

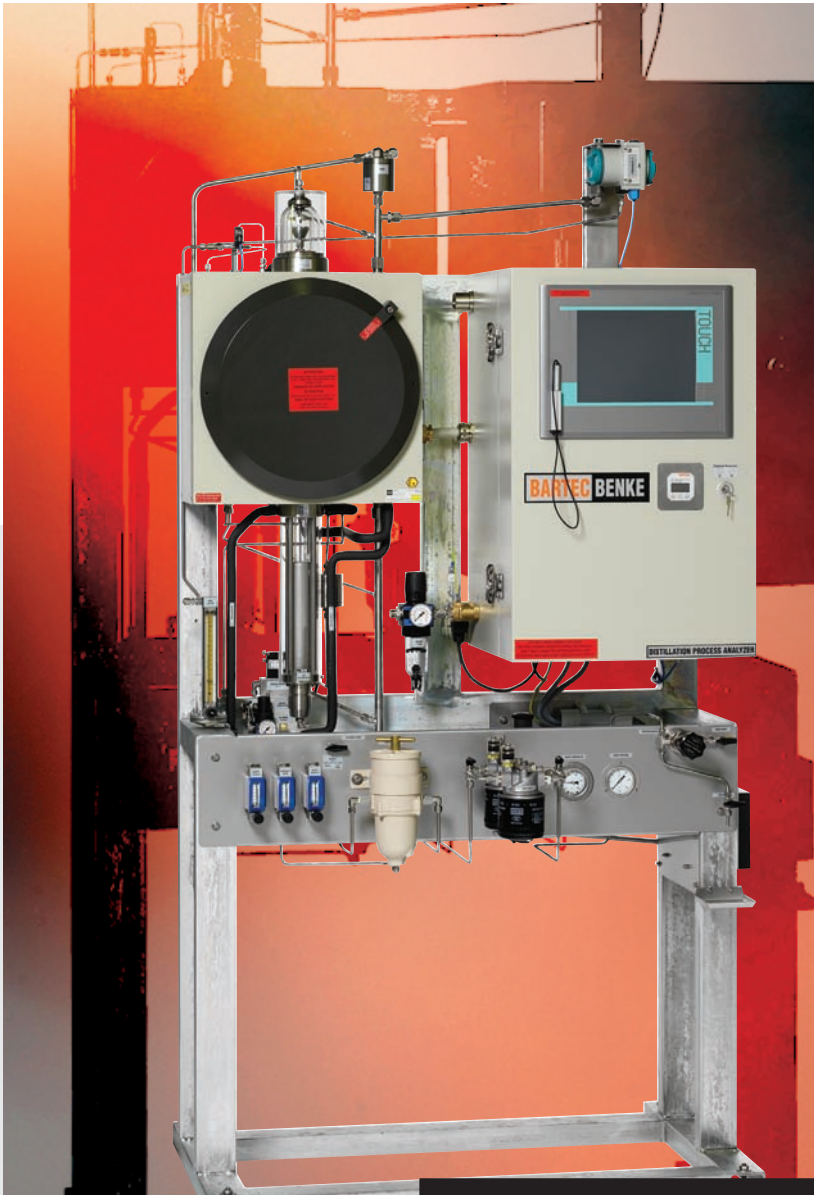
100 % ASTM D 86 compliance

Customized solutions

ATEX, CSA, GOST certified

Coking detection

Network and Fieldbus communication



Process Analyzer
Distillation Process Analyzer DPA-4

Distillation Process Analyzer **DPA-4**

BARTEC BENKE

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.

Application

The BARTEC BENKE Distillation Process Analyzer (DPA-4) is used for process control and control of blend composition such as all types of gasoline, feedstock for petrochemical processes (naphtha), jet fuels, fuel oils, diesel fuels, similar petroleum products and liquid hydrocarbons with a maximum final boiling point below its thermal decomposition.

