

# Water content measurement system Typ „Litronic WMS“

# LIEBHERR

LITRONIC-WMS-SHAFT SENSORS IN  
COMPACT DESIGN  
with integrated measured value transmitter

EX-PROTECTION AVAILABLE



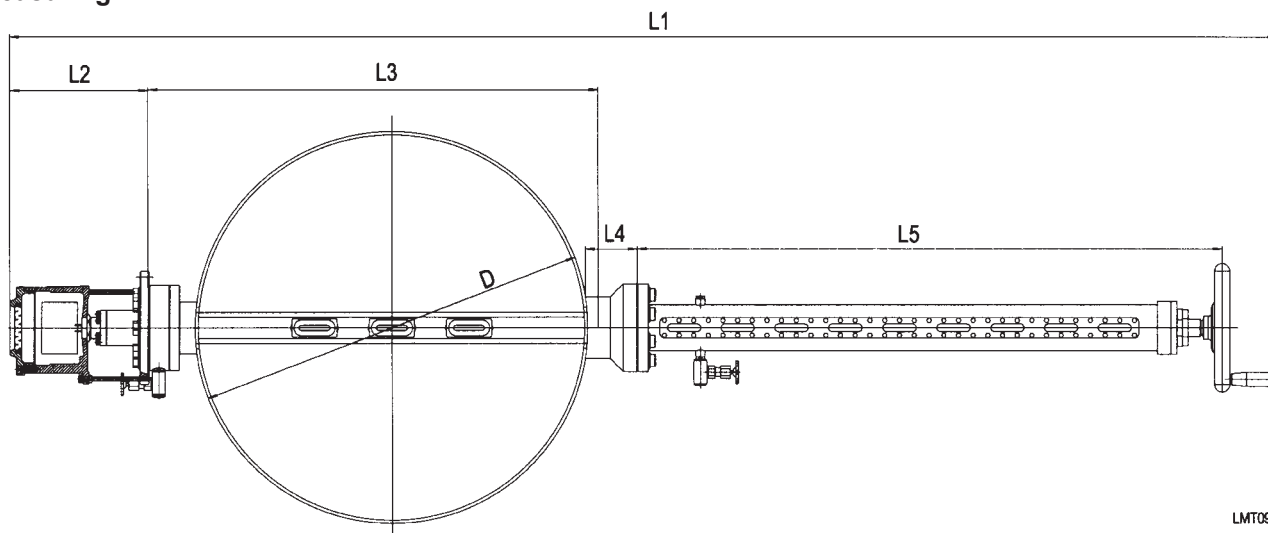
## TECHNICAL DATA

- Physical principle: Capacity calculation with high-frequency-leakage field (frequency 0.02 GHz)
- Sensor location: Pipeline, tank
- Measuring range: 0 – 100 % water moisture  
(measuring window in range 0 – 100 % adjustable as desired)
- Resolution: 0.01 % (depends on emulsion)
- Number of leakage field condensers: 1 alternatively 3
- Capacity resolution:  $10^{-14}$  F
- Actualisation cycle:  $32,64 \cdot 10^{-3}$  s
- Scanning rate average value counter:  $16 \cdot 10^6 - 25 \cdot 10^6$
- Possible measuring precision:  $\pm 0.1$  %, with regular calibration  
(representative on the time window with continuous process)
- Micro-processor: SAB 80C32
- Power supply: 24 V, 150 mA DC
- Measuring range temperature measuring:  $-10^{\circ}\text{C} - 90^{\circ}\text{C}$
- Measuring precision temperature measuring:  $\pm 0.5^{\circ}\text{C}$
- Analogous output: 4 – 20 mA, actively supplied from sensor power unit  
max. load 500  $\Omega$ , resolution 12 bit  
via analogous output 3.6 mA or 22 mA, Control optional via HART-MODEM
- Error report: HART-protocol
- Connecting cable: optional via measured value display and parameterisation module  
2 TWP AWG 20, shielded max. 1500 m (24 V DC and 4 – 20 mA output)
- Remote parameterisation: HART-protocol
- On-site parameterisation: optional via measured value display and parameterisation module
- Pressure resistance: 110 bar
- Medium temperature:  $5^{\circ}\text{C} - 80^{\circ}\text{C}$
- Ambient temperature:  $-20^{\circ}\text{C} - 70^{\circ}\text{C}$  ( $-35^{\circ}\text{C} - 80^{\circ}\text{C}$  optional)
- Working temperature electronics:  $-5^{\circ}\text{C} - 80^{\circ}\text{C}$  ( $-35^{\circ}\text{C} - 80^{\circ}\text{C}$  optional)
- Storage temperature:  $-35^{\circ}\text{C} - 80^{\circ}\text{C}$
- Material housing/wear protection: V4A / ALU / PEEK
- Measuring gauge diameter: 42 mm
- Process connection: 2" ANSI 600
- Enclosure rating: IP 65

