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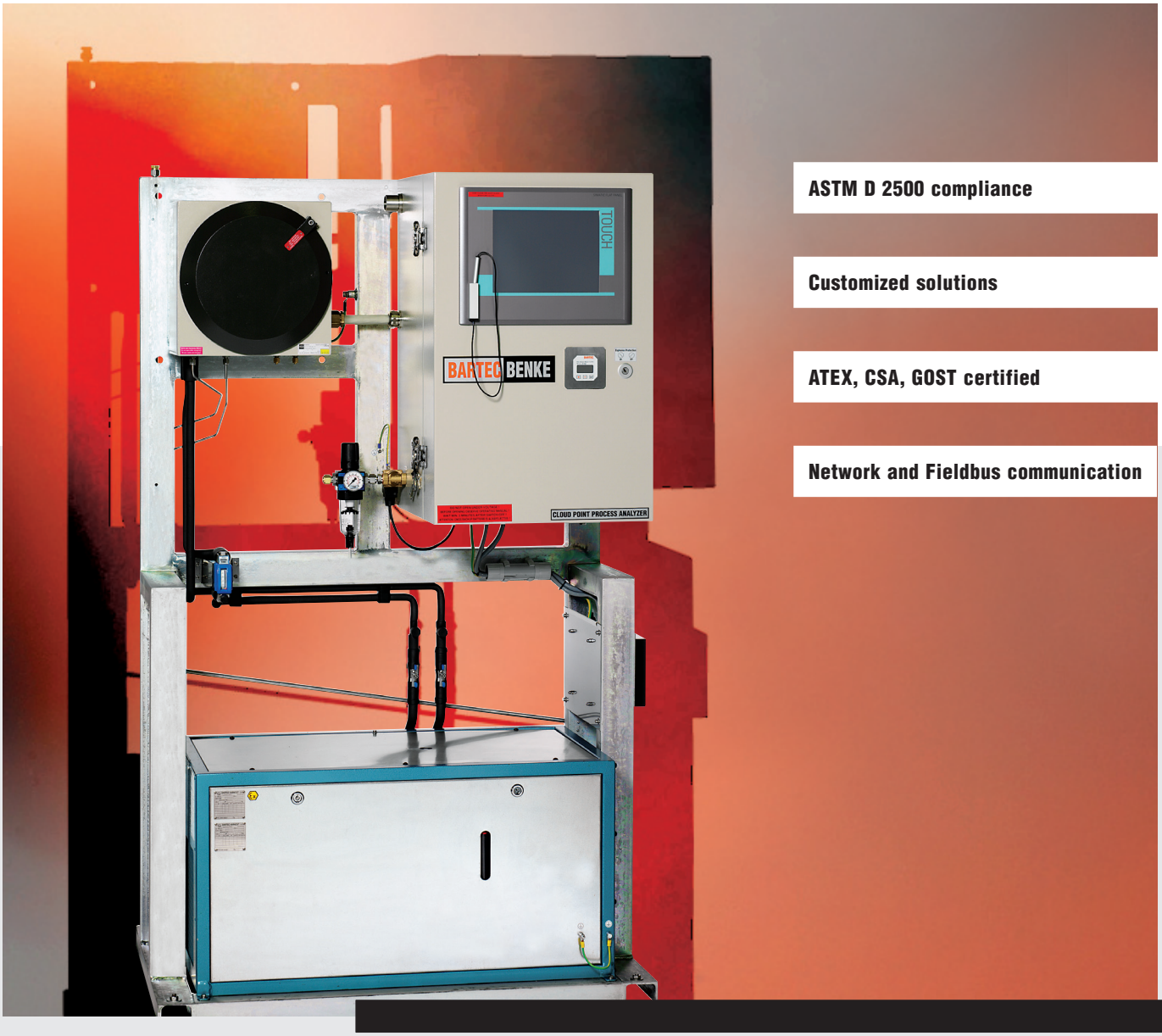

- ASTM D 2500 compliance
- Customized solutions
- ATEX, CSA, GOST certified
- Network and Fieldbus communication

Process Analyzer

Cloud Point Process Analyzer CPA-4

Cloud Point Process Analyzer **CPA-4**

Application

The BARTEC BENKE Cloud Point Process Analyzer (CPA-4) is a system for the fully automatic determination of the cloud point (CP) of transparent mineral oil products. The CPA-4 operates online. It serves to monitor/maintain product quality for the in-spec production of mixtures such as diesel fuel and heating oil.

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YOUR competent partner for safe plants

The specialists from BARTEC BENKE have many years of experience in plant safety. They create solutions which you can rely on: economical, reliable and for the future.

