



First Article Inspection Report
(FAIR)

Instructions



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, Radiography and Plating /Paint Certifications
 - 7) Testing Reports for all Performance Requirement (PR) Tests per print



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

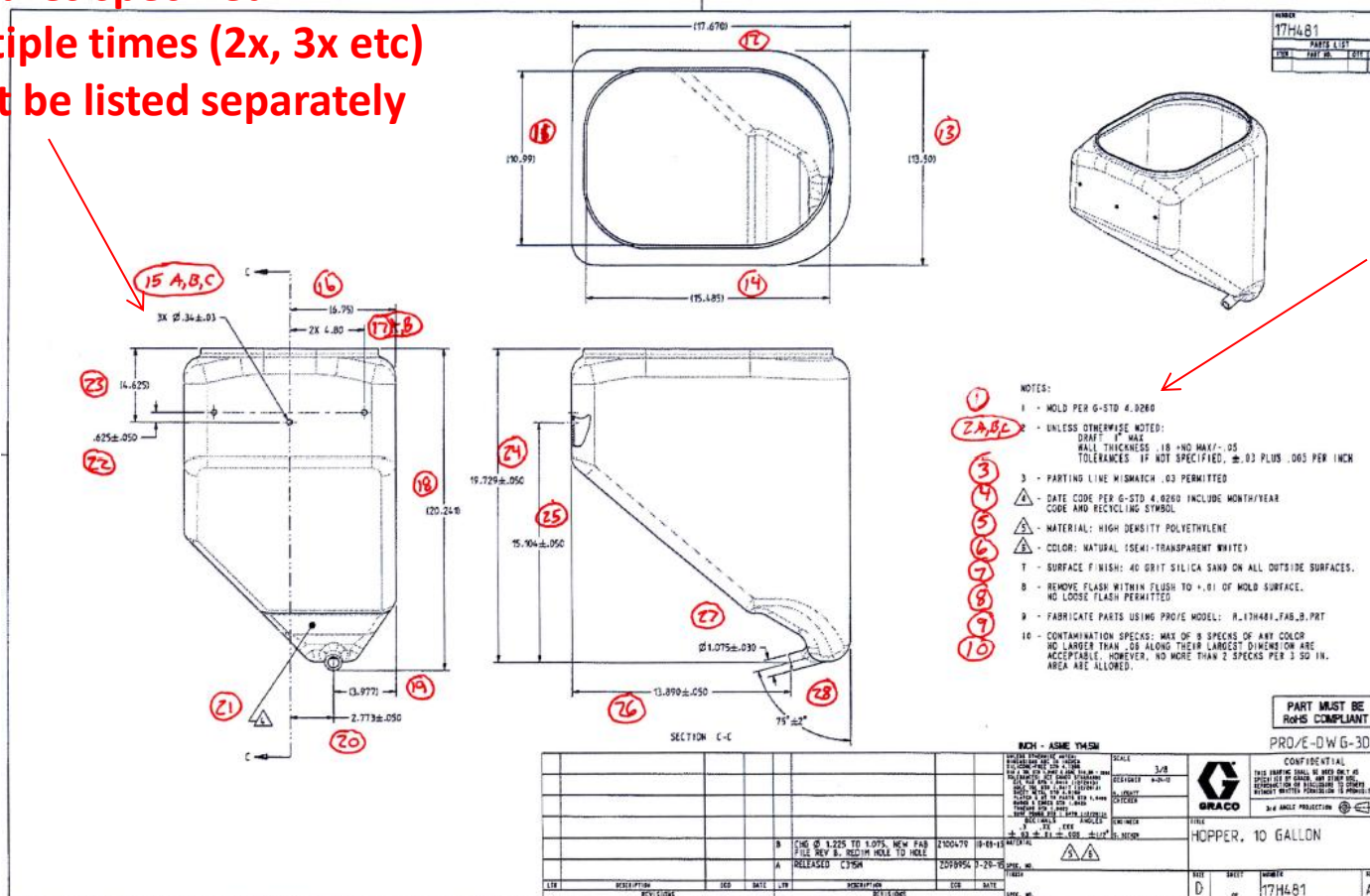
All parts cast per G STD 4.0225 must have radiography inspection submitted for verification of conformance per G STD requirements.



