















国机制造 **R&D AND MANUFACTURE**

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第二卷

Volume II





国机制造 R&D AND MANUFACTURE

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(2)	砂光机 /Sanding Machine	83
(3)	砂光锯切生产线 /Sanding and CTS Line	84
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(6)	气流铺装机 /Airflow Mat-former	87
(7)	通道式干燥机 /Passage dryer	89
(8)	矩形筛 /Oscillating screen	90
(9)	盘式削片机 /Disk chipper	91
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(11)	滚筒式剥皮机 /Drum De-barker	95
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(2)	轴承防锈润滑油 /Anti-rust and Lubricant Oil Proudcts	563
(3)	超硬材料制品 /Superhard material products	564
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(5)	金刚石烧结修整滚轮 /Sintered diamond dressing rollers	573
(6)	L 系列回转试验机 /L series rotation test machine	574
(7)	磨具生产设备 /Abrasive Production equipment	576
(8)	超硬材料生产设 /Superhard materials production equipment	577
(9)	磨轧辊砂轮 /Roll Grinding Wheels	582
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(15)	石油专用管螺纹车刀 /Thread Turning Tools for Oil Pipe	585
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(26)	高温合金加工刀具 /The High-temperature Alloy Machining Tool	595
(27)	汽车零件加工刀具 /Automotive Parts Machining Tool	595
(28)	无心车系列刀具 /Bars Peeling processing Tool	596
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(30)	MJS 系列激光干涉仪 /MJS Calibration Laser Interferometer Series	597
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(2)	GS 系列高压水清洗机及清洗系统 GS series of high-pressure water cleaning machines, power plant air cooling, cleaning and sprinkler system	. 545
(3)	生化分析滤光片 /Biochemical Analytical Filter	.563
(4)	圆形渐变密度滤光片 /Circular Variable ND Filters	.538
(5)	数字放映机用反光镜 /Reflector for Digital Cinema	.539
(6)	鱼眼投影镜头 /Fish-eye projection lens	.539
(7)	智能压力 / 差压 / 绝压变送器 Smart Pressure / Differential Pressure / Absolute Pressure Transmitter	.540
(8)	HB9500 系列压力变送器 /HB9500 series pressure transmitter	.541
(9)	HB26S 系列压力变送器 /HB26S series pressure transmitter	.542
(10)UHB/UQK 系列浮球式液位变送器 / 控制器 /UHB / UQK Series Float Level Transmitter / Controller.	.543
(11))UHZ 系列磁翻柱式液位变送器 /UHZ Series Magnetic column level transmitter	.544
(12)WBJ 系列一体化温度变送器 /WBJ series integrated temperature transmitters	.545
(13)HB871 投入式液位变送器 /HB871 cast-in liquid transmitter	.546
(14)HB2119 压力传感器 /HB2119 pressure sensor	.547
8.2	中国农业机械化科学研究院 China Academy of Agriculture Mechanization Sciences	
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(2)	静态试验机 /Static testing machine	.773
(3)	矫直机 /Straightening Machine	.839
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(2)	扫描式 3D 相机 /Scanning 3D camera	.127
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(4)	电火花加工喷孔设备 /EDM Nozzle Equipment	.128
(5)	电火花成形机 /EDM Machine	.1286
(6)	数控磨床 /CNC Grinding Machine	.1294

(7)	电化学去毛刺机 /Electrochemical Deburring Machine	1300
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8.4	合肥通用机械研究院有限公司 Hefei General Machinery Research Institute	
通用	机械试验设备 /General Mechanical Test Equipment	1381
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(2)	轴承检测仪器 /Inspection Instruments for Bearing	560
(3)	精密机床 /Precision Machine tool	561
8.6	哈尔滨电站设备成套设计研究所有限公司 CHINA HARBIN POWER SYSTEM ENGINEERING & RESEARCH INSTITUTE CO.,LTD.	
(1)	全厂辅助车间控制系统(电厂辅控网)/	
	Auxiliary workshop-BOP control system (Power plant auxiliary control network)	34
(2)	水处理 PLC 程控系统 /Water treatment PLC control system	37
(3)	输煤 PLC 程控系统 /Coal handling PLC control system	40
(4)	脱硫 PLC 控制系统 /Desulfurization PLC control system	44
(5)	除灰、除渣 PLC 控制系统 /Ash and slag handling PLC control system	46
(6)	分散控制系统 DCS/Distributed control system DCS	49
(7)	工业电视系统 /Industrial Television Monitoring System	53
(8)	管理信息系统 /Management Information System (MIS)	56
(9)	远程监控系统 /Remote Monitoring System	58
(10)	设备故障诊断预警系统 /Equipment fault diagnosis and predictive alarm system	60
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(12)	煤粉锅炉低氮燃烧和 SCR 脱硝技术与装备 Technology and Equipment for Low Nitrogen Combustion and SCR Denitrification of Pulverized Coal Boile	ers64
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9 纺织设备和产品 Textile Equipment & Products

	中国恒天集团有限公司 China Hi-Tech Group Corporation
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(2)	棉纺数字化车间 /Digital spinning workshop	973
(3)	环锭细纱机 /Ring spinning frame	976
(4)	精梳机 / Comber	983
(5)	条并卷机 /Sliver lap machine	985
(6)	转杯纺纱机 /Open end spinning machine	986
(7)	假捻变形机 /False twist texturing machine	987
(8)	剑杆织机 /Rapier Loom	988 & 997
(9)	罗拉 /Roller	989
(10)	锭子 / Spindle	990
(11)	钢领 /Ring	991
(12)	上罗拉轴承 /Top roller bearing	992
(13)	涤纶短纤成套设备 /Complete set of Polyester	994
(14)	粘胶短纤成套设备 / Complete set of Viscose Equipment	995
(15)	合成纤维长丝成套设备 /Complete set of filament machine	996
(16)	浆纱机 /Sizing Machine	998
(17)	水刺生产线 /Spun-laced Production line	999
(18)	自动络筒机 /AUTO-WINDER	1001
(19)	开清梳联合机 /Combined Opening/Blowing/Carding machine	1007 & 1045
(20)	匀整并条机 /DRAWFRAME	1031
(21)	整经机 /WARPING MACHINE	1035
(22)	粗纱机 /Fly frame	1037
(23)	传送系统 /Conveying system	1041
(25)	混纺 / 色纺高精度称量机组 /Blended/colored Spinning High -precision Weighing Unit	1051
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(27)	地毯丝加捻机 /Carpet twister	1063
(28)	玻捻机 /Glass fiber twister	1066
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(30)	直捻机 /Direct Cabling corder	1075
(31)	织机 /Loom	1082
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)包覆锭子 /COVERING SPINDLES	1087
(34))花式捻线锭子 /FANCY YARN TWISTING SPINDLES	1088
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(36))印花机 /PRINTING MACHINE	1091
(37))高温染色设备 /High temperature dyeing machine	1104
(38))水洗机 /Washing compartment	1110
(39))拉幅定型机 /Stenter Frames Range	1113
(40))松式平网烘干机 /Shrinkage & Relaxation Dryer	1115
(41))摇架类产品 /Weighting Arms	1123
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	水轮机调压阀 /Turbine Pressure Relief Valve	
		24
(3)	油压装置 /Pressure Oil Unit	
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(4) (5)	油压装置 /Pressure Oil Unit	27 28 30
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(4) (5) (6) (7) (8) (9) (10)	油压装置 /Pressure Oil Unit	27 28 30 11 12 13
(4) (5) (6) (7) (8) (9) (10)	油压装置 /Pressure Oil Unit	27 28 30 11 12 13 14
(4) (5) (6) (7) (8) (9) (10)	油压装置 /Pressure Oil Unit	27 28 30 11 12 13 14 16

10.3	B 合肥通用机械研究院有限公司 Hefei General Machinery Research Institute	
(1)	压力容器 /Pressure Vessel	1326
(2)	压缩机 /Compressor	1343
	风机 /Fan Products	
	泵 /Pump	
(5)	阀门 /Valve	1354
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10.6	中国农业机械化科学研究院 China Academy of Agriculture Mechanization Sciences	
(1)	污水处理装置 / Sewage Treatment Equipment	731
(2)	高低压配电柜系列 /High and low voltage distribution cabinet	871
10.7	['] 中国恒天集团有限公司 China Hi-Tech Group Corporation	
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10.8	B 桂林电器科学研究院有限公司 Guilin Electrical Equipment Scientific Research Institute Co., Ltd	
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(2)	特种电机 /Special Motor	1437
10.9	中国福马机械集团有限公司 CHINA FOMA (GROUP) CO.,LTD.	
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(2)	远程高压森林消防泵(SFBA30/1 0-C)/Remote high pressure forest fire pump (SFBA30/1 0-C)	

(3)	森林消防泵(4BJL-12/3.5)/Forest fire pump (4BJL-12/3.5)	112
(4)	新型手持式风力灭火机(6MF-22-50C)/New hand-held pneumatic extinguisher (6MF-22-50C)	117
11	金属加工件 Metal Products	
11.1	1 中设集团装备制造有限责任公司 China Machinery Industrial Products Co., Ltd.	
(1)	高速列车制动盘 /Brake discs for high speed train	2
(2)	高铁用摩擦盘和碳刷架 /Friction disc and carbon brush carrier for high speed train	3
(3)	四轮一带 /Undercarriages	4
(4)	铜套 /Bronze bushings	5
(5)	高温合金 /High temperature alloy	6
(6)	耐蚀合金 /Corrosion Resistant Alloy	
	气阀钢 /Air valve steel	
(8)	特种合金丝材 /High Performance alloy material	9
11.2	2 二重(德阳)重型装备有限公司	
	Erzhong (Deyang) Heavy Equipment Co.,Ltd	
	电站锻件 /Heavy castings and forgings——forgings for electricity generating station	
(2)	电站铸件 /Heavy castings and forgings——castings for electricity generating station	
	船用铸锻件 /Marine castings and forgings	412
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11.3	3 沈阳仪表科学研究院有限公司 Shenyang Academy of Instrumentation Science Co.,Ltd	
(1)	GIS/GIL 伸缩节 / GIS/GIL	529
(2)	精密金属波纹管 /Precision metal bellows	
(3)	换热器 /Heat exchanger	
11.4	4 洛阳轴研科技股份有限公司 Luoyang Bearing Science & Technology Co., Ltd.	
(1)	轴承 /Bearings	552
(2)	电主轴 /High-frequency Spindle	558



二重 (德阳) 重型装备有限公司

Erzhong (Deyang) Heavy Equipment Co.,Ltd.

公司名称: 二重(德阳)重型装备有限公司Company Name: Erzhong (Deyang) Heavy Equipment Co.,Ltd.

http://www.erzhongheavy.com

二重(德阳)重型装备有限公司(简称二重装备)隶属于国机重型装备集团股份有限公司。中国第二重型机械集团公司始建于1958年,2013年,经国务院批准,中国二重与中国机械工业集团有限公司实施联合重组,中国二重成为国机集团全资子公司。国机集团打造了以二重集团(德阳)重型装备股份有限公司为平台,整合中国重型机械研究院股份有限公司、中国重型机械有限公司,集"科、工、贸"为一体的高端装备集成服务商——国机重型装备集团股份有限公司。2018年2月5日,二重(德阳)重型装备有限公司成立,二重装备承继了原二重重装的主要业务及资产、资质、体系、人员等全部资源,是国机重装的核心制造板块,是国机重装的全资子公司。

二重装备将依托国机集团 28 所国家级研究院所和 70 多家海外服务机构以及国机重装"科、工、贸"旗舰平台,, 遍布 140 多个国家的国际市场营销网络,成为一流高端装备研发制造企业。

二重装备具有强大的产品研发、设计和制造能力,旗下有国家级技术中心、工程实验室和博士后工作站,有以当今世界最大的 160MN 自由锻压机为代表的生产设备 6600余台,具备一次性冶炼 900t 钢水、浇注 700t 钢锭、产出550t 成品铸件及 400t 成品锻件的能力,可按国际、国内标准及不同等级、规格和用户需求提供大型成台套设备、核电、水电、火电成套铸锻件、核电设备、石化装备、大型传动设备等各类重大技术装备制造服务。

六十多年来,二重装备先后为冶金、矿山、能源、交通、汽车、石油化工、航空航天等国民经济各部门和国防建设提供了近三百万吨重大技术装备,积淀了深厚的技术实力和服务经验,在国家重大技术装备国产化的进程中发挥了不可替代的重要作用。

二重装备将认真贯彻落实党的十九大和十九届二中、三中全会精神,坚定不移以习近平新时代中国特色社会主义思想为指导,在继承和发扬企业优良传统和文化基因的基础上,认真贯彻国机重装总体发展战略,牢固树立创新、

Erzhong (Deyang) Heavy Equipment Co., Ltd. (abbreviated as EHEC hereinafter) is a subsidiary of Sinomach Heavy Equipment Group Co., Ltd. China National Erzhong Group Co. was established in 1958., in 2013, upon the approval of the State Council, reorganized with CNEG and China National Machinery Industry Corporation, CNEG became a wholly-owned subsidiary of SINOMACH. Based on Erzhong (Deyang) Heavy Equipment Co., Ltd. (referred to as EHEC hereinafter) as the platform and with the integration of China National Heavy Machinery Research Institute Co., Ltd. and China National Heavy Machinery Corporation, SINOMACH has built a high-end equipment integration service provider-Sinomach Heavy Equipment Group Co., Ltd. combining the "science, industry and trade". On February 5, 2018, EHEC was established. EHEC has inherited the main business, assets, qualifications, systems, personnel and other resources of the former China National Erzhong Group Co. Ltd. It is the core manufacturing division of SINOMACH-HE, and the wholly-owned subsidiary of SINOMACH-HE.

After reorganization, EHEC will be availed to the support of SINOMAC which has 28 national class research institutions, over70 overseas service agencies and relying on the "science, industry and trade" flagship platform of SINOMACH as well as an international sales andmarketing network covering more than 140 countries. Thus, EHEC will inevitably develop into a first-class high-end equipment R & D and manufacturing enterprise.

As for its capacity of product research, design and manufacturing, EHEC has a national-recognized technical center, an engineering laboratory and a post-doctoral station. It is equipped with over 6600 facilities with the 800MN close-die forging press and 160MN open-die forging press as the most representative equipment. Its 160MN open-die forging water hydraulic press is the largest of its kind in the world. With these advanced and sophisticated facilities, EHEC is able to yield 900 tons of molten steel, 700 tons of steel ingots, 550 tons of castings and 400 tons of forgings in one production cycle. It is also capable of providing complete equipment for metallurgical industry, complete sets of castings and forgings for nuclear power, hydropower and thermal power industries, as well as nuclear power vessels, petrochemical equipment, heavy transmission parts and key technical equipment manufacturing services according to domestic, international and customized standards, levels and specifications.

For over 60 years, EHEC has provided nearly 3 million tons of major



协调、绿色、开放、共享的发展理念,以推进供给侧结构性改革为主线,以促进可持续高质量发展为中心任务,内涵式发展与外延式发展相结合,集约式管控与专业化板块运营相结合,加快实现建设成为一流大型装备制造企业的发展目标。

technical equipment for industries relating to national economy and defense, such as metallurgy, mining, energy, transportation, automobile, petrochemistry, aviation and aerospace. In this way, it has greatly enhanced its strength in technical research and accumulated rich experiences in service. Moreover, it has been playing a significant and irreplaceable role in the course of localizing the major technical equipment in China.

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1 成台套装备

1 complete sets of equipment

1.1 冶金设备

1.1 Metallurgical equipments

冶金设备是二重装备主导产品之一。自 20 世纪 70 年代起,二重装备先后为舞钢、重钢、本钢、鞍钢、武钢、宝钢、攀钢、邯钢、济钢、首钢、太钢、酒钢、韶钢等众多冶金企业提供了大量成套成线设备。其中,二重装备为宝钢生产制造的 5000mm 轧机被誉为当代中国轧机之王;二重装备向奥地利奥钢联公司出口的波兰 2250mm 热连轧机项目是中国成台套冶金设备首次出口欧洲,在我国重机行业对外出口史上也是第一次。

Metallurgical Equipment is one of the leading products of EHEC.Since 70th of the 20 century, EHEC has supplied a large amount of complete sets and production lines of rolling mill equipments to themetallurgical industries in China, such as Wuyang Steel, Chongqing Steel, Benxi Steel, Anshan Steel, Wuhan Steel, Baosteel, Panzhihua Steel, HandanSteel, Jinan Steel, Capital Steel, Taiyuan steel, Jiuquan Steel, Shaoguan Steeland etc. Among which, the 5000mm rolling mill for Bao Steel produced by EHEC is the largest rolling mill in China, the 2250 mm hot strip rollingmill produced for Mittal Steel, Poland produced by EHEC is the firstcomplete set of metallurgical equipment exported to Europe made in China inthe field of national heavy industry.

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1.1.1 冷轧成套设备 1.1.1 Complete set of cold rolling mill



宝钢 1550mm 冷轧主轧线 1550mm Cold rolling mill for Bao Steel



泰钢 1700mm 可逆机组 1700mm reversible rolling mill for Taishan Steel



鞍钢 1680mm 酸轧联合机组 Hot strip rolling mill and pickling line for Anshan Steel



天铁 1720mm 冷轧机组 1720mm cold rolling mill for Tianjin Tiantie Metallurgy Group Co.LTD



1450mm 连续酸洗平整机组 1450mm continous pickling temper mill



山东瑞丰 1420 酸轧联合机组 1420 hot strip rolling mill and pickling line for Shandong Ruifeng



产品简介

冷轧机是将热轧带卷轧制成成品钢卷的非标成套设备,主要应用于钢铁集团公司。冷轧的主要生产工艺流程为酸洗、冷轧、退火、精整。冷轧机轧后产品为适应各种用途,还须各种深加工处理(如退火、拉矫、平整、涂油、横切、纵切、镀锌、重卷等后续处理线)等。

Introduction of products

Cold rolling mill is non-standard complete set of equipment which producethe final coil from the hot strip, widely uses for the steel groups. The mainproduction processes of cold rolling are pickling, cold rolling, annealingand finish machining. In order to fit for various purposes, products of coldrolling need further machining treatment (such as annealing, drawing andstraightening, finishing, oil painting, transverse cutting, longitudinal cutting, galvanization, re-coiling, etc..)

产品主要技术参数

Main technical parameters of product

参数名称 Parameter description	规格 Specification
raiameter description	Specification
钢卷厚度范围	2~6mm
Thickness range of coil	2 011111
钢卷宽度范围	700∼2080 mm
Width range of coil	700∼2080 mm
成品带材厚度范围	
Thickness range of final strip product	0.18~2.5mm
成品带材宽度范围	
Width range of final strip product	700~2080 mm
成品钢卷重量范围	
Weight range of final coil	10~30 吨 (T)
成品钢卷年产量范围	10~120 万吨
Annual yield range of final coil	(0.1-1.2 million tons)
机组最大速度	
Max.speed of unit	25m/s
轧机轧制力范围	
Rolling load range of mill	12000~22000KN
轧机工作辊规格范围	
Specification range of work roll of mill	φ320∼φ500mm
4.机中间辊规格范围	
Specification range of intermediate roll of mill	φ450~φ650mm
轧机支承辊规格范围	
Specification range of back-up roll of mill	φ1050~φ1550mm



产品特点

- 1. 入口采用自动焊机, 保证带材的连续轧制;
- 2. 酸洗槽入口布置拉矫机,有较高的破鳞效率和高的延伸率;
 - 3. 酸洗槽采用浅槽紊流式酸洗槽,提高酸洗效率:
- 4. 活套:均匀加、减速,连杆摆动式活套门,托辊设计为自纠偏形式,使生产更可靠,维护更简单;
- 5. 设置工作辊弯辊装置 + 中间辊弯辊 + 中间辊窜辊 + 工作辊分段冷却 + 板型辊的板型闭环控制系统,从而有效地控制带材板形,保证了成品带材的板形和平直度。采用工作辊快速换辊装置。轧机主传动采用动态响应速度快、控制精度高、维护方便的交流电动机传动;
- 6. 轧机出口配置转鼓式飞剪,实现不停机剪切,剪切精度高;
- 7. 轧机出口采用双卷筒卷取机,减少轧机与卷取机之间的距离,适用于薄带卷取,提高生产效率;
- 8. 全线设有先进的测厚仪、测速仪、板形仪、张力计、焊缝检测仪等大型轧线检测仪表,能自动完成检测和控制;
- 9. 全线电气传动可采用交流传动。为节约投资,也可采用直流传动;
- 10. 提供与冷轧机组成套设备配套的电气、流体系统。由于冷轧产品的用途不同而衍生的后续处理机组的产品介绍:
- 1. 酸洗机组主要由开卷机、直头机、焊机、活套、张力辊、纠偏辊、拉矫机、酸洗槽、漂洗槽、烘干机、卷取机等设备组成,用于除掉带钢表面的氧化铁皮;年产量 120 万吨。
- 2. 冷轧可逆机组采用前后卷取机和四辊或六辊轧机配合生产带材, 其生产方式灵活, 可生产较薄产品, 投资少, 收益快, 年产量 10-25 万吨。
- 3. 平整机组采用开卷机、直头机、四辊或六辊轧机、涂油机、卷取机等设备组成,可以采用干、湿平整。年产量 10-25 万吨。
- 4. 镀锌机组主要由开卷机、直头机、焊机、活套、张力辊、纠偏辊、工艺段、检查站、平整机、拉矫机、卷取机等设备组成,年产量 15-35 万吨。
- 5. 纵切机组采用开卷机、直头机、活套、张力辊、纠偏辊、拉矫机、圆盘剪等设备组成,用于将带钢剪切到规定的宽度以及分卷。年产量为 20-30 万吨。

出口业绩

1600mm 二辊可逆式平整机组已出口印度。

Product features

- 1. Use automatic welding machine at entry, make sure a continuous rolling tothe strip.
- 2. Equip the drawing and straightening machine at entry of pickling channel, with high effective scale breaking and extensibility.
- 3. Pickling channel uses shallow slot turbulence type of channel, to improve theeffectiveness of pickling.
- 4. Loop: speed-up or low-down evenly, connecting rod to swing movable door,design of supporting roller is self-correcting form, which makes production more reliable and the maintenance easier.
- 5. Equip the work roll bending device+intermediate roll bending+intermediateroll shifting+work roll stepped cooling+closed loop control system of plate type,thus effectively controlling the plate shape of strip, and guaranteeing the shapeand straighteness of final strip. Use work roll rapidly roll changing device. Themain drives of mill use AC motor which has a quick response, high precisionand a easy maintenance.
- 6. Equip the drum type shear at entry of mill, to realize non-stop shear and ahigh precision shearing.
- 7. Equip the double drum winder at entry of mill, to decrease the distancebetween mill and coiler, it is suitable for coiling the thin strip and can increase the effectiveness.
- 8. The whole line is equipped with advanced detection instrument of large
- rolling line, like thickness gauge, velometer, plate shape meter, tensiometerand weld seam detector, which can automatic complete the measuring and controlling.
- 9. Electric drives on whole line can be driven by AC. For saving cost, DC drviescan be used also.
- 10. Provide the electric system and the fluid system which are matched withcomplete set of cold rolling mill.

Introduction of subsequence machines produced by various purpose of coldrolling products.

1. Pickling machines mainly composed with uncoiler, coil opener, welding

machine, loop, stretch roll, correcting roll, straightener, pickling channel,

washing tank, drier and coiler, to eliminate the oxide scale on the surfaces of strip. Annual output is 1.2 million tons.

- 2. Cold rolling reversible unit produces the strip with front and back coilers and4-roll/6-roll mill, the production way is flexible, it can produce thinner products,less cost, but quick return. Annual output is 1-2.5 million tons.
- 3. Straightening machine composes with uncoiler, coil opener, 4-roll/6-roll mill,oil painting machine and coiler. It can use dry and wet straightening. Annualoutput is 1-2.5 million tons.
- 4. Galvanization machine composes with uncoiler, coil opener, welding machine,loop, stretch roll, correcting roll, technical processes sections,inspection station,straightener, drawn-straightener and coiler. Annual output is 1.5-3.5 million tons.
- 5. Longitudinal cutting machine composes with uncoiler, coil opener, loop.

stretch roll, correcting roll, drawn-straightener and rotary shear, it can shear thestrip to the specified width and coiling. Annual output is 2-3 million tons.

Export performance

1600mm 2-roll reversible straightener has exported to India.



1.1.2 热带钢连轧机成套设备 1.1.2 Complete set of hot strip rolling mill



太钢 2250mm 不锈钢热轧生产线 2250mm stainless steel hot rolling production line for Taiyuan Steel



本钢 2300mm 轧机 2300mm rolling mill for Ben Steel



宝钢湛江 2250mm 热连轧生产线 Zhanjiang 2250mm hot strip rolling production line for Baoshan Iron & Steel Co.



攀西钢 2050mm 热连轧生产线 2050mm hot strip rolling production line for Panxi Steel



ArcelorMittal 2250mm 热连轧生产线 2250mm hot strip rolling production line for ArcelorMittal



邯钢 1680mm 连铸连轧机 1680mm CC-CR mill for Handan I&S Co



河北安丰 1780mm 热连轧生产线 1780mm hot strip rolling production line for Hebei Anfeng

产品简介

热带钢连轧机是把钢坯或连铸坯轧制成成品带钢或冷 轧坯料的非标成套设备,主要应用于钢铁集团公司。热轧 带钢连轧机根据产品功能、性能、产量和使用需求的不同, 可采用全连轧生产模式、半连轧生产模式等。

Introduction of products

Hot strip continuous rolling mill is a non-standard complete set of equipmentwhich produces the final strip or cold rolling billet from ingot or continuouscasting billet, widely uses for the steel groups. According to the product function, performance, output and usage demand, the hot strip rolling mill can adopt the full continuous rolling production mode and the semi-continuous rolling production mode.



产品主要技术参数

Main technical parameters of product

参数名称 Parameter description	规格 Specification
钢坯或连铸坯厚度范围 Thickness range of billet or continuous casting billet	150∼300mm
钢坯或连铸坯宽度范围 Width range of billet or continuous casting billet	200∼2100 mm
钢坯或连铸坯长度范围 Length range of billet or continuous casting billet	4500∼11000 mm
成品钢卷厚度范围 Thickness range of final coil	1.2~26.4mm
成品钢卷宽度范围 Width range of final coil	200∼2150 mm
成品钢卷最大外径 Max.outer diameter of final coil	φ 2100 mm
成品钢卷重量范围 Weight range of final coil	4~48 吨(T)
成品钢卷年产量范围 Annual yield range of final coil	70~500 万吨 (0.7-5 million tons)
粗轧 E1 立辊轧机轧制力范围 Rolling load range of RM E1 edger	1000∼7500KN
粗轧 E2 立辊轧机轧制力范围 Rolling load range of RM E2 edger	5000∼7500KN
粗轧 R1 二辊轧机轧制力范围 Rolling load range of RM R1 2-roll mill	8000∼45000KN
粗轧 R2 四辊轧机轧制力范围 Rolling load range of RM R2 4-roll mill	30000~55000KN
F1E 立辊轧机轧制力范围 Rolling load range of F1 E edger	1000∼1500KN
F1~F7 四辊精轧机轧制力范围 Rolling load range of F1-F7 4-roll FM	5000∼50000KN
F1~F7 精轧机工作辊规格范围 Work roll specification range of F1—F7 FM	φ 300 ∼φ 850mm
F1~F7 精轧机支承辊规格范围 Back-up roll specification range of F1—F7 FM.	φ 600 ∼φ 1630mm



产品特点

- 1. 设有粗轧除鳞、粗轧机前和粗轧机后除鳞、精轧除 鳞四个高压水除鳞点,强力清除板坯和中间坯表面的氧化 铁皮,提升产品质量;
- 2. 具有能力强大的立辊轧机和四辊粗轧机,立辊轧机 具有 AWC 和 SSC 功能,四辊粗轧机设有电动 APC +液 压 AGC,下辊设有液压阶梯垫。采用工作辊快速换辊装置, 提高生产节奏;
- 3. 采用无芯卷取和无芯轴移送的热卷箱,对中间坯均温和保温,减少带钢头尾温度差,减少带卷内圈的温度降,热卷箱具备卷取和直通两种工作方式; (中间辊道上也可设有保温罩,减少中间坯温降和头尾温差)以提升产品质量,降低能耗;
- 4. 采用转鼓式或双曲柄式飞剪,在中间带坯进入精轧机之前切掉不规则的头部和尾部,具备优化剪切功能,提高收得率;
- 5. 精轧机前采用具有压下功能的小立辊可以提高和改善带钢边部的产品质量 , 防止边裂的产生 , 以及提高带钢宽度控制精度;
- 6.F1-F7 精轧机为全液压式精轧机,实现液压(APC)和液压(AGC),设置了工作辊正弯辊系统(WRB)和工作辊窜辊(WRS)系统,保证带钢厚度和板形质量,同时可实现自由轧制(SFR),减少换辊量,提高生产率。精轧机组具有升速轧制功能。工作辊采用快速换辊装置;
- 7.F1-F7 精轧机机架间喷淋冷却系统可以根据精轧入口温度、出口速度进行设定,以确保所要求的最终轧制温度,提高产品综合性能。精轧机架之间设有带钢氧化铁皮抑制系统、防轧辊表面剥落系统,保证良好的带钢表面质量。精轧机组设有润滑轧制,以提高轧辊寿命。精轧机组设有水雾除尘系统和吸风除尘,提高带钢表面质量和改善生产操作环境;
- 8.F1-F7 精轧机之间采用液压或电动活套,使带钢在 微张力状态下进行轧制,保证带钢厚度和宽度精度;
- 9. 粗轧机采用滑块式或十字包式万向接轴, 精轧机采用可轴向串动的鼓形齿接轴;
- 10. 精轧机组后设置测厚仪、测宽仪、凸度仪、平直度仪、高温计等检测仪表,对带钢轧制进行在线闭环控制;
- 11. 输出辊道辊子表面为硬质喷焊层、光滑耐磨,避免带钢表面擦伤,提高辊子寿命;

Product features

- 1. Equip the RM descaler, descaler at front/back of RM, FM descaler with 4 high pressure water descaling points, make sure that the oxide scales at billet and middle billet can be eliminated and improve the product quality;
- 2. Equip with powerful edger and 4-roll RM. Edger has AWC and SSC functions,4-roll mill is equipped with motor APC+hydraulic AGC, the lower rollers are equipped with hydraulic step keys. Use work roll rapidly roll changing device to improve the production efficiency.
- 3. Use coreless coiling of hot coil box and coreless shaft to hot coil box, averagethe temperature of middle billet and heat preservate, decrease the temperaturedifferences at the head of strip, shorten the drop of temperature inside ofthe coil. Hot coil box has two woking ways, coiling and straightening.(Heatpreservation cover can also be equipped at middle roller table, to decrease thedrop of temperature of middle billet and the temperature differences between head and tail) to better the product quality and reduce the consumption of energy.
- 4. Use drum type shear or double crank flying shear, to cut down the irregularheads and tails of middle billet before they go into FM, with optimized shearing function, to improve yield
- 5. Small edger with screw down function is equipped at the front of FM toimprove the quality of strip edge, prevent the cracks, improve the controlprecision of strip width.
- 6. F1-F7 FM are fully hydraulic finishing mill, with hydraulic(APC) andhydraulic(AGC), equipped with work roll bending system(WRB) and work rollshifting system(WRS),guarantee the thickness of strip and the quality of plate,meanwhile, realize the free rolling(SFR), decrease the quantity of roll changingand improve the effectiveness. Finishing mill is characterized with speed-risingrolling function. Work roll is equipped with rapidly roll changing device.
- 7. Spary cooling system among housings of F1-F7 FMs, can be set according to temperature at entry of FM and the speed at exit to guarantee the required final rolling temperature, to improve the comprehensive performance of products. Inhibition system of oxide scalings of strip steel scaleis set among FM housings, and anti-flaking system as well, to guarantee the surface quality of strip. Finishing mill is equipped with lubrication for rolling to increase the service life of roller. Finishing mill is equipped with spary dedustsystem and induced system to improve the quality of strip surface and the production environment
- 8. Use hydraulic or motor loops among F1-F7 FM, to roll the strip at slightstreching condition, guarantee the thickness of strip and the width precision.
- 9. Rough mill is equipped with sliding block or cross type universal spindle. Finishing mill is equipped with the drum teeth spindle which can shift moving in axial direction.
- 10. Behind the finishing mill, there equips with thickness gauge, width



- 12. 层流冷却装置分粗调区和精调区,根据带钢温度、厚度、钢种及轧制速度,控制层流冷却装置开启的喷水组数和调节水量,并采用前段冷却、均匀冷却、两段冷却等冷却制度,将带钢温度冷却至所要求的卷取温度;
- 13. 卷取机前面设有短行程控制的液压式侧导板,保证严格地对中带钢,改善卷形;
- 14. 全液压三助卷辊地下卷取机, 助卷辊具有自动踏步控制 (AJC) 功能, 保证内层钢卷在较大的压力下不被带钢头部挤压造成压痕, 保证卷取质量;
- 15. 全线设有先进的测宽仪、测厚仪、板形仪等大型 轧线检测仪表,能自动完成检测和控制;
- 16. 全轧线采用交流数字调速传动系统,配备必要的的先进的检测仪表,轧线设备动态平衡最优化,生产控制性能好、效率高:
- 17. 提供与热带钢连轧机成套设备配套的电气、流体系统。

出口业绩

二重装备向奥地利奥钢联公司出口的波兰 2250mm 热连轧机项目是中国成台套冶金设备首次出口欧洲, 在我国重机行业对外出口史上也是第一次。

950 mm 热带钢连轧机成套设备已出口土耳其。

2019 年,二重装备向乌兹别克斯坦出口的 950mm 热带 钢连轧机成套设备,是冶金成台套设备响应国家"一带一路" 建设的又一典范项目。

- gauge, convexity gauge, straighteness gauge, pyrometer to closed-loop control thestrip rolling on line.
- 11. Surface of rollers at run out table is hard spary welding layer, smooth andwear well, prevent the surface of strip being scratched, improve the service lifeof roller.
- 12. Laminar cooling device is divided to rough and finishing zones. Accordingto the temperature of strip, the thickness, the steel grade and the rolling speed, control laminar cooling system to open the numbers of spray sets and adjustamount of water. Use cooling system like cooling at previous section, averagecooling and cooling at two ends, to have the temperature of strip cooled to therequired temperature for coiling.
- 13. Short stroke controlled hydraulic side guide is equipped at the front of coiler,to guarantee the alligning to the strip, to improve the shape of coil.
- 14. Full hydraulic 3-wrapper roll down-coiler. Wrapper roll has automatic jumpcontrol(AJC) function, to guarantee the inner layer of strip won't be squeezedby head of strip, to guarantee the quality of coiling.
- 15. The whole line is equipped with advanced detection instrument of largerolling line, like thickness gauge, width gauge, plate shape meter, which canautomatic complete the measuring and controlling.
- 16. The whole line adopts digital AC variable speed driving system, is equipped with necessary advanced dtection instrument to optimize the rolling line. With optimization of kinetic state balance of rolling equipment, the control performance of production is good, the effectiveness is high.
- 17. Provide the electric system and fluid system to match with complete set ofhot strip rolling mill.

Export performance

Poland 2250mm hot strip rolling mill project for Austria VAI company, as aheavy complete set of metallurgical equipment, is the first time exportation to Europe for EHEC, and it is also the first time in the exportation historyof national heavy industrial field.

950mm complete set of hot strip rolling mill has exported to Turkey. In 2019, the complete set of 950mm tropical steel tandem rolling mill exported to Uzbekistan by double equipment is another model project of metallurgical equipment in response to the "Belt and Road" construction of China.



1.1.3 热轧管机组成套设备 1.1.3 Complete sets of equipments for hot pipe rolling mill unit



φ 177mm 管轧机 φ177mm tube rolling mill

产品简介

热轧管机组是把管坯轧制成成品钢管的非标成套设备, 包含穿孔机组和管轧机组。轧管机又分新型狄赛尔轧管机 与周期式轧管机。主要应用于钢铁集团公司。

Introduction of products

Hot pipe rolling mill unit is nonstandard complete sets of equipment that make tube blanks into finished tube, it includes piercing unit and tube rolling mill unit. The tube rolling mill is classified as new type Dieseher tube rolling mill and rotary forging mill. It is mainly applied to the steel production enterprises.



产品主要技术参数

Main technical parameters of product

参数名称 data name	规格 spec.
管坯直径范围	φ100~φ360mm,φ840
Tube blank diameter range	(周期式轧管机 rotary forging mi ll)
轧制成荒管直径范围	φ95~φ335mm, φ640
Pierced billet diameter range	(周期式轧管机 rotary forging mi ll)
成品钢卷年产量范围	7~25 万吨,7 万吨
Annual yield of finished strip coil	(周期式轧管机 rotary forging mi ll)
轧管机轧制力范围	1200~4000KN,22500KN
Rolling force range	(周期式轧管机 rotary forging mill)
穿孔机轧制力范围 Piercing force range:	650~4000KN
轧管机轧辊直径范围 Roll dia. of the tube rolling mill	Ф750/Ф670~Ф1350/Ф1150mm
穿孔机轧辊直径范围 Roll dia, of the piercing rolling mill	Ф550/Ф500~Ф1350/Ф1150mm

产品特点

- 1. 连轧管机组采用了新型狄赛尔轧管机(AR 轧管机)。 其主要特点是:水平布置两支可调喂入角且单独传动的锥形轧辊,立式传动狄赛尔导盘,导盘可作上下、左右、前后三个方向对于轧辊喉径调节。限动芯棒控制斜轧,机内设有三辊定心装置,装置的入口安装有人工套筒装置,套筒内径按照穿孔毛管的直径变化更换:
- 2. 穿孔机采用和轧管机类似的结构: 水平布置两支可调喂入角且单独传动的锥形轧辊, 立式传动可调的狄赛尔导盘, 机内设有四辊定心装置;
- 3. 周期式轧管机又名皮尔格管轧机。其主要特点是: 采用大飞轮传动的轧辊, 电动压下, 上辊设有 AGC 缸, 入口设有托管叉。
- 4. 喂料器其特点:采用液压机械式限动装置,能得到准确的喂入量,采用了可调节的油压制动装置,能平稳迅速的制动,采用空气推进装置和转角补偿机构,保证了毛管的外径质量;
- 5. 设有芯棒冷却池, 芯棒移动装置和升降装置等, 保证芯棒快速更换。

Product features

- 1. Continuous tube rolling mill adopts new type Dieseher tube mill (AR tubemill). Its main characteristics: two horizontally arranged and individually drivencone-shaped roll with adjustable feeding angle, vertical type driving Dieseherguide disk, the roll throat diameter can be adjusted in three directions of up& downs, left & right, front & rear on this guide disk. A movement restrictingmandrel controls diagonal rolling, three-roll centering device is equipped insidethe mil, an manual bushing device is installed at the entry of centering device, the internal diameter of the bushing will change and replace according to the pierced billet.
- 2. Piercing mill adopts the structure similar to the tube mill: two horizontallyarranged and individually driven cone-shaped roll with adjustable feeding angle, vertical type driving Dieseher guide disk, three-roll centering device is equippedinside the mil.
- 3. Rotary forging roll is also known as the Pilger tube mill. Its main characteristic: rolls driven by the big fly wheel are adopted, electric screw down, AGC cylinderis arranged on the upper roll, pipe holding forks are arranged at the entry.
- 4. Feeder characteristics: movement restricting device of hydraulic &mechanical type is adopted, which can obtain accurate feeding quantity, anadjustable hydraulic braking device is used, which can stably and quickly brake; a pneumatic thrust device and rotating angle compensation mechanism areused, which ensures the outside diameter of the pierced billet.
- 5. A mandrel cooling tank is arranged, in addition, mandrel shifting device and ifting device, which and ensure the quick replacement of the mandrel.

1.1.4 有色金属轧制成套设备 1.1.4 Complete sets of equipment for non-ferrous metal rolling



西南铝 4300mm 宽厚铝板热轧机组 Southwest Aluminum 4300mm heavy aluminum plate hot rolling mill



广西银海铝 3300+2850 铝板带热连轧机 Guangxi Yinhai 3300+2850 aluminum plate hot strip rolling mill

产品简介

有色金属轧制成套设备是把各种规格的高性能有色金 属及合金的厚板、宽板等坯料轧制成成品板带、卷材的非 标成套设备,主要应用于有色冶金企业。

机组类型:

- 1. 有色金属宽厚板热轧机组
- 2. 有色金属板带热连轧机组
- 3. 单机架双卷曲热轧 / 冷轧可逆机组
- 4. 有色金属智能拉伸机
- 5. 特种 / 多种金属轧机



江苏银邦 4000mm 铝板轧机 Jiangsu Yinbang 4000mm aluminum plate mill



江苏大力神 3300+2800 铝板带热轧机 Jiangsu Hercules 3300+2800 aluminum plate hot rolling mill

Introduction of products

Complete sets of equipment for non ferrous metal rolling is the nonstandardequipment that make different sizes of thick plates and wide plates etc biilets ofhigh-performance nonferrous metal and alloy into finished plate strip and, it ismainly applied to the nonferrous metallurgy enterprises.

The units are classified as:

- 1. Nonferrous metal heavy plat hot rolling mill unit,
- 2. Nonferrous metal plat strip hot rolling mill unit,
- 3. Single-stand double coiling reversible hot rolling mill/cold rolling mill unit
- 4. Nonferrous metal intellectual stretcher
- 5. Special/multi-metal rolling mill



参数名称 data name	规格 spec.
原料厚度范围 raw material thickness	Max.800mm
原料宽度范围 raw material width	200~4000 mm
原料长度范围 raw material length	300~7200 mm
成品板材厚度范围 finished sheet material thickness	8∼250mm
成品板材宽度范围 finished sheet material width	200~4000 mm
成品卷材厚度范围 finished coil material thickness	0.2~10mm
成品卷材卷径范围 finished coil material diameters	内径: φ508-610mm 外径: max. φ2500mm
成品板材宽度范围 finished plate material width	200~3000 mm
成品板材重量范围 finished sheet material weight	4~68 吨 (T)
成品卷材年产量范围 Annul yield of finished coil material	Max.20 万吨/年 (Max.200 thousand tons/year)
立辊轧机轧制力范围 Rolling force of the edger	3500~7500KN
四辊粗轧机轧制力范围 Rolling force of four-high roughing mill	30000∼50000KN
四辊精轧机轧制力范围 Rolling force of four-high finishing mill	24000~40000KN
四辊粗轧机工作辊规格范围 Work roll sizes of four-high roughing mill	φ900~φ1050mm
四辊粗轧机支承辊规格范围 Back up roll sizes of four-high roughing mill	φ1400~φ1800mm
四辊精轧机工作辊规格范围 Work roll sizes of four-high finishing mill	φ165 ~ φ750mm
四辊精轧机支承辊规格范围 Backup roll sizes of four-high roughing mill	φ400~φ1600mm



产品特点

- 1. 机组可选择多种组合配置,设备设计更加简洁、可靠;
- 2. 四辊粗轧机设有电动 APC +液压 AGC 及正负弯辊装置,保证带材厚度和板形质量;
- 3. 精轧机为全液压式精轧机,实现液压(APC)和液压(AGC),设置了工作辊正负弯辊系统,通过精轧机后设置的凸度仪的检测与AGC缸、弯辊缸的伺服系统、工作辊冷却喷射梁组成板形闭环控制,实现带材厚度和板形的在线精确控制,保证带材厚度和板形质量,机架间设置张力测量辊,可以实现恒张力轧制;
- 4. 粗轧机及精轧机处设有轧辊冷却、带材冷却及吹扫 装置,采用乳化液进行冷却,保证带材的板形和质量;
- 5. 全线设有温度检测装置,监测带材剪切、轧制及卷取时温度:
- 6. 全线设有冷金属检测装置,用于跟踪检测带材位置而实现全线自动化控制;
- 7. 所有输送辊道为双锥型或布置成锥型,减少带材与 辊道的摩擦,以防辊道粘连及带材跑偏;
- 8. 液压系统采用循环过滤、回油过滤、先导控制油过滤以及针对高压系统的泵出口过滤等多级过滤,确保系统工作介质的清洁度:
- 9. 乳化液系统的过滤采用真空平床过滤器。加热采用循环电加热,确保加热均匀;
- 10. 采用 PLC 一级基础自动化控制和 PC 二级过程控制,实现自动化轧制;
- 11. 液压、稀油、乳化液润滑系统的压力、液位、温度带模拟信号输出,使上述信号能传到主操作台,以便监控和显示;
 - 12. 完备的事故报警、显示及保护功能。

- 1. Multiple combination configuration can be selected, its deign is even moreconcise and reliable.
- 2. Four-high roughing mill is equipped with electric APC $\ \square$ hydraulic AGC as wellas the positive & negative roll bending device, which ensures the strip materialthickness and plate shape quality.
- 3. Finishing mill is a fully hydraulic type finishing mill, which realizes hydraulic(APC) and hydraulic(AGC), positive & negative roll bending system is arrangedfor the work rolls. By means of the crown instrument arranged behind thefinishing mil, as well as the closed-loop control of plate profile that is madk upby the AGC cylinder, roll bending cylinder servo system, and work roll coolingspray beams, which ensures the strip material thickness and plate profilequality. Tension measuring rolls are arranged between stands, which canrealize the constant tension rolling.
- 4. Roll cooling, strip cooling, and purging devices are arranged at the roughingmill and finishing mill, emulsion is used for cooling, which ensures the plateprofile and quality of the strip.
- 5. Temperature detecting device is arrange on the whole production line, tomonitor the temperatures of strip sharing, rolling, and coiling.
- 6. Cold metal detecting device is arranged on the whole production line, totrack and detect the strip position, so as to realize the automation control of thewhole line.
- 7. All the conveying roll tables are double-cone rolls and arranged in coneshape, to reduce the friction between the strip and roller table, to preventblocking of the roller table and strip pass lutside.
- 8. Hydraulic system adopts circulating filtering, oil return filtering, pilot controloil filtering, as well as the pump outlet filtering etc multi-step filtering are usedaiming at the high-pressure system, which ensures the cleanliness of theworking medium.
- 9. Emulsion system is filtered by using the vacuum level bed filter. Circulatingelectric heating is used to ensue uniform heating.
- 10. PLC level 1 basic automation control and PC level 2 process control, to realize the automation rolling.
- 11. Pressure, liquid level and temperatures of the hydraulic, oil and emulsionlubrication system are output with analog signals, which allow the above signalscan be transmitted to the main operating desk, to facilitate monitoring and display.
- 12. Completed accident alarms, display and protection function.



