



Certificate of Compliance

Certificate: 80056959

Master Contract: 154402

Project: 80056959

Date Issued: December 14, 2020

Issued to: Minco Products Incorporated
7300 Commerce Lane
Minneapolis,
MN 55432
USA

Attention: Mr. Rob Bohland

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only



James Jarman

Issued by:

Braxton Chong

PRODUCTS

CLASS 4418-02 – Outlet Boxes And Fittings - Boxes - For Hazardous Locations

CH504 and CH506 Connection Heads

Ex db IIC Gb; Ex tb IIIC Db

Class I, Div. 1, Groups B, C and D; Class II, Div. 1, Groups E, F and G

Class III, Div. 1

-50°C ≤ Ta ≤ +60°C

**Type 4 - CH504; Type 4X - CH504 Powder Coated and CH506 with cover O-ring
IP 66 with cover O-ring, IP 64 without cover O-ring**



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CLASS 4418-82 – Outlet Boxes And Fittings - Boxes - For Hazardous Locations - Certified to US Standards

CH504 and CH506 Connection Heads

Class I, Zone 1, AEx db IIC Gb; Zone 21, AEx tb IIIC Db
Class I, Div. 1, Groups B, C and D; Class II, Div. 1, Groups E, F and G
Class III, Div. 1

-50°C ≤ Ta ≤ +60°C

Type 4 - CH504; Type 4X - CH504 Powder Coated and CH506 with cover O-ring
IP 66 with cover O-ring, IP 64 without cover O-ring

CLASS 2258-02 – Process Control Equipment - For Hazardous Locations

Type B225264 Probe Assemblies

Ex db IIC T6... T2 Gb; Ex tb IIIC T85°C... T160°C Db
Class I, Div. 1, Groups B, C and D, T6... T2; Class II, Div. 1, Groups E, F and G, T85°C... T160°C;
Class III, Div. 1

-50°C ≤ Ta ≤ +60°C

Type 4 - CH504; Type 4X - CH504 Powder Coated and CH506 with cover O-ring
IP 66 with cover O-ring, IP 64 without cover O-ring

Rated: 30V DC, 1.35W; T6 @ Ambient Temperature $-50^{\circ}\text{C} \leq T_{\text{Amb}} \leq +60^{\circ}\text{C}$. Process fluid temperature range;
Class I $-50^{\circ}\text{C} \leq T_{\text{process}} \leq +280^{\circ}\text{C}$; Class II and III $-50^{\circ}\text{C} \leq T_{\text{process}} \leq +150^{\circ}\text{C}$.

CLASS 2258-82 – Process Control Equipment - For Hazardous Locations – Certified to US Standards

Type B225264 Probe Assemblies

Class I, Zone 1, AEx db IIC T6... T2 Gb; Zone 21, AEx tb IIIC T85°C... T160°C Db
Class I, Div. 1, Groups B, C and D, T6... T2; Class II, Div. 1, Groups E, F and G, T85°C... T160°C;
Class III, Div. 1

-50°C ≤ Ta ≤ +60°C

Type 4 - CH504; Type 4X - CH504 Powder Coated and CH506 with cover O-ring
IP 66 with cover O-ring, IP 64 without cover O-ring

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CLASS 2258-04 – Process Control Equipment - Intrinsically Safe, Entity - For Hazardous Locations

Type B225264 Probe Assemblies

Class I, Zone 0, Ex ia IIC T6... T2 Ga

-40 °C ≤ Ta ≤ +45 °C

**Type 4 - CH504; Type 4X - CH504 Powder Coated and CH506 with cover O-ring
IP 66 with cover O-ring, IP 64 without cover O-ring**

Rated: Ui = 30 V; Ii = 120 mA; Pi = 0.84 W; Ci = 1 nF; Li = 10 μH.

CLASS 2258-84 – Process Control Equipment - Intrinsically Safe, Entity - For Hazardous Locations – Certified to US Standards

Type B225264 Probe Assemblies

Class I, Zone 0, AEx ia IIC T6... T2 Ga

-40 °C ≤ Ta ≤ +45 °C

**Type 4 - CH504; Type 4X - CH504 Powder Coated and CH506 with cover O-ring
IP 66 with cover O-ring, IP 64 without cover O-ring**

Rated: Ui = 30 V; Ii = 120 mA; Pi = 0.84 W; Ci = 1 nF; Li = 10 μH.

