Régie du bâtiment Québec

Direction générale de l'inspection

Montréal, le 25 février 2021.

MRS. TANYA FRANCIS
TECHNICAL STANDARDS & SAFETY AUTHORITY
345 CARLINGVIEW DRIVE
TORONTO ONTARIO
CANADA M9W 6N9

Manufacturer : PARKER HANNIFIN CORPORATION
2651 ALABAMA HIGHWAY 21 NORTH
JACKSONVILLE ALABAMA
USA 36265

OUR REFERENCE : 949909
Design number : CATALOG 4110 PVQ, 4110 NP, 4110 V, 4110 VQ

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): **0C06261.56.**

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

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Montréal, 25 février 2021.

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CANADA M9W 6N9

Fabricant : PARKER HANNIFIN CORPORATION
2651 ALABAMA HIGHWAY 21 NORTH
JACKSONVILLE ALABAMA
USA 36265

Numéro de dossier : 949909
Numéro(s) de dessin(s) : CATALOG 4110 PVQ, 4110 NP, 4110 V, 4110 VQ

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 : **0C06261.56.**

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

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

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

P

STATUTORY DECLARATION
Registration of Fittings

I, Craig Beckwith, Division General Manager
(Name and Position, e.g. President, Plant Manager, Chief Engineer)

of Parker Hannifin Corporation, Instrumentation Products Division
(Name of Manufacturer)

Located at 1005 A Cleaner Way, Huntsville, Alabama, USA 35805 256-881-2040
(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

(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 MSS-SP-99 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, DNV-GL.
The items covered by this declaration, for which I seek registration, are category C type fittings. In support of this application, the following information and/or test data are attached as follows:
Scope of Registration with Attachments renewal of CRN 0C6261.5
(drawings, calculations, test reports, etc.)

Declared before me at Huntsville **in the** State **of** Alabama

the 3rd **day of** June **AD** 2020.

Commissioner for Oaths:

Sheri Coggan
(Printed name)

Sheri Coggan
(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 _____.

CRN: _____

Registered by: _____

Dated: _____

Enregistré au Québec
0C6261.56
Régie du bâtiment Québec
02/25/2021
Accord de conciliation NEC

NOTE: This registration expires on: _____

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

Registration Scope

Parker Hannifin
Instrumentation Products Division

Catalog 4110-NV May 2019, Pages 2-7
V Series Needle Valves

Based on the below summary we seek registration for the attached scope.

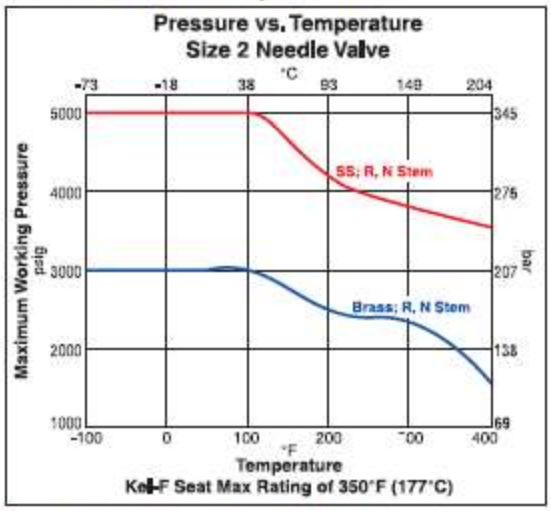
Series/Model	Size	Shell Pressure Rating, CWP	Body Material	Packing	Test Ref.
V Series	1/8”	5000 psi	ASTM A 182 Type F316	PTFE	Dec 1, Line 4
V Series	1/4”	5000 psi	ASTM A 182 Type F316	PTFE	Dec 1, Line 2
V Series	3/8”	5000 psi	ASTM A 182 Type F316	PTFE	Dec 1, Line 6
V Series	1/2”	5000 psi	ASTM A 182 Type F316	PTFE	Dec 2, Line 1
V Series	1/8”	3000 psi	ASTM B 283, Alloy C37700	PTFE	Dec 2, Line 5
V Series	1/4”	3000 psi	ASTM B 283, Alloy C37700	PTFE	Dec 2, Line 6
V Series	3/8”	3000 psi	ASTM B 283, Alloy C37700	PTFE	Dec 1, Line 5
V Series	1/2”	3000 psi	ASTM B 283, Alloy C37700	PTFE	Dec 1, Line 7

