



**Wastewater Solutions LLC**  
 102 NE 2nd Street Suite 510  
 Boca Raton, FL 33432 US  
 (954) 483-9269  
 arturo@wws-llc.com  
 wws-llc.com

## Quote

**ADDRESS**

ROY BARNES  
 FULTON COUNTY  
 Roy.Barnes@fultoncountyga.gov

**QUOTE # 6137 -REV2**

**DATE 08/13/2021**

**DELIVERY:**

16 - 18 WEEKS

DESCRIPTION	QTY	RATE	AMOUNT
PRIMAX USA MODEL SW150	8	60,773.00	486,184.00

**INCLUDES:**

62 HP ISUZU ENGINE MODEL 4LE2X TIER 4 FINAL  
 AUTO SELF PRIMING CENTRIFUGAL SINGLE STAGE SYSTEM  
 2 VANE SEMI OPEN IMPELLER  
 6" SUCTION FLANGE  
 6" DISCHARGE FLANGE  
 4" SOLIDS HANDLING,  
 MAX HEAD OF 151 FT  
 MAX FLOW OF 2267 GPM  
 CF8M A351 IMPELLER  
 CF8M FRONT AND REAR WEAR PLATE  
 SILICON CARBIDE / SILICON CARBIDE SELF CONTAINED  
 MULTISPRING  
 BALANCED MECHANICAL SEAL ASSEMBLY  
 60 GAL FUEL ON BOARD  
 LOFA CANPLUS-1000 CONTROL PANEL WITH FLOATS  
 MESSENGER BLE INTEGRATED TELEMTRY SYSTEM FACTORY  
 INSTALLED  
 SOUND ATTENUATED LOCKABLE ENCLOSURE  
 DOT APPROVED TRAILER  
 BACK AND SIDE LIGHTS INCLUDED  
 TOOLBOX INCLUDED  
 PANEL TO BE MOUNTED INSIDE THE UNIT  
 JAKCK POSITION TO BE LOWERED  
 BAUER STYLE QUICK CONNECT FITTINGS INCLUDED  
 6" X 20 FOOT SUCTION HOSE WITH SEWER STYLE STRAINER

WIRELESS MONITORING SERVICE NOT INCLUDED

DESCRIPTION	QTY	RATE	AMOUNT
PRIMAX USA MODEL SW250	2	129,217.00	258,434.00
INCLUDES:			
275 HP SCANIA DC9 NO RE-GEN CYCLE TIER 4 FINAL AUTO SELF PRIMING CENTRIFUGAL SINGLE STAGE SYSTEM 3 VANE SEMI OPEN IMPELLER 10" SUCTION FLANGE 10" DISCHARGE FLANGE 4" SOLIDS HANDLING, MAX HEAD OF 180 FT MAX FLOW OF 5627 GPM CF8M A351 IMPELLER CF8M FRONT AND REAR WEAR PLATE SILICON CARBIDE / SILICON CARBIDE SELF CONTAINED MULTISPRING BALANCED MECHANICAL SEAL ASSEMBLY 350 GAL FUEL ON BOARD LOFA CANPLUS-1000 CONTROL PANEL WITH FLOATS MESSENGER BLE INTEGRATED TELEMETRY SYSTEM FACTORY INSTALLED SOUND ATTENUATED SKID MOUNTED LOCKABLE ENCLOSURE BACK AND SIDE LIGHTS INCLUDED TOOLBOX INCLUDED PANEL TO BE MOUNTED INSIDE THE UNIT JACK POSITION TO BE LOWERED BAUER STYLE QUICK CONNECT FITTINGS INCLUDED 10" X 20 FOOT SUCTION HOSE WITH SEWER STYLE STRAINER  WIRELESS MONITORING SERVICE NOT INCLUDED			
6" X 50' LAYFLAT COMPLETE WITH BAUER FITTINGS	4	651.00	2,604.00
6" X 100' LAYFLAT COMPLETE WITH BAUER FITTINGS	8	1,223.00	9,784.00
6" BAUER 90 DEGREE ELBOW	12	262.00	3,144.00
6" BAUER 45 DEGREE ELBOW	12	262.00	3,144.00
4" FEMALE TO 6" MALE INCREASER	4	162.00	648.00
10" TO 6" DECREASER	2	834.00	1,668.00
16 HOURS OF TRAINING OVER 2 DAYS ARE INCLUDED TRAINING WILL INCLUDE BASIC PUMP KNOWLEDGE, JOB WALK, SETUP/DESIGN, OPERATION, TROUBLESHOOTING ,1-3 HOURS TRAINING FROM PANEL/ MESSENGER MANUFACTURER FOR TRAINING ON PROGRAMMING AND OPERATION OF PANEL AND REMOTE MONITORING/OPERATION WILL BE PROVIDED. ASSISTANCE FOR THE COUNTY IN SETTING UP A MAINTENANCE			

DESCRIPTION	QTY	RATE	AMOUNT
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AGREEMENT WITH LOCAL RAIN FOR RENT BRANCH WILL BE PROVIDED  
 FOUR HOURS TRAINING ON ONE SESSION IN PUMP TEAR DOWN AND REBUILD WILL BE PROVIDED.

WARRANTY: 12 MONTHS FROM THE DATE OF STARTUP OR 18 MONTHS FROM THE DATE OF SHIPMENT. WHICHEVER OCCURS FIRST.

DELIVERY TO FULTON COUNTY IS INCLUDED

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PROJECT: SW150, SW250 AND ACCESSORIES	TOTAL	<b>\$765,610.00</b>
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PRICES ARE FOB JOB SITE PLUS ANY AND ALL LOCAL, STATE AND FEDERAL TAXES.  
 FACTORY WARRANTY IS 1 YEAR.  
 WASTEWATER SOLUTIONS LLC TERMS AND CONDITIONS APPLY.  
 PAYMENT TERMS ARE: NET 30.  
 ALL SALES ARE FINAL. NO RETURNS ARE ACCEPTED.  
 QUOTE VALID FOR 90 DAY.

Accepted By

Accepted Date

# ALLIGHTSYKES

## SEWER & WASTE RANGE

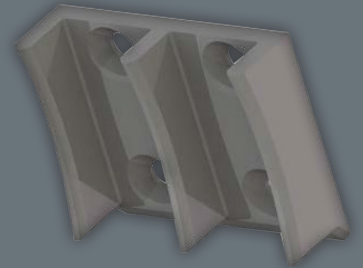
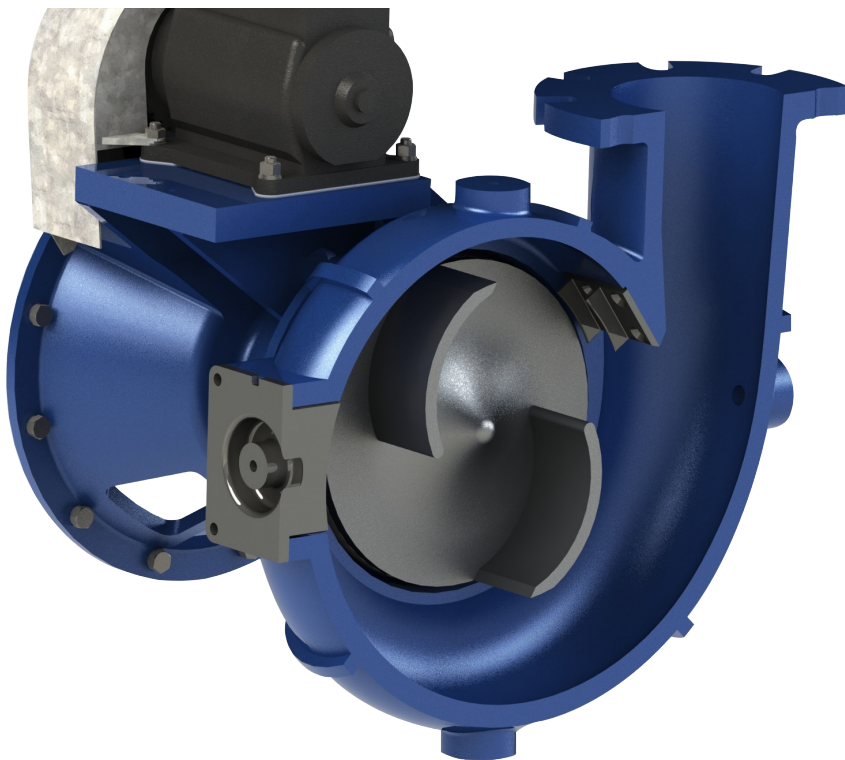


Specifically designed for sewer and waste water applications, the patent-pending SW range is capable of pumping large solids up to 100mm, chops and shreds debris, rope, and other stringy materials that normally partially or fully clog pumps.

