



SURGY/NIQUE
ENGINEERING SOLUTIONS

**SUTURE
PRODUCTION
MACHINERY
CATALOGUE**



ABOUT US

Surgynique Engineering Solutions has been established as an Engineering and Consultancy company that provides design, prototyping, product development and manufacturing services in the medical industry. In time, Surgynique has developed its own machinery line which are particularly used in Surgical Sutures manufacturing. Established by engineers with more than 20 years of experience in product design, medical device manufacturing, project management, and business development fields, Surgynique helps customers from Izmir and Manisa offices in Turkey. Since 2020, Surgynique has been a reliable partner for physicians, medical device manufacturers, large medical device OEMs, emerging companies, start-ups, research institutions and universities from all over the world.

Surgynique also provides Technology Transfer and Consultancy services for Investors who are willing to invest in Suture manufacturing facilities. The expertise and know-how in this field makes it able for customers to easily get Feasibility Study, Layout & Clean Room Design, Machinery & Equipment Selection, Standard Operation Procedures Preparation services.

Surgynique also provides "Suture Manufacturing Machinery" to its esteemed customers. Wide range of machinery line provides the ability to easily implement critical processes to your factory.

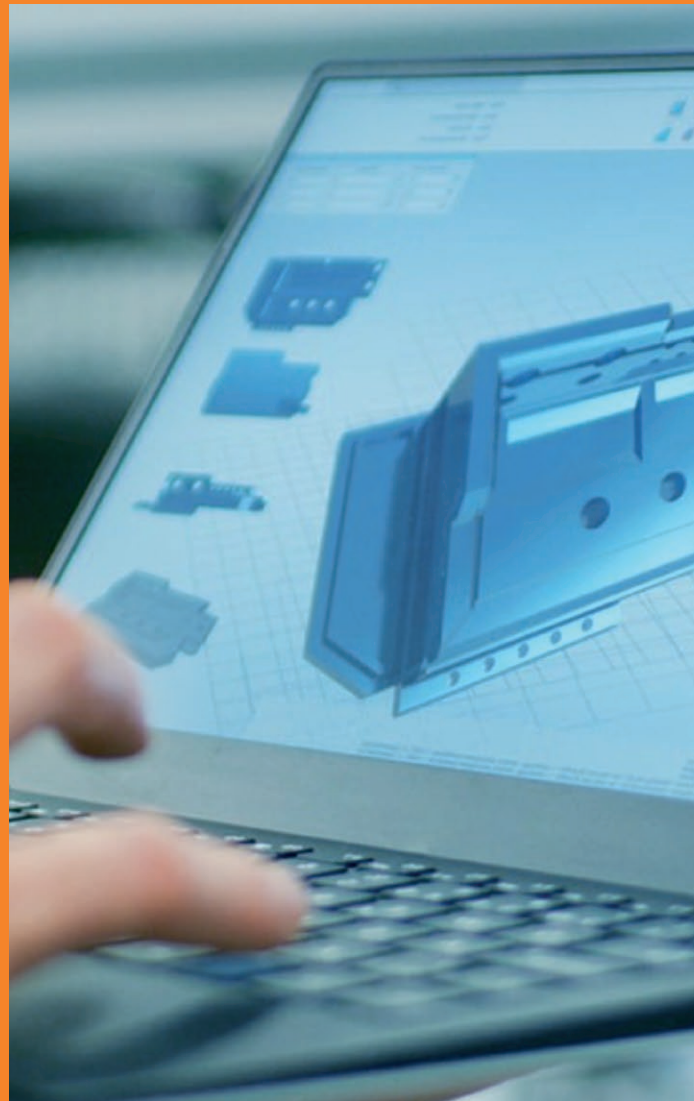
SERVICES & SOLUTIONS

Product Design, Development & Prototyping

Surgynique has the ability to custom design and manufacture the products in its own facility or simply deliver design for clients who choose to manufacture these products at themselves or in a different facility.

Surgynique has the ability to carry out all design processes step by step starting from concept /custom design in line with customers needs and design requirements.

- Research and Development
 - Specification Development
 - Engineering
 - Prototyping
 - Testing
 - Manufacturing
-





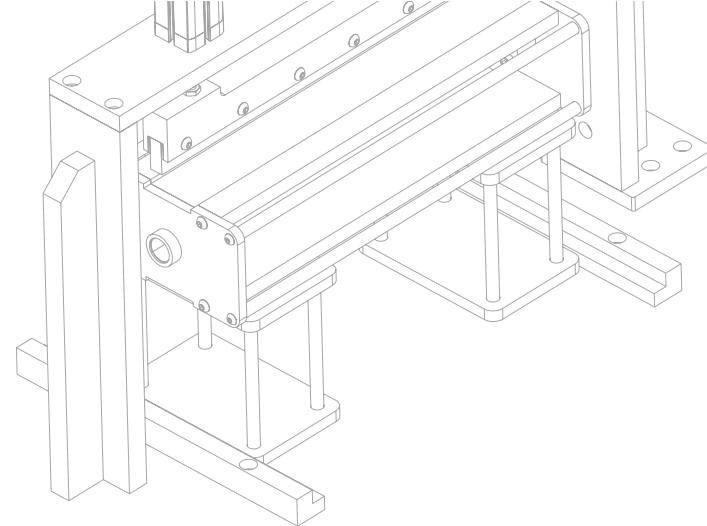
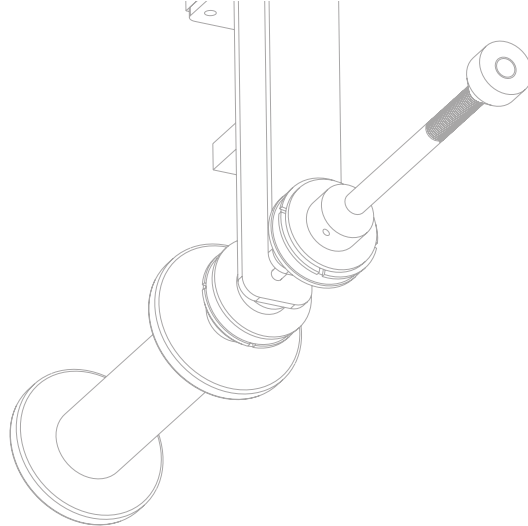
Clean Room Design & Construction

Surgynique's experienced in house engineers are dedicated to design Clean Rooms for medical industry in accordance with the specific class of the medical devices to be produced. From determining the need of customers to completion, Surgynique ensures that your Clean Rooms are designed and installed in accordance with local and global regulations. Surgynique also provides air systems, ventilation, pass box, air shower placement and gray area (anteroom), production line and factory layout design services.

Serial Production Solutions & Automatization

Product development drives around 80 percent of the product's cost. Surgynique team provides effective engineering solutions that enable manufacturing process to reach higher efficiency and capacity at lower costs. Our know-how help customers to reduce the risk of time, labor and financial losses.

CONTENTS



MULTIFILAMENT WINDING &
INFRARED STIFFENING MACHINE



MULTIFILAMENT WINDING AND
STIFFENING MACHINE (GLUE)



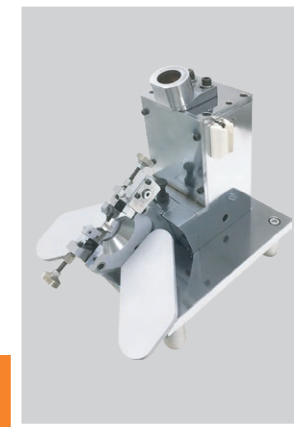
MONOFILAMENT WINDING
AND CUTTING MACHINE



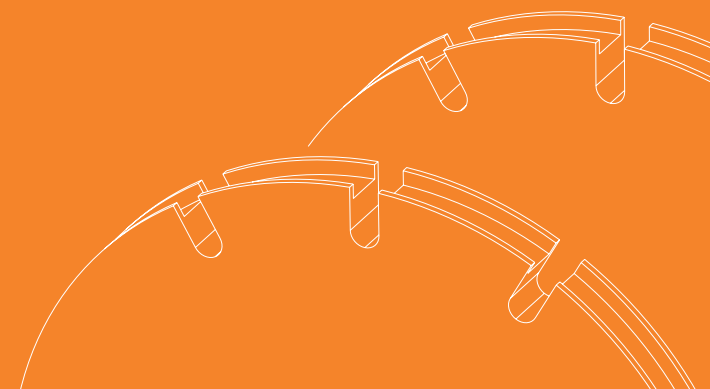
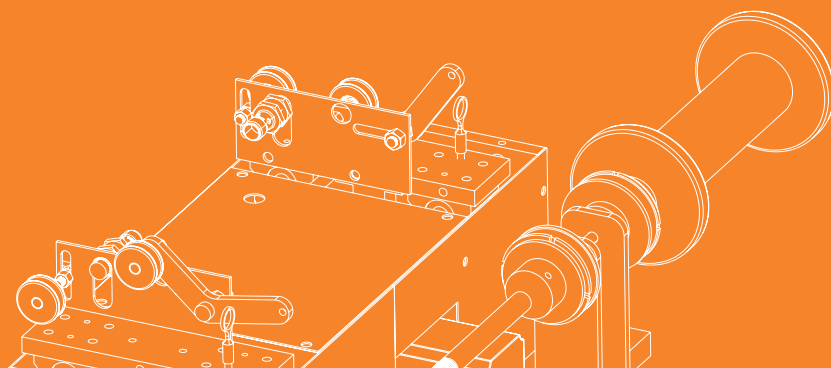
VACUUM DRYING CABINET WITH
FORCED CONVECTION

