



数控快速锻造压机生产线  
CNC quick forging press production line

青岛海德马克智能装备有限公司  
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**HDMECH**  
QINGDAO HDMECH INTELLIGENT EQUIPMENT CO.,LTD

精细化的产品 国际化的海德马克

[www.hdmech.com](http://www.hdmech.com)

## 公司简介 Company Profile

青岛海德马克智能装备有限公司（“海德马克”或“公司”）原青岛华东工程机械有限公司，成立于1994年10月28日，注册资金6166万元，位于青岛市高新技术产业开发区春阳路北侧、思源路西侧，公司厂区占地面积13.9万平方米（208亩），总资产3.57亿，现有员工170余人。

海德马克，是一家从事智能化生产线、机器人、物联网技术研发、设计、制造、销售、服务于一体的国家高新技术企业。主要产品包括：冰箱（冷柜）智能化生产线、洗衣机智能化生产线、油烟机智能化生产线、热水器智能化生产线、工业机器人、智能无人高精密锻造操作装备、径锻机、智能数控碾环机、智能数控热处理装备等。

海德马克，先后服务于海尔、海信、美的、澳柯玛、TCL、GE、格力、倍科、一重、二重、上重、太重、沈重、大连华瑞、无锡叶片、马钢、宝钛以及德国罗特艾德等知名企业。

Qingdao HDMECH Intelligent Equipment Co. Ltd. (“HDMECH”) Qingdao Huadong Engineering Machinery Co. Ltd., founded in October 28, 1994, registered capital of 61.66 million yuan, is located in Qingdao high tech Industrial Development Zone, between the north of Chunyang Road, and the west of Siyuan Road, the company covers an area of 139 thousands square meters (208 acres), with total assets of 357 million and enrolled employees more than 170.

HDMECH, is a national high-tech enterprise engaged in the R&D, designing, manufacturing, sales of home appliance intelligent production line, robot, internet of things technology. The main products include: refrigerator (freezer) intelligent production line, wash machine intelligent production line, kitchen ventilator intelligent machine production line, heater intelligent production line, intelligent unmanned-operation high precision forging equipment, industrial robots, intelligent CNC ring rolling machine, radial forging machine, intelligent CNC heat treatment equipment etc..

HDMECH has been supplied production line for Arcelik, Haier, Hisense, Midea, AUCMA, GREE, TCL, GE, and CFHI, CNEG, TAYOR, TYHI, NHI, DHHI, WTB, MIS, BaoTi and Germany Rothe Erde and other famous enterprises.



国家高新技术企业  
山东省企业技术中心  
青岛市液力装备工程技术研究中心  
多个创新研发项目列入国家、省市重点技术创新项  
60t数控重载锻造操作机技术被列入2010年度国家火炬计划  
1000kg全液压重载机器人项目列入国家扩大内需重点资金支持项目  
智能无人高精密锻造操作装备（800KN）被评为2015年度山东省首台套技术装备  
260t锻造操作机项目获得青岛市重点技术攻关项目  
数控精密锻造基层技术研发，被列入青岛市关键技术攻关计划  
“18MN径向锻造压机、径向锻造操作机”被认定为2014青岛市企业技术创新重点项目  
冷柜全自动钣金铆接线开发被列入青岛市企业技术创新重点项目计划  
对开门冰箱门壳自动化生产线的开发被列入青岛市企业技术创新重点项目计划  
洗衣机全自动内筒成型线的开发被列入青岛市企业技术创新重点项目计划

National high-tech enterprise  
Shandong Enterprise Technology Center  
Qingdao hydraulic equipment Engineering Technology Research Center  
A number of innovative R & D projects included in the national, provincial key technological innovation projects  
60t CNC heavy duty forging manipulator technology was included in the 2010 National Torch Program  
1000kg all hydraulic heavy duty robot project included in the national expansion of domestic demand key funding projects  
Intelligent unmanned operation high precision forging equipment (800KN) was named the 2015 annual Shandong province first sets of technical equipment  
The project of 260t forging machine has been awarded the key technical project of Qingdao  
CNC precision forging technology research and development, has been included in the key technology projects in Qingdao  
"18MN radial forging press, radial forging manipulator" was identified as the 2014 Qingdao enterprise technology innovation key projects  
Refrigerator automatic sheet metal rivet line development was included in the key projects of Qingdao city enterprise technology innovation plan  
The development of the automatic door shell production line of the French door refrigerator was included in the key project of Qingdao enterprise technology innovation  
The development of full automatic washing machine drum forming line of was included in the key project of enterprise technology innovation in Qingdao

