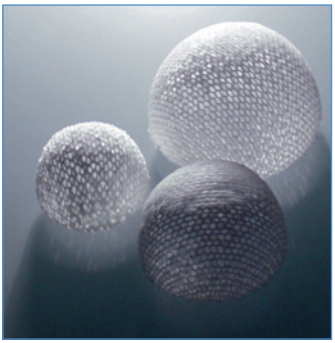
TEXTILES FOR IMPLANTS

Consideration in design and selection of textiles



Designers will select material according to the strength required, fatigue, dynamic or static load, fixation, lifetime and anatomy.

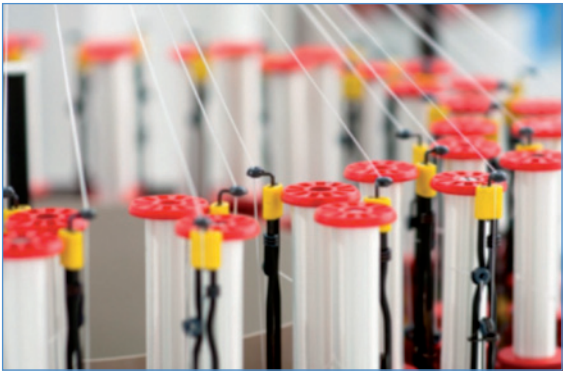
R&D and innovation enable to use many textiles in various medical activities such as surgery. Technical characteristics of biomedical textiles can be similar to the ones of human tissues. Their advantage is that they give more flexibility and adaptation in their use than metal or polymer implants which are more rigid.

Generally, implantable textile is made from a knitted, braided, woven or non-woven structure. The materials used for the textiles are under monofilament or multifilament forms. By combining mechanical properties of different structures and those of different materials, some problems can be solved that other typical methods could not have answered.

Biomedical textiles can also be mixed with other components like metal, polymers, silicone… by using processes of sewing, welding, bonding or splicing techniques in order to create the final implant structure.

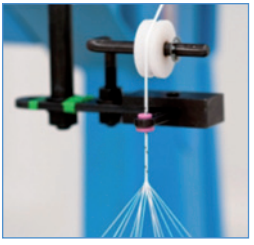
The choice of one of the technique above will be decided according to the technical properties expected of the final structure. For instance, in orthopaedic surgery, the

implant should allow the patient to conserve some mobility after the operation ; biomedical textiles offer this flexibility combined with the resistance needed.



Textile implants also enable to realize low-invasive surgeries which are less traumatic for the patient and accelerate the recovery time.

Materials



The company specialized in a wide range of biocompatible materials, including:

- fibers and monofilaments made of polyester, polyethylene, polypropylene, nylon, polyamide, PTFE, etc,
- resorbable fibers and materials, such as Poly L Lactic Acid PLLA, polyvinylpyrrolidone, etc,
- elastic and shock absorbent materials, such as silicone, etc,
- metal and ceramic materials, including titanium, stainless steel, nitinol, zircon, alumina, etc.

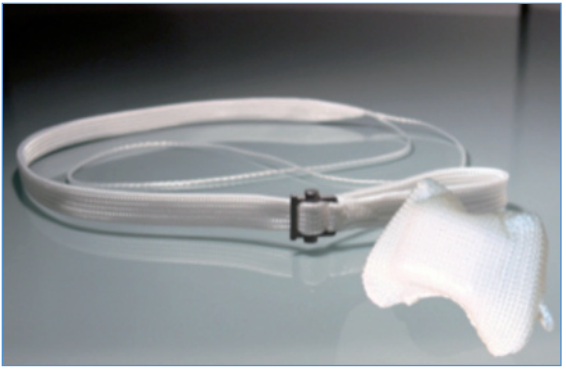
Processing

After transformation processes of these biomaterials, products are delivered with the required mechanical properties and characteristics. These technologies are based on:

- braiding, knitting, weaving and non-woven fabrics,
- sheeting, impregnation and coating,
- hot, cold, ultrasonic and laser cutting,
- assembly by sewing, bonding, crimping or welding,
- ultrasonic, dry or high-temperature oven heat treatments,
- moulding, machining.

All of the products are manufactured in clean rooms in a controlled environment.

Applications in the medical field



- Orthopaedics: dynamic shock absorbent system for spine, small joint.
- Arthroscopy : soft tissue repair, tendons, ACL ligament reinforcement system, anchors.
- Traumatology, maxillofacial surgery, extremities.
- Other segments include visceral surgery, abdominal wall, gastric band, urogynaecological for incontinence, reconstruction of the pelvic floor, pneumology, tracheo-bronchial and oesophagial stents, etc.

Guarantees of quality

In order to guarantee the quality of the products, strong controls of industrial processes are carried out, from design to manufacturing.

Quality controls are made at every step of the process:

- validation of the raw materials and the manufacturing processes,

- physical, chemical and microbiological tests,
- mechanical tests,
- visual and dimensional controls.

Partner

Cousin Biotech, affiliated with the original textile parent Cousin Frères created in 1848 by Louis Cousin, works solely in the medical field, and more specifically in surgery. It has inherited the full wealth of this accumulated experience and skill. Its OEM Division brings customized solutions and develops the devices according to the specifications of its customers. The company is ISO 13485 and FDA approved.

www.cousin-biotech.com