

ATTN: TSSA BPV NATIONAL REGISTRATION -
TECHNICAL STANDARDS & SAFETY AUTHORITY
345 CARLINGVIEW DR
TORONTO ON M9W 6N9

Date: 25-Mar-2025
TSBC Account #: 061440
TSBC Admin Number: 113882
Canadian Registration Number: 0D22889.51

Re: Application for Design Registration

The design, as detailed in your Design Portal application 0D22889.5ADD1 - Swagelok Company for a Pressure Fitting is registered with the following notes and considerations:

Registered To:	Swagelok Company
Project Name:	0D22889.5ADD1 - Swagelok Company
Drawing #:	Attachment A & Attachment B
Drawing Revision:	N/A

Conditions of Registration:

(1) Fitting Registration Expiry Date: 16-Dec-2030 (2) The registration is valid until the indicated expiry date only if the Manufacturer maintains a valid quality management system approved by an acceptable third-party agency until that date. Should the approval of quality management system lapse before the expiry date indicated above, this registration shall become void.

Reviewer's Notes:

Any additional conditions and considerations from the initial province of registration shall apply to this BC registration.

Full details of this submission including the scope of registration, design conditions, fabrication details, and calculations pertaining to this design are located in the above Admin Number on the Design Portal. For all other enquiries, please contact eim@technicalsaftybc.ca.

The Engineering Information Management Team



Technical Standards and Safety Authority
345 Carlingview Drive
Toronto, Ontario M9W 6N9
www.tssa.org

Show facsimile of manufacturer's logo or trademark, as it will appear on the fitting, in the space below

Swagelok®

STATUTORY DECLARATION Registration of Fittings

I, James Nordholt, Vice President of Engineering

(Name and Position, e.g. President, Plant Manager, Chief Engineer)

of Swagelok Company

(Name of Manufacturer)

Located at 29500 Solon Road, Solon, Ohio 44139

(Plant Address)

(440) 248-4600

(Telephone No.)

(440) 349-5970

(Fax No.)

☒ do solemnly declare that the fittings listed hereunder, which are subject to the **Technical Standards and Safety Act**, Boilers and Pressure Vessels Regulation, comply with all of the requirements of
Association for Rubber Products Manufactureres (ARPM) Hose Handbook

(Title of recognized North American Standard)

which specifies the dimensions, materials of construction, pressure/temperature ratings, identification marking the fittings and service;

☐ 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 data which identifies the dimensions, material of construction, pressure/temperature ratings and the basis for such ratings, the marking of the fitting for identification and service.

I further declare that the manufacture of these fittings is controlled by a quality system meeting the requirements of ISO 9001:2015
which has been verified by the following authority, BSI

The items covered by this declaration, for which I seek registration, are category D. Hose type fittings. In support of this application, the following information and/or test data are attached as follows:

ISO 9001: 2015 Certificate, Attachment A, Attachment B, Catalog Information and other Support Documents

(drawings, calculations, test reports, etc.)

Declared before me at SOLON in the STATE of OHIO

the 31st day of MAY AD 20 24

Commissioner for Oaths:

JEFFREY C TRUMBULL

(Printed name)

[Signature]

(Signature)



JEFFREY C. TRUMBULL

Notary Public

State of Ohio

Recorded in Lake County

Certificate # 2020-RE-813693

My Commission Expires

April 15, 2025

[Signature]

(Signature of Declarer)

FOR OFFICE USE ONLY

To the best of my knowledge and belief, the application meets the requirements of the **Technical Standards and Safety Act**, Boilers and Pressure Vessels Regulation, and CSA Standard B51 and is accepted for registration in Category 'D'

CRN: _____

Registered by: _____

Dated: 2024-12-16

NOTE: This registration expires on: 2030-12-16

2024-07139

ABSA

SAFETY CODES ACT - PROVINCE OF ALBERTA

ACCEPTED: **0D22889.52**

See acceptance letter for
conditions of registration.

Date: 2024-12-16

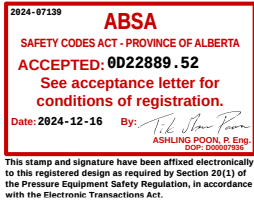
By:

Tik Shan Poon
ASHLING POON, P. Eng.
DOP: D00007936

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.

