CSA INTERNATIONAL

Certificate of Compliance

Certificate: 1113894 (LR 27991-44) **Master Contract:** 150014

Project: 1421204 **Date Issued:** May 12, 2003

Issued to: **ADALET-PLM**
4801 W. 150 th St.
Cleveland OH 44135
USA
Attention: Mr. Timothy Snelly

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

Issued by: D. Somma, C.E.T.

Authorized by: Nick Alfano
Operations Manager

PRODUCTS

CLASS 4418 03 - CONDUIT FITTINGS - Fittings For Metal Conduit - For Hazardous Locations

Class I, Groups C and D:

Conduit fitting for draining and venting Cat. No. XFA-2, ½ in trade size.

Class I, Groups B, C and D:

Conduit fitting for draining and venting Cat. No. XFAX-2, ½ in trade size.

APPLICABLE REQUIREMENTS

CSA Standard C22.2 No. 0.5-1979 - Threaded Conduit Entries
CSA Standard C22.2 No. 30-M1986 - Explosion-Proof Enclosures for Use in Class I Hazardous Locations

MARKINGS

The head of each fitting is metal stamped with: Submitter's Name, Cat. No. Designation, Hazardous Location Designation and the CSA Monogram

CSA INTERNATIONAL

Supplement to Certificate of Compliance

Certificate: 1113894 (LR27991-44) **Master Contract:** 150014

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
1421204	May 12, 2003	Addition of alternate Manufacturer of sintered element.
1150567	Feb. 7, 2001	Update to add flame arrestor fitting model XFAX-2 for Class I, Groups B, C and D.
1113894	July 31, 2000	Update to add new model XFAX-2 and to change drawings.
-44	Feb. 7, 1990	Original Certification

CSA INTERNATIONAL

Descriptive and Test Report

MASTER CONTRACT: 150014
REPORT: 1113894 (LR 27991-44)
PROJECT: 1421204

Edition 1: February 7, 1990; Application No LR 27991-44 – Toronto
Issued by D. Somma, CET

Edition 2: July 31, 2000; Project 1113894 - Toronto
Issued by D. Somma, CET

Report Pages Reissued

Edition 3: February 7, 2001; Project 1150567 - Toronto
Issued by Ezio Migliozi; Reviewed by D. Somma, CET

Report Pages Reissued
Attachments Added: Appendix I (Kept in Engineering File Only)

Edition 4: May 12, 2003; Project 1421204 - Toronto
Issued by D. Somma, C.E.T.

Report Pages Reissued
Drawings Updated: 6124, 20338
Replaced Drawing: 20336 replaces 6126

Contents:
Certificate of Compliance - Page 1
Supplement to Certificate of Compliance - Page 1
Description and Tests - Pages 1 to 5
Fig. 1 – UL report File E 10493
Descriptive Document Drawings (Drawing Nos.: 6124, 20336, 7887, 20338)
Attachments - Appendix I (Kept in Engineering File Only)

PRODUCTS

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Conduit fitting for draining and venting Cat. No. XFA-2, ½ in trade size.

Class I, Groups B, C and D:
Conduit fitting for draining and venting Cat. No. XFAX-2, ½ in trade size

APPLICABLE REQUIREMENTS

CSA Standard C22.2 No. 0.5-1979 - Threaded Conduit Entries
CSA Standard C22.2 No. 30-M1986 - Explosion-Proof Enclosures for Use in Class I Hazardous Locations

MARKINGS

The head of each fitting is metal stamped with: Submitter's Name, Cat. No. Designation, Hazardous Location Designation and the CSA Monogram.

ALTERATIONS

Markings as stated above.

FACTORY TESTS

None required.

DESCRIPTION

Part A - Model XFA-2

General: The submitter provided a copy in a form of UL report file E10493, issued September 19, 1988 describing the subject fitting. Attached as Fig 1. The submitter also provided updated drawings of the construction of the subject fitting not covered under the mentioned UL file.

Construction: Updated drawings Nos 20336 and 6124 illustrate the present construction, supercedes the same Drawing Nos attached in the UL report.

