

TENAX K SERIES

DIESEL GENERATOR
GROUPE ELECTROGENE DIESEL
GRUPO ELECTROGENO DIESEL
GRUPPO ELETTROGENO DIESEL

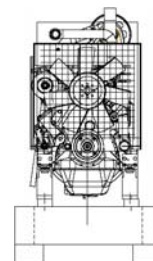
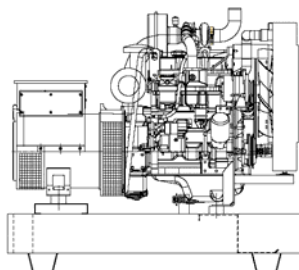
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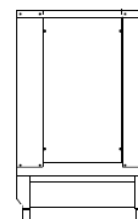
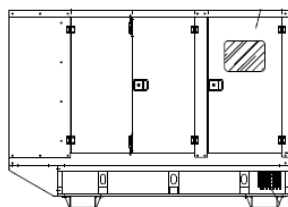
POWERED BY



OPEN VERSION



SOUNDPROOF VERSION



GENERATING SET PERFORMANCE PERFORMANCES DU GROUPE PRESTACIONES DEL GRUPO PRESTAZIONI DEL GRUPPO		50 Hz	60 Hz
Voltage Voltage Voltaje Tensione		V 400 / 230	V 220 / 127
Continuous Power Puissance service continue Potencia servicio continuo Potenza servizio continuo	PRP	kVA 40	kVA 45
Stand-by Power Puissance service secours Potencia servicio emergencia Potenza servizio in emergenza	LTP	kVA 44	kVA 50
Continuous Power Puissance service continue Potencia servicio continuo Potenza servizio continuo	PRP	kWe 32	kWe 36
Stand-by Power Puissance service secours Potencia servicio emergencia Potenza servizio in emergenza	LTP	kWe 35,2	kWe 40
Power factor Facteur de puissance Factor de potencia Fattore di potenza	cos φ	0,8	0,8
Fuel consumption Consommation combustible Consumo de combustible Consumo combustibile	70 %	l/h 6,7	l/h 7,6

ENGINE MOTEUR MOTOR MOTORE		JOHN DEERE		3029 TF 158	
PERFORMANCE PERFORMANCES PRESTACIONES PRESTAZIONI		1500 rpm		1800 rpm	
Continuous Power Puissance service continue Potencia servicio continuo Potenza servizio continuo	PRP	kWm	36	kWm	40
Stand-by Power Puissance service secours Potencia servicio emergencia Potenza servizio in emergenza	LTP	kWm	40	kWm	45
Specific fuel consumption Consommation spécifique combustible Consumo específico de combustible Consumo specifico combustibile		g/kWh	25 % 274 50 % 237 75 % 225 100 % 218	g/kWh	25 % 288 50 % 237 75 % 229 100 % 221
Diesel 4 Stroke – Injection type Diesel 4 temps – Type injection Diesel 4 tiempos – Tipo de inyección Diesel a 4 tempi – Tipo di iniezione					Direct Directe Directa Diretta
Aspiration type Type d'aspiration Tipo de aspiracion Tipo d'aspirazione					Turbocharged Suraalimentée sobrealimentato sovralimentata
Cooling system Refroidissement Sistema de refrigeración Raffreddamento					Acqua Eau Agua Acqua
Speed governor Régulateur de tours Regulador Regolatore di giri					Mechanical Mécanique Mecanico Meccanico
Cylinders, numbers and arrangement Nombre et disposition des cylindres Cilindros, numero y disposición Numero e disposizione dei cilindri					3 L
Total displacement Cylindrée totale Cilindrata total Cilindrata totale				cm ³	2900
Bore x stroke Alésage x course Diámetro x carrera Alesaggio x corsa				mm	106 x 110
Compression ratio Rapport de compression Relación de compresión Rapporto di compressione					17.2:1
Engine electric system voltage Voltage système électrique moteur Voltaje sistema eléctrico motor Vtaggio sistema elettrico motore					12 V
Derating for temperature Déclassement pour temperature Declasamiento para temperatura Declassamento per temperatura				0 ÷ 25°C > 25 °C	0 0,5 % / 5,5 °C
Derating for altitude Déclassement pour altitude Declasamiento para altitud Declassamento per altitudine				0 ÷ 2440 m 2440÷3050 m	0 4 %
Derating for relative humidity Déclassement pour humidité relative Declasamiento para humedad relativa Declassamento per umidità relativa					0,07 % /10 %

ALTERNATOR ALTERNATEUR ALTERNADOR ALTERNATORE				LEROY SOMER	
PERFORMANCE PERFORMANCES PRESTACIONES PRESTAZIONI		1500 rpm		1800 rpm	
Model Modèle Modelo Modello		LSA 42.3 S5		LSA 42.3 S5	
Continuous Power Puissance service continue Potencia servicio continuo Potenza servizio continuo	40 °C	KVA	40	KVA	49
		kWe	32	kWe	39,2
Stand-by Power Puissance service secours Potencia servicio emergencia Potenza servizio in emergenza	40 °C	KVA	42,4	KVA	51,9
		kVe	33,9	kWe	41,6
Stand-by Power Puissance service secours Potencia servicio emergencia Potenza servizio in emergenza	27 °C	KVA	45	KVA	53,9
		kVe	36	kWe	43,1
Efficiency		1/4	88,4 %	1/4	88,7 %
Rendement		2/4	90,3 %	2/4	90,9 %
Eficienza		3/4	89,8 %	3/4	90,5 %
Efficienza		4/4	88,6 %	4/4	89,3 %
Standard winding connections Liaison des bobinages Tipo de conexión Collegamento avvolgimenti		Y		YY	
Exciter Excitatrice Excitador Excitatrice	brushless rotating exciter design with solid state pivotante sans brosses avec pont de diodes pivotants puente de diodos sin escobillas rotantes rotante senza spazzole con ponte di diodi rotanti				
Poles Poles Polos Poli	4				
Phases Phases Fases Fasi	3 + N				
Wires Fils Hilos Morsetti	12				
Voltage regulation Regulation Voltage Regulación voltaje Regolazione tensione		± 0,5 %			
Waveform distortion Taux d'harmonique Distorsión forma de onda Distorsione forma d'onda		IEC	< 2%		
Insulation class Classe d' isolation Classe de aislamiento Classe di isolamento		H			
Enclosure Degré de protection mécanique Grado de protección mecánica Grado di protezione meccanica		IP 23			
Maximun overspeed Survitesse Régimen máximo Velocità di fuga		2250 min			
AVR model with 300 % shortcircuit current Modèle AVR avec un courant de court-circuit du 300 % Modelo AVR con una corriente de corto circuito del 300 % Modello AVR con corrente di cortocircuito del 300 %				(3 In) : 10 s	R 438 AREP
Derating for temperature Déclassement pour temperature Declasamiento para temperatura Declassamento per temperatura		0 ÷ 40°C	0		
		> 40 °C	3 % / 5°C		
Derating for altitude Déclassement pour altitude Declasamiento para altitud Declassamento per altitudine		0 ÷ 1500 m	0		
		1500 ÷ 2500 m	3% / 500 m		
		2500 ÷ 3000 m	4% / 500 m		

LOGISTIC INFORMATION INFORMATIONS LOGISTIQUES INFORMATION LOGISTICA INFORMAZIONI LOGISTICHE

	Integrated fuel tank capacity Capacité réservoir intégré Capacidad Tanque integrado Capacità Serbatoio integrato		Weight Poids Peso Peso	Dimensions Cotes d'encombrement Medidas externas Dimensioni d'ingombro			
	(L.)			(kg)	(cm)		
	STD	EXTRA1			L	W	H
OPEN SKID VERSION VERSION SUR SKID VERSION ABIERTA VERSIONE APERTA	120	ON REQUEST	765	170	95	140	
SOUND PROOF VERSION VERSION INSONORISEE VERSION INSONORISADA VERSIONE INSONORIZZATA	120	ON REQUEST	1000	200	95	155	

GENSET STANDARD EQUIPMENT EQUIPEMENT STANDARD GROUPE ELECTROGENE EQUIPAMIENTO STANDARD GRUPO ELECTROGENO EQUIPAGGIAMENTO STANDARD GRUPPO ELETTROGENO

GB	F	E	I
- Steel base frame - Vibration dampers - Integrated bunded fuel tank - Silencer industrial type for open version - Battery - Manual autostart control panel With DSE6110 - Engine with original tropical radiator - Emergency stop button - Sound proof canopy of galvanized steel with residential silencer	- Châssis acier - Amortisseurs de vibrations - Réservoir intégré avec bac de rétention - Silencieux industriel pour la version ouverte - Batterie - Coffret de contrôle manuel autostart avec DSE6110 - Moteur avec radiateur tropical - Bouton arrêt d'urgence - Capote d'insonorisation d'acier galvanisé avec silencieux résidentiel	- Telar de acero - Apagadores de vibracion - Tanque combustible con bandeja para la recogida de líquidos - Silenciador industrial para la versión abierta - Bateria - Cuadro eléctrico manual autostart con DSE6110 - Motor con radiador original tropical - Botón parada de emergencia - Cabina de insonorización de acero cincado con silenciador residencial	- Basamento in acciaio - Antivibranti - Serbatoio integrato con vasca di raccolta liquidi - Silenziatore industriale per versione aperta - Batteria - Quadro elettrico manuale autostart con DSE6110 - Motore con radiatore originale tropicalizzato - Pulsante arresto di emergenza - Cabina di insonorizzazione di acciaio zincato con marmitta residenziale

MANUAL AUTOSTART CONTROL PANEL COFFRET ELECTRIQUE MANUEL AUTOSTART CUADRO ELECTRICO MANUAL AUTOSTART QUADRO ELETTRICO MANUALE AUTOSTART

ACP 6110 AUS

63 A (400 V - 3 ph - 50Hz - 1500 rpm)
125 A (220 V - 3 ph - 60Hz - 1800 rpm)

STANDARD EQUIPMENT:	EQUIPEMENT STANDARD:	EQUIPAMIENTO STANDARD:	EQUIPAGGIAMENTO STANDARD:
4 poles circuit breaker Electronic control board DSE6110 Emergency stop button	Disjoncteur de protection 4 pôles Fiche électronique DSE6110 Interrupteur d'arrêt d'urgence	Interruptor magnetotermico 4 polos Carta electronica DSE6110 Botón de parada de emergencia	Interruttore magnetotermico 4 poli Scheda elettronica DSE6110 Pulsante di arresto di emergenza



CONTROL BOARD CARTE ELECTRONIQUE DE CONTROL CARTA ELECTRONICA DE CONTROL SCHEDA ELETTRONICA DI CONTROLLO

PROTECTIONS	PROTECTIONS	PROTECCIONES	PROTEZIONI
Low oil pressure High engine temperature Low fuel level Fail to start Fail to stop Over/under voltage Over/under speed Fuel level Belt breakage Over current Over/under battery voltage	Basse pression huile moteur Haute température moteur Basse niveau combustible Non démarrage Non arrêt Sur/sous voltage Sur/sous survitesse Niveau de combustible Rupture courroie Surcoursant Sur/sous tension batterie	Baja presión de aceite Alta temperatura agua Bajo nivel combustible Fallido start Fallido stop Sovra/baja tensión Sovra/baja frecuencia Nivel de combustible Rotura de la correa Sobre intensidad Sobre/baja tension batería	Bassa pressione olio Alta temperatura acqua Basso livello carburante Mancato avviamento Mancato arresto Sovra/sotto frequenza Sovra/sotto voltaggio Livello di combustibile Rottura cinghia Sovracorrente Sovra/sotto voltaggio batterie
DIGITAL METERS	VOYANT NUMERIQUE POUR	VISOR DIGITAL PARA	MISURATORE DIGITALE PER
Generator volts (3 phases) Generator amperes (3 phases) Generator frequency kW-meter kVA-meter Cos φ- meter Rpm meter Gen set hour counter Battery Volts	Voltmètre générateur (3 phases) Ampèremètre générateur (3 phases) Fréquencemètre générateur kW-mètre kVA- mètre Cos φ- mètre Tr/min mètre Totalisateur d'heures de marche Voltmètre batterie	Voltios del generador (3 fases) Amperios del generador (3 fases) Frecuencia del generador kW kVA Cosφ RPM Horas de funcionamiento del grupo Tensión baterías	Volt generatore (3 fasi) Ampere generatore (3 fasi) Frequenza del genitore kW kVA Cosφ RPM Ore di funzionamento del gruppo Volt batteria

AUTOMATIC CONTROL PANEL
COFFRET ELECTRIQUE AUTOMATIQUE
CUADRO ELECTRICO AUTOMATICO
QUADRO ELETTRICO AUTOMATICO

ACP 0411 ATS



COMPLETE CONTROL PANEL FREE STANDING TYPE

Equipment: control unit, frequency and voltage indicators, genset/mains supply contactors, automatic battery charger.

COFFRET ELECTRIQUE COMPLET TYPE ARMOIRE SEPRE DU GROUPE

Equipement : unité de contrôle, indicateurs fréquence et tension, inverseur de source, chargeur de batterie automatique.

CUADRO ELECTRICO COMPLETO EN ARMARIO SEPARADO DEL GRUPO

Equipamiento: ficha de control, indicadores frecuencia y tensión, contactores grupo/red, cargador de batería automático.

QUADRO ELETTRICO COMPLETO SEPARATO DAL GRUPPO

Equipaggiamento: unità di controllo, indicatori di frequenza e tensione, contattori gruppo/rete, carica batteria automatico.



