From: Quality Assurance Department

Subject: PPAP Approval Deadline Requirements / PPAP Packet Contents

Dear Valued Customer:

The PPAP process is an integral part of our business. Therefore, we require that you return a signed copy of the Part Submission Warrant. This warrant serves as our authorization to ship product as directed by you, the customer, and is an essential record for maintaining compliance to AIAG.

Generally, we expect the return of a signed disposition within 15 days of receipt of the PPAP packet. If we do not receive a signed PSW within this timeframe, we reserve the right to consider the PPAP valid and complete.

HellermannTyton maintains compliance to the AIAG PPAP manual, Fourth Edition.
This PPAP packet includes the following documentation as indicated:

- ☒ HellermannTyton Quality Certificates
- ☒ Part Submission Warrant
- ☒ Design Record
- ☐ Engineering Change Documents (if any) *N/A*
- ☐ Customer Engineering Approval (if required) *N/A*
- ☐ Design FMEA *Proprietary*
- ☒ Dimensional Results
- ☒ Performance Test Results
- ☒ Material Test Results
- ☒ Initial Process Study
- ☒ Gage R&R
- ☒ Laboratory Scope/Lab Certificates
- ☐ Appearance Approval Request (if required)
- ☒ Process Flow Diagram
- ☒ Control Plan
- ☒ Process FMEA
- ☒ Supplier Quality Certificates
- ☐ Sample Parts (if required)
- ☐ Master Sample *Retained at HellermannTyton*
- ☐ Checking Aids (if required) *N/A*
- ☐ Customer Specific Requirements
- ☐ Other

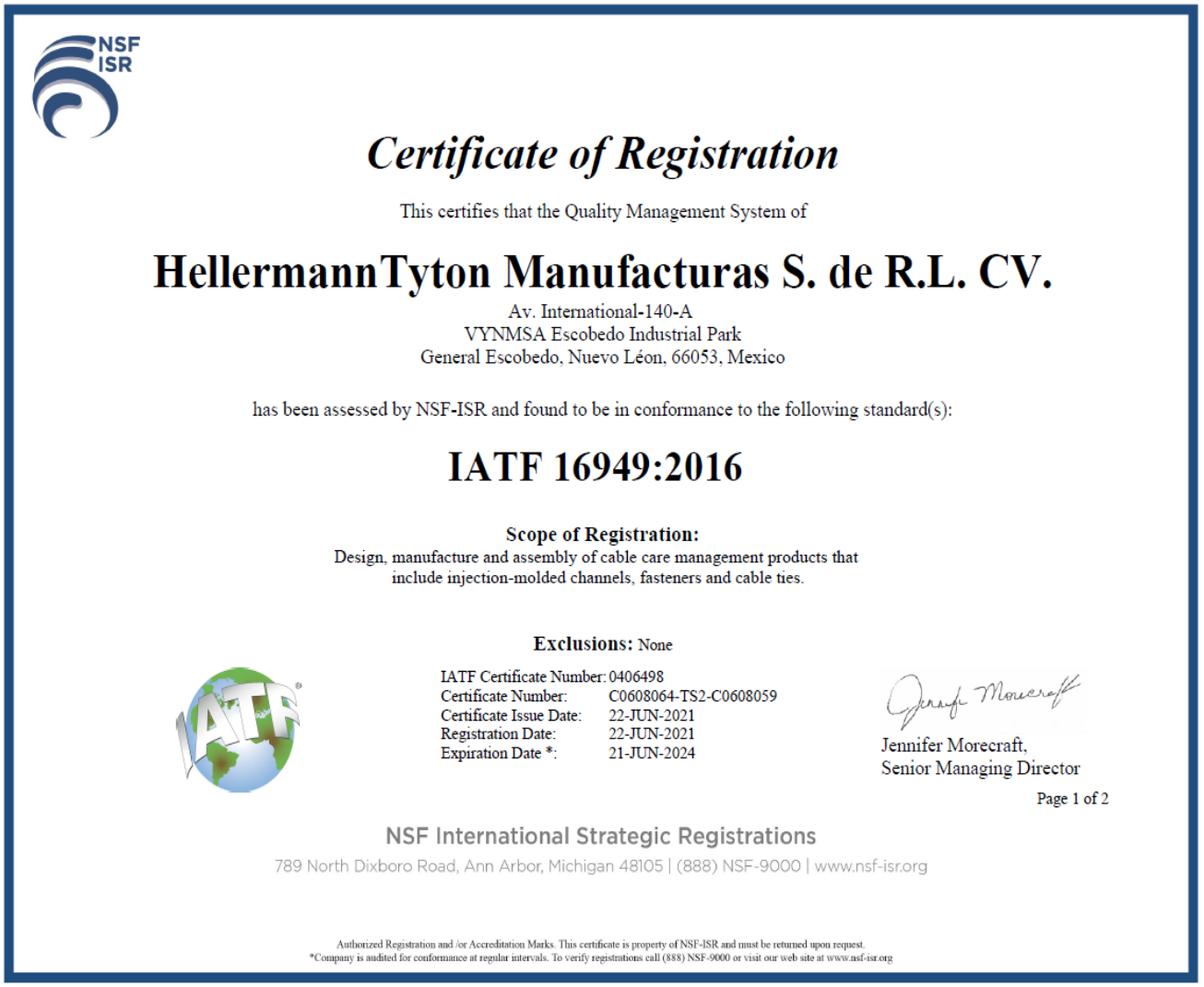
Please e-mail a copy of the signed Part Submission Warrant to the HellermannTyton representative listed on the warrant. Your cooperation is greatly appreciated!

Sincerely,

HellermannTyton Quality Assurance Team
(414) 355-1130
QA-Admin@htamericas.com

As per the procedure described above, the enclosed PPAP packet for 151-02457 submitted 6/22/2023 will be considered valid and complete automatically on 7/2/2023 unless otherwise dispositioned.

ISO/TS Quality Certificates



NSF ISR

Certificate of Registration

This certifies that the Quality Management System of

HellermannTyton Manufacturas S. de R.L. CV.

Av. International-140-A
VYNMSA Escobedo Industrial Park
General Escobedo, Nuevo Léon, 66053, Mexico

has been assessed by NSF-ISR and found to be in conformance to the following standard(s):

IATF 16949:2016

Scope of Registration:
Design, manufacture and assembly of cable care management products that include injection-molded channels, fasteners and cable ties.

Exclusions: None

IATF

IATF Certificate Number:	0406498
Certificate Number:	C0608064-TS2-C0608059
Certificate Issue Date:	22-JUN-2021
Registration Date:	22-JUN-2021
Expiration Date *:	21-JUN-2024

Jennifer Morecraft,
Senior Managing Director

Page 1 of 2

NSF International Strategic Registrations
789 North Dixboro Road, Ann Arbor, Michigan 48105 | (888) NSF-9000 | www.nsf-isr.org

Authorized Registration and /or Accreditation Marks. This certificate is property of NSF-ISR and must be returned upon request.
*Company is audited for conformance at regular intervals. To verify registrations call (888) NSF-9000 or visit our web site at www.nsf-isr.org

ISO/TS Quality Certificates

ANNEX PAGE FOR CERTIFICATE REGISTRATION NUMBER
C0608064-TS2-C0608059
IATF CERTIFICATION NUMBER: 0406498
CERTIFICATE ISSUE DATE: 22-JUN-2021
CERTIFICATE EXPIRATION DATE: 21-JUN-2024

HellermannTyton Manufacturas S. de R.L. CV.
Av. International-140-A
VYNMSA Escobedo Industrial Park
General Escobedo, Nuevo Léon, 66053, Mexico

Remote Location: HellermannTyton - C0608059 7930 Faulkner Road Milwaukee, Wisconsin, 53224, United States	**Scope:** Customer Service, Laboratory, Marketing, Strategic Planning, Process Design, Supplier Management, Engineering, Policy Making, Sales, Testing, Contract Review, Internal Audit Management
Remote Location: HellermannTyton - C0608060 8475 North 87th Street Milwaukee, Wisconsin, 53224, United States	**Scope:** Information Technologies, Purchasing

NSF International Strategic Registrations
789 North Dixboro Road, Ann Arbor, Michigan 48105 | (888) NSF-9000 | www.nsf-isr.org

This Annex is only Valid in connection with the above-mentioned certificate issued by NSF-ISR

Page 2 of 2

DaimlerChrysler Ford GM

Part Submission Warrant

Internal No. N/A

Part Name: 25mm OFFSET TAPE CLIP WITH 8mm FIR TREE
Cust. Part Number: 151-02457
Shown on Drawing No.: 17-1028-001-CSU
Org. Part Number: SOBC25FT8-PA66HIRHSUV-BK (151-02457)
Engineering Change Level: 04.1 Dated: 10/11/2018
Additional Engineering Changes: NA Dated: NA
Safety and/or Government Regulation: ☐ Yes ☒ No Purchase Order No.: NA Weight (kg): 0.0028
Checking Aid No.: NA Checking Aid Engineering Change Level: NA Dated: NA

ORGANIZATION MANUFACTURING INFORMATION

HellermannTyton
Organization Name & Supplier/Vendor Code

Av. Internacional-140-A VYNMSA Escobedo Industrial Park
Street Address

General Escobedo | Nuevo Leon | 66053 | Mexico
City | Region | Postal Code | Country

CUSTOMER SUBMITTAL INFORMATION

Nursan
Customer Name/Division

Nadiye BARUTÇU
Buyer/Buyer Code

Various
Application

MATERIALS REPORTING

Has customer-required Substances of Concern information been reported? ☐ Yes ☒ No ☐ n/a
Submitted by IMDS or other customer format:

Are polymeric parts identified with appropriate ISO marking codes? ☐ Yes ☐ No ☒ n/a

REASON FOR SUBMISSION (Check at least one)

- ☒ Initial Submission
- ☐ Engineering Change(s)
- ☐ Tooling: Transfer, Replacement, Refurbishment, or additional
- ☐ Correction of Discrepancy
- ☐ Tooling Inactive > than 1 year
- ☐ Change to Optional Construction or Material
- ☐ Supplier or Material Source Change
- ☐ Change in Part Processing
- ☐ Parts Produced at Additional Location
- ☐ Other - please specify below

REQUESTED SUBMISSION LEVEL (Check one)

- ☐ Level 1 - Warrant only (and for designated appearance items, an Appearance Approval Report) submitted to customer.
- ☐ Level 2 - Warrant with product samples and limited supporting data submitted to customer.
- ☒ Level 3 - Warrant with product samples and complete supporting data submitted to customer.
- ☐ Level 4 - Warrant and other requirements as defined by customer.
- ☐ Level 5 - Warrant with product samples and complete supporting data reviewed at organization's manufacturing location.

