

# HP60

60 mm Ø with cone reflector, 300 W - 15 000 W



## OUTPUT OPTIONS

- > **SMART DB15 CONNECTOR**  
Contains all the calibration data
- > **USB PORT**
  - Connects directly to a PC
  - Included in all HP models
- > **BLU WIRELESS METER**   
Connects via Bluetooth to a PC

## COMPATIBLE DISPLAYS & PC INTERFACES



MIRO ALTITUDE



MAESTRO



TUNER



UNO

## KEY FEATURES

- > **HIGH POWER HANDLING**  
Handles up to 15 kW of continuous power. Custom models available for higher powers. The new HP60A-15KW-GD-QBH is designed for use with QB/QBH high power fibers.
- > **LOW BACK REFLECTIONS**  
The cone reflector traps most of the incident laser power inside the detector head. With its TUBE extension, the HP60A-15KW-GD-TUBE has the lowest back reflection rating: under 2%.
- > **AVAILABLE WITH YAG AND CO<sub>2</sub> CALIBRATIONS**  
All HP models can be calibrated at YAG and CO<sub>2</sub> wavelengths with a calibration uncertainty of ± 5%
- > **DIRECT USB CONNECTION TO A PC**  
Each head comes with both a DB15 connector (for use with a Gentec-EO display device) and a USB output for direct connection to a PC
- > **TRACK WATER PARAMETERS**  
Water flow and temperature are monitored in real time and displayed continuously

## ACCESSORIES



Stand with steel post



Extension cables  
(4, 15, 20 or 25 m)\*



5 m USB cable  
(Included)



Water filter  
(Metric: 202984, Imperial: 202990)



Pelican carrying case

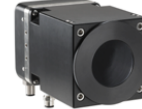
\*A USB power adaptor will be necessary if the HP is used with a DB15 extension cable.





