



Protolabs

31566 - Folding sample cube 4th Edition rev 9

PROCESS PPAP

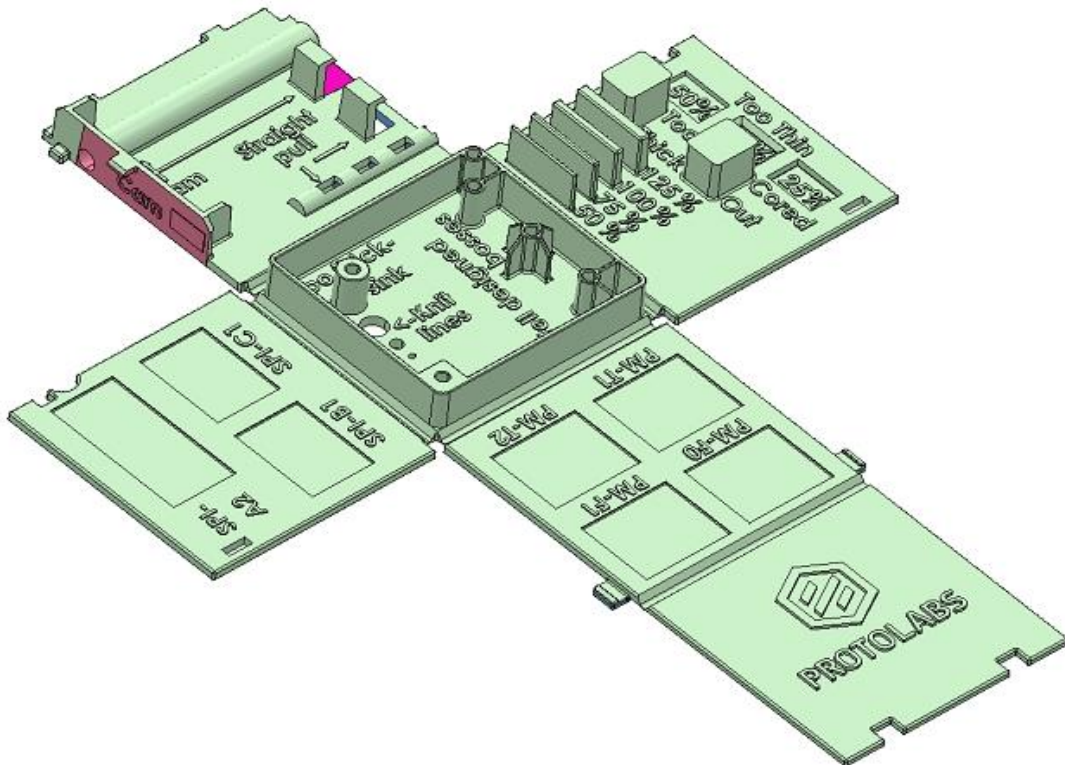
Protolabs Part No:




























1080294








































Customer Part No:

31566

31566 - Folding sample cube 4th Edition rev 9



		Process Flow Diagram Injection Molding Mold Making		Date	3/25/2020
				Customer	Protolabs
				Customer Part No.	31566
				Protolabs Mold No.	31566
Operation Sequence	Description	Process Types			
1	Block Prepped for Milling				
2	Mill Programmed and Block Fixtured				
3	Block Machined				
4	Mold moved to Build where Mold and Mold Components are polished				
5	Mold moved to Assembly where Mold and Components are assembled				
6	Inspection of Assembled Mold				
7	Physical Movement to Molding				
Key					
	Goods Received		Quality Inspection : Cosmetic		Packaging
	Physical Stock Move		Quality inspection : Attribute		Warehouse
	Load Material		Quality Inspection : Variable		Dispatch
	Document or Record		Layout Inspection		Non Conforming Material
	Decision		Manual Operation		Product Identification
					Work In Progress (WIP) Storage
					Tool Set Up
					Operation
					Assembly Operation

		Process Flow Diagram Injection Molding Parts		Date	3/25/2020		
				Customer	Protolabs		
				Customer Part No.	31566		
				Protolabs Mold No.	31566		
Operation Sequence	Description	Process Types					
1	Move Material to Dryers and Dry Resin						
2	Mold/Resin Loaded into Press and Molding Process Established	   					
3	Parts Molded	 					
4	Inspection and QC Checks / Parts Inspected	    					
5	Parts Packaged and moved to Shipping	    					
6	Order Shipped	 					
Key							
	Goods Received		Quality Inspection : Cosmetic		Packaging		Work In Progress (WIP) Storage
	Physical Stock Move		Quality inspection : Attribute		Warehouse		Tool Set Up
	Load Material		Quality Inspection : Variable		Dispatch		Operation
	Document or Record		Layout Inspection		Non Conforming Material		Assembly Operation
	Decision		Manual Operation		Product Identification		

