HIMOINSA

MODEL

HTW-1745 T5

MEDIUM-VOLTAGE RANGE

Container

Powered by MITSUBISHI

- 40FT-HC
- WATER-COOLED
- THREE PHASE
- 50 HZ
- DIESEL

Generating Rates

SERVICE		PRP	STANDBY
Power	kVA	1736	1904
Power	kW	1389	1523
Rated Speed	r.p.m.	1.500	
Standard Voltage	KV	11	
Available Voltages	KV	3,3 · 6 · 6,3 · 6,6 · 10 · 11	
Rated at power factor	Cos Phi	0,8	

HIMOINSA Company with quality certification ISO 9001
HIMOINSA gensets are compliant with EC mark which includes the following directives:

- 2006/42/CE Machinery safety.
- 2014/30/UE Electromagnetic compatibility.
- 2014/35/UE electrical equipment designed for use within certain voltage limits
- 2000/14/EC Sound Power level. Noise emissions outdoor equipment. (amended by 2005/88/EC)
- 97/68/EC Emissions of gaseous and particulate pollutants. (amended by 2002/88/EC & 2004/26/EC)
- EN 12100, EN 13857, EN 60204
- IEC 62271-1 Common specificaction for high voltage switchgear and controlgear standards
- IEC 60502-1 Power cables with extruded insulation for rated voltages from 1 kV up to 30 kV

Ambient conditions of reference according to ISO 8528-1:2005 normative: 1000 mbar, 25ºC, 30% relative humidity.

Prime Power (PRP):
According to ISO 8528-1:2005, Prime power is 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 (Ppp) over 24 h of operation shall not exceed 70 % of the PRP.

Emergency Standby Power (ESP):
According to ISO 8528-1:2005, Emergency standby power is the maximum power available during a variable electrical power sequence, under the stated operating conditions, for which a generating set is capable of delivering in the event of a utility power outage or under test conditions for up to 200 h of operation per year with the maintenance intervals and procedures being carried out as prescribed by the manufacturers. The permissible average power output over 24 h of operation shall not exceed 70 % of the ESP

Continuous Power (COP): According to Standard ISO 8528-1:2005, this is the maximum power available for continuous loads for unlimited running hours a year between the maintenance times recommended by the manufacturer under the environmental conditions established by the same.

G2 class load acceptance in accordance with ISO 8528-5:2013

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Manufacture facilities:
SPAIN • FRANCE • INDIA • CHINA • USA • BRASIL • ARGENTINA

Subsidiaries:
ITALY | PORTUGAL | POLAND | GERMANY | SINGAPORE | UAE | MEXICO | PANAMÁ | ANGOLA | UK

Available Voltages

3,3 KV					
COP KVA	1567	COP KW	1253	Amps	274,2
Prime KVA	1747	Prime KW	1397	Amps	305,6
Standby KVA	1916	Standby KW	1533	Amps	335,2

6 KV					
COP KVA	1563	COP KW	1251	Amps	150,4
Prime KVA	1743	Prime KW	1394	Amps	167,7
Standby KVA	1908	Standby KW	1526	Amps	183,6

6,3 KV					
COP KVA	1562	COP KW	1249	Amps	143,1
Prime KVA	1741	Prime KW	1393	Amps	159,6
Standby KVA	1906	Standby KW	1524	Amps	174,7

6,6 KV					
COP KVA	1562	COP KW	1249	Amps	136,6
Prime KVA	1741	Prime KW	1393	Amps	152,3
Standby KVA	1908	Standby KW	1526	Amps	166,9

10 KV					
COP KVA	1557	COP KW	1245	Amps	89,9
Prime KVA	1736	Prime KW	1389	Amps	100,2
Standby KVA	1902	Standby KW	1521	Amps	109,8

11 KV					
COP KVA	1557	COP KW	1245	Amps	81,7
Prime KVA	1736	Prime KW	1389	Amps	91,1
Standby KVA	1904	Standby KW	1523	Amps	99,9

Rated at power factor (Cos Phi) : 0,8

ISO 9001 SYSTEM CERTIFICATION

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HIMOINSA® THE ENERGY

HIMOINSA

MODEL
HTW-1745 T5
MEDIUM-VOLTAGE RANGE
Container
Powered by MITSUBISHI

Engine Specifications 1.500 r.p.m.

