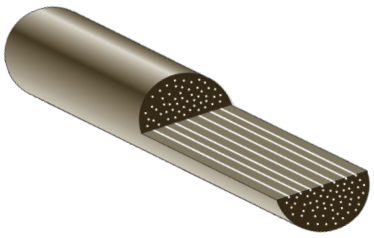
NYLON VERY LONG FIBER COMPOUNDS

High Performance Compounds

- Lightweight and functional alternative to die cast aluminum, magnesium, and zinc
- Extremely stiff and tough with superior cold temperature impact resistance
- Efficiently injection molded into complex shapes without expensive post-finishing costs

ADDITIONAL BENEFITS

- Ultra high impact at extremely low temperatures
- Able to maintain high modulus and strength at elevated temperatures
- Formulated for easy molding in mass production
- Very low shrinkage and resistance to warpage
- Colorable and UV resistant



Characteristics of long fiber pellets

- 11mm long
- Fibers are continuous through the length of the pellet
- Fibers are fully wetted with thermoplastic resin

Imagine reinforced nylon compounds that provide super strength inside a part while maintaining a smooth surface on the outside of the part… these compounds are available from RTP Company! We have developed some of the toughest, most durable materials available by using specially compounded nylons that incorporate very long fibers.

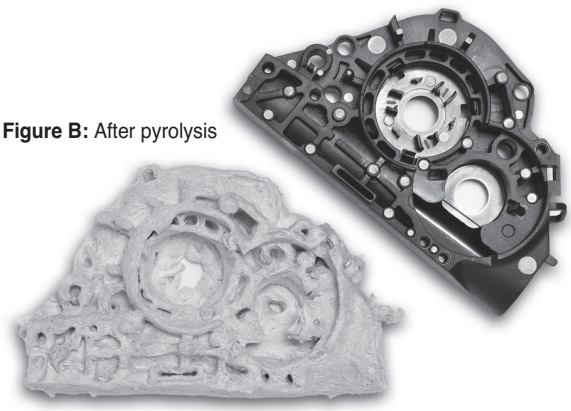


Figure A: Before pyrolysis

Figure B: After pyrolysis

Structural Integrity

Figure A shows a part made with an RTP Very Long Fiber (VLF) 200 Series, 60% long glass fiber reinforced nylon 6/6 material, injection molded into a complex shape with holes, ribs and varying wall thicknesses. It maintains a smooth, resin-rich finish that is free of fibers.

In Figure B, pyrolysis removes the polymer and reveals an internal skeleton of interlocking very long fibers that retain the shape and detail of the original part. Proper molding ensures the fibers are thoroughly distributed within all detailed areas.

Material Solutions - Featuring Nylon VLF Compounds

Nylon VLF compounds from RTP Company are manufactured using a proprietary, melt impregnation pultrusion process that allows the reinforcing fibers to be continuous through the full 11mm length of the pellet and fully wetted with polymer.

The increased aspect ratio of the long fiber provides more surface area for the polymer to grab onto, transferring any stresses to the reinforcement. The resulting VLF compounds have higher modulus and impact strength than shorter, glass fiber reinforced compounds. These property enhancements are also better maintained by VLF compounds at temperature extremes, both high and low.

RTP Company Nylon VLF Compounds are manufactured and available worldwide.

RTP Company Corporate Headquarters • 580 East Front Street • Winona, Minnesota 55987 USA
website: www.rtpcompany.com • **email:** rtp@rtpcompany.com • **Wiman Corporation** • +1 320-259-2554

ISO 9001 REGISTERED FACILITIES

TELEPHONE:

U.S.A.	SOUTH AMERICA	MEXICO	EUROPE	SINGAPORE	CHINA
+1 507-454-6900	+55 11 4193-8772	+52 81 8134-0403	+33 380-253-000	+65 6863-6580	+86 512-6283-8383

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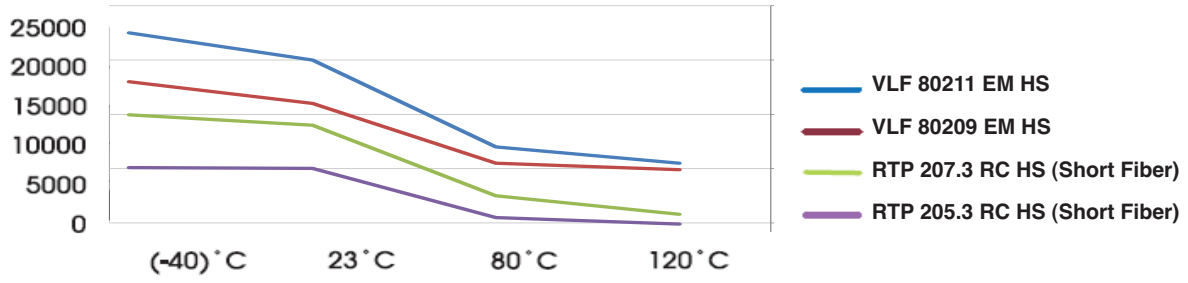
Your Global Compounder Of Custom Engineered Thermoplastics

Physical Properties of Selected RTP Company Nylon Compounds (Short and Long Fiber)

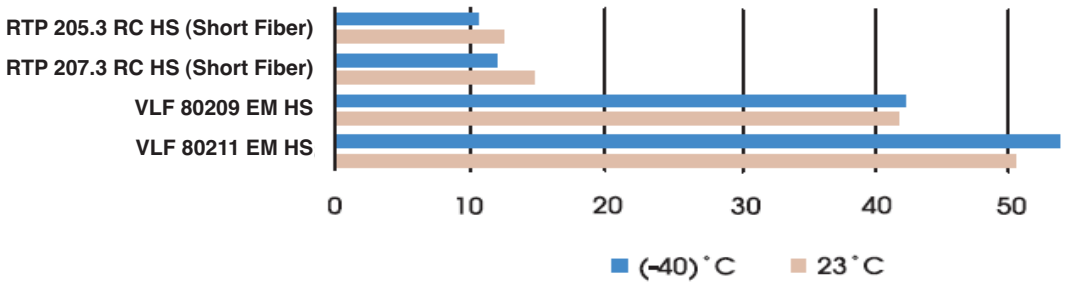
RTP COMPANY COMPOUNDS	Density	Tensile Strength (MPa)	Specific Tensile Strength	Tensile Modulus (MPa)	Flexural Strength (MPa)	Flexural Modulus (MPa)	Notched Charpy (J/m²)
VLF 80211 EM HS (60% long glass fiber)	1.69	260	154	21,500	430	20,000	51
VLF 80209 EM HS (50% long glass fiber)	1.57	250	159	17,750	385	16,200	42
RTP 207.3 RC HS (43% short glass fiber)	1.50	215	143	14,750	330	13,750	15
RTP 205.3 EM HS (33% short glass fiber)	1.39	195	140	13,000	290	10,400	12
Metals							
Al 380 Die Cast Aluminum	2.71	160*	59				
Zamak 3 Die Cast Zinc Alloy	6.60	221*	33				
Mg AZ 901 Die Cast Magnesium	1.81	160*	88				

*yield strength (0.2% offset)

Flexural Modulus at Temperature (MPa)



Impact Strength at Temperature (J/m²)



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