



Recommended Generator Report - C70 N6

Project - Creede WTP

Comments -

Project Requirements

Frequency, Hz	: 60.0	Generators Running in Parallel	: 1
Duty	: Standby	Site Altitude, ft(m)	: 8800(2682)
Voltage	: 277/480, Series Wye	Site Temperature, °C	: 38
Phase	: 3	Max. Altr Temp Rise, °C	: 105
Fuel	: Propane	Project Voltage Distortion Limit, %	: 10
Emissions	: EPA, stationary emergency application		

Calculated Individual Generator Set Load Running and Peak Requirements

Running kW	: 61.9	Max. Step kW	: 53.2 In Step 1	Cumulative Step kW	: 74.4
Running kVA	: 69.6	Max. Step kVA	: 142.5 In Step 1	Cumulative Step kVA	: 142.5
Running PF	: 0.89	Peak kW	: None	Cumulative Peak kW	: None
Running NLL kVA	: 0.0	Peak kVA	: None	Cumulative Peak kVA	: None
Alternator kW	: 61.9			Pct Rated Capacity	: 89.6

Generator Set Configuration

Alternator	: UC3D	Engine	: QJS5.9G-G3
BCode	: BB88	Fuel	: Propane
Excitation	: Shunt	Displacement, cu in. (Litre)	: 359.0(5.9)
Voltage Range	: 220/127V	Cylinders	: 6
Number of Leads	: 12	Altitude Knee, ft(m)	: 8500(2591)
Reconnectable	: No	Altitude Slope, % per 1000ft(304.8m)	: 4
Full Single Phase Output	: No	Temperature Knee, °F(°C)	: 104(40)
Increased Motor Starting	: No	Temperature Slope, % per 18°F(10.0°C)	: 2
Extended Stack	: No	Emissions	: EPA NSPS Part 60
		Cooling Package	:

Set Performance

Load Requirements

Running At	: 89.6% Rated Capacity	Max. Allowed Step Voltage Dip	: 35 In Step 1
Max. Step Voltage Dip, %	: 26	Max. Allowed Step Frequency Dip	: 10 In Step 1
Max. Step Frequency Dip, %	: 5	Peak Voltage Dip Limit %	: 35.0
Peak Voltage Dip, %	:	Peak Frequency Dip Limit %	: 10
Peak Frequency Dip, %	:	Running kW	: 61.9
Site Rated Standby kW/kVA	: 69 / 86	Running kVA	: 69.6
Site Rated Max. SkW	: 103	Effective Step kW	: 66.6
Max. SkVA	: 360	Effective Step kVA	: 142.5
Temp Rise at Full Load, °C	: 120	Percent Non-Linear Load	: 0.0
Voltage Distortion	:	Voltage Distortion Limit	: 10
Site Rated Max Step kW Limit	:	Max Step kW	:

*Note: Higher temperature rise at full rated load.

*Note: All generator set power derates are based on open generator sets.



Loads Summary Report

Project - Creede WTP

Comments -

Project Requirements

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Voltage	: 277/480, Series Wye	Site Temperature, °C	: 38
Phase	: 3	Max. Altr Temp Rise, °C	: 105
Fuel	: Propane	Project Voltage Distortion Limit, %	: 10
Emissions	: EPA, stationary emergency application		

Loads Summary List

*Note: Detailed Loads and Step Report available below

Step No.	Load Name	Quantity	Running		Starting		Peak		Dip Limits, %		VTHD% Limit
			kW	kVA	kW	kVA	kW	kVA	Vdip	Fdip	
Step01	User Defined Load 1	1	3.5	4.38	3.5	4.38	None	None	35.0	10.0	0.0
Step01	Booster Pump 1	1	49.73	55.26	49.73	138.15	None	None	35.0	10.0	10.0
Step Summary			53.0	60.0	53.0	143.0	None	None	35.0	10.0	10.0
Step02	Well Pump 1	1	8.67	9.97	21.14	39.88	None	None	35.0	10.0	10.0
Step Summary			9.0	10.0	21.0	40.0	None	None	35.0	10.0	10.0
Project Summary			Running		Max Starting		Cumulative Step		Cumulative Peak		Project VTHD% Limit
			kW	kVA	kW	kVA	kW	kVA	kW	kVA	
			61.9	69.6	53.2	142.5	74.4	142.5	0.0	0.0	10.0

