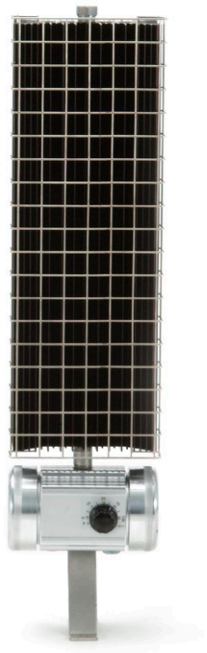
Norseman™
Electric Explosion-Proof Heaters

Explosion-proof Convection Panel Heater

XB Series

Installation, Operation, & Maintenance Instructions



Special Notes

The following special notices highlight important information in the installation and maintenance sections. Each serves a special purpose and is displayed in the format shown:

CAUTION — This symbol indicates a potentially hazardous situation, which, if not avoided, can result in personal injury or damage to the equipment.

CAUTION — This symbol indicates a potentially hazardous situation, which, if not avoided, may be a shock hazard.

WARNING — This symbol indicates an imminently hazardous situation, which, if not avoided, could result in death or serious injury.

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A. PRODUCT CERTIFICATION

Depending on the particular model ordered, the heater is suitable for the following areas:

- CSA C/US certified for Class I, Div. 1 and 2, Groups A, B, C, and D; Class II, Div. 1 and 2, Groups E, F, and G; Class III, Div. 1 and 2; Temperature Code T2D, T3B, T4A or T6. CSA type 4, Class I, Zone 1 and 2, Groups IIA, IIB and IIC.

NOTE: Heaters marked with temperature code T2B are not suitable for Class II and Class III applications.

  – Operating ambient temperature:

    Standard XB Models: -50°C to 40°C

    High Ambient XB Models: -50°C to 70°C

- ATEX Ⓔx II 2 G Exd IIC T3 or T4

B. PRE-INSTALLATION

1. Initially, inspect the heater for possible damage due to shipping and handling. Claims for shipping damages shall be placed with the carrier.
2. Check the heater nameplate to ensure that the heater area classification and temperature code are suitable for the hazardous area classification. For details of hazardous locations with potential for explosion, refer to the Canadian Electrical Code or National Electrical Code.
3. Check to ensure that the heater voltage is the same as the supply voltage
4. The heater must be installed by qualified personnel in strict compliance with national and local electrical codes.

WARNING. Do not connect the heater to an electrical supply voltage other than that shown on the product nameplate.

C. INSTALLATION

C.1 General Requirements

1. Norseman™ XB heaters are approved for wall or floor mounting with the terminal housing at the bottom. Ensure that is the wall sufficiently strong to support the heater which, depending on the model, could weigh up to 100 lbs (45 kg). Otherwise use the brackets supplied to stand the heater on the floor.
2. Do not recess the Norseman™ XB heater into the wall. Use of the brackets supplied will ensure that the minimum spacing from the wall of 3.75" (95 mm) is maintained.
3. If more than one heater is being installed, maintain at least 3" (76 mm) between adjacent heater extrusions. NEVER INSTALL ONE HEATER ABOVE THE OTHER.
4. The Norseman™ XB heater relies on natural convection and “black heat” radiation to transfer heat to the surroundings. Try to maintain a 12" (300 mm) clearance and NEVER LESS THAN 6" (150 mm) clearance in front of and at the sides of the heater.
5. Use guard rails in front of the heater if there is a possibility that moving equipment could come in contact with the heater