The SW pump range boasts an array of new and exciting features to ensure optimum pump performance in times of need. To test and prove the SW design elements, Sykes Pumps have carried out extensive field trials with various water authorities with excellent results and feedback.

### SW FEATURES

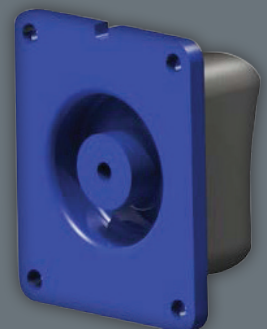
- The shredder claw is designed to tear and shred stringy material that would normally wrap around the impeller and clog the pump.
- Cutter pockets in the front wear plate chops and shears larger objects allowing them to be passed through the pump.
- The inspection insert is designed to allow easy access to the volute chamber enhancing maintenance and repair activities.
- The impeller is a semi open non-clog design capable of handling large solids.
- The SW pumps are based on the market leading Sykes CP range with significant commonality and interchangeability of key components.



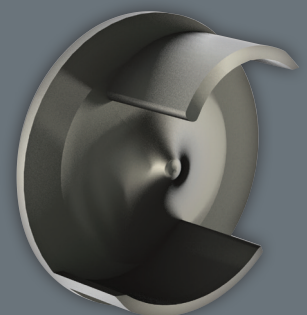
SHREDDER CLAW



CUTTER POCKET



INSPECTION INSERT



NON-CLOG IMPELLER

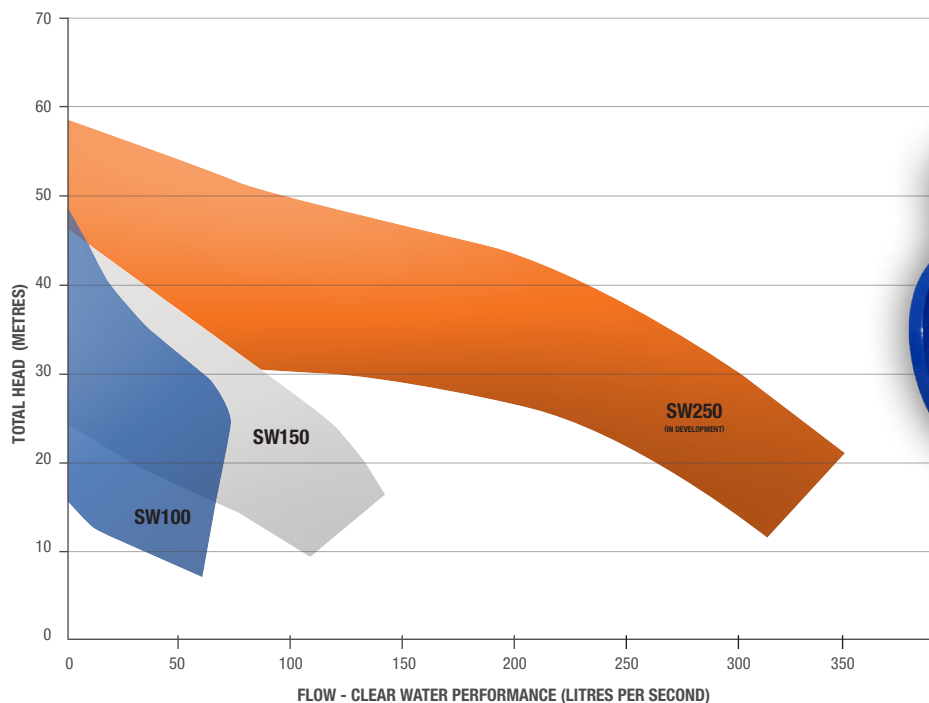


# ALLIGHTSYKES

## SEWER & WASTE RANGE



The SW pumps, being based on the Sykes CP range, inherit the proven heavy duty and robust pump design. The SW pumps also have fitted as standard, 316 grade stainless steel (CF8M) pump internals ensuring maximum corrosion resistance. Sykes extensive industry experience has proven that 316SS pump internals prolongs pump life and provides extended optimum performance. The ability to re-set front & rear clearances, ensuring best pump efficiency, has been retained for the SW pump range.



	SW100	SW150	SW250
<b>Connections (mm/in)</b>	100x100/4x4"	150x150/6x6"	250x200/10x8"
<b>Maximum Head (m/ft)</b>	49/161'	46/151'	58/190'
<b>Maximum Suction (m/ft)</b>	9/30'	9/30'	9/30'
<b>Maximum Flow (Lps/GPM)</b>	75/1188	146/2314	360/5706
<b>Solids Handling (mm/in)</b>	76mm/3"	90mm/3.5"	100mm/4"

### OPTIONAL EXTRAS

- Acoustic canopies
- Road registerable trailer
- Heavy duty skid
- Pump monitoring sensors with internet link
- Larger fuel capacities
- Fully bunded fuel tanks

## SW150



# Built Tough

## SEWAGE & WASTE AR

### HEAVY DUTY

Automatic self-priming single stage end suction pump

### SOLIDS HANDLING

Large solids capacity while maintaining hydraulic efficiencies

### CORROSION RESISTANT

Stainless steel 316 (CF8M) internals as standard.



Construction & Civil



Sewage & Waste Water



Quarries



Rental



**DESIGN DETAILS**

Auto self priming, centrifugal single stage, end suction, 2 vane semi open impeller

Suction Flange	150mm / 6"
Delivery Flange	150mm / 6"
Solids Handling	100mm / 4"
Maximum Head	46m / 151ft
Maximum Flow	143L/sec / 2,267 USgal/min
Engine Type	Isuzu 4LE2X T4F
Engine Adaptor	SAE #4
Shaft Diameter	40mm / 1.57"
Fuel Rate @ BEP 2,000rpm	8.4L/hr / 0.04 USgal/min *
Fuel Rate @ BEP 1,600rpm	4.2L/hr / 0.02 USgal/min *
Fuel Tank Capacity	345L / 91 USgal

**MATERIALS OF CONSTRUCTION**

STANDARDS	MATERIAL	AUSTRALIA		AMERICAS	
		GRADE	AS	GRADE	ASTM
Tee Piece	SG Iron	400/12	1831	65-45-12	A536
Pump Casing (Volute)	SG Iron	400/12	1831	65-45-12	A536
Front Wear Plate	Stainless	316/H6B	2074	CF8M	A351
Impeller	Stainless	316/H6B	2074	CF8M	A351
Rear Wear Plate	Stainless	316/H6B	2074	CF8M	A351
Pump Shaft	Stainless	431	2074	98b-431	A276
Bearing Bracket	SG Iron	400/12	1831	65-45-12	A536
Bearing Covers	SG Iron	400/12	1831	65-45-12	A536
Mechanical Seal	Multi spring balanced mechanical seal assembly with silicon carbide/silicon carbide mechanical seal faces in self-contained oil reservoir.				