Company:	Protolabs	Customer Name:	Protolabs	Protolabs Part No.:	1080294	Order No.:	12345	FMEA No.:	MMFMEA 399402	
Process:	IM Mold Making	Part Name:	66 - Folding sample cube 4th Edition rev 9	Customer Part No.:	31566	Mold No.:	31566	FMEA DATE (original):	3/25/2020	
Responsibility:	Gurvinder Singh			Drawing Number:	123456-A			FMEA DATE (revised):	4/9/2020	
Prepared By:	Matthew Lind	Customer Contact:	Customer J Customerson	Core Team:						
OPERATIONS & PROCESS'	Op.1	Block Prep						Page		
	Op.2	Mill SetUp						Page		
	Op.3	Milling						Page		
	Op.4	Mold Finishing						Page		
	Op.5	Mold Assembly						Page		
	Op.6	Quality Control						Page		
	Op.7	Transfer						Page		
	Op.80							Page		
	Op.90							Page		
	Op.100							Page		

FMEA Ranking	Effect on Product - Severity - Effect on Process		Occurance	Detection
10	Affects safe product function without warning	May endanger operator, without warning	> 1 in 2	Absolute Uncertainty
9	Affects safe product function with warning	May endanger operator, with warning	1 in 3	Very Remote
8	Loss of main function	100% of product/batch scrapped	1 in 8	Remote
7	Degration of main function	a portion of product/batch will be scrapped	1 in 20	Very Low
6	Loss of other functions	100% of product/batch reworked off line	1 in 80	Low
5	Degration of other functions	Portion of product/batch reworked off line	1 in 400	Moderate
4	Error causes annoyance and noticed visually 75%	100% of product/batch reworked on line	1 in 2,000	Moderately High
3	Error causes annoyance and noticed visually 50%	Portion of product/batch reworked on line	1 in 15,000	High
2	Error causes annoyance and noticed visually 25%	Slight inconvenience to process or operator	1 in 150,000	Very High
1	No discernible effect	No discernible effect	1 in 1,500,000	Almost Certain

OPERATIONS & PROCESS Block Prep

OPERATION NUMBER	POTENTIAL FAILURE MODE	POTENTIAL EFFECTS OF FAILURE	SEVERITY	SIGNIFICANCE	POTENTIAL CAUSES OF FAILURE	OCCURANCE	CURRENT CONTROLS	DETECTION	R.P.N.	RECOMMENDED ACTION(S)	CCAR No.:	AREA	ACTION	ACTION RESULTS				
														INDIVIDUAL RESPONSIBLE	COMPLETION DATE:	SEVERITY	OCCURANCE	DETECTION
IM Mold Making Op 1 Block Prep	Block Dimensions Incorrect	Delay in Process	2		Operator Error	1	In-Mill Probing Work Instructions / Training	1	2									
	Material Incorrect	Poor Part Quality	4		Operator Error	1	Work Instructions / Training	1	4									
									0									
									0									
									0									

OPERATIONS & PROCESS Mill SetUp

OPERATION NUMBER	POTENTIAL FAILURE MODE	POTENTIAL EFFECTS OF FAILURE	SEVERITY	SIGNIFICANCE	POTENTIAL CAUSES OF FAILURE	OCCURANCE	CURRENT CONTROLS	DETECTION	R.P.N.	RECOMMENDED ACTION(S)	CCAR No.:	AREA	ACTION	ACTION RESULTS				
														INDIVIDUAL RESPONSIBLE	COMPLETION DATE:	SEVERITY	OCCURANCE	DETECTION
IM Mold Making Op 2 Mill SetUp	Incorrect Fixture Setup	Delay in Process	2		Operator Error	2	In Mill Probing	2	8									
	Paperwork / Intranet Incorrect	Delay in Process	2		Operator Error	2	Work Instructions / Training	2	8									
	Incorrect Program Selected	Mold Geometry Incorrect	4		Operator Error	2	Work Instructions / Training QC Inspection	2	16									
										0								
									0									

