DIESEL GENERATOR SET

Image shown may not reflect actual package

DE88E0

Output Ratings

Generator Set Model - 3 Phase	Prime*	Standby*
400/230 V, 50 Hz	80.0 kVA 64.0 kW	88.0 kVA 70.4 kW
480/277 V, 60 Hz	90.0 kVA 72.0 kW	100.0 kVA 80.0 kW

* Refer to ratings definitions on page 4.
Ratings at 0.8 power factor.

Technical Data

Engine Make & Model:	Cat® C4.4	
Generator Model:	R1973L4	
Control Panel:	EMCP 4.1	
Base Frame Type:	Heavy Duty Fabricated Steel	
Circuit Breaker Type:	3 Pole MCCB	
Frequency:	**50 Hz**	**60 Hz**
Engine Speed: RPM	1500	1800
Fuel Tank Capacity: litres (US gal)	219 (57.9)	
Fuel Consumption, Prime: l/hr (US gal/hr)	18.2 (4.8)	21.0 (5.5)
Fuel Consumption, Standby : l/hr (US gal/hr)	20.1 (5.3)	23.2 (6.1)

DIESEL GENERATOR SET

Engine Technical Data

Physical Data

Manufacturer:	Caterpillar
Model:	C4.4
No. of Cylinders/Alignment:	4 / In Line
Cycle:	4 Stroke
Induction:	Turbocharged
Cooling Method:	Water
Governing Type:	Mechanical
Governing Class:	ISO 8528 G2
Compression Ratio:	17.25:1
Displacement: l (cu.in)	4.4 (268.5)
Bore/Stroke: mm (in)	105.0 (4.1)/127.0 (5.0)
Moment of Inertia: kg m² (lb. in²)	1.14 (3896)
Engine Electrical System:	
-Voltage/Ground:	12/Negative
-Battery Charger Amps:	65
Weight: kg (lb) **- Dry:**	463 (1021)
- Wet:	485 (1069)

Air System

	50 Hz	60 Hz
Air Filter Type:	Replaceable Element	
Combustion Air Flow:		
m³/min (cfm) **-Standby:**	5.1 (180)	6.5 (230)
-Prime:	4.8 (170)	6.2 (219)
Max. Combustion Air Intake Restriction: kPa (in H_2O)	8.0 (32.1)	8.0 (32.1)
Radiator Cooling Air Flow: m³/min (cfm)	121.2 (4280)	140.4 (4958)
External Restriction to Cooling Air Flow: Pa (in H_2O)	120 (0.5)	120 (0.5)

Cooling System

	50 Hz	60 Hz
Cooling System Capacity: l (US gal)	13.0 (3.4)	13.0 (3.4)
Water Pump Type:	Centrifugal	
Heat Rejected to Water & Lube Oil: kW (Btu/min)		
-Standby:	51.0 (2900)	57.0 (3242)
-Prime:	46.0 (2616)	53.0 (3014)
Heat Radiation to Room: Heat radiated from engine and alternator		
kW (Btu/min) **-Standby:**	21.6 (1228)	24.0 (1365)
-Prime:	19.6 (1115)	21.7 (1234)
Radiator Fan Load: kW (hp)	1.0 (1.3)	1.7 (2.3)

Cooling system designed to operate in ambient conditions up to 50°C (122°F). Contact your local Cat dealer for power ratings at specific site conditions.

Lubrication System

Oil Filter Type:	Spin-On, Full Flow
Total Oil Capacity l (US gal):	8.0 (2.1)
Oil Pan l (US gal):	7.0 (1.8)
Oil Type:	API CG4 / CH4 15W-40
Cooling Method:	Water

Performance

	50 Hz	60 Hz
Engine Speed: RPM	1500	1800
Gross Engine Power: kW (hp)		
-Standby:	80.7 (108.0)	93.0 (125.0)
-Prime:	73.4 (98.0)	84.5 (113.0)
BMEP: kPa (psi)		
-Standby:	1468.0 (212.9)	1409.0 (204.4)
-Prime:	1335.0 (193.6)	1280.0 (185.7)
Regenerative Power: kW	7.0	9.0

Fuel System

Fuel Filter Type: Replaceable Element

Recommended Fuel: Class A2 Diesel or BSEN590

Fuel Consumption: l/hr (US gal/hr)

