



**MTU 16V4000C11**



**Technical Specification**

**and**

**Scope of Supply**

**DIESEL ENGINE  
16V4000C11**



**I. Engine Description**

Engine Model 16V4000C11  
 DIESEL ENGINE  
 Application Group 5A - Continuous operation, unrestricted

**Power as per MTU Sales Program**

Power per engine (ISO 3046)	1.715	kW
Engine speed	1.900	rpm
Intake air temperature	25	°C
Coolant temperature	42	°C
Altitude	100	m

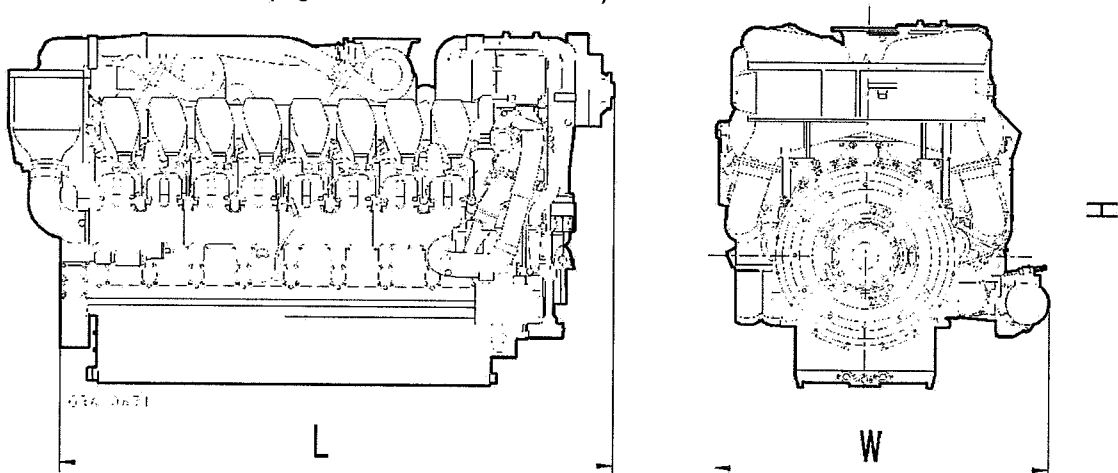
**On-site Power**

Power per engine (ISO 3046)	1.715	kW
Engine speed	1.900	rpm
Intake air temperature	25	°C
Coolant temperature	42	°C
Altitude	100	m

**Requirements**

Frequency 0 Hz

**Main dimensions (engine incl. standard accessories):**



L	W	H
2745 mm (108.1 in)	1590 mm (62.6 in)	1990 mm (78.4 in)



## II. Quantities

Total of 2 object(s)  
1 engine(s) per object

### Engine assignment

1	engine 1
2	engine 1
1)	item appears only once per object

## III. Selection Criteria for the Scope of Supply

<i>Criteria</i>	<i>Selection</i>	<i>for Engine No.</i>
Application group	5A - continuous power	1-2,
Scope of Supply	Complete engine	1-2,
Production location	Aiken	1-2,
Vehicle type	Truck	1-2,
Load profile / TBO	Standard	1-2,
Service altitude	up to 3200 meters above sea level	1-2,
Speed	1900 rpm	1-2,
Exhaust emissions regulations	EPA Nonroad T1 Comp (40CFR89)	1-2,
Acceptance Testing	Factory acceptance	1-2,
Components for Remote Services	without Components for Remote Services	1-2,
Starting method	Compressed air	1-2,
Flywheel housing	Flywheel housing dry	1-2,
Publications	Standard publications English	1-2,
Spare parts and tools	Not included in scope of supply	1-2,
Painting	Yellow (Terex Yellow)	1-2,
Packing	T-cradle Climate-Packaging	1-2,
Shipment	FCA manufacturing facility	1-2,
Emission cert. authority	99 not relevant	1-2,
Country of operation	000 still not known	1-2,



**IV. Scope of Supply**

valid for  
engine No.

