

SynJet[®] LED Cooler R150-170

SynJet cooling provides the most reliable thermal management solution available. This LED cooler has been developed by Nuventix for cooling high power LED Luminaires.

- Cools up to 154 W⁴
- Reliable 100K Hours Lifetime
- Energy Efficient
- 5 Yr Warranty
- Small Form Factor
- Light Weight



Specifications¹

Thermal & Acoustic

SynJet Setting ²		Θ_{s-a}^3 AI	TDP ⁴ (W) $\Delta T = 30^\circ / 40^\circ C$	SPL (dBA) ⁵	Wire Connections
3 SynJet Coolers	PWM at 100% duty cycle	0.27	111 / 148	34	Red to +VDC Black only to Ground Blue to PWM Signal
	High Performance	0.28	107 / 143	32	Red to +VDC Black & Blue to Ground
	Standard Performance	0.34	88 / 118	26	Red to +VDC Black only to Ground
	Silent Performance	0.39	77 / 103	22	Red to +VDC Black & Purple to Ground
2 SynJet Coolers	PWM at 100% duty cycle	0.32	94 / 125	32	Red to +VDC Black only to Ground Blue to PWM Signal
	High Performance	0.33	91 / 121	30	Red to +VDC Black & Blue to Ground
	Standard Performance	0.39	77 / 103	24	Red to +VDC Black only to Ground
	Silent Performance	0.43	70 / 93	20	Red to +VDC Black & Purple to Ground
1 SynJet Cooler	PWM at 100% duty cycle	0.42	71 / 95	30	Red to +VDC Black only to Ground Blue to PWM Signal
	High Performance	0.43	70 / 93	28	Red to +VDC Black & Blue to Ground
	Standard Performance	0.47	64 / 85	22	Red to +VDC Black only to Ground
	Silent Performance	0.51	59 / 78	18	Red to +VDC Black & Purple to Ground

¹ All values are typical at 25°C unless otherwise stated.

² The Level Select model should be used for discrete performance settings. Follow the instructions in the Product Design Guide for adjusting settings.

³ Thermal resistance values are given as reference only and are measured in free air without airflow obstructions. Thermal resistance is measured from the bottom middle of the heat sink to ambient air measured at the inlet to the SynJet, with a heat source at least 19cm² using a reference heat sink. Actual thermal performance may vary by application and final product design should be tested to assure proper thermal performance.

⁴ Thermal Design Power is based on a 30°C or 40°C temperature rise of heat sink mounting surface above ambient temperature around cooler.

⁵ Sound Pressure Level is measured at 1 meter distance per ISO 7779.

PRODUCT DATASHEET

Thermal (Heatsink Only)

Thermal Wattage	Heatsink Θ_{s-a} ⁶	Heat Sink $T_{\text{Rise Above Ambient}}$
50 W	0.68 (°C/W)	34 (°C)
60 W	0.66 (°C/W)	40 (°C)
70 W	0.64 (°C/W)	45 (°C)

Electrical

SynJet Setting ²		Voltage (VDC) +/- 10%	Current (mA) ⁷			Pavg (W)	Voltage (VDC) +/- 10%	Current (mA) ⁷			Pavg (W)
			Imin	Iavg	Ipeak			Imin	Iavg	Ipeak	
3 SynJet Coolers	PWM at 100% duty cycle	5	60	660	1320	3.30	12	30	345	690	4.14
	High Performance		60	540	1080	2.70		30	276	552	3.31
	Standard Performance		60	240	480	1.20		30	138	276	1.70
	Silent Performance		60	180	360	900		30	99	264	1.19
2 SynJet Coolers	PWM at 100% duty cycle	5	40	440	880	2.20	12	20	230	460	2.76
	High Performance		40	360	720	1.80		20	184	368	2.21
	Standard Performance		40	160	320	0.80		20	92	184	1.10
	Silent Performance		40	120	240	0.60		20	66	132	0.79
1 SynJet Cooler	PWM at 100% duty cycle	5	20	220	440	1.10	12	10	115	230	1.38
	High Performance		20	180	360	0.90		10	92	184	1.10
	Standard Performance		20	80	160	0.40		10	46	92	0.55
	Silent Performance		20	60	120	0.30		10	33	66	0.40