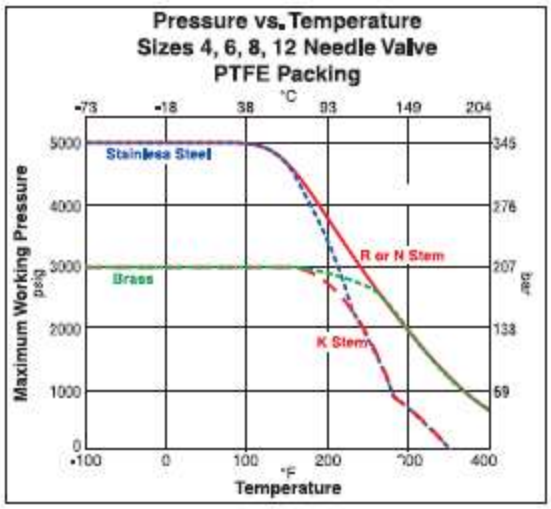
Specifications

Pressure Ratings:
316 Stainless Steel: 5000 psig (345 bar) CWP
Brass
3000 psig (207 bar) CWP
Orifice: 0.078" to 0.312" (2.0mm to 7.9mm)
C_V: 0.12 to 1.90
Port size: 1/8" to 3/4" (3mm to 12mm)
Temperature Ratings:
Stainless Steel
-65°F to 450°F (-54°C to 232°C)
Brass: -65°F to 400°F (-54°C to 204°C)
PTFE Packing:
-65°F to 450°F (-54°C to 232°C)
PCTFE Stem Tip:
-65°F to 350°F (-54°C to 177°C)
Nitrile Rubber Stem Seal:
-30°F to 250°F (-34°C to 121°C)
Fluorocarbon Rubber Stem Seal:
-15°F to 400°F (-26°C to 204°C)
Ethylene Propylene Rubber Stem Seal:
-70°F to 275°F (-57°C to 135°C)

Note: When combining body, seat and seal materials, the most restrictive temperature rating becomes the limiting factor on temperature range.

Pressure vs. Temperature





Note: To determine MPa, multiply bar by 0.1

Materials of Construction (with PTFE Packing)

Item #	Part Description	Stainless Steel	Brass
1	Body	ASTM A 182 Type F316	ASTM B 283 Alloy C37700
2	Packing Nut	ASTM A 479 Type 316	ASTM A 479 Type 316
3	Handle*	Nylon 6/6 with SS insert	Nylon 6/6 with SS insert
4	Lower Packing Washer	ASTM A 479 Type 316	ASTM A 479 Type 316
5	Handle Screw	Stainless Steel	Stainless Steel
6	Packing**	PTFE	PTFE
7	Stem (R and N Stem)	ASTM A 276 Type 316	ASTM A 276 Type 316
7A	Stem (K Stem)	ASTM A 276 Type 316, with PCTFE	ASTM A 276 Type 316, with PCTFE
8	Upper Packing Washer	Brass	Brass
9	Panel Nut***	316 Stainless Steel	316 Stainless Steel

* Handles for V8 and V12 Series Valves with R and N Stems are aluminum T-bars.
** Optional O-ring elastomeric stem seals are available – See How to Order.
*** Panel Nut is nickel plated brass on V2 Series Valves. Panel Nuts must be ordered separately – See page 7.
Lubrication: Perfluorinated Polyether

