

HIGH POWER PRE-SCANNING SYSTEM

# NPRF-30



## Key Feature

- Optimized structure for largest common work area
- High integration with high dustproof level
- Increase productivity several times by multi-head
- Electrically adjustable working area
- Neutron series galvo in the system provide the highest precision
- Optional coaxial quality inspection interface

The NPRF-30 galvanometer is a 3D laser scanning system specially designed for the metal 3D printing industry. It includes a Neutron 2D galvanometer and a large aperture optical Z-axis. The maximum operating power can reach 1KW, and the optimized structure can maximize the common area range for multi-head applications. The reserved expansion interface can meet the needs of coaxial measurement.

## 主要特点

- 优化的结构，可实现最大的公共工作区
- 高集成度，高防尘等级
- 通过多机头提高生产力数倍
- 电动调节工作区域
- 系统中的凌腾系列振镜提供最高的精度
- 可选的同轴质量检测接口

NPRF-30振镜是专门为金属3D打印行业设计的3D激光扫描系统。它包括一个Neutron 2D振镜和一个大孔径的光学Z轴。最大工作功率可以达到1KW，优化的结构可以最大限度地扩大多头应用的公共区域范围。预留的扩展接口可以满足同轴测量的需要。

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## NPRF -30 High Power Pre-scanning System

### NPRF-30 高功率前聚焦扫描振镜系统

#### 典型的光学配置 / Typical optical configurations

工作区域尺寸 [mm <sup>2</sup> ] Image field size [mm <sup>2</sup> ]	460 x 460	560 x 560	660 x 660
2*2 配置下最大公共区域 100% overlap per image field [mm <sup>2</sup> ] 2x2 scanner	307 x 315	407 x 415	507 x 515
工作距离 (从振镜下边缘起) [mm] Free working distance from lower edge of scan system [mm]	585	722	860
瑞利长度 [mm] Rayleigh length [mm]	1.4	2.0	2.6
平均焦点直径 [μm] Average focus diameter in the image field [μm]	63	75	87

#### 一般规格 / General specifications

孔径 Aperture	30 mm
波长 Wavelength	1030-1080 nm
最大激光功率 Max.laser power	1KW
电源电压 (要求) Supply Voltage (Requirements)	
振镜 / Galvo Scanner	±15 @ 150W
DFU 电动调节模组 /DFU Electric adjustment module power supply interface	12-48V 6A
尺寸 (长, 宽, 高) Dimensions (LxWxH in mm)	230x153x323
接口协议 Interface	XY2-100
水冷规格 Water cooling	2-4 l/min @ 2-3 bar
防护等级 IP code	IP 55
重量 Weight	approx. 14kg

#### 精度和稳定性 / Precision & stability

重复性 Repeatability (RMS)	< 2 μrad
分辨率 Position resolution	16 Bit
线性度 Nonlinearity	99.9 %
温度漂移 Temperature drift	
零点 / Offset	< 15 μrad/K
增益 / Gain	< 8 μrad/K
长期漂移 Long-term drift	
8小时漂移 (30分钟后) 8-hr drift (after 30min)	
零点 / Offset	< 50 μrad
增益 / Gain	< 50 μrad

#### 动态性 / Dynamics

加工速度 Process speed	6 m/s
阶梯响应 Step Response	
1%满刻度 / 1% full scale	1 ms
10%满刻度 / 10% full scale	6 ms
追踪误差 Z-轴 Tracking Error Z-axis	< 1.5 ms
追踪误差 XY 模块 Tracking Error XY sub-module	< 680 μs

