

Part Submission Warrant

Part Name	T50SOSKSFT6.5S2-E	Cust. Part Number	DU5T-14E047-EA	/	DU5T-14E047-EA
Shown on Drawing No.	DU5T-14E047-EA	Org. Part Number	126-00086		
Engineering Change Level	AELE-E-11789584	Dated	05.04.2013		
Additional Engineering Changes	n/a	Dated	n/a		
Safety and/or Government Regulation	☐ Yes ☒ No	Purchase Order No.	126-00086	Weight (kg)	0,0015
Checking Aid No.	n/a	Checking Aid Engineering Change Level	n/a	Dated	n/a

ORGANIZATION MANUFACTURING INFORMATION

HellermannTyton GmbH **DUNS: 315430892**

Organization Name & Supplier/Vendor Code

Großer Moorweg 45

Street Address

Tornesch

City

Region

25436

Postal Code

Germany

Country

CUSTOMER SUBMITTAL INFORMATION

Nursan Kablo Donanimlari

Customer Name/Division

(**30471**)

Erdem Ula

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:

ID: **107526090**

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

injection moulding / serial mold

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 **150000** pcs / **24** 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:

Is each Customer Tool properly tagged and numbered?

☐ Yes ☐ No ☒ n/a

Organization Authorized Signature

i.A.

i.A.

Date

12-May-17

Print Name **i.A. O. Pracht**

/

i.A. A. Kalkowski

Assistant Doc. QD

+49 (0) 4122 701 330

Fax No.

+49 4122 701 241

Title **PRQM**

E-mail

O.Pracht@HellermannTyton.de

FOR CUSTOMER USE ONLY (IF APPLICABLE)

PPAP Warrant Disposition: ☐ Approved ☐ Rejected ☐ Other

Customer Signature

Date

Print Name

Customer Tracking Number (optional)

HellermannTyton
Internal PB-No.: **30370**

[illegible]

<u>SIGNATURE</u>	<u>TITLE</u>	<u>DATE</u>
 i.A. A. Kalkowski	Assistant Doc. QD	
 i.A. O. Pracht	PRQM	12-May-17

P-FMEA	A-00	Project- No GPN / NT Nr.	variable	Revision date Überarbeitungsdatum	07.03.2017
Group Assignment Produkt Gruppe	fastening elements (Befestigungselement)	Installation location Verbauort des Bauteils		Revision by Überarbeitet durch:	M. Michel
Part No Artikel Nr.	variable	Drawing number Zeichnung Nr.	variable	Review Date Überprüfungsdatum	07.03.2018
Part Description Artikel Bezeichnung	variable	Ind. Of Drwg. /date Zg. Index / Datum	variable	Reviewed by Überprüft durch	M. Michel
Core Team FMEA Team	M.Michel Prod., O.Pracht QS, H.Spieß PE, S.Behrend NT-PM				
Process Responsibility Prozessverantwortung bei	HT-Tornesch	Version of FMEA Version der FMEA	8	FMEA is electronic generatet and administratet. No Signature required. Diese FMEA ist elektronisch erstellt und verwaltet. Gültig ohne Unterschrift.	
Prepared by Erstellt von	Marco Michel	Original Issue Date Erstausgabe Datum	19.05.2010		

Feature / System / Process Merkmal / System / Prozess	location	Potential failure Potentieller Fehler	Potential consequences of failure Potentielle Folgen des Fehlers	D	Potential cause Potentielle Fehlerursache	Preventive and test measures Verhütungs- und Prüfmaßnahmen	Current status Derzeitiger Zustand				Recommended rectifying measures Empfohlene Abstellmaßnahmen	Responsible Verantwortlich Date / Datum	improved stage Verbesserter Zustand			
							A	B	E	RPZ			A	B	E	RPZ
Resin	H T	no stocks	unable to start manufacture	N	poor stock control	P: bag stock on consignment	2	8	1	16						0
Goods Inwards	H T	incorrect goods	use wrong material	N	Supplier error	T: Goods in check	2	8	3	48						0
	H T	incorrect moisture content	cant't process	N	Supplier error	P: Certificate of analysis	3	5	4	60						0
	H T	incorrect quantity	half production	N		P: Advised in advance	2	6	1	12						0
	H T	incorrect coating	no funktion of the part	N	bad delivery resupply	P: certification report form supplier	2	6	7	84						0
Resin Stores	H T	incorrect material issued	delayed production	N	Stores error	P: Production verify delivery	5	3	3	45						0
Injection moulding	H T	part not fully moulded or flash on part	functional degradation	N	improper moulding parameters	P: visual check FSK-pos.1,2,3 Individual testing according FSK	3	3	7	63						0