Environmental

All Settings	Min	Max	Units	Conditions
Operating Temperature	-40	70	°C	Air temperature surrounding cooler
Storage Temperature	-50	75	°C	Air temperature surrounding cooler
Storage Altitude		15K	m	Above sea level
Operating Relative Humidity	5	95	%	Non-condensing
Weight Heatsink Only		1270	g	Heatsink Only
Weight Per SynJet		110	g	Includes 600mm wire harness
Reliability		100K	hrs	L10 @ 60°C
Regulatory Compliance				RoHS, UL, FCC Part 15 Class B, CE

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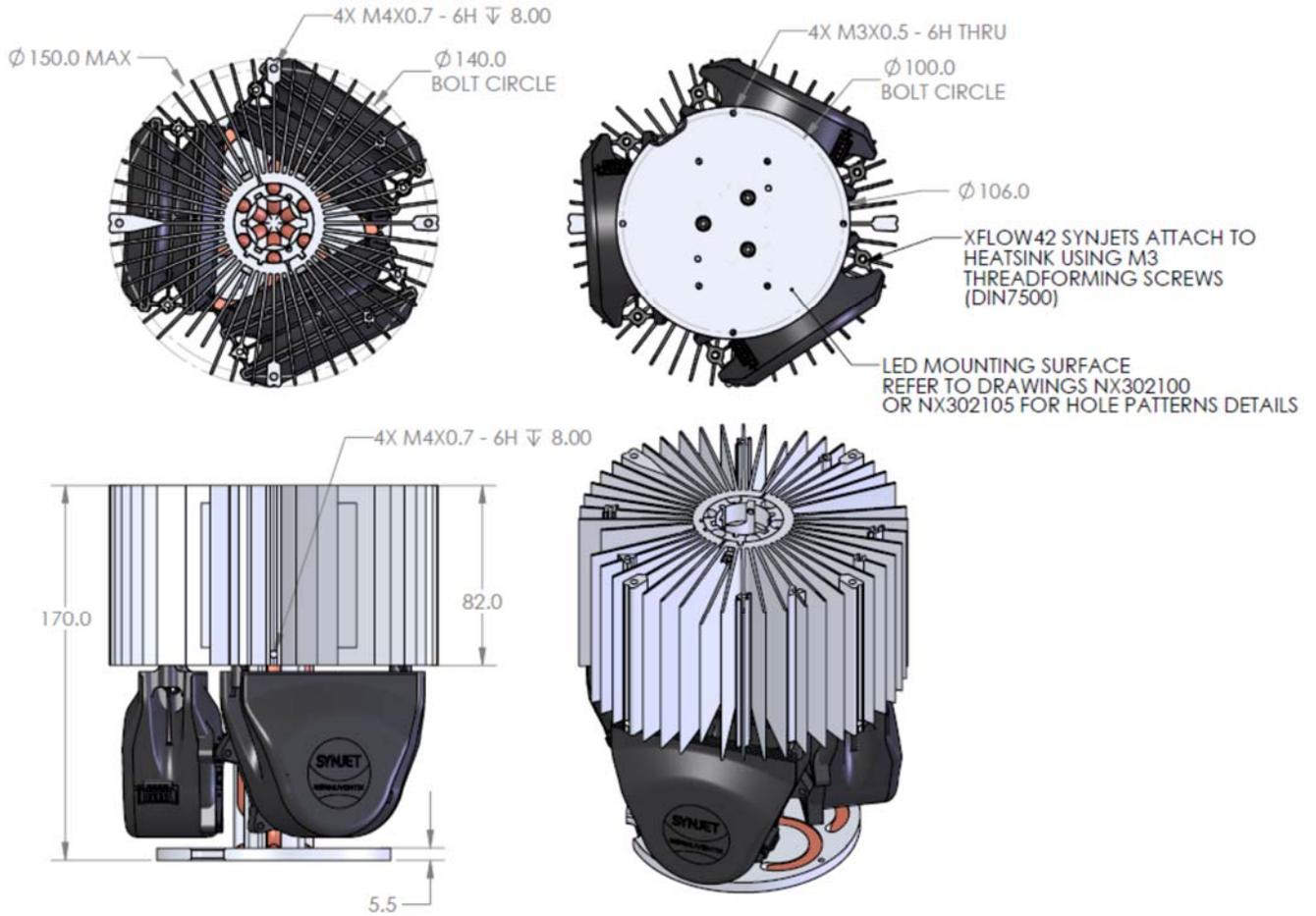
⁶ Thermal resistance values are given as reference only and are measured in free air without airflow obstructions. Thermal resistance is measured from the bottom middle of the heat sink to ambient air, with a heat source of 19 cm². Actual thermal performance may vary by application and final product design should be tested to assure proper thermal performance.

