TECHNICAL STANDARDS &
SAFETY AUTHORITY
14th Floor, Centre Tower
3300 Bloor Street West
Toronto, Ontario
Canada M8X 2X4

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

PHASTITE

STATUTORY DECLARATION
Registration of Fittings

I, Andrew Spencer Nicholson - Innovation & Technical Manager
(Name and Position, e.g. President, Plant Manager, Chief Engineer)

of Parker Hannifin - Instrumentation Products Division (Europe)
(Name of Manufacturer)

Located at Pottington Business Park, Barnstaple EX31 1NP (Plant Address) +441271313131 (Telephone No.) +441271313166 (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
ANSI B31.1 - 2007 & ANSI B31.3 - 2006
(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 9000-2000 which has been verified by the following authority, Lloyds Register Quality Assurance
The items covered by this declaration, for which I seek registration, are category A type fittings. In support of this application, the following information and/or test data are attached as follows:
Catalogue number 4235-PH, product drawings, calculations & test reports.
(drawings, calculations, test reports, etc.)

Declared before me at Barnstaple in the County of Devon UK

the 19th day of February AD 20 07.

Commissioner for Oaths:

Nicholas Thomas OERTON
(Printed name)

Nicholas T Oerton Notary Public
(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 A.

CRN: 0A12904.5

Registered by: Charley Dong

Dated: MAR. 23, 2009

NOTE: SEE ATTACHED TWO PAGES AS PART OF CRN" FOR THE RATINGS. 100 TSSA MAR 23/09

NOTE: This registration expires on MAR. 23, 2019

Technical Standards and Safety Authority — Boilers and Pressure Vessels Safety Program

REGISTERED

C.R.N.: 0A12904.5

Signed: Charley Dong

Date: MAR. 23, 2009

PV 09553 (06/04)

Phastite® Tube Connectors

Pressure rating and wall thickness of tubes.

Tables 1 to 2 present the pressure ratings for type 304 or 316 stainless steel seamless tubes for temperatures
up to 93°C (200°F). These tables also show the minimum and maximum wall thickness of tubes that shall be used within the scope of the Parker Phastite® design for each size of tube connector.
If a user chooses a tube wall thickness outside those recommended in tables 1 to 2, the user should first consult the technical department of Parker Instrumentation Products Division.

Derating factors for Welded and drawn tubing.

For welded and drawn tubing, a derating factor shall be applied for weld integrity. For double – welded tubing pressure ratings in tables 1 though 2 by a factor of 0.85 and for single – welded tubing multiply ratings in the tables by 0.80.

Derivation of pressure ratings.

The working pressure ratings for stainless steel tubing shall be derived from stress values and methodologies listed in ASME B31.3, Chemical Plant and Petroleum Refinery Piping standard.

Table 1

Tube O.D.	Phastite Maximum Product Rating - PSI (bar)[V]	Wall Thickness Maximum Tube Assembly Rating - PSI (bar)									
		0.035"[+]	0.049"	0.065"	0.083"	0.095"	0.109"	0.120"	0.125"	0.156"	0.188"
1/4"	20,000 (1378)	5,100 (352)	7,500 (517)	10,300 (710)	13,300 (917)						
3/8"	15,500 (1069)	3,300 (228)	4,800 (331)	6,600 (455)	8,600 (593)	10,000 (689)					
1/2"	15,000 (1034)	2,600 (179)	3,700 (255)	5,100 (352)	6,700 (462)	7,800 (538)	9,100 (627)	10,100 (696)	10,500 (724)		
5/8"	12,500 (862)		2,950 (203)	4,000 (276)	5,200 (359)	6,050 (417)	7,100 (490)	7,900 (545)	8,300 (572)		
3/4"	10,000 (689)		2,400 (165)	3,300 (228)	4,250 (293)	4,950 (341)	5,800 (400)	6,450 (445)	6,750 (465)	8,650 (596)	
7/8"	8,750 (603)		2,050 (141)	2,800 (193)	3,600 (248)	4,200 (290)	4,850 (334)	5,400 (372)	5,950 (390)	7,300 (503)	
1"	8,750 (603)			2,400 (165)	3,150 (217)	3,650 (252)	4,200 (290)	4,700 (324)	4,900 (338)	6,250 (431)	7,750 (534)

NOTE:
① PAGE 1 of 2 PART of CRN.
② CRN EXPIRES ON MAR 23/19.

