Process Integrated
Inline Microwave Moisture Control

MW⁴²⁰⁰™ pellet

Enhanced throughput,
quality and economy
in wood pellet production

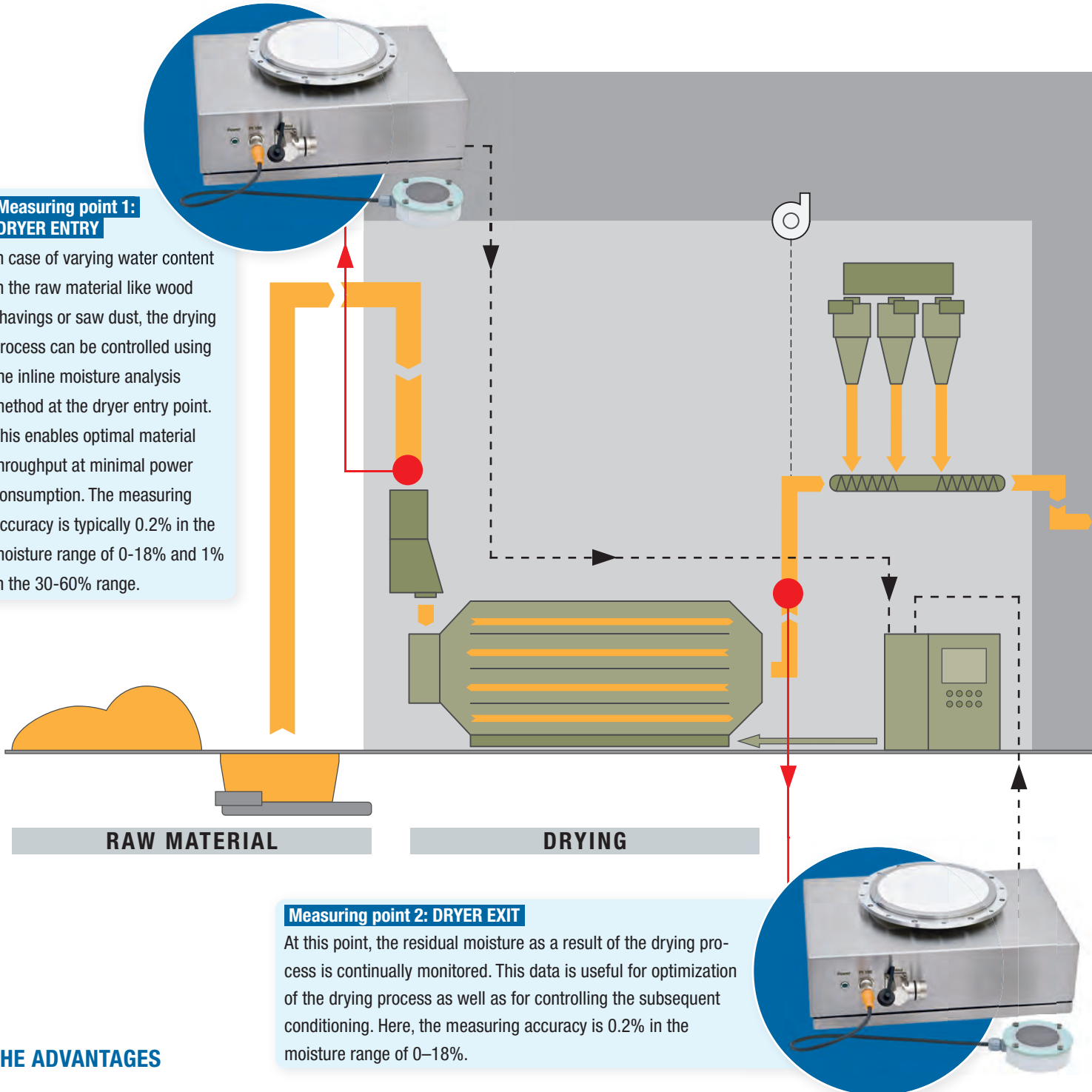TEWS Elektronik

technology that works for you

OPTIMIZED PROCESSES WITH ACCURATE MOSTURE CONTROL

Production of wood pellets depends, at every stage of production, on factors like purity, size of particles, bulk density and, particularly, the moisture content of the material. For the purpose of inline acquisition of the process parameter "moisture", the **MW⁴²⁰⁰™pellet** system offers a solution that is compatible with every production plant – and can be deployed from the start of the process till the finished product.