1.1.5 中厚板轧机成套设备 1.1.5 Complete set of equipment of heavy and mediate plate mill



重钢 4100mm 厚板轧机 4100mm plate rolling mill for Chongqing Iron and Steel Group.



获得国家专利的滚切式定尺剪 The sizing shear-the national patent obtained.



获得国家专利的滚切式双边剪 The double-side trimming shear-the national patent obtained.



获得国家专利的矫直机 The hot straighener-the national patent obtained.



当代中国轧机之王—二重装备生产制造的宝钢 5m 轧机 The king of rolling mill in China today-5m rolling mill for Baosteel produced by $\ensuremath{\mathsf{EHEC}}.$



产品简介

中厚板轧机是把钢锭、钢坯或连铸坯轧制成成品钢板的非标成套设备,主要应用于钢铁集团公司。

Introduction of products

Heavy and mediate plate mill is non-standard complete set of equipment whichproduces the final steel plate from ingot, billet or continuous casting billet,widely uses for steel groups.

产品主要技术参数

参数名称 Parameter description	规格 Specification
钢锭、钢坯或连铸坯厚度范围 Thickness range of ingot, billet or continuous casting billet	100∼600mm
钢锭、钢坯或连铸坯宽度范围 Width range of ingot, billet or continuous casting bi l let	800∼4900 mm
钢锭、钢坯或连铸坯长度范围 Length range of ingot, billet or continuous casting billet	1000∼18000 mm
成品钢板厚度范围 Thickness range of final steel plate	4∼400mm
成品钢板宽度范围 Width range of final steel plate	1000∼4800 mm
成品钢板重量范围 Weight range of final steel plate	4~68 吨(T)
成品钢板年产量范围 Annual yield of final steel plate	40~200 万吨 (0.4-2 million tons)
立辊轧机轧制力范围 Rolling load range of edger	3000∼9000KN
四辊粗轧机轧制力范围 Rolling load range of 4-rollers RM	30000∼100000KN
四辊精轧机轧制力范围 Rolling load range of 4-rollers FM	30000∼100000KN
四辊粗轧机工作辊规格范围 Work roll specification range of 4-rollers RM	φ700∼φ1210mm
四辊粗轧机支承辊规格范围 Back-up roll specification range of 4-rollers RM	φ1450~φ2300mm
四辊精轧机工作辊规格范围 Work roll specification range of 4-rollers FM	φ700∼φ1200mm
四辊精轧机支承辊规格范围 Back-up roll specification range of 4-rollers FM	φ1450~φ2300mm



产品特点

- 1. 设有粗轧除鳞、轧机前和轧机后除鳞多点高压水除, 将钢锭、钢坯或连铸坯表面的氧化铁皮清除干净,提高轧件表面质量:
- 2. 采用能力强大的立辊轧机,消除轧件边缘可能产生的鼓形,抑制双凹形或裂边的产生,提高轧制钢板的宽度精度;同时实现平面形状控制,提高成材率;
- 3. 采用高刚性的四辊可逆式粗轧机和精轧机,设有高精度、高速度的电动 APC +液压 AGC,提高了成品钢板的厚度控制精度。设置工作辊弯辊装置 + 工作辊分段冷却,实现辊型调节,从而有效地控制钢板板形,保证了成品钢板的板形和平直度。采用工作辊快速换辊装置。四辊可逆式粗、精轧机主传动采用动态响应速度快、控制精度高、维护方便的交流电动机传动;
 - 4. 轧机采用滑块式或十字包式万向接轴:
- 5. 采用控制轧制和控制冷却技术,精轧机后设加速冷却装置,降低专用板的生产成本,提高性能;
- 6. 为适应控制轧制和控制冷却,满足用户对于钢板平 直度的要求,采用四重式 11 辊热矫直机。热矫直机配置全 液压压下、弯辊、倾动、快速换辊等功能;
 - 7. 采用滚盘式或步进式冷床, 保证钢板表面质量;
- 8. 剪切线采用切头剪、圆盘剪、滚切式双边剪、滚切式定尺剪,因此50mm厚度以下的钢板均可在此剪切线处理。由于采用了滚切式剪机的剪切角小,且剪机均有剪刃间隙调整装置,因此,剪切钢板质量好。在滚切式定尺剪前设置夹送辊、靠边装置,滚切式双边剪前有磁力对中装置和激光划线装置,因此切边精度和定尺精度很高;
 - 9. 钢板收集采用堆垛机, 钢板收集整齐;
- 10. 翻板机为电动机械或液压式,翻臂上有滚轮,翻板时响声较小,改善工作环境;
- 11. 采用四重式 11 辊冷矫直机对板形较差的钢板在冷态下矫直,保证了钢板的板形。冷矫直机配置全液压压下、弯辊、倾动、快速换辊等功能;
- 12. 全线辊道采用单独传动型式(切头剪、滚切式定 尺剪摆动辊道除外),由齿轮马达驱动。具有结构简单、 制造维护方便、操作灵活、设计易于标准化等优点;
 - 13. 全线电气传动采用交流传动,采用交流电机;
- 14. 提供与中厚板轧机成套设备配套的电气、流体系统。

- 1. Equipped with descaler at RM, descaler at front and back of mill, highpressure water descalling with many points, remove the oxide scale on thesurfaces of ingot, billet or continuous casting billet, improve the surface quality of rolling pieces.
- 2. Use powerful edger to eliminate the drum shape which possibly appearsat the edge of rolling pieces, to avoid the concavo concave or cracked edge, improve the width precision at rolling process of steel plate. At the same time, the plane shape control is realized and the yield of finished products is increased.
- 3. Use high rigidity 4-roll reversible RM and FM, equip with high precision andhigh speed of motor APC+hydraulic AGC, improve the controlling precision ofthickness for final steel plate. Equip with bending device of work roll+steppedcooling of work roll, realize the adjustment of roll shape, thus effectivelycontrolling the plate shape, guaranteeing the shape and straightness of finalplate. Use rapidly roll-changing device. The main drives of 4-roll reversibleRM and FM are driven by AC motor with high speed of dynamic reaction, highprecision of control and easy maintenance.
- 4. Use sliding block or cross type universal spindle for mill.
- 5. Use controlling technology in rolling and cooling. Equip a speedup device atback of FM, decrease the product cost of special plate, improve the property.
- 6. In order to adapt the control rolling and control cooling, satisfy the demand ofcustomer to the straightness of plate, use 4 type 11-roll hot straightening mill. Hot straightening mill is equipped with functions like full hydraulic screw down, bending roll, tilting and rapidly roll changing.
- 7. Use tin pulley type or walking type of cold bed, guarantee the surface qualityof steel plate.
- 8. Shear line uses the cropping shear, the rotary shear, rolling shear typebilateral shear, rolling shear type dividing shear, therefore, the plate withthickness less than 50mm can be treated on such shearing line. Owing to the rolling shear type of shear, with small angle of shear and adjustment device of shear gap equipping on shear, comes to a good quality of plate after shearing. In front of rolling type dividing shear, it is equipped with pinch roll and pulling device. Magnetic aligning device and laser scribing device are equipped at the front ofrolling type bilateral shear, therefore, the cutting precision and dividing precisionare quite high.
- 9. Use stacker to collect the steel plate. Plates are collected in order.
- 10. Panel turnover machine is motor mechanism or hydraulic type. The armsare equipped with trolley wheel, it make less noise at turnover, which improves the work condition.
- 11. Use 4 type 11-roll cold straightening machine to straighten the plateswhich have worse shape at cold condition, guarantee the shape of plate. Coldstraightening machine is equipped with functions of full hydraulic screw down, bending roll, tilting and rapidly roll changing.
- 12. The whole roller table uses individual driving type (cropping shear, rollingtype dividing shear, swing roller table are excluded) driven by gear motor, whichis characterized with simple structure, easy maintenance, flexible operation, and standardization design.
- 13. The whole line of electric drives are driven by AC motor.
- 14. Provide the electric system and the fluid system which are matched withcomplete set of heavy and mediate plate mill.



出口业绩

2800mm 中板轧机出口摩洛哥, 5M 轧机、4300mm 轧机已出口韩国。

Export performance

2800mm medium-plate mill has exported to Morocco.5M rolling mill, 4300mmrolling mill has exported to Korea.

1.1.6 连续铸钢成套设备

1.1.6 Continuous Casting Equipments of Complete Sets



马钢异型坯连铸机和 H 型钢轧机生产线 Blank/beam continuous casting machine and H-section beam steel rolling mill for Maanshan Iron & Steel Co.

产品简介

连续铸钢成套设备是把钢水直接浇注出各种断面形状、 规格的铸坯的非标成套设备, 主要应用于(黑色)钢铁冶金企业。

机组类型:

- 1. 立弯型宽厚板板坯连铸机组
- 2. 全弧型宽厚板板坯连铸机组
- 3. 大方坯连铸机组

Introduction of products

Continuous casting equipments are non-standard complete sets of equipmentsthat are designed to pour molten steel directly to casting blanks with differentcross-section shapes and sizes, and are mainly applied to iron & steel (ferrous) metallurgy enterprises.

Equipment units types:

- 1. Vertical-bend type wide & heavy slab continuous caster unit
- 2. Full-bow type wide & heavy slab continuous caster unit
- 3. Cogged ingot continuous caster unit



参数名称 Items	规格 Spec/Size
连铸机机型 Continuous caster type	全弧形(立弯型)、连续矫直 Full-bow type (vertical-bend), continuous straightening
生产铸坯规格:断面尺寸 Casting blank size: cross-section dimension	170~250×1000~1680mm
铸坯长度 Casting blank length	4000 ~ 10000 mm
拉坯速度 Billet withdrawal speed	0.2 ~ 3.0 m/min
送引锭杆速度 Dummy bar feeding speed	4.0 ~ 6.0 m/min
冶金长度(最大液相长度) Metallurgy length (maximum liquid phase)	설g approximately 24 ~ 36 m
浇铸时间 Pouring time	~ 38 min
准备时间 Preparation time	~ 58 min
连浇炉数 Continuous pouring heats number	~10 炉 10 heats
合格铸坯钢水收得率 Motel steel yield of acceptable casting blanks	~ 97%
铸机年作业率 Annual availability coefficient	~78%
连铸机合格铸坯年产量 Annual yield of acceptable casting blanks	Max.100 万吨/年 Max. 1 million tons/year
生产钢种 Steel grade of products	碳素钢、优质碳素钢、低合金钢、深冲钢、桥梁用结构钢、船用结构钢、耐热钢等 Carbon steel, quality carbon steel, low alloy steel, deep drawing steel, structural steel for bridges application, structural steel for marine types, heat resisting steel.



产品特点

1. 带电动回转、液压(或气动)事故回转、支承臂液压升降.

并有可称量和加盖功能的钢包回转台:

- 2. 大容量深液位中间罐;
- 3. 具备电动走行、液压升降和称量功能的中间罐车:
- 4. 手动和电动机构操纵中间罐塞棒,以满足人工和自动浇钢的要求:
- 5. 采用钢包保护管和中间罐浸入式水口加保护渣方式的保护浇铸,适应不同钢种的浇铸;
- 6. 采用中间罐水口事故闸板,防止塞棒关不住水口事故的发生:
 - 7. 采用带锥度的铜板组合式结晶器:
 - 8. 采用较高水压进行结晶器冷却和铸坯的二次冷却;
- 9. 采用安全、准确的放射源结晶器液位检测和控制装置;
- 10. 采用结晶器电磁搅拌和铸坯凝固末端轻压下技术,改善和确保铸坯内部质量;
 - 11. 采用振动波形可调的液压方式振动装置;
 - 12. 气水喷雾冷却铸坯并自动进行控制;
 - 13. 采用连续矫直技术;
 - 14. 采用氧气和焦炉煤气的火焰切割机:
 - 15. 链式引锭杆及其侧移存放装置;
 - 16. 铸坯称重、打印装置;
- 17. 采用辊道热送合格铸坯和台架冷却输送下线铸坯的出坯方式;
- 18. 先进的 PLC 一级基础自动化控制系统和 IPC 为基础的二级过程控制计算机系统。

- 1. With electric turning, hydraulic (or pneumatic) emergency turning, and supporting arm hydraulic lifting, as well as equipped with the ladle turnet with functions of weighing and capping.
- 2. Deep liquid level tundish with large capacity.
- 3. Tundish car with functions of electric travel, hydraulic lifting and weighing.
- 4. Manual and electric mechanisms manipulate the tundish stopper, to satisfydemands of manual and automatic pouring.
- 5. Protect pouring of ladle protecting tube and tundish immersion nozzle +protecting slag is adopted, to adapt to pouring of different steel grades.
- 6. Tundish nozzle emergency lock, to prevent the occurrence of the nozzlecannot be closed by the stopper.
- 7. Copper plates composite mould with a taper is adopted.
- 8. Relatively high water pressure is used for the mould cooling and secondcooling of the casting blanks.
- 9. Safe and precise detecting and control devices for radioactive source mouldliquid level are used.
- 10. Mould electromagnetic stirring and casting blank solidification ends lightcogging down techniques are adopted, to improve and ensure the internal quality of casting blanks.
- 11. Hydraulic vibrating device with adjustable vibration waveform is used.
- 12. Air mist spray cooling of casting blanks and can be controlled automatically.
- 13. Continuous straightening technique is used.
- 14. Flame cutting machine that uses oxygen and coke oven gas.
- 15. Chain type dummy bar and its later shifting store device.
- 16. Casting blanks weighing, printing device.
- 17. Roller table hot delivery of acceptable casting blanks and bench cooling &delivery off-line casting blanks.
- 18. Advanced PLC level 1 basic automation control system and level 2 process control computer system on basis of IPC .



1.2 锻压设备

1.2 Forging press equipment

锻压设备是二重装备的主要产品之一。二重装备在引进、消化、吸收德国重型锻压设备制造技术的基础上,拥有 EXY 型、EMY 型热模锻压力机、平锻机、棒料剪、辊锻机、闭式双点压力机、曲轴扭拧机、精整液压矫直机等热模锻产品及其辅机共七个系列 71 个品种及相关机械手的制造技术,自主研制了新型 EMY31.5MN、40MN、63MN 新型热模锻压力机以及世界首套 EXY168MN 热模锻压力机生产线,具备研制自动步进梁机械手能力。自主设计制造了以160MN 自由锻造水压机、60/80MN 快速自由锻造油压机、45/50MN 快速自由锻造油压机为代表的自由锻造液压机,以世界最大800MN 大型模锻油压机、200MN 多向模锻水压机、10世界最大800MN 大型模锻油压机、200MN 多向模锻水压机、80MN 卧式挤压机及大型卷板机、770MN 橡皮囊液压成形机等锻压设备。

The forging press equipment is one of the leading products of EHEC. Based on the heavy duty forging press technology introduced from Germany, EHEC has well digested and absorbed the technology. Now it possesses the technology for designing and manufacturing KP&MP type hot die forging press, upsetter, billet shear, forging rolls, hydraulic straightener, double sided press, crankshaft twister and etc. totally about 7 series 71 kinds of products and related manipulators. The new EMY31.5MN, 40MN, 63MN hot die forging press and the world's first set of EXY168MN hot die forging press production lines have been independently developed, which is capable of developing automatic stepping beam extraman. Independently designed and manufactured the flat-die forging water press represented by 160MN flat-die forging water press, 60/80mn fast flat-die forging hydraulic press, 45/50mn fast flat-die forging hydraulic press, and the world's largest 800MN large-scale die forging hydraulic press, 200MN multi-direction die forging hydraulic press. EHEC has manufactured 100MN multi -ram hydraulic die forging press, 80MN horizontal extruder, heavy duty plate bending machine and 770MN rubber bladder hydraulic forming machine as well.

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1.2.1 热模锻压力机成套设备

1.2.1 Hot die forge Press complete sets of equipments



一汽 EXY125MN 热模锻曲轴前梁自动生产线 EXY 125MN Front axle and crankshaft die forging press line



蒂森克虏伯发动机零部件(中国)有限公司 125MN 热模锻压力机生产线

Production line of 125MN hot die forging press for Thyssen Krupp Engine Parts(China)Co.Ltd.



上海爱知 EMY63MN 曲轴锻造自动生产线 Shanghai Aichi EMY63MN Automatic Crankshaft Forging Production Line



江西江锻新型 40MN 热模锻压力机 Jiangxi Jiangduan New Type of 40MN Hot Die Forging Press Die Forging Press



山东金马新型 Shandong Jinma New Type of 31.5MN Hot Die Forging Press



产品简介

热模锻压力机是借助模具实现金属毛坯热成型的锻造 设备,主要应用于航空航天、汽车、工程机械的零件制造 公司。

Introduction of products

The hot die forge press is a forge equipment that realizes metal blank hot forming by means of dies, it is mainly applied to aerospace, aviation and automobile and engineering machinery parts manufacturing companies.

产品主要技术参数

Main technical parameters of product

参数名称 data name	规格 spec/size
公称压力 nominal pressure	10 ~ 168 MN
滑块行程次数 slide travel frequency	100 ~ 30 /min
滑块行程 slide stroke	250 ~ 550 mm
最大封闭高度 maximum closed height	700~1870 mm
封闭高度调整量 closed height adjustment	14 ~ 35 mm
滑块底面尺寸 slide bottom dimension	820×930 ~ 2380×2600 mm
工作台面尺寸 working table dimension	850×1120 ~ 2500×3300 mm
设备总重范围 total weight of equipment	72~2035t

产品特点

- 1. 热模锻压力机可配备辊锻机、扭拧机、切边机、校正机、运输带、机器人等辅机形成生产线,实现曲轴、前梁等锻件的全自动成型:
 - 2.EMY 系列热模锻压力机为曲柄─连杆式压力机。 机身结构:

公称压力 $P \leq 40MN$ 的压力机采用整体实心结构(铸造机架)或拉杆预紧组合两种结构。

公称压力 P > 40MN 的压力机采用拉杆预紧组合结构。

3.EXY 系列热模锻压力机为曲柄—连杆 - 楔块式压力机。

机身结构:

Product features

- 1. Hot die forge press can be equipped with the forge rolling machine, torsion & twist machine, trimming press, correcting machine, conveyer belt, robot etc. auxiliary machines, to establish a production line, so as to realize the full-auto formation of the crankshaft, front spar etc. forgings.
- 2. EMY series hot die forge press is a crank connecting rod type press.

Body structure

The press with the nominal pressure P≤40MN adopts integral solid structure (casting frame) or draw rod pretightening combination of two structures

The press with the nominal pressure P>40MN adopts pretension tie rod

composite structure



公称压力 P < 31.5MN 的压力机采用整体铸钢结构。

公称压力 $P \ge 31.5MN$ 的压力机采用拉杆预应力铸钢组合结构。

- 4. 热模锻压力机在生产模锻件时提高了行程次数, 具有很高的生产率;
- 5. 热模锻压力机的纵向和横向刚度高, 因此设备精度高, 锻件加工量小:
- 6. 滑块承受偏载的能力高,倾斜度小,有利于进行多模膛模锻和自动化;
- 7. 滑块导向采用 "X" 型结构导轨, 对温度敏感性低, 导轨间隙小, 精度高。
- 8. 设有上、下顶料装置,模锻件斜度小,原材料消耗少,材料利用率高:
 - 9. 锻件接触模具的时间短,提高了模具的使用寿命;
- 10. 热模锻压力机工作噪音及振动小,对环境影响相对较少;
- 11. 采用数字化吨位监测、显示系统,温度、润滑监测系统,以及先进的操作控制系统,使设备操作简单,使用可靠,维护方便;
- 12. 提供与热模锻压力机成套设备配套的电气、流体系统。
 - 13. 可选配稀油循环润滑系统, 经济环保。
- 14. 可选配快速换模平台及模座自动夹紧装置,提高 换模效率。
 - 15. 具备物联网、远程监控和故障远程诊断功能。
- 16. 机架为拉杆预紧组合式结构的热模锻压力机可选配液压拉伸器或液压螺母,实现"解闷车"功能。
- 17. 公称压力 P ≤ 40MN 热模锻压力机可选配湿式离合制动器,使用寿命长,响应速度快,重复定位精度高,散热性能好,适合高速锻造。

3. EMY series hot die forge press is a crank — connecting rod – wedge type press.

Body structure:

The press with the nominal pressure P<31.5MN adopts integral cast steel

structure;

The press with the nominal pressure P≥31.5MN adopts prestress tie rod composite structure

- 4. Hot die forge press increase the travel frequency in production of die forgings, it has a very high productivity.
- 5. Hot die forge press 's longitudinal and horizontal rigidity is very high, therefore, the press has a high precision, and the forgings have a small

machining allowance.

6. The slide has a strong capability to bear off-set load, a small inclination

degree, which is favorable for the die forge with multiple predeformation and automation.

- 7. Slider guide adopts "X" structure slide rail, low sensitivity to temperature, small slide rail gap and high precision.
- 8. Upper & lower ejector are equipped, the die forgings have small inclination degree, low consumption of raw material, high material utilization.
- 9. Shot time of a forging contacting dies, which improves the service life of the dies.
- 10. Hot die forge press has low working noises and vibration, has relatively small impact on the environment.
- 11. Hot die forge press adopts digitalization tonnage monitoring & display systems, temperature & lubrication monitoring system, as well as the advanced operation control system, which facilitate the simple operating, application reliable, and maintenance convenient.
- 12. Electric and fluid systems matching with the Hot die forge press are provided.
- 13. Optional thin oil circulation lubrication system, economic and environmental protection.
- 14. Quick die changing platform and die holder automatic clamping device can be selected to improve the efficiency of die changing.
- 15. It has the functions of Internet of things, remote monitoring and fault remote diagnosis.
- 16. The frame is a hot die forging press with pretightening combination structure of draw rod, hydraulic stretcher or screw nut can be selected to realize the function of "relieving stuffy car".
- 17. The nominal pressure P≤40MN hot die forging press can be equipped with wet clutch brake, with long service life, fast response, high repeated positioning accuracy, good heat dissipation performance, suitable for high-speed forging.



1.2.1 热模锻压力机成套设备 1.2.1 Hot die forge Press complete sets of equipments



160MN 自由锻水压机 160MN Free Forge Hydraulic Press



60 / 80MN 快速自由锻造油压机 60/80MN Quick Free Forge Hydraulic Press



100MN 多向模锻水压机 100MN multi -ram hydraulic die forging press



45 / 50MN 快速自由锻造油压机 45/50MN Quick Free Forge Hydraulic Press



产品简介

自由锻造液压机主要用于生产各种规格和类型的自由 锻件,完成各种自由锻造工艺。

Introduction of products

The open forge hydraulic press is mainly used to produce the open die forgings of different spec and type, to accomplish different open forge process.

产品主要技术参数

Main technical parameters of product

参数名称 data name	规格 spec
公称压力 nominal pressure	16~160 MN
最大净空距 maximum clear space	2900 ~ 7700 mm
锻造速度 forge speed	10 ~ 250 mm/s
工作台面尺寸 working table dimension	1610×5000 ~ 4500×12500mm

产品特点

- 1. 自由锻造液压机主要用于生产各种规格和类型的自由锻件,完成各种自由锻造工艺;
- 2. 自由锻造液压机以水基乳化液或者液压油为介质用来传递能量以实现多种锻压工艺的机器,液体传递能量的原理是帕斯卡原理。液压系统的传动方式为泵—蓄势器传动或泵直传;
 - 3. 工作液体压力为 0 ~ 32MPa;
- 4. 机架结构形式有三梁四柱拉杆预应力结构、双柱三缸上推式预紧结构等形式;
 - 5. 配套设备一般有操作机、旋转升降台、翻钢机等。

- 1. The open forge hydraulic press is mainly used to produce the open die forgings of different spec and type, to accomplish different open forge process.
- 2. The open forge hydraulic press adopts water base emulsion or hydraulic oil as the medium to transmit energy to realize a great variety of forge processes. The working principle of transmitting energy is Pascal Law. The driving mode of the hydraulic system is pump-accumulator driving or pump direct driving.
- 3. Working fluid pressure is 0~32MPa.
- 4. Frame structure has three- beam & four-tie rod prestressed structure, twocolumn & three-cylinder upwards push prestressed structure.
- 5. Usually, a manipulator, rotary lifting working table, and tilting machine are equipped.



1.2.3 模锻液压机

1.2.3 Die forge hydraulic press



800M 大型模锻油压机 800MN Hydraulic Press



200MN 多向模锻液压机

产品简介

模鍛液压机用于压制有色金属和黑色金属的普通模锻(含开式和闭式模锻)、温锻、热模锻造、超塑性模锻、等温模锻和多向模锻,以满足航空、核能等国防工业和某些民用工业的需要。

Introduction of products

Die forge hydraulic press is used to press nonferrous metal and ferrous metal in terms of common die forge (including open and close die forge), warm forge, hot die forge, super plasticity die forge, isothermal die forge, and multi-cored die forge, to satisfy the aviation, nuclear power etc national defense industry application and some civil industry application.



Main technical parameters of product

参数名称 data name	规格 spec
公称压力 nominal pressure 1	00∼800 MN
最大净空距 m aximum clear space 2	900∼5000 mm
模锻速度 forge speed	0,003~50 mm/s
工作台面尺寸 working table dimension	3000×4250∼4000×8000mm

产品特点

- 1. 模锻液压机用于压制有色金属和黑色金属的普通模锻(含开式和闭式模锻)、温锻、热模锻造、超塑性模锻、等温模锻和多向模锻等;
- 2. 模锻液压机主要以液压油为介质用来传递能量以实现模锻压制的机器,液体传递能量的原理是帕斯卡原理。 液压系统的传动方式为泵—增压器传动或泵直传;
 - 3. 工作液体压力为 0 ~ 63MPa;
- 4. 机架结构形式有板框预应力组合结构、双柱预紧结构等形式。
- 5. 模锻液压机在工艺方面可实现: 一般单向模锻工艺, 垂直分模模锻工艺, 水平分模模锻工艺等;
 - 6. 抗偏载能力强;
 - 7. 设备配套有操作机等。

- 1. Die forge hydraulic press is used to press nonferrous metal and ferrous metal in terms of common die forge (including open and close die forge), warm forge, hot die forge, super plasticity die forge, isothermal die forge, and multi-cored die forge.
- 2. The die forge hydraulic press adopts hydraulic oil as the medium to transmit energy to realize the die forge processes. The working principle of fluid transmitting energy is Pascal Law. The driving mode of the hydraulic system is pump- intensifier driving or pump direct driving.
- 3. Working fluid pressure is 0~63MPa.
- 4. Frame structure is classified as the plate frame prestressed composite structure, two-column prestressed structure etc..
- 5. The die forge hydraulic press realize the forge processes: single-core die forge process, die forge process with vertical parting dies, die forge process with horizontal parting dies etc..
- 6. High ability of anti-offset load.
- 7. A manipulator etc. is equipped.



1.2.4 橡皮囊液压成形机

1.2.4 Rubber bladder hydraulic forming machine



770MN 橡皮囊液压成形机 770MN rubber bladder hydraulic forming machine

产品简介

橡皮囊液压成形机是一种典型的薄板成形压机,具有 重量轻,投资小、可靠性高和自动化程度高的特点。应用 于航空领域钣金件特别是钛合金钣金件的成型。

Introduction of products

Rubber bladder hydraulic forming machine is a typical sheet forming press, which has the characteristics of light weight, small investment, high reliability and high degree of automation. It is used in the moulding of sheet metal parts especially titanium alloy sheet metal parts in aviation field.

产品主要技术参数

参数名称	规格
Description of parameter	Specification
工作压力 Operating pressure	1000bar
结构形式	半模成形
Type of structure	Half-mold forming



1.3 其他通用设备(起重设备、矿山设备、水泥设备、水利机械等)

1.3 general equipment——Hoisting equipment, construction machinery and equipment, mining equipment, cement equipment, water conservancy machinery, etc.

二重装备生产的复摆式、井下式、分段启动式鄂式破碎机,圆锥破碎机,旋回破碎机,单段锤式破碎机,筒式磨煤机,格子型球磨机,链斗提升机,板式、鳞板式、振动式给料机,螺旋混 砂机,大型露天煤矿排土机,立磨等设备广泛用于冶金、建筑、筑路、化学工业及硅酸盐工业中。

二重装备为国内 300 多家水泥厂提供了大、中型成套水泥生产设备,可为用户承担设备设计、工艺设计、制造、安装调试,提供备品备件和培训等服务。

二重装备设计生产的龙门起重机、桥式起重机、塔式 起重机、卷扬启闭机、液压启闭机及各类型起重设备广泛 用于起吊、电站闸门、装卸车辆、露天起吊和搬运大型物件。

二重装备在国家水利工程项目中提供了大量优质产品。 生产的主要产品有:溢洪口弧型闸门等各种启闭机以及大型平面滑动闸门、大型平面定轮阀门、拦污栅等超大型水 利水工产品。 The equipment manufactured by EHEC, for example double-swing type, underground type and step-started type jaw crusher, cone crusher, rotary crusher, single-section hammer crusher, tube coil grinding mill, grid type ball mill, bucket elevators, plate type, dissepiment and vibration feeder, screw sand mixer, heavy duty soil spreader for open-pit coal mining and heavy duty vertical grindling mill, are widely used for the industries of metallurgy, building construction, road construction, and chemical industry as well as silicate industry. EHEC has provided various kinds of large and medium size complete sets of cement production equipments for more than 300 cement customers in domestic market. And engineering for equipment and technology, manufacturing, installation and commissioning as well as the supply of the spare parts and the training service can be offered by EHEC for customers.

The gantry crane, the overhead traveling crane, tower crane, hoist, hydraulic hoist and other various kinds of crane equipment which have been designed and manufactured by EHEC are widely used in the fields of handling of sluice gate for the hydro-power station, loading and unloading vehicle, outdoor handling and handling of the heavy duty components.

EHEC has supplied large amount of superhigh quality products for national water conservancy projects. The main products are flood overflow arc-shaped gate and other hoisters as well as heavy duty plane sliding gate, heavy dutyt plane fixed wheel gate, drain gating and "other super heavy water conservancy products.

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1.3.1 矿渣微粉生产线成套设备

1.3.1 Blast furnace miropowder production line equipment of complete sets



沙钢大型矿渣立磨 Large slag vertical mill for Shagang



大型立磨减速机 Reducer of heavy vertical grinding mill

产品简介

矿渣微粉生产线利用钢厂高炉矿渣为原料,进行粉磨达到一定细度,作为水泥的一种掺和料,按一定比例掺入水泥中,生产矿渣水泥。主要应用于钢铁和水泥生产企业。我公司提供年产60~200万吨矿渣微粉生产线成套设备及配套电气控制。

Introduction of products

Mine refuse miropowder production uses the blast furnace slag from the steel plant as the raw material, to pulverize to certain fineness, and use as one of the admixtures for cement, add into the cement in proportion, to produce the slag cement. It is mainly applied to the i steel and cement production enterprises. Our company provides complete sets of equipment and matching electric control system for the blast furnace miropowder production line with annual yield of 600,000 -2,000,000 tons.



Main technical parameters of product

主机名称 Main equiment name	年产 60 万吨 Annual yield of 600,000 tons	年产 120 万吨 Annual yield of 1,200,000 tons	年产 140 万吨 Annual yield of 1,400,000 tons
矿渣立磨 Blast furnace slag vertical grinding mill	EZZM48 . 2+2 矿渣立磨 Blast furnace slag vertical grinding mill 生产能力: production capacity: ≥90 t/h 进料粒度 feeding particle size: ≤5mm 成品比表面积: finish products specific surface area: 4300cm²/g 磨盘料槽外径: outside diameter of grinding disc trough: 4800mm 主辊中径/数量: home roll intermediate dia./qty.; 2400mm/2 pieces 只 辅辊中径/数量: Accessory roll intermediate dia./qty.: 1600mm/2 pieces 只	EZZM59.3+3 新型矿渣立磨 New type blast furnace slag vertical grinding mill 生产能力: production capacity: ≥180 t/h 进料粒度: feeding particle size: ≤5mm 成品比表面积: finish products specific surface area: 4300cm²/g 磨盘料槽外径: outside diameter of grinding disc trough: 5900mm 主辊中径/数量: home roll intermediate dia./qty: 2700mm/3 只 辅辊中径/数量: Accessory roll intermediate dia./qty: 1600mm/3 pieces 只	EZZM69.4+4 新型矿渣立磨 New type blast furnace slag vertical grinding mill (current the world largest one) (目前世界最大矿渣立磨) 生产能力: production capacity: ≥220 t/h 进料粒度: feeding particle size: ≤5mm 成品比表面积: finish products specific surface area: 4300cm²/g 磨盘料槽外径: outside diameter of grinding disc trough: 6900mm 主辊中径/数量: home roll intermediate dia./qty: 2700mm/4 只 辅辊中径/数量: Accessory roll intermediate dia./qty: 1600mm/4 pieces 只

注: 此处仅注明年产60 万吨、年产120 万吨、年产140 万吨主要设备技术参数,其余规格可根据用户需求进行设备配置。

annual yield of 600,000 tons, annual yield of 1,200,000 tons, and annual yield of 1,400,000 tons; for other spec, equipment layout can be conducted equipment layout can be conducted as per customer requirements.

Note: Here only indicate the technical data of the main equipment

产品特点

- 1. 立磨粉磨系统与管磨机相比, 立磨具有流程简单、节电和烘干能力强等优点;
- 2. 矿渣微粉生产线生产过程几乎无污染。粉尘排放远低于中国国家标准;废水实现了零排放。有害气体的排放也得到了有效控制;
 - 3. 充分利用废渣, 变废为宝, 改善环境, 节约矿渣占地,
- 4. 用矿渣微粉取代部分水泥以节约生产水泥熟料生产过程中消耗的能源,在增加企业经济效益的同时,增加社会效益;并提高矿渣的附加值;
- 5. 采用国际上先进的计算机控制技术、通信技术和图形显示技术,采用分散控制、集中管理的集散型控制系统 (DCS),实现了系统的可靠、安全和实用的目标。

- 1. Compared with tubing mill, the vertical grind mill has advantages in terms of simple flow process, low consumption of electricity, and strong capability of drying by baking.
- 2. Blast furnace slag miropowder production line's production process is almost pollution free, its dust emission is far below the china national standard. Waste water realizes zero discharge. Harmful gas emission has also been effectively controlled.
- 3. Waste slag has been fully used, changing wastes into valuable, improve the environment, economize the area occupied by the blast furnace slag.
- 4. Partial cement is replaced by the blast furnace slag, to economize the energy sources consumed by the cement clinker production process, which can increase the economic benefit of the enterprise, in the meantime can increase the social benefit, and increase the added value of the blast furnace slag.
- 5. International advanced computer control techniques, communication technique and graphic display techniques have been adopted, in addition, decentralized control and distributed control system (DCS) with centralized management, which has realized the reliable, safe and practical system.



1.3.2 新型干法水泥生产线成套设备

1.3.2 Complete sets of equipment for New type dry-method cement production line



日产 6000 吨大型原料立磨 Large raw material vertical mill of 6000 tons per



大型水泥磨筒体 The heavy duty shell for the cement grinding mill

产品简介

新型干法水泥生产线技术包括原料开采、原料预均化、生料均化、新型节能粉磨、高效低阻预热器和分解炉、新型蓖式冷却机、高耐热耐磨及隔热材料、计算计与网络化信息技术等。保证了水泥生产具有高效、优质、节能资源利用,符合环保和可持续发展要求。新型干法水泥生产工艺过程包括原燃料进厂、原燃料破碎、生料制备、熟料煅烧、水泥制成及发运等。主要应用于水泥生产企业。我公司提供日产2500~10000吨新型干法水泥生产线成套设备及配套电气控制。

Introduction of products

New type dry-method cement production line techniques include ram material exploiting, raw material pre-homogenization, new type energy-saving pulverizing, efficient low-resistance preheater and decomposing furnace, new type grate cooling machine, strong ability of anti-heating & wear proof and thermal insulating material, computer and network information techniques, which has ensured that the cement production has advantages in terms of high efficiency, high quality, and energy saving, and its utilization of resources meets the environmental and continuous development. New type dry-method cement production process includes crude fuel incoming, crude fuel crushing, crude material preparation, grog calcine, cement product and shipping. It is mainly applied to the cement production enterprises. Our company provides complete sets of equipment and matching electric control system for the new type drymethod production line with annual yield of 2500 - 10000 tons.



Main technical parameters of product

克里 大河夕狗		主机名称	2500t/d			5000t/d		
序号 No.	ラ 牛미名称 Main equinment F		性能指标 Performance index	能力 capabilty /(t/h)	数量 Qty.	性能指标 Performance index	能力 capabilty /(t/h)	数量 Qty.
1	石灰石破碎 Lime stone crushing	单段锤式 破碎机 One step hammer type crusher	单段锤式破碎机: One step hammer type crusher PCF1818 出料粒度 discharge particle size: ≤75mm(95%)	350~400	1	单段锤式破碎机: One step hammer type crusher PCF2022 出料粒度 discharge particle size: ≤75mm(90%)	700~800	1
2	原料粉磨 Raw material pulverizing	辊式磨 Roll type pulverizing	EZM40.18-4 立式生料磨 vertical crude material pulverizing 入磨粒度 feeding particle size: <75mm 出磨细度 finished fineness: R80μm 筛余 screen residue ≤12%	200	1	EZM56.24-4 立式生料磨 vertical crude material pulverizing 入磨粒度 feeding particle size: <75mm 出磨细度 finished fineness: R80μm 筛余 screen residue≤12%	410	1
3	煤粉制备 Coal fines Preparation	辊式煤磨 Roll type pulverizing	入磨粒度 feeding particle size : <50mm 出磨细度 finished fineness : R80μm 筛余 screen residue≤12%	20	1	入磨粒度 feeding particle size:50mm 出磨细度 finished fineness:R80μm 筛余 screen residue≤12%	38	1
4	熟料烧成 Grog calcine	回转窑 Rotary kiln	φ4×60	2500t/d	1	φ4.8×72	5000t/d	1
5	水泥粉磨	辊压机 Rolling press	辊压机 120/80 Rolling press	180~230 (通过量)	1	辊压机 120/80 Rolling press	180~230 (通过量)	2
J	Cement pulverizing	水泥磨 Cement pulverizing machine	φ4.2×12m	120		φ4,2×12m	240	2

注: 此处仅注明日产 2500 吨和日产 5000 吨主要设备技术参数, 日产 2500 至 10000 吨之间产量可根据用户需求进行设备配置。

Note: Here only indicate the technical data of the main equipment with daily yield of 2500 tons, and daily yield of 5,000 tons, and annual yield of 1,400,000 tons, for the daily yield between 2500 tons and 10000 tons, equipment layout can be conducted as per customer requirements.



产品特点

- 1. 设置具有良好均化效果的原燃料预均化堆场;
- 2. 配置计量精确的块状和粉状物料计量装置,并通过质量控制系统及时调整各种原料的喂料比例,确保出磨生料和水泥的合格率;
- 3. 采用 均化效果、低耗电和 卸空率的生料均化库,确保入窑生料的合格率;
- 4. 辊式粉磨系统在原料适合的前提下,与管磨机相比, 辊式磨具有流程简单、节电和烘干能力强等优点;
- 5. 辊压机系统辊压机作为预粉磨或半终粉磨过程的主机装备,其技术可靠性和节电优势明显。与管磨系统相比其粉磨电耗可降低 25%:
- 6. 新型干法水泥生产过程几乎无污染,作为传统水泥生产的主要污染源粉尘、废水和废气已得到系统的治理。 粉尘排放远低于中国国家标准:废水实现了零排放:有害 气体的排放也得到了有效控制;
- 7. 采用国际上先进的计算机控制技术、通信技术和图形显示 技术,采用分散控制、集中管理的集散型控制系统 (DCS),实现了系统的可靠、安全和实用的目标。

- 1. Raw material pre-homogenizing storage yard that has good homogenization effects is arranged.
- 2. Metering devices with high precisions are equipped for lump material and powdery material, feeding proportions for different kinds of raw materials have been adjusted timely by means of the quality control system, to ensure the rate of acceptable pulverized crude material and cement.
- 3. Crude material homogenization warehouse with high homogenization effects, low electricity consumption, and high rate of unload & emptying, to ensure the rate of acceptable crude material feeding the kiln.
- 4. Under the precondition that the raw materials are appropriate for the roll type powder pulverizing system, compared with the tubing mill, the roll type pulverizing machine has advantages in terms of simple flow process, low consumption of electricity, and strong capability of drying by baking.
- 5. Rolling press is used as the principal equipping for the prepulverizing and semi-finished pulverizing, it has distinct advantages in terms of technical reliability and economizing electricity. Compared with the tubing mill system, its electricity consumption for the pulverizing can be reduced by 25%.
- 6. Blast furnace slag miropowder production line's production process is almost pollution free, dust, waste waster and waste gas, which are the primary pollution sources of the conventional cement production, have been governed systematically. Dust emission is far below the china national standard. Waste water realizes zero discharge. Harmful gas emission has also been effectively controlled.
- 7. International advanced computer control techniques, communication technique and graphic display techniques have been adopted, in addition, decentralized control and distributed control system (DCS) with centralized management, which has realized the reliable, safe and practical system.



1.3.3 起重设备和水利机械

1.3.3 Hoisting equipment and Water conservancy machinery



550t 锻造四梁桥式起重机 550t 4-beam forging overhead crane



液压启闭机 The hydraulic hoister

产品简介

有锻造桥式起重机、锻造翻钢机、铸造桥式起重机、 淬火起重机、加料起重机、大型重件码头起重机、通用桥 式起重机、电站门式起重机、液压启闭机、固定卷扬启闭 机等。

Introduction of products

There are forge bridge type crane, forge tilting machine, forge bridge type crane, casting bridge type crane, quenching crane, charging crane, jumbo heavy goods cargo crane, general bridge type crane, electricity generating station gantry crane, hydraulic headstock gear, stationary hoisting headstock gear.

