

June 08, 2021

**Attention:** Cecylia Garbacz  
TECHNICAL STANDARDS & SAFETY AUTHORITY  
345 CARLINGVIEW DRIVE  
TORONTO, ON M9W 6N9

The design submission, tracking number 2021-02756, originally received on May 19, 2021 was surveyed and accepted for registration as follows:

**CRN :** 0D22733.52 **Accepted on:** June 08, 2021  
**Reg Type:** NEW DESIGN **Expiry Date:** October 09, 2030  
**Drawing No. :** SCOPE OF CRN REGISTRATION  
**Fitting type:** HOSE ASSEMBLIES  
Design registered in the name of : DETROIT FLEX DEFENSE

**The registration is conditional on your compliance with the following notes:**

*\*\* Design Report #: R-1232A/B/C/D/E Rev 0*

*As indicated on AB-41 Statutory Declaration form and submitted documentation, the code of construction are ASME B31.3 and other engineering analysis.*

- It is our understanding that the fitting(s), included as the scope of this submission, that is(are) subject to the Safety Codes Act shall comply with the requirements of the indicated Standard or Code of Construction on the AB-41 Statutory Declaration as supported by the attached data which identifies the dimensions, materials of construction, press./temp. ratings and the basis for such ratings, and the identification marking of the fittings.*
- This registration is valid only for fittings fabricated at the location(s) covered by the QC certificate attached to the accepted AB-41 Statutory Declaration form.*
- This registration is valid only until the indicated expiry date and only if the Manufacturer maintains a valid quality management system approved by an acceptable third-party agency until that date.*
- Should the approval of the quality management system lapse before the expiry date indicated above, this registration shall become void.*

An invoice covering survey and registration fees will be forwarded from our Revenue Accounts.

If you have any question don't hesitate to contact me by phone at (780) 433-0281 ext 3337 or fax (780) 437-7787 or e-mail [Dick@absa.ca](mailto:Dick@absa.ca).

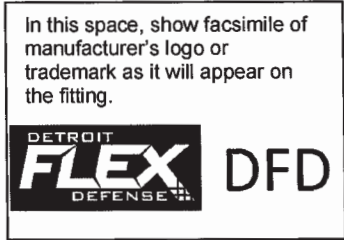
Sincerely,



DICK, ASHLING, P. Eng.  
DOP Cert. No. D00007936

STATUTORY DECLARATION Registration of Fittings

I, BRYAN M. MOOSEKIAN, CHIEF OF OPERATIONS (name of applicant) (position title) (must be in a position of authority) of DETROIT FLEX DEFENCE (name of manufacturer) located at 2921 INDUSTRIAL ROW, TROY, MI, 48084 (plant address)



do solemnly declare that the fittings listed hereunder, which are subject to the Safety Codes Act (check one)

- Comply with the requirements of ASME B31.3 (title of recognized North American Standard) which specifies the dimensions, materials of construction, pressure/temperature ratings and identification marking of the fittings, or are not covered by the provisions of a recognized North American standard and are therefore manufactured to comply with as supported by the attached (title of code of construction or other applicable document)

data which identifies the dimensions, materials of construction, pressure/temperature ratings and the basis for such ratings, and the marking of the fittings for identification.

I further declare that the manufacture of these fittings is controlled by a quality control program which has been verified by the following authority, ASR ISO 9001 as being suitable for the manufacture of these fittings to the stated standard. The fittings covered by this declaration, for which I seek registration, are CAT. D (brief description of fittings)

In support of this application, the following information, calculations and/or test data are attached: SCOPE OF CRN REGISTRATION, DRAWINGS, CALCULATIONS

DECLARED before me at Troy in the State of Michigan this 26th day of February, 2020. Notary Public, State of Michigan, County Of Oakland. My Commission Expires 8-11-2021. Acting in the County of Oakland. (print) Cari M. Powell (a Commissioner of Oaths or Notary Public) (sign) Cari M Powell (signature of applicant)

For ABSA Office Use Only:

NOTES:

To the best of my knowledge and belief, the application meets the requirements of Standard B51, Clause 4.2, and is accepted for registration in Category

Registration Number:

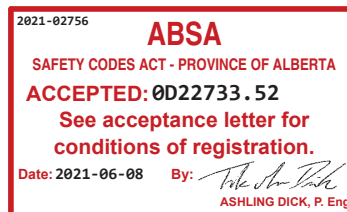
Date Registered:

Expiry Date:

2021-02756 ABSA SAFETY CODES ACT - PROVINCE OF ALBERTA of the Safety Codes Act and CSA ACCEPTED: 0022733.52 See acceptance letter for conditions of registration. (Signature of the Administrator/SCA) Date: 2021-06-08 By: Ashling Dick, P. Eng.