Measuring point 1: DRYER ENTRY

In case of varying water content in the raw material like wood shavings or saw dust, the drying process can be controlled using the inline moisture analysis method at the dryer entry point. This enables optimal material throughput at minimal power consumption. The measuring accuracy is typically 0.2% in the moisture range of 0-18% and 1% in the 30-60% range.

RAW MATERIAL

DRYING

Measuring point 2: DRYER EXIT

At this point, the residual moisture as a result of the drying process is continually monitored. This data is useful for optimization of the drying process as well as for controlling the subsequent conditioning. Here, the measuring accuracy is 0.2% in the moisture range of 0–18%.

THE ADVANTAGES

- Continuous accurate moisture measurement at all relevant points in the wood pellet processing line.
- Just one calibration for pine woods.
- Moisture values are independent of density, temperature and color.
- Free of maintenance and wear due to absence of mechanical components and sensors in high quality ceramic and stainless material.
- Simple mechanical integration into material flow regardless of old or new installations.
- Integration in process guidance systems.

Measuring point 3: CONDITIONING
At the end of conditioning, moisture resulting from material mixtures and humidification is checked. Here, humidification can be controlled accurately.

Measuring point 5: END PRODUCT
Continual acquisition of moisture data in the end product enables a seamless documentation of batches of production and adherence of required standards. This prevents an otherwise expensive rate of waste and ensures compliance with stipulated standards.
The measuring accuracy for the finished pellets is typically 0.2% in the moisture range of 0-12%.

H₂o/ steam

CONDITIONING

PELLETIZATION

END PRODUCT
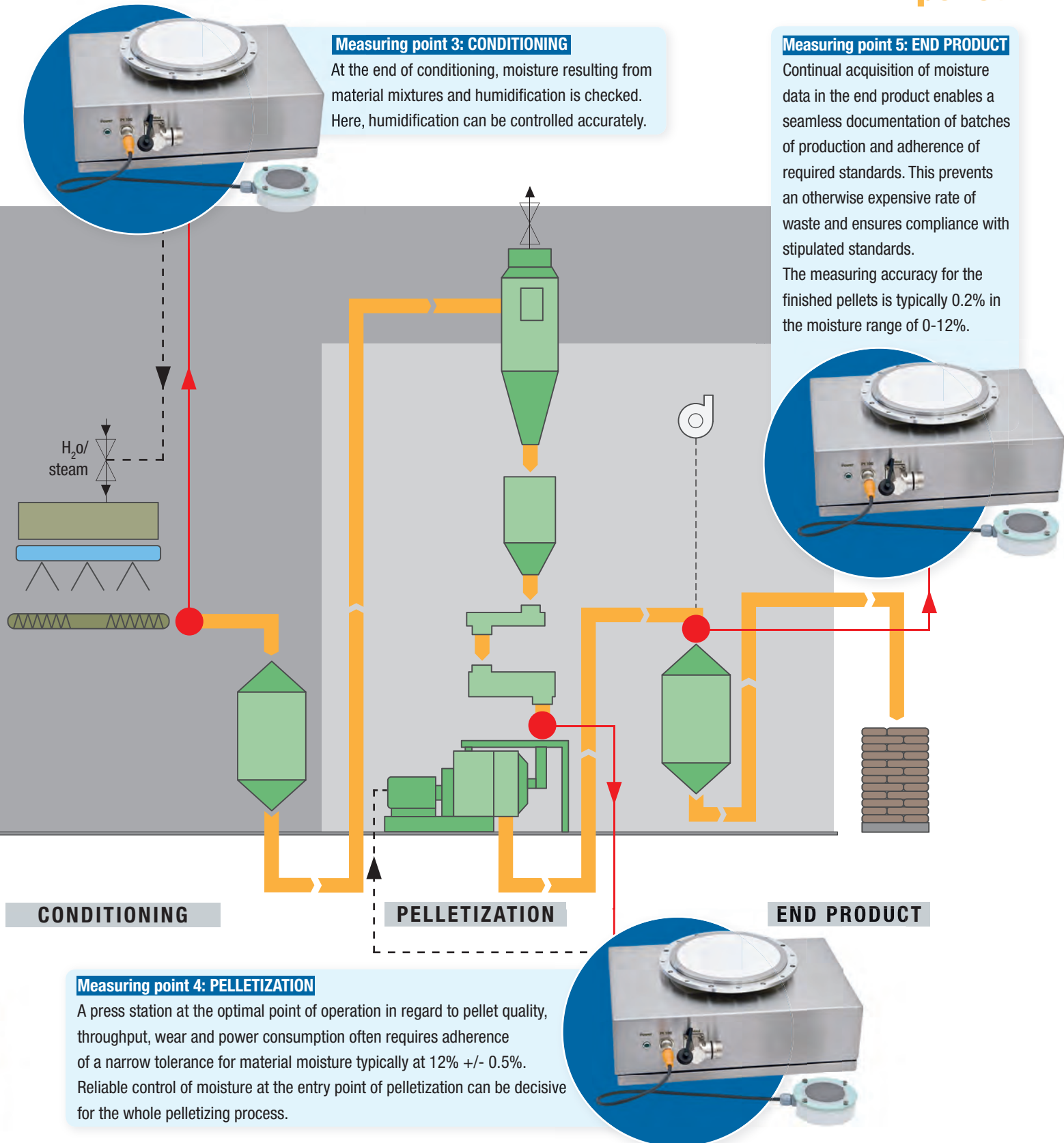
Measuring point 4: PELLETIZATION
A press station at the optimal point of operation in regard to pellet quality, throughput, wear and power consumption often requires adherence of a narrow tolerance for material moisture typically at 12% +/- 0.5%. Reliable control of moisture at the entry point of pelletization can be decisive for the whole pelletizing process.

