

Montréal, le 3 juin 2021.

MRS. CECYLIA GARBACZ
TECHNICAL STANDARDS & SAFETY AUTHORITY
345 CARLINGVIEW DRIVE
TORONTO ONTARIO
CANADA M9W6N9

Manufacturer : DETROIT FLEX DEFENSE
2921 INDUSTRIAL ROW,
TROY MI
USA 48084

OUR REFERENCE : 949453
Design number : PER SCOPE OF REGISTRATION

Subject: Design registration confirmation

Hi,

We wish to inform you that your design registration application has been evaluated and that it was registered under the following Canadian Registration Number (CRN): **0D22733.56**.

The following is a reminder of your obligations regarding certain requirements of the regulation respecting pressure vessels, and the referenced codes and standards:

- The manufacturer must maintain a valid quality control program to manufacture equipment according to the CRN.
- The CRN remains valid as long as there are no changes to the design calculations that might affect the pressure boundary. The design registration of fittings expires 10 years after acceptance. It must, therefore, be resubmitted for validation.
- The manufacturer shall submit a copy of the *Manufacturer's Data Report* to us for each equipment manufactured according to this CRN within 30 days following the signing of this report.
- The drawing number and the revision number registered under this CRN must be indicated on the *Manufacturer's Data Report* for equipment manufactured according to the CRN.

This notice of approval does not relieve the manufacturer of their responsibilities with respect to the design or fabrication of equipment manufactured according to this CRN.

Yours sincerely,

Bureau d'expertise et d'homologation en équipements sous pression

Montréal

545, boul. Crémazie Est, 7ième étage
Montréal (Québec) H2M 2V2
Téléphone : 514 873-6459
Sans frais : 1 866 262-2084
www.rbq.gouv.qc.ca

Montréal, 3 juin 2021.

MADAME CECYLIA GARBACZ
TECHNICAL STANDARDS & SAFETY AUTHORITY
345 CARLINGVIEW DRIVE
TORONTO ONTARIO
CANADA M9W6N9

Fabricant : DETROIT FLEX DEFENSE
2921 INDUSTRIAL ROW,
TROY MI
USA 48084

Numéro de dossier : 949453
Numéro(s) de dessin(s) : PER SCOPE OF REGISTRATION

Objet : Enregistrement des plans et devis – Confirmation de l'enregistrement

Bonjour,

Nous vous informons que votre demande d'enregistrement de plans et devis a été traitée et que cette conception a été enregistrée sous le numéro d'enregistrement canadien (NEC\CRN) suivant : **0D22733.56**.

Nous portons votre attention sur certaines exigences réglementaires concernant les installations sous pression, ainsi que des codes et normes qui y sont associés :

- Le fabricant doit maintenir un programme de contrôle de la qualité valide pour fabriquer un équipement selon ce NEC;
- Ce numéro d'enregistrement demeure valide tant et aussi longtemps que les paramètres de conception demeurent inchangés. Dans le cas d'accessoires, l'enregistrement est valide pour une durée de 10 ans à partir de la date d'enregistrement. Les documents de conception doivent alors être resoumis pour validation;
- Le fabricant doit nous transmettre une copie de la *Déclaration de conformité du constructeur (Manufacturer's Data Report)* pour chaque appareil ou chaudière fabriqué selon ce NEC dans les 30 jours suivant la signature de cette déclaration;
- Le numéro de dessin enregistré et le numéro de révision doivent être indiqués sur la déclaration de conformité pour les équipements fabriqués selon ce NEC.

Le présent avis d'approbation ne dégage pas le fabricant de ses responsabilités quant à la conception ou à la construction des équipements ou d'accessoires fabriqués selon un NEC.

Bureau d'expertise et d'homologation en équipements sous pression

Statutory Declaration Registration of Fittings



(a) Design Qualification

I, BRYAN M. MOOSEKIAN
(Name of applicant)
CHEIF OF OPERATIONS
(Position eg, president, plant manager, chief eng.)
of DETROIT FLEX DEFENSE
(name of company)
Located at 2921 INDUSTRIAL ROW, TROY, MI, 48084
(plant address)

do solemnly declare that the fittings listed hereunder, which are subject to the Boilers & Pressure Vessels Act:

- comply with all the requirements of the ANSI/ASME codes as to their dimensions, material, identification & service for which are required:
Or
 are not covered by the provisions of the ANSI/ASME codes, and are therefore constructed to comply with _____
_____ code and standard, and are designed to the best current engineering practice, as shown by the supporting test data.