Dimensions / Flow Data

Basic Part Number		End Connections		Stem Type	Flow Data						Dimensions A† and B†
					Orifice		Inline		Angle		
Inline	Angle	Inlet (Port 1)	Outlet (Port 2)		Inch	mm	C_V	X_T*	C_V	X_T*	Inch (mm)
2A-V2LR-SS	2A-V2AR-SS	1/8" Compression A-LOK®		Blunt	0.078	2.0	0.12	0.78	0.14	0.67	1.01 (25.7)
2A-V2LN-SS	2A-V2AN-SS			Needle			0.12	0.80	0.14	0.63	
2A-V2LK-SS	2A-V2AK-SS			PCTFE			0.13	0.83	0.14	0.63	
2F-V2LR-SS	2F-V2AR-SS	1/8" Female NPT		Blunt	0.093	2.4	0.13	0.61	0.16	0.49	0.94 (23.9)
2F-V2LN-SS	2F-V2AN-SS			Needle			0.12	0.66	0.18	0.39	
2F-V2LK-SS	2F-V2AK-SS			PCTFE			0.12	0.73	0.17	0.54	
2M-V2LR-SS	2M-V2AR-SS	1/8" Male NPT		Blunt	0.093	2.4	0.13	0.61	0.16	0.49	0.75 (19.1)
2M-V2LN-SS	2M-V2AN-SS			Needle			0.12	0.66	0.18	0.39	
2M-V2LK-SS	2M-V2AK-SS			PCTFE			0.12	0.73	0.17	0.54	
2Z-V2LR-SS	2Z-V2AR-SS	1/8" Compression CPI™		Blunt	0.078	2.0	0.12	0.78	0.14	0.67	1.01 (25.7)
2Z-V2LN-SS	2Z-V2AN-SS			Needle			0.12	0.80	0.14	0.63	
2Z-V2LK-SS	2Z-V2AK-SS			PCTFE			0.13	0.83	0.14	0.63	
2F-V4LR-SS	2F-V4AR-SS	1/8" Female NPT		Blunt	0.176	4.5	0.43	0.77	0.55	0.63	0.81 (20.6)
2F-V4LN-SS	2F-V4AN-SS			Needle			0.43	0.69	0.55	0.63	
2F-V4LK-SS	2F-V4AK-SS			PCTFE			0.45	0.55	0.58	0.68	
4A-V4LR-SS	4A-V4AR-SS	1/4" Compression A-LOK®		Blunt	0.176	4.5	0.43	0.85	0.55	0.63	1.15 (29.2)
4A-V4LN-SS	4A-V4AN-SS			Needle			0.43	0.77	0.55	0.63	
4A-V4LK-SS	4A-V4AK-SS			PCTFE			0.45	0.69	0.58	0.68	
4M-V4LR-SS	4M-V4AR-SS	1/4" Male NPT		Blunt	0.176	4.5	0.43	0.85	0.55	0.63	0.94 (23.9)
4M-V4LN-SS	4M-V4AN-SS			Needle			0.43	0.77	0.55	0.63	
4M-V4LK-SS	4M-V4AK-SS			PCTFE			0.45	0.69	0.58	0.68	
4Z-V4LR-SS	4Z-V4AR-SS	1/4" Compression CPI™		Blunt	0.176	4.5	0.43	0.85	0.55	0.63	1.15 (29.2)
4Z-V4LN-SS	4Z-V4AN-SS			Needle			0.43	0.77	0.55	0.63	
4Z-V4LK-SS	4Z-V4AK-SS			PCTFE			0.45	0.69	0.58	0.68	
M6A-V4LR-SS	M6A-V4AR-SS	6mm Compression A-LOK®		Blunt	0.156	4.0	0.37	0.78	0.48	0.60	1.15 (29.2)
M6A-V4LN-SS	M6A-V4AN-SS			Needle			0.37	0.72	0.48	0.58	
M6A-V4LK-SS	M6A-V4AK-SS			PCTFE			0.39	0.62	0.51	0.64	
M6Z-V4LR-SS	M6Z-V4AR-SS	6mm Compression CPI™		Blunt	0.156	4.0	0.37	0.78	0.48	0.60	1.15 (29.2)
M6Z-V4LN-SS	M6Z-V4AN-SS			Needle			0.37	0.72	0.48	0.58	
M6Z-V4LK-SS	M6Z-V4AK-SS			PCTFE			0.39	0.62	0.51	0.64	
4F-V6LR-SS	4F-V6AR-SS	1/4" Female NPT		Blunt	0.228	5.8	0.73	0.90	1.23	0.50	0.94 (23.9)
4F-V6LN-SS	4F-V6AN-SS			Needle			0.55	0.61	0.92	0.62	
4F-V6LK-SS	4F-V6AK-SS			PCTFE			0.80	0.87	1.23	0.56	
6A-V6LR-SS	6A-V6AR-SS	3/8" Compression A-LOK®		Blunt	0.228	5.8	0.73	0.90	1.23	0.50	1.29 (32.8)
6A-V6LN-SS	6A-V6AN-SS			Needle			0.55	0.61	0.92	0.62	
6A-V6LK-SS	6A-V6AK-SS			PCTFE			0.80	0.87	1.23	0.56	
6M-V6LR-SS	6M-V6AR-SS	3/8" Male NPT		Blunt	0.228	5.8	0.73	0.90	1.23	0.50	1.03 (26.2)
6M-V6LN-SS	6M-V6AN-SS			Needle			0.55	0.61	0.92	0.62	
6M-V6LK-SS	6M-V6AK-SS			PCTFE			0.80	0.87	1.23	0.56	
6Z-V6LR-SS	6Z-V6AR-SS	3/8" Compression CPI™		Blunt	0.228	5.8	0.73	0.90	1.23	0.50	1.29 (32.8)
6Z-V6LN-SS	6Z-V6AN-SS			Needle			0.55	0.61	0.92	0.62	
6Z-V6LK-SS	6Z-V6AK-SS			PCTFE			0.80	0.87	1.23	0.56	
M10A-V6LR-SS	M10A-V6AR-SS	10mm Compression A-LOK®		Blunt	0.228	5.8	0.73	0.90	1.23	0.50	1.30 (33.0)
M10A-V6LN-SS	M10A-V6AN-SS			Needle			0.55	0.61	0.92	0.62	
M10A-V6LK-SS	M10A-V6AK-SS			PCTFE			0.80	0.87	1.23	0.56	
M10Z-V6LR-SS	M10Z-V6AR-SS	10mm Compression CPI™		Blunt	0.228	5.8	0.73	0.90	1.23	0.50	1.30 (33.0)
M10Z-V6LN-SS	M10Z-V6AN-SS			Needle			0.55	0.61	0.92	0.62	
M10Z-V6LK-SS	M10Z-V6AK-SS			PCTFE			0.80	0.87	1.23	0.56	