0411

CONTROL BOARD
CARTE ELECTRONIQUE DE CONTROL
CARTA ELECTRONICA DE CONTROL
SCHEDA ELETTRONICA DI CONTROLLO

GB	F	E	I
With a generating set wired to ACP 0411 ATS control panel, the power can be switched automatically to electrical services within few seconds (15-20) after activation of the signal indicating a cut in the mains supply.	Un groupe électrogène équipé avec un coffret électrique ACP 0411 ATS peut être démarré automatiquement dans quelques seconds (15-20) à partir de l'activation du signal d'arrêt dans la fourniture du secteur.	Un grupo electrógeno equipado con un cuadro electric ACP 0411 ATS puede ser arrancado automáticamente dentro de algunos segundos (15-20) de la activación de la señal de falta de la erogación de la red eléctrica.	Un gruppo elettrogeno collegato con un quadro automatico ACP 0411 ATS può essere avviato automaticamente entro pochi secondi (15-20) dall'attivazione del segnale che indica un arresto nella fornitura della linea principale.
MAIN PERFORMANCES	PERFORMANCES	PRESTACIONES	PRESTAZIONI
4 impulses automatic start - Immediate or delayed start after mains failure - Genset unit automatic anomaly surveillance - Weekly autotest - Immediate or delayed stop after mains voltage return - Engine protections - Current and voltage controlled battery recharging - Clock for programming the start up or stopping of the genset	- Démarrage automatique à 4 impulsions - Démarrage immédiat ou retardé après manqué tension réseau - Surveillance automatique des anomalies - Autotest hebdomadaire - Arrêt immédiat ou retardé au retour de la tension réseau - Protections moteur - Recharge batterie contrôlée en courant et en tension - Horloge pour la programmation de le démarrage et de l'arrêt	- Arranque automático a 4 impulsados - Arranque inmediato o retrasado después falta red eléctrica - Monitorización automática faltas grupo - Autotest semanal - Parada inmediata o retrasada después de la vuelta del voltaje red - Protecciones motor - Cargamiento batería con control de corriente y de voltaje - Reloj para la programación del arranque o de la parada del generador	- Avviamento automatico con 4 impulsi - Avviamento immediato o ritardato dopo mancanza rete - Sorveglianza automatica anomalie gruppo elettrogeno - Autotest settimanale - Arresto immediato o ritardato al ritorno tensione rete - Protezioni del motore - Ricarica batteria controllata in corrente e in voltaggio - Orologio per la programmazione dell'avviamento o dello spegnimento del generatore
INDICATORS	INDICATEURS	INDICADORES	INDICATORI
Mains voltmeter Generator voltmeter (1 phase) Generator ammeter (as option) Generator frequency meter Hour meter Battery voltmeter Fuel level indicator	Voltmètre secteur Voltmètre générateur (1 phase) Ampèremètre générateur (en option) Fréquencemètre générateur Compteur horaire Voltmètre batterie Niveau combustible	Voltmetro red Voltmetro generador (1 fase) Amperímetro generador (como opción) Frecuencímetro generador Medidas horas de marcha Voltmetro batería Nivel carburante	Indicatore tensione rete Indicatore tensione generatore (1 fase) Amperometro generatore (in opzione) Indicatore frequenza generatore Contatore Indicatore tensione batteria Livello carburante
PROTECTIONS	PROTECTIONS	PROTECCIONES	PROTEZIONI
Generator failure High engine temperature (as option) Overfrequency Low oil pressure Overcrank Battery not charged Low fuel level	Anomalie générateur Haute temperature moteur (en option) Surfréquence Basse pression huile moteur Surcharge groupe Batterie non chargée Bas niveau carburant	Anomalía grupo Elevada temperature motor (como opción) Sobre frecuencia Baja presión aceite Sobrecarga Batería sin carga Bajo nivel combustible	Anomalie generatore Alta temperatura motore (in opzione) Sovrafrequenza Bassa pressione olio Sovraccarico Batteria non carica Livello di carburante basso

AUTOMATIC CONTROL PANEL COFFRET ELECTRIQUE AUTOMATIQUE CUADRO ELECTRICO AUTOMATICO QUADRO ELETTRICO AUTOMATICO				
1) ACP 6120 ATS		 COMPLETE CONTROL PANEL FREE STANDING TYPE Equipment: control board, circuit breaker, battery charger, transfer switch, box key. COFFRET ELECTRIQUE COMPLET TYPE ARMOIRE SEPARÉ DU GROUPE Equipement : carte électronique de contrôle, disjoncteur de protection, chargeur de batterie, inverseur de source, clé coffret. CUADRO ELECTRICO COMPLETO EN ARMARIO SEPARADO DEL GRUPO Equipamiento: carta electronica de controllo, interruptor magnetotermico, cargador de bateria, transferencial, llave quadro. QUADRO ELETTRICO COMPLETO SEPARATO DAL GRUPPO Equipaggiamento: scheda elettronica di controllo, interruttore magnetotermico, carica batteria, telecommutazione e chiave quadro.		
2) ACP 6120 AMF		 AMF CONTROL PANEL FITTED ON THE GEN-SET WITHOUT TRANSFER SWITCH Equipment: control board, circuit breaker, battery charger, box key. COFFRET ELECTRIQUE MONTE SUR LE GROUPE SANS INVERSEUR DE SOURCE Equipement : carte électronique de contrôle, disjoncteur de protection, chargeur de batterie, clé coffret. CUADRO ELECTRICO MONTADO SOBRE EL GRUPO SIN TRANSFERENCIAL Equipamiento: carta electronica de controllo, interruptor magnetotermico, cargador de bateria, llave quadro. QUADRO ELETTRICO MONTATO SUL GRUPPO ELETTROGENO SENZA TELECOMMUTAZIONE Equipaggiamento: scheda elettronica di controllo, interruttore magnetotermico, carica batteria, chiave quadro.		
3) ACP 6120 STS		 CONTROL PANEL FITTED ON THE GEN-SET WITH TRANSFER SWITCH SUPPLIED IN A SEPARATED BOX Equipment: control board, circuit breaker, battery charger, box key, separate transfer switch. COFFRET ELECTRIQUE MONTE SUR LE GROUPE + INVERSEUR DE SOURCE FOURNI DANS UN COFFRET SEPARÉ Equipement : carte électronique de contrôle, disjoncteur de protection, chargeur de batterie, inverseur de source séparé, clé coffret. CUADRO ELECTRICO MONTADO SOBRE EL GRUPO CON TRANSFERENCIAL SEPARADO Equipamiento: carta electronica de controllo, interruptor magnetotermico, cargador de bateria, llave quadro, transferencial separado. QUADRO ELETTRICO MONTATO SUL GRUPPO ELETTROGENO CON TELECOMMUTAZIONE SEPARATA Equipaggiamento: scheda elettronica di controllo, interruttore magnetotermico, carica batteria, chiave quadro, telecommutazione in armadio separato.		
 DSE 6120		CONTROL BOARD CARTE ELECTRONIQUE DE CONTROL CARTA ELECTRONICA DE CONTROL SCHEDA ELETTRONICA DI CONTROLLO		
GB		F		E
The DSE6120 is an Automatic Mains Failure Control Module designed to automatically start and stop diesel generating sets that include electronic and non electronic engines. The module also provides excellent genset monitoring and protection features.		La DSE6120 est une carte de contrôle projetée pour démarrer et arrêter automatiquement groupes électrogènes diesel avec moteurs électroniques et non électroniques. La carte représente un système excellent de contrôle et de protection du groupe électrogène.		La DSE6120 es una carta de control para arrancar y parar automáticamente grupos electrógenos diesel con motores electrónicos y no electrónicos. La carta constituye un excelente sistema de control y protección del grupo electrógeno.
FEATURES		EQUIPEMENT		EQUIPMENT
Electronic control module DSE6120 Circuit breaker Battery charger Emergency stop button		Fiche électronique de contrôle DSE6120 Disjoncteur de protection Chargeur de batterie Bouton poussoir arrête d'urgence		Ficha electrónica de control DSE6120 Interruptor magnetotermico Cargador de batería Boton de parada de emergencia
DIGITAL MEASURING		MESURES NUMERIQUES		MEDIDAS DIGITALES
Generator volts (3 phases) Generator amperes (3 phases) Generator frequency KW-meter kVA-meter Cos φ- meter Rpm meter Water temperature (optional) Oil pressure (optional) Gen set hours counter Mains volts Battery volts		Voltmètre générateur (3 phases) Ampèremètre générateur (3 phases) Fréquencemètre générateur KW- mètre kVA- mètre Cos φ- mètre Tm mètre Température eau (facultatif) Pression huile (facultatif) Totalisateur d'heures de marche Voltmètre secteur Voltmètre batterie		Voltmetro (3 fases) Amperimetro (3 fases) Frecuencimetro KW- metro kVA- metro Cos φ- metro Revoluciones por minuto metro Termometro agua (opcional) Presión aceite (opcional) Medida horas de marcha Voltmetro tensión de red Voltmetro batería
INDICATORS		INDICATEURS		INDICADORES
Mains live Generator live Mains contactor closed Generator contactor closed		Présence secteur Présence tension générateur Inverseur secteur fermé Inverseur générateur fermé		Presenza tensión de red Presencia tensión grupo Transferencial red cerrado Transferencial grupo cerrado
PROTECTIONS		PROTECTIONS		PROTECCIONES
Low oil pressure High engine temperature Low fuel level Fail to start Fail to stop Emergency stop Over/under frequency Over/under voltage Over/under speed Fuel level Belt breakage Over current Over/under battery voltage		Bas pression huile moteur Haute température moteur Bas niveau combustible Non démarrage Non arrêt Arrêt d'urgence Sur/sous fréquence Sur/sous voltage Sur/sous vitesse Niveau de combustible Rupture courroie Surcourant Sur/sus la tension de batterie		Baja presión aceite Elevada temperatura motor Baja nivel carburante Falta de arranque Falta de parada Parada de emergencia Sobre/bajo frecuencia Sobre/bajo voltaje Sobre/bajo velocidad nivel de combustible Ruptura correa Corriente maxima Sobre/bajo voltaje de la batería
				I
				La DSE6120 è una scheda di controllo progettata per avviare e arrestare automaticamente gruppi elettrogeni diesel con motori elettronici e non elettronici. La scheda costituisce un eccellente sistema di controllo e di protezione del gruppo elettrogeno.
FEATURES		EQUIPEMENT		EQUIPAGGIAMENTO
Electronic control module DSE6120 Circuit breaker Battery charger Emergency stop button		Fiche électronique de contrôle DSE6120 Disjoncteur de protection Chargeur de batterie Bouton poussoir arrête d'urgence		Scheda elettronica di controllo DSE6120 Interruttore magnetotermico Carica batteria Pulsante stop emergenza
DIGITAL MEASURING		MESURES NUMERIQUES		MISURAZIONI DIGITALI
Generator volts (3 phases) Generator amperes (3 phases) Generator frequency KW-meter kVA-meter Cos φ- meter Rpm meter Water temperature (optional) Oil pressure (optional) Gen set hours counter Mains volts Battery volts		Voltmètre générateur (3 phases) Ampèremètre générateur (3 phases) Fréquencemètre générateur KW- mètre kVA- mètre Cos φ- mètre Tm mètre Température eau (facultatif) Pression huile (facultatif) Totalisateur d'heures de marche Voltmètre secteur Voltmètre batterie		Voltmetro tensione generatore (3 fasi) Amperometro generatore (3 fasi) Frequenzimetro generatore KW- metro kVA- metro Cos φ- metro Gm metro Temperatura acqua (facoltativo) Pressione olio (facoltativo) Contaore di funzionamento gruppo Voltmetro tensione rete Voltmetro batteria
INDICATORS		INDICATEURS		INDICATORI
Mains live Generator live Mains contactor closed Generator contactor closed		Présence secteur Présence tension générateur Inverseur secteur fermé Inverseur générateur fermé		Presenza tensione di rete Presenza tensione generatore Erogazione da rete Erogazione da gruppo
PROTECTIONS		PROTECTIONS		PROTEZIONI
Low oil pressure High engine temperature Low fuel level Fail to start Fail to stop Emergency stop Over/under frequency Over/under voltage Over/under speed Fuel level Belt breakage Over current Over/under battery voltage		Bas pression huile moteur Haute température moteur Bas niveau combustible Non démarrage Non arrêt Arrêt d'urgence Sur/sous fréquence Sur/sous voltage Sur/sous vitesse Niveau de combustible Rupture courroie Surcourant Sur/sus la tension de batterie		Bassa pressione olio Alta temperatura motore Basso livello di carburante Mancato avviamento Mancato arresto Stop d'emergenza Sovra/sotto frequenza Sovra/sotto voltaggio Sovra/sotto velocità Livello del carburante Rottura cinghia Sovraccorrente Sovra/sotto tensione della batteria