Model Code Structure

Type B225264 Probe Assemblies

B225264abcde

a - connection head type

A = CH504 in aluminum alloy

E = CH504 in aluminum alloy with polyester powder coating finish

S = CH506 in type 316 stainless steel

b - probe construction type

0 = stainless steel probe with copper alloy tip (tip-sensitive)

2 = all stainless steel probe

4 = stainless steel probe with MgO fill

c- probe fitting type

A = Adjustable release knob spring-loaded holder type

B = Welded case type

C = Fixed spring-loaded holder type

D = Set screw spring-loaded holder type

d - Probe diameter

0 = 6.375mm (.250 inches); 1 = 6.000mm (.236 inches); 2 = 5.461mm (.215 inches)

3 = 5.461mm (.215 inches) with hand bendable case; 4 = 4.788mm (.188 inches)



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e - temperature transmitter type

A = No transmitter; B = Minco TT111 for 2-lead RTD; C = Minco TT518 (PRE 5333D) for 3-lead RTD;
D = Minco TT519 (PRE 5334B) for thermocouple; E = Minco TT205 for thermocouple;
F = Minco TT246 for 3 lead RTD voltage output; G = Minco TT520 (PRE 5331D) programmable
H = Minco TT521 (PRE 5337D) HART programmable

CH504 and CH506 Connection Heads

The Minco CH504Pabc and CH506Pabc connection heads:

a - connection threads

SENSOR THREAD A	CONDUIT THREAD B
P1 = 3/4 - 14 NPT	1/2 - 14 NPT
P2 = 3/4 - 14 NPT	3/4 - 14 NPT
P3 = 1/2 - 14 NPT	1/2 - 14 NPT
P4 = 1/2 - 14 NPT	3/4 - 14 NPT
P5 = 1/2 - 14 NPT	M20 x 1.5 - 6H*
P6 = 3/4 - 14 NPT	M20 x 1.5 - 6H*

b - type of and number of connection points

W0 = Empty enclosure (no connection points); W6 = 6 wire nuts; W8 = 8 wire nuts
T0 = Screws package for minco temperature transmitter mounting
T8 = Standard fiberglass terminal board with 8 connection points
H8 = Standard fiberglass terminal board, tropicalized for humid conditions, with 8 connection points

c - external surface finish

Blank = None (bare aluminum or stainless steel)
P = Polyester powder coated finish (aluminium CH504 connection heads only)

* For options P5 and P6, where the conduit threads are M20 x 1.5, this is achieved by using a suitable equipment certified thread adapter provided by the manufacturer.



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Conditions of Acceptability:

Type B225264 Probe Assemblies

1. The equipment shall be supplied with Limited Energy Circuit as defined in CSA C22.2 No. 61010-1-12, Class 2 as defined in article 725.121 of NFPA70 and Section 16-200 of the Canadian Electrical Code, Part 1, or Limited Power Source (LPS) as defined in CAN/CSA C22.2 No. 60950-1.
2. The temperature of the equipment can reach 67°C in a 60°C ambient at the cable entry and the branching point. These temperatures may be increased further should the equipment be installed such that the connection head is subject to the effects of heating by the process fluid. This must be considered by the user when selecting field wiring and cable entry devices.
3. For explosionproof versions of the equipment, the user shall install a suitable equipment certified seal within 2” of the enclosure entry.
4. Aluminium enclosures featuring a non-conducting powder coat may generate an ignition-capable level of electrostatic charges under certain extreme conditions. The user should ensure that the equipment is not installed in a location where it may be subjected to external conditions (such as high-pressure steam) which might cause a build-up of electrostatic charges on non-conducting surfaces. Additionally, cleaning of the equipment should be done with a damp cloth.
5. In the end application, the user shall ensure that the temperature within the connection head does not exceed 85°C; and the temperature of the process thread of the probe holder does not exceed 200°C.
6. Flamepaths of this equipment shall not be repaired by the user.
7. The process temperature in Group III, Class II and Class III applications shall be lower than the ignition temperature of the specific dust or material to be encountered, up to a maximum of 155°C; and the process temperature shall be at least 7°C below the desired surface temperature rating of the equipment. Eg, for a surface temperature of T85°C, the process temperature shall not exceed 78°C.
8. The temperature class of the equipment is dictated by the process temperature in the end application:

Flameproof	Intrinsically Safe
T6: $-50^{\circ}\text{C} \leq T_{\text{process}} \leq +70^{\circ}\text{C}$	T6: $-40^{\circ}\text{C} \leq T_{\text{process}} \leq +45^{\circ}\text{C}$
T5: $-50^{\circ}\text{C} \leq T_{\text{process}} \leq +85^{\circ}\text{C}$	T5: $-40^{\circ}\text{C} \leq T_{\text{process}} \leq +60^{\circ}\text{C}$
T4: $-50^{\circ}\text{C} \leq T_{\text{process}} \leq +120^{\circ}\text{C}$	T4: $-40^{\circ}\text{C} \leq T_{\text{process}} \leq +85^{\circ}\text{C}$
T3: $-50^{\circ}\text{C} \leq T_{\text{process}} \leq +185^{\circ}\text{C}$	T3: $-40^{\circ}\text{C} \leq T_{\text{process}} \leq +185^{\circ}\text{C}$
T2: $-50^{\circ}\text{C} \leq T_{\text{process}} \leq +280^{\circ}\text{C}$	T2: $-40^{\circ}\text{C} \leq T_{\text{process}} \leq +280^{\circ}\text{C}$

Additional conditions relevant to Intrinsically Safe installations of the equipment only:

1. The equipment shall be installed in accordance with document SPI 00-1083.
2. Max. ambient temperature of the assembly head [°C] Ex ia Applications shall not exceed T-class of the transmitters.
3. For equipment utilizing aluminium enclosures in Category 1 AEx/Ex ia applications, the equipment must be installed such that ignition sources due to impact and friction sparks are excluded.
4. Termination of intrinsically safe circuits that are fed externally from the equipment installed in Category 1 AEx/Ex ia applications, must maintain a clearance of at least 6mm between bare live parts of separate intrinsically safe circuits and at least 3 mm between bare live parts of intrinsically safe circuits and earthed parts.
5. After integration in the end-use system, the apparatus shall be submitted to a dielectric test of 500Vrms, 50-60Hz for 60 Seconds without breakdown, according to Clause 6.3.13 of CAN/CSA



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C22.2 No. 60079-11:14 and ANSI/UL 60079-11-2014. (not applicable for grounded junction thermocouples).

CH504 and CH506 Connection Heads

1. The CH504 and CH506 Connection Heads are component enclosures which require approval for use in the end application by a Nationally Recognized Testing Laboratory (NRTL), SCC Accredited body, or both, as applicable.
2. The enclosures shall be marked with wording equivalent to “seal within 2” of the enclosure wall” in both English and French.
3. Component enclosures are not assigned a temperature class. However, these enclosures exhibit a surface temperature rise of 7 K with a 1.5 W load (1.35 W including 10% safety factor) in a 60°C ambient.
4. The enclosures feature two entries, these may be ½” or ¾” NPT. A suitable equipment certified thread adapter may be supplied by the manufacturer to facilitate M20 x 1.5 entry threads.
5. Oil filled circuit breakers and contactors shall not be used with these enclosures.
6. The ambient temperature rating of the final equipment shall be within the range of $-50^{\circ}\text{C} \leq T_{\text{Amb}} \leq +60^{\circ}\text{C}$.
7. Internal parts may be placed in any arrangement provided that an area of at least 40 % of each cross-sectional area remains free to permit unimpeded gas flow and, therefore, unrestricted development of an explosion. Separate relief areas may be aggregated provided that each area has a minimum dimension in any direction of 12.5 mm. The Minco Fiberglass terminal board with 8 connection points is considered suitable for this application.
8. With reference to point 7, the maximum obtained reference pressure when testing with baffle plates in accordance with the listed standards was 10.96 bar (159.0 lbf/in²). Based on overpressure testing carried out by CSA, the connection heads are considered suitable for reference pressures up to 12.3 bar (178.3 lbf/in²).