ENGINE		PRP	STANDBY
Rated Output	kW	1450	1590
Manufacturer		MITSUBISHI	
Model		S16R PTA	
Engine Type		4-stroke diesel	
Injection Type		Direct	
Aspiration Type		Turbocharged and after-cooled	
Number of cylinders and arrangement		16-V	
Bore and Stroke	mm	170 x 180	
Displacement	L	65,37	
Cooling System		Water	
Lube Oil Specifications		API CD or CF SAE 30 or SAE 40	
Compression Ratio		14,0:1	
Fuel Consumption Standby	l/h	374,65	
Fuel Consumption 100% PRP	l/h	341,66	
Fuel Consumption 75 % PRP	l/h	259,68	
Fuel Consumption 50 % PRP	l/h	183,44	
Fuel Consumption 25 % PRP	l/h	107,77	
Lube oil consumption with full load	g/kWh	0,8	
Total oil capacity including tubes, filters	L	230	
Total coolant capacity	L	368	
Governor	Type	Electrical	
Air Filter	Type	Dry	
Inner diameter exhaust pipe	mm	340	

Generator

Generator		
Poles	No.	4
Connection type (standard)		Star
Insulation	Class	F class
Enclosure (according IEC-34-5)		IP23
Exciter system		Self-excited, brushless
Voltage regulator		A.V.R. (Electronic)
Bracket type		Double drive-shaft
Coupling system		Elastic Coupling
Coating type		Standard (Vacuum impregnation)

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Application Data

Exhaust System		
Maximum exhaust temperature	ºC	530
Exhaust Gas Flow	m^3/min	339
Maximum allowed back pressure	mm H_2O	600
Heat dissipated by exhaust pipe	KCal/Kwh	567,73

Necessary Amount Of Air		
Intake air flow	m^3/h	7680
Cooling Air Flow	m^3/s	32,5
Alternator fan air flow	m^3/s	3

Starting System		
Starting power	kW	7,5 x 2
Starting power	CV	10,2 x 2
Recommended battery	Ah	400
Auxiliary Voltage	Vdc	24
Starter current peak	A	1250
Nominal starter current	A	400

Fuel System		
Fuel Oil Specifications		Diesel
Maximum power suction pump	mm Hg	75
Maximum return feed pump	mm Hg	150
Fuel Tank	L	2.000

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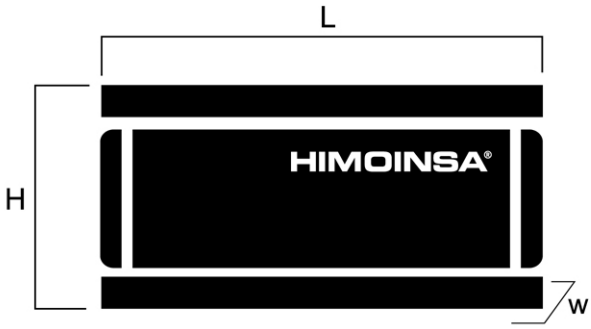
Dimensions



40 hc	Weight and Dimensions		
(L)	Length	mm	12.192
(H)	Height	mm	2.896
(W)	Width	mm	2.438
	Maximum shipping volume	m^3	86,08
(*)	Weight with liquids in radiator and sump	kg	25.929
(*)	Dry weight	kg	25.429
	Fuel tank capacity	L	2.000,0
	Autonomy	Hours	8
	Sound pressure level	dB(A)@7m	75 ± 2,3

(*) (with standard accessories)

STANDARD VERSION

Himoinsa has the right to modify any feature without prior notice.
Weights and dimensions based on standard products. Illustrations may include optional equipment.
Technical data described in this catalogue correspond to the available information at the moment of printing.
Industrial design under patent.

Local Distributor

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CM CENTRAL AUTOMATIC AGC-4.

Automatic control panel WITHOUT ATS (Automatic Transfer Switch) and WITHOUT mains control. No power circuits.