*Note: Detailed Loads and Step Report available below



Loads and Steps Detail Report

Project - Creede WTP

Comments -

Project Requirements

Frequency, Hz	: 60.0	Generators Running in Parallel	: 1
Duty	: Standby	Site Altitude, ft(m)	: 8800(2682)
Voltage	: 277/480, Series Wye	Site Temperature, °C	: 38
Phase	: 3	Max. Altr Temp Rise, °C	: 105
Fuel	: Propane	Project Voltage Distortion Limit, %	: 10
Emissions	: EPA, stationary emergency application		

Calculated Individual Generator Set Load Running and Peak Requirements

Running kW	: 61.9	Max. Step kW	: 53.2 In Step 1	Cumulative Step kW	: 74.4
Running kVA	: 69.6	Max. Step kVA	: 142.5 In Step 1	Cumulative Step kVA	: 142.5
Running PF	: 0.89	Peak kW	: None	Cumulative Peak kW	: None
Running NLL kVA	: None	Peak kVA	: None	Cumulative Peak kVA	: None
Alternator kW	: 61.9				

Step1

Calculated Individual Generator Set Step Load Requirements

Running kW	: 53.0	Starting kW	: 53.0	Cumulative Step kW	: 53.0
Running kVA	: 60.0	Starting kVA	: 143.0	Cumulative Step kVA	: 143.0
Running Amps	: 72.0	Starting Non-linear kVA	: 138.0		
Running Non-linear kVA	: 0.0				
Alternator kW	: 53.23				
Voltage Distortion Limit for step	: 10				

User Defined Load 1		Three Phase	Quantity	: 1 In this Step
Category	: User Defined			

Running kW	: 3.5	Starting kW	: 3.5	Peak kW	: None
Running kVA	: 4.38	Starting kVA	: 4.38	Peak kVA	: None
Running PF	: 0.8	Starting PF	: 0.8	Cyclic	: No
Running Amps	: 5.27	Max. % Voltage Dip	: 35.0	Max. % Frequency Dip	: 10.0
Alternator kW	: 3.5			Voltage	: 480

Booster Pump 1		Three Phase	Quantity	: 1 In this Step
Category	: Motor			

Running kW	: 49.73	Starting kW	: 49.73	Peak kW	: None
Running kVA	: 55.26	Starting kVA	: 138.15	Peak kVA	: None
Running PF	: 0.9	Starting PF	: 0.36	Cyclic	: No

Running Amps	: 66.55	Max. % Voltage Dip	: 35.0	Max. % Frequency Dip	: 10.0
Running NLL kVA	: 0.0				
Starting NLL kVA	: 138.15			Voltage	: 480
Alternator kW	: 49.73				
Shaft Hp	: 60.0	Method		: Solid State	
Shaft kW	: 44.76	Current Limit		: 250.0	
Efficiency (%)	: 0.9	LRkVA Factor		: 5.9	
Design	: Standard NEMA Design B,C or D	LRkVA Code		: G	
Rectifier Type	: 6 pulse	THDI %		: 26	
		THDV %		: 10	
Load Factor	: 100.0				

Step2

Calculated Individual Generator Set Step Load Requirements

Running kW	: 9.0	Starting kW	: 21.0	Cumulative Step kW	: 74.0
Running kVA	: 10.0	Starting kVA	: 40.0	Cumulative Step kVA	: 100.0
Running Amps	: 12.0	Starting Non-linear kVA	: 40.0		
Running Non-linear kVA	: 0.0				
Alternator kW	: 8.67				
Voltage Distortion Limit for step	: 10				

Well Pump 1		Three Phase	Quantity	: 1 In this Step
Category	: Motor			

Running kW	: 8.67	Starting kW	: 21.14	Peak kW	: None
Running kVA	: 9.97	Starting kVA	: 39.88	Peak kVA	: None
Running PF	: 0.87	Starting PF	: 0.53	Cyclic	: No
Running Amps	: 12.01	Max. % Voltage Dip	: 35.0	Max. % Frequency Dip	: 10.0
Running NLL kVA	: 0.0				
Starting NLL kVA	: 39.88			Voltage	: 480
Alternator kW	: 8.67				
Shaft Hp	: 10.0	Method		: Solid State	
Shaft kW	: 7.46	Current Limit		: 400.0	
Efficiency (%)	: 0.86	LRkVA Factor		: 6.7	
Design	: Standard NEMA Design B,C or D	LRkVA Code		: H	
Rectifier Type	: 6 pulse	THDI %		: 26	
		THDV %		: 10	
Load Factor	: 100.0				