产品主要技术参数

序号 No.	设备名称 Equipment name	主要技术参数 Class A5 bridge type crane
1	550/200/50t-30m A8 级锻造起重机 Class A8 forge crane	起重量 hoisting capacity: 主小车 main bogie: 550t; 辅小车 auxiliary bogie: 200/50t; 运行速度 traveling speed: 主小车 main bogie30m/min; 辅小车 auxiliary bogie: 30m/min; 起升速度 raising speed: 主小车 main bogie6m/min; 辅小车 auxiliary bogie6m/10m/min; 辅小车 auxiliary bogie6m/10m/min; 轨距 track gauge: 30m, 起升高度 lifting height: 30m; 大车运行速度 cart traveling speed: 50m/min;
2	400t 翻钢机 Tilting machine	额定翻钢能力 nominal steel plate tilting capacity: 400t; 钢锭最大偏心距 max eccentric distance of ingot : 300mm; 链条速度 chain speed: 15m/min; 弹簧最大缓冲行程 max cushioning stroke of the spring: 150mm;



序号 No.	设备名称 Equipment name	主要技术参数 Class A5 bridge type crane
3	YZ220/50t-31mA7 级四梁双小车铸造起重机 Class A7 four-girder double bogie casting crane	额定起重量 nominal lifting capacity; 主起升 main lifting: 220t; 副起升 auxiliary lifting: 50t; 起升高度 lifting height: 主起升 main lifting: 30m; 副起升 auxiliary lifting: 30m; 起升速度 raising speed; 主钩 main hook 6m/min; 副钩 auxiliary hook,9m/min; 轨距 track gauge: 31m; 大车运行速度 cart traveling speed: 70m/min; 主小车运行速度 main bogie traveling speed: 36m/min; 副小车运行速度 auxiliary bogie traveling speed: 40m/min;
4	320/50t-22m 淬火起重机 Quenching crane	额定起重量 nominal lifting capacity: 主起升 main lifting: 320t; 副起升 auxiliary lifting50t; 起升高度 lifting height: 主起升 main lifting: 37m; 副起升 auxiliary lifting38m; 起升速度 raising speed: 主钩 main hook16m/min; 副钩 19.5m/min; 轨距 track gauge: 24m; 大车运行速度 cart traveling speed: 41m/min; 小车运行速度 bogie traveling speed: 26m/min;
5	425+425t-34mA5 级桥式起重机 Class A5 bridge type crane	额定起重量 nominal lifting capacity: 425+425; 起升高度 lifting height: 30mm; 起升速度 raising speed: 2.5m/min; 轨距 track gauge: 34m; 大车运行速度 cart traveling speed: 30m/min; 小车运行速度 bogie traveling speed: 16m/min;
6	850/250t-34mA5 级桥式起重机 Class A5 bridge type crane	额定起重量 nominal lifting capacity: 主起升 main lifting: 850t; 副起升 auxiliary lifting250t; 起升高度 lifting height: 主起升 main lifting: 29.8m; 副起升 auxiliary lifting330.5m; 起升速度 raising speed: 主钩 main hook2.2m/min; 副钩 auxiliary hoo3.9m/min; 轨距 track gauge: 34m; 大车运行速度 cart traveling speed: 36.9m/min; 小车运行速度 bogie traveling speed: 16.2m/min;



序号 No.	设备名称 Equipment name	主要技术参数 Class A5 bridge type crane
7	2X30KN 清污机 Decontamination machine	总提升力 total lifting force: 2X30KN; 清污宽度 decontamination width 4m; 清污斗容积 decontamination bucket size: 1.5m³; 大车行走速度 cart traveling speed10m/min; 耙斗上升(下降) 速度 scraper bucket raising (lowering) speed: 6m/min;
8	1600/1250 KN 启闭机 Headstock gear	额定起重量 nominal lifting capacity: 4000/1600KN; 起升高度 lifting height: 43m; 起升速度 raising speed: 1.43m/min;
9	4000/1500 KN 液压式启闭机 Hydraulic headstock gear	起门力/持住力 gate lifting force/holding force: 4000/1500KN; 油缸行程 cylinder stroke: 11.7m; 油缸内径 cylinder I.D: 630mm; 活塞杆径 Piston rod dia. 360mm;
10	2×630KN 双向门机 Two-way portal hoist	额定启门力 nominal gate lifting force 主起升 main lifting2×630KN; 副起升 auxiliary lifting mechanism 2×250KN; 起升高度 lifting height: 主起升 main lifting13m; 副起升 main lifting52m; 主起升起闭速度 main lifting2.5 m/min; 副起升起闭速度 auxiliary lifting 8m/min; 大车运行速度 cart traveling speed:20m/min; 小车运行速度 bogie traveling speed: 2.5m/min; 大车轨距 cart track gauge: 8.5m; 小车轨距 bogie track gauge3.8m



1.4 传动产品 1.4 Driving Products



湘钢 5000mm 热轧主传动万向接轴 Xiang Steel 5000mm Hot Mill Main Drive Universal Spindle



二重装备研制的世界最大的三峡升船机螺母柱 EHEC Developed the World Largest Ship Elevator Nut Post for Three Gorge Project



二重装备生产制造的风力发电增速机 Wind Power Generator Speed-Increasing Gearbox



二重装备生产制造的轴式接轴 Shaft Type Spindle Manufactured by EHEC



风力发电机主轴 Wind Power Generator Main Shaft



二重装备研制的世界最大的三峡升船机齿条 EHEC Developed the World Largest Ship Elevator Gear Rack for Three Gorge Project Gorge Project

产品简介

二重装备是国内规模最大、产品覆盖面最广的传动设备研制基地,历经数十年的积累,成功研发制造了冶金、风电、船用、石油、水泥、电力等各类十字万向接轴、鼓型齿接轴、齿轮箱、联轴节、主轴、升船机齿条、蜗轮副、海洋平台蜗轮减速机、海洋平台主减速机、压力泵、水压试管机、高压管汇等设备,多项产品填补国内空白,替代进口,受到用户的赞誉和好评。

在设计、研发和制造等多方面与重庆大学机械传动国家重点实验室、西安交通大学、四川大学、上海交大、西重所、郑机所、胜利油田东星公司等单位建立了长期的技术和产品合作关系。

Introduction of products

EHEC is the domestic R&D base of driving equipment with the largest scale and widest products coverage, with gained experiences over several decades, has successfully developed and manufactured cross-head universal spindles, crowned teeth spindle, gearbox, coupling, main shaft, ship elevator gear rack, worm gear, ocean platform worm gear speed reducer, ocean platform main gearbox, pressure pump, water pressure test tube machine and high pressure manifold for metallurgy, wind power, marine, petroleum, cement, and electric power applications, multiple products have filled a gap in domestic manufacturing and substituted for imported ones, which have been recognized and praised by customers.

Erzhong Drive Technology Institute provides design and technique support. In addition, EHEC has built a long-term technique and product cooperation relationship with Chongqing University mechanical drive national key laboratory, Xian Transport University,



历经 50 多年的发展,公司产品广泛用于冶金、矿山、锻压、建材、造船、能源、轻工等领域,获国家、省部级优秀设计产品奖 18 项,52 项专有技术获国家发明专利,制定国家相关标准 10 余项,大型十字万向接轴等 2 项产品连续十多年获得并保持四川省名牌产品称号。公司现为"全国机器轴和附件标准化技术委员联轴器分技术委员会"秘书处单位。

- ▲十字万向接轴
- ▲硬面齿轮减速机及大型齿轮、齿条
- ▲鼓形齿联轴器及鼓形齿接轴
- ▲风力发电增速箱
- ▲压力泵、高压管汇

▲各种蜗轮副(有平面二包、球面等弧面蜗杆、ZC1 蜗杆、渐开线等圆柱蜗杆等类型)

- ▲卷筒芯轴及飞剪
- ▲各类减速机
- ▲舰船齿轮
- ▲三峡升船机齿条

万向接轴

二重装备自 20 世纪 70 年代开始致力于万向接轴研制和推广,通过 40 多年的技术技术积累和进步,目前二重装备万向接轴的研制已接近国际先进水平,在中国始终保持领先地位。

在万向接轴研制领域,二重装备研制的万向接轴产品品种齐全,研制的万向接轴结构型式有 SWC 型整体叉头十字轴式万向接轴、SWP 型剖分压盖十字轴式万向接轴、SWZ 型整体轴承座十字轴式万向接轴、剖分叉头十字轴式万向接轴、滑块式万向接轴、鼓形齿式万向接轴(联轴器)等,传递公称扭矩范围为 2.5 ~ 16000KNm,最大允许倾角 15 ~ 25°,可满足各行业应用的需要,申报专利数十项,参与制订了万向接轴(联轴器)国家和行业标准十数项。

二重装备在万向接轴领域参与制定的国家和行业标准

Sichuan University, Shanghai Transport University, Xian Heavy Machinery Research Institute, Zhenzhou Heavy Machinery Research Institute, and Shengli Oilfield Dongxing Company etc.

Have gone through the development of more than 50 years, products of EHEC have been widely used for the metallurgy, mining, forging, construction material, ship building, energy, and light industry applications, it has been awarded 18 prizes of excellent design products of national and provincial and ministry level, 52 proprietary technologies have obtained national patents of inventions. EHEC has established more than 10 national relevant standards. Two products such as the large cross-joint universal spindle has successively in over 10 years obtained and maintained the title of Sichuan famous brand products. The company is now the secretariat unit of "technical committee of coupling sub-technical committee of national standardization of machine shafts and accessories".

- ▲ Cross-joint universal spindle
- ▲ Hard surface gearbox and large gear and rack
- ▲ Crowned teeth coupling and crowned teeth spindle
- ▲ Wind power generation speeding-up box
- ▲ Pressure pump, high pressure manifold
- ▲ A variety of worm gear (including plane double-enveloping, spherical surface, cambered surface worm, ZC1 worm, involute worm, cylindrical worm, etc.)
- ▲ Drum mandrel and flying shear
- ▲ A variety of gearboxes
- ▲ Marine gear
- ▲ Three Gorges ship elevator rack

Universal joint shaft

Since the 1970s, double equipment has been devoted to the development and promotion of universal coupling shaft. Through more than 40 years of technical accumulation and progress, the development of double equipment universal coupling shaft has been close to the international advanced level, and it has always maintained a leading position in China.

In the field of universal joint shaft is developed, double equipment development of universal joint shaft product variety is complete, the structural forms of the universal joint shaft developed include SWC type integral fork head cross shaft, SWP type split gland cross shaft, SWZ type integral bearing seat cross shaft, split fork head cross shaft, sliding block type universal joint, drum tooth type universal joint (coupling), etc. Transmitting normal torque range is $2.5 \sim 16000 \text{KNm}$, the maximum allowble inclination angle: $15 \sim 25^\circ$, which can meet the needs of various industries.

Dozens of patents have been applied, and more than ten national and industrial standards of universal coupling (coupling) have been formulated.

The national and industrial standards in the field of universal coupling that EHEC formulated:

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标准代号	标准名称			
GB/T26103.1	G Ⅱ CL 型鼓形齿式联轴器			
GB/T26103.3	GCLD 型鼓形齿式联轴器			
GB/T26103.4	NGCL 型带制动轮鼓形齿式联轴器			
GB/T26103.5	NGCLZ 型带制动轮鼓形齿式联轴器			
GB/T26104	WGJ 型接中间轴鼓形齿式联轴器			
GB/T26660	SWC 大型整体叉头十字轴式万向联轴器			
GB/T28700	SWZ 型整体轴承座十字轴式万向联轴器			
GB/T29027	大型鼓形齿式联轴器			
GB/T29028	SWZ 型大型整体轴承座十字轴式万向联轴器			
JB/T3241	SWP 型剖分轴承座十字轴式万向联轴器			
JB/T3242	SWZ 型整体轴承座十字轴式万向联轴器			
JB/T5513	SWC 型整体叉头十字轴式万向联轴器			
JB/T7341.2	十字轴式万向联轴器用十字包 SWC 型			
JB/T7355	AYL 液压安全联轴器			

Standard code	Description of standard			
GB/T26103.1	G II CL drum- type coupling			
GB/T26103.3	GCLD drum- type gear-type coupling			
GB/T26103.4	NGCL-type drum -gear coupling with brake wheel			
GB/T26103.5	NGCLZ -type drum gear coupling with brake wheel			
GB/T26104	WGJ-type drum -gear coupling with intermediate shaft			
GB/T26660	SWC large integral fork head cross shaft universal coupling			
GB/T28700	SWZ-type integral bearing housing cross shaft universal coupling			
GB/T29027	Large-scale drum -tooth coupling			
GB/T29028	SWZ -type large integral bearing block cross shaf universal coupling			
JB/T3241	SWP- type split bearing housing cross shaft universal coupling			
JB/T3242	SWZ-type integral bearing housing cross shaf universal coupling			
JB/T5513	SWC- type integral fork-head cross shaft universal coupling			
JB/T7341.2	SWC-type cross pack for cross shaft universal coupling			
JB/T7355	AYL hydraulic safety coupling			



1.4.1 风力发电机组中的齿轮箱

1.4.1 Gearbox in the generating unit



1.5MW 风力发电增速机 Speed-increasing gearbox for 1.5MW wind mill



1.0MW 风力发电增速机 Speed-increasing gearbox for 1.0MW wind mill



2.5MW 风电增速机 Speed-increasing gearbox for 2.5MW wind mill



2.0MW 风电增速机 Speed-increasing gearbox for 2.0MW wind mill

产品简介

风力发电机组中的齿轮箱是风力发电机中重要的机械部件,其主要功用是将风轮在风力作用下所产生的动力传递给发电机并使其得到相应的转速。应用于风力发电设备。目前,我们公司已设计并制造 1.0MW、1.5MW、2.0MW、2.5MW、6MW 等多种机型的风机齿轮箱,其中,2.0MW通过了 DNV GL 齿轮箱 A 级认证,1.5MW 通过了 CCS 设计评估。

Introduction of products

Gearbox is the important mechanical component in the wind generating unit, itsmain function is to transmit the power generated by the wind wheel under theaction of wind to the generator and make it obtain corresponding rotate speed. Gearbox is applied to the wind generating equipment. At present, our company has designed and manufactured the blower unit gearboxes of 1.0MW, 1.5MW, 2.0MW, 2.5MW, 6MW and other models, among which 2.0MW has passed DNV GL gear box grade A certification and 1.5MW has passed CCS design evaluation.



型号和规格 Type and Spec	功率(kW) Power	输入转速(r/min) Input Rotate Speed	速比 Gear Ratio	重量(kg) Mass
MD70	1660	10.6-18.97 94.54		17500
MD77	1660	9.1-17.27 104.02		17600
FD1500	1663	1663 9.7-19.5 100.71		13988
FD1650	1775	11.49-21.95 97.46		26500
FD2000	2235	8.0-20.42	118	20600
FD2500	2750	8.0-20.42	76.2-84.3	26500
JFHD2000	2285	6.78-14.96	90.2	21000



1.4.2 冶金机械齿轮箱

1.4.2 Gear Box for Rolling Machinery



主减速机 Main reducer



齿轮机座 Gear base



联合主减速机 United main reducer



压下减速机 Press -down reducer

产品简介

冶金齿轮箱用于冶金设备中输入载荷的放大、换向和传递,以实现设备中各零部件的协调运转。公司生产的冶金齿轮箱涉及热连轧、冷连轧、中厚板等多种冶金设备设备,包括主减速机、齿轮机座、联合减速机、立辊减速机、飞剪减速机、卷曲减速机、矫直机减速机等十几个大类的齿轮箱。

Introduction of products

The metallurgical gear box is used to magnify, reverse and transfer the input load in the metallurgical equipment so as to realize the coordinated operation of various parts in the equipment. The metallurgical gear box produced by the company involves many kinds of metallurgical equipment such as hot continuous rolling, cold continuous rolling, medium and thick plate, including main reducer, gear base, combined reducer, vertical roller reducer, flying shear reducer, crimping reducer, straightener reducer and so on.



产品参数

450mm ~ 2050mm 热连轧机全线齿轮传动装置

1150mm ~ 1700mm 冷连轧机全线齿轮传动装置

2800mm ~ 5000mm 中厚板轧机的全部齿轮传动装置

1250mm ~ 4300mm 的铝板轧机全线齿轮传动装置

Parameters of products

 $450 \text{mm} \sim 2050 \text{mm}$ whole-line gear transmission device for hot strip rolling mill

1150mm ~ 1700mm whole-line gear transmission device for cold strip rolling mill

 $2800 \mbox{mm} \sim 5000 \mbox{mm}$ all gear transmission device for rolling mill with medium and thick-thickness plate

1250mm \sim 4300mm whole-line gear transmission device for aluminum plate rolling mill

1.4.3 水利工程传动产品

1.4.3 Transmission Products for Water Conservancy Project Platform

1.4.3.1 升船机齿条

1.4.3.1 Ship Elevator Gear Rack



二重装备研制的世界最大的三峡升船机齿条 EHEC Developed the World Largest Ship Elevator Gear Rack for Three Gorge Project Gorge Project

产品简介

升船机齿条是高坝水利枢纽中齿轮齿条爬升式升船机重要的机械部件。齿条铺设在混凝土塔柱墙壁上,承船箱通过开式齿轮机构的驱动,与齿条啮合,实现承船箱的升降。齿条用于向混凝土塔柱结构传递船箱驱动系统的驱动载荷,同时还作为导轨对升降中的船箱进行横向导向。公司现已完成的升船机齿条有两个:三峡升船机齿条和向家坝升船机齿条。

产品参数

每根齿条 120 多米, 每根截为 26-34 段。

4 对齿轮齿条全程同步误差小于 2 毫米;

Introduction of products

Ship Elevator Gear Rack is an important mechanical part of the gear and rack Ship Elevator in the high dam water conservancy project. The rack is laid on the wall of the concrete tower column, and the ship box is driven by the open gear mechanism to mesh with the rack and realize the lifting of the ship box. The rack is used to transfer the driving load of the ship box drive system to the concrete tower structure and also serves as the guide rail to guide the ship box in the lifting. There are two ship elevator racks that the company has completed: Three Gorges ship elevator rack and Xiangjiaba ship elevator rack.

Parameters of products

Each piece of rack has a length of more than 120m, and each piece is cut into 26-34 sections.

Full-stroke synchronization error for 4 pairs of gear rack is less than 2mm;



1.4.3.2 升船机螺母柱

1.4.3.2 Ship Elevator Gear Rack



二重装备研制的世界最大的三峡升船机螺母柱 EHEC Developed the World Largest Ship Elevator Nut Post for Three Gorge Project



二重装备研制的向家坝升船机螺母柱 EHEC Developed the Ship Elevator Nut Post for Xiangjiaba Project

产品简介

升船机螺母柱是齿轮齿条爬升式升船机安全保证系统的主要构件。每根螺母柱由多段拼接而成,每段又是由四片拼接而成的。螺母柱安装于混凝土塔柱墙壁上,用于事故状态下向塔柱传递船箱的不平衡载荷。同时,升船机螺母柱也是对接锁定结构的重要部件,在船箱和上下游航道对接时,通过对接锁定螺杆将船箱锁定在螺母柱上。公司现已完成的升船机齿条有两个:三峡升船机螺母柱和向家坝升船机螺母柱。

产品参数

每根螺母柱由 52 片螺柱柱片拼接而成, 每片长近5m, 重 24 吨;

15 米直线度不超过 0.1mm;

Introduction of products

The (Ship Elevator Nut Post) is the main component of safety assurance system for the rack and pinion climbing Ship Elevator. Each nut post is made of multiple splices, and each segment splice is made of four splices. The nut post is installed on the wall of the concrete tower column and used to transfer the unbalanced load of ship box to the tower column in the state of accident. At the same time, the Ship Elevator Nut Post also is an important part of the docking lock structure. When the ship box and upstream and downstream channel are docking, the ship box is locked on the nut column by the docking lock screw. There are two ship elevator racks that the company has completed: Three Gorges ship elevator nut post and Xiangjiaba ship elevator nut post.

Parameters of products

Each nut post is composed of 52 pieces of stud. Each piece is nearly 5m in length and 24t in weight.

15m straightness shall not exceed 0.1mm



1.4.3.3 升船机齿轮箱

1.4.3.3 Gear box of ship elevator



亭子口升船机齿轮箱 —SCJ 1650 Gear box (SCJ 1650) of ship elevator for Tingzikou project

产品简介

升船机齿轮箱是高坝水利枢纽中垂直式卷扬升船机重要的机械部件。多台不同规格升船机机齿轮箱通过通过中间轴、齿式联轴器连成一矩形、封闭的同步轴系统,实现多点起吊式船箱的快速同步升降,最终实现船舶的快速通航。

Introduction of products

Gear box of ship elevator is an important mechanical component of vertical lift ship elevator in high -dam water conservancy project. By connecting the intermediate shaft and gear coupling to form a rectangular and closed synchronous shaft system, the gearbox of several ship elevators with different specifications realizes the rapid synchronous lifting of multi-point ship boxes and finally realizes the fast navigation of ships.

产品主要技术参数

型号和规格 Type and Spec	传递功率(kW) Power	传动比 Gear Ratio	扭矩(kN·m) Torque	重量(T) Mass	适用机组 Application Equipment
SCJ 955	315	263	790	46	300 吨级
SCJ 1400	200	115	2 × 650	52	500 吨级
SCJ 1650	200	618	2 × 650	60	2×500 吨级
SCJ 1750	160	658	2 × 550	62	500 吨级全平衡 500-tonnage full balance
SCJ 1830	315	1356	2 × 3360	115	500 吨级下水式 500-tonnage launching type



1.4.4 大型立磨减速机

1.4.4 Mine Mechanical Transmission Products



传统式立磨减速机 Reducer of heavy vertical grinding mill



多点传动式立磨减速机 Reducer of heavy vertical grinding mill

产品简介

立磨减速机是大型粉磨设备的核心机械设备,立磨减速机实现电机输入载荷的放大和方向的转变,从而带动磨盘完成磨料工作,其结构分为传统式和多点传动式两种形式。其中,多点传动式立磨减速机为公司的专利产品。目前,公司已为大竹水泥、港陆钢铁、八钢和沙钢等多家公司提供多台大型立磨减速机。

Introduction of products

Heavy vertical grinding mill is the core mechanical equipment of large-scale grinding equipment, which can amplify the input load of the motor and change the direction, thus driving the grinding disc to complete the abrasive work. Its structure can be divided into two forms: traditional and multi-point drive. Among them, heavy vertical grinding mill with multi-point transmissionis the company's patented product. At present, the company has provided a number of large vertical grinding reducer for many companies such as Dazhu Cement, Ganglu Steel, Bagang and Shagang.

产品主要技术参数

Main technical parameters of product

型号和规格 Type and Spec	功率(kW) Power	输入转速(r/min) Input Rotate Speed	垂直静载荷(kN) Vertical Force	润滑方式 Lubrication	重量(kg) Mass
EZRMGR 200	83.8		5300		4600
EZRMGR 280	97.3		6500		5200
EZRMGR 350	131.5	993	8500	静压润滑 Hydrostatic lubrication	6000
EZRMGR 430	195.5		9600		6200
EZRMGR 500	241.9		10500		11500



1.4.5 自升式海洋钻井平台传动产品

1.4.5 Sea Platform Transmission Products



自升式海洋平台主升降齿轮箱 Self-lifting sea-platform main gearbox



自升式海洋平台锁紧装置 Self-lifting sea-platform locking device

产品简介

二重装备生产的自升式海洋钻井平台传动产品有主升降齿轮箱和蜗轮蜗杆锁紧装置,该产品具有承载能力强、体积小、工作可靠的特点。主升降齿轮箱安装在船体上,通过和安装在桩腿上的齿条啮合转动来实现船体的升降,升降完成后,锁紧机构中蜗杆减速机来承担整个平台的载荷。公司研制的自升式海洋平台主升降齿轮箱和蜗轮蜗杆锁紧装置已经通过 ABS 认证试验。

Introduction of products

The (Sea Platform Transmission Products) manufactured by EHEC cover the main lifting gear box and worm gear lock device, which has the characteristics of strong bearing capacity, small volume and reliable operation. The main lifting gear box is installed on the hull, and the lifting of the hull is realized by engaging and rotating the rack mounted on the pile leg. After the lifting is completed, the worm reducer in the locking mechanism bears the load of the whole platform. The self-lifting sea-platform gear box and worm gear locking device developed by the company have passed ABS certification test.



2. 高端大型铸锻件

2. Advanced heavy castings and forgings

二重装备是中国最大的铸锻钢生产基地,具有现代化 大型冶炼、铸造、锻造、热处理、机械加工等装备和设施, 以及完善的检测手段和健全的质量保证体系,可按国际、 国内标准生产各种优质铸件、锻件。 Erzhong (Deyang) Heavy Equipment Co., Ltd. (referred to as EHEC hereinafter) is the largest castings and forgings manufacturing base in China, and possesses modernized heavy duty equipment and facilities for smelting, foundry, forging, heat treatment, machining, as well as comprehensive inspecting and detecting methods and quality assurance system. EHEC. has the capability to supply various kinds of castings and forgings with super quality in accordance with international and national standards.

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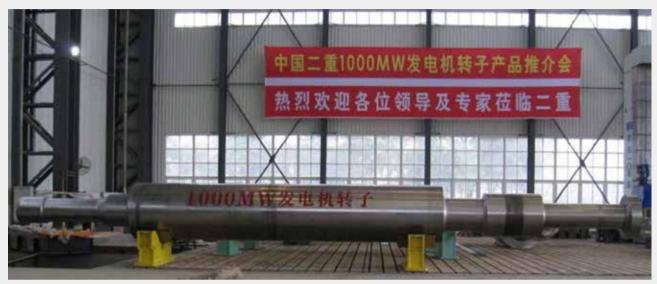


2.1 电站锻件

2.1 Heavy castings and forgings——forgings for electricity generating station

2.1.1 1000MW 级发电机转子锻件

2.1.1 Generator Rotor of 1000MW Grade



1000MW 发电机转子锻件 1000MW Grade Generator Rotor Forging

产品简介

1000MW 级发电机转子锻件为 1000MW 等级汽轮发电机组核心部件,直径大、轴身长、重量重,材质一般为 Cr-Ni-Mo-V 钢。转子探伤要求严格,材料成分组织和力学性能的均匀性要求高。二重装备制 1000MW 级发电机转子锻件其各项性能指标和核心制造技术已达到了国际先进、国内领先水平,具有优越的综合力学性能和低的脆性转变温度。

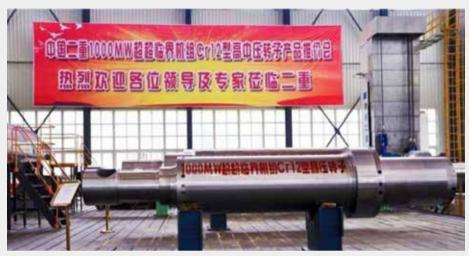
Introduction of products

The forging of 1000MW grade generator rotor is the key part for the 1000MW grade turbo generator unit, it is characterized by its big diameter, long shaft body, and heavy weight, it is usually made of Cr-Ni-Mo-V. The rotor forgings demand strict NDT requirements, and high uniformity of the material chemical composition and mechanical properties. EHEC manufactured forgings for the 1000MW grade generator rotor have reached international advanced level and domestic leading level in terms of each performance index and core manufacture technique, it has superior comprehensive mechanical properties and low brittleness transition temperature.



2.1.2 1000MW 超超临界汽轮机转子锻件

2.1.2 1000MW Ultra-Supercritical Turbine Rotor Forgings



1000MW 发电机转子锻件 1000MW Grade Generator Rotor Forging



1000MW 发电机转子锻件 1000MW Grade Generator Rotor Forging

产品简介

亚临界和超临界火电机组 50MW-600MW 汽轮机转子锻件是二重装备的常规产品,常年批量生产。2010年,二重装备成功开发出超超临界火电机组锻件,如 1000MW 超超临界 Cr10 型高中压转子锻件和 1000MW 级超临界特大型低压转子等锻件。二重装备制 1000MW 超超临界汽轮机转子锻件其各项性能指标和核心制造技术已达到了国际先进、国内领先水平,转子具有良好的室温和高温强度、优越的韧性、塑性参数。

Introduction of products

Subcritical and ultra-supercritical thermal power generating units 50MW-600MW turbine rotor forgings are common products manufactured by EHEC, and batch productions have been accomplished for years. In recent years, EHEC has successfully developed the forgings for the ultra-supercritical thermal generating units, for instance, 1000MW ultra-supercritical Cr10 type HP & MP rotor forgings and 1000MW grade supercritical extra-large LP rotor forgings. EHEC manufactured 1000MW ultra-supercritical turbine rotor forgings' each performance index and core manufacturing techniques have reached the international advanced level and domestic leading level, these rotors have obtained good strengths at both ambient temperature and elevated temperature, as well as superior toughness and plasticity parameters.

2.1.3 燃气轮机锻件

2.1.3 Gas turbine forgings



F 级燃气轮机前轴头 Front shaft end of F-class gas turbine



F 级燃气轮机后轴头 Rear shaft end of F-class gas turbine



F 级燃气轮机轮盘 Disc of F-class gas turbine



F 级燃气轮机拉杆 Tie rod of F-class gas turbine



F 级燃气轮机拉杆螺母 Nuts of the tie rod of F-class gas turbine

产品简介

燃气轮机被誉为工业皇冠上的明珠,其主要部件前轴头、后轴头、压气机轮盘、透平轮盘、拉杆等锻件,质量要求极高,有极其苛刻的超声波探伤和性能要求,生产难度极大,我国长期依赖进口。二重装备从 2004 年开始研制燃气轮机锻件,经过长期技术研究,二重装备已具备重型燃气轮机全套锻件的制造能力。产品各项性能指标和核心制造技术已达到了国际先进、国内领先水平。

Introduction of products

Gas turbine is known as the "pearl on the industrial crown", with very high quality requirements and extremely stringent ultrasonic flow detection and performance requirements on the manufacture of the forgings of its main components, such as front shaft head, rear shaft head, compressor disk, turbine disk, and tie rod. Therefore, it is extremely difficult to manufacture, and China had been relied on imports for a long time. EHEC has started the research and development of gas turbine forgings since 2004. After long-term technical research, the company has owned the manufacturing capacity for the complete set of the heavy-duty gas turbine forgings. All performance indicators and core manufacturing technology of the products have taken the lead in the domestic market while reached the advanced level internationally.



2.1.4 1000MW 级以上核电常规岛转子锻件

2.1.4 1000MW Grade Above Nuclear Power Conventional Island Rotor Forgings



CPR1100 核电发电机转子锻件 CPR 1100 Nuclear Power Rotor Forging



CPR1000 核电高压转子 CPR1000 Nuclear Power HP Rotor



1000MW 发电机转子锻件 1000MW Generator Rotor Forging



CAP1400 核电高压转子 CAP1400 Nuclear Power HP Rotor



CAP1400 核电发电机转子锻件 (交货重量 262t, 锭型 650t) CAP1400 Rotor forgings of nuclear power generator (delivery weight 262t, ingot 650t)

产品简介

为加快掌握先进核电技术,加速核电国产化进程,二重装备从 2006 年开始围绕二代加 (CPR1000) 和第三代 (AP1000 和 CAP1400) 锻件的国产化进行了大量的技术开发和创新工作,实现了 600 吨级钢锭 1100MW 核电常规岛发电机转子锻件的批量化生产,2014 年成功锻制国内首支650 吨级钢锭的 CAP1400 核电岛转子锻件。二重装备所研制的 1000MW 级以上核电常规岛转子锻件已用于宁德、福清、方家山、红沿河、阳江、田湾、防城港等核电项目。

Introduction of products

In order to master the advanced nuclear power techniques, to expedite domestically producing nuclear power products, since 2006, EHEC has conducted a great number of technical development and innovations for the domestic production of the second generation+ (CPR1000) and the third generation (AP1000 and CAP1400), and has realized the batch productions of 1100MW nuclear power conventional island generator rotor forgings of 600 tons grade ingots. In 2014, EHEC has successfully manufactured the first domestic rotor forging of 650 tons grade ingots for CAP1400 nuclear power conventional island. EHEC developed rotor forgings for the 1000MW above nuclear power conventional island have been used for Ningde, Fuqing, Wanjiashan, Hongyanhe, Yanjiang, Tianwan, Fangchenggang, etc. nuclear projects.



2.1.5 10MW-700MW 水电机组成套锻件

2.1.5 10MW-700MW Hydropower Generating Unit Forgings of Completes Sets



三峡 700MW 机组镜板 Three Gorges 700MW water power station unit runner plate



混流式 650MW 糯扎渡整锻主轴锻件 Monoblock Forging of the Main Shaft for Nuozhadu mixed-flow 650MW Hydropower Generating Unit



贯流式 40MW 峡江整锻主轴锻件 Monoblock Forging of the Main Shaft for Xiajiang Outer Gate Barrel Type 40MWHydropower Generating Unit



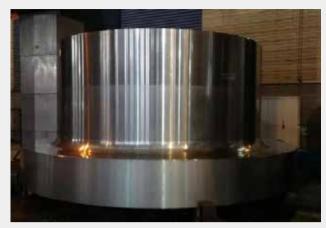
乌东德 850MW 水电机组推力头锻件 Thrust head forging of Wudongde 850 MW hydro-power generator set



乌东德 850MW 水电机组下法兰锻件 Lower flange forging of Wudongde 850 MW hydro-power generator set



白鹤滩 1000MW 水电机组轴身锻件(交货重量 91.35t) Shaft body forging of Baihetan 1000MW hydro-power generator set (delivery weight 91.35t)



白鹤滩 1000MW 水电机组法兰锻件 Flange forgings of Baihetan 1000MW hydro-power generator set

产品简介

二重装备长期致力于水电机组锻件的研制,2009年12月15日,国务院三峡工程建设委员会重大设备制造检查组在四川德阳主持召开了由二重装备完成的"三峡700MW机组铸锻件研制"项目评审会,与会专家实地考察了二重装备研制的三峡镜板、主轴等锻件,一直认为二重装备研制的三峡700MW机组锻件的各项指标满足了用户的技术规范要求,达到或部分超过国外同类产品的先进技术水平,完全可以替代进口。

目前,二重装备成功研制了乌东德 850 MW 和白鹤滩 1000MW 水电机组成套主轴锻件,并批量交货。

Introduction of products

For a long term, EHEC has been committed to the research and development of the forgings for the hydropower generating units. On December 15, 2009, the significant equipment manufacturing check team under the State Council Three Gorges Project Construction Committee, called and presided over the project review session for "Three Gorges 700MW Generating Unit Castings & Forgings R & D" accomplished by EHEC. Specialists participated in this review session conducted the first-hand investigation on EHEC developed rotating plate and main shaft forgings for Three Gorge Project, and they were unanimous in believing that each performance index of EHEC developed forgings for the Three Gorge 700MW Generating Unit has satisfied the technical specification of the customer, have reached or some have surpassed the advanced level of the like products made by the foreign countries, and can completely substitute for imported products.

At present, EHEC has successfully developed complete sets of forgings for Wudongde 850MW Hydropower Generating Unit, and the complete set of main shaft forgings of Baihetan 1000MW Hydropower Generating Unit and started delivery in batches.



2.2 电站铸件

2.2 Heavy castings and forgings——castings for electricity generating station

2.2.1 大型核电铸件

2.2.1 Large nuclear power castings



(高中压外缸下半 1-1) (Lower half of HIP outer casing 1-1)



(高中压外缸上半 1-2) (Upper half of HIP outer casing 1-2)



(中压排汽外缸上半 1-3) (Upper half of IP exhaust outer casing 1-3)



(中压排汽外缸下半 1-4) (Lower half of IP exhaust outer casing 1-4)

岭澳 1000MW 核电汽缸 (1) Steam cylinder for the Lingao 1000MW Nuclear Power Station (1)



(高压外缸下半 2-1) (Lower half of HP outer casing 2-1)



(高压外缸上半 2-2) Upper half of HP outer casing 2-2)



(高压内缸下半 2-3) (Lower half of HP inner casing 2-3)

(高压内缸上半 2-4) (Upper half of HP inner casing 2-4)

阳江 1000MW 核电汽缸 (2) Steam cylinder for the Yangjiang 1000MW Nuclear Power Station (2)



(高中压外缸上半 3-1) (Upper half of HIP outer casing 3-1)



(高中压外缸下半 3-2) (Lower half of HIP outer casing 3-2)



(中压排汽外缸下半 3-3) (Lower half of IP exhaust hood (outer casing) 3-3)



(中压排汽外缸上半 3-4) (Upper half of IP exhaust hood (outer casing) 3-4)

台山 1750MW 核电汽缸 (3) Steam cylinder for the Taishan 1750MW Nuclear Power Station (3)



(高中压外缸上半 4-1) (Upper half of HIP outer casing 4-1)



(高中压外缸下半 4-2) (Lower half of HIP outer casing 4-2)



(中压排汽外缸上半 4-3) (Upper half of IP exhaust hood (outer casing) 4-3)



(中压排汽外缸下半 4-4) (Lower half of IP exhaust hood (outer casing) 4-4)

国核示范 CAP1400MW 核电汽缸 (4) National nuclear demonstrative CAP1400MW nuclear power casing (4)



(CPR1000 铸造泵壳 5) CPR1000MW Cast pump casing 5)

产品简介

二重装备以岭奥、台山、阳江、国核示范等核电项目为依托,率先在国内开展大型核电汽缸的关键制造技术研究,实现了大型核电汽缸的国产化制造。在 2007 年 12 月完成了我国首套 1000MW 大型核电汽缸(应用于岭澳二期 1000MW 核电机组)的国产化研制,在 2011 年 1 月成功完成了阳江 1000MW 核电项目首台大型核电汽缸及内缸的研制,在 2011 年 5 月成功完成了我国首台世界上单机容量最大的 1750MW 特大型核电汽缸(用于台山 EPR 1750MW 核电机组)的国产化研制,在 2015 年 6 月完成了国核示范 CAP1400MW 大型核电汽缸的研制,并形成了批量化制造能力。二重装备所生产的核电铸件产品已广泛应用于岭澳、宁德、福清、田湾、台山、国核示范、阳江、防城港、海洋、红沿河、秦山、昌江、卡拉奇等系列核电项目中。

Introduction of products

Relying on major nuclear power projects, such as Ling'ao, Taishan, Yangjiang, and State Nuclear Power Demonstration Plant, EHEC has taking the lead in the research of key manufacturing technologies for large nuclear power cylinders in China, and has realized the localization of the manufacture for large nuclear power cylinders. The company has finished the research and development of China's first 1000MW large-scale nuclear power cylinder (used in Ling'ao Phase II 1000MW nuclear power set) in December 2007, the first largescale nuclear power cylinder and inner casing for Yangjiang 1000MW nuclear power project in January 2011, China's first 1750MW megascale nuclear power cylinder with the largest single unit capacity in the world (used for Taishan EPR 1750MW Nuclear Power Generator Set) in May 2011, and the CAP1400MW large-scale nuclear power cylinder for State Nuclear Power Demonstration Plant in June 2015, and it has built up its manufacturing capacity in batches. The castings manufactured by EHEC for nuclear power projects have been widely used in various nuclear power plants, such as Ling'ao, Ningde, Fuging, Tianwan, Taishan, State Nuclear Power Demonstration Plant, Yangjiang, Fangchenggang, Haiyang, Hongyanhe, Qinshan, Changjiang, and Karachi Nuclear Power Project, etc.



2.2.2 600MW-1000MW 超超临界汽轮机缸体及阀 2.2.2 600MW-1000MW Ultra Supercritical Steam Turbine Casing Body & Valve Body



CB2 不锈钢中压内缸 CB2 stainless steel IP inner casing



12%Cr/CB2 不锈钢阀体 12%Cr/CB2 stainless steel valve body



12%Cr 不锈钢高压进气端 12%Cr stainless steel HP air inlet end



12%Cr 不锈钢阀体 12%Cr stainless steel valve body



12%Cr 不锈钢高压缸 12%Cr stainless steel HP casing



产品简介

二重装备早在 90 年代就开始超 (超) 临界材料选型研究,在"十·五"、"十一·五"期间,开展了火电超 (超) 临界机组汽缸、阀体铸件的研制,进行了关键核心技术的研究,已形成了批量化生产,其铸件的质量稳定、可靠,产品性能满足用户的使用要求,主要核心技术及生产的产品填补了国内空白,产品的各项性能指标及核心制造技术达到了国际同行业先进水平。近 10 年已为国内外汽轮机厂生产制造了 120 套以上超 (超) 临界 9-12Cr 不锈钢汽缸体铸件。

二重装备从 2012 年开始,率先在国内开展 620℃ 超高温超超临界耐热钢不锈钢材料 ZG13Cr9Mo2Co1VNbNB 工艺性试验研究,以试验件为依托进行了铸造、冶炼、热处理、焊接等关键技术的研究,在 2013 年开发了首套能适用620℃工作温度下的 1000MW 超超临界中压内缸,解决了冶炼、铸造、热处理、焊接、质量保证等核心技术难题,研制出了拥有自主知识产权的620℃ 1000MW 超超临界汽轮机中压内缸铸件;制造技术处于国际先进水平,并于2014年2月通过鉴定。

Introduction of products

In the early 1990s', EHEC has already started research on the material selecting for the (ultra) supercritical steam turbine, during the period of the Chinese "10th 5-Year Plan", "11th 5-Year Plan", EHEC has developed castings for thermal power (ultra) supercritical steam turbine cylinder and valve body, conducted research on the key & core techniques, and batch productions have been established, stable& reliable quality and product performance of the castings can satisfy customers' demands, primary core technique and EHEC produced products have filled a domestic gap, each performance index and core manufacture technique have reached the international advanced level of the same industries. In the recent 10 years, EHEC has produced more than 120 sets of steam cylinder castings of 9-12Cr9-12Cr stainless steel for the (ultra) supercritical steam turbines for the domestic and international steam turbine plants.

Since 2012, EHEC has taken the lead in the manufacturability test research on the 620°C super high temperature & ultra supercritical heatresisting stainless steel ZG13Cr9Mo2Co1VNbNB, by mesas of the test pieces, researches on the casting, melting, heat treatment, and welding have been conducted. In 2013, EHEC developed first set of the 1000MW ultra supercritical intermediate pressure inner casing that can adapt to the working temperature of 620°C, core technical difficulties in melting, casting, heat treatment, welding, and quality assurance have been solved, castings for the 620°C 1000MW ultra supercritical steam turbine intermediate pressure inner casing have been developed with an independent intellectual property right; its manufacturing techniques have reached the international advanced level, and have been authenticated on February, 2014.



2.2.3 6MW-600MW 汽轮机缸体 2.2.3 6MW-600MW Steam Turbine Cylinder Body



300MW 汽轮机缸体 — 高中压外缸 300MW Steam Turbine Cylinder Body -High & Intermediate Pressure Outer Cylinder



330MW 汽轮机缸体 — 中压外缸 330MW Steam Turbine Cylinder Body - Intermediate Pressure Outer Cylinder

产品简介

二重装备开发的 6MW-600MW 汽轮机缸体铸件质量稳定可靠,可年提供大、小型汽轮机缸体 200 套,涉及的用户有国内的东汽、哈汽、上汽、北重阿尔斯通、南汽、杭汽等主机厂,国外的三菱重工、日立、GE 公司、西门子公司等。

Introduction of products

EHEC developed castings for the 6MW-600MW steam turbine cylinder body has stable and reliable quality, can annually provide 200 sets of cylinder bodies for large & small-size steam turbines, involved domestic customers are

Dongfang Turbine Co. Ltd, Harbin Turbine Co. Ltd, Shanghai Turbine Co. Ltd, Beijing Beizhong Turbine – Alstom, Nanjing Turbine & Electric Machinery, Hangzhou Steam Turbine, etc; and international customers are Mitsubishi Heavy Industry, Hitachi, GE Company and Simens Company etc..



2.2.4 重型燃气轮机缸体

2.2.4 Heavy Duty Gas Turbine Cylinder Body



567MW/SGT6-9000H 锥形体 567MW/SGT6-9000H Cones



80MW/GE-6F 压气机及透平缸 80MW/GE-6F Compressor and turbine cylinders



270MW-312MW 燃烧室兼压气机缸 270MW-312MW Combustion Chamber & concurrently functioning as an air compressor cylinder



270MW-312MW 透平缸 270MW-312MW Turbo Cylinder



270MW-312MW 燃烧室 270MW-312MW Combustion Chamber

产品简介

重型燃气轮机缸体对内外部质量和尺寸要求极高,且首件制造要通过用户的见证(FAI)后才能进行批量生产。二重装备通过不断优化设备资源和提升制造技术能力,在重型燃气轮机缸体的制造技术上取得了较大突破,形成了年产 20-30 套燃机气缸铸件的生产制造能力,并为东汽、南汽、上燃及西门子提供燃机所需铸件产品。

Introduction of products

Heavy duty gas turbine cylinder block has very high internal and external quality and size requirements, and the first piece of product shall be witnessed by the user (FAI) before mass production. Through continuous optimization of equipment resources and improvement of manufacturing technology and capacity, EHEC has made great breakthroughs in the manufacturing technology of heavy gas turbine cylinder block. The company has an annual production capacity of cylinder castings for 20-30 sets of gas turbines, and supplies casting products for gas turbines for Dongfang Turbine, Nanjing Turbine & Electric Machinery, Shanghai Electric Gas Turbine, and Siemens.



2.2.5 10MW-300MW 水轮机转轮体

2.2.5 10MW-300MW Water Turbine Runner



葛洲坝 175MW 水轮机转轮体 Gezhou Dam 175MW Water Turbine Runner



委内瑞拉 TOCOMA 216MW 水轮机转轮体 Venezuela TOCOMA 216MW Water Turbine Runner

产品简介

转轮体为轴流式水轮机重要部件,其结构类型多样且复杂,质量要求高。二重装备生产转轮体的历史悠久,已完全掌握高质量要求转轮体的研制技术,截至目前,二重装备生产的转轮体最大单机容量为银萨委内瑞拉 TOCOMA 216MW 机组,零件最大尺寸为葛洲坝 175MW 机组转轮体(尺寸 S Φ 4.2 × 3.6m,净重达 120 余吨)。

二重装备还为安德里茨加拿大 MUSKRAT FALLS、美国 PristRapids、福伊特三门峡、东电铜街子、东电安谷、阿尔斯通印度迪斯林等国内大型轴流式机组成功研制了优质转轮体铸件,技术和生产能力达国内领先、世界先进水平。

Introduction of products

The runner is an important component of axial-flow water turbine, it is characterized by its diverse & complicated structure and high quality requirement. EHEC has a long history in manufacturing runner, and has completely mastered the research & development technique of the runners that demand high quality requirements, so far, the maximum unit capacity of EHEC produced runners is the Yinsa Venezuela TOCOMA 216MW turbine unit, the maximum size of EHEC produced runners is the Gezhou Dam 175MW water turbine runner(dimension SΦ4.2×3.6m, net weight is more than120 tons).

