



Heat Exchangers

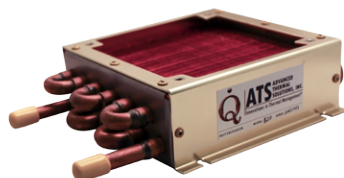
LIQUID TO AIR

ATS' 49 different options of tube to fin, liquid-to-air heat exchangers are made with the industry's highest density fins to maximize the heat transfer from the liquid to air. The heat exchangers fins and tubes are made of copper, allowing it to be suitable for a variety of fluids.

GENERAL FEATURES

- » Length: 5.8 to 21.9"
- » Width: 5.8 to 14"
- » Height: 1.8 to 2.6"
- » Tube diameter: 0.375 and 0.5"
- » Copper and tubes
- » Copper fins
- » High-efficiency and high density fin design
- » Silver-solder brazed joints
- » Internally cleaned and corrosion protected
- » Externally coated for corrosion protection
- » Can be customized for different fans
- » 100% pressure tested

HEAT EXCHANGER PRODUCTS



- » Heat transfer capacity up to 22W per $\Delta T = 1^{\circ}\text{C}$
- » 5.8 x 5.8 x 1.8" core size
- » ΔT = inlet liquid temperature - inlet air temperature
- » Weight: 1077g (2.4 lbs), Weight w/fan: 1411g (3.1 lbs)



APPLICATIONS

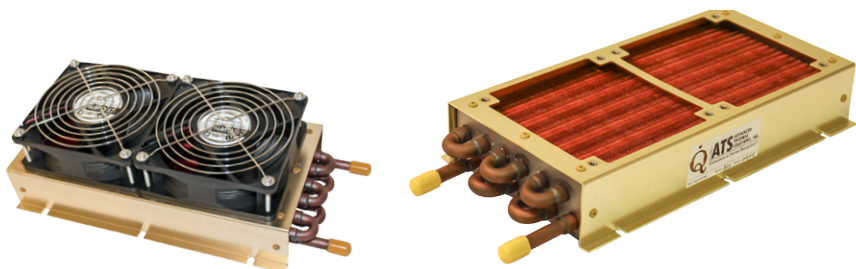
- » Automotive
- » Aerospace
- » Medical
- » Laser cooling
- » Electronics Cooling
- » Compressor Cooling
- » Semiconductor Processing
- » HVAC

For further information, please contact
Advanced Thermal Solutions, Inc. at
1-781-769-2800 or www.qats.com

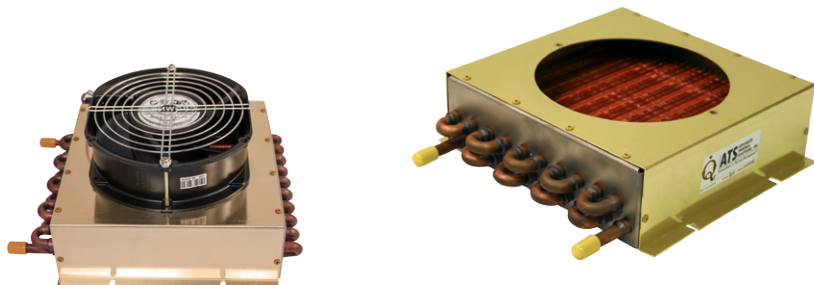
ATS-HE20 SERIES		
MPN	FAN TYPE	# OF FANS
ATS-HE20-C1-R0	NO FAN	0
ATS-HE20-C2-R0	12V	1
ATS-HE20-C3-R0	12V PWM	1
ATS-HE20-C4-R0	24V	1
ATS-HE20-C5-R0	24V PWM	1
ATS-HE20-C6-R0	48V	1
ATS-HE20-C7-R0	48V PWM	1