## 技术专利 Technology Patents

装料取料伺服仿真机械手发明专利  
生产线传输对中机构及其方法发明专利  
金属板料滚边装置及其方法发明专利  
机械手及其夹持方法发明专利  
钣金件复合加工模具及其方法发明专利  
装出料机及其控制方法发明专利  
机械手控制系统及控制方法发明专利  
自动对中装置、对中方法及带有此装置的仿真手柄发  
冰箱隐形门折弯模具及其折弯方法发明专利  
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Patent of loading and reclaiming servo simulation manipulator  
Patent of production line transmission centering mechanism and method  
Patent of sheet metal rolling device and method  
Patent of manipulator and its clamping method  
Patent of sheet metal part composite machining die method  
Patent of charging and discharging machine and its control method  
Patent of Robot control system and its control method  
Patent of automatic centering device, centering method, and simulation handle with this device  
Patent of refrigerator invisible door bending die and its bending method

荣获100多项国家发明专利及实用新型专利 Won more than 100 national invention patents and utility model



## 合作与交流 Cooperation and Exchange



公司一直与上海交通大学、燕山大学、中国海洋大学、济南铸锻所、中国重型机械研究院、马钢设计院等高校及科研院所保持着长期战略合作关系，通过与高校和科研院所的交流与合作提高技术创新能力。

HDMECH has maintained long term strategic relationship with Shanghai Jiao Tong University, Yanshan University, Ocean University of China, Ji'nan JFMMRI, Chinese Heavy Machinery Research Institute, Maanshan Institute and other universities and research institutes, and to improve the technological innovation capability through the exchange and cooperation with universities and research institutes



# 数控快速锻造压机生产线

## CNC quick forging press production line

Perfect Product / International Hdmech  
精细化的产品 / 国际化的海德马克



快锻压机是数控快速锻造压机生产线上的一个重要单元，海德马克快速锻造压机生产线上均配备有先进的辅助设备，用于促进和改善锻造工序。  
The quick-forging press is an important unit of CNC quick forging press production line, advanced auxiliary equipment is equipped to the HDMECH quick forging press production line, in order to promote and improve the forging process.

辅助设备如下Auxiliary equipment is as followed:

- 1、移动工作台装置 Traverse forging table
- 2、横向移砧台装置 Lateral shift anvil device
- 3、上砧快换装置 Quick change device for anvil
- 4、旋转升降台装置 Rotate and lift platform
- 5、旋转镦粗台装置 Rotate and upset platform
- 6、运锭车 Ingot transport car
- 7、砧库 Anvil base
- 8、全液压锻造操作机 Full hydraulic forging manipulator
- 9、装取料机 Charging manipulator



生产线设备布置图the layout of the equipments on production line

### 上压式数控快速锻造压机 The type of pushing down CNC quick forging press

应用条件 Application condition

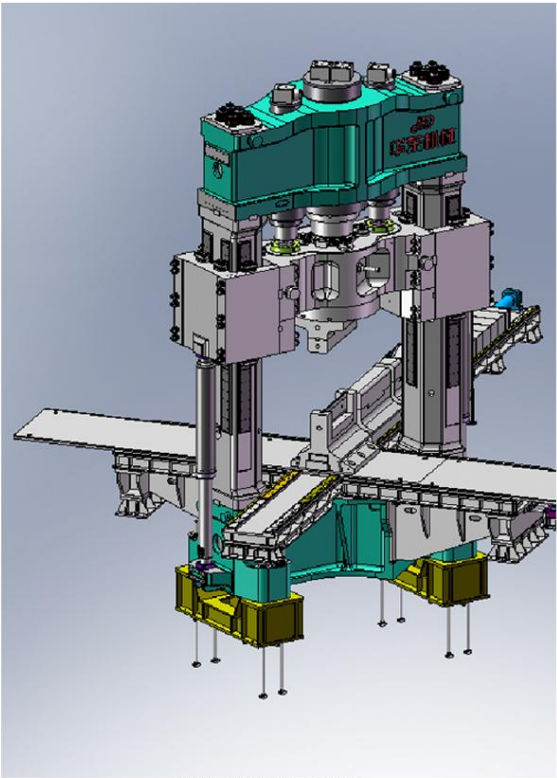
当土壤条件不允许较大基础深度以及锻造车间高度满足地面上相对较高的锻造压机高度时，建议使用上压式数控快速锻造压机。  
When the soil condition does not allow the large foundation depth and the height of forging workshop meet the height of the high forging press on the ground, recommend using pushing down CNC quick forging press.