					Current status Derzeitiger Zustand							improved stage Verbesserter Zustand					
Feature / System / Process Merkmal / System / Prozess	location	Potential failure Potentieller Fehler	Potential consequences of failure Potentielle Folgen des Fehlers	D	Potential cause Potentielle Fehlerursache	Preventive and test measures Verhütungs- und Prüfmaßnahmen	A	B	E	RPZ	Recommended rectifying measures Empfohlene Abstellmaßnahmen	Responsible Verantwortlich Date / Datum	Implemented measures Getroffene Maßnahmen	A	B	E	RPZ
	H T	mould misalignment	heavy handling/ processing	N	improper sliding bolt	Visual check FSK-pos.4 Individual testing according FSK	2	3	7	42							0
	H T	flowing lines	optical degradation	N	improper mould parameters improper mould temperature	P: Visual inspection FSK-pos.5	3	1	7	21							0
	H T	burnings	optical degradation	N	improper mould venting	P: visual check FSK-pos.6	4	5	7	140	24 hours test, to put ejectors, ventilation improved	Technical Center , Mr.Bösel , 01.04.2015	Expansion check list =continuous	2	5	7	70
	H T		optical degradation	N	improper moulding parameters	P: Rules I manufacturing instructions T: visual check by manufacturing control	4	5	7	140	To re-use saved last injection parameter	Production Mr.Rust 15.04.2015	continuous	2	5	7	70
	H T	mould misalignment	functional degradation	N	wear of mould	P: maintance of mould T: functional check by manufacturing control	2	7	7	98							0
	H T		optical degradation	N	insufficient mould venting, improper moulding parameters	P: maintenance of mould, manufacturing instruction T: visual check by manufacturing control	2	2	2	8							0
	H T	contamination	optical degradation	N	machine and accessories not clean enough	P: visual check FSK-pos.7	4	2	7	56							0

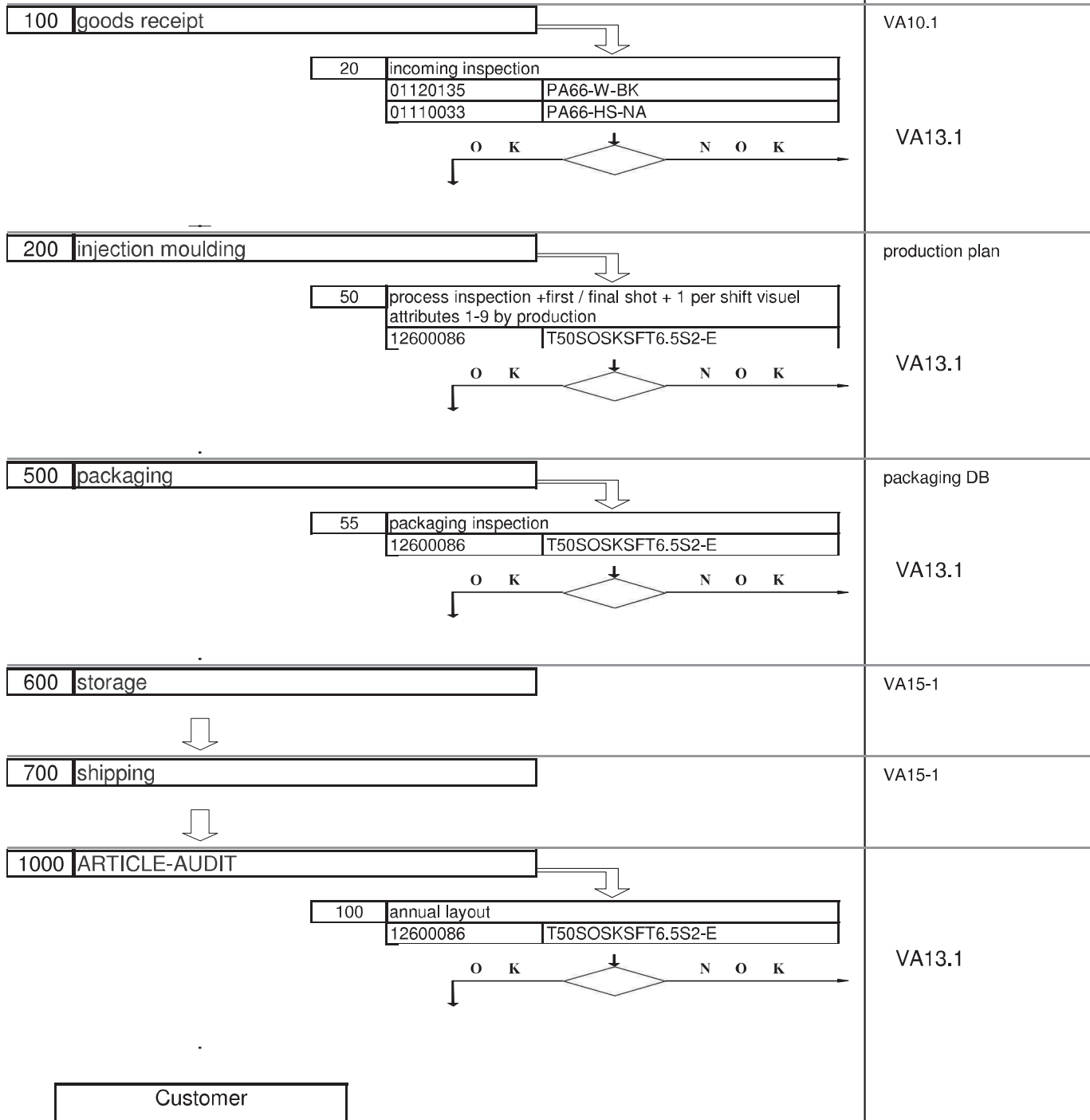
					Current status Derzeitiger Zustand							improved stage Verbesserter Zustand					
Feature / System / Process Merkmal / System / Prozess	location	Potential failure Potentieller Fehler	Potential consequences of failure Potentielle Folgen des Fehlers	D	Potential cause Potentielle Fehlerursache	Preventive and test measures Verhütungs- und Prüfmaßnahmen	A	B	E	RPZ	Recommended rectifying measures Empfohlene Abstellmaßnahmen	Responsible Verantwortlich Date / Datum	Implemented measures Getroffene Maßnahmen	A	B	E	RPZ
	H T	contamination	increased sensitiveness to break	N	material contamination	P: visual check FSK-pos.7 Individual testing according FSK	3	6	5	90							0
	H T			N	optical degradation	P: Visual inspection FSK-pos.5	4	2	7	56							0
	H T			N	thermal damage	P: visual check FSK-pos.7 Individual testing according FSK	3	7	7	147	Working instruction after start/stop, to observe parameter on the machine	Production Mr.Rust 30.03.2015	training for employees				0
	H T			N	Insufficient running reserve at material change	P: visual check FSK-pos.7 Individual testing according FSK	3	6	5	90							0
	H T	deformation	optical and functional degradation	N	defective production equipment	P: visual check FSK-pos.9	3	3	6	54							0
	H T	mixed parts caused by various tool insert	missing/ wrong parts at customer side	N	malfunction of handling or robot	P: visual check	2	6	6	72							0
allocation	H T	improper quantity of water	insufficient mechanical features	N	improper dosing equipment	P: measuring test of the dosing quantity FSK-pos.14,15	2	3	8	48							0
	H T	improper welding seam	open bags, improper moisture content	N	incorrect adjustment of the equipment, heating device defective	P: visual and mechanical check FSK-pos.16	3	3	6	54							0
	H T	improper printing/ bag stamp	goods wrongly identified	N	defective or incorrectly adjusted stamps, wrong bags or labels	T: visual check FSK-pos.17	3	5	4	60							0