SOUNDPROOF CANOPY CAPOTE D'INSONORISATION CAPOTA DE INSONORIZACION CABINA INSONORIZATA			
GB	F	E	I
The TecnoGen soundproof canopy has been designed with the aim of achieving the maximum noise level reduction and to provide a perfect cooling of the engine. The cooling airflow is forced through fixed circuits. The canopy is suitable for tropical ambient application. The exhaust gas silencer is residential type internally mounted. The canopy is completely built of hot galvanized carbon sheet steel. The sheets have a thickness 20/10. The structure is fully bolted, fixed by a special polyethylene sealing, completely free from electrical installation. All the panels can be easily removed. The canopy is provided with doors of wide opening for easy access to generating set for the maintenance operations. The soundproofing materials are highly fire resistant and self-extinguishing.	La capote insonorisée TecnoGen à été conçue pour atteindre le niveau de bruit le mineur possible et un refroidissement du moteur parfait. Le souffle d'air refroidissant est canalisé en circuits fixes. La capote est apte à être utilisée dans les ambiances tropicales. Le silencieux des gaz d'échappement, de type résidentiel, est mis à l'intérieur de la capote. La cabine est construite en acier galvanisé à chaud. Les tôles ont une épaisseur de 20/10. La structure est complètement boulonnée et fixée à travers des garnitures spéciales au polyéthylène. Tous les panneaux sont facilement amovibles. La cabine est dotée de portes avec grandes ouvertures qui permettent un accès facile au groupe électrogène pour les opérations de manutention. Les matériaux d'insonorisation sont fortement résistants au feu et auto-extinguibles.	La capota insonorizada TecnoGen tiene sido planeada con el objetivo de alcanzar el menor nivel de rumorosidad posible y un perfecto enfriamiento del motor. El sopro de aire es canalizado en circuitos fijos. La cabina es apta a ser utilizada en ambientes tropicales. El silenciador de los gases de descargue, de tipo residencial, es colocado dentro de la cabina. La cabina es construida en acero cincado. Las chapas tienen un espesor de 20/10. La estructura es completamente bullonata y montada con sellos especiales de polietilene. Todos los paneles son fácilmente removibles. La cabina es dotada con puertas con amplias aberturas que permiten el fácil acceso al grupo electrógeno por las operaciones de manutención. Los materiales insonorizantes son muy resistentes al fuego y auto-extinguentes.	La cabina insonorizzata TecnoGen è stata progettata allo scopo di raggiungere il minor livello di rumorosità possibile e un perfetto raffreddamento del motore. Il soffio d'aria raffreddante è canalizzato in circuiti fissi. La cabina è adatta ad essere utilizzata in ambienti tropicali. Il silenziatore dei gas di scarico, di tipo residenziale, è collocato all'interno della cabina. La cabina è costruita in acciaio zincato a caldo. Le lamiere hanno uno spessore di 20/10. La struttura è completamente bullonata e fissata tramite speciali sigilli al polietilene. Tutti i pannelli sono facilmente rimovibili. La cabina è dotata di porte con ampie aperture che consentono il facile accesso al gruppo elettrogeno per le operazioni di manutenzione. I materiali insonorizzanti sono altamente resistenti al fuoco e autoestinguenti.
Our quality in 10 points Notre qualité résumée en 10 points Nuestra calidad en 10 puntos La nostra qualità in 10 punti			
Internal residential silencer for lower sound levels 1 Silencieux interne pour un niveau bas de bruit Silenciador interno para un nivel de rumorosidad más bajo Silenziatore interno per un livello di rumorosità più basso			
Integrated fuel tank of different sizes 2 Réservoirs de combustible disponibles, sur demande, de capacité supérieure Tanques integrados disponibles, como opción, de capacidad superior Serbatoi integrati disponibili, su richiesta, di capacità superiore			
Control panel viewing window to easily check status of generating set 3 Fenêtre de visualisation du panneau de contrôle pour un contrôle plus facile du status opérationnel du groupe Ventana de visualización del panel de control por un más fácil control del estatus operativo del grupo Finestra di visualizzazione del pannello di controllo per un più facile controllo dello status operativo del gruppo			
Lockable access doors for extra safety and security 4 Porte d'accès avec serrure pour une sûreté majeure Puertas de acceso con cerradura para una mayor seguridad Porte di accesso con serratura per una maggiore sicurezza			
Galvanized bolts 5 Boulons galvanisés Pernos cincados Bulloni zincati			
Emergency stop button 6 Interrupteur d'arrêt d'urgence Botón parada de emergencia Pulsante arresto di emergenza			
Doors location convenient for controls and service area 7 Placement des portes pour rendre les contrôles plus faciles Colocación de las puertas para facilitar los controles Collocazione delle porte per facilitare i controlli			
High serviceability level 8 Haut niveau d'accessibilité pour la manutention Alto nivel de accesibilidad para la manutención Alto livello di accessibilità per la manutenzione			
Large cable entry area for easy installation 9 Grande zone d'entré des câbles pour une installation plus facile Amplia área de entrada cables para una instalación fácil Ampia area di entrata cavi per una facile installazione			
Galvanized metal steel sheet pre-treated prior to powder coating 10 Tôles en acier galvanisé pré-traitées avant le vernissage à poudre Chapas de acero cincado pre-tratadas antes de la pintura a polvo Lamiere di acciaio zincato pre-trattate prima della verniciatura a polvere			



ENGINE PERFORMANCE CURVE

Rating: Gross Power
Application: Generator
1500 RPM (50 Hz)

POWERTECH 2.9L Engine

Model: **3029TF158**

51 hp (38 kW) Prime

56 hp (42 kW) Standby

[Option 16TT / 16TU]

Nominal Engine Power @ 1500 RPM

Prime		Standby	
HP	kW	HP	kW
51	38	56	42

Generator Efficiency %	Fan Power		Power Factor	Prime Rating		Standby Rating ¹		4 sec Standby Block Load Capability
	hp	kW		kW	kVA	kW	kVA	
88-92	2.7	2	0.8	32-33	40-41	35-37	44-46	100%

Note 1: Based on nominal engine power.

Air Intake Restriction 12 in.H₂O (3 kPa)
Exhaust Back Pressure 30 in.H₂O (7.5 kPa)

Gross power guaranteed within + or - 5% at SAE J1995 and ISO 3046 conditions:

77 °F (25 °C) air inlet temperature

29.31 in.Hg (99 kPa) barometer

104 °F (40 °C) fuel inlet temperature

0.853 fuel specific gravity @ 60 °F (15.5 °C)

Conversion factors:

Power: kW = hp x 0.746

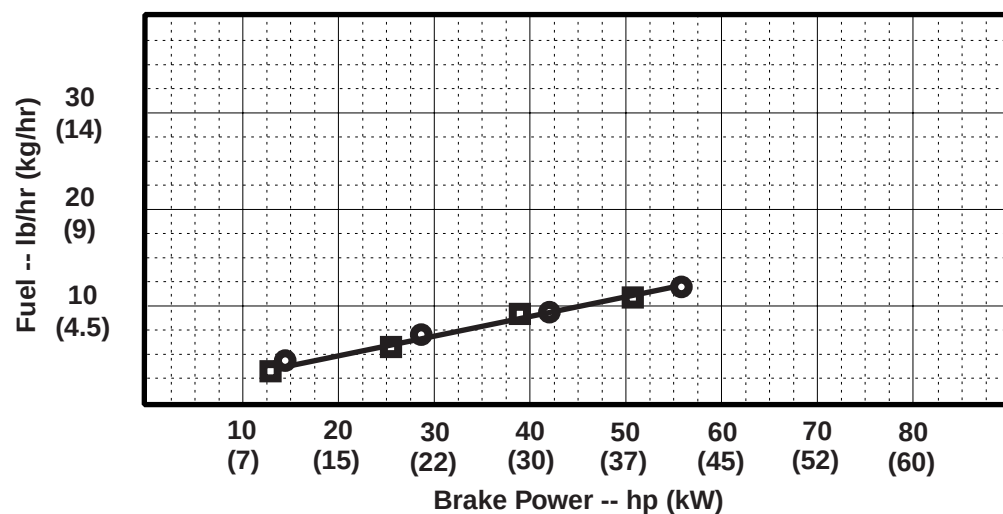
Fuel: 1 gal = 7.1 lb, 1 L = 0.85 kg

Torque: N•m = lb-ft x 1.356

All values are from currently available data and are subject to change without notice.

■ - PRIME

● - STANDBY



Notes:

Emission Certifications:

Certified by:

NONE

Ref: Engine Emission Label

Kevin J. Bailey
27 Nov 2000

* Revised Data

Curve 3029TF150056..... Sheet 1 of 2
November 2000

Engine Specification Data

General Data

Model 3029TF158
 Number of Cylinders 3
 Bore and Stroke--in.(mm) 4.19 x 4.33 (106 x 110)
 Displacement--in.³ (L) 177 (2.9)
 Compression Ratio 17.2:1
 Valves per Cylinder--Intake/Exhaust 1/1
 Firing Order 1-2-3
 Combustion System Direct Injection
 Engine Type In-line, 4-Cycle
 Aspiration Turbocharged
 Engine Crankcase Vent System Open
 Maximum Crankcase Pressure--in.H₂O (kPa) 2 (0.5)

Physical Data

Length--in.(mm) 28.2 (716)
 Width--in.(mm) 20.4 (519)
 Height--in.(mm) 32.2 (819)
 Weight, dry--lb (kg).....697 (316)
 (Includes SAE 4 flywheel housing, RE28119 flywheel, starter and electrics.)
 Center of Gravity Location
 From Rear Face of Block (X-axis)--in.(mm) 7.8 (198)
 Right of Crankshaft (Y-axis)--in.(mm) 0.4 (10)
 Above Crankshaft (Z-axis)--in.(mm) 4.9 (124)
 Max. Allow. Static Bending Moment at Rear
 Face of Flywhl Hsg w/ 5-G Load--lb-ft (N•m) ...600 (814)
 Thrust Bearing Load Limit (Forward)
 Continuous--lb (N) 500 (2224)
 Intermittent--lb (N).....900 (4003)

Electrical System

Recommended Battery Capacity (CCA)
 12 Volt System--amp 640
 24 Volt System--amp 570
 Maximum Allowable Starting Circuit Resistance
 12 Volt System--Ohm 0.0012
 24 Volt System--Ohm 0.002
 Starter Rolling Current--12 Volt System
 At 32 °F (0 °C)--amp 780
 At -22 °F (-30 °C)--amp 1000
 Starter Rolling Current--24 Volt System
 At 32 °F (0 °C)--amp 600
 At -22 °F (-30 °C)--amp 700

Air System

Prime Standby

Maximum Allowable Temp Rise--Ambient Air to
 Engine Inlet--°F (°C) 15 (8) 15 (8)
 Maximum Air Intake Restriction
 Dirty Air Cleaner--in.H₂O (kPa) 25 (6.25) ... 25 (6.25)
 Clean Air Cleaner--in.H₂O (kPa) 12 (3) 12 (3)
 Engine Air Flow--ft³/min (m³/min) 106 (3) ... 113 (3.2)
 Intake Manifold Pressure--psi (kPa) 11 (73) 12 (84)
 Rec'd. Intake Pipe Dia--in.(mm).....2.5 (63.5) ..2.5 (63.5)

Exhaust System

Prime Standby

Exhaust Flow--ft³/min (m³/min).....247 (7.0) ... 238 (7.6)
 Exhaust Temperature--°F (°C) 1051(566) . 1128(609)
 Max. Allow. Back Press.--in.H₂O (kPa).30 (7.5) 30 (7.5)
 Recm'd Exhaust Pipe Dia--in.(mm) ...2.5 (63.5) ..2.5 (63.5)

Cooling System

Prime Standby

Engine Heat Reject.--BTU/min (kW) .. 1309(23) ... 1479(26)
 Coolant Flow--gal/min (L/min)..... 24 (91) 24 (91)
 Thermostat Start to Open--°F (°C).....180 (82) 180 (82)
 Thermostat Fully Open--°F (°C).....201 (94) 201 (94)
 Maximum Water Pump
 Inlet Restriction--in.H₂O (kPa) 20 (5) 20 (5)
 Engine Coolant Capacity--qt (L) 6 (5.7) 6 (5.7)
 Recm'd Pressure Cap--psi (kPa) 10* (69*) ... 10* (69*)
 Maximum Top Tank Temp--°F (°C) 221 (105) .. 221 (105)
 Min. Coolant Fill Rate--gal/min (L/min) 3 (11) 3 (11)
 Min. Air-to-Boil Temperature--°F (°C) ..117 (47) 117 (47)

Fuel System

Prime Standby

Fuel Injection Pump Stanadyne Stanadyne
 Governor Regulation..... 5 % 5 %
 Governor Type Mech Mech.
 Total Fuel Flow--lb/hr (kg/hr)..... 203 (92) 203 (92)
 Fuel Consumption--lb/hr (kg/hr)..... 18 (8.3) 20 (9.2)
 Maximum Fuel Transfer Pump Suction--
 ft (m) fuel.....3 (0.9) 3 (0.9)
 Fuel Filter Micron Size @ 98 % Efficiency 8 8

Lubrication System

Prime Standby

Oil Pressure at Rated Speed--psi (kPa)50 (345) ... 50 (345)
 Oil Pressure at Low Idle--psi (kPa) 15 (105) 15 (105)
 In Pan Oil Temperature--°F (°C) 239 (115) .. 239 (115)
 Oil Pan Capacity, High--qt (L) 8 (7.6) 8 (7.6)
 Oil Pan Capacity, Low--qt (L) 7 (6.6) 7 (6.6)
 Total Engine Oil Cap. w/ Filters--qt (L) ... 9 (8.5) 9 (8.5)
 Engine Angularity Limits (Continuous)
 Any Direction--degrees 20 20

Performance Data

Prime Standby

Rated Power--hp (kW) 51 (38) 56 (42)
 Rated Speed--rpm 1500 1500
 Low Idle Speed--rpm 1400 1400
 BMEP--psi (kPa) 150 (1036) .. 166 (1145)
 Friction Power
 @ Rated Speed--hp (kW) 17 (13) 17 (13)
 Altitude Capability--ft (m) 10,500 (3200) 8500 (2590)
 Ratio--Air : Fuel..... 24.8:1 23.1:1
 Noise--dB(A) @ 1 m 91.1 91.8

Fuel Consumption -- lb/hr (kg/h)

Prime Standby

25 % Power 3 (2.6) 4 (2.8)
 50 % Power 6 (4.5) 7 (4.9)
 75 % Power 9 (6.4) 9 (6.9)
 100 % Power 11 (8.3) 12 (9.2)

All values at rated speed and power with standard options unless otherwise noted.

* Revised Data

Curve 3029TF150056 Sheet 2 of 2
 November 2000



ENGINE PERFORMANCE CURVE

Rating: Gross Power
Application: Generator
1800 RPM (60 Hz)

POWERTECH 2.9L Engine

Model: **3029TF150**

58 hp (43 kW) Prime

64 hp (48 kW) Standby

[Option 16TR / 16TS]

Nominal Engine Power @ 1800 RPM

Prime		Standby	
HP	kW	HP	kW
58	43	64	48

Generator Efficiency %	Fan Power		Power Factor	Prime Rating		Standby Rating ¹		4 sec Standby Block Load Capability
	hp	kW		kW	kVA	kW	kVA	
88-92	4	3	0.8	35-37	44-46	39-41	49-51	100%

Note 1: Based on nominal engine power.