*Information provided in this application is releasable under the Freedom of Information and Privacy Protection Act and may be disclosed upon request.

PV 09553 (04/17) ** See attachment A for a list of manufacturing locations, and attachment B for scope of registration including addition and revision.



Attachment A. Swagelok Manufacturing Locations

This document lists the Swagelok locations where end item or component level manufacturing activities take place.

Swagelok Company 29500 Solon Road Solon, Ohio 44139 USA	Swagelok Company (HPF) 6050 Cochran Road Solon, Ohio 44139 USA
Swagelok Company (OFC) 29495 F.A. Lennon Drive Solon, Ohio 44139 USA	Swagelok Company (Snow Metal) 6060 Cochran Road Solon, Ohio 44139 USA
Swagelok Precision Machining Services 1924 East 337th Street Eastlake, OH 44095 USA	Swagelok (China) Fluid System Technologies Ltd. Changshu Export Process Zone Changshu Economic Development Zone Changshu, Jiangshu 215513 China
Swagelok Company (Highland) 318 Bishop Road Highland Heights, Ohio 44143 USA	Swagelok Company (Strongsville) 15400 Foltz Road Strongsville, Ohio 44119
Swagelok Company (Atlantic) 26651 Curtiss Wright Parkway Willoughby Hills, Ohio 44092 USA	Swagelok Company (Alfred) 29500 Ambina Drive Solon, Ohio 44139
Swagelok Company (Micro) 26653 Curtiss Wright Parkway Willoughby Hills, Ohio 44092 USA	Swagelok Hose Services Company (SHSC) 29900 Solon Industrial Parkway Solon, Ohio 44139
Swagelok Company (Falon 1) 348 Bishop Road Highland Heights, Ohio 44143 USA	Swagelok Limited Ballafletcher Road Tromode IM4 4RA Isle of Man
Swagelok Company (Falon 2) 358 Bishop Road Highland Heights, Ohio 44143 USA	Swagelok Company (Valley City) 5370 Wegman Drive Valley City, Ohio 44280 USA

Note: Hose assembly of end connections at Swagelok Authorized Sales and Services Centers is under scope of this CRN.



Canadian Registration Number Submittal
Category D Swagelok Nylon and Polyethylene Hose

THIS IS PART OF CRN
0D22889.5ADD1
Technical Standards and Safety Authority
Boilers and Pressure Vessels Safety
Program

June 4, 2024
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Attachment B: Scope of Registration for Swagelok Nylon Series (7N, 7R, 8N & 8R) and Polyethylene Series (7P) Hose Assemblies (Category D)

This document represents the scope of Swagelok Nylon Series (7N, 7R, 8N, 8R) and Polyethylene Series (7P) Hose Assemblies covered by this submission for CRN approval. These products have been evaluated in accordance with the Association for Rubber Products Manufacturers (ARPM) Hose Handbook.

