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March 24, 2025

6870830 CANADA INC O/A TITAN RESEARCH GROUP
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TORONTO ON M4S 3E2

Workorder Type: Registration - Fitting(Conventional)
Workorder No: 14607135
Your Reference No.: REVISION -OF -0F1226.05
Registered to: VEGA

Dear ROB MCGREGOR,

Technical Standards and Safety Authority (TSSA) is pleased to inform you that your submission has been reviewed and registered as follows:

CRN : 0F1220.05R3
Main Design No.: SOR-VF, Rev. 2: VEGAFLEX 81([redacted] [redacted] 82([redacted] 83([redacted] 86([redacted] Scope of Registration Summ
Expiry Date: Apr 05, 2034

Please be advised that a valid quality control system must be maintained for the fitting registration to remain valid until the expiry date.

The stamped copy of the approved registration and the invoice are mailed separately (There will be no hard copies for electronic submissions). Should you have any questions or require further assistance, please contact a Customer Service Advisor at 1.877.682.TSSA (8772) or e-mail customerservices@tssa.org. We will be happy to assist you. When contacting TSSA regarding this file, please refer to the Service Request number provided above.

Yours truly,

Charley Dong

Charley Dong
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[redacted]

THIS IS PART OF CRN
0F1220.05R3
Technical Standards and Safety Authority
Boilers and Pressure Vessels Safety Program

[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-164, (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 to 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 to 2500) and Material De-rated to 40 bar maximum -40°C up to 200 °C
	Masoneilan (Proprietary Flange)	Masoneilan Type 1200 (Cryogenic Version)	Group 2.3, UNS S31603, SA-182 (F316L, 1.4404)	Up to 80 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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[redacted]

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 S31603, SA-182 (F316L, 1.4404)	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 : 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" to 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).

[redacted]

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-164, (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" to 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 to 300) and Material De-rated to 40 bar maximum -40°C up to 200 °C
	Masoneilan (Proprietary Flange)	Masoneilan Type 1200	Group 2.3, UNS S31603, SA-182 (F316L, 1.4404)	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
		Fisher Special Return		Up to 40 bar Maximum @ -40…200 °C

[1] NOTE : 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, Fisher Special Return and Masoneilan Type 1200.
B. ASME flange faces styles RF, FF and RJF.
C. ASME flange sizes: 1" to 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).

[redacted]

[redacted]

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" to 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 and 300) and Material De-rated to 16 bar maximum -40°C up to 150 °C
	Masoneilan (Proprietary Flange)	Masoneilan Type 1200	Group 2.3, UNS S31603, SA-182 (F316L, 1.4404)	Up to 16 bar maximum -40°C up to 150°C
	ASME BPE (ISO 2852) DIN32676	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 2012 Table DT-2

[1] NOTE : 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 to 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]
FLEX 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-164, (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 2" to 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 and 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	Group 2.3, UNS S31603, SA-182 (F316L, 1.4404)	De-rated to 40 bar maximum , Standard Version -196…280°C Hi-Temp Version -196…450°C

[redacted]

[redacted]

Product Assembly Type	Fitting Design	Fitting Description	Materials of Construction [2E]	Maximum Design Pressure (bar) and Temperature (°C) [1]
FLEX 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 S31603, SA-182 (F316L, 1.4404)	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 : 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 2 to 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)

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