OPERATIONS & PROCESS Milling

OPERATION NUMBER	POTENTIAL FAILURE MODE	POTENTIAL EFFECTS OF FAILURE	SEVERITY	SIGNIFICANCE	POTENTIAL CAUSES OF FAILURE	OCCURRENCE	CURRENT CONTROLS	DETECTION	R.P.N.	RECOMMENDED ACTION(S)	CCAR No:	AREA		ACTION	ACTION RESULTS			
												INDIVIDUAL RESPONSIBLE	COMPLETION DATE:		SEVERITY	OCCURRENCE	DETECTION	R.P.N.
IM Mold Making Op 3 Milling	Mill Inaccurate	Mold Geometry Incorrect	4		Machine or Tool Wear	3	QC Inspection	2	24									
	Tool Failure	Mold Geometry Incorrect	4		Machine or Tool Wear	3	QC Inspection	2	24									
	Paperwork / Intranet Incorrect	Delay in Process	2		Operator Error	2	Work Instructions / training	2	8									
									0									
									0									

OPERATIONS & PROCESS Mold Finishing

OPERATION NUMBER	POTENTIAL FAILURE MODE	POTENTIAL EFFECTS OF FAILURE	SEVERITY	SIGNIFICANCE	POTENTIAL CAUSES OF FAILURE	OCCURRENCE	CURRENT CONTROLS	DETECTION	R.P.N.	RECOMMENDED ACTION(S)	CCAR No:	AREA		ACTION	ACTION RESULTS			
												INDIVIDUAL RESPONSIBLE	COMPLETION DATE:		SEVERITY	OCCURRENCE	DETECTION	R.P.N.
IM Mold Making Op 4 Mold Finishing	Incorrect Mold Finish	Mold Geometry Incorrect	4		Operator Error Wrong information on finish	3	QC Inspection	3	36									
	Mold Damage	Mold Geometry incorrect	4		Operator Error	3	QC Inspection	3	36									
	Paperwork / Intranet Information Incorrect	Delay in process	2		Operator Error	2	QC Inspection	2	8									
									0									
									0									

OPERATIONS & PROCESS Mold Assembly

OPERATION NUMBER	POTENTIAL FAILURE MODE	POTENTIAL EFFECTS OF FAILURE	SEVERITY	SIGNIFICANCE	POTENTIAL CAUSES OF FAILURE	OCCURRENCE	CURRENT CONTROLS	DETECTION	R.P.N.	RECOMMENDED ACTION(S)	CCAR No:	AREA		ACTION	ACTION RESULTS			
												INDIVIDUAL RESPONSIBLE	COMPLETION DATE:		SEVERITY	OCCURRENCE	DETECTION	R.P.N.
IM Mold Making Op 5 Mold Assembly	Incorrect pin placement	Delay in process	2		Operator Error	3	Work Instructions / Training QC Inspection	3	18									
	Mold Damage	Poor part quality	4		Operator Error	2	Work Instructions / Training QC Inspection	3	24									
	Paperwork / Intranet incorrect	Delay in process	2		Operator Error	2	Work Instructions / Training QC Inspection	2	8									

Company:	Protolabs	Customer Name:	Protolabs	Protolabs Part No.:	1080294	Order No.:	12345	FMEA No.:	MMFMEA 399402
Process:	IM Part Manufacture	Part Name:	66 - Folding sample cube 4th Edition rev 9	Customer Part No.:	31566	Mold No.:	31566	FMEA DATE (original):	3/25/2020
Responsibility:	Gurvinder Singh			Drawing Number:	123456-A	FMEA DATE (revised):	4/9/2020		
Prepared By:	Matthew Lind	Customer Contact:	Customer J Customerson	Core Team:					
OPERATIONS & PROCESS'	Op.1	Raw Material Prep	Page						
	Op.2	Press SetUp	Page						
	Op.3	Molding	Page						
	Op.4	Quality Control	Page						
	Op.5	Packaging	Page						
	Op.6	Shipping	Page						
	Op.70		Page						
	Op.80		Page						
	Op.90		Page						
	Op.100		Page						

FMEA Ranking	Effect on Product - Severity - Effect on Process		Occurance	Detection
10	Affects safe product function without warning	May endanger operator, without warning	> 1 in 2	Absolute Uncertainty
9	Affects safe product function with warning	May endanger operator, with warning	1 in 3	Very Remote
8	Loss of main function	100% of product/batch scrapped	1 in 8	Remote
7	Degradation of main function	a portion of product/batch will be scrapped	1 in 20	Very Low
6	Loss of other functions	100% of product/batch reworked off line	1 in 80	Low
5	Degradation of other functions	Portion of product/batch reworked off line	1 in 400	Moderate
4	Error causes annoyance and noticed visually 75%	100% of product/batch reworked on line	1 in 2,000	Moderately High
3	Error causes annoyance and noticed visually 50%	Portion of product/batch reworked on line	1 in 15,000	High
2	Error causes annoyance and noticed visually 25%	Slight inconvenience to process or operator	1 in 150,000	Very High
1	No discernible effect	No discernible effect	1 in 1,500,000	Almost Certain

