

THSC Series Specification



Basic Parameters

THSC400PB	
Prime power(kW/KVA)	400/500
Standby power(kW/KVA)	440/550
Rated voltage(V)	400
Frequency(Hz)	50
Rated speed(rpm)	1500

Design standard

Equipment and accessories according with following criteria, but not limited to:

- IEC34-1:** Performance of fixed and rotary motor
- GB755:** Rotating Machines Basic technical requirements
- GB1105:** Internal combustion engine platform testing rule
- GB1859:** Internal combustion engine noise testing rule
- GB2820:** Technical conditions of AC generator driving by reciprocating internal combustion engine
- GB2423.4:** Electric and electronic products of basic environmental testing instruction Db: Alternate damp & heat testing rule
- GB2423.16:** Electric and electronic products of basic environmental testing instruction J: Mould growth testing rule
- GB3907:** Basic measuring rule of industry radio inference
- GB5320:** Vocabulary terms of internal combustion engine
- GB12699:** Power frequency generating sets for rated power, voltage and rotate speed
- ZB J91 005:** Internal combustion engine driven generating sets -- Limits and measuring rule tensional vibration of shaft systems rules

Generating-set performance

Voltage adjusting range	95-105%
Steady State Voltage Regulation	$\pm 1\%$
Transient voltage deviation (100% load sudden reduce)	$\leq +20\%$
Transient voltage deviation (load impact)	$\leq -15\%$
Voltage stabilization time (100% load sudden reduce)	≤ 3
Voltage stabilization time (load sudden impact)	≤ 3
Voltage fluctuation rate:	$\leq \pm 1\%$
Steady-state frequency regulation	$\leq \pm 0.5\%$
Frequency volatility	$\pm 0.5\%$
Transient frequency deviation (100% load sudden reduce)	$\leq +10\%$
Transient frequency deviation (load sudden impact)	$\leq -7\%$
Frequency Recovery Time (100% load sudden reduce)	≤ 3
Frequency Recovery Time (load sudden impact)	≤ 3

Different Voltage Unit

Voltage (V)	Frequency (Hz)	Phase	Power factor (COS ϕ)	Current (A)
254 / 440	50	3	0.8	656.00
240 / 415	50	3	0.8	695.60
230 / 400	50	3	0.8	721.60
220 / 380	50	3	0.8	760.00

Diesel Engine: CUMMINS Series

- **Economic fuel consumption:** By Cummins advanced design and sophisticated manufacturing, can reduce fuel consumption greatly. Cylinder block, cylinder head with integrated design, to prevent leakage phenomenon of engine oil leakage.
- **Strong momentum:** Turbocharged and intercooled with technology-driven products to improve the power performance and improved economy. Exhaust bypass valve is designed to provide low-speed performance even more perfect, more dynamic
- **Excellent reliability:** Integrated modular structural design reduced the total number of parts significantly, while ensuring design strength and undergo a rigorous test of rigorous examination based on the reduced size and weight of the engine, but also reduce the failure rate and maintenance costs. Ring of nickel alloy pistons and a larger main bearing design bearing area to ensure high reliability.
- **Lower maintenance and repair costs:** Fewer numbers of parts, and lower use of failure to reduce costs for engine maintenance significantly, which can create great profits for users.
- **Excellent cold starting performance :** Packed with gas-electric preheating devices and high-power starter, overhauled the engine cold starting performance. Successfully pass the Chinese Arctic Village - Mohe -36 °C low temperature limit verification.
- **Environmental protection:** Efficient fuel supply system and air intake system. So that fuel atomization and mixing with air better, more complete combustion, lower emissions.

Alternator: ABB Series

- **Winding design :** Generator windings with 2 / 3 pitch winding and the original sinusoidal winding design of new technologies to ensure the generator asymmetric load, nonlinear load, in parallel and so the design is too large by conventional winding neutral current effective inhibition.
- **All damping design :** Rotor completely continuous and reliable strong damping structural design, enhanced anti-jamming capability of generator to ensure the stable operation of motor under different conditions, without oscillation.
- **Special excitation system:** Short voltage built-up time, strong anti-linear load capability, stabilized output and bear short circuit current 300% rated current up to 10 seconds.

