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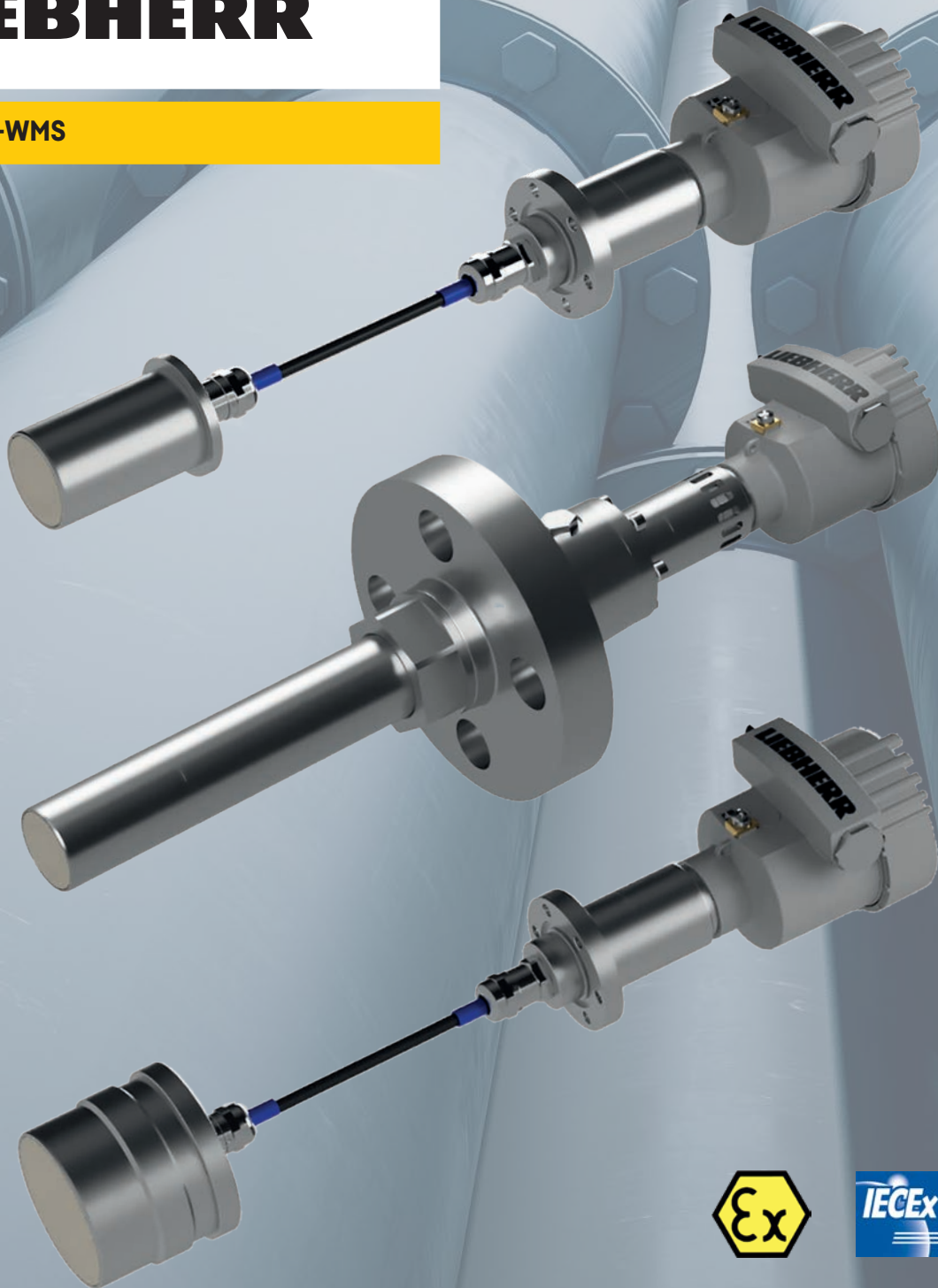
# Reliable water cut analyzer BS & W analyzer

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Stand-alone and precise.

## LIEBHERR

Litronic-WMS



Made in Germany

# Hightech Sensors





Since 1985 Liebherr develops, produces and distributes efficient moisture and water content measurement systems for the industrial automation around the world. At the Liebherr factory in Bad Schussenried the sensors are produced and calibrated in an ESD-protected production line. Each sensor will be tested separately in a several hour process across the entire working temperature range before leaving the factory.

