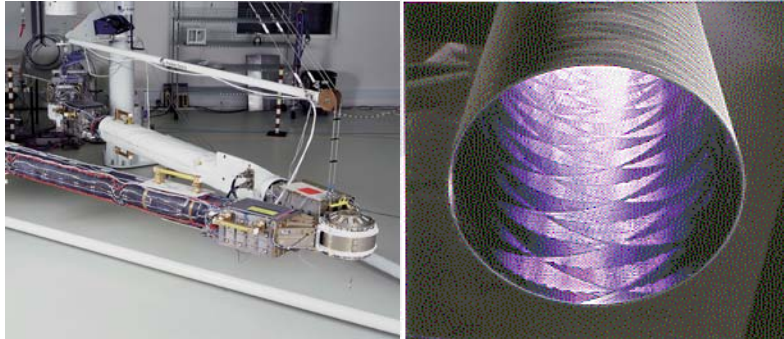


### Structural Composites In Action



<b>Application</b>	Tube for a Robotic Arm
<b>Producer</b>	<b>HTS AG, Wallisellen, Swiss</b>
<b>Features</b>	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.
<b>Process</b>	Filament Winding
<b>Matrix system used</b>	ARALDITE LY 556 / Hardener HY 917 / Accelerator DY 070
<b>Reinforcement used</b>	Torayca M 46J Carbon fibre
<b>Equipment used ( supplier )</b>	Filament Winding machine: Bolenz & Schäfer ( 3-axes ) Control system: Sinumeric 810 M
<b>Special requirements</b>	The whole construction has to be space approved: Due to the high precision needed during operation the <b>thermal coefficient of linear expansion must be 0 ( <math>\alpha = 0</math> )</b> which has to be achieved under very harsh environmental conditions ( temp. range -100 to + 100 °C ).
<b>Reason for selected system / process</b>	Restrictions with regard to a high stiffness to weight ratio.