Cummins GenSize Report 2026-11-06

Project Name: C45 N6 - Arkwright
Report Generated By : Matthew Barsody
Application Type : Government / Public Building - Local Including Library
Comments :

PROJECT PARAMETERS

Frequency (hz):	60	Number of Genset to Parallel:	1
Duty:	Standby	Ambient Temperature (F) :	77
Phase:	1	Altitude (ft):	361
Voltage:	120/240	Max Allowable Temperature Rise:	125
Fuel Type(s):	NaturalGas	Max Allowable Project Voltage Dip (%):	20
Emissions Preference:	US Stationary Emergency	Max Allowable Project Frequency Dip (%):	10
Country:	United States		
Min Load Capacity (%):	30		
Max Load Capacity (%):	100		

RECOMMENDED GENERATOR SET CONFIGURATION

Generator Set Name:	C45 N6	B-Code:	BB88
Base Rating (kWe):	45	R-Code:	R104
Engine Name:	QSJ5.9G-G1	Number of Leads:	12
Fuel:	NaturalGas	Reconnectable:	Yes
Cooling System:		Full Single Phase Output:	Yes
Alternator Frame:	UC2E	Increased Motor Starting:	Yes
Alternator Winding:	311	Extended Stack:	No
Alternator Exitation:	Shunt		
Temperature Rise:	120		
Max SkVA:	113		

POWER SYSTEM SUMMARY

LOADS AND STEPS

Step #	Step Name / Load Name	Load Qty	Starting kW	Starting kVA	Running kW	Running kVA	Running Amps	Cyclic Load	NonLinear Load
1	**Step A**		**39.7**	**47.41**	**23.38**	**27.17**	**119.73**		
	Well Water Pump	1	8.02	10.03	3.37	4.26	17.76		
	ASHP-2	1	8.2	9.12	8.2	9.12	38.0		
	ASHP-1	1	6.48	7.2	6.48	7.2	30.0		
	ERV-1	1	2.78	3.48	0.73	0.96	4.0		
	AHU-1	1	4.18	5.23	1.12	1.44	6.0		
	AHU-2	1	8.64	10.8	2.08	2.64	11.0		
	Fridge	1	1.4	1.55	1.4	1.55	12.96		
2	**Step B**		**5.0**	**5.55**	**5.0**	**5.55**	**23.14**		
	HEATCOIL	1	5.0	5.55	5.0	5.55	23.14		

Note: Step Starting kW and kVA include all loads marked as cyclical from any prior step. Running kW and kVA assume all cyclical loads start and remain on at their assigned step. Values are total power system, assumed to be shared by paralleled gensets when applicable.

CUMULATIVE SUMMARY

Step Name		Starting		Running	
Step #	Step Name	kW	kVA	kW	kVA
1	Step A	39.7	47.41	23.38	27.17
2	Step B	28.38	32.72	28.38	32.72
Effective Project Power Requirements:		34.16			

Note: Cumulative Step Starting kW and kVA include all cyclical loads from prior steps. Cumulative Step Running kW and kVA assume all cyclical loads start and remain on at their assigned step. Values reflect the total power system, assumed to be shared by paralleled gensets when applicable.

ESTIMATED PRODUCT PERFORMANCE

PRODUCT CAPACITY

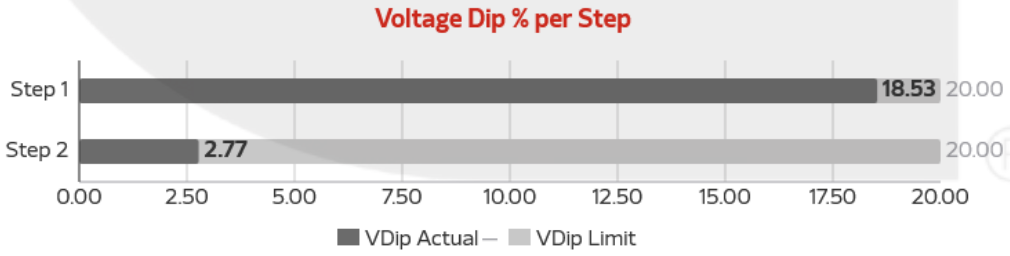
Project Running kWe:	28.38	Total Running Non-Linear kVA:	0
Base Product Rating kWe:	45	Max Allowed (THDV %):	10
Site Adjusted Product Rating kWe:	45	Total Voltage Harmonic Distortion (THDV)%:	0
Product kWe Capacity (%):	63.07		