OPERATIONS & PROCESS: Raw Material Prep

OPERATION NUMBER	POTENTIAL FAILURE MODE	POTENTIAL EFFECTS OF FAILURE	SEVERITY	SIGNIFICANCE	POTENTIAL CAUSES OF FAILURE	OCCURANCE	CURRENT CONTROLS	DETECTION	R.P.N.	RECOMMENDED ACTION(S)	CCAR No.:	AREA		ACTION	ACTION RESULTS				
												INDIVIDUAL RESPONSIBLE	COMPLETION DATE:		SEVERITY	OCCURANCE	DETECTION	R.P.N.	
IM Mold Making Op 10 Raw Material Prep	Wet Resin	Poor Part Cosmetics	4		Mill Setup Incorrect	2	QC Inspection	2	16										
	Contaminated Resin	Poor Part Cosmetics	4		Mill Setup Incorrect	2	QC Inspection	2	16										
	Incorrect Resin	Wrong Part Material	5		Operator Error	2	Work Instructions / Training	2	20										
									0										
									0										

OPERATIONS & PROCESS: Press SetUp


OPERATION NUMBER	POTENTIAL FAILURE MODE	POTENTIAL EFFECTS OF FAILURE	SEVERITY	SIGNIFICANCE	POTENTIAL CAUSES OF FAILURE	OCCURANCE	CURRENT CONTROLS	DETECTION	R.P.N.	RECOMMENDED ACTION(S)	CCAR No.:	AREA		ACTION	ACTION RESULTS				
												INDIVIDUAL RESPONSIBLE	COMPLETION DATE:		SEVERITY	OCCURANCE	DETECTION	R.P.N.	
IM Mold Making Op 20 Press SetUp	Incorrect Mold SetUp	Part Dimensions Incorrect	4		Operator Error	1	QC Inspection Work Instructions / Training	2	8										
		Poor Part Cosmetics	4		Operator Error	1	QC Inspection Work Instructions / Training	2	8										
	Poor Molding Process Established	Part Dimensions Incorrect	4		Operator Error	2	QC Inspection Work Instructions / Training	2	16										
		Poor Part Cosmetics	4		Operator Error	3	QC Inspection Work Instructions / Training	2	24										
	Paperwork / Intranet Incorrect	Mold Geometry Incorrect	2		Operator Error	2	QC Inspection Work Instructions / Training	2	8										
									0										
									0										

OPERATIONS & PROCESS Molding

OPERATION NUMBER	POTENTIAL FAILURE MODE	POTENTIAL EFFECTS OF FAILURE	SEVERITY	SIGNIFICANCE	POTENTIAL CAUSES OF FAILURE	OCCURANCE	CURRENT CONTROLS	DETECTION	R.P.N.	RECOMMENDED ACTION(S)	CCAR No:	AREA		ACTION	ACTION RESULTS			
												INDIVIDUAL RESPONSIBLE	COMPLETION DATE:		SEVERITY	OCCURANCE	DETECTION	R.P.N.
IM Mold Making Op 30 Molding	Press Mechanical Issue	Part Dimensions Incorrect	4		Normal Press Wear or Acute Issue	2	Preventative Maintenance QC Inspection	2	16									
		Poor Part Cosmetics	4		Normal Press Wear or Acute Issue	2	Preventative Maintenance QC Inspection	2	16									
	Within Run Press Variation (e.g. Mold Temperature)	Part Dimensions Incorrect	4		Normal Press Variation	2	QC Inspection	2	16									
		Poor Part Cosmetics	4		Resin Properties	2	QC Inspection	2	16									
	Part Count Error	Order Quantity Incorrect	4		Operator Error	1	Work Instructions / Training	2	8									
	Paperwork / Intranet Incorrect	Delay in Process	2		Operator Error	2	Work Instructions / Training	2	8									
									0									