Tellhow TCA Series Control System

ComAp IL-NT MRS10 is a kind of new integrated control module for generating-set manual control & remote start controlling. ComAp controller has powerful image display function, with images, symbols and rectangular map operation. It can be work well at -30 °C.

【Feature】

1. Automatic / manual start and stop
2. Light testing button is easy to control
3. 128×64 pixelate LCD graphic display
4. LED indicator
5. Adjust parameter in the indicator directly or by connected by PC
6. Three-phase generating-set protection
 - Over-voltage / under-voltage
 - Over-frequency / low-frequency
 - Current / voltage asymmetry
 - Over-current/over load
7. Generating-set testing (50/60Hz): U1-U3, I1-I3, Hz, kW, kVAR, kWh
8. Protection select: alarm / shutdown
9. Simulating oil pressure, water temperature, oil level, battery voltage, engine speed
10. Configured with programmed input& output
11. Pre-heating and cooling capabilities
12. Circuit breaker controlling
13. RS232 interface
14. Panel Protection Level IP65

Standard and Optional Configuration

SYSTEM	Standard	Optional
Intake system	Cylindrical air filter	Heavy-duty air filter
Cooling system	Radiator (40°C) Cooling fluid draining pipe with valve Fan and belt Coolant Level Sensor Coolant temperature sensor Radiator ducts	Radiator (50°C) Water jacket water heater
Exhaust system	Dry Manifold Industrial muffler	Stainless steel exhaust pipe Residential silencer
Fuel system	Fuel Filter High-pressure oil pump Fuel hose	Fuel-water separator
Alternator	Brushless Excitation H insulation class / H temperature rising class AVR	H insulation class / F temperature rising class Permanent excitation Winding temperature measurement device Anti-condensation heater
Power Terminal	DELIXI circuit breaker Model:CDM6S-800L 800A 3300 Class: Three	ABB circuit breaker: Four class Protection level four User-specified control panel
Speed governor	Electronic	
Control panel	TCA control panel ComAp control module Control module: IL-NT-MRS10	Control module: IC-NT IL-NT-AMF25 User-specified control panel
Lubrication system	Oil filter With a discharge valve of the discharge pipe Oil Pump	Manual exhaust pump
Installation	Generating-set is a one-unit structure Generating-set installed at the high strength steel base frame Integrated vibration absorber between engine/alternator & base frame Control cabinet installed in the generating-set base	
Start /charging equipment	24v motor start Battery cable with bracket Battery float charger	
Others	Generating-set body with engine color painting and base frame with black color painting SAE standard	

Technical Parameters

Generating set model	THSC400PB	Speed regulation mode	Electronic
Prime power (KW)	400	Fuel consumption rate under full load (g/kwh)	203
Standby power (KW)	440	Fuel type	Domestic 0# Diesel (normal temperature)
Gen-set volume (KVA)	500	Coolant flow rate (m ³ /min)	0.612
Rated speed (RPM)	1500	Gas consumption (m ³ /min)	31.86
Rated voltage (V)	400	Smoke exhaust volume (m ³ /min)	96.24
Rated current (A)	721.60	Air flow rate (m ³ /min)	1057.9
Rated frequency (Hz)	50	Cooling method	Closed cooling
Rated PF	0.8	Lube volume (L)	50
Phase	3	Coolant volume (L)	80
Gen-set weight (Kg)	5385	Weight (Kg)	1690
Gen-set dimension (L×W×H)	4500X1620X2452 (mm)	Alternator model	AMG 0315CC04 DBSI
Engine model	Cummins KTA19-G3A	Rated voltage (V)	400
Rated power of engine (KW)	448	Rated frequency (Hz)	50
Standby power of engine (KW)	504	Rated speed (RPM)	1500
Construction features of engine	Four stroke and turbocharging	PF	0.8
Cylinders/arrangement	6/L	Phase and connection	3 and Y shape
Bore× stroke (mm)	159× 159	Efficiency (%)	94.26
Displacement (L)	19	Excitation type	Brushless excitation
Compression ratio	13.9: 1	Insulation level	H
Starting method	Electric start	Protection level	IP23
Fuel injection type	PT Direct injection	Weight (Kg)	1155