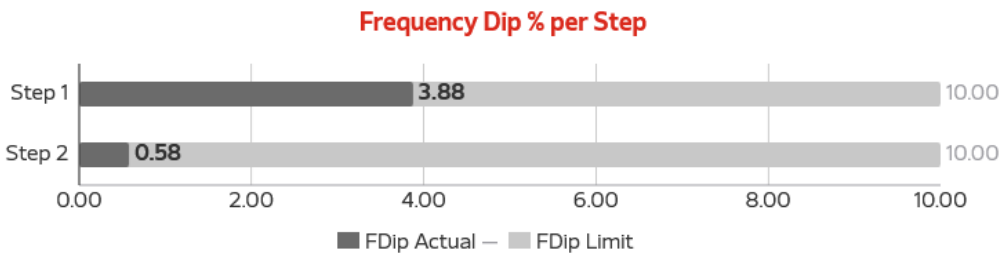
Note: Capacity % values are within the user-selected project parameters for product capacity. If the number of generator sets is greater than one, the values here will reflect one generator set assuming the loads are evenly shared.

TRANSIENT PERFORMANCE

Step Name		Voltage		Frequency (hz)	
Step #	Step Name	Dip %	Recovery Time	Dip %	Recovery Time
1	Step A	18.53	1.94	3.88	1.86
2	Step B	2.77	0.36	0.58	0.44

Note: Voltage and frequency dips and recovery times are estimates based on measured performance of prototype testing or advanced simulation. Recovery times may be assumed to be based on ISO8528-5 G2 class bandwidths unless otherwise stated in the model Spec Sheet. Typically, best practice may allow for approximately 5 seconds between application of load steps when designing your system. These values are within the user-selected project parameters for max allowable voltage and frequency dip performance.





Power Generation

ITEMIZED LOAD SUMMARY

ASHP-2

Load Type: User Defined

User Inputs	
Phase:	Single
Voltage:	240.0
Power Factor:	0.9
Running Amps:	38.0
Starting Amps:	38.0
Efficiency (%):	100.0
Rectifier Type:	None
Running Unit of rating:	Amps
Starting Unit of rating:	Amps
Harmonic Content (THDI%):	0.0

Load Requirements	
Starting Results	
Starting PF:	0.9
Starting kW:	8.2
Starting kVA:	9.12
Starting Amps:	38.0
Starting NLL KVA:	0.0
Running Results	
Running PF:	0.9
Running kW:	8.2
Running kVA:	9.12
Running Amps:	38.0

ASHP-1

Load Type: User Defined

User Inputs	
Phase:	Single
Voltage:	240.0
Power Factor:	0.9
Running Amps:	30.0
Starting Amps:	30.0
Efficiency (%):	100.0
Rectifier Type:	None
Running Unit of rating:	Amps
Starting Unit of rating:	Amps
Harmonic Content (THDI%):	0.0

Load Requirements	
Starting Results	
Starting PF:	0.9
Starting kW:	6.48
Starting kVA:	7.2
Starting Amps:	30.0
Starting NLL KVA:	0.0
Running Results	
Running PF:	0.9
Running kW:	6.48
Running kVA:	7.2
Running Amps:	30.0
Running NLL kVA:	0.0

ERV-1

Load Type: Motor

User Inputs	
Phase:	Single
Voltage:	240.0
Shaft HP:	1.04
Shaft kW:	0.77
Motor Type:	Standard NEMA Design B, C or D
Tap Number:	0.0
Load Factor:	100.0
Power Factor:	0.76
Running Amps:	4.0
Starting Amps:	14.52
Efficiency (%):	90.0
Unit of Rating:	Amps
Starting Method:	Across the line
NEMA Code Letter:	B
Current Limit (%FLA):	300.0
Locked Rotor kVA/HP Factor:	3.34

