

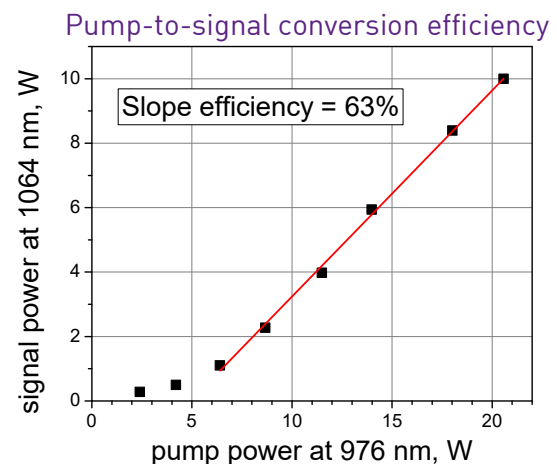
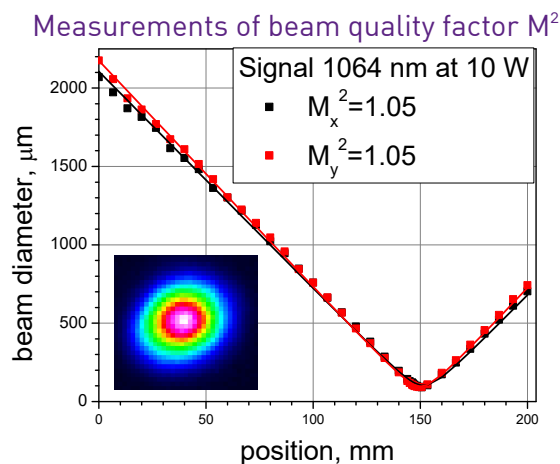
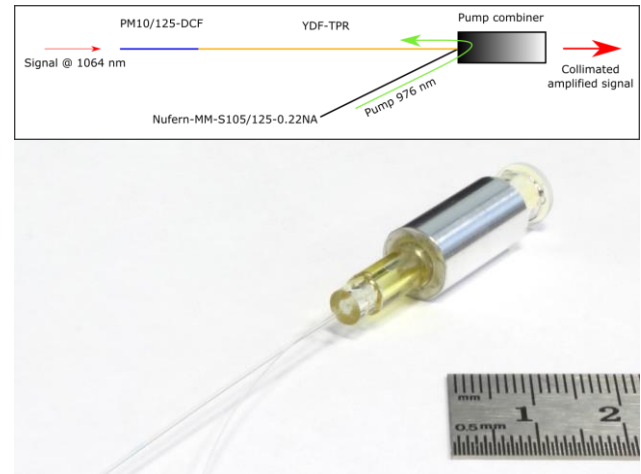
# TAPERED FIBER PUMP COMBINER (prototype)

LARGE MODE AREA  
Yb-DOPED DOUBLE CLAD  
POLARIZATION-MAINTAINING  
TAPERED FIBER  
PUMP COMBINER

## ARTICLE YDF-DC-40/400-PM-TPR-PC

YDF-DC-40/400-PM-TPR-PC is easy-to-use integrated unit which consist of YDF-DC-40/400-PM-TPR tapered fiber and monolithic system for injecting pump in the tapered fiber and couple amplified signal out. This unit allows amplification with a very high gain (in excess of 30 dB) to ultimately high peak power (sub-MW) and high average power (tens of Watts). There are collimated free space output for amplified signal and two fiber ports for splicing pump and signal sources. The unit has low-cost maintenance-free monolithic design.

NOTE: wavelength stabilized at  $976 \pm 1$  nm pump diode with NA=0.15 and signal at  $1064 \pm 10$  nm must be used to get the best performance (see details in [Opt. Express 25, 26958 (2017)]). It is necessary to ensure sufficient heat sink for the Yb-doped tapered fiber.



## PUMP COMBINER SPECIFICATIONS

## YDF-DC-40/400-PM-TPR-PC

Yb-doped DC PM tapered fiber length, m

1.5 - 3

Signal input port

PM 10/125-DCF fiber

Pump input port

MM-105/125-0.22NA fiber

Pump to signal conversion efficiency (slope), %

> 60

Pump power handling, W

< 20

Input signal, mW

> 10

Polarization extinction ratio, dB

> 10 (14-18 typical)

Output beam quality  $M$

< 1.2 (1.05-1.1 typical)

Other parameters (i.e. output power in excess of 50 W) are available on the request