44 kg	44 kg	44 kg	44 kg	44 kg
WEIGHT WOUND ROTOR	41.87 kg	40.17 kg	42.87 kg	41.17 kg	42.87 kg	41.17 kg	42.87 kg	41.17 kg
WR ² INERTIA	0.156 kgm ²	0.1544 kgm ²	0.1562 kgm ²	0.1545 kgm ²	0.1562 kgm ²	0.1545 kgm ²	0.1562 kgm ²	0.1545 kgm ²
SHIPPING WEIGHTS in a crate	138 kg	136.3 kg	147 kg	145.3 kg	147 kg	145.3 kg	147 kg	145.3 kg
PACKING CRATE SIZE	71 x 51 x 67 (cm)				71 x 51 x 67 (cm)			
	50 Hz				60 Hz			
TELEPHONE INTERFERENCE	THF<2%				TIF<50			
COOLING AIR	0.100 m ³ /sec 212cfm				0.122 m ³ /sec 251 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	20	20	20	19	22	23.5	24.3	25
X _d DIR. AXIS SYNCHRONOUS	1.66	1.50	1.39	1.18	1.97	1.88	1.78	1.68
X' _d DIR. AXIS TRANSIENT	0.17	0.15	0.14	0.12	0.20	0.19	0.18	0.17
X'' _d DIR. AXIS SUBTRANSIENT	0.11	0.10	0.09	0.08	0.13	0.12	0.12	0.11
X _q QUAD. AXIS REACTANCE	0.80	0.72	0.67	0.57	0.95	0.91	0.86	0.81
X'' _q QUAD. AXIS SUBTRANSIENT	0.18	0.16	0.15	0.13	0.21	0.20	0.19	0.18
X _L LEAKAGE REACTANCE	0.07	0.06	0.06	0.05	0.08	0.08	0.07	0.07
X ₂ NEGATIVE SEQUENCE	0.14	0.13	0.12	0.10	0.17	0.16	0.15	0.15
X ₀ ZERO SEQUENCE	0.07	0.06	0.06	0.05	0.08	0.08	0.07	0.07
REACTANCES ARE SATURATED VALUES ARE PER UNIT AT RATING AND VOLTAGE INDICATED								
T' _d TRANSIENT TIME CONST.	0.017 s							
T'' _d SUB-TRANSTIME CONST.	0.004 s							
T _{do} O.C. FIELD TIME CONST.	0.38 s							
T _a ARMATURE TIME CONST.	0.007 s							
SHORT CIRCUIT RATIO	1/X _d							

