

December 16, 2024

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

The design submission, Tracking Number 2024-07139, Web Portal Number 2024-S5176, originally received on November 27, 2024 was surveyed and accepted for registration as follows:

CRN : 0D22889.52 **Accepted on:** December 16, 2024
Reg Type: ADDITION TO ACC. FITTING **Expiry Date:** December 16, 2030
Drawing No. : ATTACHMENT A & B
Fitting type: SWAGELOK NYLON 7N/7R/8N/8R & POLYETHYLENE 7P SERIES
Design registered in the name of : SWAGELOK COMPANY

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

*** See attachment A and B for manufacturing locations, and scope of registration including adding and revision*

As indicated on AB-41 Statutory Declaration or AB-351 Declaration of Conformity form and submitted documentation, the code of construction is 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 or AB-351 Declaration of Conformity 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 or AB-351 Declaration of Conformity 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, and maintains a valid Certification of Authorization Permit if required by the jurisdiction where manufacturing takes place, 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 (587) 686-9330 or fax (780) 437-7787 or e-mail Poon@absa.ca.

Sincerely,



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



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 (440) 248-4600 (440)349-5970
(Plant Address) (Telephone No.) (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 Certificcate, 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

ABSA

SAFETY CODES ACT - PROVINCE OF ALBERTA

ACCEPTED: CD22889. 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.**

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

2024-07139
ABSA
 SAFETY CODES ACT - PROVINCE OF ALBERTA
 ACCEPTED: 0D22889.52
 See acceptance letter for
 conditions of registration.
 Date: 2024-12-16 By: *Ashling Poon*
 ASHLING POON, P. Eng
 DQP: D00097318

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.

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
 OD22889.5ADD1
 Technical Standards and Safety Authority
 Boilers and Pressure Vessels Safety
 Program

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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 | <div style="border: 2px solid red; padding: 5px; width: fit-content;"> <p style="font-size: 8px;">2024-07139</p> <p style="text-align: center;">ABSA</p> <p style="font-size: 8px;">SAFETY CODES ACT - PROVINCE OF ALBERTA</p> <p style="text-align: center;">ACCEPTED: OD22889.52</p> <p style="text-align: center;">See acceptance letter for conditions of registration.</p> <p style="font-size: 8px;">Date: 2024-12-16 By: <i>J. Shum</i></p> <p style="font-size: 8px;">J. SHUM, P. Eng BOP: D0007826</p> <p style="font-size: 8px;">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.</p> </div> |
| | | Swagelok Tube Adapter [TA TM] 1/4" – 1/2" (6-12mm) | 3/8 | 2250 | 1750 | |
| | | Female 37° JIC with female swivel nut [AN, AS] 1/4" – 1/2" | 1/2 | 2000 | 1500 | |
| Male ISO/BSP Tapered (ISO 7) Pipe Threads [MT] 1/4" – 1/2" | | | | | | |
| Male NPT Tapered Pipe Fitting [PM] 1/4" – 1/2" | | | | | | |
| | | | | | | |
| 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 | Swagelok Tube Fitting [SL SM] 1/4" – 1/2" (6-12mm) | 1/4 | 1750 | 2000 | Association n for Rubber Products Manufacturers (ARPM) Hose Handbook |
| | | Swagelok Tube Adapter [TA TM] 1/4" – 1/2" (6-12mm) | 3/8 | 2250 | 1750 | |
| | | Female 37° JIC with female swivel nut [AN, AS] 1/4" – 1/2" | 1/2 | 2000 | 1500 | |
| Male ISO/BSP Tapered (ISO 7) Pipe Threads [MT] 1/4" – 1/2" | | | | | | |
| Male NPT Tapered Pipe Fitting [PM] 1/4" – 1/2" | | | | | | |
| | | | | | | |
| 8R Nylon Hose | <u>Smooth Bore Core</u> Nylon Blend Thermoplastic <u>Core Covered By</u> Synthetic fiber reinforcement | 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 | |