In addition, EHEC has successfully developed the runner castings of high quality for ANDRITZ Canada MUSKRAT FALLS, PristRapids of USA, VOITH Sanmen Gorge, Dongfang Electric Machinery (DEC) Tongjiezi, Dongfang Electric Machinery (DEC) Angu, ALSTOM India etc. large axial-flow turbine unit, its technique and production capacity have reached the national leading position and international advanced level.



2.2.6 10MW-700MW 水轮机不锈钢、合金钢叶片

2.2.6 10MW-700MW Water Turbine Blade of Steel & Alloy Steel Blade



三峡地下 700MW 水轮机不锈钢叶片 Three Gorge Underground Power Station 700MW Water Turbine Blade of Stainless Steel



白鹤滩 1000MW 水轮机不锈钢叶片 Bai He Tan Power Station 1000MW Water Turbine Blade of Stainless Steel



美国勒丁顿 312MW 抽水蓄能水轮机不锈钢叶片 American Ludington 312MW Pumped Storage Water Turbine Blade of Stainless Steel



产品简介

叶片作为水轮机的核心关键部件,制造难度极大, 其生产技术在很长一段时间内一直被国外公司垄断,国内水电站对叶片的需求长期依赖进口。依托三峡工程的建设,二重装备于2001年在国内率先完成三峡左岸首件叶片的研制并通过技术鉴定,并于2009年完成了13件右岸地下机组叶片铸件制造(地下机组叶片轮廓尺寸约5200×5200×2500mm),实现三峡叶片国产化。

依托三峡电站水轮机叶片的成功研制经验,二重装备成功研制了东电溪洛渡 700MW 机组、乌东德 850MW 机组、白鹤滩 1000MW 机组、东电葛洲坝 175MW 机组、东芝美国 Lutingdun 312MW 抽水蓄能机组、东电官地 600MW 机组、安德里茨刚果 INGA 178MW 机组、安德里茨加拿大 MUSKRAT FALLS 212MW 机组、安德里茨巴西 BELO MONTE 611MW 机组、阿尔斯通越南莱州 400MW 机组、阿尔斯通 GR 项目等大型水轮机不锈钢叶片,表明二重装备已经具备了制造成套大型水轮机叶片铸件的能力,技术水平处于世界先进,并使国内大型水轮机组关键铸件摆脱了进口依赖,解决了受制于人的"瓶颈"问题。

Introduction of products

As a core key component of the water turbine, the blade has great difficulty in manufacturing, its production technique has been monopolized by foreign companies for a long period of time, domestic water power stations' demands for blades have to rely on imports over a long period of time. By virtue of the construction of Three Gorges Project, in 2001, EHEC took the lead in accomplishing the development of first blade for the Three Gorges left bank, and this first blade has passed the technical authentication, then in 2009, 13 blade castings for the underground power station unit on the right bank were manufactured (overall dimension of the blade for the underground power station is approximately 5200×5200×2500mm), which has realized the domestic production of the blades for the Three Gorges Project.

Based on the research and development experience of the hydraulic turbine blades for the Three Gorges Power Station, EHEC has successfully developed the blade products for DEC Xiluodu 700 MW generator set, Wudongde 850 MW generator set, Baihetan 1000MW generator set, and DEC Gezhouba 175 MW generator set. Toshiba-US Lutingdun 312MW pumped storage unit, Dongfang Electric Machinery (DEC) Guandi 600MW turbine, ANDRITZ Congo INGA 178MW turbine, ANDRITZ-Canada MUSKRAT FALLS 212MW turbine, ANDRITZ-Brazil BELO MONTE 611MW turbine, Alstom -Vietnam Laizhou 400MW turbine, and Alstom GR etc. projects, which shows that EHEC has possessed the capability of manufacturing the blades castings for the large water turbines of complete sets, its technique level has reached the international advanced level, and has enabled the key castings for the domestic large water turbine to get rid of relying on imports, and has solved the "bottleneck" problems that are under constraint of foreign companies.



2.2.7 10MW-700MW 水轮机不锈钢、合金钢上冠、下环

2.2.7 10MW-700MW Water Turbine Crown & Band of Stainless Steel & Alloy Steel



三峡地下 700MW 水轮机不锈钢上冠 Three Gorge Underground Power Station 700MW Water Turbine Crown of Stainless Steel



金安桥 600MW 水轮机分半式不锈钢下环 Jinanqiao 600MW Water Turbine Split-type Band of Stainless Steel



白鹤滩 1000MW 水轮机分瓣式不锈钢上冠 Split stainless steel crown of Baihetan 1000MW water turbine



白鹤滩 1000MW 水轮机分瓣式不锈钢下环 Split stainless steel band of Baihetan 1000MW water turbine



产品简介

二重装备于 2001 年在国内率先完成三峡左岸上冠铸件研制,于 2009 年 9 月完成右岸地下机组转轮上冠 2 件、下环 1 件的制造 (三峡地下机组 700MW 水轮机上冠轮廓尺寸约 Φ8410×3695mm ,下环轮廓尺寸约Φ10000×2197mm)。

三峡 700MW 水轮机组关键铸件国产化的成功实现,表明二重装备已经具备了制造成套大型水轮机关键铸件的能力,技术水平处于世界先进,提升了我国重大技术装备承制能力,突破了大型电机组关键铸件国产化技术瓶颈,使我国水电机组制造的整体技术跃上国际一流水平。

依托三峡电站转轮关键铸件的成功研制经验,二重装备又率先成功研制了白鹤滩1000MW 大型分瓣式上冠、下环铸件(其单机容量属目前世界最大,制造难度属行业最高)。并在近年来陆续为东电官地600MW、东电金安桥600MW(分瓣式)、东电溪洛渡700MW、东电向家坝800MW、福伊特和GE乌东德850MW(分瓣式)、安德里茨巴西BELO MONTE 611MW等国内外大型水电机组成功研制了上冠、下环部件,具备年产7套以上大型水机组关键铸件的能力,技术水平处于世界先进。

Introduction of products

In 2001, EHEC took the lead in accomplishing the development of the crown castings for the Three Gorges left bank; in September, 2009, EHEC manufactured two crowns and one band for the underground power station unit on the right bank (Three Gorges Underground Power Station, overall dimension of the crown for the 700MW water turbine is approximately $\Phi 8410\times3695 mm$, overall dimension of the band is approximately $\Phi 10000\times2197 mm$).

Successful accomplishment of domestically produced key castings for the Three Gorges Underground Power Station 700MW water turbine, shows that EHEC has possessed the capability of manufacturing key castings for large water turbine of complete sets, its technique level has reached the world advance level, has advanced the manufacturing capability of significant technical equipments of China, has made a great breakthrough in solving technical bottlenecks of the domestic production of key castings for the largescale water power station, which has enabled the overall manufacturing techniques of China water power station unit to reach the world first class.

Based on the successful research and development experience of the key castings of the runner for the Three Gorges Power Station, EHEC has taken the lead in research and development of castings for the large-scale multi-blade crowns and bands for Baihetan 1000MW generator set (its single capacity is the largest one in the world at present, with the most difficult manufacturing technology in the industry). and the company, in recent years, has also successfully completed the research and development of crowns and bands for large hydro-power generator sets at home and abroad, such as DEC Guandi 600 MW, Jinanqiao 600 MW (multi-blade), DEC Xiluodu 700 MW, DEC Xiangjiaba 800MW, VOITH and GE Wudongde 850 MW (split type), and Andritz Brazil BELO MONTE 611 MW, etc. With its advanced technical capacity worldwide, EHEC now has an annual output of key castings for over 7 sets of large-scale hydro-power generator sets.



2.3 船用铸锻件 2.3 Marine castings and forgings













柴油机类 Forgings for Diesel Engine Application









船轴类 Forgings for Marine Shafts Application

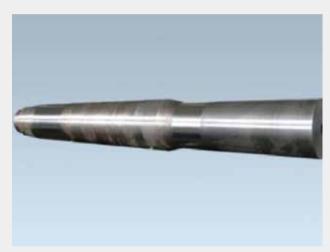


船用螺旋桨、连杆、中间轴、舵杆 Marine Propeller, Connecting Rod, Intermediate Shaft, Rudder Stock



船用尾轴 Marine Stern Shaft





船舵、舵销 Marine Ruder, Rudder Pintle





32 万吨油轮后轴壳 Oil carrier of 320,000 tons Rear Axle Housing





172000M3LNG 船挂舵臂 172000M3LNG Ship Rudder Arm

产品简介

二重装备近年来成功研制了上海沪东 40 万吨矿砂船、172000M3 LNG 船;上海铸通 32 万吨油轮;广州中船 11.5 万吨载重原油轮等船型的挂舵臂、上/下铸钢件、船 尾部铸件等大型用铸钢件,其中生产的挂舵臂最大尺寸为 9370×5425×2800mm。

大型船用关键配套铸钢件的成功研制,表明集团公司 在船用铸件方面的技术能力已达到国内先进水平,提高了 集团公司在大型船用铸件制造方面的整体实力,为集团公司进一步打开船用铸件市场奠定了坚实基础。

1. 轴系锻件: 材质主要以 40Mn 和 20Mn 为代表和部分 34CrNiMo 材料的船轴锻件,包括螺旋桨轴、中间轴、艉轴等,目前已生产过国内最大集装箱货运船 10000 标箱船用轴系锻件 10 余套。

典型轴系锻件部分技术参数:全套轴系锻件交货总重量294.824t,锻件毛坯重达375.3t,其中螺旋桨轴,交货单件重达91.2t,锻件毛坯重达115t,该件尺寸达 1660×15380,最大的中间轴交货尺寸达1950×13200,须获得双重船级社认证(GL+CCS)。

- 2. 曲轴锻件:可成套提供 60-90 机大型船用柴油机曲轴锻件毛坯,二重装备曾经生产制造过 6L60MEC 曲轴锻件,因产品价格因素后续未承接该产品。
 - 3. 船用柴油机锻件系列锻件

二重装备具备成套生产 $50\sim 90$ 机型、 $48\sim 98$ 机型各系列全套船用柴油机锻件能力。其中:

连杆材质以C35E和S30Mn为主,典型外形尺

Introduction of products

In recent years, EHEC has successfully developed steel castings of rudder arms upper/lower, and castings of stern bulbs etc. large marine type castings for Shanghai Hudong 400,000 tons ore carrier, 172000M3 LNG ship; Shanghai Zhutong 320,000 tons oil carrier; Guangzhou Zhongchuan crude oil carrier with loading capacity of 115,000 tons; the maximum dimension of EHEC produced stern bulbs is 9370×5425×2800mm.

Successful development of key castings for the large marine type applications shows that EHEC's technological capability of marine type castings has reached domestic advanced level, it has advanced EHEC's overall strength of manufacturing castings for large marine type applications, and has established the solid foundation for EHEC to expand further markets for marine type castings.

1. Marine shafting line castings: Typical 40Mn & 20Mn forgings for marine shafts, and some 34CrNiMo forgings for marine shafts, including propeller shaft, intermediate shaft, and stern shaft etc.. So far, EHEC has produced more than 10 sets of marine shafting castings for the domestic largest containership 10000 TEU.

Partial technical data for typical marine shafting forgings: delivery total weight of complete sets of shafting forgings: 294.824t , forging blank weighs up to 375.3t; of which, delivery weight of single propeller shaft is 91.2t , its forging blank weighs up to 115 tons, its size is up to \emptyset 1660×15380; delivery size of the biggest intermediate shaft is \emptyset 1950×13200 , and must be authenticated by dual ship classification society (GL+CCS)

- 2. Crankshaft forgings: EHEC can supply the crankshaft forgings blanks 60- 90 large-scale marine diesel engine. EHEC once manufactured 6L60MEC crankshaft forgings, but, afterwards didn't undertake manufacturing of this product due to price factor.
- 3. Forgings for marine diesel engine



寸:1670×965×3740

汽缸盖材质以S17Mos为主,典型外形尺寸: 1800×850

活塞杆材质以 C45E 和 S30MnH 为主,典型外形尺寸: 700×4270

十字头销材质以 C45E、S45Su 和 C60E 等为主, 典型外形尺寸: 950×1650

链轮材质以S30S、S36S为主,典型外形尺寸: 2550×200 EHEC has the capability of manufacturing complete sets of marine diesel engine forgings for 50~90 type, 48~98 type.

Connecting rod is mainly made of C35E, S30Mn, its typical overall dimension: 1670×965×3740

Cylinder cover is mainly made of S17Mos, its typical overall dimension is: $\emptyset1800\times850$

Piston rod is mainly made of C45E, S30MnH, its typical overall dimension: \emptyset 700×4270

Cross-head pin is mainly made of C45E, S45Su & C60E, its typical overall dimension: Ø950×1650

Chain sprocket is mainly made of S30S, S36S & C60E, its typical overall dimension: \emptyset 2550×200

2.4 各类机械设备大型铸锻件

2.4 Heavy Castings & Forgings for Different Kinds of Mechanical Equipments

产品简介

二重装备拥有国内领先的冶金、矿山、锻压等设备配套铸钢件的生产制造能力,能够一次性冶炼900吨优质钢水,浇注500吨级铸钢件,多年来为冶金、矿山、锻压等各领域提供了大量优质铸钢件,其制造技术居国内领先水平。

Introduction of products

EHEC has domestic leading manufacturing capability of steel castings for metallurgy, mining, and forge equipments, can smelt 900 tons molten steel of high quality at a time, and operate the pouring of steel castings of 500 tons grade. For many years, EHEC has supplied a great number of steel castings of high quality in the fields of the metallurgy, mining, and forge industries, its manufacturing techniques is at the domestic leading position.



2.4.1 锻压设备铸钢件

2.4.1 Steel Castings for Forge Equipment

2.4.1.1 8 万吨大型模锻压机

2.4.1.1 800MN Large Die Forge Press



侧梁下部 Side Beam Bottom



活动横梁侧梁体 Side beam body of the moving crosshead

产品简介

二重装备自主设计、自主制造、自主安装的 8 万吨大型模锻压机是象征重工业实力的战略装备,主要用于制造航空、航天、核电和石化等领域的高强度合金锻件,其中最重的活动横梁中梁毛坯重量达到 500 吨,总钢水 758 吨。

Introduction of products

EHEC independently designed, manufactured, and installed 800MN Large Die Forge Press is a strategic equipment that signifies the strength of heavy industry, it is mainly applied to the manufacturing of high strength alloy forgings for the aviation, aerospace, nuclear power, and petrochemical industries. The weight of the blank for heaviest moving crosshead middle beam of the 800MN Press is up to 500 tons, total molten steel weighs 758 tons.



2.4.1.2 160MN 自由锻水压机

2.4.1.2 160MN Free Forge Hydraulic Press



上横梁 Upper Crosshead

产品简介

160MN 水压机是由二重装备自主设计、自主制造、自主安装、自主调试的目前世界最大自由锻水压机。

Introduction of products

EHEC independently designed, manufactured, installed, and commissioned 160MN Free Forge Hydraulic Press, is the current largest free forge hydraulic press in the world.



2.4.1.3 168MN 热模锻压力机 2.4.1.3 168MN Hot Die Forge Press



左、右侧机架 Left & Right Stand

产品简介

二重装备自主开发的 "EXY160MN 楔式热模锻压力机" 为世界首台。其中重量最大的下机架,毛坯重量 299吨,总钢水 396吨;尺寸最大的左、右侧机架,轮廓尺寸 10.058 m×13.2 m×7.68m,毛坯重量 275吨,总钢水395吨。

Introduction of products

EHEC independently developed EXY160MN Wedge Hot Die Forge Press is the first one in the world. The blank weight of the heaviest lower stand is 299 tons, total weight of molten steel is 396 tons; the overall dimension of the biggest left & right stands of the biggest size is 10.058 m×13.2 m×7.68m, its blank weight is 275 tons, and total weight of molten steel is 395 tons.



2.4.1.4 出口美国的锻压设备铸钢件

2.4.1.4 Forge equipments steel castings exported to America



砧座 Anvil bed

产品简介

二重装备为美国 Ellwood Texas Forge 公司生产的砧座 铸钢件,轮廓尺寸 (mm) : 长 4724.40× 宽 2368.55× 高 2286,净重:166526 kg,属于超厚大铸件,最小厚度达到 2350mm,且需要进行100%的 UT、MT 探伤检验。

Introduction of products

EHEC produced steel casting of the anvil bed for America Ellwood Texas Forge Company, its overall dimension (mm), 4724.40 length ×2368.55 width ×2286 height,net weight: 166526 kg,it is a heavy casting of super-thickness, its minimum thickness is up to 2350mm,furthermore, it requires 100% UT & MT.



2.4.2 冶金设备铸钢件

2.4.2 Steel Castings for Metallurgical Equipments



宝钢 5M 牌坊 5M Mill Housing for Bao Steel

产品简介

由二重装备承制的有中国"轧机之王"之称的宝钢 5 米宽厚板轧机项目,是当时国内投资最大、技术水平最高的钢铁建设项目之一,也是我国首台 5 米级轧机生产线。 其轧机机架高 15.28 米、宽 4.7 米、厚 2.2 米、重 397 吨,是我国最大、世界单重最重的轧机牌坊之一。

由三菱设计并监制的定宽机机架,其轮廓尺寸约为 18m×4m×0.5m,属于细长型结构。该机架的难点在于铸造、 热处理过程的变形控制以及内部质量控制,二重装备通过 对该机架的铸造、热处理的质量保证和防变形技术研究, 掌握了该类铸件工艺参数及制造技术,有效的控制了铸件 的变形,满足了加工要求,保证了内部质量及力学性能。

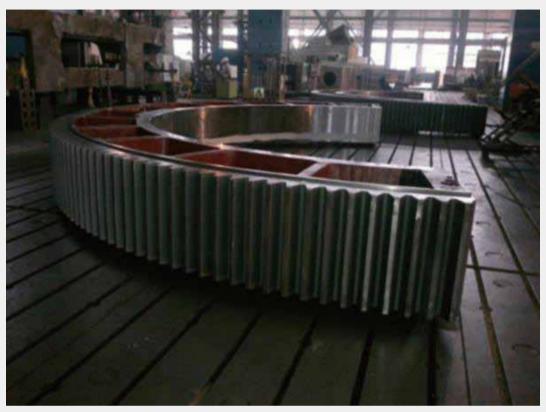
Introduction of products

EHEC manufactured 5M heavy plate mill for Bao Steel that known as the "The King of Mill" in China, the Bao Steel 5M heavy plate mill was one of the steel construction projects of biggest investment and most advanced technical level, it is the first 5M mill production line in China. Its mill housing is 15.28 meters high, 4.7 meters wide, 2.2 meters thick, and 397 tons, it is the biggest mill housing in China, and one of the heaviest mill housing with biggest unit weight in the world.

Slab sizing press is designed by Mitsubishi, its stands have been manufactured under the supervision of Mitsubishi, the overall dimension of the stand is approximately 18m×4m×0.5m, it has a long and thin structure. This stand has difficulties in distortions control in the process of casting and heat treatment as well as the internal quality control. By means of the quality assurance of the casting and heat treatment of this stand and research on anti-distortion techniques, EHEC has mastered the technological parameters and manufacturing techniques of this kind of castings, effectively controled the distortion of the castings, which have satisfied machining requirements and ensured the internal quality and mechanical properties.



2.4.3 矿山、水泥设备铸钢件 2.4.3 Castings for Mining & Cement Equipments



8024 立磨半齿圈 Half Gear Ring of Ø8024 Vertical Grinding Mill

产品简介

二重装备在传统立磨的基础上开发出了具有完全自主知识产权的一种新型结构立磨,该新型立磨获得了一项发明专利和四项实用新型专利;解决了目前国内外使用的传统立磨普遍存在的可靠性不高、振动大、立磨减速机寿命短、维护困难以及立磨单机不能再进一步大型化,使一台立磨无法满足大型生产线需要等问题。磨盘体作为立磨设备中的关键铸件,其结构复杂,尺寸大,最大直径 5920mm,高 3640mm,最大厚度 462mm,主体壁厚 120mm。质量要求高,需要进行局部 UT 和 100%MT 探伤。

Introduction of products

On the basis of conventional vertical grinding mill, EHEC has developed a vertical grinding mill of new type structure with completely independent intellectual property right, this new type vertical grinding mill has been awarded one patent for invention and four patents of utility model; at present, the conventional vertical grinding mills in the national and international application have common existing problems in terms of low reliability, big vibration, short service life of gearbox, difficult maintenance, and one single vertical grinding mill unit cannot be further large-scale, one vertical grinding mill cannot satisfy large-scale production line. As a key casting for the vertical grinding mill, the grinding pan is characterized by its complicated structure and big dimension, its maximum diameter is Ø5920mm, heighht 3640mm, maximum thickness:462mm, main body wall thicknes:120mm. in addition, it demands high quality requirements, and requires local UT and 100% MT.



3 核电设备

3 Nuclear Power Equipment,

二重装备拥有国内最先进的核岛主设备制造装备和 强大的研发、制造技术能力,先后向国内各大主机制造厂 提供了秦山、岭澳、红沿河、福清、海阳、三门、桃花 江、宁德、昌江、防城港、田湾、广西白龙、广东太平岭 等多个国家重点核电项目锻件。具有国家核安全局颁发的 1000MW 级核承压设备制造资格许可证, 美国 ASME 总部颁 发的N和NPT(包括核级材料制造)等资格认证。近年来, 二重装备坚持走安全、高效的核电自主化发展道路,在 确保核电产品安全的基础上高效推进 AP1000、CPR1000、 CAP1400 核电铸锻件的自主化研制。已成功研制出国内首 支 1100MW 核电半速转子, 攻克了 AP1000、CPR1000、 CAP1400 核电主管道和波动管制造的世界性技术难题,形 成了具有二重装备知识产权的专有技术,成为国内首个可 以全套提供 AP1000 核岛主管道的企业。签订生产的核电产 品已全面覆盖所有核电大型铸锻件制造范畴。目前,二重 装备正以 CAP1400 堆芯补水箱为代表的第三代核电成台项 目为依托, 讲军核电成套设备制造领域。

EHEC has great capabilities in researching & developing and manufacturing the most advanced nuclear island primary equipment in China. It has successively provided forgings for multiple national key nuclear power projects of Qinshan, Lingao, Hongyanhe, Fuging, Haiyang, Sanmen, Taohuajiang, Ningde, Changjiang and Fangchenggang, Tianwan, Guangxi Bailong and Guangdong Taipingling, etc. EHEC has obtained the manufacturing license for 1000MW grade nuclear pressurizing equipment issued by the National Nuclear Safety Bureau, as well as the U & U2 & N & NPT certificates (including the nuclear material manufacturing) awarded by the ASME headquarters in USA. In recent years, EHEC has been insisting on the safe and efficient independence development of nuclear power, to efficiently advance the independent R&D of castings and forgings for AP1000, CPR1000 and CAP1400 nuclear power applications. EHEC has successfully developed the first half-speed rotor forging for 1100MW nuclear power in China, has overcome the worldwide difficulties in the core manufacturing techniques for the AP1000, . CPR1000 and CAP1400 main pipelines, has generated a proprietary technology with its own intellectual property, and has become the domestic first enterprise who can provide complete sets of main pipelines for the AP1000 nuclear island. The orders and manufactured nuclear power products have completely covered the manufacture categories of all the large castings and forgings for nuclear power industry. Currently, by means of the CAP1400 reactor core water supplementary tank which is a representative part of the third generation nuclear power project, EHEC is advancing upon the field of manufacturing complete sets of nuclear power equipments.

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3.1 CAP1400 堆芯补水箱

3.1 Product name: CAP1400 Core Makeup Tank



CAP1400 堆芯补水箱 CAP1400 Core Makeup Tank

产品简介

堆芯补水箱是第三代非能动核电站堆芯冷却系统的 关键组成设备,属于核安全 A 级、抗震 I 类设备。作为 CAP1400 专设安全设备,在瞬态或事故下堆芯补水箱可以 向堆芯提供应急冷却水以及向堆芯提供应急硼化水以控制 反应性。该产品结构复杂,制造技术难度大,质量要求高。

Introduction of products

Reactor Core Water Supplement Tank is one of the key equipment of the third generation of passive nuclear power station reactor core cooling system, it belongs to the equipments of nuclear safety level A and earthquake-proof category I. As a dedicated safety equipment for the CAP1400, at instantaneous state or emergency state, the reactor core water supplement tank can provide emergency cooling water for the reactor core and provide emergency bononized water to control reactivity. With complicated structure, the water supplement tank for the reactor core has great difficulty in manufacturing techniques and demands high quality requirements.



3.2 稳压器

3.2 Product name: Regulator



CAP1400 堆芯补水箱 CAP1400 Core Makeup Tank

产品简介

稳压器是非能动机组的核岛主设备之一,用于主回路 系统的压力调节和压力保护,稳压器的主要功能是在正常 运行和瞬态工况下,保持反应堆冷却剂系统压力在设计规 定的范围内,并防止其超压。

Introduction of products

The regulator is one of the nuclear island master equipment of a passive unit, which is used for pressure regulation and pressure protection of the primary loop system. Its main function is to maintain the pressure of the reactor coolant system within the limits designed under normal running and instantaneous conditions and prevent it from over-pressure.



3.3 泵壳 3.3 Pump Shell



泵壳 Pump Shell

产品简介

CPR1000 核电主泵泵壳是 CPR1000 核电机组中的核岛主设备之一,依据法国 RCC-M 标准进行设计和制造的不锈钢设备。作为核电一级回路的压力边界零件,质量要求极其"苛刻"。铸件形状复杂,在机加工、铸造缺陷的去除、焊补,无损检测等方面都存在非常大的难度。

Introduction of products

CPR1000 nuclear power main pump shell is one of the primary nuclear island equipments for the CPR1000 nuclear power machine units, it is a stainless steel equipment designed and manufactured as per the French RCC-M Code. As a pressure boundary part for the nuclear power first loop, the pump shell demands extremely "rigorous" quality requirements. Casting for the pump shell has complicated shape, and has great difficulties in machining, casting defects removal and repair welding, and NDT.



产品主要技术参数

材质 Material	Z3CN20-09M
总重 Total weight	31 tons 吨
化学成分 Chemical composition	碳 carbon ≤0.040,硅 silicon ≤1.500,锰 manganese ≤1.500,硫 sulphur≤0.015,磷 phosphrus,0.030,铬 chrome19.00~21.00,镍 nickel 8.00~11.00,铜 copper ≤1.00,硼 boron ≤0.0018,钴 cobalt ≤0.10 铁素体含量 ferrite content 12~20%。
交货状态 Delivery condition	400°C±15°C 至少 48 小时稳定化热处理。 Stabilizing treatment for at least 48 hours at 400°C±15°C
晶间腐蚀试验 Intergranular corrosion test	按照 RCC-M-MC1310,敏化处理 B 的方法进行。 Shall be conducted as per RCC-M-MC1310,sensitizing treatment B method.
水压试验 Water pressure test	进行绝对压力 31.0MPa 的水压试验,并进行泵壳变形的测量和记录。 Shall conduct water pressure test at absolute pressure of 31.0MPa, measure and record the pump shell distortion.
机械性能 Mechanical properties	室温拉伸 tensile test at ambient temperature : Rm: 480~700MPa,R0.2;≥210MPa,A(5d);≥35% 350°C±3°C 拉伸 tensile test at 350°C±3°C;Rm;≥210MPa,R0.2;≥120MPa 室温 Kv 冲击:平均值≥100J。 Kv impact at ambient temperature; average value≥100J
探伤要求 NDT requirements	100%PT 探伤和 RT 探伤。 100% PT and RT。



3.4 AP1000RPV 重型支撑

3.4 AP1000RPV Heavy Support



AP1000RPV 重型支撑 AP1000RPV heavy support

产品简介

重型支撑是核岛主设备的支撑机构。包括反应堆压力 容器支撑、稳压器支撑、蒸发器支撑。

该设备结构复杂,零部件多,制造加工精度要求高,二重装备开发了国内首套拉杆,并完成国核示范项目、三门、海洋、陆丰等多个核电重型支撑的制造。

Introduction of products

The heavy support is the support mechanism for the nuclear island master equipment. It includes supports respectively for the reactor pressure vessel, the regulator and the evaporator. The equipment is of a complicated structure, lots of parts and high requirements for manufacturing and machining precision. EHEC has developed the first set of tie rods in China, and completed the manufacturing of several heavy supports for nuclear power projects such as the national nuclear power demonstration project, nuclear power stations in Sanmen, Haiyang, Lufeng and so on.



3.5 AP1000 SG 核电管板 3.5 AP1000 SG nuclear power tube plate



AP1000SG 核电管板 AP1000SG nuclear power tube plate

产品主要技术参数

制造方式 Manufacturing method	锻造成型 Forming by forge
外形尺寸 Overall dimension 直径×厚度 Dia. × thickness	Ø4488×1038
重量 Weight	103 tons 吨
材质 Material	SA508 Gr.3 Cl.2
室温强度 Strength at ambient temperature	Rm≥620Mpa
-21°C 冲击 Impact at -21°C	Akv≥48J
落锤试验 Drop test	RTNDT≤-21°C
业绩 Achievement	徐大堡 AP1000 核电机组 Xudabao AP1000 Nuclear Power Generation machine unit



3.6 AP1000 CMT 封头锻件 3.6 forgings for AP1000 CMT Seal Head



AP1000CMT 封头锻件 AP1000CMT head forging

产品主要技术参数

制造方式 Manufacturing method	整体锻造 Integer forge
材质 Material	SA508Gr,3Cl.1
尺寸(球内半径×壁厚×总深度) Dimension (sphere internal radius ×wall thickness ×total depth)	SR2245.6×δ140×H1552.7
重量 Weight	26001Kg
室温强度 Strength at ambient temperature	Rm≥550-725Mpa
落锤试验 Drop test	RTNDT≤-12℃



3.7 AP1000PRZ 上封头 3.7 AP1000PRZ Upper Seal Head



AP1000PRZ 上封头 AP1000PRZ upper head

产品主要技术参数

制造形式 Manufacturing method	整体锻造成型 Forming by integer forge
外形尺寸 球内半径×壁厚×总深度 Overall dimension (sphere internal radius ×wall thickness ×total depth)	SR1295.5×δ65×1069.5
精加工重量 Weight after finish machining	5.173 tons 吨
材 质 Material	SA508 Gr.3 Cl.2
室温强度 Strength at ambient temperature	Rm≥620Mpa
-20℃冲击 Impact at -20℃	Akv≥48J
落锤试验 Drop test	RTNDT≤-21°C
业 绩 Achievement	用于福清核电厂 Fuqing Nuclear Power Generation Plant

3.8 AP1000SG 锥形筒节 3.8 Cone Shape AP1000SG Shell Ring



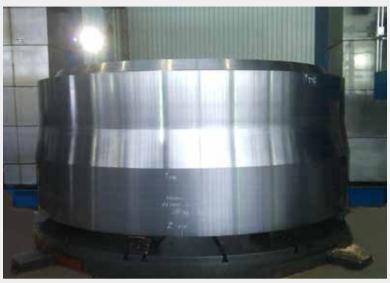
AP1000SG 锥形筒节 AP1000SG conical shell ring

产品主要技术参数

制造方式 Manufacturing method	整体锻造成型 Forming by integer forge
外形尺寸 大端直径/小端直径×壁厚×长度,锥面角度 Overall dimension Dia. at big end /Dia. at small end ×wall thickness ×length , Conical surface angle	ø5576/ø4191×112×,17.4°
重 量 Weight	36.370 tons 吨
材 质 Material	SA508 Gr.3 Cl.2
室温强度 Strength at ambient temperature	Rm≥620Mpa
-21°C 冲击 Impact at -21°C	Akv≥48J
落锤试验 Drop tesat	RTNDT≤-21°C
业 绩 Achievement	三门 3#、徐大堡机组 Sanmen #3, Xudabao machine unit



3.9 CPR1000RPV 过渡段 3.9 CPR1000RPV Transition Section



CPR1000RPV 过渡段 CPR1000RPV transitional section

产品主要技术参数

制造方式 Manufacturing method	
外形尺寸 大端直径/小端直径×壁厚×长度,锥面角度 Overall dimension Dia. at big end /Dia. at small end ×wall thickness ×length , Conical surface angle	ø4411/ø3520×112×1741.5, 21°17'46"°
精加工重量 Weight after finish machining	34.414 tons 吨
材 质 Material	16MND5
室温强度 Strength at ambient temperature	Rm: 550-670Mpa
-20℃冲击 Impact at -20℃	Akv(横向平均)≥40J Akv (average of transverse direction)≥40J
落锤试验 Drop test	RTNDT≤-20℃
业 绩 Achievement	红沿河 1#2#及防城港 Hongyanhe #1 #2 and Fangchenggang

3.10 CPR1000SG 一次侧封头 3.10 CPR1000SG Water Chamber Seal Head



CPR1000SG 一次侧封头 CPR1000SG primary head

产品主要技术参数

制造形式 Manufacturing method	锻板热拉伸成型 Forming by hot stretching of forged plates
外形尺寸 球内半径×壁厚×总深度 Overall dimension (sphere internal radius ×wall thickness ×total depth)	SR1670×δ225×1577
精加工重量 Weight after finish machining	29.3 tons 吨
材 质 Material	18MND5
室温强度 Strength at ambient temperature	Rm: 580-700MPa
-20℃冲击 Impact at -20℃	Akv(横向平均值)≥40J Akv(average of transverse direction)≥40J
落锤试验 Drop teast	RTNDT≤-12°C
业 绩 Achievement	用于福清核电厂 Fuqing Nudear Power Generation Plant



3.11 主管道

3.11 Main pipeline



AP1000 主管道热锻 A AP1000 main pipeline hot section A



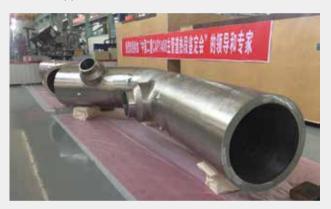
华龙一号主管道热段 A Main pipeline hot section A for Hualong No. 1 Project

产品简介

第三代核电主管道在设计上首次采用弯头和直管、管嘴与管道整体锻造结构,尺寸大、结构复杂,对化学成份特别是碳含量、氮含量、残杂元素含量以及晶粒度等指标提出了高要求,其中主管道热段采用的钢锭重量最大,达到100吨级。AP1000主管道所采用的316LN超低碳控氮奥氏体不锈钢具有碳、硫含量极低(C≤0.020%、S≤0.005%)、氮含量高(0.10%~0.16%)、合金量高等特点。二重装备在超大型不锈钢钢锭冶炼和浇注、大型不锈钢毛坯锻造、大直径小弯曲半径管道弯曲成型、不锈钢大直径旁通管嘴相贯线机加工和大直径不锈钢管道热处理等领域开展了重点攻关,在国际上率先研制成功AP1000主管道,其技术指标达到国际领先水平,并形成了多项具有自主知识产权的专有技术。目前已经具有形成AP1000、华龙一号、CAP1400主管道和波动管的供货能力和业绩。



AP1000 主管道热锻 B AP1000 main pipeline hot section B



CAP1400 主管道热段 A CAP 1400 Main pipeline hot section A

Introduction of products

The third-generation main nuclear power pipeline adopts the integral forging structure for elbows and straight pipes, nozzles and pipes with large sizes and complex structures, which are of high requirements for chemical compositions, especially the carbon content, nitrogen content, content of residual elements and grain size. Among them, the steel ingot used in the hot leg of the main pipeline is the heaviest, reaching 100 tons. The 316LN ultra-low carbon controlled nitrogen containing austenitic stainless steel used in the AP1000 main pipeline has the characteristics of extremely low carbon and sulfur contents (C≤0.020%, S≤0.005%), high nitrogen content (0.10%~0.16%) and high alloy content. EHEC has carried out key research and development in the fields of smelting and pouring of super large stainless steel ingots, forging of large stainless steel blanks, brake forming of large diameter and small bending radius pipes, intersecting line machining of large diameter stainless steel bypass nozzles and heat treatment of large diameter stainless steel pipes, which has taken the lead in the successful development of the AP1000 main pipeline in the world, with the technical indicators reaching the international leading level and a number of proprietary technologies with proprietary intellectual property rights obtained. At present, it has had the capacity and performance of providing the AP1000, Hualong No.1, CAP1400 main pipelines and surge lines.



产品主要技术参数

外径 Outside diameter	952.5mm
内径 Inside diameter	787.4mm
名义壁厚 Nominal wall thickness	82.6mm
弯曲半径 Bending radius	1429.5mm
弯头角度 Elbow angle	56.4±1°
弯头腹部及中间部位 Elbow abdomen & middle part	最大增厚率 12.5% Max. thickening rate 12.5%
弯头背部及中间部位 Elbow back & middle part	最大减薄率 7.5% Max. reduction rate 7.5%
弯曲部位椭圆度 Elbow part ovality	≤ 6%



4 石化装备

4 Petrochemical Equipment



四川石化渣油加氢反应器 Sichuan Petrochemical Residue Hydrogenation Reactor



长岭石化加氢反应器 Changling Petrochemical Hydrogenation Reactor



武汉石化加氢反应器 Wuhan Petrochemical Hydrogenation Reactor



天津石化 1000 万吨炼油加氢裂化反应器
Tianjin Petrochemical 10 Million Tons Refinery Hydrogenation Cracking Reactor



扬子石化渣油加氢反应器 Yangzi Petrochemical Residue Hydrogenation Reactor



上海石化渣油加氢反应器 Shanghai Petrochemical Residue Hydrogenation Reactor



扬子石化项目渣油装置双超(超大厚度、超大直径)加氢反应器

Yangzi Petrochemical Project Residue Equipment Double Hydrogenation Reactor



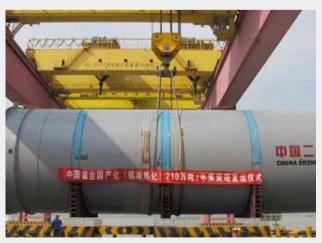
腾龙加氢裂化反应器 Tenglong Hydrogenation Cracking Reactor



镇海石化 2400 吨沸腾床加氢反应器 2400t fluidized bed hydrogenation cracking reactor for Zhenhai Petrochemical



浙江石化 500 万吨 / 年渣油加氢装置渣油加氢反应器 Residuum hydrogenation reactor with a capacity of 5 million tons/year



镇海石化焦炭塔 (内径 9800mm) Coke tower for Zhenhai Petrochemical (I.D. 9800mm) for Zhejiang Petrochemical



恒力石化 600 万吨 / 年柴油加氢裂化装置加氢反应器 Diesel hydrogenation cracking reactor with a capacity of 6 million tons/year for Hengli Petrochemical



产品简介

二重装备具备千吨级重型压力容器的制造能力,年产压力容器能力可以达到 5 万吨,取得了 A1、A2 压力容器设计和制造许可证。已完成了中石化上海金山石化精制加氢反应器、内蒙古神华集团煤液化加氢反应器、中石化天津石化精制加氢反应器、中石油彭州石化大型渣油加氢反应器、中石化扬子石化千吨级 "双超"反应器、中石化镇海石化焦炭塔、中海油惠州石化千吨级加氢反应器、中石化镇海 2400 吨沸腾床反应器、中石油辽阳石化加氢反应器、恒力石化千吨级反应器、浙江石化大型反应器、中科炼化加氢反应器等大量重型压力容器设备的生产制造。已生产制造的各类压力容器覆盖了压力容器的主要基体材料和结构类型,同时拥有丰富的压力容器现场组焊制造经验,生产的产品以"优质、高效"在众多用户中获得广泛赞誉。

拥有一次起吊 1700 吨单台压力容器设备的国机重装镇 江基地,码头可以停靠 5 万吨级船舶,为二重装备各类压 力容器的制造、运输提供了坚实有力的物质条件。

当前,二重装备在国机集团的大力支持和有力保障下, 正在向压力容器项目工程总包的目标迈进。

Introduction of products

EHEC has the capacity of manufacturing the kiloton heavy pressure vessels with an annual output up to 50,000 tons, which has obtained the licenses for designing and manufacturing the Class A1 and A2 pressure vessels. It has completed the manufacturing of some heavy pressure vessels such as the hydrotreating reactors respectively for SINOPEC Shanghai Petrochemical Company Limited, SINOPEC Tianjin Shihua, the large residue hydrotreating reactor for CNPC Pengzhou Branch, the kiloton "double super" reactor for SINOPEC Yangzi Petrochemical Company LTD., the coke chamber for SINOPEC Zhenhai Refining&Chemical Company, the kiloton hydrogenation reactor for CNOOC Huizhou Petrochemical Company Limited, the 2400-ton boiling-bed reactor for SINOPEC Zhenhai Refining & Chemical Company, the hydrogenation reactor for Petrochina Liaoyang Petrochemical Company, the kiloton reactor for Hengli Petrochemical, the large reactor for ZPC, the hydrogenation reactor for ZRPC, etc. All the main base materials and structures for pressure vessels have been used for the various ones it manufactured. And meanwhile, it has abundant experience in on-site welding and manufacturing of pressure vessels, and its products are widely praised by many users for their "high quality and high efficiency".

In the heavy machinery equipment base in Zhenjiang that has the capacity of lifting the single 1700t pressure vessel, the wharf is able to dock the 50,000 tons ships, which could provide solid and powerful material conditions for the manufacturing and transportation of various pressure vessels.

At present, EHEC is moving towards the goal of being the general contractor of pressure vessel projects under the strong support and powerful guarantee of SINOMACH.

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出口业绩

低温涤气器,设备出口巴西,材料 SA-765 Gr3, 壁厚 245mm,属于低温厚壁容器,14 台。

Export performance

Low temperature scrubber, the equipment has been exported to Brazil, with material of SA-765 Gr3, wall thickness of 245mm, and it belong to low temperature thick wall thickness vessel, with 14 sets.



5 新兴领域装备

5 Equipment for Emerging Areas

二重装备积极开拓新兴领域业务,在储能与分布式能源、能源化工、节能环保、军民融合、海洋工程等多个领域为客户提供先进的装备和服务。

EHEC now positively make effort to explore new business in new fields, which can provide the advanced equipment and good service for customers in many new fields, such as energy storage and distributed energy, energy and chemical industry, energy conservation and environmental protection, civil-military integration and ocean engineering etc.

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Tel. (office): +86 (country code)-0838-2341638 +86 (country code)-0838-2343389



5.1 飞轮储能装置

5.1 Flywheel Energy Storage Device (FES)

二重装备旗下拥有二重德阳储能科技有限公司,是一家集飞轮储能产品研发、设计、推广、销售及服务于一体的高科技公司,公司产品广泛应用于不间断电源、智能电网、交通运输、石油化工、航空航天等领域,能满足不同客户需求,为客户提供清洁、可靠、性价比高的产品和服务。

电 话: +86-0838-2340383

Affiliated to EHEC, Eezhong Deyang Power Technology Co., Ltd. is a high-tech company integrating research and development, design, promotion, sales and service of flywheel energy storage products. Its products have been widely used in many aspects, such asuninterrupted power supply, smart power grid, traffic and transportation, oil and chemical, and aerospace, etc. capable of meeting different customer needs and providing customers with clean, reliable, and cost-effective products and services.

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飞轮储能不间断电源系统(飞轮 +UPS+ATS)和柴油发电机组 Flywheel Energy Storage Uninterruptible Power Supply System (Flywheel+UPS+ATS) and diesel power generator set

产品简介

飞轮储能装置使用高速旋转的飞轮所具有的惯性储存电能。主要用于代替化学电池,作为不间断电源系统 (UPS)的储能单元;并可用于其它一些需要短时大功率的电能输出的场合。二重装备提供单台功率 100kW、200kW、500kW三种型号产品。产品可广泛用于通信、银行、工矿企业的数据中心的不间断电源系统,以及大型化工厂、精密生产线的不间断电源系统。

Introduction of products

Flywheel Energy Storage Device (FES) uses the inertia of high-speed rotating flywheel to store electric energy. It is mainly used to replace chemical batteries as the energy storage unit of the uninterrupted power supply (UPS), and it can also be used in other occasions requiring short-term and high-power output of electrical energy. EHEC is capable of providing three types of products with single-unit power of 100 kW, 200 kW, and 500 kW, respectively. The products can be widely used as the uninterrupted power supply system for data centers of the communication, banking, industrial and mining enterprises, as well as large chemical plants and precision production lines.



产品简介

- 1、完全免化学电池,安全可靠,显著提高了供电的可靠性
 - 2、无任何有害化学物质,环境友好
 - 3、使用面积小,节省机房等基础设施投资
 - 4、具有长达 20 年使用寿命, 使用成本低
 - 5、环境适用性强,无需空调房间

Introduction of products

- 1.Completely chemical battery free, safe and reliable, significantly improving the reliability of power supply
- 2. No harmful chemicals, environment-friend
- 3. Small installation area, saving infrastructure investment such as computer room
- 4. Service life up to 20 years and low use cost.
- 5. Good applicability to environment. No air conditioning room is required

产品主要技术参数

输出功率 Output power	≤100kW	≤200kW	≤500kW
放电电压(可调) Discharging voltage (adjustable)	400-550VDC	400-550VDC	400-550VDC
放电时间(可调) Discharging time (adjustable)	≥15s	≥15s	≥15s
工作温度 Operating temperature	0 ~ 40°C	0 ~ 40°C	0 ~ 40°C



5.2 能源化工成套装备

5.2 Complete equipment for energy source and chemical industry

5.2.1 粉煤热解回转反应炉

5.2.1 pulverized coal pyrolysis slewing reactor



年产 60 万吨粉煤热解回转反应炉 Annual output of 600,000 tons of pulverized coal pyrolysis slewing reactor

二重装备成功进入煤化工回转反应炉设计制造领域,研制的年产60万吨粉煤热解回转反应炉于2019年5月一次性试车成功,目前正致力于年产百万吨级回转反应炉的研制。

产品简介

回转反应炉是粉煤热解工艺的核心装备,它以低阶粉煤为原料,在反应炉内经过低温热解使粉煤得到洁净化分质利用,转化为燃气、焦油、半焦和无烟煤等产品,焦油及半焦可进一步加工成汽油、柴油等能源产品。

产品主要技术参数

Main technical parameters of product

EHEC has successfully entered the field of design and manufacture of coal chemical slewing reactor. The slewing reactor with an annual output of 600,000 tons of pulverized coal pyrolysis was successfully tested in May 2019. Currently, it is committed to the development of the slewing reactor with an annual output of one million tons.

