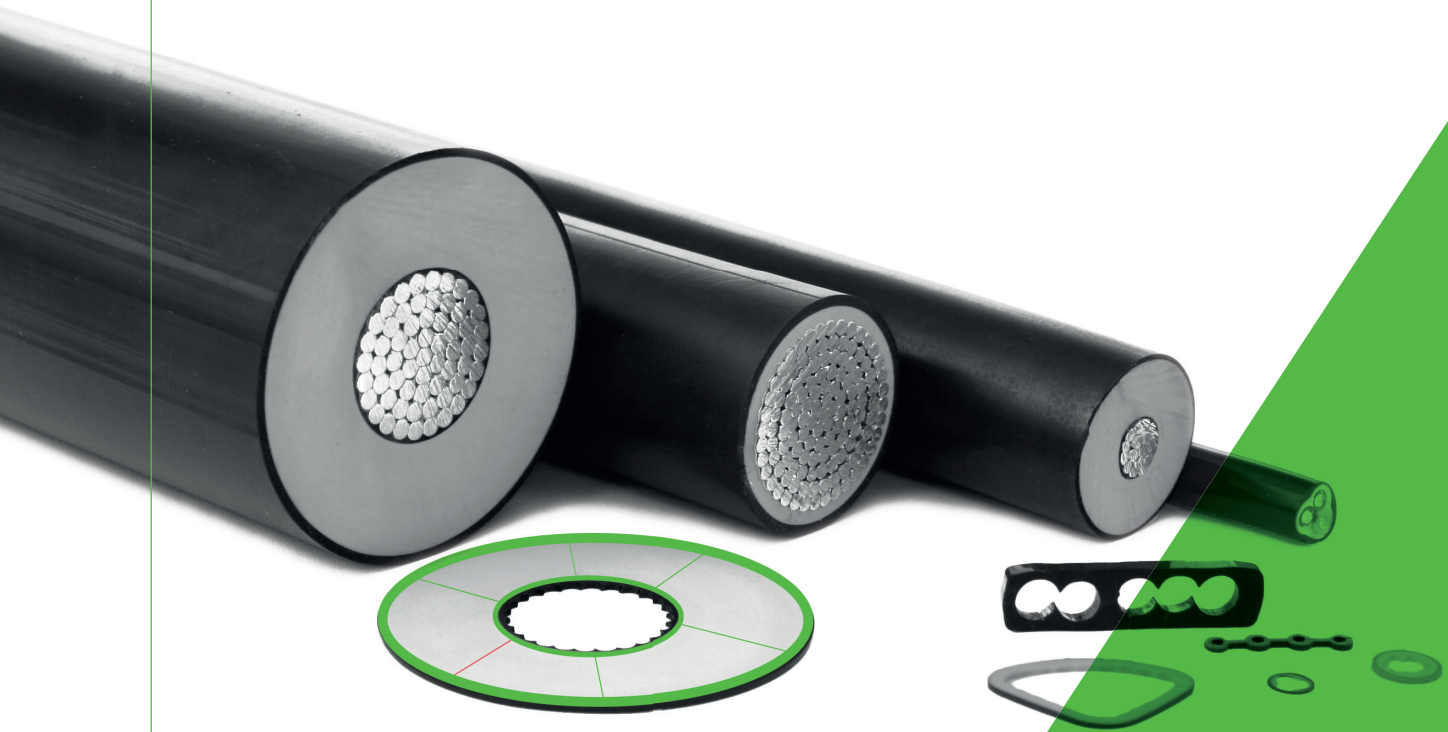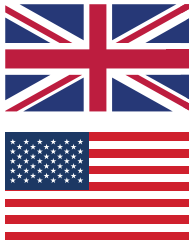# VisioCablePro®

Product overview

EXPERT
TOOLS
FOR
MEASURING
CABLES

made by **IIM MEASUREMENT ENGINEERING** in Germany

About our company

iiM AG – the name stands for innovative and high quality products in the field of optical metrology as well as LED lighting systems for Machine Vision. For more than 25 years our two business units have developed and produced for various industries at our sites in Suhl, Nuremberg, Backnang and Weißensberg.

The division „Cable Measurement Engineering" offers solutions for quality assurance during cable production.The second business unit „LED Lighting" with its brand LUMIMAX® is specialized in powerful LED Lighting for Machine Vision.