技术特点 Technical features

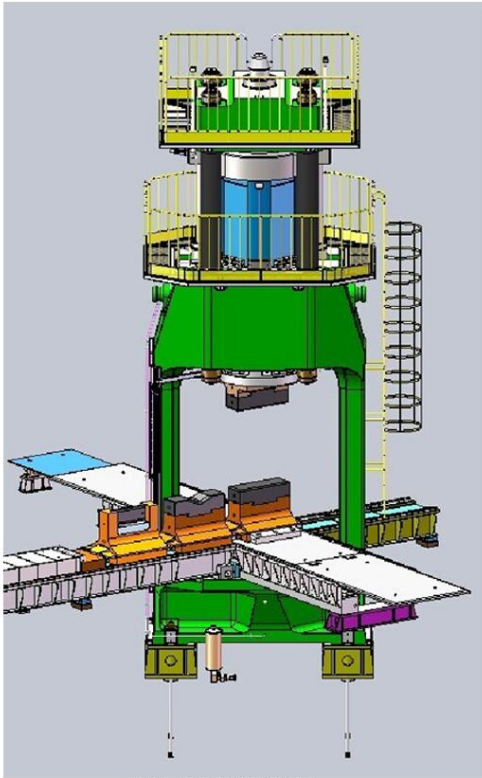
该种锻造压机具有活动部分质量小的优势，因此在高速锻造情况下更为经济节能；油缸及导向零件均便于维护，从而降低维护成本。  
This kind of forging press has the advantage of small mass of the movable part, so the forging press has the advantage of more economical and energy saving under the condition of high speed forging, and easy maintenance of the oil cylinder and the guide part, thereby reducing the maintenance cost.

分类 Classification

上压式数控快速锻造压机具有双柱式和缸动式两种结构形式，缸动式锻造压机专门用于中小型锻压设备，双柱式锻造压机专门用于中大型锻压设备。  
The pushing down CNC quick forging press has two structures of two-column and moving-cylinder-type, the moving-cylinder-type is for small and medium size forging, and the two-column is for large size forging.



双柱式快速锻造压机  
The two-column pushing down forging press



缸动式快速锻造压机  
The moving-cylinder-type pushing down forging press



# 双柱上压式快速锻造压机

## The two-column pushing down quick-forging press

Perfect Product / International Hdmech  
精细化的产品 / 国际化的海德马克



**用途及功能**  
主要用于对各种碳素钢、合金钢、高合金钢等材质的锭(坯)在热态下进行自由锻造,可完全满足锻造工厂所需要的锻粗、拔长、冲孔、扩环、切断等锻造工艺要求,能够完成棒、饼、环及厚板等锻件的生产。

**技术特点**  
主机结构形式为三缸、三梁、双柱、预应力组合框架上压式结构,拥有两项技术专利;  
机组具有手动、半自动、自动、联动四种操作模式;  
计算机智能控制,自动化程度高,节能、环保;  
大于100mm/秒的加压速度、80~150次/分钟,±1mm的锻造精度。

**规格系列: 12.5MN~80MN**  
**Common Series: 12.5MN~80MN**

**Functions**  
Free forging procedures like upsetting, drawing, punching, expanding and cutting of ingots or billets of carbon steel, alloy steel, high-alloyed steel, can all be implemented on this quick-forging-press-unit. Forging works of rounds, plate, and ring can all be produced.

**Technical Superiorities**  
The host structure is three cylinders, three beams, double column,pre-stressed press-body,and owns two technical patents.  
The unit has four operating modes: Manual, Semi-automatic, Automatic and Linkage-running.  
Computer intelligent control, with high degree of automation, energy saving, and environmental protection.  
The inflating speed is more than 100mm/sec. The frequency is 80 to 150 per minute, with ±1mm forging precision.



双柱上压式快锻压机标准参数表  
Parameters for Two-column Push-down Quick-forging Press

项目Item		单位Unit	技术参数 Parameters						
压机公称压力press force		MN	20	25	31.5	45	50	63	80
压力分级press level		MN	20	25	11.5/20/31.5	11.5/28.5/40/45	13/32/45/50	17.4/39.3/56.7/63	22.8/49.2/72/80
最大净空距daylight between the die-clamping surfaces		mm	3200	3600	3900	4400	4700	5200	6000
最大工作行程 Stroke of the top die		mm	1600	1800	2000	2200	2400	2600	3000
立柱间净距 Clear width between columns		mm	2400×1250	2500×1400	3000×1500	3500×1700	3600×1750	3800×1800	4200×2000
移动工作台尺寸 Table dimension		mm	1600×5000	2000×5000	2000×5000	2200×6000	2500×6000	3000×7000	3400×7000
移动工作台行程 Stroke of table shifting		mm	2500/1500	2500/1500	2500/1500	3500/1500	3500/1500	4000/2000	4000/2000
横向移砧工作台宽 Width of die shifting		mm	800	900	1000	1200	1250	1300	1400
横向移砧工作台行程 Stroke of die shifting		mm	3200	3600	4000	5000	5200	5400	5800
允许锻造偏心距 Permissible eccentricity		mm	Φ360	Φ400	Φ420	Φ550	550	Φ600	700
砧高 Height of anvil	上砧 up anvil	mm	600	800	800	1000	1000	1100	1200
	下砧 Low anvil	mm	1000	1000	1100	1200	1300	1500	1800
压机地上部分的高度 Height of the press above floor		mm	900	9560	9800	12000	13800	15300	17000
压机地下部分的深度 Depth of the press below floor		mm	3000	3200	3300	4000	4400	4800	5500
锻造控制精度 Forging accuracy		mm	±1	±1	±1	±1	1	±1	1
压机装机功率 Total power		Kw	2250	2650	2950	3900	4450	5200	6345
锻造速度 Forging speed	锻粗upsetting	mm/s	113	114	102	42	46	35	32
	常锻Conventional forging	mm/s	113	114	102	100	102	91	95
锻造频次forging frequency		次/min	≥100	≥100	≥100	90	90	85	85
推荐配套操作机Recommended manipulator		T	25	30	40	60	80	100	120