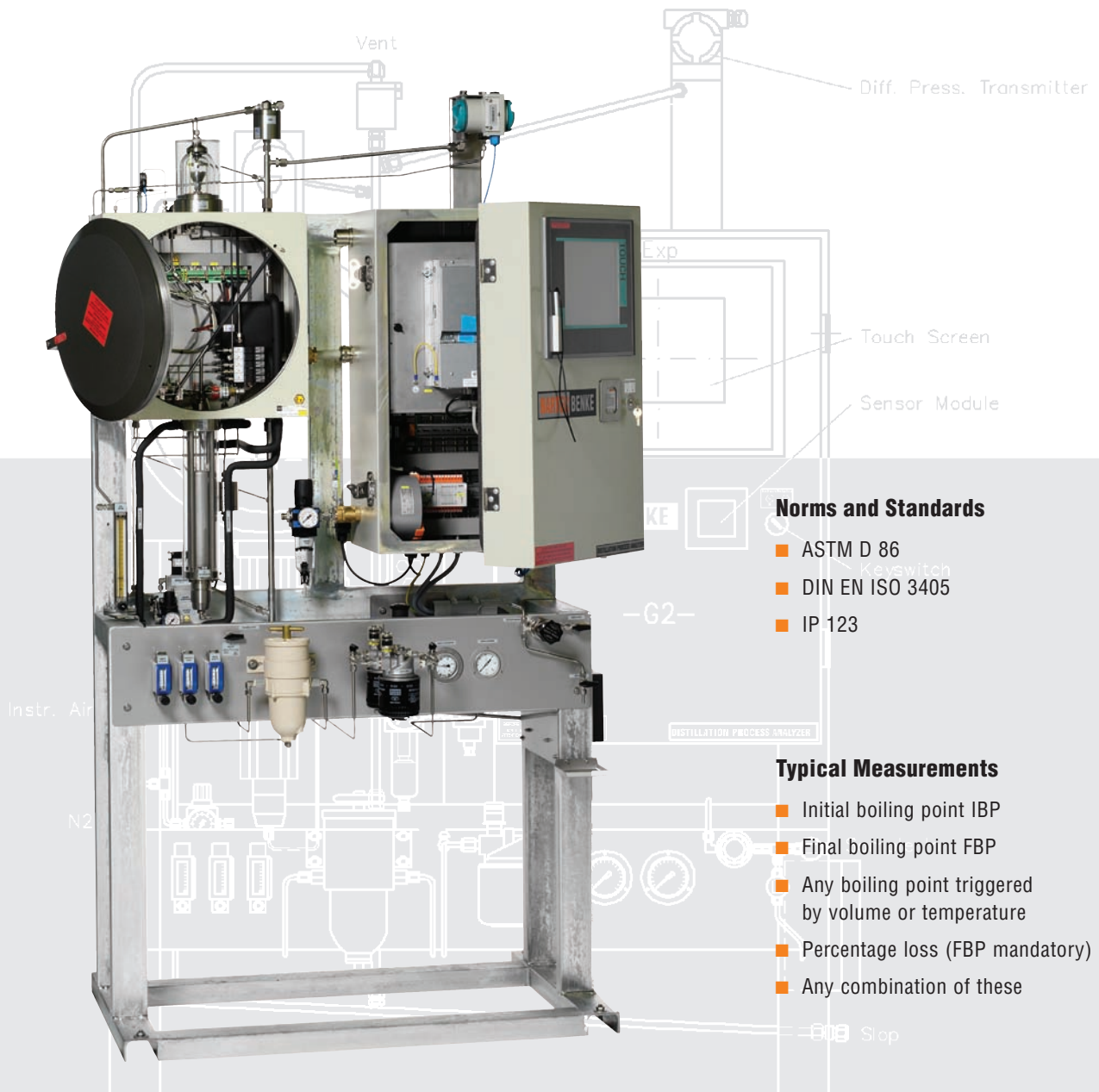
Special Features

- The complete boiling curve is measured every cycle
- Measuring points of interest freely definable by software
- Optimized assembly – easy removal of complete flask
- Special software detecting the coking at the flask bottom
- Burette and receiver available in double-jacketed version for either heating or cooling
- Available Communication Interfaces:
 - Modbus/RTU, Modbus/TCP
 - Remote Access via modem, ISDN, LAN, VPN
- Special design for samples with higher viscosity and/or high pour points
- Integrated failure diagnosis and self monitoring
- Multi-stream capability
- Product specific parameter sets
- Optional calculated parameters
e. g. Cetane Index ASTM D 976, loss corrected results (percentage evaporated), Driveability Index