C.2 Reflector Baffles

1. REFLECTOR BAFFLES (T2D units only). Refer to Figure 1, page 4 when installing reflector baffles.

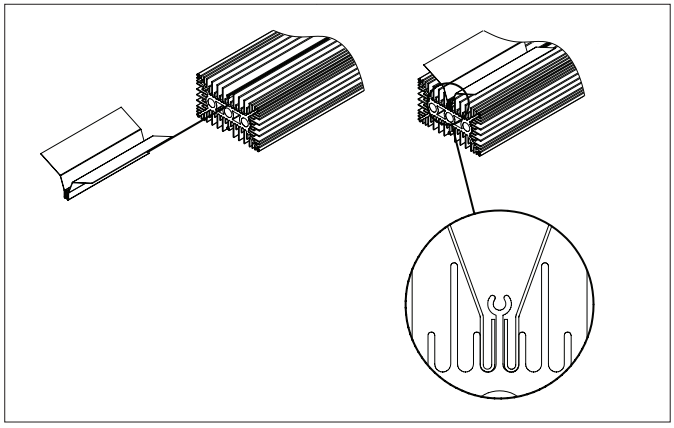

Figure 1 – Reflector Baffles Installation

Table 1 – Reflector Baffle Pairs per Heat Sink

Heat Sink Extrusion Length		# of Pairs	Size	
in	mm		in	mm
5.1	130	0	-	-
11.8	300	1	8	203
18.5	470	2	8	203
25.2	640	1	24	610

NOTE: Baffles are only required for units with a T2D temperature code rating.

2. Position heater front face down on a flat surface.
3. With the fold in the baffle positioned between the keyhole fin and the adjacent short fin, slide reflector baffles onto the back of heat sink.
4. Ensure reflector baffles are secure in place and flush with the top of the heat sink. If reflector baffles move freely, open the fold with a screw driver to improve the friction and reinstall baffles.

CAUTION

CAUTION. The heater’s surface is hot when the heater is energized. Keep all combustibles away from the heater and maintain the recommended installation clearances.

