

New product introduction
Tough Fiber

Fiber Selection Guide

Model
Choose by shape/application
How to read Model No
Earlier models comparison table

Fibers

Super Quality
Threaded Type
Square Head Type
Cylindrical Type
Sleeve

Flat Type

Small Spot

Narrow Beam

Wide Beam

Convergent Reflective Type

Retroreflective Type

Chemical / Oil-resistant

Heat-resistant

Vacuum-resistant

Liquid Leak / Liquid Detection

Fiber Options

Semi-custom fibers

Fiber Dimensions

Thru-beam Type

Retroreflective Type

Reflective Type

Others

Amplifiers

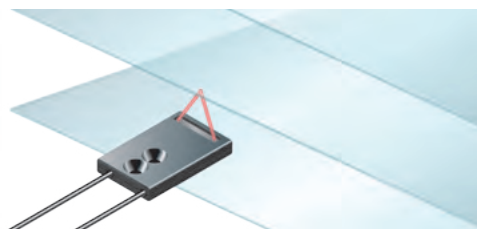
FX-500 series

FX-100 series

INDEX

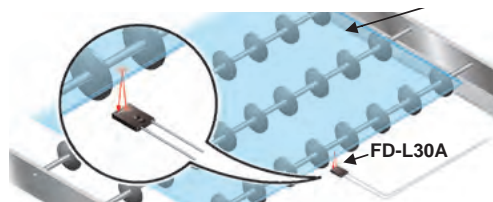
Convergent Reflective Type

It is a fiber in which the sensing distance is limited to a specific range so it is not easily affected by the background. It is effective when a workpiece is accumulated or when the background is near.

