

# PL190 Vertical Crusher

# PROPOSAL



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# 一、项目介绍 Project Brief

项目名称：废钢破碎处理系统。

## Project: Scrap Steel Recycling System

### 适用物料: Application

- 1、薄壁废钢和其他金属、塑料、电子等废弃物；

Thin scrap steel and other metal, plastic and E-Waste etc.

- 2、废旧易拉罐、油漆桶、非密封的薄壁容器；

UBC, paint bucket, unsealed thin-walled container

- 3、金属打包块（堆密度 $\leq 0.7t/m^3$  的打包料）；

Metal Bailing Block (Buck Density $\leq 0.7t/m^3$ )

- 4、废旧家用电器（须拆除电动机、压缩机、轴类、拆除有毒有害部件）

Waste Home Appliance (After moving motor, compressor, shaft and other toxic and harmful parts)

- 5、含钢铁、铜铝金属比例较高的废电器及生活垃圾

Waste electrical appliances and household waste with a high proportion of steel, copper, and aluminum.

- 6、厚度 $< 6mm$  废钢板、钢型材、钢制结构件；

Thickness  $< 6mm$  Scrap Steel plate, steel profile, and steel construction components

**注意：以上物料需经过预破碎后，物料长度尺寸小于 200mm，宽度尺寸小于 80mm 方可进入破碎设备。**

Above mentioned material after pre-treatment, feeding size: length $< 200mm$ , width  $< 80mm$

### 不适物料: Unsuitable for

- 1、密封的容器； Sealed Container
- 2、可能引起爆炸、火灾的物料； Explosive and flammable material
- 3、密闭的高压储气瓶（如液化气瓶等）； Sealed High Pressure gas storage tanks
- 4、电线、钢丝、钢丝绳等缠绕性物料； Cable/Steel wire, wirerope
- 5、有毒、有害、危险用品等； Toxic, harmful & hazardous material
- 6、厚度 $\geq 6mm$  以上的物料； Thickness $> 6mm$
- 7、钢管及其轴类物料； Steel tube and shaft
- 8、经过特殊热处理的钢材； Thermal treatment steel
- 9、磁性物料 Magnetic Material

**简介：**回收的各种轻薄废钢、废旧家电等含有金属废弃物的物料经破碎设备预处理后，将大尺寸物料破碎至一定规格尺寸后送入立式破碎机进行进一步破碎。通过设备破碎腔内部刀辊上的锤头与滚轮将进入的条状物料破碎、揉搓至一定尺寸的球状或片状物料后落入出料仓排出设备。可根据不同物料和客户需求，无论是单台或者整线系统，万容科技科都会为您提供定制化处理方案。根据我司多年从事环保、破碎行业积累的丰富经验配合先进的制造工艺，确保所提供设备性能的可靠性和较长的使用寿命。同时可

做集中管理整线处理设备，触摸液晶屏，可视化操作，人机交互等。各个设备的运行状态、电机负载及故障报警均可实时监控。

Various recycled materials containing metal waste such as light and thin scrap steel and waste home appliances are pre-processed by pre-shredder, after size reduction, sent to vertical crusher for further processing. Hammer head and roller crush and rub feeded strip material into a certain size of spherical or sheet material.

According to different materials and customer's requirement, whether it is a single unit or plant system, VARY TECH can provide customized processing solutions. Based on years of experience in environmental protection and crushing industries, combined with advanced manufacturing processes, we ensure equipment performance reliability and longer service life.

At the same time, we are able to provide recycling plant centralized management, touch LCD screens, visual operations, human-machine interaction, etc. The operating status, motor load, and fault alarm of each device can be monitored in real-time.

## 二、主要参数及技术要求承诺 Specifications and Commitment

### 1、适应环境 Environment Adaptation

1) 设备使用地点的最高温度、最低温度是：-10℃~40℃；  
Max/Min Temp. -10℃~40℃

2) 设备使用地点的最低湿度，最高湿度是：10%—100%  
Max/Min Humidity: 10%—100%

3) 输入电源：动力 AC415V, 50HZ, 电压波动范围±10%。  
Power Supply: AC 415V / 50HZ, Tolerance ±10%

### 2、接口说明和公用工程要求 Interface Description and Utility Requirements

甲方负责根据设备布局连接一次电缆到车间设备处。

1) 供电要求：甲方 AC415V 50HZ 三相五线制供电。  
Buyer connect cable to machine, Power Supply requirement: AC 415V/50HZ, 3 Phase/5Line

### 3、主要参数 Main Specifications

1) 设备的额定功率：约 456kW；  
Rated Power: About 456KW

2) 设备电源：三相交流电 415V/50Hz（配置总能耗计量装置）；  
Power Supply: 3Phrase AC 415V/50Hz ( With energy consumption measuring device)

3) 系统设备处理能力：7-10t/h；（根据物料密度不同存在差异）  
Capacity: 7-10 T/Hr (Will be differ according to different material density)

4) 出料尺寸: 90%≤40mm 团状或者片状物。

Outputs size: 90%≤40mm spherical or sheet material

5) 噪声、颗粒物排放符合中国的相关标准要求(参考标准: GB12348-2008, GB 16297-1996)。

Noise and particulate matter emissions comply with CHINA standard(Refer to GB12348-2008, GB 16297-1996)

6) 设备运行确保消防安全, 对设备运行过程起火、爆炸等安全隐患提供零事故解决方案。

Zero Operation Accident Solution provided to ensure fire safety, such as fires and explosions.

