Product sheet

DRT-5500

Freeness Inline

Optimized Freeness Control

FEATURES

- **Direct in-line single point measurement**
- **Accurate high frequency measurement**
- **Compact design, installed in the process piping**
- **Independent of process consistency and temperature**
- **Uninfluenced of variations in raw material composition**

BENEFITS

- **Representative and reliable results**
- **Optimized refiner control, reduced energy cost**
- **Low installation cost and quick startup**
- **Robust and reliable process control**
- **Accurate process control over grade changes**

GENERAL / BACKGROUND

The DRT-5500 Freeness In-line analyzer measures the drainage rate of pulp suspensions and provides fast and accurate freeness results.

It is installed directly on the process pipe and an integrated robust sampling device extracts representative pulp samples under actual process conditions providing real time results. The special design of the DRT-5500 sample piston allows easy installation independent of the process pipe angle. The DRT-5500 is available in two versions: Standard for most applications and Peak for application with variations in ash and fines.

Due to its robust design and unique measuring principle, the DRT-5500 measures with high frequency, high accuracy and repeatability.

It provides a freeness output signal which is independent of the process.

Furthermore the measurement is consistency and temperature independent of variations in raw material composition thus allowing for a robust and accurate process control even through multiple grade or material changes. The sturdy design together with an automatic cleaning and contamination detection system makes the transmitter reliable and easy to use and maintain. The DRT-5500 is operated using BTG's common communication platform CPM, which ensures compatibility with present and future communication interface requirements, from analogue output with HART® to field-bus.

The DRT-5500 is suited for all applications and pulp types.

Use QR-code or link for more information
www.btg.com/mybtg/en/instruments/drt-5500

BASE UNIT

The base unit includes the communication platform (CPM), the air supply with valve block, and the water valves to the DRT-5500 measuring unit. All settings can be made using the CPM interface, which can also be used for calibration. A PC based interface software is also available, which can be used to support calibration and follow-up.

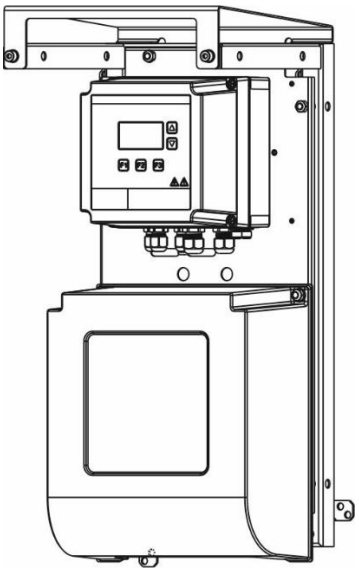


Figure 1: Base unit

WATER TREATMENT UNIT

The WTU-1100 is used to provide clean and hot water to ensure continuous efficient performance of the DRT-5500.

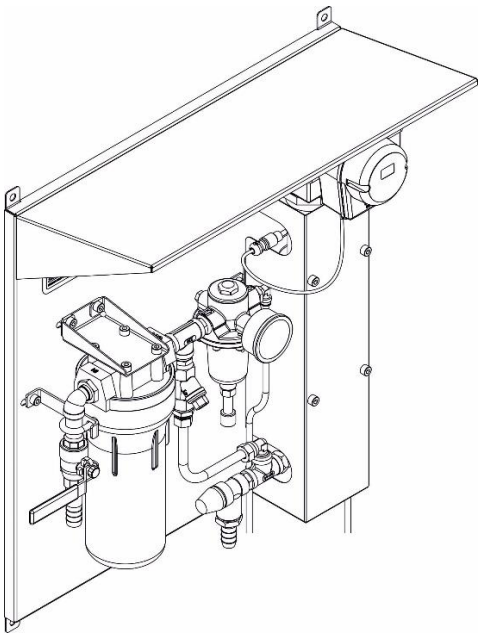


Figure 2: Water Treatment Unit (WTU-1100)

MEASURING PRINCIPLE / MEASUREMENT

Sampling phase: The sampling piston enters the process pipe and rapidly extracts a small pulp sample into the lower part of the mixing chamber. The special design of the sampling device ensures that the DRT-5500 operates independent of pipe angle.

Dilution phase: Water enters the measuring chamber from the top and bottom and dilutes the pulp. Tangential water entry at the bottom of the unit ensures thorough mixing of the sample.

Drainage phase: The pulp consistency is determined and used for internal processing to achieve high accuracy. The drainage valve at the bottom of the mixing chamber opens and the diluted pulp is drained through the screen and the drainage time is measured with high precision.

