GSW140I (ALT.LST)

Main Features		
Frequency	Hz	50
Voltage	V	400
Power factor	cos ϕ	0.8
Phase		3

Power Rating		
Standby power LTP	kVA	135.55
Standby power LTP	kW	108.44
Prime power PRP	kVA	122.92
Prime power PRP	kW	98.34

Ratings definition (According to standard ISO8528 1:2005)

PRP - Prime Power:
It is defined as being the maximum power which a generating set is capable of delivering continuously whilst supplying a variable electrical load when operated for an unlimited number of hours per year under the agreed operating conditions with the maintenance intervals and procedures being carried out as prescribed by the manufacturer. The permissible average power output over 24 h of operation shall not exceed 70 % of the prime power.

LTP - Limited-Time running Power:
It is defined as the maximum power available, under the agreed operating conditions, for which the generating set is capable of delivering for up to 500 h of operation per year (whose no more than 300 for continuative use) with the maintenance intervals and procedures being carried out as prescribed by the manufacturers. No overload capability is available.

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Engine specifications		
Engine manufacturer		FPT
Model		NEF45TM3
[50Hz] Exhaust emission level		Non Emission Certified
Engine cooling system		Water
Nr. of cylinder and disposition		4 in line
Displacement	cm³	4500
Aspiration		Turbocharged aftercooled
Speed governor		Mechanical
Prime gross power PRP	kW	109
Maximum gross power LTP	kW	120
Oil capacity	l	12,8
Lube oil consumption @ PRP (max)	%	0,1
Coolant capacity	l	18,5
Fuel		Diesel
Specific fuel consumption @ 75% PRP	g/kWh	206
Specific fuel consumption @ PRP	g/kWh	211
Starting system		Electric
Starting engine capability	kW	3
Electric circuit	V	12

Standards

ISO 8528 standard certification of excellent performance related to load acceptance.

Injection system

The system, is based on direct fuel injection for accurate fuel delivery and is consistent with standard andalternative fuels.

Air handling

NEF series engines are available in Naturally Aspirated, turbocharged and turbocharged with aftercoolerversions in order to reach the highest engine performance in terms of load acceptance & fuel consumption.

600h Oil interval change

NEF series adopt combustion chambers optimized to reduce oil dilution and are designed with anoptimum engine design in terms of mechanical clearances, piston rings and engine oil system calculation.

Engine design

Balancer counterweights incorporated in crankshaft webs, rear gear train layout, camshaft in crankcase,suspended oil pan, ladder frame cylinder block

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Alternator Specifications		
Alternator		Leroy Somer
Model		TAL044E
Voltage	V	400
Frequency	Hz	50
Power factor	cos ϕ	0.8
Poles		4
Type		Brushless
Standard AVR		R180
Voltage tolerance	%	1
Efficiency @ 75% load	%	92.3
Class		H
IP protection		23

The TAL alternator range is designed to meet the needs of general applications such as prime power and stand-by. The alternator is designed to meet power needs of commercial and industrial buildings and telecom cell towers.

Compact Robust Design:
•Compact design with easy maintenance and access to cables and regulator
•Rugged assembly to withstand engine vibrations
•Steel frame
•Aluminium or Cast iron flanges and shields
•Sealed for life bearing

Excitation and regulation system:
•Excitation system: AREP
•Voltage A.V.R.: R180

Environment and protection:
•IP 23
•Class H insulation
•Standard winding protection for non-harsh environments with relative humidity ≤ 95%

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

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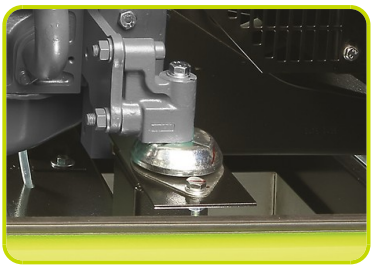
Genset equipment

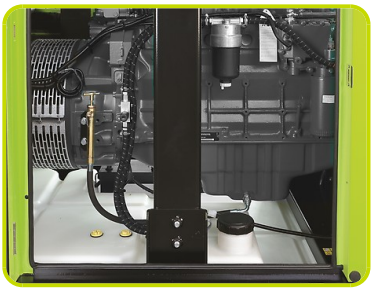
BASE FRAME MADE OF WELDED STEEL PROFILE, COMPLETE WITH:



• Anti-vibration mountings properly sized

• Welded or Screwed support legs. (according to canopy size)

