

## THSC Series Specification



### Basic Parameters

THSC20PB	
Prime power (KW/KVA)	20/25
Standby power(kW/KVA)	22/27.5
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)	$\leq 3$
Voltage stabilization time (load sudden impact)	$\leq 3$
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)	$\leq 3$
Frequency Recovery Time (load sudden impact)	$\leq 3$

### Different Voltage Unit

Voltage (V)	Frequency (Hz)	Phase	Power factor (COS $\phi$ )	Current (A)
254 / 440	50	3	0.8	32.80
240 / 415	50	3	0.8	34.78
230 / 400	50	3	0.8	36.08
220 / 380	50	3	0.8	38.00

### Diesel Engine: CUMMINS Series

- **Low fuel consumption:** Come from USA Cummins advanced design & skilled manufacturer, make fuel consumption more lower. Cylinder body, cylinder cover adopt integrated design, Prevent the engine occurs water leak & oil leak.
- **Powerful engine:** Use turbocharged & turbocharged after-cooling technology for leading products, promote the power performance & improve the economical efficient. The exhaust gas bypass valve design makes low speed performance more perfect, more powerful.
- **High reliability:** Using of integrated building block system structure design, less the accessories total quantities, base on ensure design strength & through strict examination testing, less the diesel engine volume & weight, reduce the failure rate & maintenance cost. Nickel alloy flanging piston & major main bearing design, ensure the high reliability request.
- **Lower maintenance cost:** Fewer accessories quantities & lower usage fault, makes engine general maintenance cost more lower, create more profit for users.
- **Excellent cooled start performance:** With install intake electrical preheating device & big power engine, improve the engine cooled start performance quietly. Passed the ultimate low temperature -36°C testing of China North pole village-Mohe River.
- **Pro-environment:** High performance fuel supply system and intake system, makes fuel atomized & with air mixed more sufficient, combustion totally, pollutant emission more lower.

### 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, kVA, 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 Cooling fluid draining pipe with valve Fan and belt Coolant Level Sensor Coolant temperature sensor Radiator ducts	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: CDB6s/4P C40 Class: four	ABB circuit breaker:  User-specified control panel
Speed governor	Electronic	
Control panel	TCA control panel ComAp control module Control module:MRS10	Control module: IL-NT-MRS16 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**

<b>Generating set model</b>	THSC20PB	Speed regulation mode	Electronic
Prime power (KW)	20	Fuel consumption rate under full load (g/kwh)	229
Standby power (KW)	22	Fuel type	Domestic 0# Diesel (normal temperature)
Genset volume (KVA)	25	Coolant flow rate (m <sup>3</sup> /min)	0.132
Rated speed (RPM)	1500	Gas consumption (m <sup>3</sup> /min)	1.968
Rated voltage (V)	400	Smoke exhaust volume (m <sup>3</sup> /min)	4.05
Rated current (A)	36.08	Air flow rate (m <sup>3</sup> /min)	129
Rated frequency (Hz)	50	Cooling method	Closed cooling
Rated PF	0.8	Lube volume (L)	10.9
Phase	3	Coolant volume (L)	18.4
Genset weight (Kg)	1201	Weight (Kg)	300
Genset dimension (L×W×H)	2500X1020X1676 (mm)	<b>Alternator model</b>	AMG 0180CC04 DBSI
<b>Engine model</b>	Cummins 4B3.9-G2	Rated voltage (V)	400
Rated power of engine (KW)	24	Rated frequency (Hz)	50
Standby power of engine (KW)	27	Rated speed (RPM)	1500
Construction features of engine	Four stroke and natural aspiration	PF	0.8
Cylinders/arrangement	4/L	Phase and connection	3 and Y shape
Bore×stroke (mm)	102×120	Efficiency (%)	84.42
Displacement (L)	3.9	Excitation type	Brushless excitation
Compression ratio	16.5: 1	Insulation level	H
Starting method	Electric start	Protection level	IP23
Fuel injection type	PT Direct injection	Weight (Kg)	140

**Comap MRS10 Series CONTROL MODULE**

Automatic or manual start / stop

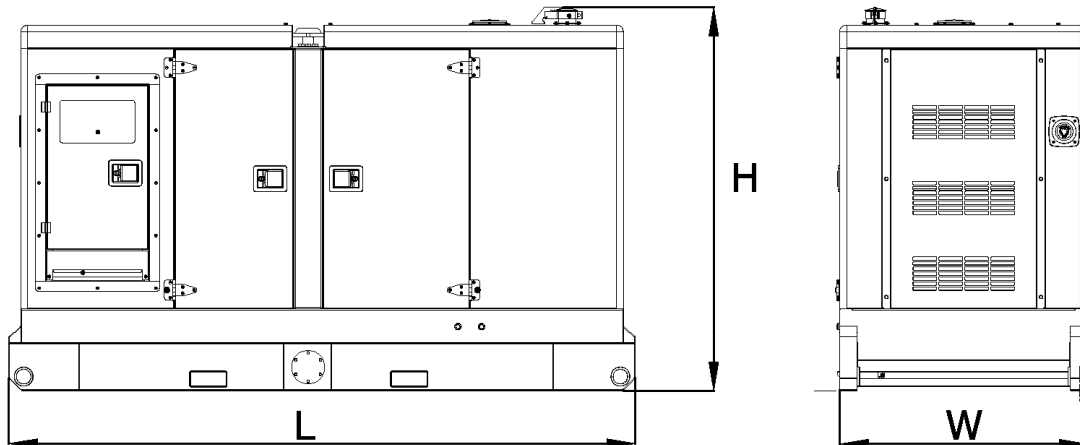
Engine speed, oil pressure, water temperature and oil level measurement, alarm and shutdown

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

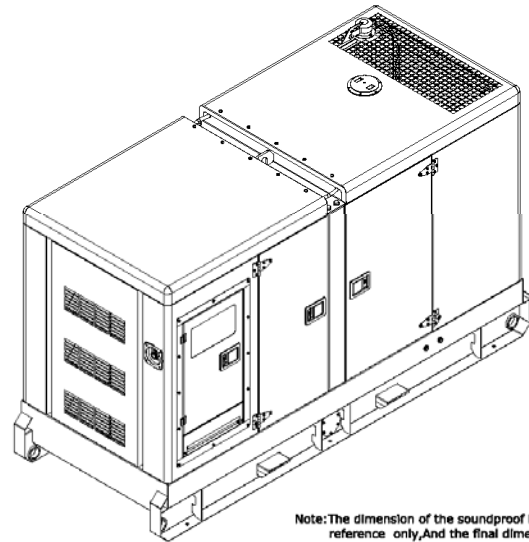
Measuring generator reactive power, active power, U1 ~ U3-phase voltage

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

Measurement (L×W×H): 2500X1020X1676 (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.

<b>Fuel rate</b>	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.).
<b>Fuel type standard</b>	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
<b>Environmental conditions</b>	Altitude: ≤1000m (>1000m when the power correction to be done) Ambient temperature: 40°C Relative humidity: ≤60%

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