	110% Load	100% Load	75% Load	50% Load
Prime				
50 Hz	20.1 (5.3)	18.2 (4.8)	13.6 (3.6)	9.5 (2.5)
60 Hz	23.2 (6.1)	21.0 (5.5)	16.0 (4.2)	11.4 (3.0)
Standby				
50 Hz		20.1 (5.3)	14.9 (3.9)	10.3 (2.7)
60 Hz		23.2 (6.1)	17.4 (4.6)	12.3 (3.3)

(based on diesel fuel with a specific gravity of 0.85 and conforming to BS2869, Class A2)

Exhaust System

	50 Hz	60 Hz
Silencer Type:	Industrial	
Silencer Model & Quantity:	EXSY1 (1)	
Pressure Drop Across Silencer System: kPa (in Hg)	1.17 (0.345)	1.97 (0.581)
Silencer Noise Reduction Level: dB	16	16
Max. Allowable Back Pressure: kPa (in. Hg)	10.0 (3.0)	15.0 (4.4)
Exhaust Gas Flow:		
m³/min (cfm) **-Standby:**	13.3 (470)	15.9 (560)
-Prime:	12.5 (441)	15.0 (530)
Exhaust Gas Temperature: °C (°F)		
-Standby:	580 (1076)	560 (1040)
-Prime:	555 (1031)	535 (995)

DIESEL GENERATOR SET

Generator Performance Data

Data Item	50 Hz				60 Hz				
	415/240V	400/230V 230/115V 200/115V	380/220V 220/110V	220/127V	480/277V 240/139V	380/220V 220/110V	240/120V 208/120V		440/254V 220/127V
Motor Starting Capability* kVA	125	116	105	140	139	87	105		117
Short Circuit Capacity % **	300	300	300	300	300	300	300		300
Reactances: Per Unit									
Xd	2.880	3.100	3.430	2.560	2.910	3.100	3.780		3.380
X'd	0.240	0.260	0.290	0.214	0.240	0.350	0.320		0.280
X''d	0.092	0.099	0.110	0.082	0.093	0.135	0.121		0.108

Reactances shown are applicable to prime ratings.
*Based on 30% voltage dip at 0 power factor and SHUNT excitation system.
**With optional Auxiliary Winding.

Generator Technical Data

Physical Data	
R Frame	
Model:	R1973L4
No. of Bearings:	1
Insulation Class:	H
Winding Pitch - Code:	2/3 - M0
Wires:	12
Ingress Protection Rating:	IP23
Excitation System:	SHUNT
AVR Model:	Mark V

Operating Data	
Overspeed: RPM	2250
Voltage Regulation: (steady state)	+/- 0.5%
Wave Form NEMA = TIF:	50
Wave Form IEC = THF:	2.0%
Total Harmonic Content LL/LN:	2.0%
Radio Interference:	Suppression is in line with European Standard EN61000-6
Radiant Heat: kW (Btu/min)	
-50 Hz:	7.6 (432)
-60 Hz:	9.0 (512)

DIESEL GENERATOR SET

Technical Data

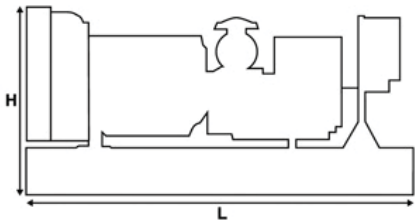
Voltage 50 Hz	Prime		Standby	
	kVA	kW	kVA	kW
415/240V	80.0	64.0	88.0	70.4
400/230V	80.0	64.0	88.0	70.4
380/220V	80.0	64.0	88.0	70.4
230/115V	80.0	64.0	88.0	70.4
220/127V	80.0	64.0	86.0	68.8
220/110V	80.0	64.0	88.0	70.4
200/115V	80.0	64.0	88.0	70.4

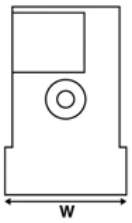
Voltage 60 Hz	Prime		Standby	
	kVA	kW	kVA	kW
480/277V	90.0	72.0	100.0	80.0
220/127V	88.0	70.4	96.8	77.4
380/220V	82.0	65.6	90.0	72.0
240/120V	88.0	70.4	96.8	77.4
440/254V	-	-	-	-
220/110V	82.0	65.6	90.0	72.0
208/120V	88.0	70.4	96.8	77.4
240/139V	88.0	70.4	96.8	77.4

Weights & Dimensions

Weights: kg (lb)	
Net (+ lube oil)	1083 (2388)
Wet (+ lube oil & coolant)	1096 (2416)
Fuel, lube oil & coolant	1281 (2825)

Dimensions: mm (in)	
Length	1925 (75.8)
Width	1120 (44.1)
Height	1361 (53.6)





Note: General configuration not to be used for installation. See general dimension drawings for detail.

