

Features:

- Excitation system: self-excited (AREP and PMG are optional)
- ATS (automatic transfer switch) receptacle
- Lockable battery isolator switch
- Stainless galvanized zinc plates with strong corrosion resistance
- Vibration isolators between the engine/alternator and base frame
- Integrated wiring design
- Base fuel tank for at least 8 hours running
- Equipped with an industrial muffler
- Engine oil pump
- 50 C radiator
- Top lifting and steel base frame with forklift holes
- Drainage for fuel tank
- Complete protection functions and safety labels
- IP54 (soundproof sets), IP56 (control system)
- Water jacket preheater, oil heater and double air cleaner, etc. are available.



Output Ratings

Generating Set Model	Prime	Standby
X450C6/S	512kVA/ 410kW	564kVA/451kW

Ratings at 0.8 power factor.

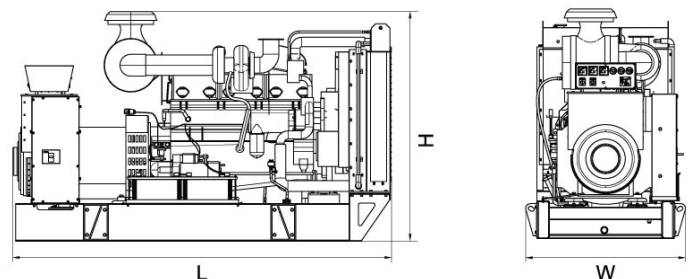
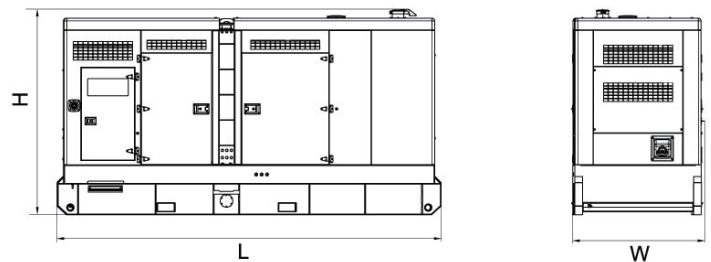
Ratings and Performance Data

Engine Make & Model:	KTA19-G3	
Alternator Model:	HCI444F	
Alternator Brand:	STAMFORD	
Control System:	PLC-920 / PLC-7420	
Noise Level@7m:	72.5	
Frequency & Phase:	60Hz & 3PH	
Engine Speed: RPM	1800	
Structure Type:	X450C6	A
	X450C6S	R
Fuel Tank Capacity: L	X450C6	940
	X450C6S	1020
Fuel Consumption: l/hr (100% Load)	Prime	97
	Standby	107

Dimensions and Weights

Generating Set Model	Length (L) mm (in)	Width (W) mm (in)	Height (H) mm (in)	Dry kg (lb)
X450C6	3350	1458	2194	4040
X450C6S	4512	1556	2555	5604

Dry = With Lube Oil Wet = With Lube Oil and Coolant



Also available in the following voltages: 415/240V-380/220V-220/127V-200/115V;

ESP: Standby Power Standby duty, operation under variable load, without over load;

PRP: Prime Power-Continuous duty operation, under variable load 24/24h-10% over load permissible 1 hour/12 hours;

The data is only for your reference but not for use of sales.

M: Mechanical speed governor, E/ECU: Electronic speed governor;

NA: Naturally aspirated, TC: Turbocharged, TCA: Turbocharged and air-air aftercooled, TCW: Water-cooled Turbocharged;

The weights are approximate and without fuel.