(b) Quality control of Manufacture

I further declare the manufacture of these fittings is controlled by a quality control program which complies with the requirements of ISO 9001, and has been verified by the following authority or authorized agency ASR
The fittings² covered by this declaration, for which I seek registration, are CAT. D

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

Declared before me at Troy
In the of State of Michigan
The 26th day of February AD 2020
Cari M Powell
A (commissioner for oaths)
CARI M POWELL
Notary Public, State of Michigan
County Of Oakland
My Commission Expires 8-11-2021
Acting in the County of OAKLAND
[Signature]
Signature of Declarer³

8-11-2021

For Official Use Only

The application is accepted for registration in Category _____ in accordance with the Boilers & Pressure Vessels Act and CSA Standard B51.

This registration must be revalidated after ten (10) years from the date of acceptance.

Registered Number CRN _____ For the Chief Inspector _____
Date _____

¹ Three completed copies of Statutory Declaration form together with three copies of Catalogs, drawings of Bulletins illustrating above fittings shall be submitted.
² All fittings are required to be registered in the name of the Manufacturer.
³ This form shall be completed and signed by the president of highest official in the manufacturing plant where the fitting is produced.

DETROIT FLEX DEFENSE

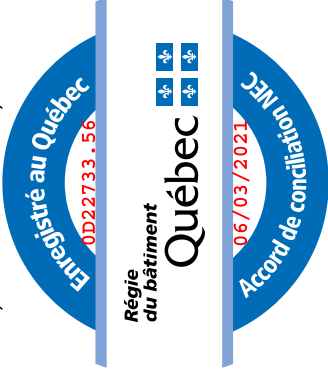
2921 INDUSTRIAL ROW,
TROY, MICHIGAN,
48084



18-Feb-21

PAGE 1 OF 8

SCOPE OF CRN REGISTRATION

PRODUCT DESCRIPTION			
Design Report:	R-1232A		
Product Description	Process Connections	Design Code	Material Specification (Note 2)
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 	Braid: Type 304 Stainless Steel (Tensile 270,000 psi min, 300,000 psi max.) Collar, Fitting, Nuts: ASTM A479-304 / AMS 5639 ASTM A479-304L / AMS 5647 ASTM A182-304 / AMS 5639 ASTM A182-304L / AMS 5647 Retention Pin: 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

DETROIT FLEX DEFENSE

2921 INDUSTRIAL ROW,
TROY, MICHIGAN,
48084



18-Feb-21

PAGE 2 OF 8

SCOPE OF CRN REGISTRATION

PRODUCT DESCRIPTION			
Design Report:	R-1232B		
Product Description	Process Connections	Design Code	Material Specification (Note 2)
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	Braid: Type 304 Stainless Steel (Tensile 270,000 psi min, 300,000 psi max.) Collar, Fitting, Nuts: ASTM A479-304 / AMS 5639 ASTM A479-304L / AMS 5647 ASTM A182-304 / AMS 5639 ASTM A182-304L / AMS 5647 Retention Pin: 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
06	1700 psig	1360 psig	680 psig
08	1700 psig	1360 psig	680 psig
12	1000 psig	800 psig	400 psig

DETROIT FLEX DEFENSE

2921 INDUSTRIAL ROW,
TROY, MICHIGAN,
48084



18-Feb-21

PAGE 3 OF 8

SCOPE OF CRN REGISTRATION

PRODUCT DESCRIPTION			
Design Report:	R-1232C		
Product Description	Process Connections	Design Code	Material Specification (Note 2)
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	Braid: Type 304 Stainless Steel (Tensile 1900 N/MM ² min, 2150 N/MM ² max.) Collar, Fitting, Nuts: ASTM A479-304 / AMS 5639 ASTM A479-304L / AMS 5647 ASTM A182-304 / AMS 5639 ASTM A182-304L / AMS 5647 Retention Pin: ASTM A580-302 / AMS 5637, ASTM A580-305
PRODUCT DESCRIPTION			
Hose Size	Group 1 Service MAWP AT 450°F (Note 1)	Group 2 Service MAWP AT 450°F (Note 1)	Group 3 Service MAWP AT 450°F (Note 1)
04	1280 psig	1024 psig	512 psig
06	1160 psig	928 psig	464 psig