50
Hz

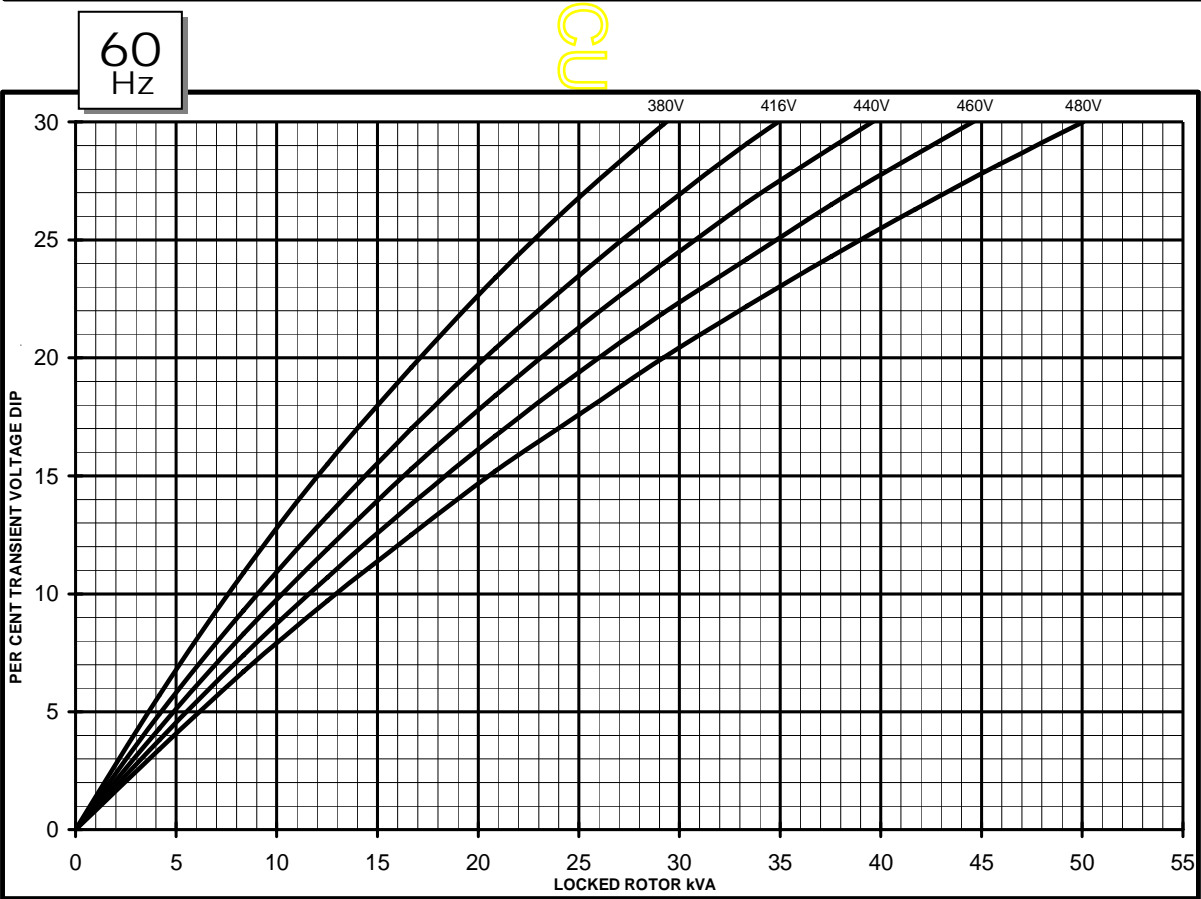
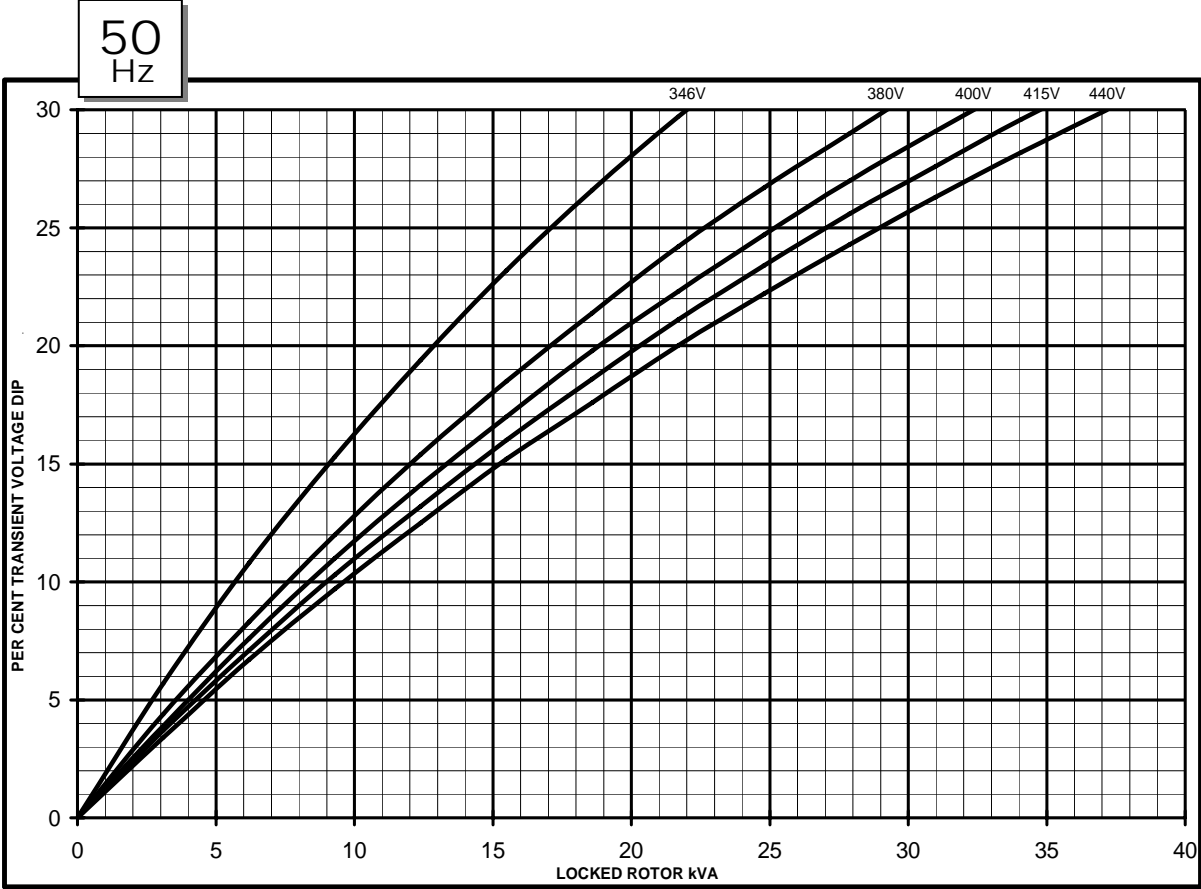
PI144D
Winding 311