# HP60

## Specifications

CE NIST\*  
Traceable

 NIST  
\*Also traceable to NRC-CNRC



	HP60A-10KW-GD	HP60A-15KW-GD	HP60A-15KW-GD-TUBE	HP60A-15KW-GD-QBH
<b>MAX AVERAGE POWER</b>	10 kW	15 kW	15 kW	15 kW
<b>EFFECTIVE APERTURE</b>	60 mm $\phi$	60 mm $\phi$	70 mm $\phi$	QB/QBH fiber adaptor
<b>COOLING METHOD</b>	Water-cooled	Water-cooled	Water-cooled	Water-cooled
<b>MEASUREMENT CAPABILITY</b>				
<b>Spectral range</b>	0.8 - 12 $\mu$ m	0.8 - 12 $\mu$ m	0.8 - 12 $\mu$ m	0.8 - 12 $\mu$ m
<b>Calibrated spectral range <sup>a</sup></b>	0.8 - 2.1 $\mu$ m	0.8 - 2.1 $\mu$ m	0.8 - 2.1 $\mu$ m	0.8 - 2.1 $\mu$ m
<b>Noise equivalent power <sup>b</sup></b>	10 W	15 W	15 W	15 W
<b>Minimum average power <sup>c</sup></b>	300 W	500 W	500 W	500 W
<b>Rise time (nominal)</b>	12 s	15 s	15 s	15 s
<b>Back reflections</b>	10%	5 - 10%	1 - 2%	1 - 2%
<b>Calibration uncertainty</b>	$\pm$ 5% at 1064 nm & 1070 nm	$\pm$ 5% at 1064 nm & 1070 nm	$\pm$ 5% at 1064 nm & 1070 nm	$\pm$ 5% at 1064 nm & 1070 nm
<b>Repeatability</b>	$\pm$ 2%	$\pm$ 2%	$\pm$ 2%	$\pm$ 2%
<b>Linearity with power</b>	$\pm$ 2%	$\pm$ 2%	$\pm$ 2%	$\pm$ 2%
<b>Linearity with beam diameter</b>	$\pm$ 2.0%	$\pm$ 2.5%	$\pm$ 2.5%	$\pm$ 2.5%
<b>Linearity with beam position <sup>d</sup></b>	$\pm$ 3.0%	$\pm$ 4.0%	$\pm$ 4.0%	$\pm$ 4.0%
<b>DAMAGE THRESHOLDS</b>				
<b>Maximum average power density <sup>e</sup></b>				
1 kW	70 kW/cm <sup>2</sup>	70 kW/cm <sup>2</sup>	70 kW/cm <sup>2</sup>	70 kW/cm <sup>2</sup>
5 kW	35 kW/cm <sup>2</sup>	35 kW/cm <sup>2</sup>	35 kW/cm <sup>2</sup>	35 kW/cm <sup>2</sup>
10 kW	20 kW/cm <sup>2</sup>	20 kW/cm <sup>2</sup>	20 kW/cm <sup>2</sup>	20 kW/cm <sup>2</sup>
15 kW	10 kW/cm <sup>2</sup>	10 kW/cm <sup>2</sup>	10 kW/cm <sup>2</sup>	10 kW/cm <sup>2</sup>
<b>PHYSICAL CHARACTERISTICS</b>				
<b>Effective aperture</b>	60 mm $\phi$	60 mm $\phi$	70 mm $\phi$ tube aperture	QB/QBH fiber adaptor
<b>Absorber</b>	GD (cone reflector)	GD (cone reflector)	GD (cone reflector)	GD (cone reflector)
<b>Cooling water</b>				
<b>Required cooling flow <sup>f</sup></b>	(6 - 8) LPM $\leq$ $\pm$ 1 LPM/min	(8 - 10) LPM $\leq$ $\pm$ 1 LPM/min	(8 - 10) LPM $\leq$ $\pm$ 1 LPM/min	(8 - 10) LPM $\leq$ $\pm$ 1 LPM/min
<b>Temperature range</b>	15 - 25 $^{\circ}$ C	15 - 25 $^{\circ}$ C	15 - 25 $^{\circ}$ C	15 - 25 $^{\circ}$ C
<b>Rate of temperature change</b>	$\leq$ $\pm$ 3 $^{\circ}$ C/min	$\leq$ $\pm$ 3 $^{\circ}$ C/min	$\leq$ $\pm$ 3 $^{\circ}$ C/min	$\leq$ $\pm$ 3 $^{\circ}$ C/min
<b>Maximum water pressure (input)</b>	413 kPa (60 psi)	413 kPa (60 psi)	413 kPa (60 psi)	413 kPa (60 psi)
<b>Dimensions</b>	127H x 127W x 95D mm	153H x 153W x 97D mm	153H x 153W x 302D mm	153H x 153W x 302D mm
<b>Weight</b>	6 kg	10 kg	15 kg	15 kg
<b>ORDERING INFORMATION</b>				
<b>Available output options</b>	DB15 & USB or Bluetooth & USB	DB15 & USB or Bluetooth & USB	DB15 & USB or Bluetooth & USB	DB15 & USB or Bluetooth & USB
<b>Compatible stand</b>	STAND-S-443-C	2x STAND-S-443-C	3x STAND-S-443-C	3x STAND-S-443-C
<b>Product page</b>				

- a. Calibrations at 2.1 to 2.5  $\mu$ m and 10.6  $\mu$ m are available on special request.  
 b. Nominal value, actual value depends on electrical noise in the measurement system.  
 c. For lower powers, call your Gentec-EO representative.  
 d. For a beam size of 20% of the aperture area, moved across 80% of the aperture area.  
 e. At 1064 nm, 1.07-1.08  $\mu$ m and 10.6  $\mu$ m, for beams  $\leq$  50 mm  $\phi$ .  
 f.  $>$  1 min. contact Gentec-EO for deionized water cooling module option.

