Hydronix

Hydro-Mix HT

Mechanical Installation Guide

To re-order quote part number:	HD0766
Revision:	1.5.0
Revision date:	September 2025

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CUSTOMER RESPONSIBILITY

The customer in applying the product described in this documentation accepts that the product is a programmable electronic system which is inherently complex and which may not be completely free of errors. In doing so the customer therefore undertakes responsibility to ensure that the product is properly installed commissioned operated and maintained by competent and suitably trained persons and in accordance with any instructions or safety precautions made available or good engineering practice and to thoroughly verify the use of the product in the particular application.

ERRORS IN DOCUMENTATION

The product described in this documentation is subject to continuous development and improvement. All information of a technical nature and particulars of the product and its use including the information and particulars contained in this documentation are given by Hydronix in good faith.

Hydronix welcomes comments and suggestions relating to the product and this documentation

ACKNOWLEDGEMENTS

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CUSTOMER FEEDBACK

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If your feedback is concerning an Atex certified product or associated service it would be very helpful for you to give us your contact details and the model number and serial number of the product if possible. This will enable us to contact you with any relevant safety advice should this be necessary. It is not obligatory to leave your contact details and any information will be treated as confidential.

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Revision history

Revision No	Date	Description of Change
1.1.0	March 2017	First Release
1.1.1	April 2017	Minor formatting update
1.2.0	June 2018	Spacer Plate Installation Advice Added
1.3.0	October 2019	Address update
1.4.0	December 2021	Updated Temperature Ratings. Added indoor and outdoor use statement.
1.5.0	September 2025	Chain conveyor installation information added, screw conveyor installation information updated, format update, technical specification updated.

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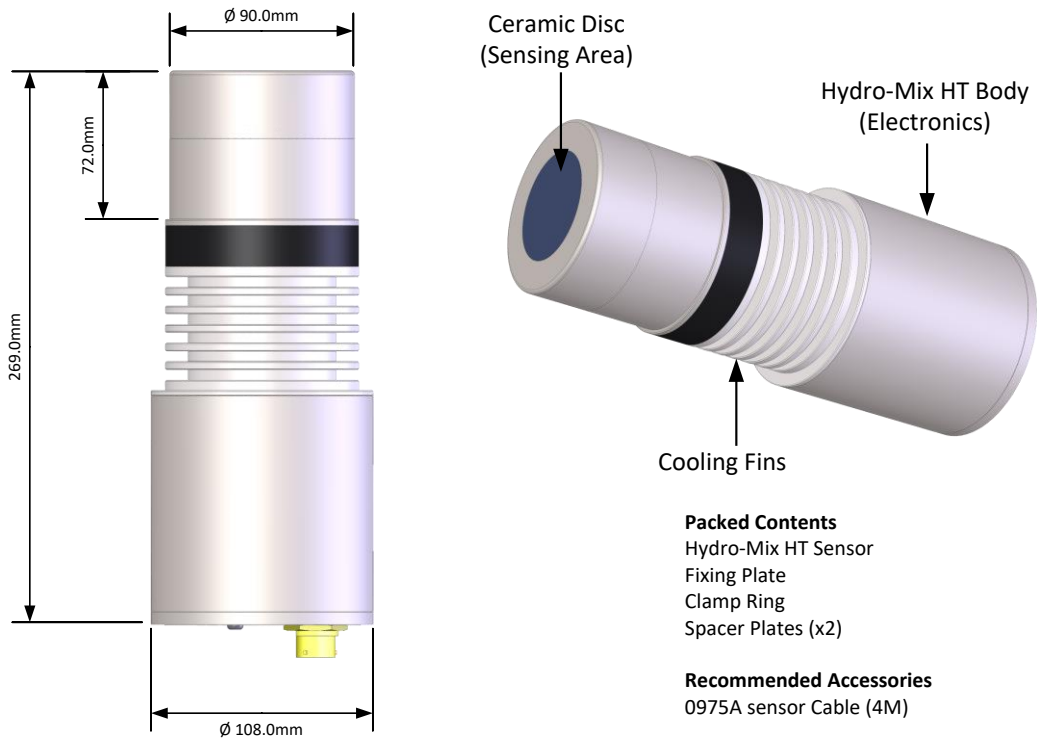

Figure 1: The Hydro-Mix HT

Available accessories:

Part No	Description
4010	HMHT Fixing Plate (Supplied with sensor), Additional plates can be ordered
4020	HMHT Clamp Ring (Supplied with sensor). Additional clamps can be ordered
4030	HMHT Hydro-Mix Adapter
0975A	4m Sensor Cable
0975A-10m	10m Sensor Cable
0975A-25m	25m Sensor Cables
0116	Power Supply – 30 Watt for up to 4 sensors
0049A	RS232/485 converter (DIN rail mounting)
0049B	RS232/485 converter (9 pin D type to terminal block)
SIMXX	USB Sensor Interface Module including cables and power supply
EAK01	Ethernet Adapter Kit including Power Supply
EPK01	Optional Ethernet Power Adapter Kit
DSAHTXX	Ducting System Angled
DSVHTXX	Ducting System Vertical

Hydro-Com configuration and diagnostics software is available for free to download from www.hydronix.com

1 Introduction

The Hydro-Mix HT is a flush mounted digital microwave moisture sensor designed for measuring in flowing organic materials. The sensor can be installed in drying, ducting, mixing, and conveying systems and is manufactured from food safe materials. The sensor is suitable for indoor and outdoor use.

The sensor reads at 25 times per second, which enables rapid detection of changes in moisture content in the process, including determination of homogeneity in mixing processes. The sensor can be easily connected to any control system and may be configured remotely when connected to a PC using dedicated Hydronix software. A large number of parameters are selectable, such as the type of output and the filtering characteristics.

2 General to Flowing Material Applications

For accurate moisture measurement the Hydro-Mix HT should be installed in a location where the material is in contact with the ceramic disc at a controlled consistent flow rate.

Follow the advice below for good sensor positioning:

- Locate the sensor where the material flows at a consistent rate.
- When installing the sensor on a curved surface, ensure that the centre of the ceramic disc is flush with the radius of the internal wall.
- A sampling point has to be available close to the sensor for calibration purposes.
- Avoid areas of severe turbulence in the material flow.
- Ensure the sensor is located where the material is not allowed to build up on the ceramic disc.
- Position the sensor away from any electrical interference (See Electrical Installation Guide HD0678).
- Position the sensor so that it is easily accessible for routine maintenance, adjustment and cleaning.

3 General to Mixer Applications

A significant benefit of the Hydronix system is that only one sensor is required in the mixer. However, it is important that it is positioned correctly in relation to the mixer type, material and water inlets, and other moving parts such as blades and paddles. Although paddles or scraper blades can be a useful mechanism to keep the sensor free from material build up, they could cause damage to an incorrectly positioned sensor. It will be necessary to periodically check the position as the mixer blades, paddles and floor wear away. In all installations, it is recommended that the sensor is fitted in an area where it is away from any possible collection of ‘sitting’ water.

As the mixer floor wears, the sensor will occasionally need to be adjusted downwards in the mixer, to maintain the correct position in relation to the mixer floor. Additionally, the blades will need to be adjusted to maintain the efficiency of the mixing action and cleanliness of the ceramic disc.

If the sensor is allowed to protrude into the mixer it will be susceptible to damage from the mixer blades/paddles as well as from abrasive materials becoming trapped between the paddles, mixer floor and exposed side wall of the sensor.

NOTE: Damage caused under these circumstances will not be covered by warranty

For accurate and representative moisture measurement the sensor must be in contact with the moving stream of material. It is equally important that no material can build up over the Ceramic Disc to obscure the sensor readings.

Follow the advice below for good sensor positioning:

- It is a good idea to provide a small inspection lid in the mixer cover, so that during mixing, and when the mixer is empty, the Ceramic Disc may be observed without having to raise the main cover plate.
- Ensure that the sensor is fitted away from the water and material inlets. Particular care should be taken in keeping the sensor clear of heavy falling objects.
- When installing the sensor on a curved surface, ensure that the centre of the ceramic disc is flush with the radius of the internal wall
- Avoid areas of severe turbulence. The best signal will be obtained where there is a smooth flow of material over the sensor.
- The sensor should be positioned where it will see a continuous sample of the flowing material and where the sweeping action of the blades ensures no build-up of material on the face of the sensor.
- Position the sensor away from any electrical interference (See Electrical Installation Guide HD0678).
- Position the sensor so that it is easily accessible for routine maintenance, adjustment and cleaning.

