



Connecting For Success...

ELECTRIC POWER DAYS 2017

BUILT FOR IT.

CATERPILLAR®

SpecSizer

Krishnan Pandiaraj/Jonathan Swathwood
IPSD/GPSD

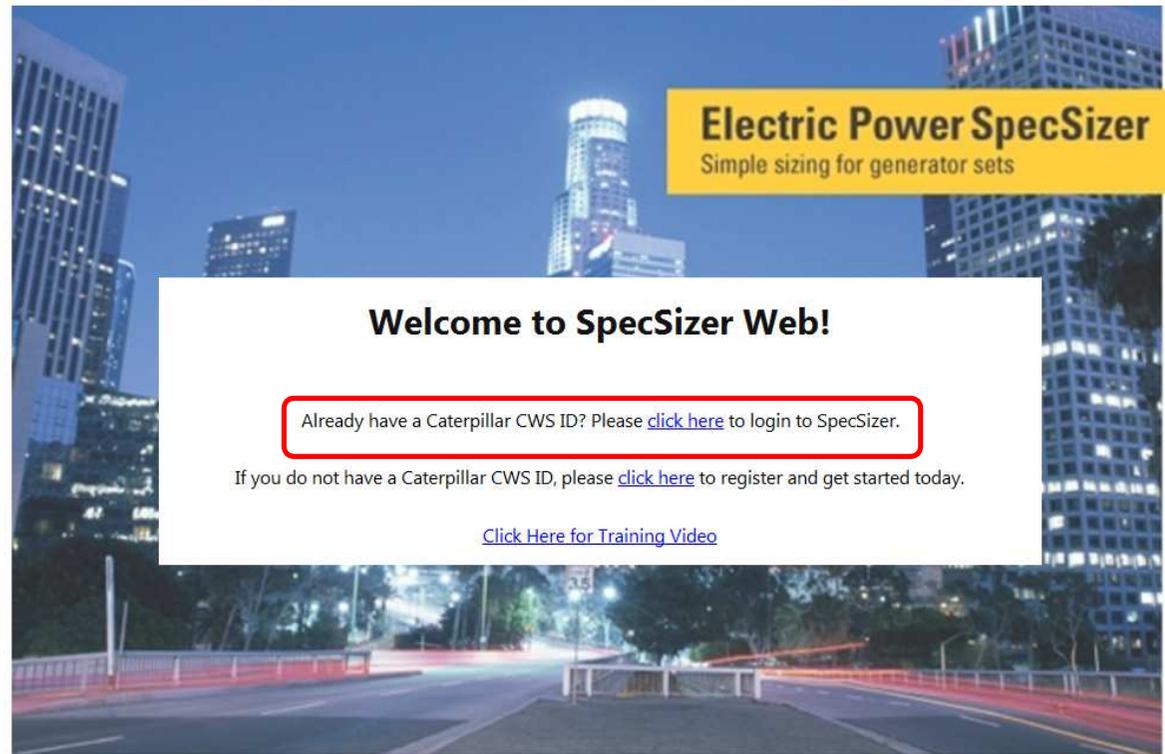
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Electric Power SpecSizer



- SpecSizer Web - <https://specsizer.cat.com>



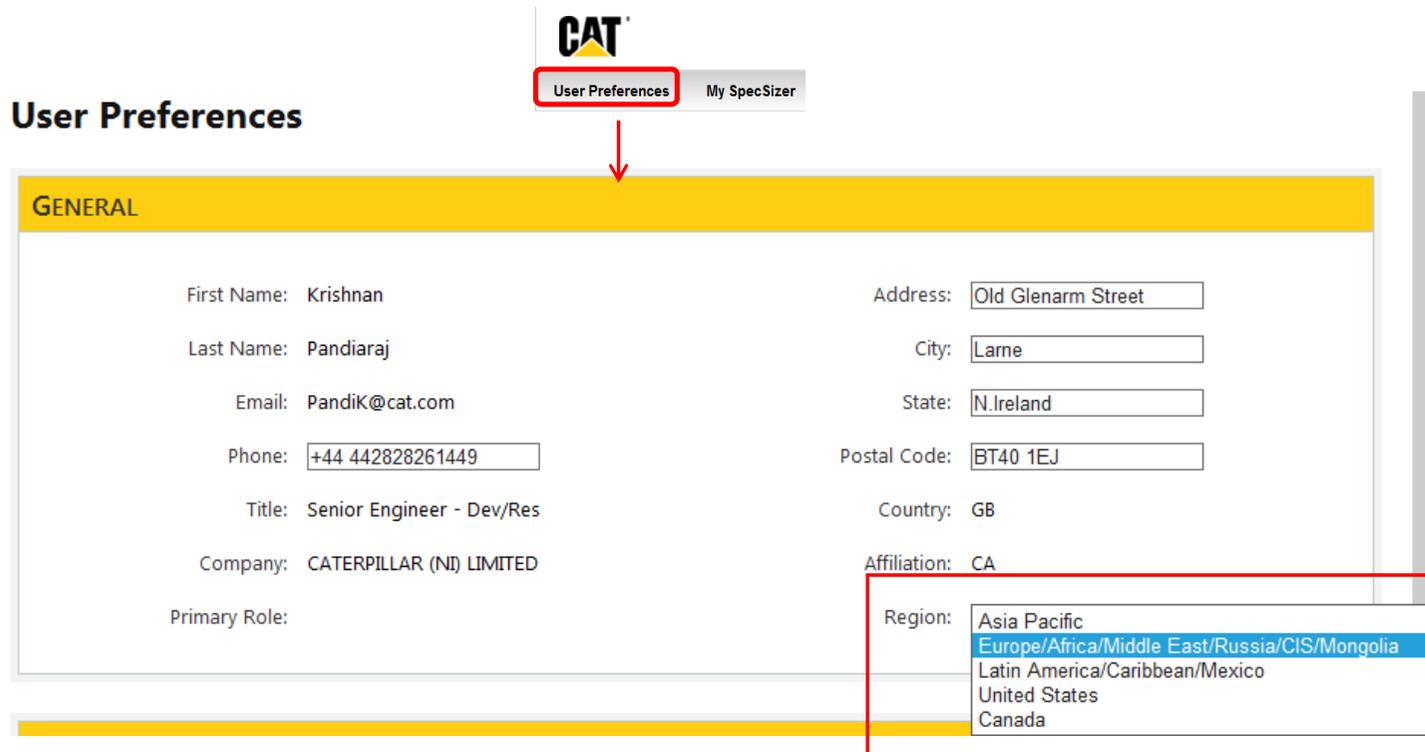
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Electric Power SpecSizer

- Generator Set Sizing Program
 - User Preferences, My SpecSizer – Site Conditions
- Load Analysis and Load Step Optimization
 - Add Loads: Template loads, Optimizer
- Genset Selection
 - Site Specific Environmental Considerations
 - Generator Set Details
 - Cooling system/enclosure performance data (C9-C18: May 2017)
- Reports and Guide Specifications
- File Sharing | Help & Support
 - specsizersupport@cat.com

ELECTRIC POWER SPECSIZER

- **User Preferences** (top half of page) - Set defaults for Site Conditions for new projects
 - Set "Region" here: (aligns product selection to regional price lists / product offerings)



CAT

User Preferences My SpecSizer

User Preferences

GENERAL

First Name: Krishnan	Address: Old Glenarm Street
Last Name: Pandiaraj	City: Larne
Email: PandiK@cat.com	State: N.Ireland
Phone: +44 442828261449	Postal Code: BT40 1EJ
Title: Senior Engineer - Dev/Res	Country: GB
Company: CATERPILLAR (NI) LIMITED	Affiliation: CA
Primary Role:	Region: Asia Pacific Europe/Africa/Middle East/Russia/CIS/Mongolia Latin America/Caribbean/Mexico United States Canada

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ELECTRIC POWER SPECSIZER

- **User Preferences** (bottom half of page) – set defaults for Site Conditions for new projects
 - Genset Product: Caterpillar or Cat Compact International - filters genset list for 'Select Genset' page
 - Eight (8) language options



DEFAULT VALUES

Fuel: Diesel	Unit of Measure: English
Generator Set Duty: Prime	Maximum Ambient: 25.0 Deg C 77 Deg F
Motor Units kW/HP: kW	Altitude: 152.4 M.A.S.L. 500.0 Ft.A.S.L.
60Hz Motor Type: IEC	Genset Product: Caterpillar
Project Reference #: L_KP1602	Humidity: 30 %
Emissions:	Single Phase Electrical Supply: 50 Hz 240 V
Diesel: All Certified & Non-Certified	3-Phase Electrical Supply: 50 Hz 400/230 V
Natural Gas: All Certified & Non-Certified	Language: English
LPG: All Certified & Non-Certified	Hints: German (check) gensets to compare bare gensets you have selected & drop loads and steps

The 'Genset Product' dropdown menu is open, showing options: Caterpillar, CAT Compact International, Chinese, English, French, German, Italian, Portuguese, Russian, and Spanish. A red arrow points to the 'Caterpillar' option.