Summary Table

Product Description or Series	Pressure retaining Material	End Connections and Sizes	Nominal Hose Size (in.)	Maximum Pressure at Temperature (psig)		Design Code of Construction
				At -40 to 70°F Temp.	At Maximum Temp. (200°F)	
7N Nylon Hose	<u>Smooth Bore Core</u> SAE nonconductive nylon (7N) <u>Core Covered By</u> Synthetic fiber reinforcement <u>Hose Cover</u> Polyurethane cover <u>End Connections</u> 316 SS	Swagelok Tube Fitting [SL SM] 1/4" – 1/2" (6-12mm)	1/4	2750	1750	2024-07139 ABSA SAFETY CODES ACT - PROVINCE OF ALBERTA ACCEPTED: 0D22889.52 See acceptance letter for conditions of registration. Date: 2024-12-16 By: <i>[Signature]</i> ASHLING POON, P. Eng. BOP: D05007836 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.
		Swagelok Tube Adapter [TA TM] 1/4" – 1/2" (6-12mm)				
		Female 37° JIC with female swivel nut [AN, AS] 1/4" – 1/2"	3/8	2250	1750	
7R Nylon Hose	<u>Smooth Bore Core</u> Nylon (7R) <u>Core Covered By</u> Synthetic fiber reinforcement <u>Hose Cover</u> Polyurethane cover <u>End Connections</u> 316 SS	Male ISO/BSP Tapered (ISO 7) Pipe Threads [MT] 1/4" – 1/2"	1/2	2000	1500	Association for Rubber Products Manufacturers (ARPM) Hose Handbook
		Male NPT Tapered Pipe Fitting [PM] 1/4" – 1/2"				
		Swagelok Tube Fitting [SL SM] 1/4" – 1/2" (6-12mm)	1/4	1750	2000	
8R Nylon Hose	<u>Smooth Bore Core</u> Nylon Blend Thermoplastic <u>Core Covered By</u> Synthetic fiber reinforcement	Swagelok Tube Adapter [TA TM] 1/4" – 1/2" (6-12mm)				
		Female 37° JIC with female swivel nut [AN, AS] 1/4" – 1/2"	3/8	2250	1750	
		Male ISO/BSP Tapered (ISO 7) Pipe Threads [MT] 1/4" – 1/2"	1/2	2000	1500	
8R Nylon Hose	<u>Smooth Bore Core</u> Nylon Blend Thermoplastic <u>Core Covered By</u> Synthetic fiber reinforcement	Male NPT Tapered Pipe Fitting [PM] 1/4" – 1/2"				
		Swagelok Tube Fitting [SL SM] 1/4" – 1" (6-25mm)	1/4	5000	3250	
		Swagelok Tube Adapter [TA TM] 1/4" – 1" (6-25mm)	3/8	4000	3250	
			1/2	3500	2750	

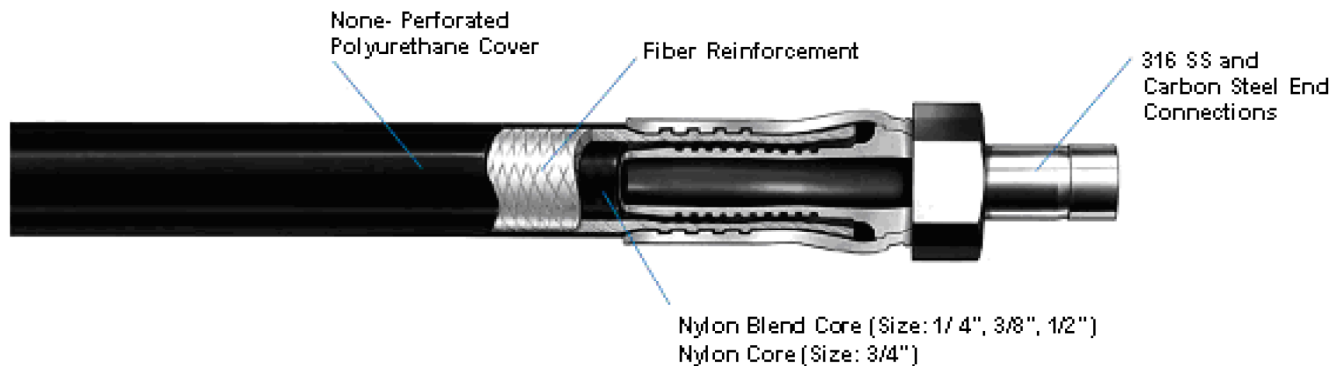


	Hose Cover Polyurethane cover	Female 37° JIC with female swivel nut [AN, AS] 1/4" – 1"	3/4	2250	1500	
	End Connections 316 SS	Male ISO/BSP Tapered (ISO 7) Pipe Threads [MT] 1/4" – 1" Male NPT Tapered Pipe Fitting [PM] 1/4" – 1"	1	2000	1125	