Several international sales and service offices assist us in the marketing of our products, so many European and international companies belong to our list of highly valued customers.

Our brand VisioCablePro®

Our business unit „Cable Measurement Engineering" under the brand VisioCablePro® develops and produces measuring devices for the wire and cable industry. In particular, cable measuring devices for measuring geometries on cable insulation and jackets. The product portfolio is supplemented by innovative solutions for cable sample preparation as well as performing various material tests according to standards.

Using the obtained test results and the corresponding information on material consumption, extruders can be set efficiently; thus, the predetermined tolerance limits are safely respected.
Hence, measuring devices from the VisioCablePro® series optimize the production process, increase the product quality, and minimize incurred costs substantially.

Your benefits at a glance

- Effective quality assurance due to precise cable measurements without operator influence according to standards, e.g. IEC 60811

- Cost efficiency due to precise measuring results

- Time saving due to automatic cable measurements and shorter machine downtimes / standstills

- Material saving due to more efficient use of materials

- Reliability due to robust and low-maintenance equipment

  - Competent advice and outstanding service

    - Regular trainings and workshops

## VCPX5 with software VELOX – our multi-talent

- **Measure cable samples with an outer diameter up to 130 mm** (larger customisations are possible)

- **Highly complex standard-compliant image processing – simply with one click**

- **Software VELOX included**

- **Easy and safe operation**
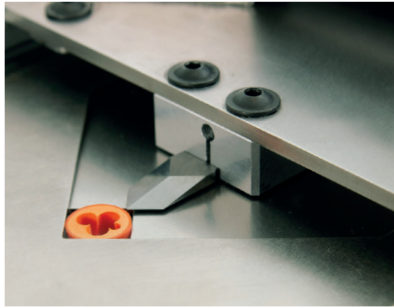
- **Individual adaption to your requirements**

❯ **More information about our software VELOX**

www.iim-ag.com/video/velox

VisioCablePro® – Expert tools for measuring cables
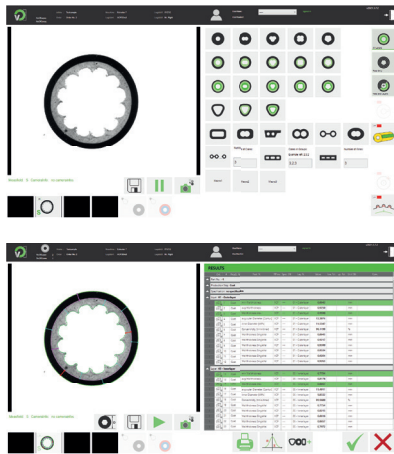
Sample preparation
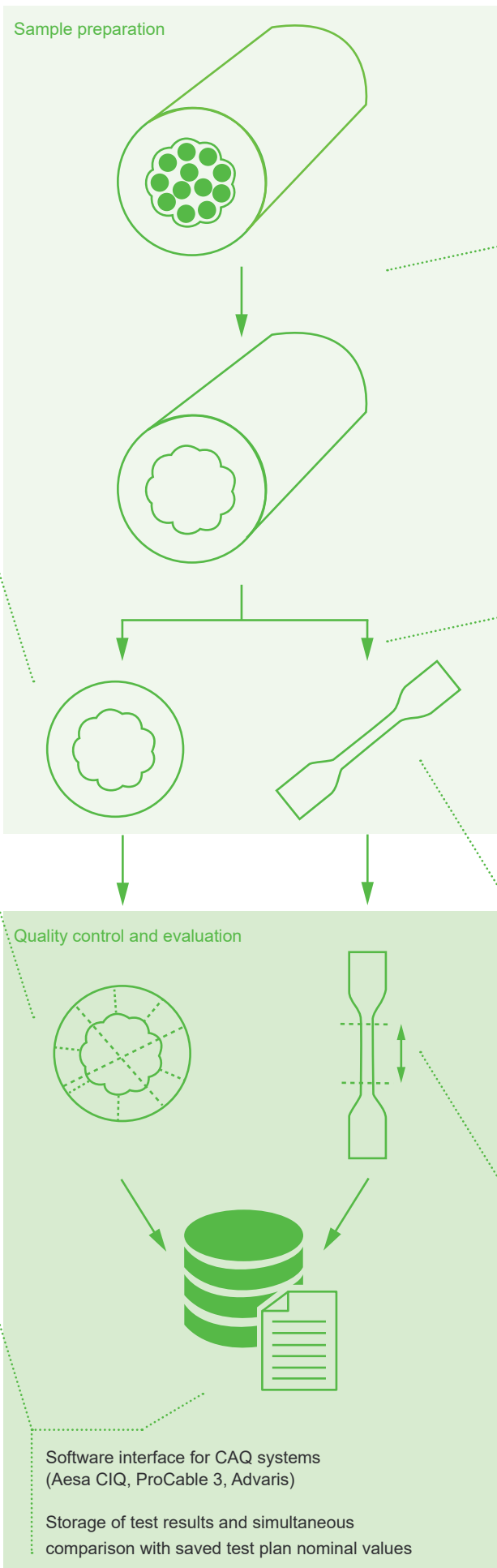
For geometric measurements
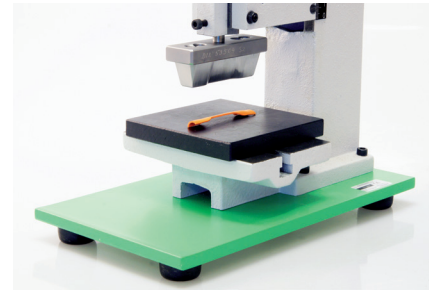