Engine model: KTA19-G3

GENERAL ENGINE DATA

Type	4-Cycle; In-line; 6-Cylinder Diesel	
Aspiration	Turbocharged and Aftercooled	
Bore x Stroke	— in x in (mm x mm)	6.25 x 6.25 (159 x 159)
Displacement	— in ³ (liter)	1150 (18.9)
Compression Ratio		13.9 : 1

Dry Weight

Fan to Flywheel Engine	— lb (kg)	4000	(1814)
Heat Exchanger Cooled Engine	— lb (kg)	4421	(2005)

Wet Weight

Fan to Flywheel Engine	— lb (kg)	4159	(1886)
Heat Exchanger Cooled Engine	— lb (kg)	4723	(2142)

Moment of Inertia of Rotating Components

• with FW 4001 Flywheel	— lb _m • ft ² (kg • m ²)	170	(7.2)
• with FW 4006 Flywheel	— lb _m • ft ² (kg • m ²)	199	(8.4)
Center of Gravity from Rear Face of Flywheel Housing (FH 4018)	— in (mm)	28.4	(721)
Center of Gravity Above Crankshaft Centerline	— in (mm)	9.0	(229)
Maximum Static Loading at Rear Main Bearing	— lb (kg)	2000	(908)

ENGINE MOUNTING

Maximum Bending Moment at Rear Face of Block	— lb • ft (N • m)	1000	(1356)
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EXHAUST SYSTEM

Maximum Back Pressure	— in Hg (mm Hg)	3	(76)
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AIR INDUCTION SYSTEM

Maximum Intake Air Restriction

• with Dirty Filter Element	— in H ₂ O (mm H ₂ O)	25	(635)
• with Normal Duty Air Cleaner and Clean Filter Element	— in H ₂ O (mm H ₂ O)	10	(254)
• with Heavy Duty Air Cleaner and Clean Filter Element	— in H ₂ O (mm H ₂ O)	15	(381)

COOLING SYSTEM

Coolant Capacity — Engine Only	— US gal (liter)	8.0	(30)
— with HX 4073 Heat Exchanger	— US gal (liter)	17.5	(66)

Maximum Coolant Friction Head External to Engine — 1800 rpm	— psi (kPa)	10	(69)
— 1500 rpm	— psi (kPa)	8	(55)

Maximum Static Head of Coolant Above Engine Crank Centerline	— ft (m)	60	(18.3)
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Standard Thermostat (Modulating) Range	— °F (°C)	180 - 200	(82 - 93)
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Minimum Pressure Cap	— psi (kPa)	10	(69)
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Maximum Top Tank Temperature for Standby / Prime Power	— °F (°C)	220 / 212	(104 / 100)
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Minimum Raw Water Flow @ 90°F to HX 4073 Heat Exchanger	— US gpm (liter / min)	54	(204)
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Maximum Raw Water Inlet Pressure at HX 4073 Heat Exchanger	— psi (kPa)	50	(345)
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LUBRICATION SYSTEM

Oil Pressure @ Idle Speed	— psi (kPa)	20	(138)
@ Governed Speed	— psi (kPa)	50 - 70	(345 - 483)

Maximum Oil Temperature	— °F (°C)	250	(121)
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Oil Capacity with OP 4019 Oil Pan : High - Low	— US gal (liter)	10.0 - 8.5	(38 - 32)
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Total System Capacity (Including Bypass Filter)	— US gal (liter)	13.2	(50)
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Angularity of OP 4019 Oil Pan — Front Down		30°
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— Front Up		30°
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— Side to Side		30°
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X450C6 / X450C6S

Engine model: KTA19-G3

FUEL SYSTEM

Type Injection System.....	Direct Injection Cummins PT
Maximum Restriction at PT Fuel Injection Pump— with Clean Fuel Filter..... — in Hg (mm Hg)	4.0 (102)
— with Dirty Fuel Filter — in Hg (mm Hg)	8.0 (203)
Maximum Allowable Head on Injector Return Line (Consisting of Friction Head and Static Head)..... — in Hg (mm Hg)	6.5 (165)
Maximum Fuel Flow to Injection Pump..... — US gph (liter / hr)	60 (227)

