VEGA Americas Incorporated
4170 Rosslyn Drive, Cincinnati, OH 45209, USA

[redacted]

SOR-VF, Rev. 2: VEGAFLEX 81([redacted]), 82[redacted], 83[redacted], 86[redacted] Scope of Registration Summary

Product Assembly Type	Fitting Design	Fitting Description	Materials of Construction [2E]	Maximum Design Pressure (bar) and Temperature (°C) [1]
VEGAFLEX 81 [redacted] Cable Probe: Ø2 mm, Ø4 mm Rod Probe: Ø8 mm, Ø12 mm Coax Probe: Ø21.3 mm, Ø42.2 mm	ASME B1.20.1 NPT Thread	Male NPT: ¾", 1, 1-½,", 2", 3", 4"	UNS S31603, SA-479 (316L, 1.4404, 1.4435) UNS S30403, SA-479 (304L, 1.4307) UNS N06022, SB-574 (C22, 2.4602) UNS N04400, SB-564, (Monel 400, 2.4360)	Standard Version Up to 40 bar Maximum -40°C up to 200°C
	DIN 3852-A, G-Thread (Whitworth BSP)	Male G ¾, 1, 1-½, 2		
	ASME B1.20.1 NPT Thread	Male NPT: ¾", 1, 1-½"	UNS S31603, SA-479 (316L, 1.4404, 1.4435)	Cryogenic Version De-rated to 100 bar maximum -60°C up to 150°C
	DIN 3852-A, G-Thread (Whitworth BSP)	Male G ¾, 1, 1-½, 2		
	ASME B16.5	NPS 1", 1-½", 2", 2-½", 3", 3-1/2", 4", 6", 8" and 10" Type: RF, FF, RJF (Cryogenic Version)	Group 2.3, UNS S30403, SA-182 (F304L, 1.4307) Group 2.3, UNS S31603, SA-182 (F316L, 1.4404) Group 2.2, UNS S31600, SA-182 (F316, 1.4401) Group 3.8, UNS N06022, SB-462, (C22, 2.4602) Group 3.8, UNS N10276, SB-462, (C276, 2.4819) Group 3.4, UNS N04400, SB-564 (Monel 400, 2.4360)	By Flange Class (150 thru 2500) and Material De-rated to 100 bar Maximum -60°C up to 150 °C
	ASME B16.5	NPS 1", 1-½", 2", 2-½", 3", 3-1/2", 4", 6", 8" and 10" Type: RF, FF, RJF (Standard Version)		By Flange Class (150 thru 2500) and Material De-rated to 40 bar maximum -40°C up to 200 °C
	Masoneilan (Proprietary Flange)	Masoneilan Type 1200 (Cryogenic Version)		Up to 40 Bar maximum -60C up to 150 C
	Masoneilan (Proprietary Flange)	Masoneilan Type 1200 (Standard Version)		Up to 40 bar maximum -40 C to 200 C
	Fisher (Proprietary Flange)	Fisher 249C (Cryogenic Version)		Up to 40 Bar maximum -60C up to 150 C

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Product Assembly Type	Fitting Design	Fitting Description	Materials of Construction [2E]	Maximum Design Pressure (bar) and Temperature (°C) [1]
VEGAFLEX 81 [redacted] Cable Probe: Ø2 mm, Ø4 mm Rod Probe: Ø8 mm, Ø12 mm Coax Probe: Ø21.3 mm, Ø42.2 mm	Fisher (Proprietary Flange)	Fisher 249C (Standard Version)	Group 2.3, UNS S30403, SA-182 (F304L, 1.4307) Group 2.3, UNS S31603, SA-182 (F316L, 1.4404) Group 2.2, UNS S31600, SA-182 (F316, 1.4401) Group 3.8, UNS N06022, SB-462, (C22, 2.4602) Group 3.8, UNS N10276, SB-462, (C276, 2.4819) Group 3.4, UNS N04400, SB-564 (Monel 400, 2.4360)	Up to 40 Bar maximum -40C up to 200 C
		Fisher 249B/259B (Cryogenic Version)		Up to 40 bar maximum -20 to 200C
		Fisher 249B/259B (Standard Version)		Up to 40 bar maximum -20 to 200C

[1] NOTE : For ASME B16.5 flanges, maximum pressure of FLEX 81 is limited by flange class and material, and shall not exceed 40 bar at any time for the standard version and shall not exceed 100 bar at any time for the Cryogenic Version.