Removal of the electrical conductor
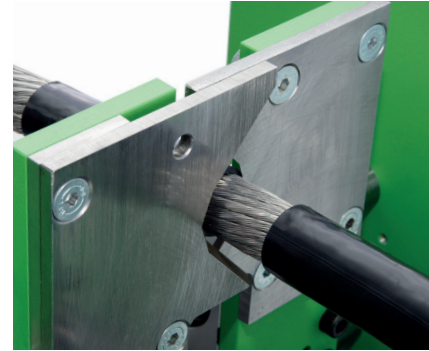
Measuring according to IEC 60811
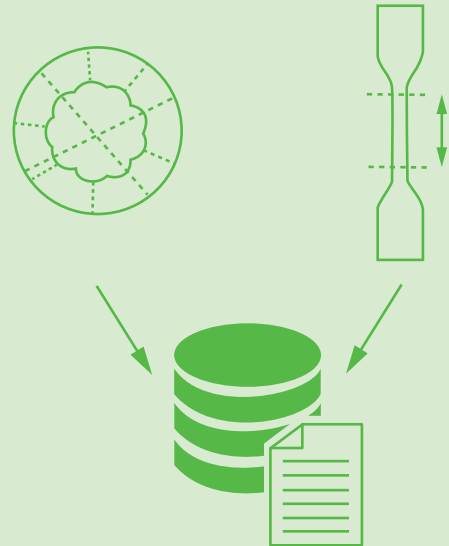

For material tests

Dumbbell specimen punching according to standards

Quality control and evaluation

Hot Set Test

Software interface for CAQ systems (Aesa CIQ, ProCable 3, Advaris)

Storage of test results and simultaneous comparison with saved test plan nominal values
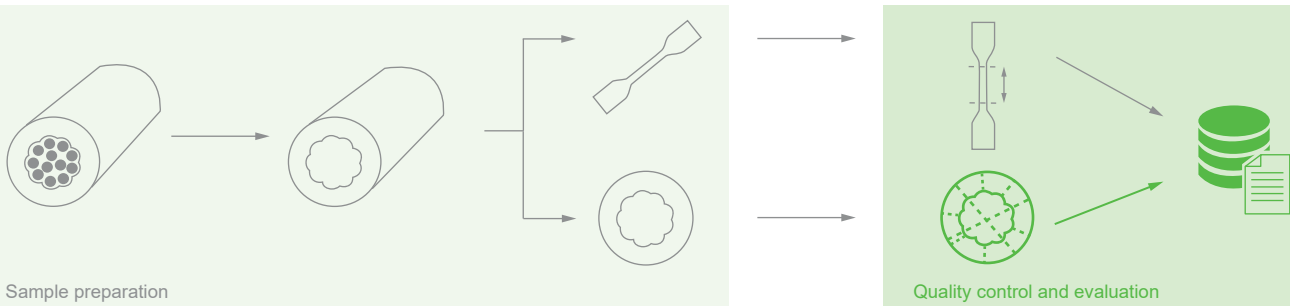
Cable measurement devices

