Distillation Analyzer

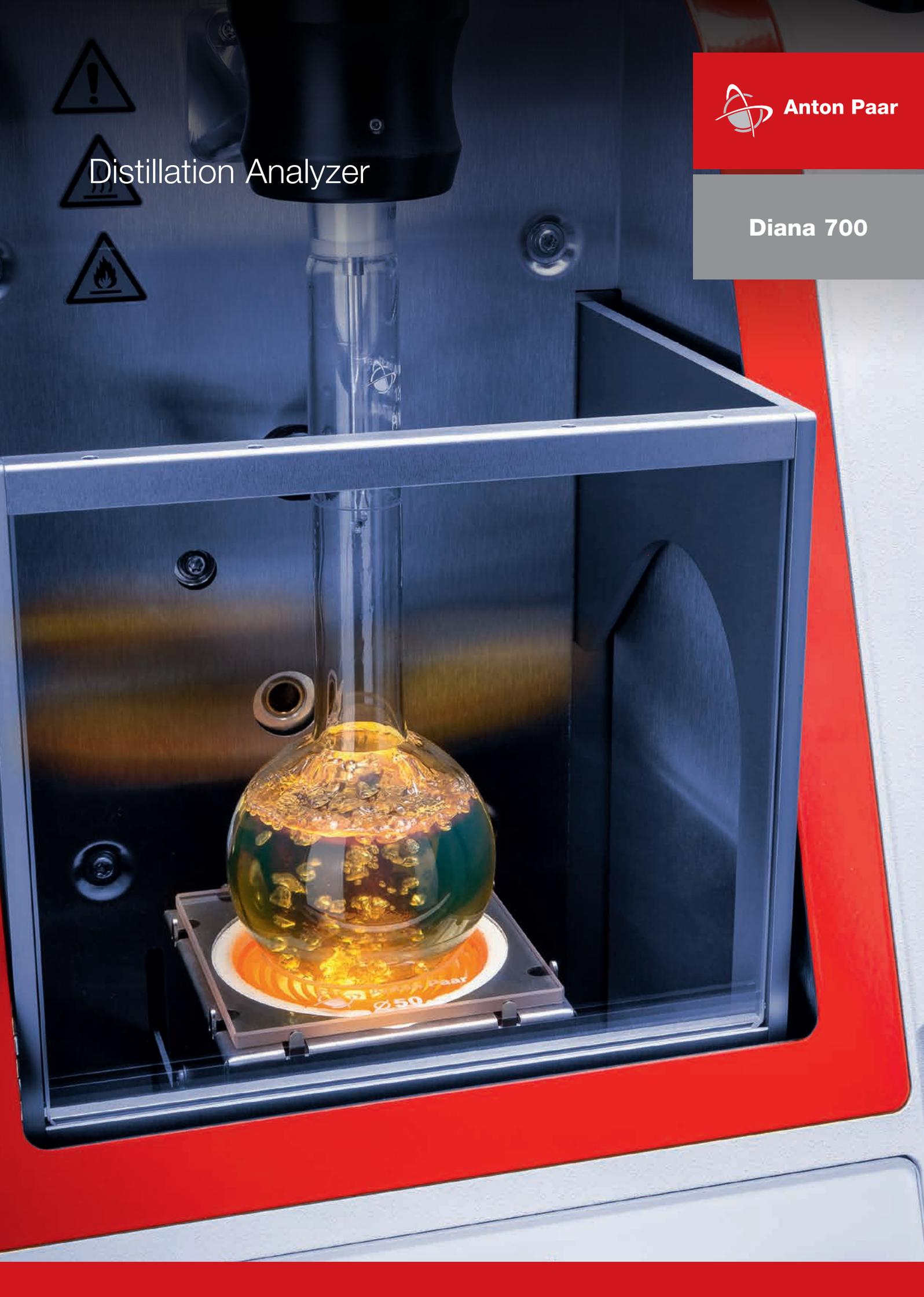