



First Article Inspection Report (FAIR)

Instructions

Rev. 6



Sample and Document Requirements

Supplier shall submit all required samples and documents to Graco in accordance to the information listed on the purchase order. Please submit completed FA data electronically to the Graco inspection, see Slide 15/16 for contact information.

- Sample requirements:
 - 1) One sample per cavity or machine cycle.
 - 2) For Assemblies/Weldments, a sample of each “child” part (BOM) MUST also be submitted.
 - 3) Parts sectioned for inspection purposes to be included

When at all possible the samples provided should be the same as inspected by the supplier.

- Document requirements:
 - 1) Balloon Drawing. Must be a Graco released drawing. **No preliminary, drawings used for quoting purposes only, marked up, or supplier drawings are allowed.** Child part balloon drawings also required
 - 2) Inspection results recorded on Graco form 318-003. Latest revision forms are available for download at <https://www.graco.com/us/en/suppliers/quality.html>
 - 3) Marginal feature analysis, All features identified as marginal must have comments relating to the effects of tool wear and process capability. See marginal comments page on Graco form 318-003
 - 4) Supplier Capability certification signed and dated
 - 5) Capability data and analysis for all features identified as a “critical” or “Key” characteristic
 - 6) Material, Heat Treat and Plating /Paint Certifications



Inspection Requirements

Initial report:

- The supplier will inspect **ALL** features identified on the drawing including the drawing notes and Material, Heat Treat and Plating specifications. See notes 1 & 2 below

Follow up reports:

- The supplier will inspect all features dispositioned as “Fix ” on the initial report. The supplier will also inspect any feature that are affected by the fix or repair.

Revision change reports:

- The supplier will inspect all features related to the revision change. Note, No inspection is required for revision changes that are simply “matching the drawing to the parts” See Note 3 Below

NOTE 1: Inspection is not required for reference dimensions

NOTE 2: Basic dimensions (GD & T) locating features for position requirements must be inspected and recorded. Basic dimensions locating datum target locations do not have to be inspected or recorded

NOTE 3: Contact the appropriate purchasing agent or the Supplier Quality Engineer should you have any questions. SQE contact information is listed on page 14 of this presentation

Note 4: Minor diameter (Internal threads) and Major diameter (External threads) must be included in the inspection report.

Note 5: Six step plain member truncation gage inspection is required for all “NPT” threads



Casting Specific Requirements

Tooling specific requirement:

- 1) At minimum, the as-cast part must be submitted with a full dimensional report
- 2) Tooling with additional purchase part number's (ex. Machining Print) that dimensionally differ than the tooled part number (as-cast part) MUST have an additional dimensional report submitted for those features that change from the as-cast print.

Example:

Tooled Part #: 125987

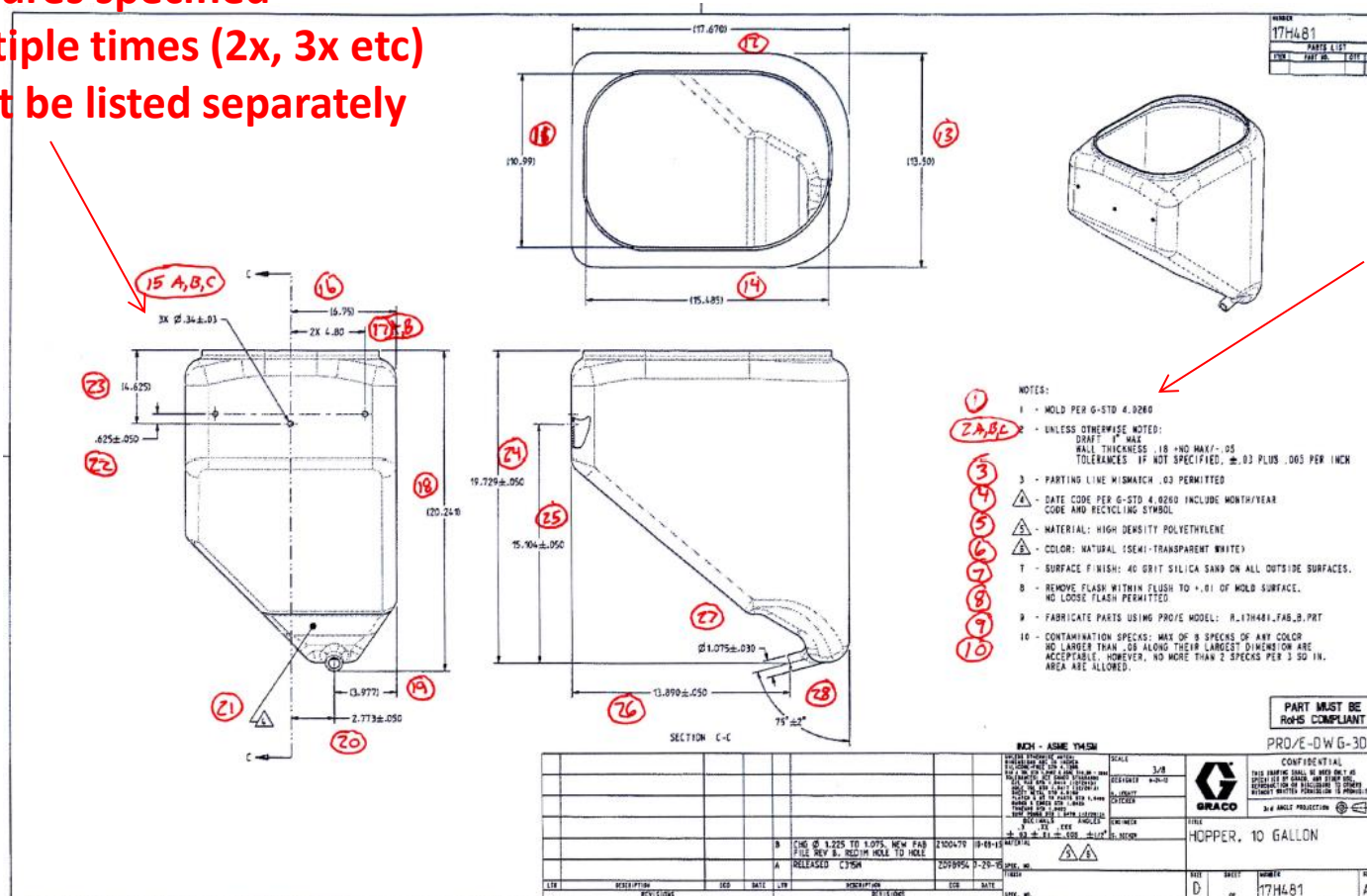
Purch Part #: 17B331, 17B332

A Full Dimensional Report shall be submitted with First Article for P/N 125987

A Dimensional Report shall be submitted for P/N 17B331, 17B332, ONLY reporting values for additional notes and dimensions that are different from Tooled P/N 125987



Include all drawing notes





Data Entry Example (Form Header)

ALL FIELDS in the header **MUST** be completed



2. DIMENSIONAL ANALYSIS

TOOLING SAMPLE INSPECTION REPORT

Graco Form 318-003 Rev 04/18

P/N	TYPE OF TOOL NEW TOOL <input type="checkbox"/> TRANSFERRED TOOL <input type="checkbox"/> REPAIRED/REPLACED TOOL <input type="checkbox"/> EXISTING TOOL <input type="checkbox"/>				PAGE: <u>1</u> OF <u> </u>	
REV. LEVEL	TYPE OF REPORT INITIAL REPORT <input type="checkbox"/> DEFECT REPAIR FOLLOW-UP <input type="checkbox"/> REV CHANGE FOLLOW-UP <input type="checkbox"/>				SUPPLIER NAME:	
PART NAME:		MANUFACTURING PROCESS:		GRACO TOOL(S) NUMBER	NUMBER OF CAVITIES	ENGINEERING CONTACT AT SUPPLIER (e-mail address)
PURCHASED P/N IF DIFFERENT FROM	TOOLING PURCHASE ORDER:	MATERIAL:	SAMPLE SIZE:	LOT SIZE:	RUN DATE:	GRACO FIRST ARTICLE RECORD NUMBER