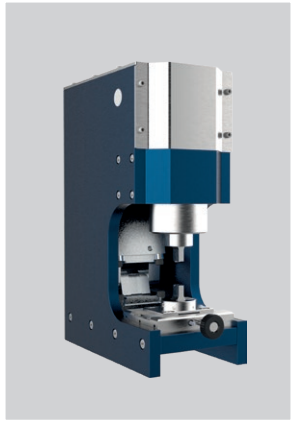
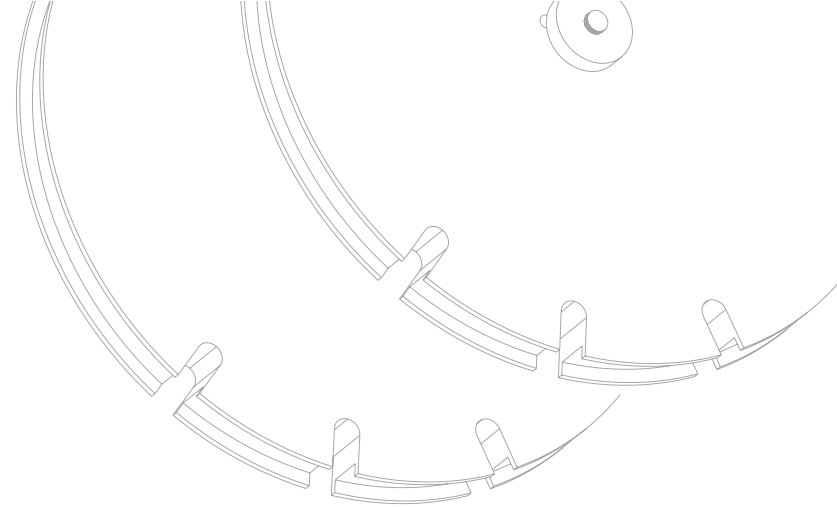
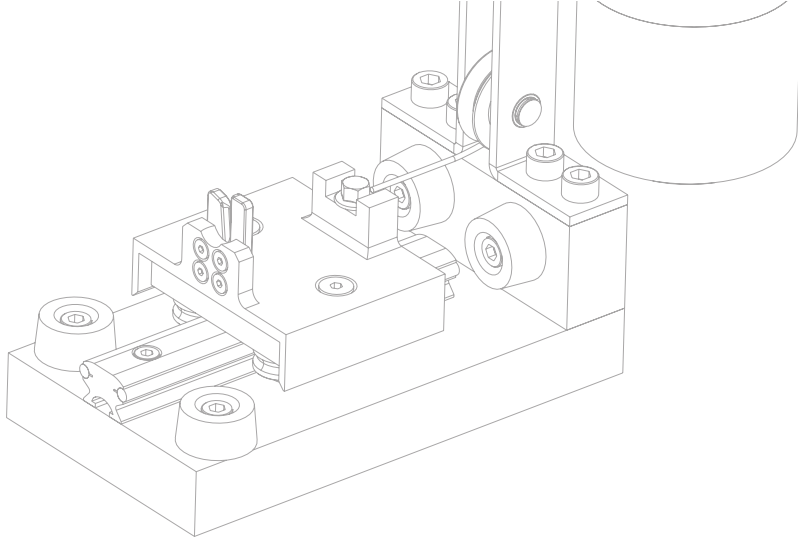


DRY
CABINETS



DRILLED END SUTURE
CRIMPING MACHINES





CHANNEL TYPE NEEDLE
CRIMPING MACHINE



OPHTALMIC AND MICRO
NEEDLE CRIMPING MACHINE



NEEDLE PENETRATION
FORCE TESTING DEVICE



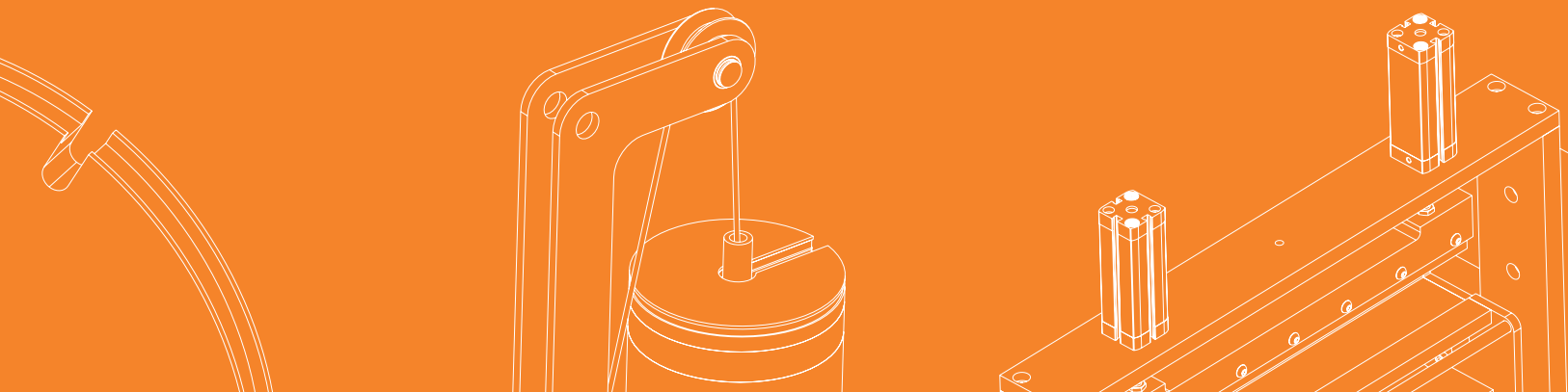
SUTURE
PULL TESTERS



BARBED SUTURE WINDING SET /
SUTURE CARD MANUAL WINDING SET



SUTURE CARD AUTONOMOUS
PRINTING SYSTEMS





MULTIFILAMENT WINDING & INFRARED STIFFENING MACHINE

*5 times faster than a
conventional heat
stiffening machine.*

SURGYNIQUE
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This device is a cutting edge technology which combines winding, stiffening and cutting operations in a single machine. This unique feature provides excellent productivity and quality for the suture production facilities. It prevents major quality problems caused by human. Thanks to its unique IR heat stiffening system no glue required. And this means huge savings from glue costs. The stiffening system provides excellent dimensional stability which leads to less needle scrap.

The device is 5 times faster than a conventional heat stiffening machine.

- Servo motor-controlled drive system
- **High Speed Rotary Cutting Blade provides smooth cut**
- **Standard operations ensure the same quality in every suture**
- **No Loctite required.**
- Automatic PLC controlled touch panel User Interface
- Automatic parameter setting according to product time
- Torque adjustable magnetic brake for tension control depending on product type
- Product and operator safety features
- NSK – SKF bearing parts
- HWIN Lineer system
- Siemens – Delta PLC servo motor parts
- SICK sensor parts
- All parts are made of aluminium and stainless steel
- 6bar work pressure
- Can store production data.
- Industry 4.0 compatibility

MACHINE CAPACITY COMPARISON			
COMPANY	COUNTRY	1 UNIT PRODUCTION TIME (sec)	HOURLY PRODUCTION CAPACITY (PC)
SURGYNIQUE	TÜRKİYE	0,6	6000
OTHER COMPANY - 1	GERMANY	5,86	614
OTHER COMPANY - 2	UK	11,18	322
OTHER COMPANY - 3	USA	1,29	2791
OTHER COMPANY - 4	USA	17	212

TECHNICAL DETAILS:

Compatible Surgical Sutures:

PGA – PGLA – PGAR – PGLAR – UHMWPE

Machinable Surgical Sutures Diameter and Length (USP – cm):

*USP 6/0 - 5/0 - 4/0 - 3/0 - 2/0 - 0 - 1 - 2 - 3 - 4 - 5 - 6 - 7
45 - 50 - 60 - 90 - 100 - 120 - 150 cm*