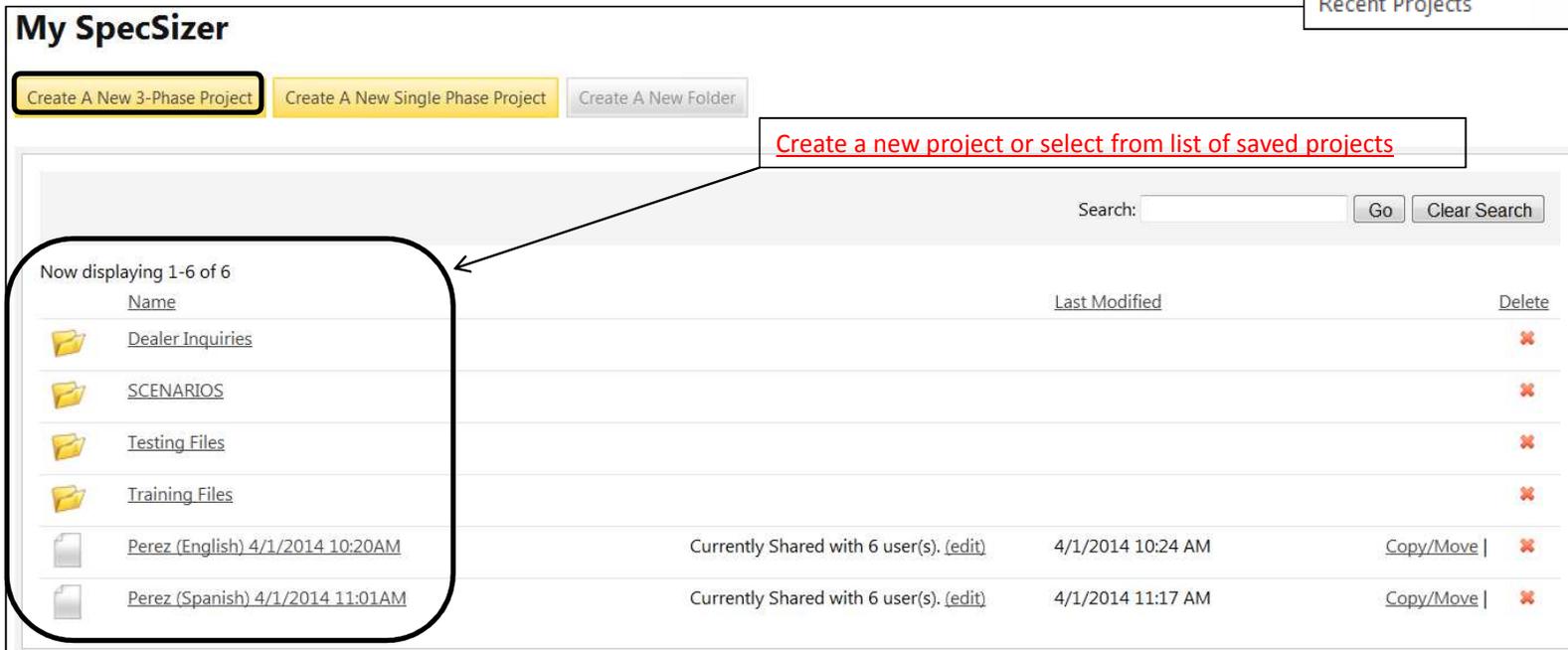
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ELECTRIC POWER SPECSIZER

- User Preferences → My SpecSizer (main page)



The CAT logo is shown above a navigation bar with two tabs: "User Preferences" and "My SpecSizer". A red box highlights the "My SpecSizer" tab, with a red arrow pointing to a dropdown menu. The dropdown menu contains the following items: "My SpecSizer" (highlighted in blue), "Shared With Me", "My Loads", and "Recent Projects".



The "My SpecSizer" main page features three buttons at the top: "Create A New 3-Phase Project" (highlighted with a yellow box), "Create A New Single Phase Project", and "Create A New Folder". Below these buttons is a text box containing the text "Create a new project or select from list of saved projects". A search bar with "Go" and "Clear Search" buttons is located to the right. A table displays a list of items, with a rounded rectangle highlighting the first four rows. The table has columns for "Name", "Last Modified", and "Delete".

Name	Last Modified	Delete
Dealer Inquiries		✖
SCENARIOS		✖
Testing Files		✖
Training Files		✖
Perez (English) 4/1/2014 10:20AM	Currently Shared with 6 user(s). (edit) 4/1/2014 10:24 AM	Copy/Move ✖
Perez (Spanish) 4/1/2014 11:01AM	Currently Shared with 6 user(s). (edit) 4/1/2014 11:17 AM	Copy/Move ✖

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ELECTRIC POWER SPECSIZER

- My SpecSizer → Create A New 3-Phase Project → Define Site Conditions
 - GENERAL (top half of page): Defaults auto-populated from User Preferences, are editable. Region not editable here, editable on User Preferences only

CAT

User Preferences **My SpecSizer**

✓ The project has been successfully saved.

GENERAL

Customer Name: Malaga EP Days #1

* Project Name/Ref #: L_KP160402_1

Created Date: 4/5/2016

Created By: pandik

Modified Date: 4/5/2016 1:43:41 AM

Sharing: Currently Shared with 0 user(s).
Edit Sharing

Project Location: My SpecSizer

Region: Europe/Africa/Middle East/Russia/CIS/Mongolia

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ELECTRIC POWER SPECSIZER

- My SpecSizer → Create A New 3-Phase Project → Define Site Conditions

SITE CONDITIONS

Generator Set Duty: Prime	Unit of Measure: English
Fuel: Diesel	Maximum Ambient: 25.0 Deg C 77 Deg F
Electrical System Connection: 3-Phase	Altitude: 152.4 M.A.S.L. 500.0 Ft.A.S.L.
Electrical Supply: 50 Hz 400/230 V	% Humidity: 30
Sizing Method: Conventional	Genset Product: CAT Compact International
Percent (%) of Intermittent Motors: 25	Transient Restrictions: Load Level
Expansion Capacity (%): 0	Emissions Certification: All Certified & Non-Certified
Genset Availability: <input checked="" type="checkbox"/> Products are available for the selected site conditions. (8.5 - 300.0 kVA)	Voltage Regulator: Best Fit

Voltage Regulator: CDVR can be forced by selecting:
Optional (3:1) Slope Performance

Voltage Regulator: Optional (3:1) Slope Performance
Best Fit
Standard (2:1) Slope Performance
Optional (3:1) Slope Performance

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ELECTRIC POWER SPECSIZER

- Filtering genset models using Feature Code, Engine performance / Alternator Arr number

SITE CONDITIONS

Generator Set Duty: Standby / MCS ?

Fuel: Diesel

Electrical System Connection: 3-Phase

Electrical Supply: 50 Hz 400/230 V

Sizing Method: Conventional ?

Percent (%) of Intermittent Motors: 25 ?

Expansion Capacity (%): 0

Additional Genset Information:

- None
- Feature Code**
- Engine Performance Number
- Alternator Arrangement Number

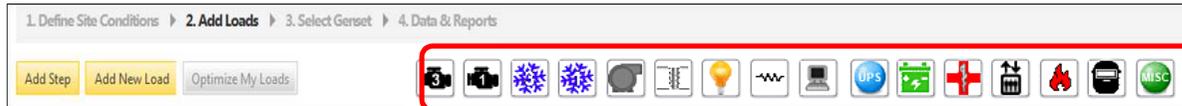
C13DE76
C13DE79
C13DE80
C13DE84
C15DEEC
C15DEED
C15DEEE
C15DEFD
C15DEFE
C15DEFG
C15DEGB
C15DEGE
C15DEGH
C15DEGL
C15DEHB
C15DEHE
C15DEHH
C15DEHL
C15DEJY
C18DE9E
C18DE9F
C18DE9G
C18DE9H
C18DEAB
C18DEAE
C18DEAH
C18DEAL
C18DEAP
C18DEAS
C18DEBB

aterpillar

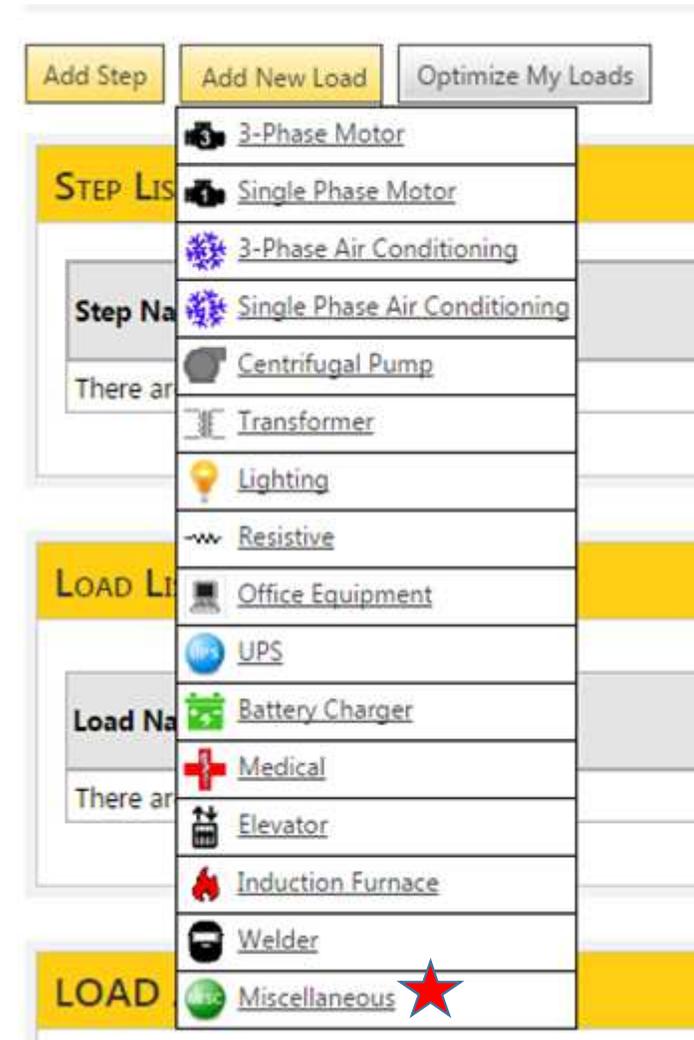
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ELECTRIC POWER SPECSIZER

