

QUALITY CONTROL FLOW CHART OF T-CONNECTOR GUMI

QC FLOW CHART : 4-QC-0081

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**I. Purpose**

- To set up the manufacturing processes which are implemented in Fujikura Fiber Optics Vietnam
- To determine Quality control items of each process

II. Application

- This guideline is applied for **T-Connector GUMI**
- This document concerns to Production function, Production engineering function, Quality Assurance function and Planning function.

III. Reference Documents

- Specification:

No	Specification	Product Name	Remark
1	S-GAISHI-71-2186-3	KY-T-Connector S-LG	
2	S-GAISHI-71-2186-3	KY-T-connector S-LM-R	

- FMEA No.: 0-PR-012-0-FO-001-4-RC-0070 version 5

IV. Term definition

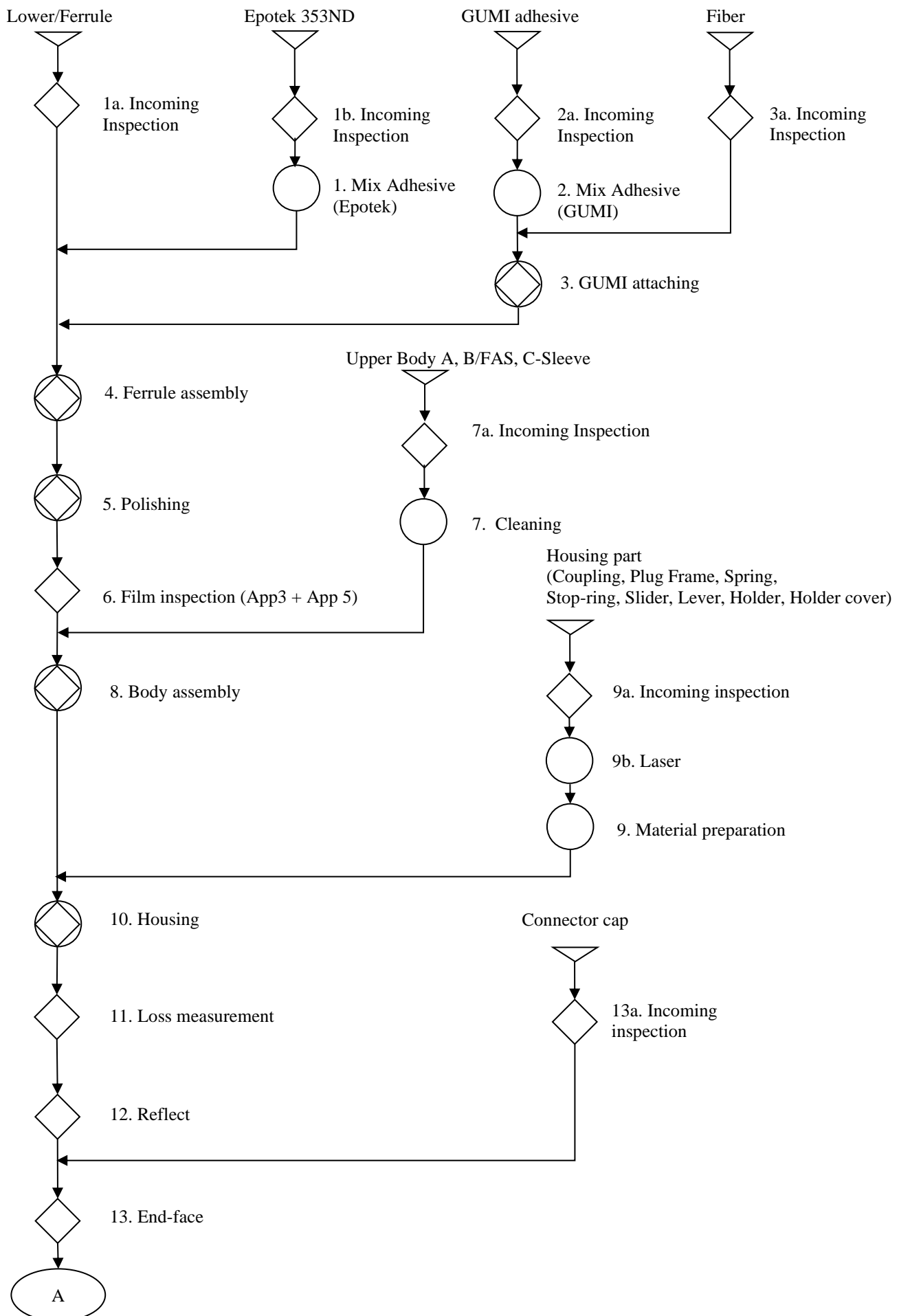
- FOV: Fujikura Fiber Optics Vietnam Ltd.,
- PRD: Production section
- PRE: Production Engineering
- QAE: Quality Assurance Engineering
- LOG: Logistic section
- PLN: Planning section
- OCAP: Out of Control Action Plan
- T-Connector GUMI: one kind of products which are manufacture in FOV.