PLASTIC FUEL TANK WITH THE FOLLOWING COMPONENT:



• Filler neck

• Air breather (ventilation pipe)

• Minimum fuel level sensor

OIL DRAININ PIPE WITH CAP:

• Oil draining facilities

ENGINE COMPLETE WITH:

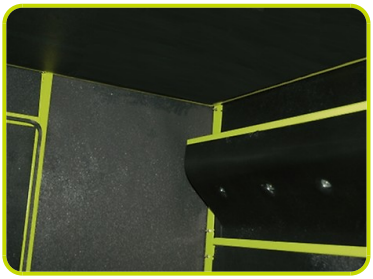
• Battery

• Liquids (no fuel)

CANOPY:

• Soundproof canopy made up of modular panels, realized with zinced steel as treatment against corrosion and aggressive conditions, properly fixed and sealed allowing a full weatherproof enclosure.
• Easy access to the genset for maintenance purposes thanks to: Wide lateral access doors fixed by stainless steel hinges and provided with plastic lockable handles; Detachable panels, with screws holes protected by rubber tap.
• Control panel protection door provided with suitable window and lockable handle.
• Lateral air inlet opening properly protected and soundproofed. Exhaust air outlet from the roof, trough wet section protected by proper grid.
• Single detachable lifting eye placed on the roof.

SOUNDPROOF:



• Noise attenuation thanks to soundproofing material

• Efficient residential silencer placed inside the canopy

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Dimensional data		
Length	(L) mm	3000
Width	(W) mm	1150
Height	(H) mm	1760
Dry weight	Kg	1630
Fuel tank capacity	l	350
Fuel tank material		Plastic

Autonomy		
Fuel consumption @ 75% PRP	l/h	20.09
Fuel consumption @ 100% PRP	l/h	27.38
Running time @ 75% PRP	h	17.42
Running time @ 100% PRP	h	12.78

Noise level		
Guaranteed noise level (LWA)	dB(A)	97
Noise pressure level @ 7 m	dB(A)	68

Electrical Data		
MAX current	A	195.66
Circuit breaker	A	250

Control panel availability	
MANUAL CONTROL PANEL	MCP
MANUAL CONTROL PANEL FULL OPTION	MPF
AUTOMATIC CONTROL PANEL	ACP
MODULAR PARALLEL PANEL	MPP

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MCP - Manual control panel

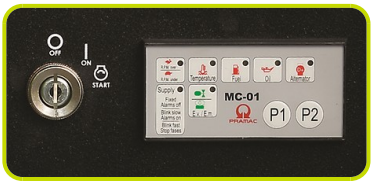
Mounted on the genset and complete of: analogue instrumentation, control, protection of the generating set, protected through door with lockable handle.

INSTRUMENTATION (ANALOGUE)

• Voltmeter (1 phase)
• Ammeter (1 phase)
• Hours-counter

COMMANDS

• Start/stop selector switch with key
• Emergency stop button



PROTECTION WITH ALARM

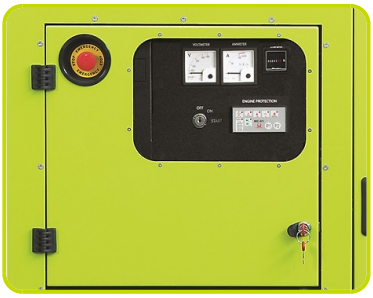
• Low fuel level
• Battery charger failure
• low oil pressure
• high engine temperature
• Earth Fault.

PROTECTIONS WITH SHUTDOWN

• Low fuel level
• Battery charger failure
• low oil pressure
• high engine temperature.
• Circuit breaker protection: III poles
• Emergency stop button

OTHERS PROTECTIONS

• Panel protected through door with lockable handle.



OUT PUT PANEL MCP

Power cables connection to Circuit Breaker.	
External Terminal Board (ETB)	Optional
Socket kit	Optional

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MPF - Manual control panel full option

Mounted on the genset and complete of: analogue instrumentation, control, protection of the generating set, protected through door with lockable handle

INSTRUMENTATION (ANALOGUE)

- Voltmeter with selector switch (3 phases)
- Frequency meter
- Ammeter with selector switch (3 phases)
- Hours-counter
- Fuel level indicator
- Oil pressure indicator
- Engine temperature indicator

COMMANDS

- Start/stop selector switch with key
- Emergency stop button

PROTECTION WITH ALARM

- Low fuel level
- Battery charger failure
- low oil pressure
- high engine temperature
- Earth Fault