Definitions

Standby Rating

Output available with varying load for the duration of the interruption of the normal source power. Average power output is 70% of the standby power rating. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

Prime Rating

Output available with varying load for an unlimited time. Average power output is 70% of the prime power rating. Typical peak demand is 100% of prime rated ekW with 10% overload capability for emergency use for a maximum of 1 hour in 12.
Overload operation cannot exceed 25 hours per year.

Standard Reference Conditions

Note: Standard reference conditions 25°C (77°F) air inlet temp, 100m (328ft) A.S.L. 30% relative humidity. Fuel consumption data at full load with diesel fuel with specific gravity of 0.85 and conforming to BS2869: 1998, Class A2.

General Data

Documents

A full set of operation and maintenance manuals and circuit wiring diagrams.

Quality Standards

The equipment meets the following standards: **IEC60034-1, IEC60034-22, ISO3046, ISO8528, NEMA MG 1-32, NEMA MG 1-33, 2004/108/EC, 2006/42/EC, 2006/95/EC.**

www.Cat-ElectricPower.com

Price List: C4.4PGBI, C4.4PGBT

Gen. Arr. Number: 507-7324

Source: China, Europe

LEHE1112-00 (0616)

Image shown may not reflect actual configuration

Sound Attenuated Level 2 Enclosures

24-220 kVA Range

The sound attenuated Level 2, factory installed enclosures incorporate internally mounted critical level silencers. They are the premium enclosure offering for this range, designed for safety and aesthetic value on an integral fuel tank base. Extremely durable and weather resistant, these enclosures are designed to resist corrosion and handling damage.

The enclosures are the result of continuing research and development by our specialist acoustic engineers. These enclosures reduce sound levels to comply with the Stage 2 levels of the European Community Directive 2000/14/EC which became effective January 3, 2006.

Features

Durable and Robust Construction

- Manufactured from galvanized steel
- Advanced powder-coated paint finish
- Single-piece main roof
- Base frame extends beyond enclosure, protecting against handling damage
- Minimal external fixings exposed to environment
- Zinc-plated fasteners
- Corner posts and air handling units manufactured from high-grade engineering thermoplastic

Security and Safety

- Secure, lockable doors prevent unauthorized access to control panel, fuel fill, and battery
- Emergency stop button mounted on exterior, convenient to control panel
- Cooling fan and battery charging alternator fully guarded

Excellent Service and Maintenance Access

- Side-hinged doors on both sides of the enclosure incorporate lift-off hinges at 45°
- Radiator fill via removeable, flush-mounted rain cap fitted with compression seal
- Lube oil cooling water drains piped to base frame side rail, on exterior
- Removable end panels allow access to radiator, exhaust outlet, and alternator rear
- Doors positioned for optimum access of frequently serviced items

Transportability

- Optional tested and certified lifting arch
- Lifting and drag points on base frame facilitate handling from both sides

Sound Pressure Levels (dBA)