For measuring geometries on cable insulation and jackets according to the standards IEC 60811 -201; -202; -203, LV112, ICEA S-94-649

iiM cable measurement engineering has especially been developed to carry out **cross-sectional measurements**, which specifically fulfill cable producers requirements **to measure the geometrical features of insulating skins and cable sheaths**. The complete package consists of one of the devices from the VisioCablePro® series VCPX5, AlphaOne, VCPLab and VCPEx+ as well as the measuring software VELOX and optionally the CAQ-System ProCable 3.
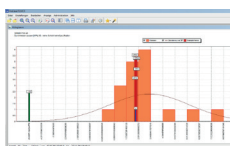
The new generation of VisioCablePro® – the VCPX5 – is standardly equipped with the measuring software VELOX. The optical cable measuring devices of the VisioCablePro®-series **create high resolution video images of cable samples with a diameter up to 130 mm (5.11")**. The software VELOX with its optional database module aditionally help you **to evaluate these images and archive your obtained results**. By using the CAQ-software ProCable 3 you can also manage your articles and orders and furthermore analyse trends.

With our calibration scales and optional accompanying certificates up to the highest German standard DakkS and further reference to ILAC, you can easily check and calibrate your measuring devices with complete traceability.
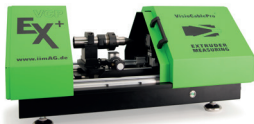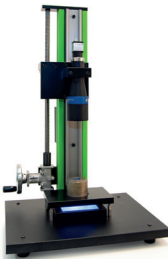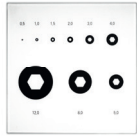
Material tests and geometric measurements according to the standards

Sample preparation

Quality control and evaluation

Model	Features	Camera	Samples
VCPLab	■ Camera-based system for measuring cable geometries of insulations and sheaths ■ Designed especially **for the use in laboratories** ■ For very thin cores smaller than 1 mm (0.04") up to sheath thicknesses with an outer diameter of 48 mm (1.89") ■ Manual focusing and exposure for 2D measurements in the laboratory ■ Extremely precise measurements thanks to integrated high-resolution sensors	1-2 cameras	samples up to max. 48 mm (1.89") outer diameter
VCPX5	■ Camera-based system for measuring cable geometries of insulations and sheaths ■ Measuring device especially designed **for use in production as well as in laboratories** ■ By using different lenses and high-resolution cameras, very small and very large cable sample measurements are possible ■ No user influence on default optical focus as well as default optimised, intelligent and homogeneous lighting ■ **Included measuring software** enables various operator level settings (production, laboratory, administrator, service, etc.)	1-3 cameras	samples up to max. 130 mm (5.11") outer diameter
AlphaOne	■ Highly precise measuring device for cross section measurements of cables and hoses ■ Measuring device especially designed **for the use at a production line** ■ Specific object size – depending on the production line ■ **Measuring software VELOX included** ■ Low operator influence due to fixed focusing as well as preset illumination ■ Measuring software enables various operator level settings (production, laboratory, administrator, service, etc.) ■ Optional: AlphaOne inclusive All-In-One Windows PC	customised, 1 camera	samples up to max. 95 mm (3.74") outer diameter

Software	Functions	Measurement device
VELOX	■ Standard-compliant, fully automated measurement ■ Your guarantee for secure quality testing of geometrical attributes of cables, isolated conductors and tubes ■ Excellent traceability and repeatability ■ Reliable evaluation of obtained measuring results ■ Intuitive operation – designed for use directly next to the extrusion line	VCPLab, VCPX5, AlphaOne, VCPEx⁺
ProCable 3	■ Test plan development ■ Order administration ■ Archiving of obtained test results ■ Creation of result lists according to the test plans (product report recipes) ■ Correct and structured depostition of test results ■ Exceedance of tolerance limits are immediately reported and saved ■ Possibility to connect with other devices (please inquire type) ■ By analysing the data in graphs, trends can be detected easily	any PC

Further measuring devices for testing cables are available for both the laboratory as well as for the production process. With our Twist Length Detector, it is initially possible to automatically measure the twist / lay / pitch length of a cable without cutting open the insulation for a visual measurement and thus manipulating the sample.

