

**MARK 5 SERIES ENCLOSED GENERATORS
FOR COMMERCIAL OPERATORS**

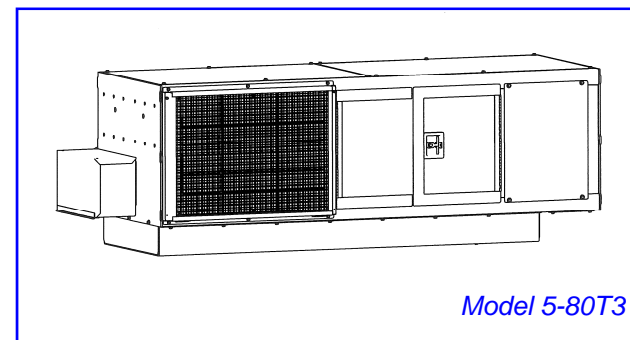
GENSET RATINGS - 60Hz			5-55T3	5-80T3	5-110T3	5-150DA	5-175DA	5-200CA
Sales Drawing No.			12997	13022	12989	12226	12210B	12844
Spec. No.			555T312	580T312	5110T312	5150DA09	5175DA09	5200CA10
1	Type: -T240/T480 Unit Output Rating (1) 12- Leads, 3-Phase 240/480V. WYE, 0.8PF	Intermittent	55 KW	80 KW	110 KW	150 KW	175 KW	190 KW
		Prime	52 KW	71 KW	100 KW	150 KW	168 KW	175 KW
		Continuous	50 KW	68 KW	95 KW	140 KW	160 KW	153 KW
	Unit Max. Rated Current: (1) @ 0.8 PF.	Amps @ 240V	165	240	330	450	N/A	N/A
		Amps @ 480V	82	120	165	225	263	285
	A.C. Alternator Max. Capacity (2) 240/480V, 3-ph., 0.8 PF. WYE Connection	KW @ 125°C Rise	60	83	117	165	204	204
		Motor Starting Capability @ 35% Dip	182 SKVA	270 SKVA	370 SKVA	460 SKVA	640 SKVA	640 SKVA
% Efficiency - 0.8PF		90	91	91	93	93	93	
2	Type: -T208 Unit Output Rating (1) 12- Leads, 3-Phase 208V. WYE, 0.8PF	Intermittent	54 KW	75 KW	105 KW	145 KW	175 KW	190 KW
		Prime	52 KW	75 KW	100 KW	140 KW	168 KW	175 KW
		Continuous	50 KW	70 KW	95 KW	130 KW	160 KW	153 KW
	Unit Max. Rated Current: @ 0.8 PF.	Amps @ 208V	187	260	364	503	POR	POR
	A.C. Alternator Max. Capacity (2) 208V, 3-ph., WYE Connection	KW @ 125°C Rise	54	75	105	145	190	190
		Motor Starting Capability @ 35% Dip	135 SKVA	195 SKVA	290 SKVA	390 SKVA	510 SKVA	510 SKVA
		% Efficiency - 0.8PF	89	90	90	92	93	93
3	Type: -TD240 Unit Output Rating (1) 12- Leads, 3-Phase 240V. Delta Connection	Performance Similar to Type: -T208						

Completely packaged diesel generator systems. Purpose built specifically for under-slung mounting on passenger railcars.

Your best investment in railcar generator systems. Field proven quality, performance and service life.

Note:

- "Unit Output Rating" refers to the rating of the engine/generator combination.
- "A.C. Alternator Max Capacity" refers to the manufacturers rating of the alternator.



Model 5-80T3

Note:

Genset ratings @ 60Hz.
Standard 3-Ph Conn. -T240/480
Optional 3-Ph Conn. -T208
Optional 3-Ph Conn. -TD240

Refer to price sheet #P23 for ordering information and a list of available accessories.