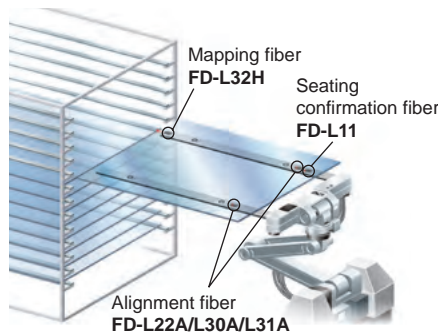


Applications

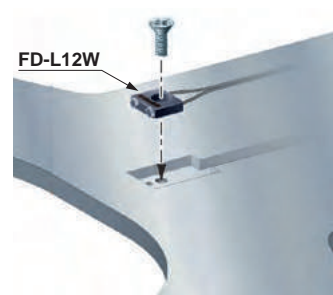
Detecting a passing glass



LCD transportation

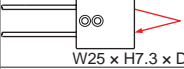



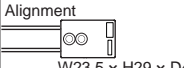

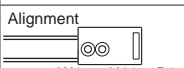

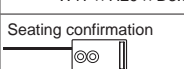

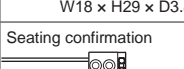

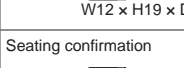

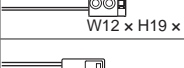





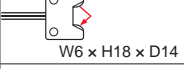



Mounting in handling arms



LIST OF FIBERS

Reflective type

Type	Shape of fiber head (mm)	Model No.	Bending radius (mm)	Fiber cable length (m)	Sensing range (mm in) (Note 1, 2)			Protection	Ambient temp.	Dimensions
					FX-500 series	U-LG LONG FAST H-SP	FX-101 (Upper value) FX-102 (Lower value)			
Glass substrate detection	Mapping  W25 x H7.3 x D30	FD-L32H	R4 Bending durability	 4 m	STD 0 to 56 0 to 2.205 HYPR 0 to 110 0 to 4.331	0 to 87 0 to 3.425 0 to 74 0 to 2.913 1 to 38 0.039 to 1.496 Cannot use	16 to 30 0.630 to 1.181 0 to 50 0 to 1.969	IP40	-40 to +60 °C	P.63
	Alignment  W20 x H29 x D3.8	Tough FD-L30A	R2 Bending durability	 3 m	STD 0 to 43 0 to 1.693 HYPR 0 to 43 0 to 1.693	0 to 43 0 to 1.693 0 to 43 0 to 1.693 0 to 42 0 to 1.654 0 to 29 0 to 1.142	0 to 40 0 to 1.575 0 to 50 0 to 1.969			
	Alignment  W23.5 x H29 x D4.5	Tough FD-L31A	R4 Bending durability	 3 m	STD 4 to 33 0.157 to 1.299 HYPR 3 to 35 0.118 to 1.378	4 to 33 0.157 to 1.299 4 to 33 0.157 to 1.299 4 to 32 0.157 to 1.260 5 to 25 0.197 to 0.984	5 to 30 0.197 to 1.181 4 to 33 0.157 to 1.299			
	Alignment  W17 x H29 x D3.8	Tough FD-L22A	R2 Bending durability	 2 m	STD 0 to 24 0 to 0.945 HYPR 0 to 31 0 to 1.220	0 to 28 0 to 1.102 0 to 27 0 to 1.063 0 to 24 0 to 0.945 0 to 18 0 to 0.709	0 to 19 0 to 0.748 0 to 25 0 to 0.984			
	Seating confirmation  W18 x H29 x D3.8	Tough FD-L23	R2 Bending durability	 3 m	STD 0 to 29 0 to 1.142 HYPR 0 to 30 0 to 1.181	0 to 30 0 to 1.181 0 to 30 0 to 1.181 0 to 28 0 to 1.102 1.5 to 24 0.059 to 0.945	0 to 28 0 to 1.102 0 to 30 0 to 1.181			
	Seating confirmation  W12 x H19 x D3	Tough FD-L11	R4 Bending durability	 3 m	STD 0 to 9.5 0 to 0.374 HYPR 0 to 11.5 0 to 0.453	0 to 10.5 0 to 0.413 0 to 10 0 to 0.394 0 to 9 0 to 0.354 0 to 8 0 to 0.315	0 to 8 0 to 0.315 0 to 9 0 to 0.354			
	Seating confirmation  W12 x H19 x D3	Tough FD-L10	R2 Bending durability	 3 m	STD 0 to 5 0 to 0.197 HYPR 0 to 6 0 to 0.236	0 to 5.5 0 to 0.217 0 to 5.5 0 to 0.217 0 to 4.5 0 to 0.177 0 to 4 0 to 0.157	0 to 4.5 0 to 0.177 0 to 5.5 0 to 0.217			
	 W24 x H21 x D4	Tough FD-L21	R2 Bending durability	 2 m	STD 1.5 to 16 0.059 to 0.630 HYPR 1 to 19 0.039 to 0.748	1 to 18 0.039 to 0.709 1 to 18 0.039 to 0.709 2 to 15 0.079 to 0.591 3 to 12 0.118 to 0.472	3 to 15 0.118 to 0.591 1.5 to 16 0.059 to 0.630			
	 W24 x H21 x D4	FD-L21W	R1	 2 m	STD 3 to 14 0.118 to 0.551 HYPR 1.5 to 15 0.059 to 0.591	2 to 15 0.079 to 0.591 2 to 15 0.079 to 0.591 4 to 14 0.157 to 0.551 6.5 to 10 0.256 to 0.394	7 to 12 0.276 to 0.472 3 to 14 0.118 to 0.551			
	General purpose  W6 x H18 x D14	Tough FD-L20H	R2 Bending durability	 2 m	STD 23 0.906 HYPR 45 1.772	35 1.378 32 1.260 2 to 15 0.079 to 0.591 5 to 9 0.197 to 0.354	5 to 15 0.197 to 0.591 1 to 30 0.039 to 1.181			
Ultra-small  W7.2 x H7.5 x D2	FD-L12W	R1	 1 m	STD 8 0.315 HYPR 14 0.551	12.5 0.492 12 0.472 0.5 to 7 0.020 to 0.276 0.5 to 4 0.020 to 0.157	1 to 4.5 0.039 to 0.177 0.5 to 7 0.020 to 0.276				

Notes: 1) The sensing range is specified for transparent glass 100 × 100 × t0.7 mm 3.937 × 3.937 × t0.028 in (FD-L32H: R edge, FD-L21 and FD-L21W: t2 mm 0.079 in) (FD-L20H: white non-glossy paper, FD-L10: silicon wafers 100 × 100 mm 3.937 × 3.937 in).
2) Note that the sensing range of the free-cut type fiber may be reduced by 20 % max. depending upon how the fiber is cut.

Tough : Refers to a fiber which possesses both unbreakable (bending radius: R10 mm R0.394 in, reciprocating bending: 180°) and more flexible (bending radius: R4 mm R0.157 in or less) features.