4 General Mounting Advice

4.1 Positioning the Sensor

The sensor can be mounted in an outdoor location. The ‘in-process’ part of the sensor is designed to be in contact with wet material. The ‘out-of-process’ side of the sensor must not come in contact with any liquid.

The optimum location for the sensor varies depending on the type of installation – a number of options are detailed on the following pages. The mounting assembly used to affix the sensor is shown in Section 6.2.

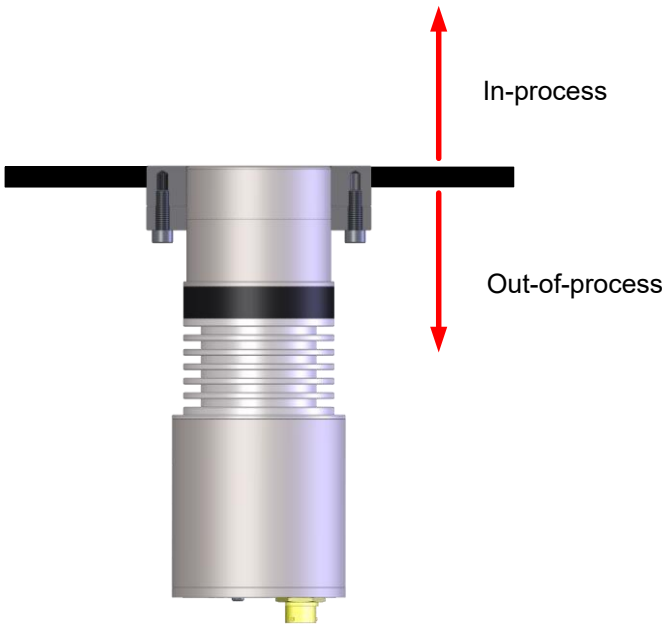

Figure 2: Outdoor installation conditions

4.2 Mounting on Flat Surface

For installation on flat surfaces, the top of the sensor must be flush with the internal wall surface.

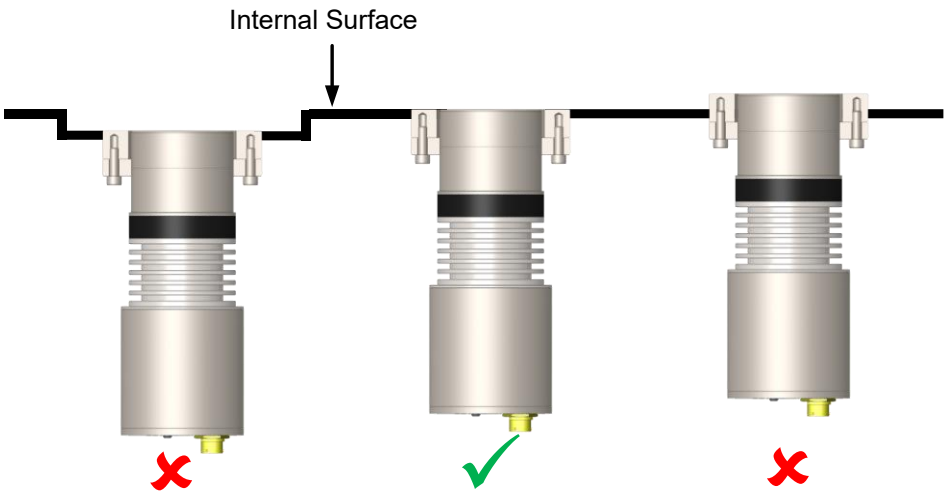

Figure 3: Flat Surface Installation

4.3 Mounting on Curved Surface

When installing the sensor on a curved surface, ensure that the outer edges of the weld-in fixing plate are flush with the internal wall surface.

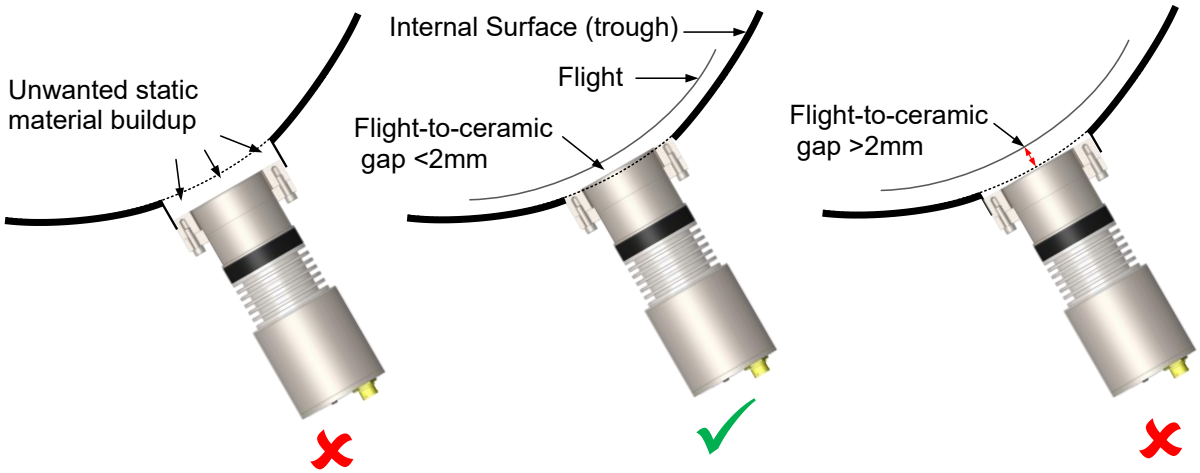

Figure 4: Curved Surface Installation

5 Material Mixing and Conveying

The sensor must be installed in an area free from buildup; where one of the mixer blades (or a scraper blade) operates and passes over the sensor's ceramic disc.

Typically, the motor-side end wall provides the most suitable location due to favourable material flow and consistent cleaning action.

Although the belly of the mixer tends to offer better material presentation to the sensor's faceplate, this location must not be used in organic mixers unless a blade passes within 2 mm of the sensor's face. This is due to the high likelihood of material build-up on the sensor's disc when no appropriate scraper blade is available.

The sensor must be installed on the upward stroke (carrying side) of the shaft rotation at an angle of approximately 30° from vertical. This ensures a consistent material presentation across the sensor's ceramic disc.

NOTE: The sensor must not be fitted where 'standing' water can accumulate.

5.1 Twin Shaft Mixer

It is recommended that the Hydro-Mix HT should be located in the end wall between the two shafts. The sensor should be located at a level lower than the shafts to maintain complete coverage of the Ceramic Disc.

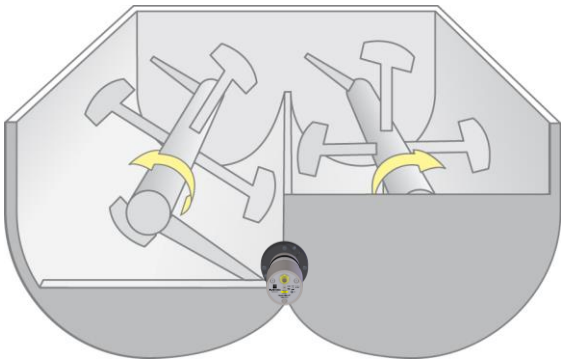

Figure 5: Twin Shaft Organic Mixer Installation

5.2 Single Shaft Mixer

Single-shaft mixers should have the sensor installed in the end wall at 30° angle from the vertical on the upstroke.

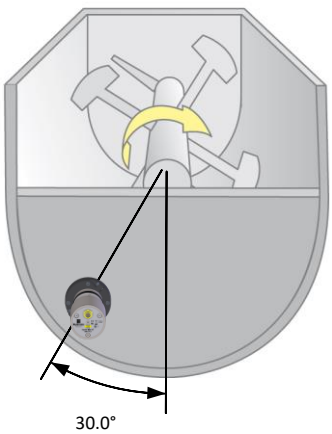

Figure 6: Single Shaft Organic Mixer Installation

5.3 Screw Conveyors

The screw conveyor must meet the following conditions:

- Maintain a stable material fill level, ensuring that the depth of material in front of the sensor's ceramic disc remains above 100 mm at all times (see Figure 7).
- Operate at a constant rotational speed to avoid fluctuations in material movement.
- Ensure the conveyor flight maintains a maximum clearance of 2 mm from the sensor's ceramic faceplate.
- Maintain uniform material feed to prevent surges and interruptions in flow.