Air Intake Restriction 12 in.H₂O (3 kPa)
Exhaust Back Pressure 30 in.H₂O (7.5 kPa)

Gross power guaranteed within + or - 5% at SAE J1995 and ISO 3046 conditions:

77 °F (25 °C) air inlet temperature

29.31 in.Hg (99 kPa) barometer

104 °F (40 °C) fuel inlet temperature

0.853 fuel specific gravity @ 60 °F (15.5 °C)

Conversion factors:

Power: kW = hp x 0.746

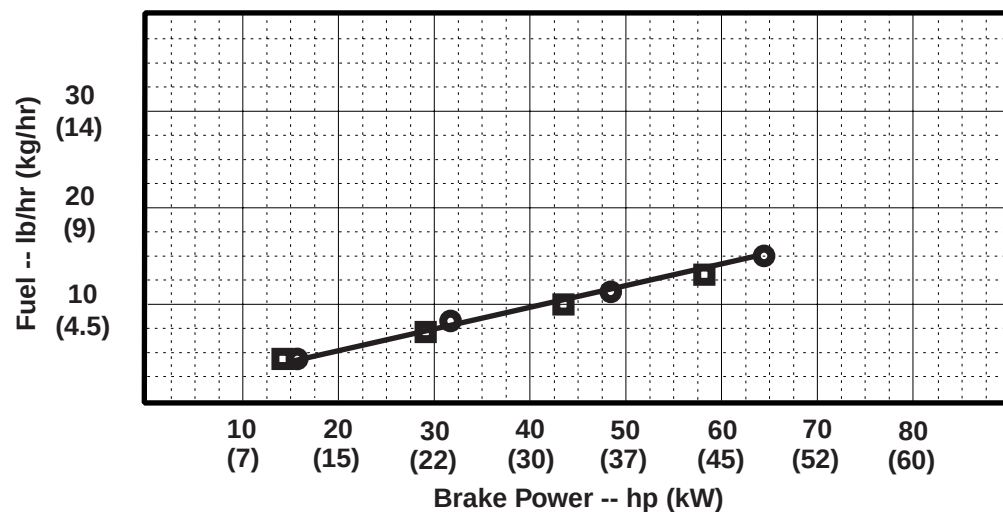
Fuel: 1 gal = 7.1 lb, 1 L = 0.85 kg

Torque: N•m = lb-ft x 1.356

All values are from currently available data and are subject to change without notice.

■ - PRIME

● - STANDBY



Notes:

Emission Certifications:

Certified by:

CARB; EPA*

Ref: Engine Emission Label

Kevin J. Bailey
27 Nov 2000

* Revised Data

Curve 3029TF180064..... Sheet 1 of 2
November 2000

Engine Specification Data

General Data

Model 3029TF150
 Number of Cylinders 3
 Bore and Stroke--in.(mm) 4.19 x 4.33 (106 x 110)
 Displacement--in.³ (L) 177 (2.9)
 Compression Ratio 17.2:1
 Valves per Cylinder--Intake/Exhaust 1/1
 Firing Order 1-2-3
 Combustion System Direct Injection
 Engine Type In-line, 4-Cycle
 Aspiration Turbocharged
 Engine Crankcase Vent System Open
 Maximum Crankcase Pressure--in.H₂O (kPa) 2 (0.5)

Physical Data

Length--in.(mm) 28.2 (716)
 Width--in.(mm) 20.4 (519)
 Height--in.(mm) 32.2 (819)
 Weight, dry--lb (kg).....697 (316)
 (Includes SAE 4 flywheel housing, RE28119 flywheel, starter and electrics.)
 Center of Gravity Location
 From Rear Face of Block (X-axis)--in.(mm) 7.8 (198)
 Right of Crankshaft (Y-axis)--in.(mm) 0.4 (10)
 Above Crankshaft (Z-axis)--in.(mm) 4.9 (124)
 Max. Allow. Static Bending Moment at Rear
 Face of Flywhl Hsg w/ 5-G Load--lb-ft (N•m) ...600 (814)
 Thrust Bearing Load Limit (Forward)
 Continuous--lb (N) 500 (2224)
 Intermittent--lb (N).....900 (4003)

Electrical System

Recommended Battery Capacity (CCA)
 12 Volt System--amp 640
 24 Volt System--amp 570
 Maximum Allowable Starting Circuit Resistance
 12 Volt System--Ohm 0.0012
 24 Volt System--Ohm 0.002
 Starter Rolling Current--12 Volt System
 At 32 °F (0 °C)--amp 780
 At -22 °F (-30 °C)--amp 1000
 Starter Rolling Current--24 Volt System
 At 32 °F (0 °C)--amp 600
 At -22 °F (-30 °C)--amp 700

Air System

	<u>Prime</u>	<u>Standby</u>
Maximum Allowable Temp Rise--Ambient Air to Engine Inlet--°F (°C) 15 (8)	15 (8)	15 (8)
Maximum Air Intake Restriction		
Dirty Air Cleaner--in.H ₂ O (kPa) 25 (6.25) ...	25 (6.25)	25 (6.25)
Clean Air Cleaner--in.H ₂ O (kPa) 12 (3)	12 (3)	12 (3)
Engine Air Flow--ft ³ /min (m ³ /min) 124 (3.5) ...	127 (3.6)	127 (3.6)
Intake Manifold Pressure--psi (kPa) 10 (67)	11 (77)	11 (77)
Rec'd. Intake Pipe Dia--in.(mm)..... 2.5 (63.5) ..	2.5 (63.5)	2.5 (63.5)

Exhaust System

	<u>Prime</u>	<u>Standby</u>
Exhaust Flow--ft ³ /min (m ³ /min).....300 (8.5) ...	325 (9.2)	325 (9.2)
Exhaust Temperature--°F (°C) 896(480) ..	941(505)	941(505)
Max. Allow. Back Press.--in.H ₂ O (kPa).30 (7.5)	30 (7.5)	30 (7.5)
Recm'd Exhaust Pipe Dia--in.(mm) ...2.5 (63.5) ..	2.5 (63.5)	2.5 (63.5)

Cooling System

	<u>Prime</u>	<u>Standby</u>
Engine Heat Reject.--BTU/min (kW) . 1423 (25) ..	1593 (28)	1593 (28)
Coolant Flow--gal/min (L/min)..... 29 (110)	29 (110)	29 (110)
Thermostat Start to Open--°F (°C).....180 (82)	180 (82)	180 (82)
Thermostat Fully Open--°F (°C).....201 (94)	201 (94)	201 (94)
Maximum Water Pump		
Inlet Restriction--in.H ₂ O (kPa) 28 (7)	28 (7)	28 (7)
Engine Coolant Capacity--qt (L) 6 (5.7)	6 (5.7)	6 (5.7)
Recm'd Pressure Cap--psi (kPa) 10* (69*) ...	10* (69*)	10* (69*)
Maximum Top Tank Temp--°F (°C) 221 (105) ..	221 (105)	221 (105)
Min. Coolant Fill Rate--gal/min (L/min) 3 (11)	3 (11)	3 (11)
Min. Air-to-Boil Temperature--°F (°C) ..117 (47)	117 (47)	117 (47)

Fuel System

	<u>Prime</u>	<u>Standby</u>
Fuel Injection Pump	Stanadyne	Stanadyne
Governor Regulation..... 5 %	5 %	5 %
Governor Type	Mech.	Mech.
Total Fuel Flow--lb/hr (kg/hr)..... 209 (95)	209 (95)	209 (95)
Fuel Consumption--lb/hr (kg/hr)..... 21(9.5) ...	23 (10.6)	23 (10.6)
Maximum Fuel Transfer Pump Suction--		
ft (m) fuel.....3 (0.9)	3 (0.9)	3 (0.9)
Fuel Filter Micron Size @ 98 % Efficiency	8	8

Lubrication System

	<u>Prime</u>	<u>Standby</u>
Oil Pressure at Rated Speed--psi (kPa)50 (345) ...	50 (345)	50 (345)
Oil Pressure at Low Idle--psi (kPa) 15 (105)	15 (105)	15 (105)
In Pan Oil Temperature--°F (°C) 239 (115) ..	239 (115)	239 (115)
Oil Pan Capacity, High--qt (L) 8 (7.6)	8 (7.6)	8 (7.6)
Oil Pan Capacity, Low--qt (L)..... 7 (6.6)	7 (6.6)	7 (6.6)
Total Engine Oil Cap. w/ Filters--qt (L) ... 9 (8.5)	9 (8.5)	9 (8.5)
Engine Angularity Limits (Continuous)		
Any Direction--degrees.....20	20	20

Performance Data

	<u>Prime</u>	<u>Standby</u>
Rated Power--hp (kW) 58 (43)	64 (48)	64 (48)
Rated Speed--rpm 1800	1800	1800
Low Idle Speed--rpm 1400	1400	1400
BMEP--psi (kPa) 142 (977) ..	158 (1090)	158 (1090)
Friction Power		
@ Rated Speed--hp (kW) 21 (16)	21 (16)	21 (16)
Altitude Capability--ft (m) 7500 (2285)	5000 (1525)	5000 (1525)
Ratio--Air : Fuel..... 24.8:1	23.0:1	23.0:1
Noise--dB(A) @ 1 m	92.7	92.7

Fuel Consumption -- lb/hr (kg/h)

	<u>Prime</u>	<u>Standby</u>
25 % Power	4 (3.1)	4 (3.1)
50 % Power	7 (5.1)	8 (5.7)
75 % Power	10 (7.4)	11 (8.2)
100 % Power	13 (9.5)	14 (10.6)

All values at rated speed and power with standard options unless otherwise noted.

* Revised Data

Curve 3029TF180064 Sheet 2 of 2
 November 2000



Low Voltage alternators - 4 pole LSA 42.3

25 to 60 kVA - 50 Hz / 31.5 to 75 kVA - 60 Hz

Electrical and mechanical data

Low Voltage alternators 4 pole 3-phase *PARTNER*

LSA 42.3

25 to 60 kVA - 50 Hz / 31.5 to 75 kVA - 60 Hz

SPECIALLY ADAPTED TO APPLICATIONS

The LSA 42.3 alternator is designed to be suitable for typical generator applications, such as: backup, marine applications, rental, telecommunications, etc.

COMPLIANT WITH INTERNATIONAL STANDARDS

The LSA 42.3 alternator conforms to the main international standards and regulations:

- IEC 60034, NEMA MG 1.22, ISO 8528-3, CSA / UL on request, marine regulations, etc.

It can be integrated into a CE marked generator.

The LSA 42.3 is designed, manufactured and marketed in an ISO 9001 environment and ISO 14001.

TOP OF THE RANGE ELECTRICAL PERFORMANCE

- Class H insulation.
- Standard 12 wire re-connectable winding, 2/3 pitch, type no. 6.
- Voltage range:
 - 50 Hz: 220 V - 240 V and 380 V - 415 V (440 V)
 - 60 Hz: 208 V - 240 V and 380 V - 480 V
- High efficiency and motor starting capacity.
- Other voltages are possible with optional adapted windings:
 - 50 Hz: 440 V (no. 7), 500 V (no. 9), 690 V (n°10)
 - 60 Hz: 380 V and 416 V (no. 8), 600 V (no. 9)
- R 791 interference suppression conforming to standard EN 55011 group 1 class B standard for European zone (CE marking).

REINFORCED MECHANICAL STRUCTURE USING FINITE ELEMENT MODELLING

- Compact rigid assembly to better withstand generator vibrations.
- Steel frame.
- Aluminium flanges and shields.
- Two-bearing and single-bearing versions designed to be suitable for commercially-available heat engines.
- Half-key balancing two bearing.
- Permanently greased bearings (20 000h).
- Direction of rotation : clockwise and anti-clockwise (without derating).

EXCITATION AND REGULATION SYSTEM SUITED TO THE APPLICATION

Excitation system				Regulation options				
Voltage regulator	SHUNT	AREP	PMG	Current transformer for paralleling	Mains paralleling	3-phase sensing	3-phase sensing for mains paralleling unbalanced	Remote voltage potentiometer
R220	Std	-	-	-	-	-	-	-
R438	-	Std	Std	C.T.	R726*	R731*	R734*	√
R450	Option	Option	Option	C.T.	R726*	R731*	R734*	√
D510C*	Option	Option	Option	C.T.	included	included	contacter factory	√

* Steel terminal box mounting only

√: Possible mounting

COMPACT AND DESIGN TERMINAL BOX

- Easy access to the AVR (lid) and to the connections.
- 8 way terminal block for reconnecting the voltage.
- Predrilled holes for cable gland.
- Steel terminal box in option.

PROTECTION SYSTEM SUITED TO THE ENVIRONMENT

- The LSA 42.3 is IP 23.
- Standard winding protection for clean environments with relative humidity $\leq 95\%$, including indoor marine environments.
- Options:
 - filters on air inlet : derating 5%,
 - filters on air inlet and air outlet (IP 44) : derating 10%,
 - winding protection for harsh environments and relative humidity greater than 95%,
 - space heaters,
 - thermal protection for stator windings,
 - height fixing : H = 225 mm (option) with the order.