25MN 双柱上压式快锻压机组  
25MN Two-column Push-down Quick-forging Press Unit



# 缸动上压式快速锻造压机

## The moving-cylinder-type pushing down quick-forging press

Perfect Product / International Hdmech  
精细化的产品 / 国际化的海德马克



### 用途及功能

主要用于对各种碳素钢、合金钢、高合金钢等材质的锭(坯)在热态下进行自由锻造,可完全满足锻造工厂所需要的微粗、拔长、冲孔、扩环、切断等锻造工艺要求,能够完成棒、饼、环及厚板等锻件的生产。

### 技术特点

主机结构形式为单缸、整体机架预应力双主缸动式结构,拥有三项技术专利,为常规快锻机1.2倍;生产改进锻造精度可达到 $\pm 0.5\text{mm}$ ;能源利用率高,较常规快锻机节能10%~15%;基础费用低,相当同吨位下拉式快锻机30%。

规格系列: 3.15MN~20MN  
Common Series: 3.15MN~20MN

### Functions

Free forging procedures like upsetting, drawing, punching, expanding and cutting of ingots or billets of carbon steel, alloy steel, high-alloyed steel, can all be implemented on this quick-forging-press-unit. Forging works of rounds, plate, and ring can all be produced.

### Technical Superiorities

The host structure is single cylinder, whole pre-stressed frame, double column and moving-cylinder type, and owns three technical patents which is 1.2 times contrasting with conventional quick-forging unit; The forging accuracy can reach  $\pm 0.5\text{ mm}$ . Energy efficiency is high, and it can save 10% to 15% energy. The basic expenses are low, just about 30% of same tonnage pull-down quick-forging Press.



10MN 缸动式快锻压机  
10MN Push-down moving-cylinder-type Quick-forging Press Unit



6.3MN 缸动式快锻压机  
6.3MN Push-down moving-cylinder-type Quick-forging Press Unit



10MN 缸动式快锻压机  
10MN Push-down Moving-cylinder-type Quick-forging Press Unit

### 缸动式快锻压机标准参数表

Parameters for Push-down Moving-cylinder-type Quick-forging Press

项目Item		单位Unit	技术参数 Parameters						
压机公称压力press force		MN	5	6.3	8	10	12.5	16	20
压力分级press level		MN	5	6.3	8	10	12.5	16	20
最大净空距daylight between the die-clamping surfaces		mm	1600	1800	2200	2300	2600	2900	3200
最大工作行程 Stroke of the top die		mm	650	800	1000	1000	1250	1400	1600
立柱间净距 Clear width between columns		mm	1300x700	1500x800	1700x1000	1700x1000	700x1700	2100x1100	2140x1120
移动工作台尺寸 Table dimension		mm	/	/	1200X3200	1200X3200	1400X4000	1600x5000	1600x5000
移动工作台行程 Stroke of table shifting		mm	/	/	800/1200	800/1200	2000/1000	2500/1500	2500/1500
横向移砧工作台宽 Width of die shifting		mm	550	600	700	750	750	800	900
横向移砧工作台行程 Stroke of die shifting		mm	1900	2100	2300	2400	2500	2800	3200
允许锻造偏心距 Permissible eccentricity		mm	90	100	120	140	140	160	180
砧高 Height of anvil	上砧 up anvil	mm	370	380	420	500	500	550	600
	下砧 Low anvil	mm	580	620	780	850	850	950	1000
压机地上部分的高度 Height of the press above floor		mm	5000	5800	7000	7500	7800	8500	9500
压机地下部分的深度 Depth of the press below floor		mm	1700	1800	1900	2100	2500	2800	3000
锻造控制精度 Forging accuracy		mm	$\pm 1$	$\pm 1$	$\pm 1$	$\pm 1$	$\pm 1$	$\pm 1$	$\pm 1$
压机装机功率 Total power		Kw	700	800	920	1060	1350	1580	2400
锻造速度 Forging speed	镦粗upsetting	mm/s	50	50	50	50	50	50	50
	常锻Conventional forging	mm/s	150	150	148	148	148	137	134
锻造频次forging frequency		次/min	140	140	120	120	120	120	120
推荐配套的操作机Recommended manipulator		T	2	5	5	10	15	20	25