[2] NOTE :

A. Flange standards according to ASME B16.5 and proprietary flange styles Fisher 249B/259B, Fisher 249C, Fisher Special Return and Masoneilan Type 1200.

B. ASME flange faces styles RF, FF and RJF.

C. ASME flange sizes: 1" thru 10".

D. ASME flange classes: 150# thru 2500#.

E. Materials for chemical compatibility and pressure : 304L (1.4307), 316 (1.4401), 316L (1.4404 and 1.4435), Hastelloy C276 (2.4819), Hastelloy C-22 (2.4602) and Monel 400 (2.4360).

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Product Assembly Type	Fitting Design	Fitting Description	Materials of Construction [2E]	Maximum Design Pressure (bar) and Temperature (°C) [1]
VEGAFLEX 82 [redacted] Cable Probe: Ø4 mm, Ø6 mm Rod Probe: Ø16 mm	ASME B1.20.1 NPT Thread	Male NPT: ¾", 1", 1-½,", 2"	UNS S31603, SA-479 (316L, 1.4404, 1.4435) UNS S30403, SA-479 (304L, 1.4307) UNS N06022, SB-574 (C22, 2.4602) UNS N04400, SB-564, (Monel 400, 2.4360)	Up to 40 bar maximum -40°C up to 200°C
	DIN 3852-A, G-Thread (Whitworth BSP)	Male G: ¾, 1, 1-½, 2		
	ASME B16.5	NPS 1", 1-½", 2", 2-½", 3", 3-1/2", 4", 6", 8" and 10" Type: RF, FF, RJF	Group 2.3, UNS S30403, SA-182 (F304L, 1.4307) Group 2.3, UNS S31603, SA-182 (F316L, 1.4404) Group 2.2, UNS S31600, SA-182 (F316, 1.4401) Group 3.8, UNS N06022, SB-462, (C22, 2.4602) Group 3.8, UNS N10276, SB-462, (C276, 2.4819) Group 3.4, UNS N04400, SB-564 (Monel 400, 2.4360)	By Flange Class (150 thru 300) and Material De-rated to 40 bar maximum -40°C up to 200 °C
	Masoneilan (Proprietary Flange)	Masoneilan Type 1200		Up to 40 bar Maximum @ -40...200 °C
	Fisher (Proprietary Flange)	Fisher 249C		Up to 40 bar Maximum @ -40...200 °C
		Fisher 249B/259B		Up to 40 bar Maximum @ -40...200 °C

[1] NOTE : For ASME B16.5 flanges, maximum pressure of FLEX 82 is limited by flange class and material, and shall not exceed 40 bar at any time.

[2] NOTE :

A. Flange standards according to ASME B16.5 and proprietary flange styles Fisher 249B/259B, Fisher 249C, and Masoneilan Type 1200.

B. ASME flange faces styles RF, FF and RJF.

C. ASME flange sizes: 1" thru 10".

D. ASME flange classes: 150# thru 300#.

E. Materials for chemical compatibility and pressure : 304L (1.4307), 316 (1.4401), 316L (1.4404 and 1.4435), Hastelloy C276 (2.4819), Hastelloy C-22 (2.4602) and Monel 400 (2.4360).

