

No. SPC3-10705(3)

Messrs. Fujikura Fiber Optics Vietnam Ltd.

Purchase specification




Product Name	: FLU-CMS6 Assy(ForC05)
FA Number	: FA004924

Signature on the receipt



TungDD-10745
6th-Sep-2024

Fujikura Ltd. / Fujikura Precision Ltd.

Development Department		
Approved by	Reviewed by	Prepared by
		

Revision History

Rev.	Clause	Revised Contents	Reasons	Date(y/m/d)	Prepared by
1	-	Original	Initial Input	2023/9/19	S. Namiki
2	2	Fixed serial number requirements	By review. To clarify the requirements for SN format	2023/10/4	S. Namiki
2	8	Added explanation of storage period	for clarification	2023/10/4	S. Namiki
3	2	FA004954 was deleted and unified to FA004924	Change management with FA number revision	2024/8/1	T.Mouri
3		Define the configuration of Rev 002	For version control	2024/8/1	T.Mouri
3		Fiber Item Code changed from FN005513 to FN007938. Change Description as well.	Changes in upper product specifications.	2024/8/1	T.Mouri

1. Scope of application

This specification describes the required specifications for purchased products, and applies to the products shown in Section 2 "Components".

2. Components

The components to which this specification applies are shown in Table 2-1.

Table 2-1. Product code and configuration

Product name	FLU-CMS6 Assy(ForC05)
FA Number	FA004924
FA Rev.	2
BOM	DSN2-11585
Description	All parts supplied by FPL 1 st lot version.

3. Reference

Reference documents list is shown in Table. 3-1.

Table 3-1.Reference document list

No.	Number	Document	Description.
1	SPC3-10711	Requirement for quality assurance for fiber laser products	<ul style="list-style-type: none"> • Quality assurance • Monitoring competence and performance • Precautions for special process work • Precautions for manufacturing
2	SPC3-10712	Requirement for consignment manufacturing	<ul style="list-style-type: none"> • Scope of contract • Supply period • Defect warranty liability • Safety requirements • Observance of delivery date • Process change (4M change) • Restrictions on sales of similar products
3	SPC3-10716	Packing specification of FLU-CMS	<ul style="list-style-type: none"> • Packing
4	SPC3-10718	Visual inspection Spec of Fiber Components	<ul style="list-style-type: none"> • Visual inspection Specification (detail)
5	SPC3-10719	Visual inspection Spec of Mechanical Components	<ul style="list-style-type: none"> • Visual inspection Specification (detail)

6	SPC3-10720	Requirement for Deliverable data	<ul style="list-style-type: none"> • Test report format • Means of sharing deliverable data
7	SPC3-10740	Guidelines for the Management of Chemical Substances Contained in Products	<ul style="list-style-type: none"> • RoHS Directive Conformity Report • Compliance Agreement for Management of Chemical Substances Contained in Products

4. Material

Material are specified in Table 4-1.

Table 4-1. Material

Material	Item Code	Qty.	Description
FIBER	FN007938	3.5m	SPC2-10460
UV RESIN	FN003812	0.1g	KER-4130H-UV
CMS BLOCK	FN005816	1	DRW3-13143
CMS COVER	FN005502	1	DRW3-12696
SCREW	FN005407	2	UB-0205

Note: The Quantity of resin/fiber is a reference value.

5. Optical specification

Requirement of optical test conditions & specifications are specified in Table 5-1.

Table 5-1. Requirement of Optical specification and Inspection condition.

Item	unit	Specification			Conditions
		Min		Max	
Clad Light Transmittance	%	0.0	<	55.0	[1]

[1] 1um SLD light source & Specified fiber optics.

6. General specification

Requirement of General specification are specified in Table 6-1.

Table 6-1. General specification

Item	unit	Specification			Conditions
		Min	typ.	Max	
Enclosure size (D*W*H)	mm	82.0 * 11.7 * 7.0			without screws
Fiber coating diameter	um		240		Use supplied material
Fiber cladding diameter	um		125		Use supplied material
Fiber core diameter	um		4		Use supplied material
Tensile strength of etched area	gf	200			Proof before reinforcement
Reinforcement tension	gf	36	40	44	

7. Visual specifications

Requirement of Visual specification are specified in Table 7-1.

See SPC3-10718 and SPC3-10719 for detailed specifications.

Table 7-1. Visual specification

Item	unit	Specification	Comment
Appearance of fiber coating	-	No scratches or peeling	[2]
Housing Appearance		No dents, scratches or chips	
Fixing direction of individual optical components		Conform to structural specifications	

[2] Stipulated in separate appearance inspection standards

8. Environmental specifications

Requirement of Environmental specification are specified in Table 8-1 and Table 8-2. Absolute humidity depends on temperature and relative humidity RH as shown in Fig.8.

Table 8-1. Optical inspection condition

Item	unit	Specification			Comment
		Min	typ.	Max	
Room temperature	°C	20.0		30.0	
Humidity	%	10		90	
Humidity	%	No condensation			

Table 8-2. Storage conditions

Item	unit	Specification			Comment
		Min	typ.	Max	
Room temperature	°C	5.0		55.0	
Absolute humidity	g/m ³			29.0	
Humidity	%			90	
Humidity	%	No condensation			
Storage period	Month			12	Period from inspection date to shipping date. [1]

[1] If the deadline has passed, the test results will be invalidated. Re-examination is required.