The AGC-4 center is a control unit containing all necessary measures for the protection and control functions of a generator. It can be used as a single unit for a generator, or connect into a complete energy management system for synchronization projects, island type or in parallel with the mains. The AGC-4 contains all the circuitry necessary 3-phase measuring, and all values and alarms are presented on the LCD screen.

The AGC-4 has been successfully developed an innovative facility management solution that can handle up to 256 generators in an application generator circuit breakers, 16 mains feeders with mains and tie breaker and 8 bus tie breakers on the generatorbus or load bus.

KEY LOAD SHARE FEATURES:

- Start sequential set
- Peak lopping
- Manual voltage/frequency adjustment
- R.O.C.O.F. and vector shift
- Generator load demand
- Automatic hours run balancing
- Mains (Utility) de-coupling
- Mains (Utility) de-coupling test mode
- Dead bus sensing
- Bus failure detection
- Direct governor and AVR control
- Volts and frequency matching
- kW and kV Ar load sharing Opción Power Management (PMS)
- Start and stop on demand
- Selection priorities generators in parallel
- Selection priorities parallel networks
- Cargo Control
- Group Multiboot
- Control relay earthed neutral
- Large consumindores Control (management of requests)
- Shot nonessential loads in switchingQuick setup

KEY FEATURES

- Comprehensive loadshare capabilities
- Configurable inputs (33)
- Configurable outputs(24)
- Voltage measurement
- Built-in governor and AVR control
- kW overload alarms

- Comprehensive electrical protection
- Magnetic pick-up
- Electronic engine capability
- Remote communication system up to two channels (redundant system)
- RS485 y RS 23 remote comunications
- Modbus RTU
- PLC functionality
- Multi event exercise timer
- Back-lit LCD 4-line text display
- Multiple display languages
- Automatic start/Manual start
- Audible alarm
- Fixed and flexible LED indicators
- Event log (256)
- Engine protection
- Fault condition notification to a designated PC
- Front panel mounting
- Protected front panel programming
- PC configuration
- Configurable alarms and timers
- Configurable start and stop itmers
- SMS alert messaging
- Remote monitoring
- Compatible with AGC-100 Y 200.
- Allows synchronization Dynamics, static and close before excitation (CBE).

KEY BENEFITS

- RS232 & RS485 can be used at the same time
- DSENet connection for system expansion
- PLC functionality
- Auto voltage sensing
- Five step dummy load support
- Five step load shedding support
- High number of inputs and outputs
- Worldwide language support
- Configuration Suite PC software
- Direct USB connection to PC
- Ethernet monitoring
- USB host
- Data logging & trending
- Process Emulation
- Derating function parameters for temperature rise in warm areas
- Function Idle running in freezing temperatures (preheating at low rpm)
- Auto battery test status, check the battery ramp feature
- Asymmetry of batteries, battery for discriminating shabby
- Control fan motor and living
- Error Detection in switchgear
- Control pump fuel tank
- Connection redundancy controllers without any additional equipment

ENGINE ALARMS

- High coolant temperature.
- Low oil pressure.
- Battery charge alternator
- Start failure.
- Low water level.
- Fuel storage.
- Overspeed.
- Under speed.
- Low battery voltage.

- High coolant temperature by sensor.
- Low oil pressure by sensor.
- Low fuel level by sensor.
- Unexpected shutdown.
- Stop failure.
- Low engine temperature.
- Genset voltage drops.
- Emergency stop.

GENERATOR ALARMS

- Over-load
- Unbalanced voltage
- Over voltage
- Under voltage
- Over frequency
- Under frequency
- Over load
- Short-circuit
- Inverse Power
- Incorrect phase sequence
- Asymmetry among phases
- Emergency stop

GENSET READINGS

- Voltage among phases
- Voltage among phases and neutral
- Amperage
- Frequency
- Apparent power (kVA)
- Active power (kW)
- Reactive power (kVAr)
- Power factor

ENGINE READINGS

- Coolant temperature
- Oil pressure
- Fuel level (%)
- Battery voltage
- R.P.M.
- Battery charge alternator voltage