OPERATIONS & PROCESS Quality Control

OPERATION NUMBER	POTENTIAL FAILURE MODE	POTENTIAL EFFECTS OF FAILURE	SEVERITY	SIGNIFICANCE	POTENTIAL CAUSES OF FAILURE	OCCURANCE	CURRENT CONTROLS	DETECTION	R.P.N.	RECOMMENDED ACTION(S)	CCAR No:	AREA		ACTION	ACTION RESULTS			
												INDIVIDUAL RESPONSIBLE	COMPLETION DATE:		SEVERITY	OCCURANCE	DETECTION	R.P.N.
IM Mold Making Op 40 Packaging	Parts not Packaged Properly	Part Damage In-Transit	4		Operator Error	2	Work Instructions / Training	2	16									
	Parts not Labelled Properly	Mislabelled Parts	5		Operator Error	2	Work Instructions / Training	2	20									
	Parts not Handled Properly	Part Damage	4		Operator Error	1	Work Instructions / Training	2	8									
	Paperwork / Intranet Incorrect	Delay in Process	2		Operator Error	2	Work Instructions / Training	2	8									

		<h2 style="margin: 0;">CONTROL PLAN</h2>			
Process: IM Mold Making	Part Name: 31566 - Folding sample cube 4th Edition rev 9	Protolabs Mold No: 31566			
Company: Protolabs	Customer: Protolabs	Order No: 12345	Customer Part No: 31566		

C. Plan No: MMCP 399402	Raised By: Matthew Lind	Phone No: 877-479-3680	APPROVALS	
CORE TEAM			Customer Contact Approval: Customer J Customerson	Date:
Name: P. Labs	Title: Account Manager	Customer Eng' Approval:	Date:	
Name: Sara Christenson	Title: Customer Quality Engineer Manager	Customer Quality Approval:	Date:	
Name: Gurvinder Singh	Title: Service Line Manager	Other Approvals:	Date:	
Name: Matthew Lind	Title: Special Operations Project Engineer	Other Approvals:	Date:	
Date Raised: 3/25/2020	Supplier Location: Plant 2			

OP No:	PROCESS NAME OPERATION DESCRIPTION	PROCESS STEP EQUIPMENT	CONTROL CHARACTERISTICS	SPECIFICATION / TOLERANCE	MEASURE / CHECK METHOD	FREQUENCY / SAMPLE SIZE	WHERE IN PROCESS STEP	RECORD / ANALYSIS METHOD	ACTION IF DEFECTS FOUND
1	Block Prep	N/A	Mold Material and Size	Per Customer Order and Mold Design	Visual	Per Mold	Start-Up	Work Instruction	Reject
2	Mill Set-up	CNC Mill	Mold Alignment within Mill	Equipment Specification	Spindle Probe	Per Mold	Start-Up	Work Instruction	Re-Fixture
3	Milling	CNC Mill	Milling Accuracy	3D Part Model	Visual	Per Mold	Post Milling	Work Instruction	Reject
			Mill Finish	Workmanship Standards	Visual	Per Mold	Post Milling	Work Instruction	Reject
4	Mold Finish	Hand Tools	Correct Finish Levels	Per Customer Order	Visual	Per Mold	Post Finishing	Work Instruction	Rework if Possible, Else Reject
5	Mold Assembly	Pin Cutter	Pin Length	Per Mold Design	Drop Gauge	Per Mold	Post Polishing	Work Instruction	Reject
			Mold / Component Function	Per Mold Design	Visual	Per Mold	Post Polishing	Work Instruction	Rework if Possible, Else Reject

		CONTROL PLAN					
Process:	Injection Molding	Part Name:	31566 - Folding sample cube 4th Edition rev 9		Protolabs Mold No:	31566	
Company:	Protolabs	Customer:	Protolabs	Order No:	12345	Customer Part No:	31566

C. Plan No:	MMCP 399402	Raised By:	Matthew Lind	Phone No:	877-479-3680	APPROVALS	
CORE TEAM				Customer Contact Approval:	Customer J Customerson	Date:	
Name:	P. Labs	Title:	Account Manager	Customer Eng Approval:		Date:	
Name:	Sara Christenson	Title:	Customer Quality Engineer Manager	Customer Quality Approval:		Date:	
Name:	Gurvinder Singh	Title:	Service Line Manager	Other Approvals:		Date:	
Name:	Matthew Lind	Title:	Special Operations Project Engineer	Other Approvals:		Date:	
Date Raised:	3/25/2020	Supplier Location:	Plant 2				