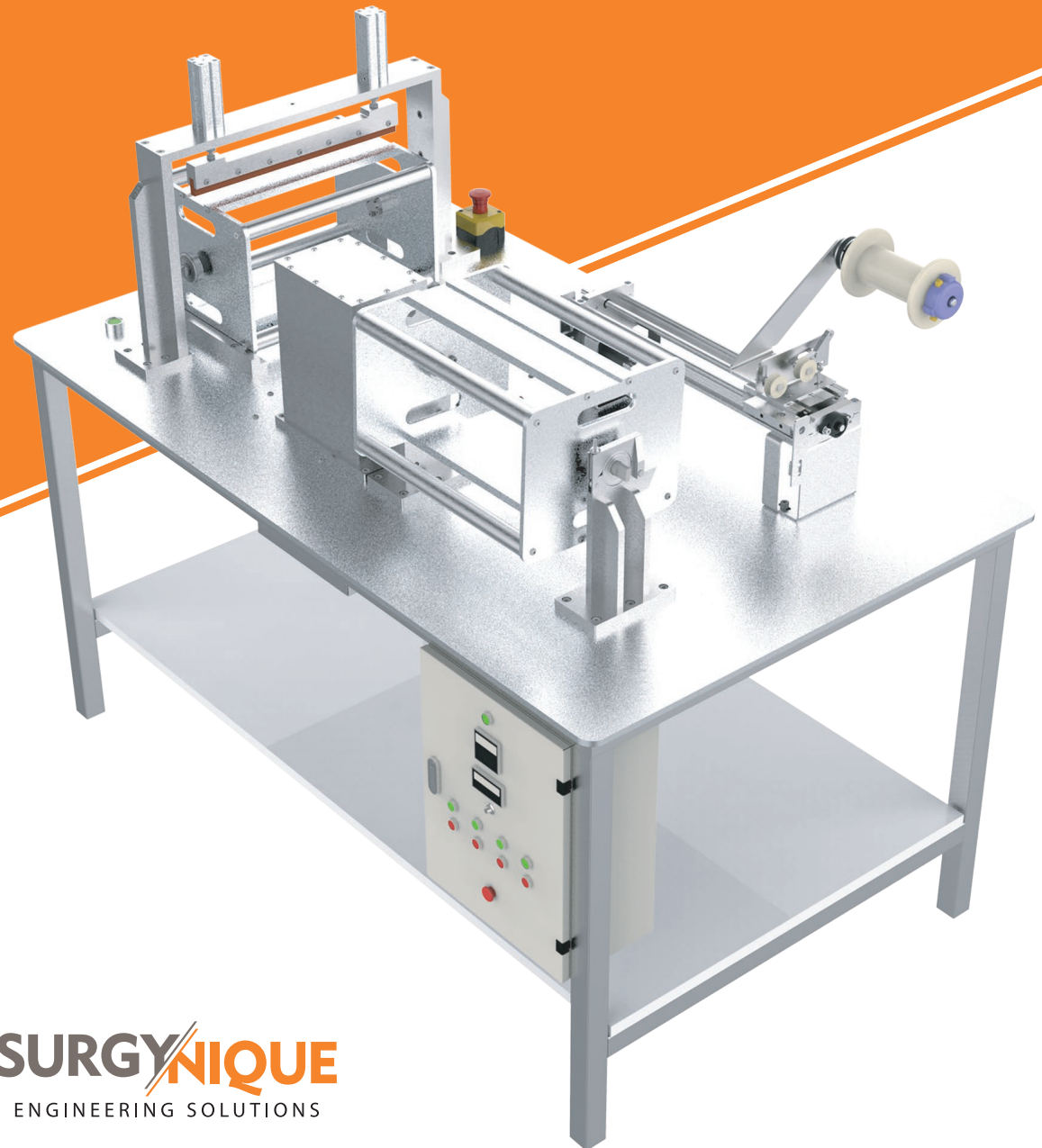
Production Capacity:

6000 pieces/hour

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ENGINEERING SOLUTIONS

MULTIFILAMENT WINDING AND STIFFENING MACHINE (GLUE)

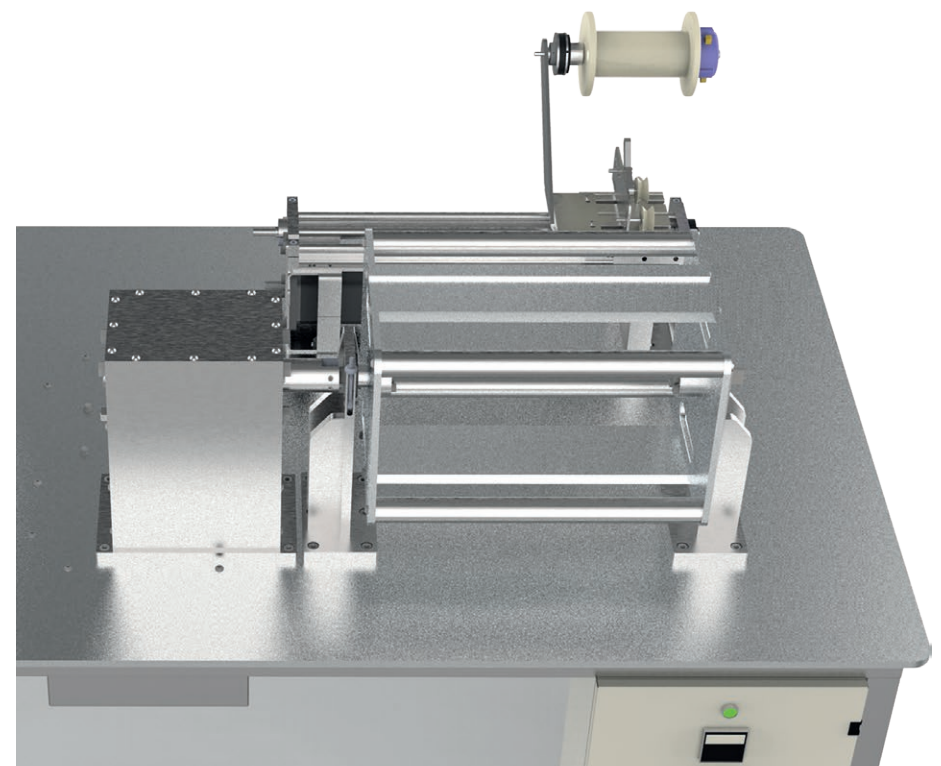
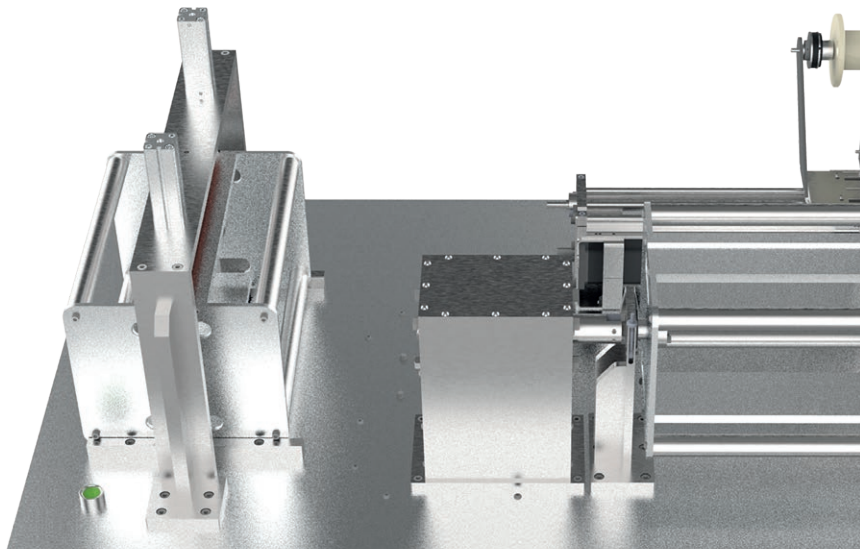
*Low investment cost,
High efficiency*



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Multifilament Surgical Suture Winding-Glue Stiffening and Cutting Machine; designed and produced by our company. It has low investment cost. The sutures are wound automatically according to the requested number and then stiffened manually with glue by the operator. Then the pulley is transferred manually to cutting station. Cutting station fixes the sutures and the operator cuts the sutures with a rotary blade manually.

- AC motor driven system
- Manual Cutting Station with Manual Cutting Blade
- Automatic PLC controlled touch panel User Interface
- Torque adjustable magnetic brake for tension control depending on product type
- Product and operator safety features
- NSK – SKF bearing parts
- HWIN Lineer system
- Siemens – Delta PLC
- SICK sensor parts
- All parts are made of aluminium and stainless steel



TECHNICAL DETAILS:

Compatible Surgical Sutures:

PGA – PGLA – PGAR – PGLAR- SILK- UHMWPE

Machinable Surgical Sutures Diameter and Length (USP – cm):

*USP 6/0 - 5/0 - 4/0 - 3/0 - 2/0 - 0 - 1 - 2 - 3 - 4 - 5 - 6 - 7
45 - 50 - 60 - 90 - 100 - 120 - 150 cm (Any custom size can be added)*