Checked by: Nguyen Ba Phuoc
Date: Follow DMS

Approved by: Nguyen Trung Kien
Date: Follow DMS

Prepared by: Thu DTM + Cross check by: Thu TT
Date: 21-Oct-2024

Originator: Tran Cong Minh
Date: 14-Sep-2014

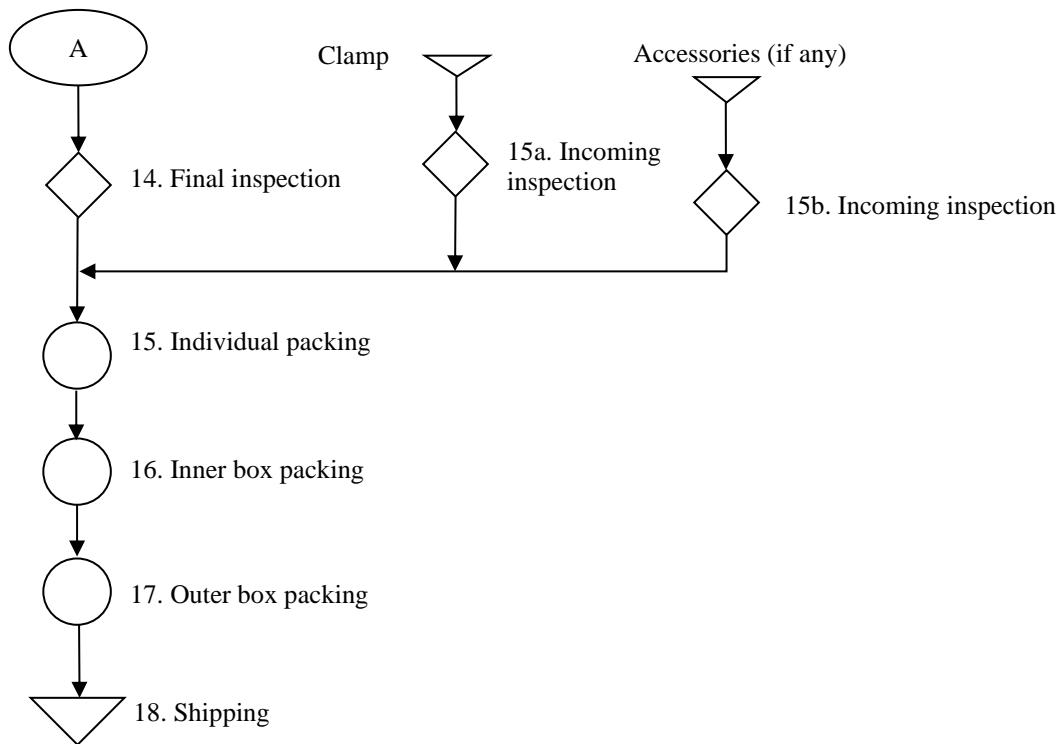
V. Content:**1. QC flow chart for all processes**