Introduction of products

Gyration reaction furnace is the core equipment of pulverized coal pyrolysis technology. It takes low-grade pulverized coal as raw material and uses it cleanly and qualitatively through low-temperature pyrolysis in the reaction furnace. It is converted into gas, tar, semicoke and anthracite, etc. Tar and semi-coke is further machining into gasoline, diesel and other energy products.

参数名称	规格
Description of parameter	Specification
生产能力	60 万吨 / 年
Production capacity	600,000 tons/year
炉体转速 Furnace rotating speed	0.5-2.5 r/min
传动功率 Transmission power	2×400 Kw

年产60万吨粉煤热解回转反应炉主要参数

The main parameters of the pyrolysis slewing reactor with an annual output of 600,000 tons of pulverized coal



产品特点

- 1) 装置结构紧凑、集成度高、占地空间小、节约用地、空间布局合理、操作方便。
- 2) 装置内部集气液分离、闪蒸分离、液位检测、压力 检测、温度检测、液相计量、气相计量、自动排污、自动 高压放空以及安全保护等功能于一体。
- 3)项目建设周期短、施工效率高、单元调试方便、联调快速、安装方便, 井站现场只需将对外管口配置完毕即可。
- 4)整个系统全自动化控制和远程监测与操控,装置安全程度高、现场无人值守。
- 5) 装置性能稳定、装置抗波动能力强、处理量范围宽泛,从小流量的20万方每天到100万方的三高井(高压、高含硫、高流量)均可处理。

装置材质整体耐腐蚀、材质满足抗 HIC(氢致开裂)、 SSC(硫化物应力开裂)等要求,材质总体均满足 NACE MR0175 的要求,设计使用寿命最高 30 年。

Introduction of products

- 1) The device has compact structure, high integration, small floor space, economical land use, reasonable space layout and convenient operation.
- 2) The internal gas collection, flash separation, liquid level detection, pressure detection, temperature detection, liquid phase metering, gas phase metering, automatic sewage discharge, automatic high pressure venting and safety protection are integrated into the unit.
- 3) The project construction period is short, the construction efficiency is high, the unit debugging is convenient, the unit adjustment is fast, the installation is convenient, and the well station site only needs to configure the external nozzle.
- 4) Full automation control and remote monitoring and control of the whole system, high security of the device, unattended on site
- 5) The device performance is stable, the device has strong antifluctuation ability, and the processing range is wide. It can be processed from a small flow of 200,000 square meters to 1 million square meters of high-altitude (high pressure, high sulfur content, high flow rate).
- 6) The material of the device is corrosion-resistant as a whole, and the material meets the requirements of anti-HIC (hydrogen induced cracking) and SSC (sulfide stress cracking). The materials generally meet the requirements of NACE MR0175, and the design service life is up to 30 years.

项目业绩

中石化元坝气田 17 亿立方米 / 年地面试采工程生产分离器橇装 2 套;

中石化元坝气田 34 亿立方米 / 年地面工程火炬分液罐 橇装 11 套;

中石化普光油气田分水岭地面集输工程镍基分离器橇装 13 套。

Experience list of project

Sinopec Yuanba gas field 1.7 billion cubic meters / year interview mining production production separator skid-mounted equipment 2 sets

Sinopec Yuanba gas field 3.4 billion cubic meters / year ground engineering torch split tank ski- mounted equipment 11 sets

Sinopec Puguang oil and gas field watershed ground gathering and transportation project nickel-based separator skid mounted equipment 13 sets



5.3 环保设备

5.3 Environmental protection equipment

5.3.1 垃圾熔融裂解处理设备

5.3.1 waste fusion cracking processing equipment



100 吨 / 日垃圾熔融裂解处理设备 100 tons/day waste fusion cracking processing equipment

生活垃圾的主要处理方式有填埋和焚烧,前者占用大量土地,后者易产生二次污染,而垃圾熔融裂解处理是一种高效洁净处理技术,具有适用范围广、节能环保等优势。垃圾裂解反应炉是垃圾处理生产线上的核心装备,设备重量轻、占地面积小,适用于城市街区垃圾或垃圾场的分布式处理。

二重装备加大对环保设备的研发投入,目前研制完成的日处理 100 吨可移动式大型垃圾熔融裂解处理设备正在用户现场安装。

Landfill and incineration are the main treatment methods of household waste, the former occupies a large amount of land, the latter is easy to produce secondary pollution, and waste pyrolysis treatment is an efficient and clean treatment technology, has a wide range of application, energy saving and environmental protection advantages. Waste cracking reactor is the core equipment of waste treatment production line, which is light in weight and small in area.

EHEC increases the investment in environmental protection equipment research and development, the completion of the daily treatment of 100 tons of mobile large waste melt cracking treatment equipment is being installed on the user's site.

产品主要技术参数

Main technical parameters of product

参数名称	规格
Description of parameter	Specification
处理能力	100 吨 / 日
Processing capacity	100 tons/day
干燥机转速 Drying rotational speed	5-15 r/min
反应釜转速 Reactor rotational speed	2-6 r/min

100 吨 / 日垃圾裂解反应炉主要参数 Main parameters of 100 t/d waste cracking reactor



5.3.2 撬装式油基钻屑热解吸处理设备

5.3.2 Skid-mounted Oil-based Drillings Thermal Desorption Treatment Equipment



2 万吨 / 年撬装式油基钻屑热解吸处理设备 20,000 t/a Skid-mounted Oil-based Drillings Thermal Desorption Treatment Equipment

产品简介

用于处理页岩气、致密油等非常规油气勘探开发产生的油基钻屑危废物,采用新型盘式热解吸处理技术实现无害化处理和资源化综合利用,工艺流程高效、稳定、安全,具有高度自动化、模块撬装化以及连续规模化生产的特点。 热解过程是在完全密封、无氧环境下完成,处理后残渣含油率在0.3%以下,回收油品相似度达99%。

Introduction of products

It is used for dealing with the hazardous waste of oil-based drilling cuttings generated by unconventional oil and gas exploration and development such as shale gas and tight oil, employing new disctype thermal desorption technology to realize harmless treatment and comprehensive utilization of resources; the technological process is highly efficient, stable and safe, with the characteristics of high automation, skid-mounted modules and continuous large-scale production. The pyrolysis process is completed in a completely sealed and oxygen-free environment. The residual oil content rate after treatment is less than 0.3%, and the similarity of recovered oil products reaches 99%.

产品主要技术参数

参数名称	规格
Description of parameter	Specification
处理能力	2 万吨 / 年(单台)
Processing capacity	20,000 tons/year (unit set)
干燥机转速 Drying rotational speed	4-7 r/min
反应釜转速 Reactor rotational speed	TPH < 0.3%
操作时间	可连续 90 天不间断作业
Operating time	Work continuously for 90 days.



中国汽车工业工程有限公司

China Automobile Industry Engineering Corporation (AE)

公司名称。中国汽车工业工程有限公司

Company Name: China Automobile Industry Engineering Corporation (AE)

http:/www.chinaaie.com.cn

中国汽车工业工程有限公司成立于 2005 年, 是由机 械工业第四设计研究院、机械工业第五设计研究院合并重 组成立具有崭新管理模式的国际型工程公司。公司以工程 设计为基础,工程 EPC 总承包及装备的系统供货为主要业 务,致力于项目的精益化设计、低成本建设、低成本运行, 承担着汽车、一般机械、医药、电子、民用建筑等行业的规划、 设计和工程交钥匙工程,业务已经从单一的机械工厂建厂 设计转型升级为从产品选择咨询、工程建设、装备供货、 生产指导、培训的全产业链业务。在工程机械、矿山机械、 医药、电子、电力、民用建筑等行业的工程设计具备国内 一流水平; 在汽车生产线承包、工业炉承包、铸锻工艺设 计具有国内领先水平 , 随着我国的政策开放和经济全球 化, 我司承担大量的合资项目设计和工程承包, 通过承担 欧美和日系合资项目,已掌握了发达国家机械产品生产的 工艺要求,质量标准,技术要求和精益化生产的先进理念。 我公司每年承担各类机械工厂设计百余项,民用建筑、监理、 勘察、环保项目数百项, 大型涂装项目十余项、 总装项 目数十项、白车身线 5-10 条、工业炉数十台套、铸锻生 产线数十条。

China Automobile Industry Engineering Corporation, founded in 2005, by merger and reorganization between SCIVIC Engineering Corporation and The Fifth Institute of Project Planning & Research of Machinery, is an international engineering company with a new management mode. Based on engineering design, with EPC contracting and equipment system supply as the main business, the company is committed to lean design, low cost construction, low running cost, to carry out planning, design and engineering turnkey project for automobile, general machinery, pharmaceutical, electronics, civil construction and other industries. Our business scope has expanded from machinery factory construction design to whole industry chain service, including product selection consultancy, engineering, construction, equipment supply, production guidance and training. Company ranks domestically firstclass level in engineering design for construction machinery, mining machinery, medicine, electronics, electric power, civil construction and other industries, and has the leading position in auto production line contracting, industrial furnace contracting, and casting & metal forming process design. Along with our country's opening up policy and economic globalization, our company has undertaken a large number of joint venture project design and engineering contracting. Through carrying out joint venture projects by Europe and the US and Japan, we has mastered the process requirements, quality standards, technical requirements and the advanced concept of the lean production of mechanical product manufacturing in the developed countries. Our company yearly undertakes more than one hundred various types of machinery factory design, hundreds of civil architecture, supervision, survey, environmental protection projects, more than 10 large painting projects, dozens of GA projects, 5-10 BIW projects, dozens sets of industrial furnaces, and more than 10 casting & metal forming lines.

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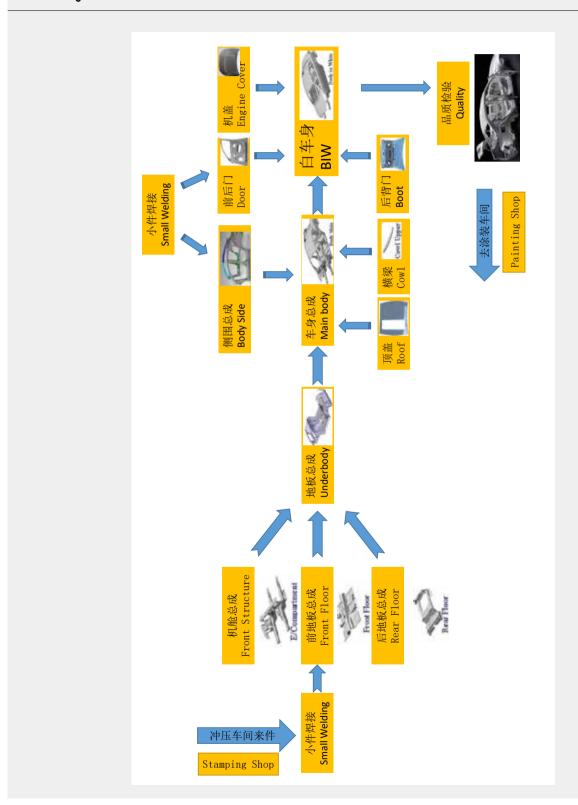


1 焊装业务

1 Welding

1.1 焊装工艺过程

1.1 Welding Process





1.2 焊装能力 1.2 Welding Ability

控制系统 Control system	PLC 系统 PLC System	人机操作界面 HMI	暗灯系统 ANDON	中控系统 Central Control	车体识别系统 ANI	虚拟调试 Virtual Commissioning	数据上传系统 Data Upload System	
制造集成 Integration	分拼线 Sub Line	总成线 Main Line	输送系统 Conveyor System	夹具立库 Fixture State library	除尘系统 Dust removal system	激光系统 The laser system		
机器人调试 Commissioning	机器人系统 Robot System	点焊 Spot Welding	搬运 Transport	弧焊 Arc Welding	涂胶 Gluing System	※边 Robot Rolling	學游 SPR FDS	
机器人仿真 Simulation	机器人工位布局 Robot Layout	焊枪选型 Welding Gun	人机工程 Ergonomic Study	载荷计算 Robot Payload	离线编程 OLP	ROBACD PDPS		
机械设计 Engineering	夹具 Fixture	机器人抓手 Robot Gripper	滚床 Roller Bed	料架 Stock Rack	伺服滑台 Servo Slip	储存 APC	往复杆 Shuttle	
工艺分析 Process	工艺流程Flowchart	平面图 Layout	生产线 Line Information	设备清单 M+E List	节拍计算 Time Chart	测量标准 Gauge Layout	物流信息 Logistics	

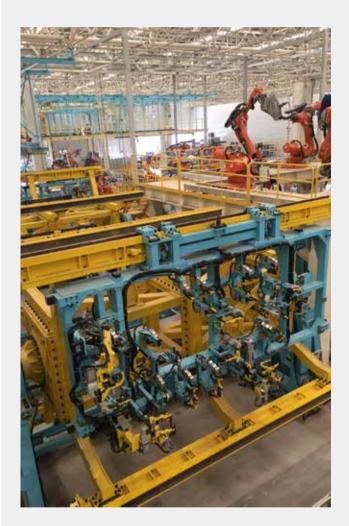


1.3 焊装产品

1.3 Welding product

1.3.1 柔性总拼系统介绍

1.3.1 Flexible Geometry Systems Introduction







产品简介

柔性总拼系统是焊装车间最为核心的工位,经过多年的开发和积累,中汽工程目前拥有了多种柔性总拼,以满足客户的不同需求,包含Flex Gate, Tetrahedron Gate, Open Gate 以及 Robot Gripper Gate 等等,同时正在开发 EMS Gate, Turntable Gate 等新形式总拼。

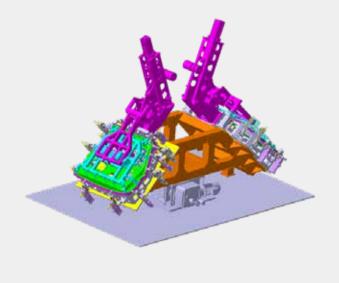
Introduction of products

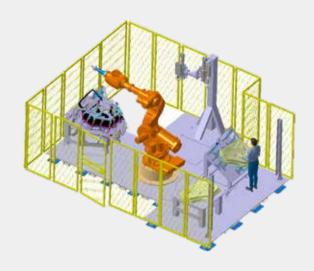
The Flexible Geometry Systems is the core of the Body shop. After many years of development and accumulation, AE has a variety of Flexible Geometry forms to meet the different needs of customers, including AE Flex Gate, Tetrahedron Gate, Open Gate and Robot Gripper Gate, etc., are also developing new forms such as EMS Gate and Turntable Gate.

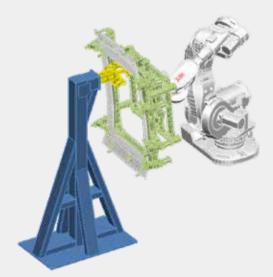


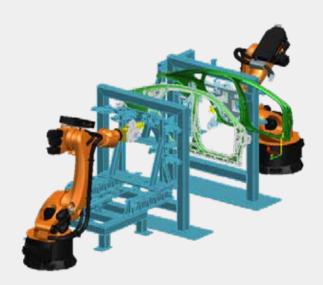
1.3.2 滚边系统介绍

1.3.2 Roller Hemming System Introduction









产品简介

为了满足市场的不同需求,中汽工程自主研发出各类机器人滚边系统,包括机盖滚边,车门滚边,顶盖飞行滚边以及在线后轮罩滚边等,并应于比亚迪汽车,野马汽车,威马汽车等各大汽车厂。

Introduction of products

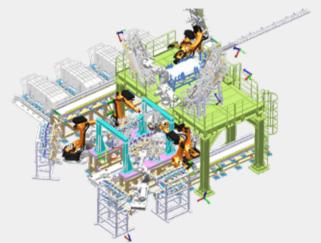
In order to meet the different needs of the market, AE has independently developed various types of roller hemming system, including cover hemming, door hemming, flying roller hemming for sunroof and inline wheelhouse Hemming, etc., and should be used in BYD, YEMA, WM and other automobile company.



1.3.3 激光技术介绍

1.3.3 Laser Technology Introduction







产品简介

中汽工程经过多年的研发积累,完全掌握激光焊接和切割技术的应用,不仅在沃尔沃跑车上成功应用了激光切割技术,同时在制造基地搭建了用于激光技术开发研究的实验室,为未来激光技术的大量应用提供研发平台。

Introduction of products

After many years of research and development, AE has fully mastered the application of laser welding and cutting technology. It not only successfully applied laser cutting technology on Volvo project, but also built a laboratory for laser technology D&R at the manufacturing base. A large number of applications for technology provide a development platform.



1.3.4 轻量化技术介绍

1.3.4 Lightweight Technology Introduction







产品简介

随着新能源汽车的发展,各个汽车厂开始不断地推出轻量化车身,例如碳纤维、钢铝混合等。而中汽工程经过多年的研发积累,已经完全掌握了碳纤维粘接、SPR、FDS、Clinch、POP-Rivet、压铆等各类轻量化的应用技术,并成功应用于上汽通用项目,沃尔沃跑车项目,江苏赛麟汽车项目等。

Introduction of products

With the development of new energy vehicles, the major automobile company have begun to introduce the lightweight body, such as CRFPIsteel and aluminum mixing. After many years of research and development, AE has fully mastered various lightweight application technologies, such as CRFP bonding, SPR, FDS, Clinch, POP-Rivet and Riveting.



2 装配业务 2 assembling

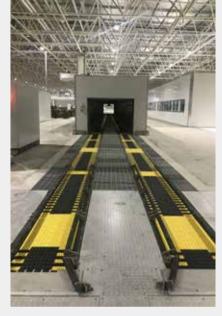
2.1 淋雨测试系统

2.1 Shower test system















产品简介

汽车淋雨试验是一种人工环境实验方法,它用于测试汽车的防雨密封性能,模拟汽车在使用条件下碰到自然降雨或滴水环境因素后的影响。淋雨试验方法的研究和应用已有多年历史。早在70年代法国航空标准、美国军用标准和英国军用标准中均正式规定了有关人工淋雨、暴雨和防滴水方面的条款。我国也于1 990年做出规定: GB/T 12480-90客车防雨密封性试验方法。我公司可根据不同车型的尺寸依据国家标准进行非标设计。

Introduction of products

Car rain test is an experimental methods applied in artificial environment, whichis used to test car's sealing performance and simulate the vehicle impact whenencountered natural rain or dripping water. Research and application of therain test method has a long history. As early as the 1970s, the French aviationstandards, the U.S. military standards and British military standards haveformally set out the terms of the artificial rain, heavy rain and anti-dripping. Chinaalso made its bus rain sealing performance test methods as GB / T 12480-90 in1990. Our company has the R & D capability that based on national standardsfor non-standard design according to the size of the different vehicle type.



2.2 高架库 2.2 Elevated stackers













产品简介

柔性化生产过程中的储存和排序系统也是公司的业务 范围。我们的设备应用于几乎汽车生产的物流、分拣及仓储 – 深及所有的生产环节。

我公司目前提供用于平衡车身、油漆、总装生产之间 环节的车体分配中心系统。解决方案主要采用高速堆垛系 统。

Introduction of products

Storage and sorting systems in the flexible production process are also ourcompany's business scope. Our equipment has been used in almost allautomobile production processes including logistics, sorting and storage. Our company now offers vehicle body distribution center system that used for thebalance of vehicle body, painting and assembly production.



主要性能参数:

高架库堆垛机是单轨行走的双柱设备。堆垛机行走轨型号为DBS41。安装在堆垛机顶部的导向轨尺寸为100 ×96 mm。此H型钢安装在货架顶部的横梁上。

定位系统:

行走和升降的精确定位是通过激光测距仪来实现的。 伸缩货叉的定位是通过绝对值编码器来实现的。

驱动装置:

所有的驱动装置采用 SEW 变频控制交流减速电机。电机配制弹簧复位制动、热保护、速度控制增量编码器。

滑角虫线

堆垛机供电是通过一个 4 根型号为 812 和 2 个 4 根极型号为 831 的 Wampfle「滑触线来实现的。滑触线安装在巷道的底部托架上。在这个托架上还安装有开关和速度控制开关以及紧停开关。堆垛机参数:

行走:

速度: 180 m/min 加速度: 0.5 m/s² 升降:

速 度: 60 m/min 加速度: 0.5 m/s²

Main performance parameters:

Elevated stackers are monorail walking double column equipments, whose walkrail model are DBS41, and the size of guide rail installed at the top of the stackeris 100x96mm. This H-beam is installed on the top beam of the shelf.

Positioning System:

The precise positioning of walking and lifting are achieved by laser range finder. The positioning of the retractable fork is achieved by absolute value encoder. Drive:

All drives adopt SEW inverter control AC geared motors, and all motors are outfit with spring reset brake, thermal protection and speed control incremental encoder.

Trolley line

Stackers are powered by 4 model 812 and 2 pole model 831 Wampfler trolley

line. The trolley line was installed in the bottom bracket of the roadway, where

also installed with switch, speed control switch and emergency stop switch.

Stacker parameters

Traverse:

Speed: 180 m/min Acceleration: 0.5 m/s² Up / down: (carriage) Speed: 60 m/min Acceleration: 0.5 m/s²



2.3 板链输送机、皮带输送机

2.3 Chain conveyor, Belt conveyor













产品简介

板式输送机按承载能力可分为轻型, 重型和特重三个系列。该机属直线输送物品设备, 占地面积少, 运行安全, 使用可靠, 适用于家电、自行车、摩托车和汽车等行业部装和总装。板式输送机结构

平板输送机有单行道和双行道两种, 其部件组合灵活, 构成多样, 但其核心部件基本相同, 都具有驱动装置, 牵引链条、头轮总成, 轨架, 轨道, 链板装置, 尾轮总成(或称张紧装置)盖板等。

Introduction of products

Plate conveyor is usually classified to light, heavy and extra heavy threeseries according to its carrying capacity. It is one of straight line transportationequipment, with merit of less floor space, safe operation and reliable, applicableto the installation and assembly of appliances, bicycles, motorcycles and automotive and other industries.

Plate conveyer structures:

Plate conveyors have two series, dual carriageway and single carriageway. Itsparts contain a flexible combination and diverse constitute forms but a basicallysame core components that including drive, traction chain, rail rack, track, chainplate device, tensioning device, cover and so on.

链板的材料可以为钢板也可以为塑料模块 The material of plate could either be steel or plastic

型号 Mode	产品名称 Product	链条节距 Chain pitch mm	单根链条极限强度 Breaking tensity of single chain(KN)	链条许用张力 Max permissible tensity of chain (KN)	台板宽度 Plate width (mm)	承重 load capacity (KGf/m)	速度 speed m/min	工作温度 Operation temperature (°C)
BP40	轻型平板输送机 Light Duty Plate conveyor	38.1	31.1	8	200-300	50	1-12	0-150
BP50	 弯道板式输送机	50.8	55.6	15	300400	100	1-12	0-150
BP100	Turn plate conveyorde	100	56	15	400-500	120	1-12	0-150
BP150	单行道板式输送机	150	136	30	600-800	200	1-12	0-150
BP200	Single carriageway plate conveyor	200	230	40	800-1200	500	1-12	0-150
BP250	双行道板式输送机	250	230	40	1000-1200	1200	1-12	0-150
BP300	以1) 垣 奴	300	230	40	1000-1500	1500	1-12	0-150
BP400	conveyor	400	230	40	1200-1800	2000	1-12	0-150
DPB	大平板输送机(重型) Large plate conveyor (heavy duty)				1500-3000	2000	1-20	0-150



2.4 滑板系统

2.4 Sliding plate system













产品简介

安装面与车间地面一致,因此滑板系统是总装车间内饰线及终装线特别适用的输送系统。滑板在一个封闭的环线中运行.为操作者提供一个稳定的操作平台.可在滑板中间选装可升降平台,用于优化操作工的人机工程,从而最大程度的保证安装质量。

- ★承载能力至 5.000KG
- ★输送速度 0-120m/min
- ★免维护保证了高的设备开动率
- ★高柔性及广泛的适应性

Introduction of products

Because of the same plane between the workshop floor and Sliding platesystem's fitting surface, Sliding plate system is particularly applicable conveyorsystem to the interior line and final assembly line in assembly workshop. Slidingplate is run in a closed circle line to provide a stable platform for the operator.a optional lift platform in sliding plate is available to optimize the operatorergonomics and maximum assure the installation quality.

- · Carrying capacity up to 5,000 Kg
- · Conveying speed 0-120m/min
- · Maintenance-free to ensure a high equipment starting rate
- · High flexibility and a wide range of adaptive



2.5 滑橇输送系统

2.5 Skid conveyor system















产品简介

滑橇输送系统是滑橇与辊床 - 滑橇输送设备的集合, 广泛应用在汽车制造中的车身工艺及输送系统。

- ★承载能力至1,000 Kg
- ★输送速度 0-120m/m | n

Introduction of products

The skid conveyor system is the integration of skid and roller bed - skid conveyorequipment, which is widely used in vehicle body process and conveyer system inautomobile manufacturing.

- · Carrying capacity up to 1,000 Kg
- · Conveying speed 0-120m/min

2.6 摩擦线系统

2.6 Friction-wheel drive system (FDS)







产品简介

FDS 是利用摩檫轮驱动载运小车(吊具), 使载运小车 连续运行,从而完成整个输送过程。FDS 可在低速运行时保 持平稳、无"爬行"现象,适于汽车制造行业的装配及其 它工艺操作。

采用多台摩檫轮驱动,并与其它驱动方式相结合构成 的柔性输送系统, 使得系统设计更加完善和简便, 而且减 少了工作环境的机械噪音,体现了人性化的环保意识。

- ★速度可达』20m/min
- ★载荷可达 5000kg
- ★在无辅助爬坡设备的情况且下,上下坡度可达 60
- ★具有很高的设备开动率
- ★优化的、经济性的物流
- ★与其它输送、仓储、工艺及装配设备实现很好的匹配





Introduction of products

The FDS is usually worked as this: the friction-wheel drives the conveyancecontinuously, until the entire transportation process is completed. FDS canremain stable at a low speed and it has no "creeping" phenomenon, suitable forthe automotive industry assembly and other process operations.

The flexible conveyor system consisting of multiple friction-wheel drivecombination with other drivers, making the system design more perfect and simple. It also reduces the mechanical noise of the working environment, reflecting the environmental awareness of the humane.

- · Speed up to 120 m / min.
- · Load up to 5000kg
- · A up to 60° Slope under no auxiliary climbing equipment
- · A high level of equipment starting rate
- · Optimized, economic logistics
- · A good match With other transportation, warehousing, process and assemblyequipment



2.7 自动导引车 AGV 2.7 Automatic Guided Vehicle(AGV)









AGV 属于移动机器人,是智能化、柔性化生产的重要 设备。可广泛应用于汽车制造、食品饮料、仓储、物流等 诸多行业,与传统输送设备相比,在智能化、柔性化、节 约成本、工艺流程优化、快速安装调试、特殊工作环境应 用等方面具有非常多的优势。

目前我们的 AGV 产品比较丰富,尤其适用于汽车生产 行业的各式生产线和输送线。

- ★ 承载能力高达 10000Kg
- ★ 速度 0-60m/min
- ★ 定位精度 ±2mm

较好的开放性和易维护性。

- ★ 磁条、视觉、SLAM 等多种导航方式
- ★ 采用 PLC 做主控制器, 具有较高的安全型、稳定性,





Introduction of products

AGV is a mobile robot and an important equipment for intelligent and flexible production. It can be widely used in many industries such as automobile manufacturing, food and beverage, storage, logistics and so on. Compared with traditional conveyor equipment, AGV has many advantages in intelligent, flexible, cost saving, process optimization, rapid installation and debugging, special working environment application and so on.

At present, our AGV products are abundant, especially suitable for various production lines and conveying lines in the automobile production industry.

- · Carrying capacity up 10,000Kg
- · Speed 0-20m/min
- · positioning accuracy ±2mm
- · Magnetic stripe, vision SLAM and other navigation methods
- · Using PLC as the main controller, higher safety and stability, better openness and easy maintenance



2.8 电动悬挂输送系统 EHB

2.8 Electric suspended conveyor system













产品简介

电动悬挂输送系统作为不占用地面的最好的输送系统在工业领域得到广泛应用并可靠运行。安装在工艺设备不占用的空间(比如:在屋架下),它使物料能低噪高效地输送、分拣、存储和准备一且可以上下爬坡。此外 EHB 小车可根据需要精确定位.

这种输送方式不使用地面,从而使地面完全可用于工艺。当然亦可通过升降段或升降机与工艺设备及装配线实现无缝对接。

- ★速度可达 120m/min
- ★载荷可达 5000kg
- ★在辅助爬坡设备的情况且下,上下坡度可达60
- ★ 具有很高的设备开动率
- ★优化的、经济性的物流
- ★与其它输送、仓储、工艺及装配设备实现很好的匹配

Introduction of products

Electric suspended conveyor system has been widely used for its reliableoperation and taking up no ground. It is Installed where the process equipmentdo not take up (such as: in the roof truss), and It makes the material transport, sorting, storage and preparation in low noise and efficient. What is more, it canclimb and precisely position according to requirement.

- · Speed up to 120m / min.
- · Load up to 5000kg
- · A up to 60° Slope under no auxiliary climbing equipment
- · A high level of equipment starting rate
- · Optimized, economic logistics
- $\,\cdot\, A$ good match With other transportation, warehousing, process and assembly equipment



2.9 积放链 2.9 Product release chains













产品简介

我公司的链式输送系统根据安装方式的不同,可以分为悬挂式和落地式;根据输送功能可分为牵引式和积放式。 其丰富的机型系列可满足多种输送要求,而且具有完善的功能及可靠性,在汽车制造业以及其它行业均得到了广泛应用.

★链条型式:模锻可拆链

★运行速度: 0.3—15m/min

★链条许用张力: 1300Kg

★单车承重: 500Kg

Introduction of products

Our chain conveyor system could be classified to suspended and floor dependingon the installation, or towed and product release type according to transferfunction. Rich series of models meet a variety of transportation requirements. For its reliability it has been widely used in automobile manufacturing and otherindustries.

· Chain type: forging detachable chain

· Running speed: 0.3-15m / min.

· Chains allowable tension: 1300Kg

· Single vehicle bearing Weight: 500Kg



2.10 摩擦线系统

2.10 Friction-wheel drive system (FDS)













产品简介

FDS 是利用摩擦轮驱动载运小车 (吊具), 使载运小车 连续运行, 从而完成整个输送过程。FDS 可在低速运行时保持平稳、无 " 爬行 " 现象, 适于汽车制造行业的装配及其它工艺操作。

采用多台摩檫轮驱动,并与其它驱动方式相结合构成的柔性输送系统,使得系统设计更加完善和简便,而且减少了工作环境的机械噪音,体现了人性化的环保意识。

- ★速度可达 120m/min
- ★ 载荷可达 5000kg
- ★在无辅助爬坡设备的情况且下,上下坡度可达60
- ★ 具有很高的设备开动率★优化的、经济性的物流
- ★与其它输送、仓储、工艺及装配设备实现很好的匹配

Introduction of products

The FDS is usually worked as this: the friction-wheel drives the conveyancecontinuously, until the entire transportation process is completed. FDS canremain stable at a low speed and it has no "creeping" phenomenon, suitable forthe automotive industry assembly and other process operations.

The flexible conveyor system consisting of multiple friction-wheel drivecombination with other drivers, making the system design more perfect and simple. It also reduces the mechanical noise of the working environment, reflecting the environmental awareness of the humane.

- · Speed up to 120 m / min.
- · Load up to 5000 kg
- · A up to 60° Slope under no auxiliary climbing equipment
- · A high level of equipment starting rate
- · Optimized, economic logistics
- $\,\cdot\, A$ good match With other transportation, warehousing, process and assembly equipment



2.11 高柔性数字化电动升降滑板系统 2.11 Digital and motorized lifting skillet system with high flexibility







产品简介

高柔性、数字化电动升降滑板系统: 实现生产过程实 时通讯, 保证装配质量传输到远程监控, 实现多种不同车 型的全程不同操作高度的变化; 位置精度可以达到 2mm 以 内,满足自动装配需求。

Introduction of products

Digital and motorized lifting skillet system with high flexibility could enable real-time communication for the production process, ensure the assembly qualitydata transmitting to remote control, which can meet the change for different typevehicles in various operation heights under the whole process. And its positionaccuracy could be controlled within 2mm to meet the requirement of automaticassembly.



2.12 高柔性数字化电动升降吊具系统

2.12 Digital and motorized lifting carrier system with high flexibility







产品简介

高柔性、数字化电动升降吊具系统:实现生产过程实时通讯,保证装配质量传输到远程监控,实现多种不同车型的全程不同操作高度的变化;

位置精度可以达到 2mm 以内,满足自动装配需求。

Introduction of products

Digital and motorized lifting carrier system with high flexibility could enable real¬time communication for the production process, ensure the assembly qualitydata transmitting to remote control, which can meet the change for different typevehicles in various operation heights under the whole process, and its positionaccuracy can be controlled within 2mm to meet the requirement of automaticassembly.



2.13 高精度自动合装系统

2.13 High-accuracy and Automatic Marriage System













产品简介

动力总成与车身的高精度对接.车身及托盘定位精度 +/-2mm;通过多套气动元件的组合设计实现了托盘和吊 具的精定位.并且满足两种车型不同托盘和吊具的定位。

Introduction of products

High-accuracy butt joint between powertrain and car body can be achieved; The positioning accuracy for car body and pallet can reach +/-2mm; Throughmodular design for pneumatic elements, the accurate positioning for pallet and carrier can be fulfilled and the positioning for different pallets and carrier for twodifferent car types can be fulfilled as well.



2.14 反向摩擦系统

2.14 Invert FDS system









产品简介

反向摩擦线(IFDS)是利用摩擦轮驱动载运小车,使载运小车连续运行,从而完成整个输送过程。IFDS可在低速运行时保持平稳、无"爬行"现象,适于汽车制造中的车身输送系统。

采用多台摩檫轮驱动,并与其它驱动方式相结合构成的柔性输送系统,使得系统设计更加完善和简便,而且减少了工作环境的机械噪音,体现了人性化的环保意识。

- ★输送速度: 20m/min
- ★最高速度: 50m/min
- ★承载能力: 1000kg
- ★在无辅助爬坡设备的情况且下,上下坡度可达 5~7°
- ★具有很高的设备开动率
- ★优化的、经济性的物流
- ★与其它输送、仓储、工艺及装配设备实现很好的匹配

Introduction of products

The IFDS is usually worked as this: the friction-wheel drives the conveyance continuously, until the entire transportation process is completed. IFDS canremain stable at a low speed and it has no "creeping" phenomenon, suitable for the automotive conveyer system. The flexible conveyor system consisting of multiple friction-wheel drivecombination with other drivers, making the system design more perfect and simple. It also reduces the mechanical noise of the working environment, reflecting the environmental awareness of the humane.

- · Conveyor speed: 20 m / min
- · Speed up to: 50 m / min
- · Load up to 1000kg
- · A up to 5~7° Slope under no auxiliary climbing equipment
- · A high level of equipment starting rate
- · Optimized, economic logistics
- $\cdot\,\text{A}$ good match With other transportation, warehousing, process and assembly equipment



2.15 链条输送系统

2.15 Chain conveyor system









产品简介

链条输送系统通过链条传动实现滑撬和车身的输送, 适于汽车制造中的车身输送系统。

- ★输送速度: 20m/min
- ★承载能力: 1000kg
- ★具有很高的设备开动率
- ★优化的、经济性的物流
- ★与其它输送、仓储、工艺及装配设备实现很好的匹配

Introduction of products

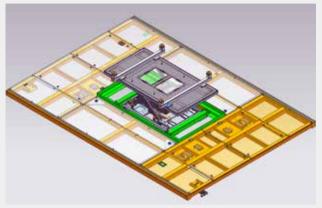
The chain conveyor system realizes skid and body transportation through chain transmission , suitable for the automotive conveyer system.

- · Conveyor speed: 20 m / min
- · Load up to 1000kg
- · A high level of equipment starting rate
- · Optimized, economic logistics
- \cdot A good match With other transportation, warehousing, process and assembly equipment



2.16 机械升降滑板

2.16 Mechanical lifting skillet









机械升降滑板通过升降轨道系统实现车体举升高度的 变化,实现不同工艺高度的柔性装配,适应于汽车制造中 的内饰线和最终线装配;

★承载能力: 2.500KG

★輸送速度: 0-50m/min

★升降行程: 500mm

★具有很高的设备开动率







Introduction of products

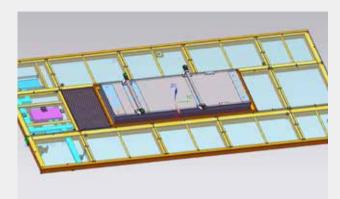
Mechanical lifting skillet can change the height of vehicle body support through the lifting track system, realize flexible assembly with different process height. It suitable for trim line assembly and final line assembly.

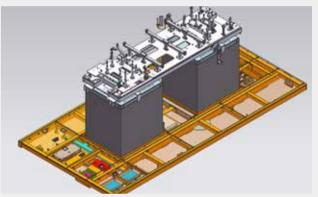
- · Carrying capacity:2,500 Kg
- · Conveying speed:0-50m/min
- · Lifting stroke:500mm
- · A high level of equipment starting rate



2.17 电动升降滑板

2.17 Electric lifting Skillet



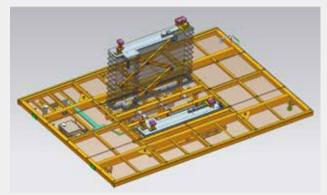






电动升降滑板通过电动升降台实现车体举升高度的变化,实现不同工艺高度的柔性装配,适应于汽车制造中的内饰线装配、最终线装配、底盘合装;

- ★承载能力:5.000KG
- ★输送速度: 0-50m/min
- ★升降行程: 1650mm
- ★控制系统: SEW/LJU/VAHLE
- ★免维护保证了高的设备开动率
- ★高柔性及广泛的适应性







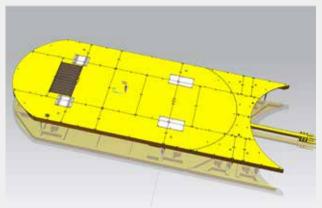
Introduction of products

Electric lifting Skillet can change the height of vehicle body support through electrified scissor lifter,realize flexible assembly with different process height. It suitable for trim line assembly, final line assembly and engine marriage line.

- · Carrying capacity:5,000 Kg
- · Conveying speed:50m/min
- · Lifting stroke:1650mm
- · Controller system: SEW/LJU/VAHLE
- · Maintenance-free to ensure a high equipment starting rate
- · High flexibility and a wide range of adaptive



2.18 环形滑板 2.18 Curve skillet













产品简介

环形滑板通过环形布局,实现整条线以工艺速度连续运行.适应于汽车制造中的最终线装配;

- ★承载能力:3.000KG
- ★輸送速度 0-8m/min
- ★免维护保证了高的设备开动率
- ★高柔性及广泛的适应性

Introduction of products

The curve skillet realizes continuous operation of the whole line at process speed through the circular layout. height. It suitable for final line assembly.

- · Carrying capacity:3,000 Kg
- · Conveying speed: 0-8m/min
- · Maintenance-free to ensure a high equipment starting rate
- · High flexibility and a wide range of adaptive



2.19 废料输送系统

2.19 Scrap conveying system











产品简介

废料输送系统用于工厂废料的输送,通常采用板式输送机、链式输送机或皮带输送机,将废料最终输送到相应卸载点。废料输送机可在低速运行时保持平稳、无"爬行"现场,适用于各种材料的输送;

- ★输送速度: 20m/min
- ★承载能力: 1000kg/
- ★在无辅助爬坡设备的情况且下,上下坡度可达 25°
- ★具有很高的设备开动率
- ★优化的、经济性的物流
- ★与其它输送、仓储、工艺及装配设备实现很好的匹配

Introduction of products

Scrap conveying system is used for transport of factory scrap, usually in the form of plate conveyor, chain conveyor or belt conveyor, eventually transport factory scrap to the unloading point. Scrap conveying system can remain stable at a low speed and it has no "creeping" phenomenon, suitable for scrap convey.

- · Conveyor speed: 20 m / min
- · carrying capacity: 1000 kg/m²
- · A up to 25° Slope under no auxiliary climbing equipment
- · A high level of equipment starting rate
- · Optimized, economic logistics
- $\cdot\,\text{A}$ good match With other transportation, warehousing, process and assembly equipment



2.20 物流输送系统 2.20 Logistics transportation system







产品简介

物流输送系统输送形式包含辊道输送线、倍速链输送 线、塑料板带输送线等;用于汽车装配中轮胎、座椅、仪 表板等大型配件的输送;优点:噪音低、经济性好。







Introduction of products

The transport forms of the logistics transport system include roller transport line, double speed chain transport line, plastic sheet belt transport line, etc, used for conveying large parts such as tires, seats and dashboards in automobile assembly. Advantages: low noise and good economy.



DANG DANG THAT (CAN)

2.21 AE-AGV 调度管理系统 2.21 AE-AGV DispatchingManagement System



产品简介

- 1、系统描述: AE-AGV 调度系统基于计算机系统控制,基于 OPC UA 标准协议实现通信与控制,可支持实际生产中多种运行模式与工艺模式,运行控制参数动态可配;支持 AGV 运行的动态模拟仿真;
- 2、系统性能参数:调度系统与各个 AGV 的控制器之间的数据交互接口,控制类信号 <200ms,状态显示信号 <2S;最大管理 AGV 数量 128 辆;
 - 3、系统功能:
- 1) 地图采用导入矢量图的方式,地图能够和地图尺寸 自动匹配显示:
- 2) 分段控制: 可将 AGV 运行线路分段, 并结合装配工艺要求对各分段设置工艺运行模式和工艺参数, 通过算法实现分段精准控制;
- 3) 通讯兼容性:满足与不同品牌的小车控制器 (PLC)的通讯功能,提供简单方便的通讯配置界面;
- 4)复杂的线路控制:可满足针对复杂的运行路线的交通控制,如线路分岔、线路合岔、线路交叉等情况下的调度功能。
- 5) 灵活的数据接口:系统采用基于 JAVA 的软件平台,通过 Web Service 服务,可提供与 MES、ANDON 等上位系统的数据接口,便于系统之间的集成。



Introduction of products

- 1. AE AGV based on OPC UA standard communication protocol implementation and control, to support a variety of operating mode in the process of production and technology model, dynamic operation control parameters can match;
- 2. System parameters: response time<200ms, maximum AGV units controlled is 128.
- 3. System functions:
- 1) Segmentation control: the AGV running line can be segmented, and the process operation mode and process parameters are set for each segment;
- 2) Multi-sections control: The AGV operation route can be divided into sections, and the process operation mode and process parameters can be set for each section according to the assembly process requirements, thus realizing accurate control of sections through algorithms.;
- 3) Communication compatibility: Meets the communication functions of different brands of car controllers (PLC), providing a simple and convenient communication configuration interface;
- 4) Complex line control: Meet with the traffic control for complex running routes, such as line branching, linecombination, line crossing and other scheduling;
- 5) Flexible data interface: Provide data interface with upper-level systems to facilitate integration between systems.