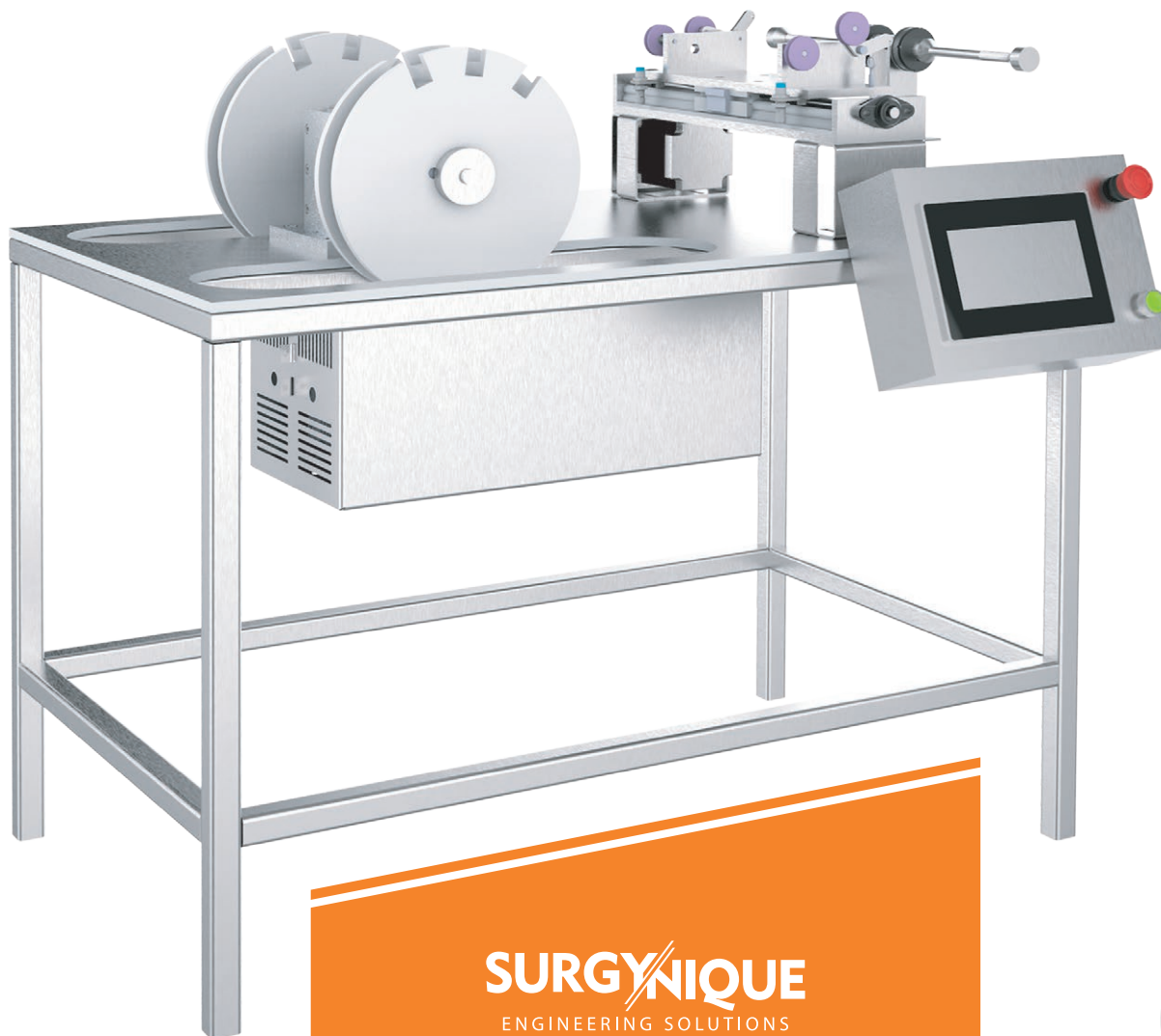
Production Capacity:

2000 pieces/hour

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ENGINEERING SOLUTIONS

MONOFILAMENT WINDING AND CUTTING MACHINE

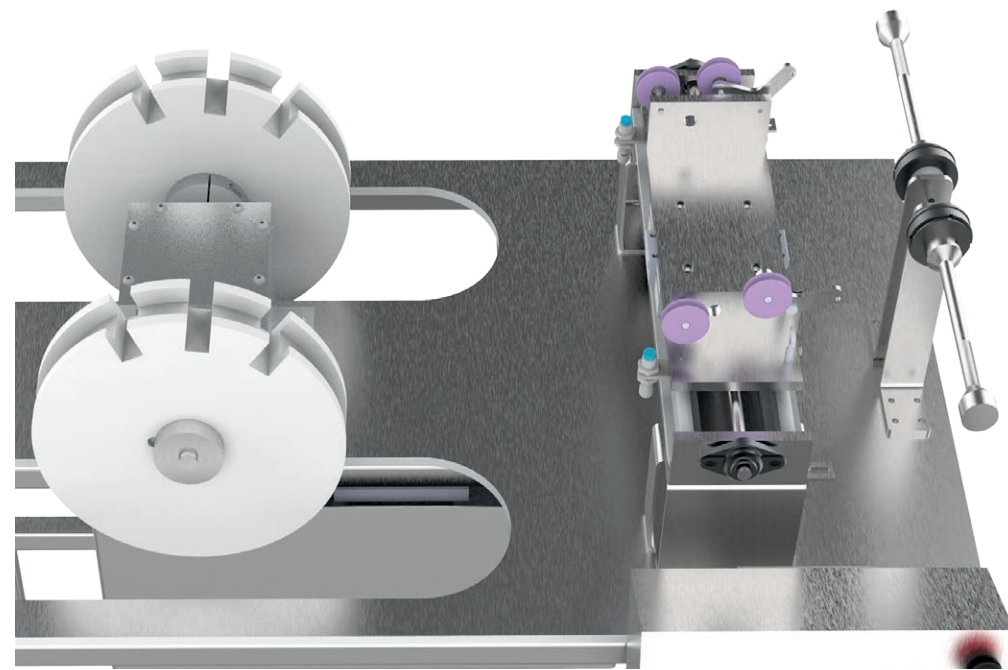
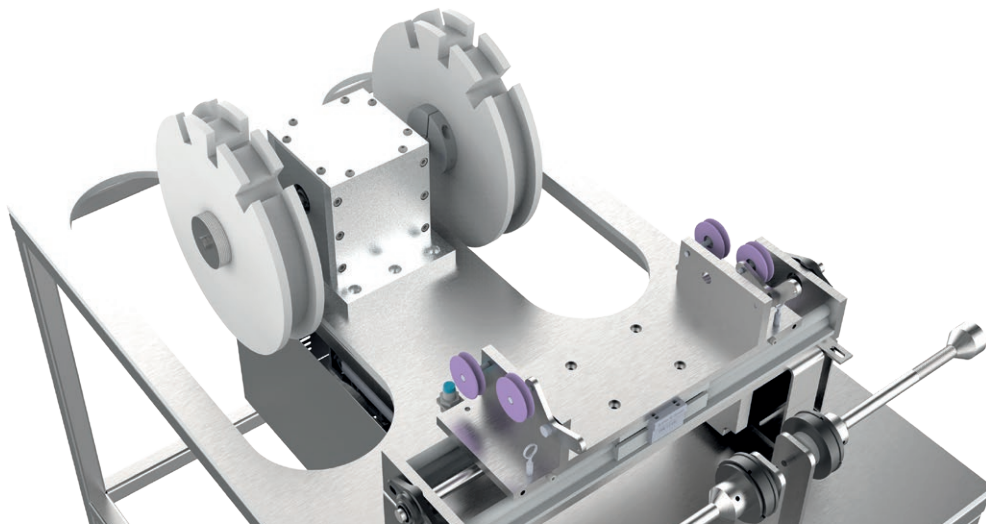
Easy to use & double capacity



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Monofilament Winding and Cutting Machine is low cost and effective cut-to-length machine which helps to operator to cut monofilament sutures to desired length. It has unique double pulley system which enables the opportunity to increase cutting speed. The device can also be used in multifilament sutures which does not require stiffening. The required quantity can be adjusted from the user friendly touch panel interface. The delicate tension control provides good length stability which crucial especially in lower diameters.

- AC motor driven system
- Double pulley system allows to increase capacity.
- Manual Cutting Groove for Scissors
- Automatic PLC controlled touch panel User Interface
- Torque adjustable magnetic brake for tension control depending on product type
- Product and operator safety features
- NSK – SKF bearing parts
- HWIN Linear system
- Siemens – Delta PLC
- SICK sensor parts
- All parts are made of aluminum and stainless steel



TECHNICAL DETAILS:

Compatible Surgical Sutures:

PGA(W/O needle)- PGLA(W/O needle)- PGAR(W/O needle)- PGLAR(W/O needle) - PGCL – PDO -PP – PA – SILK (W/O needle) - UHMWPE

Machinable Surgical Sutures Diameter and Length (USP – cm):

*USP 6/0 - 5/0 - 4/0 - 3/0 - 2/0 - 0 - 1 - 2 - 3 - 4 - 5 - 6 - 7
45 - 50 - 60 - 90 - 100 - 120 - 150 cm (Any Custom size can be added)*

Production Capacity:

3600 pieces/hour

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VACUUM DRYING CABINET WITH **FORCED CONVECTION**

Faster & Homogenous
Drying for Sutures

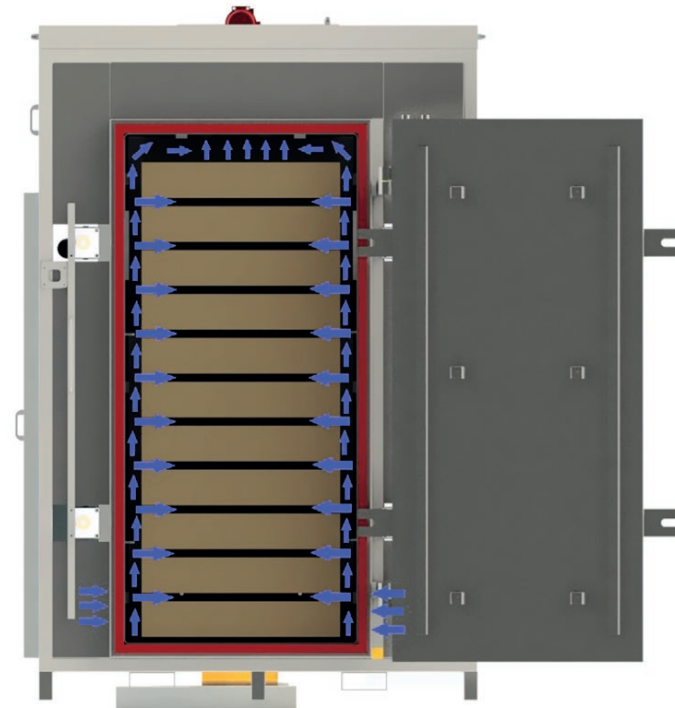


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Vacuum drying is a critical process in the dehumidification process of Absorbable Sutures. Since the polymers used in Absorbables are very sensitive to heat, the temperatures can be increased to a certain limit. So the deep drying requires high amount of vacuum and homogenous temperature distribution inside the cabinet. The Vacuum Drying cabinet has a unique forced convection system working with Nitrogen which provides high speed heating of the products and perfectly homogenous temperature distribution. This allows the products to be equally dry.

Another big advantage of the closed circuit forced convection system is to speed up the heat transfer from the water jacket to the products. Loaded with energy, the products are more likely to lose their moisture, and this allows a much faster drying process. With the aid of the user-friendly interface, it is easy to design and validate your drying cycles. The data is stored inside the device and can easily be exported to your computer or Industry 4.0 system. Live monitoring and remote control is also an option that is provided with the device.

- Ideal for drying surgical absorbable sutures.
- Custom size
- Heat isolation in every side
- Water jacket heating in all surfaces including the door.
- Single door / double door option
- PLC Scada system
- Easy and adjustable interface for cycle design
- Homogenous temperature distribution provides equal drying and shorter drying times
- Leak proof seal gasket
- Powerful and easy to operate & maintain vacuum pump
- Touchpanel user friendly interface
- Data recording and export options USB/Ethernet
- Adjustable User authorization and password protection
- Pneumatic door locking system
- Closed loop forced convection system for rapid heat transfer



DRY CABINETS

Keep your products dry.



SURGYNIQUE
ENGINEERING SOLUTIONS

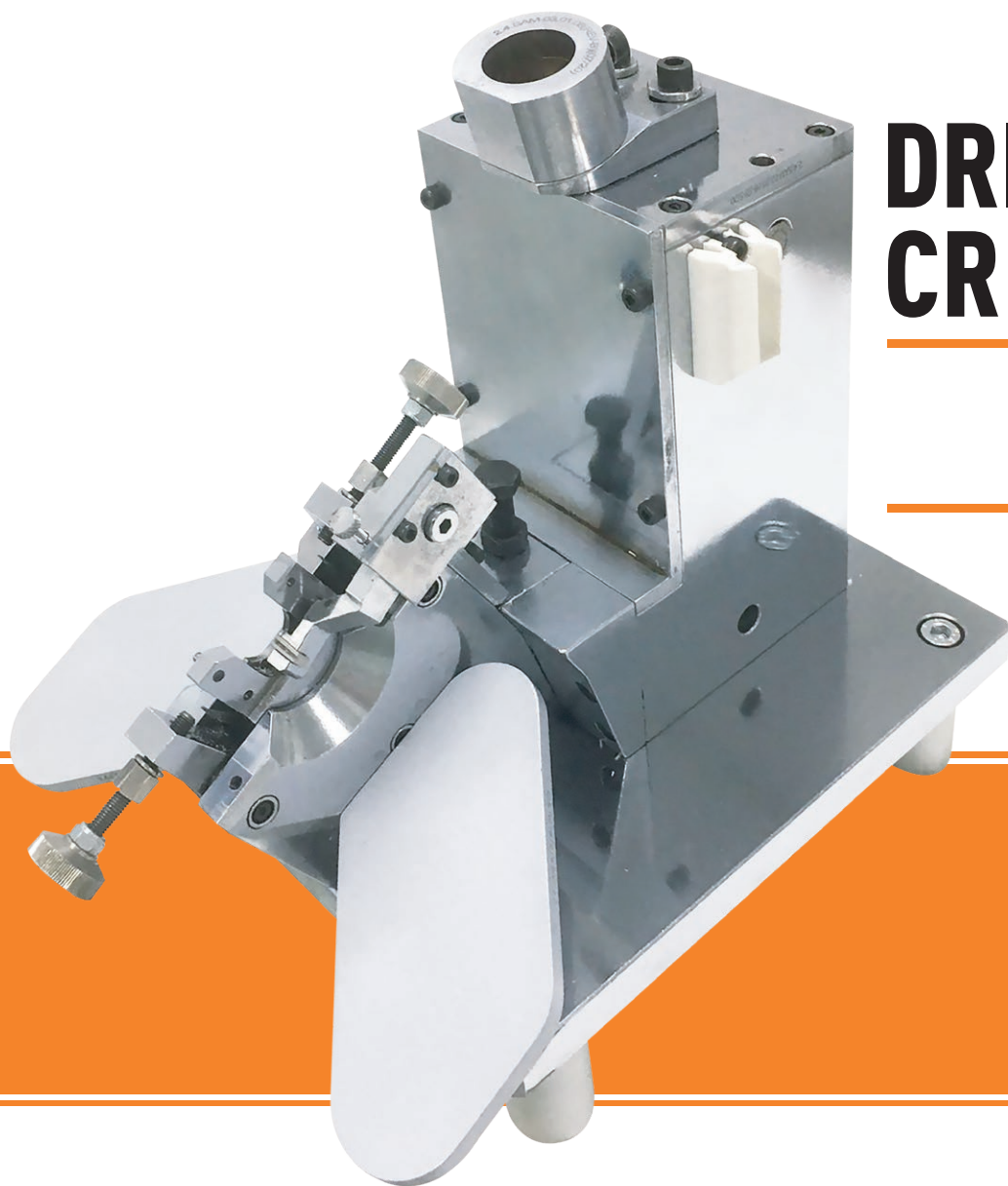
Dry cabinets are used to store the absorbable sutures in a low temperature and low humidity environment. It is crucial to store unfinished and finished products in a controlled environment for keeping the sutures at its original performance all the time.

Hybrid Dry Cabinet offers the fastest dehumidification solutions in the world, using desiccant dehumidification and smart nitrogen dehumidification technologies together in perfect form. In particular, it creates the most suitable environment for storing high-precision materials.

While Hybrid Dry Cabinet prevents oxidation %100 with its smart nitrogen unit, it also makes the dehumidification process faster and more reliable with the desiccant dry units operating simultaneously. A smart nitrogen unit will continue drying process by taking control when the desiccant dry unit reaches saturation and regenerates itself automatically. In case the nitrogen source is interrupted or if there is a malfunction in any unit, the other unit takes over the control and provides a continuous drying process. For these reasons, they are the most efficient dry and storage solutions that can be used especially in long-term storage and drying processes.

- **Energy efficient.**
- **Can be adjusted up to 1 RH.**
- **Temperature controlled.**
- **Hepa Filter.**
- **Racks can be customized.**
- **Different Sizes are available.**