Steps and Dips Details Report

Project - Creede WTP

Project Requirements

Frequency, Hz	: 60.0	Generators Running in Parallel	: 1
Duty	: Standby	Site Altitude, ft(m)	: 8800(2682)
Voltage	: 277/480, Series Wye	Site Temperature, °C	: 38
Phase	: 3	Max. Altr Temp Rise, °C	: 105
Fuel	: Propane	Project Voltage Distortion Limit, %	: 10
Emissions	: EPA, stationary emergency application		

Calculated Individual Generator Set Load Running and Peak Requirements

Running kW	: 61.9	Max. Step kW	: 53.2 In Step 1	Cumulative Step kW	: 74.4
Running kVA	: 69.6	Max. Step kVA	: 142.5 In Step 1	Cumulative Step kVA	: 142.5
Running PF	: 0.89	Peak kW	: None	Cumulative Peak kW	: None
Running NLL kVA	: 0.0	Peak kVA	: None	Cumulative Peak kVA	: None
Alternator kW	: 61.9				

Generator Set Configuration

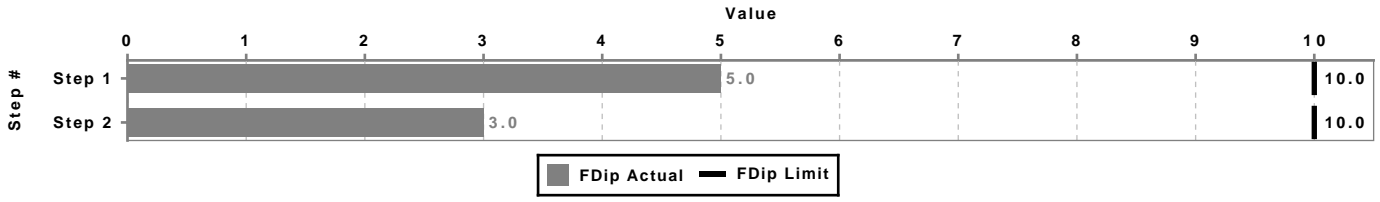
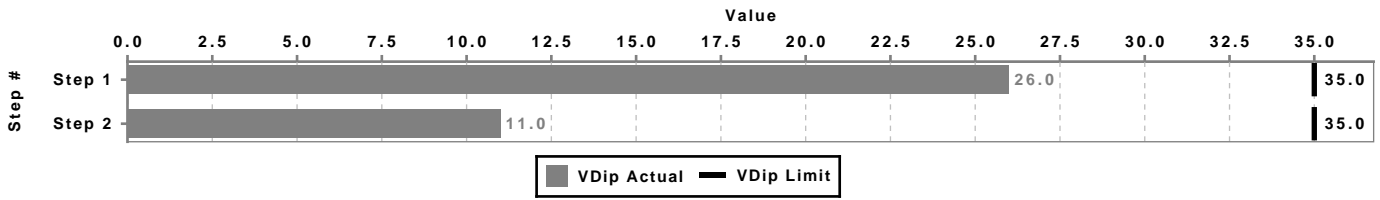
Model	: C70 N6	Alternator	: UC3D
Engine Model	: QSJ5.9G-G3	Excitation	: Shunt
Fuel	: Propane		

Step Level Dips Summary

Step #	Voltage Dip Limit (%)	Expected Step Voltage Dip (%)	Voltage Recovery Time (s) **	Frequency Dip Limit (%)	Expected Frequency Dip (%)	Frequency recovery Time (s) **
1	35	26	3.0	10	5	2.6
2	35	11	2.4	10	3	1.2

Note: Please refer to the model Spec. sheet for bandwidths used to report recovery times. For products manufactured in the United Kingdom it may be assumed that recovery times are based on ISO8528-5 G2 class bandwidths. Voltage and frequency recovery times are estimates. Typically, allow five to ten seconds between application of load steps when designing your system.

**Please note that in some cases the voltage and frequency recovery time estimates are not shown in list. This is a result of "dummy" data points temporarily being used to fill data gaps in the GenSize database. Please disregard these blank results.