SUBMISSION RESULTS

The results for ☒ dimensional measurements ☒ material and functional tests ☐ appearance criteria ☒ statistical process package
These results meet all design record requirements: ☒ Yes ☐ No (If "No" - Explanation Required)
Mold / Cavity / Production Process: Various / Various / Injection Molding

DECLARATION

I affirm that the samples represented by this warrant are representative of our parts which were made by a process that meets all Production Part Approval Process Manual 4th Edition Requirements. I further affirm that these samples were produced at the production rate of Proprietary / _____ hours. I also certify that documented evidence of such compliance is on file and available for review. I have noted any deviations from this declaration below.

EXPLANATION/COMMENTS: HellermannTyton drawing is master. Additional drawings provided in this package at customer request are for reference only.

Is each Customer Tool properly tagged and numbered? ☐ Yes ☐ No ☒ n/a
Organization Authorized Signature: Heather Gajdosik Date: 6/22/2023
Print Name: Heather Gajdosik Phone No.: (414) 355-1130 x 8795 Fax No.: -----
Title: Quality Administrator E-mail: qa-admin@htamericas.com

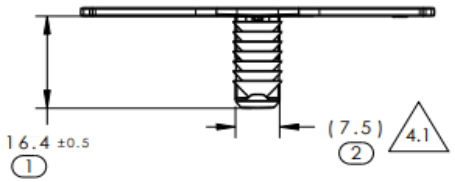
FOR CUSTOMER USE ONLY (IF APPLICABLE)

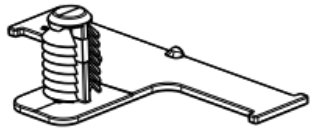
PPAP Warrant Disposition: ☐ Approved ☐ Rejected ☐ Other
Customer Signature Date
Print Name Customer Tracking Number (optional)

March 2006 **CFG-1001**

CATIA V5

Revision Level			Revision Record	Changed	Date	Approved	Date
Drawing	State	Part					
04.1	Design Release	-	SEE ECN# 014255	NHK	01/11/18	EJH	10/11/18

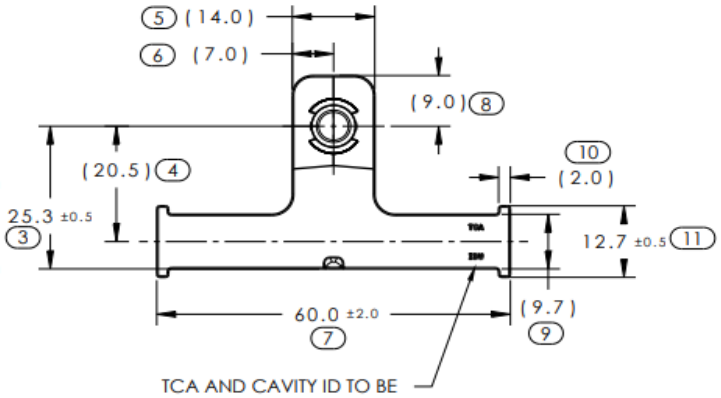


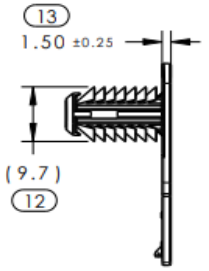


ISOMETRIC VIEW
SCALE 1:1

PERFORMANCE REQUIREMENTS:
1. FIR TREE PUSH IN FORCE: 45 NEWTONS (10 LBS) MAX
   IN THE APPLICABLE HOLE SIZE AND PLATE THICKNESS:
   A. 8.0mm HOLE, PLATE THICKNESS 1.8mm
   B. M10x1.5 THREADED HOLE, PLATE THICKNESS 4.5mm
2. FIR TREE PULL OUT FORCE: 110 NEWTONS (25 LBS) MIN
   IN THE APPLICABLE HOLE SIZE AND PLATE THICKNESS:
   A. 8.0mm HOLE, PLATE THICKNESS 1.8mm
   B. M10x1.5 THREADED HOLE, PLATE THICKNESS 4.5mm
3. SHEET METAL THICKNESS RANGE: 0.60mm - 5.75mm
4. APPLICABLE HOLE SIZE:
   A. 8.0mm +/- 0.4
   B. M10x1.5 THREADED HOLE

PRODUCTION NOTES:
1. MAXIMUM PERCENT REGRIND PERMISSIBLE: 25%
2. MAX ALLOWABLE FLASH TO BE: 0.25mm
3. MAX ALLOWABLE MISMATCH TO BE: 0.1mm





GLOBAL PART NAME	MATERIAL	COLOR
SOBC25FT8-PA66HIRHS-BK	PA66HIRHS	BLACK

Material: COLOR: SEE CHART	Units: millimeters; Tolerance defined on each dimension	The copyright of this drawing is reserved by HellermannTyton. It is issued on condition that it is not reproduced, copied or disclosed to a third party, either wholly or in part, without the consent of HellermannTyton.	Drawn: NHK 01/04/18; Approved: EJH 01/04/18	Article/Type-No: SOBC25FT8	Scale: 1:1
			HellermannTyton North America Email: corp@htamericas.com Web: www.hellermann.tyton.com	Title: 25mm OFFSET TAPE CLIP WITH 8mm FIR TREE	Project Number: 17-1028
				Drawing-No: 17-1028-001-CSU PRODUCTION : Phase	Format: AH
					Sheet: 1/1

HellermannTyton

Dimensional Results

HT Part/Item No.	Part Description	Internal No.
SOBC25FT8-PA66HIRHSUV-BK (151-02457)	25mm OFFSET TAPE CLIP WITH 8mm FIR TREE	N/A

Customer Part No.	Drawing No.	Drawing Date	Drawing Revision
151-02457	17-1028-001-CSU	10/11/2018	04.1

Production Date	Material	Inspection Facility	Inspector
7/1/2022	UR0HIRHSUV0	HT-Monterrey	JORGE URZUA

Unit of Measurement: **mm**

Item #	1	2	3	4	5	6	7	8	9	10
Gage ID	LM-VD-008	LM-VD-008	LM-EV-002	LM-EV-002	LM-EV-002	LM-EV-002	LM-EV-002	LM-EV-002	LM-EV-002	LM-EV-002
Gage Type	Caliper	Caliper	Vision	Vision	Vision	Vision	Vision	Vision	Vision	Vision
Dim	16.40	7.50	25.30	20.50	14.00	7.00	60.00	9.00	9.70	2.00
Tol +	0.50	REF	0.50	REF	REF	REF	2.00	REF	REF	REF
Tol -	0.50	REF	0.50	REF	REF	REF	2.00	REF	REF	REF
Sample										
1	16.42	7.42	25.22	20.41	13.84	6.94	60.29	9.02	8.95	1.85
2	16.45	7.38	25.22	20.40	13.85	6.93	60.26	9.00	8.98	1.86
3	16.44	7.41	25.22	20.41	13.84	6.93	60.26	9.00	8.94	1.87
4	16.42	7.42	25.22	20.38	13.84	6.94	60.26	8.98	8.99	1.86
5	16.41	7.41	25.22	20.39	13.85	6.94	60.29	8.99	8.99	1.85
6	16.42	7.39	25.22	20.41	13.85	6.94	60.27	8.98	8.94	1.86
7	16.45	7.38	25.22	20.38	13.83	6.94	60.26	9.00	8.99	1.85
8	16.43	7.41	25.23	20.41	13.85	6.95	60.27	8.99	9.00	1.85
OK	X	REF	X	REF	REF	REF	X	REF	REF	REF
NOT OK		REF		REF	REF	REF		REF	REF	REF

HellermannTyton

Dimensional Results

HT Part No.	Customer Part No.	Part Description	Internal No.
SOBC25FT8-PA66HIRHSUV-BK (151-02457)	151-02457	25mm OFFSET TAPE CLIP WITH 8mm FIR TREE	N/A

Drawing No.	Drawing Date	Drawing Revision
17-1028-001-CSU	10/11/2018	04.1

Production Date	Material	Inspection Facility	Inspector
7/1/2022	UR0HIRHSUV0	HT-Monterrey	JORGE URZUA

Unit of Measurement: **mm**

Item #	11	12	13							
Gage ID	LM-VD-008	LM-VD-008	LM-VD-008							
Gage Type	Caliper	Caliper	Caliper							
Dim	12.70	9.70	1.50							
Tol +	0.50	REF	0.25							
Tol -	0.50	REF	0.25							
Sample										
1	12.68	9.55	1.50							
2	12.72	9.56	1.50							
3	12.70	9.58	1.49							
4	12.67	9.60	1.49							
5	12.68	9.62	1.50							
6	12.67	9.57	1.48							
7	12.67	9.57	1.49							
8	12.71	9.59	1.50							
OK	X	REF	X							
NOT OK		REF								

HellermannTyton

Performance Results

HT Part/Item No.	Part Description	Internal No.
SOBC25FT8-PA66HIRHSUV-BK (151-02457)	25mm OFFSET TAPE CLIP WITH 8mm FIR TREE	N/A

Customer Part No.	Drawing No.	Drawing Date	Drawing Revision
151-02457	17-1028-001-CSU	10/11/2018	04.1

Production Date	Material	Inspection Facility	Inspector
7/1/2022	UR0HIRHSUV0	HT-Monterrey	JORGE URZUA

Item/Note #										
Test	Push In	Pull Out	Push In	Pull Out						
Feature	Fir Tree	Fir Tree	Fir Tree	Fir Tree						
Size	M10x1.5	M10x1.5	8.0mm	8.0mm						
Thickness	4.5mm	4.5mm	1.8mm	1.8mm						
Type	Threaded	Threaded	Round	Round						
Gage ID	LM-LT-001	LM-LT-001	LM-LT-001	LM-LT-001						
Max Spec.	10.00		10.00							
Min Spec.		25.00		25.00						
Unit	lbs	lbs	lbs	lbs						
Sample										
1	3.37	37.28	3.41	39.39						
2	3.34	36.91	3.47	39.16						
3	3.40	39.73	3.35	37.11						
4	3.44	37.17	3.46	39.29						
5	3.37	38.76	3.45	39.56						
6	3.43	39.59	3.49	39.32						
7	3.40	39.51	3.32	38.64						
8	3.38	39.16	3.41	37.25						
9	3.34	39.80	3.42	36.57						
10	3.41	37.02	3.33	38.76						
OK	X	X	X	X						
NOT OK										

HT Part/Item No.	Part Description	Internal No.
SOBC25FT8-PA66HIRHSUV-BK (151-02457)	25mm OFFSET TAPE CLIP WITH 8mm FIR TREE	N/A

Customer Part No.	Drawing No.	Drawing Date	Drawing Revision
151-02457	17-1028-001-CSU	10/11/2018	04.1

Production Date	Material	Inspection Facility	Inspector
7/1/2022	UR0HIRHSUV0	HT-Monterrey	JORGE URZUA