⁷ The SynJet has a time varying current. The current waveform is sinusoidal and the average current (Iavg) is used to calculate the average power consumption (Pavg) at nominal input voltage (VDC). See the Electrical section in the Product Design Guide for a detailed explanation.

PRODUCT DATASHEET

Mechanical

SynJet Cooling Solution Shown with 3 SynJets and NX302100 Heatsink

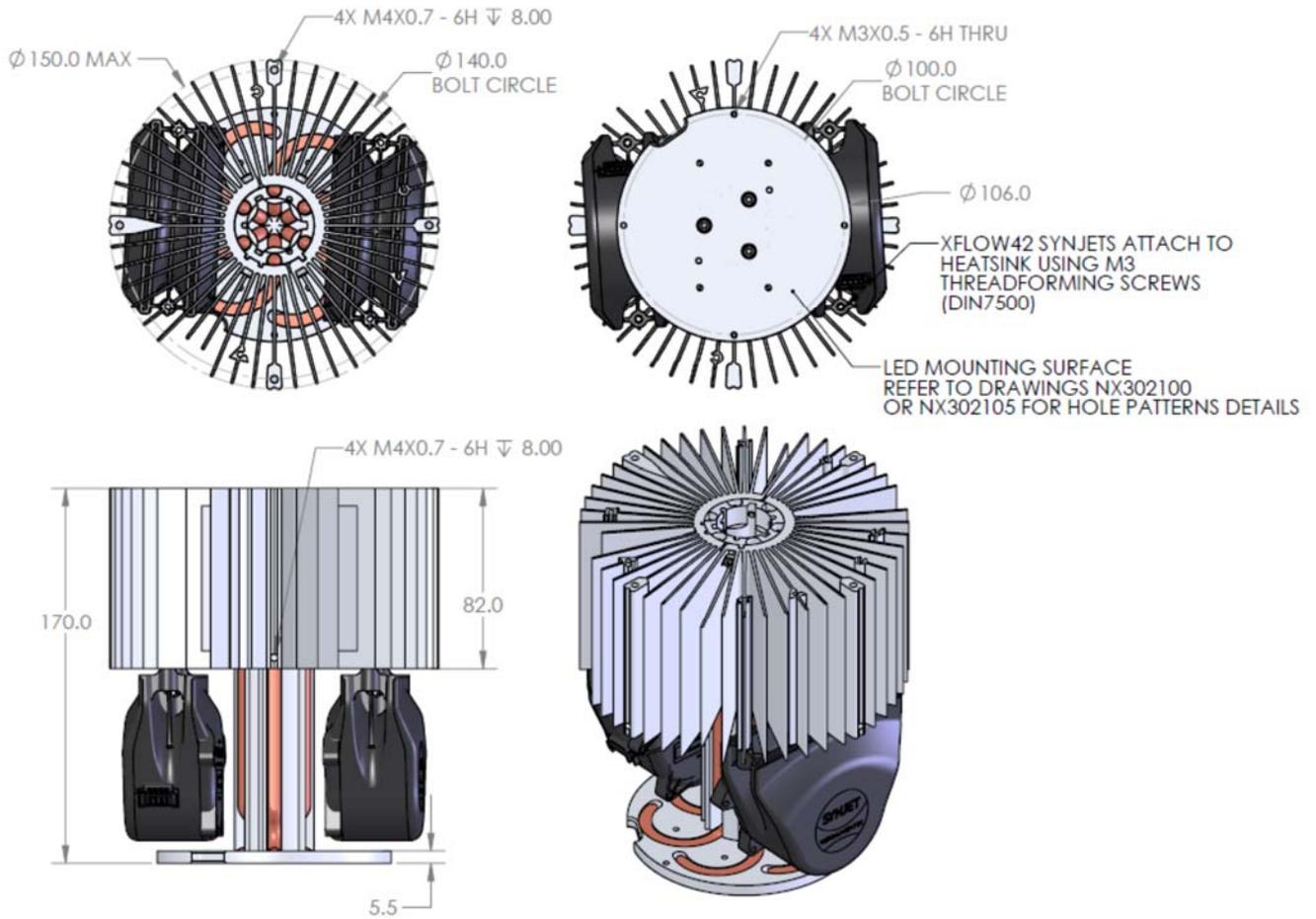


All dimensions are nominal and in mm unless otherwise stated. See product drawings for more detail.