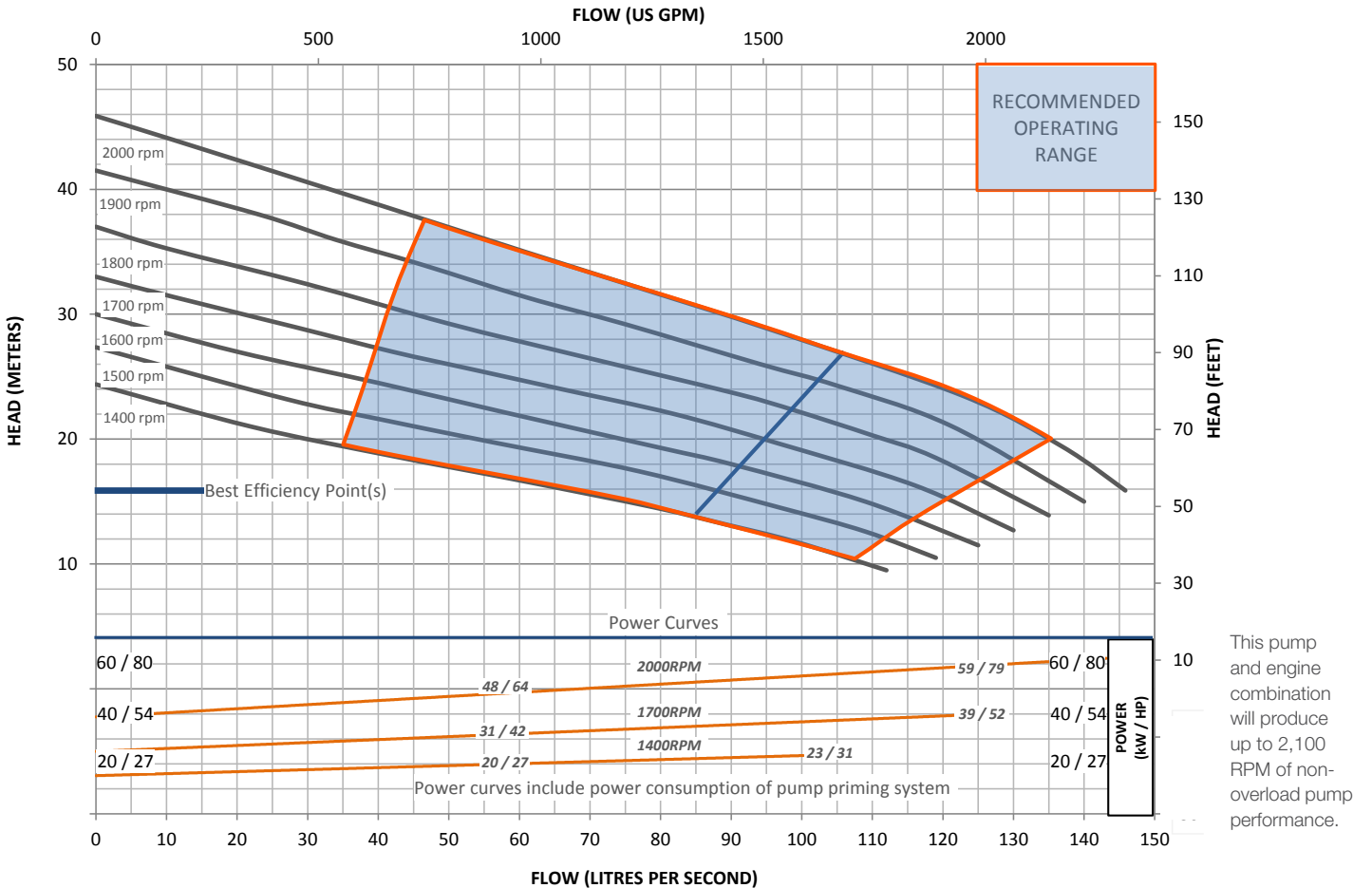
**ACOUSTIC RANGE (AR) INCLUSIONS**

- Acoustic canopy for quiet operation, lined with water-resistant and fire-retardant acoustic foam, and complete with an externally mounted emergency stop button.
- Manual diesel fuel fill (lockable).
- Pump and engine control panel with emergency stop as standard.
- Heavy duty battery.
- Remotely mounted Vacuum (suction inlet) and Pressure (discharge outlet) gauges.
- Pump operating range sign for optimum pump life and reliability.

**OPTIONAL EXTRAS**

Please contact us to discuss these options:

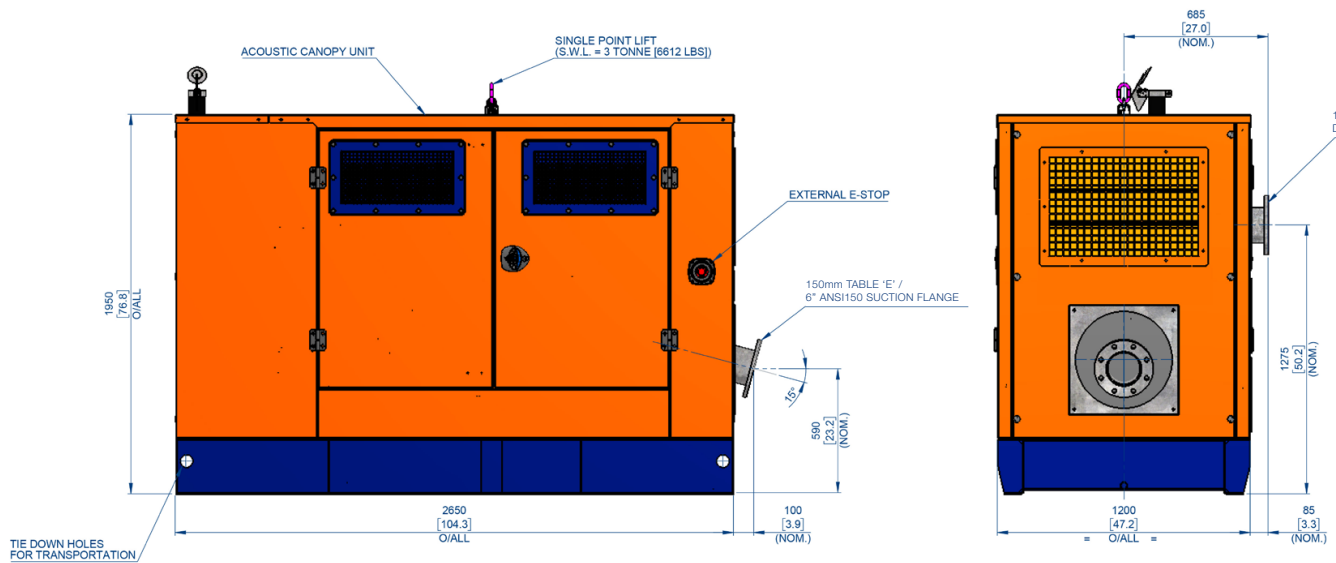
- Additional operational, mobility and safety extras such as: suction and discharge couplings, strainers, battery isolators, sleds and trailers. These can all be selected and fitted to our Acoustic Range (AR) pump units.
- Our AR build configuration uses Perkins diesel engines, however, alternative engine brands are available upon request.
- Other pump materials of construction are also available upon request: full 316 stainless steel, CD4MCU, chromium steel, SAF 2205 and SAF 2507.



\* Based on standard engine brake specific fuel consumption.

Final weight and dimensions will depend on completed specifications and options, subject to manufacturing tolerances. All the information in this document is substantially correct at the time of creation and may be altered at the manufacturer's sole discretion. Any quotes and related material provided supersedes the contents hereof.





**ELEVATION**

**END ELEVATION**

DRY: 1,745 kg (3,847 lb)

WET: 2,036 kg (4,488 lb)

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ISUZU **RED TECH**™

Reliable. Eco-friendly. Durable. Technologically Advanced

**4** SERIES

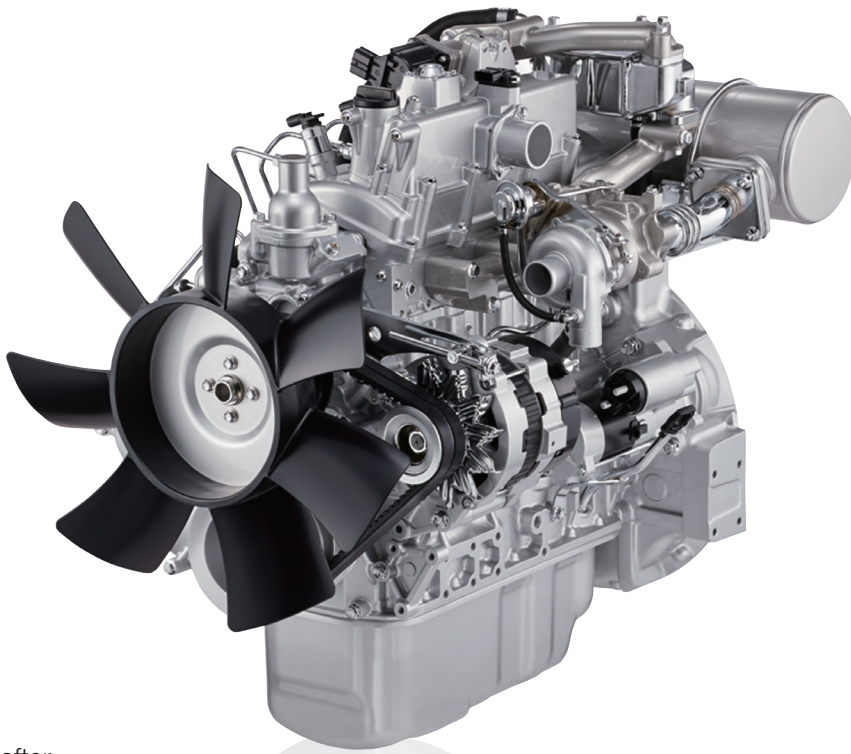
**Dependable Power**

**4LE2T** - 40 HP (30 KW) @ 1800 RPM (constant speed)  
48 HP (36 KW) @ 2400 RPM (variable speed)

**4LE2X** - 66 HP (49 KW) @ 1800 RPM (constant speed)  
62 HP (46 KW) @ 2400 RPM (variable speed)

# FOR MOVERS

(not shakers)



