



**TP-500** 伸缩式烟温探针  
retractable thermal-probe

**Diamond Power**  
Machine (Hubei) Co. Inc.  
a Diamond Power International, Inc. company

戴蒙德电力机械（湖北）有限公司

# TP-500

## 伸缩式烟温探针 retractable thermal-probe

TP-500烟温探针是一种将热电偶送入炉膛并检测炉膛烟气温度的机械装置。

The Diamond Power TP-500 Thermo-probe is a mechanical which positions thermocouple element in the furnace to monitor the gas temperature.

在锅炉启动或低负荷运转期间，此电动机械装置可协助操作者不断对其烟温进行检测。TP-500型烟温探针运行可靠，维护方便。

This electrically driven mechanism aids the operator by continuously monitoring flue gas temperature during boiler start-up or low-load operation. It is engineered and built for reliable operation and troublefree maintenance.

在锅炉启动期间，位于炉膛出口处的再热器管束由于没有循环蒸汽进行冷却，导致其管束温度过高而损坏。烟温探针用来连续测量该区域温度，能够有效的预防再热器管束被烧坏。

Gas temperatures in the area just ahead of the reheater tubes at the exit of the furnace can be critical during boiler start up before steam circulation is sufficient for cooling. The thermo-probe permits continuous monitoring of these temperatures, greatly reducing the danger of heat damage to the tubes.

TP-500可以向其他控制系统和DCS提供烟温信号和位置信号(4-20mA或0-10V)，便于监视和控制。

The furnace gas temperature and the probe position signals (4-20mA or 0-10V) are available for display and control in other control systems as well as DCS.

### 设计参数

### Design Data

探管材料 Material	无冷却 Non-cooled Probe		空气冷却 Air-cooled Probe		水冷却 Water-cooled Probe
	探针行程 Probe Travel (m)	最大烟温 Max Gas Temp (°C)	探针行程 Probe Travel (m)	815.5°C时所需 流量 Flow Required at 815.5°C (m <sup>3</sup> /min)	
1Cr18Ni9Ti / 0Cr17Ni12Mo2 89 mm	1.5	871	1.5	-	最大行程：8230mm 最高烟温：1200°C 冷却水要求： 采用处理后的水 最高水温60°C 流量0.11t/min  Max travel: 8230mm Max gas temp: 1200°C Cooling required: 30 gpm of treated; Flow 0.11m <sup>3</sup> /min; 140°F max water temp.
	3.0	738	3.0	1.4	
	4.5	650	4.5	4.2	
	6.0	632	6.0	6.3	
	7.5	610	7.5	8.5	
	9.5	500	9.5	11.2	

定集箱组件：

**Manifold assembly:**

单入口连接，用于仪表线路和冷却介质（空气或水）管线。  
Single point connection for instrumentation and cooling medium lines, either air or water as required.

双齿条及小齿轮传动装置：

**Dual rack and pinion drive:**

保证伸缩过程中力矩平稳，操作处于最佳平稳状态。  
They also assure equalized driving torque and provide optimum probe tube stability throughout forward and reverse travel.

箱式梁结构：

**Sturdy box-type structural steel beam:**

对驱动装置、电机和运动部件提供保护。  
Offers protection for drive mechanism, motor and other moving parts under operating conditions.

探头：  
**Probe tip:**

对热电偶提供保护，另外积灰严重时可选用探头清洗装置。  
Provides complete protection for any thermocouple combination compatible with customer's instrumentation. Optional tip cleaning devices are available for severe fouling applications.

探管：

**Probe tube:**

尺寸和材料的选择满足行程和温度的要求。  
Size and material selected to meet travel and temperature requirements for each application.

全封闭单台电机：

**Totally enclosed single drive motor:**

接线简单，只需一台电动机驱动。  
Simple wiring, and a flange mounted motor assures reliable travel.