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This stamp and signature have been affixed electronically to this registered design as required by Section 20(1) of the Pressure Equipment Safety Regulation, in accordance with the Electronic Transactions Act.

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## SCOPE OF CRN REGISTRATION

### PRODUCT DESCRIPTION

<b>Design Report:</b>	R-1232A		
<b>Product Description</b>	<b>Process Connections</b>	<b>Design Code</b>	<b>Material Specification (Note 2)</b>
H9011, H9011NC H9016, H9016HY, H9016SP, H9016TP Hose Assemblies	Size 04: 7/16-20 thread Size 05: 1/2-20 thread Size 06: 9/16-18 thread Size 08: 3/4-16 thread Size 12: 1-1/16"-12 thread Size 04: 0.250" Tube OD Size 05: 0.313" Tube OD Size 06: 0.375" Tube OD Size 08: 0.500" Tube OD Size 12: 0.750" Tube OD Straight, 45 Degree and 90 Degree end fittings	ARPM IP-2 Ninth Edition; 2015, ASME B31.3, 2018	<b>Braid:</b> Type 304 Stainless Steel (Tensile 270,000 psi min, 300,000 psi max.) <b>Collar, Fitting, Nuts:</b> ASTM A479-304 / AMS 5639 ASTM A479-304L / AMS 5647 ASTM A182-304 / AMS 5639 ASTM A182-304L / AMS 5647 <b>Retention Pin:</b> ASTM A580-302 / AMS 5637, ASTM A580-305

### PRODUCT DESCRIPTION

Hose Size	Group 1 Service MAWP AT 400°F (Note 1)	Group 2 Service MAWP AT 400°F (Note 1)	Group 3 Service MAWP AT 400°F (Note 1)
04	2600 psig	2080 psig	1040 psig
05	2000 psig	1600 psig	800 psig
06	1700 psig	1360 psig	680 psig
08	1600 psig	1280 psig	640 psig
12	1000 psig	800 psig	400 psig

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**SCOPE OF CRN REGISTRATION**

PRODUCT DESCRIPTION			
<b>Design Report:</b>	<b>R-1232B</b>		
<b>Product Description</b>	<b>Process Connections</b>	<b>Design Code</b>	<b>Material Specification (Note 2)</b>
H9012, H9012HS H9013, H9013HS Hose Assemblies	Size 04: 7/16-20 thread Size 06: 9/16-18 thread Size 08: 3/4-16 thread Size 12: 1-1/16"-12 thread Size 04: 0.250" Tube OD Size 06: 0.375" Tube OD Size 08: 0.500" Tube OD Size 12: 0.750" Tube OD Straight, 45 Degree and 90 Degree end fittings	ARPM IP-2 Ninth Edition; 2015, ASME B31.3, 2018	<b>Braid:</b> Type 304 Stainless Steel (Tensile 270,000 psi min, 300,000 psi max.) <b>Collar, Fitting, Nuts:</b> ASTM A479-304 / AMS 5639 ASTM A479-304L / AMS 5647 ASTM A182-304 / AMS 5639 ASTM A182-304L / AMS 5647 <b>Retention Pin:</b> ASTM A580-302 / AMS 5637, ASTM A580-305
PRODUCT DESCRIPTION			
<b>Hose Size</b>	<b>Group 1 Service MAWP AT 400°F (Note 1)</b>	<b>Group 2 Service MAWP AT 400°F (Note 1)</b>	<b>Group 3 Service MAWP AT 400°F (Note 1)</b>
04	2600 psig	2080 psig	1040 psig
06	1700 psig	1360 psig	680 psig
08	1700 psig	1360 psig	680 psig
12	1000 psig	800 psig	400 psig

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### SCOPE OF CRN REGISTRATION