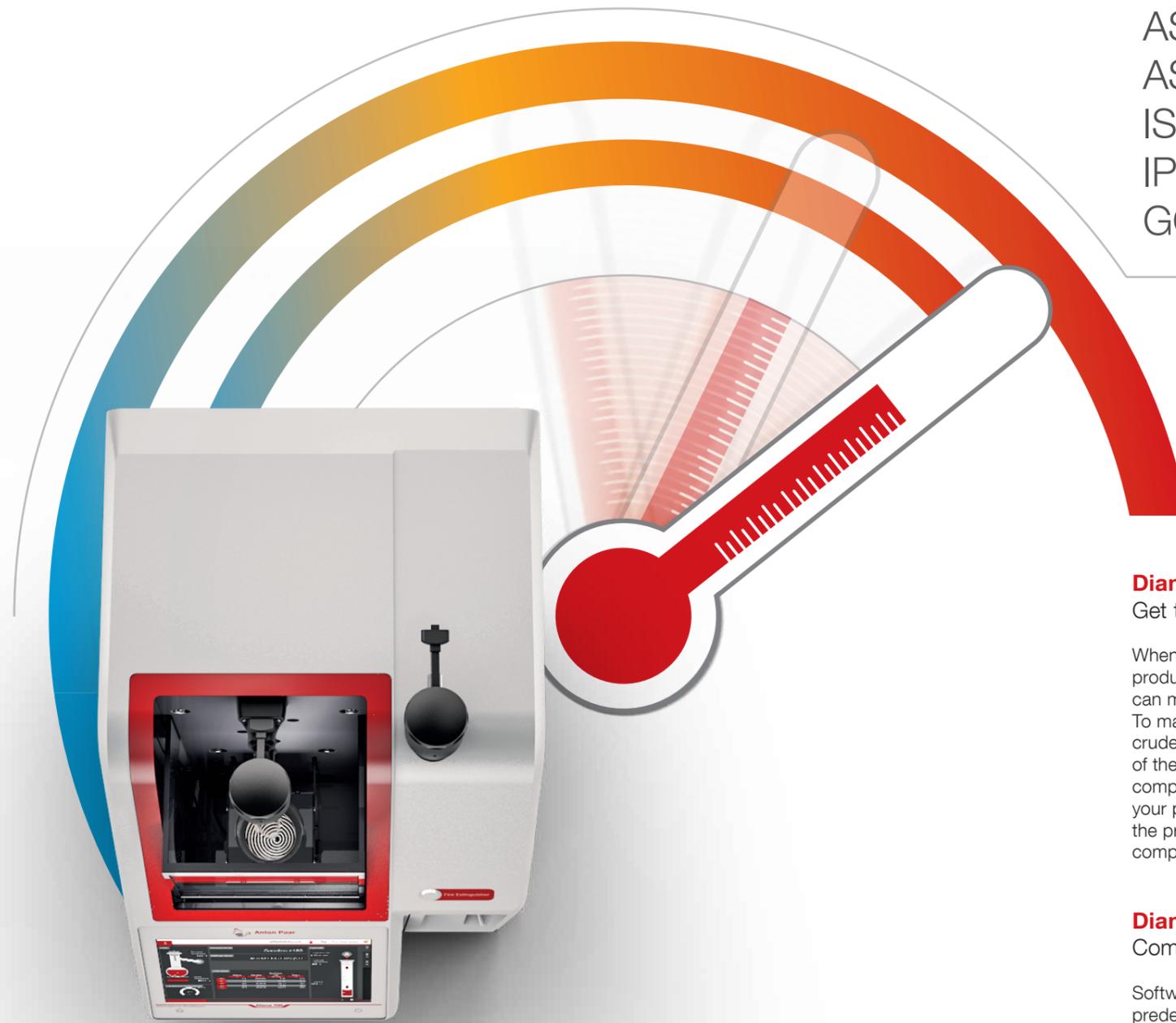**Anton Paar**