全封闭齿轮传动跑车：

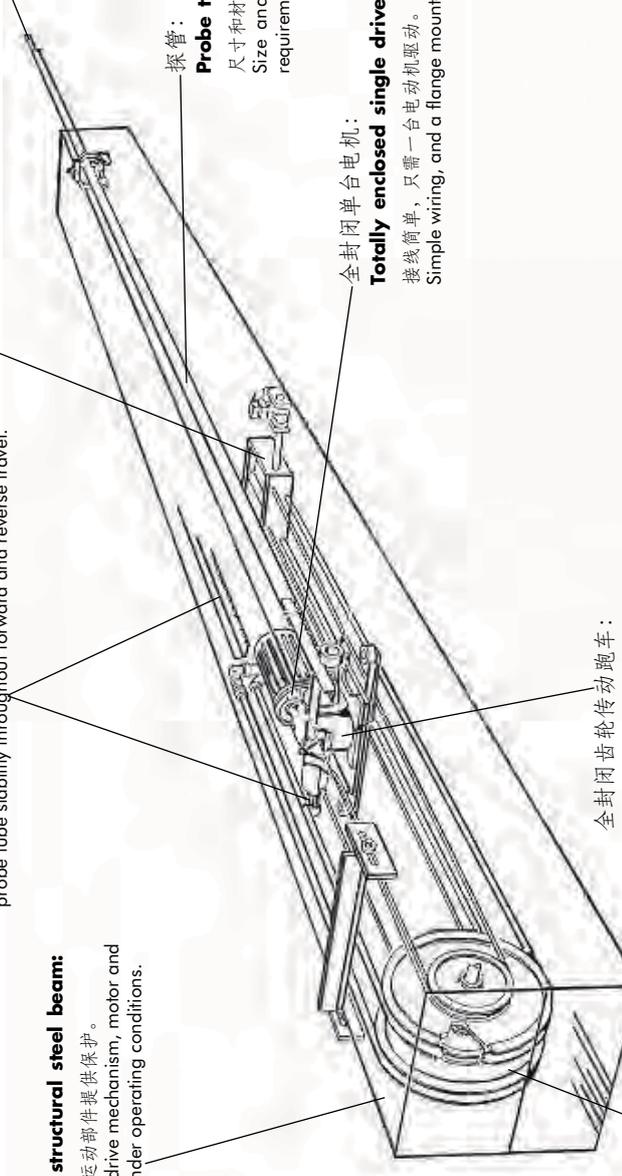
**Totally enclosed, all-gear driven carriage:**

所有运动零件全部密封以防脏物和飞灰进入。  
All moving parts are sealed and protected from dirt and fly ash.

动滑轮组件：

**Power cable, thermocouple and hose handling mechanism:**

所有电缆及软管均可一起双向移动。  
All cables and hoses can be moved together in both directions if required.



**技术规范 Specifications**

安装方式  
Mounting Arrangements

一般为胶接安装，也可采用固定安装，标准端箱适用于正压或者平衡通风锅炉。  
Swivel mounting standard, rigid mounting available. Wallboxes available for either pressurized or balanced draft boilers.

探针行程  
Probe Travel

空气冷却时最大行程10973mm,水冷却时最大行程8230mm,最高烟温1204℃,行进速度3000mm/min。  
Up to 10973mm for air cooling, 8230mm for water cooling at a maximum gas temperature of 1204°C, travel speed 3000mm/min.

探管

Probe Tube

特殊合金，根据实际情况选用，长行程由数段组成。  
Special alloys selected for each application, long probe tube consists of several segments.

热电偶材料  
Thermocouple Material

外径Φ3.2的不锈钢包层镍铬-镍铝或铁康铜，另可选用铂铑及复式热电偶。  
Φ3.2 stainless steel clad, chromel alumel or iron constantan. Platinum rhodium and dual thermocouples are optional accessories.

电机参数  
Motor Data

1.1KW, 380V, 3Ph, 50Hz, TEN  
其它电压及频率。  
other voltages and frequencies available.

控制开关

Control Switch

安装在控制盘，控制探针的开启、停止和伸缩。  
Mounted on customer panel for starting, stopping and retracting probe.