- Define Site Conditions → **Add Loads**
 - New feature – Template loads
 - Add Loads page displays “Effective” Frequency and “Effective” Voltage
 - Effective Fdip/Vdip vs. User Defined Fdip/Vdip
 - Subsequent loads and load steps adopt
 - the most restrictive Fdip or Vdip of prior loads or load steps



Add loads using 'Add New Load' button or load icons



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ELECTRIC POWER SPECSIZER

- **Add Loads:** New feature – lets you create a template load

Add Load LIGHTING

LOAD DETAILS

Step Number:

Load Number:

Load Name:

Quantity:

Connection:

Rating: kW

Type:

- Fluorescent
- Gas Discharge
- Incandescent
- LED
- Ultraviolet

Permitted Frequency Dip%:

Permitted Voltage Dip%:

Save As Template: →

|

 <u>3-Phase Motor</u>	
 <u>Single Phase Motor</u>	
 <u>3-Phase Air Conditioning</u>	
 <u>Single Phase Air Conditioning</u>	2 Load(s)
 <u>Centrifugal Pump</u>	1 Load(s)
 <u>Chiller</u>	1 Load(s)
 <u>Lighting</u>	<u>Template Lighting Load 100kW</u>
 <u>Resistive</u>	<u>50kW Fluorescent</u>
 <u>Office Equipment</u>	<u>200 kW FL Lighting</u>
 <u>Flourescent Light</u>	

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ELECTRIC POWER SPECSIZER

- **Add Loads:** New Feature - Effective frequency/voltage dip: added to help user see effect of restrictive fdip/vdip rule: Sequence restrictive loads later if possible to downsize genset

STEP LIST						
Step Name		Step		Effective		
		SkVA	SkW	Frequency	Voltage	
Step1  	2 Load(s)	128.0	106.3	10.0	10.0	 
Step2 	1 Load(s)	1,557.0	544.9	10.0	10.0	 
Step3 	1 Load(s)	200.0	150.0	10.0	10.0	 

- 3-Phase Motor in Step 2 and Fluorescent Lighting in Steps 1 & 3 adopted 10% Fdip/Vdip of Step#1 UPS load;
- Motors & Lighting were spec'ed for 30% Fdip/Vdip, restricted to 10% Fdip/Vdip due to UPS sequenced prior

LOAD LIST			
Load Name	User Defined/Effective		
	Frequency	Voltage	
 User Defined UPS, 3-Phase, IGBT, 9% Walk-In, 30% Battery Recharge, No Battery Revert 1 X 500.00 kVA	10.0/10.0	10.0/10.0	 
 Fluorescent Lighting, Distr. 3-Phase 1 X 50.00 kW	30.0/10.0	30.0/10.0	 
Summary	-/10.0	-/10.0	

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- **Motors:** DOL/ATL can result in oversizing the genset
- Reduced Voltage Starters can help to optimize the genset size

<i>Reduced Voltage Starters</i>			
<i>Type of Starter</i>	<i>Motor Voltage % Line Voltage</i>	<i>Line Current % Full Voltage Starting Current</i>	<i>Starting Torque % of Full Voltage Starting Torque</i>
Full Voltage Starter	100	100	100
Autotransformer			
80% Tap	80	*68	64
65% Tap	65	*46	42
50% Tap	50	*29	25
Resistor Starter			
Single Step (Adjusted for motor voltage to be 80% of line voltage)	80	80	64
Reactor			
50% Tap	50	50	5
45% Tap	45	45	20
37.5% Tap	37.5	37.5	14
Part Winding (Low speed motors only)			
75% Winding	100	75	75
50% Winding	100	50	50
Star Delta	57	33	33
Solid State	Adjustable		

* % line current is 64%, 42% and 24% before addition of autotransformer magnetizing current.

3 Edit Load 3-PHASE MOTOR LOAD

LOAD DETAILS

Step Number: 2

Load Number: 1

Load Name:

Quantity: 1

Type: IEC HP

Output Rating: 200 HP

Permitted Frequency Dip %: 30

Permitted Voltage Dip %: 30

Starting Method: **Direct On Line**

Use Standard Defaults:

Efficiency:

DOL SKVA:

DOL Starting PF:

Running PF: 0.9

Duty Point %: 100

Starting Method dropdown menu options: VSD, Autotransformer 80%, Autotransformer 65%, Autotransformer 50%, Wye Delta, **Direct On Line**, Reactance 80%, Resistance 80%, Soft Starter

- VFD/VSD - non linear load which can influence the sizing

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- UPS load: Static Battery UPS

UPS Types:

UPS Type: Cat Flywheel UPS

UPS Model: User Defined

UPS Rating: N+1 Option

Permitted Frequency Dip%: 10

Permitted Voltage Dip%: 5

Efficiency %: 10

Running PF: 15

Use Standard Default: 20

- 20% max allowed Fdip/Vdip on all UPS
- Sequence later in load scenario if possible

UPS Add Load UPS

LOAD DETAILS

Add New Step: 1

Load Number: 1

Load Name:

Quantity: 1

Phase: 3-Phase kVA

Connection: 3-Phase

UPS Type:

UPS Model:

UPS Rating: kVA N+1 Option

Output Power: kVA Duty Point %:

Rectifier: 6 Puls 6 Pulse

Permitted Frequency Dip%: 10

Permitted Voltage Dip%: 10

Efficiency %:

Running PF: 0.9

Use Standard Default:

Rated Output PF: 0.9

Recharge Rate %: 25

Walk-In From %: 25

Filter

Allow UPS to Revert to Battery During Subsequent Transients

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ELECTRIC POWER SPECSIZER

- **Select Genset:** Optimized genset may be possible (downsizes genset!)
 - Optimizer runs automatically in background & prompts user if Optimized load scenario or genset is possible

STEP LIST

Step Name	Step		Peak		Running		Non-Linear		
	SkVA	SkW	SkVA	SkW	kVA	kW	SkVA	RkVA	Fr
Step1   	2,048.1	970.3	2,048.1	970.3	1,296.5	1,187.4	547.8	1,119.4	
4 Load(s)									
Step2   	4,244.3	1,588.5	5,250.3	2,775.9	1,880.2	1,712.9	1,230.4	1,230.4	
4 Load(s)									



GENSETS

Note: The selected genset is the BEST FIT for the site/load requirements. [Go to Best Fit Genset](#)

 An optimized load scenario exists that may result in a smaller genset. [Go to Optimized Scenario.](#)

Number Of Gensets: 

3512 Prime, LOW BSFC, SCAC; Alternator: 1667 PM SR5 FORM
Factory Rating: **1,280 EkW / 1,600 kVA; Site: 1,269.2 EkW / 1,586.5 kVA**

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Load Optimization in Progress

An optimized load scenario exists that may result in a smaller genset. [Go to Optimized Scenario.](#)

2. Add Loads ← 3. Select Genset ▶

Continue

STEP LIST	
Step Name	
Step1	4 Load(s)
Step2	4 Load(s)

STEP LIST	
Step Name	
Step1	2 Load(s)
Step2	1 Load(s)
Step3	5 Load(s)

Note: Go to Optimized Scenario

- Returns to Add Loads
- Tool automatically resequences loads & load steps
- Click 'Continue' or click 'Select Genset'
- Tool returns to 'Select Genset' page; displays resized, recommended Genset
- Save Optimized Genset, or return to Original (load) Scenario (original sized genset)
- Save file

GENSETS

Note: The selected genset is the BEST FIT for the site/load requirements. [Go to Best Fit Genset](#)

This genset was selected using the optimized load scenario. Return to your original load scenario [Return to Original Scenario.](#)

Number Of Gensets: **3516 Prime, LOW BSFC, SCAC; Alternator: 1844 PM SRS FORM**

Factory/Site Rating: **1,820 EkW / 2,275 kVA;**

Transients **CDVR 2:1 slope;** FDip: **4.0%** VDip Alternator: **8.5%** VDip Engine: **7.2%**



ELECTRIC POWER SPECSIZER

- Select Genset: Malaga EP Days#1- Optimized

1. Define Site Conditions ▶ 2. Add Loads ▶ 3. Select Genset ▶ 4. Data & Reports

GENSETS

Note: The selected genset is the BEST FIT for the site/load requirements.