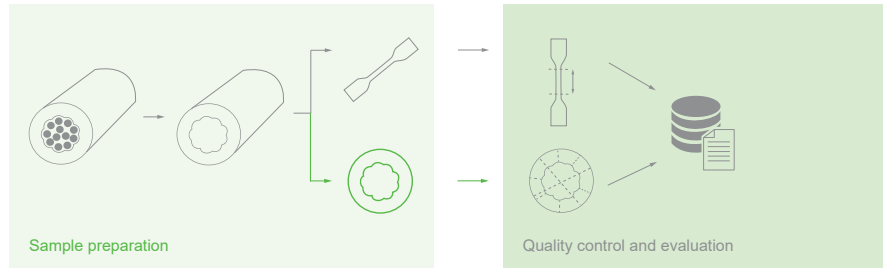| Model	Features	Camera	Samples
VCPEx⁺	■ Camera-based system for measuring wire quides and extrusion tools mean that only independently tested tools without user influence are used within the production process ■ Specially designed **for use in production, the tool handout and the laboratory** ■ Reliable, fast and accurate quality control ■ Traceability of results for convenient presentation of the life cycle of your tools ■ Time and cost savings for your measurement	customised	wire guides & extrusion nozzles up to max. 15 mm (0.6") inner diameter in various configurations
VCPEx⁺ Stand	■ Replaces inaccurate measurement methods (calipers, tactile measurements, etc.) with an automated measurement method ■ The VCPEx+ Stand is a camera-based system for measuring large wire guides and dies ■ Specially designed **for use in production, the tool handout and the laboratory** ■ Reliable, fast and accurate quality control ■ Traceability of results for convenient presentation of the life cycle of your tools ■ Time and cost savings for your measurement	one measurement area, configurable	large wire guides & extrusion nozzles up to 35 mm (1.37") hole diameter
Twist/Lay/Pitch Length Detector – TLD	■ **For measuring the twist / lay / pitch length of sheathed cables** ■ Measurements according to the standards **LV212** und **LV122** ■ The twist length of the samples is measured without removing the sheath → this ensures a precise measurement ■ Traditional methods manipulate the sample (cable stripping / unwinding of conductors) → a precise measurement is not possible anymore ■ Via a PC connection, the measuring results can directly be exported ■ **Fully automatic**: By clicking one button, the measuring sensor automatically moves along the sample	-	80 mm (3.14") measuring distance (100 mm (3.93") on request) for a 100 mm cable sample
Calibration Scales	■ Calibration scale 0.5 - 12 mm (0.02 to 0.5") polygon ■ Calibration scale 20 / 60 mm (0.8 / 2.4") polygon ■ Calibration rings 65 / 95 mm (2.5 / 3.7") ■ With optional Calibration Certificates	-	for calibrating optical measuring devices

Cutting machines

For an optimal sample preparation

With the devices of the ORC family (O-Ring Cutter) it is very easy **to cut cable samples according to the standard IEC 60811**.
ORC VC65, ORC VC100 and ORC 150 enable to cut thin, even and parallel samples with a smooth surface. The ORC Micro is optimal for cutting very small cables.

The cutting machines are often used in combination with the VCPX5, AlphaOne or VCPLab. Advantage: Enormous improvement of the measuring accuracy by reducing the user influence, sample irregluarities or shadows.

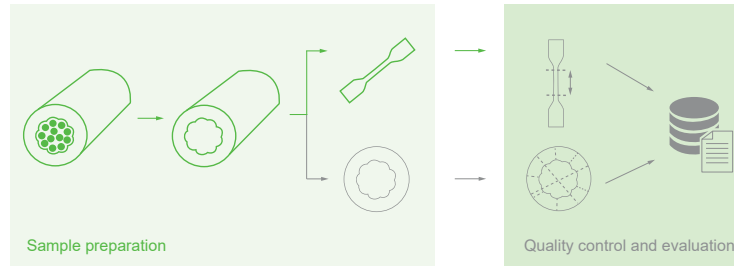**Material tests and geometric measurements according to the standards**