PROTECTIONS WITH SHUTDOWN

- Low fuel level
- Battery charger failure
- low oil pressure
- high engine temperature
- Circuit breaker protection: III poles
- Emergency stop button

OTHERS PROTECTIONS

- Panel protected through door with lockable handle

OUT PUT PANEL MPF

ETB- External Terminal Board		ETB
Socket kit		Standard
Individual CB and Earth Fault protection		√
3P+N+T 400V 63A IP67	n	1
3P+N+T CEE 400V 16A IP67	n	1
230V/16A 2P+T CEE IP67	n	1
230V 16A SCHUKO IP68	n	1

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ACP - Automatic control panel

Mounted on the genset, complete with digital control unit for monitoring, control and protection of the generating set, protected through door with lockable handle

DIGITAL INSTRUMENTATION
- Generating set voltage (3 phases)
- Mains voltage
- Generating set frequency
- Generating set current (3 phases)
- Battery voltage
- Power (kVA - kW - kVAr)
- Power factor Cos φ
- Hours-counter
- Engine speed r.p.m.
- Fuel level (%)
- Engine temperature (depending on model)

COMMANDS AND OTHERS
- Four operation modes: OFF - Manual starting - Automatic starting - Automatic test
- Pushbutton for forcing Mains contactor or Genset contactor
- Push-buttons: start/stop, fault reset, up/down/page/enter selection
- Remote starting availability
- DC system disconnection switch
- Acoustic alarm
- Automatic battery charger
- RS232 Communication port
- Settable PASSWORD for protection level

PROTECTIONS WITH ALARM
- Engine protections: low fuel level, low oil pressure, high engine temperature
- Genset protections: under/over voltage, overload, under/over frequency, starting failure, under/over battery voltage

PROTECTIONS WITH SHUTDOWN
- Engine protections: low fuel level, low oil pressure, high engine temperature
- Genset protection: under/over voltage, overload, under/over battery voltage, battery charger failure
- Circuit breaker protection: III poles
- Earth Fault included in the control unit

OTHERS PROTECTIONS
- Emergency stop button
- Panel protected through door with lockable handle

OUT PUT PANEL ACP

Power cables connection to Circuit Breaker.	
Predisposed for remote control optional:	RCG
External Terminal Board (ETB)	Optional
Socket kit	Optional

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MPP - Modular parallel panel

Mounted on the genset, complete with digital control unit IG-NTC for monitoring, control, protection and load sharing for both single and multiple gen-sets operating in standby or parallel modes (up to 32 gen-sets in island).

DIGITAL INSTRUMENTATION (through IG-NTC control unit)
- Mains: voltage, Intensity, Frequency.
- Mains kW - kVAr -Power factor Cos f.
- Generating set voltage (3 phases).
- Generating set frequency.
- Generating set current (3 phases).
- Generating set Power (kVA - kW - kVAr).
- Generating set Power factor Cos f.
- Generating set kWh and kVAh.
- Battery voltage.
- Hours-counter.
- Engine speed r.p.m.
- Fuel level (%).
- Engine temperature (depending on model).
- Oil pressure (depending on model).

COMMAND AND OTHERS
- Graphical display 128x64 pixels.
- Operation modes: OFF - AMF function - Single Parallel to mains Island application - Single Parallel to Mains AMF application - Multiple parallel genset Island application.
- Pushbutton for forcing Mains Breaker/contactor or Genset Breaker/contactor.
- Push-buttons: start/stop, fault reset, up/down/page/enter selection.
- Multiple parallel and Power Management operation with digital load AVR sharing.
- Automatic synchronizing and power control (via speed goveroner or ECU)
- Baseload Import/Export and Peak shaving
- Voltage and PF control (AVR).
- Configurable digital I/O (12/12) and analogue inputs (3).
- Integrate PLC programmable functions.
- Event-based history (up to 500records).
- Selectable measurement range 120/277V and 0-1/0-5A.
- Remote starting and Blocking signal availability.
- DC system disconnection switch.
- Acoustic alarm.
- Automatic battery charger.
- 2xRS232/RS485/USB Comunication ports.
- Settable PASSWORD for protection level.