					Current status Derzeitiger Zustand							improved stage Verbesserter Zustand					
Feature / System / Process Merkmal / System / Prozess	location	Potential failure Potentieller Fehler	Potential consequences of failure Potentielle Folgen des Fehlers	D	Potential cause Potentielle Fehlerursache	Preventive and test measures Verhütungs- und Prüfmaßnahmen	A	B	E	RPZ	Recommended rectifying measures Empfohlene Abstellmaßnahmen	Responsible Verantwortlich Date / Datum	Implemented measures Getroffene Maßnahmen	A	B	E	RPZ
	H T	incorrect number of pcs.	delivery of short or excess quantities	N	improper counting device	T: quantity check FSK-pos.18	3	3	4	36							0
	H T	mixed parts	missing /wrong parts at customer side	N	human error	T : visual checks, training,rotating articles,production card, FSK-pos.45	2	5	8	80							0
		transport damage	chain termination	N	incorrect storage in carton	T : visual check	5	9	2	90	the reel is perpendicular packed in carton	packing department	during the test procedure	3	9	2	54
Storing goods	H T	no storage	no delivery to customer	N	incorrect master-data	T : crosscheck data	6	8	2	96							0
commissioning	H T	incorrect charge carrier	wrong parts to customer	N	insufficient charge carrier	L : Logistic verify charge carrier	3	2	1	6							0
	H T	ncorrect charge carrier	wrong parts to customer	N	human error	L : Logistic verify charge carrier	3	2	1	6							0
	H T	no storage	no delivery	N	damaged packing	L : visual check / repacking	2	4	1	8							0
Shipping goods	H T	wrong VDA label	missing /wrong parts at customer side	N	human error	L : crosscheck shipment / daily shipping audits	2	6	8	96							0