High technology exhaust after treatment provides the ideal level of applied simplicity and end user satisfaction **for those on the move.**

- Agricultural
- General Industrial
- Marine
- Eco-Friendly
- Automotive
- On Road Heavy Duty

**Applications**

- AWP
- Water Pump
- Hydraulic Pump
- Refrigeration
- Generator
- Asphalt Paver
- Irrigation

**Certifications**

U.S. EPA Tier **4**  
EU Stage **III B**

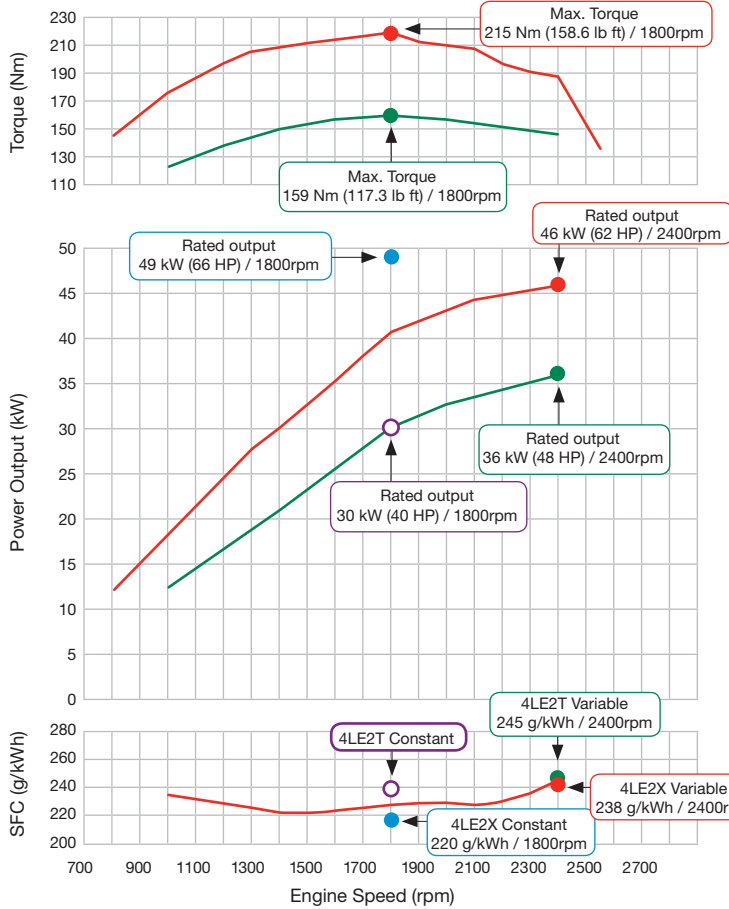
[isuzuengines.com](http://isuzuengines.com)



**ISUZU**  
**DIESEL**

## Performance

### Engine Performance Curves



### Standard

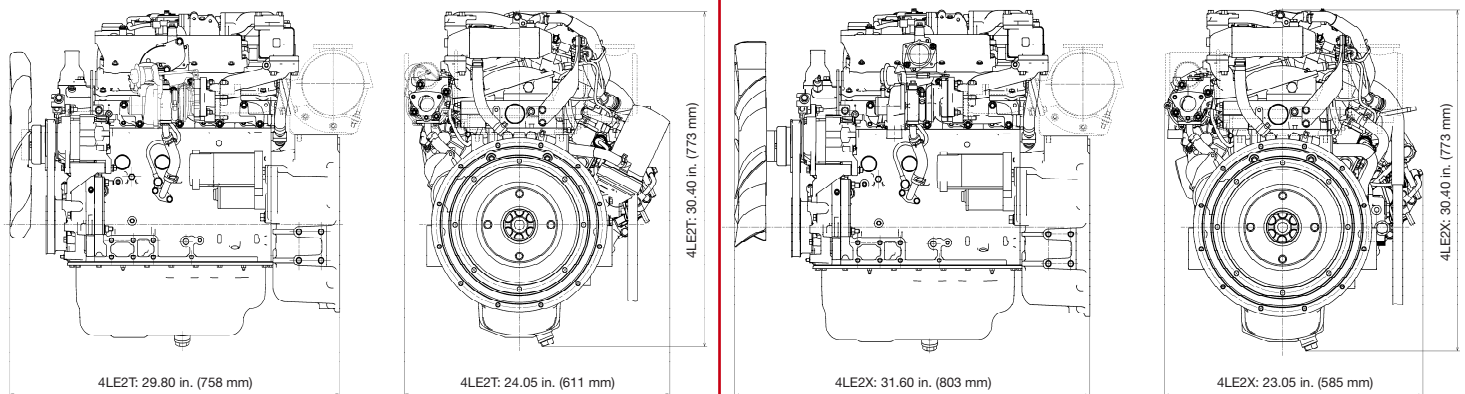
- Emission Control Device, maintenance free
- DOC
- Other emission-reducing features, including Cooled EGR, Wastegate Turbocharger
- High pressure Common Rail and Direct Injection
- Electric & self-priming fuel lift pump
- Glow plug starting aid
- 5-year / 5,000-hour warranty
- 500-hour oil drain & service interval

### Available Options

- Side or bottom drain oil pan
- SAE A Gear Case PTO
- Flywheel housings: SAE #4, #5, or flat plate
- Cooling packages
- Air cleaners
- Meter board and wire harness
- Engine mounting
- Weather and sound-proofing enclosure

### Engine Performance Curves

- 4LE2T – Constant Speed
- 4LE2T – Variable Speed
- 4LE2X – Constant Speed
- 4LE2X – Variable Speed



Note: SAE #4 flywheel housing shown (largest)

For additional information, please contact your local distributor or visit [isuzuengines.com](http://isuzuengines.com)

# CANplus™

## CP1000

### AUTOSTART AND MANUAL OPERATIONS FOR ELECTRONICALLY GOVERNED ENGINES

#### HIGHLIGHTS

- Robust CANplus 43c high-resolution 4.3" WQVGA color display that is sunlight viewable and includes an illuminated, tactile, five button keypad and eight function buttons (formerly LOFA CANplus RT)
- Powered by CANplus RT Software which is Tier 4F and Euro Stage V compliant and features:
  - Patent-pending QR-code diagnostics
  - Simplified one-touch access to emission status and control
  - Multilevel PIN-based menu access
  - Autostart
- The intuitive Event Manager can fully control engines based on configurable criteria. The criteria include:
  - Eight digital inputs
  - Six 4-20 mA analog transducer inputs
  - Battery-backed real time clock
  - Or combinations of the above

#### HARDWARE FEATURES

- MODbus:
  - Slave
  - Master (future software release)
- Host USB port for configuration/updates
- Inputs:
  - Five display buttons
  - Eight switch inputs
  - Six 4-20 mA transducer inputs
  - Two fault switch inputs (Oil & Temp)
  - Three resistive sender inputs
  - Two pulse meters; one can be used for tach alternator
- Outputs:
  - Built in alarm
  - Two 10 A power output (starter & ECU)
  - Two isolated power outputs; one 20 A and one 10 A
  - Four 1A Outputs (one for pre-heat)
  - Two 1 A transducer power outputs
  - Yellow/Red Fault/Warning
  - LED blue LED for emissions indication
  - Green autostart LED
  - External E-Stop (normally closed, grounded closed)