GENSET DATA		5-55T3	5-80T3	5-110T3	5-150DA	5-175DA	5-200CA
Engine Specifications							
Deutz diesel engine with basic components liquid cooled & turbocharged.	Model	TCD2011L04w	TCD2012L04-2V	TCD2013L04-2V	BF6M1013EC	BF6M1013FC	Cummins QSB7-G5
	No. of Cylinders	4	4	4	6	6	6
	Liters / C.I.D.	3.62 / 221	4.04 / 246	4.76 / 291	7.14 / 435	7.14 / 435	6.69/408
	Max. HP @ 1800 RPM	85	118	158.2	222	264	300
Speed/Frequency regulation % (typical)	5	0.5	0.5	5	0.5	0.5	
Battery Charging Alternator		14V/55A	14V/55A	14V/55A	14V/55A	14V/55A	12V/100A
Fuel Consumption @ Continuous rating	100% Load GPH	3.8	5.3	7.5	10.1	11.1	11.0
	50% Load GPH	1.9	2.7	3.9	5.3	5.8	6.0
Typical Cold Starting Capability w/ std. Battery & 15W-40 Lube Oil	without cold starting aid	(-10°C) (14°F)	(-10°C) (14°F)	(-10°C) (14°F)	(-10°C) (14°F)	(-10°C) (14°F)	(-12°C) (10°F)
	w/ starting aid	(-15°C) (5°F)	(-20°C) (-4°F)	(-20°C) (-4°F)	(-20°C) (-4°F)	(-20°C) (-4°F)	
EPA Emissions Certification :		EPA 3	EPA 3	EPA 3	EPA 2	EPA 2	EPA 3
Routine Exhaust System Maintenance Required		No	No	No	No	No	No
Unit Specifications							
Lube oil change interval		500 Hrs.	500 Hrs.	500 Hrs.	500 Hrs.	300 Hrs.	500 Hrs.
Lube oil capacity: quarts (liters)*		9.0(8.5)	16.4(15.5)	16.4(15.5)	22.7(21.5)	22.7(21.5)	20 (18.9)
Recommended Fuel		ASTM D975, Grade 2D					
Recommended 12V Battery Capacity (CCA)		1100	1100	2X1100	2X1100	2X1100	2X1100
Recommended 12V Battery type: BCI#		31	31	(2) 31	(2) 31	(2) 31	(2) 31
Average sound emission: @ full load with fan	dB(A) @ 1 Meter						
	dB(A) @ 7 Meters						
Approx. Unit Size w/o battery box (inches)	Frame Length	83	89.5	91	105	110	116
	Frame Width	32	34	34	38	38	38
	Height	31.0	30.6	32.2	32.2	32.2	32.2
Impact, Allowable Maximum		2.0G	2.0G	2.0G	2.0G	2.0G	2.0G
Approx. Unit Weight (Lbs.)		2500	2800	3000	3900	4200	4600

* Lube oil quantity is only approximate. Fill to upper dipstick marking. Do not overfill.

STANDARD EQUIPMENT		5-55T3	5-80T3	5-110T3	5-150DA	5-175DA	5-200CA
Engine Diesel							
Air cleaner dry type, dual element w/ restriction indicator		•	•	•	•	•	•
Air precleaner - Rotary type		•	•	•	•	•	•
CAC Turbocharge air cooler: Air to Air		•	•	•	•	•	•
Water separator filter w/ drain valve, loose		•	•	•	dual	dual	dual
Oil & Fuel Filters -Spin on		•	•	•	•	•	•
Cold starting aid system, 12V		•	•	•	•	•	•
Fuel Transfer Pump - mechanical		•	•	•	•	•	•
Cylinder liners - wet replaceable				•	•	•	•
Piston cooling - oil spray nozzles		•	•	•	•	•	•
Steel Crankshaft / Camshaft			•	•	•	•	•
Closed Crankcase Ventilation System (PCV)		•	•	•	•	•	•
Fuel injection pumps - individual plunger		•	Rail	Rail	•	•	Rail
Governor	Mechanical for gen duty 5%	•					
	Electronic 0.25%		•	•	•	•	•
12V. Starting system w/ battery charging alt.		•	•	•	•	•	•

RATING METHODS

- a. Climatic rating method: Standard SAE J1349 conditions of 80°F (27°C) ambient temp, 500 ft. altitude, 50% relative humidity. Duty at more severe conditions, ie; higher temp and/or higher altitude requires derating of unit output. Contact Stadco for specific derating values for the unit of your choice.