Data Entry Example (multiple cavities/samples)

All Cavities per find number grouped together as shown on one spreadsheet

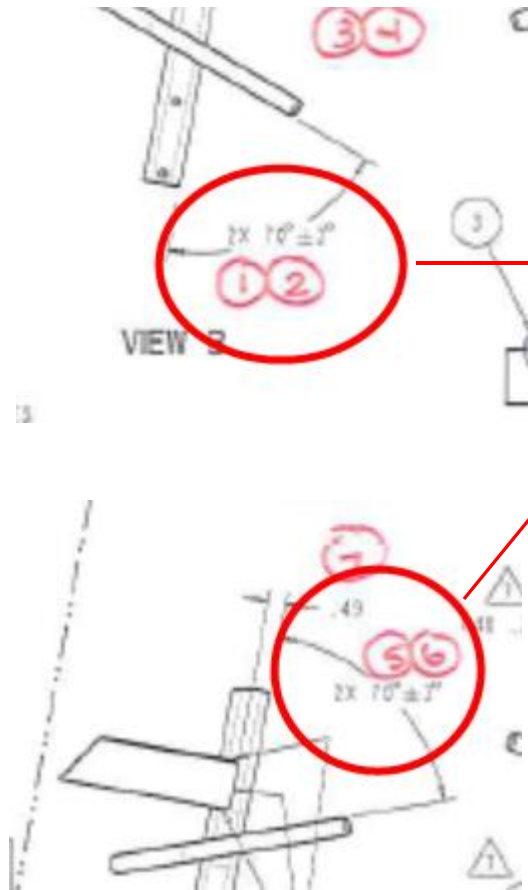
FIND NO.	SAMP OR CAV	DIMENSION OR SPECIFICATION	DESCRIPTION OF FEATURE (ie rad, dia, dim)	Plus Tol	Minus Tol	SUPPLIER INSPECTION RESULT	Out Of Tol.	Marg.	SUPPLIER INSP. EQUIP. USED	GRACO INSPECTION RESULT	GRACO OUT OF TOL.	GRACO MARG.	GRACO INSP. EQUIP. USED	FIX	CHANGE DRAWING TO:	Insp Instruct	Insp Diff.
1	1	3.000	Over All Length	0.030	0.030	2.9740		LOW	Caliper								
1	2	3.000	Over All Length	0.030	0.030	2.9710		LOW	Caliper								
1	3	3.000	Over All Length	0.030	0.030	2.9760			Caliper								
1	4	3.000	Over All Length	0.030	0.030	2.9740		LOW	Caliper								
2	1	1.500	Location	0.075	0.075	1.5000			CMM								
2	2	1.500	Location	0.075	0.075	1.4980			CMM								
2	3	1.500	Location	0.075	0.075	1.4970			CMM								
2	4	1.500	Location	0.075	0.075	1.5010			CMM								
3	1	0.565	Diameter	0.010	0.010	0.5700			Bore Gage								
3	2	0.565	Diameter	0.010	0.010	0.5690			Bore Gage								
3	3	0.565	Diameter	0.010	0.010	0.5700			Bore Gage								
3	4	0.565	Diameter	0.010	0.010	0.5690			Bore Gage								
4	1	2.250	Length	0.010	0.010	2.2420			CMM								
4	2	2.250	Length	0.010	0.010	2.2410		LOW	CMM								
4	3	2.250	Length	0.010	0.010	2.2420			CMM								
4	4	2.250	Length	0.010	0.010	2.2400		LOW	CMM								

Numeric characters only in the circled cells (Alpha or symbols void formulas)



Data Entry Example (2X, 3x ETC)

(Using multiple find numbers)

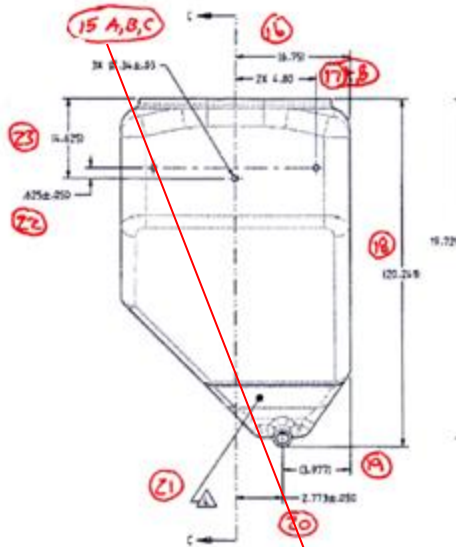


FIND NO.	SAMP OR DIM	DIMENSION OR SPECIFICATION	DESCRIPTION OF FEATURE (weld dim, dim)	PLUS TOL.	MINUS TOL.	SUPPLIER INSPECTION RESULT (in, out)	Out Of Tol.	Marg.
1		70.000	deg. 2x	3.0000	3.0000	69.1000		
2		70.000	deg. 2x	3.0000	3.0000	69.6000		
3		0.1875	weld dim. 2x			0.3300		
4		0.1875	weld dim. 2x			0.3300		
5		70.000	deg. 2x	3.0000	3.0000	70.5000		
6		70.000	deg. 2x	3.0000	3.0000	70.7000		
7		0.450	dim.	0.0000	0.0000	0.4800		
8		0.1875	weld dim.			0.2100		
9		1.0000	weld dim.			1.3510		
10		2.0000	weld dim.			1.8355		
11		0.1875	weld dim. 3x			0.2600		
12		0.1875	weld dim. 3x			0.2050		
13		0.1875	weld dim. 3x			0.2180		
14		0.5000	weld dim.			0.8000		
15		0.1875	weld dim.			0.2460		
16		0.5000	weld dim.			0.8780		
17		0.1875	weld dim.			0.1950		
18		0.5000	weld dim.			0.7840		
19		0.1875	weld dim.			0.2235		
20		0.5000	weld dim.			0.7720		
21		6.350	dim.	0.0450	0.0150	6.3635		



Data Entry Example (2X, 3x ETC)

(Using One Find Number with Alpha Characters)



SUPPLIERS: DO NOT TYPE IN SHADED AREAS								
FIND NO.	SAMP OR CAV	DIMENSION OR SPECIFICATION	DESCRIPTION OF FEATURE (ie.rad, dia, dim)	PLUS TOL.	MINUS TOL.	SUPPLIER INSPECTION RESULT "LOW"	Out Of Tol.	LOW RESULT MARG
15-a		0.34	Diameter	0.03	0.03	0.3430		
15-b		0.34	Diameter	0.03	0.03	0.3440		
15-c		0.34	Diameter	0.03	0.03	0.3420		



Data Entry Example (Child Parts)

Child parts included on the same spreadsheet

FIND NO.	SAMP OR CAV	DIMENSION OR SPECIFICATION	DESCRIPTION OF FEATURE (mm, in, etc.)	PLUS TOL.	MINUS TOL.	SUPPLIER INSPECTION RESULT "LOW"	Out Of Tol.	LOW RESULT MARG
63		0.530	17H641_C dim	0.0300	0.0300	0.5320		
64		2.250	dim	0.0300	0.0300	2.2450		
65		2.250	dim	0.0300	0.0300	2.2440		
66		0.530	dim	0.0300	0.0300	0.5350		
67		4.250	dim	0.0150	0.0150	4.2590		
68		3.250	dim	0.0150	0.0150	3.2460		
69		3.250	dim	0.0150	0.0150	3.2510		
70		1.750	dim	0.0150	0.0150	1.7510		
71		1.750	dim	0.0150	0.0150	1.7520		
72		1.000	dim	0.0150	0.0150	0.9970		
73		1.000	dim	0.0150	0.0150	0.9990		
74		0.438	dia	0.0050	0.0050	0.4400		
75		0.438	dia	0.0300	0.0300	0.4400		
76		3.000	dim	0.0300	0.0300	2.9990		
77		4.000	dim	0.0300	0.0300	3.9920		
78		10.000	dim	0.0300	0.0300	10.0000		
79		0.250	rad	0.0300	0.0300	0.2500		
80		0.250	rad	0.0300	0.0300	0.2500		
81		NOTE				accept		
82		Material				accept		
83		0.880	17H642_C dim	0.0300	0.0300	0.8720		
84		0.880	dim	0.0300	0.0300	0.8740		
85		0.430	dia	0.0150	0.0150	0.4300		
86		0.430	dia	0.0150	0.0150	0.4300		
87		15.750	dim	0.0300	0.0300	15.7490		
88		Note 1	dim			accept		
89		Note 2	dim			accept		
90		Note 3	dim			accept		
91		1.500	dim	0.0060	0.0060	1.5010		
92		0.065	dim	0.0060	0.0060	0.0630		
93		0.375	15F387_B thread 3/8-16			pass		
94		45.000	degrees	0.5000	0.5000	45.0000		
95		0.060	length	0.0100	0.0100	0.0605		
96		0.625	length	0.0050	0.0050	0.6260		
97		0.030	Radius	0.0100	0.0100	0.0300		
98		90.000	degrees	0.5000	0.5000	90.0000		



Data Entry Example (Threads)

INTERNAL THREADS (MINOR DIAMETER)

SUPPLIERS: DO NOT TYPE IN SHADED AREAS										GRACO INSPECTION				DISPOSITION		INSP KEY	
FIND NO.	SAMP OR CAV	DIMENSION OR SPECIFICATION	DESCRIPTION OF FEATURE (ie.rad, dia, dim)	Plus Tol	Minus Tol	SUPPLIER INSPECTION RESULT	Out Of Tol.	Marg.	SUPPLIER INSP. EQUIP. USED	GRACO INSPECTION RESULT	GRACO OUT OF TOL.	GRACO MARG.	GRACO INSP. EQUIP. USED	FIX	CHANGE DRAWING TO:	Insp Instruct	Insp Diff.
6		3/8 - 16 UNC 2B	Thread			Accept			Thread Gage								
		0.314	Minor Diameter	0.007	0.007	0.3180			Pins								

EXTERNAL THREADS (MAJOR DIAMETER)

SUPPLIERS: DO NOT TYPE IN SHADED AREAS										GRACO INSPECTION				DISPOSITION		INSP KEY	
FIND NO.	SAMP OR CAV	DIMENSION OR SPECIFICATION	DESCRIPTION OF FEATURE (ie.rad, dia, dim)	Plus Tol	Minus Tol	SUPPLIER INSPECTION RESULT	Out Of Tol.	Marg.	SUPPLIER INSP. EQUIP. USED	GRACO INSPECTION RESULT	GRACO OUT OF TOL.	GRACO MARG.	GRACO INSP. EQUIP. USED	FIX	CHANGE DRAWING TO:	Insp Instruct	Insp Diff.
1		1 1/8-24 UNS - 2A	Thread			Accept			Thread Gage								
		1.120	Major Diameter	0.004	0.004	1.1230			Micrometer								



Marginal Find Comments

MARGINAL FIND COMMENT PAGE									
FIND NO.	DIMENSION OR SPECIFICATION	PLUS TOL	MINUS TOL	SUPPLIER INSPECTION RESULT	TOOL WEAR EFFECTS			COMMENTS	
					Improve	No Effect	Worsen		
1	3.0000	0.0300	0.0300	2.9710	X			Built to the low side to increase tool life, will wear toward nominal.	
1	3.0000	0.0300	0.0300	2.974	X			Built to the low side to increase tool life, will wear toward nominal.	
3	0.5650	0.0100	0.0100	0.5740	X			Core pin will wear toward nominal, Core pins are a maintenance type item	
3	0.5650	0.0100	0.0100	0.5740	X			Core pin will wear toward nominal, Core pins are a maintenance type item	
3	0.5650	0.0100	0.0100	0.5740	X			Core pin will wear toward nominal, Core pins are a maintenance type item	
4	2.2500	0.0100	0.0100	2.2410			X	This feature is difficult to mold, tool. Request +/- .03" Tolerance	
4	2.2500	0.0100	0.0100	2.2410			X	This feature is difficult to mold, tool. Request +/- .03" Tolerance	