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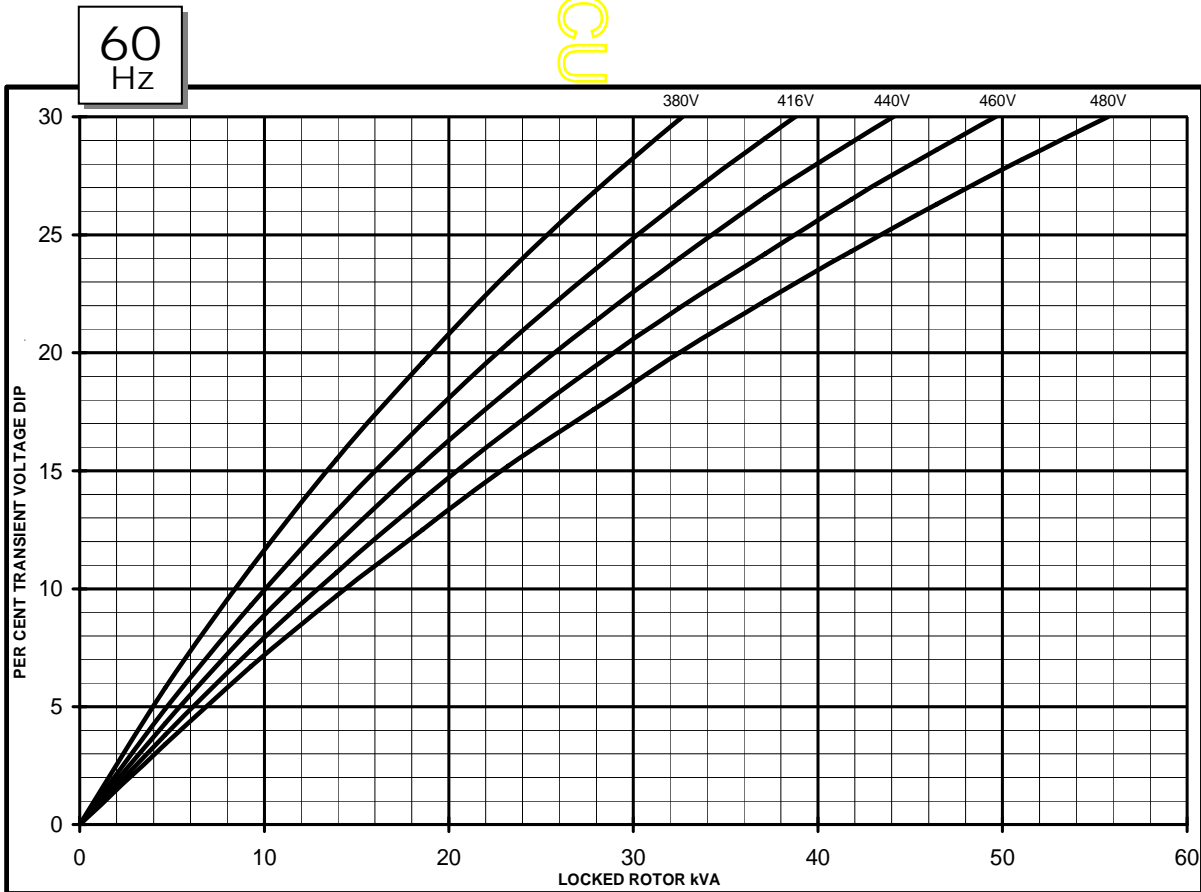
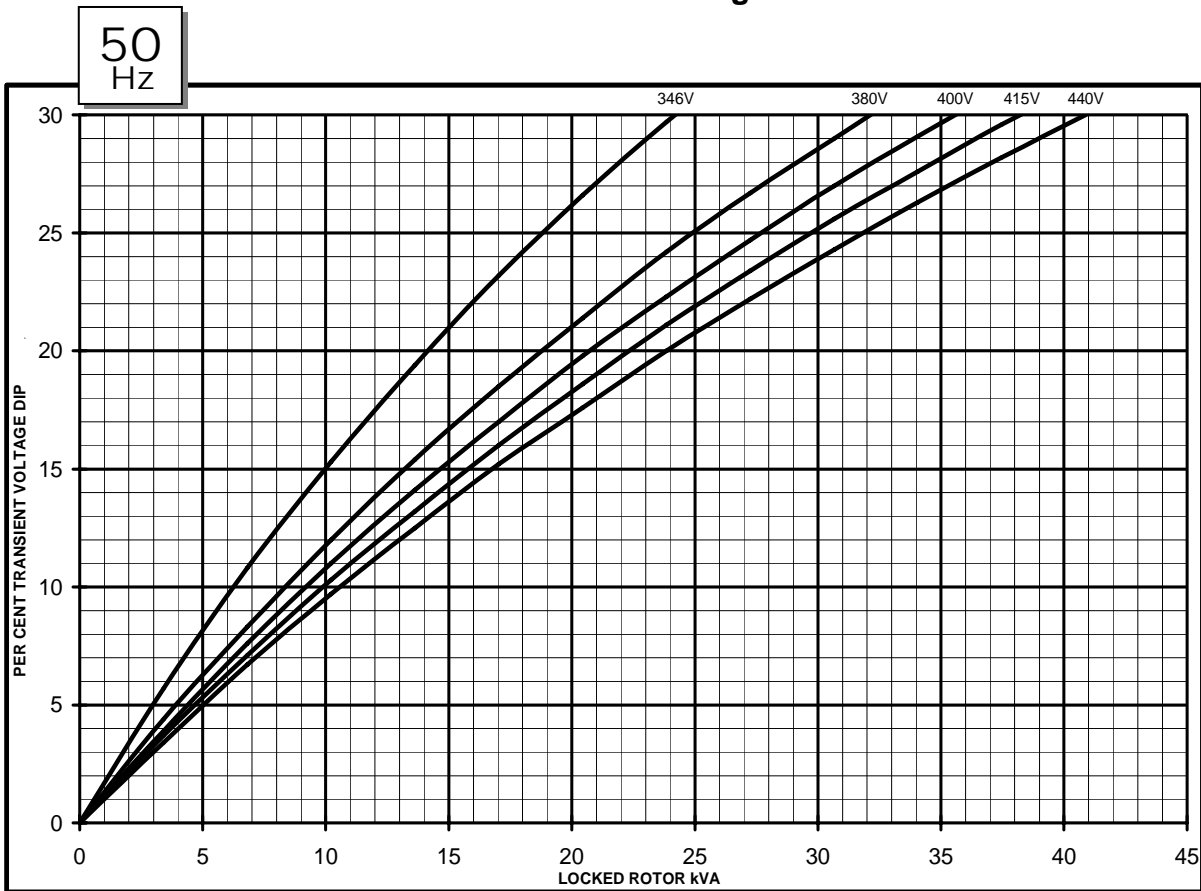
THREE PHASE EFFICIENCY CURVES