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Product Assembly Type	Fitting Design	Fitting Description	Materials of Construction [2E]	Maximum Design Pressure (bar) and Temperature (°C) [1]
VEGAFLEX 83 [redacted] Cable Probe: Ø4 mm Rod Probe: Ø8 mm, Ø 10 mm	ASME B16.5	NPS 1", 1-½", 2", 2-½", 3", 3-1/2", 4", 6", 8" and 10" Type: RF, FF	Group 2.3, UNS S30403, SA-182 (F304L, 1.4307) Group 2.3, UNS S31603, SA-182 (F316L, 1.4404) Group 2.2, UNS S31600, SA-182 (F316, 1.4401) Group 3.8, UNS N06022, SB-462, (C22, 2.4602) Group 3.8, UNS N10276, SB-462, (C276, 2.4819) Group 3.4, UNS N04400, SB-564 (Monel 400, 2.4360)	By Flange Class (150 thru 300) and Material De-rated to 16 bar maximum -40°C up to 150 °C
	Masoneilan (Proprietary Flange)	Masoneilan Type 1200		Up to 16 bar maximum -40°C up to 150°C
	ASME BPE	Sanitary: 1", 1-½", 2", 2-1/2", 3", 4" with or without PTFE cladding	UNS S31603, SA-182 (F316L, 1.4404) UNS S31603, SA-240 (316L, 1.4435)	Per ASME BPE Table DT-2-1

[1] NOTE : For ASME B16.5 flanges, maximum pressure of FLEX 83 is limited by flange class and material, and shall not exceed 16 bar at any time.

[2] NOTE :

A. Flange standards according to ASME B16.5 and proprietary flange style Masoneilan Type 1200.
B. ASME flange faces styles RF and FF.
C. ASME flange sizes from 1 thru 10 inch
D. ASME flange classes: 150# thru 300#.
E. Materials for chemical compatibility and pressure : 304L (1.4307), 316 (1.4401), 316L (1.4404 and 1.4435), Hastelloy C276 (2.4819), Hastelloy C-22 (2.4602) and Monel 400 (2.4360).

[redacted]

Product Assembly Type	Fitting Design	Fitting Description	Materials of Construction [2E]	Maximum Design Pressure (bar) and Temperature (°C) [1]
VEGAFLEX 86 [redacted] Cable Probe: Ø2 mm, Ø4 mm Rod Probe: Ø16 mm Coax Probe: Ø42.2 mm	ASME B1.20.1 NPT Thread	Male NPT: 1½"	UNS S31603, SA-479 (316L, 1.4404, 1.4435) UNS S30403, SA-479 (304L, 1.4307) UNS N06022, SB-574 (C22, 2.4602) UNS N04400, SB-564, (Monel 400, 2.4360)	400 bar maximum Standard Version -196...280°C Hi-Temp Version -196...450°C
	DIN 3852-A, G-Thread (Whitworth BSP)	Male G: 1½		
	ASME B16.5	NPS 1", 1-½", 2", 2-½", 3", 3-1/2", 4", 6", 8" and 10" Type: RF, FF, RJF	Group 2.3, UNS S30403, SA-182 (F304L, 1.4307) Group 2.3, UNS S31603, SA-182 (F316L, 1.4404) Group 2.2, UNS S31600, SA-182 (F316, 1.4401) Group 3.8, UNS N06022, SB-462, (C22, 2.4602) Group 3.8, UNS N10276, SB-462, (C276, 2.4819) Group 3.4, UNS N04400, SB-564 (Monel 400, 2.4360)	By Flange Class (150 thru 2500) and Material De-rated to 400 bar maximum Standard Version -196...280°C Hi-Temp Version -196...450°C
	Masoneilan (Proprietary Flange)	Masoneilan Type 1200		De-rated to 40 bar maximum , Standard Version -196...280°C Hi-Temp Version -196...450°C

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[redacted]

Product Assembly Type	Fitting Design	Fitting Description	Materials of Construction [2E]	Maximum Design Pressure (bar) and Temperature (°C) [1]
VEGAFLEX 86 [redacted] Cable Probe: Ø2 mm, Ø4 mm Rod Probe: Ø16 mm Coax Probe: Ø42.2 mm	Fisher (Proprietary Flange)	Fisher Type 249C	Group 2.3, UNS S30403, SA-182 (F304L, 1.4307) Group 2.3, UNS S31603, SA-182 (F316L, 1.4404) Group 2.2, UNS S31600, SA-182 (F316, 1.4401) Group 3.8, UNS N06022, SB-462, (C22, 2.4602) Group 3.8, UNS N10276, SB-462, (C276, 2.4819) Group 3.4, UNS N04400, SB-564 (Monel 400, 2.4360)	De-rated to 40 bar maximum , Standard Version -196...280°C Hi-Temp Version -196...450°C
		Fisher Type 249B/259B		De-rated to 40 bar maximum , Standard Version -196...280°C Hi-Temp Version -196...450°C
		Fisher Special Return (GE3218)		De-rated to 16 bar maximum Standard Version -196...280°C Hi-Temp Version -196...450°C

