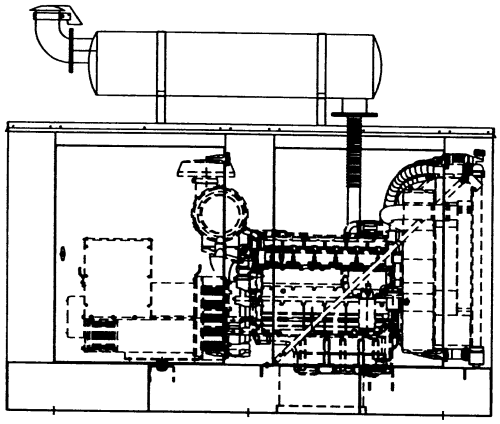
TAYLOR®
POWER SYSTEMS

Model: DS180M2

Ratings Range:

		50Hz	60Hz
Standby:	kw	140 - 144	149 - 180
	kva	175 - 180	186 - 225
Prime:	kw	125 - 130	138 - 162
	kva	156 - 163	173 - 203



DRAWING DEPICTS UNIT WITH OPTIONAL EQUIPMENT

Features

- **Single source responsibility for the generator set and accesories.**
- **Prototype and production tested to insure one step load acceptance per NFPA 110.**
- **Two year limited warranty on generator sets and accessories.**
- **Unit conforms to CSA, NEMA, EGSA, ANSI and other standards.**
- **Microprocessor based control system providing digital metering and monitoring.**
- **Heavy duty 4 cycle industrial engine for reliability and fuel efficiency.**
- **Brushless rotating field generator with class H insulation.**
- **Heavy duty steel base with integral vibration isolators.**
- **Electronic Isochronous Governor**
- **EPA Tier 2 Certified Engine**

Generator	Voltage	PH	Hz	125°C Rise Standby Rating		105°C Rise Prime Rating	
				kW/kVA	Amps	kW/kVA	Amps
UCI274G311	277/480	3	60	180/225	271	160/200	241
	139/240	3	60	180/225	542	160/200	482
	254/440	3	60	175/219	288	159/199	261
	127/220	3	60	175/219	575	159/199	523
	240/416	3	60	165/206	286	154/193	268
	120/208	3	60	165/206	572	154/193	536
	120/240	3	60	165/206	496	154/193	465
	219/380	3	60	149/186	283	138/173	263
	120/240	1	60	123/123	513	115/115	479
	254/440	3	50	N/A	N/A	125/156	205
	127/220	3	50	N/A	N/A	125/156	410
	120/208	3	50	140/175	486	128/160	445
	240/415	3	50	140/175	244	128/160	223
	219/380	3	50	140/175	266	128/160	243
	110/190	3	50	140/175	532	128/160	487
	110/220	1	50	105/105	477	96/96	436
UCD274H311	277/480	3	60	180/225	271	162/203	244
	139/240	3	60	180/225	542	162/203	489
	254/440	3	60	180/225	296	162/203	267
	127/220	3	60	180/225	591	162/203	533
	240/416	3	60	180/225	313	162/203	282
	120/208	3	60	180/225	625	162/203	564
	120/240	3	60	180/225	542	162/203	489
	219/380	3	60	170/213	578	160/200	304
	120/240	1	60	143/143	596	130/130	542
	254/440	3	50	N/A	N/A	130/163	214
	127/220	3	50	N/A	N/A	130/163	428
	120/208	3	50	144/180	500	130/163	453
	240/415	3	50	144/180	251	130/163	227
	219/380	3	50	144/180	274	130/163	248
	110/190	3	50	144/180	548	130/163	496
	110/220	1	50	120/120	545	110/110	500
HCI444H06	120/240	1	60	156/156	650	144/144	600
HCI444J06	120/240	1	60	180/180	750	160/160	667

RATINGS: All three-phase units are rated at 0.8 power factor. All single-phase units are rated at1.0 power factor.
STANDBY RATINGS: Standby ratings apply to installations served by a reliable utility source. The standby rating is applicable to varying loads for the duration of a power outage. There is no overload capability for this rating. Ratings are in accordance with ISO-3046/1, BS 5514, AS 2789, and DIN 6271.
PRIME POWER RATINGS: Prime power ratings apply to installations where utility power in unavailable or unreliable. At varying load the number of generator set operating hours is unlimited. A 10% overload capacity is available for one hour in twelve. Ratings in accordance with ISO-8528/1, overload power in accordance with ISO-3046/1, BS5514, AS2789, and DIN 6271. For limited running time and base load ratings consult the factory. The generator set manufacturer reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever.
GENERAL GUIDELINES FOR DERATION: Altitude: Derate 0.5% per 100m (328 ft.) elevation above 1000m (3279 ft.) Temperature: Derate 1.0% per 10°C (18°F) temperature above 40°C (104°F).