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PRODUCT DATASHEET

SynJet Cooling Solution Shown with 2 SynJets and NX302100 Heatsink

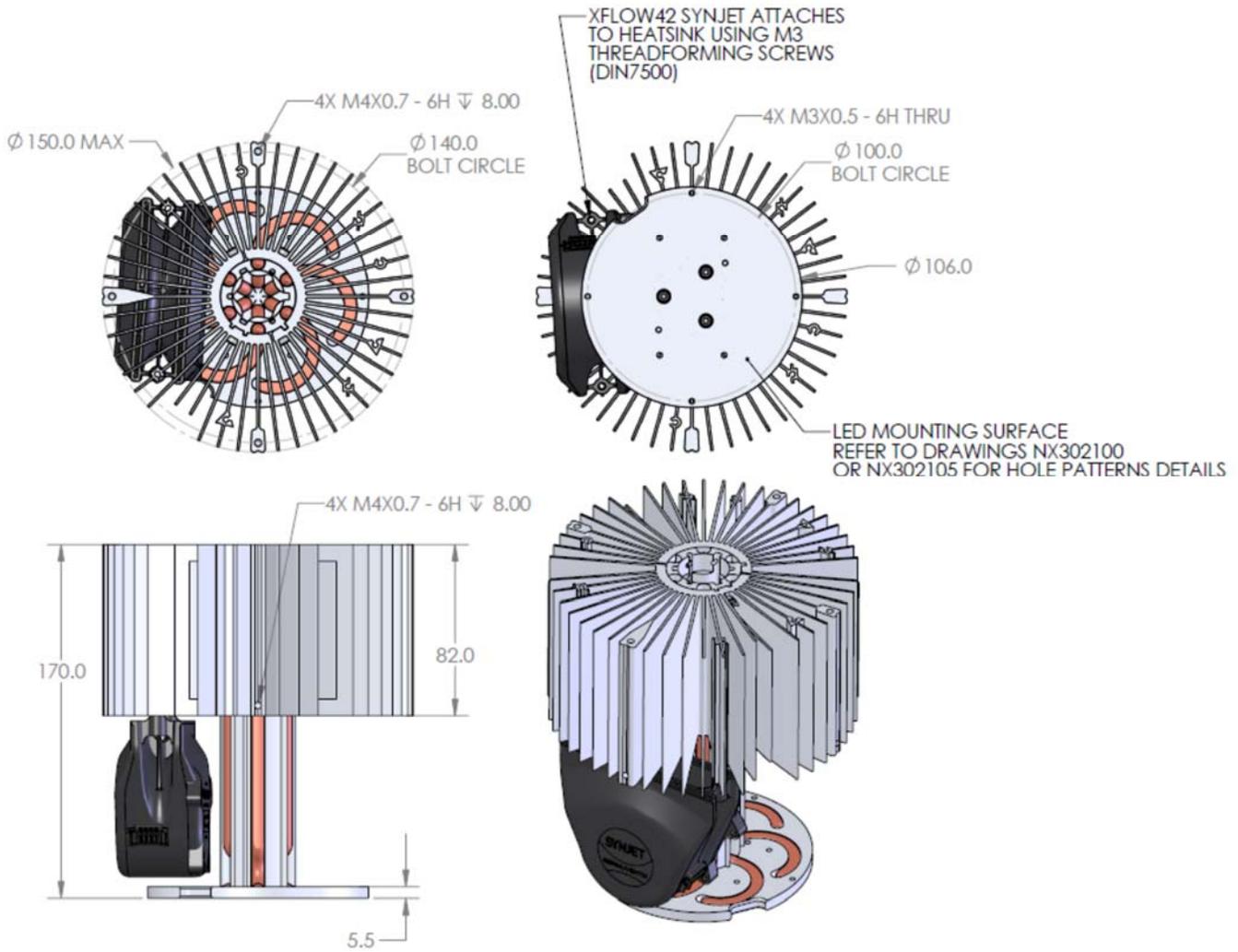


All dimensions are nominal and in mm unless otherwise