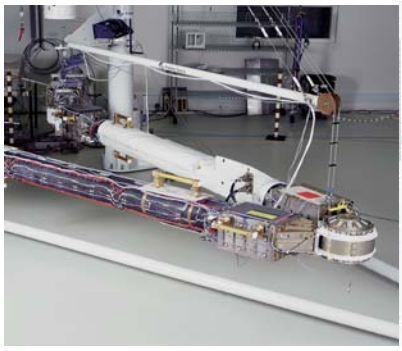
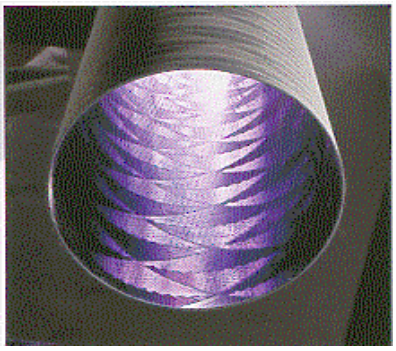
Advanced Materials

HUNTSMAN

Structural Composites In Action





Application	Tube for a Robotic Arm
Producer	**HTS AG,** **Wallisellen, Swiss**
Features	The European Robotic Arm (ERA)will be operated on the International Space Station (ISS). It was developed in order to provide the astronauts with the facility to move and handle equipment used outside the ISS. The composite part of the ERA has a diameter of 213 mm, a length of 2561 mm, a wall thickness of 2.5 mm and a weight of only 6650 g.
Process	Filament Winding
Matrix system used	ARALDITE LY 556 / Hardener HY 917 / Accelerator DY 070
Reinforcement used	Torayca M 46J Carbon fibre
Equipment used (supplier)	Filament Winding machine: Bolenz & Schäfer (3-axes) Control system: Sinumeric 810 M
Special requirements	The whole construction has to be space approved: Due to the high precision needed during operation the **thermal coefficient of linear expansion must be 0 (α =0)** which has to be achieved under very harsh environmental conditions (temp. range -100 to + 100 °C).
Reason for selected system / process	Restrictions with regard to a high stiffness to weight ratio.