#### SOFTWARE FEATURES

- Configuration using menus or Windows-based configuration program
- CANplus™ interface for engine monitoring and control, supporting all SAE J1939 messages
- Configurable increments and manual ramp rate for throttle controls
- Intuitive user-friendly menus accessible via a high-resolution color display
- Configurable seven stage autothrottle profile:
  - Warm-up time at idle
  - Ramp-up time to intermediate RPM
  - Intermediate time and RPM
  - Ramp-up time to run RPM
  - Run RPM
  - Ramp-down time to idle
  - Cool-down time at idle
- Throttle control options:
  - Momentary rabbit/turtle rocker switch
  - Rotary throttle
  - Autoramp
- Autostart – configurable start and stop events:
  - Autostart switch inputs
  - 4-20 mA transducer (level, pressure, flow, etc.)
  - 24x7 schedule run
  - Countdown-to-off timer
- Autothrottle maintain point
  - Configurable 4-20 mA transducer target values to dynamically throttle the engine to maintain a level
- Custom menu key
- Two dashboard keys (autostart and throttling dashboards)
- Throttle control buttons (rabbit/turtle)
- Off, On, autostart buttons

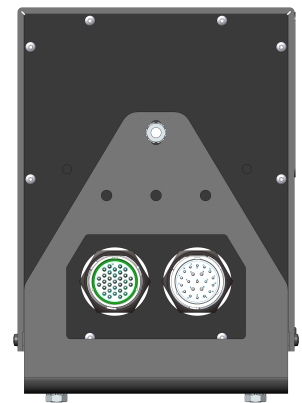






TECHNICAL DATA AND SPECIFICATIONS

Nominal System Voltage	12 – 24 VDC
Operating Current	125 mA @ 24V
Operating Temperature	-40°C to +70°C
Display	High-resolution sunlight viewable, 4.3-inch WQVGA (480 x 272 pixels) color display
Reverse Polarity Protection	Yes
Engine Harness Interface I/O	HDP26-24-21SE
Harness Interface	HDP26-24-31SE
Communications:	
CANbus	SAE J1939 (CANBUS 2.0B)
MODBus	Slave or Master (Future)
Bluetooth	(Future)
LTE Cellular	(Future)
Engine Interface	D-21p
I/O Interface	D-31p
Solid-State I/O:	
ECU	10A @ System Voltage
Starter	10A @ System Voltage
Isolated Power 1	20A @ 5.5V-36V
Isolated Power 2	10A @ 5.5V-36V
Pre-Heat	1A @ System Voltage
Standard Output	1A @ System Voltage
Transducer Power	1A @ System Voltage
E-stop	Normally open, grounded when closed
Digital Inputs	Active = switch to ground, Inactive = open
Transducer Inputs	4-20 mA @ system voltage
Pulse Inputs	2-wire (+,-)
Dimensions:	
Standard Aluflex	10.4" H X 8.4" W X 6.0" D
Standard NEMA	11.0" H X 11.0" W X 8.0" D
Warranty	2-year limited warranty



# Messenger BLE

## INTEGRATED TELEMETRY SYSTEM

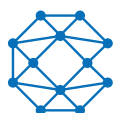
### TWO-WAY COMMUNICATION ON REMOTE EQUIPMENT

#### FEATURES

- The unit (formerly Antx Messenger BLE) works with electronic engine controllers, ECU's, devices on a CANbus, devices connected via Modbus RTU and direct connections to digital and analog signals
- Pre-configured to monitor and report standard CANbus engine messages
- Daily fuel rate, maximum and minimum values of all engine parameters are automatically reported
- Engine diagnostics are filtered to eliminate excessive reporting on intermittent faults
- Supports multiple CANbus speeds, multiple devices on a single CANbus and reading and writing (for OEMs)
- Supports up to four digital inputs for detecting on/off conditions or used as pulsing inputs (e.g. flow meters)
- Three analog inputs for current or voltage inputs, reported as raw data or converted to engineering units
- Two output relays controlled manually or automatically based on analog values exceeding thresholds or digital inputs changing state
- Independent Modbus master and slave communication over two serial ports
- Supported Modbus functions include 16-bit and 32-bit versions of: register, coil, float and packed-digital reads and writes
- Backend reporting via UDP or TCP using proprietary protocol

#### APPLICATIONS

- Diesel engines
- Generators
- PLCs
- Smart controllers





## TECHNICAL DATA AND SPECIFICATIONS

Non-CANbus Conditions	GPS coordinates for location General purpose or pulse closure-to-ground inputs Analog inputs for external sensors Geo-fencing	
Pre-Configured CANbus Parameters From One or More ECUs	Engine hours RPM Battery voltage Oil pressure, temp and level Fuel level Coolant level and temperature Odometer Throttle and accelerator position Air filter differential pressure	Ambient conditions Diagnostic messages reported via DM1 Fault conditions OEM-specific parameters Daily fuel usage and hours Trip fuel usage and hours Idle time-limit exceeded Max and Min on monitored conditions Hard acceleration and braking
Cellular	North America: LTE CATM1 or CAT1 Worldwide: LTE CAT1	
Serial Ports	2 RS485 PPP connection for connection to Internet for PCs or display devices Support Modbus Slave and Master protocol External modems via pass-thru Support OEM-specific communication	
General Purpose Inputs	Up to 4 digital (closure to ground or powered) inputs 3 Analog inputs - voltage, ma 2 Relay outputs (1A @ 12 VDC)	
Bluetooth	Bluetooth Low Energy Bluetooth 5.0 compatible	
Accelerometer	3-axis	
Electrical	Operating power: 6-36 VDC Sleep mode - less than 15 mA @ 12 VDC Monitoring mode - 40 mA @ 12 VDC LTE transmit mode - 400 mA peak @ 12 VDC	
Physical Characteristics	5.00" x 4.63" 2 8-pin M12 (1 male, 1 female) connectors for power and I/O Industrial temperature range -40°C to +85°C Watertight industrial enclosure	
Power Management	Extreme low power mode for battery-powered applications Internal power for last-gasp reporting and power up through short brown outs	
Geofencing	Automatically placed when stationary, radius-based or rectangular	
Warranty	One-year limited warranty	
Certifications	FCC, IC, PTCRB and ATT approvals for end-user applications RoHS compliant	

## SW250



# Built Tough

## SEWAGE & WASTE AR

### HEAVY DUTY

Automatic self-priming single stage end suction pump

### SOLIDS HANDLING

Large solids capacity while maintaining hydraulic efficiencies

### CORROSION RESISTANT

Stainless steel 316 (CF8M) internals as standard.



Construction & Civil



Sewage & Waste Water



Quarries



Rental



Oil & Gas





**DESIGN DETAILS**

Auto self priming, centrifugal single stage, end suction, 3 vane semi open impeller

Suction Flange	250mm / 10"
Delivery Flange	250mm / 10"
Solids Handling	100mm / 4"
Maximum Head	55m / 180ft
Maximum Flow	355L/sec / 5,627 USgal/min
Engine Type	SCANIA DC9
Engine Adaptor	SAE #3
Shaft Diameter	50mm / 1.97"
Fuel Rate @ BEP 2,000rpm	N/A
Fuel Rate @ BEP 1,600rpm	31.1L/hr / 0.14 USgal/min *
Fuel Tank Capacity	900L / 238 USgal

**MATERIALS OF CONSTRUCTION**

STANDARDS	MATERIAL	AUSTRALIA		AMERICAS	
		GRADE	AS	GRADE	ASTM
Tee Piece	SG Iron	400/12	1831	65-45-12	A536
Front Adaptor Plate	SG Iron	400/12	1831	65-45-12	A536
Pump Casing (Volute)	SG Iron	400/12	1831	65-45-12	A536
Front Wear Plate	Stainless	316/H6B	2074	CF8M	A351
Impeller	Stainless	316/H6B	2074	CF8M	A351
Rear Wear Plate	Stainless	316/H6B	2074	CF8M	A351
Rear Adaptor Plate	SG Iron	400/12	1831	65-45-12	A536
Pump Shaft	Stainless	431	2074	98b-431	A276
Bearing Bracket	SG Iron	400/12	1831	65-45-12	A536
Bearing Covers	SG Iron	400/12	1831	65-45-12	A536
Mechanical Seal	Multi spring balanced mechanical seal assembly with silicon carbide/silicon carbide mechanical seal faces in self-contained oil reservoir.				