GENERAL INFORMATION

PERFORMANCE RATINGS:

- a. All Stadco generator sets are individually load tested and certified by Stadco to deliver advertised performance under climatic operating conditions of SAE J1349 standards.
- b. POWER RATING: Conforms to SAE J1349 climatic conditions of 80°F (27°C) ambient temp, 500 ft. altitude, 50% relative humidity.
- c. Resistance loads such as lights and heaters are considered Continuous loads for generator sizing purposes.

UNIT SIZING BULLETINS: Request: #11316 "Unit Sizing Data".
#11317 "Climatic Derating Factors".

WARRANTY:

Provisions of D34 Stadco Rail generator warranty policy statement apply; a copy is available upon request.

UNIT DIMENSIONS: Refer to Stadco Sales drawing.

SERVICE POINTS: Refer to Stadco Sales drawing.

STANDARDS: Gen sets quoted herein meet the following standards:

- a. Electrical instrumentation: UL listed.
- b. A.C. Alternator: NEMA MGI-22 and ISP 9002.
- c. Electrical system & wiring: NEMA code / Amtrack code.
- d. NFPA 130
- e. Stadco Quality Assurance inspection.

REGULATORY COMPLIANCE: Refer to individual unit specifications for EPA certification levels.

Stadco reserves the right to change product specifications at any time without incurring obligations.

STADCO PRODUCTS DIVISION
PO Box 586, Ephrata, PA 17522 USA
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FIRE SAFETY EQUIPMENT:

- * Primary fuel filter (with drain) located outside enclosure.
- * Fuel supply hoses are wire reinforced to provide fire resistance and prevent failures due to chafing or cutting.
- * Thermal heat detection fuse devices mounted internally around frame perimeter; connected with engine shut down system.
- * Wiring insulation is fire resistant Exane irradiated Polyolefin, 600 V, Amtrak Spec #323 approved, highly resistant to chafing & fire damage. Noncombustible fiberglass loom.
- * Internal exhaust components wrapped with heat insulation material to reduce surface temperature.

TESTING & QUALITY ASSURANCE:

Each genset is individually factory load tested in confirm function and performance. Vital functions and results are documented. All engine adjustments are checked after test run.

SIMPLIFIED INSTALLATION:

Completely packaged product, designed to simplify the on-site installation procedure. All operating connections brought to outside. Steel plated ends of the main frame serve as mounting points. Installation Instructions provided.

SERVICEABILITY:

Easy routine and periodic servicing access. All routine service points and engine control panel are accessible from the (2) main service doors. Air cleaner and electrical device boxes also accessible from curb side.

Easy-to-keep-clean design. Designed with a minimum of joints and connections to minimize potential for leaks. Lube oil drains directly down through an access hatch in the belly pan. Cooling air stream filter system is designed to minimize interior dirt build up and extend radiator cleaning intervals.

Optionally available Roll Out service track system provides unrestricted access for major service.

Comprehensive Operators Instruction Manual and trouble shooting charts included to facilitate easier self servicing. Call 1-800-377-2120 or 717-738-2500 for Stadco service advise.

SERVICE STATEMENT:

Stadco's parent company has been a full service industrial engine distributor since 1963. We provide full spectrum repair parts and service backup directly from our own facilities. Our experienced staff has the product knowledge to help diagnose problems and keep Stadco generators running. On site service is also available.

We stock a comprehensive amount of engine repair parts and critical generator unit components at our own facility to provide next day parts delivery to anywhere in the USA if necessary.