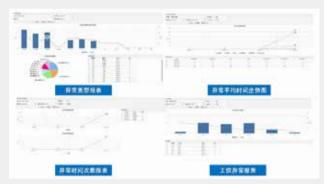
2.22 智能 ANDON 系统

2.22 Intelligent ANDON System



入口缆冲区 最大 最小 8 6		班次目标 110		当	当前计划 10		实际产量			出口堰冲区 最大 量小	
									90%		9 8
L R	02	R 2	L R	L R	L R.	L R	L R	L R 08	L	R 19	10
11	17	R 2	13	1 R	1 R	16	17	18	1	R 9	L F





产品简介

- 1、系统架构:系统整体采用三层架构,(数据采集层、数据处理层、数据展示层)。系统采用 Spring Cloud 构建微服务集群,高效处理大量的并发事件及复杂的 ANDON 系统业务逻辑;采用智能穿戴设备应对智能化生产需求。
 - 2、系统功能:
- 1) 用户柔性定制呼叫内容及告警,平台式配置界面,可实现点对点精准呼叫;
 - 2) 可实现 ANDON 作业流程配置化管理;
 - 3) 多维度 ANDON 数字驾驶舱展示;
- 4) 使用智能穿戴设备实现使用人员的健康情况检测, 增强 HSE 管理,
 - 5) 可定制安全预警消息,实现车间区域安全管理;
 - 6) 可面对多场景应用的复合需求;

Introduction of products

- 1.Architecture: data collection layer, data processing layer and data presentation layer. Using Spring Cloud builds Micro services Clusters.
- 2. Functions:
- 1) Flexible Configuration of ANDON;
- 2) Achieve ANDON work process configuration;
- 3) Multi-dimensional digital dashboard, flexible configuration of ANDON LED board $\,$
- 4) Humanized Management, including Healthy Monitoring and HSE Management
- 5) Safety warnings and safety management
- 6) Multi-scene Application



2.23 产品质量数据采集分析平台

2.23 AE-ECAP Intelligent Platform





| The case | The case



产品简介

- 1、系统架构:使用物接入(IoT Hub)全托管的云服务,建立车间设备与云端之间安全可靠的双向连接及设备管理,以支撑海量设备的数据收集、控制等各种物联网场景;利用大数据分析技术,实现数据聚合和数据清洗;采用HDFS分布式存储技术提高数据安全性和系统可靠性。
 - 2、系统功能:
- 1) 通过 RFID 射频技术,实现车间内工件流动的精准跟踪;
- 2) 利用物联网技术,通过各类单机设备的专有协议, 实现工件质量数据采集与分析;
 - 3) 实现设备操作可视化指导, 实现系统防错功能;
- 4) 提供丰富和强大的数据分析报表,为设备预防性维护提供数据依赖:
- 5) 通过产品质量数据为设备 SPC 分析提供抽象的数据模型,可对设备提供异常预警信息提示;
- 6) 记录生产过程中出现的问题,并将问题推送至相关 责任人,利用大数据技术对日常生产问题统计分析,优化 生产管理。

Introduction of products

- 1. System architecture: Using IoT Hub helping to establish secure and reliable two-way connection; Data Aggregation; Data Cleaning; HDFS Distributed Storage; Data Visualization;
- 2. Functions:
- 1) Achieve accurate body tracking via RFID;
- 2) Via IoT and by applying specific protocols to certain tools to achieve data collection for quality analysis purposes;
- 3) Achieve operation visualization and systematic error-preventing function:
- 4) Provide abundant data analysis reports for various purposes;
- 5) Provide SPC analysis function for equipment and tools;
- 6) Off-track data are recorded and sent to certain managers accordingly for production enhancement.



3 涂装业务

3 Painting

3.1 涂装车间工艺设备和土建公用的一体化工程总承包服务 3.1 AE Provides Complete M+E & B+U Turnkey Paint Shop Project



规划 Planning



规划 Planning



设计 Design



建设 Construction & Installation



建设 Construction & Installation



项目管理 Project Management





安装 Installation



制造 Fabrication



调试运行 Debug & Commissioning



成品交付 Buy-off



安装 Installation



调试运行 Debug & Commissioning



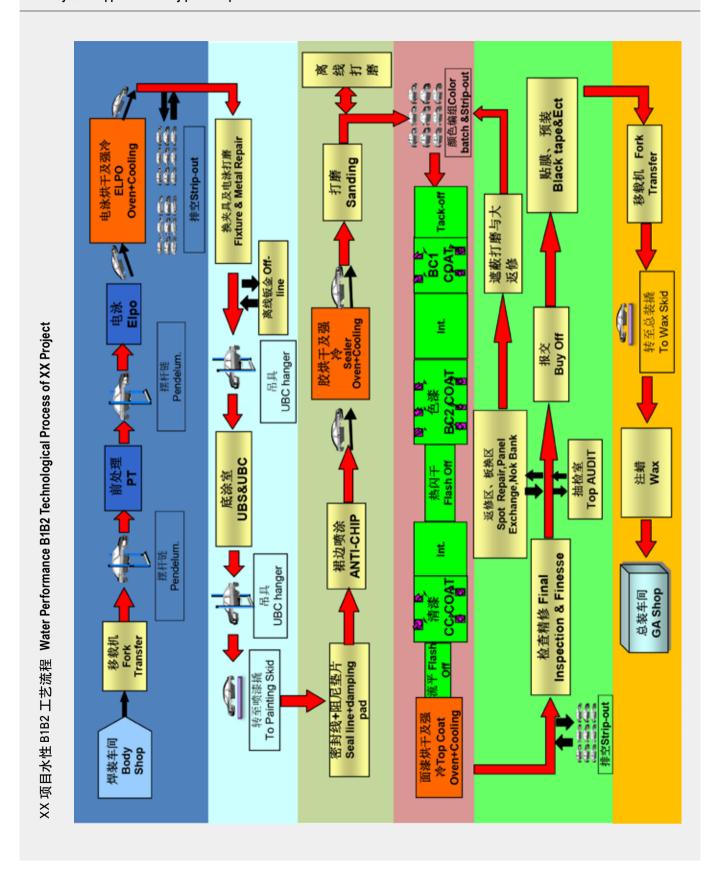
调试运行 Debug & Commissioning



调试运行 Debug & Commissioning



3.2 涂装车间总承包的设备供应商 3.2 System supplier or turnkey paint shops





产品组合 Product Groups

智能控制和监控 Intelligent Controls & Supervisory Controls	设备、机械化控制 Process Conveyor Controls	中控系统 Auto-Clean	机器人喷涂 HMI	车体识别系统 AVI	型位 ANDON	
输送系统 Conveyor	摆杆输送机 Pendulum Corveyor	权放链 Power+Free Conveyor	单/双自行葫芦 S/Twin EMS Conveyor	滑稽输送机 Skid Conveyor	单轨输送机 Inverted Monorail	
徐装应用 Paint Application	离子风 Blow-off	自动排净机 Auto-Clean	机器人喷涂 Robot	輪調線 Paint Supply	供胶供蜡 Seal/ Supply	
株房 Oven	uevO 成士辩	加热单元 Hot Box	强冷室 Cooler	废气净化处理 Exhaust Air Purification	余热利用 Recovery of waste heat	
喷漆 Booth	og	工作区 Work Zone	空调选风 AirHandling			
前处理电泳 PT/ED Systems	车身清洗 Bodywasher	前处理电泳 PT/ED	胶水处理 Watertreatment			
T.Z. Process	工艺平面图 Layouting	工艺设计 Process	的其 Simulation			



3.3 涂装车间总承包的设备供应商 3.3 System supplier or turnkey paint shops

1. 摆杆输送机

用于前处理电泳输送







1 Pendulum Conveyor

PT-ED Conveyor









2. 滑撬输送机

输送系统组成

模块化、系统化、标准化和机电一体化设计的滑撬系统。包括以下模块:撬体、滚床、旋转/移行滚床、带/链式移行机、积放带/工艺带输送机、喷漆/烘干链式输送机、升降机、移载/辅助升降设备和堆剁机等。







2. SKID CONVEYOR SYSTEM

Conveyor system composition

The skid conveyor is an electromechanical integration system designed with standard module and different series, which includes skid, roller bed, turning/ shuttle roller bed, belt/chain shuttle, P&E conveyor, process conveyor, chain conveyor for painting and baking zone, lifter, transfer and auxiliary lifting equipment, and stacker etc.







3. 翻转输送机

360 度旋转,底部侵入。每个车身单独输送并具有每个车身定制的运动轨迹,能够设置便捷的轨迹。



3. AE-shuttle

360° turning and bottom-up dip in. Each body transferred by one unit and specific motion curve for each body type .Easy curve setting-by Excel.













4. 干式喷房

使用纸盒作为漆雾捕捉介质,过滤单元化设计,能够实现生产时快速更换过滤单元。



Paper cube box as capture medium, filter unit design modulized Replaced filter module quickly on production.











5. 机器人集成

干冰清洗机器人系统 Dry ice cleaning robot system

干冰清洗技术是一种采用二氧化碳作为清洗介质的清洁技术,采用干冰清洗设备与机器人集成为完整的自动清洗系统,已经成功的应用到汽车塑料盒符合材料的令箭的涂装前处理工艺中。



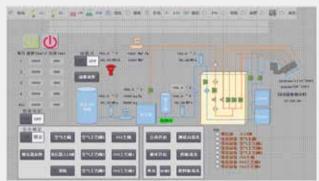


5. Robot Integration

Dry ice cleaning technology is a cleaning techn-ology that uses carbon dioxide as a cleaning medium.

The dry ice cleaning equipment and robot are integra-ted into a complete automatic cleaning system, which has been successfully applied to the pre-treatment process of automotive plastic parts and composite parts.







6. 涂胶机器人集成系统

系统包含机器人本体、供胶系统、视觉系统、控制系统和外围附属设备,可完成车体底部防石击防护胶、车底焊缝密封胶、内部焊缝密封胶和隔音阻尼胶的自动喷漆等功能。

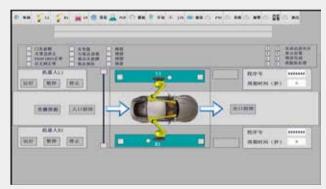
6. Sealing robot system

The system includes robot body ,a glue supply ,a vision system ,a control ,system and the auxiliary and the auxiliary equipment, which can complete the automatic spray of the anti-stone protection rubber at the bottom of the vehicle body, the bottom weld body, the bottom weld sealant, the internal weld sealant and the soundproof damping sealant.











7. 剑刷清洗机器人系统

采用剑刷擦净装置和机器人集成为完整的擦净系统, 对车身外表面进行清洁,去除车身外表面上的灰尘、纤维 和指印,减少喷漆缺陷。

7. Sword brush cleaning robot system

The sword brush cleaning device and the robot are integrated into a complete cleaning system to clean the outer surface of the vehicle body , remove dust ,fibers and fingerprints on the outer surface of the vehicle body so as to reduce spray defects.











4 铸造业务

4 Casting

4.1 砂芯配送系统

4.1 The matching and transferring core system





产品简介

实现将制芯工部制作的砂芯按工艺的要求进行输送和储存,并向造型线分配输送所需要的砂芯。可以完成砂芯 从制芯到造型的全自动。

制芯中心(和制芯系统)制作完成的砂芯放置在托盘(尺寸范围 1200X850—1350X1200mm)上,托盘通过输送装置输送到立体库前(立体库单台堆垛机复合工作效率 < 35 盘/h,单巷道多巷道均可),根据铸造工艺流程的具体要求和造型线的砂芯要求,计算机管理系统进行:砂芯识别(称重识别、图象识别、人工识别、数码识别);托盘输送方向管理(进库、出库、直接到造型、返回制芯等等)。

Introduction of products

It be used to transfer and deposit the core from the making core plant according to the requirement of process, it transfers the core to the modeling line. The process is fully automated.

The cores are made in the core making centre (and the core-making system) are placed on the pallets (size 1200X850—1350X1200mm), the pallets would be transferred to the stereoscopic warehouse (the complex work efficiency of a stowing machine is not more than 35 pallets per hour, be used for one laneway or multi-laneway) according to the requirements of the founding process flow and modeling line, the compute managing system could complete the core identification (the weighing identification, image identification, manual identification, number identification) and the table moving direction management (into the warehouse, coming out the warehouse, to the modeling line, back to the core-making plant).



4.2 V 法诰型线

4.2 The vacuum process modeling line





产品简介

用真空密封造型法生产铸件,铸件表面光滑、尺寸精 度高、经济性好、环保性好。

工艺参数:

砂箱尺寸: 1300X1300-3000X1800

生产率: 2.5-7 箱 /h

主要设备组成:

覆膜台、覆膜装置、振实台、雨淋加砂装置、起模装置、 真空系统、控制系统。

配套设备组成:

移箱翻箱合箱机(大砂箱为翻箱机)、合型小车、铸型脱箱输送装置、空砂箱返回输送装置等。

造型机形式:穿梭式、回转式

V 法造型线可实现: 自动从覆膜台吸膜、切膜、加热膜、 在模型上覆膜: 自动砂箱加砂、振实、起模: 自动移箱、合箱。

V 法造型线配套的移箱翻箱合箱机大大减轻人的劳动强度,提高了工作效率和铸件质量。

Introduction of products

The castings by the vacuum modeling have the smooth facade, the precise outline size, a better economic gain, environmental-friendly

Technique parameter:

Flask size: 1300X1300—3000X1800

Productivity: 2.5-7 flasks/h

Main the machines:

The table for covering film, the machine for covering film, vibrating table , the raining feeding-sand machine, the separating model and plate machine, the vacuum system, the controlling system .

The matched machine:

The transferring and matching flask machine (the overturning-flask machine for the big flask), the matching-flask trolley, the transferring modeling machine, the backing the empty flask machine.

The modeling machine form: the shuttling form, gyrating form.

The Vacuum modeling line could complete: to attracting the film from the covering table automatically, to cut the film, to heat the film, to covering the film on the models, to feed the sand into the flask automatically, to vibrate the flask, to separate the model and the plate, t transfer the flask, to match the flask.

The transferring and matching flask machine of the vacuum process modeling line mitigates the labor intensity of the worker, improve the work efficiency and the casting quality.



4.3 砂芯输送线及立库系统

4.3 Sand Core Conveyor Line and Stereoscopic Warehouse System











产品简介

该砂芯输送线及立库系统用于将发动机缸体铸件的整体砂芯输送到立库储存,当造型线需要砂芯时,能自动将砂芯输送到造型线下芯段处的机器人卸芯工位,并将空托板输送到上芯工位或立库中待用。包括砂芯输送线一条,三巷道立库一个,堆垛机三台,立库货位672个,立库存储量可以满足造型生产率70型/小时的情况下一个班次的砂芯供应需求。

Introduction of products

The sand core conveyor line and stereoscopic warehouse system are used to convey the entire sand cores of engines cylinder castings to stereoscopic warehouse for storage. The system can automatically convey the core to robot unloading station at core-unloading section of modeling line and convey the empty pallet to core-loading station or stereoscopic warehouse for preparation when the core is required for modeling line.

The system consists of 1 set of sand core conveyor, 1 stereoscopic warehouse with 3 lanes, 3 sets of stackers, 672 cargo spaces. The storage capacity could meet the core requirement of one-shift under the productivity of 70 model/hour.



4.4 铸件清理线 4.4 Foundry Cleaning Line











产品简介

该铸件清理线用于将粗抛并经端面磨削后的发动机缸体、缸盖铸件进行自动输送,供人工精清、抛丸机精抛、吹灰、倒丸、翻转检查及输送至静电喷粉线进行喷粉防锈等,输送的最大铸件尺寸1100X600X600 (mm),重量约400kg。

Introduction of products

The foundry cleaning line is used for automatically convey the engine block and engine head castings after the processes of rough polishing and end face grinding for manual refined cleaning, refined shot blasting, ash blowing, shot empty, overturn check and conveying to static powder spraying line for rust-proof spraying etc. The maximum casting size for this system is 1100mmX600mmX600mm and conveying weight is 400KG.



4.5 静压造型线 4.5 Static Modeling Line



















产品简介

主要生产过桥箱、减速器壳、桥壳、横梁等汽车铸件。 两条静压造型线采用开放式铸型输送机布线,全线主要由 造型、下芯、合箱、浇注、冷却、落砂等功能段组成。包 括捅箱机、分箱机、造型边辊架、造型主机、翻箱机、刮 砂机、移箱机、上箱边辊架、铣浇口机、钻气眼机、合箱机、 转运车、铸型输送机、驱动缓冲推杆、砂箱、小车、液压 气动系统以及电控系统等。

大件造型线砂箱尺寸 1950×1200×400/350 (mm), 设计生产率 40 整型/ 小时, 最大压实比压可至 1.5Mpa; 中件造型线砂箱尺寸 1300×800×300/300 (mm), 设计生产率 90 整型/ 小时。

Introduction of products

Main automobile casting products of the system are pass-axle box, reducer housing, axle housing and cross girder etc. The open type casting conveyors are used for two static modeling lines, which consisting of sections of modeling, core setting, mould assembly and pouring, cooling and sand shakeout etc; This line Includes equipment of punch-out machine, flask separator, modeling side-roller frame, main modeling machine, mould turnover machine, sand-scraper, mould moving machine, upper mould side-roller frame, sprue milling machine, air hole drilling machine, mould assembly machine, transfer trolley, casting conveyor, buffer pushrod for drive, sand box, trolley, hydraulic and pneumatic system and electrical control systems.

The dimension of sand box in large modeling line is 1950x1200x400/350(mm), designed productivity is 40 model/hour, maximum specific pressure of compact can reach 1.5Mpa; The dimension of sand box in medium modeling line is 1300x800x300/300 (mm), designed productivity is 90 model/hour.



4.6 消失模生产 4.6 Lost Foam Casting Line











产品简介

年产 6000 吨装载机配件(主要为变速箱、变矩器和制动钳体)。

生产线主要由造型部分、砂处理部分和通风除尘系统 组成。

造型部分的主要工艺流程为: 预加砂→放模型→加砂振实→浇注→冷却→翻箱(→预加砂)。设备包括雨淋加砂机构、液压翻箱机、液压推送机构和缓冲机构、边辊输送辊道、转运车、浇注机等。

砂处理部分的主要工艺流程为: (翻箱→) 落砂→筛 分→提升→冷却→提升→中间料斗→气力输送→造型砂斗 (→预加砂)。设备包括落砂斗、振动输送筛、斗式提升机、 螺旋输送机、立式冷却器、气力输送系统及砂斗钢结构等。

Introduction of products

Annual output is approx. 6000tons of loader components (mainly gearbox, torque converter and brake caliper)

The production line consists of modeling part, sand handling parts and ventilation and dust collecting system.

The main process flow of modeling part: sand pre-charging→model placing→ sand charging and compacted by vibration→ pouring→ cooling→ overturn→(sand pre-charging). Equipment include waterspraying sand charging mechanism, hydraulic overturn machine, hydraulic pull and buffer structure, and conveying track of side rollers, transfer trolley and pouring machine etc.

Main process flow for sand handling part are: (box overturn \rightarrow) sand shakeout \rightarrow sieving \rightarrow lifting \rightarrow cooling \rightarrow lifting \rightarrow middle hopper \rightarrow pneumatic conveying \rightarrow modeling sand hopper(\rightarrow sand pre-charging); equipment include sand shakeout hopper, vibration conveying sieve, bucket elevator, screw conveyor, vertical cooler and pneumatic conveyor system and steel structure of sand hopper etc.



4.7 砂处理成套设备 4.7 THE COMPLETE SET OF SAND PREPARATION EQUIPMENT

4.7.1 砂处理生产线 4.7.1 Sand Preparation Production Line





4.7.2 混砂单元 4.7.2 The Unit of Sand Mixing



主要技术参数

Main Technical Specifications

项目名称 Item	达到指标 Index	项目名称 Item	达到指标 Index	
生产率 Productivity	40~160 t/h	透气性 Air Permeability	>100	
旧砂冷却温度 Cooling temperature of old sand	≤42°C 或 ≤ 室温 +10°C ≤42°C or≤room temperature+10°C	紧实率 Compactability	38%~42%	
湿压强度 Green compressive strength	≥18 N/cm²	灰粉排放浓度 Dust Emission Concentration	≤50 mg/Nm³	
湿拉强度 Wet tensile strength	1.2~1.5 N/cm ²	系统礓豆 Sand Lump	≤3%	



4.7.3 S18 系列强力混砂机 4.7.3 Series S18 Intensive Mixer



主要技术参数

Main Technical Specifications

型号 Model	S1822	S1825	S1829	S1832
生产率 Productivity	40 ~ 60 t/h	60 ∼ 90 t/h	90 ~ 120 t/h	120~ 160t/h
每次加料量 Feeding amount for one time	2000 kg	3000 kg	5000 kg	5500 kg
混砂机盘径 Sand mixer disc diameter	Ф 2200 mm	Ф 2 500 mm	Ф 2900 mm	Ф3200 mm
转子电机功率 Rotor motor power	2 × 90 kW	2 × 110-132 kW	2 × 132-160 kW	2 × 200 kW
机盆电机功率 Machine basin motor power	18.5 kW	22 kW	30 kW	45kW
液压泵电机功率 Hydraulic pump motor power	4 kW	4 kW	5.5 kW	5.5 kW



4.7.4 S86 系列振动沸腾冷却机 4.7.4 Series S86 Vibrating Fluidized Cooler



主要技术参数 **Main Technical Specifications**

型号 Model	S8614	S8618	S8623	S8628
生产率 Productivity	30 ∼ 50 t/h	50 ~ 80 t/h	80 ~ 120 t/h	120 \sim 160 t/h
台面尺寸 Table size	1350 × 6000mm	1800 × 7100mm	2300 × 8000mm	2800 × 8000mm
振动电机功率 Vibrating motor power	2 × 3.7 kW	2 × 5.5 kW	2 × 7.5kW	2 × 10kW
最大激振力 Max. exciting force	2 × 50 kN	2 × 80 kN	2 × 100 kN	2 × 140 kN



4.8 低压铸造机 4.8 LOW PRESSURE DIE CASTING MACHINE



主要技术参数

Main Technical Specifications

参数名称 Specification	型号 Type 单位 Unit	J458	J457(缸体用) (Forcylinder block)	J455A(缸盖用) (Forcylinder head)	J455B	J454	J452A
保温炉容量(AI) Holding furnace capacity	kg	800	650	500	500	400	240
静模板尺寸 Static platen size	mm	2500 × 2400	2000 × 1600	2000 × 1600	2310 × 1635	1950 × 1100	1600 × 1100
动模板尺寸 Movable platen size	mm	1500 × 1500	1780 × 1280	1780 × 1280	1350 × 1150	1350 × 1100	1200 × 900
动模板行程 Movable platen stroke	mm	1900	1250	1050	1500	900	750
导杠内间距 Distance between guide bars	mm	1900 × 1900	1400 × 900	1400 × 900	1950 × 1115	1015 × 765	865 × 625
开型力 Die opening force	kN	245	200	176	180	150	150
合型力 Die locking force	kN	360	144	120	150	190	190
顶出力 Ejectionforce	kN	450	200	176	225	150	150
抽芯行程 Core-pulling stroke	mm	500/300	200/150	200/150	200/300	200/150	200/150
顶出行程 Ejection stroke	mm	120	反顶	反顶	100	150	反顶
油泵电机功率 Pump motor power	kW	37	15	15	15	15	15
保温炉额定功率 Holding furnace rated power	kW	42	36	36	36	30	24
机器重量 Weight	t	40	22	18	25	13	10



4.9 汽车 U 型纵梁五主机数控三面冲孔线 4.9 CNC PUNCHING LINE FOR WEB AND FLANGES OF U BEAM WITH FIVE PUNCHING UNITS



产品简介

U 型槽合纵梁板材全自动上、下料,板料自动定位, 全线自动运行,不用人工干预,特别适用于 U 型槽合汽车 纵梁三面冲孔的自动化批量生产。

三面冲孔是指加工纵梁的腹面和两个翼面上的孔,整机 5 个冲孔单元,三个布置在机床垂直面上,加工腹板孔;另两个布置在机床的左、右侧,加工两翼面孔。

Introduction of products

Automatic loading and unloading of U beam, automatic location, and automatic operation without manual work. Especially suitable for automatic batch production for holes on web and flanges of U beam. The whole line has five punching units for the holes on web and both flanges of U beam, three units are vertical for the web holes, while the other two are assembled on the left and right sides of the machine line for the flanges holes.



产品简介

腹面冲孔大主机一台、小主机两台。大主机冲纵梁大孔,两台小主机均可沿 X、Y 轴移动,实现同时冲纵梁小孔,加工效率大幅提高。

Introduction of products

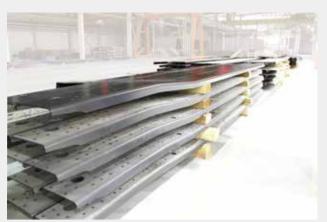
One big and two small punching units for web of U beam. The big one is for big holes, while the two small ones which can move along X and Y axis are for small holes. The productivity is greatly improved.



4.10 汽车纵梁数控折弯生产线 4.10 CNC BENDING LINE FOR TRUCK BEAM



大梁弯生产线 CNC Bending Line for Truck Beam



汽车纵梁折弯工件 Bending Work Piece of Truck Beam



自动上、下料 Automatic Loading and Unloading

主要特点

- ■为汽车行业新型载重的纵梁及加强梁成型而设计制 造。
- ■全自动上、下料,板料自动定位,全线自动运行, 无需人工干预即可自动完成 U 型纵梁折弯成型加工。
- ■全自动完成前宽后窄车架纵梁及加强梁的柔性加工, 简单调整即可达到不同纵梁及加强梁的成型。
 - ■成型精度好,优于传统的模具成型工艺。
- ■各部分衔接紧密,结构合理。电气,液压,气动多 采用进口元件,控制灵活,精确。

Main Features

- ■Especial for bending of side member and straightening beam of heavy truck.
- Automatic loading and unloading, automatic location, and automatic bending operation for beam without manual work.
- Automatically complete the flexible process of front- wide & becknarrow beam; different bending can be realized by simple adjustment.
- High accuracy, superior to traditional tool bending process.
- Compact connection, reasonable structure, imported electrical, pneumatic, and hydraulic components; agile and accurate control.



4.11 汽车纵梁辊压成型生产线 4.11 ROLL FORMING PRODUCTION LINE FOR TRUCK BEAM





纵梁校平剪切部件 Leveling and Cutting Unit for Beam



纵梁辊型部件 Roll Forming Unit for Beam



汽车纵梁冷弯成型生产线是专门为轧制各种汽车纵梁而设计制造的 Especially for roll forming various truck beams





主要技术参数

Main Technical Specifications

适用材料 Suitable material	高强度钢板 High-tensile steel	
材料厚度 Thickness	4~8mm	
成型板宽 Width	≤ 550mm	
轧制速度 Rolling speed	0~15m	
卷重 Coil weight	10t	
卷料内径 Inner diameter	Φ610 / Φ762	
成型范围 Forming range	宽度 (Width) 200-320mm 高度 (Height) 45-100mm	

4.12 数控开卷矫平飞剪生产线 4.12 CNC CUT TO LENGTH ROTARY SHEAR PRODUCTION LINE



RS -3×1850 汽车外板飞剪生产线 Cut to Length Rotary Shear Production Line for Automobile Outer Panel



双曲拐飞剪机 Double Crank Rotary Shear



换辊盒式六重矫平机 6-High Leveler with Rolls Cassete changing Function



双堆垛 Double Stacking Stations





RS-2×800 飞剪生产线 Cut to Length Rotary Shear Production Line

产品简介

该系列生产线用于将不同规格的金属卷料 , 经过开卷、矫平、定尺、飞剪成为所需长度和宽度的平整板材 , 适用于加工冷轧板、镀锌板、彩涂板 ;

本生产线采用 PLC 集中控制,实现高自动化、高精度、高效率生产。

主要特点

该系列飞剪线每分钟剪切 150 次,最大运行速度为 80 米 / 分钟。采用六重式多辊矫平机,板料平整无伤痕; 飞剪由伺服电机驱动,剪切精度高; 双工位堆垛, 高效快速, 友好的人机界面。

Introduction of products

It is used to decoil, level, fix length, shear the coil of different specifications into the flat plate with required length and width. It is suitable to cold rolled plate, galvanized plate, and color coated plate; This line is centralized controlled by PLC, which makes it more effective and accurate.

Features

This series of Rotary shear lines cut 150 times per minute, the Max. operating speed is 80m/min.By use of 6- hi multi~roll leveler, the sheet is flat without scars. The Rotary shear is driven by the servo motor with a high cutting accuracy. Double stacking stations make quick and effective work. The line has a friendly man machine interface.



4.13 数控高强开卷矫平跟踪剪生产线 4.13 CNC FOLLOWER CUT TO LENGTH PRODUCTION LINE WITH STACKING





引料及粗矫机 Lead- in & Rough Leveler



跟踪剪板机 Follower Shear



自动堆垛机 Auto Stacking Device



精矫机 Precision Leveler

产品简介

该系列生产线用于将不同规格的热轧金属卷料, 经过 开卷、矫平、定尺跟踪剪切成为所需长度的平整板材, 具 备高效率、高精度、占地面积小的特点。

Introduction of products

This line is used to cut hot rolled metal coil of different sizes into leveling sheet through uncoiling, leveling and cut~to~length. It has high efficiency and precision.



5 自动化设备

5 automation equipment

5.1 升降横移式立体停车库

5.1 PSH Mechanical Parking Garage



应用于室外的立体车库 Mechanical Parking Garage for outdoor use



应用于地下停车场的立体车库 Mechanical Parking Garage for Underground parking garage

产品简介

升降横移类机械式停车设备一般为准无人方式:

停车方式:车开上载车板,将车停好,人离开汽车,刷卡或按键即可停车;

取车方式:刷卡或按键操作,车辆随载车板调出,即可取车。

产品特点

型式多样,场地适应性强规模可调,空间利用率高施工周期短、安全性好存取车快捷、维护简便

选型适用

设备层数越高,单位面积存车越多,但存取车效率会降低,因而层数一般不超过六层;

二层升降横移式立体车库特别适应于地下车库的改造 或新建工程:

三至六层升降横移式适应于高度不受限制的新建停车 场和平面停车场的改造。

Introduction of products

Dragging-forms of multiplayer up-down and translation car-base is generally no-man's way:

Parking mode: car to upload the car board, the car parked well, people leave the car, swipe card or press the button can stop;

Pick-up mode: swipe or press operation, the vehicle with the car board call edging out, you can pick up the car.

product characteristics

Diverse patterns, strong site adaptability Adjustable scale, high space utilization Short construction cycle, good safety Easy access and easy maintenance

6.1.3, the selection of the application

The higher the number of equipment layers, the more cars per unit area, but the efficiency of the access vehicle will be reduced, so the number of layers generally does not exceed six layers;

Two-story PSH is particularly suitable for underground garage renovations or new construction projects;

Three to six floors PSH adapts to the highly unrestricted renovation of new and flat parking.



5.2 自动化立体仓库及相关产品

5.2 Automated stereoscopic warehouse and related product



小件自动化立体仓库 Small work pieces automated stereoscopic warehouse



汽车工厂自动化立体库 Automotive Factory automated stereoscopic warehouse

产品简介

产品一:小件自动化立体仓库,主要实现小件货物的立体仓储功能。主要由货架、小型堆垛机、出入库输送系统、RGV、货箱、称重系统、控制系统等组成。可实现货物锁定、库存调整、货位自动分配、货物自动出库、生成报表,可预留 ERP 接口或一次实现 ERP 数据对接。

产品二:玻纤输送及仓储自动化立库,主要实现玻纤工厂的工件输送功能和立体仓储功能,属于中大件自动化立体仓库。玻纤产品的单个工件重量在3吨左右,输送设备和立库系统承受的载荷相对一般物流仓储系统要大很多。本系统产品可推广到各类工业生产的中大件货物的立体仓储。

产品三:汽车工厂的自动化立体库,主要实现汽车生产过程中车身的立体存储功能。主要由货架、巷道堆垛机、外围输送系统、RGV、MES系统等组成。该系统将原有的多个平面车身存储区合并为一个立体存储库,降低设备投资,节约厂房占地面积,减少后期能源消耗。

Introduction of products

Product 1: Small work pieces automated stereopsis warehouse, Realize stereoscopic storage of small work pieces. It is mainly composed of shelves, small stacker, loading and unloading transportation system, RGV, cargo box, weighing system, control system. It can realize cargo locking, inventory adjustment, automatic allocation of cargo space, automatic delivery of goods, report generation, reserve ERP interface or realize ERP data docking.

Product 2: glass fiber transportation and automated stereopsis warehouse, mainly realize glass fiber factory work piece transportation function and stereoscopic storage function, belongs to the large and medium-sized automatic stereopsis warehouse. The weight of a single piece of glass fiber products is about 3 tons, and the load of the conveying and storage system is much larger than that of the general logistics and storage system. The system products can be extended to all kinds of industrial production of bulk goods storage.

Product 3: auto factory automatic stereo library, mainly realize the stereo storage function of the car body in the process of auto production. It is mainly composed of shelves, roadways stacker, peripheral conveying system, RGV, MES system and so on. The system combines the original multiple flat body storage slots into a single stereo library, can reduce the equipment investment, save the plant area and reduce the energy consumption in the later stage.



5.3 汽车工厂各类输送设备 5.3 All kinds of transport equipment in automobile factories



摩擦输送设备 Friction conveyors





滑板输送机 Skateboard conveyors





悬挂链输送机 Hanging chain conveyor





机械工业第六设计研究院有限公司

No.6 Institute of Project Planning & Research of Machinery Industry

公司名称:机械工业第六设计研究院有限公司

Company Name: No.6 Institute of Project Planning & Research of Machinery Industry

http:/www.sippr.cn

机械工业第六设计研究院有限公司(简称中机六院)创建于1951年,是拥有工程设计综合甲级资质的国家大型综合设计研究院,隶属世界500强企业、中央大型企业集团——中国机械工业集团有限公司。

六十余年来,公司完成大中型工程项目 20000 余项, 主编、参编国家和行业标准、规范 33 项;荣获中国土木工程创新最高奖詹天佑奖 2 项、国家科技发明二等奖 1 项、 国家科技进步及优秀工程设计金、银、铜奖 25 项、鲁班奖 12 项、各类省部级奖千余项;获得国家授权专利 158 项,其中发明专利 17 项,软件著作权登记 146 项。

中机六院拥有国家住房和城乡建设部颁发的工程设计综合甲级资质、工程监理综合资质、建筑工程施工总承包一级资质、工程造价咨询甲级资质;国家商务部援外设计、援外监理等资格;质量技术监督局颁发的压力容器、压力管道设计许可证;同时还拥有城市规划、机电设备安装等资质。

中机六院秉承"敢为人先,永争一流"的企业精神,竭力"打造国内一流的绿色与智能工程服务商",为客户提供工程建设领域的全过程、全方位服务,为社会、客户、员工创造更大价值!

SIPPR Engineering Group Co., Ltd (Abbreviated as SIPPR) establishe d in 1951 is a largesized national comprehensive Grade A design instit ute in China subordinated to central enterprise group--- China National Machinery Industry Corporation, one of Fortune Global 500 enterprises. During these 6 decades, SIPPR has finished more than 20000 large & middle-sized projects, attended the compilation of 33 national, local & industry standards and won 2 Zhan Tianyou Prize---the highest prize of China civil engineering projects, 1 2nd Prize of National Scientech Invention, 25 National Gold, Silver & Copper Prizes, 12 Lu Ban Prizes & about a thousand Ministerial & Provincial Prizes, Obtained 158 national patents, 17 invention patent among those; 146 records of software copy right.

SIPPR has the comprehensive grade A design qualification, comprehensive project supervision qualification, grade A building intelligence design & construction qualification, grade A project cost consultation qualification; China aid consultation, design and supervision qualifications issued by the national ministry of commerce; pressure vessel, pressure piping design license issued by Quality and technology supervision Bureau; and also has the city planning, mechanical and electrical equipment installation qualifications etc.

SIPPR sticks to the concept of "Dare to be the first, Striving for Excellence", take the purpose of "Creating the First-class Green & Intelligent Engineering Service Supplier in China" as self responsibility, sincerely looks forward to provide the all round and full range service to the client domestically and globally through the advanced technology, talent and management.

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1 工业窑炉和无机非金属材料行业成套装备

1 Industry Furnace and Kin, Lnorganic Non-metallic Materials Industry Equipment

产品简介

工业窑炉设计和总承包,是中机六院的传统优势专业,设计和承包过从冶炼熔炉到高低温烧成炉、干燥炉的多种炉型。

1000kVA ~ 10000kVA 刚玉冶炼电弧炉, 冶炼温度 2200°C ~ 2300°C。

1800kW ~ 20000kW 碳化硅冶炼电阻炉, 冶炼温度 2200°C。

燃煤气、油、煤、电隧道窑、辊道窑、抽屉窑、钟罩窑、 梭式窑、车式窑,烧成温度800℃~1750℃,用于陶瓷磨具、 陶瓷、耐火材料、及无极非金属材料的烧成或煅烧及焙烧。

远红外钢带干燥炉, 远红外辊道干燥窑。

机械行业各种锻造加热炉、退火窑。

无机非金属材料(磨料、磨具、陶瓷、耐火材料、碳素、 人工晶体、玻璃)行业成套装备。

Introduction of products

Design and general contract of industrial furnaces is one of the traditional dominant specialties of SIPPR, We've undertaken various types of furnaces, such as smelting furnaces, high and low temperature firing furnaces, drying furnaces and so on .

1,000kVA to 10,000kVA corundum smelting electric arc furnace with thesmelting temperature of 2200 $^{\circ}\text{C}$ to 2300 $^{\circ}\text{C}$.

1,800kW to 20,000kW silicon carbide smelting electric resistance furnace with the smelting temperature of 2,200 $^{\circ}$ C .

Tunnel kiln, roller kiln, drawer kiln, bell jar kiln, shuttle kiln, carbottom type kiln with the fuel of gas, oil, coal and electricity and firing temperature of 800°C to 1,750°C used for firing, calcining and baking of vitrified grinding wheel, ceramics, refractory and inorganic nonmetal materials.

Far infrared steel strip drying furnace & far infrared roller drying kiln. All kinds of forging heating furnace and annealing furnace of machinery industry.

Lnorganic Non-metallic Materials Industry Equipment (Abrasive, Abrasive, Ceramic, Refractory, Carbon, Artificial crystal, Glass).

Annex: (Pictures)























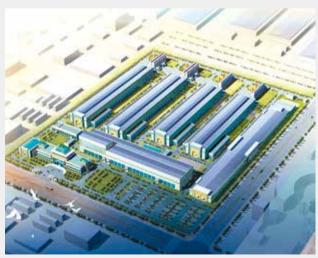






































出口业绩

1. 越南海洋砂轮厂陶瓷磨具生产线工程总承包项目 越南海洋砂轮股份有限公司是越南国内最大的一家磨料磨具生产企业,这次技术改造分两期进行,一期包括: 年产3000 吨. 陶瓷磨具全套生产线装备和工艺升级和改造,包括新增备配料设备、压机、隧道窑和车式窑、全加工车床和磨床、检验设备等;二期包括: 一台4000KVA 棕刚玉冶炼倾倒炉和制粒生产线设备等。

2. 伊朗大不里士耐火材料有限公司 45m3 高温梭式窑 和余热双通道干燥窑

该项目为 45m3 高温抽屉窑, 燃天然气, 窑车式结构, 计算, 机控制系统, 最高温度 1650°C。风机变频控制, 窑炉余热用于坯体干燥, 主要烧成耐火材料, 是节能环保、经济、先进型窑炉。

3. 泰国泰嘉有限公司 26 立方米燃气陶瓷磨具烧成梭式窑泰国泰嘉有限公司是位于泰国首都曼谷附近的一家大型砂轮磨料磨具生产型企业,该项目包含两台 26m3 高温车式窑和1 台干燥窑,燃料为天然气和液化气两用,最高使用温度 1450°C, 主要产品为陶瓷磨具。系统采用计算机群控,具有余热,回收利用及尾气处理功能,窑炉设备性能先进、节能环保、安全可靠、美观大方。

4. 菲律宾吉卡砂轮有限公司 10m3 陶瓷磨具和耐火材料燃气梭式窑

吉卡砂轮有限公司是位于菲律宾奎松市的一家大型砂轮磨料磨具生产型企业,该项目为 10m3 天然气车式窑,燃料为天然气和液化气两用,最高烧成温度 1450°C, 主要产品为陶瓷磨具。系统采用计算机全自动控制,具有余热回收及处理功能,窑炉设备、技术先进、节能环保、经济实用。

5. 圣戈班印度分公司隧道式干燥窑和 72 米高温隧道窑 圣戈班印度分公司是印度国内最大的一家磨料磨具生产企业,这次的新建车间项目年产陶瓷磨具量 3000 吨,该项目包括新增新型混料机,新增 2000 吨和 3000 吨全自动压机各一台,新增隧道式干燥窑和 72 米高温隧道窑各一条,项目的主要特点在于技术先进,节能环保,经济适用。



越南海洋砂轮厂大门 Vietnam marine grinding wheel factory gate

Export performance

1. VITRIFIED GRINDING WHEEL PRODUCTION LINE GENERAL CONTRACT OF VIETNAM HAI DUONG GRINDING WHEEL COMPANY

VietnamHai Duong Grinding Wheel Co., Itd is the largest abrasive & tools production company in Vietnam. Technical innovation this time is divided into two phases. Phase 1 includes: technics upgranding & transformation of the whole set production line equipments with the annual productivity of 3000t vitrified grinding wheel, involving the newly increased dosing equipments.

presses, tunnel kilns, car-bottom kilns, fully processing lathes & grinders and inspection equipments etc.; while phase 2 includes one 4000KVA brown corundum smelting dumping furnace & grain making production line equipments etc.

2. 45 m³HIGH TEMPERATURE SHUTTLE KILN & AFTER HEAT DOUBLEPASSAGE DRY KILN OF IRAN TABDIZ REFRACTORY CO., LTD This project is a 45 m³high temperature shuttle kiln with the fuel of natural gas.It's controlled by computer and its highest temperature is 1650°C . Variable frequency control by the blower; all the afterheat of the kiln will be used for the

drying of semi finished products; it's mainly to fire refractory materials.

3. THAI GIA CO.,LTD 26m³ Vitrified Grinding Wheel Shuttle Kiln
The equipment is two set 26 m³ vitrified grinding wheel shuttle kiln.
The highest firing temperature is 1450°C . The kiln is computer DCS system control that has good looking and nice performance.

4. GICA GRINDING WHEEL CORPORATION

The equipment is 10 m3 vitrified grinding wheel shuttle kiln. The highest firing temperature is 1450°C .The kiln is computer DCS system control that has good looking and nice performance.

5. Grindwell Norton Ltd., Nagpur plant is belong to Saint- Gobain group Which is one of the 500 strongest company in the word. Our equipment is include one set 60m tunnel kiln and one dry for firing .itrified grinding wheel. It's controlled by computer and its highest temperature is 1650°C . The kiln using DCS computer

control system. The kiln systen has variable frequency control by the blower; all the afterheat of the kiln will be used for the drying of semi finished products; it's mainly to fire refractory materials.



越南海洋砂轮厂隧道窑 Vietnam marine grinding wheel factory of tunnel kiln





伊朗大不里士耐火材料有限公司厂房 Factory in Iran Tabriz refractory material Co. Ltd.



伊朗大不里士耐火材料有限公司车间 Iran Tabriz refractory material Co., Ltd. workshop



泰国 26 立方米棱式窑体和电动转运车 Thailand 26 cubic meters of mode of kiln body and electric transport vehicle



泰国泰嘉有限公司厂区大门 Thailand Taijia Co. Ltd. factory gate



菲律宾窑炉 Philippines kiln



印度圣戈班隧道窑 India Saint Gobain tunnel kiln



2 半龙门移动喷漆室

2 Semi-gantry mobile paint spray booth

产品简介

半龙门移动喷漆室起初是中机六院针对机床等行业涂装工艺特点自主研发的移动喷漆室系列产品,为公司的发明专利技术产品(专利号:2011 1 0183865.2),代表了目前国内机床涂装的最高技术水平。该设备的成功研发及应用,很好地解决了机床工厂的涂装工艺及设备选择难题,通过应用验证了该技术的先进性、适用性和可靠性。随着不断推广,该技术产品还可很好地应用于工程机械、机车、煤矿机械、起重运输机械等行业。

Introduction of products

Semi-gantry mobile paint spray booth is the self-developed mobile spray booth products of SIPPR based on the coating process technology of machine tool industry and it's the company's patent technology products(patent number: 20111 0183865.2). Besides, it represents the highest technical level of domestic machine tool coating. The successful development

and application of the device well solves equipment selection problems of the machine tool factory painting process and through the application the applicability and reliability of the technology was well proved. With the continuous promotion of the technology, the product can also be well used,in construction machinery industry, locomotives, mining machinery, material handling equipment and other industries.

产品性能参数

Product performance parameters

喷漆室主要性能参数表 Main Performance Parameters of Spray Booth

序号 S/N	性能指标名称 Name	国内领先水平或国标 Advanced International Level or National Standerd	实测值 Measured Value
1	平均截面风速 Average Section Wind Speed	0.3 ~ 0.5 m/s	0.5 m/s
2	喷漆温度 Painting temperature	10 ~ 20°C	16°C
2	烘干温度 Drying temperature	50 ~ 60°C	55°C
3	控温精度 Dontrol accuracy	±2°C	±1°C
4	照度 Illumination	500 ~ 800 Lx	600 Lx
5	送风洁净度 Air supply cleanliness	F6	F6
6	噪声 Noise	≤80dB (A)	73dB (A)
7	室内压力 Indoor pressure	微负压 Micronegative pressure	微负压 Micronegative pressure
8	废气排放 Exhaust Gas Discharge	浓度 concentration 70mg/m³ 速率 Speed 1.7kg/h	11.5 ~ 28mg/m³ 0.18 ~ 0.4kg/h
9	废水排放 Wastewater discharge	COD:150mg/L BOD:30mg/L 石油类 Petroleum:10mg/L PH:6 ~ 9	COD:47.2mg/L BOD:2mg/L 石油类 Petroleum: 6.48mg/L PH:7.94
10	生产线毒物 Poisons of Production line	50、100mg/m³	< 4mg/m³
11	自动化水平 Automation Level	集散控制 Distributed Control	集散控制,配备自主研发的专用涂装软件,达到行业领先水平 Distributed control with self-developed special Used Plinting soft ware, Reached Advanced World level.