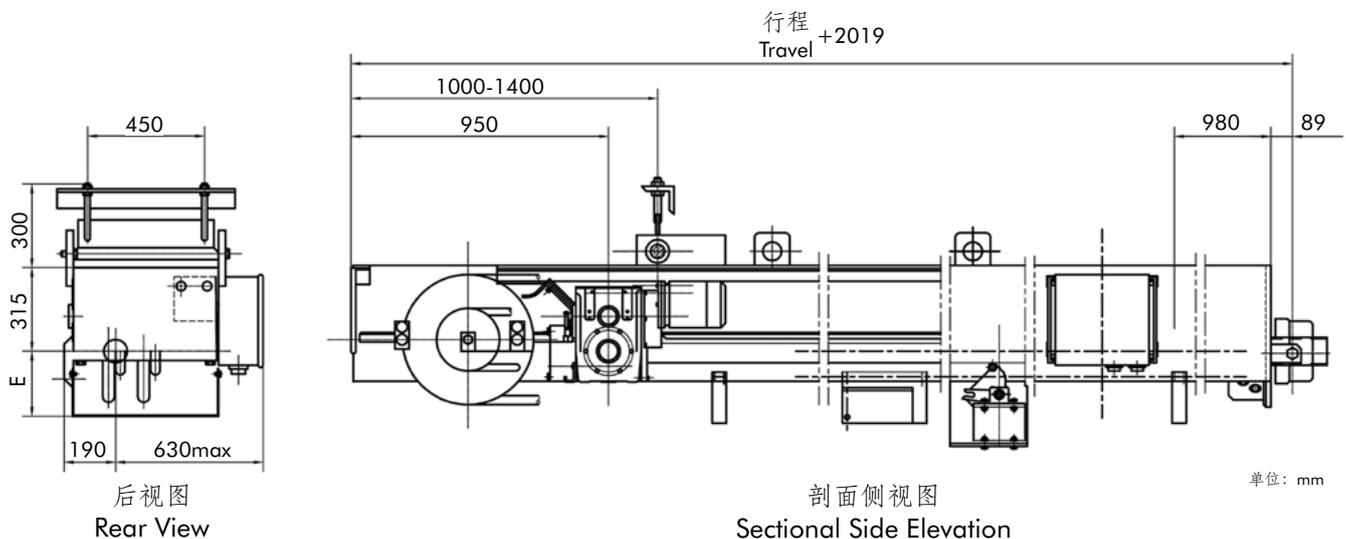
**TP-500 伸缩式烟温探针 保证锅炉安全启动**  
**TP-500 retractable Thermo-Probe, for safe boiler start-up.**

# TP-500 烟温探针

## retractable thermal-probe

TP-500型烟温探针采用箱式梁结构，将传动装置及驱动电机罩住，该梁不仅对所有工作件起保护作用，而且能在频繁启动、运行和温度变化时，确保探针的直线运动。全齿轮传动装置亦采取全封闭式，以防止污物、飞灰进入，该装置直接由单个电机驱动，结构简单，维修费用极低。接通电源，即可传送热电偶信号和向探管输送冷却介质，这些均由一传动装置执行。

The TP-500 features a box-type beam, which encloses the drive mechanism and motor. This sturdy beam provides protection for all working parts, and assures probe tube alignment under demanding conditions of start-up and temperature changes. The direct all-gear drive is sealed against dirt and fly ash. It connects directly to the single traveling motor and eliminates many components that usually cause expensive maintenance problems. Power to the traveling motor, signals from the thermocouple, and the cooling lines to the probe tube are all handled by a self-contained carrier.



### 功能：

#### features:

位置传感器：探针伸入位置信号的传送。

**Position transmitter:** to signal extended position of probe.

仪表测量：探针位置显示和烟气温度显示。

**Meter Measure:** to indicate probe position and gas temperature.

暂停及读数：在伸入的过程中可暂停探针，显示此位置处准确的炉膛断面温度。

**Stop and read :** to provide the tube gas temperature by stopping the probe at the specified position during travelling.

就地控制开关：用于就地操作或手动操控。

**Local control switch:** for local operation or manual override.

超温保护：显示温度过高时自动退回，留有接口与其他控制系统相连。

**Over-Temperature protection:** Automatic retraction on indication of over temperature with optional connection to other control systems.

### 可选功能：

#### Optional features:

空气喷头：用于清扫喷头的严重积灰。

**Air jet tip:** cleaning for severe fouling applications.

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