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Phase	: 3	Max. Altr Temp Rise, °C	: 105
Fuel	: Propane	Project Voltage Distortion Limit, %	: 10
Emissions	: EPA, stationary emergency application		

Calculated Individual Generator Set Load Running and Peak Requirements

Running kW	: 61.9	Max. Step kW	: 53.2 In Step 1	Cumulative Step kW	: 74.4
Running kVA	: 69.6	Max. Step kVA	: 142.5 In Step 1	Cumulative Step kVA	: 142.5
Running PF	: 0.89	Peak kW	: None	Cumulative Peak kW	: None
Running NLL kVA	: 0.0	Peak kVA	: None	Cumulative Peak kVA	: None
Alternator kW	: 61.9			Pct Rated Capacity	: 89.6

Generator Set Configuration

Alternator	: UC2G	Engine	: QJS5.9G-G3
BCode	: BB95	Fuel	: Propane
Excitation	: PMG	Displacement, cu in. (Litre)	: 359.0(5.9)
Voltage Range	: 480/277V	Cylinders	: 6
Number of Leads	: 12	Altitude Knee, ft(m)	: 8500(2591)
Reconnectable	: Yes	Altitude Slope, % per 1000ft(304.8m)	: 4
Full Single Phase Output	: No	Temperature Knee, °F(°C)	: 104(40)
Increased Motor Starting	: No	Temperature Slope, % per 18°F(10.0°C)	: 2
Extended Stack	: No	Emissions	: EPA NSPS Part 60
		Cooling Package	:

Set Performance

Load Requirements

Running At	: 89.6% Rated Capacity	Max. Allowed Step Voltage Dip	: 35 In Step 1
Max. Step Voltage Dip, %	: 21	Max. Allowed Step Frequency Dip	: 10 In Step 1
Max. Step Frequency Dip, %	: 6	Peak Voltage Dip Limit %	: 35.0
Peak Voltage Dip, %	:	Peak Frequency Dip Limit %	: 10
Peak Frequency Dip, %	:	Running kW	: 61.9
Site Rated Standby kW/kVA	: 69 / 86	Running kVA	: 69.6
Site Rated Max. SkW	: 102	Effective Step kW	: 66.4
Max. SkVA	: 306	Effective Step kVA	: 142.5
Temp Rise at Full Load, °C	: 105	Percent Non-Linear Load	: 0.0
Voltage Distortion	:	Voltage Distortion Limit	: 10
Site Rated Max Step kW Limit	:	Max Step kW	:

*Note: Higher temperature rise at full rated load.

*Note: All generator set power derates are based on open generator sets.



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Phase	: 3	Max. Altr Temp Rise, °C	: 105
Fuel	: Propane	Project Voltage Distortion Limit, %	: 10
Emissions	: EPA, stationary emergency application		

Loads Summary List

*Note: Detailed Loads and Step Report available below

Step No.	Load Name	Quantity	Running		Starting		Peak		Dip Limits, %		VTHD% Limit
			kW	kVA	kW	kVA	kW	kVA	Vdip	Fdip	
Step01	User Defined Load 1	1	3.5	4.38	3.5	4.38	None	None	35.0	10.0	0.0
Step01	Booster Pump 1	1	49.73	55.26	49.73	138.15	None	None	35.0	10.0	10.0
Step Summary			53.0	60.0	53.0	143.0	None	None	35.0	10.0	10.0
Step02	Well Pump 1	1	8.67	9.97	21.14	39.88	None	None	35.0	10.0	10.0
Step Summary			9.0	10.0	21.0	40.0	None	None	35.0	10.0	10.0
Project Summary			Running		Max Starting		Cumulative Step		Cumulative Peak		Project VTHD% Limit
			kW	kVA	kW	kVA	kW	kVA	kW	kVA	
			61.9	69.6	53.2	142.5	74.4	142.5	0.0	0.0	10.0

*Note: Detailed Loads and Step Report available below



Loads and Steps Detail Report

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Phase	: 3	Max. Altr Temp Rise, °C	: 105
Fuel	: Propane	Project Voltage Distortion Limit, %	: 10
Emissions	: EPA, stationary emergency application		

Calculated Individual Generator Set Load Running and Peak Requirements

Running kW	: 61.9	Max. Step kW	: 53.2 In Step 1	Cumulative Step kW	: 74.4
Running kVA	: 69.6	Max. Step kVA	: 142.5 In Step 1	Cumulative Step kVA	: 142.5
Running PF	: 0.89	Peak kW	: None	Cumulative Peak kW	: None
Running NLL kVA	: None	Peak kVA	: None	Cumulative Peak kVA	: None
Alternator kW	: 61.9				

