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# MH01 BROCHURE



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# 30W HOLMIUM LASER

## MH01



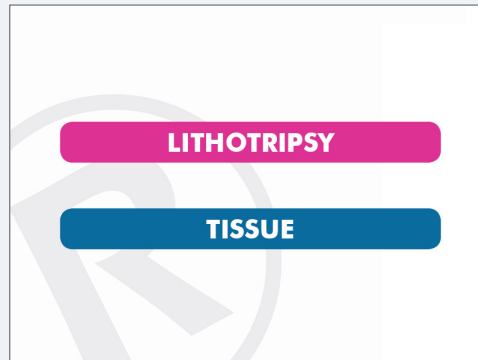
Holmium Laser 30W is powerful and offers a wide range of different frequencies and energy.

The setup of frequency and energy is integrated in an intuitive and pre-programmed menu: for a fine and accurate treatment strategy and for stone or soft tissue with a very easy handling.

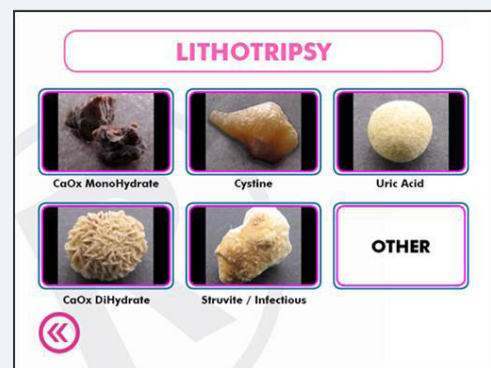
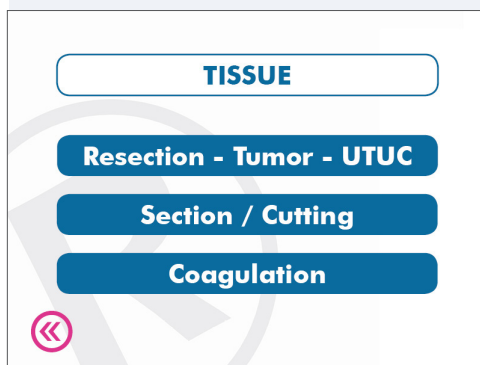
| Ref. | Product Description                    |
|------|----------------------------------------|
| MH01 | Rocamed Laser - Holmium Medical System |

# 30W HOLMIUM LASER

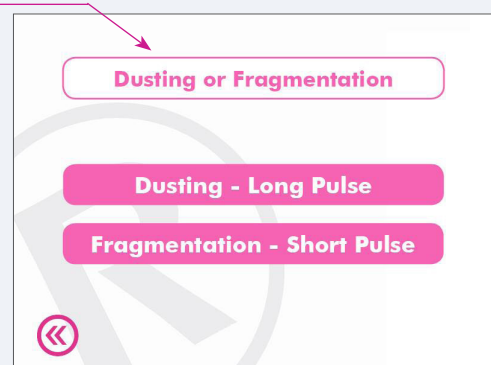
## Application Mode



Lithotripsy or Tissue Application mode

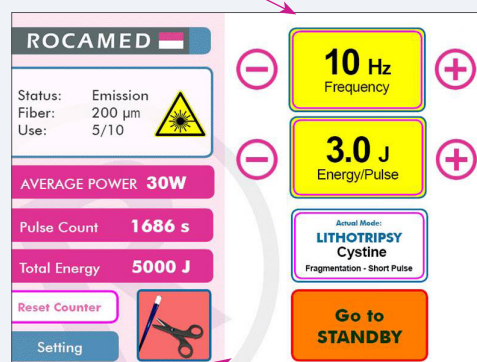


Vaporization with Long Pulse  
Fragmentation with Short Pulse



\* Pre Setting registered by type of Stone selected

\* August 2014 - World Journal of Urology  
Peter Kronenberg & Olivier Traxer  
Update on lasers in urology 2014:  
current assessment on holmium:yttrium-  
aluminum-garnet (Ho:YAG) laser lithotripter  
settings and laser fibers