Low Voltage alternators 4 pole 3-phase *PARTNER*

LSA 42.3

25 to 60 kVA - 50 Hz / 31.5 to 75 kVA - 60 Hz

General characteristics

Insulation class	H	Excitation system	SHUNT	AREP or PMG
Winding pitch	2/3 (wdg 6)	AVR type	R 220	R 438
Number of wires	12	Voltage regulation (*)	± 0.5 %	± 0.5 %
Protection	IP 23	Short-circuit current	-	300% (3 IN): 10 s
Altitude	≤ 1000 m	Totale Harmonic distortion THD (**) in no-load : < 2% according to IEC		
Overspeed	2250 min ⁻¹	Totale Harmonic distortion THD (**) on linear load : < 4% according to IEC		
Air flow	0.10m ³ /s, 50 Hz - 0.13m ³ /s, 60 Hz	Waveform: NEMA = TIF (**) < 50		

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

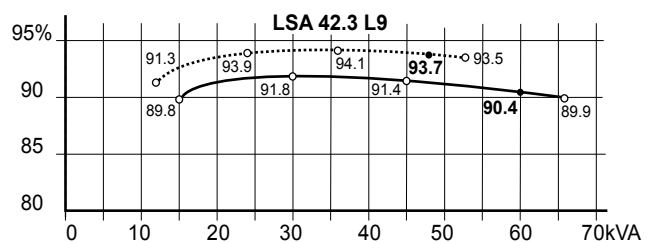
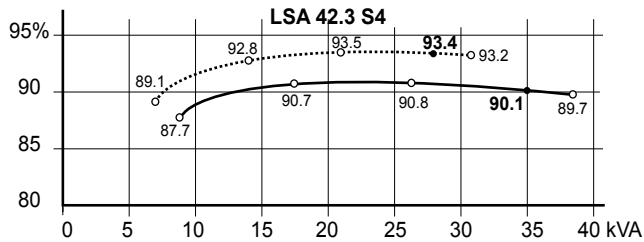
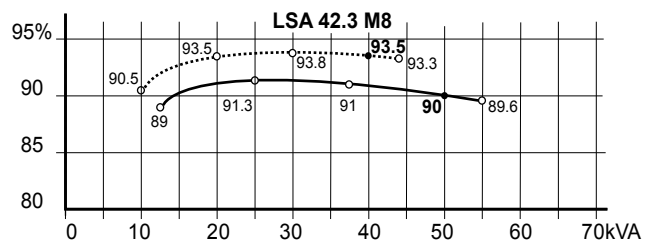
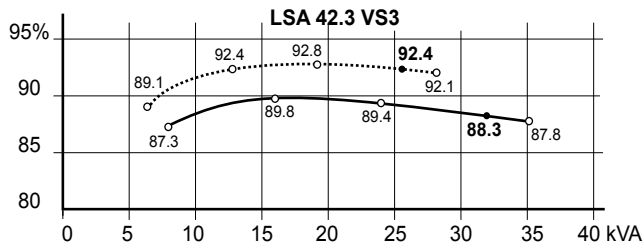
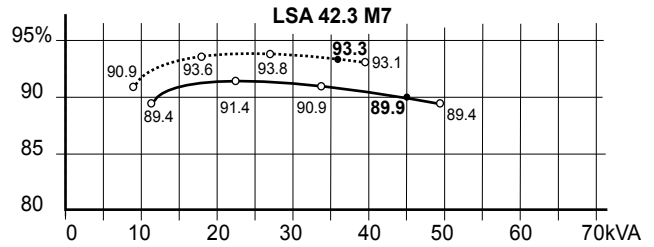
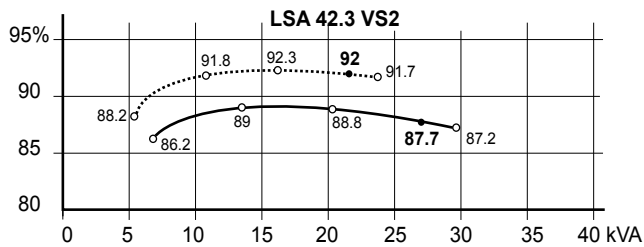
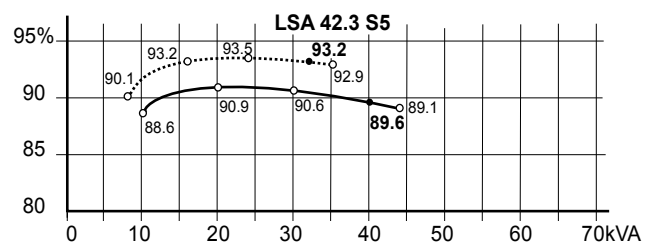
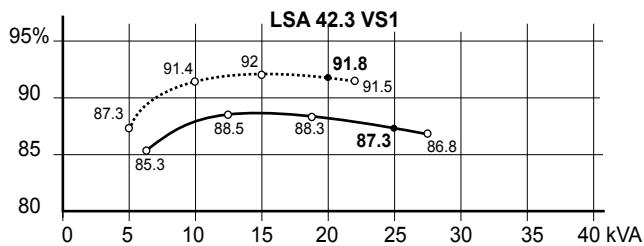
Ratings 50 Hz - 1500 R.P.M.

kVA / kW - P.F. = 0.8																					
Duty/T°C		Continuous duty/40°C					Continuous duty/40°C					Stand-by/40°C					Stand-by/27°C				
Class/T°K		H/125°K					F/105°K					H/150°K					H/163°K				
Phase		3 ph.			1 ph.	3 ph.			1 ph.	3 ph.			1 ph.	3 ph.			1 ph.				
Y		380V	400V	415V	440V	ΔΔ	380V	400V	415V	440V	ΔΔ	380V	400V	415V	440V	ΔΔ	380V	400V	415V	440V	ΔΔ
Δ		220V	230V	240V		230V	220V	230V	240V		230V	220V	230V	240V		230V	220V	230V	240V		230V
YY					220V					220V					220V					220V	
42.3 VS1	kVA	25			24.5	15	22.8			22.3	13.7	26.5			26	15.9	27.5			27	16.5
	kW	20			19.6	12	18.2			17.9	10.9	21.2			20.8	12.7	22			21.6	13.2
42.3 VS2	kVA	27			26	16.2	24.6			23.6	14.7	28.9			27.6	17.3	30			28	18
	kW	21.6			20.8	13	19.7			18.9	11.8	23.1			22.1	13.9	24			22.9	14.4
42.3 VS3	kVA	32			30	19.2	29.1			27.3	17.5	34			31.8	20.4	35.2			33.0	21.1
	kW	25.6			24	15.4	23.3			21.8	14	27.1			25.4	16.3	28.2			26.4	16.9
42.3 S4	kVA	35			30.6	22	32			27.9	20	37.1			32.5	23.3	38.5			33.7	24.2
	kW	28			24.5	17.6	25.5			22.3	16	29.7			26	18.7	30.8			27.0	19.4
42.3 S5	kVA	40			35	25	36.4			31.9	22.8	42.4			37.1	26.5	45			38.5	28.1
	kW	32			28	20	29.1			25.5	18.2	33.9			29.7	21.2	36			30.8	22.5
42.3 M7	kVA	45			39	27	41			35.5	24.6	48.2			41.3	28.9	50			42.9	30
	kW	36			31.2	21.6	32.8			28.4	19.7	38.5			33.1	23.1	40			34.3	24
42.3 M8	kVA	50			43	30	45.5			39.1	27.3	53			45.6	31.8	55			47.3	33
	kW	40			34.4	24	36.4			31.3	21.8	42.4			36.5	25.4	44			37.8	26.4
42.3 L9	kVA	60			51.6	36	54.6			47.0	32.8	63.6			54.7	38.2	66			56.8	40
	kW	48			41.3	28.8	43.7			37.6	26.2	50.9			43.8	30.5	52.8			45.4	32

Ratings 60 Hz - 1800 R.P.M.

kVA / kW - P.F. = 0.8																							
Duty/T°C		Continuous duty/40°C						Continuous duty/40°C						Stand-by/40°C					Stand-by/27°C				
Class/T°K		H/125°K						F/105°K						H/150°K					H/163°K				
Phase		3 ph.			1 ph.			3 ph.			1 ph.			3 ph.			1 ph.		3 ph.			1 ph.	
Y		380V	416V	440V	480V	ΔΔ	380V	416V	440V	480V	ΔΔ	380V	416V	440V	480V	ΔΔ	380V	416V	440V	480V	ΔΔ		
Δ		220V	240V		240V		220V	240V		240V		220V	240V		240V		220V	240V		240V			
YY			208V	220V	240V			208V	220V	240V			208V	220V	240V			208V	220V	240V			
42.3 VS1	kVA	29.1	31.3	31.5	31.5	18.9	26.5	28.4	28.7	28.7	17,2	30.8	33.1	33.4	33.4	19,8	32	34.4	34.7	34.7	20,8		
	kW	23.3	25	25.2	25.2	15.1	21.2	22.8	22.9	22.9	13,7	24.7	26.5	26.7	26.7	15,9	25.6	27.5	27.7	27.7	16,6		
42.3 VS2	kVA	29.9	31.9	33.8	33.8	19.2	26.9	29	30.7	30.7	17,5	31.4	33.8	35.8	35.8	20,2	32.5	35.1	37.5	37.5	21,1		
	kW	23.7	25.5	27	27	15.4	21.5	23.2	24.6	24.6	14,0	25.1	27.1	28.6	28.6	16,2	26	28.1	30	30	16,9		
42.3 VS3	kVA	34.5	38	40	40	22.8	31.4	34.6	36.4	36.4	20,7	36.6	40.3	42.4	42.4	23,9	38	41.8	44	44	25,1		
	kW	27.6	30.4	32	32	18.2	25.1	27.7	29.1	29.1	16,6	29.3	32.2	33.9	33.9	19,1	30.4	33.4	35.2	35.2	20,0		
42.3 S4	kVA	37.5	40.3	42.9	43.8	24.2	33.4	36.6	39.0	39.8	22,0	39	42.7	45.4	46.4	25,4	40.4	44.3	47.2	48.1	26,6		
	kW	30	32.2	34.3	35	19.3	26.8	29.3	31.2	31.9	17,6	31.2	34.1	36.4	37.1	20,3	32.3	35.4	37.7	38.5	21,2		
42.3 S5	kVA	42	46	49	50	27.6	38.2	41.9	44.6	45.5	25,1	44.5	50	51.9	53	29,0	46.2	50.6	53.9	55	30,4		
	kW	33.6	36.8	39.2	40	22.1	30.6	33.5	35.7	36.4	20,1	35.6	40	41.6	42.4	23,2	37	40.5	43.1	44	24,3		
42.3 M7	kVA	46	50	53.5	56.5	30	41.9	45.5	48.7	51.4	27,3	48.8	53	56.7	59.9	31,5	50.6	55	58.9	62.5	33,0		
	kW	36.8	40	42.8	45.2	24	33.5	36.4	38.9	41.1	21,8	39	42.4	45.4	47.9	25,2	40.5	44	47.1	50	26,4		
42.3 M8	kVA	51.5	56.5	59.5	62.5	33.9	46.9	51.4	54.1	57	30,8	54.6	60	63.1	66.3	35,6	56.7	62.5	65.5	68.8	37,3		
	kW	41.2	45.2	47.6	50	27.1	37.5	41.1	43.3	45.5	24,7	43.7	48	50.5	53	28,5	45.3	50	52.4	55	29,8		
42.3 L9	kVA	59	65	69	75	39	53.7	59.2	62.8	68.3	35,5	62.5	68.9	73.1	79.5	41,0	64.9	71.5	75.9	82.5	42,9		
	kW	47.2	52.0	55.2	60	31.2	43.0	47.3	50.2	54.6	28,4	50.0	55.1	58.5	63.6	32,8	51.9	57.2	60.7	66.0	34,3		