设备全景 Equipment panorama



半龙门移动室体 Half-gantry mobile chamber



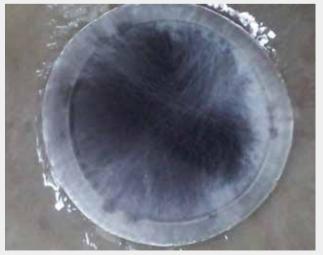
半围护固定室体 Semi-enclosure fixed chamber



移动组合形成密闭喷漆室 Moving combination to form a closed spray chamber



室体内部 Chamber body



水旋器效果 Hydrocyclone effect



二层辅房外景 Two layers of auxiliary room location



排风、废气处理装置 Exhaust fan, Exhaust gas treatment apparatus



空调送风装置 The air conditioning device



循环水池 Recycling pool



3 工业炉余热回收利用系统

3 Industrial furnace waste heat recovery system

产品简介

工业炉余热回收利用系统是机械工业第六设计研究院有限公司针对机械行业工业炉的工作特点自主研发的系列产品,为公司的实用和发明专利技术产品(专利号:20120068312.7 和 201220097461.1),代表了目前国内机械行业工业炉余热回收的最高技术水平。该系统的成功研发及应用,很好地解决了机械行业工业炉余热回收的难题。随着不断推广和创新,该技术产品还可很好地应用于其它行业。

Introduction of products

Industrial furnace heat recovery system is the working characteristics of the machinery industry's self-developed industrial furnace products of SIPPR,at the same time, is the company's practical and technical product patent (patent number: 20,120,068,312.7 and 201,220,097,461.1), on behalf of the highest technical level in the field of the domestic machinery industry industrial furnace waste heat recovery .The system well soluted the machinery industry industrial furnace waste heat recovery problem with its investment application. With the continuous promotion and innovation, the system will be better applied to other industriescan .

3.1 中钢集团西安重机有限公司余热利用系统

3.1 After-heat Recovery System of Sino-steel Group Xi'an Heavy-duty Machinery Co., Ltd













3.2 郑州煤矿机械集团公司烟气余热利用系统 3.2 Smoke After-heat Recovery System of Zhengzhou Coal Mine Machinery Group Co., Ltd











3.3 宝鸡石油机械有限公司烟气余热利用系统

3.3 Smoke After-heat Recovery System of Baoji Petroleum Co., Ltd















3.4 南通通能精机热加工有限公司余热利用系统 3.4 After-heat Recovery System of Nantong Tongneng Refine Machinery Hot Working Co., Ltd













4 整体移动喷漆室

4 Overall mobile paint spray booth

产品简介

整体移动喷漆室是机械工业第六设计研究院有限公司公司针对机床行业中重、大型工件的涂装工艺特点自主研发的移动喷漆室系列产品,为公司的发明专利技术产品(专利号:200710189881.6),代表了目前国内机床涂装的最高技术水平。该设备的成功研发及应用,很好地解决了机床工厂的涂装工艺及设备选择难题。随着不断推广,该技术产品还可很好地应用于石油机械、机车、煤矿机械、起重运输机械等行业。

Introduction of products

Overall mobile spray booth is the machine tool industry, heavy, large parts of the painting process features self-developed mobile spray booth products of SIPPR ,at the same time,is the company's patent technology products (patent number: 200710189881.6) , on behalf of the highest level of domestic machine tool coating technology. The product well soluted the machine tool factory painting process and equipment selection problems. With the continuous promotion and innovation, the product will be better applied to petroleum products machinery, locomotives, mining machinery, material handling equipment and other industries.

产品性能参数

Product performance parameters

	I		\ \
序号 S/N	性能指标名称 Name	国内领先水平或国标 Advanced International Level or National Standerd	实测值 Measured Value
1	平均截面风速 Average Section Wind Speed	0.3 ~ 0.5 m/s	0.5 m/s
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5	送风洁净度 Air supply cleanliness	F6	F6
6	噪声 Noise	≤80dB (A)	73dB (A)
7	室内压力 Indoor pressure	微负压 Micronegative pressure	微负压
8	废气排放 Exhaust Gas Discharge	浓度 concentration70mg/m³ 速率 Speed 1.7kg/h	11.5 ~ 28mg/m³ 0.18 ~ 0.4kg/h
9	废水排放 Wastewater discharge	COD:150mg/L BOD:30mg/L 石油类 Petroleum:10mg/L PH:6 ~ 9	COD:47.2mg/L BOD:2mg/L 石油类 Petroleum: 6.48mg/L PH:7.94
10	生产线毒物 Poisons of Production line	50 、100mg/m³	< 4mg/m³
11	自动化水平 Automation Level	集散控制 Distributed Control	集散控制,配备自主研发的专用涂装软件,达到行业领先水平 Distributed control with self-developed special Used Plinting soft ware, Reached Advanced World level.



设备全景 Equipment panorama



整体移动室体 Integral moving chamber



风管 Air Hose



两台喷漆室组合 Cnmbination of Two Spray Booth



喷漆室内景 Inside of the Spray Booth



风口对接装置 Wind Gap Connection Device





排风及过滤系统 Air Exhaust and filtration system



操控系统 Control System



水循环系统 Circulation



直燃系统 Direct-fired System



沈阳仪表科学研究院有限公司

Shenyang Academy of Instrumentation Science Co., Ltd.

公司名称: 沈阳仪表科学研究院有限公司

Company Name: Shenyang Academy of Instrumentation Science Co.,Ltd.

http:/www.hb-sais.com

沈阳仪表科学研究院有限公司是始建于 1961 年 5 月 5 日的国家级科研院所,原隶属于机械工业部,现隶属于中国机械工业集团公司。从 2003 年开始,先后重组了杭州照相机械研究所、秦皇岛视听机械研究所、沈阳真空技术研究所,被国机集团定格为"核心业务企业"。

本公司是全国仪器仪表元器件和仪表工艺的归口单位, "传感器国家工程研究中心"、"国家仪器仪表元器件产品质量监督检验中心"、"国家照相机械产品质量检测中心"、 "国家真空设备质量监督检验中心"均设在本院。

本公司经过半个世纪的发展, 共完成科研项目 1742 项, 获得国家、部、省、市等各项奖励 366 项, 我院作为四个标准化技术委员会的挂靠单位, 多年来组织起草标准 300 多项, 涵盖传感器、仪表、光学器件、弹性元件、金属波纹膨胀节、智能装备等产品。

本公司通过了 GB/T19001-2016 质量体系认证。通过了军用 GJB9001B-2009 质量认证。企业已建立了全国性营销网络,产品已广泛应用于航天、石化、冶金、水电、供热、供电、煤炭、轻工、建筑、制药等行业,部分产品已远销国外。

Shenyang Academy of Instrumentation Science Co.,Ltd. is a national scientific research institution initially founded in 1961, was subordinate part of National Ministry of Machine-Industry. We are the relevant unit with specific responsibility for standardization of national instrument components and instrument technology, "National Engineering Research Center for Transducer (China)", "National Supervising and Testing Center for the Quality of Instruments and Components", "National Supervising and Testing Center for the Quality of Vacuum Equipment"are established in our academy.

After half-century development, our company has finished 1742 scientific research projects, obtained 366 national, ministry, province and municipal awards. We are the unit affiliated to Four Standardization Technical Committee, organized and the drafted over 300 standards over the past years, covering all of our products like sensor, instruments, optical units, elastic components, metal bellows expansion joints, intelligent equipment.

Our company has passed through ISO9001 Quality System Certification, and passed through GJB9001A-2001 Military Industry Quality Certification for elastic units and sensor products. We established national management network, our products are widely applied in aerospace, petrochemical industry, metallurgy, heat supply, power supply, hydroelectricity, coal, light industry, building, pharmacy and other industries, some products have vbeen sold abroad.

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1.1 GIS/GIL 伸缩节

1.1 GIS/GIL





产品简介

高压组合电器又称作气体绝缘开关(gas insulated switchgear),简称 GIS,补偿器主要用于 GIS 开关母线管 道的安装补偿和温度补偿,GIS 开关补偿器根据系统要求,具有高寿命、低泄露及组合位移等特点,产品对于法兰密 封面、补偿器内部表面及连接处具有严格的要求,否则极易产生泄漏和尖端放电现象,从而影响设备的绝缘性能和整个系统安全。

沈阳汇博热能设备有限公司作为国内研制 GIS 开关补偿器的领军企业,创造了行业内诸多第一,国内第一台500KV GIS 开关补偿器、国内首个百万伏 UHV 超高压示范输变电工程 GIS 开关补偿器均诞生于此,伊敏工程、三峡工程、兰州东工程、苏通 GIL 综合管廊工程及岭澳核电均由汇博独家供货并运行良好。,历经多年发展,现已形成多个系列,电压等级从 110KV-1100KV,部分产品远销德国、日本、韩国、印度等国家和地区。

出口业绩

德国、印度、日本、韩国、法国、英国。

Introduction of products

High voltage switchgear is also known as gas insulated switchgear (hereinafter referred to as GIS). Bellows compensator is mainly used for installation and temperature compensation of GIS bus duct. According to the system requirements, GIS used bellows have the characteristics of high life, low leak and combination movement and so on. Leakage and point discharge phenomenon will affect the insulation performance of the equipment and security of the whole system, so the flange sealing surface, Internal surface and joint of compensator have strict requirements.

As the domestic leading manufacturer of GIS used bellows, Shenyang Huibo Heat Energy Equipment Co., Ltd. creates many first in the industry, the first 500 KV GIS used bellows, the first 1100KV GIS used bellows for UHV transmission and transformation project were born in our company. As the sole supplier, our products work well in many top fields, such as the Yimin project, the three gorges project, lanzhou east project and Lingao nuclear power station. After years of development, the products are ranging from 110 KV to 1100 KV, and some products are exported to Germany, Japan, Korea, India and other countries.

Export performance

Germany, India, Japan, Korea, France, United Kingdom.



1.2 精密金属波纹管

1.2 Precision metal bellows





产品简介

我公司是国内首家从事波纹管研究制造的企业,公司承担火箭、卫星、核动力等尖端领域的产品研制任务,电沉积波纹管、阀用波纹管、波纹管敏感元件及波纹管执行机构等产品代表了我国波纹管制造和研究的最高水平。由我公司研制的精密金属波纹管参与了历次神州系列飞船、载人航天及嫦娥一号卫星的发射任务。公司精密金属波纹管有以下特点:

设计能力先进:应用先进的设计软件进行分析、优化设计:

先进制造技术: 具有上百台先进的工艺设备:

检测手段齐全: 先进的测试、试验仪器;

耐压能力高:最高为60MPa;

温度范围广: -253 ~ 600℃;

直径范围广: Φ1.5mm ~ Φ4800mm;

工作位移大: 2~300mm;

材料种类多:不锈钢 (00Cr17Ni14Mo2、1Cr18Ni9Ti、0Cr18Ni10Ti、0Cr18Ni9); C-276、 镍基合金 (GH4169、GH625、Inconel625等)、GH3030、镍铜合金、Monel400、Ti35、TA2、铌合金等;

结构种类多: U 型、S 型、C 型、 Ω 型、小波距浅波纹、加强结构等。

出口业绩

德国、印度、日本、韩国、法国、英国。

Introduction of products

Electrodeposited bellows are also called electric forming (or electroforming) bellows .It is made by electrodepositing metal material with proper thickness on mandrels have the internal shape and structure of the bellows, and then remove internal mandrels. Manufacturing process about the mechanical properties of deposit layer have extremely high requirements, generally, thickness is within dozens of micron. As the component of pressure response device, volume expansion compensator, coupling, valve seal and precision springs, the electrodeposited bellows are widely used in aviation aerospace, microwave electron, precision instruments and other industrial areas.

tiny size and alien bellows

minimum diameter of 0.75 mm, length of 1 mm

small stiffness, good flexibility, high sensitivity

Stiffness is only about 5% of hydraulic bellows with the same size.

low leakage, large displacement

The displacement can reach 40% of the free length.

good electrical conductivity

Adopting gold plating and silver plating to improve electrical conductivity in some special applications.

good temperature adaptability

The cap using temperature can amount to 250°C, and is especially suitable for low temperature (such as liquid hydrogen and liquid oxygen), material strength can be increased about 30%.

Export performance

Germany, India, Japan, Korea, France, United Kingdom.



2.1 换热器

2.1 Heat exchanger



3.1 硅压阻芯片 3.1 Silicon piezoresistive die



产品简介

我公司研制的强化换热器产品广泛应用于石油、化工、石化、制药、食品等领域。我公司拥有自主知识产权的强化型换热器相较常规强化传热管壳式换热器热传导效率增加5-10%。

公司拥有压力容器制造(D)许可;第一、二类压力容器设计许可。

多年来,我公司完成单一产品研制到成套设备研制的 步伐,依靠技术、制造、质量控制、服务完成多项换热机组、 机站建设。

出口业绩

德国、印度、日本、韩国、法国、英国。

Introduction of products

Company granted with A2 class pressure vessel manufacture license, A class pressure piping components manufacturing license and D2 class pressure vessel design license. We are member units of energy 1 nets of Petro China, market units of Sinopec materials, equipment and spare parts members, agreement spplier of Yihai Kerry Group. Our products are widely used in fields of petroleum, chemical, metallurgy ,heating and food industry.

Export performance

Germany, India, Japan, Korea, France, United Kingdom.

产品简介

- 1、CAD 设计、微电子和微机械加工技术融合制造
- 2、闭合、单开、双开硅电阻电桥连接形式
- 3、矩形、圆形弹性感压膜片构造
- 4、恒流激励灵敏度温度自补偿功能
- 5、反向 PN 结电隔离构造、玻璃绝缘衬片
- 6、适用于表压、绝压、差压、负压测量
- 7、覆盖低、中、高压力范围

Introduction of products

- 1. Designed with CAD, microelectronic and MEMS technology
- 2. Closed,half-open and full-open Wheatstone bridge circuit
- 3. Rectangle and circular elasticity diaphragm structure
- 4. Constant current excitation, sensitivity temperature self-compensated function
- 5. PN junction electrical isolation structure ,glass isolation substrate
- 6. Measuring gauge pressure, absolute pressure, differential pressure and

negative pressure

7. low, medium and high pressure range.



产品性能参数

	项目	参数		
		表压		压
01	量程	35KPa,100KPa,250KPa, 600KPa,1MPa,1.6MPa,2.5MPa	100KPa,250KPa,600KPa, 10MPa,25MPa,40MPa,60MPa	1MPa,1.6MPa,2.5MPa,6MPa,
02	零点失调	≤30mV@1mA		
03	满量程输出	≥30mA(≤35KPa) ; ≥60mV (其它)		
04	非线性	±0.25%F.S.		
05	电源	1 mADC, 5V		
06	零点温度	±0.1%F,SJ °C		
07	温度敏感性	±0.1%F.S./ °C (≤35KPa) ±0.05%F.S./ °C (其它)		
08	过载	2 times scale(≤10MPa);1.5times scale(>10MPa)		
09	桥路阻抗	5 (1±20%) KΩ		
10	工作温度	-45°C ∼ +100°C		
11	短期稳定	±0.05%F.S./8h		
12	尺寸	2700×3450		
	1.非线性数据计算方法为最小二乘法。 2.短期稳定性为 25°C、5VDC 恒压测试。 3.其余测试值均相对 25°C、1mA 恒流测试。 4. 硅片厚度 c=400um、玻璃厚度 d=850um			



Product performance parameters

	ltem	Specifications		
		Gauge pressure	Absolute Pressure	
01	Nominal Scale	35KPa,100KPa,250KPa, 600KPa,1MPa,1.6MPa,2.5MPa	100KPa,250KPa,600KPa, 1MPa,1.6MPa,2.5MPa,6MPa, 10MPa,25MPa,40MPa,60MPa	
02	Offset	≤30mV@1mA		
03	Span Output	≥30mA(≤35KPa) ; ≥60mV (other scale)		
04	Nonlinearity	±0.25%F.S.		
05	Power Supply	1 mADC (typical), 5V (optional)		
06	Zero Temperature Coefficient	±0.1%F.S./ ℃		
07	Sensitivity Temperature Coefficient	±0.1%F.S./ °C (≤35KPa) ±0.05%F.S./ °C (other scale)		
08	Overload Capacity	2 times scale(≤10MPa);1.5times scale(>10MPa)		
09	Bridge Resistance	5 (1±20%) KΩ		
10	Operating Temperature	-45°C ∼ +100°C		
11	Short Term Stability	±0.05%F.S./8h		
12	Chip Size(um)	2700×3450		
Notes	1.Calculating method of nonlinearity is the Least Squares Method. 2.Short Term Stability is tested under 25°C,5VDC. 3.Other results are attained with the reference temperature 25°C,1mADC. 4.Silicon wafer thickness c=400um,glass thickness d=800um			

出口业绩

德国, 意大利, 印度。

Export performance

Germany, Italy, India.



4.1 自动砂轮划片机

4.1 Automatic grinding wheel dicing saw



主要技术参数

- 1.1 可加工板最大尺寸 8" 方盘 (200*200mm)
- 1.2 普通 PCB 板 (FR-4 与 PTFE) 、陶瓷板、玻璃、晶圆等
- 1.3 加工厚度 : 0.1 ~ 4.0mm
- 2、主轴
- 2.1 功率与转速: 交流; 功率 1.5kw; max50000rpm
- 2.2 主轴气压: 0.45 ~ 0.65MPa
- 2.3 冷却方式: 水冷
- 3、X 轴
- 3.1 有效操作行程: 370mm
- 3.2 切割速度: 0.1 ~ 400mm/s
- 4、Y 轴
- 4.1 有效操作行程: 210mm
- 4.2 单步步进精度: ≤ 0.003mm/ 步
- 4.3 全程最大误差: ≤ 0.005mm/170mm
- 5、Z 轴
- 5.1 升降行程: 30mm
- 5.2 升降分辨率: 0.001mm
- 5.3 重复精度: 0.002mm
- 6、θ 轴
- 6.1 转角范围: 0 ~ 360
- 6.2 转角分辨率: 0.0005
- 7、机床参数
- 7.1 工作台平整度: ≤ 10um/100mm
- 7.2 电源: AC220V 3KW
- 7.3 压缩空气:压力 0.55MPa; 300L/

出口业绩

台湾。

MAIN SPECIFICATIONS

- 1.1 Maximum processing size: 8"square(200*200mm)
- 1.2 PCB(FR-4 PTFE), Ceramic plate, Glass, Wafer
- 1.3 Processing thickness: 0.1~4.0mm
- 2 Spindle
- 2.1 Power and speed: AC: Power: 1.5kw: max50000rpm
- 2.2 Spindle pressure: 0.45~0.65MPa
- 2.3 Cooling mode: water
- 3 X-axis
- 3.1 Efficient operation of travel: 370mm
- 3.2 Cutting speed: 0.1~400mm/s
- 4 Y-axis
- 4.1 Efficient operation of travel: 210mm
- 4.2 Single step by step into the accuracy: ≤0.003mm/setp
- 4.3 The whole maximum error: ≤0.005mm/170mm
- 5 Z-axis
- 5.1 Lift travel: 30mm
- 5.2 Movements resolution: 0.001mm
- 5.3 Repeatability: 0.002mm
- 6 θ-axis
- 6.1 Corner of the scope of: 0~360°
- 6.2 Corner resolution: 0.0005°
- 7 Machine parameter
- 7.1 Workbench flatness: ≤10um/100mm
- 7.2 Power supply: AC220V 3KW
- 7.3 Compressed air: Pressure 0.55MPa: 300L/min
- 7.4 Cooling water: Pressure 0.3MPa: 2L/min

Export performance

Taiwan.



5.1 GS 系列高压水清洗机及清洗系统

5.1 GS series of high-pressure water cleaning machines, power plant air cooling, cleaning and sprinkler system



GS 系列高压水清洗机



1、GS 系列高压水清洗机工作核心机构为密封性能良好的三柱塞往复泵,多采用电机驱动,性能稳定,移动方便。(图 1)其主要原理是由高压泵产生高压水,通过喷嘴将高压水转换成高速水射流,对清洗对象进行打击、冲蚀、剥离以达到清洗除垢的目的。可广泛应用于电力行业空气预热器,钢铁行业转炉除尘风机、烟道,石化、油脂、制糖行业换热器类设备以及船舶行业除锈等清洗除垢作业。高压泵的压力等级 0-150Mpa 之间多种可选,降压启动,压力可调。

2、空冷岛清洗及喷淋系统是我国北方富煤少水地区空 冷电站必不可少的设备,其中清洗系统按空冷方式主要分 为直接空冷清洗和间接空冷清洗系统。

直接系统主要由高压水发生装置、高压水输送管路系统、清洗装置和自动控制设备组成。可对空冷系统 A 型散热片进行全方位的自动清洗作业。

主要技术参数

额定工作压力: 0 ~ 15 Mpa (无级可调)

额定流量: 160 L/min 清洗介质: 常温清水 输入功率: 55KW

电源: AC380V, 50Hz



清洗系统

Introduction of products

1, GS series of high-pressure water cleaning machines of the core institutions for good sealing performance of the plunger reciprocating pump, multi-motor drive, stable performance, easy to move. (Figure 1) The main principle is generated by high-pressure pump high pressure water, high-pressure water through a nozzle to convert the high-speed water jet cleaning object to combat erosion, stripping in order to achieve the purpose of cleaning descaling. Can be widely applied to the air preheater of the power industry, steel industry, converter dust blower, flue, petrochemical, oil, heat exchanger type of equipment in the sugar industry and the shipbuilding industry rust such as cleaning descaling operations. Pressure rating of the high-pressure pump-are between 0-150Mpa , a variety of optional, step-down start, pressure adjustable.

2, The air-cooling island cleaning and sprinkler system in north China rich in coal but less water air-cooling power station in essential equipment, which cleaning system according to the air cooling is divided into direct air-cooling cleaning and indirect air cooling cleaning system.

The direct system is mainly composed of high-pressure water device, high pressure water delivery of piping systems, cleaning equipment and automatic control equipment. A-type heat sink air cooling system to a full range of automatic cleaning operations.

MAIN SPECIFICATIONS

Rated working pressure: 0 ~ 15 Mpa (stepless adjustable)

Rated flow: 160 L / min.

Cleaning media: room temperature water

Input power: 55KW

Power supply: AC380V, 50Hz.

技术特点

- 1、清洗效果好:无级可调的工作压力,易于设定最佳工作压力和流量匹配关系,通过专业设计的清洗喷头,实现最佳清洗效果。
- 2、清洗效率高:优化设计的喷头布置,实现最大化的清洗覆盖,一个循环可实现2~3米的清洗。
- 3、自动化程度高:便携式控制系统,操作方便,实现了成套系统的连锁自动控制,只需一人即可完成全部清洗作业。
- 4、环保无污染:采用清水作为清洗介质,无须填加任何化学药剂,费液无须回收。

间接空冷清洗装置由清洗桁架、上下导轨、喷水管路 及行走机构组成。通常整个系统在空冷塔的内部沿着空冷 散热翅片环形布置。

出口业绩

伊朗、乌兹别克、博茨瓦纳、博茨瓦纳、苏丹、阿联酋。

6.1 生化分析滤光片



Technical characteristics

- 1. A good cleaning effect: the stepless the working pressure, easy to set up the optimum working pressure and flow matching relations, through professionally designed cleaning nozzles for optimum cleaning effect.
- 2. the cleaning efficiency is high: to optimize the design of the nozzle arrangement, to achieve maximum cleaning coverage, a cycle can be 2 to 3 m cleaning.
- 3. the high degree of automation: a portable control system, easy to operate, a complete system of automatic control chain, only one person to complete all cleaning operations.
- 4. environmental pollution: water as a cleaning medium, no need to fill to add any chemicals, fee solution is no recall.

Indirect air cooling of the cleaning device consists of cleaning truss, the upper and lower rails, sprinkler piping and running gear. Typically, the entire system within the air cooling tower along the air-cooled cooling fins ring layout.

Export performance

Iran, Uzbekistan, Botswana, Botswana, Sudan, United Arab Emirates.

产品简介

从 1988 年开始生产化分析仪器专用的干涉滤光片, 汇 博光学现已开发形成 3 种类型、4 个尺寸系列、近 30 个 波长、80 多种规格型号的标准生化滤光片产品;

汇博光学公司为国内百分之八十以上的生化仪、酶标 仪制造厂商提供高性能的干涉滤光片产品:

汇博光学公司为美国、丹麦、荷兰、意大利、西班牙等多家国外生化仪器厂商在中国的特约维修中心 、经销商提供高性能的干涉滤光片配件。

超高信噪比,背景抑制达 >OD6。

Introduction of products

HB optical provides all filters below as standard biomedical bandpass filters, which have been widely applied for biochemical analyzers and ELIASA.

Biomedical filters in HB Optical are manufactured by Plasma-assisted Deposition (PAD) and Ion-assisted Deposition (IAD) process, these optical filters are with extraordinary hardness, abrasion resistance, which means nearly unlimited lifetime.

Biomedical filters in HB Optical are all with excellent out-of-band blocking exceed OD6 which can provide high signal-to-noise.



MAIN SPECIFICATIONS

Size	Dia. 10mm, 12mm or 12.7mm	
Minimum Active Area	Dia. 8 or 10 mm	
Size Tolerance	-0.0 mm, -0.1mm	
Thickness	6 or 8 mm	
CWL Tolerance	±20% of FWHM	
FWHM Tolerance	±20% of FWHM	
Surface Quality	80/50; F/F per MIL-F-48616	
Operating Temperature Range	-50°C to +80°C&-50°C to +100°C	
Humidity Resistance	MIL-STD-810F (507.4), Aggravated Humidity (> 10 x 24 hr cycles)	
Blocking	X-ray - 1150nm, T≤0.0001% or OD6	

Center Wavelength	Band Width	Peak Transmission	Size
(nm)	(nm)	(%)	(Diameter x Thickness)
340	9	50	Dx8
380	8	40	Dx8
405	8	35	Dx6
414	8	35	Dx6
450	8	45	Dx6
492	8	45	Dx6
505	8	45	Dx6
510	8	45	Dx6
535	8	45	Dx6
546	8	45	Dx6
578	8	45	Dx6
600	8	45	Dx6
620	8	45	Dx6
630	8	45	Dx6
670	8	45	Dx6
690	8	45	Dx6

出口业绩

出口欧洲、美国,约10万美元/年。

Export performance

Export to Europe, the United States, approximately \$ 100,000 / year.



6.2 圆形渐变密度滤光片

6.2 Circular Variable ND Filters



主要技术参数 MAIN SPECIFICATIONS

Specifications		
Substrate	BK7 Fused silica	
Outside diameter	25mm-100mm	
Inside diameter	7.5mm、8.0mm、8.3mm	
Outside diameter tolerance	+0/-0.15mm	
Inside diameter tolerance	+0.15/-0mm	
Thickness tolerance	±0.1mm	
Parallelism	3 arc minutes	
Standard linearity	±5%	
Standard deviation of density end point	±5%	
Surface quality	80-50	
Coated area	0°-270°	
Calibrated wavelength	550nm	
Design wavelength	380nm-2000nm(BK7)	
	250nm-2500nm(Fused silica)	

出口业绩

出口欧洲、美国,约10万美元/年。

产品简介

通过旋转, 圆形渐变密度滤光片可以对光产生连续的不同程度的衰减。通过光强取决于滤光片上透过点的光密度。这种密度片既可以用于普通光学系统, 也可以用于激光系统中。滤光片尺寸从 25mm 到 100mm 不等。可选光谱衰减范围为 250-2500nm。

Introduction of products

The circular variable neutral density filters can linearly attenuate light as the filter is rotated. These filers can be used for white light as well as for lasers. A large finite aperture can be attenuated by counter rotating two filters in series.

Standard

Model	Outside diameter	Inside diameter	Optical density	substrate
CVND10-B25C	25	8.3	1	BK7
CVND20-B25C	25	8.3	2	BK7
CVND30-B25C	25	8.3	3	BK7
CVND40-B25C	25	8.3	4	BK7
CVND10-B50B	50	8	1	BK7
CVND20-B50B	50	8	2	BK7
CVND30-B50B	50	8	3	BK7
CVND40-B50B	50	8	4	BK7
CVND10-B60C	60	8.3	1	BK7
CVND20-B60C	60	8.3	2	BK7
CVND30-B60C	60	8.3	3	BK7
CVND40-B60C	60	8.3	4	BK7
CVND10-B100A	100	7.5	1	BK7
CVND20-B100A	100	7.5	2	BK7
CVND30-B100A	100	7.5	3	BK7
CVND40-B100A	100	7.5	4	BK7

Export performance

Export to Europe, the United States, approximately \$ 100,000 / year.



6.3 数字放映机用反光镜

6.3 Reflector for Digital Cinema



产品简介

汇博光学数字电影反光镜精确聚焦成像,近紫外及近 红外高透射,可见光高反射,光源利用效率高。

出口业绩

出口欧洲、美国。约10万美元/年。

Introduction of products

Reflectors are precision grinding, yielding exact aspheric profiles. The cold mirror coating reflects visible light while transmitting NIR. These reflectors offer improved thermal stability and superior focusing efficiency. HB-OPTICAL offers virtually all types of reflectors for Digital Cinema & Film Cinema application.

Export performance

Export to Europe, the United States, approximately \$ 100,000 / year

6.4 鱼眼投影镜头 6.4 Fish-eye projection lens



产品简介

鱼眼投影镜头是针对球幕放映的特种镜头,我所研发的鱼眼投影镜头的全视场角从 160 度到 272 度,相对孔径 D/F 为 1/2 至 1/2.6。适应靶面尺寸范围为 0.7-1.8 英寸。画面清晰,亮度、对比度高。可以对直径 1 至 20 米的半球幕和超半球幕投影,并可以根据用户的特殊要求需要单独开发设计。

出口业绩

出口业绩:台湾、美国。

Introduction of products

The lens field of view angle is from 160° to 272, relative aperture D/F is 1/2to1/2.6. The size range of target surface is from 0.7 inches to 1.8 inches. It has high brigheness ,high resolution ,clear image . It can be used for 1-20 meters in diameter hemispheric screen and superhemisperical screen. If the customer has special requirements ,we can design of new lens and make sure it will be best suit for the customer's requirements.

Export performance

Taiwan. United States.



7.1 智能压力 / 差压 / 绝压变送器

7.1 Smart Pressure / Differential Pressure / Absolute Pressure Transmitter



产品简介

HB3051 系列变送器,是采用完全密封的差动电容作为感测元件,利用微处理器技术进行数据采集、处理和通讯的数字式压力/差压变送器。具有精度高、体积小、重量轻、稳定性好等特点。本变送器采用 HART 协仪,可对变送器实现远距离自诊断,回路测试,量程、零点调整,线性、开方(小信号切除)输出选择,输出电流调整,压力微调等功能。可用来测量压力、流量、液位等参数,广泛应用于石油、化工、电力、造纸等工业领域的测量与过程控制。

主要技术参数

测量范围: 见表 1(表中为最大测量范围,量

程比均为10:1,如有需要可选

用量程比 50 : 1 的新型全表贴智能电路板)

输出信号: $4 \sim 20 \text{mA DC}$, 两线制传输(输出电流最大为 24 mA DC) HART 数字输出

精度等级:线性输出,对于 DP 型量程为 3.4.5,为调校量程的 0.2%(其它量程的 $\pm 0.25\%$)。

稳定性: 量程为3、4、5 的, 六个月内不超过最大量程的 $\pm 0.2\%$, 其它量程, 六个月内不超过最大量程的 $\pm 0.25\%$

工作电压:外部供电, 12 ~ 45V DC

正、负迁移:迁移应满足下列条件:调校的量程应在变送器最大量程和最小量程的范围内。调校的测量范围(下限值、上限值)不得超过变送器的测量范围

温度范围:被测介质: -40℃~ 104℃

环境温度: -25℃~ 80℃

Introduction of products

It employs full-sealed capacitive differential pressure sensitive chip and uses the microprocessor technology for data acquisition, processing and communication. The transmitter with the HART communication protocol can remote diagnosis, loop test, range, zero adjustment, linear, square root (small signal elimination) output selection, the output current adjustment, pressure adjusting function. With the feature of high precision, small volume, light weight, high stability, the transmitter applies to measure pressure, flow, liquid level and other parameters, and widely used in petroleum, chemical, electric power, papermaking and other industrial areas of measurement and process control field.

MAIN SPECIFICATIONS

Nominal Scale: 0~7.5kpa, 0~37.5kpa, 0~168.8kpa, 0~690kpa,

0~2086kpa,

0~6890kpa, 0~20680kpa, 0~41730kpa The Turndown Ratio: 10: 1 50: 1 (optional)

Excitation: 12~45VDC

Output Signal: 4~20 mA (DC) (HART communication protocol signal)

Accuracy: ±0.2%,± 0.25%

Medium Temperature: $-40^{\circ}\text{C} \sim 104^{\circ}\text{C}$ Ambient Temperature: $-25^{\circ}\text{C} \sim 80^{\circ}\text{C}$ Storage Temperature $-40^{\circ}\text{C} \ 85^{\circ}\text{C}$

6-month Stability: ±0.2%F•S, ± 0.25%F•S



7.2 HB9500 系列压力变送器

7.2 HB9500 series pressure transmitter



产品简介

HB9500 系列压力变送器,采用扩散硅、陶瓷压阻或陶瓷电容压力传感器,利用压敏电阻的压阻效应和惠斯顿电桥原理以及压变电容原理实现压力的精确测量。本变送器采用专用电信号处理电路,实现标准信号输出。具有稳定性好,测量精度高等特点,特别是陶瓷压阻和陶瓷电容传感器具有较好耐腐蚀性。广泛应用于工业过程控制领域(液体、气体、蒸汽)压力及液位的连续测量。

主要技术参数

量程范围: 0 ~ 60MPa (详见型号及规格代号)

输出信号: 4 ~ 20mA (DC) 、HART 协议信号

精度等级: ±0.2%F S、±0.5%F S

负载能力: 0 ~ 600Ω

过载能力:基准量程的1.5倍

稳 定 性: 一年内不超过变送器的精度

防爆类型: Exia II BT6 (本质安全型)

外壳材料: 模压铸铝

信号线孔: PG16

工作电压: 24V (DC)

环境温度: -30 ~ 80℃

相对湿度: 0 ~ 95%RH

防护等级: IP65 重 量: 0.85Kg

Introduction of products

It employs diffusion silicon pressure transducer as the sensitive element. Based on piezoresistance effect and Wheat-stone bridge principle, pressure accurate vmeasuring is realized. It realizes standard signal output. By special electronic signal processing circuit . With the feature of high stability, high measure precision, especially better corrosion resistance of the ceramic piezoresistance and ceramic capacitance sensor, the transmitters widely apply to such the pressure measurement and the process control field as liquid, gas, steam pressure and liquid level continuous measurement.

MAIN SPECIFICATIONS

Range: 0 ~ 60MPa

Output: 4 ~ 20mA (DC), HART protocol signal

Precision: ± 0.2%F S, ± 0.5%F S

Load Capacity: 0 ~ 600Ω

Overload Capacity: reference range 1.5 times 1-year Stability: ± 0.2%F S, ± 0.5%F S Explosion-Proof Type: Exia II BT6 (safety) Housing Material: Die Cast Aluminum

Signal Line Hole: PG16
Working Voltage: 24V (DC)
Ambient Temperature: - 301 ~ 801
Relative Humidity: 0 ~ 95%RH

Protection Grade: IP65

Weight: 0.85Kg



7.3 HB26S 系列压力变送器

7.3 HB26S series pressure transmitter



产品简介

HB26S 系列压力变送器,采用扩散硅、陶瓷压阻或陶瓷电容压力传感器,利用压敏电阻的压阻效应和惠斯顿电桥原理以及压变电容原理实现压力的精确测量。本变送器采用专用电信号处理电路,实现标准信号输出。整体结构采用不锈钢材质,提供导气电缆和航空插头接线方式,方便现场安装接线。具有稳定性好,测量精度高,体积小、重量轻、性能价格比高等特点,特别是陶瓷压阻和陶瓷电容传感器具有较好耐腐蚀性。应用于航空航天、医药卫生、食品加工、水利、环保、工业过程控制等领域。

Introduction of products

HB26S series pressure transmitter sensitive element is the diffused silicon, piezoresistive or ceramic capacitive pressure sensor, with using of pressure sensitive resistance of the piezoresistive effect and the principle of Wheatstone bridge and pressure-variable capacitance theory to realize the precise measurement of the pressure. The transmitter use special electrical signal processing circuit, realize the standard signal output. The overall structure of it uses stainless steel, and provides the wiring way of air conductivity cables and aviation plug, which is in order to facilitate the on-site installation and wiring. The transmitter has the features of high stability, high accuracy, small volume, light weight and high performance-price ratio etc, especially, the ceramic pressure resistance and ceramic capacitor sensor has a good corrosion resistance. The transmitter is used in the field such as aerospace, medicine and health, food processing, water conservancy, environmental protection, industrial process control, etc.



7.4 UHB/UQK 系列浮球式液位变送器 / 控制器 7.4 UHB/UQK Series Float Level Transmitter / Controller



产品简介

UHB/UQK 采用磁耦合原理,利用随液面变化的浮球给出相应的液位信号、控制信号。浮球、导杆、法兰等可采用不锈钢结构做成普通型,也可采用聚四氟乙稀、ABS 材料做成防腐型。本变送器能有效地克服悬浮物和泡沫等假液位影响,适用于两种液体的界面测量,也适用于普通介质和酸、碱等腐蚀性液体的液位测量、控制。尤其适用于各种带压罐和开口罐的液位测量和控制。对工业和民用建筑水塔、水池、水箱、集水坑、工业槽等液位测量,具有明显的优越性。广泛应用于石油、化工、冶金、食品、环保等行业。

主要技术参数

测量范围: 0 ~ 4m、0 ~ 18m

工作电压: 24V(DC)

输出信号: 4 ~ 20mA(DC)

环境温度: -30 ~ 80℃

测量精度: ±20mm、±10mm

相对湿度: ≤ 95%RH

负载能力: 600Ω

介质压力: 0 ~ 0.6MPa、0 ~ 2.5MPa

防爆类型: Exia II BT6 (本质安全型)

介质温度: -20 ~ 95℃

控制输出: 干簧触点 380V、2A 寿命 5×104 次

介质密度: ≥ 0.6g/cm³

Introduction of products

It employs diffusion silicon pressure transducer as the sensitive element. Based on piezoresistance effect and Wheat-stone bridge principle, pressure accurate vmeasuring is realized. It realizes standard signal output. By special electronic signal processing circuit . With the feature of high stability, high measure precision, especially better corrosion resistance of the ceramic piezoresistance and ceramic capacitance sensor, the transmitters widely apply to such the pressure measurement and the process control field as liquid, gas, steam pressure and liquid level continuous measurement.

MAIN SPECIFICATIONS

Measurement Range: 0 ~ 4m, 0 ~ 18m

Working Voltage: 24V(DC)
Output Signal: 4 ~ 20mA(DC)

Measurement Accuracy: ±20mm, ±10mm

Load Capacity: 600Ω

Explosion-proof Type: Exia II BT6 (intrinsically safe)
OSSD: Reed contacts 380V, 2A Longevity 5×104 times

Ambient Temperature: -30 ~ 80°C Relative Humidity: ≤95%RH

Ambient Pressure: 0 ~ 0.6MPa, 0 ~ 2.5MPa

Medium temperature: -20 ~ 95 °C Medium Density: ≥0.6g/cm³



7.5 UHZ 系列磁翻柱式液位变送器 7.5 UHZ Series Magnetic column level transmitter



产品简介

UHZ 系列磁翻柱式液位变送器采用磁耦合原理,利用随液面变化的磁浮子感应红、绿(或白)两色翻柱指示现场液位高度。其特点是显示直观,可靠性高,经久耐用。该变送器具有 4 ~ 20mA 信号远传及上、下限报警点信号输出功能。安装方式有侧装式和顶装式两种安装形式,适用于立罐、卧罐安装。广泛应用于石油、化工、冶金、食品、制药、环保等行业。

主要技术参数

测量范围: 0 ~ 6000mm

输出信号: 4 ~ 20mA

测量精度: ±10mm、±20mm

负载能力: 0 ~ 650Ω

防爆标志: Exia II BT6 (本质安全型)

输出接点容量: AC220V/2A

介质压力: 0 ~ 4.0MPa

连接法兰:

工作电压: 24V(DC)

开关输出灵敏度: ±10mm

接点寿命: 5×104 次

环境温度: -40 ~ 70℃

介质温度: -40 ~ 100℃

Introduction of products

UHZ series magnetic column overturn liquid Level transmitter is based on the principle of magnetic coupling, magnetic body of floater interact with magnetic body of indicating color column on indicating sheet, result in color column overturn, green (or white) for non-water and red for water, to make sure on-site display liquid Level. Its characteristic is of direct display, high reliability and durability. The transmitter has the functions of signal 4 \sim 20mA remote transmission and upper and lower limit alarm signal output. Its Installation has side-mounted and top-mounted two install form, apply to the installation of standing cans and lying cans. It is widely used in the trade of petroleum, chemical, metallurgy, food, pharmaceutical, environmental protection, etc.

MAIN SPECIFICATIONS

Measurement Range: 0 ~ 6000mm

Working Voltage: 24V(DC) Output Signal: $4 \sim 20 mA$ Accuracy: $\pm 10 mm$, $\pm 20 mm$ Load Capacity: $0 \sim 650 \Omega$

Explosion-proof Type: Exia II BT6 (intrinsically safe)

Output contacts capacity: AC220V/2A Ambient Temperature: -40 ~ 70 °C

Contact life: 5×104 times

Connecting Flange: Side-mounted DN20, DN25

Top-mounted DN200, DN250

Medium Pressure: 0 ~ 4.0MPa Medium Temperature: -40 ~ 100°C Medium viscosity: ≤1st(10-4 m2/s) Medium density: >0.6g/cm³



7.6 WBJ 系列一体化温度变送器

7.6 WBJ series integrated temperature transmitters



产品简介

WBJ 系列一体化温度变送器,是将温度传感器与转换 电路实现一体化结构的测温变送器。本变送器可采用铠装 测温元件,保护套管形式和材质多样。无信号传输损失安 装维护方便,无需补偿导线,可节约成本。具有耐压、抗震, 工作稳定可靠,使用寿命长等特点。可满足高压、高温和 腐蚀性介质的测温需要。

Introduction of products

WBJ series integrated temperature transmitters are integral structure temperature transmitters combining temperature sensor and conversion circuit. Temperature transmitter can be used in armored components, protective sleeve form and variety of materials, no loss of signal transmission, convenient installation and maintenance, without compensating cables, saving costs. It has numerous performances, such as the pressure-proof, vibration-proof, high stability and high reliability, and long service life etc. And it can meet temperature measurement requirement in the high pressure, high temperature or corrosive medium environment.

主要技术参数

输入信号:详见型号及规格代号输出信号:4~20mA(DC)

精度等级: 指温度传感器与转换电路两者误

差的综合,详见误差表 负载电阻:0~500Ω

工作电压: 24V (DC) ±10%

环境温度: -10 ~ 70℃ (热电偶)

40 ~ 85℃ (热电阻)

相对湿度: 5 ~ 95%

MAIN SPECIFICATIONS

Input signal type: Thermal Resistance, Thermocouple

Output signal: $4 \sim 20\text{mA (DC)}$ Accuracy: $\pm 0.5\%, \pm 0.2\%$ Load Resistance: $0 \sim 500\Omega$ Power Supply: $24\text{V (DC)} \pm 10\%$

Ambient Temperature: $-10 \sim 70^{\circ}$ C Thermocouple

-40 ~ 85°C Thermal Resistance

Humidity: 5 ~ 95%



7.7 HB871 投入式液位变送器

7.7 HB871 cast-in liquid transmitter



产品简介

采用扩散硅压力传感器 陶瓷压阻或陶瓷电容压力传 感器,利用压敏电阻的压阻效应和惠斯顿电桥原理以及压 变电容原理实现被测液体一定深度的压力的测量。通过已 知液体的比重,实现液体液位的精确测量。扩散硅传感器 采用扩散硅敏感元件, 冲灌硅油和不锈钢膜片保护, 实现 全硬封结构。具有可靠性高,稳定性好等特点。HB871 适 用于自来水公司、蓄水池、水塔、城市给排水、水井、水 库水位测量。HB872 采用全金属包装,适用于开口油罐、 浮顶油罐的油位测量。并可对油品密度进行现场设定, 具 有重度自补偿功能。HB873 采用陶瓷电容传感器, 耐腐蚀 包装,适用于石油、化工、环保等领域对腐蚀性液体液位 测量。HB874 采用集气原理,通过对压缩气体的压力测量, 实现液位的测量。适用于高温液体的测量。HB872D 具有"本 质安全"性能,可安装在"0"区的推导式液位计,主要用 于水电厂推导油槽的油位测量, 其特点是测量量程小, 测 量不受搅拌带来的液面变化影响,测量稳定。

主要技术参数

量程范围: 0 ~ 200m(详见型号及规格代号)

输出信号: 4 ~ 20mA (DC) 或 0 ~ 10mA (DC)

精度等级: ±0.1%F S、±0.2%F S、±0.5%F S

负载能力: 0 ~ 600Ω

过载能力:基准量程的1.5倍

稳 定 性: 一年内不超过变送器的精度

防爆类型: Exia II BT6 (本质安全型)

工作电压: 24V (DC)

介质温度: -20 ~ 60℃至0 ~ 200℃

Introduction of products

The HB871 submersible liquid-level pressure transmitter is designed specially for precision depth measurement by the density of known liquid. Its sensitive element is the diffused silicon, ceramic piezoresistive or ceramic capacitive pressure sensor, which using of pressure sensitive resistance of the piezoresistive effect and the principle of Wheatstone bridge and pressure-variable capacitance theory to realize the precise measurement of the pressure. Silicon capacitance sensor is filled with silicon oil and stainless steel protection, silicon sensitive component to realize hard sealed structure, which has high reliability, stability and other characteristics. HB871 is suitable for the level measurements of water-supplycompany, water reservoir, water tower, water supply and drainage of the city, well, reservoir. HB872 is wrapped completely in metal and applies to the oil level measurement of open or floating-roof oil tanks, which has the function of the oil density set on site and self-compensation. HB873 uses a ceramic capacitor sensor, corrosion resistant package. applies to the petroleum, chemical industry, environmental protection and other fields of corrosive liquid level measurement. Using the gas collection principle, through the pressure of the compressed gas measurement, HB874 realizes liquid level measurement. It is applicable to high temperature fluid measurement. HB872D has "intrinsically safe" performance, can be installed in the "0" area of the derived type level meter, mainly used for water power plant derived oil tank level measurement, which is characterized by small measuring range, measurement is not affected by the change of the liquid level of agitation brought effect, stable measurement.