PI144D
Winding 311
AS480 AVR Without EBS
Locked Rotor Motor Starting Curves



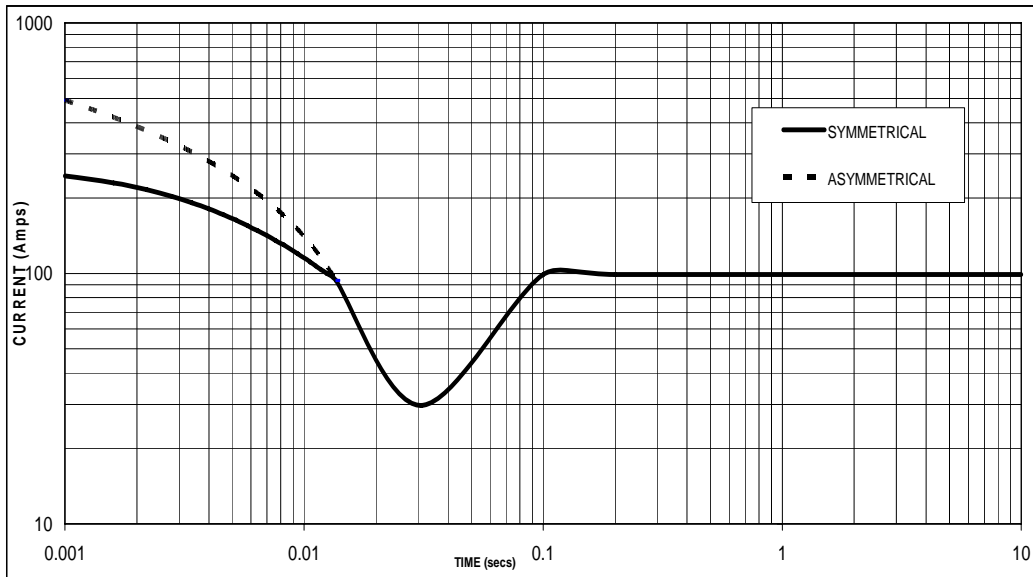
PI144D
Winding 311
AS480 AVR With EBS fitted
Locked Rotor Motor Starting Curves