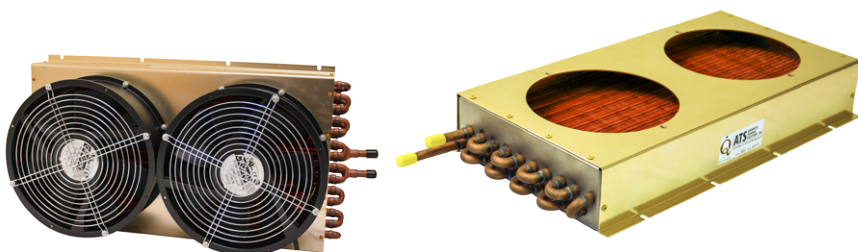
Heat Exchangers Product Line (cont'd)



- » Heat transfer capacity up to 46W per $\Delta T = 1^\circ C$
- » 10.5 x 5.8 x 1.8" core size
- » $\Delta T =$ inlet liquid temperature - inlet air temperature
- » Weight: 1759g (3.9 lbs)
- » Weight w/fan: 2405g (5.3 lbs)



- » Heat transfer capacity up to 64W per $\Delta T = 1^\circ C$
- » 9.5 x 9.0 x 2.5" core size
- » $\Delta T =$ inlet liquid temperature - inlet air temperature
- » Weight: 2211g (4.9 lbs)
- » Weight w/fan: 2854g (6.23 lbs)



- » Heat transfer capacity up to 117W per $\Delta T = 1^\circ C$
- » 17.5 x 9.0 x 2.5" core size
- » $\Delta T =$ inlet liquid temperature - inlet air temperature
- » Weight: 7000g (15.4 lbs)
- » Weight w/fan: 7600g (16.8 lbs)

ATS-HE21 SERIES

MPN	FAN TYPE	# OF FANS
ATS-HE21-C1-R0	NO FAN	0
ATS-HE21-C2-R0	12V	2
ATS-HE21-C3-R0	12V PWM	2
ATS-HE21-C4-R0	24V	2
ATS-HE21-C5-R0	24V PWM	2
ATS-HE21-C6-R0	48V	2
ATS-HE21-C7-R0	48V PWM	2

ATS-HE22 SERIES

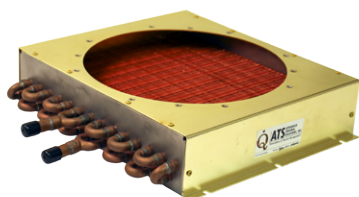
MPN	FAN TYPE	# OF FANS
ATS-HE22-C1-R0	NO FAN	0
ATS-HE22-C2-R0	12V	1
ATS-HE22-C3-R0	12V PWM	1
ATS-HE22-C4-R0	24V	1
ATS-HE22-C5-R0	24V PWM	1
ATS-HE22-C6-R0	48V	1
ATS-HE22-C7-R0	48V PWM	1

ATS-HE23 SERIES

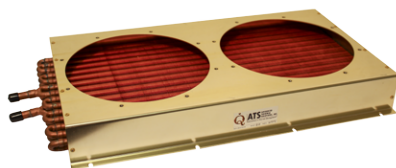
MPN	FAN TYPE	# OF FANS
ATS-HE23-C1-R0	NO FAN	0
ATS-HE23-C2-R0	12V	2
ATS-HE23-C3-R0	12V PWM	2
ATS-HE23-C4-R0	24V	2
ATS-HE23-C5-R0	24V PWM	2
ATS-HE23-C6-R0	48V	2
ATS-HE23-C7-R0	48V PWM	2



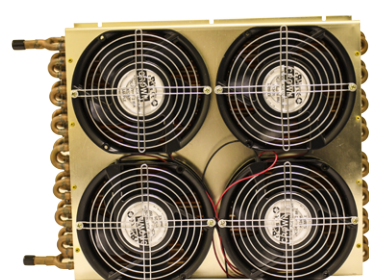
Heat Exchangers Product Line (cont'd)



- » Heat transfer capacity up to 97W per $\Delta T = 1^{\circ}\text{C}$
- » 11.5 x 12.0 x 2.1" core size
- » ΔT = inlet liquid temperature - inlet air temperature
- » Weight: 4018g (8.9 lbs)
- » Weight w/fan: 5791g (12.8 lbs)