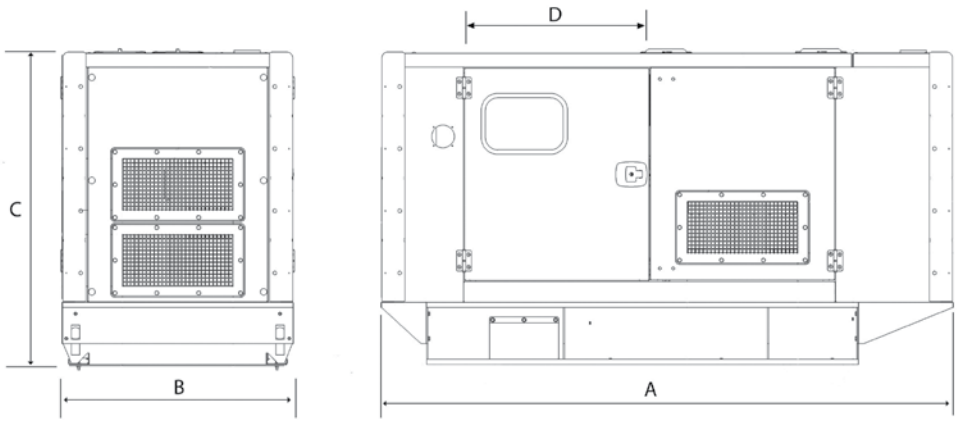
Generator Set Model Three-phase		LWA	50 Hz						60 Hz					
			15 m (50 ft)		7 m (23 ft)		1 m (3.3 ft)		15 m (50 ft)		7 m (23 ft)		1 m (3.3 ft)	
			75% Load	100% Load	75% Load	100% Load	75% Load	100% Load	75% Load	100% Load	75% Load	100% Load	75% Load	100% Load
DE33E0	Prime	93	60.5	61.8	66.5	67.8	76.3	78.4	60.6	62.7	66.6	68.7	77.6	79.9
	Standby	93	60.9	62.4	66.9	68.4	76.9	79.4	61.2	63.8	67.2	69.8	78.2	81.1
DE33E3	Prime	94	59.4	61.3	65.4	67.3	76.5	78.6	–	–	–	–	–	–
	Standby	94	60.0	62.1	66.0	68.1	77.1	79.6	–	–	–	–	–	–
DE50E0	Prime	93	56.7	57.7	62.7	63.7	76.7	77.9	59.7	60.8	65.7	66.8	79.5	80.8
	Standby	93	56.9	58.2	62.9	64.2	77.0	78.5	60.1	61.5	66.1	67.5	80.0	81.6
DE50E2	Prime	90	55.7	56.4	61.7	62.4	75.3	75.5	–	–	–	–	–	–
	Standby	90	55.9	56.7	61.9	62.7	75.4	75.6	–	–	–	–	–	–
DE55E0	Prime	93	56.9	58.2	62.9	64.2	77.0	78.5	60.1	61.5	66.1	67.5	80.0	81.6
	Standby	93	57.3	58.9	63.3	64.9	77.4	79.2	60.5	62.2	66.5	68.2	80.5	82.4
DE55E2	Prime	–	56.2	56.5	62.2	62.5	75.3	75.5	–	–	–	–	–	–
	Standby	–	56.3	56.7	62.3	62.7	75.3	75.6	–	–	–	–	–	–
DE65E0	Prime	93	57.6	59.4	63.6	65.4	77.8	79.7	61.0	63.0	67.0	69.0	81.0	83.3
	Standby	93	58.1	60.5	64.1	66.5	78.3	80.8	61.5	63.8	67.5	69.8	81.6	84.2
DE65E3	Prime	91	57.7	58.5	63.7	64.5	75.8	77.1	–	–	–	–	–	–
	Standby	91	57.9	58.9	63.9	64.9	76.2	77.8	–	–	–	–	–	–
DE88E0	Prime	92	57.7	59.1	63.7	65.1	76.0	77.0	60.6	61.2	66.6	67.2	79.0	79.5
	Standby	92	58.1	59.8	64.1	65.8	76.2	77.4	60.8	61.5	66.8	67.5	79.2	79.6
DE88E3	Prime	97	61.3	61.4	67.3	67.4	80.1	80.2	–	–	–	–	–	–
	Standby	97	61.3	61.5	67.3	67.5	80.2	80.3	–	–	–	–	–	–
DE110E2	Prime	96	62.4	63.1	68.4	69.1	80.4	81.0	65.2	65.4	71.2	71.4	84.4	84.6
	Standby	96	62.6	63.5	68.6	69.5	80.6	81.3	65.2	65.5	71.2	71.5	84.5	84.7
DE110E3	Prime	97	61.4	61.6	67.4	67.6	80.2	80.3	–	–	–	–	–	–
	Standby	97	61.5	61.7	67.5	67.7	80.2	80.4	–	–	–	–	–	–
DE150E0	Prime	97	60.0	60.5	66.0	66.5	78.8	79.1	60.7	61.1	66.7	67.1	81.0	81.1
	Standby	97	60.1	60.7	66.1	66.7	78.8	79.2	60.8	61.3	66.8	67.3	81.0	81.2
DE165E0	Prime	97	58.5	58.9	64.5	64.9	78.0	78.2	61.3	61.9	67.3	67.9	82.1	82.4
	Standby	97	58.6	59.1	64.6	65.1	78.1	78.3	61.5	62.1	67.5	68.1	82.2	82.7
DE200E0	Prime	97	62.0	62.4	68.0	68.4	80.2	80.4	64.9	65.2	70.9	71.2	84.2	84.3
	Standby	97	62.1	62.7	68.1	68.7	80.2	80.5	65.0	65.3	71.0	71.3	84.3	84.4
DE220E0	Prime	97	62.3	63.5	68.3	69.5	80.0	80.7	–	–	–	–	–	–
	Standby	97	62.7	64.0	68.7	70.0	80.2	81.1	–	–	–	–	–	–