MRS10 Series CONTROL MODULE

Automatic or manual start / stop

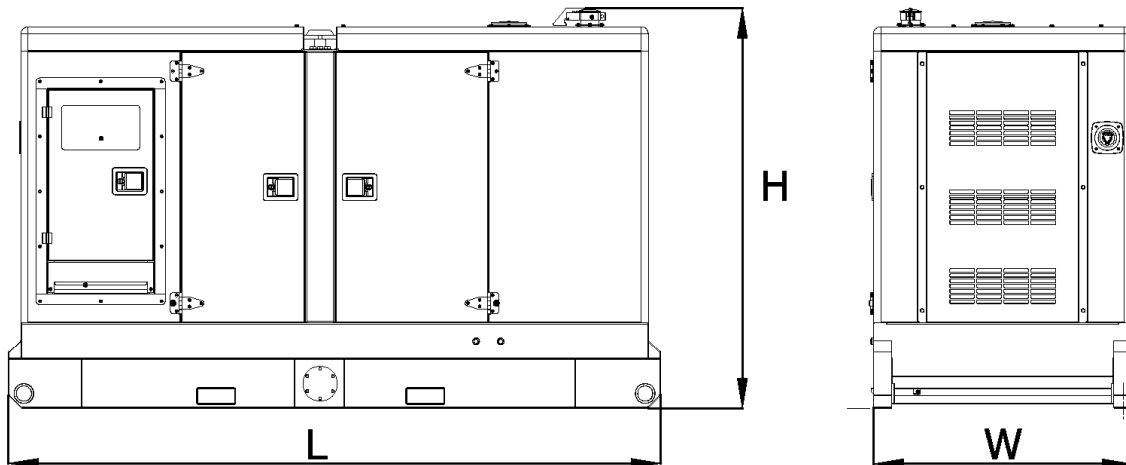
Engine speed, oil pressure, water temperature and oil level measurement, alarm and shutdown

Failed to start for 3 times, the battery voltage measurement and the high and low will be alarm

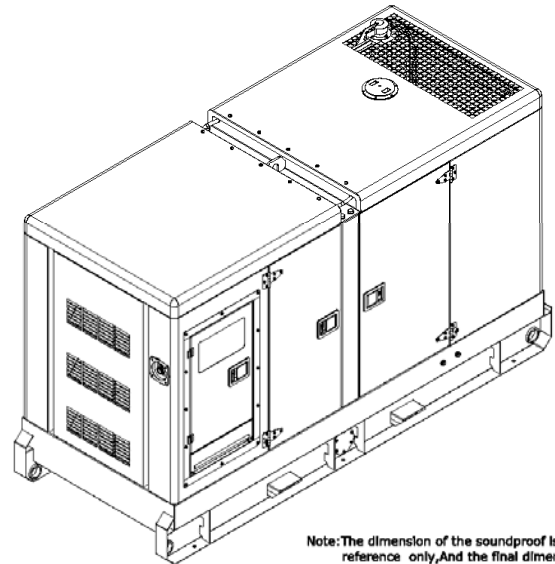
Measuring generator reactive power, active power, U1 ~ U3-phase voltage

Line to line voltage, frequency, I1 ~ I3-phase current, kW·h

Measurement (L×W×H): 4500X1620X2452 (mm)



- All metal canopy parts are painted by environmentally friendly polyester powder paint.
- Emergency stop push button is installed outside of the canopy
- Hinged doors allow 180° opening rotation
- Control panel viewing window
- Excellent waterproof design
- Superior intake exhaust system
- Internally mounted excellent silencer
- Easy lifting and moving
- Easy maintenance and operation



Note: The dimension of the soundproof is for reference only, and the final dimension is subject to the actual production.

Fuel rate	Based on 35° API (16° C or 60° F) of the proportion of fuel. The oil at 29° C (85° F), the low heating value is LHV 42 780 kJ/kg (18,390 Btu/lb) and weight is 838.9 g/liter (7.001 lbs/U.S. gal.).
Fuel type standard	According with EN 590 diesel fuel standards Grade No.1-D according to ASTM D 975-03 standard Grade No.2-D according to ASTM D 975-03 standard
Environmental conditions	Altitude: ≤1000m (> 1000m when the power correction to be done) Ambient temperature: 40℃ Relative humidity: ≤60%

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