Specifications are subject to change without notice

# HP100


Up to 125 x 125 mm, 100 W - 15 kW



## KEY FEATURES

- **HIGH POWER HANDLING**  
Handles up to 15 kW of continuous power with our standard models. Custom models available for higher powers (See SUPER HP)
- **LARGE APERTURE**  
Our standard HP models have very large effective apertures to accommodate large laser beams. Larger apertures with various shapes are available upon request (See SUPER HP)
- **AVAILABLE WITH YAG AND CO<sub>2</sub> CALIBRATIONS**  
All HP Models can be calibrated at YAG and CO<sub>2</sub> wavelengths with a calibration uncertainty of ± 5%
- **DIRECT USB CONNECTION TO A PC**  
Each head comes with both a DB15 connector (for use with a Gentec-EO display device) and a USB output for direct connection to a PC
- **TRACK WATER PARAMETERS**  
Water flow and temperature are monitored in real time and displayed continuously

## OUTPUT OPTIONS

- **SMART DB15 CONNECTOR**  
Contains all the calibration data
- **USB PORT**
  - Connects directly to a PC
  - Included in all HP models
- **BLU WIRELESS METER**   
Connects via Bluetooth to a PC

## COMPATIBLE DISPLAYS & PC INTERFACES



MIRO ALTITUDE



MAESTRO



TUNER



UNO

## ACCESSORIES



Stand with steel post



Extension cables  
(4, 15, 20 or 25 m)\*



5 m USB cable  
(Included)



Water filter  
(Metric: 202984, Imperial: 202990)



Pelican carrying case







\*A USB power adaptor will be necessary if the HP is used with a DB15 extension cable.