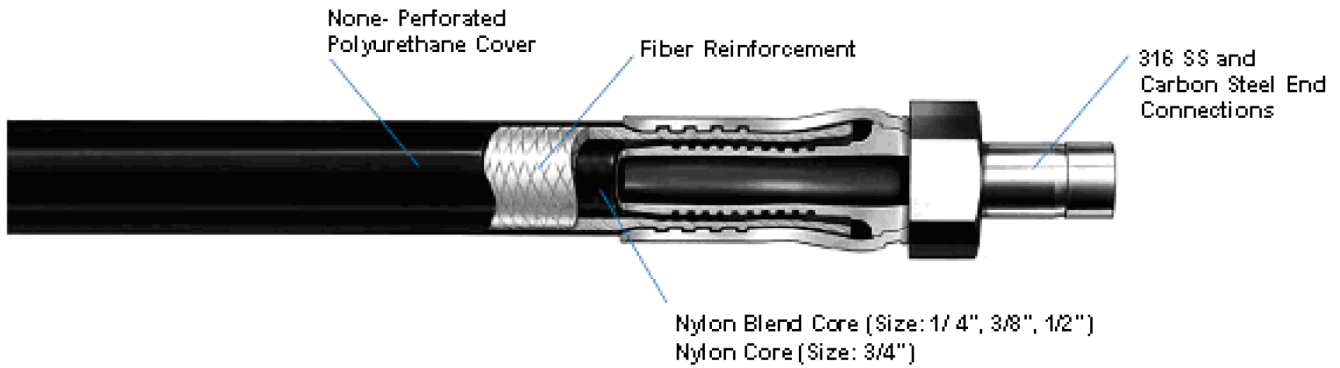


| | | | | | | |
|--|---|---|-----|------|------|--|
| | Hose Cover Polyurethane cover | Female 37° JIC with female swivel nut [AN, AS] 1/4" – 1" | 3/4 | 2250 | 1500 | |
| | End Connections 316 SS | Male ISO/BSP Tapered (ISO 7) Pipe Threads [MT] 1/4" – 1" Male NPT Tapered Pipe Fitting [PM] 1/4" – 1" |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

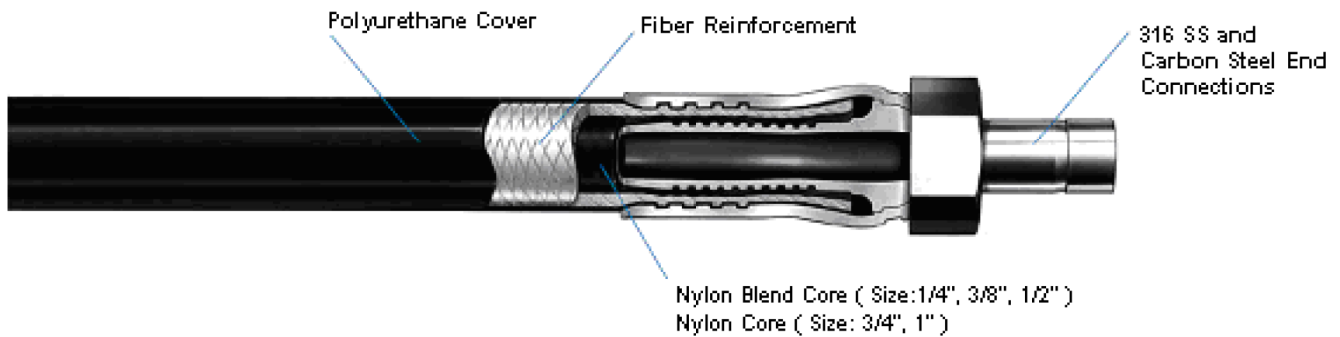
| Product Description or Series | Pressure retaining Material | End Connections and Sizes | Nominal Hose Size (in.) | Maximum Pressure at Temperature (psig) | | Design Code of Construction |
|-------------------------------|--|---|-------------------------|--|------------------|--|
| | | | | Up to 70°F 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" Swagelok Tube Adapter [TA] 3/4" Female 37° JIC with female swivel nut [AS] 3/4" Male ISO/BSP Tapered (ISO 7) Pipe Threads [MT] 3/4" Male NPT Tapered Pipe Fitting [PM] 3/4" | 3/4 | 2250 @ -40°F to 70°F | 1750 @ 200°F | Association for Rubber Products Manufacturers (ARPM) Hose Handbook |
| 7P Polyethylene Hose | Smooth Bore Core Polyethylene Core Covered By Synthetic fiber reinforcement Hose Cover Polyurethane cover End Connections 316 SS | Swagelok Tube Fitting [SL SM] 1/4"-1" (6-25mm) Swagelok Tube Adapter [TA TM] 1/4" – 1" (6-25mm) Female 37° JIC with female swivel nut [AS] 1/4" – 1" Male ISO/BSP Tapered (ISO 7) Pipe Threads [MT] 1/4" – 1" Male NPT Tapered Pipe Fitting [PM] 1/4" – 1" | 1/4 | 2750 @ -10°F to 70°F | 1500 @ 150°F | |
| | | | 3/8 | 2250 @ -10°F to 70°F | 2250 @ 150°F | |
| | | | 1/2 | 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 | |