**Water content measurement system  
Typ „Litronic WMS“**

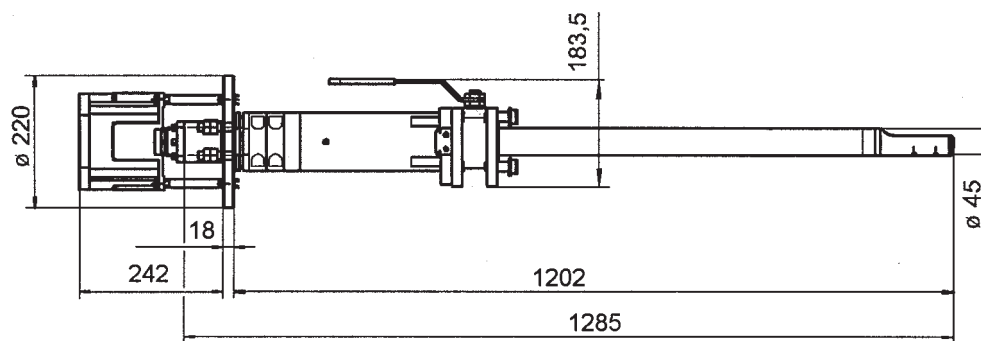
**LIEBHERR**

measuring



D	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)	L5 (mm)	Gewicht (kg)	
						Sensor	Wechselarmatur
8"	1137	275	342	96	593	14,65	30,00
10"	1245	275	397	96	647	15,50	31,00
12"	1347	275	448	96	698	16,05	33,00
16"	1512	275	531	96	780	16,95	36,00
20"	1715	275	632	96	882	17,15	40,00
24"	1918	275	734	96	983,5	19,20	43,00
30"	2223	275	886	96	1136	19,80	48,00

Measuring



Wight sensor: 26 kg  
Wight inter changeble fitting 19 kg

# Water content measurement system Typ „Litronic WMS“

# LIEBHERR

## ACCESSORIES

1 BYPASS-MEASURING DEVICE. (Sensoradaption)  
Suitable for recording of a 10" sensor

consisting of:

- measuring pipe, each with 2 inlets and 2 outlets, with connection socket and thread
- connection- and dummy flanges
- flange for sensor connection ANSI 600 lb 2" (DN 50)



## QUICK CHANGE FITTING

is a device for exchanging measuring systems from pipe lines under process conditions

consisting of:

Protective pipe which is shifted via the sensor shaft using the hand crank and sealed on the opposite facing side of the pipe to the supply medium. It is thus possible to change the measuring system under process conditions.

The flange situated opposite the quick change fitting seals 3 times as efficiently as the protective pipe and centralises the protective pipe.

It is possible to ventilate the protective pipe via a needle valve.

The protective pipe has been laid three times in the quick change fitting and is sealed against the supply medium.

