

## Technology Offer

### Device with ready-prepared surgical knot

Ref. No.: CH711

#### Background

Under restricted spatial conditions e.g. in minimal invasive surgery, tying and closing of surgical knots is difficult and time-consuming in particular when high demands concerning closeness and durability is required. Extracorporeal knots solve this problem, however the state of the art methods are time-consuming and loosening of knots after initial knotting remains a problem.

#### Technology

A device with a novel ready-prepared surgical knot have been developed suitable for suturing tissue such as intestinals, peritoneum, ligaments, tendons, skin, etc. and performing ligations of vessels, intestinal anastomosis and blood stanching in minimal invasive or open surgery. The device represents a surgical yarn carrier with a prepared but still open knot. Several new types of laying the yarn are possible, which allow a very secure knotting and achieve durability of the knot on the tissue. If needed the yarn's end possibly provides a fixing element e.g. a needle, with which the tissue structure is sutured with. By pulling both yarn's ends, the knot construction slides towards the tissue and the knot is pulled tight. The tighten knot withstands forces of 300 N which is 2 to 3 times stronger than other knots (>300 N vs. 106-149 N) as measured with a dilation device.

#### Benefits

- ✓ Time- and cost-effectiveness
- ✓ Facilitation of surgical knotting in difficult to access areas (also applicable in minimal invasive surgery)
- ✓ Secured tightness and durability of knots
- ✓ 2-3 times stronger than other knots
- ✓ No special training needed
- ✓ Reliable
- ✓ Any wound type possible

#### Application

Surgical applications: Suture and ligation of tissue structures

User: Surgeons, nurses, paramedics, emergency medical technicians in emergency situations

#### Commercial Opportunity

Searching for an investor for spin-off

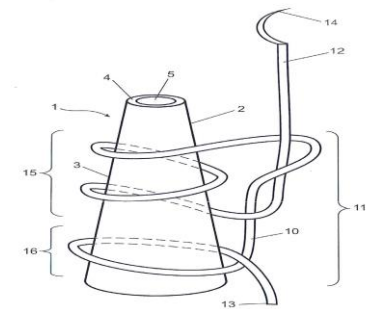


Fig. 1: Prepared surgical knot and device holding it

#### Key words

Ready-made knot, device, surgical, saturation, ligation, suture, minimal invasive surgery

#### Developmental Status

*Prototype*

#### IP Status

DE patent application (07/2014)  
PCT patent application (06/2015)

EP, US, JP patent applications pending

#### Patent Owner

Charité – Universitätsmedizin Berlin

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