Item/Note #	Note Description	Specification (If Applicable)	Result	OK	NOT OK
Material					
	Material	PA 66 Impact Modified (PA66HIRHSUV)	Vydyne 47H	X	
	Color	Black	Black	X	
	Regrind			X	
Performance/Reference					
1	FIR TREE PUSH IN FORCE: 45 NEWTONS (10 LBS) MAX IN THE APPLICABLE HOLE SIZE AND PLATE THICKNESS: A. 8.0mm HOLE, PLATE THICKNESS 1.8mm B. M10x1.5 THREADED HOLE, PLATE THICKNESS 4.5mm			X	
2	FIR TREE PULL OUT FORCE: 110 NEWTONS (25 LBS) MIN IN THE APPLICABLE HOLE SIZE AND PLATE THICKNESS: A. 8.0mm HOLE, PLATE THICKNESS 1.8mm B. M10x1.5 THREADED HOLE, PLATE THICKNESS 4.5mm			X	
3	SHEET METAL THICKNESS RANGE: 0.60mm - 5.75mm			X	
4	APPLICABLE HOLE SIZE: A. 8.0mm +/- 0.4 B. M10x1.5 THREADED HOLE			X	
	PRODUCTION NOTES:				
1	MAXIMUM PERCENT REGRIND PERMISSIBLE: 25%			X	
2	MAX ALLOWABLE FLASH TO BE: 0.25mm			X	
3	MAX ALLOWABLE MISMATCH TO BE: 0.1mm			X	

HellermannTyton

Current Material Certificate

ASCEND PERFORMANCE MATERIALS

APTIV MANUFACTURING MANAGEMENT
AVENUE OF LUXEMBOURG
BASCHARAGE L4940
Attention : Rocio Acosta Reyes
Customer Part No: UR0HIRHSUV0

Ascend Performance Materials Operations LLC
Nylon Plastics and Polymers
3000 Chemstrand Road
Cantonment, FL 32533
Telephone : (850)968-7000

Certificate Date : 08-Mar-22
Delivery No : 382608001
Shipped Qty : 27,600.000 Lbs
12,519.360 Kgs
Customer P.O. No: 401577
Container : 00000000000002090626

Certificate of Analysis

This certifies that Nylon Resin shipped to you from Ascend Performance Materials Operations LLC has been tested and found to meet required specifications.

This material was produced under a Quality System that meets ISO 9001:2015 and IATF 16949:2016 criteria.

If you have questions or concerns about this Certificate of Analysis, please contact Ascend Performance Materials Customer Operations at 1-888-927-2363.

This product meets the requirements of the following specifications: SAE J1639, SAE J1639 PA0171, ASTM D6779-PA0161-Z1Z2, ASTM D4066 PA0161, FMVSS 302, MS-DB-41 CPN 1826, ESB-M4D178-A2, WSS-M99P23-C1/C2, WSS-M99P9999-A1, WSSM4D706B1, WSS-M99P1111-A, WSS-M4D706-A4, WSK-M4D706-A, GMW16447P-PA66-T2, GMW16558P-PA66-T1 and GMP.PA66.015, Ford WQ 100C.

Material: VYDYNE 47H BK0644 **Material No:** 10432828 **Batch No:** KA24GN06 **Date of Mfg:** 24-Jan-2022

Ascend Performance Materials Operations LLC Specification

Lot Data Property	Test Method	Min	Max	Result	Units
Copper	STM 00667	125	250	192	PPM
Flammability @ 0.8mm	UL 94HB	P	P	P	N/A
Moisture	ASTM D6869	0.10	0.20	0.12	%
Strength @ Yld	ISO 527-1,2 / 1A	50	70	59	MPa

1/1

Ascend Performance Materials Mexico, S. de R.L. de C.
Parque industrial Opcion
Av. Montes Urales #15
San Jose Iturbide, Guanajuato 37980
Telephone : 52-419-234-3900

APTIV MANUFACTURING MANAGEMENT
AVENUE OF LUXEMBOURG
BASCHARAGE L4940
Attention : Rocio Acosta Reyes

Certificate Date : 09-Feb-23
Delivery No : 382650522
Shipped Qty : 41,400.000 Lbs
18,779.040 Kgs
Customer P.O. No: 402758
Container : 35UM10

Certificate of Analysis

This certifies that Nylon Resin shipped to you from Ascend Performance Materials Operations LLC has been tested and found to meet:required specifications.

This material was produced under a Quality System that meets ISO 9001:2015 criteria.

If you have questions or concerns about this Certificate of Analysis, please contact Ascend Performance Materials Customer Operations at 1-888-927-2363.

Material: VYDYNE 47H BK0644 **Material No:** 10440782 **Batch No:** KL16SJ02 **Date of Mfg:** 16-Dec-2022

Ascend Performance Materials Operations LLC Specification

Lot Data Property	Test Method	Min	Max	Result	Units
Moisture	STM 00835	0.05	0.20	0.10	%

ASCEND
PERFORMANCE MATERIALS

March 16, 2023

Thank you for your request regarding FMVSS 302 flammability test results for **Vydyne® 47H BK0644**. The FMVSS 302 standard is a requirement for parts and/or assemblies and not for raw materials. Ascend is accredited to perform flammability tests according to ISO 3795. This data can relate to FMVSS 302, SAE J369, ISO3795, GMW3232, HES C 206-09, TL1010 and other similar tests. However, the results of this material testing performed on standard lab plaques should not be substituted for the actual finished part testing per the FMVSS 302 standard. Since the flammability results are dependent upon part and/or assembly composition and geometry, Ascend is unable to certify your part or assembly to the FMVSS 302 standard.

Ascend is pleased to supply you with the following test results for the above referenced Vydyne material utilizing ISO 3795:

Product	Thickness	*Result \ Burn rate
47H BK0644	2.0mm	7.96 mm/min/SE
47H BK0644	3.0mm	1.49 mm/min/SE

*ISO 3795 testing is only performed during the initial material approval

HellermannTyton

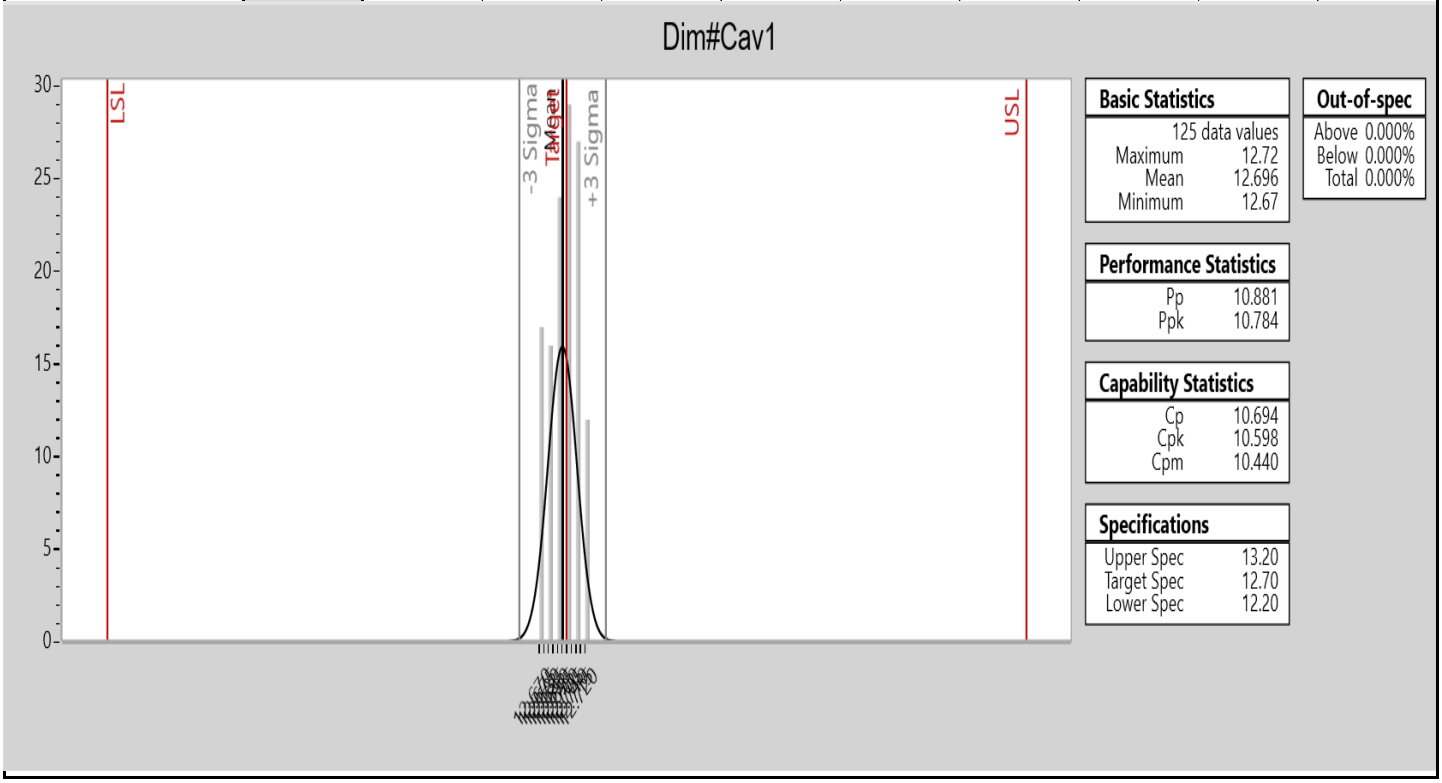
Initial Process Study

HT Part/Item No.	Part Description	Internal No.
SOBC25FT8-PA66HIRHSUV-BK (151-02457)	25mm OFFSET TAPE CLIP WITH 8mm FIR TREE	N/A

Customer Part No.	Drawing No.	Drawing Date	Drawing Revision
151-02457	17-1028-001-CSU	10/11/2018	04.1

Production Date	Material	Inspection Facility	Inspector
7/1/2022	UR0HIRHSUV0	HT-Monterrey	JORGE URZUA

Study	Sample	Data								
Dimension & Tolerance 12.7 +/- 0.50 mm	1-9	12.70	12.71	12.71	12.68	12.70	12.71	12.70	12.70	12.71
	10-18	12.71	12.69	12.68	12.68	12.71	12.69	12.71	12.68	12.70
	19-27	12.70	12.69	12.69	12.72	12.71	12.70	12.71	12.67	12.69
	28-36	12.70	12.67	12.71	12.67	12.72	12.67	12.68	12.70	12.71
	37-45	12.71	12.69	12.70	12.70	12.69	12.67	12.69	12.71	12.67
	46-54	12.71	12.69	12.72	12.70	12.69	12.67	12.69	12.67	12.71
	55-63	12.70	12.69	12.69	12.72	12.70	12.68	12.68	12.71	12.70
	64-72	12.72	12.70	12.69	12.69	12.67	12.71	12.68	12.68	12.68
	73-81	12.69	12.70	12.69	12.69	12.69	12.72	12.71	12.68	12.70
	82-90	12.71	12.70	12.68	12.72	12.72	12.71	12.70	12.69	12.71
	91-99	12.68	12.67	12.70	12.67	12.67	12.70	12.67	12.68	12.70
	100-108	12.71	12.71	12.70	12.71	12.70	12.70	12.72	12.69	12.69
	109-117	12.68	12.72	12.68	12.70	12.71	12.72	12.67	12.69	12.69
	118-125	12.71	12.71	12.67	12.72	12.70	12.67	12.67	12.70	