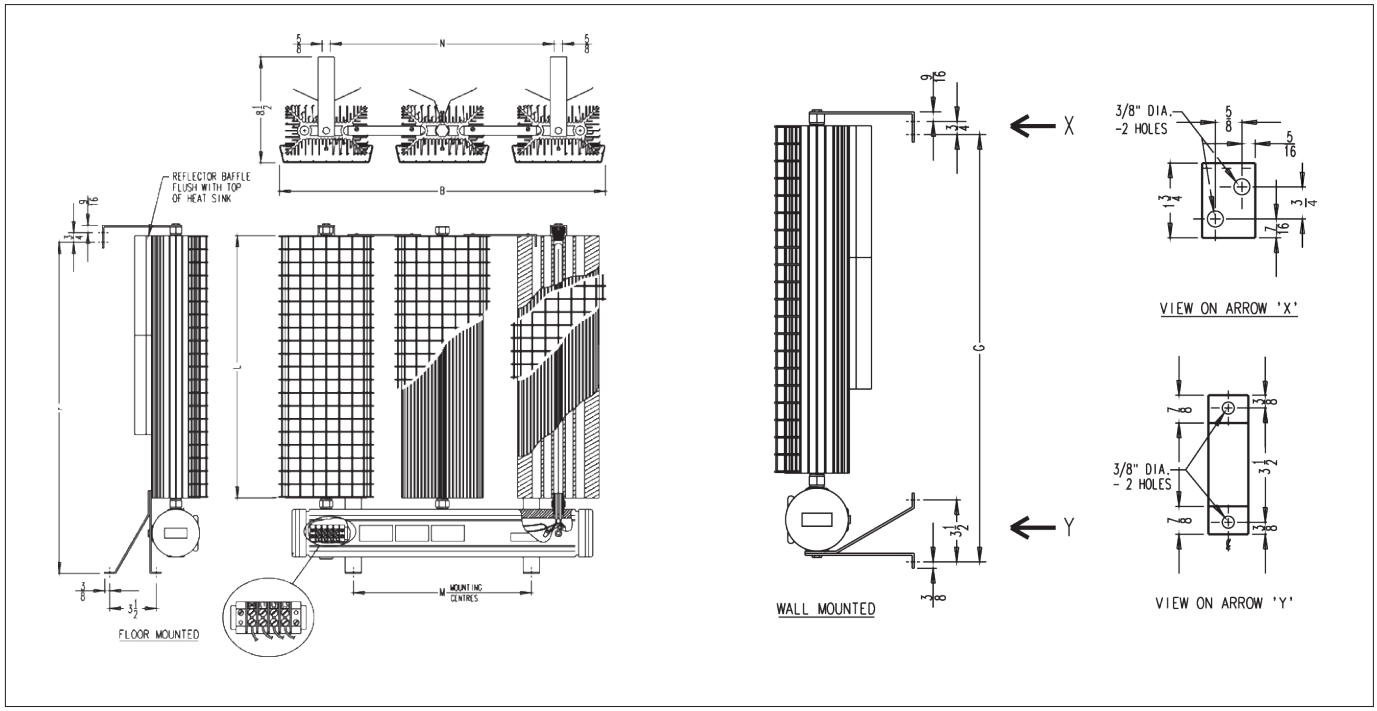

Figure 2 – Dimensions and mounting details

Table 2 – Heater Dimensions

Unit	B	F	G	H	N	L
	in (mm)	in (mm)	in (mm)	in (mm)	in (mm)	in (mm)
XB1	7.250 (184)	10.250 (260)	9.625 (244)	-	-	5.125 (130)
		17.000 (432)	16.375 (416)			11.875 (300)
		23.625 (600)	23.000 (584)			18.500 (471)
		30.375 (772)	29.750 (756)			25.250 (640)
XB2	16.125 (410)	10.250 (260)	9.625 (244)	7.125 (181)	8.250 (210)	5.125 (130)
		17.000 (432)	16.375 (416)			11.875 (300)
		23.625 (600)	23.000 (584)			18.500 (471)
		30.375 (772)	29.750 (756)			15.250 (640)
XB3	25.000 (635)	10.250 (260)	9.625 (244)	13.750 (349)	17.125 (435)	5.125 (130)
		17.000 (432)	16.375 (416)			11.875 (300)
		23.625 (600)	23.000 (584)			18.500 (471)
		30.375 (772)	29.750 (756)			15.250 (640)
XB4	33.875 (860)	10.250 (260)	9.625 (244)	22.625 (575)	26.000 (664)	5.125 (130)
		17.000 (432)	16.375 (416)			11.875 (300)
		23.625 (600)	23.000 (584)			18.500 (471)
		30.375 (772)	29.750 (756)			15.250 (640)

C.3 Wall Mounting

Install heater with the supplied hardware in accordance with the figures and instructions below.

Step 1: Secure wall and stabilizing brackets to mounting surface (Figure 3).

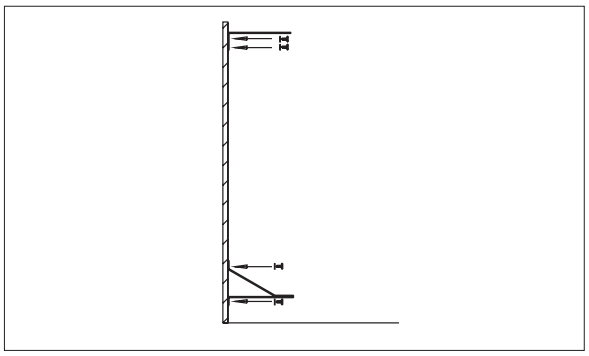

Figure 3 – Install mounting bracket

Step 2: Position heater face down on floor with terminal box towards mounting brackets. (Ensure that baffles are installed [see Section C.2, page 4]). Angle heater such that the terminal box rests on bottom of wall bracket. Lift top of heater and align with top stabilizing brackets.

Secure with supplied 1/4"-20 hex bolts and lock washers (Figure 4).

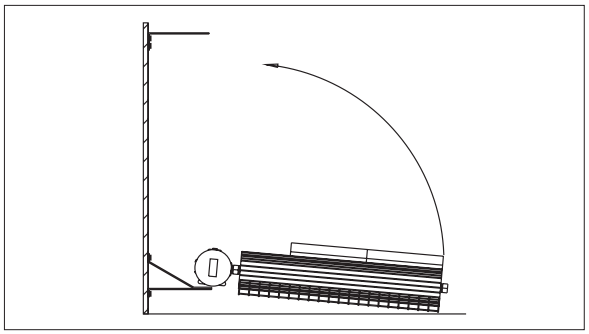

Figure 4 – Wall mounting diagram

Step 3: Secure bottom of heater to wall mounting brackets with supplied 1/4"-20 hex bolts and lock washers (Figure 5).