**1 ENGINE CONFIGURATION**

1-2,

**1.1 Engine System**

1-2,

Denomination
ENGINE-16V4000C11
SUBTYPESPEC. VALUE-16V4000C11
INSPECT PORT COVER-8/12/16V4000
CRANKCASE
EQUIPMENT RACK

**Flywheel Housing "dry"**

1-2,

Grey-cast iron flywheel housing with openings for venting (not oil tight). Customer interface according SAE-J617 No. 00.

Hint: Flywheel equipped with single lip sealing ring on crankshaft. Not recommended for use in "wet" applications.

Denomination
END HOUSING, MAIN AND AUX. PTO END

**Flywheel with integrated diaphragm coupling (flexplate)**

1-2,

- Flywheel with integrated diaphragm coupling (flexplate)
- non-insulated flexplate
- See option drawing 0SK11154

Denomination
FLYWHEEL
CYLINDER HEAD FOR 16V
VALVE GEAR WITH PRESS.OIL LUBR
CYLINDER HEAD COVER FOR 16V
ENGINE MOUNTING-8/12/16/20V4000

**Crankshaft transportation locking device**

1-2,

Crankshaft transportation locking device to attach to the sides of the flywheel housing or from backside of flywheel housing.

Actual design depends on selected flywheel option.

Denomination
TRANSPORTATION LOCK-8/12/16V4000G



PLACARD	POS. EXPL: HAZARD
TYPE PLATE USA	ENGLISH
PLACARD	

**Grounding device**

1-2,

Grounding device (grounding brush) installed at flywheel housing.  
Please observe the Application & Installation Manual "Alternator and generator requirements - Rotor shaft voltage limits and current limits" available on the Business Portal.

Denomination	
CARBON BRUSH	ON FLYWHEEL HSNG
MAIN BEARING-16V4000	
CRANKSHAFT-16V4000-01 NH STOCK	
CONROD	W/BEARING
PISTON	
PTO FLANGE	AUX PTO END (KGS)-8/12/16V4000
CRANKSHAFT REAR HUB DDEC IND 8V/12V/16V	

**Vibration damper with guard**

1-2,

The vibration damper is equipped with a guard.

Denomination	
RADIAL-LIP SHFT SEAL FOR FREE END-BR4000	
VIBRATION DAMPER WITH GUARD FOR PTO	
PUSHROD ASM 16V4000 54-010.011/070	
CAMSHAFT	
CAMSHAFT DRIVE/THRUST BEARING DDEC SRS 8	
INSTALLATION DRAWING	

**1.2 Starting**

1-2,

**Single air starter**

1-2,

- fitted on right side (B-side) of engine
- starter with offset
- TDI T100V
- start-air pressure: 8-10bar
- observe option drawing X52617300006

Denomination	
STARTER	FOR COMPRESSED AIR

**1.3 Oil System**

1-2,

Denomination	
--------------	--



PISTON COOLING
----------------

**Basic Equipment**

1-2,

- Lube-oil pump with safety valve
- Forced-feed lubrication
- Piston cooling via oil spray nozzles

Denomination
--------------

LUBE OIL PUMP
---------------

Oil filler neck with oil dip stick (short version)

1-2,

Denomination
--------------

OIL PAN
---------

OIL FILLER NECK W OIL DIPSTICK, RGH
-------------------------------------

**Crankcase ventilation open**

1-2,

- Open crankcase ventilation without return to combustion air system

Denomination
--------------

CRANKCASE BREATHER
--------------------

**Lube oil heat exchanger**

1-2,

- Engine mounted
- Integrated in engine's cooling circuit (HTC)

Denomination
--------------

OIL HEAT EXCHANGER-8/12/16V4000
---------------------------------

**Centrifugal oil filter**

1-2,

- 1 x 2 liter

Denomination
--------------

FILTER OIL 2 LITER CENTRIFUGAL SPINNER I
--

**Electrical pre-lubrication pump**

1-2,

- Electrical pre-lubrication pump mounted on engine complete with electrical and oil connections. Activation integrated in automatic starting process