Cutting Fiber Alarm warns Surgeons for 10s  
Allows a better Fiber Performances



# 30W HOLMIUM LASER

## Characteristics

|                           |                                                            |
|---------------------------|------------------------------------------------------------|
| WaveLenght                | Ho:YAG 2100 nm                                             |
| Pulse energy :            | 0,2 - 4J                                                   |
| Pulse frequency :         | 3 - 25 Hz                                                  |
| Pulse duration :          | 150-850 $\mu$ s                                            |
| Pulse width :             | 100-1500 micro sec (lamp)                                  |
| Pulse lengh regulation :  | Automatically                                              |
| Identification of Fiber : | Fiber RFID with TAG devise                                 |
| Average power :           | up to 30W - Wavelength: 2100nm+/- 20nm                     |
| Electrical :              | 100-120 VAC : 50/60 HZ 16 A<br>200-240 VAC : 50/60 HZ 10 A |
| Dimension :               | 938 x 332 x 967      H x W x D 5(mm)                       |
| Weight :                  | 60 kg                                                      |

# 30W HOLMIUM LASER

## Accessories



### Accessoires

|         |                                                           |
|---------|-----------------------------------------------------------|
| MH30STP | Fiberstripper 0.3 - 1.0 mm                                |
| MH30SCF | Ceramic scissor for fibers                                |
| MH30SGO | Safety goggles DI1400-33,,L3;905-1400DIRL5                |
| MH30UMR | User Manual Rocamed MH01                                  |
| MH30OBS | Optical Blast Shield for Holmium-external access          |
| MH30BHC | Bottle For Hydraulic circuit filling - 0,8 litre with CPC |
| MH30FSC | 1-pedal foot control with B7 button                       |
| MH30PKG | Carton Package for LITHO-Asset                            |
| MH01FC  | Laser MH01 Flight Case                                    |



# 30W HOLMIUM LASER

## Fibers



### ⇒ Single Use Sterile Surgical Optical Fiber

| References | μm  | Fiber Type | Identification | Units / box |
|------------|-----|------------|----------------|-------------|
| MF200ST    | 200 | Single Use | RFID           | 5           |
| MF272ST    | 272 |            |                |             |
| MF365ST    | 365 |            |                |             |
| MF550ST    | 550 |            |                |             |
| MF800ST    | 800 |            |                |             |

### ⇒ Reusable Sterile Surgical Optical Fiber

| References | μm  | Fiber Type      | Identification | Units / box |
|------------|-----|-----------------|----------------|-------------|
| MF200RST   | 200 | 10x<br>ReUsable | RFID           | 5           |
| MF272RST   | 272 |                 |                |             |
| MF365RST   | 365 |                 |                |             |
| MF550RST   | 550 |                 |                |             |
| MF800RST   | 800 |                 |                |             |

# 30W HOLMIUM LASER

## Fibers parameters



The following tables give indication of maximum laser output for each possible combinations (Power=Energy\*Frequency).

The size of the fiber has to be taken in consideration to detect power limits

| Fibre : 200µm |       | LITHOTRIPSY - Fragmentation |       |       |       |       |      |       |       |       |      |       |     |       |
|---------------|-------|-----------------------------|-------|-------|-------|-------|------|-------|-------|-------|------|-------|-----|-------|
|               | 0.3 J | 0.4 J                       | 0.5 J | 0.6 J | 0.7 J | 0.8 J | 1 J  | 1.2 J | 1.5 J | 1.8 J | 2J   | 2.5 J | 3 J | 3.5 J |
| 3 Hz          |       |                             | 1.5 W | 1.8 W | 2.1 W | 2.4 W | 3 W  | 3.6 W | 4.5 W | 5.4 W | 6 W  |       |     |       |
| 5 Hz          |       |                             | 2.5 W | 3 W   | 3.5 W | 4 W   | 5 W  | 6 W   | 7.5 W | 9 W   | 10 W |       |     |       |
| 8 Hz          |       |                             | 4 W   | 4.8 W | 5.6 W | 6.4 W | 8 W  | 9.6 W | 12 W  |       |      |       |     |       |
| 10 Hz         |       |                             | 5 W   | 6 W   | 7 W   | 8 W   | 10 W | 12 W  |       |       |      |       |     |       |
| 12 Hz         |       |                             | 6 W   | 7.2 W | 8.4 W | 9.6 W | 12 W |       |       |       |      |       |     |       |