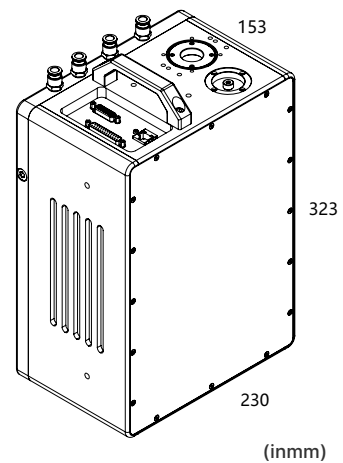
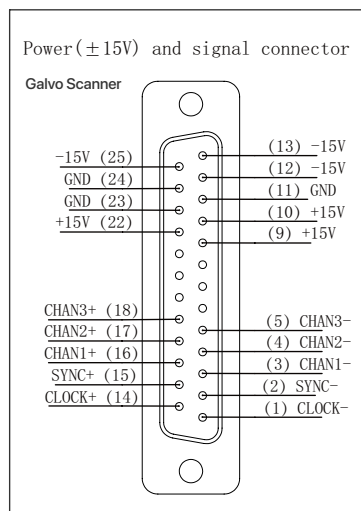
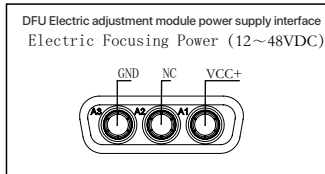
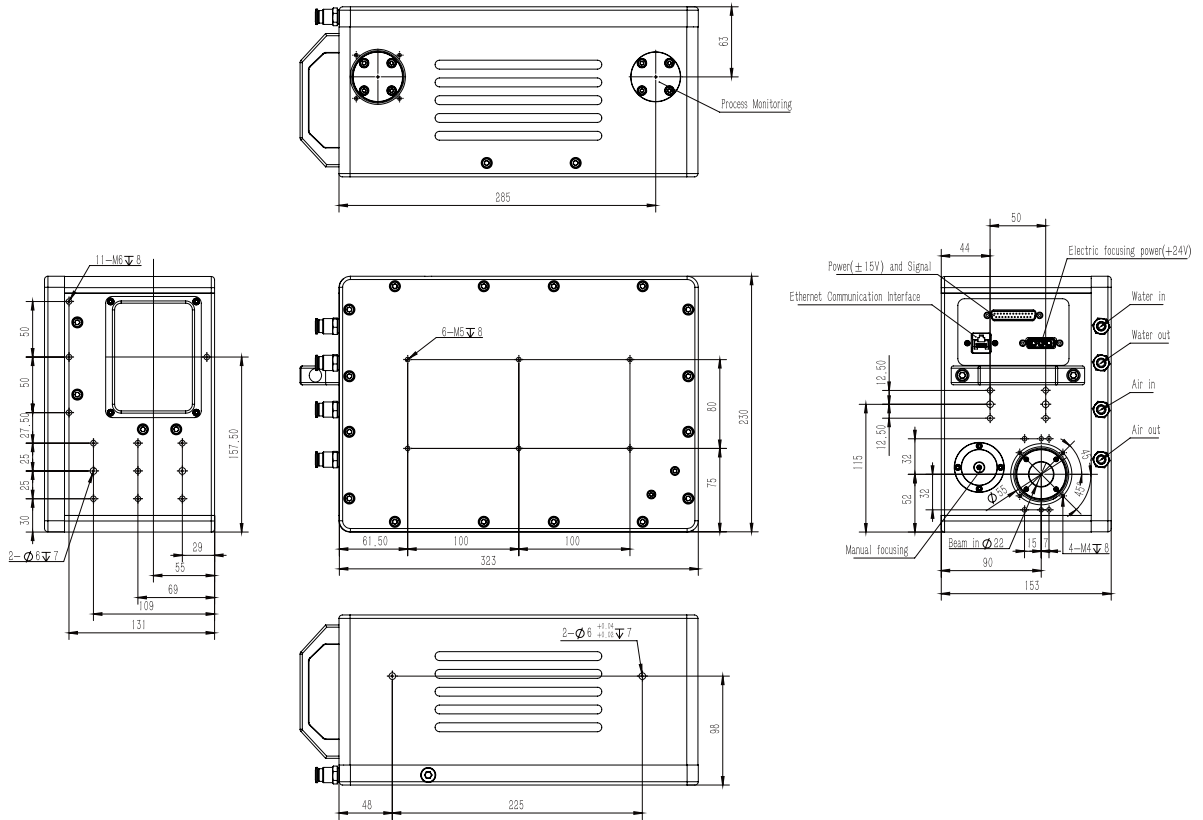
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## NPRF-30 高功率前聚焦扫描振镜系统

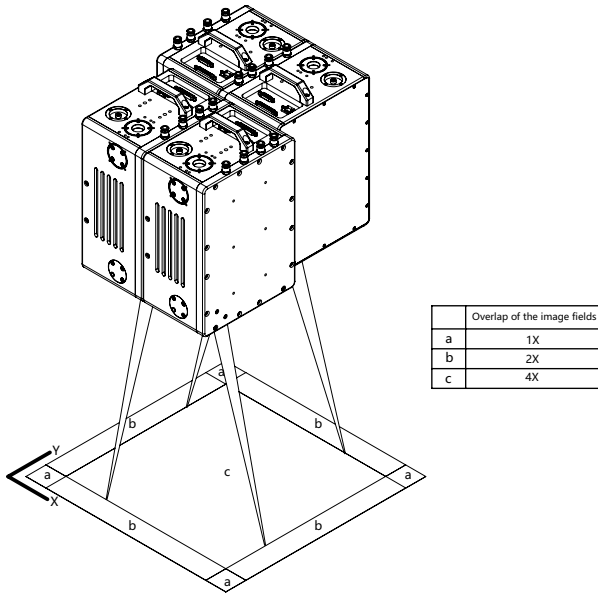
### 安装尺寸图 / Installation Dimension Drawing (MM)



## NPRF -30 High Power Pre-scanning System

NPRF-30 高功率前聚焦扫描振镜系统

扫描区域示意图 / Scanning area diagram



结构示意图 / Structure schematic

1. 光纤适配器
2. 保护窗
3. 发散透镜
4. 聚焦光学镜
5. 用于过程监控的连接端口
6. 反射镜
7. 电流计扫描器振镜
8. 保护窗口镜
9. 冷却空气接口
10. 冷却水接口

1. Fiber adapter
2. Protective window
3. Diverging lens
4. Focusing optic
5. Connection for process monitoring
6. Tilted mirror
7. Galvanometer scanner
8. Protective window
9. Cooling air connections
10. Cooling water connections