CONTROL PLAN

Control Plan No 12600086				Key Contact / Phone +49 4122 701 272		Date reviewed		Date rev. 22.08.2016		
Part No / latest changelev 12600086		project: 070542		Core Team		Customer Engineering Approval / date				
Part name/Description T50SOSKSF T6.5S2-E				PGroup: 200		Customer Quality Approval / Date				
Supplier Plant Tornesch				other approval date / Drawing		142309		other Approval / Date		
Part / Prozess No	Prozess name / Operation description	Mac hine /	No / Product / Prozess Characteristics	SC	Part / Prozess Specification / Tolerance	Sample Size	Frequenz	Evaluation / Measurement Technique Control Method	Reaction Plan	
20	Incoming inspection									VA13.1
01110033	PA66-HS-NA		302-0 COC residual moisture			1 bag	1 delivery	410000 manual / visual		
01120135	PA66-W-BK		301-0 COC viscosity		125 - 155 ml/g	1 bag	1 delivery	410000 manual / visual		
			302-0 COC residual moisture		max 0,15 %	1 bag	1 delivery	410000 manual / visual		
50	process inspection +first / final shot + 1 per shift visual attributes 1-9 by production									VA13.1
12600086	T50SOSKSF T6.5S2-E		1-0 sink marks			1 shot	1 day	502015 Master Samples, visual		
			2-0 shortage			1 shot	1 day	502015 Master Samples, visual		
			3-0 Flashes			1 shot	1 day	502015 Master Samples, visual		
			4-0 mould mis alignment			1 shot	1 day	502015 Master Samples, visual		
			5-0 moulding lines			1 shot	1 day	502015 Master Samples, visual		
			6-0 burnings			1 shot	1 day	502015 Master Samples, visual		
			7-0 dirt			1 shot	1 day	502015 Master Samples, visual		
			8-0 deformation			1 shot	1 day	502015 Master Samples, visual		
			9-0 inclusions			1 shot	1 day	502015 Master Samples, visual		
			10-0 insertion			1 shot	1 day	502015 Master Samples, visual		
			11-0 slip back			1 shot	1 day	410000 manual / visual		
			12-0 pawl			1 shot	1 day	410000 manual / visual		
			65-0 shot weight			1 shot	1 day	20000 balance		
			66-0 brittleness spring cup			1 shot	1 day	80077 check gauge		
55	packaging inspection									VA13.1
12600086	T50SOSKSF T6.5S2-E		14-0 water dosing			1 bag	1 start off	270000 measuring cylinder		
			16-0 bag sealing			1 bag	1 start off	410000 manual / visual		
			17-0 label			1 bag	1 start off	420000 sample / visual		
			18-0 quantity			1 bag	1 start off	430000 scale counter / manual		
			45-0 mixed parts in pack unit			1 bag	1 start off	410000 manual / visual		
100	annual layout									VA13.1
12600086	T50SOSKSF T6.5S2-E		1200-0 requalification / product audit acc. DRW-spec incl. packaging (1 part-No for mentioned part group)			1 shot	acc. AUDIT			

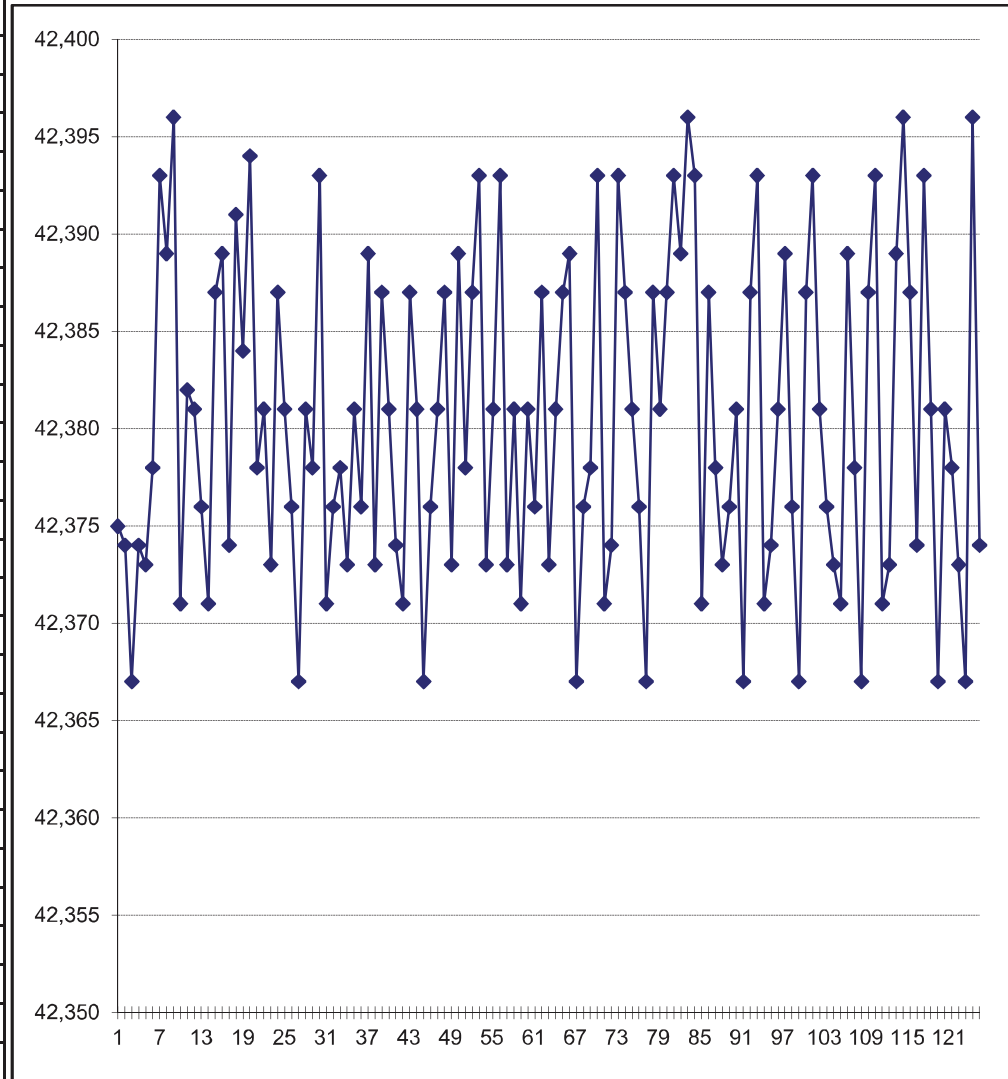
PFC-No: 12600086	Process Flow Chart	HellermannTyton
REV: 14.01.2014		
reviewed: GPN: 070542	T50SOSKSFT6.5S2-E	part-no: 12600086 drw-no: 142309
PROCESS	CONTROLS	PROCEDURE



