FIBER OPTIC FIELD GUIDE

Introduction to splicing 200m fiber

A working tech's introduction to splicing 200m fiber. What's different, what equipment you need, and what pitch correction is.

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If you've been splicing for any length of time, the cable counts you're working on have probably been going up. 432, 864, 1728, now routinely 3456 or 6912. To fit that many fibers into a manageable cable, the industry moved from 250m coated fiber to 200m. Smaller coating, more fibers per cable, same job in your splice case.

This is the first in a short series on splicing fiber that isn't standard 250m. The next pieces will cover splicing 200m to 250m in detail and hollow core fiber splicing once that's worth a guide on its own.

What's actually different

Almost nothing on the glass, almost everything on the handling.

The glass fiber inside a 200m cable is the same 125m cladding diameter you've been splicing for years. Same core, same single-mode performance, same everything optically. What's different is the buffer coating around the glass. 250m fiber has a 250m outer diameter on the coating. 200m fiber is 200m. That's it. The light doesn't care.

What changes is everything that touches the fiber: the V-groove that holds it during alignment, the fiber holder that clamps it, and the ribbon spacing if you're working with ribbon. All of that has to match the smaller coating diameter or your splices won't seat properly.

What equipment you need

The good news is you probably already have most of it, if your splicer is recent enough. The bad news is 200m support is a generational divide. Splicers built before about 2018 generally have fixed V-grooves designed for 250m and can't easily be adapted. The current generation introduced replaceable V-grooves specifically because the industry was moving to 200m. If you're working primarily on 200m jobs, the splicer matters as much as the accessories.

Splicer. A current-generation mass fusion splicer like the Fujikura 90R or 100R, the Sumitomo Q102-M12+, or the Inno View 12R-200 handles both 200m and 250m with the right accessories. Older splicers (Fujikura 70R/70S, Sumitomo Q101 series) have fixed V-grooves and aren't the right tool for this work.

V-grooves. This is where most techs trip the first time. The V-groove is the precision groove that holds each fiber during arc alignment. It's sized for the coating diameter. Put a 200m fiber in a 250m V-groove and the fiber sits too low, alignment goes off, splice loss climbs. You need a V-groove specifically machined for 200m. They're field-replaceable on current splicers, so you swap them yourself on the truck in a few minutes. Order spares with the unit and keep them in the case.

Fiber holders. Same logic. The fiber holder clamps the ribbon or singles in place. A standard 250m holder

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doesn't grip 200m fiber correctly. You need a holder rated for 200m.

Pitch conversion holder. This is the special one. More on this below.

The table at the end of this guide lists current and older splicers with their specific 200m accessory requirements.

What pitch correction is

This is the concept most techs haven't run into before. Pitch is the spacing between fibers in a ribbon. A 250m pitch ribbon has fibers spaced 250m apart, center to center. A 200m pitch ribbon has fibers spaced 200m apart. Tighter packing, more fibers per cable.

Here's the problem. Your splicer's V-groove block has fixed spacing. A standard 12-fiber V-groove for 250m fiber has slots machined at 250m intervals. Drop a 200m pitch ribbon onto that block and the fibers don't land in the slots.

Pitch correction is a mechanical adapter that takes a 200m pitch ribbon and physically spaces the fibers out to 250m so they fit in a standard V-groove. Fujikura calls it the FH-70-12PC pitch conversion holder. You load your 200m pitch ribbon into the holder, it routes each fiber through guides that spread them to 250m spacing, and now they sit correctly in a standard V-groove for splicing.

This is also how you splice 200m pitch to 250m pitch on the same splicer in the same operation: the pitch conversion holder normalizes both sides to 250m.

The alternative on a splicer that supports it directly is to swap in a dedicated 200m V-groove and skip the pitch conversion step. Faster if you're doing all 200m work. Less convenient if you're switching between formats.

Can you splice 200m to 250m

Yes. Single-fiber splicing of 200m to 250m is straightforward because the glass is identical. Strip, cleave, splice. Your splicer doesn't know or care that the coating diameter changed.

Ribbon splicing of 200m to 250m is where pitch correction earns its keep. Handle the pitch difference with the conversion holder, the splicer treats both sides as 250m-spaced, and the splice itself is the same arc you've been firing for years.

What about testing

Nothing changes. OTDR, OLTS, all of it works the same way on 200m fiber as it does on 250m. The glass is the same, the core is the same, the optical characteristics are the same. Coating diameter doesn't affect light propagation.

Equipment by splicer

Next in the series

The next piece will dig into splicing 200m to 250m in mixed environments, because that's where most techs are actually working: 200m in the new high-count trunk, 250m in the legacy lateral or the customer drop.

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