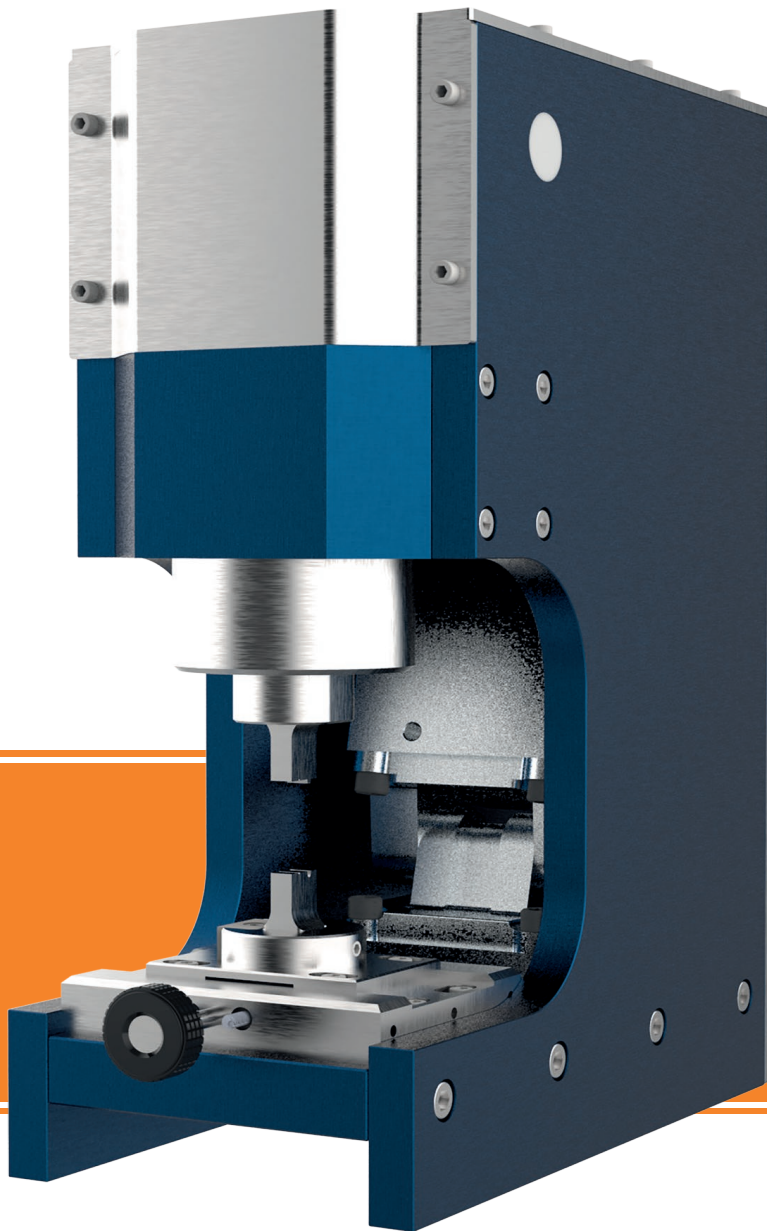




DRILLED END SUTURE CRIMPING MACHINES

*Precise crimping,
no worries.*

- Precise attachment operation
- Manual and Pneumatic actuation options
- Precise pressure adjustment knob
 - V-Guide option



CHANNEL TYPE NEEDLE CRIMPING MACHINE

Reliable crimping for all sizes of Channel type needles.

- Precise attachment operation
- Manual and Pneumatic actuation options
- Precise pressure adjustment knob
- V-Guide option



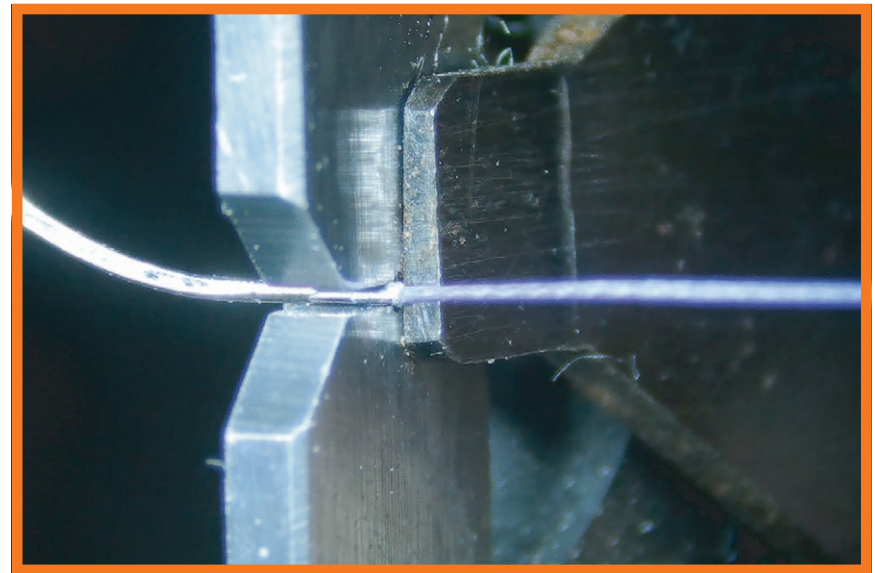
OPHTHALMIC AND MICRO NEEDLE CRIMPING MACHINE

3D Vision, comfortable operators,
more productivity in micro sutures.



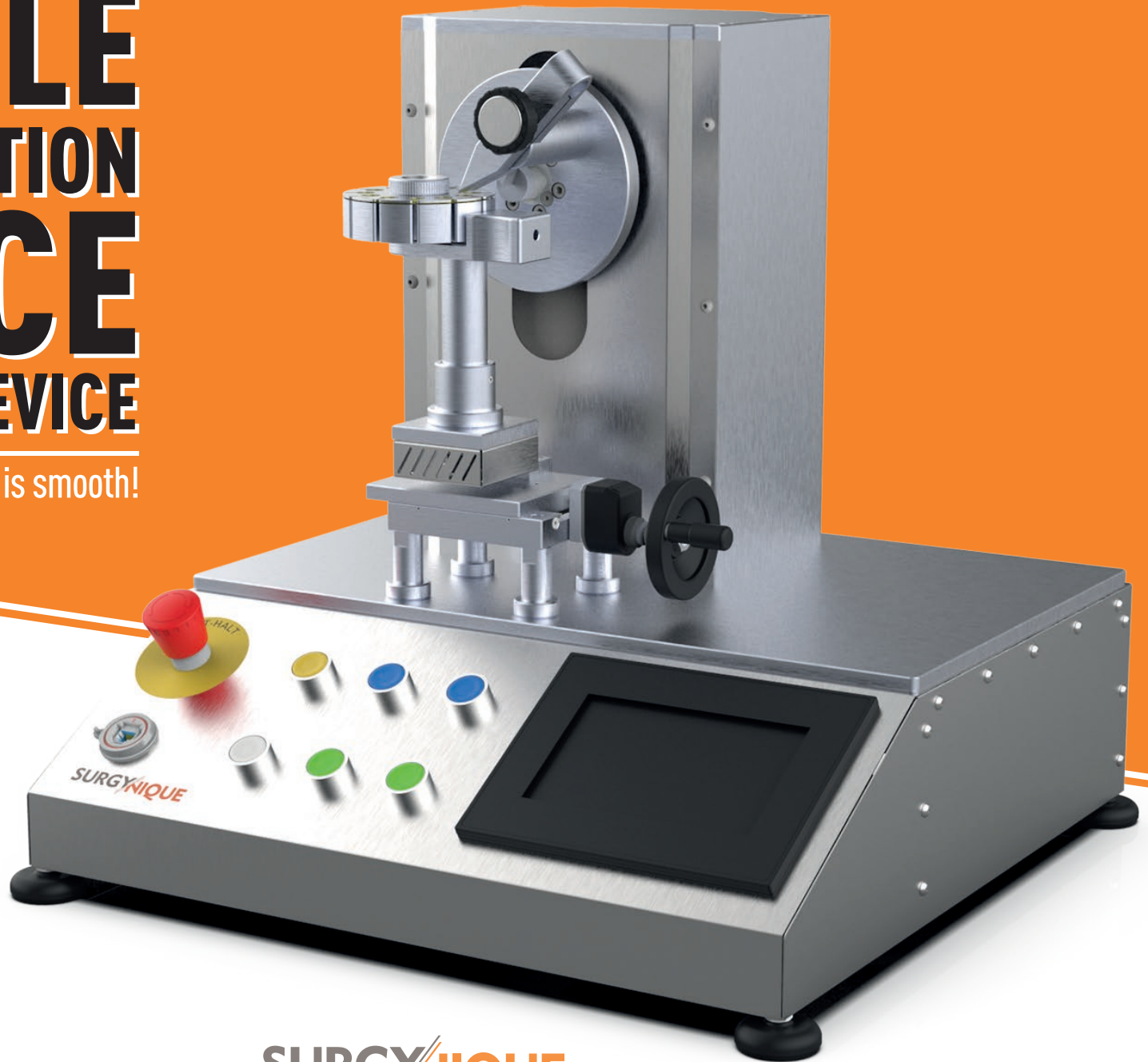
Attaching small USP sutures to micro needles is a difficult job. Conventional Microscopes are lacking depth feeling and the Eye Piece might be very uncomfortable for the operator. This leads to fatigue of the operator and eventually the operator makes mistakes and has to take a break. The 3D microscope in this product provides excellent view of the attaching area and a lot of comfort to operator. The operator does not tire out and easily attaches the needle to the suture. The angle of view can easily be adjusted and for the operator and can see the attaching are clearly with the aid of TFT screen.

- 100 X optical zoom
- Great 3D view enables easy assmbley
- Does not tire out the operator
- Low scrap rates



NEEDLE PENETRATION FORCE TESTING DEVICE

Be sure that every pass is smooth!



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The most important features expected from surgical needles are that they maintain their sharpness during the surgical operation and that the lubricating coating on it preserves its properties throughout the ongoing procedures. During each stitching application, the losses in the sharpness of the needle and the lubricant coating affect the penetration performance and cause undesirable results during the operation. An ideal needle is expected to maintain its performance for at least 10 stitches.



Surgynique needle testing system offers a unique user experience with its unique design and superior features. The system, which allows the testing of curved and straight needles, can perform penetration and bending tests. Penetration test is carried out according to ASTM F3014 standard. The bending test is carried out according to the ASTM F1874 standard.