#### **Development**

Sensor development at Liebherr in Bad Schussenried includes the total R&D value chain from the physical idea to the final solution, from the first concept to the finished product. The competent electronic development and the experience from the field of construction machines under extreme conditions guarantee a very high reliability and a long life time of the sensors.

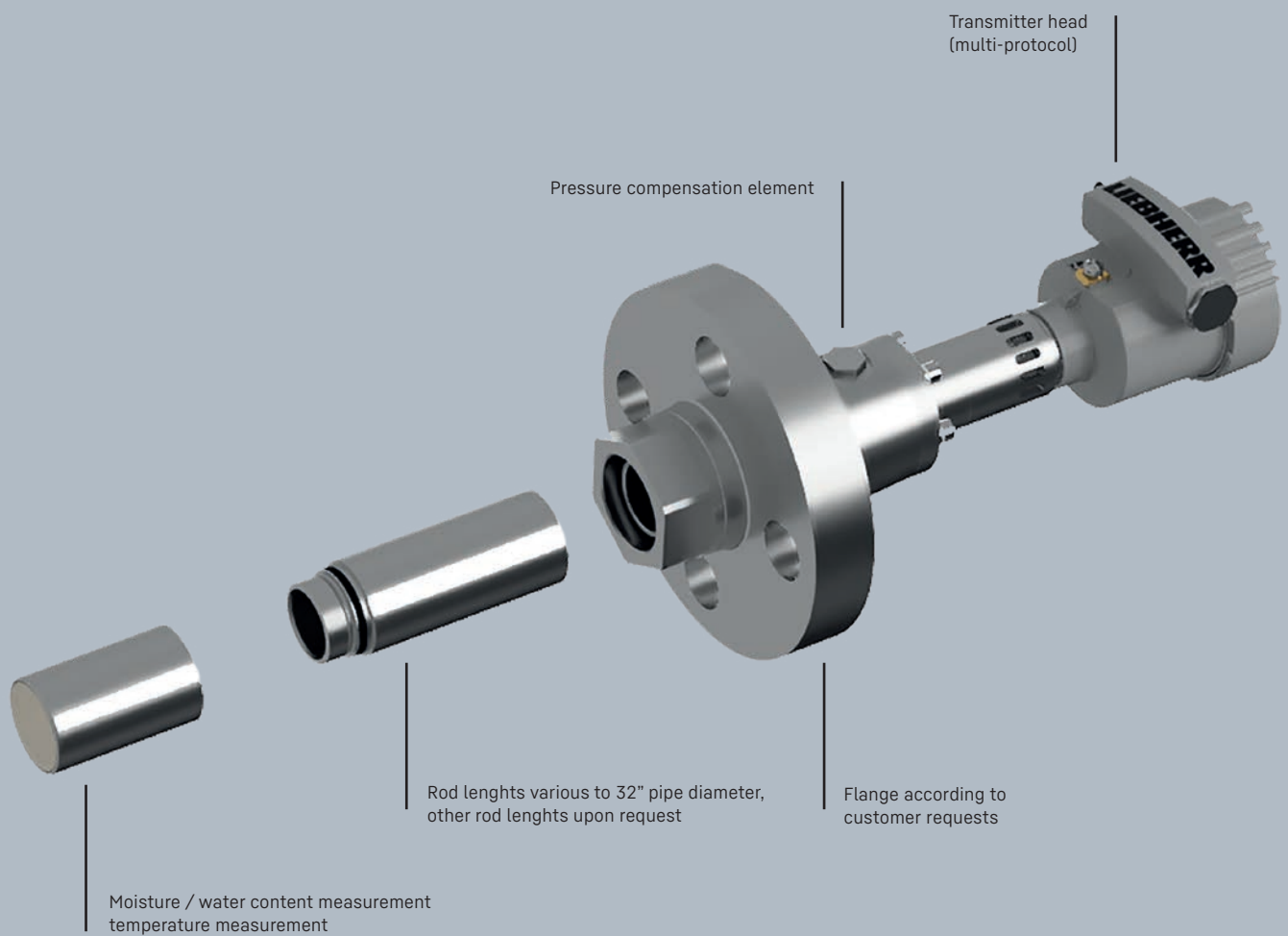
#### **Mission**

Liebherr develops and manufactures high-quality moisture and water content sensor systems for individual, OEM and major customers in important market segments. We assist the customer even before the purchase of moisture and water content sensors and advise the customer in order to find the best technical and economic solution together. We invest in the area of innovation and want to understand the needs of the customers.