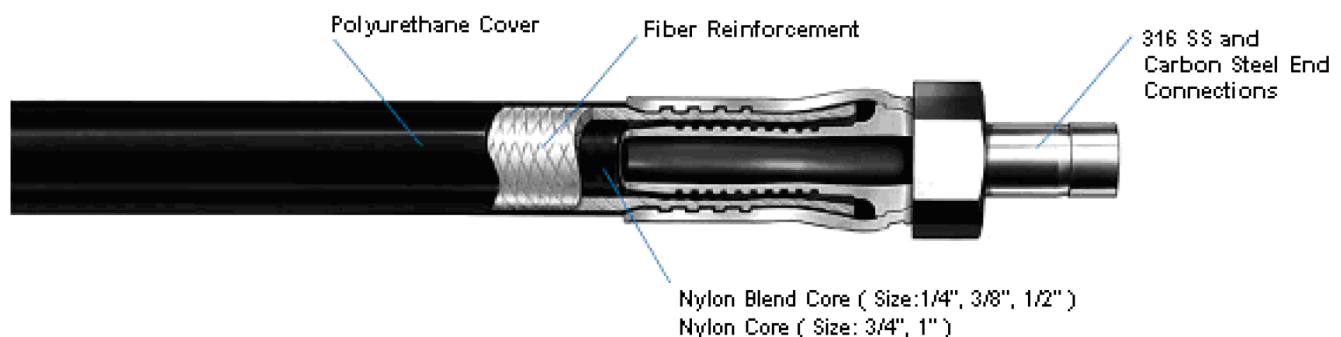
Product Description or Series	Pressure retaining Material	End Connections and Sizes	Nominal Hose Size (in.)	Maximum Pressure at Temperature (psig)		Design Code of Construction
				Up to 70°F Temp.	At Maximum Temp.	
8N Nylon Hose	Smooth Bore Core SAE nonconductive nylon Core Covered By Synthetic fiber reinforcement Hose Cover Polyurethane cover End Connections 316 SS	Swagelok Tube Fitting [SL] 3/4"	3/4	2250 @ -40°F to 70°F	1750 @ 200°F	Association for Rubber Products Manufacturers (ARPM) Hose Handbook
		Swagelok Tube Adapter [TA] 3/4"				
7P Polyethylene Hose	Smooth Bore Core Polyethylene Core Covered By Synthetic fiber reinforcement Hose Cover Polyurethane cover End Connections 316 SS	Female 37° JIC with female swivel nut [AS] 3/4"	3/4	2250 @ -10°F to 70°F	1500 @ 150°F	
		Male ISO/BSP Tapered (ISO 7) Pipe Threads [MT] 3/4"	3/4	2250 @ -10°F to 70°F	2250 @ 150°F	
		Male NPT Tapered Pipe Fitting [PM] 3/4"	3/4	2000 @ -10°F to 70°F	1750 @ 150°F	
			3/4	1250 @ -10°F to 70°F	900 @ 150°F	
			1	1500 @ -10°F to 70°F	1200 @ 150°F	
			1	1500 @ -10°F to 70°F	1200 @ 150°F	

Product Description

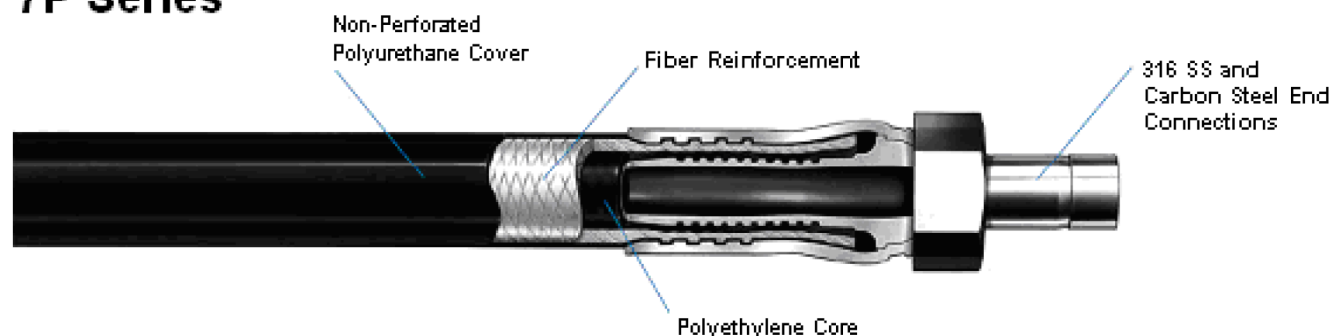
7N & 8N Series



7R & 8R Series



7P Series





Product Options:

Additional options and non-pressure boundary alterations that do not affect pressure ratings are within the scope of this approval. Examples of these options include but are not limited to:

- Spring guards (such as S – Full length spring guard and S2 – Short length spring guard)
- Sleeves (such as F – Fire jacket sleeve with metallic tie lock bands; F1 – Thermo sleeve with metallic tie lock bands)
- Tags and special markings
- Pipe Thread Sealants
- Special Testing

Quality System

The Swagelok Company quality system complies with the requirements of ISO 9001:2015. The Swagelok Company maintains BSI Certificate of Registration Number FM 01729, which applies to all locations listed on the Certificate.

References

The product catalog does not represent the full scope of the registration but rather details some of the most common options.

- Hose Assemblies, Bulk Hose, and End Connections Product Catalog MS-01-180, Rev. U.



CRN Code Compliance Summary

Swagelok Thermoplastic (7R, 7N, 8R, 8N, 7P) Hose Assemblies

June 4, 2024
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1. SCOPE

The Swagelok Nylon Series (7N, 7R, 8N, 8R) and Polyethylene Series (7P) Hose Assemblies are manufactured in accordance with the Association for Rubber Products Manufacturers (ARPM) Hose Handbook. Compliance is supported by burst testing witnessed by an ASME Authorized Inspection Agency.

2. DESCRIPTION OF ADDENDUM

This addendum to CRN #0D22889.5 is to address the following:

- 1.) Addition of stainless-steel Swagelok tube adapter end connections for 7N, 7R, 8N, 8R, and 7P hose assemblies.
- 2.) Correction for the 8R Nylon Hose end connection sizes for the Swagelok tube fitting.
- 3.) Part number change for the bulk hose on the 7N and 7R series hose assemblies.

1.) Addition of stainless-steel Swagelok tube adapter end connections

Regarding the addition of the Swagelok tube fittings, various sizes of stainless-steel tubing were used to obtain CRN 0A21025.5 (Stainless steel Swagelok tube fittings). Through internal product testing for stainless steel tube adapters, the results have shown that the stainless-steel tube adapter end meets the performance requirements of the heaviest wall tubing with the same size and material as published in the Swagelok Tubing Data Sheet in MS-01-107. To clarify, a 1/4 in. stainless steel tube adapter end connection has the same suggested allowable working pressure as 1/4 in. x 0.065 in stainless steel tubing, that being 10,200 psig. Given Swagelok's internal test results, the results will be the same if using either stainless-steel tube adapter end connections or the stainless-steel tubing for CRN 0A22025.5.

The scope and the end connection table are being amended by adding in the Swagelok tube adapter. See Table 1 below.

Table 1: End Connection Type – Additions Bolded

End Connection Type [Swagelok End Designator]	CRN
Swagelok Tube Fitting [SL, SM]	0A21025.5C
Swagelok Tube Adapter [TA, TM]	0A21025.5C
NPT Male Pipe Threads [PM]	0A21025.5C
Male ISO Tapered (ISO 7) [MT]	0A21025.5C
SAE 37° (JIC) Female Swivel [AS]	0A21025.5C
SAE 37° (JIC) Male [AN]	0A21025.5C

2.) Correction for the 8R Nylon Hose end connection sizes for the Swagelok tube fitting

Regarding the 8R nylon hose series, the end connection for the Swagelok tube fitting previously indicated "Swagelok Tube Fitting [SL SM] 1/4" – 1" (6-12mm)" in the scope. The 6-12mm is supposed to be 6-25mm. This amendment is justified by the end connection sizes identified in CRN 0A22025.5 (Stainless steel Swagelok tube fittings).

3.) Part number change for the bulk hose on the 7N and 7R series hose assemblies

Regarding the bulk hose part number change, the new 7N and 7R bulk hoses use the same base materials of construction as their respective legacy products.

Even though the base materials of construction of the bulk hose is the same, the hose cover visually shows a different finish. The legacy bulk hose on the 7N and 7R has a glossy finish, whereas the new bulk hose has a matte finish. See Figure 1 below for an example.