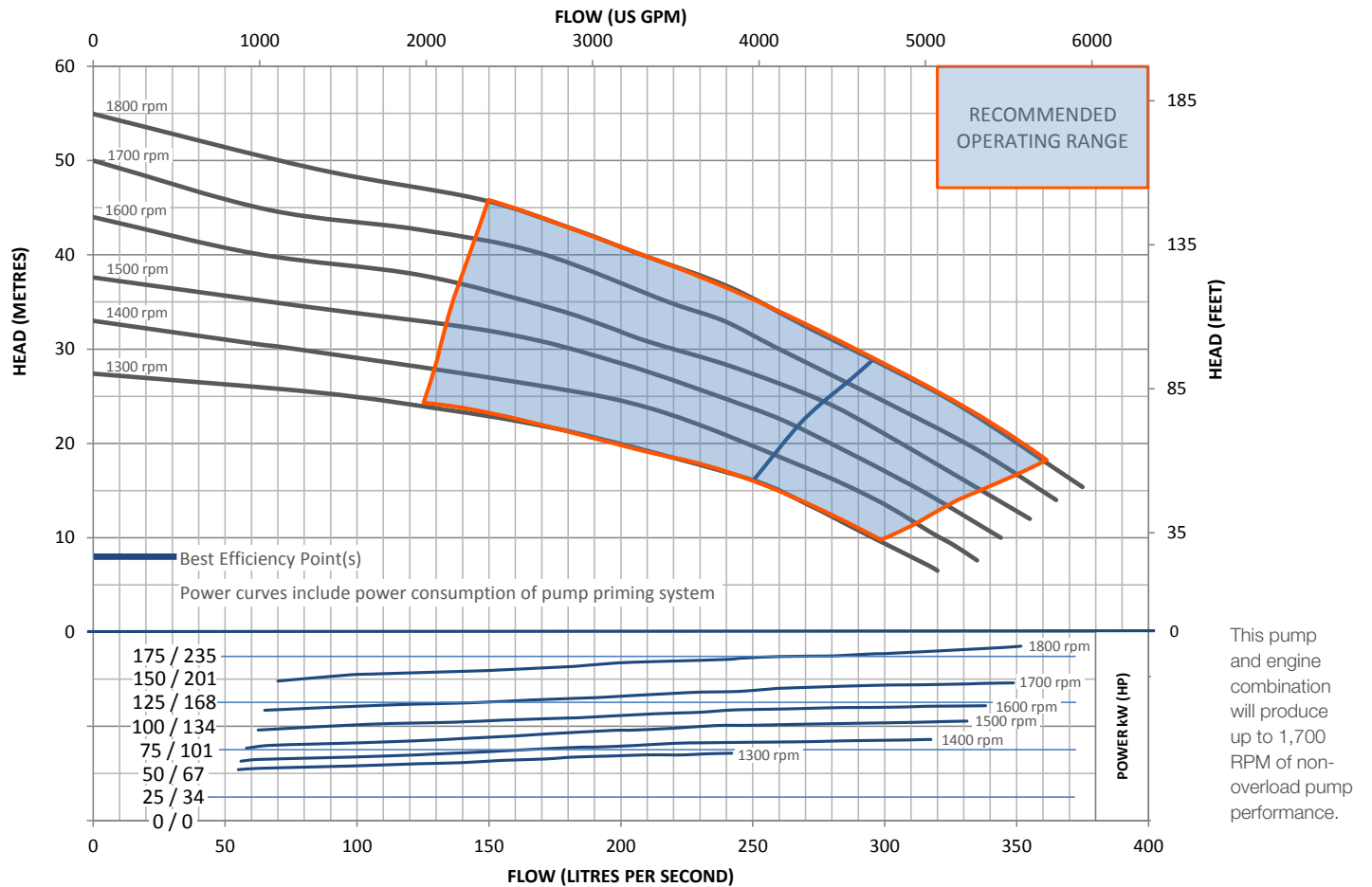
**ACOUSTIC RANGE (AR) INCLUSIONS**

- Acoustic canopy for quiet operation, lined with water-resistant and fire-retardant acoustic foam, and complete with an externally mounted emergency stop button.
- Manual diesel fuel fill (lockable).
- Pump and engine control panel with emergency stop as standard.
- Heavy duty battery.
- Remotely mounted Vacuum (suction inlet) and Pressure (discharge outlet) gauges.
- Pump operating range sign for optimum pump life and reliability.

**OPTIONAL EXTRAS**

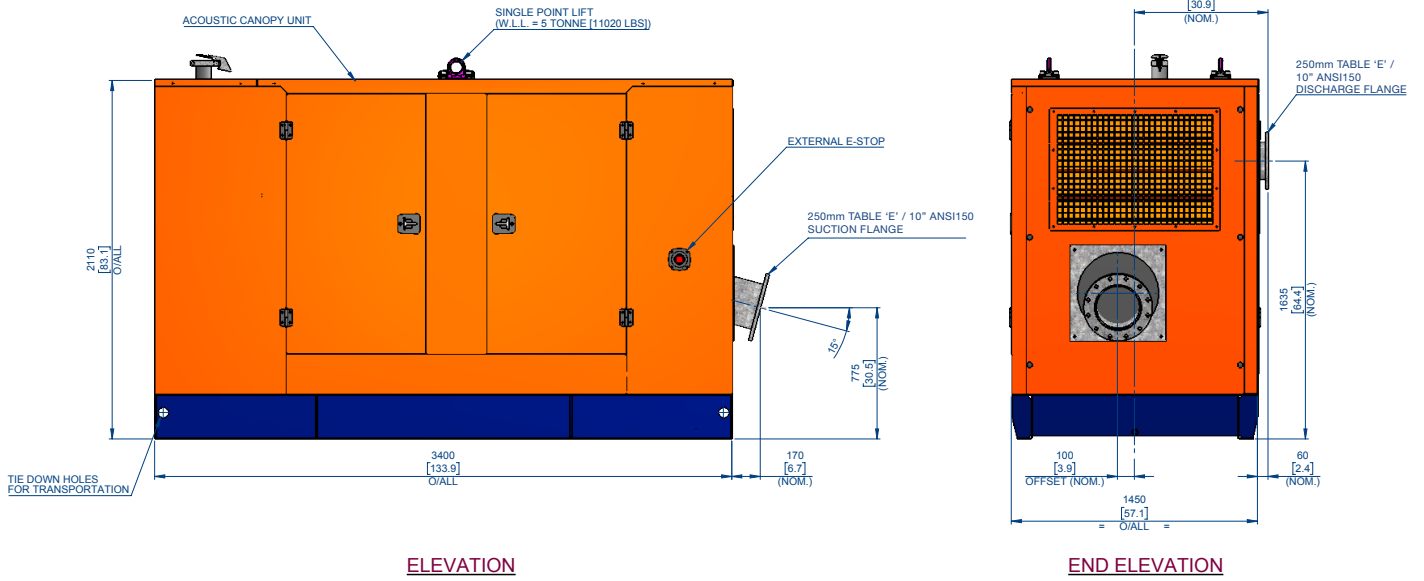
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- Additional operational, mobility and safety extras such as: suction and discharge couplings, strainers, battery isolators, sleds and trailers. These can all be selected and fitted to our Acoustic Range (AR) pump units.
- Our AR build configuration uses Perkins diesel engines, however, alternative engine brands are available upon request.
- Other pump materials of construction are also available upon request: full 316 stainless steel, CD4MCU, chromium steel, SAF 2205 and SAF 2507.



\* Based on standard engine brake specific fuel consumption.

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ELEVATION

END ELEVATION

DRY: 3,500 kg (7,715 lb)

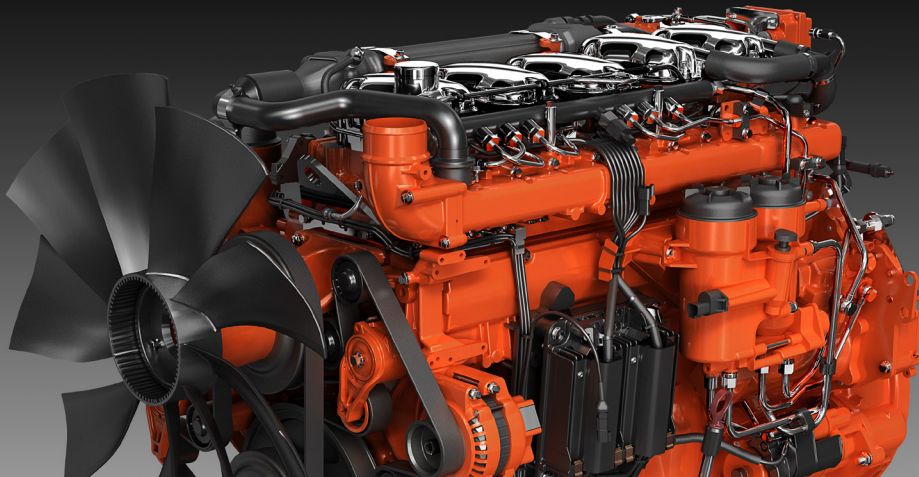
WET: 4,250 kg (9,367 lb)

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# DC09 084A. 202 kW (275 hp)

EU Stage IV, US Tier 4f



The industrial engines from Scania are based on a robust design with a strength optimised cylinder block containing wet cylinder liners that can easily be exchanged. Individual cylinder heads with 4 valves per cylinder promotes reparability and fuel economy.