3516 Prime, LOW BSFC, SCAC: Alternator: 1844 PM SR5 FORM

Engine Performance Number: **DM8372** Top-Level Feature Code: **516DE9J**

Electricity Supply: **3-Phase 50 Hz 400/230 V** Generator Arrangement Number: **3723056**

Number Of Gensets:

1 ▼

Factory/Site Rating: **1,820 EkW / 2,275 kVA;**

Transients **CDVR 2:1 slope;** FDip: **4.0%** VDip: **Alternator: 8.5%** VDip Engine: **7.2%**

Selection Criteria: **Step 3 Running kW requirements**

Compare Gensets

Create Guide Spec

Customer Sales Support Links

Dealer Sales Support Links

Now displaying 21-40 of 2037

Hide Gensets That Do Not Fit

Model	Generator Set					Alternator							% Genset Capacity Used			
	Factory EkW/kVA	Site EkW/kVA	Duty	Emissions	Feature Code	Site kVA	Arrangement Number	Frame	Excitation	Winding	Type	Std/Opt			RkVA	VDip1
3516 B	1,820 / 2,275	1,820 / 2,275	Prime	LOW BSFC	516DE9J	2,500	3723056	1844	PM	FORM	SR5	Standard	2,500.0	17.0%	94.1	
3516 B	1,820 / 2,275	1,820 / 2,275	Prime	LOW BSFC	516DE9J	2,500	3723056	1844	PM	FORM	SR5	Standard	2,500.0	17.0%	94.1	
3516 B	1,820 / 2,275	1,820 / 2,275	Prime	LOW BSFC	516DE9J	2,500	3723056	1844	PM	FORM	SR5	Standard	2,500.0	17.0%	94.1	
3516 B	1,820 / 2,275	1,820 / 2,275	Prime	LOW BSFC	516DE9J	2,500	3723056	1844	PM	FORM	SR5	Standard	2,500.0	17.0%	94.1	
3516 B	1,820 / 2,275	1,820 / 2,275	Prime	LOW BSFC	516DE9J	2,500	3723056	1844	PM	FORM	SR5	Standard	2,500.0	17.0%	94.1	
3516 B	1,820 / 2,275	1,820 / 2,275	Prime	LOW BSFC	516DEB3	2,500	3723056	1844	PM	FORM	SR5	Standard	2,500.0	17.0%	94.1	
3516 B	1,820 / 2,275	1,820 / 2,275	Prime	LOW BSFC	516DEB3	2,500	3723056	1844	PM	FORM	SR5	Standard	2,500.0	17.0%	94.1	
3516 B	1,820 / 2,275	1,820 / 2,275	Prime	LOW BSFC	516DE9J	2,500	3723056	1844	PM	FORM	SR5	Standard	2,500.0	17.0%	94.1	
3516 B	1,820 / 2,275	1,820 / 2,275	Prime	LOW BSFC	516DEB3	2,500	3723056	1844	PM	FORM	SR5	Standard	2,500.0	8.5%	94.1	
3516 B	1,600 / 2,000	1,600 / 2,000	Prime	EMISSION	516DE9G	2,750	3723064	1866	PM	FORM	SR5	Optional	2,750.0	8.9%	-	
3516 B	1,600 / 2,000	1,600 / 2,000	Prime	EMISSION	516DE9G	2,750	3723064	1866	PM	FORM	SR5	Optional	2,750.0	8.9%	-	

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ELECTRIC POWER SPECSIZER

- Select Genset: Best Fit Vs User Selected

Now displaying 161-180 of 970

Model	Generator Set					Alternator										% Genset Capacity Used	
	Factory EkW/kVA	Site EkW/kVA	Duty	Emissions	Feature Code	Site kVA	Arrangement Number	Frame	Excitation	Winding	Type	Std/Opt	RkVA	VDip1			
3516 B	+ 1,600 / 2,000	+ 1,591.3 / 1,989.1	Prime	EMISSION	516DEB2	2,000	2523850	1625	PM	RANDOM	SR5	Optional	2,000.0	21.1%	98.1		
3516 B	+ 1,600 / 2,000	+ 1,591.3 / 1,989.1	Prime	EMISSION	516DEB2	2,000	2523850	1625	PM	RANDOM	SR5	Optional	2,000.0	21.1%	98.1		
3516 B	+ 1,600 / 2,000	+ 1,591.3 / 1,989.1	Prime	LOW BSFC	516DEB2	2,000	2523850	1625	PM	RANDOM	SR5	Optional	2,000.0	21.1%	98.1		
3516 B	+ 1,600 / 2,000	+ 1,590.3 / 1,987.9	Prime	LOW BSFC	516DEB2	2,000	2523850	1625	PM	RANDOM	SR5	Optional	2,000.0	21.1%	98.2		
3516 B	+ 1,600 / 2,000	+ 1,591.3 / 1,989.1	Prime	LOW BSFC	516DEB2	2,000	2523850	1625	PM	RANDOM	SR5	Optional	2,000.0	9.7%	98.1		
3516	+ 1,460 / 1,825	+ 1,460 / 1,825	Prime	LOW BSFC	516DE9F	2,750	3723064	1866	PM	FORM	SR5	Optional	2,750.0	8.1%	-		
3516	+ 1,460 / 1,825	+ 1,460 / 1,825	Prime	LOW BSFC	516DE9F	2,750	3723064	1866	PM	FORM	SR5	Optional	2,750.0	8.1%	-		
3516	+ 1,460 / 1,825	+ 1,451.8 / 1,814.7	Prime	LOW BSFC	516DR9N	2,500	3723056	1844	PM	FORM	SR5	Optional	2,500.0	7.8%	-		
3516	+ 1,460 / 1,825	+ 1,454.8 / 1,818.5	Prime	LOW BSFC	516DR9N	2,150	2523866	1647	PM	RANDOM	SR5	Optional	2,150.0	8.4%	-		

Note: The selected genset is **USER SELECTED** and meets or exceeds the site/load requirements. [Go to Best Fit Genset](#)

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- Select Genset: click **View** → **Generator Set Details**

Generator Set Details

Starting & Selection Analysis ▶

Alternator Frame Options

Diagnostics

<< Back To Generator Set Selection

✔ Note: The selected genset is the BEST FIT for the site/load requirements. [Go to Best Fit Genset](#)

3516 Prime, LOW BSFC, SCAC; Alternator: 1844 PM SR5 FORM

Factory/Site Rating: **1,820 EkW / 2,275 kVA;**

Transients **CDVR 2:1 slope;** FDip: **4.0%** VDip Alternator: **8.5%** VDip Engine: **7.2%**

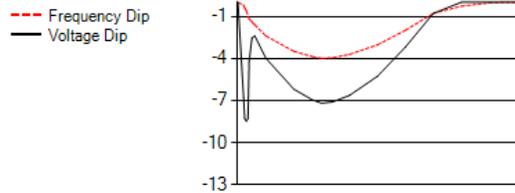
Engine Performance Number: **DM7968**

Top-Level Feature Code: **516DEB3**

Electricity Supply: **3-Phase 50 Hz 400/230 V**

Generator Arrangement Number: **3723056**

Selection Criteria: **Step 3 Running kW requirements**



FDip: 4.0% VDip 1: 8.5% VDip 2: 7.2%

	Selected Generator Set (User Selected Regulator: Best Fit)
Voltage Regulator & Slope	(Standard) 2:1 slope
Gensets Required	1
Factory Genset EkW / kVA	1,820 / 2,275
Genset Model	3516 B
Alternator Frame	1844

Step Number	%SkW of Genset	User Defined/Effective Limit		Voltage Regulator Effect on Transient Response	
		Frequency Dip-%	Voltage Dip-%	CDVR (Standard)	
		Frequency Dip-%	Voltage Dip-%	Frequency Dip-%	Voltage Dip-%
Step1	59.9%	30.0% / 30.0%	30.0% / 30.0%	5.1%	17.0%
Step2	29.9%	30.0% / 30.0%	30.0% / 30.0%	2.0%	9.3%
Step3	50.8%	10.0% / 10.0%	10.0% / 10.0%	4.0%	8.5%

Step 3 Running kW requirements

Performance assumes voltage and frequency stabilization between steps

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ELECTRIC POWER SPECSIZER

- Select Genset: click **View** → Generator Set Details → **Alternator Frame Options**
 - Provides details of all Alternators that are options for selected genset model & rating
 - Can order an Alternator with better Non-Linear load capability
 - e.g. for Data Centers, an option for sites with high harmonic & voltage & current distortion loads

Generator Set Details

Starting & Selection Analysis

Alternator Frame Options ➔

Diagnostics

<< Back To Generator Set Selection

Selected Generator Set Standard & Optional Alternator Frames								Alternator Frame	
Genset Model	Alternator Type	Alternator Arrangement Number	Winding Type	Excitation	Temperature Rise	Standard	Optional	1868	1866
C175-16	SR5	3723068	FORM	PM	105 C		X	3,000.0	
C175-16	SR5	3723068	FORM	PM	105 C		X	3,000.0	
C175-16	SR5	3723064	FORM	PM	125 C		X		2,750.0
C175-16	SR5	3723064	FORM	PM	125 C		X		2,750.0
C175-16	SR5	3723064	FORM	PM	125 C	X			2,750.0
C175-16	SR5	3723064	FORM	PM	125 C	X			2,750.0

Alternator RkVA (selected generator set)

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- Select Genset: click **View** → Generator Set Details → **Diagnostics**
 - Technical data for sized genset: Genset, Alternator, Engine and Project information
 - Diagnose sized genset's technical capabilities; provides useful product numbers for TMI searches, On-Line Price List searches

Generator Set Details L_KP170504_3

Note: The selected genset is USER SELECTED and meets or exceeds the site/load requirements. [Go to Best Fit Genset](#)

DE88E0 (C4.4) Prime, Not Certified, Alternator: R1973L4 SE SR500.
 Factory Rating: 64 EkW / 80 kVA; Site: 59.3 EkW / 74.1 kVA
 Transients Mark 2:1 slope; FDip: VDip Alternator: VDip Engine: Electricity Supply: 3-Phase 50 Hz 400/230 V
 Selection Criteria: Step Passed

<< Back To Generator Set Selection

Genset Diagnostics

Genset Model	Site kW/kVA	Rating kW	Top-Level Feature Code	Facility Code	Source (Price List)	Region
DE88E0 (C4.4)	59.3 / 74.1	64.0 / 80.0				E901 EPNA
						E860 APPS X
						E500 EAME X
						E50W Canada
						E50Z LACD X

Alternator Diagnostics

Genset Model	Site kW/kVA	Rating kW	Alternator Arrangement Number	Alternator Rating kVA	Efficiency	Temperature Rise	Standard	Optional
DE88E0 (C4.4)	59.3 / 74.1	64.0 / 80.0		80.0	90.7	H		

Engine Diagnostics

Genset Model	Site kW/kVA	Rating kW	Performance Number	Rack Stop kW	Max Single Step kW	Fan kW (Power)	Fan Ratio
DE88E0 (C4.4)	59.3 / 74.1	64.0 / 80.0		80.7	70.4	1.0	

Project Diagnostics

Created Date	Last Modified Date	Region Code	Maximum Ambient temperature	Altitude
5/4/2017	5/4/2017	E500	42.0 C	1,500.0 M.A.S.L.