Denomination
ENGINE CABLING FOR ON-ENGINE SENSO-16V4000CX1
STARTING-PRELUBE
CONNECTING FLANGE FOR OIL PAN
T/CHARGER OIL SUPPLY-BR4000
PRESS REGULATE VALVE

**Lube oil filter with safety element** 1-2,

4 vertical, spin-on oil filters

Denomination
OIL FILTER

**Oil filter restriction switch (OFRS)** 1-2,

Oil filter restriction monitored with differential pressure switch by ECU

Denomination
DIFF-PRESS MONITORING
SCHEMATIC FOR LUBE OIL SYSTEM-12/16V4000G

**1.4 Fuel System** 1-2,

Denomination
FUEL PUMP LOW PRESSURE
FUEL LINE LOW PRESSURE

**Standard Efficiency Fuel Filters** 1-2,

- Engine installed main (secondary) fuel filters and optional intermediate fuel filter (primary filter) with standard efficiency filter media

**Fuel filters** 1-2,

- Engine installed main (secondary) fuel filters
- Intermediate fuel filter (primary filter) not included in scope of supply

Denomination
FUEL FILTER ON ENGINE
HP PUMP

**High pressure fuel lines** 1-2,

- Double walled high pressure fuel lines from HP pump to common rails
- Double walled high pressure fuel lines from common rails to injectors
- Common rails without shielding



Denomination
FUEL LINES DBL WALL HI PRESS + RAILS IND
INJ.VALVE/INJECTOR
SCHEMATIC FOR FUEL

**1.5 Cooling System** 1-2,

Denomination
COOLANT DISTRIB HSG
THERMOSTAT HOUSING LT CIRCUIT
PUMP WAT LOW TEMP CIRCUIT 8/12/16V4000 I
END COVER FOR COOLANT
THERMOSTAT HOUSING HIGH-TEMP CIRCUIT
PUMP ENG WAT HI TEMP CLG CIRCUIT 12/16V4
COOLANT DUCTING HIGH-TEMP CIRCUIT
COVER FOR COOLANT
SM-COOLANT SYSTEM SCHEMATIC

**1.6 Combustion Air System** 1-2,

Denomination
AIR PIPING
INTERCOOLER
CHARGE-AIR MANIFOLD-16V4000

**1.7 Exhaust System** 1-2,

**Exhaust manifolds painted** 1-2,

- On-engine exhaust manifolds will be painted during painting of engine after factory acceptance test

Denomination
EXHAUST LINE BEFORE TURBOCHARGER

**Turbochargers** 1-2,

- 4 exhaust turbochargers with 2 vertical exhaust outlets. Refer to drawing 5270080009, position A5 and B5

Denomination
EXHAUST TURBOCHARGER

- Exhaust bellows not included in scope of supply. Observe and follow the instructions in the corresponding Application & Installation manual chapter "Exhaust system", sections "Pipework" and "Flexible Fittings" 1-2,

**1.8 Engine Mounting** 1-2,





**Three point mounting**

1-2,

- Trunnion engine mount with elastically supported pivotal point at engine's free end.
- Customer supplied rear mounts (main PTO side of engine)

Denomination
MOUNTING BRACKET

**1.9 Power Transmission**

1-2,

**Shim kit (2x 0,127 mm / 2x 0,254 mm)**

1-2,

- for mounting of alternator housing to flywheelhousing

Denomination
ADJUSTING WASHER FOR FITTING GENER

**Shim kit (2x 0,127 mm / 2x 0,254 mm)**

1-2,

- for mounting of alternator shaft to flexplate flywheel

Denomination
ADJUSTING WASHER FOR FITTING GENER

**1.10 Auxiliary PTO**

1-2,

**Alternator**

1-2,

- Alternator (260A; 28VDC; 2-pole)  
install. locat. B-side with manually adjusted tension and with belt guard

Denomination
ALTERNATOR RIGHT SIDE

**Air compressor**

1-2,

- Bendix Tu-Flo 550 Air Compressor (13.2 CFM)
- Without compressor mounted air pressure governor
- Engine mounted, A bank (left)

