CURRENT
DESCRIPTIVE DOCUMENTS

Master Contract № 162037

Report № 1089457 (LR 22354-31) **Project №** 1209228

CSA INTERNATIONAL

Certificate of Compliance

Certificate: 1089457 (LR 22354-31) **Master Contract:** 162037

Project: 1575679 **Date Issued:** 2004/08/24

Issued to: **Barksdale, Inc.**

3211 Fruitland Ave.
Los Angeles, California 90058
USA
Attention: Mr. Alan Mason

The products listed below are eligible to bear the CSA Mark shown

Issued by: M. Banu, P. Eng.

Authorized by: Nick Alfano, Operations Manager

PRODUCTS

CLASS 3238 01 - SWITCHES - Automatic - Pressure Type - For Hazardous Locations

PRODUCTS

Class I, Groups B, C, D; Class II, Groups E, F and G Encl. Type 4:

9671X, 9681X and 9692X Pressure Switch, contact ratings 11A/125 or 250V ac, 5A/30V dc; Encl Type 4X version available.

APPLICABLE REQUIREMENTS

CSA Std C22.2 No. 30-M1986 - Explosion-Proof Enclosures for Use in Class I Hazardous Locations

CSA INTERNATIONAL

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CSA Std C22.2 No. 25-1966 - Enclosures for Use in Class II Groups E, F, and G Hazardous Locations

CSA Std C22.2 No. 14-95 - Industrial Control Equipment

CAN/CSA Std C22.2 No. 94-M91 - Special Purpose Enclosures

MARKINGS

- Company name;
- Model number;
- Serial number;
- Electrical rating;
- Maximum working pressure;
- Hazardous locations designation;
- Special purpose enclosure designation, "TYPE 4" or "TYPE 4X";
- CSA Monogram.

CSA INTERNATIONAL

Supplement to Certificate of Compliance

Certificate: 1089457 **Master Contract:** 162037

The products listed, including the latest revision described below, are eligible to be marked in accordance with the referenced Certificate.

Product Certification History

Project	Date	Description
1575679	2004/08/24	Revised construction of 96xxX Series of Pressure Switches

History

1461838 July 31, 2003 Revised construction of 96xxX Series of Pressure Switches.

1146039 January 25, 2001 Revised construction of 9692X Model Pressure Switches

1089457 May 25/2000 Additional pressure range for 9692X Series Pressure Switches

-33 Aug. 20/98 Addition of 9671X and 9681X Pressure Switches.

-31 Oct. 28/97 Original Certification.

MARKINGS

As per Drawings B250721 Rev. X2 and B750722 Rev R.

ALTERATIONS

None.

FACTORY TESTS

The equipment at the conclusion of manufacture and before shipment, shall withstand for one min, without breakdown, the application of the following ac potentials:

1000V for equipment rated 250V or less, and 1000V plus twice rated voltage for equipment rated at more than 250V between low voltage live parts and the enclosure if such circuits leave or enter the enclosure;

Notes:

1. As an alternative, potentials 20 percent higher may be applied for one second.

2. Where it is more convenient to do so, the dielectric strength tests may be made by applying a direct current voltage instead of an ac voltage, provided that the voltage used is 1.414 times the values specified above.

Warning: The factory test(s) specified may present a hazard of injury to personnel and/or property and should only be performed by persons knowledgeable of such hazards and under conditions designed to minimize the possibility of injury.

DESCRIPTION

The 9671X, 9681X and 9692X Model Pressure Switches are electro-mechanical pressure switches for use in hazardous locations. They are used to send a signal or switch on and off equipment in response to changes in system pressure.

The pressure sensing element and adjustment wheel are separated from and outside of the flame-proof part of the enclosure.

Variations: Number of Switches
-1 = Single Circuit, 1 SPST Switch
-2 = Dual Circuit, 2 SPDT Switches

Switch Contact Type:
-CC = Standard Switch
-GH = Gold Plated Contact Switch

Adjustable Range:

9681X Model	9692X Model
1 = 2 - 15 psi	1 = 100-750 psi
2 = 5 - 150 psi	2 = 150-1000 psi
3 = 25 - 300 psi	3 = 400-3000 psi
4 = 50 - 500 psi	4 = 700-5000 psi
	5 = 1000-7500psi

Options

E =	Ethylene Propylene Elastomer O-ring
T =	Teflon Elastomer Option
V =	Viton Elastomer O-ring
FX=	Type 4X Enclosure
AL=	Aluminum Housing Option
P1-P10=	Pressure Port Thread Options
Q1-Q199=	Customer special requests that do not affect flame-proof elements

The internal volume of the flame-proof parts of switch = 3.69 cubic centimeters.

The dimensions in the flame-path area separating the connected components are shown on Sketch A974083. The surface finish on both mating parts is 16 micro finish.

The gasket and o-rings used in the Pressure Switches are UL Recognized Rubber Compounds which have been tested as enclosure seals in this model and do meet the Type 4 (equivalent to IP65) water ingress protection requirements.

The "CC" Limit Switch rating is 11A, 1/4 hp, 125/250V ac, 5A, 30V dc (2) max. The "GH" Limit Switch rating is 1A 125V ac (2) max.

Direct electrical connections are made to the No 18 AWG sealed leads which exit through a 1/2 in conduit connection. The potting compound provides both insulation and strain relief to the free leads. We are using a Sealing Compound which is UL Recognized for use in Hazardous Locations.

A No 18 AWG green ground lead is provided as an internal ground and a No 8-32 clamp screw provided for external grounding capability.

The enclosure material is as follows:

The Body and the Housing are both either Aluminum Alloy:

2024-T4 (1.5% Magnesium, 0% Titanium) or
2011-T3 (0% Magnesium, 0% Titanium),

or
300 Series Stainless Steel (0% Magnesium, 0% Titanium).

The Pressure Fitting is 303 Series Stainless Steel (0% Magnesium & Titanium).

The Adjustment Cover is made of Aluminum Alloy 6061-T6 (1% Magnesium, 0% Titanium)or
300 Series Stainless Steel (0% Magnesium, 0% Titanium).

Tightening torque values for various threaded component are noted on the Assembly Drawing.

The following are the Descriptive Documents:

	Drawing No.	Rev.
Label	B250721	X2
Label	B250722	R
Label	A250712	R
Switch Assembly	C981133	D
Switch Assembly	9692X	M
Joint Details	A974083	X2
Switch Assembly	C9671X	H
Switch Assembly	C981192	S
Switch Assembly	C9681X	H
Switch Assembly	C981191	S
Spring - Compression	A213446	X1
Bushing	A20774	D

Application LR 22354-33: The scope of this application is to add Model 9671X and 9681X Pressure Switches. These models are identical for the previously Certified 9692X model except for the pressure sensor configuration.

The 9671X Model is for vacuum service and the 9681X Model is for low pressure (500 psi max) use. Both new models rely on a rubber diaphragm in place of the piston/o-ring configuration as the pressure sensor.

The Viton Buna N diaphragm materials are the same UL and CSA accepted compounds as those presently used in our P1X Models originally described in Report LR 22354-15.

Project 1089457: The scope of this application is to add a slightly lighter spring for 9692X Series pressure Switches, to be able to achieve a 500 psi set point on increasing pressure.

A new range -1 suffix was assigned to designate the new 420-4000 psi pressure range. This also precipitated the assignment of a -2 suffix for higher (previously no suffix) 5000-7500 psi pressure range model.

Project 1146039: The scope of this application is to update the part number nomenclature for 9692X Series Pressure Switches and change from aluminum to stainless steel as the standard enclosure material for this family of switches.

Project 1209228: The scope of this project is to split the existing pressure ranges to four ranges for Model 9681X and fire ranges for Model 9692X.

The new ranges for the 9681X are achieved using one new spring and different diameter pressure plates and spacers. The new 9681X-1 range uses new spring P/N 213456 with pressure plate P/N 218316-1 and spacer P/N 217151-1. The other three (9681X-2, -3 and -4) ranges use the old original spring P/N 213429 with corresponding pressure plate P/Ns 218316-2,-3 and -4 and spacer P/Ns 217151-2, -3 and -4.

The new adjustable pressure ranges for the 9692X Models are achieved by the use of two new springs, with no other changes. The new 9692X -1 and 2 ranges both use new spring P/N 213457. The new 9692X-3 range uses the old original-1 spring, P/N 213446. The new 9692X-4 range uses new spring P/N 213458, and the new 9692X-5 range uses the old original-2 spring, P/N 213415.

TESTS

The following tests have been produced by CSA.

1. Explosion Pressure: CSA Std C22.2 No 30-M1986, Cl 6.3

2. Flame Propagation: CSA Std C22.2 No 30-M1986, Cl 6.5

3. Over Pressure: CSA Std C22.2 No 30-M1987, CL 6.6

4. Explosive Fluid Seal: CSA Std C22.2 No 3-M1987, Cl 4.10.6
   The test results were considered satisfactory.
   The following tests have been produced by UL.

5. Hosedown.

6. Salt Spray.

7. Factory Sealed.

The test results were considered satisfactory and representative for CSA Stds requirements.

Application LR 22354-33: Due to the nature of changes no new tests were considered necessary.

Project 1089457: Due to the nature of changes no new tests were considered necessary.

Project 1146039: Due to the nature of changes no new tests were considered necessary.

Project 1209228: Due to the nature of changes no new tests were considered necessary.