Sample preparation

Quality control and evaluation

Model	Features	Field of Application
ORC 150	■ **Especially for cutting large samples** with an outer diameter from 20 to 150 mm ■ By using special chuck jaws it is even possible to cut larger samples with an outer diameter up to 200 mm (7.87") ■ Even hard materials (e. g. PE, XLPE, HDPE) can be cut easily ■ Very robust device made of aluminium and stainless steel – no corrosion	For cutting O-rings **up to 150 mm (5.91")**, (special chuck jaws for larger samples up to 200 mm (7.87"))
ORC VC100	■ **Especially suitable for medium and high voltage cables** as well as **sector lines** ■ Additionally, standard-compliant cable samples can be cut from sector cables ■ Very durable blade, 7 times blade rotation possible (360°)	For cutting O-rings of multiple materials and sectors **up to 100 mm (3.94")**
ORC VC65	■ Our **BESTSELLER** in the field of sample preparation ■ **Suitable for a wide variety of materials** ■ Special grinded blade, 2-sided usable ■ Save up to ⅔ measuring uncertainty with well prepared samples	For cutting O-rings of multiple materials **up to 65 mm (2.56")**
ORC Micro	■ **Especially for cutting very small samples** up to 3.5 mm (0.14") outer diameter ■ **Ideal addition: Sample Picker** – optimal for positioning small cable samples	For cutting O-rings **up to 3.5 mm (0.14")**
Flat Cable Cutter 75	■ Cutting device **for flat cable samples** up to a width of max. 75 mm (2.95") and a height of max. 8 mm (0.31") ■ Thin, evenly and parallel cut samples with a smooth surface (especially the very small and many cores require a very thin cut to avoid shadows)	For cutting samples **up to 75 mm (2.95") width**

Devices for Sample Preparation

For preparing cable samples according to the standards

The product portfolio is supplemented by **innovative solutions for cable sample preparation as well as performing various material tests** according to standards in laboratories, e.g. the Splitting Cutter for standardised slices to further process and use in the Hot Set Test or Tensile Test. Thus, you receive a complete package for your quality assurance and thereby optimize the production, increase the product quality and minimize incurred costs substantially.

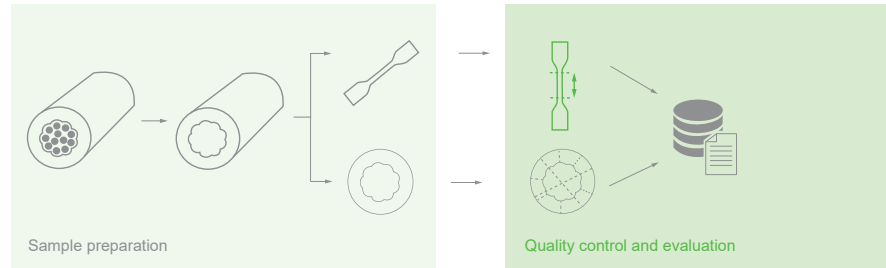**Material tests and geometric measurements according to the standards**

Sample preparation

Quality control and evaluation

Model	Features	Field of Application
Cable Stripper 100	■ Easy **separation of cable jackets / -insulations** from the electrical conductor ■ Suited for samples with a high strip force ■ Also designed for larger sample outer diameters ■ Suitable preparation before cutting cable samples for measuring (e.g. with the ORC-series)	For separating cable jackets / -insulations from the electrical conductor
Core Removal Punch CRP	■ Preparation of cable samples for further processing ■ Metal ring underlays enable tilting the sample according to the conductor twist ■ Applicable for cable types with solid core cross-sections ■ E.g. Sample preparation for cutting with ORC family	Punch to remove solid eletrical conductors
Splitting Cutter	■ Cable sample preparation for heat elongation and tensile tests conforming to standards **IEC 60811 -501, -507** ■ The samples are taken from the inner side of the sheath and isolator ■ All grooves and/ or conductive layers are removed ■ Developed to slice samples according to IEC 60811 with a **thickness between 0.8 and 2.0 mm (0.04" – 0.08")**	**Especially for soft materials** specifications on request
Splitting Cutter PE	■ Handy, electric device for material tests in laboratories ■ Device is according to the standard **IEC 60811 -501, -507** (Heat elongation test, tensile test) ■ Developed to slice samples according to IEC 60811 with a **thickness between 0.8 and 2.0 mm (0.04" – 0.08")**	**Especially for medium and high voltage cables from hard materials** 130 mm 5.11 Inch 150 mm (5.91") on request
Toggle Press KHP / Dumb-bell tools	■ **For punching dumb-bell test specimen** for further tests (e.g. Hot Set Test) ■ Sample preparation according to **IEC 60811 -501, -507** ■ Available with either 100 mm (3.93"), 75 mm (2.95") or 50 mm (2.97") dumb-bell tool ■ For inspecting cable sheaths in laboratories ■ Applicable for all cable types	For punching out dumbbell samples

Laboratory Equipment for Material Tests

For measuring cable samples according to the standards

By using the Hot Set Test you can easily perform an **elongation and a heat pressure test of your cable samples**. With this Hot Set Test device, you need not attach your samples in the oven, as with other products. You just place the complete device with the samples into the oven. In addition to the Hot Set Test for thermal testing, iiM also offers **instruments for Cold Impact and Cold Bend Testing** under the VisioCablePro® brand.