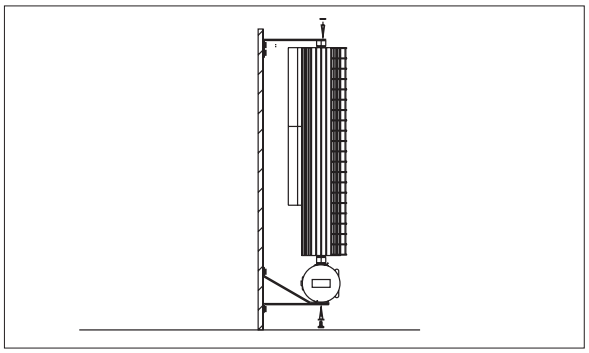

Figure 5 – Attach heater to mounting brackets

WARNING. Improper orientation of the heater could affect the safe and reliable operation of the heater.

C.4 Floor Mounting

Step 1: Position heater face down on the floor with terminal box towards the wall (Figure 6).

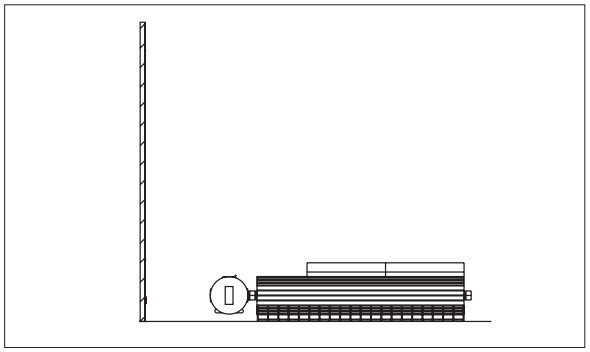

Figure 6 – Floor mounting diagram

Step 2: Fasten top stabilizing bracket(s) and floor mounting bracket(s) to the unit. Floor mounting brackets may be mounted in one of three orientations (Figure 7).

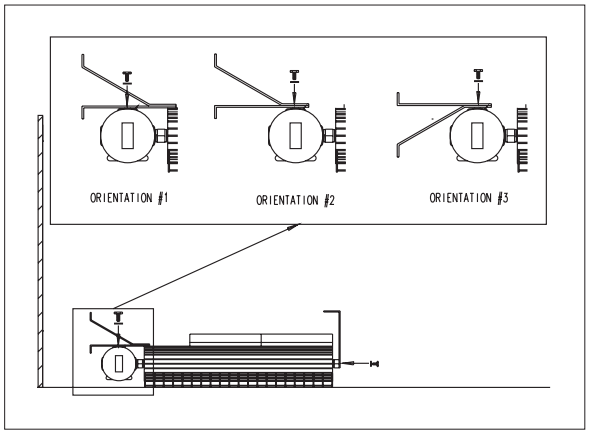

Figure 7 – Install mounting bracket to heater

Step 3: Lift top of unit and position heater vertically against the wall. Secure stabilizing and floor mounting brackets to the mounting surfaces (Figure 8).

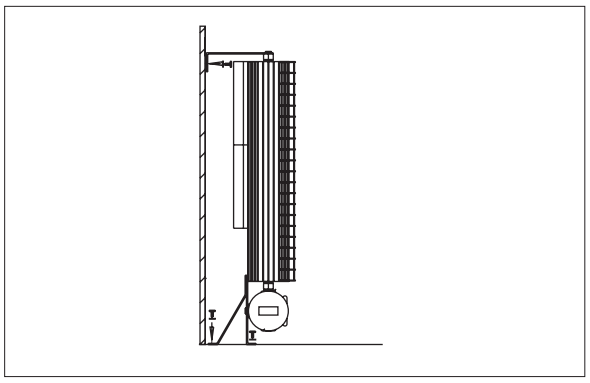

Figure 8 – Attach heater to floor and wall

WARNING. Never install one heater above the other.