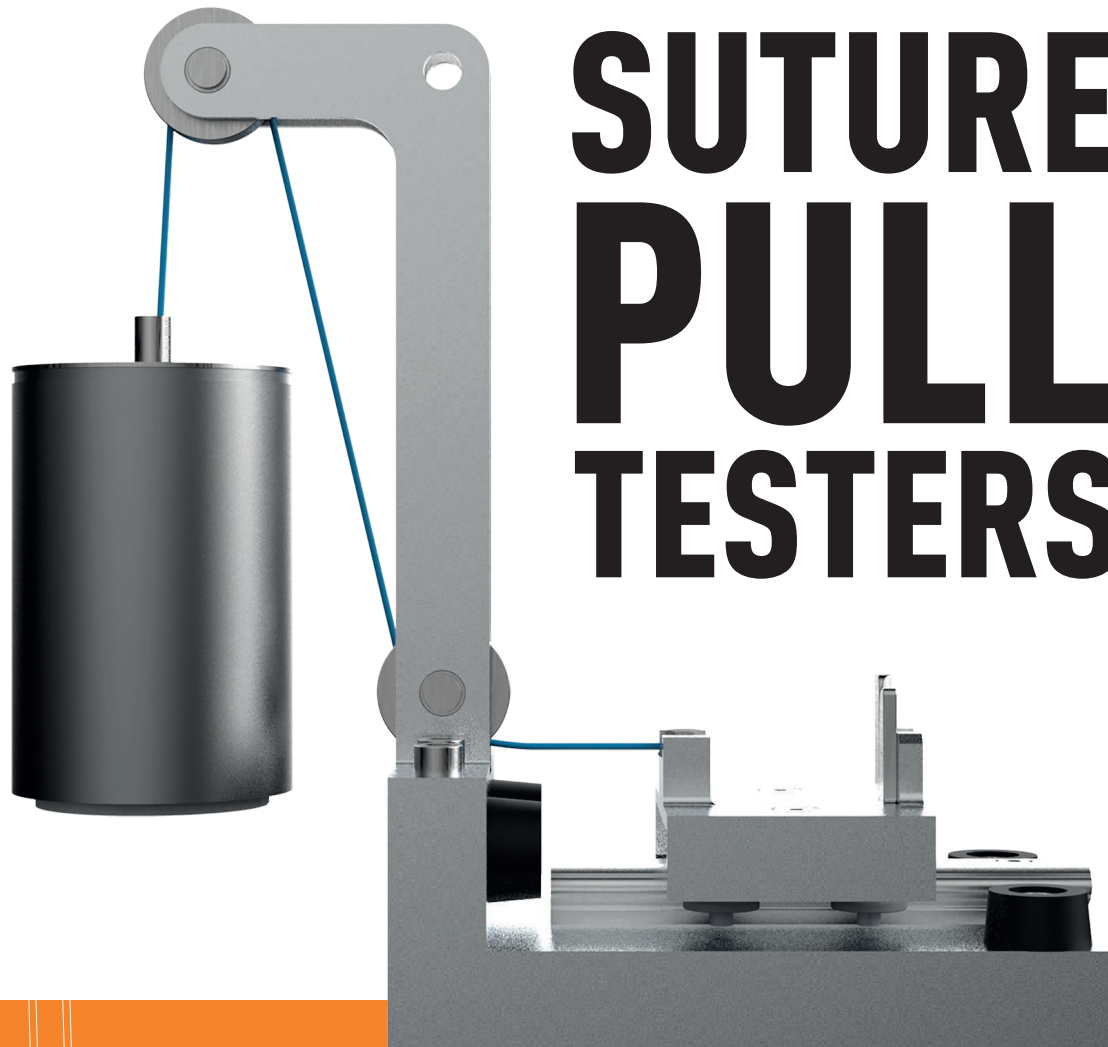
The touch screen controlled device offers the opportunity to follow the test results on the screen. In addition, the system -integrated test software enables processes such as reporting of tests and comparison.

FEATURES

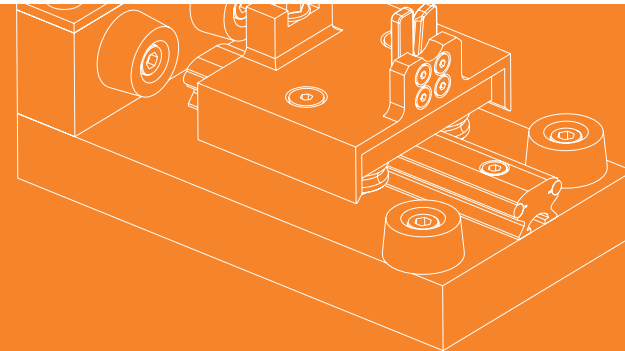
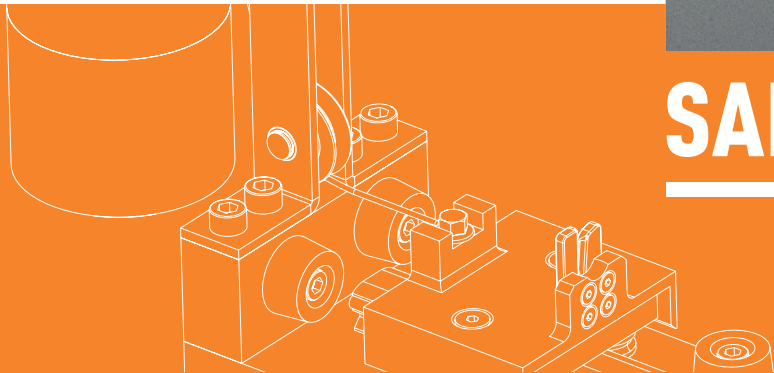
- Maximum Angular Displacement: 140°
- Minimum Angular Velocity: 0,06 °/sn
- Maximum Angular Velocity: 100 °/sn
- Allowed Curved Needle Length: 3/8 (6 mm – 75 mm) -- 1/2 (8 mm – 100 mm)
// R 2,55 – R 31,83 mm (radius)
- Allowed Straight Needle Length: 31g - 14g
- Test Magazine for 12 consequent tests
- PLC and PC controlled System
- Computer software to monitor, compare and save results.

SURGYNIQUE
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SUTURE PULL TESTERS



SAFE IN EVERY PULL



Surgynique Pull Tester works with dead weights which are provided according to USP standards. The system can easily be validated with dynamometer. The low friction linear guides prevent exceeding forces. The system has a very smooth universal jaw system in order to prevent damage in the sutures. With the aid of low additional forces, the system helps to decrease the scrap rates in the testing process.

- Internal weight set
- Weight set: 3X20 gr – 1X50 gr – 1X100 gr – 2X200 gr – 1X500 gr – 1X1000 gr
- Perfectly suitable for all kinds of needle and surgical threads, due to its universal smooth jaw structure.
- Special jaw design that doesn't damage the surgical suture.,
- All parts are made of aluminium and stainless steel
- Special Low friction SKF bearing parts and linear guide

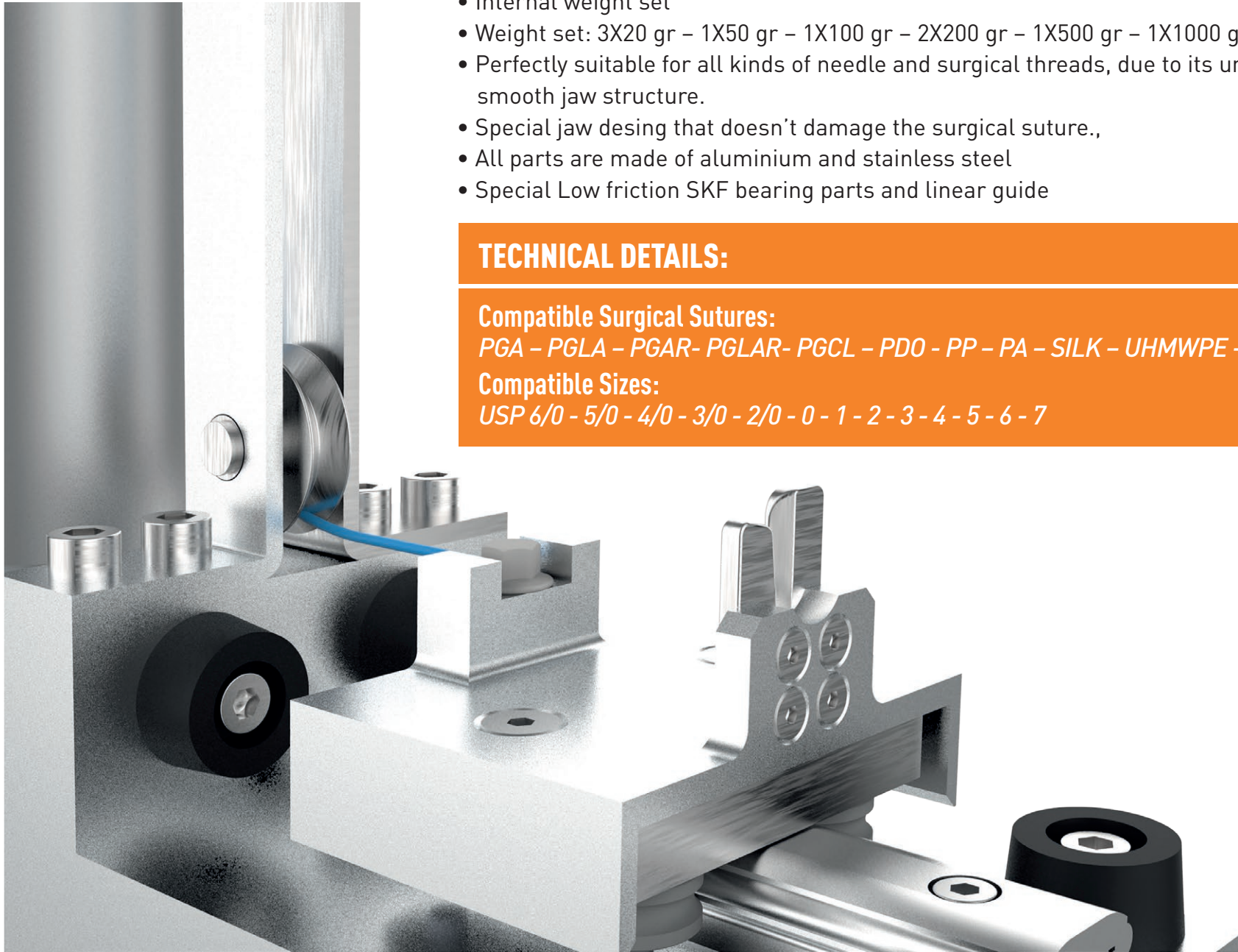
TECHNICAL DETAILS:

Compatible Surgical Sutures:

PGA – PGLA – PGAR- PGLAR- PGCL – PDO – PP – PA – SILK – UHMWPE – PTFE

Compatible Sizes:

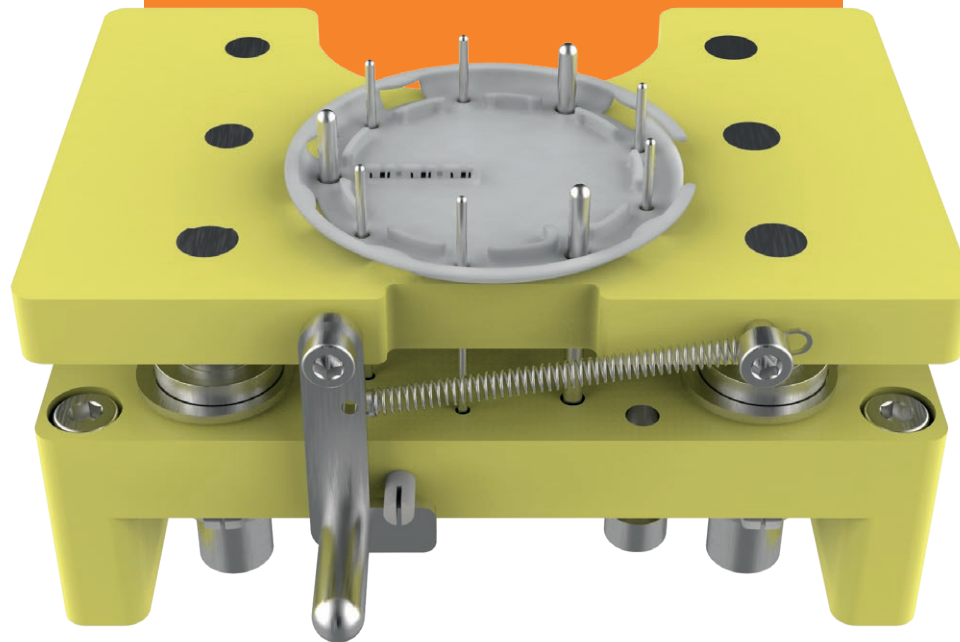
USP 6/0 – 5/0 – 4/0 – 3/0 – 2/0 – 0 – 1 – 2 – 3 – 4 – 5 – 6 – 7





BARBED SUTURE WINDING SET

Compatible with plastic trays for barbed sutures
Spring lock system for winding position
User friendly operation
Plastic tray can be supplied
Portable



SURGYNIQUE
ENGINEERING SOLUTIONS



SUTURE CARD MANUAL WINDING SET

Compatible with suture cards surgical sutures
Spring system for fast loading and unloading position
User friendly operation
Low cost
Portable

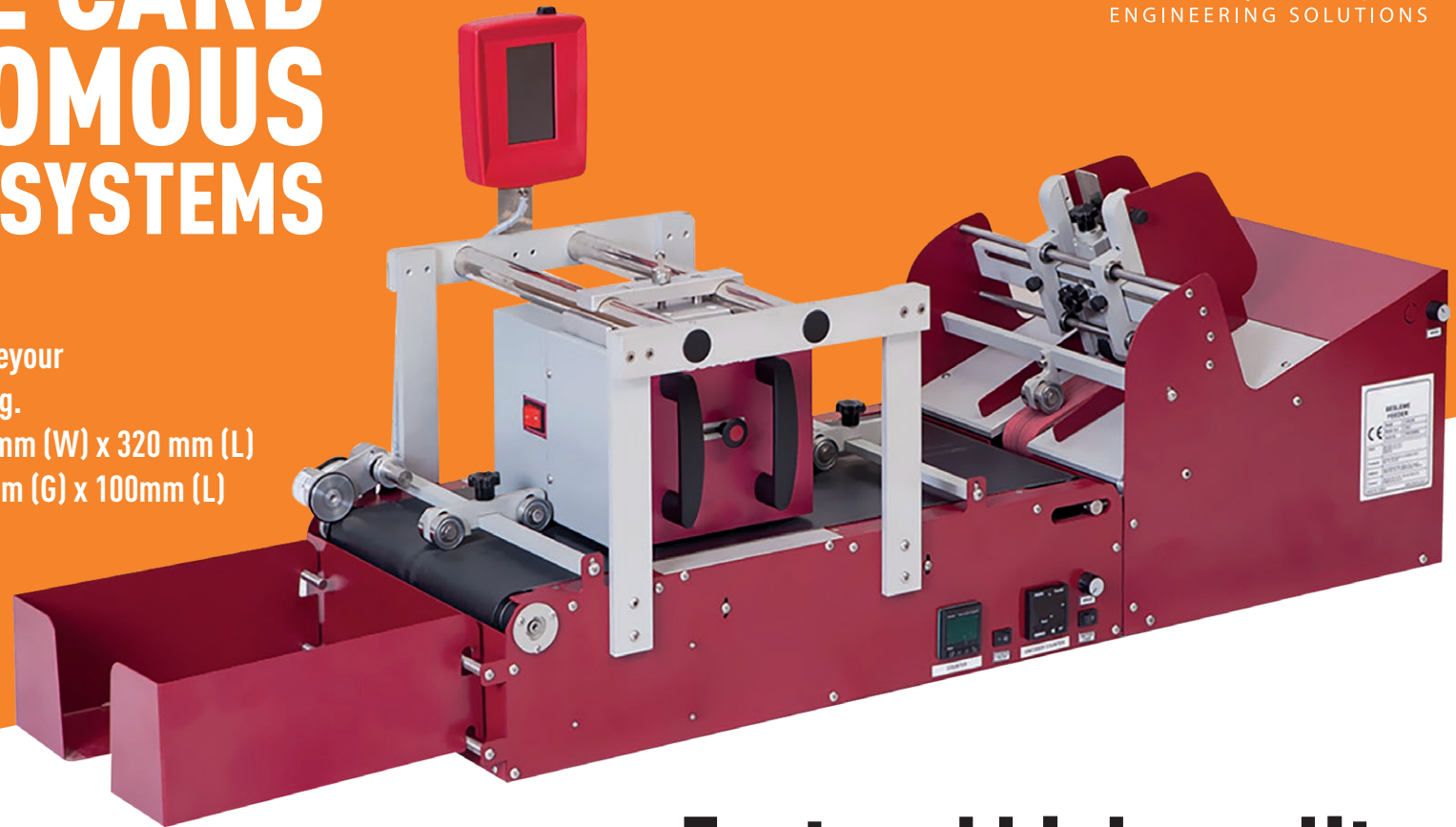


SURGYNIQUE
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SUTURE CARD AUTONOMOUS PRINTING SYSTEMS

SURGYNIQUE
ENGINEERING SOLUTIONS

- 15 prints/minute capacity
- Automatic feeder and conveyour
- Servo controlled positioning.
- Maximum card width: 300 mm (W) x 320 mm (L)
- Minimum card width: 100mm (G) x 100mm (L)
- Power: 220V 50Hz - 1.5A
- Weight: 14 Kg.



Fast and high quality printing for your suture cards

Suture Card printing is one of the critical operations in Suture Manufacturing process. The variety of the products is so much that most of the companies can not handle to get and stock suture cards preprinted. The autonomous printing system effectively solves the problem. With the aid of its feeder and conveyor system, it can rapidly print Suture Cards according to the given design. The tolerance of positioning system is precise enough to print the design onto the card precisely.

The speed of the conveyor and feeder is adjustable and number of target prints can easily be defined. The thermal transfer printhead can make perfectly good prints and the size of the printhead is up to customers Suture Card size.

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This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There is a small orange tab or piece of tape at the top left corner. The paper appears to be part of a binder or folder.





SUTURE PRODUCTION MACHINERY CATALOGUE

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