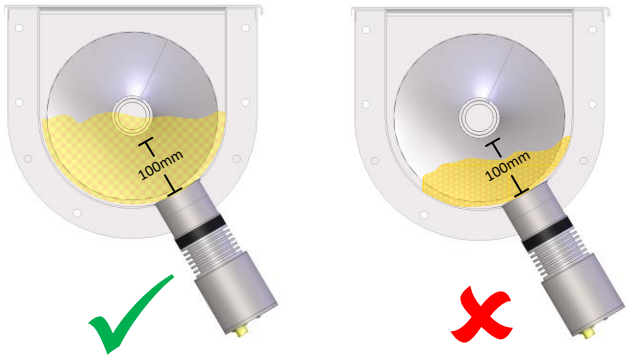

Figure 7: Screw Conveyor Material Level

Note: The minimum required material depth may vary and is material type dependent.

The minimum diameter of a screw conveyor suitable for sensor installation is 250mm.

The sensor must be mounted in the lower part of the screw, on the upward stroke (carrying side) of the screw flight rotation and positioned at an angle of approximately 30° from vertical (see Figure 8).

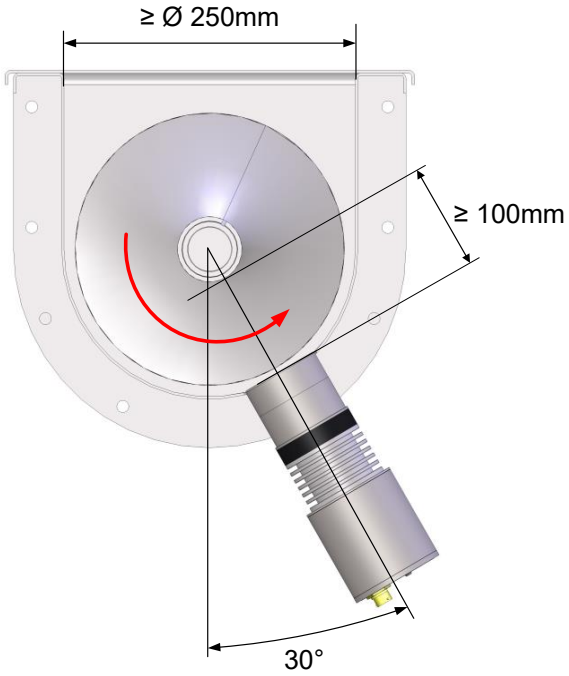

Figure 8: Screw Conveyor Mounting Angle

The sensor must be installed at least one flight away from the conveyor's inlet and outlet ports to minimise pulsing and ensure a consistent material flow over the ceramic disc (see Figure 9) resulting in a stable output signal.

Install a sampling port in a location indicated in Figure 9.

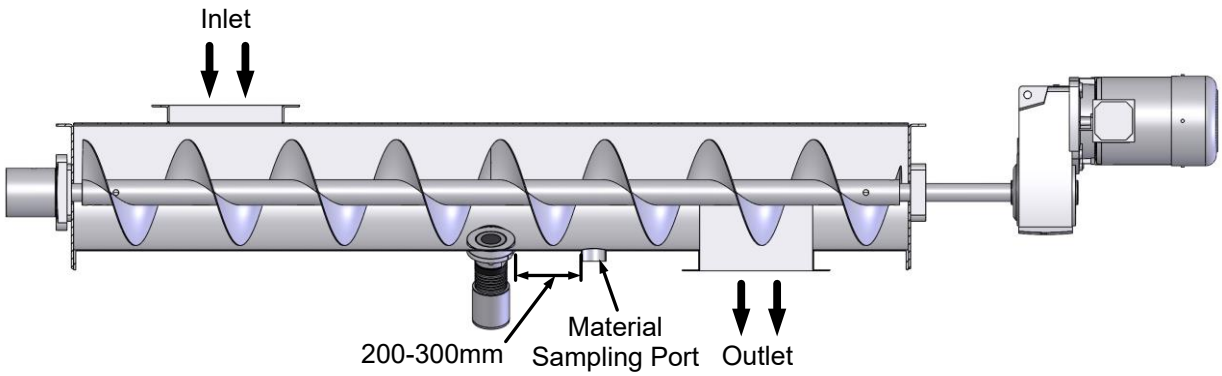

Figure 9: Screw Conveyor Installation

The conveyor’s flights must pass the sensor with a gap no larger than 2mm (see Figure 10) and must not contact the surface of the sensor, or else damage will occur. If a gap of 2mm cannot be maintained, flight edging is required (see Figure 11).

Figure 10: Sensor-to-Flight Gap

For powdery materials or applications where dust collects in the conveyor trough, installing flight edging is necessary.

Flight edging decreases the gap between the flight edge and the conveyor's trough. This reduces dust collection and helps keep the sensor's ceramic disc clear of dust and material build-up (see Figure 11).

Figure 11: Flight Edging on a Screw Conveyor

5.3.1 Shaftless conveyor

Maintain the positioning described in Section 5.3, but as close to the bearing end as this allows.

When installing a sensor in a shaftless conveyor (also referred to as a spiral or centreless conveyor), ensure that the sensor is positioned as close as possible to the conveyor's bearings to minimise the risk of the flight contacting the sensor if the shaft flexes during operation.

This is because the coreless auger is inherently less rigid than its conventional-shaft auger counterpart and is prone to contact with the conveyor's trough.

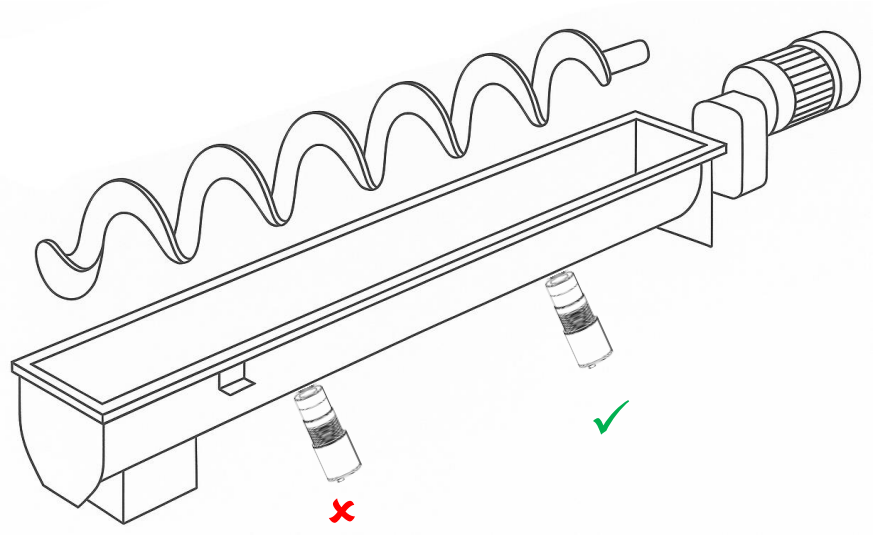

Figure 12: Shaftless Conveyor

Shaftless screw conveyors may be fitted with an internal lining over which the spiral rotates. Sensor installation may or may not be possible. Inspection is required to determine whether a location exists along the length of the spiral where a gap of approximately 2 mm between the spiral and the trough lining is present or can be created.

5.3.2 Mass Flow Screw Conveyor (Live Bottom)

When installing a sensor in a mass flow conveyor (characterised by a tapered shaft design), ensure that the shaft surface remains at least 100 mm from the sensor's ceramic disc (see Figure 8).

Mass flow conveyors typically feature a conical shaft section in the infeed area (see Figure 13). The increased shaft diameter may interfere with the sensor's readings and cause measurement errors.

The sensor must be positioned in the section of the screw where the shaft diameter is smallest and the flight pitch is constant.