Cleaning phase: The measuring chamber is cleaned with water and compressed air. Warm water prevents biological activity, while compressed air supports releasing the fiber pad from the screen. After cleaning, the drainage time of pure water is measured to detect any contamination of the screen.

TECHNICAL DATA / SPECIFICATIONS

GENERAL

Type	DRT-5500 Freeness Inline
Manufacturer	BTG Instruments AB, Säffle, Sweden
Measuring principle	Drainage rate measurement
Freeness range	
Standard	750 - 15 ml CSF/ 15 - 90ºSR
Peak	100 – 800 ml CSF/ 10 – 70 ºSR
Repeatability	σ = 10 ml CSF (at 400 ml CSF), equiv. to 1ºSR (at 32ºSR)
Cycle time	Approximately three minutes
Sample volume	25 ml

PROCESS SPECIFICATIONS

Consistency	1 - 6 %
Filler content	0 - 20 %
Process pressure	Max. 6 bar [90 psi]
Media temperature	Max. 80ºC [176ºF]
Ambient temperature	Max. 50°C [122°F]
Flow velocity	0.3 - 5 m/s [1 - 16.4 fps]
Min. pipe diameter	100 mm [3.94"]
Power	110/220 V
Weight (transmitter):	
Standard version	15.4 kg [33 lb]
Peak version	16 kg [35 lb]
Base unit	17 kg [37.5 lb]
WTU-1100	30 kg [66.1 lb]
Water:	
Temperature	Measuring water 10 - 30ºC [50 - 86ºF] Cleaning water 50 - 60ºC [122 - 114ºF]
Pressure	3 - 6 bar [44 - 87 psi] (depending on tube length) Important that the water pressure to the system is controlled and stable.
Impurities	Max. 100 µm
Conductivity	> 50 µS/cm
Consumption	~ 2 l/min. [0.5 USG/min]
Air:	
Pressure	4 - 8 bar [58 - 116 psi]
Quality	Instrument air; filtered and cleaned
Communication Platform (CPM)	For information about the CPM, including input and output signals, see the CPM product sheet PS2026
Functions:	
Output signals	Freeness in CSF or ºSR
Calibration sets	Four separate calibration sets, individually programmable, and externally controllable
Alarm function	Provides alarm signals
User interface	See Communication platform (CPM)
Serial port	RS 485
External connections:	
Analog output	4 - 20 mA, HART® protocol
Digital output	Data ready
Digital inputs	Interlock and range selection
Serial port	RS 485
Material wetted parts	EN 1.4404/ASTM 316L/Stellite 6

SAFETY & DIRECTIVES

Safety and protection class

Product safety	CE, C-tick, ETL
Protective rating	Equivalent to IP55, NEMA 12

EU-directives

Designed in accordance with relevant CE standards.