PRODUCT DESCRIPTION			
<b>Design Report:</b>	<b>R-1232C</b>		
<b>Product Description</b>	<b>Process Connections</b>	<b>Design Code</b>	<b>Material Specification (Note 2)</b>
H9037, H9038 Hose Assemblies	Size 04: 7/16-20 thread Size 06: 9/16-18 thread Straight, 45 Degree and 90 Degree end fittings	ARPM IP-2 Ninth Edition; 2015, ASME B31.3, 2018	<b>Braid:</b> Type 304 Stainless Steel (Tensile 1900 N/MM <sup>2</sup> min, 2150 N/MM <sup>2</sup> max.) <b>Collar, Fitting, Nuts:</b> ASTM A479-304 / AMS 5639 ASTM A479-304L / AMS 5647 ASTM A182-304 / AMS 5639 ASTM A182-304L / AMS 5647 <b>Retention Pin:</b> ASTM A580-302 / AMS 5637, ASTM A580-305
PRODUCT DESCRIPTION			
<b>Hose Size</b>	<b>Group 1 Service MAWP AT 450°F (Note 1)</b>	<b>Group 2 Service MAWP AT 450°F (Note 1)</b>	<b>Group 3 Service MAWP AT 450°F (Note 1)</b>
04	1280 psig	1024 psig	512 psig
06	1160 psig	928 psig	464 psig

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**PRODUCT DESCRIPTION**

<b>Design Report:</b>	<b>R-1232C</b>		
<b>Product Description</b>	<b>Process Connections</b>	<b>Design Code</b>	<b>Material Specification (Note 2)</b>
H9037, H9038 Hose Assemblies	Size 08: 3/4-16 thread Size 12: 1-1/16"-12 thread Size 16: 1-5/16"-12 thread Straight, 45 Degree and 90 Degree end fittings	ARPM IP-2 Ninth Edition; 2015, ASME B31.3, 2018	<b>Braid:</b> Type 304 Stainless Steel (Tensile 1800 N/MM <sup>2</sup> min, 2050 N/MM <sup>2</sup> max.) <b>Collar, Fitting, Nuts:</b> ASTM A479-304 / AMS 5639 ASTM A479-304L / AMS 5647 ASTM A182-304 / AMS 5639 ASTM A182-304L / AMS 5647 <b>Retention Pin:</b> ASTM A580-302 / AMS 5637, ASTM A580-305

**PRODUCT DESCRIPTION**

<b>Hose Size</b>	<b>Group 1 Service MAWP AT 450°F (Note 1)</b>	<b>Group 2 Service MAWP AT 450°F (Note 1)</b>	<b>Group 3 Service MAWP AT 450°F (Note 1)</b>
08	870 psig	696 psig	348 psig
12	610 psig	488 psig	244 psig
16	540 psig	432 psig	216 psig

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**SCOPE OF CRN REGISTRATION**

PRODUCT DESCRIPTION			
<b>Design Report:</b>	<b>R-1232D</b>		
<b>Product Description</b>	<b>Process Connections</b>	<b>Design Code</b>	<b>Material Specification (Note 2)</b>
H9011, H9011NC H9016, H9016HY, H9016SP, H9016TP H9012, H9012HS H9013, H9013HS Hose Assemblies	Size 06 x 1/2" Type A ASME BPE Ferrule, Size 08 x 3/4" Type A ASME BPE Ferrule, Size 08 x 1" Type B ASME BPE Ferrule, Size 12 x 1" Type B ASME BPE Ferrule. <b>(Note 4)</b>	ARPM IP-2 Ninth Edition; 2015, ASME B31.3, 2018	<b>Braid:</b> Type 304 Stainless Steel (Tensile 270,000 psi min, 300,000 psi max.) <b>Collar, Fitting, Nuts, Ferrules:</b> ASTM A479-304 / AMS 5639 ASTM A479-304L / AMS 5647 ASTM A182-304 / AMS 5639 ASTM A182-304L / AMS 5647 <b>Retention Pin:</b> ASTM A580-302 / AMS 5637, ASTM A580-305
PRODUCT DESCRIPTION			
<b>Hose Size</b>	<b>Group 1 Service MAWP AT 302°F (Note 1)</b>	<b>Group 2 Service MAWP AT 302°F (Note 1)</b>	<b>Group 3 Service MAWP AT 302°F (Note 1)</b>
Size 06 x 1/2" Type A	363 psig	363 psig	363 psig
Size 08 x 3/4" Type A	363 psig	363 psig	363 psig
Size 08 x 1" Type B	363 psig	363 psig	363 psig
Size 12 x 1" Type B	363 psig	363 psig	363 psig