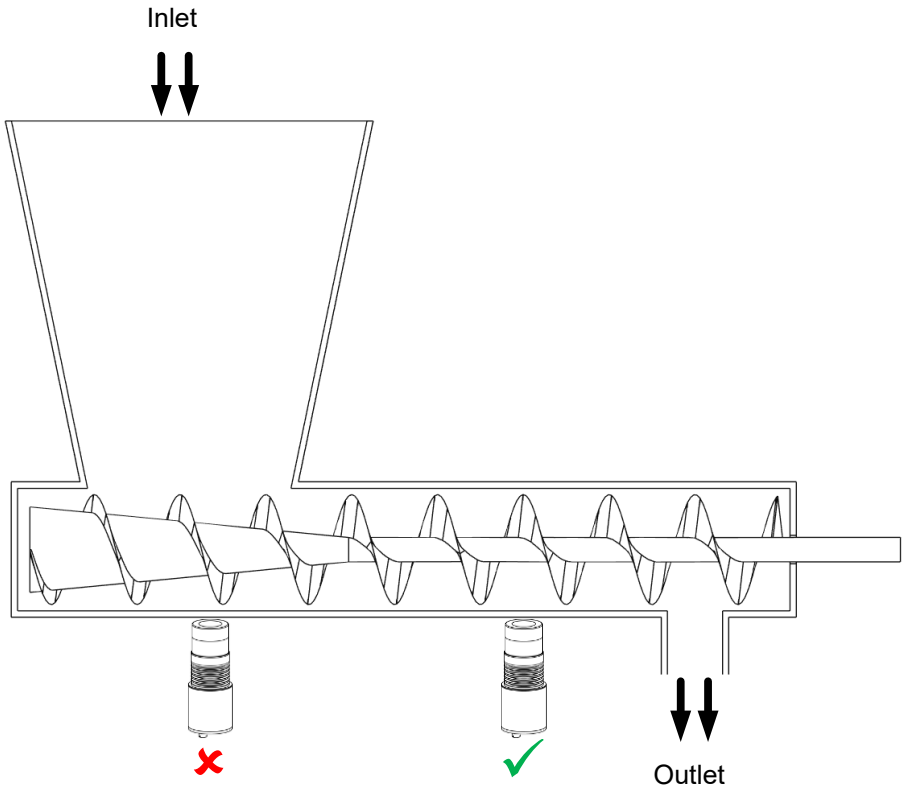

Figure 13: Mass Flow Conveyor

5.4 Integration in Ducting

The Hydro-Mix HT can be integrated into ducting. Modifications to the ducting might be required to achieve consistent results.

Hydronix recommends the use of the Hydronix Ducting System (DSVHT or DSAHT) when installing the Hydro-Mix HT into ducting (Figure 14). The systems are designed for use in vertical (DSVHT) or angled ducting (DSAHT).

Contact Hydronix for further details about the available ducting systems.

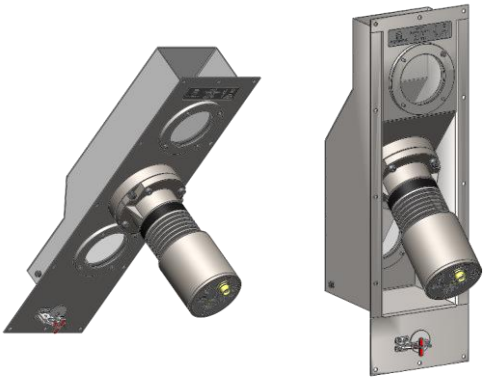

Figure 14: Ducting Systems (DSAHT and DSVHT)

5.5 Chain Conveyor

5.5.1 General Installation Requirements

A stable material flow over the sensor's ceramic disc is essential. The following conditions must be maintained to ensure this:

- The conveyor must operate at a constant speed.
- The sensor must be continuously covered by approximately 100mm of moving material.
- The material must be fed evenly into the chain conveyor.
- The conveyor paddles must have a maximum clearance of 2 mm from the conveyor floor.
- The base of the chain conveyor must be kept free of material build-up, including dust or residue.

Note: The minimum required material depth may vary and is material type dependent.

Important: Any accumulation of static material over the sensor's ceramic disc will degrade measurement accuracy.

The sensor must be installed at least one paddle pitch distance away from the inlet and discharge ports to minimise pulsing and ensure a uniform material flow over the ceramic disc.

Install a sampling port in a location indicated in Figure 15 and Figure 16.

Installing an inspection window near the sensor location is recommended. A properly positioned window enables the following checks without disassembling the equipment:

- Material depth above the sensor during operation
- Cleanliness of the ceramic faceplate when the conveyor is idle

5.5.2 Single-chain conveyor

In single-chain conveyor installations, the sensor must be mounted to the side of the conveyor floor. A minimum clear space (width) of 90 mm, free of chain links, is required to install the sensor (see Figure 15). This ensures that the drag chain does not pass directly over the ceramic disc, interfering with measurement and damaging the sensor.

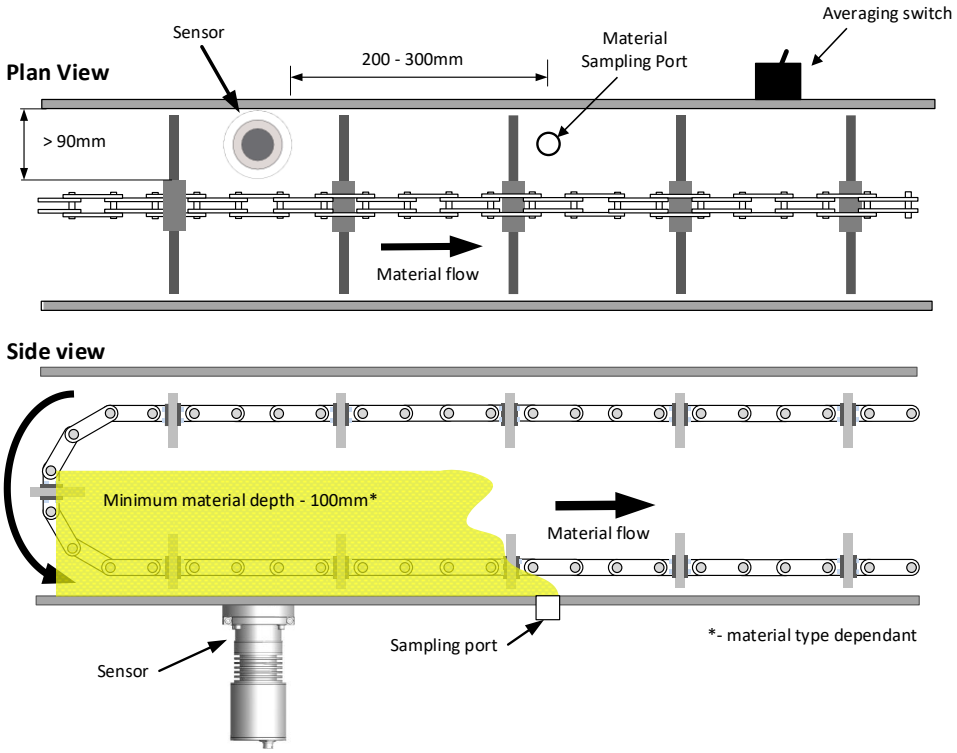

Figure 15: Single-Chain Conveyor Installation

5.5.3 Twin-Chain Conveyor

In twin-chain conveyor installations, the sensor must be mounted in the centre of the conveyor floor. A minimum clear space (width) of 90 mm, free of chain links, is required to install the sensor (see Figure 16). This ensures that the drag chains do not pass directly over the ceramic disc, interfering with measurement and damaging the sensor.

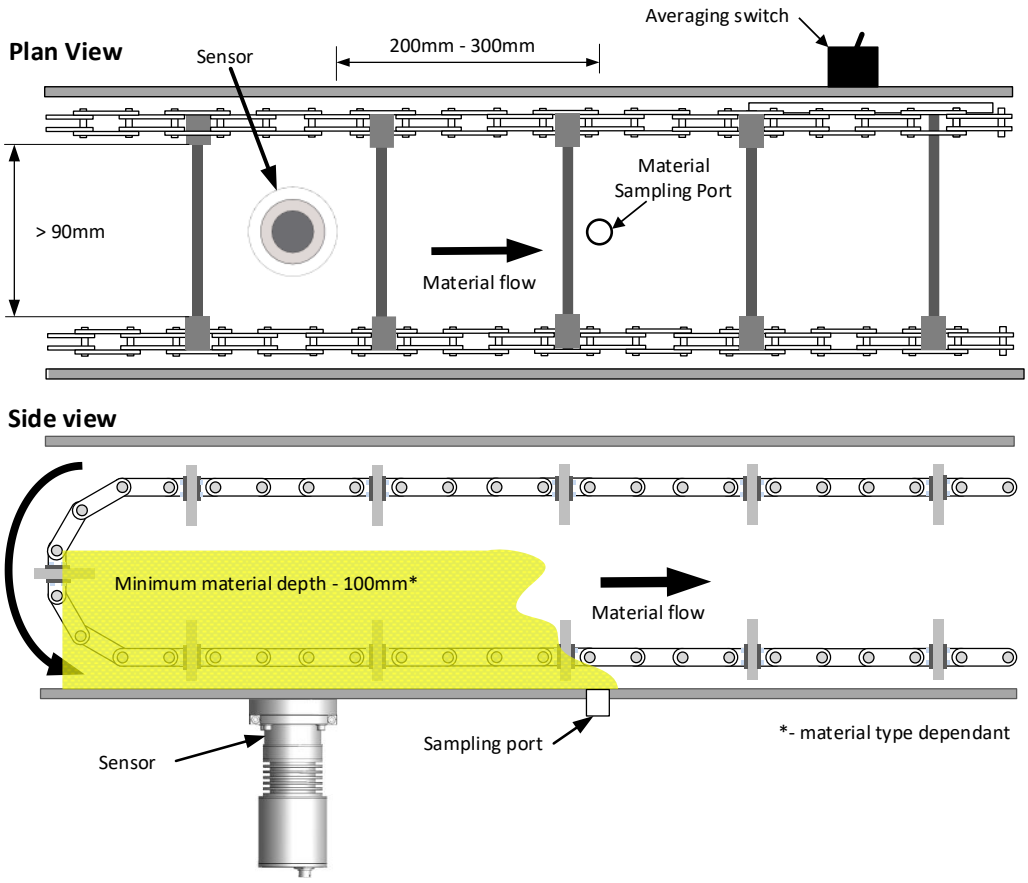

Figure 16: Twin-Chain Conveyor Installation

5.5.4 Inclined Chain Conveyor

Install on the horizontal section of the conveyor floor. If no other option is available, the inclined section, excluding the bend, could possibly be used, but suitability will be limited by the angle of the conveyor and the type of material being conveyed. Contact Hydronix support for advice.