# 下拉式快速锻造压机

## The pull-down quick-forging press

Perfect Product / International Hdmech  
精细化的产品 / 国际化的海德马克



### 用途及功能

主要用于对各种碳素钢、合金钢、高合金钢、不锈钢、有色金属(如钛及其合金、钕及其合金等)、高速工具钢(通用、高性能等)、冷作模具钢(代表钢种D2)、热作模具钢(代表钢种H13)等材质的锻(坯)在热态下进行自由锻造,可完全满足锻造工厂所需要的锻粗、拔长、冲孔、扩环、切断等锻造工艺要求,能够完成棒、饼、环及厚板等锻件的生产。

### 技术特点

采用双柱下拉式,承受偏载能力强,重心低、稳定性好。  
工作缸在地面以下,液压阀站距主缸距离短,有效减少冲击振动。  
“宜人化”的锻造操作环境,有效地提高了生产效率。

规格系列: 3.15MN~20MN  
Common Series: 3.15MN~20MN

### Functions

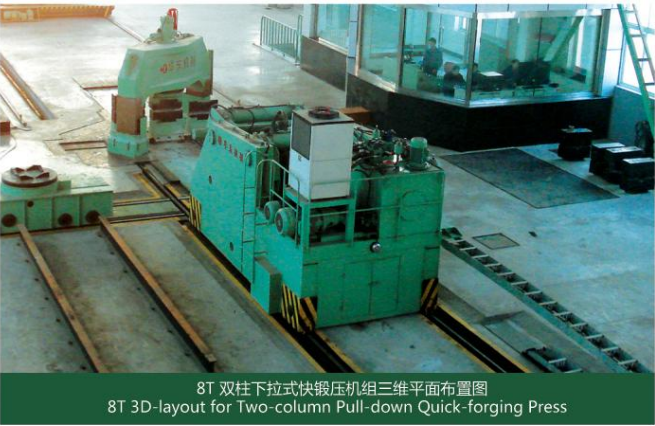
Free forging procedures like upsetting, drawing, punching, expanding and cutting of ingots or billets of carbon steel, alloy steel, high-alloyed steel, nonferrous metal (as titanium and its alloy, niobium and its alloy), high-speed tool steel (common use with excellent performance), cold-work die steel (D2 as the representative specie), hot-work die steel (D3 as the representative specie) can all be implemented on this quick-forging-press-unit. Forging works of rounds, plate, and ring can all be produced.

### Technical Superiorities

Two-column Pull-down type structure causes low center of gravity, provides bigger eccentricity and better stability.  
Working cylinder located under the ground, shortened its distance with the valve station, lowered vibration.  
"Human-familiar operating environment"helps extend the productivity.



16T 双柱下拉式快锻压机  
16T Two-column Pull-down Quick-forging Press



8T 双柱下拉式快锻压机组三维平面布置图  
8T 3D-layout for Two-column Pull-down Quick-forging Press

双柱下拉式快锻压机准参数表  
Parameters for Two-column Pull-down Quick-forging Press

项目Item		单位Unit	技术参数 Parameters				
压机公称压力press force		MN	8	10	12.5	16	20
压力分级press level		MN	8	10	12.5	16	20
最大净空距daylight between the die-clamping surfaces		mm	2200	2300	2600	2900	3200
最大工作行程 Stroke of the top die		mm	1000	1000	1250	1400	1600
立柱间净距 Clear width between columns		mm	1700x1000	1700X1000	1900x1070	2100×1100	2140×1120
移动工作台尺寸 Table dimension		mm	1200X3200	1200X3200	1400X4000	1600×5000	1800×5000
移动工作台行程 Stroke of table shifting		mm	800/1200	800/1200	2000/1000	2500/1500	2500/1500
横向移砧工作台宽 Width of die shifting		mm	700	750	750	800	900
横向移砧工作台行程 Stroke of die shifting		mm	2300	2400	2500	2800	3200
允许锻造偏心距 Permissible eccentricity		mm	120	140	140	160	180
砧高 Height of anvil	上砧 up anvil	mm	420	500	500	550	600
	下砧 Low anvil	mm	780	850	850	950	1000
压机地上部分的高度 Height of the press above floor		mm	4000	4200	4600	5000	5460
压机地下部分的深度 Depth of the press below floor		mm	5500	6000	6500	7500	8400
锻造控制精度 Forging accuracy		mm	±1	±1	±1	±1	±1
压机装机功率 Total power		Kw	1000	1060	1350	2050	2400
锻造速度 Forging speed	镦粗 upsetting	mm/s	50	50	50	50	50
	常锻 Conventional forging	mm/s	110	110	110	110	110
锻造频次forging frequency		次/min	120	120	120	120	120
推荐配套的操作机Recommended manipulator		T	5	10	15	20	25