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2. Quality Control Items for each process:


Process		Quality control items	Instrument	Sampling size	Related document	SIC
No	Name					
1a	Incoming Inspection (Lower body)	Refer to 9-PR-012				PRD, QAE
1b	Incoming inspection (Epotek 353ND)	Refer to 9-PR-012				PRD, QAE
1	Mix Adhesive (Epotek)	- Epotek 353ND Lot No.	Visual	All	4-OP-0081, 9-PR-008-4-WI-0003	PRD, PRE
		- Expiry date	Measure software			
		- Type of adhesive	Clock			
		- Amount of each part	Visual			
		- Mixing time	Centrifugal			
2a	Incoming inspection (Gumi adhesive: FW-L, FW-H)	- Life time of adhesive		Refer to 9-PR-012		PRD, QAE
		- Remove air bubble for grease				
2	Mix Adhesive (GUMI)	- Gumi adhesive Lot No.	Visual	All	4-OP-0081, 9-PR-008-4-WI-0003	PRD, PRE
		- Expiry date	Visual			
		- Type of adhesive	Scale			
		- Amount of each part	Clock			
		- Mixing time	Visual			
		- Air bubble checking				
		- Pot time of adhesive	Centrifugal			
- Centrifugal time						
3a	Incoming inspection (Fiber FBG)	Refer to 9-PR-012				PRD, QAE
3	Gumi attaching	- FBG fiber serial number	Visual	All	4-OP-0081, 9-PR-008-4-WI-0003	PRD, PRE
		- FBG color				
		- Quantity of fiber				
		- Length of fiber	Length checking Jig	All		

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		- Fiber screening (if any)	Manual	All			
		- Shape of GUMI	Visual	All			
		- Thickness of GUMI	Nikon	3samples/ machine/day			
		- Pot time of mixture	Visual	All			
		- Curing fiber	Heater, Timer	All			
4	Ferrule assembly	- Epotek flow out on tip, cone of ferrule after Epotek suction	Visual	3samples/Jig	4-OP-0081 9-PR-008-4- WI-0003	PRD, PRE	
- Lower body Lot No	Visual	All					
- Fiber Serial No - Ferrule Assembly tool No. - Pot life of adhesive - Assembly tool No (ferrule-lower body)(if any)	Visual	All					
- Position of bare fiber. - Check adhesive flow out - Shape of GUMI	Microscope						
- Ferrule checking length (if any)	Dial gauge						
- Heating Temperature - Heating time	Heater, timer						
- Ring gauge check	Ring gauge						
5	Polishing	- Polishing condition	Manual	All			4-OP-528 4-OP-0397 9-PR-008-4- WI-0003
- Ferrule and fiber end face	Microscope	All					
- Interferometer checking	Interferometer	Sampling 2 Jig/ shift					
6	Film inspection (App 3 + App 5)	- V-Groove surface.	Air gun	All		4-OP-0081 9-PR-008-4- WI-0003	PRD, PRE
7a	Incoming inspection (Upper body A,B/FAS, C-Sleeve)	Refer to 9-PR-012					
7	Cleaning	- Lot, quantity, ID of Upper body A, B/FAS.	Visual	All	4-OP-0081, 9-PR-008-4- WI-0003	PRD, PRE	
- Cleaning time	Ultrasonic machine	All					
8	Body assembly	- Lot, quantity, ID of Upper A,B/FAS; C-Sleeve	Manual	All	4-OP-0081, 9-PR-008-4- WI-0003	PRD, PRE	
- Assembly tool No. - Sleeve, Upper body: position and direction	Visual	All					
9a	Incoming inspection (Housing part)	Refer to 9-PR-012				PRD, QAE	
9b	Laser	- Marking condition	Laser machine	All	4-OP-577, 9-PR-008-4- WI-0003	PRD, PRE	
- Appearance of coupling	Visual	All					
9	Material preparation	- Lot No of housing part. - Appearance.	Visual	All	4-OP-0081, 9-PR-008-4- WI-0003	PRD, PRE	
10	Housing	- Lot No of Housing part - Quantity	Visual	All			4-OP-0081 9-PR-008-4- WI-0003
- Ferrule cleanness	Vacuum machine	All					
- Housing parts' direction	Housing tool	All					
- Laser printing number.	Visual	Sampling 1/12					
- Spring Movement	Manual	All					