Levels in accordance with European Noise Directive (2000/14/EC).

Sound Pressure Levels (dBA)

Generator Set Model Single-phase		LWA	50 Hz						60 Hz					
			15 m (50 ft)		7 m (23 ft)		1 m (3.3 ft)		15 m (50 ft)		7 m (23 ft)		1 m (3.3 ft)	
			75% Load	100% Load	75% Load	100% Load	75% Load	100% Load	75% Load	100% Load	75% Load	100% Load	75% Load	100% Load
DE26E0S	Prime	93	60.5	61.8	66.5	67.8	76.3	78.4	–	–	–	–	–	–
	Standby	93	60.9	62.4	66.9	68.4	76.9	79.4	–	–	–	–	–	–
DE26E3S	Prime	94	60.5	61.8	66.5	67.8	76.3	78.4	–	–	–	–	–	–
	Standby	94	60.9	62.4	66.9	68.4	76.9	79.4	–	–	–	–	–	–
DE40E0S	Prime	93	56.7	57.7	62.7	63.7	76.7	77.9	59.7	60.8	65.7	66.8	79.5	80.8
	Standby	93	56.9	58.2	62.9	64.2	77.0	78.5	60.1	61.5	66.1	67.5	80.0	81.6
DE40E2S	Prime	90	55.7	56.4	61.7	62.4	75.3	75.5	–	–	–	–	–	–
	Standby	90	55.9	56.7	61.9	62.7	75.4	75.6	–	–	–	–	–	–
DE50E0S	Prime	93	58.1	59.1	64.1	65.1	76.6	77.3	61.1	62.1	67.1	68.1	78.9	80.0
	Standby	93	58.5	59.5	64.5	65.5	76.9	77.6	61.4	62.5	67.4	68.5	79.3	80.5
DE55E3S	Prime	91	57.7	58.5	63.7	64.5	75.8	77.1	–	–	–	–	–	–
	Standby	91	57.9	58.9	63.9	64.9	76.2	77.8	–	–	–	–	–	–
DE90E2S	Prime	96	62.2	62.8	68.2	68.8	80.2	80.8	65.1	65.3	71.1	71.3	84.4	84.6
	Standby	96	62.4	63.1	68.4	69.1	80.4	81.0	65.2	65.4	71.2	71.4	84.4	84.6
DE90E3S	Prime	97	61.3	61.5	67.3	67.5	80.2	80.3	–	–	–	–	–	–
	Standby	97	61.4	61.6	67.4	67.6	80.2	80.3	–	–	–	–	–	–

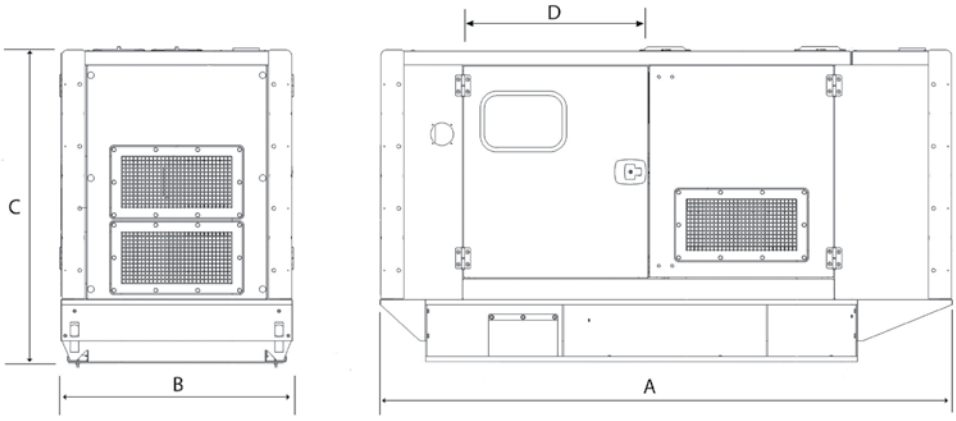
Levels in accordance with European Noise Directive (2000/14/EC).