Curved sections of the conveyor may have material build-up, including slow-moving or static layers. This would significantly impair sensor accuracy.

Do not mount in a curved section of the conveyor.

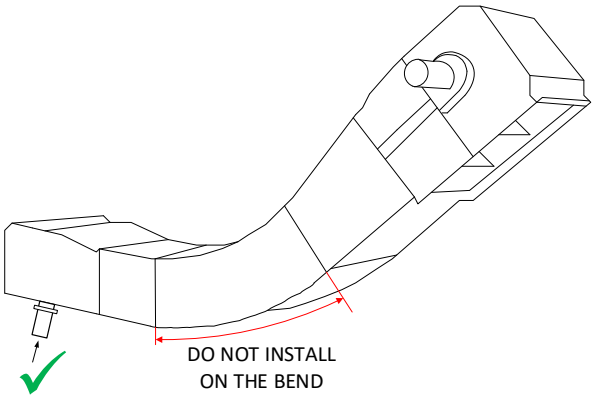

Figure 17: Inclined Chain Conveyor

6 Installing the Sensor

These instructions refer to installing the Hydro-Mix HT on a flat surface; all other installation locations use the same mounting arrangement.

Each sensor is supplied with a Clamp Ring. When attached this allows the sensor to be connected to the Fixing Plate which is welded externally or flush to the inside surface of the installation location

The Clamp Ring facilitates the correct positioning and subsequent height adjustment of the sensor.

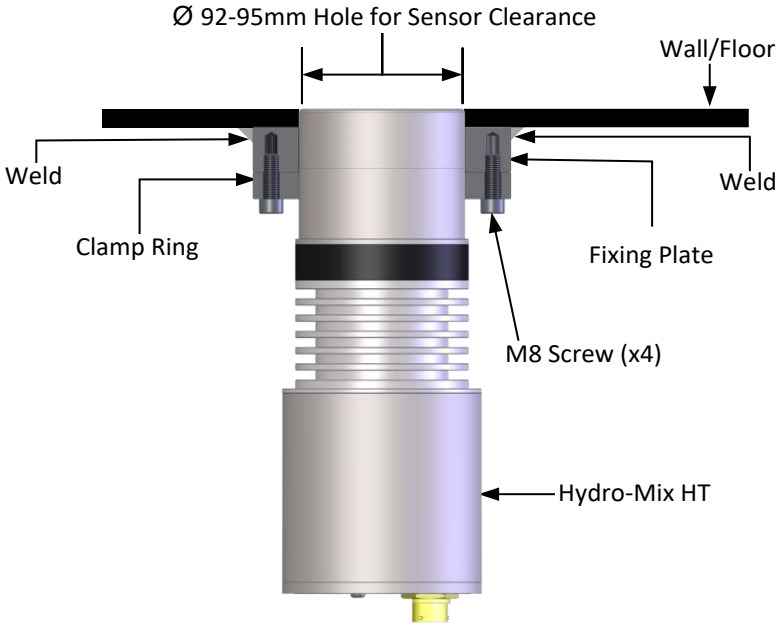

Figure 18: Sensor Installation (Fixing Plate Externally mounted)

When installing the Fixing Plate flush with the internal wall (Figure 19) the supplied Spacer Plates can be used to ensure the sensor is correctly aligned.

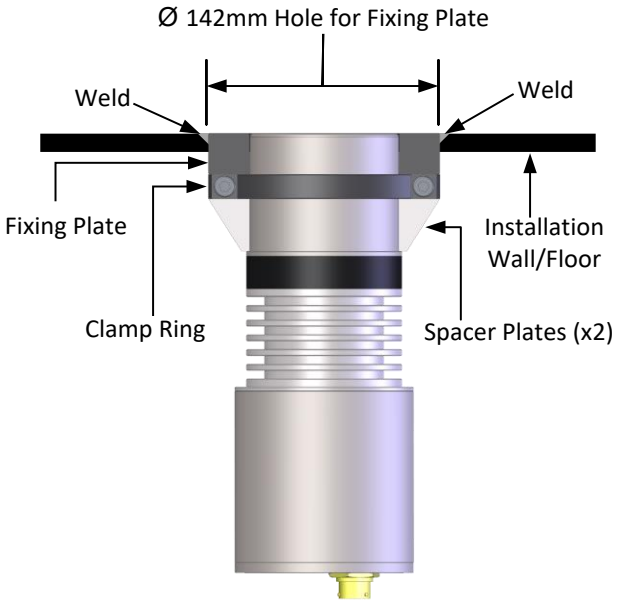

Figure 19: Sensor Installation (Fixing Plate Flush mounted)

6.1 Cutting the Hole for the Sensor and Installing the Fixing Plate

6.1.1 Externally Mounting the Fixing Plate

Before welding the Fixing Plate to the installation location a 92-95mm diameter hole should be cut through the external wall and any internal wear plates.

Although the outside diameter of the sensor is 90mm it is recommended to cut a hole of 92-95mm diameter to allow for tolerances.

The Fixing Plate is then welded in position over the hole. Ensure that the Fixing Plate is perpendicular to the internal wall.

During any welding operations the sensor must be removed.

6.1.2 Internally Mounting the Fixing Plate

To enable the Fixing Plate to be installed flush with the internal wall of the installation location it is necessary to cut a 142mm hole through the external wall and any internal wear plates. The supplied Spacer Plates can be used to ensure that the sensor is installed flush with the internal wall.

Depending on the installation requirements, the Fixing Plate can be welded either from the inside or the outside. Ensure that the Fixing Plate is flush with the internal wall.