Artikel: T50SOSKSFT6,5S2-E

NT-Nr.: 07-0542

NR	Gewicht (g)
1	42,375
2	42,374
3	42,367
4	42,374
5	42,373
6	42,378
7	42,393
8	42,389
9	42,396
10	42,371
11	42,382
12	42,381
13	42,376
14	42,371
15	42,387
16	42,389
17	42,374
18	42,391
19	42,384
20	42,394
21	42,378
22	42,381
23	42,373
24	42,387
25	42,381
26	42,376
27	42,367
28	42,381
29	42,378
30	42,393
31	42,371
32	42,376
33	42,378
34	42,373
35	42,381
36	42,376
37	42,389
38	42,373
39	42,387
40	42,381
41	42,374
42	42,371
43	42,387



erlaubte Abweichung (+/-) **5** [‰]

max	42,3960
min	42,3670
R	0,0290
S	0,0082
X/	42,3805
UT	42,1686
OT	42,5924
zulässig +/-	0,2119

44	42,381
45	42,367
46	42,376
47	42,381
48	42,387
49	42,373
50	42,389
51	42,378
52	42,387
53	42,393
54	42,373
55	42,381
56	42,393
57	42,373
58	42,381
59	42,371
60	42,381
61	42,376
62	42,387
63	42,373
64	42,381
65	42,387
66	42,389
67	42,367
68	42,376
69	42,378
70	42,393
71	42,371
72	42,374
73	42,393
74	42,387
75	42,381
76	42,376
77	42,367
78	42,387
79	42,381
80	42,387
81	42,393
82	42,389
83	42,396
84	42,393
85	42,371
86	42,387
87	42,378
88	42,373
89	42,376
90	42,381
91	42,367
92	42,387

ppk 8,62

(Vorgabe: ≥ 1.67)

93	42,393
94	42,371
95	42,374
96	42,381
97	42,389
98	42,376
99	42,367
100	42,387
101	42,393
102	42,381
103	42,376
104	42,373
105	42,371
106	42,389
107	42,378
108	42,367
109	42,387
110	42,393
111	42,371
112	42,373
113	42,389
114	42,396
115	42,387
116	42,374
117	42,393
118	42,381
119	42,367
120	42,381
121	42,378
122	42,373
123	42,367
124	42,396
125	42,374