* Tested in accordance with ISA S75.02. Gas flow will be choked when $P_1 - P_2 / P_1 = x_T$.

† For CPI™ and A-LOK®, dimensions are measured with nuts in the finger tight position.

( ) Denotes dimensions in millimeters

Dimensions in inches/millimeters are for reference only, subject to change.

Parker Hannifin
Instrumentation Products Division

Catalog 4110-NV May 2019, Pages 12-15
VQ Series Toggle Valves

Based on the below summary we seek registration for the attached scope.

Series/Model	Size	Shell Pressure Rating, CWP	Body Material	Cap Material	Test Ref
VQ Series / Manual	1/4”	300 psi	ASTM A 182 Type F316	ASTM A 479 Type 316	Dec 2, Line 4
VQ Series / Manual	3/8”	300 psi	ASTM A 182 Type F316	ASTM A 479 Type 316	Dec 1, Line 3

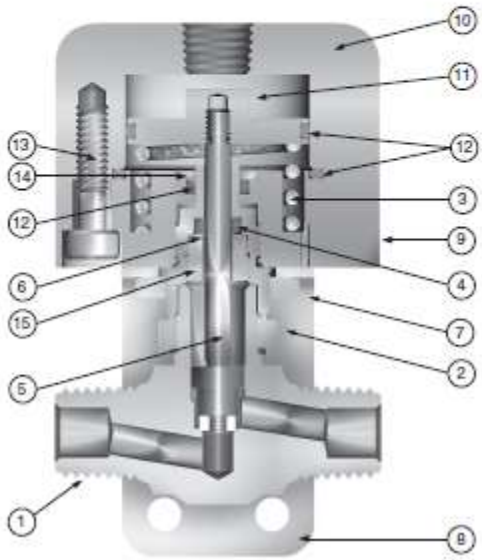
Toggle Valve Specifications

Pressure Rating at All Temperatures:

Manual	300 psig (21 bar) CWP
Actuated N.C. V4Q	600 psig (41 bar) CWP
Actuated N.C. V6Q	500 psig (35 bar) CWP
Actuated N.O & D.A.	450 psig (31 bar) CWP

Temperature Ratings:

PTFE Stem Tip: -20°F to 200°F (-29°C to 93°C)
PCTFE Stem Tip: -65°F to 200°F (-54°C to 93°C)

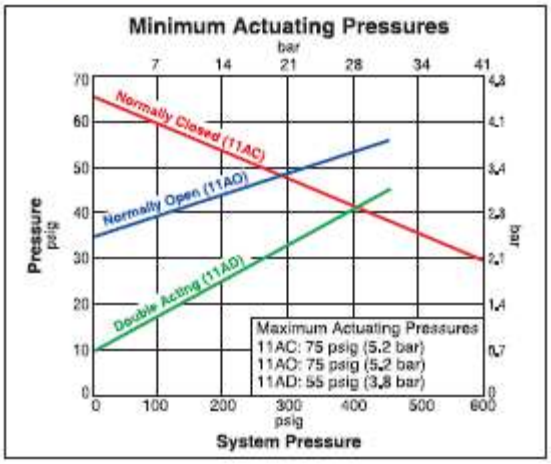


Materials of Construction

Item #	Description	Stainless Steel
1	Body	ASTM A 182 Type F316
2	Cap	ASTM A 479 Type 316
3	Spring*	Stainless Steel
4	Stem Seal**	Fluorocarbon Rubber
5	Stem	ASTM A 276 Type 316
6	Stem Washer	Stainless Steel
7	Panel/Lock Nut	316 Stainless Steel
8	Mounting Bracket	Aluminum
9	Actuator Base	Aluminum
10	Actuator Cap	Aluminum
11	Piston	Aluminum
12	Actuator Seals	Fluorocarbon Rubber
13	Screws	Stainless Steel
14	Actuator Bushing	Aluminum
15	Stem Bushing***	ASTM A 479 Type 316
16	Handle	Nylon 6/6
17	Handle Pin	Stainless Steel
18	Handle Washer	Acetal

* Spring not used on Double Acting (11AD) models
** Optional stem seal materials available - See How to Order
*** Stem Bushing not used on Normally Closed (11AC) models
Lubrication: Perfluorinated polyether