		Absolute humidity Simplified chart																	
		[RedCells: > 29g/m ³]																	
		Temperature (°C)																	
		0	5	10	15	20	22	24	26	28	30	32	34	36	38	40	45	50	55
Relative humidity [%]	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	5	0.2	0.3	0.5	0.6	0.9	1.0	1.1	1.2	1.4	1.5	1.7	1.9	2.1	2.3	2.6	3.3	4.1	5.2
	10	0.5	0.7	0.9	1.3	1.7	1.9	2.2	2.4	2.7	3.0	3.4	3.8	4.2	4.6	5.1	6.5	8.3	10.4
	15	0.7	1.0	1.4	1.9	2.6	2.9	3.3	3.7	4.1	4.5	5.1	5.6	6.2	6.9	7.7	9.8	12.4	15.6
	20	1.0	1.4	1.9	2.6	3.5	3.9	4.4	4.9	5.4	6.1	6.8	7.5	8.3	9.2	10.2	13.0	16.5	20.8
	25	1.2	1.7	2.3	3.2	4.3	4.9	5.4	6.1	6.8	7.6	8.4	9.4	10.4	11.5	12.8	16.3	20.7	26.0
	30	1.5	2.0	2.8	3.8	5.2	5.8	6.5	7.3	8.2	9.1	10.1	11.3	12.5	13.8	15.3	19.6	24.8	31.2
	35	1.7	2.4	3.3	4.5	6.0	6.8	7.6	8.5	9.5	10.6	11.8	13.1	14.6	16.1	17.9	22.8	28.9	36.4
	40	1.9	2.7	3.8	5.1	6.9	7.8	8.7	9.7	10.9	12.1	13.5	15.0	16.7	18.4	20.4	26.1	33.1	41.6
	45	2.2	3.1	4.2	5.8	7.8	8.7	9.8	11.0	12.2	13.6	15.2	16.9	18.7	20.8	23.0	29.4	37.2	46.8
	50	2.4	3.4	4.7	6.4	8.6	9.7	10.9	12.2	13.6	15.2	16.9	18.8	20.8	23.1	25.5	32.6	41.3	52.0
	55	2.7	3.7	5.2	7.1	9.5	10.7	12.0	13.4	15.0	16.7	18.6	20.6	22.9	25.4	28.1	35.9	45.5	57.2
	60	2.9	4.1	5.6	7.7	10.4	11.6	13.1	14.6	16.3	18.2	20.3	22.5	25.0	27.7	30.6	39.1	49.6	62.4
	65	3.1	4.4	6.1	8.3	11.2	12.6	14.1	15.8	17.7	19.7	21.9	24.4	27.1	30.0	33.2	42.4	53.7	67.6
	70	3.4	4.8	6.6	9.0	12.1	13.6	15.2	17.0	19.0	21.2	23.6	26.3	29.1	32.3	35.7	45.7	57.9	72.8
	75	3.6	5.1	7.0	9.6	13.0	14.6	16.3	18.3	20.4	22.7	25.3	28.1	31.2	34.6	38.3	48.9	62.0	78.0
	80	3.9	5.4	7.5	10.3	13.8	15.5	17.4	19.5	21.8	24.3	27.0	30.0	33.3	36.9	40.8	52.2	66.2	83.1
	85	4.1	5.8	8.0	10.9	14.7	16.5	18.5	20.7	23.1	25.8	28.7	31.9	35.4	39.2	43.4	55.5	70.3	88.3
	90	4.4	6.1	8.5	11.5	15.5	17.5	19.6	21.9	24.5	27.3	30.4	33.8	37.5	41.5	45.9	58.7	74.4	93.5
	95	4.6	6.5	8.9	12.2	16.4	18.4	20.7	23.1	25.8	28.8	32.1	35.6	39.5	43.8	48.5	62.0	78.6	98.7
	100	4.8	6.8	9.4	12.8	17.3	19.4	21.8	24.3	27.2	30.3	33.8	37.5	41.6	46.1	51.0	65.2	82.7	###

Fig 8. Absolute humidity Simple chart

9. Dimensional and structural specifications

9-1. Dimension of CMS Assy

Dimension of CMS Assy is shown in Fig 9-1 and Table 9-1.