Part B- Model XFAX-2

General: The construction is the same as the model XFA-2, except the length of the flame arrestor element was increased from .375" to .500" and the snap ring location in the body of the fitting was moved to accommodate the longer element.

Descriptive Documents Flame Arrestors Cat. Nos. XFA-2 & XFAX-2:

Subject	Drawing	Rev.	Date
SS Sintered Element	6124	G	02/25/03
XFA-2 Flame Arrestor Assembly	20336	N	02/28/03
Bulkhead fitting body for flame arrester	7887	B	04/18/00
XFAX-2 Bulkhead fitting body for flame arrester	20338	D	02/28/03

TEST REPORT

In addition to the test performed by UL a representative sample Cat No XFA-2 was subjected to the following test:

1. Explosion Flame Propagation Test: Std 30-M1986 Cl 6.5.4 (c)

   Class I, Group C - 37 +/- 0.5 percent hydrogen mixed with air five (5) trials were performed: Max Expl. pressure recorded 95 psi.

   Results: There was no external mixture ignition. Satisfactory.

   In view of the above, no further tests were deemed necessary.

Project 1113894: Additional test was not requested due to the flame path was increased creating a margin of safety for preventing the transmission of flame.

Project 1150567: Tests were performed by CSA Laboratory and detail Test Data is attached under Appendix I, (Kept in Eng. File only).
Summary of the Tests are as follows:
A sample of model XFAX2 flame arrestor (1/2 in Trade Size) was subjected to the following Tests:

1.Overpressure Test: CSA C22.2 No.30, Clause 6.11

A 8000 kPa (1160 psi) pressure was applied for 1 min.

Result: Satisfactory.

2.Explosion Flame Propagation Test for Flame Arrestors: CSA C22.2 No. 30, Clause 6.5.4
The sample was installed in the outer wall of the test enclosure and submitted to 5 shots of a mixture 40.0% Hydrogen and 20% Oxygen.

Result: No propagation. Satisfactory.

No further tests were considered necessary

Project No. 1421204: This Project covers the addition of alternate manufacturer of Sintered Element that is incorporated into the flame arrestor fittings. The sintered element has the same characteristics as the one that is currently used. The manufacturer of the sintered element tested the sintered element according to ISO Standard 4003:1977 (Determination of Bubble Test Pore Size); ISO Standard 4022:1973(Fluid Permeability) and ISO Standard 2738:1987(Density and open Porosity). Records are kept in the correspondence file.
In View of the above the only test deemed necessary was as follows:

One sample of Cat. No. XFA-2 (Cl. I, Gr. C & D) was subjected to a Hydrostatic Overpressure of 600 psig/min

One sample of Cat. No. XFAX-2 (Cl. I, Gr. B, C & D) was subjected to a Hydrostatic Overpressure of 1160 psig/min.

Results: Satisfactory

REV	REVISION	BY	ECN	DATE
E	UPDATED TO LATEST ENG. STD., ADDED PART TABLE	MAD	5805	02/23/00
F	ADDED NOTE #3, NOTE #4 AND REVISED TOLERANCE	AAM	6214	01/04/01
G	ADDED ALTERNATE VENDOR	AAM	7186	2/25/03

NOTES:

1. MISSING MATERIAL MAY NOT EXCEED .063 x .032 x .032 ON ANY EXTERNAL SUFACE (1.6mm)x(.8mm)x(.8mm)
2. VENDOR: ***MOTT METAL CO. (CONN.)***
   ALTERNATE VENDOR: ***CHAND METALLURGICAL*** [G]

[F] 3. SUPPLIED WITH EACH ORDER:
CERTIFICATE OF CONFORMITY PER ANNEX B OF STANDARD EN 50018 FOR PART #6124-1 FOR DETERMINATION OF:

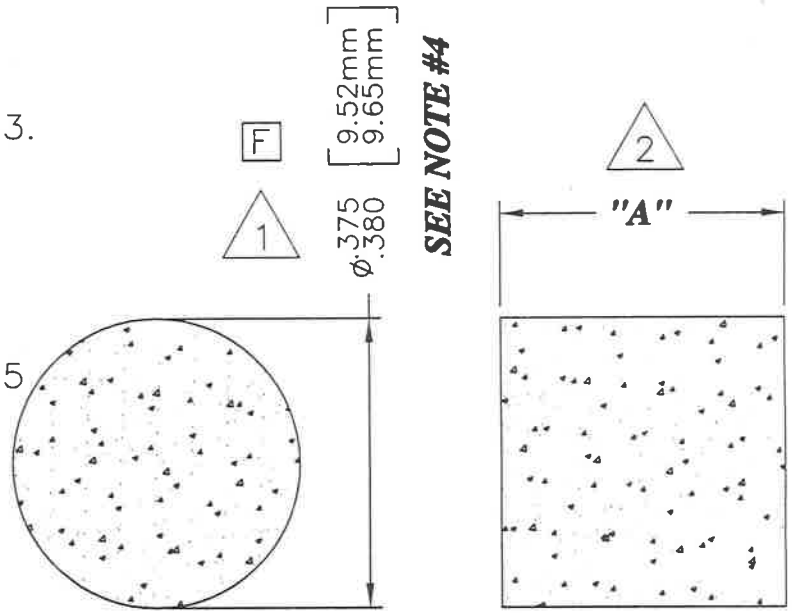
A) EQUIVALANT BUBBLE TEST PORE SIZE BY METHOD SPECIFIED IN ISO STANDARD 4003.

B) DENSITY OF SINTERED ELEMENT IN ACCORDANCE WITH ISO STANDARD 2738.

C) DETERMINATION OF OPEN POROSITY AND/OR FLUID PERMEABILITY IN ACCORDANCE WITH ISO STANDARD 2738 AND 4022.

[F] 4. PURCHASE MOTT STANDARD PART WITH .377±.005 DIA. SORT IN HOUSE TO DIA. SHOWN.

CERTIFICATE No. 1113894
PROJECT No. 1421204
MASTER CONTRACT: 159014



PART IDENTIFICATION TABLE

PART #	"A"	MOTT PART #	CHAND PART # [G]
6124	.375(9.5MM)	1043982-01-999	CMS-.375-.375-100
6124-1	.500(12.7MM)	1500S-.377-.500-100	CMS-.375-.500-100

DO NOT SCALE DRAWING
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
CAST TOLERANCES ON DIMENSIONS NOT OTHERWISE SPECIFIED:
✓ = 1/8" STOCK
FILLET OR CORNER RADII 1/8"
DRAFT 1 1/2°
FRAC ±1/16"
ANGLES ± 1°

MACHINE TOLERANCES ON DIMENSIONS NOT OTHERWISE SPECIFIED:
✓ = 125
.XX ± .03" .XXX ± .010"
FILLET RADII .03"
EDGE BREAK .005"-.015" R. or 45°
ANGLES ± 0°-30'