Step1

Calculated Individual Generator Set Step Load Requirements

Running kW	: 53.0	Starting kW	: 53.0	Cumulative Step kW	: 53.0
Running kVA	: 60.0	Starting kVA	: 143.0	Cumulative Step kVA	: 143.0
Running Amps	: 72.0	Starting Non-linear kVA	: 138.0		
Running Non-linear kVA	: 0.0				
Alternator kW	: 53.23				
Voltage Distortion Limit for step	: 10				

User Defined Load 1		Three Phase	Quantity	: 1 In this Step
Category	: User Defined			

Running kW	: 3.5	Starting kW	: 3.5	Peak kW	: None
Running kVA	: 4.38	Starting kVA	: 4.38	Peak kVA	: None
Running PF	: 0.8	Starting PF	: 0.8	Cyclic	: No
Running Amps	: 5.27	Max. % Voltage Dip	: 35.0	Max. % Frequency Dip	: 10.0
Alternator kW	: 3.5			Voltage	: 480

Booster Pump 1		Three Phase	Quantity	: 1 In this Step
Category	: Motor			

Running kW	: 49.73	Starting kW	: 49.73	Peak kW	: None
Running kVA	: 55.26	Starting kVA	: 138.15	Peak kVA	: None
Running PF	: 0.9	Starting PF	: 0.36	Cyclic	: No

Running Amps	: 66.55	Max. % Voltage Dip	: 35.0	Max. % Frequency Dip	: 10.0
Running NLL kVA	: 0.0				
Starting NLL kVA	: 138.15	Voltage			: 480
Alternator kW	: 49.73				
Shaft Hp	: 60.0	Method			: Solid State
Shaft kW	: 44.76	Current Limit			: 250.0
Efficiency (%)	: 0.9	LRkVA Factor			: 5.9
Design	: Standard NEMA Design B,C or D	LRkVA Code			: G
Rectifier Type	: 6 pulse	THDI %			: 26
		THDV %			: 10
Load Factor	: 100.0				

Step2

Calculated Individual Generator Set Step Load Requirements

Running kW	: 9.0	Starting kW	: 21.0	Cumulative Step kW	: 74.0
Running kVA	: 10.0	Starting kVA	: 40.0	Cumulative Step kVA	: 100.0
Running Amps	: 12.0	Starting Non-linear kVA	: 40.0		
Running Non-linear kVA	: 0.0				
Alternator kW	: 8.67				
Voltage Distortion Limit for step	: 10				

Well Pump 1		Three Phase	Quantity	: 1 In this Step
Category	: Motor			

Running kW	: 8.67	Starting kW	: 21.14	Peak kW	: None
Running kVA	: 9.97	Starting kVA	: 39.88	Peak kVA	: None
Running PF	: 0.87	Starting PF	: 0.53	Cyclic	: No
Running Amps	: 12.01	Max. % Voltage Dip	: 35.0	Max. % Frequency Dip	: 10.0
Running NLL kVA	: 0.0				
Starting NLL kVA	: 39.88	Voltage			: 480
Alternator kW	: 8.67				
Shaft Hp	: 10.0	Method			: Solid State
Shaft kW	: 7.46	Current Limit			: 400.0
Efficiency (%)	: 0.86	LRkVA Factor			: 6.7
Design	: Standard NEMA Design B,C or D	LRkVA Code			: H
Rectifier Type	: 6 pulse	THDI %			: 26
		THDV %			: 10
Load Factor	: 100.0				



Steps and Dips Details Report

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Running kVA	: 69.6	Max. Step kVA	: 142.5 In Step 1	Cumulative Step kVA	: 142.5
Running PF	: 0.89	Peak kW	: None	Cumulative Peak kW	: None
Running NLL kVA	: 0.0	Peak kVA	: None	Cumulative Peak kVA	: None
Alternator kW	: 61.9				

Generator Set Configuration

Model	: C70 N6	Alternator	: UC2G
Engine Model	: QSJ5.9G-G3	Excitation	: PMG
Fuel	: Propane		

Step Level Dips Summary

Step #	Voltage Dip Limit (%)	Expected Step Voltage Dip (%)	Voltage Recovery Time (s) **	Frequency Dip Limit (%)	Expected Frequency Dip (%)	Frequency recovery Time (s) **
1	35	21	3.8	10	6	2.5
2	35	8	2.0	10	3	1.3

Note: Please refer to the model Spec. sheet for bandwidths used to report recovery times. For products manufactured in the United Kingdom it may be assumed that recovery times are based on ISO8528-5 G2 class bandwidths. Voltage and frequency recovery times are estimates. Typically, allow five to ten seconds between application of load steps when designing your system.

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