R&R Study Results Using Specifications

12/29/2022

Gage number:	LM-ID-001	Done by:	MTY-QALab
Gage description:	MEDICION	Part name:	151-01773
Gage type:	INDICADOR DIGITAL	Characteristics:	DISTANCE
Study name:	GR&R Y ANOVA (2023)	Specifications:	LSL=0.9 Nominal=1 USL=1.1
Study date:	01/02/2023	Number of Distinct Cate	21.65535

Objective:

Comment:

	Interpretation guidelines
< 10%	generally considered to be an acceptable measurement system
10%-30%	may be acceptable based upon importance of application, cost of measurement device, cost of repair etc.
> 30%	considered to be not acceptable - every effort should be made to improve the measurement system

Results based on specifications

Measurement Unit Analysis

Specification Spread (USL-LSL)/

Repeatability - Equipment Variation (EV)
EV = 0.002165779

%EV = 6.497334

Reproducibility - Appraiser Variation (AV)
AV = 0

%AV = 0

Repeatability & Reproducibility (R&R)
R&R = 0.002165779

%R&R = 6.497334

Part Variation (PV)
PV = 0.03326291

%PV = 99.7887

Specification Spread (USL-LSL)/
(USL - LSL)/ = 0.03333334

Appraiser	Replicati	Part 1	Part 2	Part 3	Part 4	Part 5	Part 6	Part 7	Part 8	Part 9	Part 10
GERARDO	1	1	1	1	1	1	1	1	1	1	1.11
GERARDO	2	0.99	1	0.99	1	1	1	1	1	1	1.11
GERARDO	3	1	1	1	1	1	1	0.99	1	1.01	1.11
LUIS A.	1	1	1	1	1	0.99	1	1	1	0.99	1.11
LUIS A.	2	1	1	1	1	1	1	1	1	1	1.11
LUIS A.	3	1	1	1	1	1	1	1	1	1	1.1
ROLANDO R	1	1	1	1	1	1	1	1	1	1	1.1
ROLANDO R	2	0.99	1	0.99	1	1	1	1	1	1.01	1.11
ROLANDO R	3	1	1	1	1	1	1	1	1	1	1.1

GAGE pack

R&R Study Results Using Specifications

12/29/2022

Gage number:	LM-MD-001	Done by:	MTY-QALab
Gage description:	DIMENCIONAL	Part name:	111-01564
Gage type:	MICROMETRO DIGITAL	Characteristics:	ESPESOR
Study name:	GR&R Y ANOVA (2023)	Specifications:	LSL=1.2 Nominal=1.3 USL=1.4
Study date:	01/06/2023	Number of Distinct Cate	33.72898

Objective:

Comment:

	Interpretation guidelines
< 10%	generally considered to be an acceptable measurement system
10%-30%	may be acceptable based upon importance of application, cost of measurement device, cost of repair etc.
> 30%	considered to be not acceptable - every effort should be made to improve the measurement system

Results based on specifications

Measurement Unit Analysis — Specification Spread (USL-LSL)/

Repeatability - Equipment Variation (EV)
EV = 0.001338857 — %EV = 4.016573

Reproducibility - Appraiser Variation (AV)
AV = 0.0003818429 — %AV = 1.145529

Repeatability & Reproducibility (R&R)
R&R = 0.001392244 — %R&R = 4.176733

Part Variation (PV)
PV = 0.03330423 — %PV = 99.91273

Specification Spread (USL-LSL)/
(USL - LSL)/ = 0.03333332

Appraiser	Replicati	Part 1	Part 2	Part 3	Part 4	Part 5	Part 6	Part 7	Part 8	Part 9	Part 10
ROLANDO R	1	1.312	1.313	1.405	1.331	1.331	1.317	1.315	1.412	1.309	1.311
ROLANDO R	2	1.318	1.315	1.402	1.329	1.332	1.317	1.315	1.41	1.31	1.311
ROLANDO R	3	1.311	1.314	1.406	1.33	1.331	1.318	1.314	1.415	1.311	1.31
GERARDO	1	1.319	1.314	1.404	1.33	1.332	1.316	1.314	1.413	1.311	1.311
GERARDO	2	1.323	1.315	1.403	1.331	1.331	1.316	1.315	1.416	1.31	1.312
GERARDO	3	1.316	1.314	1.401	1.331	1.331	1.317	1.315	1.411	1.312	1.311
LUIS A.	1	1.316	1.314	1.406	1.33	1.331	1.317	1.315	1.418	1.31	1.312
LUIS A.	2	1.317	1.315	1.404	1.33	1.331	1.316	1.315	1.415	1.31	1.312
LUIS A.	3	1.321	1.315	1.401	1.33	1.331	1.317	1.315	1.413	1.312	1.312

GAGE pack

R&R Study Results Using Specifications

1/5/2023

Gage number:	LM-SC-001	Done by:	MTY-QALab
Gage description:	MEDICION	Part name:	151-01773
Gage type:	SCANER AICON STEREO SCAN	Characteristics:	DISTANCE
Study name:		Specifications:	LSL=9.9 Nominal=10 USL=10.1
Study date:	01/05/2023	Number of Distinct Cate	47.02009

Objective:

Comment:

	Interpretation guidelines
< 10%	generally considered to be an acceptable measurement system
10%-30%	may be acceptable based upon importance of application, cost of measurement device, cost of repair etc.
> 30%	considered to be not acceptable - every effort should be made to improve the measurement system

Results based on specifications

Measurement Unit Analysis — Specification Spread (USL-LSL)/

Repeatability - Equipment Variation (EV)
EV = 0.0009647527 — %EV = 2.894247

Reproducibility - Appraiser Variation (AV)
AV = 0.0002598224 — %AV = 0.7794643

Repeatability & Reproducibility (R&R)
R&R = 0.0009991274 — %R&R = 2.997371

Part Variation (PV)
PV = 0.03331848 — %PV = 99.95506

Specification Spread (USL-LSL)/
(USL - LSL)/ = 0.03333346

Appraiser	Replicati	Part 1	Part 2	Part 3	Part 4	Part 5	Part 6	Part 7	Part 8	Part 9	Part 10
GERARDO	1	10.022	10.005	9.985	9.996	10	9.969	10.023	9.995	10	10.012
GERARDO	2	10.022	10.004	9.989	9.995	10.001	9.968	10.021	9.996	10.001	10.013
GERARDO	3	10.021	10.004	9.988	9.996	10	9.969	10.021	9.997	10	10.012
JORGE U.	1	10.02	10.003	9.989	9.995	10	9.965	10.021	9.996	10	10.012
JORGE U.	2	10.02	10.004	9.988	9.994	10.001	9.965	10.021	9.996	10.005	10.013
JORGE U.	3	10.022	10.004	9.989	9.995	10	9.965	10.022	9.995	10.002	10.013
ROLANDO R	1	10.023	10.004	9.987	9.996	10	9.968	10.021	9.996	10	10.015
ROLANDO R	2	10.023	10.005	9.988	9.997	10.001	9.969	10.022	9.993	10.002	10.012
ROLANDO R	3	10.022	10.004	9.989	9.996	9.998	9.968	10.023	9.997	10	10.014

GAGE pack

R&R Study Results Using Study Parameters

12/29/2022

Gage number:	LM-LT-001	Done by:	MTY-QALab
Gage description:	MEDICION	Part name:	RT250
Gage type:	CELDA DE CARGA	Characteristics:	TENSILE
Study name:	GR&R ANNUAL (2023)	Specifications:	
Study date:	01/02/2023	Number of Distinct Cate	178.6152

Objective:

Comment:

	Interpretation guidelines
< 10%	generally considered to be an acceptable measurement system
10%-30%	may be acceptable based upon importance of application, cost of measurement device, cost of repair etc.
> 30%	considered to be not acceptable - every effort should be made to improve the measurement system

Results based on study parameters

Measurement Unit Analysis

Total Variation (TV)

Repeatability - Equipment Variation (EV)
EV = 0.005861971

%EV = 0.7838503

Reproducibility - Appraiser Variation (AV)
AV = 0.0006976542

%AV = 0.09328883

Repeatability & Reproducibility (R&R)
R&R = 0.00590334

%R&R = 0.789382

Part Variation (PV)
PV = 0.7478199

%PV = 99.99689

Total Variation (TV)
TV = 0.7478432

Appraiser	Replicati	Part 1	Part 2	Part 3	Part 4	Part 5	Part 6	Part 7	Part 8	Part 9	Part 10
GERARDO	1	1831.396	1830.524	1829.981	1830.516	1831.385	1829.98	1831.391	1831.433	1829.057	1829.423
GERARDO	2	1831.379	1830.52	1829.99	1830.517	1831.378	1829.99	1831.38	1831.43	1829.051	1829.42
GERARDO	3	1831.385	1830.519	1829.983	1830.51	1831.376	1829.986	1831.374	1831.428	1829.048	1829.425
ROLANDO R	1	1831.379	1830.52	1829.987	1830.508	1831.383	1829.983	1831.376	1831.43	1829.044	1829.429
ROLANDO R	2	1831.37	1830.516	1829.983	1830.507	1831.393	1829.988	1831.389	1831.43	1829.053	1829.429
ROLANDO R	3	1831.382	1830.506	1829.981	1830.509	1831.371	1829.984	1831.386	1831.427	1829.057	1829.418
LUIS A.	1	1831.398	1830.526	1829.989	1830.512	1831.388	1829.982	1831.39	1831.432	1829.05	1829.422
LUIS A.	2	1831.371	1830.519	1829.987	1830.503	1831.397	1829.982	1831.375	1831.427	1829.051	1829.427
LUIS A.	3	1831.385	1830.523	1829.981	1830.513	1831.385	1829.986	1831.39	1831.427	1829.057	1829.416

Appraiser	Replicati	Part 11	Part 12	Part 13	Part 14	Part 15	Part 16	Part 17	Part 18	Part 19	Part 20
GERARDO	1										
GERARDO	2										
GERARDO	3										

GAGE pack

Lab Scope

HellermannTyton QA Laboratory Testing

The scope of functions that HellermannTyton QA lab provides are as follows:

-Provide inspection and testing for production.

-Perform capability, dimensional, and performance testing and analysis to meet PPAP, Regulatory, and Customer Requirements

-Perform special testing of new products and materials, and any other testing that is required meeting business needs.

-Coordinate the calibration of gages, measuring, and test equipment.