Minimum Actuating Pressures



Dimensions / Flow Data

Basic Part Number	End Connections		Flow Data				Dimensions	Additional Options			
	Inlet (Port 1)	Outlet (Port 2)	Orifice Inch	Orifice mm	C_V	X_T*	A† and B† Inch (mm)	Stem Tip	Stem Seal	Actuation	Body Material
2A-V4LQ-SSP	1/8" Compression A-LOK®		0.078	2.0	0.14	0.52	1.10 (27.9)	K = PCTFE	BN = Nitrile Rubber	11AC = Normally Closed	BP = Brass with Panel Nut
2A-V4AQ-SSP					0.15	0.50					
2F-V4LQ-SSP	1/8" Female NPT		0.176	4.5	0.36	0.71	0.8 (20.6)		EPR = Ethylene Propylene Rubber	11AO = Normally Opened	
2F-V4AQ-SSP					0.49	0.64					
2M-V4LQ-SSP	1/8" Male NPT		0.125	3.2	0.30	0.50	0.81 (20.6)				
2M-V4AQ-SSP					0.35	0.55					
2Z-V4LQ-SSP	1/8" Compression CPI™		0.078	2.0	0.14	0.52	1.10 (27.9)				
2Z-V4AQ-SSP					0.15	0.50					
4A-V4LQ-SSP	1/4" Compression A-LOK®		0.176	4.5	0.36	0.71	1.15 (29.2)		KZ = Highly Fluorinated Fluocarbon Rubber	11AD = Double Acting	
4A-V4AQ-SSP					0.49	0.64					
4M-V4LQ-SSP	1/4" Male NPT		0.176	4.5	0.36	0.71	0.94 (23.9)				
4M-V4AQ-SSP					0.49	0.64					
4Z-V4LQ-SSP	1/4" Compression CPI™		0.176	4.5	0.36	0.71	1.15 (29.2)				
4Z-V4AQ-SSP					0.49	0.64					
M6A-V4LQ-SSP	6mm Compression A-LOK®		0.176	4.5	0.36	0.71	1.13 (28.7)				
M6A-V4AQ-SSP					0.49	0.64					
M6Z-V4LQ-SSP	6mm Compression CPI™		0.176	4.5	0.36	0.71	1.13 (28.7)				
M6Z-V4AQ-SSP					0.49	0.64					
M8A-V4LQ-SSP	8mm Compression A-LOK®		0.176	4.5	0.36	0.71	1.13 (28.7)				
M8A-V4AQ-SSP					0.49	0.64					
M8Z-V4LQ-SSP	8mm Compression CPI™		0.176	4.5	0.36	0.71	1.13 (28.7)				
M8Z-V4AQ-SSP					0.49	0.64					
4F-V6LQ-SSP	1/4" Female NPT		0.250	6.4	0.83	0.70	1.00 (25.4)	K = PCTFE	BN = Nitrile Rubber	11AC = Normally Closed	BP = Brass with Panel Nut
4F-V6AQ-SSP					0.92	0.68					
6A-V6LQ-SSP	3/8" Compression A-LOK®		0.250	6.4	0.83	0.70	1.29 (32.8)		EPR = Ethylene Propylene Rubber	11AO = Normally Opened	
6A-V6AQ-SSP					0.92	0.68					
6Z-V6LQ-SSP	3/8" Compression CPI™		0.250	6.4	0.83	0.70	1.29 (32.8)				
6Z-V6AQ-SSP					0.92	0.68					
8A-V6LQ-SSP	1/2" Compression A-LOK®		0.250	6.4	0.83	0.70	1.37 (34.8)		KZ = Highly Fluorinated Fluocarbon Rubber	11AD = Double Acting	
8A-V6AQ-SSP					0.92	0.68					
8Z-V6LQ-SSP	1/2" Compression CPI™		0.250	6.4	0.83	0.70	1.37 (34.8)				
8Z-V6AQ-SSP					0.92	0.68					
M10A-V6LQ-SSP	10mm Compression A-LOK®		0.250	6.4	0.83	0.70	1.30 (33.0				
M10A-V6AQ-SSP					0.92	0.68					
M10Z-V6LQ-SSP	10mm Compression CPI™		0.250	6.4	0.83	0.70	1.30 (33.0)				
M10Z-V6AQ-SSP					0.92	0.68					

* Tested in accordance with ISA S75.02. Gas flow will be choked when $P_1 - P_2 / P_1 = X_T$.
† For CPI™ and A-LOK®, dimensions are measured with nuts in the finger tight position.

Dimensions in inches/millimeters are for reference only, subject to change.

Parker Hannifin
Instrumentation Products Division

Catalog 4110-NV May 2019, Pages 16-18
NP6 Series Needle Valves

Based on the below summary we seek registration for the attached scope .

Series/Model	Size	Shell Pressure Rating, CWP	Body Material	Test Ref
NP6 Series	3/8”	6000 psi	ASTM A 182 Type F316	Dec 1, Line 1

Specifications

Pressure Rating:
6000 psig (414 bar) CWP

Temperature Rating:

PTFE Packing:
-65°F to 450°F (-54°C to 232°C)

PCTFE:
-65°F to 350°F (-54°C to 177°C)

Nitrile Rubber:
-30°F to 250°F (-34°C to 121°C)

Ethylene Propylene Rubber:
-70°F to 275°F (-57°C to 135°C)

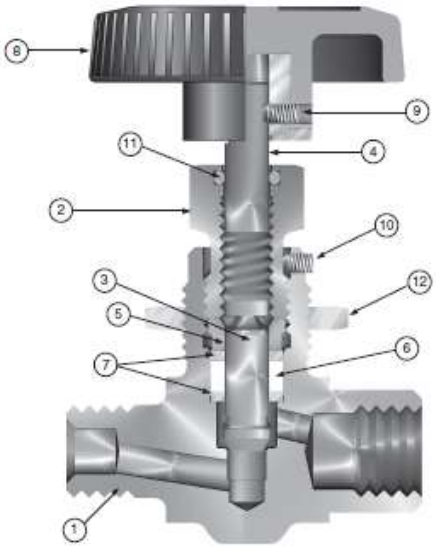
Fluorocarbon Rubber:
-15°F to 400°F (-26°C to 204°C)