REPEATABILITY AND REPRODUCIBILITY ANALYSIS REPORT

acc. to MSA 4th Edition

NON DESTRUCTIVE TEST

Specimen : Part. No. : Characteristic : Tolerance :	Plastic reference part (GPN 01-806) 157-00016 Shot weight (±3,5‰) 0,01374 Units gramm	Gage type : Gage number : performed by: Name: Katarzyna Tomaszewska Signature: <i>Katarzyna Tomaszewska</i>	Weight scale (range:0,001-10g) PS 210.R21 approved by: Michał Krysztołowicz <i>Krysztołowicz</i>	Plant : Date : 2016-10-27							
# of operators:	3	# of trials:	3	# of parts:	10						
OPERATOR	A: Katarzyna Tomaszewska	B: Krystian Opielski	C: Marta Maluszevska								
TRIAL #	P A R T										RESULTS
	1	2	3	4	5	6	7	8	9	10	AVG
A 1	1,961	1,960	1,955	1,961	1,959	1,959	1,965	1,971	1,976	1,954	A ₁
2	1,961	1,959	1,955	1,961	1,959	1,959	1,965	1,971	1,976	1,954	A ₂
3	1,961	1,960	1,955	1,961	1,959	1,959	1,965	1,972	1,976	1,954	A ₃
Average	1,961	1,960	1,955	1,961	1,959	1,959	1,965	1,971	1,976	1,954	X _A 1,9621
Range	0,000	0,001	0,000	0,000	0,000	0,000	0,000	0,001	0,000	0,000	R _A 0,0002
B 1	1,962	1,960	1,955	1,962	1,959	1,959	1,965	1,970	1,976	1,954	B ₁
2	1,962	1,960	1,955	1,962	1,959	1,959	1,965	1,970	1,976	1,954	B ₂
3	1,962	1,959	1,955	1,962	1,959	1,959	1,965	1,970	1,976	1,954	B ₃
Average	1,962	1,960	1,955	1,962	1,959	1,959	1,965	1,970	1,976	1,954	X _B 1,9622
Range	0,000	0,001	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	R _B 0,0001
C 1	1,961	1,960	1,956	1,962	1,959	1,960	1,966	1,971	1,976	1,954	C ₁
2	1,961	1,960	1,956	1,962	1,959	1,960	1,965	1,971	1,976	1,954	C ₂
3	1,961	1,960	1,956	1,962	1,959	1,960	1,966	1,971	1,976	1,954	C ₃
Average	1,961	1,960	1,956	1,962	1,959	1,960	1,966	1,971	1,976	1,954	X _C 1,9625
Range	0,000	0,000	0,000	0,000	0,000	0,000	0,001	0,000	0,000	0,000	R _C 0,0001
PART	1,9613	1,9598	1,9553	1,9617	1,9590	1,9593	1,9652	1,9708	1,9760	1,9540	R _{PART} = 0,0220
R = R _A + R _B + R _C / No of operators : 0,0002 + 0,0001 + 0,0001 / 3											R = 0,0001
X _{DIFF} = [Max (X) _{ABC}] - [Min (X) _{ABC}] = 1,9625 - 1,9621											X _{DIFF} = 0,0004
UCL _R = R * D ₄ = 0,0001 * 2,58											UCL _R = 0,0003
D ₄ = 3,27 for 2 trials 2,58 for 3 trials											
Measurement Unit Analysis							Total Variation Method		Tolerance Method		
Repeatability : Equipment Variation (EV)											
EV = R * K ₁							Trials		K ₁		
EV = 0,0001							3		0,5908		
							% EV = 100[EV/TV]		% EV = 100[EV/(tol/6)]		
							% EV = 1,14		% EV = 3,44		
Reproducibility : Appraiser Variation (AV)							(n parts, r trials)				
AV = [(X _{DIFF} * K ₂) ² - (EV ² / nr)] ^{1/2}							Oper		K ₂		
AV = 0,0002							3		0,5231		
							% AV = 100[AV/TV]		% AV = 100[AV/(tol/6)]		
							% AV = 2,76		% AV = 8,35		
Repeatability & Reproducibility (GRR)											
GRR = (EV ² + AV ²) ^{1/2}							%GRR=100[GRR/TV]		%GRR=100[GRR/(tol/6)]		
GRR = 0,0002							%GRR = 2,99		%GRR= 9,04		
Part Variation (PV)											
PV = R _{PART} * K ₃							Parts		K ₃		
PV = 0,0069							10		0,3146		
							% PV = 100[PV/TV]				
							% PV = 99,96				
Total Variation (TV)							CONCLUSION: Gage system is satisfactory.				
TV = (GRR ² + PV ²) ^{1/2}											
TV = 0,0069											
Number of Distinct Categories (ndc)											
ndc = 1.41(PV / GRR)											
ndc = 47,1786											
- Under 10% error Gage system is satisfactory. - 10% to 30% error May be acceptable based upon importance of application, cost of gage, cost of repairs, etc. - Over 30% error Gage system is not satisfactory. Identify the causes and take corrective action.											
Remarks:											



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

HELLERMANN TYTON
GROSSER MOORWEG 45
Tornesch, 25436
Attention: MR. SEKULIC

Container ID: 00000000000001759759

Certificate Date: 14-FEB-17
Delivery No: 0382364146
Shipped Qty: 47,250.000 Lbs
(21,432.600 Kgs)
Customer P.O. No: 4500033762

Certificate of Analysis

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

This material was produced under a Quality System that meets ISO/TS16949:2009 criteria.