Litronic-WMS

# Water content and temperature

The modular system for monitoring.



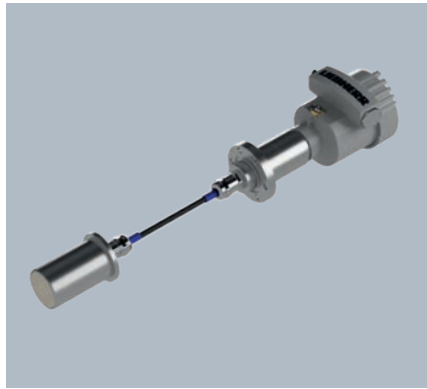
A stand-alone-system for the exact determination of moisture / water content and temperature guarantees highest quality and safety during the production, processing and refinement of most of all emulsions, powders and bulks in a running process. The modular

system allows customization to required needs and meets your demands in any case. The PC software "WIO" enables a quick and exact calibration of concerning measuring points.



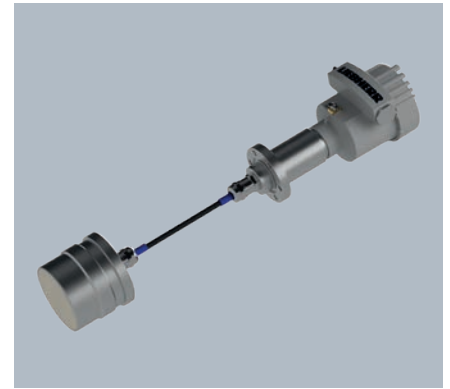
**WMS Rod Sensor P45-GD**

- for pipelines and tanks
- for emulsions
- up to 75 bar
- rod lengths various to 32" pipe diameter, further rod lengths upon request
- measurement field in front, optional lateral
- wear protection: PEEK



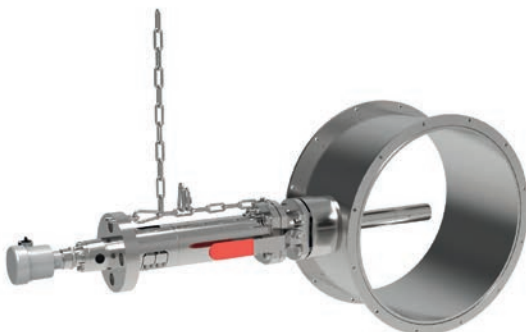
**WMS Planar Sensor P45-GD**

- planar sensor D = 45 mm
- for emulsions, powder and bulks (e.g.: dust)
- from 2" pipe diameter
- application in systems up to 75 bar
- wear protection: PEEK
- weld-on socket



**WMS Planar Sensor P78-GD**

- planar sensor D = 78 mm
- for powder, bulks and emulsions
- application in systems up to 16 bar
- wear protection: zirconium oxide ceramics
- weld-on and screw on flange



**Retractable fitting (Option)**

For pipeline diameters from 6" and for tank installations is an optional retractable fitting available. This equipment allows to retract the sensor under process conditions up to 6 bar.

# Reliably measure and monitor

## Features

- switch over to other material curves
- sensor replacement without recalibration
- temperature compensation
- precision voltage regulator
- multi-protocol transmitter: 4 – 20 mA, HART
- temperature measurement
- display (optional)

## Applications

- basic sediment and water in crude oil (BS&W)
- oil platforms
- loading stations
- pipelines (pumping stations)
- refineries (dewatering tanks)
- oil separators
- blending processes
- (petro-) chemical industry
- energy and safety, tank and settling management
- many other installation places...