OPTIONAL EQUIPMENT:

- Control system - AC/DC. Refer to sales spec sheet S121 & Price list P23 for details.
- Other accessories Refer to Price list P23.

STANDARD EQUIPMENT	5-55T3	5-80T3	5-110T3	5-150DA	5-175DA	5-200CA
	Cooling System					
Liquid Cooling heavy duty aluminum heat exchanger. Bar & plate construction.	•	•	•	•	•	•
Cooling fan	Single electric motor	•	•			
	dual electric motor			•	•	•
Thermostatically controlled fan				•	•	•
Coolant reservoir w/ visual level monitoring	•	•	•	•	•	•
Coolant system recharge pump kit	•	•	•	•	•	•
Filter assembly for cooling air inlet (washable)	•	•	•	•	•	•
AC Generator						
Brushless Alternator, direct coupled, 1-Brg.	•	•	•	•	•	•
Generator leads - 12-lead reconnectable	•	•	•	•	•	•
Winding Insulation Class H, 50°C Rise	•	•	•	•	•	•
Electronic Voltage Regulation: 1.5%	•	•	•	•	•	•
Severe Environment Insulation/Coating	•	•	•	•	•	•
Generator Cooling air inlet filter						•
Frame & Enclosure						
Welded steel frame with formed steel mounting plates on both ends.	•	•	•	•	•	•
Total enclosure w/ removable access panels, service access doors & louvered air inlet panel.	•	•	•	•	•	•
Sound absorbing insulation multi-layer	•	•	•	•	•	•
Exhaust & fuel connections outside to rear	•	•	•	•	•	•
Oil drain access hatch	•	•	•	•	•	•
Vibration isolating mounts and crash stops	•	•	•	•	•	•
Muffler, critical level, shipped loose	•	•	•	•	•	•
Battery box & cables, remote mountable	•	•	•	•	•	•
Miscellaneous						
Placards, nameplates, instructions & cautions	•	•	•	•	•	•
Operators/Parts manual	•	•	•	•	•	•
Installation instructions & diagrams	•	•	•	•	•	•
Fire detection / Shutdown only system	•	•	•	•	•	•
Fire resistant fuel hoses, wiring & loom	•	•	•	•	•	•
Routine service points on curb side	•	•	•	•	•	•
Factory test run & QA inspection. Load ready	•	•	•	•	•	•
Finish paint:Industrial enamel, medium gray	•	•	•	•	•	•
Packaging for motor freight shipment	•	•	•	•	•	•
Standard Control Devices						
Lube oil level switch	•	•	•	•	•	•
Cooling air flow sensor/shutdown switch	•	•	•	•	•	•
Cooling air flow sensor/switch for gen air inlet						•

Engineered specifically for the passenger railcar industry. STADCO generator packages come completely ready to install. Wide range of control systems and optional accessories available.

Design objectives are: Affordability - Reliability - Efficiency - Convenient Operation - Serviceability - Simplified installation - Fire safety.

Reliability Features:

UNIT FRAME & ENCLOSURE:

Welded tubular steel unit frame supports generator set and protective enclosure. Steel plate mounting points provided at both ends of main frame to accept customer supplied brackets (or optional roll-out service track) for mounting unit to host railcar. Captive type vibration isolating mounts for generator set. Steel crash stops protect the isolating mounts in the event of coupling impact. All side/top panels and belly pan are removable for service access. Two service access doors provide convenient routine service access.

ENGINES:

Dual fuel filter system: Primary water/dirt separator fuel filter with water drain for remote mounting. Secondary fine fuel filter mounted to unit frame. Wire braid fuel supply hoses. Fuel transfer pump. Fuel supply connections on outside rear of enclosure. Energized to run fuel solenoid designed to shut down in event of system failure. Redundant switchable fuel prefilters on 5-150/175.