WITH EBS FITTED

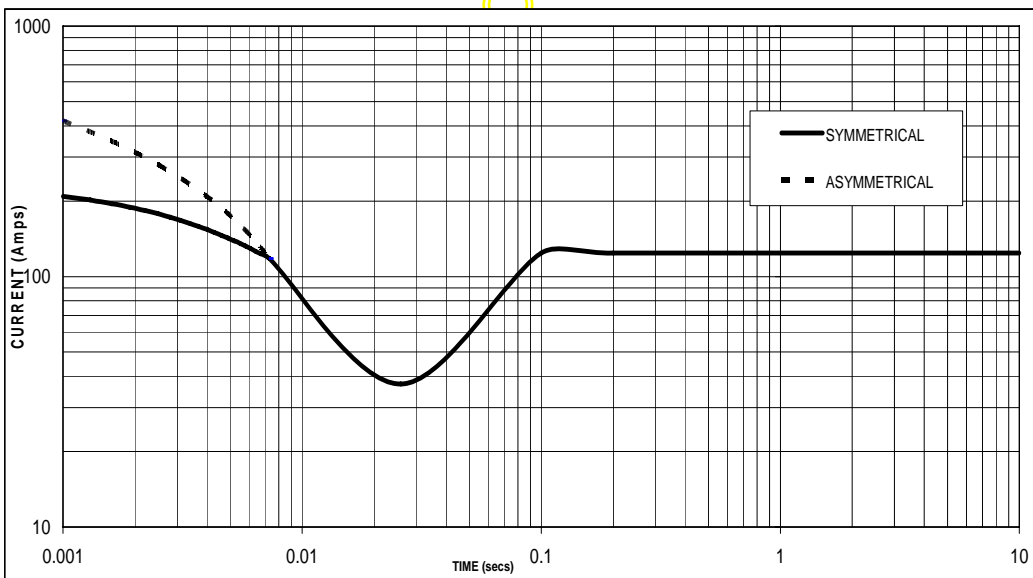
**Three-phase Short Circuit Decrement Curve. No-load Excitation at Rated Speed
Based on star (we) connection.**

50
Hz



Sustained Short Circuit = 99 Amps

60
Hz



Sustained Short Circuit = 124 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 1.05	440v	X 1.06
415v	X 1.09	460v	X 1.10
440v	X 1.16	480v	X 1.15

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 connection 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

PI144D

Winding 311 / 0.8 Power Factor

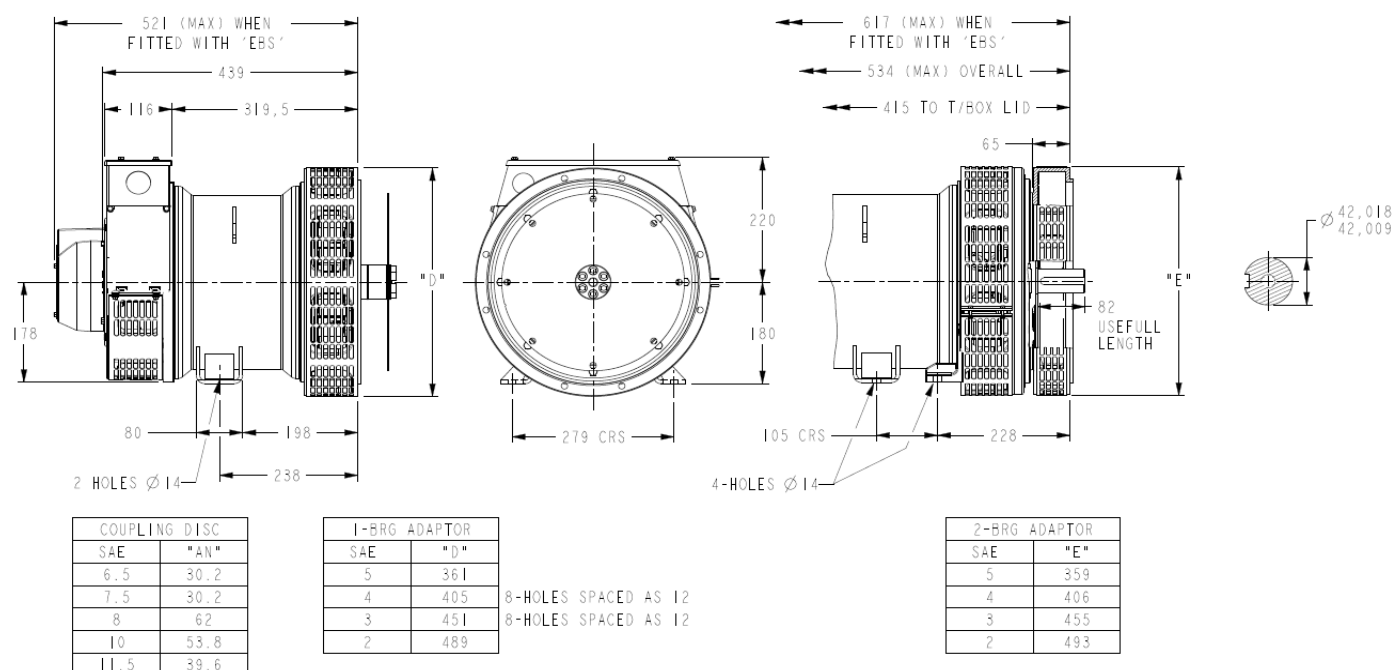
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RATINGS