Cooling system Performance →

Alternator Performance →

Engine Performance →

ELECTRIC POWER SPECSIZER

- Compare Gensets' performance: click **View** → **Generator Set Details**

GENSETS

Note: The selected genset is the BEST FIT for the site/load requirements. [Go to Best Fit Genset](#)

Number Of Gensets: **C13 Standby, EPA ESE, ATAC; Alternator: LC6124B AREP C** Engine Performance Number: **EM1694** Top-Level Feature Code: **C13DE51**
RANDOM Electricity Supply: **3-Phase 60 Hz 480/277 V** Generator Arrangement Number: **4183879**
 Factory/Site Rating: **400 EkW / 500 kVA;** Transients **IVR 2:1 slope;** FDip: **3.4%** VDip Alternator: **17.7%** Selection Criteria: **Step 2 Voltage dip restriction**
 VDip Engine: **5.9%**

Compare Gensets ←

Now displaying 901-920 of 934

Model	Generator Set					Alternator								% Genset Capacity Used			
	Factory EkW/kVA	Site EkW/kVA	Duty	Emissions	Feature Code	Site kVA	Arrangement Number	Frame	Excitation	Winding	Type	Std/Opt	RkVA			VDip1	
C13	<input type="checkbox"/>	280 / 350	280 / 350	Prime	LOW BSFC	C13DE02	455	4215088	LC6124D	AREP	RANDOM	LC	Optional	455.0	7.6%	71.4	
C13	<input type="checkbox"/>	280 / 350	280 / 350	Prime	LOW BSFC	C13DE18	455	3969607	LC6114D	SE	RANDOM	LC	Optional	455.0	9.0%	71.4	
C13	<input type="checkbox"/>	280 / 350	280 / 350	Prime	LOW BSFC	C13DE02	455	3969607	LC6114D	SE	RANDOM	LC	Optional	455.0	9.0%	71.4	
C13	<input type="checkbox"/>	280 / 350	280 / 350	Prime	LOW BSFC	C13DE18	400	4215199	LC6134C	PM	RANDOM	LC	Optional	400.0	9.2%	71.4	
C13	<input type="checkbox"/>	280 / 350	280 / 350	Prime	LOW BSFC	C13DE02	400	4215199	LC6134C	PM	RANDOM	LC	Optional	400.0	9.2%	71.4	
C13	<input type="checkbox"/>	280 / 350	280 / 350	Prime	LOW BSFC	C13DE02	400	4215200	LC6124C	AREP	RANDOM	LC	Optional	400.0	9.2%	71.4	
C13	<input checked="" type="checkbox"/>	280 / 350	280 / 350	Prime	LOW BSFC	C13DE18	400	4215199	LC6114C	SE	RANDOM	LC	Optional	400.0	10.8%	-	
C13	<input type="checkbox"/>	280 / 350	280 / 350	Prime	LOW BSFC	C13DE02	400	4215199	LC6114C	SE	RANDOM	LC	Optional	400.0	10.8%	-	
C13	<input checked="" type="checkbox"/>	280 / 350	280 / 350	Prime	LOW BSFC	C13DE33	380	3969606	LC6134B	PM	RANDOM	LC	Standard	380.0	9.3%	71.4	
C13	<input type="checkbox"/>	280 / 350	280 / 350	Prime	LOW BSFC	C13DE18	380	3969606	LC6134B	PM	RANDOM	LC	Standard	380.0	9.3%	71.4	
C13	<input type="checkbox"/>	280 / 350	280 / 350	Prime	LOW BSFC	C13DE02	380	3969606	LC6134B	PM	RANDOM	LC	Standard	380.0	9.3%	71.4	
C13	<input checked="" type="checkbox"/>	280 / 350	280 / 350	Prime	LOW BSFC	C13DE02	380	4215087	LC6124B	AREP	RANDOM	LC	Optional	380.0	9.3%	71.4	

Connecting For Success...

ELECTRIC POWER SPECSIZER

- Compare Gensets' performance – compares 37 parameters of the selected gensets

GENSETS				
<< Back to Generator Set Selection		Show All Rows		
	<input checked="" type="checkbox"/> Best Fit	<input type="checkbox"/> User Selected	<input type="checkbox"/> User Selected	<input type="checkbox"/> User Selected
	Select	<input checked="" type="checkbox"/> Selected	Select	Select
	Select	Select	Select	Select
Voltage Regulator & Slope	Standard 2:1 - IVR	Standard 1:1 - R450M	Standard 1:1 - R450M	Standard 2:1 - IVR
Emissions Cert.	EPA ESE	LOW BSFC	LOW BSFC	EPA ESE
Fan bKW	433.00	439.50	439.50	433.00
Block Load Transient Response (0-100)	14.4% FDip 28.0% VDip 3.4 RT (sec)	> 80.0% FDip > 80.0% VDip **** RT (sec)	> 80.0% FDip > 80.0% VDip **** RT (sec)	14.4% FDip 28.0% VDip 3.4 RT (sec)
Site Alternator	508.8	604.2	508.8	508.8
Voltage Regulator Effect on Transient Response	5.0% FDip 24.4% VDip Alternator 9.2% VDip Engine	5.1% FDip 23.9% VDip Alternator 1.1% VDip Engine	5.1% FDip 24.4% VDip Alternator 1.1% VDip Engine	5.0% FDip 24.4% VDip Alternator 9.2% VDip Engine
Alternator Arrangement Number	4183879	4215091	3969606	4183863
Alternator Rating kVA	508.8	604.2	508.8	508.8
Alternator Frame	LC6124B	LC6114D	LC6134B	LC6134B
Alternator RkVA	508.8	604.2	508.8	508.8
Alternator Excitation	AREP	SE	PM	PM
(Alternator) Temperature Rise	150	105	150	150
Alternator Subtransient				

- Max 3 products can be compared against the best fit genset.

Connecting For Success...

ELECTRIC POWER SPECSIZER

- Data & Reports:

Project Sizing Report

Load Report

Transient Performance Report

- Sizing Report – Provides Project, Load Analysis, Genset, Engine & Alternator data for sized Genset

1. Define Site Conditions ▶ 2. Add Loads ▶ 3. Select Genset ▶ **4. Data & Reports**

Project Sizing Report

1 of 1 100% Find | Next

CATERPILLAR **Project Sizing Report** Price List: EAME/CIS

Modified Date	4/8/2014	Electricity Supply Connection	50 Hz 400/230 V STAR
Customer Name		Max. Ambient Temperature	77.0 F
Project Name/Ref #	UPS loads- Optimized	Altitude	500.0 Ft. A.S.L
Prepared By	bakersj		

Load Analysis Summary

Max Transient Load Step	3,705.0 SkVA	1,037.4 SkW	
Peak Transient Load	3,705.0 SkVA	1,130.4 SkW	
Final Running Load	1,856.3 kVA	1,682.1 kW	0.91 PF
Max Running Non Linear Load	1,093.6 RkVA		
Maximum Running Load	1,856.3 kVA	1,682.1 kW	

Generator Set

Genset Model	(1) of 3516 B	Nameplate Rating	1,820.0 kW / 2,275.0 kVA
Voltage Regulator and Slope	CDVR, 3:1 slope		0.8 PF
Feature Code	516DE92	Site Output	1,820.0 kW / 2,275.0 kVA
Fuel	Diesel	Rating Type	Prime
Dry Weight	0.0 lbs		
Length / Width / Height	249.1in / 90.0in / 93.2in		

Selected generator set requires a CDVR voltage regulator, with slope adjustment of 3:1 slope

Alternator Motor Starting Capability *		Block Load (only) Transient Response *			
Instantaneous Voltage Dip ***	skVA Capability	Load Change %	FDip %	VDip %	Recovery Time (sec)
10%	1,684	0 - 25	1.9	4.5	< 3
20%	3,788	0 - 50	4.1	11.0	< 3
30%	6,494	0 - 75	7.6	21.5	< 3
35%	8,159	0 - 100	12.2	35.5	4.2

Engine Technical Data at 100% Load

Make/Model	3516 B	Emissions/Certifications	LOW BSFC
Aspiration	TA	Governor	ADEM3
Cylinder Configuration	VEE - 16	Aftercooler Type	SCAC
Displacement	4,765 Cubic Inch / 78 Liter	Rejection To Jacket Water	33,268 BTU/min

Connecting For Success...