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11	Loss measurement	- System control No. - Loss value	Loss system	- Sampling 3 wavelengths: 10pcs/PO - 2 wavelengths: All	4-OP-0081 9-PR-008-4-WI-0003 000-5-WI-0688, 000-5-WI-0878	PRD, PRE
		- Endface of master cord	Microscope			
		- Appearance of measuring fiber	Microscope	1pc/6 products	4-OP-0081	PRD, PRE
12	Reflect	- FBG position - No fiber broken - FBG high	Reflectometer	- Sampling 1pc/shift for 20dB - 100% for 40dB	4-OP-0081, 9-PR-008-4-WI-0003	PRD, PRE
13a	Incoming inspection (Connector cap)	Refer to 9-PR-012				PRD, QAE
13	Endface	- Ferrule and fiber endface	Microscope	All	4-OP-0397 9-PR-008-4-WI-0003	PRD, PRE
14	Final inspection	- Product structure	Visual	All	4-OP-0081, 9-PR-008	PRD, QAE
		- Product appearance	Visual	All	4-OP-0081, 9-PR-008	PRD, QAE
		- Laser content & appearance	Visual	All	4-OP-0081, 9-PR-008	PRD, QAE
15a	Incoming inspection (Clamp)	Refer to 9-PR-012				PRD, QAE
15b	Incoming inspection (Accessories)	Refer to 9-PR-012				PRD, QAE
15	Individual Packing	Product quantity	Visual	All	4-OP-0081, 9-PR-008	PRD, QAE
		Quantity of accessory	Quantity control tool	All		
		Label content and appearance	Visual	All		
16	Inner box Packing	Quantity of product/ carton box	Programing	All	4-OP-0081, 9-PR-008	PRD, QAE
		Carton box type	Visual & Programing	All		
		Content of carton box's label	Visual	All		
		Quantity of accessory (if any)	Visual	Visual		
17	Outer box packing	Quantity of inner box/outer box	Programing	All	4-OP-0081, 9-PR-008	PRD, QAE
		Carton box type	Visual	All		
		Content of carton box's label	Visual	All		
18	Shipping	- Quantity of product - Product Name - PO No. - Test report	Visual/ Programing	All	4-OP-0081, 9-PR-008	PRD, QAE

VI. Record

No.	Record	Retention time	Responsibility for keeping
-	-	-	-

Identification, storage, protection, retrieval & disposition of these records refer to 0-PR-004 Control of record.

Note: Nonconforming product/material shall be identified & controlled according to relevant procedures: 9-PR-008.