| Fibre : 200µm |       | LITHOTRIPSY - Dusting |       |       |       |       |      |       |       |       |      |       |     |       |
|---------------|-------|-----------------------|-------|-------|-------|-------|------|-------|-------|-------|------|-------|-----|-------|
|               | 0.3 J | 0.4 J                 | 0.5 J | 0.6 J | 0.7 J | 0.8 J | 1 J  | 1.2 J | 1.5 J | 1.8 J | 2J   | 2.5 J | 3 J | 3.5 J |
| 3 Hz          |       |                       |       |       |       |       |      |       |       |       |      |       |     |       |
| 5 Hz          |       |                       | 2.5 W | 3 W   | 3.5 W | 4 W   | 5 W  | 6 W   | 7.5 W | 9 W   | 10 W |       |     |       |
| 8 Hz          |       |                       | 4 W   | 4.8 W | 5.6 W | 6.4 W | 8 W  | 9.6 W | 12 W  |       |      |       |     |       |
| 10 Hz         |       |                       | 5 W   | 6 W   | 7 W   | 8 W   | 10 W | 12 W  |       |       |      |       |     |       |
| 12 Hz         |       |                       | 6 W   | 7.2 W | 8.4 W | 9.6 W | 12 W |       |       |       |      |       |     |       |

| Fibre : 200µm |       |       | TISSUE - ABLATION |       |       |       |      |       |       |       |    |       |     |       |
|---------------|-------|-------|-------------------|-------|-------|-------|------|-------|-------|-------|----|-------|-----|-------|
|               | 0.3 J | 0.4 J | 0.5 J             | 0.6 J | 0.7 J | 0.8 J | 1 J  | 1.2 J | 1.5 J | 1.8 J | 2J | 2.5 J | 3 J | 3.5 J |
| 3 Hz          |       |       |                   |       |       |       |      |       |       |       |    |       |     |       |
| 5 Hz          |       |       |                   |       |       |       |      |       |       |       |    |       |     |       |
| 8 Hz          |       |       | 4 W               | 4.8 W | 5.6 W | 6.4 W | 8 W  | 9.6 W | 12 W  |       |    |       |     |       |
| 10 Hz         |       |       | 5 W               | 6 W   | 7 W   | 8 W   | 10 W | 12 W  |       |       |    |       |     |       |
| 12 Hz         |       |       | 6 W               | 7.2 W | 8.4 W | 9.6 W | 12 W |       |       |       |    |       |     |       |

| Fibre : 200µm |       | TISSUE - COAGULATION |       |       |       |       |      |       |       |       |      |       |     |       |
|---------------|-------|----------------------|-------|-------|-------|-------|------|-------|-------|-------|------|-------|-----|-------|
|               | 0.3 J | 0.4 J                | 0.5 J | 0.6 J | 0.7 J | 0.8 J | 1 J  | 1.2 J | 1.5 J | 1.8 J | 2J   | 2.5 J | 3 J | 3.5 J |
| 3 Hz          |       |                      |       |       |       |       |      |       |       |       |      |       |     |       |
| 5 Hz          |       |                      | 2.5 W | 3 W   | 3.5 W | 4 W   | 5 W  | 6 W   | 7.5 W | 9 W   | 10 W |       |     |       |
| 8 Hz          |       |                      | 4 W   | 4.8 W | 5.6 W | 6.4 W | 8 W  | 9.6 W | 12 W  |       |      |       |     |       |
| 10 Hz         |       |                      | 5 W   | 6 W   | 7 W   | 8 W   | 10 W | 12 W  |       |       |      |       |     |       |
| 12 Hz         |       |                      | 6 W   | 7.2 W | 8.4 W | 9.6 W | 12 W |       |       |       |      |       |     |       |