stated. See product drawings for more detail.

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PRODUCT DATASHEET

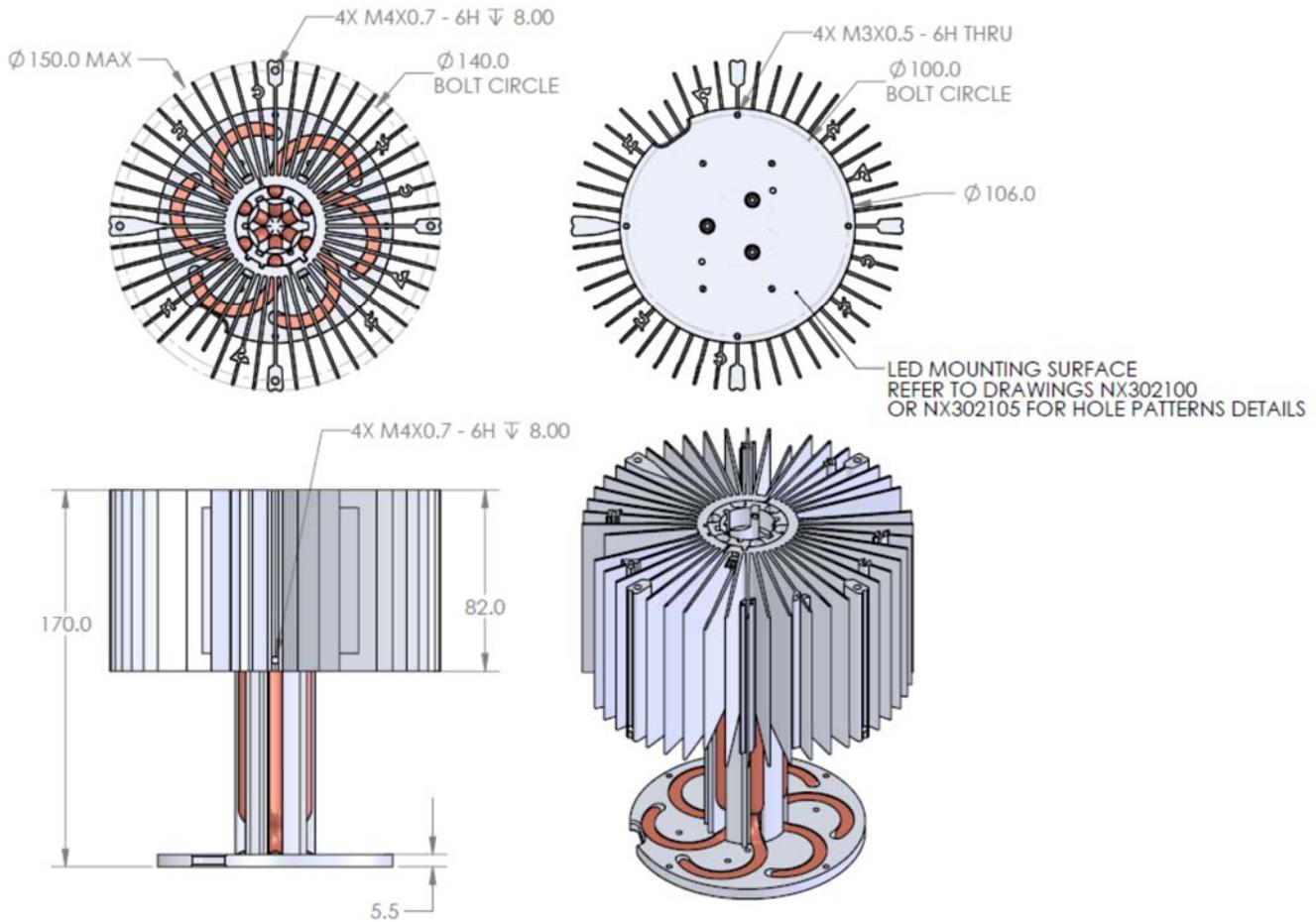
SynJet Cooling Solution Shown with 1 SynJet and NX302100 Heatsink