[1] NOTE : For ASME B16.5 flanges, maximum pressure of FLEX 86 is limited by flange class and material, and shall not exceed 400 bar at any time.
[2] NOTE :

A. Flange standards according to ASME B16.5 and proprietary flange styles Fisher 249B/259B, Fisher 249C, Fisher Special Return and Masoneilan.
B. ASME flange faces styles RF, FF and RJF.
C. ASME flange sizes from 1 thru 10 inch
D. ASME flange classes: 150# thru 2500#.
E. Materials for chemical compatibility and pressure : 304L (1.4307), 316 (1.4401), 316L (1.4404 and 1.4435), Hastelloy C276 (2.4819), Hastelloy C-22 (2.4602) and Monel 400 (2.4360)

Approved by: Bill Shreve **Title:** Lead Engineer

Signed: **Date approved:** 18 April 2016

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

VEGA
[redacted]

STATUTORY DECLARATION
Registration of Fittings

I, Lee Dallman Director of Engineering
(Name and Position, e.g. President, Plant Manager, Chief Engineer)

of VEGA Americas, Inc.
(Name of Manufacturer)

Located at 4170 Rosslyn Drive, Cincinnati, Ohio 45209 USA +1-513-272-0524 +1-513-272-4390
(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 ASME B31.3 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 9001:2008 which has been verified by the following authority, LRQA.

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

VEGAFLEX 81[redacted] 82[redacted] 83[redacted] 86[redacted] Scope summary: SOR-VF, REV2

Declared before me at _____ **in the** State **of** Ohio

the 20 **day of** May **AD 20** 15.

SARAH MACKE
Notary Public, State of Ohio
My Commission Expires 03-19-2020

SARAH MACKE, NOTARY PUBLIC STATE OF OHIO

Commissioner for Oaths:

Sarah Macke
(Printed name)

Sarah Macke
(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 F.

CRN: OF-1226.05

Registered by: Wendy Jin

Dated: Apr. 29, 2016

NOTE: This registration expires on Dec. 19, 2024

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

REGISTERED

C.R.N.: OF-1226.05

Signed: Wendy Jin

Date: Apr. 29, 2016

PV 09553 (06/04)

(2) MFG Sites – USA & Germany WD 04/29/2016

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

[redacted]

STATUTORY DECLARATION
Registration of Fittings

I, Bernhard Storz QA Manager
(Name and Position, e.g. President, Plant Manager, Chief Engineer)

of VEGA Grieshaber KG
(Name of Manufacturer)

Located at D-77761 Schiltach, AM Hohenstein 113 +49 7836 50-147 +49 7836 50-8147
(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 ASME B31.3 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 9001:2008 which has been verified by the following authority, DEKRA Certification GmbH

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

VEGAFLEX 81[redacted] 82[redacted] 83[redacted] 86[redacted]; Scope summary: SOR-VF, REV2
(drawings, calculations, test reports, etc.)

Declared before me at Schiltach **in the** BW **of** Germany

the 20 **day of** May **AD 20** 15.

Commissioner for Oaths:

Fischer
(Printed name)

(Signature) Notar Nr. 137/2015

(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 F.

CRN: 0F-1226.05

Registered by: Wendy Ann

Dated: Apr. 29, 2016

NOTE: This registration expires on Dec. 19, 2024

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

REGISTERED

C.R.N.: 0F-1226.05

Signed: Wendy Ann

Date: Apr. 29, 2016

PV 09553 (06/04)

(2) MFG Sites – USA & Germany. WD 04/29/2016