20MN 双柱下拉式快锻压机组  
20MN Two-column Pull-down Quick-forging Press Unit



# 生产线上的辅助设备

## Auxiliary equipment on production line

Perfect Product / International Hdmech  
精细化的产品 / 国际化的海德马克



### q全液压锻造操作机 Full hydraulic forging manipulator

#### 用途及功能

该系列操作机适用于配合快锻压机、自由锻压机等进行锻造操作。具备七种功能：钳口夹持/松开，夹钳360°连续旋转，夹钳平行升/降，夹钳仰俯，钳架水平左右平移，钳架水平左右摆动，车体沿轨道前进/后退。

#### 技术特点

按照机械手的设计理念设计，拥有八项专利技术。具有超强的灵敏度和自我保护功能；先进的液压伺服定位控制技术；独特的钳身悬挂机构，缸推式夹紧机构；操作机整体刚性强，结构紧凑，运行稳定，反应速度快。

规格系列：1t~260t  
Common Series: 1t~260t

#### Functions

This manipulator can fulfill forging processes accompanying with a quick-forging-press or a common forging-press. All together seven functions can be applied, such as tongs clamping, peel rotating, peel parallel lifting, peel tilting, peel parallel side shifting, peel angular side shifting, manipulator travelling etc.

#### Technical Superiorities

It has super sensitivity and self-protection function according to the design concept of the manipulator, which owns eight technical patents. The advanced hydraulic servo positioning control technology can realize stepless rotation. It has unique clamp suspension structure and cylinder-push type clamping structure. This manipulator has strong rigidity, compact structure, stable operation and quick response.



80T 全液压锻造操作机  
80T Full-hydraulic Forging Manipulator



100T 全液压锻造操作机  
100T Full-hydraulic Forging Manipulator

### 全液压锻造操作机标准参数表 Parameters for Full-hydraulic Forging Manipulator

项目Item	单位Unit	全液压锻造操作机技术参数 Parameters for full hydraulic forging manipulator											
		30	50	100	150	200	300	500	800	1000	1200	1600	2000
公称载荷Load	KN	30	50	100	150	200	300	500	800	1000	1200	1600	2000
公称夹持力矩 load moment tongs	KNm	90	150	300	450	600	900	1500	2400	3000	3600	4800	6000
钳口夹持范围 tongs closed/opened	mm	160/750	185/810	225/1000	240/1200	285/1300	320/1450	340/1700	420/2150	480/2300	530/2500	580/2700	640/2900
钳头最大旋转直径 max. outside diameter of tongs at max. opening	mm	1190	1320	1630	1960	2120	2370	2770	3490	3700	3950	4150	4350
夹钳最低中心高 The minimum height of the center of the clamp	mm	550	580	685	815	900	900	1120	1120	1400	1500	1600	1700
夹钳升降行程 horizontal lifting of tongs	mm	950	1100	1440	1655	1800	1800	1850	2100	2200	2300	2500	2700
夹钳升降速度 lifting and lowering speed of tongs	mm/s	150	150	150	130	120	120	100	100	100	100	100	100
夹钳仰俯角度 tipping angle (up/down)	°	7/10	7/10	7/10	7/10	7/10	7/10	7/10	7/10	7/10	7/10	7/10	7/10
钳身左右侧移距离 parallel horizontal shift of tongs	mm	±120	±120	±150	±180	±200	±200	±250	±300	±300	±400	±400	±400
钳身最大水平摆角 Swiveling	°	±8	±8	±8	±8	±8	±8	±8	±8	±8	±8	±8	±8
夹钳旋转速度 rotation speed of tongs	r/min	25	22	20	18	18	18	18	16	16	16	15	14
夹钳旋转定位精度 rotation accuracy	°	±1	±1	±1	±1	±1	±1	±1	±1	±1	±1	±1	±1
车体行走速度 max. traveling speed of manipulator transporting	m/min	42	36	36	36	36	36	36	30	30	30	30	27
车体行走定位精度 movement accuracy of manipulator	mm	±5	±5	±5	±5	±5	±5	±5	±5	±5	±5	±5	±5
总装机功率total power	kW	70	84	105	168	198	233	458	480	590	693.5	961	1150
设备总长度 overall length	mm	7300	7500	10000	10500	12000	12000	13500	15000	15500	15900	17500	22650
设备总宽度 overall width	mm	3900	3900	4900	5100	5400	5400	5800	7500	7500	7600	8500	8900
设备总高度 overall height	mm	3000	3100	4000	4600	5200	5200	5500	6000	6400	6800	7500	6300
轨距 track gauge	mm	2200	2200	2800	3000	3300	3600	4000	4800	5200	5700	6200	6500