## Material list

- oil, crude oil, mud, fuel, bitumen
- pyrolysis oil, wax, resin
- colours, paint, ethanol, solvents
- fertilizer, detergent, biomass
- sawdust, pellets, coal
- ceramic slurry, propellant
- chemical powder and granulates
- and more

## Certificates

### ATEX/UKEX

EU-type examination certificate number:

EPS 21 ATEX 1 140 X

UK-type examination certificate:

EPS 22 UKEX 1 159 X

EN IEC 60079-0:2018, EN 60079-1:2014,

EN 60079-11:2012, EN 60079-26:2015,

EN 60079-31:2014

### Gas EX-protection

 II 1/2 G Ex db/ia IIC T4 Ga/Gb

### Dust EX-protection

 II 1/2 D Ex tb/ia IIIC T135°C Da/Db

### IECEX

Certificate number: IECEX EPS 21.0047X

IEC 60079-0:2017 Edition: 7.0

IEC 60079-1:2014-06 Edition: 7.0

IEC 60079-11:2011 Edition 6.0

IEC 60079-26:2014-10 Edition: 3.0

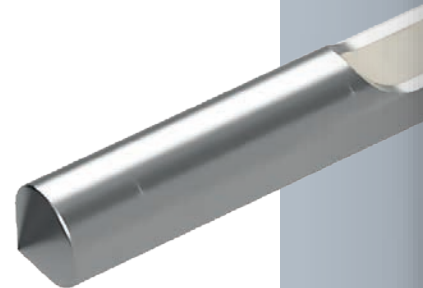
IEC 60079-31:2013 Edition: 2

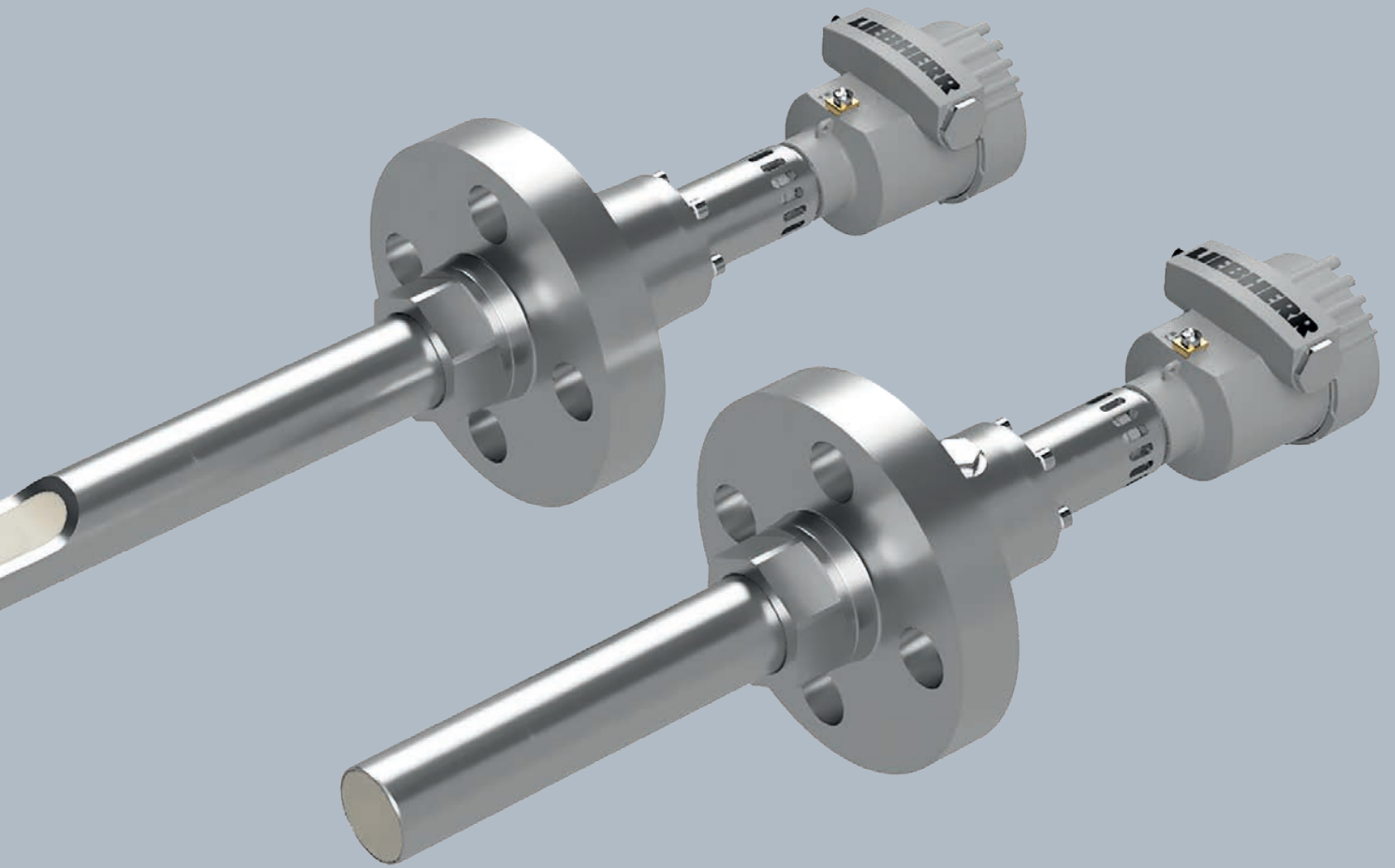
### Gas EX-protection

Ex db/ia IIC T4 Ga/Gb

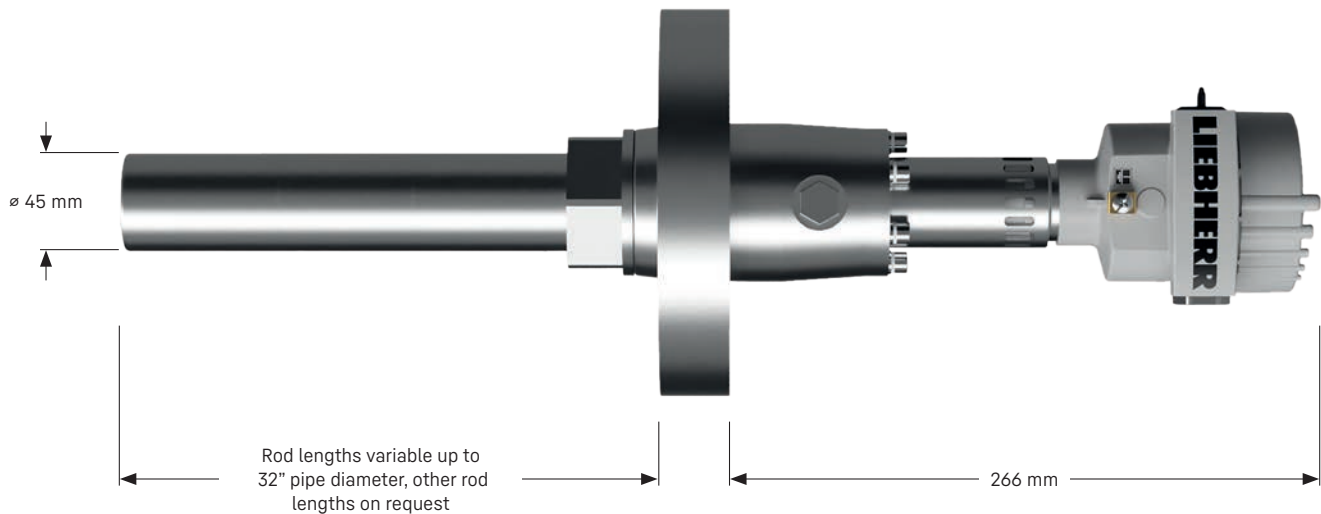
### Dust EX-protection

Ex tb/ia IIIC T135°C Da/Db





# Technical Data



## Data

Field frequency:	22 MHz
Physical principle:	Capacitive type
Measuring range (free adjustable):	0 - 100 %
Achievable measurement accuracy:	+/- 0,05 % based on correct material curve
Resolution:	0,011 %
Resolution with damping:	0,005 %
Cycle of update:	65 ms
Power supply:	$U_n = 12$ V DC (SELV/PELV)
Medium temperature:	-5 °C* - 80 °C
Medium temperature sensor head:	5 °C - 80 °C
Ambient temperature transmitter head:	5 °C - 70 °C
Analog output:	4 - 20 mA, activ
Fault indication:	3,6 mA / 22 mA
Remote parametrization:	HART®-MODEM
Max. cable length:	1.000 m
Protection class sensor:	IP 68
Protection class transmitter:	IP 65
Material transmitter head:	Die-cast aluminium, copper content of max. 0,1 %
Material sensor	1.4571 (AISI 316TI), optional 2.4819 Hastelloy C276, Alloy C-276
Material retractable fitting:	1.4571

\* under special conditions

