Surgical Instruments & Robotics

Medical Grade Plastics as supplied by ALBIS are increasingly used in the development of surgical instruments, offering lightweight, durable, and cost-effective solutions. Their versatility allows for precision in design, contributing to the creation of ergonomic and disposable tools that improve surgical outcomes while reducing the risk of contamination.

The surgical instruments market is expanding, driven by advancements in minimally invasive procedures and the growing demand for single-use devices. Plastics provide the necessary strength and sterilizability required for modern surgical environments, ensuring patient safety and enhancing the efficiency of medical professionals.

Innovations in plastic materials continue to shape the future of surgery, offering high-performance tools that meet the evolving needs of healthcare providers worldwide.

Robot-assisted surgery is a rapidly growing field of application to extend the limitations of surgeons' handling in minimally invasive procedures and to ensure precision and safety even during longer surgeries. A variety of engineering plastics are used for these highly specialized robots.

Healthcare Polymer Solutions.

Surgical Instruments & Robotics

Application			Material Solutions		
Focus area	**Application examples**	**Key features**	**Polymer Type / Brand name**		**Manufacturer**
Neuro & Cardiac surgery	Catheters	Flexibility Sterilisability Biocompatibility Disinfection resistance & ESCR Extrudable Transparency	PA11/PA12	Rilsan® Clear MED	ARKEMA
			PE	Purell®	LyondellBasell
			PEBA	Pebax® MED	ARKEMA
			PETG	SKYGREEN®	SK Chemicals
			PSU/PESU/PPSU	Ultrason®	BASF
			PVDF	Kynar® MED	ARKEMA
			TPU	Texin®	Covestro
Packaging for implants & single-use tools	Films Sheets for thermoforming Packing parts	Biocompatibility Sterilizability Extrudability Mechanical strength	ABS	Novodur® HD	INEOS Styrolution
			MABS	Terlux® HD	INEOS Styrolution
			PARA	IXEF® HC/GS	Syensqo
			PC	Makrolon®	Covestro
Surgical incisions	Surgical trocars	Mechanical strength Processability Dimensional stability & low warpage Colourability Sterilisability Biocompatibility Transparency	PC/ABS	Bayblend® M	Covestro
			PETG	SKYGREEN®	SK Chemicals
			PP / PE	Purell®	LyondellBasell
			SBC	Styrolux®	INEOS Styrolution
			TPE	Evoprene® R99xx series	Alphagary
			TPU	Texin®	Covestro
Tissue modification	Dissection knives Endoscopes Ablation devices Scalpel handles	Mechanical strength Processability Impact resistance / Toughness Dimensional stability & low warpage Sterilisability Biocompatibility	ABS	Novodur® HD	INEOS Styrolution
			PARA	IXEF® HC/GS	Syensqo
			PBT	Ultradur® PRO	BASF
			PC	Makrolon®	Covestro
			PC/ABS	Bayblend® M	Covestro
			PEBA	Pebax® MED	ARKEMA
			POM	Ultraform® PRO AT	BASF
			PSU/PESU/PPSU	Ultrason®	BASF
			PVDF	Kynar® MED	ARKEMA
			TPE	Evoprene® R99xx series	Alphagary
			TPU	Texin®	Covestro
Wound treatment	Surgical staplers	Mechanical strength Processability Impact resistance / Toughness Dimensional stability & low warpage Sterilisability Biocompatibility	ABS	Novodur® HD	INEOS Styrolution
			PBT	Ultradur® PRO	BASF
			PC	Makrolon®	Covestro
			PC/ABS	Bayblend® M	Covestro
			PEBA	Pebax® MED	ARKEMA
			POM	Ultraform® PRO AT	BASF
			PVDF	Kynar® MED	ARKEMA
			TPE	Evoprene® R99xx series	Alphagary
			TPU	Texin®	Covestro
Robotic surgery	Robotics components	Mechanical strength Easy processing Dimensional stability & low warpage Colourability	ABS	Novodur® HD	INEOS Styrolution
			ASA	Luran® S MED	INEOS Styrolution
			MBS	Zylar®	INEOS Styrolution
			PA11	Rilsan® MED	ARKEMA
			PARA	IXEF® HC/GS	Syensqo
			PBT	Ultradur® PRO AT	BASF
			PC	Makrolon®	Covestro
			PC/ABS	Bayblend® M	Covestro
			PEBA	Pebax® MED	ARKEMA
			POM	Ultraform® PRO AT	BASF
			TPE	Evoprene® R99xx series	Alphagary

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Head Office
ALBIS Distribution GmbH & Co. KG
Mühlenhagen 35
20539 Hamburg · Germany
T +49 40 78105 0
healthcare@albis.com
albis.com

Visit us on Linkedin:

ALBIS 0225