Denomination
AIR COMPRESSOR



**Auxiliary PTO for air conditioning compressor** 1-2,  
 – with double V-belt pulley

Denomination
DRIVE

**Fan Drive S270** 1-2,  
 with poly-V-belt pulley, fan drive ratio= (i) and fan height= (a)  
 i = 0.55 1-2,  
 a = 27.5 in. 1-2,

Denomination
FAN DRIVE
BELT PULLEY
V-BELT FOR FAN DRIVE

**Without fan spacer** 1-2,  
 – Fan spacer not included in scope of supply

Denomination
COVER-BR4000

**1.11 Engine Management System** 1-2,  
**DDEC IV Vehicle Interface Harness (VIH)** 1-2,  
 – length: 4040 mm

Denomination
ENGINE CABLING
RETAINER F. WIRING HARNESS
RETAINER F. WIRING HARNESS

**DDEC IV Coolant Level Sensor (CLS)** 1-2,  
 – 3/8 in. NPT  
 – with connector parts for sensor  
 – Wiring from sensor to ECM not included in MTU scope of supply

Denomination
--------------



COOLANT LEVEL SENSOR
----------------------

- 1.12 **Governor Configuration** 1-2,  
06N04C1706 APPL DDEC C&I S4000 COLD CLIMATE ELECTRIC DRIVE MINE TRUCK 1-2,  
DDEC configuration for cold climate. Special settings for fan and shutter control

Denomination
APPL DDEC C+I COLD CLIMATE ELEC TRUCK
CALIB 0000/0000/2300HP@1900RPM 16V4000
2300HP@1900RPM 5338 02-02 16V4000 IND

- 2 **ADDITIONAL BELAZ PARTS** 1-2,  
2.1 **Additional Parts** 1-2,

Denomination
HOSE CONNECTION

- 2.2 **Russian Documentation** 1-2,

Denomination
FLUIDS/LUBRICANTS RUSSIAN
OPERATION MANUAL RUSSIAN

- 5 **MISCELLANEOUS** 1-2,  
5.1 **Documentation** 1-2,  
1 x Engine Operation Manual in English language MS150049/XXE 1-2,  
1 x Engine Maintenance Schedule in English language MS50095/XXE

Denomination
OPERATION MANUAL ENGLISH

- 1 x Fluids and Lubricants Specification in English language A001061/XXE 1-2,

Denomination
FLUIDS/LUBRICANTS ENGLISH-ALLE MTU-MOTOREN

- 1 x Assembly instructions in English language M060770/XXE 1-2,

Denomination
INSTALL.INSTRUCTIONS ENGLISH

- MTU Value Care Flyer in English-Language 1-2,

Denomination
MTU VALUECARE FLYER ENGLISH



- 5.2 Painting** 1-2,  
**Color "Yellow" (Terex Yellow)** 1-2,

Denomination
PAINTING-BR4000
PAINT TEREX YELLOW 16V4000

- 5.3 Packing** 1-2,

Denomination
BAG SHIP ENG 12/16VIND/MAR W/O DIR MT GR
CONTAINER TRESTLE
TRANSPORT BOX
CAP FOR ENGINE SHIPPING
PACKAGING MATERIAL ENG PRES 1 YEAR

- 5.4 Additional Options** 1-2,  
 The export label is assigned to all engines, which are not certified as per EPA. Therefore, these 1-2,  
 engines must not operated in the US  
 Export is compulsory

Denomination
DATASHEET EM-EPA C-I AND GENS.ENGINE-ALLE MTU
MOTOREN
ARRANGEMENT DRAWING
EMI-LABEL FOR US EXPORT

**6 FUNCTIONAL TESTING** 1-2,

- 6.1 Acceptance Testing** 1-2,  
 Engine test under load on the dynamometer, followed by MTU's series acceptance testing in 1-2,  
 accordance with DIN/ISO with „Acceptance Test Record“. After completion of the factory testing, engine  
 operation in accordance with the technical specification, is possible without restriction. On-site running-  
 in is not required.

Denomination
TEST RUN

- Engine standard factory acceptance testing 1-2,