ENGINE PROTECTIONS

- High water temperature
- High coolant temperature by sensor
- Low engine temperature by sensor
- Low oil pressure
- Low oil pressure by sensor
- Low coolant level
- Unexpected shutdown
- Fuel storage
- Fuel storage by sensor
- Stop failure
- Battery voltage failure
- Battery charge alternator failure
- Overspeed
- Under speed
- Start failure
- Emergency Stop

ALTERNATOR PROTECTIONS

- High frequency
- Low frequency
- High voltage
- Low voltage
- Short-circuit
- Asymmetry among phases
- Incorrect phase sequence
- Inverse power
- Overload
- Genset signal droop

Operating Mode

1. ***Locked | OFF.***

In this operating mode the controller is disconnected from the system, while this mode is impossible that this selected group start automatically or manually. It should select this mode whenever required to do some work or maintenance to avoid starting the group.

2. ***Manual Mode | MAN.***

In this mode of operation the group started through the manual controls of the controller. Also closing the switch will manually if the driver supports operation whether we are isolated from the network as if we already have it synchronized.

3. ***Automatic Mode | AUTO.***

a. *Parallel with main | LOAD SHARING.*
In this mode group and network working in parallel, the load is shared between the two. The group will take a load ramp weighting process, this means that load slowly thereafter are equally true of the loss of load or load shedding.

b. *Parallel with main | BASE LOAD.*
In this mode of operation the group will produce the base system power for this group should be adjusted to produce a given load and this will remain unchanged over time, or until you change the setting. This mode means that the group must be running in parallel with the main.

c. *Parallel with main | PEAK SHAVING.*
This active mode and set the threshold settings and times to be confirmed. The plant is kept fed through the network at all times to monitor the system from imported energy does not exceed a set threshold. Exceeded this threshold and time confirmation, the system gives the boot order for the group need imported power remains below the threshold setting.

d. *Parallel with main | LOAD TAKEOVER.*
Installation Mode where cargo moves from mains to generator, for example, periods of peak demand periods or at risk of power outages.

e. *Parallel with main to fixed power| MAINS POWER EXPORT.*
Power plant with fixed setpoint power in kW (excluding building load).

f. *Group REMOTE SHOCK:*
Used when the generator has to supply the load of a distribution transformer has to be disconnected for maintenance service.

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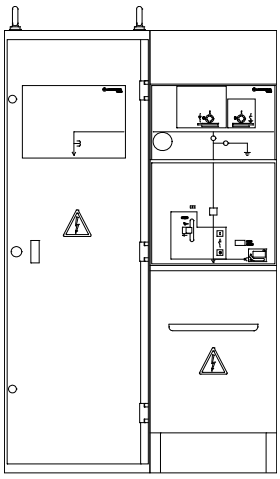
MEDIUM VOLTAGE SWITCHGEAR

Constructive characteristics

The basic version of medium voltage switchboards (metal clad according to the 60298 standard), belongs to LSC2x
Fitted integral SF6 gas insulated busbar, breaker and switch (*1*).
Dimensions and weight: To be advised.

General Electrical Characteristics



- Rated insulation voltage ..... 24 KV
- Rated operating voltage ..... 3…20 KV
- Rated power frequency withstand voltage ..... 50 KV
- Rated impulse withstand voltage ..... 125 KV
- Rated frequency 50 Hz/60Hz
- Rated main busbar current..... 400/630 A (*2*)
- Rated short time current (RMS) ..... 16KA 1s/20 KA 1 s
- Rated peak short circuit current..... 50 KA for 1 s
- Power supply auxiliary circuit..... 24…230 Vcc o 230Vca
- Protection degree..... IP 33 + IPX7
- Installation..... INDOOR
- Applicable standar..... IEC (*3*)
- Ambient desing temperature ..... 40 ° C
- Number of phases 3P

Measure, switch and protection devices, Genset inlet:

1. **Out main cell :**

- Three (3) voltage transformers insulation up to 13,6KV, cast resin type with:
  - ✓ Value X***:√3/110:√3 V, 50/60hz, burden and accuary 40 VA C 1.0,5, 50VA 3P fixed versión.

(*1*) Only in protection cell
(*2*) The rated current is to a máximum ambient temeperature of 40ºC. Consult other temperaturas.
(*3*) Standards: IEC 62271-1, IEC 62271-200, IEC 60265-1, IEC 62271-102, IEC 62271-105, IEC 62271-100, IEC 602255, IEC 60259 e IEC 61958.
X*** to define the order according to rated voltage from 3 a 13,80KV.