Special Features

- Rugged design of measuring cell
- Optimized assembly – easy removal of complete cell
- Available communication interfaces:
  - Modbus/RTU, Modbus/TCP
  - Remote Access via modem, ISDN, LAN, VPN
- Failure diagnosis and self monitoring
- Additional cooling for the control unit housing if required
- Multi-stream capability
- Product specific parameter-sets

Make your decision for a strong partner!

Choose BARTEC BENKE also for

- Fast Loop Systems
- Sample Conditioning Systems
- Validation Systems
- Recovery Systems
- Chillers
- Air Conditioning Systems/HVAC
- Pre Commissioned Analyzer Shelters/Turn-Key Solutions

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Norms and Standards

- ASTM D 2500
- DIN EN 23015
- ISO 3015
- IP 219

These norms and standards set the operating limits for cloud point measurement for mineral oil products which are clear at a path length of 40 mm (for IP and ASTM 1 ½ " = 38 mm) and have a cloud point below 49 °C (120 °F).

Method

The product sample is cooled under specified conditions and its turbidity is observed. The temperature at which a cloud of paraffin crystals first appears, is measured as the CP. The CPA-4 uses a photometric measurement principle.

Note: Illustrations of this brochure show a typical CPA-4 Analyzer with the optional application specific chiller.

Oil and Gas Refineries **Petrochemistry** Chemistry

Cloud Point Process Analyzer CPA-4

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Explosion protection

Ex protection type (Europe)	Ⓔx II 2G EEx pd IIB T4 or optional Ⓔx II 2G EEx pd IIB+H_2 T4 Protection type depending on application
Certification	TÜV 02 ATEX 1846
Optional available classification (USA and CAN)	Class I, Div. 2, Groups B, C and D Class I, Zone 1, Groups IIB or IIB+H_2 Protection type depending on application
CSA certificate no.	1524800

Technical data

Method	ASTM D 2500, DIN EN 23015, ISO 3015, IP 219
Measuring range	-35 to +30 °C (-31 to 86 °F) (limited within a range of 30K) others on request
Repeatability	≤ DIN EN/ASTM
Reproducibility	≤ DIN EN/ASTM
Measuring cycle	discontinuous (according to standard procedure) cycle time 4 to 8 min
Product streams	1 x sample, 1 x validation (additional on request)

Electrical data

Nominal voltage	AC 230 V ± 10 %, 1 phase; 50 Hz other rating on request
Maximum power consumption	approx. 600 W
Protection class	IP 54

Ambient conditions

Ambient temperature	operation 5 to 40 °C (41 to 104 °F)
Ambient humidity	operation 5 to 80 % relative humidity, non-corrosive

Sample

Quality	liquid (≤ 50 cSt), cooled, filtered (≤ 10 µm), dry (moisture content max. 2000 ppm)
Consumption	20 to 40 l/h
Pressure at inlet	1 to 3 bar
Temperature at inlet	at least 15 K above expected CP
Outlet/Vent	open to atmosphere

Utilities

Instrument air

Consumption	min. 1.4 Nm³ per flushing cycle during start-up (7 x housing volume) ~ 0.8 Nm³/h in normal operating mode only for leak compensation
Pressure at inlet	2 to 5 bar
Quality	dew point ≤ -40 °C (-40 °F) humidity class 2 or better according to ISO8573.1

Coolant

Consumption	20 to 60 l/h
Temperature	set point depending on measuring point: -5 to +50 °C (23 to 122 °F) (general: water temperature = expected CP +30 K)
Pressure at inlet	1 to 3 bar
Quality	clean cold water, free from particles

Signal outputs and inputs

Analog outputs	CPA, see options
Digital outputs	sum alarm, ready signal, see options
Digital inputs	reset, see options

Electrical data of signal outputs and inputs

Analog outputs	4 to 20 mA 800 Ω out; active isolated on request
Digital outputs	DC 24 V; max. 0.5 A
Digital inputs	high DC 15 to 28 V low DC 0 to 4 V
Auxiliary power supply output	DC 24 V; max. 0.8 A

Control unit

Central control unit	Industrial PC
Operating system	Windows XP®
Control software	PACS

User interfaces

Display	TFT display with touch function 800 x 600 pixel
Keyboard	virtual keyboard, controlled via TFT display with touch function

Connections

Pipe fittings	Swagelok® 6 mm/12 mm other fittings on request

Weight and dimensions

Weight	approx. 250 kg
Dimensions (W x H x D)	approx. 1140 x 1900 x 710 mm

Optional signal outputs and inputs

Digital outputs	identification of a validation cycle identification of a product (4 parameter set available) valve for washing
Digital inputs	product selection request for a validation cycle
MODBUS interface	MODBUS/RTU via RS485 or RS422 or fiber optic cable MODBUS/TCP via fiber optic cable
Remote access	via modem, ISDN, Ethernet via fiber optical or VPN

Important notice CPA-4 is subject to continuous product improvement, specifications are preliminary and may be subject to change without notice.

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