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	18.2	18.2	18.2	17.3	20.0	20.0	20.0	19.0	21.5	21.5	21.5	20.4	22.0	22.0	22.0	20.9
	kW	14.6	14.6	14.6	13.8	16.0	16.0	16.0	15.2	17.2	17.2	17.2	16.3	17.6	17.6	17.6	16.7
	Efficiency (%)	85.4	85.7	85.8	86.0	84.8	85.1	85.3	85.7	84.2	84.6	84.8	85.4	84.0	84.4	84.6	85.2
	kW Input	17.0	17.0	17.0	16.1	18.9	18.8	18.8	17.7	20.4	20.3	20.3	19.1	21.0	20.9	20.8	19.6

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	20.0	21.4	22.1	22.8	22.0	23.5	24.3	25.0	23.7	25.3	26.1	26.9	24.2	25.9	26.7	27.5
	kW	16.0	17.1	17.7	18.2	17.6	18.8	19.4	20.0	19.0	20.2	20.9	21.5	19.4	20.7	21.4	22.0
	Efficiency (%)	85.6	85.7	85.7	85.8	85.1	85.2	85.3	85.3	84.6	84.6	84.8	84.8	84.5	84.5	84.6	84.7
	kW Input	18.7	20.0	20.6	21.3	20.7	22.1	22.8	23.4	22.4	23.9	24.6	25.4	22.9	24.5	25.3	26.0

DIMENSIONS



New IntelliLite^{NT}



SINGLE SET GEN-SET CONTROLLER

Description

IntelliLite^{NT} models are the new integrated controllers for gen-sets operating in single standby mode. Based on the field proven IntelliLite architecture, the new controllers fulfill every requirement needed for AMF and MRS applications – including modem and Internet control, user configuration and complete gen-set monitoring and protection.

IntelliLite^{NT} controllers are easy to use and feature an intuitive user interface with graphic display. The built-in event and performance log with backed-up real time clock makes troubleshooting even simpler.

The new design brings seamless integration with the latest breed of EFI diesel engines from all major manufacturers. This offers a higher level of functionality with users able to display a full range of values from the EFI engine on standard analog gauges and true RMS measurement of electric values.

Benefits

- ▷ Less wiring and components
- ▷ Less engineering and programming
- ▷ History log – easy troubleshooting and warranty claim handling
- ▷ Remote monitoring reduced call-out costs of service engineers
- ▷ Analog gauge (VDO, Datcon, ...) outputs – operator friendly
- ▷ Perfect price/performance ratio



ComAp is a member of AMPS
(The Association of Manufacturers
of Power generating Systems).



ComAp products meet the highest standards, with every stage of production undertaken in accordance with the ISO certification obtained in 1998.

InteliLite^{NT}

Features

▷ 3 phase AMF function*

- Over/Under frequency
- Over/Under voltage
- Voltage asymmetry

▷ 3 phase generator protections

- Over/Under frequency
- Over/Under voltage
- Current/Voltage asymmetry
- Overcurrent/Overload

▷ True RMS Voltage measurement

- 3 phase generator and mains* voltages
- Voltage range 277 V p-n, 480 V p-p
- Maximal measured voltage 300 V p-n
- PT ratio range 0.1–500

▷ True RMS current measurements

- 3 generator phase currents
- Current range 5 A
- Maximal measured current 10 A
- CT ratio range 1–5000

▷ Power measurements

- Act / React Power and Power Factor per phase
- Active and Reactive Energy counter

▷ Event and performance log + RTC

- Event based history with 119 events*
Reason, Data and Time + all important values are stored
- Battery backed-up RTC
- Test Run scheduler

▷ User interface

- Graphic 128 × 64 pixels display
- Multiple language capability
- Setpoints adjustable via keyboard or PC
- Buttons with mechanical feedback

▷ Inputs and outputs

- 3 configurable analog inputs
- 6 or 7* Binary inputs
- 6 or 7* Binary outputs
- Magnetic pick-up input
- D+ preexcitation terminal
- Optional 8 analog gauge drive outputs, compatible with VDO, Datcon gauges

▷ EFI engine support

- Cummins MODBUS
- Engine specific J1939 for all major manufacturers
- Diagnostic messages in plain text

▷ Communication interfaces

- Optional USB and RS232 plug-in modules
- MODBUS RTU (requires RS232 module)
- Internet