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



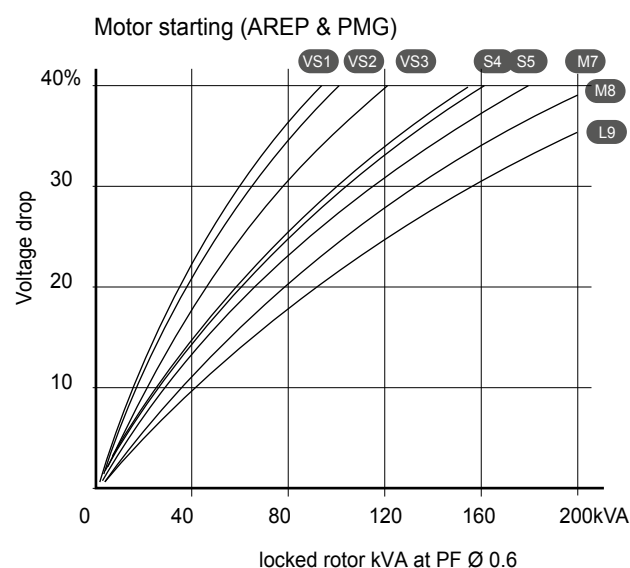
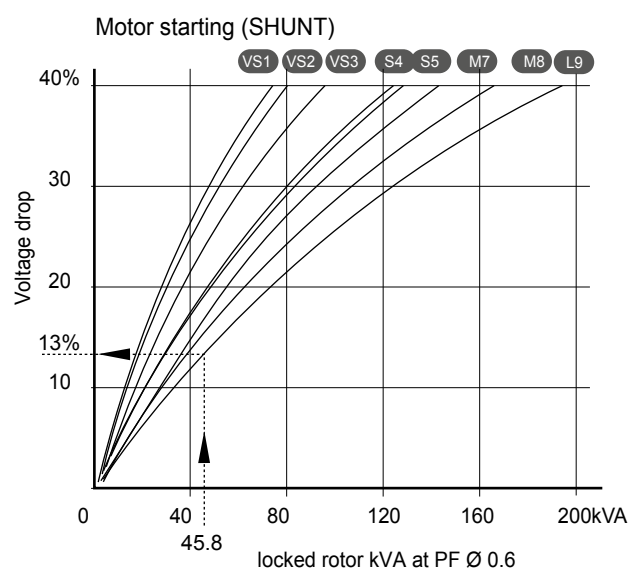
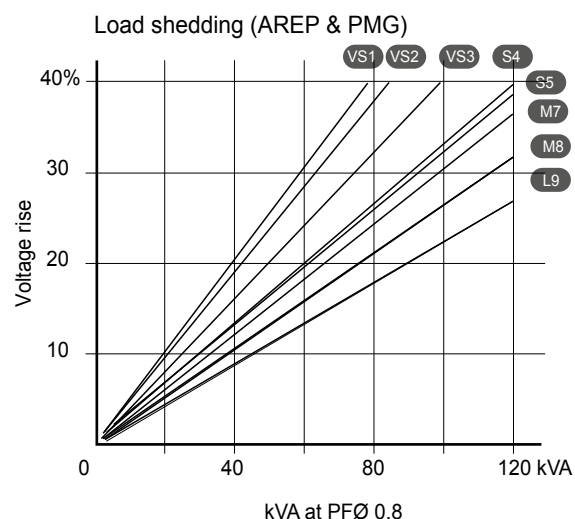
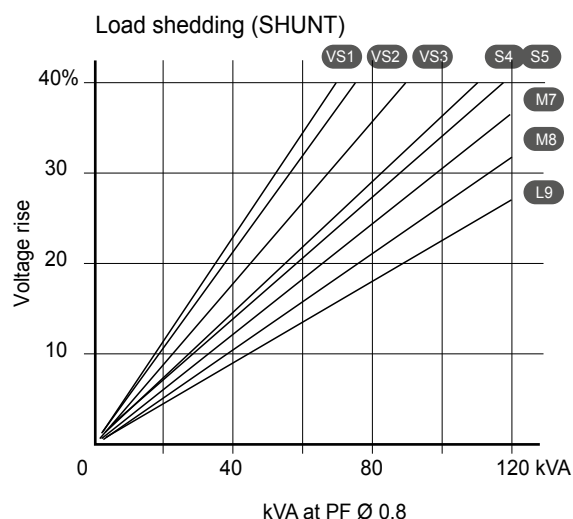
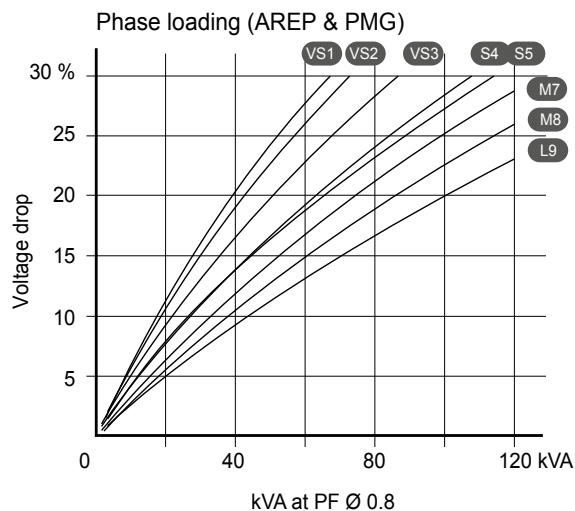
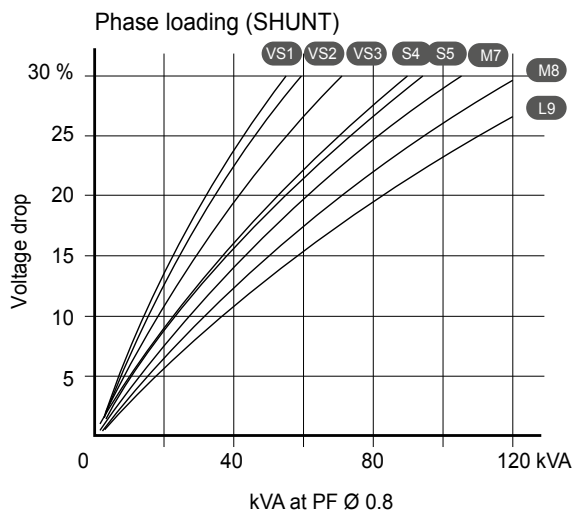
Reactances (%). Time constants (ms) - Class H / 400 V

		VS1	VS2	VS3	S4	S5	M7	M8	L9
Kcc	Short-circuit ratio	0.54	0.51	0.48	0.53	0.46	0.43	0.47	0.44
Xd	Direct-axis synchro. reactance unsaturated	240	249	261	229	262	275	264	283
Xq	Quadrature-axis synchro. reactance unsaturated	144	149	156	137	157	165	158	169
T'do	No-load transient time constant	733	759	803	880	880	914	931	962
X'd	Direct-axis transient reactance saturated	16.3	16.4	16.2	13.0	14.8	15.0	14.1	14.7
T'd	Short-circuit transient time constant	50	50	50	50	50	50	50	50
X''d	Direct-axis subtransient reactance saturated	8.1	8.2	8.1	6.5	7.4	7.5	7.0	7.3
T''d	Subtransient time constant	5	5	5	5	5	5	5	5
X''q	Quadrature-axis subtransient reactance saturated	11.5	11.6	11.5	9.2	10.6	10.7	10.1	10.5
Xo	Zero sequence reactance unsaturated	0.78	0.46	0.88	0.73	0.23	0.25	0.84	0.43
X2	Negative sequence reactance saturated	9.88	9.91	9.82	7.89	9.02	9.12	8.61	8.93
Ta	Armature time constant	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0

Other class H/400 V data

io (A)	No-load excitation current (SHUNT/AREP)	0.55/0.85	0.52/0.8	0.51/0.79	0.49/0.75	0.49/0.75	0.46/0.71	0.5/0.78	0.5/0.77
ic (A)	On-load excitation current (SHUNT/AREP)	1.74/2.66	1.72/2.63	1.77/2.71	1.54/2.36	1.73/2.66	1.75/2.68	1.86/2.86	2.04/3.13
uc (V)	On-load excitation voltage (SHUNT/AREP)	29.6/19.2	29.2/18.9	29.9/19.3	26/16.8	29.1/18.8	29/18.8	30.6/19.8	32.8/21.2
ms	Response time ($\Delta U = 20\%$ transient)	< 500ms	< 500ms	< 500ms	< 500ms	< 500ms	< 500ms	< 500ms	< 500ms
kVA	Start ($\Delta U = 20\%$ cont. or ($\Delta U = 30\%$ trans.) SHUNT	51.7	56	67.7	92	92	103.5	115	138
kVA	Start ($\Delta U = 20\%$ cont. or ($\Delta U = 30\%$ trans.) AREP	59.6	64.3	76.1	93.1	93.1	103.2	104.9	116.8
%	Transient ΔU (on-load 4/4) SHUNT - P.F.: 0.8 _{LAG}	16.3	16.3	16.2	14.3	15.4	15.5	15	15.3
%	Transient ΔU (on-load 4/4) AREP - P.F.: 0.8 _{LAG}	13.8	13.8	13.7	12.2	13.1	13.2	12.8	13
W	No-load losses	719	713	762	861	861	879	1029	1120
W	Heat dissipation	2894	3017	3371	3055	3704	4022	4396	5091

Transient voltage variation 400V - 50 Hz



1) For a PF with a $\cos \phi$ other than 0.6, multiply the kVA by $K = \sin \phi / 0.8$

Example of calculation for a PF with a $\cos \phi$ other than 0.6: motor starting kVA calculated at PF $\cos \phi = 0.4 = 40$ kVA

► $\sin \phi = 0.4 = 0.9165$ ► $K = 1.145$ ► corrected kVA = 45.8 kVA ► Corresponding voltage drop for L9 = 13 %.

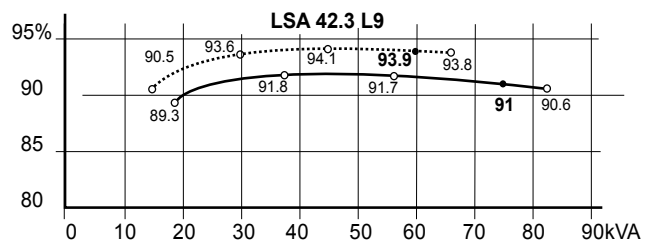
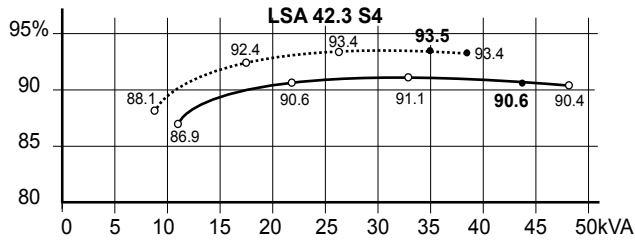
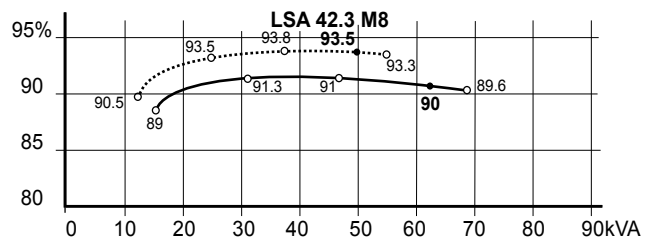
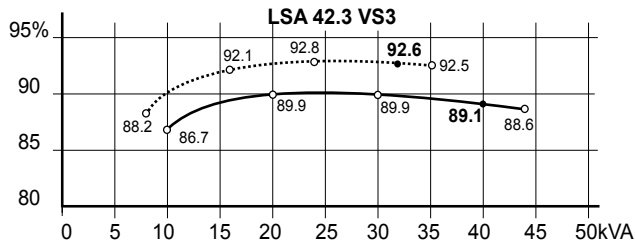
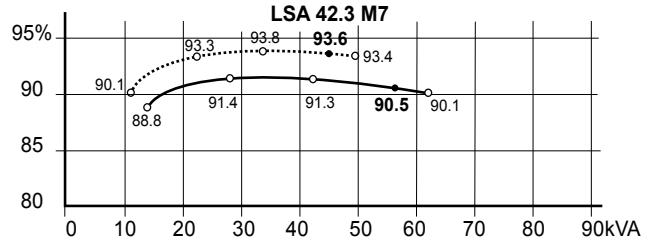
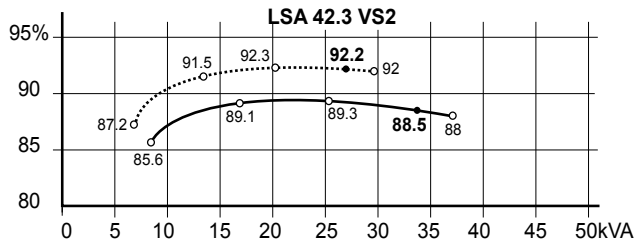
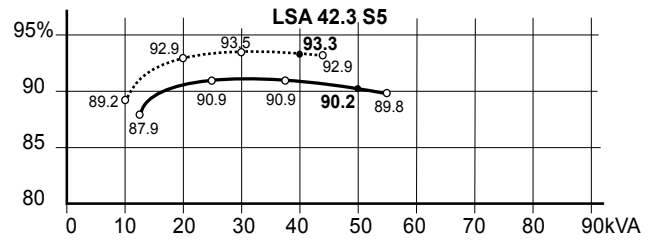
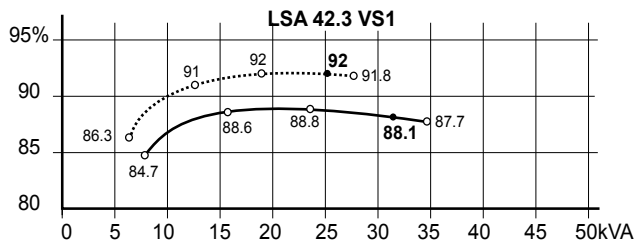
2) For a voltage U other than 400 V (Y) , 230 V () at 50 Hz, multiply the kVA by $(400/U)^2$ or $(230/U)^2$.