This Nylon Resin meets the relevant requirements of Directive 2011/65/EU ("RoHS 2 Directive") including all amendments through Directive 2015/863 on the restriction of the use of certain hazardous substances in electrical and electronic equipment and Directive 2012/19/EU on waste electrical and electronic equipment ("WEEE Directive").

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: ASTM D4066 PA0121, ASTM D6779 PA0121, WSK-M4D648A (ESF-M4D 82A), GMP.PA66.018, CMP NY057 AA, MSDB 41 CPN 1076, MSDB 41 CPN 1899, FMVSS 302*, CPN3490, D4000 PA012, SAE J1639 PA0121.

Material Type: VYDYNE 22HSP NT **Material No:** 10397780 **Batch No** EK03VY27 **Date of Mfg** 03-NOV-2016

Ascend Performance Materials Operations LLC Specification

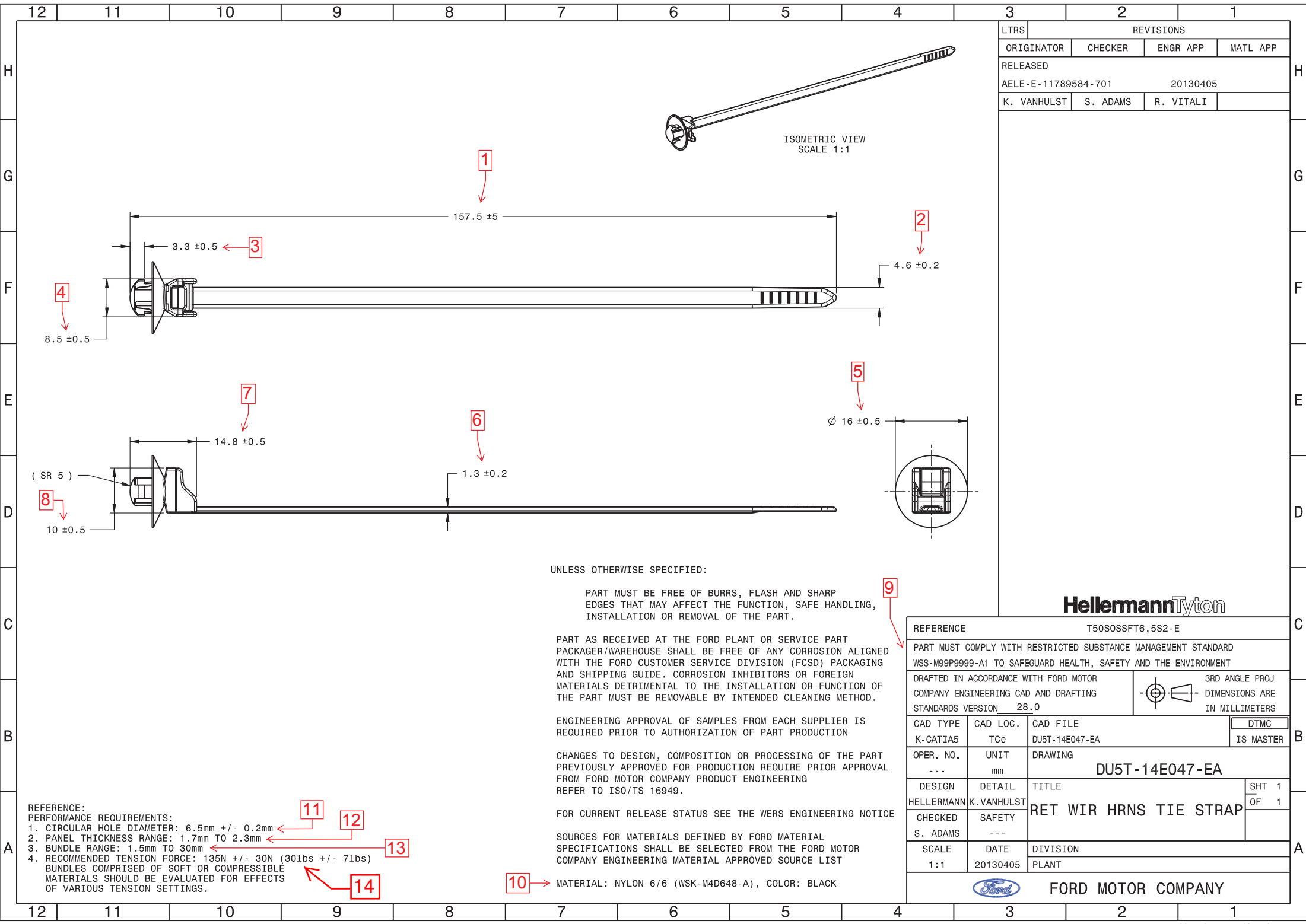
Lot Data

<u>Property</u>	<u>Test Method</u>	<u>Min</u>	<u>Max</u>	<u>Result</u>	<u>Units</u>
Relative Visc.	STM 00012	45.0	48.0	47.9	N/A
VISCOSITY NUM. SULFURIC	STM 00012	136.9	142.8	142.8	ml/g
Moisture	STM 00835	0.12	0.20	0.13	%