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APPLICABLE REQUIREMENTS

- CSA C22.2 No. 0-10 (R2015) - General Requirements – Canadian Electrical Code, Part II
- CSA-C22.2 No. 61010-1-12, UPD1:2015, UPD2:2016, AMD1:2018 - Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use — Part 1: General Requirements
- CSA C22.2 No. 60079-0:19 - Explosive atmospheres — Part 0: Equipment — General requirements
- CSA C22.2 No. 60079-1:16 - Explosive atmospheres — Part 1: Equipment protection by flameproof enclosures “d”
- CSA C22.2 No. 60079-11:14 - Explosive atmospheres — Part 11: Equipment protection by intrinsic safety “i”
- CSA C22.2 No. 60079-31:15 - Explosive atmospheres — Part 31: Equipment dust ignition protection by enclosure “t”
- CSA C22.2 No. 30-M1986 (R2016) - Explosion-Proof Enclosures for Use in Class I Hazardous Locations
- CSA C22.2 No. 25-2017 - Enclosures for Use in Class II, Groups E, F and G Hazardous Locations
- CSA C22.2 No. 60529:16 - Degrees of protection provided by enclosures (IP Code)
- CSA C22.2 No. 94.2-15 - Enclosures for Electrical Equipment, Environmental Considerations
- UL Std. No. 61010-1 (3rd Edition), AMD1:2018 - Electrical Equipment For Measurement, Control, and Laboratory Use; Part 1: General Requirements - Third Edition
- ANSI/UL-60079-0 (2019) - Explosive Atmospheres – Part 0: Equipment – General Requirements
- ANSI/UL 60079-1 (2015) - Explosive Atmospheres – Part 1: Equipment Protection by Flameproof Enclosures “d”
- ANSI/UL 60079-11 (2013) - Explosive Atmospheres – Part 11: Equipment protection by intrinsic safety “i”
- ANSI/UL-60079-31 (2015) - Explosive Atmospheres – Part 31: Equipment Dust Ignition Protection by Enclosure “t”
- FM 3600 (2018) - Electrical Equipment for Use in Hazardous (Classified) Locations – General Requirements
- FM 3615 (2018) - Explosionproof Electrical Equipment General Requirements
- FM 3616 (2011) - Dust-Ignitionproof Electrical Equipment General Requirements
- ANSI/IEC 60529:04 (R2011) - Degrees of protection provided by enclosures (IP Code)
- UL 50E (2015) - Enclosures for Electrical Equipment, Environmental Considerations



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MARKINGS

The manufacturer is required to apply the following markings:

- Products shall be marked with the markings specified by the particular product standard.
- Products certified for Canada shall have all Caution and Warning markings in both English and French.

Additional bilingual markings not covered by the product standard(s) may be required by the Authorities Having Jurisdiction. It is the responsibility of the manufacturer to provide and apply these additional markings, where applicable, in accordance with the requirements of those authorities.

The products listed are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US (indicating that products have been manufactured to the requirements of both Canadian and U.S. Standards) or with adjacent indicator 'US' for US only or without either indicator for Canada only.

Type B225264 Probe Assemblies

Marking Method: The above markings are made via pre-printed with polyurethane enamel ink on surface of a minimum 0.02" (0.5mm) thick stainless-steel plate, secured to the body with a stainless-steel locking clip.

Adhesive is used on the reverse of the label for anti-rotation purposes only, and it not relied upon to secure the label to the enclosure.

The following marking details appear on drawing B225264:

- CSA Monogram with c us Indicator (The products listed are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only), as shown on the Certificate of Compliance.
- Manufacturers name "Minco Products Incorporated", or CSA Master Contract number "154402" adjacent the CSA Mark, in lieu of manufacturers name.
- Model designation, as specified in the PRODUCTS section, above.
- Complete electrical rating, as specified in the PRODUCTS section, above.
- Maximum ambient temperature rating, as specified in the PRODUCTS section, above.
- Date code / Serial number traceable to month and year of manufacture.
- Special purpose enclosure designation "Type 4X" as specified in the PRODUCTS section, above when supplied with a cover O-ring.
- Ingress Rating "IP66" or "IP64" as specified in the PRODUCTS section, above.
- Hazardous locations designation CAN (Class 2258-02 equipment): "Ex db IIC T6... T2 Gb"; "Ex tb IIIC T85°C... T160°C Db"; "Class I, Div. 1, Groups B, C and D, T6... T2"; "Class II, Div. 1, Groups E, F and G, T85°C... T160°C", as specified in the PRODUCTS section above, or equivalent.
- Hazardous locations designation CAN (Class 2258-04 equipment): "Class I, Zone 0, Ex ia IIC T6... T2 Ga"; $U_i = 30\text{ V}$; $I_i = 120\text{ mA}$; $P_i = 0.84\text{ W}$; $C_i = 1\text{ nF}$; $L_i = 10\text{ }\mu\text{H}$, as specified in the PRODUCTS section above, or equivalent.
- Hazardous locations designation US (Class 2258-02 equipment): "Class I, Zone 1, AEx db IIC T6... T2 Gb; Zone 21, AEx tb IIIC T85°C... T160°C Db; Class I, Div. 1, Groups B, C and D, T6... T2; Class II, Div. 1, Groups E, F and G, T85°C... T160°C", as specified in the PRODUCTS section above, or equivalent.

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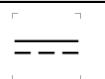

- Hazardous locations designation CAN (Class 2258-84 equipment): “Class I, Zone 0, AEx ia IIC T6... T2 Ga”; $U_i = 30\text{ V}$; $I_i = 120\text{ mA}$; $P_i = 0.84\text{ W}$; $C_i = 1\text{ nF}$; $L_i = 10\text{ }\mu\text{H}$, as specified in the PRODUCTS section above, or equivalent.
- Cable entry option, 1/2” or 3/4” NPT.
- For Canadian Zone marked products, the Certificate Number Reference “20CA80056959X” next to the CSA logo or preceded by “CSA” agency name.
- The warning words: - “DO NOT OPEN IN AN EXPLOSIVE ATMOSPHERE” and “NE PAS OUVRIR EN ATMOSPHERE EXPLOSIVE” or equivalent;
- The warning words: - “SEAL REQUIRED WITHIN 2 INCHES” and “SCELLEMENT REQUIS A MOINS DE 2” or equivalent;

Additional Intrinsically Safe requirements

- The following optional markings may be used: “IS Class I, Division 1, Group A, B, C, D, T4... T6”. If division marking is used, the equivalent division parameters shall be included in the entity parameters marking.

OrdLoc requirements

- Marking on the unit that indicates the manufacturing location if the equipment is manufactured at more than one factory location;
- Following marking.

Mark	Symbol	Reference	Title
X		IEC 60417-5031	Direct current
X		ISO 7000-0434A	Caution



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CH504 and CH506 Connection Heads

The component enclosures are marked with a non-permanent (adhesive) label internally. In the final application markings shall appear on a minimum 0.02" (0.5mm) thick stainless-steel plate, secured to the body with a stainless-steel locking clip.

The following marking details appear on drawing B224600:

- CSA Monogram with c us Indicator (The products listed are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only), as shown on the Certificate of Compliance.
- Manufacturers name "Minco Products Incorporated", or CSA Master Contract number "154402" adjacent the CSA Mark, in lieu of manufacturers name.
- Model designation, as specified in the PRODUCTS section, above.
- Maximum ambient temperature rating, as specified in the PRODUCTS section, above.
- Date code / Serial number traceable to month and year of manufacture.
- Special purpose enclosure designation "Type 4X" as specified in the PRODUCTS section, above when supplied with a cover O-ring.
- Ingress Rating "IP66" or "IP64" as specified in the PRODUCTS section, above.
- Hazardous locations designation CAN; "Ex db IIC Gb; Ex tb IIIC Db; Class I, Div. 1, Groups B, C and D; Class II, Div. 1, Groups E, F and G", as specified in the PRODUCTS section, above or equivalent
- Hazardous locations designation US; "Class I, Zone 1, AEx db IIC Gb; Zone 21, AEx tb IIIC Db; Class I, Div. 1, Groups B, C and D; Class II, Div. 1, Groups E, F and G", as specified in the PRODUCTS section, above or equivalent
- Cable entry option, 1/2" or 3/4" NPT.
- For Canadian Zone marked products, the Certificate Number Reference "20CA80056959X" next to the CSA logo or preceded by "CSA" agency name.
- The enclosures shall be marked "SEAL REQUIRED WITHIN 2 INCHES" in both English and French, as applicable.