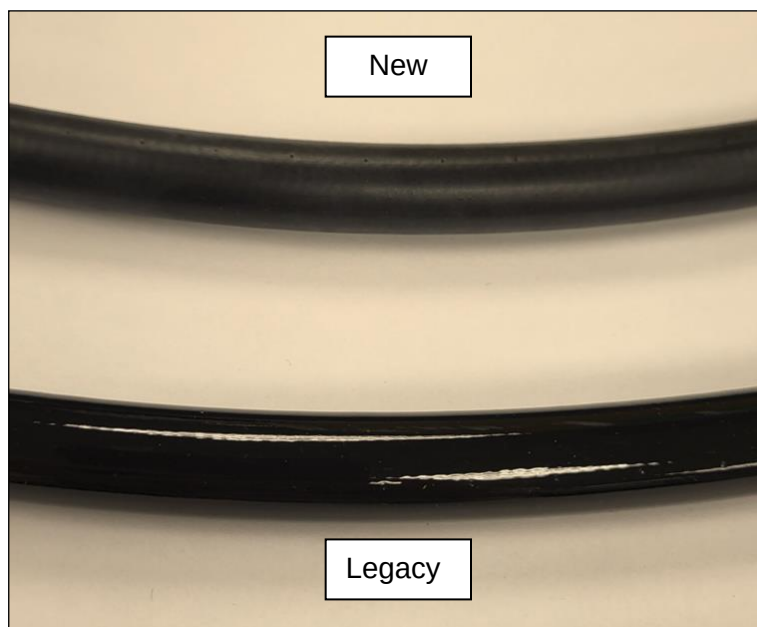


Figure 1: Example Cover Difference on 7R Bulk Hose

Based on the witnessed burst testing (see section 3), the maximum working pressure is still applicable for both -40°F temperature and room temperature applications on the 7N and 7R series hose assemblies. See Table 2 below.

Table 2: Pressure Ratings at -40°F to 70°F – No Change

Product Description or Series	Nominal Hose Size (in.)	Legacy Maximum Pressure from -40°F to 70°F (psig)	Addendum Maximum Pressure from -40°F to 70°F (psig)
7N Nylon Hose	1/4	2750	2750
	3/8	2250	2250
	1/2	2000	2000
7R Nylon Hose	1/4	1750	1750
	3/8	2250	2250
	1/2	2000	2000



CRN Code Compliance Summary

Swagelok Thermoplastic (7R, 7N, 8R, 8N, 7P) Hose Assemblies

June 4, 2024
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However, based on the witnessed burst testing (see section 3), an addendum is needed to address the maximum temperature's (200°F) maximum working pressure for the 7N series 1/2 in. and 7R series 3/8 in. hose assemblies—the values are reduced through this addendum. See Table 3 below.

Table 3: Pressure Ratings at Maximum Temperature (200°F) – Reductions Bolded

Product Description or Series	Nominal Hose Size (in.)	Legacy Maximum Pressure at Max Temp. (200°F) (psig)	Addendum Maximum Pressure at Max Temp. (200°F) (psig)
7N Nylon Hose	1/4	1750	1750
	3/8	1750	1750
	1/2	1750	1500
7R Nylon Hose	1/4	2000	2000
	3/8	2000	1750
	1/2	1500	1500

3. TESTING OF NEW 7N AND 7R BULK HOSE

3.1. Room Temperature Burst Testing

The room temperature testing was qualified by witness burst testing. All of the test samples had burst pressures exceeding the 4 x working pressure in accordance with ARPM Handbook requirements. All of the test samples passed the required burst testing. For results, see Customer Test Report CTR-10814.

3.2. Allowable Pressure at Minimum and Maximum Temperature Analysis

Witnessed burst testing at minimum and maximum temperatures was also conducted to verify the product pressure ratings at -40°F and 200°F. All hose burst pressures exceeded the 4 x working pressure identified for the addendum's maximum working pressure. See Test Report CTR-10814 for test results.

Product Engineers: Ben Chan

Date: 6/04/2024