

# Single-Mode Combiner Specifications

| MM Input Fibers                                              |                             | Ytterbium-Doped<br>for 1 $\mu\text{m}$ Applications |                             |                             | Erbium/Ytterbium-Doped<br>for 1.5 $\mu\text{m}$ Applications |  |
|--------------------------------------------------------------|-----------------------------|-----------------------------------------------------|-----------------------------|-----------------------------|--------------------------------------------------------------|--|
| Number of input fibers                                       | 6                           | 6                                                   | 18                          | 6                           | 6                                                            |  |
| Numerical aperture                                           | .165                        | .22                                                 | .165                        | .165                        | .22                                                          |  |
| Core diameter                                                | 105 $\pm$ 3 $\mu\text{m}$   | 105 $\pm$ 3 $\mu\text{m}$                           | 105 $\pm$ 3 $\mu\text{m}$   | 105 $\pm$ 3 $\mu\text{m}$   | 105 $\pm$ 3 $\mu\text{m}$                                    |  |
| Cladding diameter                                            | 125 $\pm$ 2.5 $\mu\text{m}$ | 125 $\pm$ 2.5 $\mu\text{m}$                         | 125 $\pm$ 2.5 $\mu\text{m}$ | 125 $\pm$ 2.5 $\mu\text{m}$ | 125 $\pm$ 2.5 $\mu\text{m}$                                  |  |
| Coating outer diameter                                       | 250 $\pm$ 15 $\mu\text{m}$  | 250 $\pm$ 15 $\mu\text{m}$                          | 250 $\pm$ 15 $\mu\text{m}$  | 250 $\pm$ 15 $\mu\text{m}$  | 250 $\pm$ 15 $\mu\text{m}$                                   |  |
| Pigtail fiber length                                         | 1 meter                     | 1 meter                                             | 1 meter                     | 1 meter                     | 1 meter                                                      |  |
| SM Signal Input Fiber                                        |                             |                                                     |                             |                             |                                                              |  |
| Numerical Aperture                                           | 0.15 $\pm$ .015             | 0.15 $\pm$ .015                                     | 0.15 $\pm$ .015             | 0.15 $\pm$ .015             | 0.15 $\pm$ .015                                              |  |
| MFD @ operating wavelength<br>(1060 or 1550 nm)              | 8.0 $\mu\text{m}$           | 8.0 $\mu\text{m}$                                   | 8.0 $\mu\text{m}$           | 10.3 $\mu\text{m}$          | 10.3 $\mu\text{m}$                                           |  |
| Cladding diameter                                            | 125 $\pm$ 2.5 $\mu\text{m}$ | 125 $\pm$ 2.5 $\mu\text{m}$                         | 125 $\pm$ 2.5 $\mu\text{m}$ | 125 $\pm$ 2.5 $\mu\text{m}$ | 200 $\pm$ 2.5 $\mu\text{m}$                                  |  |
| Coating Outer diameter                                       | 250 $\pm$ 15 $\mu\text{m}$  | 250 $\pm$ 15 $\mu\text{m}$                          | 250 $\pm$ 15 $\mu\text{m}$  | 250 $\pm$ 15 $\mu\text{m}$  | 300 $\pm$ 15 $\mu\text{m}$                                   |  |
| Splice to SMF28                                              | < 0.3 dB                    | < 0.3 dB                                            | < 0.3 dB                    | < 0.3 dB                    | < 0.3 dB                                                     |  |
| Pigtail fiber length                                         | 1 meter                     | 1 meter                                             | 1 meter                     | 1 meter                     | 1 meter                                                      |  |
| Undoped Output Fiber                                         |                             |                                                     |                             |                             |                                                              |  |
| Numerical aperture                                           | .45 $\pm$ .03               | .45 $\pm$ .03                                       | .45 $\pm$ .03               | .45 $\pm$ .03               | .45 $\pm$ .03                                                |  |
| MFD @ operating wavelength<br>(1060 or 1550 nm)              | 7.0 $\mu\text{m}$           | 7.0 $\mu\text{m}$                                   | 7.0 $\mu\text{m}$           | 10.2 $\mu\text{m}$          | 10.2 $\mu\text{m}$                                           |  |
| Cladding diameter                                            | 125 $\pm$ 2.5 $\mu\text{m}$ | 200 $\pm$ 2.5 $\mu\text{m}$                         | 200 $\pm$ 2.5 $\mu\text{m}$ | 125 $\pm$ 2.5 $\mu\text{m}$ | 125 $\pm$ 2.5 $\mu\text{m}$                                  |  |
| Coating outer diameter                                       | 250 $\pm$ 15 $\mu\text{m}$  | 300 $\pm$ 15 $\mu\text{m}$                          | 300 $\pm$ 15 $\mu\text{m}$  | 250 $\pm$ 15 $\mu\text{m}$  | 250 $\pm$ 15 $\mu\text{m}$                                   |  |
| Pigtail fiber length                                         | 1 meter                     | 1 meter                                             | 1 meter                     | 1 meter                     | 1 meter                                                      |  |
| Performance                                                  |                             |                                                     |                             |                             |                                                              |  |
| Multimode transmission (*2)                                  | >90%                        | >90%                                                | >90%                        | >90%                        | >90%                                                         |  |
| SM transmission                                              | >85%                        | >85%                                                | >85%                        | >85%                        | >85%                                                         |  |
| Optical return loss (multimode)                              | 40 dB                       | 40 dB                                               | 40 dB                       | 40 dB                       | 40 dB                                                        |  |
| Maximum total input power (*3)                               | 35 Watts                    | (*3)                                                | 100 Watts                   | 35 Watts                    | (*3)                                                         |  |
| Operating temperature                                        | 0 to +70°C                  | 0 to +70°C                                          | 0 to +70°C                  | 0 to +70°C                  | 0 to +70°C                                                   |  |
| Compatibility                                                |                             |                                                     |                             |                             |                                                              |  |
| Recommended for use with these<br>OFS cladding pumped fibers | Yb 130                      | Yb 200                                              | Yb 200                      | ErYb 130                    | Contact for<br>availability                                  |  |
| Order by Part Number                                         | TFB13A5                     | TFB23A5                                             | TFB4320                     | TFB1310                     | TFB2310                                                      |  |

(\*2) Tested by multimode input light with 70% and 99% of power confined with NA of 0.09 and 0.15 , respectively.

(\*3) These values are based on testing to date with 5W/leg conditions. Device capability is higher but has not yet been formally tested.