6.2 Fitting the Clamp Ring to the Sensor (without Spacer Plates)

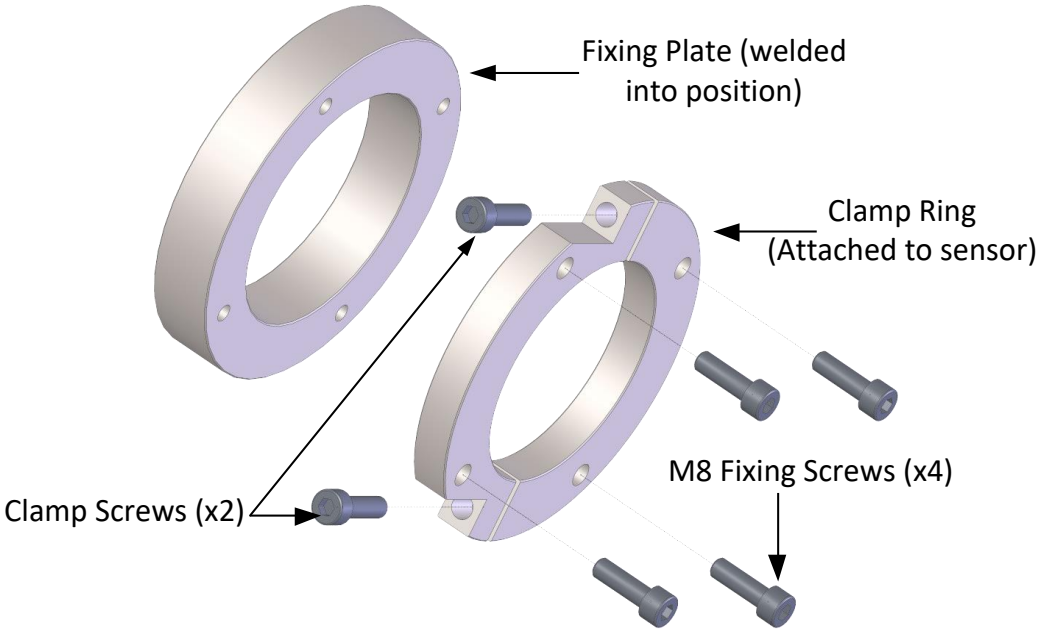

Figure 20: Hydro-Mix HT Mounting Components

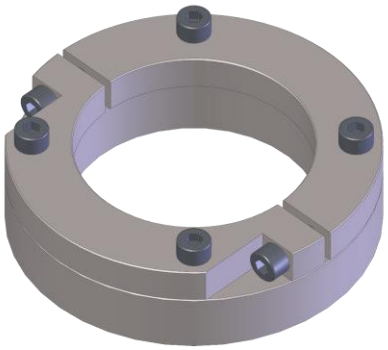

Figure 21: Clamp Ring Assembled and Connected to the Fixing Plate

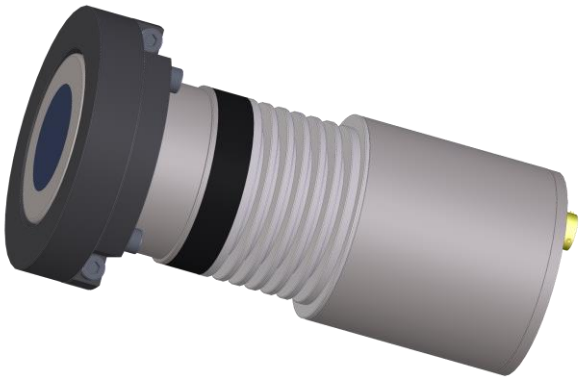

Figure 22: Hydro-Mix HT Attached to Clamp Ring and Fixing Plate

6.3 Fitting the Clamp Ring using the Spacer Plates

If the Fixing Plate has been installed flush with the internal wall the Spacer Plates can be added to the Clamp Ring to assist with the installation (Figure 23). The Spacer Plates will guarantee that the ceramic face plate is installed flush with the Fixing Plate.

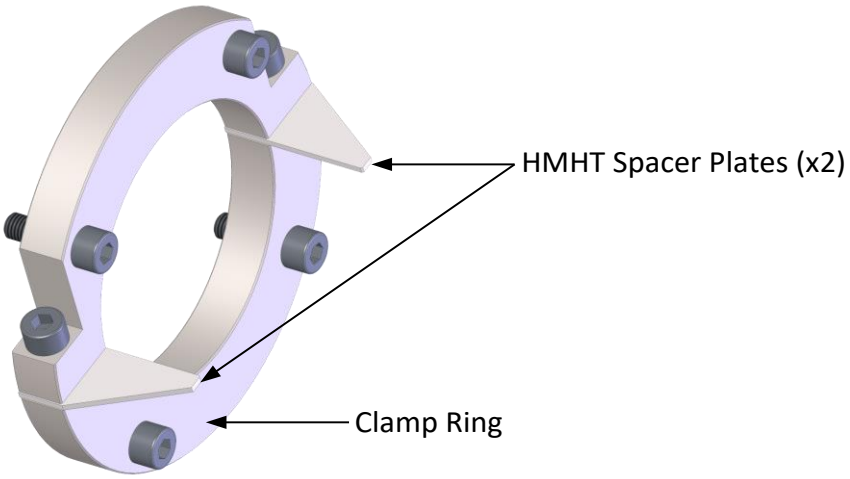

Figure 23: HMHT Spacer Plates

Figure 24: Clamp Ring with Spacer Plates attached to the Sensor

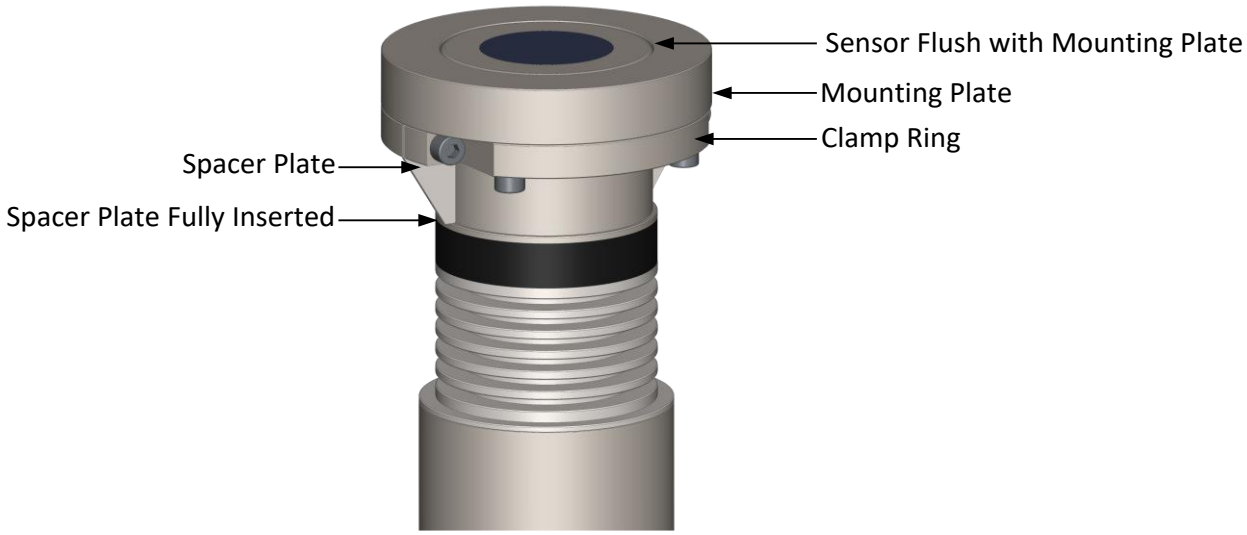

Figure 25: Final Assembly with Fixing Plate Attached

6.4 Mounting the Sensor

NEVER HIT THE CERAMIC DISC

THE CERAMIC IS VERY HARDWEARING BUT IS BRITTLE AND WILL CRACK IF STRUCK

When installing the Hydro-Mix HT it is imperative that the Ceramic Face Plate is flush with the internal surface. The sensor can be adjusted by up to 32mm by adjusting the position of the Clamp Ring (Figure 26)

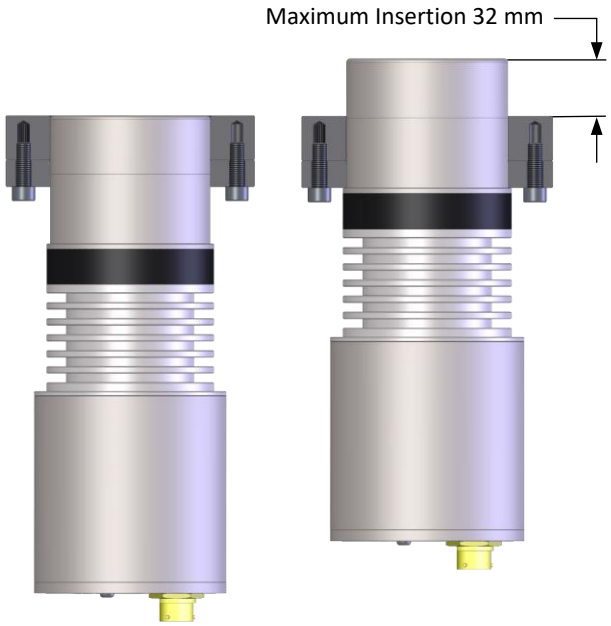

Figure 26: Minimum and Maximum Insertion

6.5 Installing the Sensor on to the Fixing Plate

6.5.1 Externally Mounted Fixing Plate

1. Once the Fixing Plate has been welded into position over the appropriately sized hole, the distance from the external face of the Fixing Plate to the internal wall (x) should be measured (Figure 27).

