

Tenax[®] - J HMA35 H13 12K 750tex

HMA35 is a high modulus, aerospace grade carbon fiber manufactured in Japan for use as a reinforcement in high performance composites. These fibers are produced from poly-acrylonitrile (PAN) precursor and are surface treated to promote adhesion to organic matrix polymers. Sizing materials are designed to aid in handling.

Typical Fiber Properties	Inch-Pound	SI
Tensile strength	465 ksi	3206 MPa
Tensile modulus*	51.2 Msi	353 GPa
Elongation*		0.91%
Density	0.064 lb/in ³	1.78 g/cc
Linear density with sizing	648 yd/lb	765 tex (g/km)
Sizing level w/w		1.40%
<u>Yarn / Tow Characteristics</u>		
Filament Diameter		5.0 x 10 ⁻⁶ m
Twist		Never Twisted
Equivalent Yarn Cross Section		3.65 x 10 ⁻⁴ in ² (0.236 mm ²) Nominal

* Toho Tenax Impregnated Strand Test Method. Based on JIS R7601

To the best of Toho Tenax's knowledge the information contained in this publication is accurate; however, we do not assume any liability whatsoever for the accuracy or completeness of such information. Moreover, there is a need to reduce human exposure to many materials to the lowest practical limits in view of possible long-term adverse effects. To the extent that any hazards may have been mentioned in this publication, we neither suggest nor guarantee that such hazards are the only ones which exist. Final determination of the suitability of any information or product for the use contemplated by any user, the matter of that use and whether any infringement of patents is the sole responsibility of the user. We recommend that anyone intending to rely on any recommendation or to use any equipment or processing technique or material mentioned in this publication should satisfy himself as to such suitability and that he can meet all applicable safety and health standards. We strongly recommend that users seek and adhere to the manufacturers' or suppliers' current instructions for handling each material they use.

RECOMMENDED STORAGE AND SHELF LIFE

A. HMA Carbon Fiber Properties

Filament tensile strength, modulus of elasticity, coefficient of expansion, electric and thermal conductivities and yield are inherent properties of the HMA fiber and have indefinite shelf life.

B. HMA Carbon Fiber Processing

Typically, the original processing characteristics of H13 sized yarn will be essentially constant for at least one year from date of delivery. The product should be stored indoors. The recommended storage conditions are 40°F-77°F (5°C-25°C) and less than 50 percent RH. Direct exposure to sunlight or rain should be avoided. The shrink wrap should not be removed until immediately prior to use.

If the roving is stored at high temperatures and/or high humidity conditions, it may become difficult to process. Roving that stiffens during storage should still be useable. However, a thorough evaluation of the processing characteristics (e.g., resin wet out, spreadability) relative to the customer's operation is strongly recommended.

STANDARD PACKAGING AND SPOOL BUILD

Spool designation	"A"		"B"		"Z"	
	Inch-Pound	Metric	Inch-Pound	Metric	Inch-Pound	Metric
Net Weight	2.2 lb	(1 kg)	4.41 lb	(2 kg)	< 2.2 lb	(< 1 kg)
Tube Length	11.0 in	(27.9 cm)	11.0 in	(27.9 cm)	11.0 in	(27.9 cm)
Tube I.D.	3.0 in	(7.6 cm)	3.0 in	(7.6 cm)	3.0 in	(7.6 cm)
Tube weight	6.0 oz	(170g)	6.0 oz	(170g)	6.0 oz	(170g)
Stroke	10.0 in	(25.4 cm)	10.0 in	(25.4 cm)	10.0 in	(25.4 cm)
Outside dia. (OD)	4.75 ± 0.2 in	(12.1±0.5 cm)	5.0 ± 0.25 in	(12.7±0.6 cm)	Varies	
Pallet Type	Carton		Carton		Carton	
Nominal length	1430 yd	(1307 m)	2860 yd	(2614 m)	Non-metered	
No. spools per carton	20		12		Varies	
Carton weight	44.1 lb	20 kg	52.9 lb	24 kg	Varies	
Carton dimensions (LxWxH)	24.8 x 20.1 x 11.6 in	63 x 51 x 29.5 cm	same		Same	
Pallet dimensions (LxWxH)	40.6 x 50.8 x 41.5 in	103 x 129 x 105 cm	same		Same	
Approx. Pallet weight	529 lb	240 kg	635 lb	288 kg	Varies	

Notes:

- "B" spool is standard for HMA35 12K, "Z" spool is un-metered. Other spool sizes may be available to special order. Please consult your sales representative.
- 12-14 cartons per pallet. Height of pallet included in dimensions. The pallet size may be changed without notice.

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