To ensure safe operation, heater must be installed, as shown in Figure 5 and Figure 8. Installation with fins in the incorrect orientation may result in an unsafe condition (refer to Table 1, page 4).

D. THERMOSTAT INSTALLATION

1. **Factory Installed -** For shipping purposes the thermostat well (located at back of unit) has not been installed.

   Position thermostat bulb perpendicular to housing being careful not to kink the capillary. Slide well over bulb and screw into place. Make sure that a minimum 5 threads engagement is achieved.

2. **Field Installed Kit -** Most Norseman™ XB units are suitable for field installation of a thermostat kit with the operator shaft hole on the front side of the unit and plugged with a socket head cap screw. If a thermostat is to be field installed, check to verify that you have been supplied with the correct thermostat kit. Single phase heaters use a single pole thermostat as supplied in kit number XTKW04481. Three phase heaters use a double pole thermostat as supplied in kit number XTKW04483. Follow the instructions supplied with the kit.

NOTE: For high ambient heaters - Single phase heaters use a single pole thermostat as supplied in kit number XTKW07481. Three phase heaters use a double pole thermostat as supplied in kit number XTKW07483.

E. WIRING

1. Whenever hazardous materials are present, ensure that the terminal housing covers are secure before powering the heater.
2. Use supply wires suitable for 221°F (105°C) or 302°F (150°C) for high ambient XB models.
3. Use approved conduit and conduit seals as required by the code for hazardous locations.
4. To provide maximum protection each Norseman™ XB heater should be fused individually using the nearest standard fuse size which is not less than 120% of the expected line current.
5. All heaters come factory prewired and ready for direct connection to the power supply leads.
   - 5.1 Connect the power leads to terminals marked L1 and L2 for single phase and L1, L2 & L3 for three phase heaters as shown in Figure 9, page 7.
   - 5.2 Connect the ground wire to the ground connection located in the heater terminal housing.

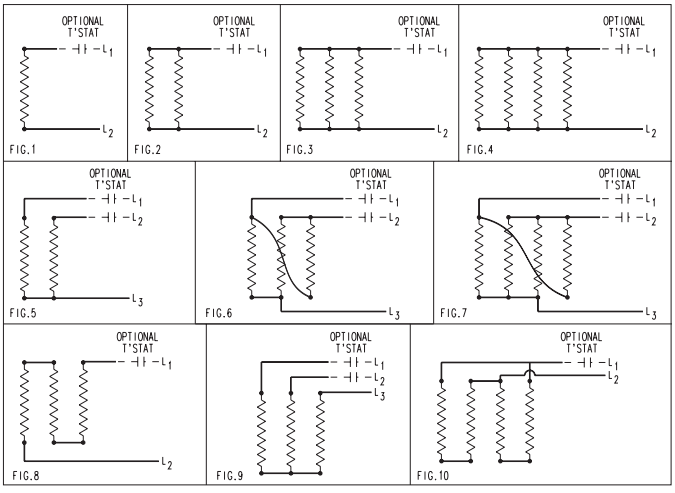

Figure 9 – Wiring Diagram

WARNING. Whenever hazardous materials are present, ensure that the terminal housing covers, plug, etc., are secured (but not over-tightened) before energizing the heater.

CAUTION. All circuits must be in the open position before removing junction or terminal box covers.

CAUTION. Use supply wires suitable for 221ºF (105ºC) or 302°F (150°C) for high ambient XB models. Supply wires are to be fused with appropriately sized HRC fusing.

CAUTION. Ensure that no power is connected to the equipment prior to making any connections.

