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**E-MOBILITY APPLICATION PROFILE**

# Auxiliary Coolant Heaters

We understand that in the automotive industry, you need reliable materials that perform to a higher standard. Ascend offers a comprehensive portfolio of engineered plastics for challenging automotive applications. We work with our customers to achieve the very best from our products. That's why we offer a worldwide support network of application specialists and technical experts. Our material knowledge and expertise in automotive systems can help you improve part performance and reduce usage and cycle times.

**Products Used:** Vydyne® R530H, R530HR, ECO525K

## Application Description

Auxiliary heaters in hybrid and electric vehicles play an important role in managing operating temperatures as well as regulating passenger comfort in the vehicle cabin. Coolant heaters belong to the cooling circuit for the powertrain, battery and electronics. Auxiliary heaters must withstand temperature extremes while delivering coolant to their systems.

## Benefits

- Stiffness and strength
- Light weight
- Temperature resistance
- Chemical resistance
- Design flexibility



## Metal Replacement

Ascend's Vydyne grades are excellent alternatives to metal housing in coolant heaters. Lightweight design, a density advantage and lower thermal conductivity all contribute to greater efficiency when compared to metals. Due to better tool lifetime and function integration, the cost of a Vydyne solution will also be lower than a traditional metal approach.



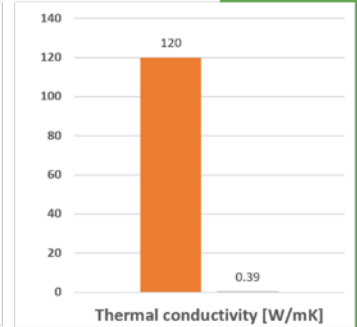
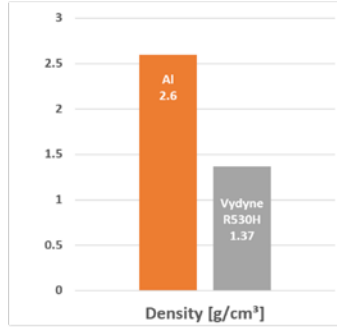
Metal



PA66

## The Vydyne Difference

Ascend's Vydyne® PA66 is ideal for this application because of its balance of good property retention at elevated temperatures and throughout aging. A broad range of flame retardant grades also qualifies Vydyne as an excellent option for the electrical components and housing of the control unit.



## Product Properties

Vydyne R530H, R530 HR, ECO525K					
Component			Coolant housing and fluid connectors		Control housing and electrical connectors
Property	Test Method	Units	Vydyne R530H	Vydyne R530HR	Vydyne ECO525K
Density	ISO 1183	g/cm <sup>3</sup>	1.38	1.37	1.4
Tensile strength	ISO527-2	MPa	195	179	122
Flexural modulus	ISO 178	MPa	9400	9300	9100
Notched Izod	ISO 180	kJ/m <sup>2</sup>	11	12	8.1
Flammability			HB	HB	UL-94 V0 @ 0.2 mm
Special			<ul style="list-style-type: none"> <li>Hydrolysis resistance</li> </ul>	<ul style="list-style-type: none"> <li>Advanced hydrolysis resistance</li> <li>Electrically neutral heat stabilizer</li> </ul>	<ul style="list-style-type: none"> <li>Hal-free FR</li> <li>electrically neutral heat stabilizer</li> </ul>



Ascend Performance Materials makes high-performance materials for everyday essentials and new technologies. Our focus is on improving quality of life and inspiring a better tomorrow through innovation. We make the plastics, fabrics, fibers and chemicals used to make safer vehicles, cleaner energy, better medical devices, smarter appliances and longer-lasting apparel and consumer goods. We are committed to safety, sustainability and the success of our customers and our communities.

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