- » Heat transfer capacity up to 177W per $\Delta T = 1^{\circ}\text{C}$
- » 21.58 x 12.0 x 2.1" core size
- » ΔT = inlet liquid temperature - inlet air temperature
- » Weight: 7422g (16.4 lbs)
- » Weight w/fan: 11012g (24.23 lbs)



- » Heat transfer capacity up to 250W per $\Delta T = 1^{\circ}\text{C}$
- » 17.52 x 14.0 x 2.6" core size
- » ΔT = inlet liquid temperature - inlet air temperature
- » Weight: 6750g (14.9 lbs)
- » Weight w/fan: 9358g (20.6 lbs)

ATS-HE24 SERIES

MPN	FAN TYPE	# OF FANS
ATS-HE24-C1-R0	NO FAN	0
ATS-HE24-C2-R0	12V	1
ATS-HE24-C3-R0	12V PWM	1
ATS-HE24-C4-R0	24V	1
ATS-HE24-C5-R0	24V PWM	1
ATS-HE24-C6-R0	48V	1
ATS-HE24-C7-R0	48V PWM	1

ATS-HE25 SERIES

MPN	FAN TYPE	# OF FANS
ATS-HE25-C1-R0	NO FAN	0
ATS-HE25-C2-R0	12V	2
ATS-HE25-C3-R0	12V PWM	2
ATS-HE25-C4-R0	24V	2
ATS-HE25-C5-R0	24V PWM	2
ATS-HE25-C6-R0	48V	2
ATS-HE25-C7-R0	48V PWM	2

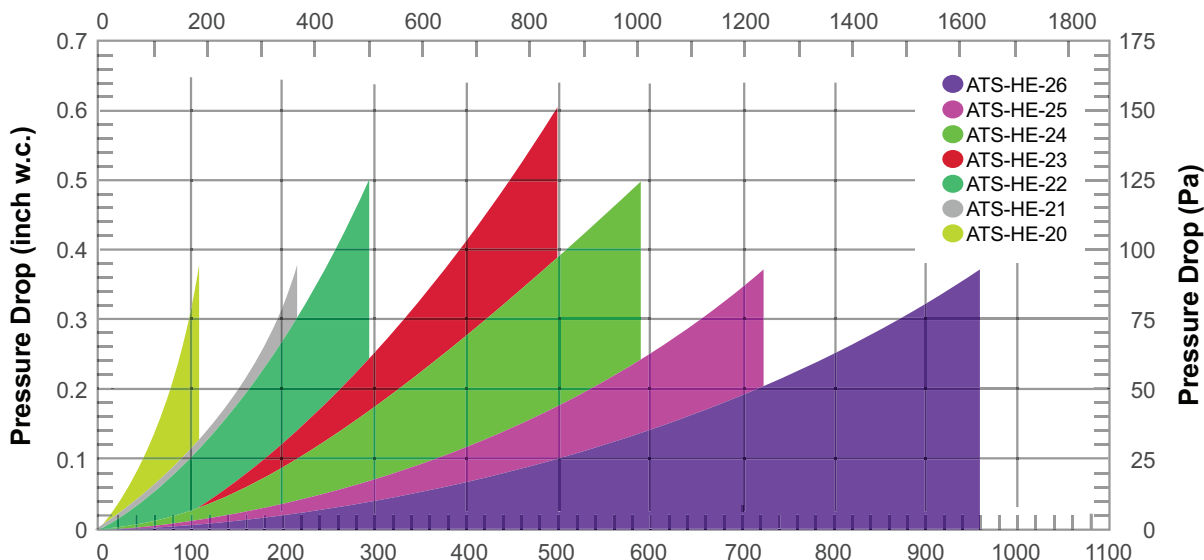
ATS-HE26 SERIES

MPN	FAN TYPE	# OF FANS
ATS-HE26-C1-R0	NO FAN	0
ATS-HE26-C2-R0	12V	4
ATS-HE26-C3-R0	12V PWM	4
ATS-HE26-C4-R0	24V	4
ATS-HE26-C5-R0	24V PWM	4
ATS-HE26-C6-R0	48V	4
ATS-HE26-C7-R0	48V PWM	4



