



# Inspection Documents for Type 2.1 Coverage: Python Chemical Injection Pumps

Date: September 8th, 2017

Size: 19 (3/16" Plunger)

Description: PCI-xxx-19x-xx-x

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Graco Inc. certifies that the above product be manufactured by Graco Inc. and tested to meet all applicable Graco engineering/manufacturing/quality standards and specifications.

Graco manufacturing and product development facilities are certified to ISO 9001:2008.

A handwritten signature in black ink that reads 'Sarah J. Bergstrom'.

Sarah J. Bergstrom  
Quality Engineer  
Graco Inc.



# Test Certificate

**Product Family:** Python Chemical Injection Pumps

**Size:** 19 (3/16" Plunger)

**Description Reference:** PCI-xxx-19x-xx-x

Manufacturing Test Frequency: 100%

Test results:

Low pressure startup check: Pass  Fail

Stall pressure validation: Pass  Fail

Pump operation at maximum pressure: Pass  Fail

External fluid leak check: Pass  Fail

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A handwritten signature in black ink that reads 'Sarah Bergstrom'.

Sarah J. Bergstrom

Quality Engineer

Graco Inc.



# Certificate of Material

Date: September 8, 2017

**Product Family:** Python Chemical Injection Pumps

**Size:** 19 (3/16" Plunger)

**Description Reference:** PCI-xxx-19x-xx-x

<b>Part Number</b>	<b>Wetted Part Description</b>	<b>Material Description</b>
17G512	Cylinder,Fluid,188	316 SST
17H599	Plunger,Fluid,Chromex,188	17-4 SST (Chromex Coated)
17K802	Plunger,Coated,Ceramic,19,Python	17-4 SST (CERAMIC COATED)
17G111	Bearing,Plunger,Cip 19,Peek	PEEK
17L128	Nut,Packing,Plunger,25,Python	316 SST
17K196	Needle,Bleed,Pressure,High	316 SST
17K191	Housing,Front,Check,Inlet,2pc,Hp	316 SST
17K192	Housing,Back,Check,Inlet,2pc,Hp	316 SST
17K193	Housing,Front,Check,Outlet,2PC,Hp	316 SST
17K194	Housing,Back,Check,Outlet,2PC,Hp	316 SST
17K195	Piston,Valve,Check,High Pressure	316 SST
17K234	Retainer,Valve,Check,NPT,Small	316 SST
17K245	Spring,Valve,Check,Pressure,High	316 SST

Graco Inc. certifies the above product was manufactured and tested to meet all applicable Graco Engineering/Manufacturing/Quality Standards and Specifications.

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Bradley A. Byron  
Quality Manager  
Graco Inc.



Graco, Inc.  
88 11th Avenue NE  
Minneapolis, MN 55413 USA

### Certificate of Verification

XL3-89733

Reading No 916  
Mode General Metals  
Time 2017-09-08 12:39  
Duration 24.64  
Units %  
Sigma Value 2  
Sequence Final  
Alloy1 SS-316 : 0.00  
Alloy2 No Match : \*4.34  
Flags  
SAMPLE 17G512  
HEAT  
LOT  
BATCH  
MISC  
NOTE



	%	±	Error
Sb	0	:	N/A
Sn	0.022	±	0.007
Cd	0	:	N/A
Pd	0	:	N/A
Ag	0	:	N/A
Ru	0	:	N/A
Mo	2.330	±	0.017
Nb	0.012	±	0.002
Zr	0	:	N/A
Bi	0	:	N/A
Pb	0	:	N/A
Se	0	:	N/A
Au	0	:	N/A
W	0	:	N/A
Zn	0	:	N/A
Cu	0.558	±	0.038
Ni	10.597	±	0.117
Co	0	:	N/A
Fe	67.993	±	0.156
Mn	1.535	±	0.069
Cr	16.674	±	0.084
V	0.106	±	0.025
Ti	0	:	N/A
Al	0	:	N/A

Supervised By: \_\_\_\_\_

*Sarah Bugstrom*



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## Certificate of Verification

XL3-89733

Reading No 867  
Mode General Metals  
Time 2017-09-08 11:20  
Duration 20.52  
Units %  
Sigma Value 2  
Sequence Final  
Alloy1 17-4 PH : \*3.38  
Alloy2  
Flags  
SAMPLE 17H599  
HEAT  
LOT  
BATCH  
MISC  
NOTE