OP No:	PROCESS NAME OPERATION DESCRIPTION	PROCESS STEP EQUIPMENT	CONTROL CHARACTERISTICS	SPECIFICATION / TOLERANCE	MEASURE / CHECK METHOD	FREQUENCY / SAMPLE SIZE	WHERE IN PROCESS STEP	RECORD / ANALYSIS METHOD	ACTION IF DEFECTS FOUND
1	Raw Material Prep	N/A	Part Material	Per Customer Order	Visual	Per Lot	Start-Up	Work Instruction	Reject
2	Press Setup	Mold Press (per tonnage requirement)	Press Parameters such as Temperature, etc.	Per Resin Manufacturer's Guidelines	Visual	Per Lot	Start-Up	Work Instruction	Adjust Process
3	Injection Mold	Mold Press	'X Dimension'	Part Specific	Digital Caliper	One Part	Start-Up Final Inspection	Work Instruction	Adjust Process Reject
			'Y Dimension'	Part Specific	Digital Caliper	One Part	Start-Up Final Inspection	Work Instruction	Adjust Process Reject
			'Z Dimension'	Part Specific	Digital Caliper	One Part	Start-Up Final Inspection	Work Instruction	Adjust Process Reject
			Cosmetic	Per Workmanship Standards	Visual	One Part	Start-Up Final Inspection	Work Instruction	Adjust Process Reject
							RQL 4.0	In-Process	Work Instruction
4	Packaging	N/A	Packaging Configuration	Part Specific	Visual	Per Lot	Final Inspection	Work Instruction	Rework Packaging
			Label Information	Customer, Part number, Date, Material, Order #, Mold #, PO#, Quantity	Visual	Per Lot	Start-Up Final Inspection	Work Instruction	Rework Labelling



QC Group, LLC

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Phone (952) 895-1150
Fax (952) 895-1152

Visit our web site
www.QCgroup.com

Statement of Uncertainty

3/24/2020

WO # 20200504-W01

Dear Sophie Scheller

In accordance with our lab procedures, we perform uncertainty tests on our lab equipment. The following measurement instruments were used to inspect your parts. The level of measurement uncertainty reflects 95 percent confidence.

Ctrl #	Description	Model\Size	Uncertainty	Deg/Freedom	Ref Only
2208	OGP	Flash 500	0.000380000		No

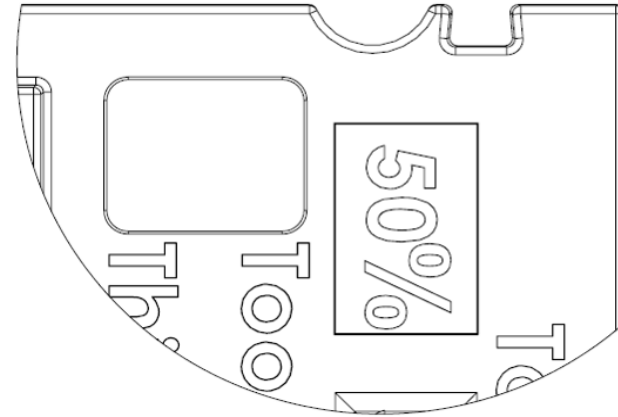
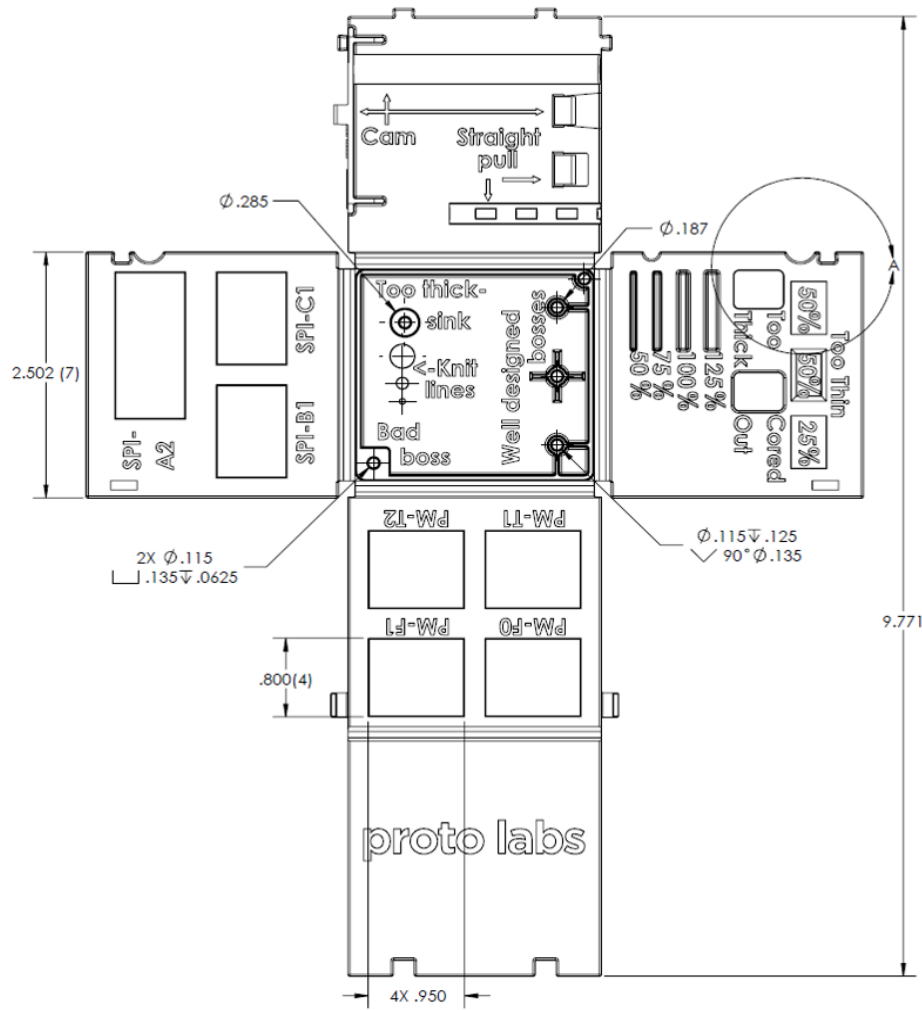
** The stated uncertainty of the measured values has not been taken into account for the pass/fail indicators.*