ELECTRICAL SYSTEM

Cranking Motor (Heavy Duty, Positive Engagement)..... — volt	24
Battery Charging System, Negative Ground — ampere	35
Maximum Allowable Resistance of Cranking Circuit..... — ohm	0.002
Minimum Recommended Battery Capacity	
• Cold Soak @ 50 °F (10 °C) and Above — 0°F CCA	600
• Cold Soak @ 32 °F to 50 °F (0 °C to 10 °C)..... — 0°F CCA	640
• Cold Soak @ 0 °F to 32 °F (-18 °C to 0 °C)..... — 0°F CCA	900

PERFORMANCE DATA

- All data is based on:
- Engine operating with fuel system, water pump, lubricating oil pump, air cleaner and exhaust silencer; not included are battery charging alternator, fan, and optional driven components.
 - Engine operating with fuel corresponding to grade No. 2-D per ASTM D975.
 - ISO 3046, Part 1, Standard Reference Conditions of:

Barometric Pressure	: 100 kPa (29.53 in Hg)	Air Temperature	: 25 °C (77 °F)
Altitude	: 110 m (361 ft)	Relative Humidity	: 30%

Steady State Stability Band at any Constant Load	— %	+/- 0.25
Estimated Free Field Sound Pressure Level of a Typical Generator Set;		
Excludes Exhaust Noise; at Rated Load and 7.5 m (24.6 ft); 1800 rpm / 1500 rpm.....	— dBA	N.A.
Exhaust Noise at 1 m Horizontally from Centerline of Exhaust Pipe Outlet Upwards at 45°	— dBA	N.A.

	STANDBY POWER		PRIME POWER	
	60 hz	50 hz	60 hz	50 hz
Governed Engine Speed..... — rpm	1800	1500	1800	1500
Engine Idle Speed..... — rpm	675 - 775	675 - 775	675 - 775	675 - 775
Gross Engine Power Output..... — BHP (kW _m)	685 (511)	600 (448)	620 (463)	540 (403)
Brake Mean Effective Pressure..... — psi (kPa)	262 (1806)	275 (1896)	237 (1634)	248 (1710)
Piston Speed..... — ft / min (m / s)	1875 (9.5)	1562 (7.9)	1875 (9.5)	1562 (7.9)
Friction Horsepower..... — HP (kW _m)	85 (63)	60 (45)	85 (63)	60 (45)
Engine Water Flow at Stated Friction Head External to Engine:				
• 3 psi Friction Head..... — US gpm (liter / s)	196 (12.4)	162 (10.2)	196 (12.4)	162 (10.2)
• Maximum Friction Head..... — US gpm (liter / s)	175 (11.0)	145 (9.1)	175 (11.0)	145 (9.1)
Engine Data with Dry Type Exhaust Manifold				
Intake Air Flow..... — cfm (liter / s)	1370 (647)	1130 (533)	1295 (611)	1030 (486)
Exhaust Gas Temperature..... — °F (°C)	915 (491)	990 (532)	880 (471)	975 (524)
Exhaust Gas Flow..... — cfm (liter / s)	3630 (1713)	3155 (1489)	3345 (1579)	2850 (1345)
Air to Fuel Ratio..... — air : fuel	26.4 : 1	24.9 : 1	27.5 : 1	25.2 : 1
Radiated Heat to Ambient..... — BTU / min (kW _m)	4185 (74)	3665 (64)	3805 (67)	3315 (58)
Heat Rejection to Coolant..... — BTU / min (kW _m)	17810 (313)	15600 (274)	16120 (283)	14040 (247)
Heat Rejection to Exhaust..... — BTU / min (kW _m)	18665 (328)	16335 (287)	17210 (302)	14945 (263)