Diana 700

The testing procedure and results are in full compliance with ASTM D86 (Group 0, 1, 2, 3, 4), ASTM D850, ASTM D1078, ISO 3405, ISO 918, IP 123, IP 195, DIN 51751, and GOST 2177.

Diana 700 for refineries
Get the most out of your crude oil

When extracting fuels or other petroleum products from crude oil during refining, 1 °C can make a substantial financial difference. To make sure you get the most out of your crude oil, you need to know the boiling range of the product very well. Plus: You have to comply with certain standards when analyzing your products. Diana 700 provides exactly the precision, temperature stability, and compliance you need to reach your targets.

Diana 700 for testing labs
Complete more test runs in one day

Software-guided testing procedures, predefined methods with settings for all relevant standards, and a smart heater regulation prevent errors before and during the measurement. Your benefit: You don't lose time on repeating measurements several times and can process more customer orders per day – which results in more revenue for your business.

The distillation at atmospheric pressure is a crucial test to maximize the yield of different petroleum products out of crude oil based on their boiling range characteristics. The distillation behavior also provides important information about composition, properties, and behavior during storage and use. This affects the safety regulations as well as the handling and the performance of hydrocarbon-based fuels.

Anton Paar's distillation unit Diana 700 is the most convenient solution for performing high-precision atmospheric distillation tests on petrochemical products. Sophisticated temperature measurement and volume detection make sure that your results are highly accurate.

HIGH
PERFORMANCE
ATMOSPHERIC
DISTILLATION

Features to ensure perfection from the first drop

Mobile 5-in-1 multi-plug with integrated vapor temperature sensor

The multi-plug of Diana 700 is an all-rounder:
- It acts as a plug.
- It's the easiest mounting device you can imagine: You can install a 125 mL or 200 mL flask with just one hand within seconds.
- It's mobile. When you take out the flask, you take the temperature sensor with you – no fumbling around with cables and external sensors.
- It provides an insulated touching point to carry the hot flask.
- It comes with an integrated vapor temperature sensor. The integrated memory space holds up to 20 calibration points of the temperature sensor which are automatically applied when the multi-plug is mounted.

Automatic positioning of heater and shield

Diana 700 automates manual handling steps during the measurement setup and smoothly moves the heater and protection shield up until the measurement position is reached. A sensor detects the correct position of the heater – there is no risk of breaking the flask. The instrument detects the correct type and position of the flask and flask support board – so you don't lose time due to an incorrect setup. After a test, the heater moves down automatically to support faster cooling of the flask. You don't have to wait long for cooling and can start your next measurement within minutes.

Innovative software with customizable user interface

Personalize your instrument and concentrate on the essentials:
- Create individual display layouts that show exactly the results you need to see.
- Observe all necessary parameters at a glance or just the most important ones – it's your choice.
- Create favorites to access frequently used menu items with just one click.
- Enjoy the easy operation on the 10" touchscreen.

High safety level

Diana 700 meets the highest safety standards in distillation with sophisticated built-in safety features to guarantee safe operation.
- Automatic self-check at instrument start: Diana 700 makes sure every component is ready for your distillation.
- Intelligent condition monitoring system to avoid incorrect setups
- Automatic fire extinguisher with optical fire detection
- Automatic detection if inert gas is connected
- User management system: Create different user roles with specified access and authorization rights.
- Reduced volatile organic compound (VOC) emission

Perfect temperature stability and volume detection

Diana 700 makes sure that your results reach the highest accuracy thanks to the temperature stability and highly accurate volume detection.
Temperature stability: The glass cylinder is tightly enclosed by the receiving chamber, reducing the air space and therefore its influence on the temperature to a minimum. The Peltier temperature regulation constantly keeps the chamber temperature at the desired level.
Volume detection: A highly accurate contact imaging sensor (CIS) measures the sample volume in the receiving cylinder. The sample volume is measured before the test starts and automatically corrected to 100 % volume, if necessary.

Robust, eco-friendly, and cost-saving

The design of Diana 700 is well thought-out. The instrument is small and robust as well as eco-friendly, which saves you a significant amount of money due to low running costs. The liquid-free Peltier technology used for heating and cooling saves costs for coolants and maintenance. Another nice benefit of the highly efficient Peltier temperature regulation: The cooling and heating of the condenser and receiving chamber are much faster than liquid-based technologies. It becomes possible to switch between different distillation groups in less than five minutes – you don't waste your time with long waiting periods between measurements.