▷ Mechanical and operation parameters

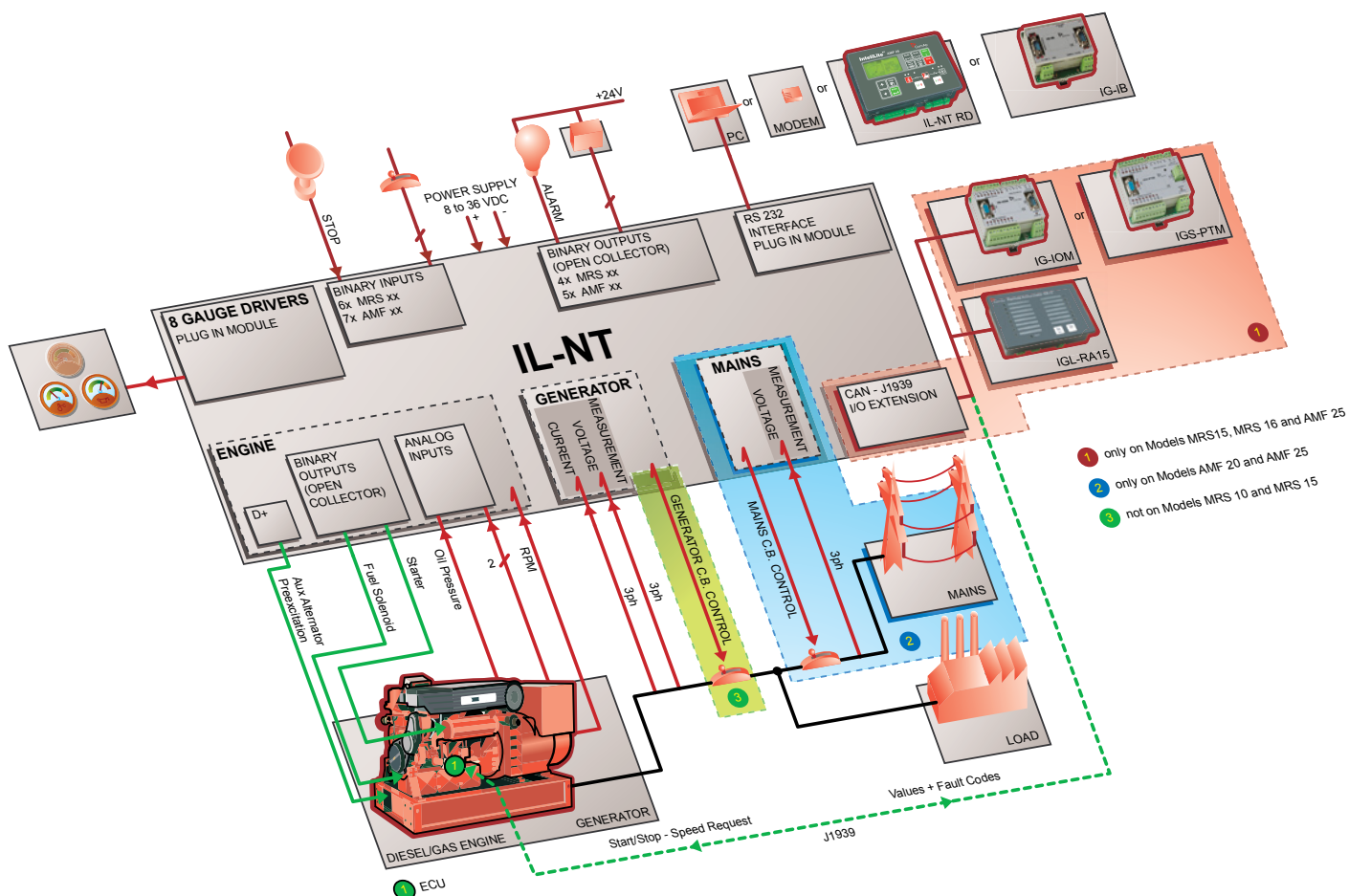
- Unit dimension 120 × 180 mm
- Sealed front face rated for IP65
- Hard plexiglass LCD cover
- Operation temperature
-20°C – +70°C standard version
-40°C – +70°C low temperature version
- Power supply voltage 8–36 V
- Voltage drops shorter than 50 ms do not affect operation

Extension modules

- ▷ IL-NT RS232 RS232 plug-in interface
- ▷ IL-NT USB USB plug-in interface
- ▷ IL-NT AOUT8 gauge plug-in interface
- ▷ IL-NT RD remote display
- ▷ IG-IB Internet module
- ▷ IGS-PTM** extension I/O module
- ▷ IGS-IOM** extension I/O module
- ▷ IGL-RA15** 15 LED remote annunciator