PROTECTION WITH ALARM AND SHUTDOWN
- Engine protections: low fuel level, low oil pressure, high engine temperature.
- Genset protections: under/over voltage, overload, under/over frequency, starting failure, under/over battery voltage
- Others: overcurrent, shortcircuit, reverse power, Earth fault

OTHERS PROTECTION:
- Circuit breaker protection: IV poles Motorized.
- Emergency stop button.
- Panel protected through door with lochetable handle

OUT PUT PANEL MPP

Multi-pin connectors (in and out) for parallel with other generators	n	2
Connecting cable with 2 connectors multipin (length 10m)	n	1
External terminal board		ETB

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Supplements:

To be ordered with the equipment	:

CONTROL PANEL SUPPLEMENT

RCG - Various supplements for remote controls - available for models:	ACP MPP
TLP - Various supplements for remote signals - available for models:	ACP MPP
ADI - Adjustable Differential Intensity - available only for models:	ACP
TIF - IV Poles Circuit Breaker instead of III - available for models:	ACP MCP
ETB - External Terminal Board - available for models:	MCP ACP

Socket kit

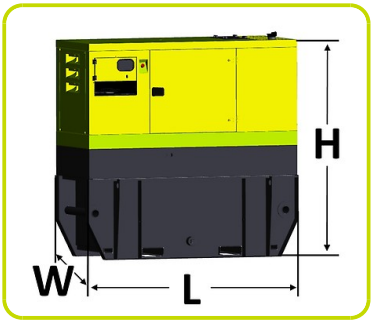
SKB socket kit B - available for models:		ACP MCP
Component version		IP67
Individual CB and Earth Fault protection		√
3P+N+T 400V 63A IP67	n	1
230V/16A 2P+T CEE IP67	n	1
230V 16A SCHUKO IP68	n	1
3P+N+T CEE 400V 16A IP67	n	1
NB: for assembly is necessary:		ETB

GENSET EQUIPMENT

KPR - Premium Kit (Leak Proof Tray - Leakage detection sensor - Manual oil drain pump)	
AFP - Automatic Fuel Pump	ACP MPP
KRT - Kit Rental which includes fuel filter with water separator, 3-way fuel valve, battery switch, earth rod, docs folder)	

Extended Fuel Tank

Fuel tank capacity	l	1750
Length (Genset)	(L) mm	3400
Width (Genset)	(W) mm	1398
Height (Genset)	(H) mm	2546



ENGINE SUPPLEMENTS

PHS - Coolant Pre-Heating System - available for models:	ACP MPP
EEG - Engine Electronic Governor	•

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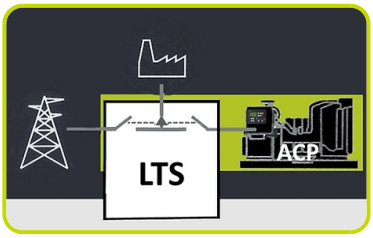
Accessories	
Items available as accessory equipment	
STR - Site trailer	•
RTR - Road Trailer	•

LTS - Load Transfer Switch [Accessories for ACP Automatic Control Panel]



The Load Transfer Switch (LTS) panel operates the power supply changeover between the generator and the Mains in backup applications, guarantying the feeding to the load within a short period of time.
It consists of a standalone cabinet which can be installed separate from the generating set. The logic control of the power supply changeover is operated by means of the Automatic Control Panel (ACP) mounted on the generating set, so therefore none logic device is required on the LTS panel.

LTS Type ATyS_D:

- Box type: steel enclosures
- Installation mode: Wall mounted <400A; Floor Standing =>630A
- Door: Hinged door closed with double barb locking.
- Ingress Protection: IP43
- Gland Plates: Removable on the top & bottom side
- Connections: Bottom/Bottom
- Motor unit
- Gland Plates: Removable on the top & bottom side
- Connections: Bottom/Bottom
- Motor unit
- Switch position indicator
- Auto/Manual cover selector
- Housing for manual handle
- Padlocking mechanism
- Two side by side mounted load break switches
- Poles 4
- Double coils self-powered
- Voltage (coils): 208/277VAC (Tolerance+/-20% 166/333VAC)
- Frequency 50 & 60HZ
- Interface ATyS D10, fixed on the door for the status indication: Two lights to indicate the voltage presence of the grid and the diesel generator; Two lights for the switch position; Functionality mode (auto/manual) and cover protection IP65.
- *Compliant with IEC 60947-3, EN 61439-6-1 and GB 14048-11*

LTS SUPPLEMENTS AVAILABLE ON REQUEST:

- ***ESB -*** *Emergency Stop Button (installed on the panel front)*
- ***APP*** *- Additional IPXXB Protection (internal plexiglass)*

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