# HP100

## Specifications

CE NIST\*  
Traceable  
\*Also traceable to NRC-CNRC



	HP100A-4KW-HE	HP100A-4KW-HE-TUBE	HP100A-12KW-HD	HP100A-12KW-HD-TUBE	HP125A-15KW-HD	HP125A-15KW-HD-TUBE
<b>MAX AVERAGE POWER</b>	4000 W	4000 W	12 000 W	12 000 W	15 000 W	15 000 W
<b>EFFECTIVE APERTURE</b>	100 mm $\phi$	70 mm $\phi$	100 mm $\phi$	70 mm $\phi$	125 x 125 mm	70 mm $\phi$
<b>COOLING METHOD</b>	Water-cooled	Water-cooled	Water-cooled	Water-cooled	Water-cooled	Water-cooled
<b>MEASUREMENT CAPABILITY</b>						
<b>Spectral range</b>	0.19 - 20 $\mu$ m	0.19 - 20 $\mu$ m	0.19 - 20 $\mu$ m	0.19 - 20 $\mu$ m	0.19 - 20 $\mu$ m	0.19 - 20 $\mu$ m
<b>Calibrated spectral range <sup>a</sup></b>	0.248 - 2.1 $\mu$ m	0.248 - 2.1 $\mu$ m	0.248 - 2.1 $\mu$ m	0.248 - 2.1 $\mu$ m	0.248 - 2.1 $\mu$ m	0.248 - 2.1 $\mu$ m
<b>Noise equivalent power <sup>b</sup></b>	$\pm 3$ W	$\pm 3$ W	$\pm 10$ W	$\pm 10$ W	$\pm 15$ W	$\pm 15$ W
<b>Minimum average power <sup>c</sup></b>	100 W	100 W	300 W	300 W	500 W	500 W
<b>Rise time (nominal)</b>	7 s	7 s	9 s	9 s	15 s	15 s
<b>Back reflections</b>	10-15%	< 4%	10 - 15%	< 4%	10 - 15%	2 - 4%
<b>Calibration uncertainty <sup>d</sup></b>	$\pm 5$	$\pm 5\%$	$\pm 5\%$	$\pm 5\%$	$\pm 5\%$	$\pm 5\%$
<b>Repeatability</b>	$\pm 2\%$	$\pm 2\%$	$\pm 2\%$	$\pm 2\%$	$\pm 2\%$	$\pm 2\%$
<b>Linearity with power</b>	$\pm 1.5\%$	$\pm 1.5\%$	$\pm 1.5\%$	$\pm 1.5\%$	$\pm 2\%$	$\pm 2\%$
<b>Linearity vs beam diameter</b>	$\pm 1\%$	$\pm 1\%$	$\pm 1\%$	$\pm 1\%$	$\pm 1\%$	$\pm 1\%$
<b>Linearity vs beam position <sup>e</sup></b>	$\pm 1.7\%$	$\pm 1.7\%$	$\pm 1.7\%$	$\pm 1.7\%$	$\pm 1.0\%$	$\pm 1.0\%$
<b>DAMAGE THRESHOLDS</b>						
<b>Maximum average power density <sup>f</sup></b>						
500 W	10 kW/cm <sup>2</sup>	10 kW/cm <sup>2</sup>	16 kW/cm <sup>2</sup>	16 kW/cm <sup>2</sup>	16 kW/cm <sup>2</sup>	16 kW/cm <sup>2</sup>
4 kW	4 kW/cm <sup>2</sup>	4 kW/cm <sup>2</sup>	---	---	---	---
5 kW	---	---	6.5 kW/cm <sup>2</sup>	6.5 kW/cm <sup>2</sup>	6.5 kW/cm <sup>2</sup>	6.5 kW/cm <sup>2</sup>
10 kW	---	---	3.5 kW/cm <sup>2</sup>	3.5 kW/cm <sup>2</sup>	3.5 kW/cm <sup>2</sup>	3.5 kW/cm <sup>2</sup>
15 kW	---	---	---	---	1.5 kW/cm <sup>2</sup>	1.5 kW/cm <sup>2</sup>
<b>PHYSICAL CHARACTERISTICS</b>						
<b>Effective aperture</b>	100 mm $\phi$	70 mm $\phi$	100 mm $\phi$	70 mm $\phi$	125 x 125 mm	70 mm
<b>Absorber (high damage threshold)</b>	HE	HE	HD	HD	HD	HD
<b>Cooling water</b>						
<b>Required cooling flow <sup>g</sup></b>	(4 - 6) LPM $\leq 1$ LPM/min	(4 - 6) LPM $\leq 1$ LPM/min	(6 - 10) LPM $\leq 1$ LPM/min	(6 - 10) LPM $\leq 1$ LPM/min	(8 - 10) LPM $\leq 1$ LPM/min	(8 - 10) LPM $\leq 1$ LPM/min
<b>Temperature range</b>	15 - 25 °C	15 - 25 °C	15 - 25 °C	15 - 25 °C	15 - 25 °C	15 - 25 °C
<b>Rate of temperature change</b>	$\leq 3$ °C/min	$\leq 3$ °C/min	$\leq 3$ °C/min	$\leq 3$ °C/min	$\leq 3$ °C/min	$\leq 3$ °C/min
<b>Maximum water pressure (input)</b>	413 kPa (60 psi)	413 kPa (60 psi)	413 kPa (60 psi)	413 kPa (60 psi)	413 kPa (60 psi)	413 kPa (60 psi)
<b>Dimensions</b>	127H x 127W x 74D mm	127H x 127W x 234D mm	127H x 127W x 70D mm	127H x 127W x 230D mm	153H x 153W x 70D mm	153H x 153W x 272D mm
<b>Weight (head only)</b>	1.8 kg	6.0 kg	3.3 kg	7.5 kg	5 kg	10 kg
<b>ORDERING INFORMATION</b>						
<b>Available output options</b>	DB15 & USB or Bluetooth & USB	DB15 & USB or Bluetooth & USB	DB15 & USB or Bluetooth & USB	DB15 & USB or Bluetooth & USB	DB15 & USB or Bluetooth & USB	DB15 & USB or Bluetooth & USB
<b>Compatible stand</b>	STAND-S-443-C	2x STAND-S-443-C	STAND-S-443-C	2x STAND-S-443-C	2x STAND-S-443-C	3x STAND-S-443-C
<b>Product page</b>						

a. Calibrations at 21 to 2.5  $\mu$ m and 10.6  $\mu$ m are available on special request.  
 b. Nominal value, actual value depends on electrical noise in the measurement system.  
 c. For lower powers, call your Gentec-EO representative.  
 d. At 1064 nm and 1070 nm  
 e. For a beam size of 20% of the aperture area, moved across 80% of the aperture area.  
 f. At 1064 nm, 1.07-1.08  $\mu$ m and 10.6  $\mu$ m.  
 g. > 1 min. Contact Gentec-EO for deionized water cooling module option.

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