HellermannTyton inspection and testing capabilities are as follows (includes but not limited to):

Visual Analysis	Moisture Analysis
Dimensional Analysis	Wire Bundle Analysis
Insertion/Push In, Pull Out	
Tensile Strength	

HellermannTyton equipment for inspection and testing is as follows (includes but not limited to):

Equipment Type	Parameter	Range	Calibration/ Measurement Capability
Outside Micrometer	Linear Dimension	0-1 in	± 0.001 in
Ruler	Linear Dimension	0-12 in	± 0.250 in
Tape Measure	Linear Dimension	Up to 26 ft	± 0.062 in
Caliper	Linear Dimension	Up to 40 in	± 0.001 in
Water Bath	Condition Parts	Up to 212°C	± 2° (Verification Only)
Tensile Tester and Load Cell	Tensile Strength	Up to 1000 lbs	± 1 lb
Vacuum Oven	Moisture Analysis	Temp.: Ambient - 280°C Vacuum: Atmosphere - 30"Hg	± 5°C
Thermometer (for Oven)	Temperature	Up To 300°C	± 1°C
Thickness Gauge	Linear Dimension	0.0001 - 0.05 in	± 0.001 in
Torque Wrench	Torque	0 - 250 ft/lbs	± 1 ft/lb
Digital Indicator	Linear Dimension	0 - 0.500 in	± 0.001 in
Micro-Vu	Linear Dimension	X: 16 in, Y: 19 in, Z: 8.5 in	± 0.001 in
Moisture Analyzer	Moisture Analysis	25° - 275°C	± 0.001%
Force Gauge	Force	0 - 100 lbs	± 0.1 lb
Scale	Weight	0 - 2000 g	± 0.0001 g
CMM	Linear Dimension	X: 28 in, Y: 40 in, Z: 28 in	± 0.0005 in
Height Gauge	Linear Dimension	0 - 24 in	± 0.001 in
Dial Indicator	Linear Dimension	0.003 - 0.03 in	± 0.0005 in
CT Scanner	Dimensional	Unlimited Pending Voxels	±.0001 in
Blue Light Scanner	Dimensional	Unlimited	±.0001 in

A Gage R&R is done by instrument type and is only done on those types used for part inspection.

HellermannTyton Process Flow Diagram

☑ New Method	☐ Method proposed	Control number	PF-CAL-00.0-01	Date Rev:	6/8/2020	Rev:	2

Product/ Family ID:

Mounts

Process descripcion:

Receiving, molding, assembly, packaging and shipping

(Door to door)

Summary:

Activity	Current Qty	Proposed Qty	Difference Qty
Process / Operation	8		
Transportation	-		
Inspection / Quality	4		
Storage	2		
Tot	14		

Created by: Martin Jaramillo (mjaramillo@hellermanntyton.mx)

Approved by: Core Team (Quality Assurance, Maintenance, Process, Materials, Engineering, Production.)

No.	Description	Process	Transportation	Inspection/Q	Storage	Comments
1	**Receiving** Receive the raw materials					
2	**Incoming inspection** Inspect the raw materials					
3	**Material storage** Store the raw materials					
4	**Resin setup** Setup the resin and deliver to production					
5	**Other materials supply** Supply raw materials different than resin					
6	**Molding machine setup** Setup the molding machine to start the production of parts					
7	**Line clearance and preparation for start up** Prepare the work stations to start the production					
8	**First piece approval** Approve the first piece of a new lot					
9	**Molding** Mold the parts at the press					
10	**Operator inspections** Inspect the finish good before packaging					
11	**Packaging** Pack the finished good					
12	**Final inspection** Inspect the finished good					
13	**Finished Goods Storage** Store the finished goods					
14	**Shipping** Ship the finished good to the Customer					
15	**Annual Validation** Performance full dimensional study of the parts					

☐ Prototype ☐ Pre-Launch ☑ Production

Control Plan

Control Plan Number:	Responsible Organization/Plant:	Organization Code:	Date (Orig.):	Date & Revision:
HTMTY CP-01	**HellermannTyton MTY**	**NA**	**12-Abr-17**	**Feb.28.2022**

Part Number/Latest Change Level:	Core Team:	Customer Part Number/Model Year(s)/Program(s):
Clips/Mounts/Brackets/Various Materials Family	**Quality Assurance, Maintenance, Process, Materials, Engineering, Production**	**NA**
Part Name/Description: **Clips/Mounts/Brackets/Various Materials**	Organization/Plant Approval/Date: **NA**	Customer Engineering Approval/Date (If Required): **NA**
Key Contact/Phone: **Quality Assurance / (81) 2353 5642**	Other Approval/Date (If Required): **NA**	Customer Quality Approval/Date (If Required): **NA**

Quality Assurance	Material Handler	Process Technician	Production Lead/Supervisor	Operator	QA and/or Production Lead	Shipping and/or Receiving
Maintenance						

Process Number	Process name / Operation Description	Machine, Tools, Fixtures, etc	Characteristic			Special Characteristic	METHOD				Control Method	Reaction Plan
			NO.	Product	Process		Specification / Product - Process tolerance.	Evaluation / Measurement	Size	Freq		
1	Receiving		1	batch number	Receiving		According to packing list.	Visual	Each lot	Each receipt	PR-MAT-01 Material Procedure. MRP System	Notify to Purchasing and QA Isolate according tol PR-CAL-01.
			2	Packaging Conditions		Free of damage	Free of damage on external packaging.	Visual	Each lot	Each receipt	PR-MAT-01 Material Procedure. MRP System	Notify to Purchasing and QA Isolate according tol PR-CAL-01.
			3	Quantity		Cantidad correcta	According to packing list.	Visual	Each lot	Each receipt	PR-MAT-01 Material Procedure. MRP System	Notify to Purchasing and QA Isolate according tol PR-CAL-01.
			4		Identification		Place internal identification sheet on each material according description on label and packing list	Visual	Each container	Each receipt	PR-MAT-01 Materials management. MRP System	Notify Purchasing and QA; Isolate lot per PR-CAL-01
2	Incoming inspection		1	Resin	Inspection	CharacteriticsCaracteristicas y Propiedades fisicas del material	De acuerdo al Certificado de Analisis de calidad. de acuerdo al Plan de Control de Cada material (si aplica).	Visual	AQL	Each Lot	WI-CAL-00.2 Quality Inspections, According to each article control plan.	Notificar a Calidad y Compras; Aislar de acuerdo a PR-CAL-01
			2	Color (If required)			Per color chip	Visual	AQL	Each Lot	WI-CAL-00.2 Quality Inspections, According to each article control plan.	Notify to Quality and Purchasing. Isolate according to PR-CAL-02
			3	Packaging		Damage	Free of damage on external packaging.	Visual	AQL	Each Lot	WI-CAL-00.2 Quality Inspections, According to each article control plan.	Notify to Quality and Purchasing. Isolate according to PR-CAL-02
		Vision system,caliper and gauges (If apply)	4	Material Certification.		Part number and correct quantity	According to Invoice - Packing list.	Visual	Each Lot	Each Lot	WI-CAL-00.2 Quality Inspections, According to each article control plan.	Notify to Quality and Purchasing. Isolate according to PR-CAL-02
						Dimensions	According to each article control plan.	Capability incoming inspection	AQL	Each Lot	WI-CAL-00.2 Quality Inspections, According to each article control plan.	Notify to Quality and Purchasing. Isolate according to PR-CAL-02
3	Materials Storage	Forklift	1		Move and store usable materials	Identified containers and correctly located	Accordingo to instructions and visual aids.	Visual	each container	each container	PR-MAT-01 Material Procedure. MRP System	Notify to Quality and Purchasing. Isolate according to PR-CAL-02
4	Resin set-up	Materials handling system	1	Resin	Move resin to the material handling system and set up dryer	Correct resin.	Correct resin is send to the materials handling system according to the WO.	Visual according to the WO	Each material change.	Each material change.	WI-PRD-00.20 Dryer Set up, Work Order (BOM)	Isolate according to PR-CAL-01
		Computrack 4000 XL (Moisture Analyzer)	2		Moisture inspection	Material moisture level.	Verify that the moisture levels are into the specification	Visual Computrack 4000 XL (Moisture Analyzer)	1 sample for each material type.	Weekly, each lot change, each material change.	WI-PRD-00.10 Moisture Test F-PRD-00.10-1.Moisture test record	Equipment Adjust, Isolate according to PR-CAL-01

			3		Regrind set-up	Correct regrind percent.	According to the process sheet.	Visual according to the process sheet.	Each material change.	Each material change.	F-CAL-00.2-11Certification process sheet.	Equipment Adjust, Isolate according to PR-CAL-01
			4		Set up colorant (when needed)		Correct mix ratio setting is set up per Work Order	Visual to WO	WO	Each press start/ Each material change	Work Order (BOM), Mattec or Material Process Log	Adjust ratio; Isolation PR-CAL-01
5	Other materials set up.		1		Move packaging materials to the injection machine.	Damage and readable labels.	Box, bags and labels on the machine	Visual according to the WO and visual aids.	Each material change.	Each material change.	Work Order (BOM), JDE	Equipment Adjust, Isolate according to PR-CAL-01
			2		Move assembly components to press (if required)	Correct components	Correct components to assembly on the machine.	Visual according to the WO and visual aids.	Each material change.	Each material change.	Work Order (BOM), JDE, Mattec	Equipment Adjust, Isolate according to PR-CAL-01
6	Molding machine setup	Injection machine	1		Tooling set-up	Correct tool	Correct tool according to the WO	Visual according to the WO	Each set up	Each set up	F-PRD.00.12-2 Tool Evaluation, Work Order.	Review and adjust the process, Isolate according to PR-CAL-01
			2		Process Set up	Control of Process parameters.	According to the process sheet.	According to the process sheet, visual on the machine screen.	Each set up or twice per shift.	Each set up or twice per shift.	WI-PRD-00.1 Mold set up, F-CAL-00.2-11Process certification sheet, Validation record. F-PRD-00.21-1 .	Review and adjust the process, Isolate according to PR-CAL-01
			3		Machine process alarms turn ON	Alarms turn on	Alarms must be turned on.	Visual for each kind of machine.	Each set up or twice per shift.	Each set up or twice per shift.	WI-PRD-00.1 Mold set up, F-CAL-00.2-11Process certification sheet, Validation record. F-PRD-00.21-1 .	Review and adjust the process, Isolate according to PR-CAL-01
			4		Start up/ Re-start up		Correct injection speed & mold cleanliness	Visual	Each set up	Each set up	Process certification sheet, process parameters sheet.	Recheck and adjust process; Isolation per PR-CAL-01
							Process Adjustment and/or mold tool cleansing.	Visual	Each set up	Each set up	WI-PRD-00.1 Startup & re-start segregation process	Recheck and adjust process; Isolation per PR-CAL-01
			5		Inspection	Visual defects	Visual defetcs (short shot, burr, gas brands, color, mismatch etc.) that may affect function, form and assembly.	Visual	1 Shot	3 times per shift 1 each set up	Validation record F-PRD-00.21-1, F-CAL-00.2-11Process certification sheet, visual aids.	Review and adjust the process, Isolate according to PR-CAL-01
												Isolate according to PR-CAL-01
7	Line clearance and preparation for start up	Documents, forms and labels	1		Line free of previous job materials / documents.		Machine must be clean and clear, according to the visual aid AV-PRD-06 and F-CAL-00.0-5 Start up check list.	Visual according to the check list F-CAL-00.0-5 Start up check list.	Each work order change	Each work order change	Visual aid AV-PRD-06 Machine clean up. F-CAL-00.0-5 Start up check list.	Isolate according to PR-CAL-01
			2		Documents preparation to the WO.		The documents must be: Mold book, Work instructions, visual aids, work order.	Visual	Eqch work order change	Eqch work order change	F-CAL-00.0-5 Start up check list	Isolate according to PR-CAL-01
			3	Start up scrap is packaged			Machine starting parts must be automatically rejected	Visual	Each work order change and Start up/ Re-start up	Each work order change and Start up/ Re-start up	F-CAL-00.2-11 PROCESS CERTIFICATION FORM	Isolation per PR-CAL-01