# 30W HOLMIUM LASER

## Fibers Parameters

| Fibre : 272µm |       | LITHOTRIPSY - Fragmentation |       |       |        |       |      |        |       |        |      |        |      |        |
|---------------|-------|-----------------------------|-------|-------|--------|-------|------|--------|-------|--------|------|--------|------|--------|
|               | 0.3 J | 0.4 J                       | 0.5 J | 0.6 J | 0.7 J  | 0.8 J | 1 J  | 1.2 J  | 1.5 J | 1.8 J  | 2J   | 2.5 J  | 3 J  | 3.5 J  |
| 3 Hz          |       |                             | 1.5 W | 1.8 W | 2.1 W  | 2.4 W | 3 W  | 3.6 W  | 4.5 W | 5.4 W  | 6 W  | 7.5 W  | 9 W  | 10.5 W |
| 5 Hz          |       |                             | 2.5 W | 3 W   | 3.5 W  | 4 W   | 5 W  | 6 W    | 7.5 W | 9 W    | 10 W | 12.5 W | 15 W |        |
| 8 Hz          |       |                             | 4 W   | 4.8 W | 5.6 W  | 6.4 W | 8 W  | 9.6 W  | 12 W  | 14.4 W |      |        |      |        |
| 10 Hz         |       |                             | 5 W   | 6 W   | 7 W    | 8 W   | 10 W | 12 W   | 15 W  |        |      |        |      |        |
| 12 Hz         |       |                             | 6 W   | 7.2 W | 8.4 W  | 9.6 W | 12 W | 14.4 W |       |        |      |        |      |        |
| 15 Hz         |       |                             | 7.5 W | 9 W   | 10.5 W | 12 W  | 15 W |        |       |        |      |        |      |        |
| 20 Hz         |       |                             | 10 W  |       |        |       |      |        |       |        |      |        |      |        |

| Fibre : 272µm |       | LITHOTRIPSY - Dusting |       |       |        |       |      |        |       |        |      |        |      |       |
|---------------|-------|-----------------------|-------|-------|--------|-------|------|--------|-------|--------|------|--------|------|-------|
|               | 0.3 J | 0.4 J                 | 0.5 J | 0.6 J | 0.7 J  | 0.8 J | 1 J  | 1.2 J  | 1.5 J | 1.8 J  | 2J   | 2.5 J  | 3 J  | 3.5 J |
| 3 Hz          |       |                       |       |       |        |       |      |        |       |        |      |        |      |       |
| 5 Hz          |       |                       | 2.5 W | 3 W   | 3.5 W  | 4 W   | 5 W  | 6 W    | 7.5 W | 9 W    | 10 W | 12.5 W | 15 W |       |
| 8 Hz          |       |                       | 4 W   | 4.8 W | 5.6 W  | 6.4 W | 8 W  | 9.6 W  | 12 W  | 14.4 W |      |        |      |       |
| 10 Hz         |       |                       | 5 W   | 6 W   | 7 W    | 8 W   | 10 W | 12 W   | 15 W  |        |      |        |      |       |
| 12 Hz         |       |                       | 6 W   | 7.2 W | 8.4 W  | 9.6 W | 12 W | 14.4 W |       |        |      |        |      |       |
| 15 Hz         |       |                       | 7.5 W | 9 W   | 10.5 W | 12 W  | 15 W |        |       |        |      |        |      |       |
| 20 Hz         |       |                       |       |       |        |       |      |        |       |        |      |        |      |       |

| Fibre : 272µm |       | TISSUE - Ablation |       |       |       |       |      |       |       |       |    |       |     |       |
|---------------|-------|-------------------|-------|-------|-------|-------|------|-------|-------|-------|----|-------|-----|-------|
|               | 0.3 J | 0.4 J             | 0.5 J | 0.6 J | 0.7 J | 0.8 J | 1 J  | 1.2 J | 1.5 J | 1.8 J | 2J | 2.5 J | 3 J | 3.5 J |
| 3 Hz          |       |                   |       |       |       |       |      |       |       |       |    |       |     |       |
| 5 Hz          |       |                   |       |       |       |       |      |       |       |       |    |       |     |       |
| 8 Hz          |       |                   | 4 W   | 4.8 W | 5.6 W | 6.4 W | 8 W  | 9.6 W | 12 W  |       |    |       |     |       |
| 10 Hz         |       |                   | 5 W   | 6 W   | 7 W   | 8 W   | 10 W | 12 W  | 15 W  |       |    |       |     |       |
| 12 Hz         |       |                   | 6 W   | 7.2 W | 8.4 W | 9.6 W | 12 W |       |       |       |    |       |     |       |
| 15 Hz         |       |                   |       |       |       |       |      |       |       |       |    |       |     |       |
| 20 Hz         |       |                   |       |       |       |       |      |       |       |       |    |       |     |       |