Product Description

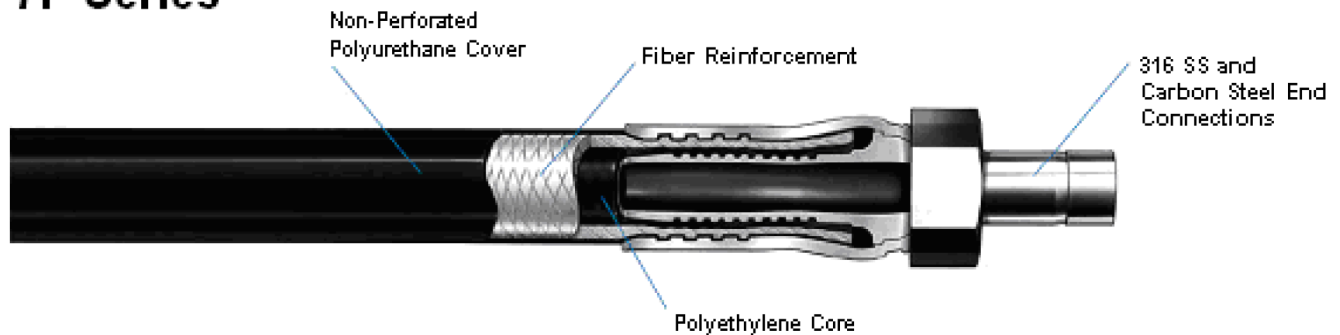
7N & 8N Series



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**

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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.

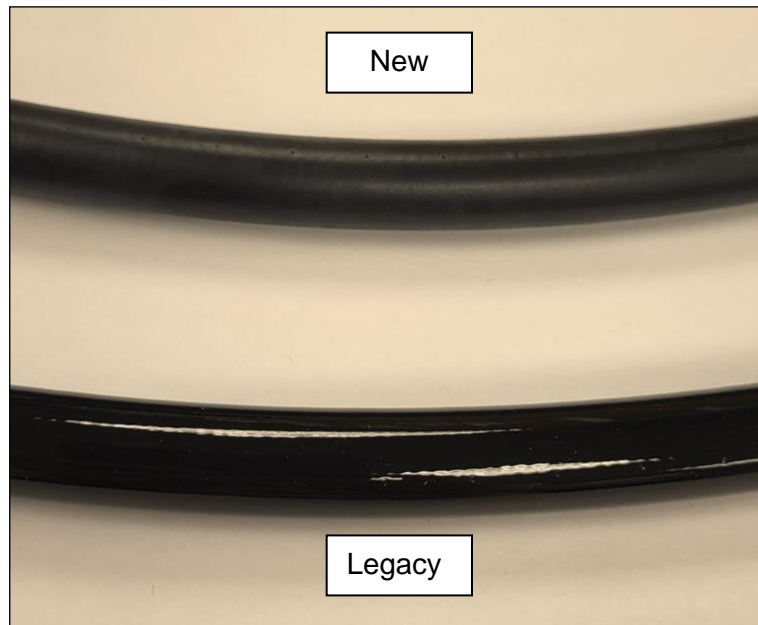


Figure 1: Example Cover Difference on 7R Bulk Hose

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

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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