* Only for Models AMF 20 and AMF 25

** Only for Models MRS 15, MRS 16 and AMF 25



Available models

MRS 10

**MANUAL AND REMOTE
START CONTROLLER**



- ▷ 3 configurable analog inputs
- ▷ magnetic pickup input
- ▷ D+ preexcitation terminal
- ▷ 6 binary inputs
- ▷ 6 binary outputs

MRS 11

**MANUAL AND REMOTE
START CONTROLLER**



- ▷ 3 configurable analog inputs
- ▷ magnetic pickup input
- ▷ D+ preexcitation terminal
- ▷ 6 binary inputs
- ▷ 6 binary outputs
- ▷ GCB control

AMF 20

**AUTOMATIC MAINS FAILURE
START CONTROLLER**



- ▷ 3 configurable analog inputs
- ▷ magnetic pickup input
- ▷ D+ preexcitation terminal
- ▷ 7 binary inputs
- ▷ 7 binary outputs
- ▷ GCB and MCB control

MRS 15

**MANUAL AND REMOTE
START CONTROLLER WITH
SUPPORT FOR EFI ENGINES**



- ▷ 3 configurable analog inputs
- ▷ magnetic pickup input
- ▷ D+ preexcitation terminal
- ▷ 6 binary inputs
- ▷ 6 binary outputs
- ▷ CAN with J1939 support
- ▷ extension modules capability
- ▷ event and performance log

MRS 16

**MANUAL AND REMOTE
START CONTROLLER WITH
SUPPORT FOR EFI ENGINES**



- ▷ 3 configurable analog inputs
- ▷ magnetic pickup input
- ▷ D+ preexcitation terminal
- ▷ 6 binary inputs
- ▷ 6 binary outputs
- ▷ GCB control
- ▷ CAN with J1939 support
- ▷ extension modules capability
- ▷ event and performance log

AMF 25

**AUTOMATIC MAINS FAILURE
START CONTROLLER WITH
SUPPORT FOR EFI ENGINE**



- ▷ 3 configurable analog inputs
- ▷ magnetic pickup input
- ▷ D+ preexcitation terminal
- ▷ 7 binary inputs
- ▷ 7 binary outputs
- ▷ GCB and MCB control
- ▷ CAN with J1939 support
- ▷ extension modules capability
- ▷ event and performance log

The Chart of Functions of IntelliLite^{NT} Controllers

FUNCTIONS/CONTROLLERS	IL-NT MRS 10	IL-NT MRS 15	IL-NT MRS 11	IL-NT MRS 16	IL-NT AMF 20	IL-NT AMF 25
Binary inputs/outputs	6 / 6	6 / 6	6 / 6	6 / 6	7 / 7	7 / 7
Analog inputs	3	3	3	3	3	3
Magnetic pick-up	●	●	●	●	●	●
AMF function	–	–	–	–	●	●
Input configuration	●	●	●	●	●	●
Output configuration	●	●	●	●	●	●
Voltage measurement Gen. / Mains	3 ph / –	3 ph / –	3 ph / –	3 ph / –	3 ph / 3 ph	3 ph / 3 ph
Current measurement	3 ph	3 ph, IDMT overcurrent	3 ph	3 ph, IDMT overcurrent	3 ph	3 ph, IDMT overcurrent
kW/kWh measurement	● / –	● / ●	● / –	● / ●	● / –	● / ●
History file	–	●	–	●	–	●
RTC with battery	●	●	●	●	●	●
GCB/MCB control with feedback	– ¹⁾ / –	– ¹⁾ / –	● ²⁾ / –	● ²⁾ / –	● / ●	● / ●
Battery charging alternator circuit	●	●	●	●	●	●
J1939 interface	–	●	–	●	–	●
Internet support	with IG-IB	with IG-IB	with IG-IB	with IG-IB	with IG-IB	with IG-IB
Extension modules	–	IGL-RA15, IG-IOM, IGS-PTM	–	IGL-RA15, IG-IOM, IGS-PTM	–	IGL-RA15, IG-IOM, IGS-PTM
8 analog gauge drivers	0	0	0	0	0	0
RS232 interface	0	0	0	0	0	0
Modem interface	0	0	0	0	0	0
MODBUS interface	0	0	0	0	0	0
Remote display	0	0	0	0	0	0
Cummins MODBUS	0	0	0	0	0	0

Key: ● included
 – excluded
 0 optional – plug-in module required
 1) Automatic GCB control without feedback
 2) Manual/Automatic GCB control, but without feedback

Legend: IG-IOM/IGS-PTM: I/O extension modules
 IGL-RA15: Remote annunciator
 GCB: Generator circuit breaker
 MCB: Mains circuit breaker

For more information about our products and solutions visit our web-page

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