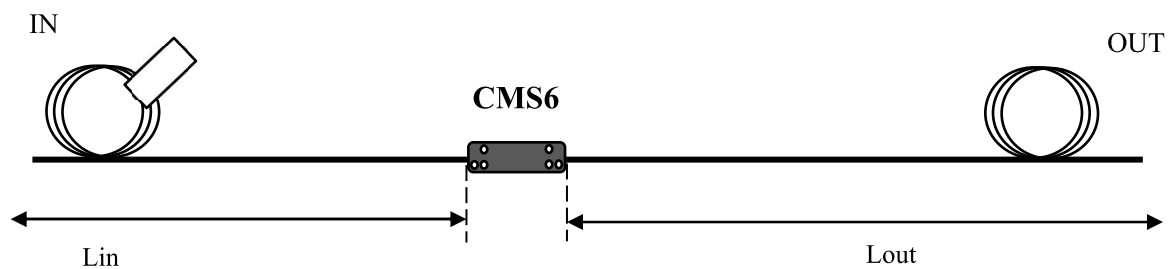


Fig 9-1 Dimension of CMS Assy

Table 9-1 Dimension of CMS Assy

Item	unit	Length Specification
Lin	mm	>1100
Lout	mm	>2000

9-2. Fixing direction of individual optical components

Fixing direction of individual optical components is shown Fig 9-2.



Fig 9-2. Fixing direction of individual optical components

9-3. Dimension of CMS reinforcement structure

Dimension of CMS reinforcement structure is shown in Fig 9-3 and Table 9-2.

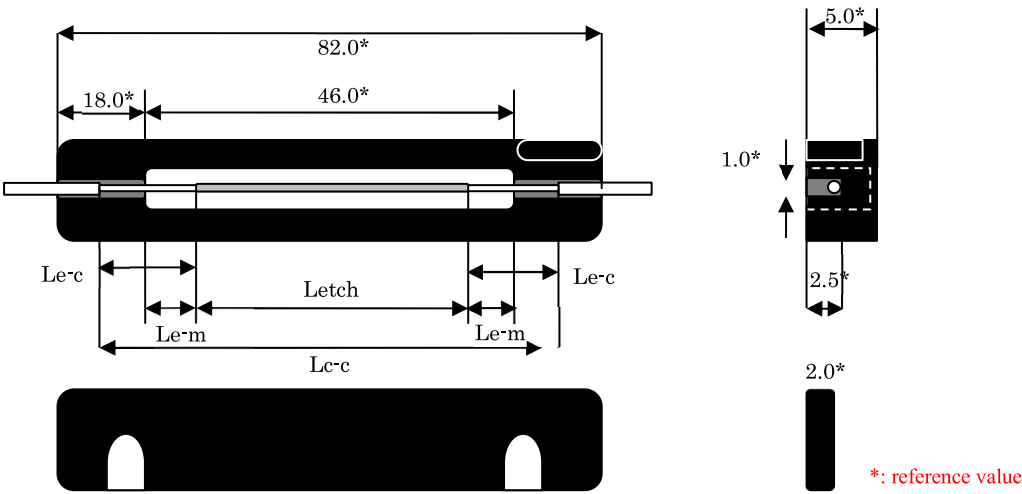


Fig 9-3. Dimension of CMS reinforcement structure

Table 9-2. Dimension of CMS reinforcement structure

Item	unit	Length Specification	Description
Letch	mm	40.5+1.5/-1.5	Etching length
Lc-c	mm	55.0+3.0/-3.0	Length of coating removal
Le-m	mm	>2.0	Length between etching and metal
Le-c	mm	>5.0	Length between etching and coating

10. Inspection

Inspection items and inspection methods are shown in Table 10-1. All items shall be inspected.

Table 10-1. Inspection items and inspection methods

Item		unit	Inspection method	Comment
Optical	Clad Light Transmittance	%	[1]	Measured value
Dimensions	Fiber length : Lout	-	Scale	Pass/Fail
	Fiber length : Lin	-	Scale	Pass/Fail
Visual	Appearance of fiber coating	-	[2]	Pass/Fail
	Housing Appearance			Pass/Fail
	Fixing direction of individual optical components			Pass/Fail

[1] 1um SLD light source & Specified fiber optics.

[2] Stipulated in separate appearance inspection standards

11. Inspection Method & Definition

11-1. Clad Light Transmittance

• Definition

$$\text{Value} = P2 / P1 * 100 [\%]$$

P2: Optical power of transmitted light [W]

P1: Optical power of light source [W]

Note: No need to consider Fresnel losses

• Light source fiber optics

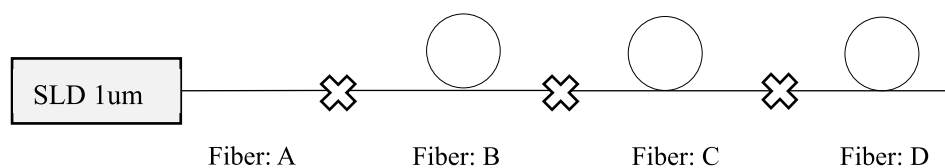


Fig 11-1. Fiber optics of laser light source

Table 11-1. Fiber list

Item	Spec No.	Name	Core[um]	Clad[um]
A	-	HI1060	7	125
B	SPC2-10154	Dummy fiber	15	125
C	SPC2-10155	Dummy fiber	28	125
D	SPC2-10383	CMS6 fiber	4	125

12. Electronic test report format

SPC3-10720-*** Requirement for Deliverable data.

13. Packing

- Case of shipping individual parts

SPC3-10716-*** Packing specification of FLU-CMS

- Case to supply to post-process

They are stored in suitable cases with a minimum diameter of 60 mm.