ELECTRIC POWER SPECSIZER

- Data & Reports: **Load Report**

- Worst sizing factors (Inrush, Running & Non-Linear) are boxed in load step they occur; work to reduce these sizing parameters to downsize genset
- Transient graph provided for each load step

Project Sizing Report
 Project Sizing Report
Project Load Report
 Transient Performance Report

CATERPILLAR Project Load Report

Modified Date	4/8/2014	Rating Type	Prime	Max Ambient Temperature	77 Deg. F
Customer Name	Diesel	Fuel	Diesel	Altitude	500.0 Ft. A.S.L.
Project Name/Ref #	UPS loads- Optimized	Electricity Supply	50 Hz 400/230 V		
Prepared By	bakersj				

Load Step	Load Details	Permitted Dip		Permitted Dip		Load Analysis				Fdip:	Vdip 1:	Vdip 2:	
		Frequency	Voltage	Frequency	Voltage	Transient Inrush	Running	Resultant Peak	Cumulative Running				
						SkVA	SkW	kVA	kW	SkVA	SkW	kVA	kVA
Step 1 Selection Criteria: Step Passed													
1.1	1 500.00 HP - Motor - NEMA IEC, 3-Phase Motor, Direct On Line, Loaded, Single Operating Point	30%	30%			3,705.0	1,037.4	431.5	388.4				
Step 1 Total		30%	30%	4.6%	19.6%	3,705.0	1,037.4	431.5	388.4				
Total Through Step 1						3,705.0	1,037.4	431.5	388.4				
Step 2 Selection Criteria: Step Passed													

Connecting For Success...

ELECTRIC POWER SPECSIZER

- Data & Reports: **Transient Performance Report**

- Load Scenario – load step & step’s transients that the genset sizing is based upon
- Selected Generator Set – factory block load test, transient response at 25% load changes

1. Define Site Conditions | 2. Add Loads | 3. Select Genset | **4. Data & Reports**

Transient Performance Report

Price List: EAME/CIS

Load Scenario

Step 3

Frequency Dip	Voltage Dip
Permitted - 10.0%	Permitted - 10.0%
Predicted - 2.1%	Predicted - 9.8%
	Synchronous (Vdip 1) - 9.8%
	Frequency-induced (Vdip 2) - 5.2%

Selection Criteria: Voltage dip restriction

Fdip:	Vdip 1:	Vdip 2:
2.1%	9.8%	5.2%

Selected Generator Set

1,280.0 EKW / 1,600.0 kVA 50 Hz Prime, 400/231V, 3512 SCAC LOW BSFC, 1667 PM SR5 FORM, CDVR 3:1 slope

Load Change %	FDip %	VDip %	Recovery Time (sec)
0 - 25	1.5	3.3	< 3
0 - 50	3.0	7.9	< 3
0 - 75	5.9	16.6	< 3
0 - 100	10.6	30.6	3.5

0 - 100 Load Change %

Transient Performance

The selected representative generator set was factory tested in accordance to NFPA 110 block load step capability and acceptable frequency and voltage response on load addition and rejection.

* Block Load (only) Transient Response values are at factory conditions. Genset block load capabilities at site conditions may vary from factory transient response test results due to a variance in site altitude or ambient conditions.

Connecting For Success...

ELECTRIC POWER SPECSIZER

- Sales Support web links & documents

Create Guide Spec Customer Sales Support Links Dealer Sales Support Links

1. Define Site Conditions ▶ 2. Add Loads ▶ **3. Select Genset** ▶ 4. Data & Reports

GENSETS

✓ The project has been successfully saved.

✓ Note: The selected genset is the BEST FIT for the site/load requirements. [Go to Best Fit Genset](#)

Number Of Gensets: 1 ▼

50 Hz 400/231V 3516 Prime, LOW BSFC, SCAC; Alternator: 1844 PM SR5 FORM
Factory/Site Rating: 1,820 EkW / 2,275 kVA;
Transients CDVR 3:1 slope; FDip: 1.8% VDip Alternator: 2.3% VDip Engine: 4.1% Selection Criteria: Step 4 Running kW requirements

Compare Selected Compare Optional vs Standard

Create Guide Spec Customer Sales Support Links Dealer Sales Support Links

Guide Spec Document Generation

Engine Model: 3516
Duty: Prime
Voltage: 400/230 V
Factory kW Rating: 1820
Frequency: 50 Hz
Alternator Excitation: PM

Customer Sales Support Links

Electronic Media Center (EMC)
EDDC*

Dealer Sales Support Links

Power Net*
Electronic Media Center (EMC)
TMI Web*
EDDC*

Note: Guide Spec & Sales Support Links are accessible from 'Select Genset' page

Connecting For Success...

ELECTRIC POWER SPECSIZER

- **Guide Spec** – Editable MSWord doc
 - Available in language you have selected in “User Preferences”

Guide Spec Document Generation

Engine Model: 3512
Duty: Prime
Voltage: 400/230 V
Factory kW Rating: 1280
Frequency: 50 Hz
Alternator Excitation: PM

Control Panel		Battery Charger	
EMCP 3.1	<input type="radio"/>	Standard	<input checked="" type="radio"/>
EMCP 3.2	<input type="radio"/>	Premium	<input type="radio"/>
EMCP 3.3	<input type="radio"/>	None	<input type="radio"/>
EMCP 4.1	<input type="radio"/>	Enclosure	
EMCP 4.2	<input checked="" type="radio"/>	Weather Proof	<input checked="" type="radio"/>
EMCP 4.3	<input type="radio"/>	Sound Attenuated	<input type="radio"/>
EMCP 4.4	<input type="radio"/>	User defined	<input type="radio"/>
Control Panel Options		None	<input type="radio"/>
Local Annunciator	<input type="checkbox"/>	Start Module	
Remote Annunciator	<input type="checkbox"/>	Generator Set Start Module (GSM)	<input checked="" type="checkbox"/>
Generator Temp. Monitoring	<input type="checkbox"/>	120 kVA Single Module	<input type="checkbox"/>
Additional I/O Module	<input type="checkbox"/>		

Erstellen

| [Zurück](#) Spezifikationsleitfaden wird erstellt. Dies kann einen Moment dauern.

Connecting For Success...

ELECTRIC POWER SPECSIZER

Note: Guide Spec comprised of (3) sections: Genset, ATS & Switchgear

Guide Specification

Dealer Information

Name:
Address:
Phone Number:
Prepared By:
Email:

Package Generator Set

1.1 GENERAL

1.1.1 References and Standards

The generator set covered by these specifications shall be designed, tested, rated, assembled and installed in strict accordance with all applicable standards below:

- CSA C22.2 No14
- CSA 282
- CSA 100
- EN61000-6
- EN55011
- FCC Part 15 Subpart B
- ISO8528
- IEC61000
- UL508
- UL2200
- UL142

PAGE 1 OF 12 2650 WORDS ENGLISH (UNITED STATES) 94%

Connecting For Success...

ELECTRIC POWER SPECSIZER

- **File Sharing:**

Click (edit) command located on line with file name

Select from previously added Users

Or

Add user's email address in 'Add' box. Save.

My SpecSizer

Create A New 3-Phase Project

Create A New Single Phase Project

Create A New Folder

Search:

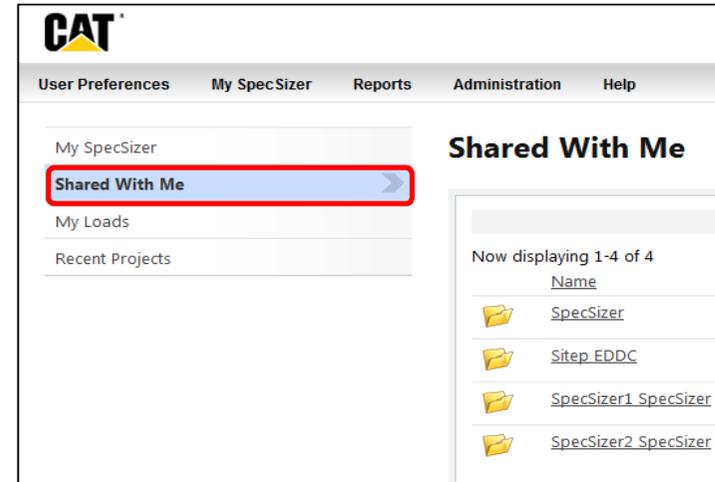
Now displaying 11-20 of 261

<u>Name</u>	<u>Region</u>	<u>Last Modified</u>	<u>Delete</u>
 Bayfield Courthouse rev1	United States	Currently Shared with 2 user(s). (edit)	1/31/2014 8:21 AM Copy/Move 

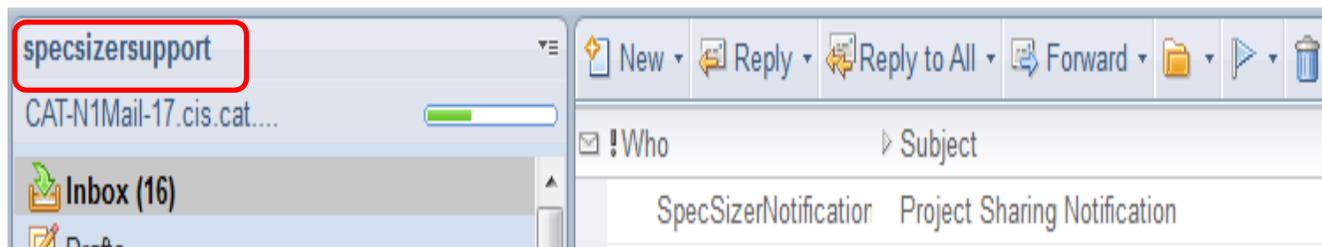
Connecting For Success...