200T 全液压操作机  
200T Full-hydraulic Forging Manipulator



# 生产线上的辅助设备

## Auxiliary equipment on production line

Perfect Product / International Hdmech  
精细化的产品 / 国际化的海德马克



### 轨道式装取料机 Rail bound charging manipulator

#### 用途及功能

该系列装取料机能够从地面夹持工件，方便地将工件送入加热炉；同时，能够将加热好的工件从加热炉内取出，并迅速送至锻锤、压机或辗环机等锻压设备上，并且能够辅助做一些简单的操作。如上下马架、砧座，捡拾料头等。该装取料机具备七种功能：大车行走、小车行走、小车回转、钳杆仰俯、钳杆伸缩、夹钳翻转、夹钳夹持。

#### 技术特点

根据车间生产工艺及现场布局进行设计；适用于高温工作环境；动作灵敏速度快，工作效率高；热处理装料机能够实现生产节拍控制，能保证料件出料、淬火时间一致性；操作、维护方便。

规格系列：1t~50t  
Common Series: 1t~50t

#### Functions

The manipulator can achieve functions like picking up an ingot from the ground and transporting it into the furnace or to the forging hammer, press, or a ring-mill. Also forging operations like loading/unloading the forging rack, the anvil or picking up the forging ends can all be fulfilled. Altogether seven functions can be applied, such as cart traveling, dolly traveling, dolly rotating, peel tiling, peel stroking, peel rotating and tong clamping.

#### Technical Superiorities

This manipulator is designed according to the production process in the workshop and site layout. It is suitable for high-temperature environment, acts quickly, and has high efficiency. The Heat-treatment Charging Manipulator can realize the control of produce rhythm to ensure the discharging and the quenching time are consistent. Its operation and maintenance are convenient.



轨道式装取料机参数表  
Parameters for Rail-bound Charging Manipulator

项目Item		单位Unit	轨道式装取料机技术参数 Parameters for rail bound charging manipulator									
			10	20	30	50	80	100	150	200	300	500
公称载荷load	KN		10	20	30	50	80	100	150	200	300	500
夹钳张口尺寸	最小min	mm	Φ70	Φ80	Φ100	Φ150	Φ200	Φ200	Φ200	Φ200	Φ210	Φ250
Tongs opening	最大max	mm	Φ500	Φ750	Φ800	Φ850	Φ950	Φ1000	Φ1450	Φ1500	Φ1600	Φ1800
夹钳中心高	最低min	mm	780	840	900	1130	1200	1300	1900	2000	2300	2500
The height of the center of the clamp	最高max	mm	1380	1460	1650	2130	2200	2500				
平行升降行程 horizontal lifting of tongs		mm	600	620	750	1000	1000	1200	/	/	/	/
夹钳有效服务高度	最低min	mm	-200	-150	-250	-450	-380	-420	-550	-500	-550	-530
The effective service height of clamp	最高max	mm	1500	1620	1750	1980	2200	2450	2270	2440	2620	2750
最大悬臂长度Max cantilever		mm	4800	4900	5000	5400	5900	6200	6300	6500	6900	7400
钳杆伸缩行程tong stroking length		mm	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
钳杆伸缩速度speed of tong extending		mm/s	200	200	230	230	140	150	275	255	270	230
小车行走行程stroke of dolly moving		mm	2800	2900	3000	3500	3200	4300	3750	4300	4800	
最大回转半径 Maximum radius of gyration		mm	5400	5500	5600	6200	6900	7000	7100	7400	7800	8100
标准轴距standard wheel base		mm	4000	4000	4000	5000	5000	6000	6000	7000	8000	8000
小车回转速度 speed of dolly rotating		r/min	4.5	4	4	4	4	4	5.5	5	4	3.8
小车回转角度 angle of dolly rotating		°	±175	±175	±175	±175	±175	±175	±175	±175	±175	±175
夹钳翻转速度 speed of tong rotating		r/min	6	6	6	6	6	6	4.7	4.5	4.2	4.2
大车行走速度 speed of cart running		m/min	60	60	60	60	55	47	64	60	52	45
小车行走速度 speed of dolly running		m/min	30	30	30	30	21	21	30	30	24	21
总装机功率total power		kw	20	23	27	45	70	75	90	120	165	210
大、小车驱动方式 drive mode of cart and dolly			电机 Electric machinery									
供电方式 Power supply mode			地沟滑束线 电缆卷筒 拖缆 Slip line / cable reel/ towline									
液压油冷却方式 cooling mode of hydraulic oil			风冷却器 air cooler									
大车轨道型号 Track type of cart			38kg	43kg	QU80	QU120						
外形尺寸 Outline dimension	长length	mm	6	7.3	7.3	8.1	8.9	9	9.5	10.1	11.2	12.5
	宽width	mm	2.7	3	3.1	3.4	3.6	3.9	4.5	5	5.3	5.7
	高height	mm	2.3	2.4	2.5	2.6	2.7	2.9	3.2	3.4	3.6	3.9