Weights and Dimensions

Generator Set Model Three-phase	A: mm (in)	B: mm (in)	C: mm (in)	D*: mm (in)	Fuel Capacity: L (U.S. gal)	Weight: kg (lb)
DE33E0	2120 (83.5)	970 (38.2)	1525 (60.0)	718 (28.3)	161 (43.0)	991 (2185)
DE33E3	2120 (83.5)	970 (38.2)	1525 (60.0)	718 (28.3)	161 (43.0)	991 (2185)
DE50E2	2300 (90.6)	1120 (44.1)	1525 (60.0)	795 (31.3)	219 (58.0)	1183 (2608)
DE50E0	2300 (90.6)	1120 (44.1)	1525 (60.0)	795 (31.3)	219 (58.0)	1191 (2626)
DE55E0	2300 (90.6)	1120 (44.1)	1525 (60.0)	795 (31.3)	219 (58.0)	1196 (2637)
DE55E2	2300 (90.6)	1120 (44.1)	1525 (60.0)	795 (31.3)	219 (58.0)	1236 (2725)
DE65E0	2300 (90.6)	1120 (44.1)	1525 (60.0)	795 (31.3)	219 (58.0)	1207 (2661)
DE65E3	2300 (90.6)	1120 (44.1)	1525 (60.0)	795 (31.3)	219 (58.0)	1247 (2749)
DE88E0	2300 (90.6)	1120 (44.1)	1525 (60.0)	795 (31.3)	219 (58.0)	1391 (3067)
DE88E3	2770 (109.1)	1120 (44.1)	1525 (60.0)	899 (35.4)	250 (66.0)	1529 (3371)
DE110E2	2770 (109.1)	1120 (44.1)	1525 (60.0)	899 (35.4)	250 (66.0)	1547 (3411)
DE110E3	2770 (109.1)	1120 (44.1)	1525 (60.0)	899 (35.4)	250 (66.0)	1637 (3609)
DE150E0	3520 (138.6)	1120 (44.1)	1815 (71.5)	1145 (45.1)	349 (92.2)	1918 (4228)
DE165E0	3520 (138.6)	1120 (44.1)	1815 (71.5)	1145 (45.1)	349 (92.2)	2016 (4445)
DE200E0	3520 (138.6)	1320 (52.0)	1815 (71.5)	1080 (42.5)	418 (110.0)	2198 (4836)
DE220E0	3520 (138.6)	1320 (52.0)	1815 (71.5)	1080 (42.5)	418 (110.0)	2238 (4934)

*Clearance required on both sides of set.
Weight with lube oil and coolant, no fuel.



Weights and Dimensions

Generator Set Model Single-phase	A: mm (in)	B: mm (in)	C: mm (in)	D*: mm (in)	Fuel Capacity: L (U.S. gal)	Weight: kg (lb)
DE26E0S	2120 (83.5)	970 (38.2)	1525 (60.0)	718 (28.3)	161 (43.0)	991 (2185)
DE26E3S	2120 (83.5)	970 (38.2)	1525 (60.0)	718 (28.3)	161 (43.0)	991 (2185)
DE40E0S	2300 (90.6)	1120 (44.1)	1525 (60.0)	795 (31.3)	219 (58.0)	1247 (2749)
DE40E2S	2300 (90.6)	1120 (44.1)	1525 (60.0)	795 (31.3)	219 (58.0)	1199 (2643)
DE50E0S	2300 (90.6)	1120 (44.1)	1519 (59.8)	795 (31.3)	219 (58.0)	1315 (2899)
DE55E3S	2300 (90.6)	1120 (44.1)	1519 (59.8)	795 (31.3)	219 (58.0)	1355 (2987)
DE90E2S	2770 (109.1)	1120 (44.1)	1525 (60.0)	899 (35.4)	250 (66.0)	1613 (3556)
DE90E3S	2770 (109.1)	1120 (44.1)	1525 (60.0)	899 (35.4)	250 (66.0)	1653 (3644)

*Clearance required on both sides of set.
Weight with lube oil and coolant, no fuel.