Table 3 – Wiring Configuration

Part No.	Wiring Diagram (Figure 9)	
	1Ø	3Ø
XB1-1005T6	Fig. 1	-
XB1-1010T4A		
XB1-1017T4A		
XB1-1030T3B		
XB1-1047T2D		
XB1-3047T3B		
XB1-3075T2D		
XB1-4100T2D		
XB1-6020T6		
XB1-6045T4A		
XB1-6125T2D		
XB1-6135T2D		
XB2-1075T2D	Fig. 2	Fig. 5
XB2-3150T2D		
XB2-4100T3B		
XB2-4200T2D		
XB2-6040T6		
XB2-6085T4A		
XB2-6150T3B		
XB2-6250T2D		
XB3-1100T2D	Fig. 3 (Except XB3-4150T3B 600V & XB3-6125T4A 600V use Fig. 8)	Fig. 6 (Except XB3-4150T3B 600V & XB3-6125T4A 600V use Fig. 9)
XB3-1125T2D		
XB3-3100T3B		
XB3-3200T2D		
XB3-4150T3B		
XB3-4300T2D		
XB3-6060T6		
XB3-6125T4A		
XB3-6225T3B		
XB3-6375T2D		
XB4-1150T2D	Fig. 4 (Except XB4-6160T4A 600V & XB3-3250T2D 600V use Fig. 10)	Fig. 7
XB4-3250T2D		
XB4-4225T3B		
XB4-4375T2D		
XB4-6080T6		
XB4-6160T4A		
XB4-6300T3B		
XB4-6450T2D		
XB4-6500T2D		

Table 4 – Wiring Configuration (High Ambient)

Part No.	Wiring Diagram (Figure 9)	
	1Ø	3Ø
XB1-1005T4A	Fig. 1	-
XB1-1010T3C		
XB1-1017T3C		
XB1-1030T3		
XB1-3047T3		
XB1-6020T4A		
XB1-6045T3C		
XB2-4100T3B	Fig. 2	Fig. 5
XB2-6040T4A		
XB2-6085T3C		
XB2-6150T3		
XB3-3100T3	Fig. 3 (Except XB3-4150T3 600V & XB3-6125T3C 600V use Fig. 8)	Fig. 6 (Except XB3-4150T3 600V & XB3-6125T3C 600V use Fig. 9)
XB3-4150T3		
XB3-6060T4A		
XB3-6125T3C		
XB3-6225T3		
XB4-4225T3	Fig. 4 (Except XB4-6160T3C 600V use Fig. 10)	Fig. 7
XB4-6080T4A		
XB4-6160T3C		
XB4-6300T3		

F. START-UP

1. For heaters with a tamper-proof thermostat, to set temperature, disconnect the power and remove the socket head cap screw. Set the thermostat to the desired room temperature with a screw driver and replace cap screw.
2. For heaters with an externally adjustable thermostat, set thermostat to desired temperature by adjusting the dial.

NOTE: The thermostat temperature range is 0°F – 100°F (-18 °C– 40°C) with an operating differential of 5°F – 7°F (3 °C– 4°C).

NOTE: High ambient thermostat temperature range is 0°F–158°F (-18°C–70°C) with an operating differential of 5°F – 7°F (3 °C– 4°C).

3. Install the terminal box cover and tighten securely.
4. Check to ensure that all plugs, screws, and covers are securely in place.
5. Check associated electrical equipment.
6. Check that all wall/floor mounting bracket connections are tight.
7. Turn on the supply power.

WARNING. To prevent unsafe operation of the heater do not exceed the maximum allowable ambient operating temperature of 104°F (40°C).

WARNING. To prevent unsafe operation of the heater do not exceed the maximum allowable ambient operating temperature of 158°F (70°C) on high ambient models.

G. MAINTENANCE

1. Periodically inspect the heater installation to ensure that all connections, fittings, plugs, screws, covers, etc. are tight and free of corrosion.
2. Check that the reflector baffles (if required) have not moved upwards or downwards in relation to the heat sink.
3. Check the extrusions of the heater for dust and debris. A blast of compressed air is recommended for cleaning the heat sink. If air is not available, disconnect the power supply to the heater and when cool, wipe it down with a damp cloth or soft brush. Remove wire guards prior to cleaning.
4. The heat sink is anodized or painted black to ensure that the maximum area code temperature is not exceeded. After an extended period of use or in extremely harsh environments the anodization/paint may wear away leaving bare surfaces. For continued safe operation, these surfaces must be repainted. When repainting use only black high temperature resistant paint.
5. Except for thermostat replacement, field repair of the heater shall not be normally undertaken. In the event that the heater must be repaired, contact the factory for a return authorization number.