	%	±	Error
Sb	0	:	N/A
Sn	0.013	±	0.004
Cd	0	:	N/A
Pd	0	:	N/A
Ag	0	:	N/A
Ru	0	:	N/A
Mo	0.119	±	0.003
Nb	0.178	±	0.004
Zr	0	:	N/A
Bi	0	:	N/A
Pb	0	:	N/A
Se	0	:	N/A
Au	0	:	N/A
W	0	:	N/A
Zn	0	:	N/A
Cu	2.866	±	0.046
Ni	4.461	±	0.066
Co	0	:	N/A
Fe	76.119	±	0.121
Mn	0.555	±	0.048
Cr	*15.416	±	0.063
V	0.109	±	0.018
Ti	0.064	±	0.021
Al	0	:	N/A

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*Sarah Bugstam*



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### Certificate of Verification

XL3-89733

Reading No 894  
Mode General Metals  
Time 2017-09-08 12:06  
Duration 30.39  
Units %  
Sigma Value 2  
Sequence Final  
Alloy1 SS-316 : 0.00  
Alloy2 No Match : \*5.02  
Flags  
SAMPLE 17K191  
HEAT  
LOT  
BATCH  
MISC  
NOTE



	%	±	Error
Sb	0	:	N/A
Sn	0.015	±	0.003
Cd	0	:	N/A
Pd	0	:	N/A
Ag	0	:	N/A
Ru	0	:	N/A
Mo	2.029	±	0.008
Nb	0.014	±	0.001
Zr	0	:	N/A
Bi	0	:	N/A
Pb	0	:	N/A
Se	0	:	N/A
Au	0	:	N/A
W	0.037	±	0.011
Zn	0	:	N/A
Cu	0.418	±	0.019
Ni	10.643	±	0.063
Co	0.178	±	0.045
Fe	68.412	±	0.083
Mn	1.386	±	0.037
Cr	16.723	±	0.045
V	0.118	±	0.013
Ti	0	:	N/A
Al	0	:	N/A

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### Certificate of Verification

XL3-89733

Reading No 898  
Mode General Metals  
Time 2017-09-08 12:11  
Duration 25.82  
Units %  
Sigma Value 2  
Sequence Final  
Alloy1 SS-316 : 0.00  
Alloy2 No Match : \*4.65  
Flags  
SAMPLE 17K192  
HEAT  
LOT  
BATCH  
MISC  
NOTE



	%	±	Error
Sb	0	:	N/A
Sn	0.031	±	0.004
Cd	0	:	N/A
Pd	0	:	N/A
Ag	0	:	N/A
Ru	0	:	N/A
Mo	2.051	±	0.010
Nb	0.016	±	0.001
Zr	0	:	N/A
Bi	0	:	N/A
Pb	0	:	N/A
Se	0	:	N/A
Au	0	:	N/A
W	0.034	±	0.013
Zn	0	:	N/A
Cu	0.276	±	0.021
Ni	10.663	±	0.073
Co	0.229	±	0.053
Fe	68.185	±	0.097
Mn	1.374	±	0.043
Cr	16.929	±	0.053
V	0.152	±	0.016
Ti	0.041	±	0.018
Al	0	:	N/A

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### Certificate of Verification

XL3-89733

Reading No 931  
Mode General Metals  
Time 2017-09-11 09:29  
Duration 28.79  
Units %  
Sigma Value 2  
Sequence Final  
Alloy1 SS-316 : 0.00  
Alloy2 No Match : \*4.77  
Flags  
SAMPLE 17K193  
HEAT  
LOT  
BATCH  
MISC  
NOTE



	%	±	Error
Sb	0	:	N/A
Sn	0.015	±	0.003
Cd	0	:	N/A
Pd	0	:	N/A
Ag	0	:	N/A
Mo	2.040	±	0.009
Nb	0.045	±	0.002
Zr	0	:	N/A
Bi	0	:	N/A
Pb	0	:	N/A
Se	0	:	N/A
Au	0	:	N/A
W	0.073	±	0.012
Zn	0	:	N/A
Cu	0.403	±	0.019
Ni	10.586	±	0.065
Co	0.222	±	0.047
Fe	68.229	±	0.087
Mn	1.473	±	0.039
Cr	16.727	±	0.047
V	0.137	±	0.014
Ti	0.039	±	0.016
Al	0	:	N/A
Ru	0	:	N/A