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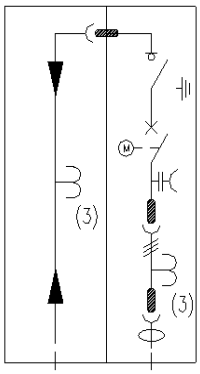
2. Cell protection, switching and measurent :



- ✓ One (1) break-switch :
  - Rated breaking..... 400/630ª
  - Rated closure power..... 40/52KA
- ✓ One (1) earth switch :
  - Rated Clousure power 40/50KA
- ✓ One (1) Vacuum circuit breaker:
  - Rated insulation voltaje..... 24 KV
  - Rated current.....400/630 A
  - Rated short time current (RMS) for 1 s .....16/20 KA
  - Electrical operated
  - Auxiliary contacs
  - Microprocessor protecction: 50/51 +50N/51N and comunications RS232 and RS485.
  - Current sensors installed on bushing for microprorecessor readings.
- ✓ Three (3) voltage transformers insulation up to 13, cast resin type with:
- ✓ Value X***:√3/110:√3 V, 50/60hz, burden and accuary 40 VA C 1.0,5, 50VA 3P fixed versión.
- ✓ One (1) self-powered voltage presence indicator light according IEC 61958.

3. Screw terminals:

- Six (6) screw terminals for máximum wire section 1x240mm2.

4. Optional:

- ✓ Protecction according to group ANSI:
  - Phase overcurrent (50-51.)
  - Neutral overcurrent (50N-51N)
  - Maximum and mínimum voltage (27/59)
  - Maximum displacement voltage (59N)
  - Maximum and mínimum frequency (81M/m)
  - 46, 49RMS, 48/51LR, 66, 32
  - With communications RS-485
  - Minimum impedance protection (21B)
  - Loss of field (40)
  - Ground fault protection (64REF)
  - Differential protection generator (87G)

Other configurations avialble: indoor, outdoor, multiple parallel, etc… to consult.

(1) Only in protection cell
(2) The rated current is to a máximum ambient temeperature of 40ºC. Consult other temperaturas.
(3) Standards: IEC 62271-1, IEC 62271-200, IEC 60265-1, IEC 62271-102, IEC 62271-105, IEC 62271-100, IEC 602255, IEC 60259 e IEC 61958.
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Generator set features

Engine

- Standard air filter
- Standard fuel filter
- Standard oil filter
- Oil temperature sensor
- Coolant level sensor
- Exhaust gas compensator
- Diesel engine
- 4-stroke cycle
- Water-cooled
- 24V electrical system
- Radiator with blower fan
- Electronic governor
- HTW sender
- LOP sender
- Hot parts protection
- Moving parts protection

Alternator

- Self-excited and self-regulated
- IP23 protection
- H class insulation

Container version

- Soundproofing provided by high-density volcanic rock wool
- High mechanical resistance
- Low level of noise emissions
- Door with window to visualize control panel, alarms and measurements
- Reinforced lifting points for crane hoisting and lower ones for transportation by forklift
- Residential steel silencer with -35dB attenuation and tilting cap in the exhaust
- Fuel tank integrated in the chassis
- Anti-vibration shock absorbers
- Steel chassis
- Manual oil extraction pump

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Generator set features

Container version

· Robust construction designed for continuous or emergency applications

· Stainless steel fittings

· Emergency stops

· Easy access to the power connection

· Reinforced chassis for heavy range

· Easy access for chassis cleaning

· Silent-block with anti-corrosion protection between the genset and the chassis

· Easy access to fill radiator through the roof

Electrical System Container

· Control panel and emergency stop button

· Battery charger

· Heating resistor

· Medium voltage cubicle separated with overcurrent protections and measurement transformers

· Battery charge alternator with ground connection

· Starter battery/ies installed (cables and bracket included)

· Ground connection electrical installation with connection ready for ground spike (not supplied)

· Maintenance-free and anti-explosion battery

· Battery isolator

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PDF Summary

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