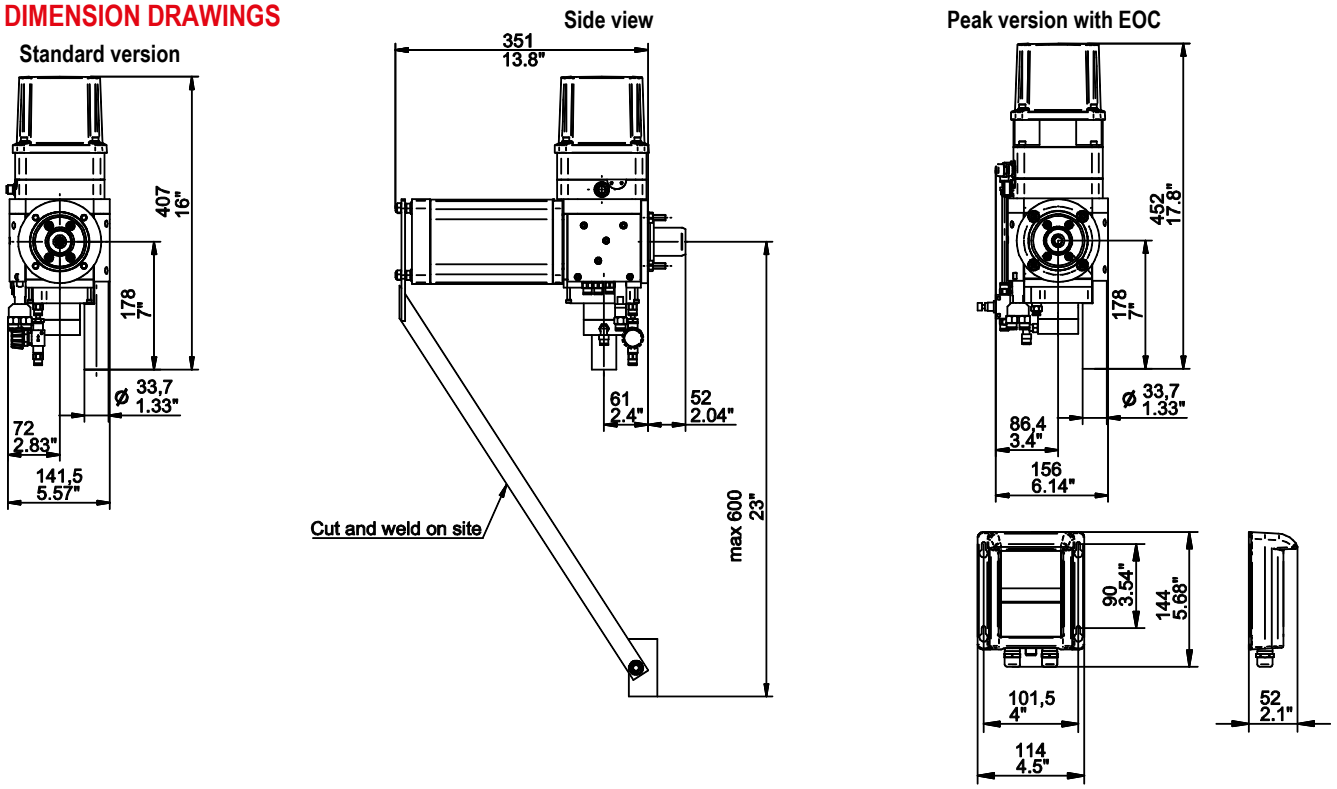
Quality Assurance

Quality-assured in accordance with ISO 9001.

YOUR LOCAL BTG OFFICE

Use QR-code or link for more information
www.btg.com/en/contact/sales-service-network

DIMENSION DRAWINGS



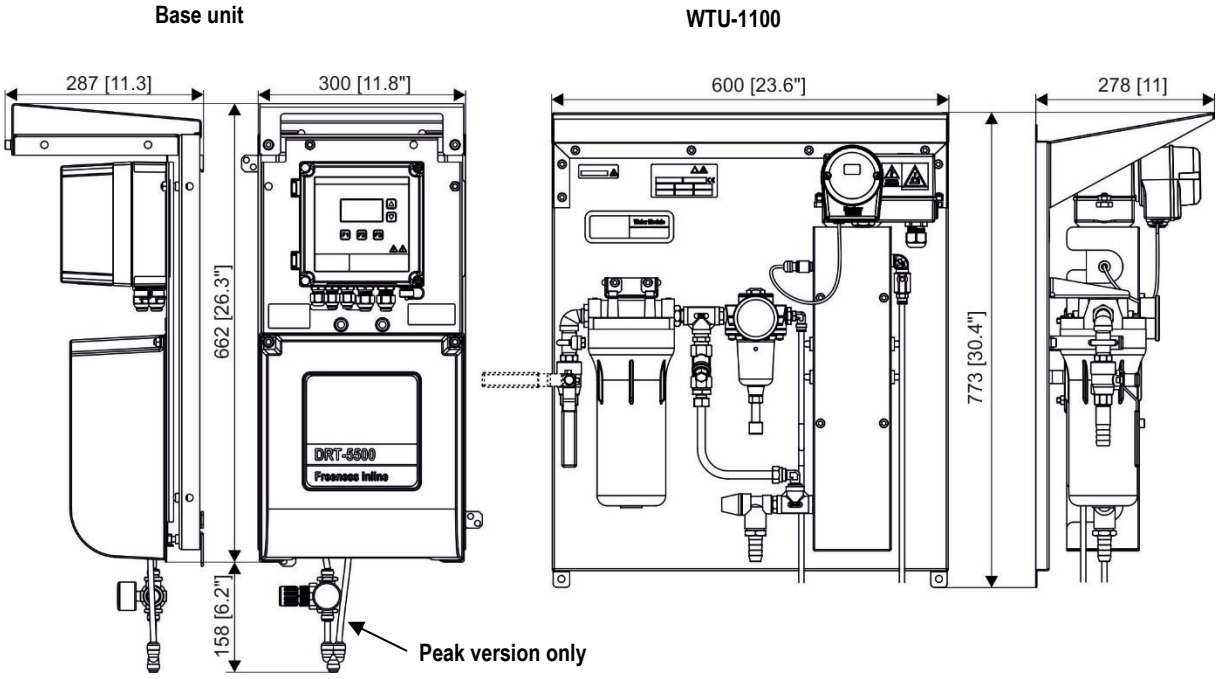


Figure 3: Dimensions