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### Certificate of Verification

XL3-89733

Reading No 897  
Mode General Metals  
Time 2017-09-08 12:10  
Duration 27.80  
Units %  
Sigma Value 2  
Sequence Final  
Alloy1 SS-316 : 0.00  
Alloy2 No Match : \*3.66  
Flags  
SAMPLE 17K194  
HEAT  
LOT  
BATCH  
MISC  
NOTE



	%	±	Error
Sb	0	:	N/A
Sn	0.018	±	0.004
Cd	0	:	N/A
Pd	0	:	N/A
Ag	0	:	N/A
Ru	0	:	N/A
Mo	2.033	±	0.009
Nb	0.014	±	0.001
Zr	0	:	N/A
Bi	0	:	N/A
Pb	0	:	N/A
Se	0	:	N/A
Au	0	:	N/A
W	0.033	±	0.012
Zn	0	:	N/A
Cu	0.483	±	0.022
Ni	10.264	±	0.070
Co	0	:	N/A
Fe	68.268	±	0.095
Mn	1.608	±	0.043
Cr	17.047	±	0.052
V	0.102	±	0.015
Ti	0	:	N/A
Al	0	:	N/A

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### Certificate of Verification

XL3-89733

Reading No 901  
 Mode General Metals  
 Time 2017-09-08 12:14  
 Duration 22.69  
 Units %  
 Sigma Value 2  
 Sequence Final  
 Alloy1 SS-316 : 0.00  
 Alloy2 No Match : \*4.83  
 Flags  
 SAMPLE 17K195  
 HEAT  
 LOT  
 BATCH  
 MISC  
 NOTE



	%	±	Error
Sb	0	:	N/A
Sn	0.016	±	0.005
Cd	0	:	N/A
Pd	0	:	N/A
Ag	0	:	N/A
Ru	0	:	N/A
Mo	2.065	±	0.014
Nb	0.025	±	0.002
Zr	0	:	N/A
Bi	0	:	N/A
Pb	0	:	N/A
Se	0	:	N/A
Au	0	:	N/A
W	0.109	±	0.024
Zn	0	:	N/A
Cu	0.269	±	0.029
Ni	10.718	±	0.103
Co	0.360	±	0.074
Fe	68.226	±	0.138
Mn	1.372	±	0.060
Cr	16.611	±	0.074
V	0.192	±	0.023
Ti	0	:	N/A
Al	0	:	N/A

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### Certificate of Verification

XL3-89733

Reading No 895  
Mode General Metals  
Time 2017-09-08 12:07  
Duration 22.35  
Units %  
Sigma Value 2  
Sequence Final  
Alloy1 SS-316 : 0.00  
Alloy2 No Match : \*5.02  
Flags  
SAMPLE 17K196  
HEAT  
LOT  
BATCH  
MISC  
NOTE



	%	±	Error
Sb	0	:	N/A
Sn	0.015	±	0.004
Cd	0	:	N/A
Pd	0	:	N/A
Ag	0	:	N/A
Ru	0	:	N/A
Mo	1.984	±	0.011
Nb	0.035	±	0.002
Zr	0	:	N/A
Bi	0	:	N/A
Pb	0	:	N/A
Se	0	:	N/A
Au	0	:	N/A
W	0.042	±	0.015
Zn	0.014	±	0.006
Cu	0.529	±	0.026
Ni	10.819	±	0.083
Co	0	:	N/A
Fe	68.275	±	0.110
Mn	1.487	±	0.049
Cr	16.682	±	0.060
V	0.089	±	0.017
Ti	0	:	N/A
Al	0	:	N/A

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### Certificate of Verification

XL3-89733

Reading No 902  
 Mode General Metals  
 Time 2017-09-08 12:16  
 Duration 24.12  
 Units %  
 Sigma Value 2  
 Sequence Final  
 Alloy1 SS-316 : 0.00  
 Alloy2 No Match : \*3.89  
 Flags  
 SAMPLE 17K234  
 HEAT  
 LOT  
 BATCH  
 MISC  
 NOTE