| Fibre : 272µm |       | LITHOTRIPSY - Coaguation |       |       |        |       |      |        |       |        |      |        |      |       |
|---------------|-------|--------------------------|-------|-------|--------|-------|------|--------|-------|--------|------|--------|------|-------|
|               | 0.3 J | 0.4 J                    | 0.5 J | 0.6 J | 0.7 J  | 0.8 J | 1 J  | 1.2 J  | 1.5 J | 1.8 J  | 2J   | 2.5 J  | 3 J  | 3.5 J |
| 3 Hz          |       |                          |       |       |        |       |      |        |       |        |      |        |      |       |
| 5 Hz          |       |                          | 2.5 W | 3 W   | 3.5 W  | 4 W   | 5 W  | 6 W    | 7.5 W | 9 W    | 10 W | 12.5 W | 15 W |       |
| 8 Hz          |       |                          | 4 W   | 4.8 W | 5.6 W  | 6.4 W | 8 W  | 9.6 W  | 12 W  | 14.4 W |      |        |      |       |
| 10 Hz         |       |                          | 5 W   | 6 W   | 7 W    | 8 W   | 10 W | 12 W   | 15 W  |        |      |        |      |       |
| 12 Hz         |       |                          | 6 W   | 7.2 W | 8.4 W  | 9.6 W | 12 W | 14.4 W |       |        |      |        |      |       |
| 15 Hz         |       |                          | 7.5 W | 9 W   | 10.5 W | 12 W  | 15 W |        |       |        |      |        |      |       |
| 20 Hz         |       |                          | 10 W  |       |        |       |      |        |       |        |      |        |      |       |

# 30W HOLMIUM LASER

## Fibers Parameters



| Fibre : 365-550-800 µm |       |       |       | LITHOTRIPSY - Dusting |       |        |       |      |        |       |        |      |        |      |        |     |
|------------------------|-------|-------|-------|-----------------------|-------|--------|-------|------|--------|-------|--------|------|--------|------|--------|-----|
|                        | 0.2 J | 0.3 J | 0.4 J | 0.5 J                 | 0.6 J | 0.7 J  | 0.8 J | 1 J  | 1.2 J  | 1.5 J | 1.8 J  | 2J   | 2.5 J  | 3 J  | 3.5 J  | 4 J |
| 3 Hz                   |       |       |       | 1.5W                  | 1.8W  | 2.1W   | 2.4W  | 3W   | 3.6W   | 4.5W  | 5.4W   | 6W   | 7.5W   | 9W   | 10.5W  |     |
| 5 Hz                   |       |       |       | 2.5 W                 | 3 W   | 3.5 W  | 4 W   | 5 W  | 6 W    | 7.5 W | 9 W    | 10 W | 12.5 W | 15 W | 17.5 W | 20W |
| 8 Hz                   |       |       |       | 4 W                   | 4.8 W | 5.6 W  | 6.4 W | 8 W  | 9.6 W  | 12 W  | 14.4 W | 16W  | 20W    | 24W  |        |     |
| 10 Hz                  |       |       |       | 5 W                   | 6 W   | 7 W    | 8 W   | 10 W | 12 W   | 15 W  | 18W    | 20W  | 25W    | 30W  |        |     |
| 12 Hz                  |       |       |       | 6 W                   | 7.2 W | 8.4 W  | 9.6 W | 12 W | 14.4 W | 18W   | 21.6W  | 24W  | 30W    |      |        |     |
| 15 Hz                  |       |       |       | 7.5 W                 | 9 W   | 10.5 W | 12 W  | 15 W | 18W    | 22.5W |        |      |        |      |        |     |
| 20 Hz                  |       |       |       | 10 W                  |       |        |       |      |        |       |        |      |        |      |        |     |
| 25 Hz                  |       |       |       | 5 W                   | 7.5W  | 10W    |       |      |        |       |        |      |        |      |        |     |