Alternator model: HCI444F

CONTROL SYSTEM	SEPARATELY EXCITED BY P.M.G.							
A.V.R.	MX321	MX341						
VOLTAGE REGULATION	± 0.5 %	± 1.0 %	With 4% ENGINE GOVERNING					
SUSTAINED SHORT CIRCUIT	REFER TO SHORT CIRCUIT DECREMENT CURVES (page 7)							
CONTROL SYSTEM	SELF EXCITED							
A.V.R.	AS440							
VOLTAGE REGULATION	± 1.0 %	With 4% ENGINE GOVERNING						
SUSTAINED SHORT CIRCUIT	WILL NOT SUSTAIN A SHORT CIRCUIT							
INSULATION SYSTEM	CLASS H							
PROTECTION	IP23							
RATED POWER FACTOR	0.8							
STATOR WINDING	DOUBLE LAYER LAP							
WINDING PITCH	TWO THIRDS							
WINDING LEADS	12							
STATOR WDG. RESISTANCE	0.0073 Ohms PER PHASE AT 22°C SERIES STAR CONNECTED							
ROTOR WDG. RESISTANCE	1.37 Ohms at 22°C							
EXCITER STATOR RESISTANCE	18 Ohms at 22°C							
EXCITER ROTOR RESISTANCE	0.068 Ohms PER PHASE AT 22°C							
R.F.I. SUPPRESSION	BS EN 61000-6-2 & BS EN 61000-6-4,VDE 0875G, VDE 0875N. refer to factory for others							
WAVEFORM DISTORTION	NO LOAD < 1.5% NON-DISTORTING BALANCED LINEAR LOAD < 5.0%							
MAXIMUM OVERSPEED	2250 Rev/Min							
BEARING DRIVE END	BALL. 6317 (ISO)							
BEARING NON-DRIVE END	BALL. 6314 (ISO)							
	1 BEARING				2 BEARING			
WEIGHT COMP. GENERATOR	1160 kg				1160 kg			
WEIGHT WOUND STATOR	535 kg				535 kg			
WEIGHT WOUND ROTOR	463 kg				440 kg			
WR ² INERTIA	5.4292 kgm ²				5.2304 kgm ²			
SHIPPING WEIGHTS in a crate	1230 kg				1230 kg			
PACKING CRATE SIZE	155 x 87 x 107(cm)				155 x 87 x 107(cm)			
	50 Hz				60 Hz			
TELEPHONE INTERFERENCE	THF<2%				TIF<50			
COOLING AIR	0.8 m ³ /sec 1700 cfm				0.99 m ³ /sec 2100 cfm			
VOLTAGE SERIES STAR	380/220	400/231	415/240	440/254	416/240	440/254	460/266	480/277
VOLTAGE PARALLEL STAR	190/110	200/115	208/120	220/127	208/120	220/127	230/133	240/138
VOLTAGE SERIES DELTA	220/110	230/115	240/120	254/127	240/120	254/127	266/133	277/138
kVA BASE RATING FOR REACTANCE VALUES	400	400	400	400	455	480	500	500
X _d DIR. AXIS SYNCHRONOUS	2.72	2.45	2.28	2.03	3.28	3.09	2.95	2.71
X' _d DIR. AXIS TRANSIENT	0.18	0.16	0.15	0.13	0.18	0.17	0.16	0.15
X'' _d DIR. AXIS SUBTRANSIENT	0.13	0.12	0.11	0.10	0.13	0.12	0.12	0.11
X _q QUAD. AXIS REACTANCE	2.35	2.12	1.97	1.75	2.90	2.73	2.61	2.39
X'' _q QUAD. AXIS SUBTRANSIENT	0.31	0.28	0.26	0.23	0.43	0.41	0.39	0.35
X _L LEAKAGE REACTANCE	0.06	0.05	0.05	0.04	0.07	0.07	0.06	0.06
X ₂ NEGATIVE SEQUENCE	0.23	0.20	0.19	0.17	0.29	0.27	0.26	0.24
X ₀ ZERO SEQUENCE	0.08	0.08	0.07	0.06	0.10	0.09	0.09	0.08
REACTANCES ARE SATURATED				VALUES ARE PER UNIT AT RATING AND VOLTAGE INDICATED				
T _d TRANSIENT TIME CONST.	0.08s							
T'' _d SUB-TRANSTIME CONST.	0.019s							
T' _{do} O.C. FIELD TIME CONST.	1.7s							
T _a ARMATURE TIME CONST.	0.018s							
SHORT CIRCUIT RATIO	1/X _d							