** On pieces of equipment where only one uncertainty value was required, the value is listed under "vol." where calipers were used for measurement, the uncertainty values are listed as: "vol" = inside, "X" = outside, "Y" = step, "Z" = depth.*

** On Control # 1204, the value listed under "Z" is the uncertainty value for field of view.*

As a protection to our clients and QC Group, LLC, all client data, reports, and drawings are considered and treated as confidential. All rights of publication of this statement, conclusions, or extractions from our reports are reserved unless prior written consent is given.

Click on Sign to add signatures on a PDF





Part Name **31566 - Folding sample cube 4th Edition rev 9**

Part # **31566**

Rev. **A**

Lot # **-**

Customer **Protolabs Inc**

Date **March 24, 2020**

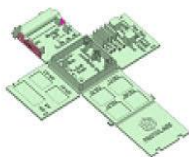
Inspector **Tracy Hoeg**

Order # **12345**

Results are reported in Millimeters					PART 1	PART 2	PART 3	PART 4	PART 5	INSPECTION
DIM #	NOMINAL	+TOL	-TOL	DESCRIPTION	Actual	Actual	Actual	Actual	Actual	EQUIPMENT USED
1a	115.4	0.3	0.3	Width	115.300	115.336	115.301	115.301	115.281	Vision CMM 2208
1b	115.4	0.3	0.3	Width	115.332	115.305	115.303	115.330	115.324	Vision CMM 2208
2	4.50	0.25	0.25	Diameter	4.414	4.463	4.412	4.408	4.402	Vision CMM 2208
3	4.50	0.25	0.25	Diameter	4.282	4.286	4.294	4.284	4.293	Vision CMM 2208
4	4.50	0.25	0.25	Diameter	4.291	4.286	4.291	4.287	4.285	Vision CMM 2208
5	4.50	0.25	0.25	Diameter	4.283	4.292	4.292	4.291	4.289	Vision CMM 2208
6	4.50	0.25	0.25	Diameter	4.284	4.286	4.292	4.290	4.292	Vision CMM 2208
7	4.50	0.25	0.25	Diameter	4.396	4.394	4.395	4.402	4.402	Vision CMM 2208
8	4.50	0.25	0.25	Diameter	4.378	4.373	4.372	4.380	4.379	Vision CMM 2208
9	4.50	0.25	0.25	Diameter	4.370	4.368	4.366	4.369	4.372	Vision CMM 2208

- Notes:**
1. Equipment marked with an asterisk * fall outside the vendor's A2LA accreditation for measurement.
 2. Results highlighted yellow are near the high or low limit (>80% of the tolerance). Results in red font are out of tolerance.
 3. 4.50mm Diameters have excessive Flash. Tried to avoid the Flash in the measurements. Double checked with Pin Gages. See pictures.

- Proto Labs uses a standard manufacturing process based on the supplied CAD model.
- Tolerances expected and generally achieved for this part are as stated in the Proto Labs ProtoQuote.