8	First piece approval	Labels, drawings, specifications.	1	Part quality.			Visual defects review (flash, shorts, blocked holes, etc), that could be affect the fit form or function.	Visual	1 Shot	Each Set Up	WI-CAL-00.2 Quality Inspections F-CAL-00.2-7 & F-CAL-00.2-9 First piece approval. F-CAL-00.2-11Certificacion process sheet.	Adjust Process; Re-inspect per WI-CAL-00.2 Retest; Isolation per PR-CAL-01
			2	Dimensional releasing- Functional			Perform Dimensional on SQC Dimensions on the Part to Print (if required)	Calibrated Gages/ measurement equipment according SQC pack	1 Shot	At the start of the WO	WI-CAL-00.2 Quality Inspections F-CAL-00.2-7 & F-CAL-00.2-9 First Piece Release. SQC Pack, Drawing	Adjust Process; Re-inspect per WI-CAL-00.2 Retest; Isolation per PR-CAL-01
9	Molding	Injection machine	1	Part quality.	Inspection	Visual defects	Visual defects review (flash, shorts, blocked holes, etc), that could be affect the fit form or function.	Visual	1 Shot	Hour by hour 3 times per shift 1 each set up	Validation Record F-PRD-00.21-1, F-CAL-00.2-11Certification Process sheet, Visual aids. WI-PRD-00.24 Limpieza de molde con ICE Sonic	Adjunt process; re-inspect according WI-CAL-00.2 Recheck; Isolation per PR-CAL-01
10	Operators inspections	Injection machine	1	Part quality.			Visual defects review (flash, shorts, blocked holes, etc), that could be affect the fit form or function.	Visual	1 Shot	Each hour	F-PRD-00.21-1 Validation record, Work instructions.	Notify the supervisor Isolate according to PR-CAL-01
							"Check the operation of the mount and hitch, it should be free of cracks. "	Visual and functional	1 Shot	Each hour	F-PRD-00.21-1 Validation record, Work instructions.	Notify the supervisor Isolate according to PR-CAL-01
							Verify the date clock on the part (If apply)	Visual	1 Shot	Per setup	F-CAL-00.0-5 Start up check list	Notify the supervisor Isolate according to PR-CAL-01
		Components assembly	2				Validate the correct compnents assembly (If apply)	Visual and functional	1 Shot	Each hour	F-PRD-00.21-1 Validation record, Work instructions.	Notify the supervisor Isolate according to PR-CAL-01
11	Packaging	Scale	1		Scale Set up		Set the scale count for packaging.	Scale Verification and / or Hand Count	Each set up/ Twice per shift	Per shift	AV-PRD-01, AV-PRD-07 F-PRD-00.21-1 Validation record.	Notify the supervisor Isolate according to PR-CAL-01
		Skid	2		Packaging and put on the skid		Product packaging according to the quantities per box and skid.	Scale for review the quantity on the box.	Each set up / 2 times per shift	Per shift	According to the WI, Packaging Instructions and visual aids.	Notify the supervisor Isolate according to PR-CAL-01

		Water in Bag (If apply)	3	Amount of Water Added Per Bag			Requirement per the print / Part number Class	Automatic Water dispenser or manual water dispenser (graduated)	Each bag	Each bag	Per IO-PRD (part number) and equipment graduation.	Adjust Process/ Notify QA and Production Lead/Supervisor Recheck; Isolation per PR-CAL-01
		Sealer (If apply)	4	Proper Bag Seal			Bag Must Have a Complete and Un-Wrinkled Seal	Visual and Pull at Seams	Each bag	Each bag	Per IO-PRD (part number)	Adjust Process/ Notify QA and Production Lead/Supervisor Recheck; Isolation per PR-CAL-01
		Packaging Materials	5	Correct bag / Box / Tote and Labels			Verify packaging materials match the work order (WO number, part number, material, quantity, etc)	Visual to WO (BOM)	Each box	Each box	Work Order Sign Off F-PRD-00.21-1 Validation Record	Notify Material Handler, QA, and Production Lead/Supervisor Recheck; Isolation per PR-CAL-01
			6	Machine Scrap Mixing			Cleaning of scrap parts inside the machine **PSNC22-409**	Visual	Each Machine (If applicable)	4 times per turn	F-CAL-00.2-11 PROCESS CERTIFICATION FORM	Isolation per PR-CAL-01
			7	The initial scrap is packed			Machine starting parts must be automatically rejected	Visual	Each work order change and Start up/ Re-start up	Each work order change and Start up/ Re-start up	F-CAL-00.2-11 PROCESS CERTIFICATION FORM	Isolation per PR-CAL-01
12	Final Inspection	Injection Molding Machine	1	Date clock			Verify the date clock on the part (If apply)	Visual	1 box (According to the sampling table)	Per skid	WI-CAL-00.2 Quality Inspections F-CAL.00.2-1 Final inspections records	Isolate according to PR-CAL-01
			2	Part Quality			Check for visual defects (flash, shorts, mismatch, color, component missing, etc.) that can affect fit, form	Visual to print / work instructions / visual aids	1 box (according to sample size table)	Per skid	WI-CAL-00.2 Quality Inspections Final Inspection F-CAL.00.2-1	Recheck; Isolation per PR-CAL-01
		Part	3	Date Code on Part			Verify the correct date	Visual	1 box (according to sample size table)	Per skid	WI-CAL-00.2 Quality Inspections Final Inspection F-CAL.00.2-1	Recheck; Isolation per PR-CAL-01
		Packaging	4	Correct bags and box			Corrects packaging materials according to WO	Visual according to WO	1 Box	Per skid	WI-CAL-00.2 Inspecciones de Calidad F-CAL.00.2-1 Registro de Insp. Final	Isolate according to PR-CAL-01
		Scale / Manual counting.	5	Quantity on the box			Quantity on the box/ correct box according to the label.	Scale Verification and / or Hand Count (Use different scale)	1 check	Per skid	WI-CAL-00.2 Quality Inspections F-CAL.00.2-1 Final inspections records	Isolate according to PR-CAL-01
		Water in Bag & Seal properly	6	Part Quality			Check for visual defects that will affect fit, form, or function	Visual	1 box (according to sample size table)	per skid	WI-CAL-00.2 Quality Inspections F-CAL-00.2-7 & F-CAL-00.2-9 First	Recheck; Isolation PR-CAL-01
		Labels	7	Correct labels			Correct labels according to WO.	Visual according to the WO	all box	Per skid	WI-CAL-00.2 Quality Inspections F-CAL.00.2-1 Final inspections records	Isolate according to PR-CAL-01
13	Finish goods storage		1		Finish good is moved to the warehouse		All boxes identified with label and at least, one box per skid with Approval green label.	Visual	Each skid	Each skid	MRP System (JD Edwards EnterpriseOne)	Adjust process; Isolation PR-CAL-01 (when applicable)
14	Shipping		1		Move Parts to Shipping Dock, Ship Product to Warehouse		Per ERP System, Per Shipping Requirements	Visual	Each skid	Each shipment	MRP System(JD Edwards EnterpriseOne); Shipping Manifest	Notify to the supervisor
			2		Ship pieces to the customer		According to the customer requirements.	Visual	Each skid	Each shipment	MRP System (JD Edwards EnterpriseOne)	Notify to the supervisor
15	Annual validation		1	Items per Drawing			Dimensional inspection according printing	Calibrated gages/Per the dimensional study	1 shot	Yearly inspection according schedule	Gage Pack and Dimensional Study	Notify Production, Engineering, Tooling (as required); Isolation PR-CAL.01

HellermannTyton

Potential Failure Mode and Effects Analysis (Process FMEA)

FMEA Number: **FMEA-CAL-00.0-01**	Responsible Organization/Plant: **HellermannTyton MTY**	Organization Code: **NA**	Date (Orig.): **12-Apr-17**	Date & Revision: **28-Feb-22**
Part Number/Latest Change Level: **Clips/Mounts/Brackets/Various Materials**	Core Team: **Quality Assurance, Maintenance, Process, Materials, Production, Engineering**		Customer Part Number/Model Year(s)/Prograr **NA**	
Part Name/Description: **Clips/Mounts/Brackets/Various Materials**	Organization/Plant Approval/Date: **NA**		Customer Engineering Approval/Date (If Requ **NA**	
Key Contact/Phone: **Quality Assurance / (81) 2353 5642**	Other Approval/Date (If Required): **NA**		Customer Quality Approval/Date (If Required): **NA**	

Item & Function	Requirement	Potential Failure Mode	Potential Effect(s) of Failure	Severity	Class	Current Process: Potential Cause(s) of Failure	Occurrence	Current Process Controls P- Prevention D- Detection	Detection	RPN	Recommended Action	Responsibility & Target Completion Date	Action Results: Actions Taken Completion Date	Severity	Occurrence	Detection	RPN
1 Receiving	Receipt raw materials	Incorrect quantities received	Delay in manufacturing	2		Supplier shipped wrong quantities	2	D - Incoming receiving.	8	32	None						
						Wrong quantities entered to MRP	2	P - Work instruction; D - MRP system; Cycle counts	8	32	None						
		Damaged materials received (resin, bags, boxes, etc)	Delay/ Stop in manufacturing.	5		Supplier issue / Shipping/ Carrier damage	2	D - Incoming Receiving, Incoming Inspection	8	80	None						
		Material is incorrectly labeled	Delay in manufacturing	5		Supplier shipped with incorrect or missing label	2	D - Incoming receiving, Incoming inspection	7	70	None						
						Material is labeled with wrong date code	2	P - Date code calendar; work instruction	7	70	None						
2 Incoming Inspection	Stock of usable materials	Material characteristics and/or colorant does not meet specifications (if required)	Cannot manufacture good product	7		Supplier issues	2	P - Material certifications prior to arrival; Supplier PPAP D - Incoming Inspection	7	98	None						
		Incorrect Material Certification	Delay in Manufacturing	5		Supplier issue	2	D - Incoming Inspection P - Certs send by e-mail prior to Arrival	8	80	None						
3 Material Storage	Move and store usable materials	MRP and rack location for material do not match	Delay in shipment.	4		Typing error during the information capture.	2	P - Work instruction; D - MRP system; Cycle counts	8	64	None						
						Material placed on wrong side when is storage.	1	P - Work instruction; D - MRP system; Cycle counts	8	32	None						
		Materials not properly stored	Damage to finished goods/ Delay in shipment	4		Poor packaging conditions	3	P - Work instruction; D - MRP system; Cycle counts	8	96	None						
						Packing damage during the material handling	1	P - Work instruction; D - MRP system; Cycle counts	8	32	None						
4 Resin setup	Ensure correct resin for production	Incorrect material and/or colorant set up	Non-conforming product	7		Manual connection	2	P - Work Order Signature P - Permanent identification on the resin feeding tube	6	84	None						
		Material contamination	Non-conforming product	7		The process of purge is manual	2	D - Line clearance process and start up preparation D - Fist piece approval	6	84	None						
						Foreign material mixed	2	P - Work instruction and training P - Magnets in blenders and hoppers and maintainance of supply hoses. D - Line clearance process and start up preparation D - Fist piece approval	6	84	None						
		Incorrect dryer set up	Non-conforming product	7		The process to setup the temperature in the dryer is manual	2	P- Visual control D - Start up preparation D - Fist piece approval	7	98	None						