All dimensions are nominal and in mm unless otherwise stated. See product drawings for more detail.

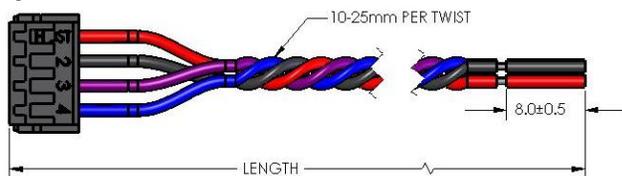
PRODUCT DATASHEET

Cooling Solution Shown with NX302100 Heatsink Only



All dimensions are nominal and in mm unless otherwise stated. See product drawings for more detail.

SynJet Wire Harness



Connector Pinout

Pin	Wire Color	Symbol	Description
1	Red	+VDC	5 V or 12 V depending on model
2	Black	GND	Ground
3	Purple	CTRL2	Input for Level Select model Status signal for PWM model
4	Blue	CTRL1	Input for Level Select model PWM input for PWM model

IMPORTANT: SynJets should be completely wired to the power supply before the power supply is energized. The power supply should be turned off before the SynJet Cooler is disconnected. SynJet Coolers are not designed for "hot swap" or "hot plug" applications.

Part Numbers

Part Number	Description	Notes
NX202100	SynJet, XFlow 42, PWM, 5V	Use with PWM input to control performance setting
NX202101	SynJet, XFlow 42, Level Select, 5V	Configurable to discrete performance settings
NX202102	SynJet, XFlow 42, PWM, 12V	Use with PWM input to control performance setting
NX202103	SynJet, XFlow 42, Level Select, 12V	Configurable to discrete performance settings
NX302100	Heatsink, R150-170, Vossloh Schwabe Luga Industrial, Panasonic, Citizen CLL050, Black	Contact sales for other heatsink options
NX302105	Heatsink, R150-170, Bridgelux RS, Bridgelux Vero 29, Black	
WALLS-C4150-001	Wire Harness, 4-Wire, 150 mm Length	Contact sales for other wire harness options
WALLS-C4600-001	Wire Harness, 4-Wire, 600 mm Length	Contact sales for other wire harness options

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