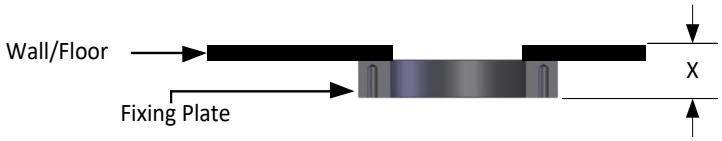

Figure 27: Measuring the Insertion Depth

2. Attach the Clamp Ring to the Hydro-Mix HT
3. Adjust the position of the Clamp Ring to match the required insertion depth (Figure 28)

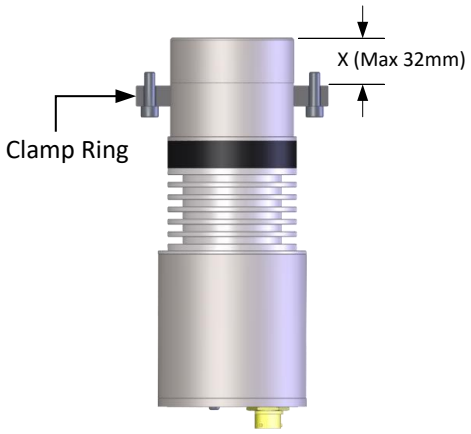

Figure 28: Positioning the Clamp Ring

4. Insert the sensor through the Fixing Plate and attach using the 4 screws.
5. Confirm that the sensor is flush with the internal wall. Adjust the Clamp Ring position if the sensor is not flush.

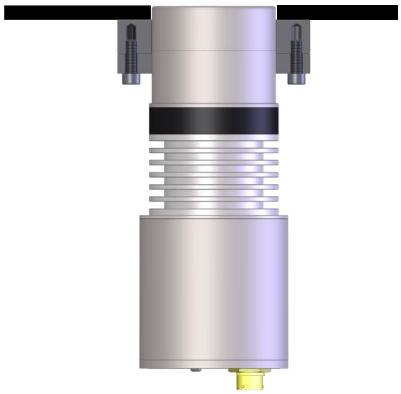

Figure 29: Sensor Final Position

6.5.2 Flush Mounted Fixing Plate

1. When the Fixing Plate has been welded into position ensure that it is flush with the internal surface (Figure 30).

Figure 30: Flush Mounted Fixing Plate

2. Attach the Clamp Ring with the Spacer Plates installed to the Hydro-Mix HT
3. Ensure the Spacer Plates are touching the ridge on the sensor (Figure 31). Tighten the Clamp Ring Screws to lock the Clamp Ring into place

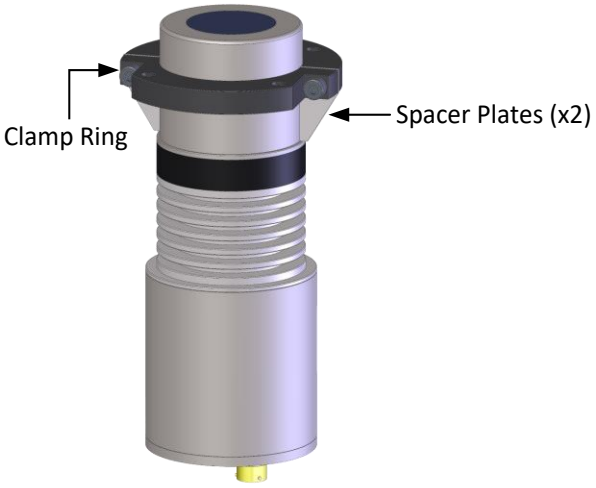

Figure 31: Clamp Ring (Flush Mount)

4. Insert the sensor into the Fixing Plate and attach using the 4 M8 Fixing screws.
5. Confirm that the sensor is flush with the internal wall of the installation location (Figure 32).

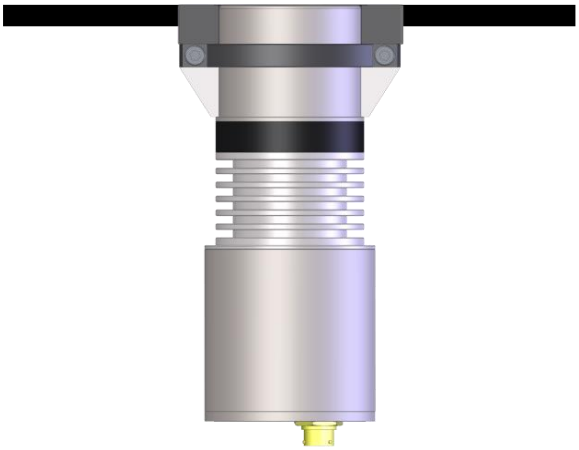

Figure 32: Flush Mounted Sensor

6.6 Removal of the Sensor

Clean out compacted material or sealant from around the sensor.

Remove the 4 Fixing Plate screws and extract the sensor.

Warning: Do not hit the Ceramic Disc to remove the sensor.

The maximum temperature ranges stated in this installation guide are only valid if the Hydro-Mix HT is installed using the supplied mounting system (Fixing Plate and Clamp Ring).

1 Process Temperature Range

The Hydro-Mix HT has been designed to operate in applications where the process temperature is between 0-120°C. The sensor will operate at intermittent temperatures of up to 130°C to enable cleaning to take place (maximum 10 minutes).

The Hydro-Mix HT has been designed with additional cooling fins to enable heat to dissipate quickly. The cooling fins must not be covered and must remain clean at all times to enable effective cooling.

Additional cooling may be required if the sensors electronics exceed 70°C.

2 Ambient Temperature Range

The ambient temperature around the sensors body will affect the overall maximum process temperature the sensor can operate in. The maximum ambient temperature for the Hydro-Mix HT is 60°C. However, the upper ambient temperature limit is reduced as the process temperature increases. The following temperature profile graph indicates the maximum process temperatures for a given ambient temperature (Figure 33)

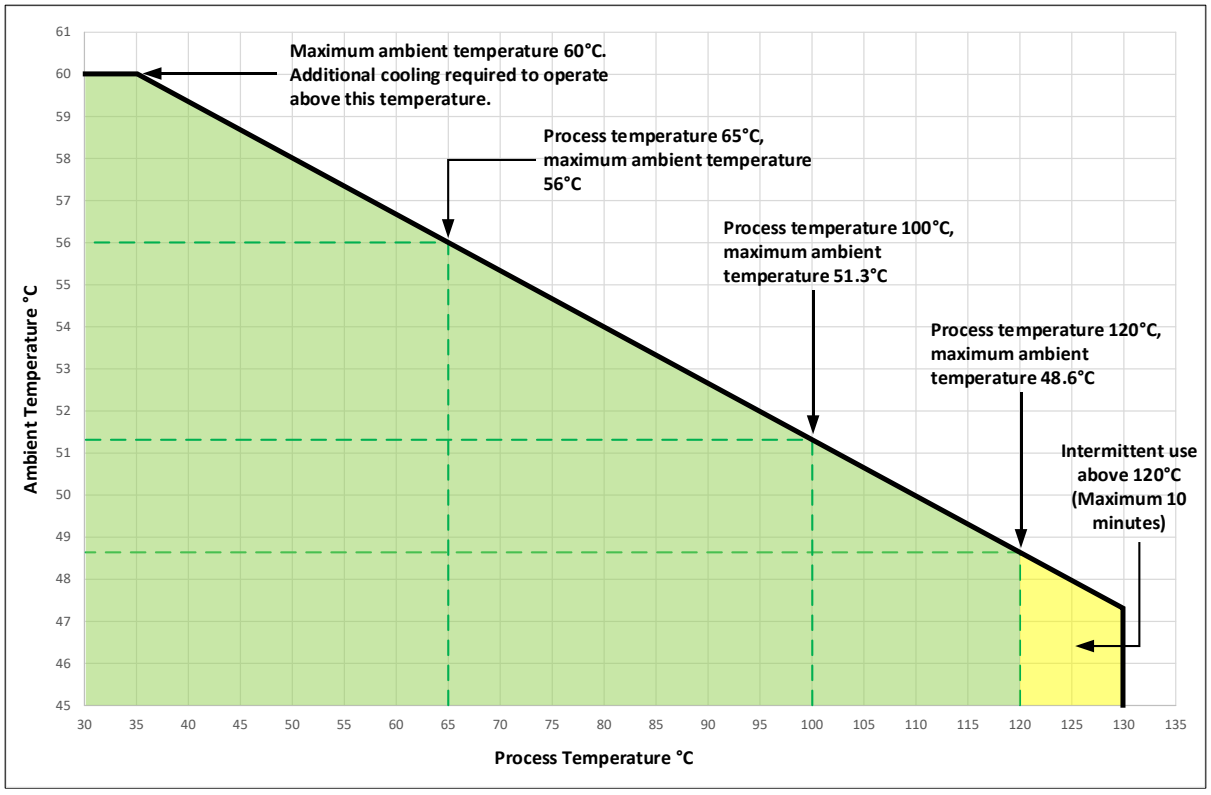

Figure 33: Temperature Profile

3 Additional Cooling

If the temperature of the sensor electronics exceeds 70°C then additional cooling will be required. Cooling can be achieved by installing a forced air supply. The air should be directed over the cooling fins and the sensor body.