Balloon Drawing example 1

Features specified
multiple times (2x, 3x etc)
must be listed separately

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

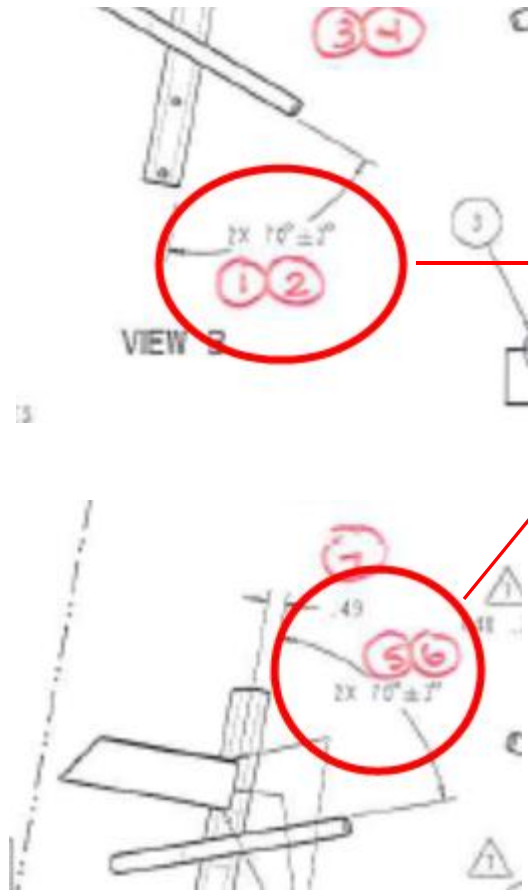
| FIND NO. | SAMP OR CAV | DIMENSION OR SPECIFICATION | DESCRIPTION OF FEATURE (ie rad, dia, dim) | Plus Tol | Minus Tol | SUPPLIER INSPECTION RESULT | Out Of Tol. | Marg. | SUPPLIER INSP. EQUIP. USED | GRACO INSPECTION RESULT | GRACO OUT OF TOL. | GRACO MARG. | GRACO INSP. EQUIP. USED | FIX | CHANGE 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 | 0.015 | 0.015 | 1.5000 | | | CMM | | | | | | | | |
| 2 | 2 | 1.500 | Location | 0.015 | 0.015 | 1.4980 | | | CMM | | | | | | | | |
| 2 | 3 | 1.500 | Location | 0.015 | 0.015 | 1.4970 | | | CMM | | | | | | | | |
| 2 | 4 | 1.500 | Location | 0.015 | 0.015 | 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)

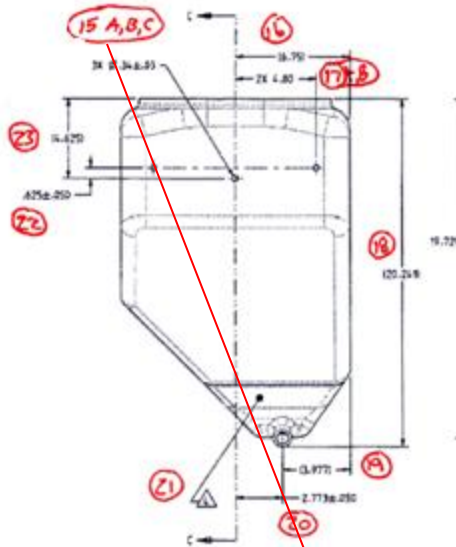


| FIND NO. | SAMP OR DIM | DIMENSION OR SPECIFICATION | DESCRIPTION OF FEATURE (weld dim, etc.) | PLUS TOL. | MINUS TOL. | SUPPLIER INSPECTION RESULT (inches) | Out Of Tol. | Marg. |
|----------|-------------|----------------------------|---|-----------|------------|-------------------------------------|-------------|-------|
| 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

| Supplier Quality Engineer* | Categories | Category Manager |
|--|--|--|
| Mitch Breit • mitch_g_breit@graco.com • (612) 379-3636 | Metal Fab, Motors, Engines, Compressors, Sensors, Solenoids, Transformers, Heaters, Machining | Ian Salentine, Jacob Doege, and Chris Nicol (Machining) |
| Marcelo Aguilar • Marcelo_Aguilar@graco.com • 612-379-3774 | Castings, Forgings, Powdered Metal, Plastics, Rubber, & Hose | Dan Libbey, Steve Dow |
| Nathan Rausch • Nathan_E_Rausch@graco.com • (763) 273-2504 | Electronics and Electrical | Barb Earney, Brad Jones |
| Sheireen Cotch • Sheireen_T_Cotch@graco.com • (763) 334-3379 | Pneumatics, Hydraulics, Raw Materials, Outside Services, Fasteners | Chris Nicol, Sibel Terhaar, Clayton Rask |

*If you have questions on the appropriate SQE to contact, please ask your Graco Category Manager or Sourcing Specialist



Receiving Inspection Contacts

Graco Rogers – Koch Center

- Contractor Equipment Division (CED)
Inspector - Lance Sherman
Kochcenterfirstarticles@graco.com
Ph: 763-273-2025

Graco Minneapolis – Riverside

- Industrial Division (IND)
- Electric Motor Division (EMD)
Inspector – Nate Forward
Riversidefirstarticles@graco.com
Ph: 612-623-6167

Graco Dayton – French Lake

- Contract Equipment Division(CED)
- Process Division (IND)
Inspector – Thomas Boevig
Frenchlakefirstarticles@graco.com
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Back Up: Derek Finch
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Graco Anoka

- Lubrication Equipment (IND)
Inspector - Brian Huie
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Ph: 612-656-7439
Back Up: Jesse Bates
Ph: 612-623-6756



Receiving Inspection Contacts

Graco Ohio

- Industrial Division (IND)
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Ph: 330-491-4165

Graco Sioux Falls

- All Divisions
Inspector - Annette Utecht
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Ph: 605-333-6787
Back Up: Chris Clark
Ph: 605-333-6783