TSSA MAR 23/09

Table 2

Tube O.D.	Phastite Maximum Product Rating - PSI (bar)[V]	Wall Thickness Maximum Tube Assembly Rating - PSI (bar)											
		0.8mm[+]	1.0mm	1.2mm	1.5mm	1.8mm	2.0mm	2.2mm	2.5mm	2.8mm	3.0mm	3.5mm	4.0mm	4.5mm
6mm	20,000 (1379)	4,800 (331)	6,200 (427)	7,600 (524)	9,900 (676)	11,900 (820)	13,300 (917)							
8mm	17,000 (1172)		4,500 (310)	5,500 (379)	7,200 (496)	8,600 (607)	9,900 (683)	10,900 (752)						
10mm	15,500 (1069)		3,600 (248)	4,300 (296)	5,600 (386)	6,900 (476)	7,700 (531)	8,600 (593)	9,900 (683)					
12mm	15,000 (1034)		2,900 (200)	3,500 (248)	4,600 (317)	5,600 (386)	6,300 (434)	7,000 (483)	8,100 (558)	9,200 (634)	9,900 (683)			
14mm	12,500 (862)		2,650 (183)	3,250 (224)	4,100 (283)	5,050 (348)	5,650 (390)	6,300 (434)	7,300 (503)	8,250 (569)	8,900 (614)			
16mm	10,000 (689)		2,300 (159)	2,800 (193)	3,550 (245)	4,350 (300)	4,900 (338)	5,400 (372)	6,250 (431)	7,150 (493)	7,700 (531)	9,150 (631)		
18mm	10,000 (689)				3,150 (217)	3,850 (265)	4,300 (296)	4,750 (328)	5,500 (379)	6,250 (431)	6,750 (465)	8,050 (555)		
20mm	10,000 (689)				2,800 (193)	3,400 (234)	3,800 (262)	4,250 (293)	4,900 (338)	5,550 (383)	6,000 (414)	7,150 (493)	8,300 (572)	
22mm	8,750 (603)				2,550 (176)	3,100 (214)	3,450 (238)	3,850 (265)	4,400 (303)	5,000 (345)	5,400 (372)	6,400 (441)	7,450 (514)	
25mm	8,750 (603)				2,200 (152)	2,700 (186)	3,000 (207)	3,350 (231)	3,800 (262)	4,350 (300)	4,700 (324)	5,550 (383)	6,450 (446)	7,400 (510)

[*] *Calculated Pressure Rating to ASME B31.3*
Based on ASTM A269 - 316

[V] *Pressure Rating verified by test based on 4:1 FOS.*
Utilising ASTM A269 - 316 tube with a typical UTS of 600 Mpa and typical hardness of Rb 80 - 90.

[+] *0.035" and 0.8mm wall thickness tubes whilst suitable, are not recommended for prolonged useage in applications where heavy vibration and combined pulsation are present.*

Phastite® Tube Connectors

Note on selection.

The pressure rating information presented here, is intended as a useful guide to demonstrate the performance potential of the Phastite® fitting when properly installed according to Parker recommended practices and to assist the user in the proper selection of tube and fitting for a particular application. Every effort is made to ensure this information is clearly presented but it is the responsibility of the user and the system designer to ensure the appropriate selection and specification of tube and fitting and that the specified assembly meets the requirements of the system or application.

Pressure rating at elevated temperatures

Factors used to determine tubing pressure ratings at elevated temperatures:

Table 3

°C	°F	304 St. St.	316 St. St.
93	200	1.00	1.00
204	400	0.93	0.96
315	600	0.82	0.85
426	800	0.76	0.79
537	1000	0.69	0.76

To determine allowable pressure at elevated temperatures, multiply the allowable working pressure from tables 1 to 2 by the factor shown in table 3 above.

Example: 12mm x 1.5mm wall 316 stainless steel tubing has a working pressure of 317 bar @ room temperature. If the system were to operate at 426°C, a factor of 79% or 0.79 would apply (see table 3) and the "at temperature" system pressure would therefore be 317 x 0.79 = 250 bar.

These factors are based on ASME B31.3 derating factors for ASTM A269 tubing. They are derived from table A-1, basic allowable stresses in metals.

Tubing ordering suggestions.

Stainless steel tubing for use with Phastite connectors should be ordered to insure adequate quality for good performance. Each request for tubing should specify the material, nominal outside diameter, and wall thickness. Ordering to the correct ASTM specifications ensures that the tubing will be dimensionally, physically and chemically within the strict limits as laid down in the standard. In addition to this, the tubing should be ordered as, free from scratches and imperfections and suitable for bending or flaring. The tubing should be fully annealed, 80Rb or less (Rb 90 absolute maximum) and delivered in a proper manner to preserve the product quality.

The following grades and standards can be used successfully with Phastite® 316 stainless steel fittings:

Materials:
304, 316 or 316L

ASTM tubing spec.
ASTM A-269, A-249, A-213 or A-632

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Technical Standards & Safety Authority
Boilers & Pressure Vessels
Safety Division

NOTE: ① PAGE 2 of 3 PART of CRN?
② CRN EXPIRES ON MAR.23/19.

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