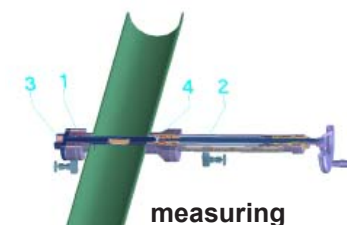
The position of the protective pipe in the pipe line is visible from the outside.

The quick change fitting can be ventilated via a needle valve.

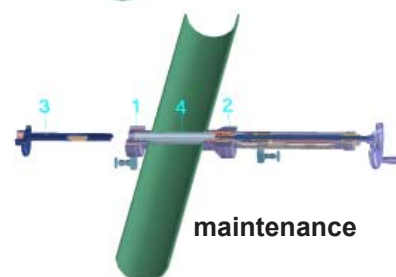
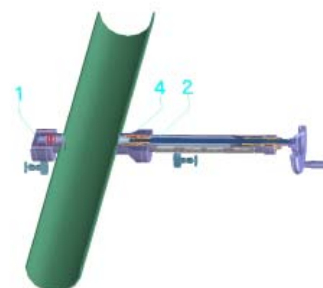
In the operating condition the sensor shaft rests in the quick change fitting.

The quick change fitting is made entirely of stainless steel or with the thread made of bronze.

All seals and guide elements are crude oil resistant.



measuring



maintenance

## RETRACTABLE FITTING for the sensor

consisting of:

- Guide pipe with sealing set, flange and sleeve
- Retention screw with sealing package and clamp fitting
- Safety chain.

Configured for an adjustment range of approx. 500 mm and an operating pressure up to 6 bar.

Designed for direct flange mounting with 2" ANSI 150 flange.



# Water content measurement system Typ „Litronic WMS“

# LIEBHERR

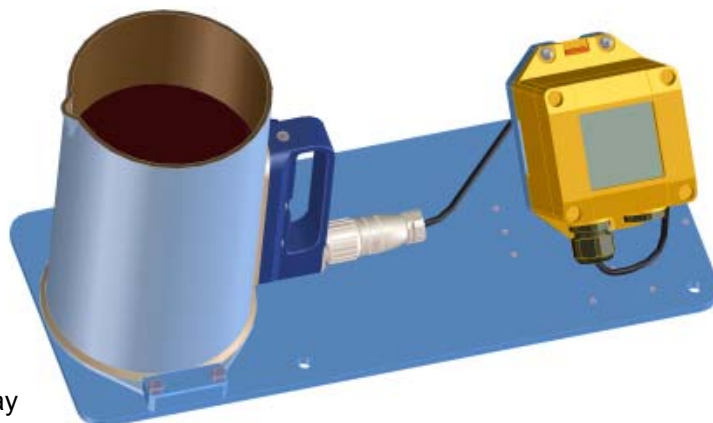
## ACCESSORIES

### MEASURING CASE

Capacity approx. 1,5 litre  
Round carrying out, Ø approx. 120 mm;  
height approx. 200 mm  
Stainless steel

incl.

integrated sensor field and sep. measured value display



### LITRONIC-WMS-MEASURED VALUE DISPLAY EX-VERSION

a) for connection to shaft sensor, installed in sensor connection head with transparent screen.

b) for connection to SHAFT sensor, installed in a separate housing.

### TECHNICAL DATA

- |   |   |
|---|---|
| - Display:  | LCD display, bar graph 20 segments and digital value, 4 characters  |
| - Operating and ambient temperature:                              | 0° C to 50° C (with installed parameterisation module)<br>-10° C to 70° C (without installed parameterisation module) |
| - Storage and transport temperature:                              | -40° C to 85° C.  |
| - Housing made from PBT, B/H/T:<br>(without threaded cable joint) | 85 x 118 x 82 mm  |
| - Enclosure rating:   | IP 67   |
| - Cable length to sensor:   | max. 20 m.  |



### PARAMETERISATION MODULE, pluggable

Insertion module for parameterisation of the compact sensors with own LCD display for clear text and 6 keys.