The engine is equipped with a Scania developed Engine Management System, EMS, in order to ensure the control of all aspects related to engine performance. The injection system is Scania's XPI (Extra High Pressure Injection), a common rail system that in combination with SCR (Selective Catalytic Reduction) and EGR (Exhaust Gas Recirculation) gives low exhaust emissions with good fuel economy and a high torque. The engine can be fitted with many accessories such as air cleaners, silencers, PTOs and flywheels in order to suit a variety of installations.

	Rating	Engine speed (rpm)			
		1200	1500	1800	2100
Gross power (kW)	ICFN	195	202	202	202
Gross power (hp, metric)	ICFN	265	275	275	275
Gross torque (Nm)	ICFN	1552	1286	1072	919
Spec fuel consumption. Full load (g/kWh)		198	201	211	227
Spec fuel consumption. 3/4 load (g/kWh)		200	209	224	246
Spec fuel consumption. 1/2 load (g/kWh)		207	221	258	282
Reductant consumption. Full load (g/kWh)		7	6	9	12

**ICFN – Continuous service:** Rated output available 1/1 h. Unlimited h/year service time at a load factor of 100%.

**Note!**

The fuel consumption values are valid when the engine uses fully warm after treatment system and in warm conditions. Fuel efficiency will be reduced during warm up and with colder ambient temperature, especially in combination with un-efficient thermal insulation of after treatment system.

**Standard equipment**

- Scania Engine Management System, EMS
- Extra high pressure fuel injection system, XPI
- Turbocharger (VGT)
- Fuel filter and extra pre-filter with water separator
- Fuel heater
- Oil filter, full flow
- Centrifugal oil cleaner
- Oil cooler, integrated in block
- Oil filler, in valve cover
- Deep front oil sump
- Oil dipstick, in block
- Magnetic drain plug for oil draining
- Starter, 1-pole 6.0 kW
- Alternator, 1-pole 100A
- Flywheel, for use with friction clutch
- Silumin flywheel housing, SAE 1 flange
- Front-mounted engine brackets
- SCR system
- EGR system
- Open crankcase ventilation
- Operator's manual

**Optional equipment**

- Cooling package
- Puller and pusher fans
- Fan ring with sealing
- Hydraulic pump
- Air compressor
- AC compressor
- Side-mounted PTO
- Front-mounted PTO
- Exhaust connections
- Electrical base system
- Control and instrument panels
- Accelerator position sensor
- Engine heater
- Flywheels: SAE11.5, SAE14, DANA15/16, DANA17 flexplate, ZF WG260
- Stiff rubber engine suspension
- Air cleaner
- Closed crankcase ventilation
- Studs in flywheel housing
- External thermostat for extra oil cooler
- Low coolant level reaction
- Variable idle speed setting
- Low oil sump
- Oil level sensor

This specification may be revised without notice.



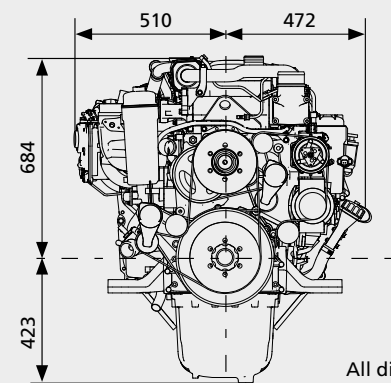
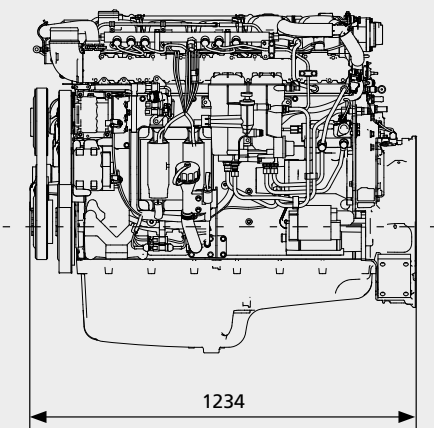


# DC09 084A. 202 kW (275 hp)

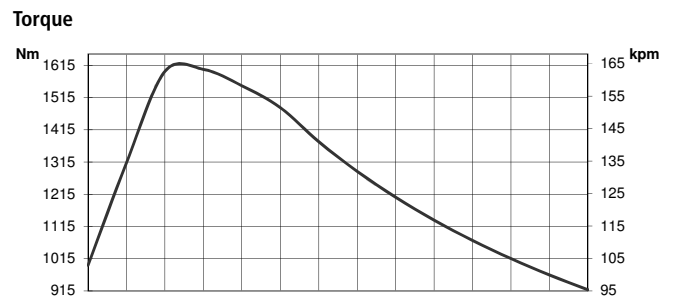
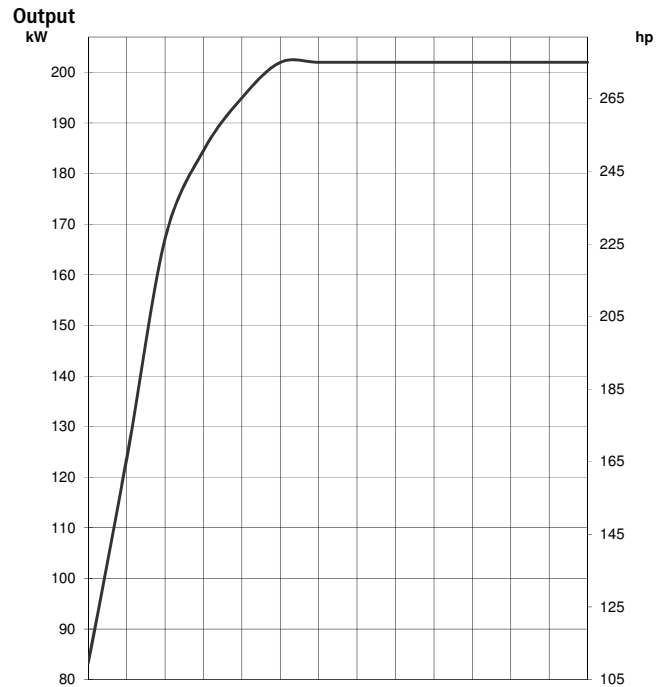
EU Stage IV, US Tier 4f

## Engine description

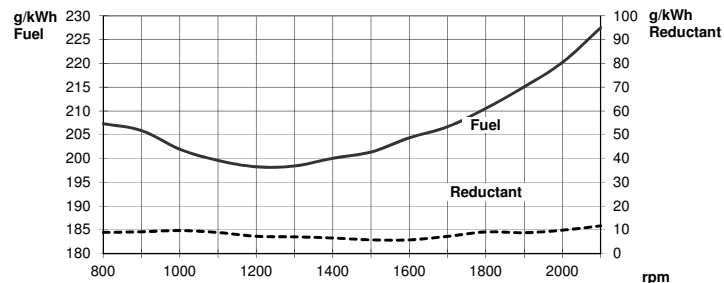
No of cylinders	5 in-line
Working principle	4-stroke
Firing order	1 - 2 - 4 - 5 - 3
Displacement	9.3 litres
Bore x stroke	130 x 140 mm
Compression ratio	16:1
Weight	975 kg (excl oil and coolant)
Piston speed at 1500 rpm	7.0 m/s
Piston speed at 1800 rpm	8.4 m/s
Camshaft	High position alloy steel
Pistons	Aluminium pistons
Connection rods	I-section press forgings of alloy steel
Crankshaft	Alloy steel with hardened and polished bearing surfaces
Oil capacity	32-38 dm <sup>3</sup>
Electrical system	1-pole 24V



All dimensions in mm



## Spec fuel and reductant consumption



**Test conditions** Air temperature +25°C. Barometric pressure 100 kPa (750 mmHg). Humidity 30%. Diesel fuel acc. to ECE R 24 Annex 6. Density of fuel 0.840 kg/dm<sup>3</sup>. Viscosity of fuel 3.0 cSt at 40°C. Energy value 42700 kJ/kg. **Power test code** ISO 3046. Power and fuel values +/-3%.