Grafoil®:
-70°F to 700°F (-57°C to 371°C)

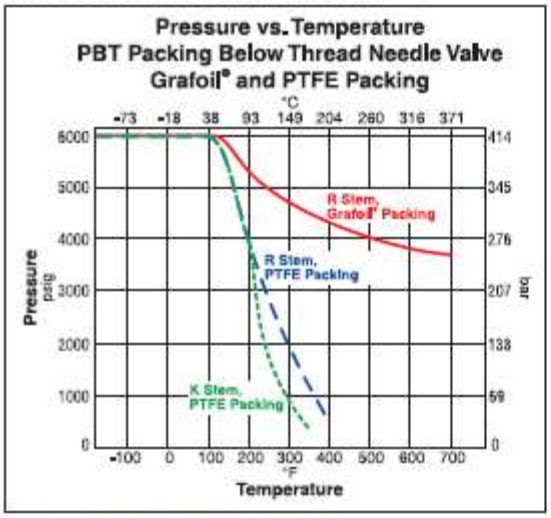
Materials of Construction

Item #	Description	Material
1	Body	ASTM A 182 Type F316
2	Packing Nut	ASTM A 479 Type 316
3	Lower Stem (R-Stem)	ASTM A 276 Type 316
3	Lower Stem (K-Stem)	ASTM A 276 Type 316, with PCTFE
4	Upper Stem	ASTM A 276 Type 316
5	Packing Gland	ASTM A 276 Type 316
6	Packing*	PTFE
7	Packing Washer	Stainless Steel
8	Handle**	Nylon 6/6, with SS Insert
9	Handle Screw	Stainless Steel
10	Packing Nut Screw	Stainless Steel
11	Dust Seal	Fluorocarbon Rubber
12	Panel Nut	316 Stainless Steel

* Optional elastomeric stem seals and Grafoil® packing are available - See How to Order.
** Handles for Grafoil® packed valves are aluminum T-bars.
Lubrication: Perfluorinated polyether

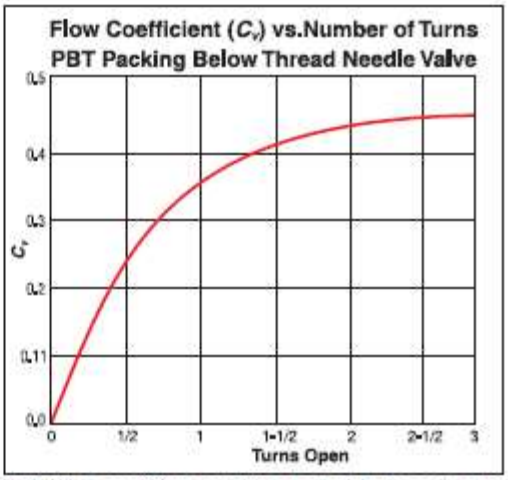


Pressure vs. Temperature



Note: To determine MPa, multiply bar by 0.1

Flow Characteristics



Note: When combining seat and seal materials, the most restrictive temperature rating becomes the limiting factor on temperature range.