	%	±	Error
Sb	0	:	N/A
Sn	0.013	±	0.004
Cd	0	:	N/A
Pd	0	:	N/A
Ag	0	:	N/A
Ru	0	:	N/A
Mo	2.101	±	0.010
Nb	0.010	±	0.001
Zr	0	:	N/A
Bi	0	:	N/A
Pb	0	:	N/A
Se	0	:	N/A
Au	0	:	N/A
W	0.034	±	0.013
Zn	0	:	N/A
Cu	0.430	±	0.023
Ni	10.326	±	0.076
Co	0.187	±	0.056
Fe	68.247	±	0.102
Mn	1.576	±	0.046
Cr	16.940	±	0.056
V	0.092	±	0.016
Ti	0	:	N/A
Al	0	:	N/A

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### Certificate of Verification

XL3-89733

Reading No 909  
Mode General Metals  
Time 2017-09-08 12:28  
Duration 12.94  
Units %  
Sigma Value 2  
Sequence Final  
Alloy1 SS-316 : \*3.27  
Alloy2 No Match : \*4.46  
Flags  
SAMPLE 17K245  
HEAT  
LOT  
BATCH  
MISC  
NOTE



	%	±	Error
Sb	0	:	N/A
Sn	0	:	N/A
Cd	0	:	N/A
Pd	0	:	N/A
Ag	0	:	N/A
Ru	0	:	N/A
Mo	1.965	±	0.137
Nb	0	:	N/A
Zr	0	:	N/A
Bi	0	:	N/A
Pb	0	:	N/A
Se	0	:	N/A
Au	0	:	N/A
W	0	:	N/A
Zn	0	:	N/A
Cu	0	:	N/A
Ni	*22.242	±	1.328
Co	0	:	N/A
Fe	*58.486	±	1.801
Mn	1.177	±	0.145
Cr	15.795	±	0.222
V	0.057	±	0.017
Ti	0	:	N/A
Al	0	:	N/A
S	0	:	N/A
P	0	:	N/A
Si	0	:	N/A
Mg	0	:	N/A

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### Certificate of Verification

XL3-89733

Reading No 881  
Mode General Metals  
Time 2017-09-08 11:48  
Duration 6.11  
Units %  
Sigma Value 2  
Sequence Final  
Alloy1 17-4 PH : \*3.05  
Alloy2  
Flags  
SAMPLE 17K802  
HEAT  
LOT  
BATCH  
MISC  
NOTE



	%	±	Error
Sb	0	:	N/A
Sn	0	:	N/A
Cd	0	:	N/A
Pd	0	:	N/A
Ag	0	:	N/A
Ru	0	:	N/A
Mo	0.113	±	0.005
Nb	0.171	±	0.007
Zr	0	:	N/A
Bi	0	:	N/A
Pb	0	:	N/A
Se	0	:	N/A
Au	0	:	N/A
W	0	:	N/A
Zn	0	:	N/A
Cu	2.838	±	0.093
Ni	4.425	±	0.132
Co	0	:	N/A
Fe	76.226	±	0.249
Mn	0.690	±	0.098
Cr	*15.361	±	0.126
V	0.099	±	0.036
Ti	0	:	N/A
Al	0	:	N/A

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*Sarah Bugstrom*



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### Certificate of Verification

XL3-89733

Reading No 918  
Mode General Metals  
Time 2017-09-08 12:41  
Duration 29.23  
Units %  
Sigma Value 2  
Sequence Final  
Alloy1 SS-316 : 0.00  
Alloy2 No Match : \*4.84  
Flags  
SAMPLE 17L128  
HEAT  
LOT  
BATCH  
MISC  
NOTE



	%	±	Error
Sb	0	:	N/A
Sn	0.016	±	0.004
Cd	0	:	N/A
Pd	0	:	N/A
Ag	0	:	N/A
Ru	0	:	N/A
Mo	2.030	±	0.009
Nb	0.025	±	0.001
Zr	0	:	N/A
Bi	0	:	N/A
Pb	0	:	N/A
Se	0	:	N/A
Au	0	:	N/A
W	0.047	±	0.013
Zn	0	:	N/A
Cu	0.302	±	0.020
Ni	10.747	±	0.071
Co	0.243	±	0.051
Fe	68.318	±	0.094
Mn	1.347	±	0.042
Cr	16.750	±	0.051
V	0.127	±	0.015
Ti	0	:	N/A
Al	0	:	N/A

Supervised By: \_\_\_\_\_

*Sarah Bugstrom*