# 生产线上的辅助设备

## Auxiliary equipment on production line

Perfect Product / International Hdmech  
精细化的产品 / 国际化的海德马克



### 无轨式装取料机 Tyre bound charging manipulator

**用途及功能**  
该系列装取料机用于加热炉装/取料以及锻件的搬运工作。该装取料机能够从地面夹持工件，方便的将工件送入加热炉；同时，能够将加热好的工件从加热炉内取出，并迅速送至锻锤、压机或辗环机等锻压设备上，并且能够辅助做一些简单的操作，如上下马架、砧座，捡拾料头等。

**技术特点**  
机动灵活，转弯半径小，适合用于狭小空间作业；  
专为锻造车间设计，工作效率高，性能可靠；  
视野开阔，操作方便。

规格系列：0.6t~20t  
Common Series: 0.6t~20t

**Functions**  
The manipulator can achieve functions like picking up an ingot from the ground and transporting it into the furnace or to the forging hammer, press, or a ring-mill. Also forging operations like loading/unloading the forging rack, the anvil or picking up the forging ends can all be fulfilled.

**Technical Superiorities**  
This manipulator is suitable for narrow space operations, because it is flexible and has small turning radius.  
It is specially designed for forging shop, with high working efficiency and reliable performance.  
It has broad vision and convenient operation



项目 Item	单位 Unit	无轨式装取料机技术参数											
		叉车改装式 Forklift modifying						自驱式 self driven					
车体形式 mode of body													
公称载荷 load	T	0.2T	0.5T	1T	2T	3T	3	5	8	10	15	20	
夹钳至车体距离 tong front end to the front axis	mm	2500	2500	2500	2250	2250	3500	3500	4000	4000	4200	4500	
钳杆中心高 The height of the center of the clamp	最低 min.	mm	600	600	600	800	500	1000	1000	1000	1000	1300	
	最高 max.	mm	2000	2000	2000	2100	2300	2000	3250	3600	3600	3900	4500
钳杆升降行程 horizontal lifting of tongs	mm	1400	1400	1400	1500	1500	1500	2250	2600	2600	2900	3200	
钳杆上仰角度 tipping angle (up)	°	6	6	6	6	6	10	10	10	10	10	10	
钳杆下俯角度 tipping angle (down)	°	12	12	12	12	12	10	10	10	10	10	10	
整车外形尺寸 Outline dimension	长 length	mm	5200	5200	5000	6000	6800	8000	7600	8500	9100	10500	12800
	宽 width	mm	1225	1225	1250	1850	2000	2500	2450	2740	2900	3500	3800
	高 height	mm	2090	2090	2090	2650	2800	2850	3050	3100	3200	3500	3750
夹钳开口 tong opening	最小 min	mm	60	60	60	80	80	80	100	70	100	150	200
	最大 max	mm	900	900	900	600	800	800	900	1000	1100	1300	1500
前轮(实心橡胶) front tire (solid)	个	2	2	2	4	4	2	2	2	2	2	2	
后轮(实心橡胶) rear tire (solid)	个	2	2	2	2	2	2	2	2	2	2	2	
轴距 wheel base	mm	1700	1700	1800	2250	2500	2450	2650	2800	3250	3800	4200	
转弯半径(外侧) Turning radius(Outside)	mm	2400	2400	3000	3300	3700	3300	3550	3800	4250	5700	6500	
最高行驶速度 max. travelling speed	Km/h	30	30	30	26	26	9.6	9.6	9.6	9.6	9.6	9.6	
钳杆升降速度 lifting and lowering speed of tongs	mm/sec	120	120	120	0~350	0~350	0~190	0~190	0~160	0~160	0~190	0~160	
夹钳旋转角度 tong rotating angle	°	360 可连续 360 continuous											
配套叉车/发动机 matched forklift/engine		CPCD20	CPCD30	CPCD35	CPCD60	CPCD80	55kw	78kw	127kw	150kw	181kw	235kw	