Software

Let the software guide you

Using the intuitive software of Diana 700 will feel like operating a smartphone. The home screen can be configured freely and provides fast access to your favorite menu items.

The smart automatic heater regulation ensures the standard-compliant setting of the initial and final heating parameters. It guarantees a perfect distillation rate, even for complicated fuel blends such as ethanol in gasoline (up to 85 %). You can rely on Diana 700: Your measurements will fulfill all requirements according to the given standard at the first try.

Individual dashboard: Concentrate on the essentials

You can create multiple individual measurement display layouts according to your needs. Add, change, and delete data fields based on the data you want to see at a glance and arrange their size with just a few clicks.

Guided mode: Worry-free measurements for beginners

The software comes with built-in support that guides you step by step to perform a perfect distillation. Illustrations show standard operating procedures on the screen and explain every necessary preparation step in detail. Continuing to the next step is only possible if the current step has been completed correctly.

Advanced mode: Quick start for experts

The advanced mode can be used by experienced operators. To avoid wasting time due to an incorrect setup, a graphical illustration of Diana 700 shows symbols indicating the status of each component – the instrument is ready when all lights are green.

Technical specifications

Standard test methods	ASTM D86 (Group 0, 1, 2, 3, 4), ASTM D1078, ASTM D850, IP 195, IP 123, DIN 51751, EN ISO 3405 (Group 0, 1, 2, 3, 4), GOST 2177, ASTM D524, ASTM D4530
Operation	
User interface	10" TFT color touchscreen, solvent-proof
Heating system	- Low mass/low voltage heating system with automatic positioning of heater and safety shield - Automatic initial heater settings and heater regulation - Cooling fan to quickly reach safe handling temperature after test
Condenser system	- Liquid-free cooling with Peltier technology - Temperature range: 0 °C to 80 °C, resolution: 0.1 °C
Receiving chamber	- Liquid-free cooling with Peltier technology - Temperature range: 0 °C to 60 °C, resolution: 0.1 °C - Corrosion-proof - Automated reduced VOC emission
Vapor temperature	- Pt100, class A - Temperature range: 0 °C to 450 °C, resolution: 0.1 °C - Integrated calibration memory with 20 calibration points and automatic read-out (ID detection) - Automatic correction by barometric pressure
Sample volume	- Optical solid-state detection system with contact image sensor (CIS) technology - Sample volume scan before test start to measure initial volume (converted to 100 %, if necessary) - Residue scan in receiving chamber with automatic calculation of loss - Volume range: 0 mL to 103.5 mL, resolution: 0.01 mL - Accuracy: ±0.1 mL
Ambient pressure	Built-in pressure sensor, range: 30 kPa to 110 kPa, resolution: 0.1 kPa
Ambient humidity	Built-in humidity sensor, range: 0 % to 95 % (rel. humidity)
Ambient temperature	Built-in temperature sensor, temperature range: -20 °C to +80 °C, resolution: 0.1 °C
Safety	
Fire extinguisher	- Built-in fire extinguisher with IR sensor for fire detection - Connection of 4 bar to 6 bar CO_2 or N_2 - Detection if inert gas is connected
Condition monitoring system	- Detection of flask size, flask support board, vapor temperature sensor, heater shield, condenser cleaning, receiving chamber door, receiving cylinder, drip plate
Operating requirements	
Temperature	+10 °C to +35 °C
Relative humidity	10 % to 80 % relative humidity at 35 °C
Voltage	90 V to 240 V, 50/60 Hz
Total power	900 W
Altitude	0 m to 5000 m
Dimensions and weight	
Dimensions	approx. 406 mm × 525 mm × 645 mm (W × D × H)
Weight	approx. 40 kg
Further features	
Connectivity	1 × Ethernet, 5 × USB, 1 × HDMI, Bluetooth, wifi
Automatic calculation	Cetane index, driveability index
Accessories	Dry point sensor, 200 mL flask, bar code reader, printer, receipt printer, keyboard, various certified reference materials (CRM)

www.anton-paar.com