7) 所有设备使用的普通碳钢材质结构件表面除锈处理, 表面涂防腐油漆膜厚度不小于160 μ m。

All ordinary carbon steel structural components used in equipment shall have surface rust removal treatment, and the surface shall be coated with anti-corrosion paint with a film thickness of not less than 160 μ m.

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### 三、破碎主机主要特点及技术参数 Main Features & Spec.

#### 主要特点 Features

1) 利用高速运行的转子在设备腔体内配合机箱内壁上的特殊形状衬板对物料进行锤击、揉搓破碎;

Material is impacted and rubbed in crushing chamber by high speed rotor and chamber liner

2) 设计有过载保护系统: 当进入超过破碎范围的物料时在电气控制保护的情况下, 过载后破碎机自动停机然后反转, 将无法破碎物料通过排料门送入出料斗内。本保护系统可使机器破碎一些难碎物品而避免对机器造成损害;

Designed with over load protection device: When feeding material that exceeds the breaking range, the crusher automatically stopped and then reversed, which cannot be sent into the discharge bucket through the discharge door. This protection system can crush some difficult items and avoid damage to the machine

3) 设计有急停按钮: 设备在运行过程中, 如出现紧急情况(设备运行异常、设备有异味或异响或其他意外)时可立即按此急停按钮停机;

Emergency Button: In case of emergency (Operation abnormal, odor or abnormal noise), emergency stop can be run by this EMERGENCY BOTTON

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#### 主要组成及说明 Main Construction and Brief

4) 机架: 机架由H型钢坚固抗扭的箱形焊接结构组成, 为保证易装配更换配件, 机架的四周由网形护板盖通过螺栓与机架体连接。

Machine Frame: The FRAME well welding by H -shaped steel -shaped. In order to ensure that it is easy to assemble and replace accessories, mesh protection cover designed around frame bottom.

- 5) 轴承座：固定轴实现转动，限制其轴向和径向的移动及承受轴向力。

**Bearing Seat:** Fix the shaft to achieve rotation, limit its axial and radial movement, and withstand axial forces

- 6) 皮带轮：电机通过皮带传动，可有效降低主轴破碎时的失速对电机造成的冲击。大直径的从动轮能够有效加大转子惯性，提高破碎效率。

**Belt pulley:** The motor is driven by a belt, which can effectively reduce the impact of stall on the motor during spindle breakage. Large diameter driven wheels can effectively increase rotor inertia and improve crushing efficiency

- 7) 刀辊：转子是破碎机的“心脏”，也是立式破碎机验收最为严格的零件，在工作中起着至关重要的作用。整体式主轴在破碎运行过程中能够保持良好的刚性，且在上下两组轴承限位后仍然能够在较大冲击力情况下保持稳定的运行。

**Blade roller:** The rotor is the "heart" of the crusher and the most stringent component for vertical crusher acceptance, playing a crucial role in work. The integral spindle can maintain good rigidity during crushing operation, and can still maintain stable operation under high impact force even after the upper and lower sets of bearings are limited

- 8) 机箱：独特的层级式腔体设计。使撕裂解体后的条块状物料在高速运行的滚轮破碎腔体内不断反复搓揉从而自上而下逐渐形成越来越紧密的团状物料。

**Crushing Chamber:** Unique hierarchical chamber design. The strip material after tearing and disintegration is repeatedly rubbed and kneaded in the high-speed running roller crushing chamber, gradually forming increasingly dense clumps from top to bottom