Low Voltage alternators 4 pole 3-phase *PARTNER*

LSA 42.3

25 to 60 kVA - 50 Hz / 31.5 to 75 kVA - 60 Hz

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



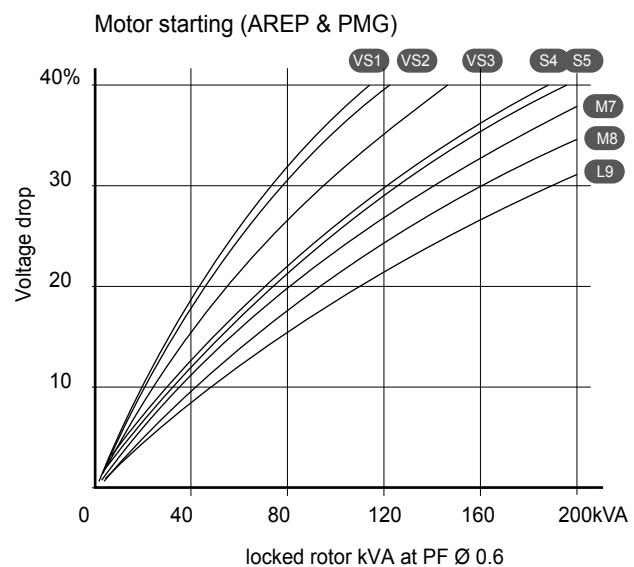
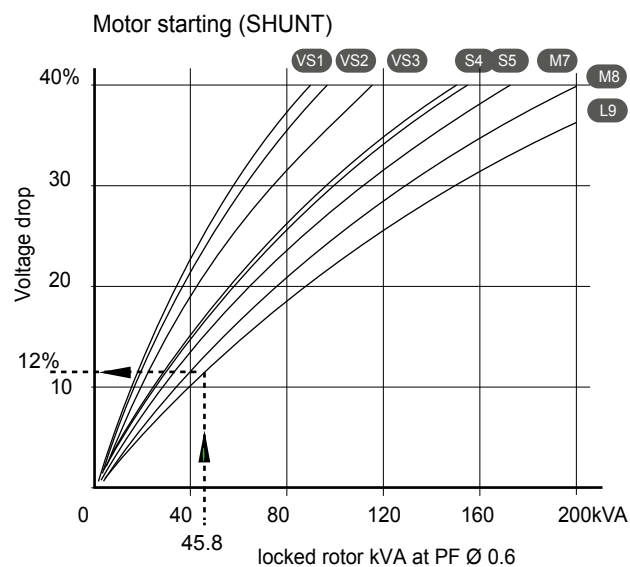
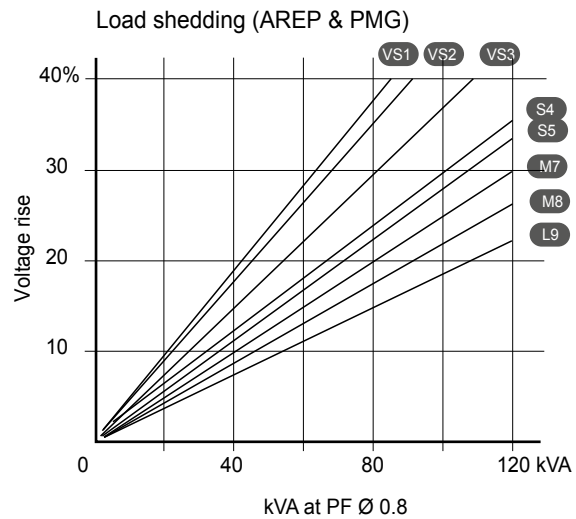
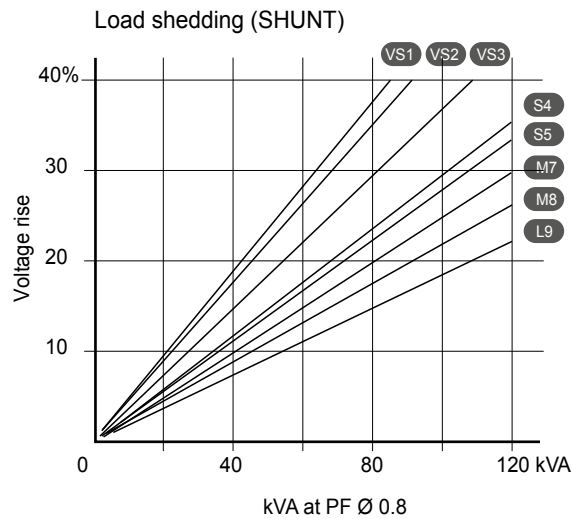
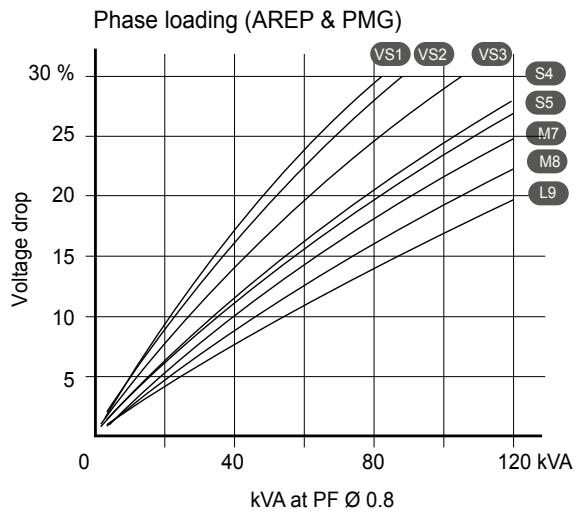
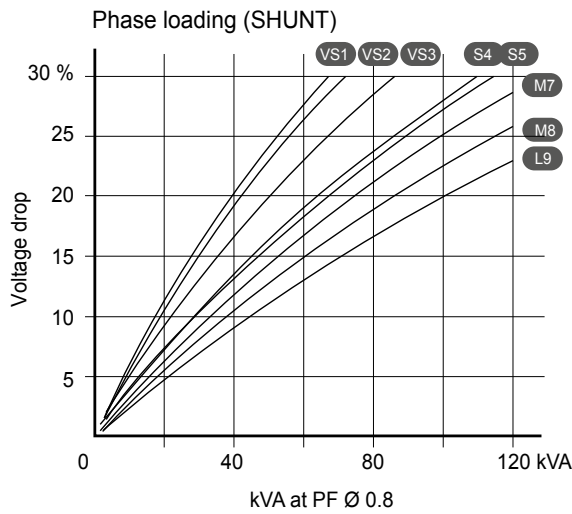
Reactances (%). Time constants (ms) - Class H / 480 V

		VS1	VS2	VS3	S4	S5	M7	M8	L9
Kcc	Short-circuit ratio	0.52	0.49	0.46	0.51	0.44	0.41	0.45	0.42
Xd	Direct-axis synchro. reactance unsaturated	252	260	272	239	273	287	275	294
Xq	Quadrature-axis synchro. reactance unsaturated	151	156	163	143	163	172	165	176
T'do	No-load transient time constant	733	759	803	880	880	914	931	962
X'd	Direct-axis transient reactance saturated	17.2	17.1	16.9	13.5	15.5	15.7	14.7	15.3
T'd	Short-circuit transient time constant	50	50	50	50	50	50	50	50
X''d	Direct-axis subtransient reactance saturated	8.6	8.5	8.4	6.7	7.7	7.8	7.3	7.6
T''d	Subtransient time constant	5	5	5	5	5	5	5	5
X''q	Quadrature-axis subtransient reactance saturated	12.1	12.1	12.0	9.6	11.0	11.2	10.5	10.5
Xo	Zero sequence reactance unsaturated	0.46	0.83	0.31	0.26	0.69	0.05	0.97	0.86
X2	Negative sequence reactance saturated	10.37	10.35	10.24	8.22	9.39	9.55	8.97	9.30
Ta	Armature time constant	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0

Other class H/480 V data

io (A)	No-load excitation current (SHUNT/AREP)	0.55/0.85	0.52/0.8	0.51/0.79	0.49/0.75	0.49/0.75	0.46/0.71	0.5/0.77	0.5/0.77
ic (A)	On-load excitation current (SHUNT/AREP)	1.76/2.69	1.73/2.65	1.77/2.72	1.54/2.36	1.73/2.66	1.75/2.68	1.84/2.82	1.99/3.06
uc (V)	On-load excitation voltage (SHUNT/AREP)	30.2/16.3	29.7/19	30.3/19.4	26.4/16.9	29.4/18.8	29.5/18.8	30.9/19.7	32.9/21.1
ms	Response time ($\Delta U = 20\%$ transient)	< 500ms	< 500ms	< 500ms	< 500ms	< 500ms	< 500ms	< 500ms	< 500ms
kVA	Start ($\Delta U = 20\%$ cont. or ($\Delta U = 30\%$ trans.) SHUNT	63.3	68.1	82	111.8	111.8	124.7	146.9	165.6
kVA	Start ($\Delta U = 20\%$ cont. or ($\Delta U = 30\%$ trans.) AREP	71.4	76.9	92.6	121.8	121.6	133.8	137.9	152.2
%	Transient ΔU (on-load 4/4) SHUNT - P.F.: 0.8 _{LAG}	16.8	16.8	16.6	14.7	15.8	15.9	15.4	15.7
%	Transient ΔU (on-load 4/4) AREP - P.F.: 0.8 _{LAG}	14.1	14.1	14.0	12.5	13.4	13.5	13.0	13.3
W	No-load losses	1021	1016	1087	1229	1229	1258	1462	1591
W	Heat dissipation	3389	3505	3914	3597	4312	4709	5120	5917

Transient voltage variation 480V - 60 Hz



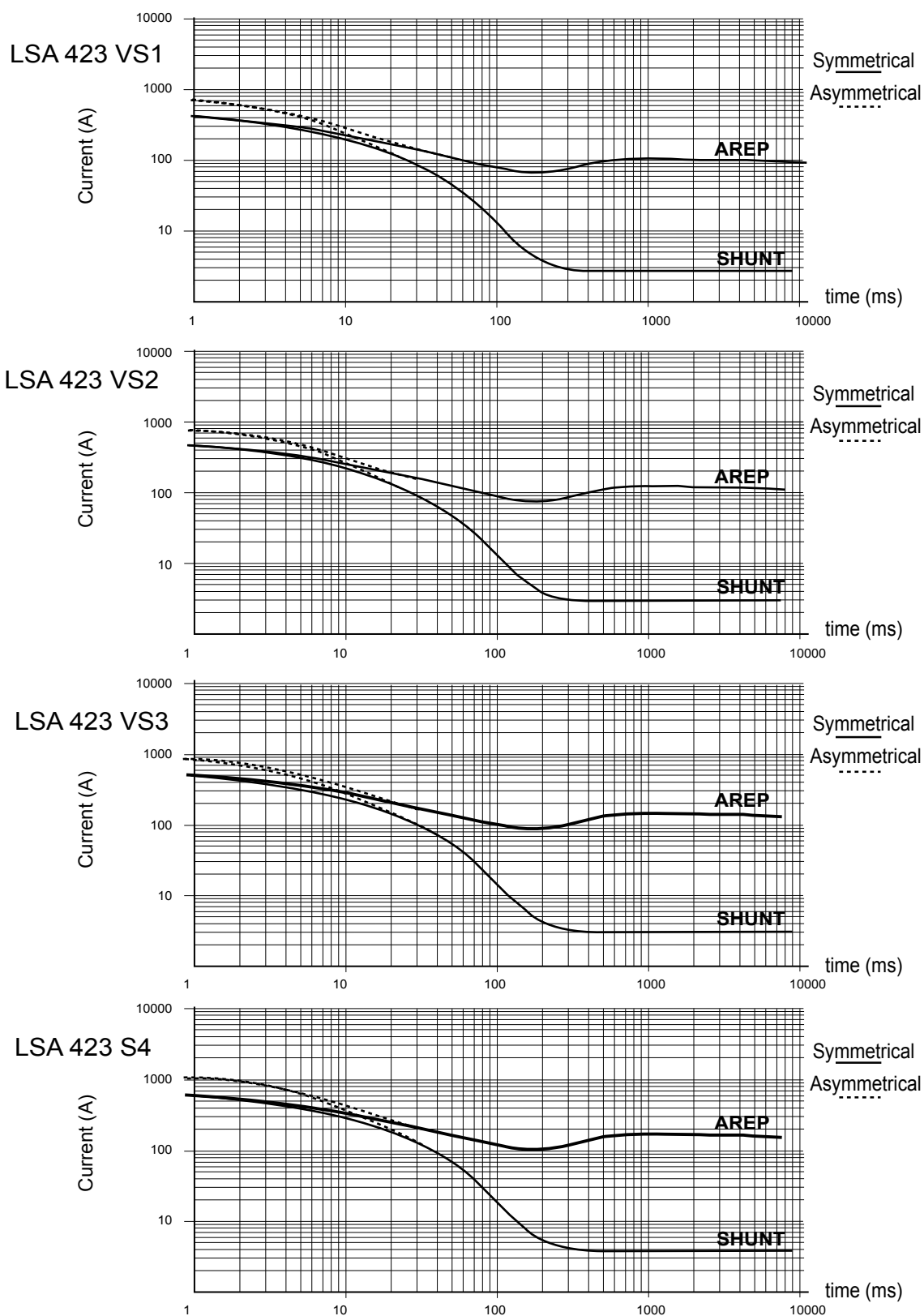
1) For a PF with a $\cos \phi$ other than 0.6, multiply the kVA by $K = \sin \phi / 0.8$

Example of calculation for a PF with a $\cos \phi$ other than 0.6: motor starting kVA calculated at PF 0.4 = 40 kVA

► $\sin \phi 0.4 = 0.9165$ ► $K = 1.145$ ► corrected kVA = 45.8 kVA ► Corresponding voltage drop for L9 = 12 %.

2) For a voltage U other than 480 V (Y), 277 V (), 240 V (YY) at 60 Hz, multiply the kVA by $(480/U)^2$ or $(277/U)^2$ or $(240/U)^2$.

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



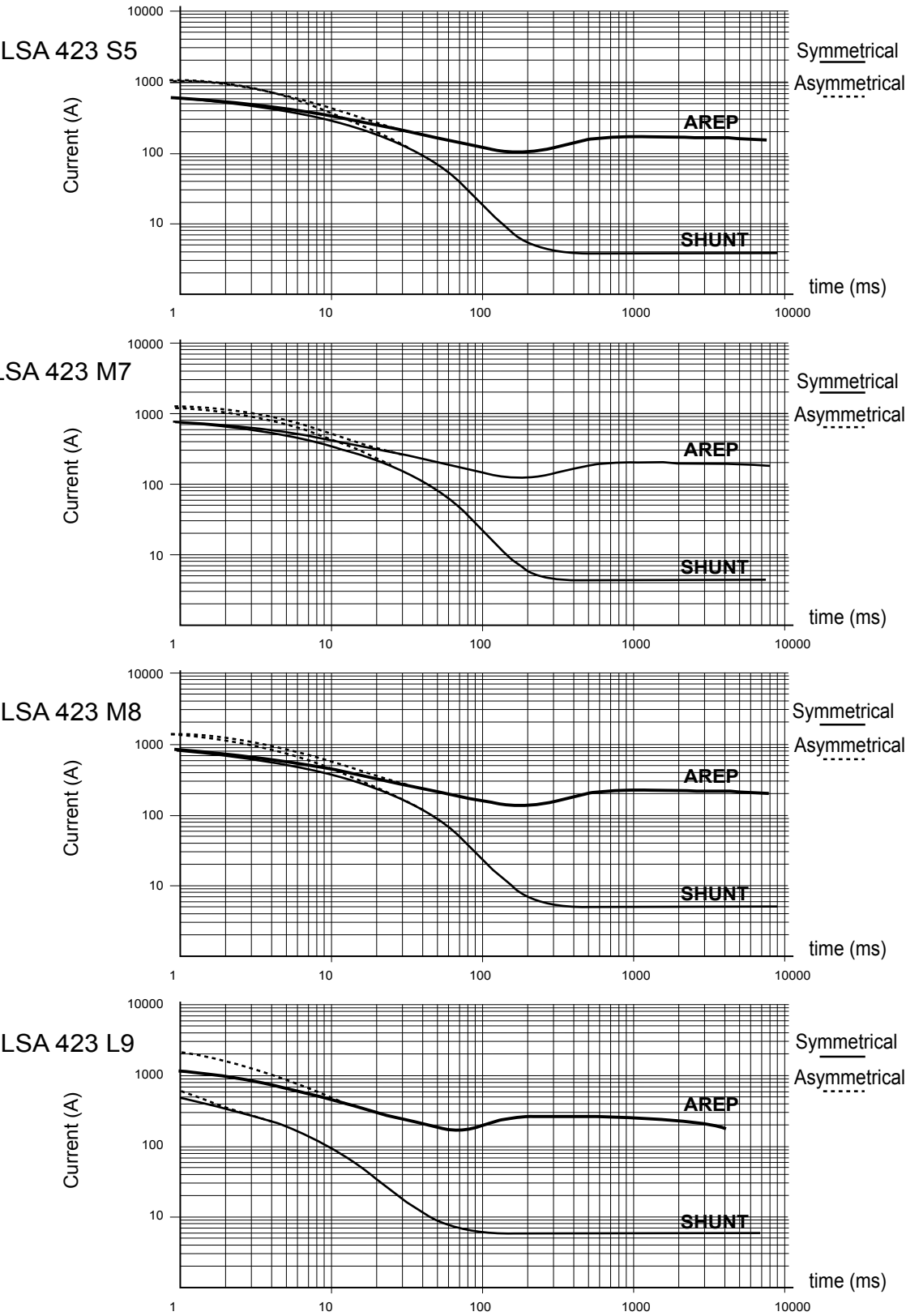
Influence due to connection

Curves shown are for star (Y) connection.