DETROIT FLEX DEFENSE

2921 INDUSTRIAL ROW,
TROY, MICHIGAN,
48084



18-Feb-21

PAGE 4 OF 8

SCOPE OF CRN REGISTRATION

PRODUCT DESCRIPTION			
Design Report:	R-1232C		
Product Description	Process Connections	Design Code	Material Specification (Note 2)
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	Braid: Type 304 Stainless Steel (Tensile 1800 N/MM ² min, 2050 N/MM ² max.) Collar, Fitting, Nuts: ASTM A479-304 / AMS 5639 ASTM A479-304L / AMS 5647 ASTM A182-304 / AMS 5639 ASTM A182-304L / AMS 5647 Retention Pin: ASTM A580-302 / AMS 5637, ASTM A580-305
PRODUCT DESCRIPTION			
Hose Size	Group 1 Service MAWP AT 450°F (Note 1)	Group 2 Service MAWP AT 450°F (Note 1)	Group 3 Service MAWP AT 450°F (Note 1)
08	870 psig	696 psig	348 psig
12	610 psig	488 psig	244 psig
16	540 psig	432 psig	216 psig

DETROIT FLEX DEFENSE

2921 INDUSTRIAL ROW,
TROY, MICHIGAN,
48084



18-Feb-21

PAGE 5 OF 8

SCOPE OF CRN REGISTRATION

PRODUCT DESCRIPTION			
Design Report:	R-1232D		
Product Description	Process Connections	Design Code	Material Specification (Note 2)
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. (Note 4)	ARPM IP-2 Ninth Edition; 2015, ASME B31.3, 2018	Braid: Type 304 Stainless Steel (Tensile 270,000 psi min, 300,000 psi max.) Collar, Fitting, Nuts, Ferrules: ASTM A479-304 / AMS 5639 ASTM A479-304L / AMS 5647 ASTM A182-304 / AMS 5639 ASTM A182-304L / AMS 5647 Retention Pin: ASTM A580-302 / AMS 5637, ASTM A580-305
PRODUCT DESCRIPTION			
Hose Size	Group 1 Service MAWP AT 302°F (Note 1)	Group 2 Service MAWP AT 302°F (Note 1)	Group 3 Service MAWP AT 302°F (Note 1)
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

DETROIT FLEX DEFENSE

2921 INDUSTRIAL ROW,
TROY, MICHIGAN,
48084



18-Feb-21

PAGE 6 OF 8

SCOPE OF CRN REGISTRATION

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

DETROIT FLEX DEFENSE

2921 INDUSTRIAL ROW,
TROY, MICHIGAN,
48084



18-Feb-21

PAGE 7 OF 8

SCOPE OF CRN REGISTRATION

PRODUCT DESCRIPTION			
Design Report:	R-1232E		
Product Description	Process Connections	Design Code	Material Specification (Note 2)
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. (Note 4)	ARPM IP-2 Ninth Edition; 2015, ASME B31.3, 2018	Braid: Type 304 Stainless Steel (Tensile 1800 N/MM ² min, 2050 N/MM ² max.) Collar, Fitting, Nuts, Ferrules: ASTM A479-304 / AMS 5639 ASTM A479-304L / AMS 5647 ASTM A182-304 / AMS 5639 ASTM A182-304L / AMS 5647 Retention Pin: ASTM A580-302 / AMS 5637, ASTM A580-305
PRODUCT DESCRIPTION			
Hose Size	Group 1 Service MAWP AT 302°F (Note 1)	Group 2 Service MAWP AT 302°F (Note 1)	Group 3 Service MAWP AT 302°F (Note 1)
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

DETROIT FLEX DEFENSE

2921 INDUSTRIAL ROW,
TROY, MICHIGAN,
48084



18-Feb-21

PAGE 8 OF 8

SCOPE OF CRN REGISTRATION

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.