Load Requirements

Starting Results	
Starting PF:	0.8
Starting kW:	2.78
Starting kVA:	3.48
Starting Amps:	14.52

Running Results	
Running PF:	0.76
Running kW:	0.73
Running kVA:	0.96
Running Amps:	4.0

AHU-1

Load Type: Motor

User Inputs	
Phase:	Single
Voltage:	240.0
Load Factor:	100.0
Power Factor:	0.77
Running Amps:	6.0
Starting Amps:	21.79
Efficiency (%):	90.0
Unit of Rating:	Amps
Starting Method:	Across the line
NEMA Code Letter:	B
Locked Rotor kVA/HP Factor:	3.34

Load Requirements

Starting Results	
Starting PF:	0.8
Starting kW:	4.18
Starting kVA:	5.23
Starting Amps:	21.79
Starting NLL KVA:	0.0

Running Results	
Running PF:	0.77
Running kW:	1.12
Running kVA:	1.44
Running Amps:	6.0
Running NLL kVA:	0.0

AHU-2

Load Type: Motor

User Inputs	
Phase:	Single
Voltage:	240.0
Load Factor:	100.0
Power Factor:	0.79
Running Amps:	11.0
Starting Amps:	45.02
Efficiency (%):	90.0
Unit of Rating:	Amps
Starting Method:	Across the line
NEMA Code Letter:	C
Locked Rotor kVA/HP Factor:	3.77

Load Requirements	
Starting Results	
Starting PF:	0.8
Starting kW:	8.64
Starting kVA:	10.8
Starting Amps:	45.02
Starting NLL KVA:	0.0
Running Results	
Running PF:	0.79
Running kW:	2.08
Running kVA:	2.64
Running Amps:	11.0

Fridge

Load Type: General

User Inputs	
Phase:	Single
Voltage:	120.0
Running kW:	1.4
Running kVA:	1.55
Power Factor:	0.9
Running Amps:	12.96
Rectifier Type:	None
Unit of Rating:	KW
Harmonic Content (THDI%):	0.0

Load Requirements	
Starting Results	
Starting PF:	0.9
Starting kW:	1.4
Starting kVA:	1.55
Running Results	
Running PF:	0.9
Running kW:	1.4
Running kVA:	1.55
Running Amps:	12.96

Well Water Pump

Load Type: Motor

User Inputs	
Phase:	Single
Voltage:	240.0
Shaft HP:	3.0
Shaft kW:	2.23
Motor Type:	Standard NEMA Design B, C or D
Tap Number:	0.0
Load Factor:	100.0
Power Factor:	0.79
Running Amps:	17.76
Starting Amps:	41.81
Efficiency (%):	66.37
Unit of Rating:	HP
Starting Method:	Across the line
NEMA Code Letter:	B
Current Limit (%FLA):	300.0
Locked Rotor kVA/HP Factor:	3.34

Load Requirements	
Starting Results	
Starting PF:	0.8
Starting kW:	8.02
Starting kVA:	10.03
Starting Amps:	41.81
Running Results	
Running PF:	0.79
Running kW:	3.37
Running kVA:	4.26
Running Amps:	17.76

HEATCOIL

Load Type: User Defined

User Inputs	
Phase:	Single
Voltage:	240.0
Running kW:	5.0
Starting kW:	5.0
Power Factor:	0.9
Efficiency (%):	100.0
Rectifier Type:	None
Running Unit of rating:	KW
Starting Unit of rating:	KW
Harmonic Content (THDI%):	0.0

Load Requirements	
Starting Results	
Starting PF:	0.9
Starting kW:	5.0
Starting kVA:	5.55
Starting Amps:	23.14
Starting NLL KVA:	0.0
Running Results	
Running PF:	0.9
Running kW:	5.0
Running kVA:	5.55
Running Amps:	23.14
Running NLL kVA:	0.0

DISCLAIMER: All calculations and information used in this tool have been validated at the time of release. However, should you find anything you believe to be incorrect, or if you have any improvements you wish to suggest please use the help-bot on the website. Please note that Cummins takes no responsibility or liability for the incorrect use of this tool. It is the responsibility of the user to ensure any specific calculation with use of this tool is correct and fits the purpose for which it is being used.