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PRODUCT DESCRIPTION			
<b>Design Report:</b>	<b>R-1232E</b>		
<b>Product Description</b>	<b>Process Connections</b>	<b>Design Code</b>	<b>Material Specification (Note 2)</b>
H9037, H9038 Hose Assemblies	Size 04 x 1/4" Type A ASME BPE Ferrule, Size 06 x 3/8" Type A ASME BPE Ferrule, <b>(Note 4)</b>	ARPM IP-2 Ninth Edition; 2015, ASME B31.3, 2018	<b>Braid:</b> Type 304 Stainless Steel (Tensile 1900 N/MM <sup>2</sup> min, 2150 N/MM <sup>2</sup> max.) <b>Collar, Fitting, Nuts, Ferrules:</b> ASTM A479-304 / AMS 5639 ASTM A479-304L / AMS 5647 ASTM A182-304 / AMS 5639 ASTM A182-304L / AMS 5647 <b>Retention Pin:</b> ASTM A580-302 / AMS 5637, ASTM A580-305
PRODUCT DESCRIPTION			
<b>Hose Size</b>	<b>Group 1 Service MAWP AT 302°F (Note 1)</b>	<b>Group 2 Service MAWP AT 302°F (Note 1)</b>	<b>Group 3 Service MAWP AT 302°F (Note 1)</b>
04 x 1/4" Type A	363 psig	363 psig	363 psig
06 x 3/8" Type A	363 psig	363 psig	363 psig



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**PRODUCT DESCRIPTION**

<b>Design Report:</b>	R-1232E		
<b>Product Description</b>	<b>Process Connections</b>	<b>Design Code</b>	<b>Material Specification (Note 2)</b>
H9037, H9038 Hose Assemblies	Size 08 x 1/2" Type A, Size 08 x 1" Type B, Size 08 x 1-1/2" Type B, Size 12 x 3/4" Type A, Size 12 x 1" Type B, Size 12 x 1-1/2" Type B, Size 16 x 1" Type B, Size 16 x 1-1/2" Type B, ASME BPE Ferrule. <b>(Note 4)</b>	ARPM IP-2 Ninth Edition; 2015, ASME B31.3, 2018	<b>Braid:</b> Type 304 Stainless Steel (Tensile 1800 N/MM <sup>2</sup> min, 2050 N/MM <sup>2</sup> max.) <b>Collar, Fitting, Nuts, Ferrules:</b> ASTM A479-304 / AMS 5639 ASTM A479-304L / AMS 5647 ASTM A182-304 / AMS 5639 ASTM A182-304L / AMS 5647 <b>Retention Pin:</b> ASTM A580-302 / AMS 5637, ASTM A580-305

**PRODUCT DESCRIPTION**

<b>Hose Size</b>	<b>Group 1 Service MAWP AT 302°F (Note 1)</b>	<b>Group 2 Service MAWP AT 302°F (Note 1)</b>	<b>Group 3 Service MAWP AT 302°F (Note 1)</b>
08 x 1/2" Type A	363 psig	363 psig	348 psig
08 x 1" Type B	363 psig	363 psig	348 psig
08 x 1-1/2" Type B	363 psig	363 psig	348 psig
12 x 3/4" Type A	363 psig	363 psig	244 psig
12 x 1" Type B	363 psig	363 psig	244 psig
12 x 1-1/2" Type B	363 psig	363 psig	244 psig
16 x 1" Type B	363 psig	363 psig	216 psig
16 x 1-1/2" Type B	363 psig	363 psig	216 psig

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#### **NOTES:**

1) The maximum allowable working pressures (MAWP) stated above are applicable to the following Service Groups:

**Group 1:** Water and all other liquids, solid materials suspended in liquids or air, compressed air and other gases.

**Group 2:** Liquid media that immediately changes into gas under standard atmospheric conditions.

**Group 3:** Steam

2) AMS = Aerospace Material Specification. Material meeting the requirements of the AMS specification specified must meet the requirements of the equivalent ASTM specification for the CRN to be valid.

3) For low temperature operation the products shall conform to the rules of the applicable codes under which they are used.

4) The ASME Ferrule connection shall be used with a clamp, however the assembly clamp is not part of this CRN. Pressure-Temperature ratings may be limited by the clamp type used in the joint assembly. The clamp used to complete the joint shall have its own CRN and shall have pressure-temperature ratings the same or higher than the product ratings.