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



Norms and Standards

- ASTM D 86
- DIN EN ISO 3405
- IP 123

Typical Measurements

- Initial boiling point IBP
- Final boiling point FBP
- Any boiling point triggered by volume or temperature
- Percentage loss (FBP mandatory)
- Any combination of these

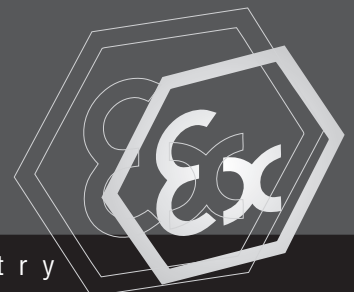
Method

100 ml of sample which is stirred with nitrogen is distilled in an open flask with pre-selected (programmable) heating time.

The evaporated sample passes through a temperature controlled water-cooled condenser.

The volume of condensate is measured in a graduated receiver by means of the density compensated differential pressure system at predetermined (programmable) recovery points (recovered volume).

Note: Illustrations of this brochure show an exemplary DPA-4 Analyzer with the optional application specific sample conditioning system.



Distillation Process Analyzer DPA-4

Explosion Protection

Marking (Europe)

II 2G EEx dp (IIA; IIB; IIB+H₂) T4

II 2G EEx dp [ib] (IIA; IIB; IIB+H₂) T4

Protection type depending on application

Certificate number TÜV 98 ATEX 1297

Optional available classification Class I, Div. 2, Groups B, C and D
Class I, Zone 1, Groups IIA or IIB or IIB+H₂

(USA and CAN) Protection type depending on application

CSA Certificate no. 1524800

Technical Data

Method	According to ASTM D 86, IP 123, DIN EN ISO 3405
Measuring range	0 to 400 °C (32 to 752 °F) or any measuring range in between this range
Repeatability	≤ ISO/ASTM
Reproducibility	≤ ISO/ASTM
Measuring cycle	Discontinuous (according to standard procedure) Cycle time 35 to 45 min for distilling up to FBP
Product streams	3 x sample, 1 x validation (additional hardware required)

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 5 to 40 °C (41 to 104 °F)

Ambient humidity Max. 70 %, non-corrosive

Sample

Quality Liquid (≤ 50 cSt at 40 °C)
conditions according to applicable norm

Consumption 10 to 40 l/h, depending on application

Pressure at inlet 1 to 3 bar

Temperature at inlet Depending on group of sample
according to applicable norm

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 4 to 6 bar

Quality Dew point ≤ -40 °C (104 °F)
Humidity class 2 or better
according to ISO8573.1

Coolant

Consumption 20 to 60 l/h

Temperature 0 to 20 °C (32 to 68 °F)
depending on application

Pressure at inlet 1 to 3 bar

Quality clean, free from particles

Inert gas (Nitrogen)

Consumption approx. 2 NI/h

Pressure 4 to 6 bar

Quality at least 95 % purity or better

Signal Outputs and Inputs

Analog outputs Can be assigned to any defined
measuring point

Digital outputs Sum alarm, Ready signal, see options

Digital inputs Reset, see options

Analog outputs 4 to 20 mA 800 Ω active
additional (max. 8) and 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. 325 kg

Dimensions (W x H x D) approx. 1200 x 2250 x 710 mm

Optional Signal Outputs and Inputs

Digital outputs Identification of a validation cycle
Identification of active stream
Warning/low-priority error

Digital inputs Stream selection
Enable/disable automatic stream
switching
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 DPA-4 is subject to continuous product improvement, specifications are preliminary and may be subject to change without notice.