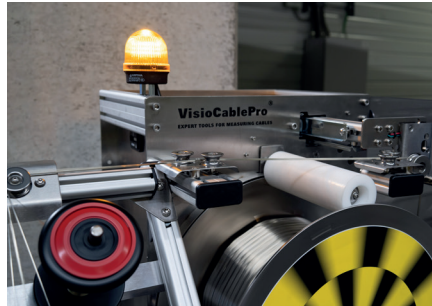**Material tests and geometric measurements according to the standards**

Sample preparation

Quality control and evaluation

Model	Features	Functions
Hot Set Test	■ **2 in 1:** device contains the **Hot Set Test** as well as the **Heat Pressure Test** ■ Measurement according to the standards IEC 60811 -507 (Hot Set Test) and IEC 60811 -508 (Heat Pressure Test) regarding sample attachment and weight attachment ■ Simultaneous measurement of up to 3 samples ■ **Ideal addition:** Laser gauge and a suitable thermal heat oven with glass door for the two tests	Hot Set Test Heat Pressure Test
Cold Impact Test CIT	■ Device for an **Impact Test at low temperature** ■ Device and operation are according to the standard **IEC 60811-506 (IEC 60811-1-4 point 8.5)** ■ Up to 3 Samples can be tested simultaneously ■ Device suitable for positioning in a cold chamber	Cold Impact Test
Cold Bend Test CBT	■ Device for **Cold Bend Test at low temperature** ■ Device and operation according to the standard **IEC 60811 -504** ■ The complete set consists of various winding spindles and cable guides for various diameters: Winding spindles ■ Device suitable for positioning in a cold chamber	Cold Bend Test
Sample Alignment Device	■ Simplifies the **cable sample arrangement for measuring** under a microspcope or the VCPLab ■ Arranging with friction wheels, cogwheels and a durable rubber tooth belt ■ Quick sample fixing of a cable sample due to a lever mechanism ■ Perfect for e.g. measuring the heat pressure test indentation according to 60811-508	Easy and precise arrangement of cable samples

Further Devices for the Cable Industry

For supporting sustainable production and resource conservation

Efficient products towards **supporting sustainable production and resource conservation in the cable and wire manufacturing industry** are also available from iiM under the VisioCablePro® Brand. Our **automatic bobbin unwinder ABU24** makes it possible to simultaneously, gently and quickly feed up to 24 braiding spools back into the braiding process, thus reducing costs.

Our **Inline Cable Stripping Machine CSM 2.0** removes faulty cable sheaths – without damaging the cost-intensive inner construction, such as shielding braids.

Model	Features	Functions
Automatic Bobbin Unwinder – ABU24	■ Gentle and automatic unwinding of braiding spools ■ Enables **up to 24 braiding spools to be unwound** at the same time ■ Returns the winding material remaining on the spools to the recycling process ■ The spools do not suffer any damage and can therefore be used over a long period of time	Gentle and automatic unwinding of up to 24 braiding spools
Inline Cable Stripping Machine – CSM 2.0	■ Efficiency, material and cost savings combined: Motorized device for removing faulty extruded cable sheaths ■ No damage to underlying materials (shielding braid, tape, cores, wires, etc.) ■ Easy positioning between winding and unwinding systems ■ Reproducible and easily adjustable working depth of the blade	Gentle stripping of cables – without damaging the inner construction

Your notes

Our distribution partners

Worldwide on site for you – **www.iim-AG.com/distributing-agents**

iiM AG

www.cable-measurement.com

Contact

iiM AG measurement + engineering
Neuer Friedberg 5
98527 Suhl
GERMANY

Phone: (+49) 3681 / 455 19-0
Fax: (+49) 3681 / 455 19-11

Web: www.iim-AG.com
E-mail: VisioCablePro.Sales@iimAG.de