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All information contained in this letter is provided for informational purposes only and is not meant to alter or waive the appropriate contractual product specifications. Moisture values are representative of the product at the time it was sampled. If numerical flame spread ratings appear herein, they are not intended to reflect the hazards presented by this or any other material under actual fire conditions. Each end user should determine whether potential fire hazards are associated with the finished product, and whether this resin is suitable for the particular end use.

Ascend and Vydyne are registered trademarks of Ascend Performance Materials Operations LLC.



LTRS	REVISIONS			
	ORIGINATOR	CHECKER	ENGR APP	MATL APP
RELEASED				
AELE-E-11789584-701			20130405	
K. VANHULST	S. ADAMS	R. VITALI		

HellermannTyton

REFERENCE		T50S0SSFT6,5S2-E			
PART MUST COMPLY WITH RESTRICTED SUBSTANCE MANAGEMENT STANDARD WSS-M99P9999-A1 TO SAFEGUARD HEALTH, SAFETY AND THE ENVIRONMENT					
DRAFTED IN ACCORDANCE WITH FORD MOTOR COMPANY ENGINEERING CAD AND DRAFTING STANDARDS VERSION 28.0			3RD ANGLE PROJ DIMENSIONS ARE IN MILLIMETERS		
CAD TYPE K-CATIA5	CAD LOC. TCe		CAD FILE DU5T-14E047-EA	<table border="1"><tr><td>DTMC</td></tr><tr><td>IS MASTER</td></tr></table>	DTMC
DTMC					
IS MASTER					
OPER. NO. ---	UNIT mm	DRAWING DU5T-14E047-EA			
DESIGN HELLERMANN	DETAIL K.VANHULST	TITLE RET WIR HRNS TIE STRAP			
CHECKED S. ADAMS	SAFETY ---	<table border="1"><tr><td>SHT 1 OF 1</td></tr><tr><td></td></tr></table>		SHT 1 OF 1	
SHT 1 OF 1					
SCALE 1:1	DATE 20130405	DIVISION PLANT			
		FORD MOTOR COMPANY			

UNLESS OTHERWISE SPECIFIED:

PART MUST BE FREE OF BURRS, FLASH AND SHARP EDGES THAT MAY AFFECT THE FUNCTION, SAFE HANDLING, INSTALLATION OR REMOVAL OF THE PART.

PART AS RECEIVED AT THE FORD PLANT OR SERVICE PART PACKAGER/WAREHOUSE SHALL BE FREE OF ANY CORROSION ALIGNED WITH THE FORD CUSTOMER SERVICE DIVISION (FCSD) PACKAGING AND SHIPPING GUIDE. CORROSION INHIBITORS OR FOREIGN MATERIALS DETRIMENTAL TO THE INSTALLATION OR FUNCTION OF THE PART MUST BE REMOVABLE BY INTENDED CLEANING METHOD.

ENGINEERING APPROVAL OF SAMPLES FROM EACH SUPPLIER IS REQUIRED PRIOR TO AUTHORIZATION OF PART PRODUCTION

CHANGES TO DESIGN, COMPOSITION OR PROCESSING OF THE PART PREVIOUSLY APPROVED FOR PRODUCTION REQUIRE PRIOR APPROVAL FROM FORD MOTOR COMPANY PRODUCT ENGINEERING REFER TO ISO/TS 16949.

FOR CURRENT RELEASE STATUS SEE THE WERS ENGINEERING NOTICE

SOURCES FOR MATERIALS DEFINED BY FORD MATERIAL SPECIFICATIONS SHALL BE SELECTED FROM THE FORD MOTOR COMPANY ENGINEERING MATERIAL APPROVED SOURCE LIST

MATERIAL: NYLON 6/6 (WSK-M4D648-A), COLOR: BLACK

- REFERENCE:
PERFORMANCE REQUIREMENTS:
1. CIRCULAR HOLE DIAMETER: 6.5mm +/- 0.2mm
2. PANEL THICKNESS RANGE: 1.7mm TO 2.3mm
3. BUNDLE RANGE: 1.5mm TO 30mm
4. RECOMMENDED TENSION FORCE: 135N +/- 30N (30lbs +/- 7lbs)
BUNDLES COMPRISED OF SOFT OR COMPRESSIBLE MATERIALS SHOULD BE EVALUATED FOR EFFECTS OF VARIOUS TENSION SETTINGS.