ELECTRIC POWER SPECSIZER

- **File Sharing:** To view files shared with you - Select “Shared With Me”



- **SpecSizer Help & Support – email inquiry to specsizersupport@cat.com**
 - Share user sizing file with specsizersupport@cat.com | Share file using (edit) link



Connecting For Success...

GAS GENSETS IN SPECSIZER

Site Conditions - Generator Set Duty

SITE CONDITIONS

Generator Set Duty: All ?

Fuel: Standby / MCS
Continuous
All

Fuel Subtype: Natural Gas Methane #: 85

Genset Availability: Products are available for the selected site conditions. (423.0 - 1,500.0 EkW)

	Continuous	Prime	Standby	Emergency Standby	Mission Critical
Average Power Output	70 - 100%	70%	70%	70%	85%
Load	Non-Varying		Varying		
Typical Hours/Year	Unlimited	Unlimited	200	50	200
Typical Peak Demand	100%	100% of Prime with 10% Overload for a max of 1 hour in 12			100% for 5% of operating time
Maximum Expected Usage			500	200	
Typical Application	Base Load, Utility or Co-Gen	Industrial, Pumping, Construction, Rental, or Co-Gen	Standby	Building Service Standby	Data Centers, Healthcare

NG Gas Genset Continuous Power Output

G3412C 61 - 100%

G3500TA 51 - 100%

Connecting For Success...

Site Conditions – Small Gas Gensets ($\leq 150\text{ekW}$)

SITE CONDITIONS

Generator Set Duty:	Standby / MCS	Unit of Measure:	English
Fuel:	Natural gas ($\leq 150\text{ekW}$)	Maximum Ambient:	25.00 Deg C 77 Deg F
Electrical System Connection:	3-Phase	Altitude:	152.40 M.A.S.L. 500 Ft.A.S.L.
Electrical Supply:	60 Hz 480/277 V	% Humidity:	30
Sizing Method:	Conventional	UL Listed:	Both
Percent (%) of Intermittent Motors:	25	Transient Restrictions:	Load Level
Expansion Capacity (%):	0	Emissions Certification:	All Certified & Non-Certified
Additional Genset Information:	None	Voltage Regulator:	Best Fit
NOx Level:	All		

Genset Availability: Products are available for the selected site conditions (50.0 - 150.0 EkW)

Connecting For Success...

Site Conditions – Fuel Subtype, Ambient , & Altitude

SITE CONDITIONS

Generator Set Duty: Standby / MCS Unit of Measure: English

Fuel: Gaseous Fuel (> 150ekW) Maximum Ambient: 25.0 Deg C 77.0 Deg F

Fuel Subtype: Custom Gaseol Methane #: Altitude: 152.4 M.A.S.L. 500.0 Ft.A.S.L.

Electrical System Connection: Field Gas % Humidity: 30

Electrical Supply: Methane #90 480/277 V

Sizing Method: Methane #70

Percent (%) of Intermittent: Custom Gaseous Fuel

Similar to GERP, SpecSizer applies a de-rate based on Ambient/Altitude or fuel MN

- **Site Specific Fuel** - calculate the MN using the GERP fuel editor. Select the Custom Gaseous Fuel subtype and enter in the MN value.
- Methane Number (MN) is a measure of a gaseous fuel's resistance to uncontrolled combustion or detonation.

Fuel Analysis

Constituent	Abbrev	Mole Percent	Norm
Water Vapor	H2O	0.0000	0.0000
Methane	CH4	85.3500	85.3500
Ethane	C2H6	2.3130	2.3130
Propane	C3H8	5.0880	5.0880
Isobutane	iso-C4H10	2.8750	2.8750
Normalbutane	nor-C4H10	0.1850	0.1850
Isopentane	iso-C5H12	0.0000	0.0000
Normalpentane	nor-C5H12	0.0930	0.0930
Hexane	C6H14	0.0460	0.0460
Heptane	C7H16	0.0000	0.0000
Nitrogen	N2	3.2170	3.2170
Carbon Dioxide	CO2	0.8330	0.8330
Hydrogen Sulfide	H2S	0.0000	0.0000
Carbon Monoxide	CO	0.0000	0.0000
Hydrogen	H2	0.0000	0.0000
Oxygen	O2	0.0000	0.0000
Helium	HE	0.0000	0.0000
Neopentane	neo-C5H12	0.0000	0.0000
Octane	C8H18	0.0000	0.0000
Nonane	C9H20	0.0000	0.0000
Ethylene	C2H4	0.0000	0.0000
Propylene	C3H6	0.0000	0.0000

Total: 100.0000 100.0000

Choose Predefined Fuel Makeup: Gas Analysis Unit of Measure: English

Calculated Fuel Properties

Caterpillar Methane Number: 64.0

Lower Heating Value (Btu/scf): 1032
Higher Heating Value (Btu/scf): 1140
WOBBE Index (Btu/scf): 1249

THC Free Inert Ratio: 23.69
Total % Inerts (% N2, CO2, He): 4.05%
RPC (%) (To 905 Btu/scf Fuel): 100%

Compressibility Factor: 0.997
Stoich A/F Ratio (Vol/Vol): 10.73
Stoich A/F Ratio (Mass/Mass): 15.71
Specific Gravity (Relative to Air): 0.683
Specific Heat Constant (K): 1.298

Calculate Clear Save As Delete Print Warning Next Press "F1" for Help

Note: When ambient air is part of the fuel composition, split the percentage of air into 79% Nitrogen (N2) and 21% Oxygen (O2) and add these values to the fuel composition N2 and O2 values.

Connecting For Success...

Site Conditions – Sizing Method

SITE CONDITIONS

Generator Set Duty: ?

Fuel:

Fuel Subtype: Methane #:

Electrical System Connection: 3-Phase

STEP LIST

Step Name	Step		Peak		Running		Non-Linear		Effective	
	SkVA	SkW	SkVA	SkW	kVA	kW	SkVA	RkVA	Frequency	Voltage
There are no steps to display										

Genset Power

You've selected 'Parallel to Grid' as your sizing methodology. What genset power would you like to select?

Genset Power: kW

LOAD LIST

Load Name	kW	Non-Linear		User Defined/Effective	
		SkVA	RkVA	Frequency	Voltage
There are no loads to display					

Parallel to Grid (Sizing mode)

Sizing based on conventional low voltage site conditions. Site conditions table frequency will be voltage deviation (5% to 35%)

Connecting For Success...

Site Conditions – Parallel to Grid Sizing

SITE CONDITIONS

GENERATOR SET

Lowest Purchase (Initial) Cost
 Lowest Operational (Fuel) Cost
 Hide Gensets That Do Not Fit