# CANplus™

## CP1000

### AUTOSTART AND MANUAL OPERATIONS FOR ELECTRONICALLY GOVERNED ENGINES

#### HIGHLIGHTS

- Robust CANplus 43c high-resolution 4.3" WQVGA color display that is sunlight viewable and includes an illuminated, tactile, five button keypad and eight function buttons (formerly LOFA CANplus RT)
- Powered by CANplus RT Software which is Tier 4F and Euro Stage V compliant and features:
  - Patent-pending QR-code diagnostics
  - Simplified one-touch access to emission status and control
  - Multilevel PIN-based menu access
  - Autostart
- The intuitive Event Manager can fully control engines based on configurable criteria. The criteria include:
  - Eight digital inputs
  - Six 4-20 mA analog transducer inputs
  - Battery-backed real time clock
  - Or combinations of the above

#### HARDWARE FEATURES

- MODbus:
  - Slave
  - Master (future software release)
- Host USB port for configuration/updates
- Inputs:
  - Five display buttons
  - Eight switch inputs
  - Six 4-20 mA transducer inputs
  - Two fault switch inputs (Oil & Temp)
  - Three resistive sender inputs
  - Two pulse meters; one can be used for tach alternator
- Outputs:
  - Built in alarm
  - Two 10 A power output (starter & ECU)
  - Two isolated power outputs; one 20 A and one 10 A
  - Four 1A Outputs (one for pre-heat)
  - Two 1 A transducer power outputs
  - Yellow/Red Fault/Warning
  - LED blue LED for emissions indication
  - Green autostart LED
  - External E-Stop (normally closed, grounded closed)

#### SOFTWARE FEATURES

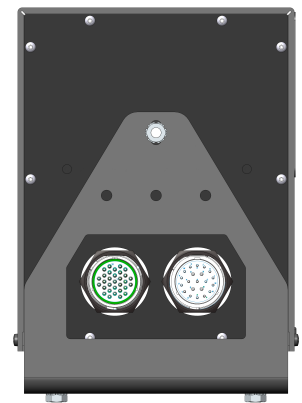
- Configuration using menus or Windows-based configuration program
- CANplus™ interface for engine monitoring and control, supporting all SAE J1939 messages
- Configurable increments and manual ramp rate for throttle controls
- Intuitive user-friendly menus accessible via a high-resolution color display
- Configurable seven stage autothrottle profile:
  - Warm-up time at idle
  - Ramp-up time to intermediate RPM
  - Intermediate time and RPM
  - Ramp-up time to run RPM
  - Run RPM
  - Ramp-down time to idle
  - Cool-down time at idle
- Throttle control options:
  - Momentary rabbit/turtle rocker switch
  - Rotary throttle
  - Autoramp
- Autostart – configurable start and stop events:
  - Autostart switch inputs
  - 4-20 mA transducer (level, pressure, flow, etc.)
  - 24x7 schedule run
  - Countdown-to-off timer
- Autothrottle maintain point
  - Configurable 4-20 mA transducer target values to dynamically throttle the engine to maintain a level
- Custom menu key
- Two dashboard keys (autostart and throttling dashboards)
- Throttle control buttons (rabbit/turtle)
- Off, On, autostart buttons





TECHNICAL DATA AND SPECIFICATIONS

Nominal System Voltage	12 – 24 VDC
Operating Current	125 mA @ 24V
Operating Temperature	-40°C to +70°C
Display	High-resolution sunlight viewable, 4.3-inch WQVGA (480 x 272 pixels) color display
Reverse Polarity Protection	Yes
Engine Harness Interface I/O	HDP26-24-21SE
Harness Interface	HDP26-24-31SE
Communications:	
CANbus	SAE J1939 (CANBUS 2.0B)
MODBus	Slave or Master (Future)
Bluetooth	(Future)
LTE Cellular	(Future)
Engine Interface	D-21p
I/O Interface	D-31p
Solid-State I/O:	
ECU	10A @ System Voltage
Starter	10A @ System Voltage
Isolated Power 1	20A @ 5.5V-36V
Isolated Power 2	10A @ 5.5V-36V
Pre-Heat	1A @ System Voltage
Standard Output	1A @ System Voltage
Transducer Power	1A @ System Voltage
E-stop	Normally open, grounded when closed
Digital Inputs	Active = switch to ground, Inactive = open
Transducer Inputs	4-20 mA @ system voltage
Pulse Inputs	2-wire (+,-)
Dimensions:	
Standard Aluflex	10.4" H X 8.4" W X 6.0" D
Standard NEMA	11.0" H X 11.0" W X 8.0" D
Warranty	2-year limited warranty



# Messenger BLE

## INTEGRATED TELEMETRY SYSTEM

### TWO-WAY COMMUNICATION ON REMOTE EQUIPMENT

#### FEATURES

- The unit (formerly Antx Messenger BLE) works with electronic engine controllers, ECU's, devices on a CANbus, devices connected via Modbus RTU and direct connections to digital and analog signals
- Pre-configured to monitor and report standard CANbus engine messages
- Daily fuel rate, maximum and minimum values of all engine parameters are automatically reported
- Engine diagnostics are filtered to eliminate excessive reporting on intermittent faults
- Supports multiple CANbus speeds, multiple devices on a single CANbus and reading and writing (for OEMs)
- Supports up to four digital inputs for detecting on/off conditions or used as pulsing inputs (e.g. flow meters)
- Three analog inputs for current or voltage inputs, reported as raw data or converted to engineering units
- Two output relays controlled manually or automatically based on analog values exceeding thresholds or digital inputs changing state
- Independent Modbus master and slave communication over two serial ports
- Supported Modbus functions include 16-bit and 32-bit versions of: register, coil, float and packed-digital reads and writes
- Backend reporting via UDP or TCP using proprietary protocol

#### APPLICATIONS

- Diesel engines
- Generators
- PLCs
- Smart controllers





## TECHNICAL DATA AND SPECIFICATIONS

Non-CANbus Conditions	GPS coordinates for location General purpose or pulse closure-to-ground inputs Analog inputs for external sensors Geo-fencing	
Pre-Configured CANbus Parameters From One or More ECUs	Engine hours RPM Battery voltage Oil pressure, temp and level Fuel level Coolant level and temperature Odometer Throttle and accelerator position Air filter differential pressure	Ambient conditions Diagnostic messages reported via DM1 Fault conditions OEM-specific parameters Daily fuel usage and hours Trip fuel usage and hours Idle time-limit exceeded Max and Min on monitored conditions Hard acceleration and braking
Cellular	North America: LTE CATM1 or CAT1 Worldwide: LTE CAT1	
Serial Ports	2 RS485 PPP connection for connection to Internet for PCs or display devices Support Modbus Slave and Master protocol External modems via pass-thru Support OEM-specific communication	
General Purpose Inputs	Up to 4 digital (closure to ground or powered) inputs 3 Analog inputs - voltage, ma 2 Relay outputs (1A @ 12 VDC)	
Bluetooth	Bluetooth Low Energy Bluetooth 5.0 compatible	
Accelerometer	3-axis	
Electrical	Operating power: 6-36 VDC Sleep mode - less than 15 mA @ 12 VDC Monitoring mode - 40 mA @ 12 VDC LTE transmit mode - 400 mA peak @ 12 VDC	
Physical Characteristics	5.00" x 4.63" 2 8-pin M12 (1 male, 1 female) connectors for power and I/O Industrial temperature range -40°C to +85°C Watertight industrial enclosure	
Power Management	Extreme low power mode for battery-powered applications Internal power for last-gasp reporting and power up through short brown outs	
Geofencing	Automatically placed when stationary, radius-based or rectangular	
Warranty	One-year limited warranty	
Certifications	FCC, IC, PTCRB and ATT approvals for end-user applications RoHS compliant	