APPLICATION & ENGINEERING DATA

ENGINE

Engine Specifications	60 Hz	50 Hz
Manufacturer	VOLVO	
Engine, model, type	TAD721GE 4-CYCLE Tier 2 Air to air intercooled	
Cylinder arrangement	6 vertical, in-line	
Displacement, cu. in. (L)	436.3 (7.15)	
Bore and stroke, in. (mm)	4.25 (108) x 5.12 (130)	
Compression ratio	18.1:1	
Piston speed, ft/sec. (m/sec)	25.7 (7.8)	21.4 (6.5)
Rated rpm	1800	1500
Max. power at rated rpm, hp (kw)	268 (197)	243 (179)
Cylinder head material	Cast iron	
Crankshaft material	Forged steel	
Governor type	Heinzmann / EDC 4	
Air cleaner type, all models	Dry paper element w/air rest. indicator	
Injection Pump Type	Single Bosch w/ EDC4 actuator	

EXHAUST

Exhaust System	60 Hz	50 Hz
Exhaust flow at rated kW, cfm (m^3/min.)	1451 (41.1)	1197 (33.9)
Exhaust temperature at rated kW, dry exhaust, °F (°C)	921 (494)	1004 (540)
Maximum allowable back pressure, in. wc (kPa)	28.1 (7 KPA)	20.1 (5 KPA)
Heat Rejected to Exhaust: BTU/min	9440	8132

ENGINE ELECTRICAL

Engine Electrical System	60 Hz	50 Hz
Battery charging alternator: Ground (negative/positive)..... Volts (DC)..... Ampere rating.....	Negative 24 55	
Starter motor rated voltage (DC)	24	
Recommended battery cold cranking amps (CCA) rating for +20° C	400	
Quantity of batteries	2	
Battery voltage (DC)	24	

FUEL

Fuel System	60 Hz	50 Hz
Total Fuel Flow U.S. gal/hour	119	95
Feed Pump Pressure psi (kPa)	72.5 (500)	
Feed Pump Max. Suction Head ft. (m)	4.9 (1.5)	
Injection Timing std.	4° B.T.D.C.	
Fuel filters	1 Spin on Type and 1 Fuel Pre-Filter W/ water separator	
Recommended fuel	#2 diesel	

FUEL CONSUMPTION

Fuel Consumption	60 Hz	50 Hz
Diesel, gph (Lph) at % of load		
100%	12.9 (49)	11.5 (43)
75%	9.5 (36)	8.6 (33)
50%	6.5 (25)	5.8 (22)

COOLING

Cooling System	60 Hz	50 Hz
Coolant Capacity U.S. gal. (liters) radiator with hoses	7.21 (27.3)	
Coolant Flow U.S. gal/s (liter/s)	.95 (3.6)	.79 (3)
Fan Power Consumption hp (kw)	10 (7.4)	6 (4.4)
Fan Diameter in. (mm)	30.31 (770)	
Heat rejected to cooling water at rated kW, dry exhaust Btu/min.	5289	4663
Water pump type	Belt Driven Efficient Cooling Pump	
Air Consumption at Rated rpm cfm (m^3/min.)	562 (15.9)	449 (12.7)

LUBRICATION

Lubricating System	60 Hz	50 Hz
Type	FULL PRESSURE W/ INTEGRATED FULL FLOW OIL COOLER	
Oil pan capacity with filter, U.S. GAL (L)	8.9 (34)	
Oil filter, quantity, type	1 FULL FLOW DISPOSABLE	
Oil cooler	full flow oil cooler	
Oil Pressure at Rated Speed psi	64	58

CONTROL PANEL

DGC-500 Digital Genset Controller utilizes microprocessor based technology to provide a versatile system for genset control, protection and monitoring. This microprocessor design allows customization of the controller's functions to fit virtually every application's needs. DGC-500 accepts conventional engine sender inputs. These can be customized via the BESTCOMS PC software to allow virtually any sender to be used.