Now displaying 21-40 of 40

Generator Set							Alternator								% Genset Capacity Used	
Model	Rating Strategy	Factory EkW/kVA	Site EkW/kVA	Duty	Emissions	Feature Code	Site kVA	Arrangement Number	Frame	Excitation	Winding	Type	Std/Opt	RkVA	VDip1	
G3516 C	Std	*1,475 / 1,843	*1,365.1 / 1,706.4	Continuous	NOx - 0.5	DTO	2,563	2947498	826	PM	FORM	SR4B	Standard	2,563.0	-	73.3
G3516 C	Std	*1,475 / 1,843	*1,365.1 / 1,706.4	Continuous	NOx - 1	DTO	2,563	2947498	826	PM	FORM	SR4B	Standard	2,563.0	-	73.3
G3516 C	Std	*1,500 / 1,875	*1,494.5 / 1,868.1	Standby	NOx - 0.5	DTO	2,813	1441826	826	PM	FORM	SR4B	Standard	2,813.0	-	66.9
G3516 C	Std	*1,500 / 1,875	*1,496.1 / 1,870.2	Standby	NOx - 0.5	DTO	3,125	1441828	827	PM	FORM	SR4B	Optional	3,125.0	-	66.8
G3516 C	Std	*1,500 / 1,875	*1,497.7 / 1,872.2	Standby	NOx - 0.5	DTO	3,438	1441830	828	PM	FORM	SR4B	Optional	3,438.0	-	66.8
G3516 C	Std	*1,500 / 1,875	*1,494.5 / 1,868.1	Standby	NOx - 1	DTO	2,813	1441826	826	PM	FORM	SR4B	Standard	2,813.0	-	66.9
G3516 C	Std	*1,500 / 1,875	*1,496.1 / 1,870.2	Standby	NOx - 1	DTO	3,125	1441828	827	PM	FORM	SR4B	Optional	3,125.0	-	66.8
G3516 C	Std	*1,500 / 1,875	*1,497.7 / 1,872.2	Standby	NOx - 1	DTO	3,438	1441830	828	PM	FORM	SR4B	Optional	3,438.0	-	66.8
G3516 C	Std	*1,660 / 2,075	*1,460.5 / 1,825.6	Continuous	NOx - 0.5	516GE5Z	2,281	1638544	825	PM	FORM	SR4B	Standard	2,281.0	-	68.5
G3516 C	Std	*1,660 / 2,075	*1,465 / 1,831.3	Continuous	NOx - 0.5	516GE5Z	2,563	1441826	826	PM	FORM	SR4B	Optional	2,563.0	-	68.3
G3516 C	Std	*1,660 / 2,075	*1,468.1 / 1,835.1	Continuous	NOx - 0.5	516GE5Z	2,844	1441828	827	PM	FORM	SR4B	Optional	2,844.0	-	68.1
G3516 C	Std	*1,660 / 2,075	*1,460.5 / 1,825.6	Continuous	NOx - 1	516GE5Z	2,281	1638544	825	PM	FORM	SR4B	Standard	2,281.0	-	68.5
G3516 C	Std	*1,660 / 2,075	*1,465 / 1,831.3	Continuous	NOx - 1	516GE5Z	2,563	1441826	826	PM	FORM	SR4B	Optional	2,563.0	-	68.3
G3516 C	Std	*1,660 / 2,075	*1,468.1 / 1,835.1	Continuous	NOx - 1	516GE5Z	2,844	1441828	827	PM	FORM	SR4B	Optional	2,844.0	-	68.1
G3516 C	Std	*1,550 / 1,937	*1,550 / 1,937	Continuous	NOx - 0.5	DTO	3,094	1441830	828	PM	FORM	SR4B	Optional	3,094.0	-	64.5
G3516 C	Std	*1,550 / 1,937	*1,550 / 1,937	Continuous	NOx - 0.5	DTO	2,844	1441828	827	PM	FORM	SR4B	Optional	2,844.0	-	64.5
G3516 C	Std	*1,550 / 1,937	*1,550 / 1,937	Continuous	NOx - 0.5	DTO	2,563	1441826	826	PM	FORM	SR4B	Standard	2,563.0	-	64.5
G3516 C	Std	*1,550 / 1,937	*1,550 / 1,937	Continuous	NOx - 1	DTO	3,094	1441830	828	PM	FORM	SR4B	Optional	3,094.0	-	64.5
G3516 C	Std	*1,550 / 1,937	*1,550 / 1,937	Continuous	NOx - 1	DTO	2,844	1441828	827	PM	FORM	SR4B	Optional	2,844.0	-	64.5
G3516 C	Std	*1,550 / 1,937	*1,550 / 1,937	Continuous	NOx - 1	DTO	2,563	1441826	826	PM	FORM	SR4B	Standard	2,563.0	-	64.5

Max EkW/kVA + Rating 1 2 - Rating Min EkW/kVA

Jump to EkW: 2,483 2,469 2,050 1,982 1,966 1,660 1,600 *1,550 1,500 1,475
 (* denotes Bestfit EkW)

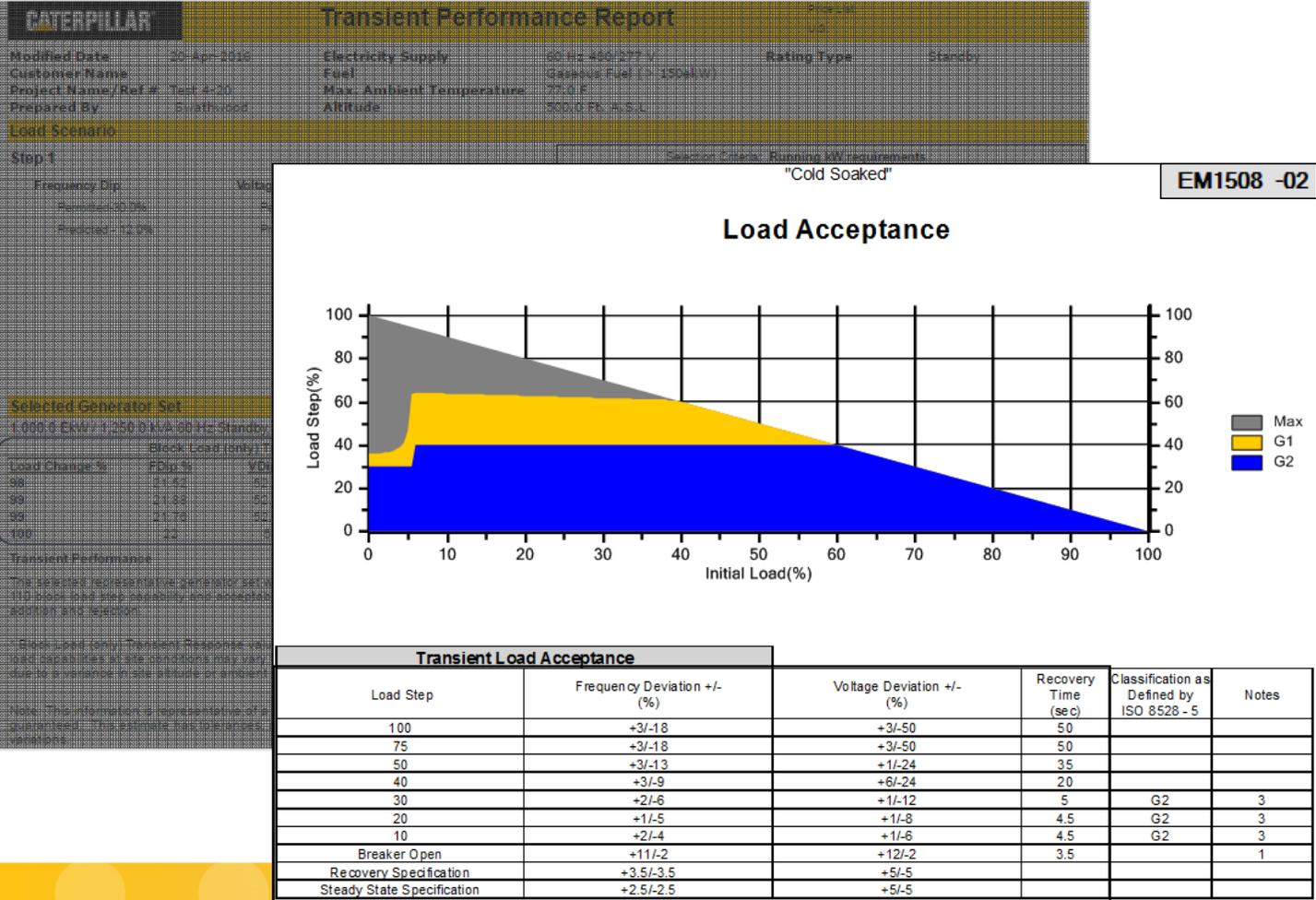
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Site Conditions – Include Without Engine Driven Pumps Ratings Filter

SITE CONDITIONS		Generator Set							
		Model	Rating Strategy	Factory EkW/kVA	Site EkW/kVA	Duty	Emissions	Feature Code	
Electrical S		G3516 C	Std	*1,500 / 1,875	*1,497.7 / 1,872.2	Standby	NOx - 0.5	DTO	
		G3516 C	Std	*1,500 / 1,875	*1,497.7 / 1,872.2	Standby	NOx - 1	DTO	
		G3516 C	Std	*1,500 / 1,875	*1,496.1 / 1,870.2	Standby	NOx - 0.5	DTO	
		G3516 C	Std	*1,500 / 1,875	*1,496.1 / 1,870.2	Standby	NOx - 1	DTO	
		G3516 C	Std	*1,550 / 1,937	*1,550 / 1,937	Continuous	NOx - 1	DTO	
		G3516 C	Std	*1,550 / 1,937	*1,550 / 1,937	Continuous	NOx - 0.5	DTO	
 Asterisked ratings (*) are without fan, (†) marked ratings denote units which do not include engine driven cooling pumps. These engine cooling loads must be accounted for in the load scenario. 									
Expa	Additional C	G3516 C	Std	*1,660 / 2,075	*1,660 / 2,075	Continuous	NOx - 1	516GE5Z	
		G3516 C	Std	*1,660 / 2,075	*1,660 / 2,075	Continuous	NOx - 0.5	516GE5Z	
Include ratings that engine mount		G3516 H	HE	*† 1,982 / 2,477	*† 1,982 / 2,477	Continuous	NOx - 0.5	516GE6F	
		G3516 H	HE	*† 1,982 / 2,477	*† 1,982 / 2,477	Continuous	NOx - 1	516GE6F	
		G3516 H	HR	*† 1,982 / 2,477	*† 1,982 / 2,477	Continuous	NOx - 0.5	516GE6H	
Genset Av		G3516 H	HR	*1,966 / 2,457	*1,966 / 2,457	Continuous	NOx - 1	516GE5P	
		G3516 H	HE	*1,966 / 2,457	*1,966 / 2,457	Continuous	NOx - 1	516GE6G	
		G3516 H	HE	*1,966 / 2,457	*1,966 / 2,457	Continuous	NOx - 0.5	516GE6G	
		G3516 H	HR	*† 1,982 / 2,477	*† 1,982 / 2,477	Continuous	NOx - 1	516GE6H	
		G3516 H	HR	*1,966 / 2,457	*1,966 / 2,457	Continuous	NOx - 0.5	516GE5P	
		G3516 C	Std	*1,500 / 1,875	*1,494.5 / 1,868.1	Standby	NOx - 0.5	DTO	
		G3516 C	Std	*1,500 / 1,875	*1,494.5 / 1,868.1	Standby	NOx - 1	DTO	

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Data & Reports – Recovery Time



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ELECTRIC POWER SPECSIZER

- Thank You....



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