Item & Function	Requirement	Potential Failure Mode	Potential Effect(s) of Failure	Severity	Class	Current Process: Potential Cause(s) of Failure	Occurrence	Current Process Controls P- Prevention D- Detection	Detection	RPN	Recommended Action	Responsibility & Target Completion Date	Action Results: Actions Taken Completion Date	Severity	Occurrence	Detection	RPN
		Unacceptable moisture levels	Cosmetic and functional issues.	5		Mositure variations due to Lower/ Higher residence time on the Dryer.	2	P - Dryers; Dryer automated monitoring and alarm; materials planning. D - Process start up; 1st piece approval; certification process sheet, QA testing.	5	50	None						
						Falla de secadora y sopladores	3	P - Dryers preventive maintenance; D - Process start up; 1st piece approval	5	75	None						
						Falla en cálculo de capacidad	2	P - Materials planning, changeover master plan D - Process start up; 1st piece approval	5	50	None						
		Incorrect material ratio/Incorrect regrind	Cosmetic or Functional issues.	5		Wrong blender settings used	2	P - Part process sheet D - Process start up; 1st piece approval; certification process sheet	8	80	None						
						Wrong regrind type used	2	P - Part process sheet D - Process start up; 1st piece approval; certification process sheet	8	80	None						
		Incorrect colorant ratio	Breakage, cosmetic issues.	5		Wrong blender settings used	2	P - Work order D - Work Order Sign Off; Process start up; 1st piece inspection; process inspections	8	80	None						
5 Other materials supply		Incorrect packaging materials (bags, boxes, totes, labels, etc)	Delay in manufacturing.	4		Material handler chooses wrong packaging materials for the work order	2	P - Work instruction; work order; material ID and labels D - Work order sign off, Start up check list.	8	64	None						
6 Molding Machine Set Up	Ensure correct molding process for production	Incorrect conversion set up	Incorrect / Non-conforming product	7		The process to change the conversion is manual	2	P - Work order; tool ID tag, changeover master plan P - Visual aid, tool conversion table D - Work order sign off; 1st piece approval	7	98	None						
		Misaligned tool	Mismatch	4		The process to hang the tool is manual Bolts damaged	2	P - Tool preventive maintenance D - Process start up; 1st piece approval; process inspections	8	64	None						
		Incorrect parameters selected	Non conforming product	7		Manual selection	2	P - Work instruction D - Process start up, 1st piece approval; process inspections	7	98	None						
		Machine alarms not set to ON mode	Non conforming product	7		Manual selection	2	P - Work instruction D - Process start up, process inspections	7	98	None						
7 Line clearance and preparation for start up	Assure no mixing of materials and prepare for start of production	Components or parts mixing	Delay on the production run, build incorrect products.	5		Material from previous run not were returned prior to start the new production run.	2	P - Start up work instruction, WO start up record D - Start up check list, Certification process sheet.	7	70	None						
		Wrong materials vs the WO.	Delay on the production run, build incorrect products.	5		Material pulled from wrong location on the warehouse.	2	P - Start up work instruction, WO start up record D - Start up check list, Certification process sheet.	7	70	None						
		Start up scrap is packaged	Customer complaints, Supplier Scorecard affected.	4		Product packaged from reject parts.	4	P - Alarm on press; visual aids D - Process inspections; final inspections, certification process sheet Non conforming product procedue.	5	80	None						
8 First Piece Approval	Manufacturing a conforming part per specifications	Assembly issues with the mating part.	Delay in manufacturing, Produced parts scrapped.	5		Delay/ Release 1st pc not performed according to specifications.	2	P -Inspections work instruction, quality visual aid. D - Certification process sheet, final inspections, and use of Go No-Go (if applies).	8	80	None						

HellermannTyton

Item & Function	Requirement	Potential Failure Mode	Potential Effect(s) of Failure	Severity	Class	Current Process: Potential Cause(s) of Failure	Occurrence	Current Process Controls P- Prevention D- Detection	Detection	RPN	Recommended Action	Responsibility & Target Completion Date	Action Results: Actions Taken Completion Date	Severity	Occurrence	Detection	RPN
				5		First piece release lables not properly filled.	2	P -Inspections work instruction, quality visual aid. D - Certification process sheet, final inspections.	8	80	None						
				5		Testing/inspection performed incorrectly/Discrepancy not reported	2	P -Inspections work instruction, quality visual aid. D - Certification process sheet, final inspections.	8	80	None						
			Part Non-Compliance / Not Functional	7	SC	Inspection Not Performed by QA on SC Dimension (if required)	2	D/P - Dimensional inspection using calibrated gauges per part drawing, SQC pack.	5	70	None						
		Film hinge does not function properly and/or cracks (if required).	Part Non-Compliance	6		Bad Product not Found in Random Sampling	2	P - Process parameters according to process sheet. D - Visual Inspections D - Process Inspections, First piece inspection	6	72	None						
		Latch does not function/latch properly (if required)	Part Non-Compliance	6		Bad Product not Found in Random Sampling	2	P - Process parameters according to process sheet. D - Visual Inspections D - Certification process sheet, First piece inspection	6	72	None						
9 Modling		Shorts	Non functional parts - Cosmetics issues.	7		Insufficient injection pressure	2	P - Process sheet; preventive maintenance D - Process start up; 1st piece approval; Certification process sheet	5	70	None						
						Not fulfilling cavity	5	P - Process sheet; preventive maintenance. D - Process start up; 1st piece approval; Certification process sheet.	5	175	P - Ice Sonic (Cool Jet) Cleaning.	Jorge Gonzalez (August.30th.2021)	Implement Ice Sonic (Cool Jet) daily cleaning routines, once per shift	7	2	3	42
						Check valve damaged or blocked	2	P- Machine preventive maintenance P- Magnets in blenders and hoppers and hoses.	5	70	None						
		Bursts	Non-conforming product/Cosmetic issues	3		Material degraded	3	P- Process sheet P-Machine preventive maintenance D-Machine alarms	5	45	None						
						High moisture	4	P - Moisture testing; dryer; dryer automated monitor and alarm;material certs D - Process start up; 1st piece approval; process inspections	5	60	None						
		Flash	Functional/Cosmetic issues	6		Excessive injection pressure	2	P - Process sheet; preventive maintenance D - Process start up; 1st piece approval; process inspections	5	60	None						
						Tool seal wear	2	P - Process sheet; preventive maintenance D - Process start up; 1st piece approval; process inspections	7	84	None						
				5		Cycle interruptions	5	D - Process start up; 1st piece approval; process monitoring.	3	75	None						
				6		Material degraded	3	P- Process sheet P-Machine preventive maintenance D-Machine alarms	5	90	None						
				6		Low Clamp pressure on press	2	- Process sheet - Process start up; 1st piece approval; process inspections	6	72	None						

Item & Function	Requirement	Potential Failure Mode	Potential Effect(s) of Failure	Severity	Class	Current Process: Potential Cause(s) of Failure	Occurrence	Current Process Controls P- Prevention D- Detection	Detection	RPN	Recommended Action	Responsibility & Target Completion Date	Action Results: Actions Taken Completion Date	Severity	Occurrence	Detection	RPN
		Breakage	Functional issues.	7		High moisture	2	P - Process sheet;mositure test. D - Process start up; 1st piece approval, certification process sheet.	5	70	None						
						Poor/lack of vents	3	P-Tool evaluation; process sheet; tool preventive maintenance P- Cold jet cleanliness D- Process inspections ;Process start up; 1st piece approval	4	84	None						
						Material degraded	2	P- Process sheet P-Machine preventive maintenance D-Machine alarms	5	70	None						
						Barrel heat malfunction	2	P - Preventive maintenance D - Process start up; 1st piece approval; process inspections	6	84	None						
		Mismatch	Visual issue	4		The process to hang the tool is manual/Tool wear, Torque is lower than the specified.	2	P - Work instruction; preventive/ Precautory maintenance, change over check list. D - Process start up; 1st piece approval, certification process sheet.	8	64	None						
						Leader pin/sidelock wear	2	P - Work instruction; preventive/ Precautory maintenance, change over check list. D - Process start up; 1st piece approval, certification process sheet.	5	40	None						
		Deep ejector pins	Visual or Functional issue	7		Excessive hold pressure	2	D - Process start up; 1st piece approval; Certification process sheet	5	70	None						
				5		Thermolator malfunction	2	P - Process sheet; preventive maintenance D - Process start up; 1st piece approval; Certification process sheet	5	50	None						
				5		Cycle time too fast	2	P - Process sheet D - Process start up; 1st piece approval; Certification process sheet	5	50	None						
		Plugged sprue tips/gates (hot manifold/valve-gated)	Unbalanced fill	8		Material contamination	2	P - Magnets in blenders and hoppers; melt filters on nozzle D - Process start up; 1st piece approval; Certification process sheet	5	80	None						
						Mold heater malfunction	2	P - Process sheet; preventive maintenance D - Process start up; 1st piece approval; Certification process sheet	5	80	None						
						Valve gate malfunction	2	P - Process sheet; preventive maintenance D - Process start up; 1st piece approval; Certification process sheet	5	80	None						
		Elongated Sprues	Missing pawls/Non-conforming product	6		Inadequate cooling	2	P - Process sheet; preventive maintenance D - Process start up; 1st piece approval; Certification process sheet	6	72	None						