Quality Inspection Report

Order 389056:

31566 - Folding sample cube 4th Edition rev 9

Proto Labs Marketing

Mold 31566

If you have questions please contact us at **1.877.479.3680** to be directed to a customer quality representative (CQR) or send an email to **qualitysupport@protolabs.com**



4/9/2020 10:52 AM

Order/Lot # 389056, Page 1 of 1



Material, Production and Quality Certificate

Proto Labs, Inc declares to the Customer identified below that, based on our manufacturing records, the resin and colorant (if applicable) listed below were used to manufacture the Customer's parts for the order specified. Proto Labs' declaration relies solely on the labeling and certifications provided by its suppliers and Proto Labs does not independently verify the accuracy of such labeling or certifications.

Proto Labs declares to the customer identified below that the Part(s) listed below were made in accordance with Proto Labs' manufacturing systems and quality procedures.

Proto Labs certifies that it makes injection molded parts by its standard process using the customer provided CAD file to electronically create CNC machining instructions resulting in reproduction of the part in the injection mold.

Proto Labs uses 100% virgin materials (0% regrind)

Customer:	Proto Labs Marketing
Customer PO #:	INTERNAL Marketing
Order/Lot #:	389056
Part Number/Name:	31566 - Folding sample cube 4th Edition rev 9
Quantity:	2500
Manufacture Date:	12/23/2019
Shipping Address:	14505 27th Ave N Plymouth 55447 US
Resin:	Profax 6323 (Natural PP Homopolymer)
Resin Manufactured By:	Basell
Resin Lot #:	YC21BDD03
Colorant:	PL Liquid Color Match (N/A) - 0.001%
Colorant Manufactured By:	PolyOne

A handwritten signature in black ink that reads "Kevin Ashton".

Date: 12/23/2019

Kevin Ashton
Quality Manager
Proto Labs, Inc

As provided in Proto Labs' Terms and Conditions of Sale (the "Terms and Conditions"), Proto Labs assumes no responsibility for the suitability of any materials for the goods purchased by Customer and Customer is solely responsible for ensuring that selected materials meet any regulatory requirements or specifications. Nothing in this certificate shall be deemed to expand Proto Labs' obligations or liabilities under the Terms and Conditions or limit Proto Labs' rights under the Terms and Conditions.



Part Submission Warrant

Protolabs Part Name 31566 - Folding sample cube 4th Edition rev 9

Part Number 31566

Part Name as Listed on Print 31566 - Folding sample cube 4th Edition rev 9

Print Revision Level A Revision Dated 4/9/20 Protolabs Mold Number 31566

Additional Engineering Changes _____ Dated _____

Purchase Order No. 12345

SUPPLIER MANUFACTURING INFORMATION

Proto Labs

Supplier Company Name _____

Plant 2

Additional Manufacturing Sites _____

2600 Niagara Ln N

Street Address _____

Plymouth MN 55447

City State Zip

REASON FOR SUBMISSION

- Initial submission (New Parts and Part Number Changes)
- Correction of Non-conformance or discrepancy
- Other - please specify _____

REQUESTED SUBMISSION LEVEL (Check one)

- Standard**
- Custom** - Standard Level, including additional elements as agreed upon with customer

SUBMISSION INFORMATION

- The results for
- PFMEA
 - ISIR (Quality Inspection)
 - ProtoLabs Material Production and Quality Certification
 - Process Flow Diagram
 - Master Sample (IM only)
 - Sample Production Parts (IM only)
 - Control Plan
 - Measurement Systems Analysis
 - Qualified Laboratory Documentation

Is this a multicavity tool? No How many Cavities? 1 Number of parts submitted by cavity 5

DECLARATION

I affirm that the part identified herein was manufactured in accordance with Proto Labs manufacturing systems and quality procedures utilizing the customer provided 3D CAD file to electronically create CNC machining instructions resulting in reproduction of the part in the injection mould. Any deviations to this warrant submission are noted in the explanation/comment section.

EXPLANATION/COMMENTS: _____

Print Name: Matthew Lind Job Title Project Engineer Phone No. 877-479-3680

Supplier Authorized Signature Matthew Lind Date 4/9/2020 Email Quality@protolabs.com

FOR CUSTOMER USE ONLY

Initial Part Warrant Disposition: Quality/Supplier Quality _____ Date _____
 Quality/Supplier Quality Management _____ Date _____
 Interim Expires:

Final Part Warrant Disposition: Approved Rejected Quality or Supplier Quality _____ Date _____

Print Approver Name:

PPAP Tracking Number: