

Technical Specification

MTU / DDC Engine Series 4000 C50

Application: Mining Trucks

1800 kW - 2000 kW



Basic Data

R110/R125 split unit Application: Heavy loads

Features

The R110/R125 Series split systems have been specifically designed to handle the high loads and long run times of cooling applications. In addition, they feature a low noise level.

High reliability and stability is used in the operating and life cycle tests together with good energy efficiency for operating hours of 24 hours. Features include, in the main, strong structural design, the electronically controlled "Variable Fan" fan operation mode.

The "Blowing" mode operation flow volume can be adjusted with the blowing speed power supply.

Power Ratings

30000 BTU	10000 W (3516 BTU/h)
35000 BTU	11600 W (4000 BTU/h)
40000 BTU	13200 W (4584 BTU/h)

Reference Conditions

■ Indoor air temperature	27 °C (81 °F)
■ Outdoor air (cooling) temperature	35 °C (95 °F)
■ Evaporator pressure	1000 mbar (29.53 inHg)
■ Condenser pressure	50 mbar (1.45 inHg)
■ Refrigerant temperature	55 °C (131 °F)

Basic Design

■ Evaporator (coil)	
■ 30" x 36" coil arrangement	
■ Copper tubing	
■ Steel panels	
■ Exhaust fan/condensing	
■ Electronic expansion valve (EEXV)	
■ Fan speed	
■ 1 speed, 2 speed (with fan) per outdoor	
■ Electronically controlled "Variable Fan" fan operation	
■ Electronic control management (ECM) fan	
■ Size	1000mm (39.37 in)
■ Depth	600mm (23.62 in)
■ Displacement (outdoor)	4.000 (157.08 in ³)
■ Displacement (indoor)	
30000 BTU	30.0 (1133.0 in ³)
35000 BTU	35.0 (1286.0 in ³)
40000 BTU	40.0 (1439.0 in ³)
■ Compression ratio	12.1:1
■ Structure of outdoor fan/condensing unit	rotary structure

Technical Data
FR4000 Gen. Application Mining Trucks

Engine Power Output (DIN)	140 (215)	1000	1060
Rated speed	1000 (2000)	1000	1000
Maximum speed	100 (2000)	10	4.000
Most effective pressure	50 (2000)	10.0	100

Consumption			
Rated (DIN)	2400 (2500-10)	100	0.07
Maximum (max. @ 1000 rpm)			
Rate of consumption after approx. 100 hrs.		0.1 % - 0.548 consumption	

Oil and Water Capacity			
Volume (approx. 10 min. interval)			
Total	1.00	1.00	1.07
Oil charge quantity	1.00	1.00	1.07
Water			
Engine compartment (with radiator)	1.00	1.00	1.00
Charge at coolant circuit (with radiator)	1.00	0.0	0.0

Working System			
Capacity (flow rate)			
Engine output	470 (2000/min)	11.0	100
Maximum output	470 (2000/min)	10.1	100
Maximum engine coolant out temperature	100°C	90	100
Reabsorbed by engine coolant			
Engine coolant in coolant	400 (2000/min)	10.0	20.000
Maximum output in coolant	400 (2000/min)	10.0	10.000

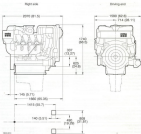
Water Air System			
Water air volume flow	470 (2000/min)	1.00	0.140
Water discharge, absorption, permeation	400 (2000)	0.000	0.000

Exhaust System			
Exhaust flow	470 (2000/min)	0.0	0.000
Exhaust temperature after turbocharger	0.17%	0.0	0.0
Exhaust discharge, absorption, permeation	400 (2000)	0.000	0.000.0

Starting System (Diesel-Electro-Start)			
Voltage	0	24	24
Power	100	1.00	1.00

Noise (Operator)			
Value that would be measured, 1 m distance			
Engine surface noise	80dB	104.0	104.0
Exhaust noise, standard	80dB	1.0	1.0

Installation Drawing
4500 Series 400 - Application Wiring Guide



4500 Series 400

Motor (not supplied) 4570 (2100)

Both dimensions in parentheses are for the high-capacity motor and 4570 induction air motor.

Dimensions in inches

Clearances additional equipment

Form 0010

Technical Data
 107-8000-000 Application Mining Trucks

Engine Power Output (DIN)	107 (DIN)	1400	1900
Rated Speed	1000 (DIN)	900	1000
Power speed	100 (DIN)	12	12.500
Mean effective pressure	bar (DIN)	11.0	10.7

Consumption			
Consumption	g/kWh (DIN)	190	130.1
Specific fuel (DIN) (g/kWh)			
Rate of consumption (g/kWh) (DIN) (g/kWh)		11.7	11.6

Oil and Water Capacity			
Capacity of oil per 10° (in litres)			
Oil	1.00	100	100
Oil storage capacity	1.00	100	100
Water			
Engine cooling (in litres) (in litres)	1.00	100	100
Charge (in litres) (in litres)	1.00	10	10

Exhaust System			
Exhaust flow rate			
Engine speed	1000 (DIN)	70	100
Minimum speed	1000 (DIN)	10	100
Maximum engine coolant oil temperature	°C (°F)	90	100
Heat rejected by engine coolant			
Engine coolant system	100 (DIN)	100	100 (DIN)
Minimum coolant oil system	100 (DIN)	100	100 (DIN)