Basic Part Number		End Connections		Stem Type	Flow Data						Dimensions
					Orifice		Inline		Angle		A† and B†
Inline	Angle	Inlet (Port 1)	Outlet (Port 2)		Inch	mm	C_v	X_T*	C_v	X_T*	Inch mm
4A-NP6LR-SSP	4A-NP6AR-SSP	1/4" Compression A-LOK®		Blunt	0.177	4.5	0.60	0.50	0.67	0.39	1.20
4A-NP6LK-SSP	4A-NP6AK-SSP			PCTFE			0.51	0.55	0.65	0.52	(30.5)
4F-NP6LR-SSP	4F-NP6AR-SSP	1/4" Female NPT		Blunt	0.177	4.5	0.60	0.50	0.67	0.39	1.00
4F-NP6LK-SSP	4F-NP6AK-SSP			PCTFE			0.51	0.55	0.65	0.52	(25.4)
4M-NP6LR-SSP	4M-NP6AR-SSP	1/4" Male NPT		Blunt	0.177	4.5	0.60	0.50	0.67	0.39	1.03
4M-NP6LK-SSP	4M-NP6AK-SSP			PCTFE			0.51	0.55	0.65	0.52	(26.2)
4Z-NP6LR-SSP	4Z-NP6AR-SSP	1/4" Compression CPI™		Blunt	0.177	4.5	0.60	0.50	0.67	0.39	1.20
4Z-NP6LK-SSP	4Z-NP6AK-SSP			PCTFE			0.51	0.55	0.65	0.52	(30.5)
6A-NP6LR-SSP	6A-NP6AR-SSP	3/8" Compression A-LOK®		Blunt	0.177	4.5	0.60	0.50	0.67	0.39	1.23
6A-NP6LK-SSP	6A-NP6AK-SSP			PCTFE			0.51	0.55	0.65	0.52	(31.2)
6Z-NP6LR-SSP	6Z-NP6AR-SSP	3/8" Compression CPI™		Blunt	0.177	4.5	0.60	0.50	0.67	0.39	1.23
6Z-NP6LK-SSP	6Z-NP6AK-SSP			PCTFE			0.51	0.55	0.65	0.52	(31.2)
M6A-NP6LR-SSP	M6A-NP6AR-SSP	6mm Compression A-LOK®		Blunt	0.177	4.5	0.60	0.50	0.67	0.39	1.16
M6A-NP6LK-SSP	M6A-NP6AK-SSP			PCTFE			0.51	0.55	0.65	0.52	(29.5)
M6Z-NP6LR-SSP	M6Z-NP6AR-SSP	6mm Compression CPI™		Blunt	0.177	4.5	0.60	0.50	0.67	0.39	1.16
M6Z-NP6LK-SSP	M6Z-NP6AK-SSP			PCTFE			0.51	0.55	0.65	0.52	(29.5)
M8A-NP6LR-SSP	M8A-NP6AR-SSP	8mm Compression A-LOK®		Blunt	0.177	4.5	0.60	0.50	0.67	0.39	1.24
M8A-NP6LK-SSP	M8A-NP6AK-SSP			PCTFE			0.51	0.55	0.65	0.52	(31.5)
M8Z-NP6LR-SSP	M8Z-NP6AR-SSP	8mm Compression CPI™		Blunt	0.177	4.5	0.60	0.50	0.67	0.39	1.24
M8Z-NP6LK-SSP	M8Z-NP6AK-SSP			PCTFE			0.51	0.55	0.65	0.52	(31.5)

* Tested in accordance with ISA S75.02. Gas flow will be choked when $P_1 - P_2 / P_1 = X_T$.

† For CPI™ and A-LOK®, dimensions are measured with nuts in the finger tight position.

Dimensions in inches/millimeters are for reference only, subject to change.

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Summary

- Refer to the appropriate catalog pages attached to this document for the part number descriptions for the V Series, VQ Series, and NP6 Series Needle Valves.
- The minimum wall thickness for all valves in this line is at the undercut of the thread on the valve body.
- The Pressure and Temperature curves for each valve series are included in the attached catalog pages.
- The Cold Working Pressure (CWP) is established by burst testing in accordance with MSS SP-99.
- A diagram of the components and the materials of constructions for each valve series are included in the attached catalog pages.
- Refer to the attached product integrity report for each valve series.
- **ASME / Design Standard**: Stress calculations are supported by burst tests in accordance with MSS SP-99
- **Size or Size Range**: Refer to above tables and attached catalog pages
- **Standard Pressure Class or MAWP at Maximum Temperature**: Refer to attached catalog pages and product integrity reports
- **Actual Wall Thickness vs. Miniumum Required**: Refer to attached product integrity reports
- **ASME / ASTM Material Specification**: The pressure boundary components are manufactured from materials listed in ASME B31.3. Refer to attached catalog pages and product integrity reports.
- Compression joint design (end connectors) is supported by **CRN 0A6793.5R3**.