GAGING FOR THREADED HOLES NOT OTHERWISE SPECIFIED:
NPT E-21-2.6
NPSM E-24-1.0

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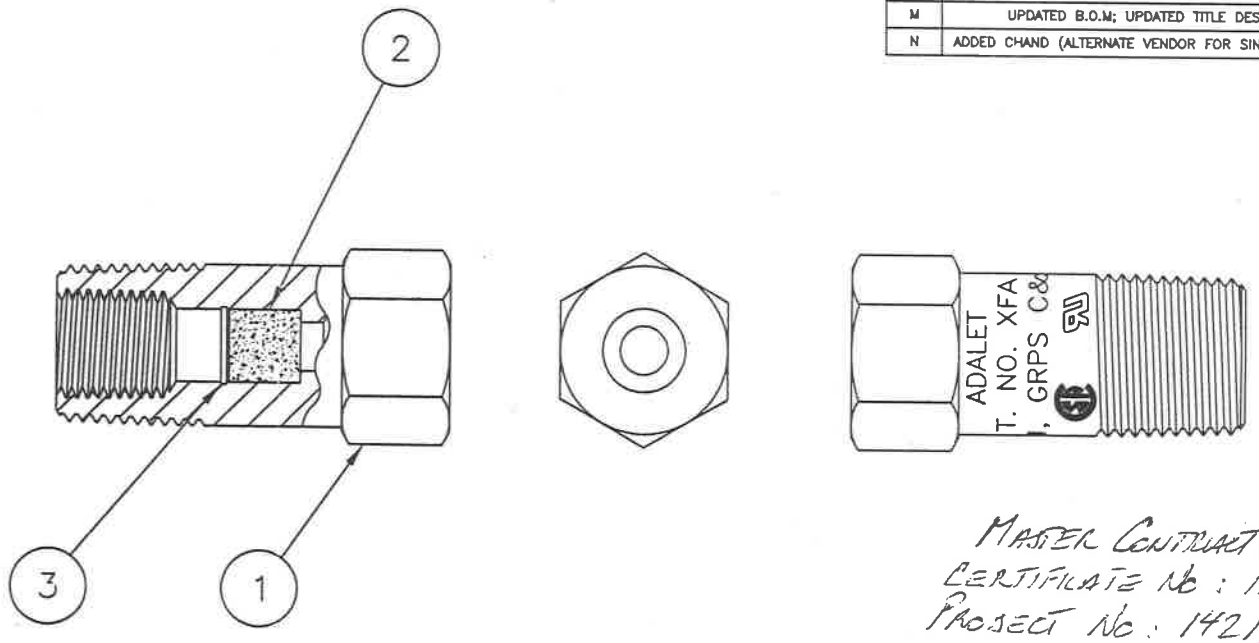
TITLE: SS SINTERED ELEMENT
MATERIAL: 316 SS 100 MICRON
FINISH: NATURAL
CAT NO: N/A

DRAWN BY: MAD
DATE: 02/23/00
ENG APPROVAL: 3/3/03
PLOT SCALE: 4=1
MFG APPROVAL: N/A
DWG SIZE: A
DWG NO: 6124
SHT: 1OF1
REV: G

REV	REVISION	BY	ECN	DATE
L	REVISE &REDRAWN TO CAD	KM	3075	1/11/96
M	UPDATED B.O.M; UPDATED TITLE DESCRIPTION	GJW	7159	1/31/03
N	ADDED CHAND (ALTERNATE VENDOR FOR SINTERED ELEMENT)	AAM	7186	2/28/03



MASTER CONTRACT: 150014
CERTIFICATE No: 1113894
PROJECT No: 1421204

M

BILL OF MATERIAL

ITEM #	QTY.	PART #	DESCRIPTION
1	1	6126	XFA–2 BODY (303 SS)
2	CHOOSE 1	6124	SINTERED ELEMENT MOTT #1043982–01–999
			SINTERED ELEMENT CHAND #CMS–.375–.375–100 N
3	1	5191–3	RETAINING RING N5000–37H

DO NOT SCALE DRAWING
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
CAST % TOLERANCES ON DIMENSIONS NOT OTHERWISE SPECIFIED:
√ = 1/8" STOCK
FILLET OR CORNER RADII 1/8"
DRAFT 1 1/2°
FRAC ±1/16"
ANGLES ± 1°

MACHINE TOLERANCES ON DIMENSIONS NOT OTHERWISE SPECIFIED:
√ = 125
.XX ± .03" .XXX ± .010"
FILLET RADII .03"
EDGE BREAK .005"–.015" R. or 45°
ANGLES ± 0°–30'

GAGING FOR THREADED HOLES NOT OTHERWISE SPECIFIED:
NPT E–21–2.6
NPSM E–24–1.0

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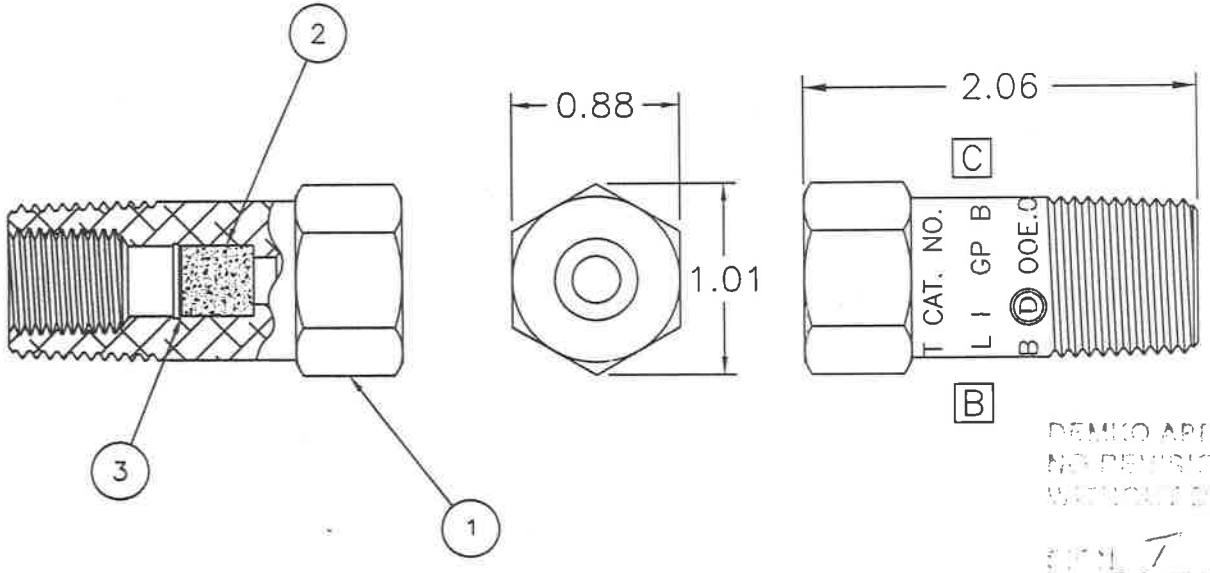
TITLE: XFA–2 FLAME ARRESTOR ASSEMBLY
M
MATERIAL:
FINISH:
CAT NO: XFA–2

DRAWN BY: KM
DATE: 1/11/96
ENG APPROVAL: Tim Sully 3/3/03
PLOT SCALE: 1=1
MFG APPROVAL: N/A
DWG SIZE: A
DWG NO: 20336
SHT: 1OF1
REV: N

REV	REVISION	BY	ECN	DATE
B	REVISE DEMKO MARKING	AAM	5893	04/18/00
C	ADDED GROUP B	DJM	6214	2/9/01
D	ADDED CHAND (ALTERNATE VENDOR FOR SINTERED ELEMENT)	AAM	7186	2/28/03



MASTER CONTRACT: 153814
CERTIFICATE NO: 1115894
PROJECT NO: 1421204

DEMKO APPROVED
NO REVISION TO DRAWING
WITHOUT DEMKO APPROVAL

BILL OF MATERIAL

ITEM #	QTY.	PART #	DESCRIPTION
1	1	7887	XFAX2 BODY FLAME ARRESTER CENELEC
2	CHOOSE 1	6124-1	SINTERED ELEMENT MOTT #1500S-.377-.500-100
			SINTERED ELEMENT CHAND #CMS-.375-.500-100 D
3	1	5191-3	RETAINING RING N5000-37H

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CAST TOLERANCES ON DIMENSIONS NOT OTHERWISE SPECIFIED:
✓ = 1/8" STOCK
FILLET OR CORNER RADII 1/8"
DRAFT 1 1/2
FRAC ±1/16
ANGLES ± 1°

MACHINE TOLERANCES ON DIMENSIONS NOT OTHERWISE SPECIFIED:
✓ = 125
.XX ± .03" .XXX ± .010"
FILLET RADII .03"
EDGE BREAK .005"-.015" R. or 45°
ANGLES ± 0°-30'

GAGING FOR THREADED HOLES NOT OTHERWISE SPECIFIED:
NPT E-21-2.6
NPSM E-24-1.0

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TITLE: CENELEC BULKHEAD FITTING BODY FOR FLAME ARRESTOR ASSEMBLY EExd IIB

MATERIAL:
FINISH:
CAT NO: XFAX2

DRAWN BY: AAM
DATE: 03-17-00
ENG APPROVAL: 3/13/03
PLOT SCALE: 1=1
MFG APPROVAL:
DWG SIZE: A
DWG NO: 20338
SHT: 1OF1
REV: D