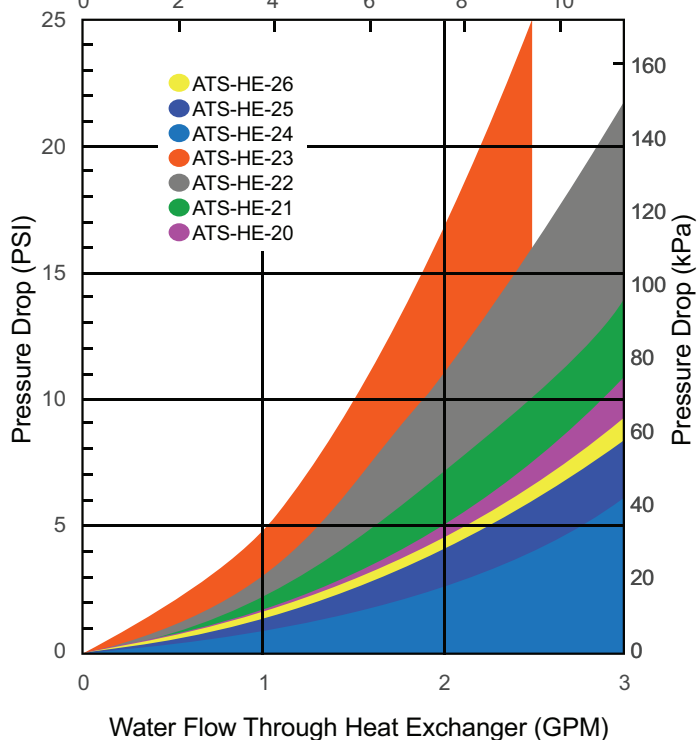
Heat Exchangers (cont'd)

Air Flow Through Heat Exchanger (CMH)

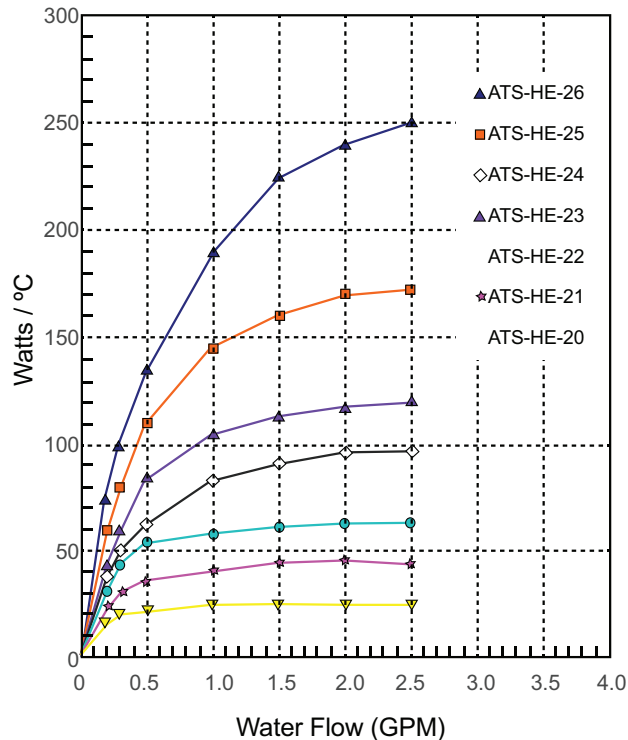


Air Flow Through Heat Exchanger (CFM)

Pressure Drop vs Water Flow
Water Flow Through Heat Exchanger (LPM)



ATS Heat Exchanger Family Performance
Water & Air (Standard Fans)



Note: Performance curves are per $\Delta T = 1^\circ C$ | $\Delta T = \text{inlet liquid temperature} - \text{inlet air temperature}$