WARNING. Disconnect power from the heater before performing any maintenance. Failure to do so can result in property damage, injury, or death.

CAUTION. Do not use water to clean heater.

H. SPARE PARTS

Table 5 – Replacement thermostats

Voltage	Thermostat Part No.
One Phase Heaters	XTKW04481
Three Phase Heaters	XTKW04483

Table 6 – Replacement thermostats (High Ambient)

Voltage	Thermostat Part No.
One Phase Heaters	XTKW07481
Three Phase Heaters	XTKW07483

Norseman™

Electric Explosion-Proof Heaters

PLEASE ADHERE TO INSTRUCTIONS IN THIS MANUAL

Failure to do so may be dangerous and may void certain provisions of your warranty.

For further assistance, please call 24hr hotline: 1.800.661.8529 (U.S.A. and Canada)
Please have model and serial numbers available before calling.

WARRANTY: Under normal use the Company warrants to the purchaser that defects in material or workmanship will be repaired or replaced without charge for a period of 18 months from date of shipment, or 12 months from the start date of operation, whichever expires first. Any claim for warranty must be reported to the sales office where the product was purchased for authorized repair or replacement within the terms of this warranty.

Subject to State or Provincial law to the contrary, the Company will not be responsible for any expense for installation, removal from service, transportation, or damages of any type whatsoever, including damages arising from lack of use, business interruptions, or incidental or consequential damages.

The Company cannot anticipate or control the conditions of product usage and therefore accepts no responsibility for the safe application and suitability of its products when used alone or in combination with other products. Tests for the safe application and suitability of the products are the sole responsibility of the user.

This warranty will be void if, in the judgment of the Company, the damage, failure or defect is the result of:

- Vibration, radiation, erosion, corrosion, process contamination, abnormal process conditions, temperature and pressures, unusual surges or pulsation, fouling, ordinary wear and tear, lack of maintenance, incorrectly applied utilities such as voltage, air, gas, water, and others or any combination of the aforementioned causes not specifically allowed for in the design conditions or,
- Any act or omission by the Purchaser, its agents, servants or independent contractors which for greater certainty, but not so as to limit the generality of the foregoing, includes physical, chemical or mechanical abuse, accident, improper installation of the product, improper storage and handling of the product, improper application or the misalignment of parts.

No warranty applies to paint finishes except for manufacturing defects apparent within 30 days from the date of installation.

The Company neither assumes nor authorizes any person to assume for it any other obligation or liability in connection with the product(s).

The Purchaser agrees that all warranty work required after the initial commissioning of the product will be provided only if the Company has been paid by the Purchaser in full accordance with the terms and conditions of the contract.

The Purchaser agrees that the Company makes no warranty or guarantee, express, implied or statutory, (including any warranty of merchantability or warranty of fitness for a particular purpose) written or oral, of the Article or incidental labour, except as is expressed or contained in the agreement herein.

LIABILITY: Technical data contained in the catalog or on the website is subject to change without notice. The Company reserves the right to make dimensional and other design changes as required. The Purchaser acknowledges the Company shall not be obligated to modify those articles manufactured before the formulation of the changes in design or improvements of the products by the Company.

The Company shall not be liable to compensate or indemnify the Purchaser, end user or any other party against any actions, claims, liabilities, injury, loss, loss of use, loss of business, damages, indirect or consequential damages, demands, penalties, fines, expenses (including legal expenses), costs, obligations and causes of action of any kind arising wholly or partly from negligence or omission of the user or the misuse, incorrect application, unsafe application, incorrect storage and handling, incorrect installation, lack of maintenance, improper maintenance or improper operation of products furnished by the Company.

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REMARQUES