TOTAL MONITORED PARAMETERS

- **GENERATOR**
  - Voltage (A & B phases and A & B phases to neutral)
  - Current (A & B phases)
  - kVA total and per phase
  - Frequency
- **ENGINE**
  - Oil pressure
  - Coolant temperature
  - Battery voltage
  - Hours to next service
  - Total run time
  - Engine RPM
- **TIMERS**
  - Eng. maintenance
  - Pre-Alarm time delays:
    Weak batt. & low batt. volt: 1-10 seconds
  - Alarm time delays:
    Overspeed: 0-500ms
    Sender failure: 0-10 seconds
  - Arming delays after crank disconnect:
    Low oil pressure: 5-15 seconds
    High coolant temp.: 50-150 seconds
- **GENERATOR SET PROTECTION**

ALARMS:
- Low oil pressure
- Overspeed
- Overcrank
- High coolant temp.
- Sender failure

PRE-ALARMS:
- Low oil pressure
- Low battery voltage
- Maintenance interval timer
- High coolant temp.
- Low coolant temp.
- High battery voltage
- Weak battery

GENERATOR SPECIFICATIONS

STANDARDS

UC224 and UC274 industrial generators meet the requirements of BS5000, VDE0530, UTE5100, NEMA MG1–22, CEMA, IEC34–1, CSA22.2 AND AS1359.

EXCITATION SYSTEMS

SX440 & SX460 AVRs

With these self–excited systems the main stator provides power via the automatic voltage regulator (AVR) to the exciter stator. The high efficiency semiconductors of the (AVR) ensure positive build up from initial low levels of residual voltage.

The exciter rotor output is fed to the main rotor through a three phase full wave bridge rectifier. The rectifier is protected by a surge suppressor against surges caused, for example, by short circuit or out of phase paralleling. The SX440 will support a range of electronic accessories, including a 'droop' Current Transformer (CT) to permit parallel operation with other ac generators.

MX341 AVR

This sophisticated AVR is incorporated into the permanent magnet generator (PMG) system, and is fitted as an option on industrial generators.

The PMG provides power via the AVR to the main exciter, giving a source of constant excitation power independent of generator output. The main exciter output is then fed to the main rotor, through a full wave bridge, protected by a surge suppressor. The AVR has built–in protection against sustained over–excitation, caused by internal or external faults. This de–excites the machine after a minimum of 5 seconds.

The two phase average voltage sensed MX341 provides voltage regulation of ±1.0%. If three phase sensing is required with the PMG system the MX321 AVR must be used. We recommend three phase sensing for applications with greatly unbalanced or highly non–linear loads. An engine relief load acceptance feature can enable full load to be applied to the generator in a single step.

MX321 AVR

The most sophisticated of all our AVRs combines all the features of the MX341 with, additionally, three phase rms sensing, for improved regulation (0.5%) and performance. Over voltage protection is built–in and short circuit current level adjustment is an optional facility.

INSULATION / IMPREGNATION

The insulation system is Class 'H'.

All wound components are impregnated with materials and processes designed specifically to provide protection against the harsh enviroments encountered in generator applications. Varnishes and resins are selected and developed to provide the high build required for static windings and the high mechanical strength required for rotating components.

WINDINGS & ELECTRICAL PERFORMANCE

All generator stators are wound to 2/3 pitch. This eliminates triplen (3rd, 9th, 15th...) harmonics on the voltage waveform and is found to be the optimum design for trouble–free supply of non linear loads. The 2/3 pitch design avoids excessive neutral currents, sometimes seen with higher winding pitches, when in parallel with the mains.

A fully connected damper winding reduces oscillations during paralleling. This winding, with 2/3 pitch and carefully selected pole and tooth designs, ensures very low waveform distortion.

TELEPHONE INTERFERENCE

THF (as defined by BS4999 Part 40) is better than 2%. TIF (as defined by ASA C50.12) is better than 50.

RADIO INTERFERENCE

The absence of brushgear and the high quality AVR ensure low levels of interference with radio transmissions.

Additional RFI suppression may be supplied if required.

ENCLOSURE

IP22 (NEMA 1) is standard for all industrial generators Protection to IP23 (60 degrees from vertical) is available as an option at reduced ratings (5% derate).

Inlet air filters are available as an option on all generators, at reduced ratings (5% derate).

SHAFT

All generator rotors are dynamically balanced to better than BS6861: Part 1 Grade 2.5 for minimum vibration in operation.

QUALITY ASSURANCE

Generators are manufactured using production procedures having a quality assurance level to BS EN (ISO9001).