Het effect van falende optische connectoren

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Deze lezing wordt u aangeboden door:

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COMPOSE NETWORK•CONNECTIONS

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measurement & training services

optical, protocol, video, power, power quality & energy

power quality & EMC

fixed and portable PQ & energy monitoring, EMC immunity

telecommunication & networks

wireless & wireline testing, optical transport testing

fiber

physical layer testing, protocol testing, fiber splicers & cleaning

video & CATV

HDTV/SDTVwaveform monitoring, MPEG analyzers

Opleidingen Advies

- Glasvezel
- Coax
- Twisted pair
- W-Lan
- Hoog frequent
- Domotica

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Agenda

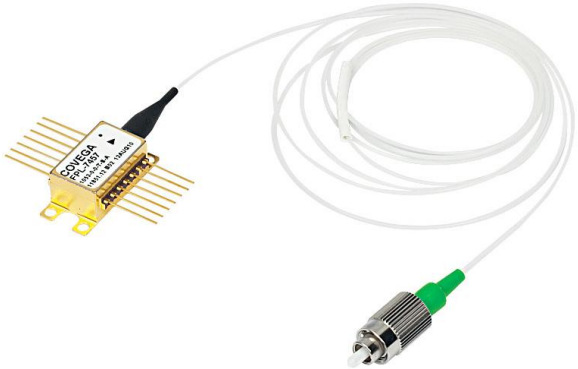
- Kwaliteit fysieke netwerklaag
- Effect van steeds hogere datasnelheden
- Singlemode versus multimode verbindingen
- Opbouw van een optische verbinding
- Veroudering (aging) van optische verbindingen
- Inspecteren van optische verbindingen
- Reinigen/onderhouden van optische verbindingen

Kwaliteit fysieke laag

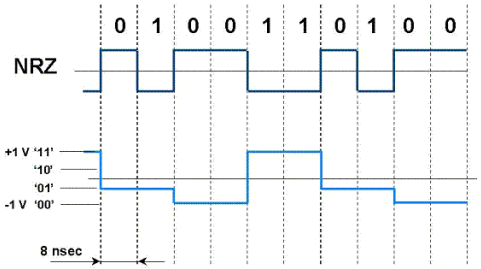
- Levensduur actieve middelen 3-7 jaar, fysieke laag 15-25 jaar
- Migratie 10 Gbps tot ……

Effect van hoge datasnelheden

- Sneller schakelen van lasermodules
- Codering (bps in Hz) nauwelijks mogelijk vanwege frequentie
- Gevoeligheid voor reflecties neemt toe
- Powerbudget neemt af



Application standard	Min. operating distance (m)	Max. connector loss (dB)	Max fiber attenuation (dB)	Max total IL budget (dB)
0-Gbit/sec Ethernet	300	1.5	1.1	2.6
40- and 100-Gbit/ sec Ethernet (OM3)	100	1.5	0.4	1.9
40- and 100-Gbit/ sec Ethernet (OM4)	150	1	0.5	1.5



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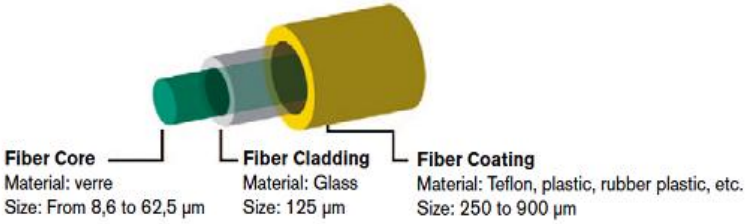
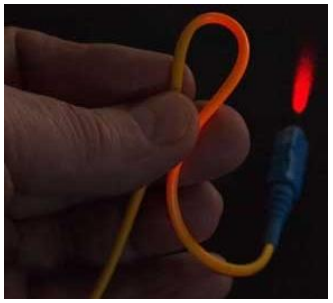
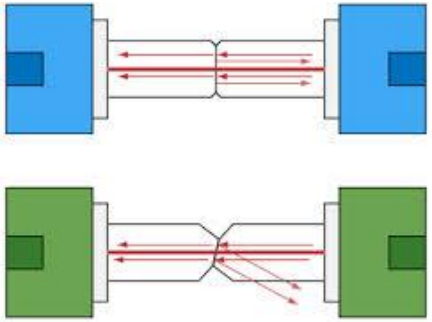
Singlemode versus multimode

- Een SM vezel heeft een kleinere kern dan een MM vezel
- Vuil en krassen hebben dan meer invloed op kleinere kern
- SM vezel is gevoeliger voor buigen dan MM



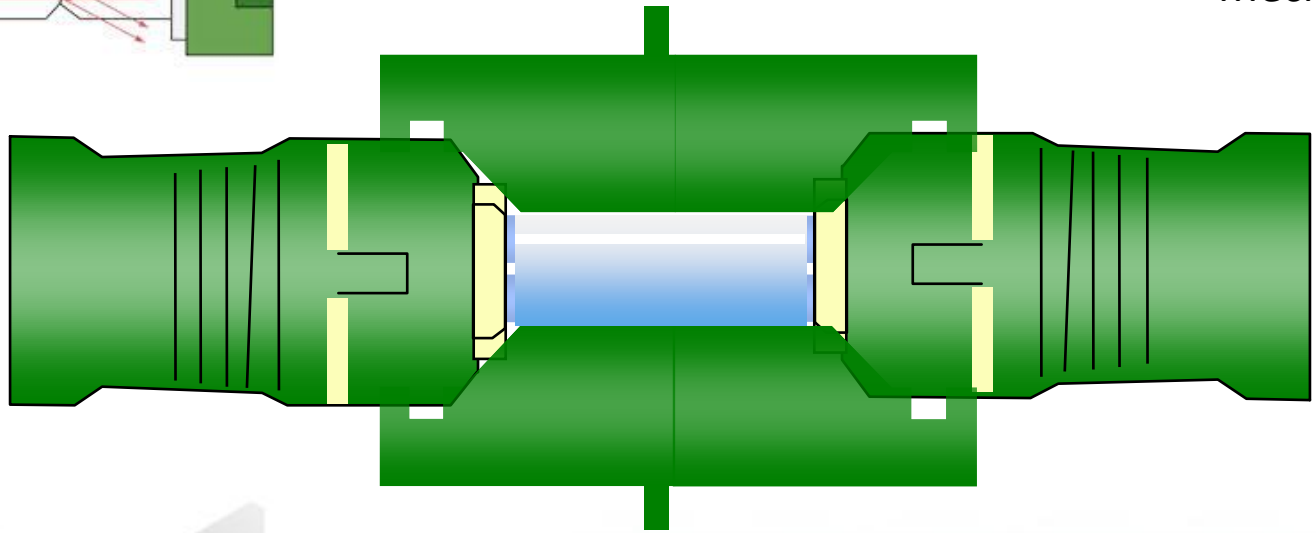


Optische verbinding



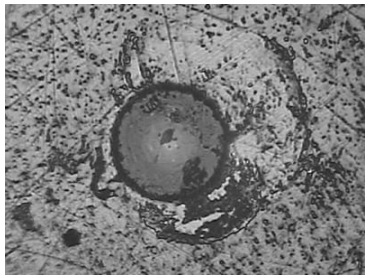
Optisch deel

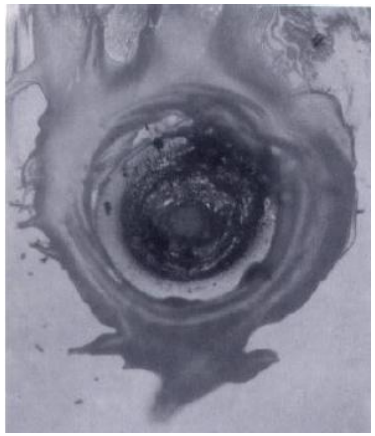
Mechanisch deel



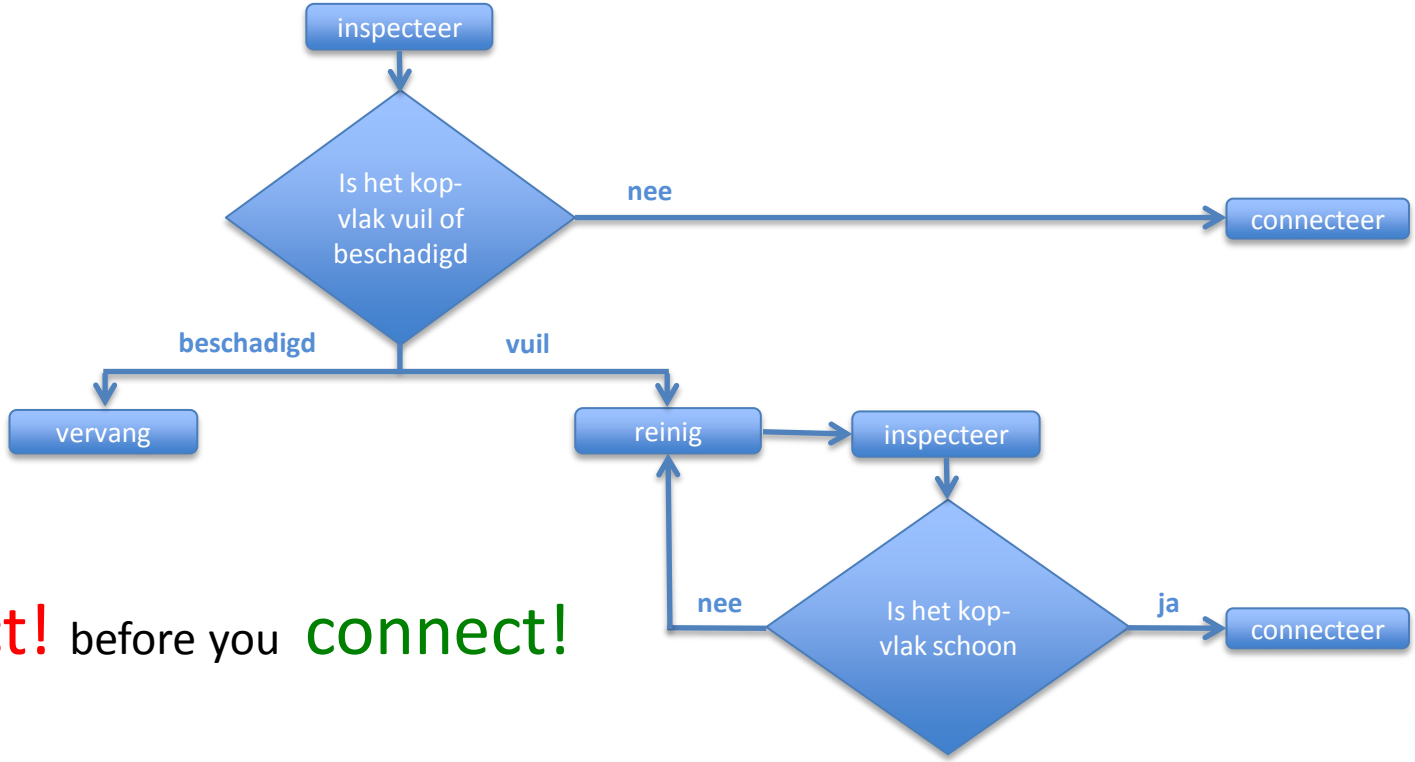
Veroudering (aging)

- Koppelbus is niet stofvrij
- Aanwezig vuil kan de vezel binnendringen
- Aanwezig vuil kan inbranden





Inspectie van optische verbindingen



Inspect! before you connect!

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Inspectie van optische verbindingen

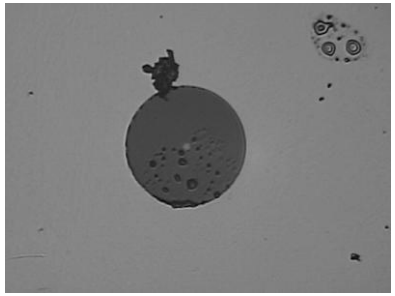
- Hand microscoop

Inspectie van optische verbindingen

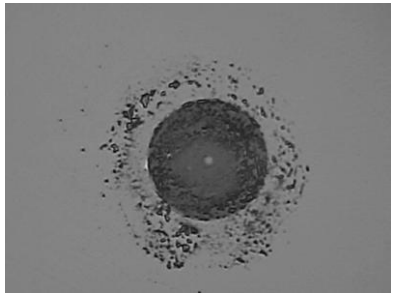
- Video microscoop

Inspectie van optische verbindingen

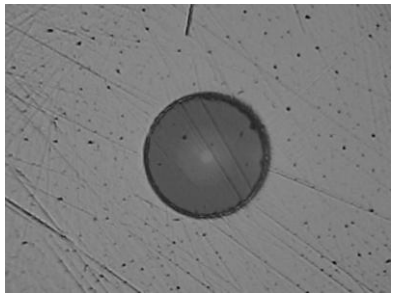
schoon



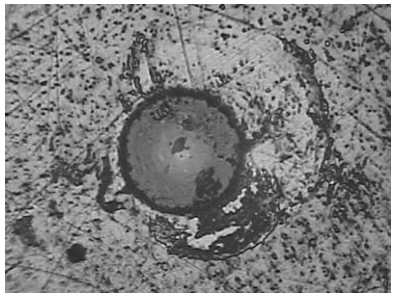
vloeistof residu



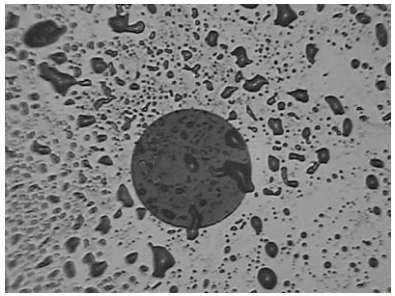
kruis besmetting



beschadigd



beschadigd / vuil



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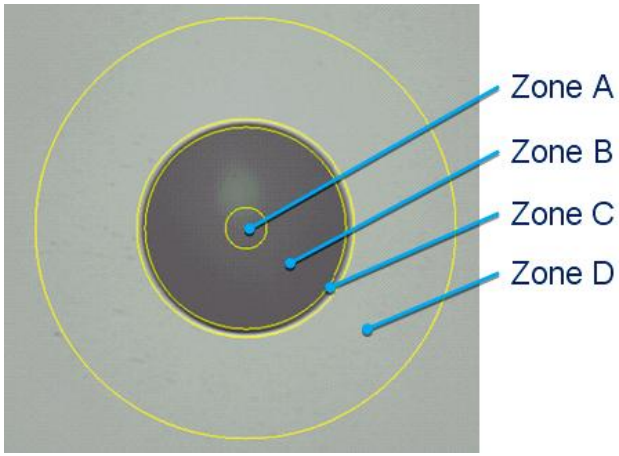
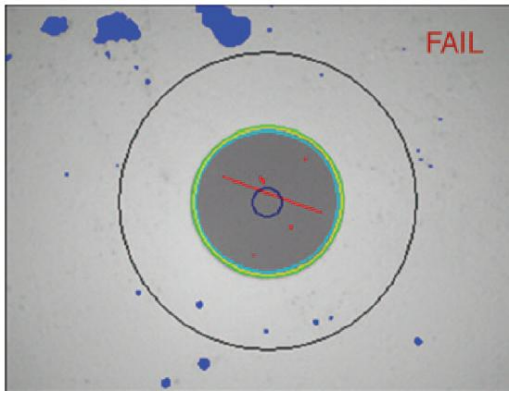
Inspectie van optische verbindingen

- Diverse zones

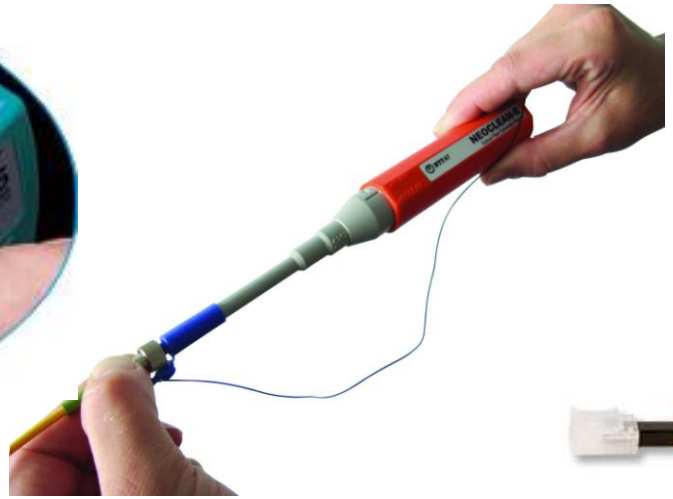
Zones	Single Mode (µm)	Multi Mode (µm)
A: Core	0-25	0-65
B: Cladding	25-120	65-120
C: Adhesive	120-130	120-130
D:Contact	130-250	130-250





Reinigen van losse connectoren

- Droge Methode



Reinigen van gekoppelde connectoren

- Droge Methode

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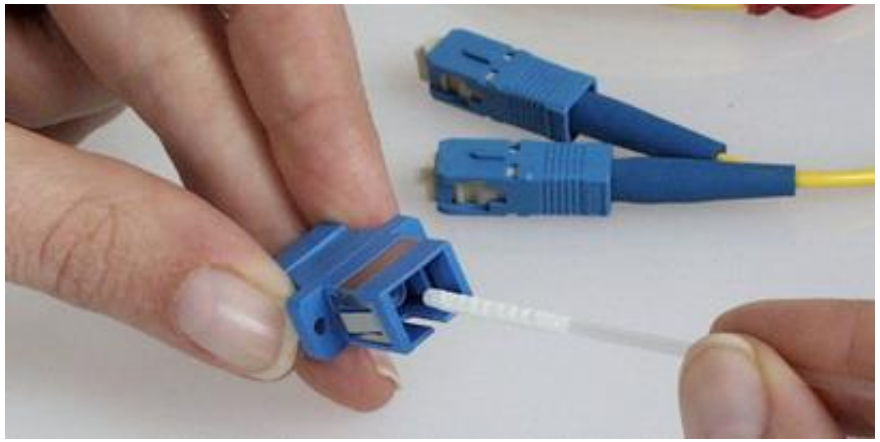
Reinigen van losse koppelingen

- Droge Methode



Reinigen

- Natte Methode

Vragen?

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  4061 RP Ophemert
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Standnummer 49: CN Rood

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