- 9) 进料斗：在破碎机的运转过程中，物料通过输送设备进入料斗。同时进料斗预留喷氮、喷雾系统等安全防护装置接口，用户可将安全防护装置自行接入。

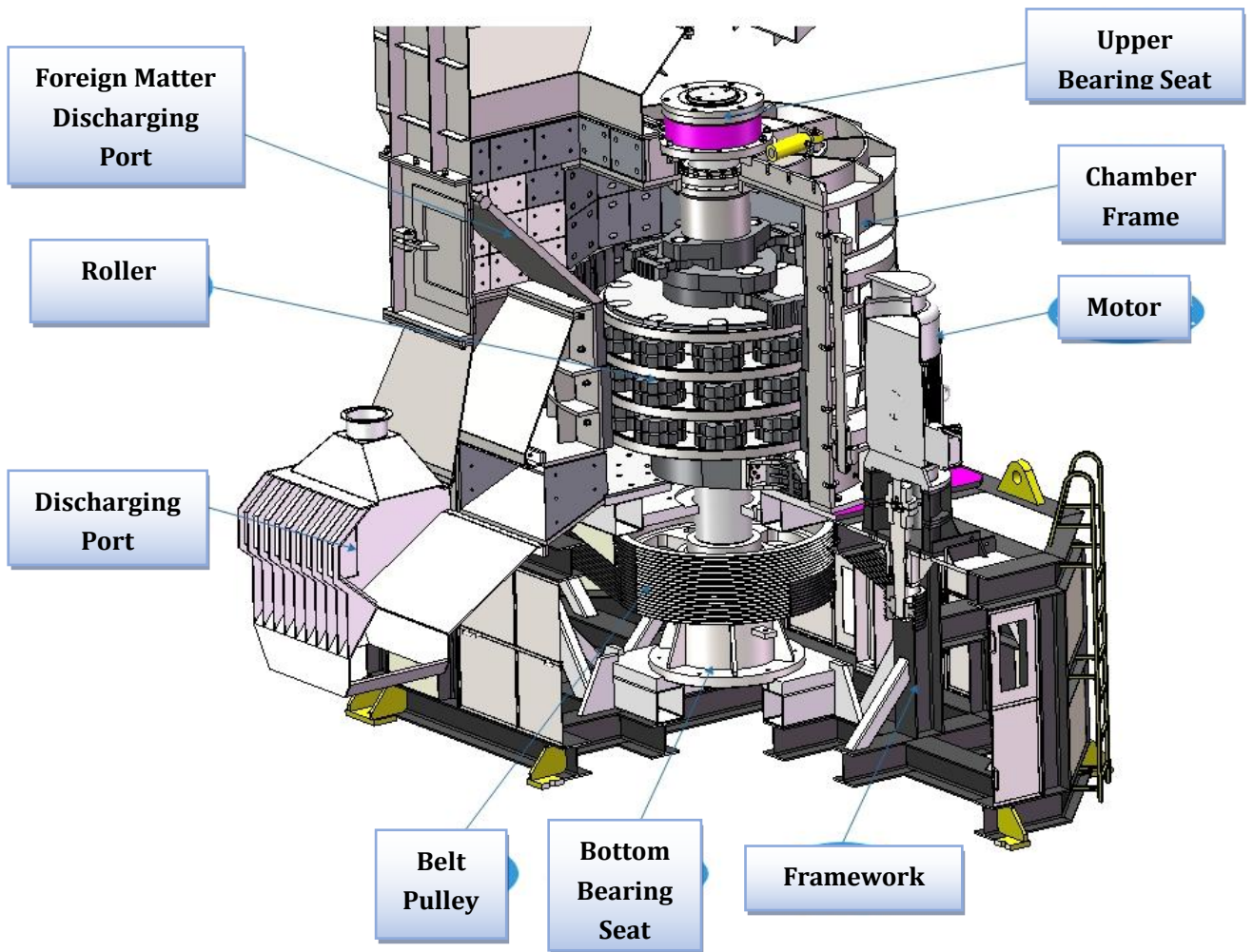
**Feeding hopper:** During the operation of the crusher, materials enter the hopper through conveying equipment. At the same time, the feed hopper is reserved with interfaces for safety protection devices such as nitrogen spraying and water spray system, and users can connect the safety protection devices by themselves



## 主要技术参数（部分参数根据物料情况匹配）

## Main Parameters (Some parameters are matched based on material conditions)

名称	Desc.	立式破碎机 Vertical Crusher	备注 Remark
代号	Item Code	PL190_1	
外形尺寸(长 mm× 宽 mm×高 mm)	Overall Size(L x W x H)	6900×5098×8465	
主轴回转直径	Shaft Rotation Dia.	Φ1900mm	
转轴速度	Rotation Speed	340r/min	
出料尺寸	Outputs Size	40~80mm	按需设计(As per requirement)
主电机功率	Motor Rated Power	450kW	
液压站功率	Hydraulic Rated Power	5.5kW	
重量	Weight	70000 Kg	
处理能力	Capacity	7~10 t/h	
破碎辊结构型式	Crushing Roller Structure	立轴式活齿分布结构	Vertical axis movable tooth distribution structure
电控系统	Power Control System	动力柜、控制柜 Power Cabinet/Control Cabinet	变频控制，标配 10 米电源线。 电缆规格： 3-3×150mm <sup>2</sup> +1×70mm <sup>2</sup> Frequency conversion control: with 10M power cable Cable Spec.: 3-3×150mm <sup>2</sup> +1×70mm <sup>2</sup>



立式破碎机三维示意图 3D Diagrame

其他说明：Remark:

10) 因该型号立式破碎机的刀辊采用上下轴承定位结构，不会出现刀辊摇晃的现象；

Roller shaft fixed and positioned by Upper and bottom bearing seat, shaking can be avoided.

11) 该型号破碎机改用变频器控制单电机皮带驱动，不会出现双电机驱动不同步的问题。

Frequency converter controlled, single motor belt driven, avoiding the problem of asynchronous dual motor drive