HellermannTyton

Item & Function	Requirement	Potential Failure Mode	Potential Effect(s) of Failure	Severity	Class	Current Process: Potential Cause(s) of Failure	Occurrence	Current Process Controls P- Prevention D- Detection	Detection	RPN	Recommended Action	Responsibility & Target Completion Date	Action Results: Actions Taken Completion Date	Severity	Occurrence	Detection	RPN
		Missing retainer tab (if present)	Non-conforming product	5		Thermolator malfunction	2	P - Process sheet; preventive maintenance D - Process start up; 1st piece approval; Certification process sheet	5	50	None						
						Cycle time too fast	2	P - Process sheet; preventive maintenance D - Process start up; 1st piece approval; Certification process sheet	6	60	None						
						Worn/broken inserts	3	P - Process sheet; preventive maintenance D - Process start up; 1st piece approval; Certification process sheet	5	75	None						
						Washed out vents	2	P - Process sheet; preventive maintenance D - Process start up; 1st piece approval; Certification process sheet	8	80	None						
		Blocked through holes/windows	Non-conforming product	6		Incorrect fit/broken ejector pin or blade	3	P - Process sheet; preventive maintenance D - Process start up; 1st piece approval; Certification process sheet	5	90	None						
		Sinks	Non-conforming product	6		Insufficient hold pressure	2	P - Process sheet; preventive maintenance D - Process start up; 1st piece approval; Certification process sheet	8	96	None						
						Cycle time too fast	2	P - Process sheet; preventive maintenance D - Process start up; 1st piece approval; Certification process sheet	8	96	None						
		Burnt tips	Non-conforming/Cosmetic issues	4		Plugged/Worn vents	3	P - Process sheet; preventive maintenance D - Process start up; 1st piece approval; Certification process sheet	8	96	None						
		Sticking in the mold	Mold damage/part damage	5		Excessive mold temps	2	P - Process sheet; preventive maintenance D - Process start up; 1st piece approval; Certification process sheet	5	50	None						
						Excessive hold pressure	2	P - Process sheet; preventive maintenance D - Process start up; 1st piece approval; Certification process sheet	6	60	None						
						Residue build-up	2	P - Process sheet; preventive maintenance D - Process start up; 1st piece approval; Certification process sheet	7	70	None						
						Mold heater malfunction	2	P - Process sheet; preventive maintenance D - Process start up; 1st piece approval; Certification process sheet	7	70	None						
10 Operator Inspections	Perform checks to ensure a conforming part per specifications	Pass non-conforming product	Customer dissatisfaction	6		Delay/failure to conduct inspections	2	P - Work instruction; Validation Record	8	96	None						

Item & Function	Requirement	Potential Failure Mode	Potential Effect(s) of Failure	Severity	Class	Current Process: Potential Cause(s) of Failure	Occurrence	Current Process Controls P- Prevention D- Detection	Detection	RPN	Recommended Action	Responsibility & Target Completion Date	Action Results: Actions Taken Completion Date	Severity	Occurrence	Detection	RPN
				6		Hinge crackings	2	D - Process inspections; final inspections;	8	96	None						
				6		Inspection performed incorrectly / Discrepancy not reported	3	P - Work instruction; Validation Record	5	90	None						
				6		Non-conformances not found in random sampling	2	P - Work instruction; Validation Record	7	84	None						
				6		Incorrect assembly components >bushing not properly seated .	2	D - Process inspections; final inspections	7	84	None						
11 Packaging	Conforming product is packaged according to work order requirements	Non-conforming product is packaged (Bulk pack)	Customer complaints, Supplier Scorecard affected.	6		Process control parameters out of range, process monitoring turned off.	4	P - Alarm on press; process sheet. D - Alarm on press; Certification process sheet; final inspections;	4	96	None						
		Start up scrap is packaged (Bulk pack)	Customer complaints, Supplier Scorecard affected.	4		Conveyor do not reject first shots	3	P - Alarm on press; visual aids D - Process inspections; final inspections, certification process sheet Non conforming product procedue.	5	60	None						
		Mixed parts packaged (Bulk pack)	Customer complaints, Supplier Scorecard affected.	4		Product from previous work order packaged	3	P - Line clean up before start up D - Process inspections; start up check list, certification proces sheet, final inspections	8	96	None						
11 Packaging			Customer complaints, Supplier Scorecard affected.	4		Damaged parts trapped inside the machine mixed as OK.	3	P - Machine cleaning during production D - Process inspections; certification process sheet.	8	96	Implementation of cleaning machine parts.	Jorge Gonzalez (Feb 21.2022)	Implementation in the routine 2 times per shift	7	2	3	42
		Incorrect quantities are packaged (Bulk pack)	Customer complaints, Supplier Scorecard affected, Delay/ Stop the customer manufacturing.	3		Improper scale set up	3	P - Operator Work instruction, validation record. D - Work order sign off; certification process sheet; final inspections	8	72	None						
				3		Scale out of calibration	2	P - Operator Work instruction, validation record. D - Certification process sheet; final inspections	8	48	None						
				3		Improper scale used.	3	P - Operator Work instruction, validation record. D - Certification process sheet; final inspections	8	72	None						
		Wrong labels/Missing labels/Bad placement (Bulk pack)	Customer complaints, Supplier Scorecard affected, Delay/ Stop the customer manufacturing.	3		Inccorrect work order set up in label print system	2	P - Work order sign off, Start up check list. D - Work order sign off; certification process sheet; final inspections	8	48	None						
				3		Labels from previous work order continue active on the work station.	3	P - Work order sign off, Start up check list. D - Work order sign off; certification process sheet; final inspections	8	72	None						
				3		Operator forgets to apply label/puts it in the wrong location	3	P - Work instruction D - Process inspections; final inspections	8	72	None						
		Wrong packaging material used (Bulk pack)	Customer complaints, Supplier Scorecard affected, Delay/ Stop the customer manufacturing.	3		Operator does not use materials provided by material handler	3	P - Work order sign off : Work instruction D - Process inspections; final inspections	8	72	None						

Item & Function	Requirement	Potential Failure Mode	Potential Effect(s) of Failure	Severity	Class	Current Process: Potential Cause(s) of Failure	Occurrence	Current Process Controls P- Prevention D- Detection	Detection	RPN	Recommended Action	Responsibility & Target Completion Date	Action Results: Actions Taken Completion Date	Severity	Occurrence	Detection	RPN
		Wrong packaging material used (individual pack)	Customer complaints, Supplier Scorecard affected, Delay/ Stop the customer manufacturing.	3		Operator does not use materials provided by material handler	3	P - Work order sign off : Work instruction D - Process inspections; final inspections	8	72	None						
		Wrong labels used on the individual package. (Indivisual Pack)	Customer complaints, Supplier Scorecard affected, Delay/ Stop the customer manufacturing.	5		Wrong labels provided from the planning area.	3	P - Work order sign off : Work instruction, production planning. D - Process inspections; final inspections, start up check list, certification process sheet.	6	90	None						
				5		Wrong information printed on the label.	3	P - Work order sign off : Work instruction, Oportunix System. D - Process inspections; final inspections, start up check list, certification process sheet.	6	90	None						
		Missing label.	Customer complaints, Supplier Scorecard affected, Delay/ Stop the customer manufacturing.	5		Lack of lables during the production run.	3	P - Work order sign off : Work instruction, Oportunix System. D - Process inspections; final inspections, start up check list, certification process sheet.	6	90	None						

HellermannTyton

Item & Function	Requirement	Potential Failure Mode	Potential Effect(s) of Failure	Severity	Class	Current Process: Potential Cause(s) of Failure	Occurrence	Current Process Controls P- Prevention D- Detection	Detection	RPN	Recommended Action	Responsibility & Target Completion Date	Action Results: Actions Taken Completion Date	Severity	Occurrence	Detection	RPN
		Lack of water application. (Individual - Bulk pack)	Broken pieces, not acceptable for use.	6		Not following the work instruction.	3	P - Work instruction, atomatic dispenser, start up check list D - In process inspections, certification process sheet.	5	90	None						
		Bags incorrectly sealed. (individual pack)	Broken pieces, not acceptable for use.	5		Incorrect use of the seal machine.	3	P - Work instruction, start up check list, training. D - First piece approval, in process inspections, certification process sheet.	5	75	None						
				5		Seal machine with damage on the seals covers.	3	P - Preventive maintenace, start up check list. D - First piece approval, in process inspections, certification process sheet.	5	75	None						
12 Final Inspection	Perform checks to ensure product and process quality	Inspections not performed according to Inspection instruction.	Pass non-conforming product	5		Delay/failure to conduct inspections	3	P - Work instruction; Final inspection record D - Process inspections; final inspections;	6	90	None						
				5		Delay on the material shipments	3	P - Work instruction; Final inspection record D - Process inspections; final inspections, JDE System.	6	90	None						
				5		Inspection performed incorrectly/Discrepancy not reported	3	P - Work instruction; Validation Record D - Process inspections; final inspections	5	75	None						
				5		Non-conformances not found in random sampling	3	P - Inspection frequency D - Process inspections; final inspections	6	90	None						
13 Finished Goods Storage	Move and store conforming finished goods until shipment	MRP and rack location for material do not match	Delay in shipment.	4		Error during the information capture.	2	P - Work instruction; D - MRP system; Cycle counts	8	64	None						
						Material placed on wrong side when is storage.	2	P - Work instruction; D - MRP system; Cycle counts	8	64	None						
		MRP and rack location quantity for material do not match	Delay in shipment.	4		Error during the information capture.	2	P - Work instruction; D - MRP system; Cycle counts	8	64	None						
		Materials not properly stored	Damage to finished goods/ Delay in shipment	4		Poor packaging conditions	2	P - Work instruction; D - MRP system; Cycle counts	8	64	None						
						Packing damage during the material handling	2	P - Work instruction; D - MRP system; Cycle counts	8	64	None						
14 Shipping	Ship per customer requirements	Product is not shipped per requirements	Delay/ Stop the customer manufacture	3		Incorrect product is picked	3	P/D - SO, shipping paperwork	6	54	None						
						Wrong quantities are picked	3	P/D - SO; MRP system; ; work instruction; shipping paperwork	6	54	None						
						Wrong or missing identification/paperwork	3	P/D - SO; MRP system; ; work instruction; shipping paperwork	6	54	None						
		Product is shipped late	Delay/ Stop the customer manufacture	3		Stock issues	3	P - Planning; forecast D - MRP system	6	54	None						
						Delay in picking and shipping	3	P - Planning; forecast D - SO; MRP system	6	54	None						
15 Annual validation	Perform testing and inspection to ensure product and process quality	Pass non-conforming product	Customer dissatisfaction	6		Inspection performed incorrectly/Discrepancy not reported	2	P - Work instruction; Gage pack D - Gage pack	8	96	None						

Supplier Quality Certificate

CERTIFICATE OF REGISTRATION

This is to certify that

Ascend Performance Materials Operations LLC

Nylon Resins
3000 Old Chemstrand Rd., Cantonment, Florida, 32533-8926, USA

operates a

Quality Management System

which complies with the requirements of

IATF 16949:2016 - FIRST EDITION

for the following scope of certification

The design and manufacture of Ascend and Vydyne Nylon Resins for extrusion, molding and fiber applications.

Certificate No.: 001361-1 Issue Date: March 3, 2021
IATF Database No.: 0388282 Expiry Date: March 2, 2024 Page 1 of 1

Frank Camasta
Global Head of Technical Services
SAI Global Assurance

Dusan Nikolic
Automotive Technical Manager
Global Scheme Owner

Certified System
IATF 16949