Capability Certification



4. SUPPLIER CAPABILITY CERTIFICATION

Supplier Name: Widget Mfg
Graco Item Number: 123456 Description Frame, Handle Upright, We Rev Level: G

We have submitted a first article inspection report for the part number referenced above. First article inspection is a vital evaluation technique and documents the condition of the tool. It does not however, verify the existence of a capable process. Therefore, we have reviewed the print and applicable specifications and certify we will consistently supply production parts that meet all requirements upon Graco approval of the first article.

With this letter we acknowledge that the responsibility of implementing a capable process is ours and we have installed the necessary tools to reduce variation, control our process, and to pursue continuous improvement. We also acknowledge it is our responsibility to notify the appropriate Graco purchasing representative, in writing, of any conditions which warrant tool repair before non-conforming parts are produced.

Electronic Signature

Walter Widget Jr

Quality Manager

1/8/2015

Signature

Title

Date



“Critical” or “Key” Characteristics

Drawing specification as shown below require 30 piece capability study

NOTES

1. UNLESS OTHERWISE NOTED TOL $\pm .016$

2. <KC> KEY CHARACTERISTICS CONTROL LEVEL 2 PER G STD 4.1500

3. MUST CONFORM TO G STD 2.1005

NOTES

1. NO WELD PERMISSIBLE BEYOND THIS SURFACE OF F/N 6 (2 PLACES)

2. NO RUST ALLOWED ON EXTERNAL SURFACES

3. NO WELD SLAG PERMISSIBLE INSIDE OF F/N 2

4. CRITICAL DIMENSIONS

5. $9.85 \pm .02$ DIMENSION IS IN THE 8.00 ZONE

6. FABRICATE PART PER CAD MODEL r_24y664_asm_fab_h

7. F/N 7 CANNOT OVER HANG RECTANGULAR TUBE F/N 4 AND 5

8. ALL WELDS ARE MINIMUM.



Supplier Quality Engineering Contacts

Graco Rogers

- Contractor Equipment Division (CED)
SQE - Robert Holmgren
Robert_J_Holmgren@graco.com
Cell Ph: 612-240-4490
Wk Ph: 763-273-2268

Graco Minneapolis & Ohio

- Industrial Product Division (IND)
- Electric Motor Division (EMD)
SQE – Mitch Breit
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Wk Ph: 612-379-3636

Graco Dayton

- Contractor Equipment Division (CED)
- Process Division (PRO)
SQE – Marcelo Aguilar
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Wk Ph: 612-623-6622

Graco Anoka

- Lubrication Equipment Division (LED)
SQE - Robert Holmgren
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Wk Ph: 763-273-2268



Receiving Inspection Contacts

Graco Rogers – Koch Center

- Contractor Equipment Division (CED)
Inspector - Lance Sherman
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Ph: 763-273-2025

Graco Minneapolis – Riverside

- Industrial Division (IND)
- Electric Motor Division (EMD)
Inspector – Nate Forward
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Ph: 612-623-6167
Back Up: Thomas Younggren
Ph: 612-623-6132

Graco Dayton – French Lake

- Contract Equipment Division (CED)
- Process Division (PRO)
Inspector – Thomas Boevig
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Ph: 612-623-6388
Back Up: Derek Finch
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Graco Anoka

- Lubrication Equipment (LED)
Inspector - Bryan Huie
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Receiving Inspection Contacts

Graco Ohio

- Industrial Division (IND)
Inspector - Matt Bullock
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Graco Sioux Falls

- All Divisions
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Back Up: Chris Clark
Ph: 605-333-6783



Revision Log

- Rev. 5 – Updated SQE Contacts – LKZ, 7/25/24
- Rev. 6 – Updated SQE Contacts – LKZ, 10/21/24