For other connections, use the following multiplication factors:

- Series delta : Current value x 1.732 - Parallel star : Current value x 2

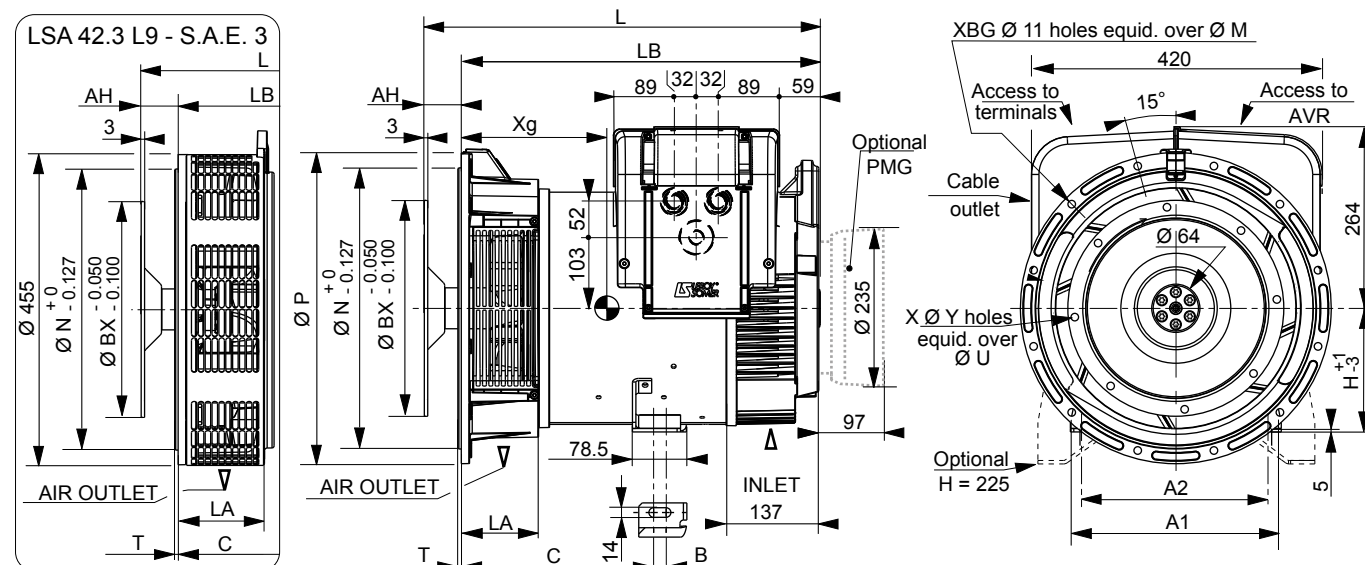
3-phase short-circuit curves at no load and rated speed (star connection Y)



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

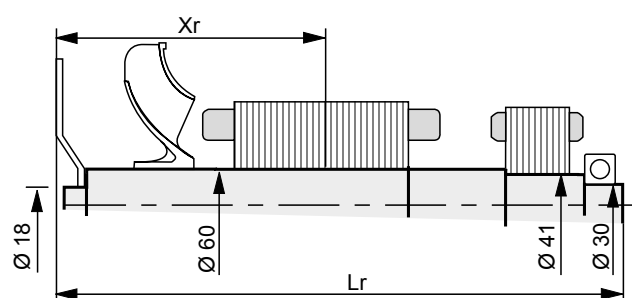
	3-phase	2-phase L/L	1-phase L/N
Instantaneous (max.)	1	0.87	1.3
Continuous	1	1.5	2.2
Maximum duration (AREP/PMG)	10 sec.	5 sec.	2 sec.

Single bearing dimensions



Dimensions (mm) and weight (kg)					H = 180 (Standard)				H = 225 (Option)				Coupling			
	L	LB	Xg	Masse (kg)	C	B	A1	A2	C	B	A1	A2	Flange	2	3	4
LSA 42.3 VS1	565	503	237	117	260	18	307	279	299	23	400	356	Flex plate			
LSA 42.3 VS2	565	503	242	122	260	18	307	279	299	23	400	356	11 1/2	x	x	-
LSA 42.3 VS3	565	503	252	133	260	18	307	279	299	23	400	356	10	x	x	x
LSA 42.3 S4	610	548	275	165	260	18	307	279	312.5	23	400	356	8	-	x	x
LSA 42.3 S5	610	548	275	165	260	18	307	279	312.5	23	400	356	7 1/2	-	x	x
LSA 42.3 M7	650	588	287	181	260	18	307	279	312.5	23	400	356				
LSA 42.3 M8	650	588	295	186	260	18	307	279	312.5	23	400	356				
LSA 42.3 L9	662	622	310	187	260	18	307	279	312.5	23	400	356				

Flange (mm)							Flex plate (mm)						
S.A.E.	P	N	M	XBG	T	LA	S.A.E.	BX	U	X	Y	AH	
4	406	361.95	381	12	6	122	11 1/2	352.42	333.38	8	11	39.6	
3	452	409.58	428.62	12	5	112.5	10	314.32	295.28	8	11	53.8	
2	490	447.675	466.725	12	6	111	8	263.52	244.48	6	11	62	
							7 1/2	241.3	222.25	8	9	30.2	



Torsional analysis data

Centre of gravity: Xr (mm), Rotor length: Lr (mm), Weight: M (kg), Moment of inertia: J (kgm²): (4J = MD²)																
Type	Flex plate S.A.E. 7 1/2				Flex plate S.A.E. 8				Flex plate S.A.E. 10				Flex plate S.A.E. 11 1/2			
	Xr	Lr	M	J	Xr	Lr	M	J	Xr	Lr	M	J	Xr	Lr	M	J
LSA 42.3 VS1	279	526.2	45.36	0.2209	277	558	45.68	0.2246	274	549.8	46.13	0.2363	272	535.6	46.62	0.2843
LSA 42.3 VS2	282	526.2	47.36	0.2337	280	558	47.68	0.2374	277	549.8	48.13	0.2491	274	535.6	48.62	0.2611
LSA 42.3 VS3	287	526.2	51.41	0.2592	286	558	51.73	0.2629	283	549.8	52.18	0.2746	281	535.6	52.67	0.2866
LSA 42.3 S4	310	571.2	61.49	0.317	308	603	61.81	0.3207	306	594.8	62.26	0.3324	304	580.6	62.75	0.3444
LSA 42.3 S5	310	571.2	61.49	0.317	308	603	61.81	0.3207	306	594.8	68.18	0.3645	304	580.6	62.75	0.3444
LSA 42.3 M7	325	611.2	67.41	0.3491	323	643	67.73	0.3528	321	634.8	68.18	0.3645	319	620.6	68.67	0.3765
LSA 42.3 M8	330	611.2	70.42	0.3683	328	643	70.74	0.372	326	634.8	71.18	0.3837	324	620.6	71.68	0.3957
LSA 42.3 L9	344	641.2	77.49	0.4141	342	673	77.81	0.4178	340	664.8	78.25	0.4295	338	650.6	78.75	0.4415

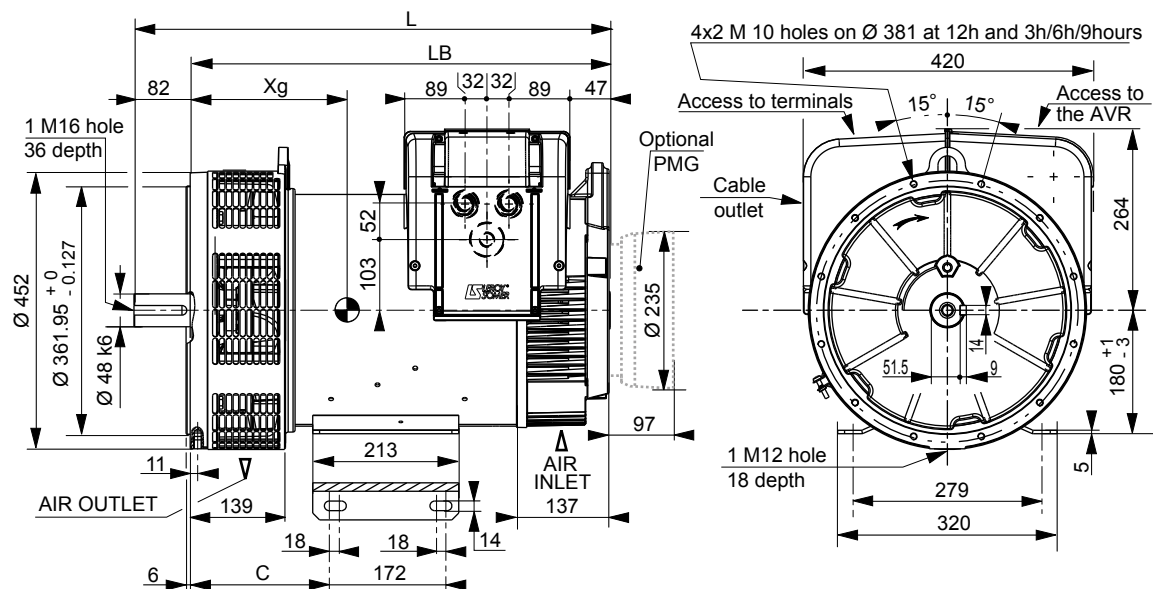
NOTE : Dimensions are for information only and may be subject to modifications. Contractuel 2D drawings can be downloaded from the Leroy-Somer site, 3D drawing files are available upon request.

Low Voltage alternators 4 pole 3-phase *PARTNER*

LSA 42.3

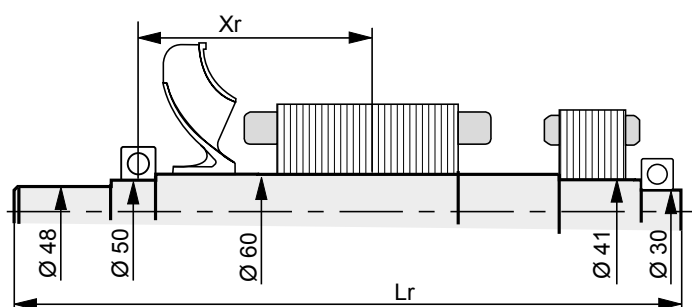
25 to 60 kVA - 50 Hz / 31.5 to 75 kVA - 60 Hz

Two bearing dimensions



Dimensions (mm) and weight (kg)

Type	L	LB	P	C	Xg	Weight (kg)
LSA 42.3 VS1	610	528	406	189.25	242	129
LSA 42.3 VS2	610	528	406	189.25	247	134
LSA 42.3 VS3	610	528	406	189.25	257	145
LSA 42.3 S4	655	573	406	202.75	280	170
LSA 42.3 S5	655	573	406	202.75	280	170
LSA 42.3 M7	695	613	406	202.75	292	185
LSA 42.3 M8	695	613	406	202.75	300	190
LSA 42.3 L9	725	643	455	202.75	314	207



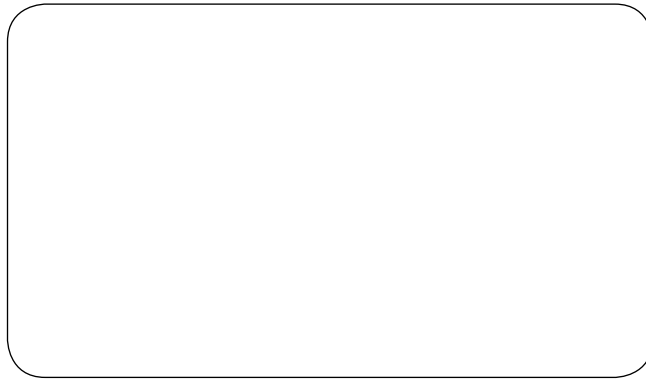
Torsional analysis data

Centre of gravity: X_r (mm), Rotor length: L_r (mm), Weight: M (kg), Moment of inertia: J (kgm^2): ($4J = MD^2$)

Type	X_r	L_r	M	J
LSA 42.3 VS1	238	603	45.18	0.2135
LSA 42.3 VS2	240	603	47.18	0.2263
LSA 42.3 VS3	245	603	51.23	0.2518
LSA 42.3 S4	267	648	61.31	0.3096
LSA 42.3 S5	267	648	61.31	0.3096
LSA 42.3 M7	281	688	67.23	0.3417
LSA 42.3 M8	286	688	70.23	0.3609
LSA 42.3 L9	299	718	77.29	0.4066

NOTE : Dimensions are for information only and may be subject to modifications. Contractuel 2D drawings can be downloaded from the Leroy-Somer site, 3D drawing files are available upon request.

Contact



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