A water cooling system can also be installed using a suitable water pipe coiled around the sensor body (Figure 34).

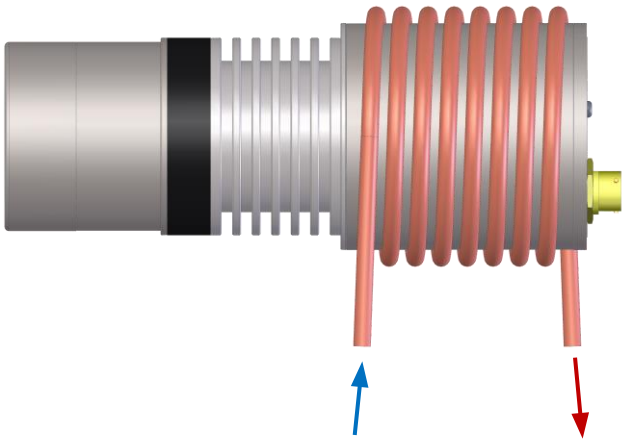

Figure 34: Water Cooling

1 Corrosion Protection

In situations where corrosive materials are in use, there is potential for the cable connector to be damaged. Protection from this corrosion is possible with a few simple adjustments to how the sensor is installed.

1.1 Sensor Position

Position the sensor so no material comes into contact with the connector.

The sensor must remain in the main flow of the material at all times to produce accurate measurements of the moisture.

1.2 Drip Loop

Although the connector is specified to withstand water ingress it is recommended to install the sensor with a drip loop in the cable. See (Figure 35).

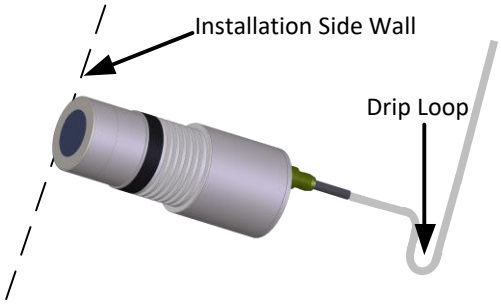

Figure 35: Hydro-Mix HT Installed with a Drip Loop

1.3 Protection Cover

Install a cover over the top of the sensor to deflect the material away from the connector. (See Figure 36). Self-amalgamating tape can also be used to seal the connector

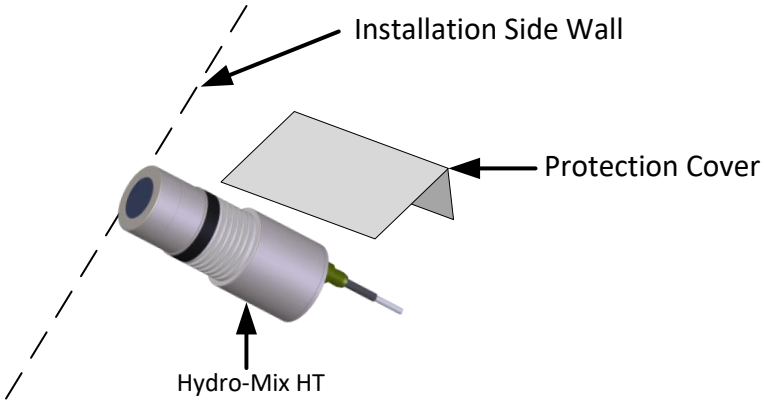

Figure 36: Hydro-Mix HT with Protection Cover Installed

2 Maintenance

- The unit contains no user-serviceable parts and cannot be opened, modified, or field repaired. If damaged, or in the case of a fault, the unit must be returned for repair.
- Periodic inspection of the sensor shall be carried out to ensure it is not damaged or showing excessive wear. If discovered, stop using the sensor immediately and arrange a return for repair.
- Do not disconnect any sensor wiring when energised.
- Periodically inspect the sensor's ceramic face for encrusted, hardened, dry material. If found, the ceramic face must be cleaned with water. No cleaning chemicals are required.

1 Technical Specifications

1.1 Dimensions & Weight

Diameter:	90mm (3.5”) (Sensing Head)
Length:	285mm (11.2”) (Including Mil Spec Connector)
Fixing:	92-95 (3.6-3.7”) mm Diameter Hole for sensor or 142mm Diameter hole for Fixing Plate
Mass:	7.0kg

1.2 Construction

Body:	316 Stainless Steel
Faceplate:	Ceramic
O Rings:	EPDM (Non Serviceable)

1.3 Operating Temperatures

Operation Temperature Range - ambient (out-of-process):		0°C to +60°C (32°F to 140°F)
Moisture Detection Temperature Range (in-process)	Continuous:	0°C to +120°C (32°F to 248°F)
	Intermittent:	0°C to +130°C (32°F to 266°F)
Storage Temperature Range:		-20°C to +75°C (-4°F to 167°F)

1.4 Operating environment

Humidity Range:	0-90%RH Non-Condensing
Rated Altitude:	2000 Metres
Overvoltage Category:	Category 1

1.5 Measurement Field and Frequency Range

Material Penetration:	75 -100mm, dependent upon material
Operating Frequency:	760 – 870MHz

1.6 Range of Moisture

For bulk materials, the sensor will measure up to the point of saturation.

1.7 Electrical Ratings

Nominal Power Consumption:	4 W
Supply Voltage Range:	15 to 30 VDC
Power-On Current:	≤1ADC

1.7.1 Digital Inputs

- One configurable digital input: 15 - 30 VDC
- One configurable digital input/output:
  - input specification 15 - 30 VDC
  - output specification: open collector output, maximum current 500mA (over current protection required)

1.7.2 Analogue Output

Two configurable 0-20mA or 4-20mA current loop outputs (sink) available for moisture and temperature. The sensor outputs may also be converted to 0-10 VDC

1.8 Operating Pressure

1 bar Vacuum to 5 bar pressure (using 4100 HMHT-EX Fixing Plate with O-ring).

1.9 Digital (Serial) Communications

Opto-isolated RS485 2 wire port – for serial communications including changing operating parameters and sensor diagnostics.

1.10 Connections

Connector on Sensor: MIL-DTL-26482 Circular 10-Pin Male Socket

1.10.1 Sensor Cable

- Six pairs twisted (12 cores total) screened (shielded) cable with 22 AWG, 0.35mm^2 conductors.
- Screen (shield): Braid with 65% minimum coverage plus aluminium/polyester foil.
- Recommended cable types: Belden 8306, Alpha 6373
- 500 Ohm resistor – The recommended resistor is an epoxy sealed precision resistor of the following specification: 500 Ohm, 0.1% 0.33W)
- Maximum cable run: 100m, separate to any heavy equipment power cables.

1.10.2 Grounding

The sensor body is connected to the cable shield. Ensure equipotential bonding of all exposed metalwork. In areas of high lightning risk, correct and adequate protection should be used.

The sensor cable shield is connected to the sensor body. To prevent earth loops the shield must not be connected at the control panel.

1.11 Measurement Modes

Mode F, Mode V and Mode E

1.12 Brix Measurement Output

No

1 Document Cross Reference

This section lists all of the other documents that are referred to in this User Guide. You may find it beneficial to have a copy available when reading to this guide.

Document Number	Title
HD0678	Hydronix Moisture Sensor Electrical Installation Guide
HD0679	Hydronix Moisture Sensor Configuration and Calibration Guide

1 Risk Assessment

Information in this section aims to assist with risk analysis.

Severity Group	People	Equipment / Facility	Environment
Catastrophic	Once or more fatalities	System or facility loss	No catastrophic environmental impact
Severe	Disabling injury/illness	Major subsystem loss of facility damage	N/A
Moderate	Medical treatment or restricted work activity.	Minor subsystem loss of facility damage	N/A
Minor	First aid only	Non-serious equipment or facility damage	N/A

Table 1: Severity of Harm

Likelihood	Expected rate of occurrence
Frequent	More than five times a year.
Likely	More than once per year, but not more than five times a year.
Possible	More than once in five years, but not more than one a year.
Rare	More than once in ten years, but no more than one in five years.
Unlikely	No more than once in ten years.

Table 2: Probability of Harm

Risk assessment / Risk category			
Risk	**Probability of Harm**	**Severity**	**Remark**
Electric shock	Unlikely	Minor	Sensor is supplied with 24VDC will not cause harm.
Ceramic shattering, flying shards	Unlikely	Minor	Sensor should be installed behind safety gate and in location where people are not present during operation.

Table 3: Risk Category

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