Since their first installation in Stadco Railgens in 1996, Deutz 2012/1013 diesels have become known for their reliability and fault free operation. Stadco considers these engines the best available combination of features essential to railgen operation; premium quality, consistent performance, compactness, reliability & survivability, fuel economy, service life, service cost and nationwide service access. Operation at 1800 Rpm assures low engine noise levels and extensive service life.

COLD STARTING SYSTEM:

Sealed pintle type 12 V. glow plugs mounted directly in combustion chambers. Operation is manually controlled from either control panel. 5-55 & 5-80 use a heater coil in the intake manifold, which is thermostatically controlled.

COMBUSTION AIR FILTERS:

Dual element dry type heavy duty air cleaner with self-cleaning precleaner, mounted inboard. Rotary type centrifugal precleaner extends main filter cartridge life. Service access from curb side.

COOLING AIR STREAM FILTER:

Cooling air intake stream is filtered by a high capacity master filter which filters out most air-borne dirt and debris. Dirty operating conditions require this filter system to keep the cooling system functioning normally. The long life cleanable foam filter element is quickly and easily accessible from curb side.

EXHAUST SYSTEM:

Internal exhaust components wrapped with heat insulation blankets. Exhaust piping exits enclosure at rear. Critical quality high mass muffler, furnished with stainless flex tailpipe for remote mounting.

COOLING SYSTEM:

Positive forced air flow through interior of unit provides ambient temperature air supply to engine and generator cooling systems. Cooling air inlet separated from the hot air outlet to reduce unit heat recirculation.

Purpose designed heavy duty welded aluminum heat-exchanger radiator with a high pressure rating, many times stronger than a conventional core. So strong a core sample easily survived a drive-over by our pick-up truck. Elastometric mounts provide double isolation from engine vibration. May be cleaned with a high pressure washer.

On board air-to-air charge air coolers provide high output and best fuel economy while meeting EPA exhaust emissions regulations.

Dual cooling fans on 5-150DA, 5-175DA and 5-200CA models are thermostatically controlled to keep the engine at optimum operating temperature during light duty loads or cold atmospheric conditions. Cooling air flow sensing switch provides engine shutdown in case of loss of flow.

AC GENERATOR:

Totally brushless type alternators, Class H insulation (130°C rise), typically sized to operate at or below 105°C Continuous rating. Conservative sizing provides additional margin for nonlinear (unequal) phase loading. High efficiency performance with excellent motor starting capability. Severe environmental coating provides protection from tropical environments.

Solid state electronic voltage regulator (AVR) with 2-wire sensing, thermal protection and under frequency (UFRO) protection feature.

AC/DC ELECTRICAL & COMPONENTS:

All components mounted into sealed metal enclosures, isolated from vibration. All wiring is Exane multi-stranded copper wire with 600 V. rated insulation. Wiring harness bundled with fiberglass loom material exclusively.

Generous sized distribution box located externally on back side of unit. Main AC power leads wired to terminal block. AC/DC control circuits wired to terminal strips to receive Remote control wiring.

CONTROL SYSTEM:

Choice of several control systems are optionally available from Stadco. Control systems provide interconnected dual control. Also available with electrical interface kit only to accommodate third party control systems. Refer to Stadco bulletin #S121 for more product information. Standard engine control devices include; lube oil level SW, oil press SW, coolant temp SW, coolant level SW and air flow sensor SW.

SOUND REDUCTION SYSTEM:

Unit totally enclosed with solid steel panels lined with multi-layer high performance sound absorbing material to absorb engine noise and air intake sounds. All panels facing toward railcar are totally solid (without openings) for improved noise control.

Special tuned rubber "floating" mounts isolate engine vibration from frame to reduce secondary (in-car) vibration & noise. Engines are selected for their low noise characteristics. Critical quality high mass mufflers provided to reduce annoying exhaust pulsations to tolerable levels.

Optional secondary vibration isolating mounting system available for further vibration and noise reduction.

MARKING PLACARDS:

Includes placards for unit and control systems with operating instructions, safety and cautionary statements.