IN-LINE MOISURE CONTROL WITH MICROWAVE RESONANCE – FUNCTIONALITY AND ADVANTAGE

The technology of microwave resonance is predestinated for all phases of production of wood pellets. When the material passes through the field of a microwave resonator, its resonance characteristics change essentially depending on the water content. At this, the microwave penetrates through the material completely, however, without affecting it. This is the most accurate moisture measuring method – regardless of the factors like material density and temperature. The systems require one-time configuration and operate thereafter continually and reliably – free from maintenance and wear.

CONTROL UNIT MW4200 pellet ™
Including software package: TEWS Moisture

DISPLAY	7 segment display 4 digits, red Height of digits 20 mm
OPERATING ELEMENTS	ON/OFF, empty balancing, sampling, reference standard, release
INTERFACES	Ethernet RS232 (PC, Service or GSM wireless modem)
DIGITAL-I/0	4 inputs 24VDC 4 outputs 24V, active high, each max. 0.25A, max.0.5A total
ANALOGOUE-I/0	1 input 4-20 mA, galvanically separated. Ri =100 Ohm 2 outputs for moisture, density or temperature, 4-20 mA, galvanically separated, active load max. 400 Ohm
POWER SUPPLY	24 VDC +/-5%, 4A or 230VAC, 1.0 A, 50 Hz
AMBIENT TEMPERATURE	0 – 45 °C
PROTECTION CLASS	IP 65
HOUSING	Stainless steel for wall mounting
DIMENSIONS (WXHXD)	370 x 250 x 160 mm
WEIGHT	6.4 kg

SENSOR UNIT SPP-4200-XXX
can be combined with all sensors of model SPP-160, including PT100 Sensor.

PRODUCT TEMPERATURE	0 - 80 °C
AMBIENT TEMPERATURE	0 – 45°C
SENSOR BODY	Stainless steel + Ceramic
HOUSING	Stainless steel
PROTECTION CLASS	IP 65
DIMENSIONS (WXHXD)	320 x 220 x 100 mm + Sensor D = 160 x 35 mm
WEIGHT	5.6 kg

ACCESSORIES AND OPTIONS

Standard cable set: 4m or 8m

GSM wireless modem MW-Mod35i for remote operation/service

Infrared temperature sensor

Ex-protection, Zone 22

COMMISSIONING SERVICE

Professional initial commissioning + Test operation together with remote support.

technology that works for you