Exhaust Gas System			
Exhaust gas flow	m³/h (DIN)	1.00	1.000
Exhaust temperature, design (in °C)	100 (DIN)	100	100

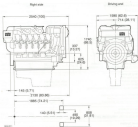
Exhaust System			
Exhaust flow	m³/h (DIN)	1.7	1.000
Exhaust temperature after turbocharger	°C (°F)	100	100
Exhaust backpressure, design (in °C)	100 (DIN)	100	1.000 (DIN)

Starting System (Start: battery/alternator start)			
Voltage	12	24	24
Power	100	1.4	1.4

Water System			
Flow rate (in litres) (in litres) (in litres)			
Engine cooling water	100	100	100
Exhaust water, (in litres)	100	1.00	1.00

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Installation Drawing
E21 4000-001 Application: Mining Trucks



E21-4000-001

Rev. 002 14 JUN 2015 (10/16)

With dimensions shown for both imperial and metric units.

Dimensions: mm (in)

Drawing shows additional optional equipment

Rev. 002

Technical Data
 107-8000-000 Application Mining Tractor

Engine Power Output (DIN)	107 (DIN)	1400	1900
Rated Speed	1000 (DIN)	1000	1000
Power speed	100 (DIN)	10	1 000
Mean effective pressure	10 (DIN)	11.0	10.7

Consumption			
Consumption	2400 (DIN) (l)	100	1.20
Consumption (l/h) (DIN) (l/h)			
Cost of operation (l/h) (DIN) (l/h)			0.1 % of fuel consumption

Oil-water mixture			
Ratio of oil per 10 ³ (DIN) (l)			
Ratio	1.00	100	100
Oil change interval	1.00	100	100
Notes			
Engine coolant (DIN) (l/h) (l/h)	1.00	100	100
Change interval (DIN) (l/h) (l/h)	1.00	10	10

Working System			
Cylinder bore size			
Engine bore	100 (DIN)	70	100
Minimum bore	100 (DIN)	80	100
Maximum engine coolant oil temperature	70 (°C)	80	100
Powered by engine coolant			
Engine coolant system	100 (DIN)	100	10 100
Minimum coolant oil coolant	100 (DIN)	100	10 100

Water for System			
Water production flow	100 (DIN)	1.00	1.00
Water treatment, desalination, purification	100 (DIN) (l/h)	100	100

Exhaust System			
Exhaust flow	100 (DIN)	1.0	1.00
Exhaust temperature after turbocharger	70 (°C)	100	100
Exhaust backpressure, desalination, purification	100 (DIN) (l/h)	100	1.00

Working System (Water-Hydrostatic Drive)			
Volume	0	10	10
Power	100	1.0	1.0

Water System			
Flow rate (DIN) (l/h) (l/h)			
Engine coolant (DIN) (l/h) (l/h)	100	100	100
Exhaust (DIN) (l/h) (l/h)	100	1.00	1.0

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TECHNICAL DATA
HP 400/700 Application Mining Trucks

Engine/Power Output (kW)	475 (650)	590	475
Rated power	475 (650)	590	590
Rated speed	100 (3000)	114	2'500
Rated rotation pressure	100 (100)	10.2	10

Consumption			
Rated (liters)	3400 (3000-4)	124	1210
Volume flow (liters/minute)			
Rate of consumption after approx. 100 hrs		80 % of full consumption	

Water/Water Capacity			
Water (liters at 10° inclination)			
Flow	1.50	250	254
Oil transfer capacity	1.50	220	220
Capacity			
Engine water-cooled (no radiator)	1.50	1.0	1.0
Charge air water-cooled (no radiator)	1.50	0.5	0.5

Working System			
Rated flow rate			
Engine output	475 (650) kW	120	120
Minimum output	475 (650) kW	40	110
Maximum engine output at temperature	°C/°F	50	120
Rated speed/rotation pressure			
Engine output at 1000 rpm	475 (650) kW	124	1210
Minimum output at 1000 rpm	475 (650) kW	124	1210

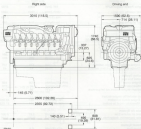
Water Air System			
Water air volume flow	475 (650) kW	0.80	0.800
Water consumption, designed, variable	475 (650) kW	0.00	0.00

Exhaust System			
Exhaust flow	475 (650) kW	0.0	10.00
Exhaust temperature after turbocharger	°C/°F	400	750
Exhaust pressure, designed, variable	1000 (10.00)	0.10	0.0010

Starting System (Diesel Heavy-Duty engine start)			
Voltage	12	24	24
Power	475	0.40	0.40

Water emission			
Water flow/rotation pressure level, 1.0 bar/100 psi			
Engine water flow	100%	1.00	1.00
Exhaust water emission	100%	1.00	1.00

Installation Drawing
90-400 C&D Application Wiring Details



90-400 C&D

Material: 6061-T6 ALUMINUM

100% aluminum of part for 6061-T6 aluminum and 10" minimum for 6061-T6

Dimensions: see (a)

Manufacture: differential supplied