| Fibre : 365-550-800 µm LITHOTRIPSY - Dusting |       |       |       |       |       |        |       |       |        |       |        |       |        |       |
|----------------------------------------------|-------|-------|-------|-------|-------|--------|-------|-------|--------|-------|--------|-------|--------|-------|
|                                              | 0.3 J | 0.4 J | 0.5 J | 0.6 J | 0.7 J | 0.8 J  | 1 J   | 1.2 J | 1.5 J  | 1.8 J | 2J     | 2.5 J | 3 J    | 3.5 J |
| 3 Hz                                         |       |       |       |       |       |        |       |       |        |       |        |       |        |       |
| 5 Hz                                         |       |       |       | 2.5 W | 3 W   | 3.5 W  | 4 W   | 5 W   | 6 W    | 7.5 W | 9 W    | 10 W  | 12.5 W | 15 W  |
| 8 Hz                                         |       |       |       | 4 W   | 4.8 W | 5.6 W  | 6.4 W | 8 W   | 9.6 W  | 12 W  | 14.4 W | 16W   | 20W    |       |
| 10 Hz                                        |       |       |       | 5 W   | 6 W   | 7 W    | 8 W   | 10 W  | 12 W   | 15 W  | 18W    | 20W   | 25W    |       |
| 12 Hz                                        |       |       |       | 6 W   | 7.2 W | 8.4 W  | 9.6 W | 12 W  | 14.4 W | 18W   | 21.6W  | 24W   |        |       |
| 15 Hz                                        |       |       |       | 7.5 W | 9 W   | 10.5 W | 12 W  | 15 W  | 18 W   | 22.5W |        |       |        |       |
| 20 Hz                                        |       |       |       | 10 W  |       |        |       |       |        |       |        |       |        |       |

| Fibre : 365-550-800 µm TISSUE - Ablation |       |       |       |       |       |        |       |       |        |       |        |       |     |       |
|------------------------------------------|-------|-------|-------|-------|-------|--------|-------|-------|--------|-------|--------|-------|-----|-------|
|                                          | 0.3 J | 0.4 J | 0.5 J | 0.6 J | 0.7 J | 0.8 J  | 1 J   | 1.2 J | 1.5 J  | 1.8 J | 2J     | 2.5 J | 3 J | 3.5 J |
| 3 Hz                                     |       |       |       |       |       |        |       |       |        |       |        |       |     |       |
| 5 Hz                                     |       |       |       |       |       |        |       |       |        |       |        |       |     |       |
| 8 Hz                                     |       |       |       | 4 W   | 4.8 W | 5.6 W  | 6.4 W | 8 W   | 9.6 W  | 12 W  | 14.4 W | 16W   | 20W | 24W   |
| 10 Hz                                    |       |       |       | 5 W   | 6 W   | 7 W    | 8 W   | 10 W  | 12 W   | 15 W  | 18W    | 20W   | 25W | 30W   |
| 12 Hz                                    |       |       |       | 6 W   | 7.2 W | 8.4 W  | 9.6 W | 12 W  | 14.4 W | 18W   | 21.6W  | 24W   | 30W |       |
| 15 Hz                                    |       |       |       | 7.5 W | 9 W   | 10.5 W | 12 W  | 15 W  | 18 W   | 22.5W |        |       |     |       |
| 20 Hz                                    |       |       |       | 10 W  |       |        |       |       |        |       |        |       |     |       |

| Fibre : 365-550-800 µm TISSUE - Coagulation |       |       |       |       |       |        |       |       |        |       |        |       |        |       |
|---------------------------------------------|-------|-------|-------|-------|-------|--------|-------|-------|--------|-------|--------|-------|--------|-------|
|                                             | 0.3 J | 0.4 J | 0.5 J | 0.6 J | 0.7 J | 0.8 J  | 1 J   | 1.2 J | 1.5 J  | 1.8 J | 2J     | 2.5 J | 3 J    | 3.5 J |
| 3 Hz                                        |       |       |       |       |       |        |       |       |        |       |        |       |        |       |
| 5 Hz                                        |       |       |       | 2.5 W | 3 W   | 3.5 W  | 4 W   | 5 W   | 6 W    | 7.5 W | 9 W    | 10 W  | 12.5 W | 15 W  |
| 8 Hz                                        |       |       |       | 4 W   | 4.8 W | 5.6 W  | 6.4 W | 8 W   | 9.6 W  | 12 W  | 14.4 W | 16W   | 20W    |       |
| 10 Hz                                       |       |       |       | 5 W   | 6 W   | 7 W    | 8 W   | 10 W  | 12 W   | 15 W  | 18W    | 20W   | 25W    |       |
| 12 Hz                                       |       |       |       | 6 W   | 7.2 W | 8.4 W  | 9.6 W | 12 W  | 14.4 W | 18W   | 21.6W  | 24W   |        |       |
| 15 Hz                                       |       |       |       | 7.5 W | 9 W   | 10.5 W | 12 W  | 15 W  | 18 W   | 22.5W |        |       |        |       |
| 20 Hz                                       |       |       |       | 10 W  |       |        |       |       |        |       |        |       |        |       |



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