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REVISION HISTORY

Date	Person	Ver	Description		Reason of change	Requester
			Old contents	New contents		
21-Oct-2024	Duong Thi Mong Thu	15	6. Film inspection - End face of GUMI - V-Groove surface. - Position of bare fiber in V-Groove. - End of fiber in 4 marks.	6. Film inspection	4M change 9-PR-0014-9-FO-0001-4-RC-0169	Nguyen Ba Phuoc
			8. Body assembly: Quality control item: -Body: No contamination	8. Body assembly: Remove: -Body: No contamination	Document review, have control at Housing (internal audit finding)	
			10. Housing: N/A	10. Housing: N/A (this change will update to process specification)	Update record 4M change 9-PR-0014-9-FO-0001-4-RC-0166	
			10. Housing: N/A	Add instrument: Vacuum machine and Housing tool	Document review (internal audit finding)	
			12. Reflect inspection: - Sampling 1pc/shift	12. Reflect inspection: - Sampling 1pc/shift for 20dB - 100% for 40dB	Correction for product type in same specification. Update record: 000-4-RC-0321	
	Trinh My Phuong		14. QC Appearance 15. QC Packing	14. Final inspection 15. Individual Packing 16. Inner box Packing 17. Outer box packing	Change process name and separate packing process follow E-QC	Tran Nguyen Minh Duc
03-Oct-2024	Duong Thi Mong Thu	14	6. Film inspection: Gumi surface (for App 5)	6. Film inspection (App3 + App 5) - End face of GUMI - V-Groove surface. - Position of bare fiber in V-Groove. - End of fiber in 4 marks.	Cancel 4M change 9-PR-0014-9-FO-0001-4-RC-0141	Nguyen Ba Phuoc
01-Oct-2024	Duong Thi Mong Thu	13	6. Film inspection	6. Film inspection: Gumi surface (for App 5)	Document review	Nguyen Ba Phuoc
			13.Loss inspection: N/A	13.Loss inspection: Add 000-5-WI-0878		
			N/A	Update 9-PR-008-4-WI-0003 to some processes		
04-Sep-2024	Duong Thi Mong Thu	12	III. Reference documents S-GAISHI-71-2186-2	III. Reference documents S-GAISHI-71-2186-3	Customer release new specification	Nguyen Ba Phuoc
			6. Film inspection: - End face of GUMI - V-Groove surface. - Position of bare fiber in V-Groove. - End of fiber in 4 marks.	6. Film inspection: - V-Groove surface.	Follow 9-PR-0014-9-FO-0001-4-RC-0141	
10-Apr-24	Nguyen Ly Thien Ngan	11	III. Reference documents No.1,2: Specification: S-GAISHI-71-2128-6 V. Content 2. Process condition and control items 9-QC-001 QCE 4-OP-504 4-OP-609	III. Reference documents No.3,4: Specification: S-GAISHI-71-2186-2 V. Content 2. Process condition and control items 9-PR-012 QAE 4-OP-0397 4-OP-577 9-PR-008-4-WI-0003 000-5-WI-0688	Customer release new specification Document review Combine to general OP Apply new template 0-PR-001-0-TEM-003	Pham Dinh Hieu
04-Sep-18	Nguyen Thi Lan Phuong	10	- Item 11: Surface of bare fiber, Check adhesive outflow.	- Item 11: + Remove: Surface of bare fiber, Check adhesive outflow	- Improvement with 4M: 4-Pr-007-4-Fo-001-4-RC-0512	Deputy Div. Manager Nguyen Trung Kien

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				+ Add: End of fiber in 4 marks.		
24-Jul-18	Duong Xuan Mai	09	- Item 8: wrong order step of checking items: Length of fiber - SIC: PRD1 , QCS	- Item 8: correct the order: Length of fiber - SIC: + Incoming process: PIC is LOG, QAE + Do process: PIC is PRD, PRE + Check process: PIC is PRD, QAE, QAE + Packing process: PRD, QAE, QAE	- Correction - Follow to WI: 000-5-WI-0749	Deputy Div. Manager Nguyen Trung Kien
01-Sep-17	Nguyen Thi Lan Phuong	08	- Item 24,26: QAS; Item 27: PLN.	- Item 24,26: QAS -> QCS; Item 27: PLN -> LOG.	- Update	Dept. Manager Nguyen Trung Kien
22-Dec-16	Nguyen Thi Lan Phuong	07	- Check appearance of measuring fiber 100%	- Check appearance of measuring fiber 1pc/6 products	- Improvement with 4M: 4-PR-007-4-FO-001-4-RC-0097	Dept. Manager Nguyen Trung Kien