MAIN SPECIFICATIONS

Input Range: 0 ~ 200m

Output: 4 ~ 20mA (DC) or 0 ~ 10mA (DC)

Accuracy: ±0.1%F•S, ±0.2%F•S, ±0.5%F•S, ±0.5%F•S

Load Capacity: $0 \sim 600\Omega$

Overload Capacity: 1.5 times basic scale

1-year Stability: ±0.1%F•S, ±0.2%F•S, ±0.5%F•S, ±0.5%F•S

Explosion-Proof: Exia II BT6 (intrinsically safe)

Power Supply: 24V (DC)

Medium Temperature: -20 ~ 60°C; 0 ~ 200°C



7.8 HB2119 压力传感器

7.8 HB2119 pressure sensor



产品简介

HB2119 工业用压力传感器是由于液体和气体压力测量的最通用标准型传感器。传感器内部采用了高敏感硅压阻压力芯片。传感器芯体内部充油已便于压力传导。HB2119压力传感器的设计保证了其优异的长期稳定性,这一点正是工业应用中最重要的特性。

主要技术参数

韩国,德国,南非,意大利。

Introduction of products

HB2119 industry pressure sensor is a standard and most popular sensor applied in air and liquid measuring. A high sensitivity piezoresistive silicon pressure chip employed in the sensor. The housing is filled with oil for pressure transmission. The HB2119 pressure sensor is designed with perfect long term stability which is the most important specification for industry application.

MAIN SPECIFICATIONS

Exported to South Korea, Germany, South Africa and Italy other countries.



产品参数

	性项目	性能参数
01	量程	35KPa ,100KPa, 250KPa, 600KPa, 1MPa, 1.6MPa, 2.5MPa, 4MPa, 6MPa, 10MPa, 16MPa, 25MPa, 40MPa, 60MPa
02	过载能力	2 倍 (35KPa - 2.5MPa); 1.5 倍(4MPa - 60MPa)
03	零点输出	±1mV
04	满量程输出	≥30mA(≤35KPa); ≥50mV
05	精度	±0.1%F.S., ±0.25%F.S., ±0.5%F.S.
06	供电	1 mADC(常规), 5V (可选)
07	电阻阻抗	>100MΩ(100VDC)
08	桥路阻抗	$5(1\pm20\%)$ K Ω
09	长期稳定性	± 0.2%F.S./ Y
10	工作温度	-30°C ∼ 100°C
11	补偿温度	0°C ~ 70°C
12	零点温漂	±0.015%F.S./°C
13	灵敏度温漂	±0.015%F.S./°C
注	1.精度包含迟泄,重复和非线 (最小二乘方公式计算) 2.如无其它标注,所有结果都基于条件为温度 25°C,供电 1mA DC.	

Introduction of products

No.	Item	Specifications	
01	Nominal Scale	35KPa ,100KPa, 250KPa, 600KPa, 1MPa, 1.6MPa, 2.5MPa, 4MPa, 6MPa, 10MPa, 16MPa,	
		25MPa, 40MPa, 60MPa	
02	Overload Capacity	2 times (35KPa – 2.5MPa); 1.5 times (4MPa – 60MPa)	
03	Zero Output	±1mV	
04	Span Output	≥30mA(≤35KPa);≥50mV	
05	Accuracy	±0.1%F.S., ±0.25%F.S., ±0.5%F.S.	
06	Power Supply	1 mADC (typical) , 5V (optional)	
07	Insulation resistance	>100MΩ(100VDC)	
08	Bridge Resistance	5(1±20%)KΩ	
09	Long Term Stability	±0.2%F.S./Y	
10	Operating Temperature	-30℃ ~ 100℃	
11	Compensated Temperature	0°C ~ 70°C	
12	Zero Temperature Coefficient	±0.015%F.S./°C	
13	Sensitivity Temperature Coefficient	±0.015%F.S./°C	
Notes	Accuracy includes hysteretic, repeatability and nonlinearity (the Least Square Method).		
	2.Without other notices, all results are attained with the reference temperature 25°C,1mA DC.		



8.1 VCF 系列真空自耗电极电弧炉

8.1 VCF-Series vacuum consumable electrade arc furnace



产品简介

- 1、用于钛、锆、钽、铌、钨、钼等稀有金属及其合金的真空下熔 炼铸锭。
- 2、用于高温合金、精密合金、特殊钢等的真空下熔炼 铸锭。

Introduction of products

Mainly used for the smelting and ingot casting of such rare metals as Ti, Zr, Ta, No, W and Mo, as well as the high-temperature and precious alloys and special alloy steels.

Basic technical parameters.

主要技术参数

MAIN SPECIFICATIONS

额定容量 Wt.of ingot	1 ~ 12000kg
极限真空度 Ultimate pressure	≤6.7×10²Pa
压升率 Pressure increasing rate	≤1.2Pa/hr
熔炼方式 Melting type	Manual operating/Auto

出口业绩

出口朝鲜、南韩、罗马尼亚、澳大利亚、泰国、日本、俄罗斯等国家。

Export performance

Exported to North Korea, South Korea, Romania, Australia, Thailand, Japan, Russia and other countries.



8.2 VSC 系列真空自耗电极电弧凝壳熔铸炉

8.2 VSC-Series vacuum consumable electrade arc melting/casting furnacing system for shell formation



产品简介

适用于钛及钛合金及活性难熔金属的熔炼与离心浇铸成型。

该产品获国家科学大会奖。

Introduction of products

Applies to the smelting and centrifugal casting/forming of Ti-alloys and active/ refractory metals. The system had won the Award of National Sciance Conference.

主要技术参数

MAIN SPECIFICATIONS

装料量 Charge	10 ~ 1000kg
极限真空度 Ultimate pressure	≤6.7×10 ² Pa
压升率 Pressure increasing rate	≤2.0Pa/hr
熔炼方式 Melting type	Manual operating/Auto

出口业绩

出口朝鲜、南韩、罗马尼亚、澳大利亚、泰国、日本、俄罗斯等国家。

Export performance

Exported to North Korea, South Korea, Romania, Australia, Thailand, Japan, vRussia and other countries.



洛阳轴研科技股份有限公司

Luoyang Bearing Science & Technology Co., Ltd.

公司名称:洛阳轴研科技股份有限公司 Company Name: Luoyang Bearing Science & Technology Co., Ltd.

http://www.sinomach-pi.com.cn

洛阳轴研科技股份有限公司(轴研科技)成立于2001年,于2005年在深交所中小企业板上市,股票代码002046。公司隶属于世界500强中国机械工业集团有限公司(国机集团),是国机集团精工业务的拓展平台、精工人才的聚合平台和精工品牌的承载平台。公司核心企业有三家,分别是成立于1958年的洛阳轴承研究所有限公司、成立于1958年的郑州磨料磨具磨削研究所有限公司以及成立于1981年的中国机械工业国际合作有限公司。另外,公司目前还托管白鸽磨料磨具有限公司和成都工具研究所有限公司两家企业。

轴研科技是一家多元化、国际化的科技型、创新型企业,业务聚焦精密制造领域,在高精度、高可靠性轴承与高速高效超硬材料制品及相关零部件研发与制造、检测与试验方面具有雄厚的实力,居国内领先地位。业务涉及航空航天、汽车与轨道交通、能源环保、船舶兵器、机床工具、石油化工、电子、冶金、建筑等国民经济重要产业,市场遍布全球80多个国家和地区。

公司秉承国机集团"合力同行,创新共赢"核心价值观,践行"客户价值创造者、股东价值提升者、员工价值实现者、创新发展引领者"价值取向,实施"一体四驱"、"六个转型"发展战略,坚持"把产品做好"和"做好的产品",推进"内涵性增长、外延性增长、能动性增长"三大工程,努力把轴研科技打造成为世界一流的精密制造服务商。

Luoyang Bearing Science & Technology Co.,Ltd.(Bearing-sci&tech) founded in 2001 and is a member of China National Machinery Industry Corporation Ltd(Sinomach),which is a listed and Fortune Global 500 enterprise. The company was constituted by Luoyang Bearing Research Institute Co.,Ltd.,China Machinery Industry International Cooperation Co., Ltd,Zhengzhou Research Institute For Abrasives and Grinding Co.,Ltd,White Dove Abrasives Co.,Ltd(trusteeship),Chengdu Tool Research Institute Co.,Ltd(trusteeship), Bearing-sci&tech and Sinomach Precision do major assets restructuring in 2017,it turn into the platform of business development ,talent aggregation and brand publicity for Sinomach Precision.

Bearing-sci&tech is an international, diversified technology and innovation enterprise. It's main business focus in precision manufacturing field, include four main areas: bearing, abrasives & grinding, precision cutting tools, trade and services. We're in leading position in China, with Strong strength for R&D, inspect and test in high precision, high reliability bearing and high speed, high efficient superabrasive product and related parts. Our business involves aeronautics and astronautics, cars and rail transit, environmental protection products, ship and weapon, machine tools, petrochemical products, electronics, metallurgy, construction and so on important industries in the national economy, The company has a market presence in over 80 countries and regions around the world.

The company Adhering to the Sinomach group "Work together win together" core values, practice "Customer value creator, shareholder value enhancement, employee value implementation, innovation and development leader "value orientation, carry out "One four-wheel drive", "Six transformation "development strategy, insist "produce product well" and "produce good product", put forward "Connotation growth, extension growth and initiative growth "project, Do effort to build A to world class precision manufacturing service provider.

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1 轴承业务

1 Bearings

1.1 轴承

1.1Bearings

1.1.1 精密机床轴承

1.1.1 Precision Bearings for Machine tool





产品简介

公司拥有一套比较完善的多目标函数轴承优化设计理念,掌握了超精密级机床轴承的加工和配对技术,是国内极少数能够批量生产 P2、P4 级此类轴承的企业之一。主要产品系列有:H719/HQ1、H70/HQ1 系列,718、719、70、72 系列,H719、H70 系列,B70 系列,760 系列,NN30 系列,2344、2347 系列,YRT 系列。

Introduction of products

Possessing a comparatively perfect bearing optimization design theory of multiple objective function and holding the machining and matching technology of super-precision bearing for machine tool, the company is one of very few domestic enterprises who can carry out the batch production of bearings in P2 and P4 precision level. The main products are H719/ HQ1, H70/HQ1 series; 718, 719, 70, 72 series; H719,H70 series; B70 series; 760 series; NN30series; 2344,2347 series; YRT series.



1.1.2 特种精密轴承 1.1.2 Special Precision Bearings





产品简介

公司专业从事航空、航天、航海、核工业等重要领域专用轴承的设计、开发、制造、检测、试验和应用。特别是在开发生产高温、低温、高速、重载、真空、防辐射、防磁、灵敏、高精度、长寿命等特殊工况专用轴承和卫星姿态控制动量轮方面,具有丰富的经验和优势,其成熟的技术广泛应用于民用高科技领域。

Introduction of products

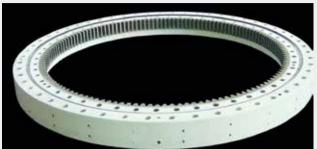
The company is engaged in the design, development, manufacture, measurement, testing and application of special bearings used in various important fields, such as aviation, spaceflight, navigation, nuclear industry, etc. We hold a wealth of experience and advantages in manufacturing the special bearings and satellite attitude control momentum wheel, which perform under such special conditions as high temperature, low-temperature, high speed, heavy duty, vacuum, radiation protection, anti-magnet, sensitiveness, high precision, long life and other special working conditions. Such mature technology has been widely used in civilian high-tech regions.



1.1.3 风电轴承

1.1.3 Bearings for Wind Turbine Generators





产品简介

公司早在 2001 年就承担了国家科技部风电轴承系列技术攻关,已掌握了重型机械等大型轴承的核心技术,形成了具有自主知识产权的产品设计、生产工艺、检测及试验技术,产品达到或接近世界同类产品的技术水平。

公司生产的 ZYS 转盘轴承按结构类型可分为:单排四点接触球转盘轴承、单排交叉滚子转盘轴承、双排异径球转盘轴承、三排圆柱滚子组合转盘轴承、球柱联合转盘轴承等。上述各类轴承按其是否带齿及齿所在的位置又分为无齿式、外齿式和内齿式。

转盘轴承具有较高的动载荷承载能力,能够承受径向力、轴向力以及较大的倾覆力矩,主要应用在起重设备、 吊装设备,通用工程机械领域。

Introduction of products

Since 2001, the company has undertaken the project of wind turbine generator bearing series ~rom National Ministry of Science and Technology, mastering the core technology o~1arge bearings for heavy machineries and forming the product design, production technology, product testing and testing with independent intellectual property rights. Our products have reached or got close to the international technology level of similar products.

ZYS slewing bearings can be divided into the following types according to their structures as single row four point contact ball slewing row, single row cross roller slewing bearing, double row different ball diameter slewing bearing, three row cylindrical roller slewing bearing and roller/ball combination slewing, bearing.

These types of bearings can be

further divided into bearings without gars, bearings with external gears and bearings with internal gears.

This kind of slewing bearings can support high dynamic loads, transmitting axial and radial forces simultaneously as well as the resulting tilting moments. Applications of this kind of bearings are hoisting, mechanical handling and general engineering etc.



1.1.4 轨道交通轴承

1.1.4 Bearings for Rail Transportation



产品简介

公司长期致力于轨道交通系列轴承的研究与开发,满足轨道交通不断增长的高速、重载和高可靠的要求,在轴承的优化设计、制造、润滑、密封以及速度高达 350km/h 的各项性能试验等方面开展了深入系统的研究,突破了多项关键技术,研制出质量可靠、性能优越的产品。

Introduction of products

The company has devoted to the research and development of bearings for rail transportation series for a long time, which meets the increasing needs for high speed, heavy load and high reliability from rail transportation. We have conducted thorough and systematic research on optimized design for bearing, bearing manufacture, lubrication, seal and every performance test with the speed up to 350 km/h, making breakthrough in several key techniques. Thus the products we develop are superior in performance and reliable in quality.



1.1.5 新能源汽车驱动电机专用轴承

1.1.5 Drive Motor Bearing for New Energy Vehicles



产品简介

公司生产的 ZYS H系列新能源汽车驱动电机高速轴承, 内径 15~100mm,广泛适用于新能源乘用车、商用车的高速 驱动电机中。

ZYS H系列轴承适用 -40°C ~150°C 工作温度,具备宽温域、低摩擦、高转速、长寿命等优点,可满足驱动电机低温运转稳定性、高温高速耐久性和急加、减速性能等方面的要求。

Introduction of products

ZYS H series high speed drive motor bearings for new energy vehicles, with inner diameter of 15-100mm, are widely used in high speed drive motors of new energy passenger vehicles and commercial vehicles.

ZYS H series bearings are suitable for working temperature of -40°C~150°C. This series of bearing has the features of wide temperature range, low friction, high speed and long life. It can meet the requirements of low temperature operation stability, high temperature and high speed durability, rapid acceleration and deceleration performance of the drive motor.



1.1.6 其它轴承

1.1.6 Other Bearings









产品简介

公司开发研制的冶金轧机轴承、涡轮增压器轴承、石油钻机轴承、汽车摩托车轴承、高速涡轮牙钻轴承、空调压缩机轴承、机器人轴承等系列产品,广泛应用于冶金、机床、船舶、石油化工、医疗、家用电器、办公自动化等行业。

Introduction of products

The company has manufactured various bearings for metallurgy mill, one way rotating clutch, turbocharger, oil drilling rig, automobile, motorcycle, high speed turbine dental drill, air conditioning compressor, robot, etc. Such bearings are widely applied to metallurgy, machine tool, shipbuilding, petrochemical industry, medical treatment, household appliances, office automation and other industries.

1.2 电主轴

1.2 High-frequency Spindle



产品简介

公司生产的电主轴主要有磨削用电主轴、铣削用电主 轴、钻削用电主轴、离心机用电主轴、车削用电主轴及机 械轴等。

磨削用电主轴有 MD、MDF、MDT、MDS、MDK、多个系列, 广泛应用于内圆磨削、外圆磨削、拉刀磨削、螺纹磨削等。

铣削用电主轴包括 XD、XDS、XDJ 三大系列,与数控铣、雕铣机并联机床相配套,适用于常规零件、工模具、木工件加工。

钻削用电主轴包括 ZD、ZDS 两大系列,主要用于印刷电路板 (PCB)、油泵油嘴等行业的小孔钻削、钻铣削加工,以满足小孔和微孔的需要。

ED 系列高速离心机用电主轴广泛应用于分离、粉碎、雾化、试验等高速离心领域。

CD、CDJ 系列高速车削用电主轴能获得好的加工精度和表面粗糙度,特别适用于铝、铜类有色金属零件的加工。

国内首创的LD系列高速旋碾用电主轴用于加工空调设备热交换器用内螺纹铜管。

Introduction of products

Electric spindles for grinding include MD, MDF, MDT, MDS, MDK series etc. The lubrication ways may be oil mist, oil gas etc. The grinding spindles are widely used in bore grinding, external grinding, hauling grinding, screw thread grinding etc.

Electric spindles for milling include XD, XDS, XDJ three series, which can carry through the high-speed milling and carving processing matched with numerical control milling machine, carving & milling machine and parallel connection machine and are suitable for the normal parts, industrial mould and wooden parts processing . The XDS serial is installed with the automatic power draw bar. With code panel for the XDJ serial electric spindle of the machining center, the rotation speed and accurate stopping can be controlled precisely and the cutter automatic changing are available.

Electric spindles for drilling include ZD and ZDS two series. They are mainly used to small holes drilling, micro-holes drilling in PC6 and pumps & nuzzles. With the automatic power draw bar, the cutter fast and automatic changing is available.

ED series electric spindles far high-speed centrifugal devices are widely used in separation, smashing, fogging and testing etc. high speed centrifugal industry.

CD, CDJ series electric spindles far high speed lathe work make it possible to get the fine processing accuracy and roughness, and are especially suitable for the aluminum, copper colored metal parts processing.

LD series electric spindles far high-speed rotation rolling are used to process the inner screw thread copper pipes of the air conditioner heat exchangers.

XP, XPJ, CPJ series mechanical spindles can be used for the processing centers, numerical control milling machines and lathes etc. Connecting the power by the strap transmission and direct-mounted ways, they have the specialty in high rotation speed and high precision.



1.3 轴承试验机

1.3 Bearing Testing Machine





产品简介

公司在各种滚动轴承试验技术和可靠性理论方面有深入的研究,并从事各种轴承实验装备的开发与制造,承接各类轴承的仿真试验、寿命试验和其他性能试验,研发各类主机(航空、航天、铁路、汽车、摩托车、机床、电机等)的轴承全自动程控模拟试验机。

Introduction of products

The company has conducted in-depth research on the testing technology and reliability theory of all kinds of bearing in the development and manufacture of bearing testing equipments and undertaking the simulation testing and other performance tests for all kinds of bearings .We can also develop and manufacture the fully automatic control simulation testing machines for the bearings used in various machineries (aviation, spaceflight, railway, automobile, motorcycle, machine tool, motor, etc.)



1.4 轴承检测仪器

1.4 Inspection Instruments for Bearing







产品简介

公司生产的轴承检测仪器包括轴承零件尺寸精度、圆度、形状、表面粗糙度测量仪,轴承性能检测仪器以及各类加工过程参数的自动检测和控制仪器等,广泛应用于轴承生产制造现场、检查站、计量室和主装配单位。

Introduction of products

Our main products include the instruments for measuring the dimension accuracy, roundness, profile and roughness of bearing parts, the instruments for inspecting bearing performance and other instruments used to automatically inspect and control various parameters during manufacturing process. These instruments are widely used in bearing workshops, inspection stations, measuring room and assembly factories.



1.5 精密机床

1.5 Precision Machine too I



产品简介

公司可批量生产数控轴承套圈切削设备及自动线、全自动磨床、超精研机、轴承套圈精密冷碾机、半自动微小型球轴承套圈多用磨床等轴承专用加工设备,以及精品球轴承磨超自动生产线。

Introduction of products

The company can supply batch production of various bearing manufacturing equipments, like CNC cutting equipments and automatic production line for bearing rings, automatic grinder, superfinishing machine, precision cold rolling machine forbearing rings, semi-purpose grinder for miniature ball bearing rings and other special manufacturing equipments for bearing. The automatic production line for grinding and superfinishing high-quality ball bearings is also undertaken by our company.



1.6 特种材料制品

1.6 Special Material Products





产品简介

公司在特种材料及特种合金球、陶瓷球、陶瓷轴承等领域具有完善的开发、制造及应用技术,拥有先进的生产设备及试验手段。

主要产品有高精度陶瓷球、硬质合金球、不锈钢球、轴承钢球、高速钢球、M50 钢球、自润滑球、钛合金球、氮化硅、氧化锆、氧化铝工程陶瓷材料及制品、硬质合金制品等。

Introduction of products

With advanced manufacturing equipments and testing methods, we have been devoted to the development, manufacture and application of special alloy balls, ceramic balls and ceramic bearings.

Our main products include high precision ceramic ball, hard alloy ball, stainless steel ball, steel ball, high speed steel ball, MSO steel ball, self-lubricated ball, titanium alloy ball, silicon nitride, zirconia, alumina, engineering ceramic material and products, hard alloy products, etc.



1.7 轴承防锈润滑油品 1.7 Anti-rust and Lubricant Oil Proudcts



产品简介

公司长期从事轴承防锈润滑应用技术研究及相关技术 产品开发,承担行业防锈、润滑、塑料保持架和密封件等 非金属产品的标准制定和产品检测工作。

主要产品有 ZYS-991 轴承减震润滑防锈油、ZYS-998 钢球高效精研液、ZYS-203 优质薄层防锈油、ZYS-HMI60 高速磨削液。

Introduction of products

The company is engaged in the research on the application of antirust and lubricant technology for bearings and other relevant products development, establishing standards for such non-metallic products as anti-rust products, lubricants, plastic cage, seals, etc. and undertaking the product inspection.



2 超硬材料制品

2 Superhard Material Products

2.1 超硬材料制品

2.1 Superhard material products

2.1.1 陶瓷结合剂砂轮

2.1.1 Vitrified bond wheels





产品简介

主要特点:

陶瓷结合剂制品具有切削锋利,效率高,寿命长,磨削不易发热和堵塞,易控制加工精度及修整等特点。

适用加工材料:

陶瓷结合剂金刚石制品:主要用于硬质合金、PCD、PCBN、陶瓷、金属陶瓷等材料的加工。

陶瓷结合剂立方氮化硼制品:主要用于铸铁类(合金铸铁、

冷激铸铁、球墨铸铁等)、钢类(45 钢、55 钢、20Cr 等) 材料的加工。

型号规格:

我公司可按标准 GB/T6409.2-1996 提供陶瓷结合剂超 硬材料砂轮,直径范围: ϕ 8 ~ 750mm,砂轮厚度: 1 ~ 300 mm. 磨料粒度:

60/70 ~ W3.5。并可根据用户要求设计和制造各种 非标磨具。

主要应用领域:

汽车发动机曲轴、凸轮轴等零部件加工;汽车变速器齿轮、齿轮轴、CVT 带轮、CVT 带轮轴等零部件加工;液压泵转、定子加工;制冷压缩机零部件加工;轴承套圈磨削及超精研加工;PCD、PCBN 等超硬刀具加工;拉刀、滚刀等高速钢刀具加工;半导体硅晶圆、LED 蓝宝石衬底、封装体等减薄加工等。

Introduction of products

Main characteristics:

Vitrified products have the features of sharp cutting, high efficiency, long life, less heat and jam generated in grinding, easy control of the precision and easy dressing.

Application:

Vitrified diamond products: For machining tungsten carbide, PCD, PCBN, ceramic, cermet, etc.

Vitrified CBN products: For machining cast iron (alloy cast iron, chilled cast iron, nodular cast iron, etc.), steel(45#,55#, 20Cr, etc.).

Specifications:

Our company is able to provide vitrified superabrasive grinding wheels according to the standard GB/T6409.2-1996. The diameter range is\phi8~750mm; the thickness range is 1~300 mm; the grit size range is 60/70~W3.5.We can also design and make nonstandard grinding wheels according to customers' requirement.

Main Application:

Processing crankshaft, camshaft and other parts of automotive engine; Processing gear, gear shaft, CVT pulley and other parts of automotive transmission;

Processing hydraulic pump, stator;

Processing refrigeration compressor parts;

Processing bearing ring and ultra-finishing processing;

Processing PCD, PCBN and other super-abrasive cutting tools;

Processing broach, hob and other high-speed steel tools;

Processing semiconductor silicon wafer, LED sapphire substrate, packaging and other thinning process.



2.1.2 金属结合剂砂轮

2.1.2 Metal Bond wheels



产品简介

主要特点:

金属结合剂制品具有磨削效率高,砂轮自锐性好,加工余量大,对磨粒的把持能力强,耐磨性好等特点。

适用加工材料:

金属结合剂金刚石制品: 主要用于石英晶体、硬质合金、陶瓷、玻璃、复合片、宝石、铁氧体、耐火材料及热喷涂工件等材料的加工。

金属结合剂立方氮化硼制品:主要用于高速钢、工具钢、模具钢、不锈钢及钛合金等材料的加工。

规格型号:

我公司可按标准 GB/T6409.2-1996 提供各种金属结合剂超硬材料砂轮,直径范围: φ6 ~ 500mm,砂轮厚度: 0.07 ~ 300mm,磨料粒度: 30/35 ~ W3.5,并可根据用户要求设计和制造各种非标磨具。

Introduction of products

Main characteristics:

The features of the metal bond products are high efficiency, good selfsharpening, high stock removal, strong hold and good abrasion resistance.

Applications:

Metal bond diamond products: Mainly used for machining quartz crystal, tungsten carbide, ceramics, glass, composite, sapphire, ferrite, refractory and thermal spraying materials and so on.

Metal bond CBN products: Mainly used for machining high speed steel, tool steel, mould steel, stainless steel and titanium alloy and so on.

Specifications:

Our company is able to provide metal bond superabrasive grinding wheels according to the standard GB/T6409.2-1996. The diameter range is ϕ 6~500mm; the thickness range is 0.07~300mm; the grit size range is 30/35~W3.5.We can also design and make nonstandard grinding wheels according to customers' requirement.



2.1.2.1 金属结合剂重点产品倒边轮

2.1.2.1 Metal bond edge grinding wheel

产品简介

主要特点:

砂轮槽型加工精度高、一致性好、高锋利度、长使用 寿命,可以保证被加工产品的尺寸要求,不崩边、不崩角 完美匹配日本、韩国等进口及国产倒角设备。

适用加工材料:

主要用于各种玻璃、晶体、陶瓷等材质脆性薄板材料的磨边加工,包括ITO 玻璃、PDP 玻璃、石英玻璃、微晶玻璃、光伏及汽车玻璃等,尤其在蓝宝石衬底、碳化硅衬底和硅片等的磨边加工领域,具有国内领先水平。

规格型号:

我公司可按标准 GB/T6409.2-1996 提供各种金属结合 剂倒边轮,也可根据用户要求设计和制造各种非标磨具。

Introduction of products

Main Features:

Grinding wheel groove with high precision, good consistency, high sharpness and long service life.

Guarantee the size requirement of processed products, without edge and corner breaking.

Perfectly match with different imported edge equipments from Japan and Korea etc. and domestic equipments.

Applicable processing materials:

Mainly used for grinding different glass, crystal and ceramics etc. brittle and thin plate material products,including ITO glass, PDP glass, quartz glass, glass-ceramics, photovoltaic and automobile glass etc., especially in the grinding of sapphire substrates, silicon carbide substrates and silicon wafers. It has the leading level in China.

Specifications:

Our company can provide various metal bond edge wheels according to GB/T6409.2-1996, and also can design and manufacture various non-standard abrasives according to user's requirements.



2.1.3 树脂结合剂砂轮

2.1.3 Resin bond wheels



产品简介

主要特点:

树脂结合剂制品具有自锐性好, 切削锋利、磨削效率高,加工工件表面粗糙度低、发热少、不易烧伤工件等特点,适用于大部分工件材料的高效、精密磨削。

适用加工材料:

树脂结合剂金刚石制品: 主要用于硬质合金、陶瓷材料、磁性材料、硅材料、热喷涂合金、金属陶瓷、玻璃、金属树脂复合材料等材料的加工;

规格型号:

我公司可按标准 GB/T6409.2-1996 提供树脂结合剂超硬材料砂轮,直径范围: ϕ 5 ~ 1600mm,砂轮厚度: 0.07 ~ 300mm,磨料粒度: 40/50 ~ W0.5。并可根据用户要求设计和制造各种非标磨具。

Introduction of products

Main characteristics:

The resin bond products have the features of good self-sharpening, sharp cutting, high efficiency, low roughness of work piece surface, few heat generating and without burning work piece. They are suitable for high efficiency and precision grinding of most workpieces.

Applications:

Resin bond diamond products: mainly used for machining tungsten carbide, ceramic materials, magnetic materials, silicon materials, and thermal spraying alloy materials and so on.

Resin bond CBN products: mainly used for machining high speed steel, cast iron and so on.

Specifications:

Our company is able to provide resin bond superabrasive grinding wheels according to the standard GB/T6409.2-1996. The diameter range is $\varphi10\sim700$ mm; the thickness range is $0.07\sim300$ mm; the grit size range is $60/70\sim$ W3.5.We can also design and make nonstandard grinding wheels according to customer's requirement.



2.1.4 高精度超薄超硬材料切割砂轮

2.1.4 High precision and superthin superabrasive cutting wheels



产品简介

高精度超薄超硬材料切割砂轮,简称超薄切割片。主要用于玻璃、陶瓷、金属、树脂及复合材质的精密切断与 开槽。具有切割品质好、效率高、性价比优等一系列优点。

产品优点:

产品规格型号灵活多样,可制作不同粒度、硬度、厚度、外径、内径等切割刀片。

产品切割质量已达到国外同类产品先进水平,可对标 国外各种切割片型号。

产品技术服务及时高效,可为客户定制切割方案,解决各种切割问题。

产品特点:

高精: 厚度精度可达到 ±0.003mm。

超薄: 最薄厚度 0.05mm。

高效:最大进给可达 200mm/s。

Introduction of products

High-precision superthin superabrasive cutting grinding wheel, referred to as superthin cutting wheel. It is mainly used for precise cutting and grooving of glass, ceramics, metals, resins and composite materials. It has a series of advantages such as good cutting quality, high efficiency and high cost performance.

Advantages:

More specifications can be produced with different particle size, hardness, thickness, outer diameter, inner diameter etc.

The quality has reached the advanced level of the same kind of products abroad. It can be marked with various types of cutting pieces abroad.

The technical service is timely and efficient, We can supply customize cutting solutions and solve various cutting problems.

Main Features:

High precision: The thickness accuracy can reach to ±0.003mm.

Super-thin: The thinnest thickness is 0.05 mm.

High efficiency: Maximum cutting feed can reach to 200 mm/s.



2.1.5 轮毂型电镀超薄切割砂轮 2.1.5 ELECTROPLATED BOND BLADES





产品简介

轮毂型电镀超薄切割砂轮用于半导体集成电路和分立 器件制造过程中的开槽、切割、划片以及封装后的切割, 主要切割材料有硅片、砷化镓、玻璃、陶瓷、石英、半导 体复合材料等。

产品特点:

极薄:最薄厚度 0.010mm,满足晶圆极窄街区的切割需求:

耐用: 最长寿命 30000m, 且切割品质稳定;

Introduction of products

Electroplated bond blades with hub are used for slotting, cutting, dicing and singulation in the manufacturing process of semiconductor integrated circuits and discrete devices. The main cutting materials are silicon wafer, gallium arsenide, glass, ceramics, quartz, semiconductor composite materials, etc.

Product Features:

Ultrathin $10\mu m$ blade thickness, enables processing of narrow streets wafer dicing.

Durability: achieves stable dicing quality for 30000 meters.



2.1.6 电镀金属结合剂砂轮

2.1.6 Electroplated bond grinding wheels



产品简介

电镀结合剂超硬材料制品具有结合力强、磨削效率高、 形状误差小、加工精度高、不需修整等优点,产品可以制 作成各种形状,特别适合于特殊复杂型面、几何形状和尺 寸精度要求高等产品的成形加工,从而极大地提高加工效 率,使得相当一部分用其它方法难以加工的产品得以解决。 适用加工材料:

电镀金刚石砂轮:主要用于陶瓷、玻璃、硬质合金、铁氧体等高硬度非金属材料的加工。

电镀立方氮化硼砂轮:主要用于冷激铸铁、铸造合金钢、钛合金等金属材料的加工。

电镀金刚石滚轮:主要用于陶瓷结合剂超硬材料砂轮以及白刚玉、棕刚玉、微晶等普通磨具的修型及修锐工作。

主要应用领域:

主要应用于汽车发动机曲轴、气门、CVT 变速箱带轮滚珠槽、涡轮蜗杆、齿轮轴卡环槽、转向齿条、轴承内圆外圈沟道、新能源汽车减速机、家电制冷、工具、航空航天发动机叶片、各类复合材料等各领域。

Introduction of products

Electroplated superabrasive products have the advantages of strong bonding force, high grinding efficiency, small shape error, high processing accuracy and without dressing.

The products can be made into various shapes, especially suitable for the forming products with special complex shapes, geometric shapes and high dimensional accuracy requirements.

It can greatly improve the processing efficiency and solve the problems which is difficult to process by other methods.

Applicable processing materials:

Electroplated diamond grinding wheel: mainly used for ceramics, glass, cemented carbide, ferrite and other high hardness non-metallic materials processing.

Electroplated CBN grinding wheel: mainly used for chilled cast iron, cast alloy steel, titanium alloy and other metal materials processing. Electroplated diamond roller: mainly used for dressing vitrified superabrasive grinding wheel and conventional grinding wheels of white corundum, brown corundum and microcrystalline etc.

Main Application:

Mainly used in automotive engine crankshaft, valve, CVT gearbox with pulley ball groove, turbine worm, gear shaft chuck groove, steering rack, bearing inner and outer ring groove, new energy automotive reducer, household appliance refrigeration, tools, aerospace engine blades, various composite materials and other fields.



2.2 研磨、抛光制品

2.2 Grinding and polishing products

2.2.1 金刚石研磨膏及研磨液

2.2.1 Diamond compound and slurry





产品简介

研磨液

金刚石研磨液是由微米级金刚石微粉、溶剂及各种助剂经特殊分散悬浮工艺精细配制而成的一种液体产品。金刚石研磨液广泛应用于蓝宝石、碳化硅、陶瓷、玻璃、金属及合金等材料的研磨加工,可高效去除前道的机械损伤层,同时将工件表面粗糙度值降低至纳米级。产品用于研磨加工时,散热快、易清洗、无毒无害。

还可生产各种规格的碳化硅、氧化铝、氧化铈等类别 的研磨液。

包装:瓶装或加仑壶装 规格:500ml或1加仑

Introduction of products

Diamond Slurry

Diamond slurry is a kind of liquid product which is made up of micron diamond powder, solvents and various additives by special dispersive suspension process.

Diamond slurry is widely used in grinding and polishing of sapphire, silicon carbide, ceramics, glass, metal and alloy materials.

It can effectively remove the mechanical damage layer of the front channel and reduce the surface roughness of the workpiece to nanometer level. It has advantage of fast heat transfer, easy cleaning, non-toxic and harmless.

We can also produce grinding slurry of silicon carbide, alumina and cerium oxide and so on.

Packaging: Bottled or galloned pots Specification: 500 ml or 1 gallon



抛光液

纳米二氧化硅抛光液是由纳米级二氧化硅磨料、化学 反应促进剂、溶剂和其它各种助剂用特殊分散悬浮工艺精 细配制而成的一种液体产品,广泛应用于硅、蓝宝石、碳 化硅、砷化镓、氮化镓、铌酸锂、陶瓷、玻璃、金属及合 金等的化学机械抛光加工。纳米二氧化硅抛光液多用于金 刚石研磨液的后道工序,重点提升工件表面质量,工件表 面粗糙度值可优化至亚纳米。产品用于抛光加工时,结晶少、 易清洗、无毒无害。

还可生产纳米金刚石、纳米氧化铝、纳米氧化铈等类 别的抛光液。

包装: 桶装

规格: 25kg

挤压磨料流

金刚石挤压磨料流是由金刚石磨料、载体及各种助剂 均匀捏合在一起而形成的一种半固体或液体产品,重点应 用于金属、陶瓷、玻璃、塑料等各种材质内孔、窄缝、交 叉孔道等的去毛刺、倒角和抛光。产品具有一定的软弹性 和压缩膨胀性能,效率高、无黏附、易清洗、无毒无害。

还可生产碳化硅、氧化铝、氧化铈等类别的挤压磨料 流产品。

包装: 壶装或桶装

规格: 5kg 或 25kg

研磨膏

金刚石研磨膏是由金刚石微粉、载体和各种助剂经特殊分散和成型工艺制备得到的一种膏体产品,广泛应用于硬质合金、陶瓷、宝石、磁性材料及模具、量具、刃具等高硬度材料的加工和修整。具有研磨效率高、加工表面质量好,使用方便等特点。

也可提供立方氮化硼、碳化硅、氧化铝、碳化硼等研磨膏。

包装:管装/袋装/盒装

规格: 5g/10g/50g/100g/500g等,可根据用户要求订制。

Polishing Fluid

Nano-Silica polishing fluid is a kind of liquid product which is made up of nano-silica, chemical reaction promoter, solvent and other additives by special dispersive suspension process.

It is widely used in polishing the chemical mechanical of silicon, sapphire, SiC, GaAs, GaN, LiNbO3, ceramics, glass, metal and alloy etc.

Nano-Silica polishing fluid is mostly used in the later process of diamond slurry, focusing on improving the surface quality of the workpiece, and the surface roughness of the workpiece can be optimized to sub-nanometer. It has advantage of fast heat transfer,easy cleaning,non-toxic and harmless.

We can also produce nano-diamond, nano-alumina, nano-cerium oxide and other kinds of polishing fluids.

Packaging: Barreled

Specification: 25kg

Squeeze abrasive flow

Diamond squeeze abrasive flow is make up by diamond abrasive, carrier and various auxiliaries, they uniform mixing form semi-solid and liquid products. Mainly used for metal, ceramic, glass, plastic material, deburring, chamfer, polishing for inner hole, narrowgap, cross hole. The products have soft elasticity and compression expansion properties, high efficiency, no adhesion, easy to clean, non-toxic and harmless.

It can use to produce silicon carbide, alumina, cerium oxide and other categories squeeze abrasive flow products.

Package:bottle or barrel

Specification:5kg or 25kg

Diamond compound

Diamond compound is a kind of grease product and make up by diamond powder, carrier and various auxiliaries. It is mainly used for processing and dressing carbide, ceramic, gem, magnetic materials and related mould, measure tool, cutter. With the features of high grinding efficiency, good surface quality, easy to use.

Also could provide CBN,SiC, aluminium oxide, boron carbide compound.

Package:tube/plastic bag/box

Specification: 5g/10g/50g/100g/500g.

Can be customized according to user requirements.



2.3 金刚石烧结修整滚轮

2.3 Sintered diamond dressing rollers



产品简介

金刚石修整滚轮是用于大批量成型磨削的专用机床和齿轮磨床加工砂轮修整工具,具有高效率、高寿命、低成本的特点。其工作原理是:通过安装在磨床的修整装置上,对普通陶瓷砂轮或 CBN 砂轮进行修整,砂轮成型后再磨削零件,从而将金刚石滚轮的外形轮廓及精度、尺寸通过砂轮复制到被加工的零件表面。目前国内进口磨齿机配套的金刚石修整滚轮均为进口烧结产品,主要进口厂家为凯撒、温特、则武和进口磨齿机机床原厂。我公司产品采用烧结法制造,磨料选用进口原材料,对其进行精确筛分、选型,并进行表面处理,保证产品在使用过程中不脱粒、掉粒,能够完全替代进口产品,使用寿命超过进口同类产品 20%。

我公司产品用于磨齿机能加工精度等级为3级的精密齿轮。

Introduction of products

Diamond dressing rollers are tools designed for dressing profile grinding wheels and gear grinding wheels with high efficiency, long life and low cost. Currently the imported diamond dressing rollers dominate Chinese market. Our products, which are manufactured by sintering method, with selected and treated imported abrasive grains, can completely substitute imported products with longer life by 20%, even for precision gears with the accuracy up to DIN 3.

直径范围

ф40 ~ 200mm.

应用

用于空调压缩机行业砂轮和高端精密轴承内 / 外圈沟 道砂轮精密修整及磨齿行业砂轮精密仿形修整。

Diameter range

ф40~200mm.

Application

Our diamond dressing rollers can be used for precision-dressing grinding wheels for air-conditioning compressors, the inner / outer raceway of high-precision bearings and for precision profiling dressing gear grinding wheels.



2.4 检测仪器

2.4 Inspection instrument

2.4.1 L 系列回转试验机

2.4.1 L series rotation test machine



产品简介

L 系列回转试验机的主机结构由主轴系统、防护门体, 砂轮辅助安装机构、驱动系统、主轴座、底板等组成。主轴系统采用机械主轴或电主轴, 立式安装, 润滑方式可以采用脂润滑或油雾润滑。

该系列回转试验机的防护门体采用多层复合结构,包括抗冲击层、缓冲层、减震层、外罩等,可以有效抗击并缓冲砂轮破碎时的冲击。回转试验机的电气控制系统按照用户要求选配。

L 系列回转试验机适用于工作线速度不超过 200m/s、有效负载不超过 400Kg、最大厚度不超过 500mm 的各种砂轮的回转强度检验,如高速超硬材料砂轮、超高速 CBN 砂轮、树脂重负荷修磨砂轮、高厚无心磨砂轮以及其他普通磨料砂轮等。

Introduction of products

The main engine of this type is with modular design and constitutes main spindle system, assist wheel install part, driving system, main spindle base and bottom board. Main spindle system is mechanical spindle or electrical spindle and the way of lubricating can be grease lubrication, drop lubrication or fog lubrication. The protective door adopts multiple layer construction including shock resistance layer, cushion layer, buffer layer and outer cover, which can effectively decrease the impact by the breaking of the wheel. The electrical control system is chosen according to customer's requirements. L series test machine is used for the test of grinding wheels with linear speed less than 200m/s, effective load less than 400Kg and maximum thickness less than 500mm including super-abrasives grinding wheel with high speed, CBN grinding wheel with super high speed, resin bond dressing wheel with heavy load, super-thick ceterless grinding wheel and other normal abrasives grinding wheel.



主要技术参数

- 1. 适用砂轮最大直径: 750mm。
- 2. 适用砂轮最大厚度: 400mm。
- 3. 适用砂轮孔径范围: 20mm ~ 305mm(可根据用户要求定制)。
- 4. 最高检验转速: 24000r/min(对应的有效负载不小于 20Kg)。
- 5. 最大有效负载: 400Kg(对应的检验转速不小于 3000r/min)。
 - 6. 主轴径向跳动: ≤ 0.03mm。
 - 7. 检验转速控制误差: ≤ ±2%。
 - 8. 检验转速静态稳定度: ≤ ±2%。
 - 9. 砂轮破碎转速测量误差: ≤ ±0.5%。
 - 10. 最高检验转速维持时间: OS ~ 120S(无级可调)。
 - 11. 检验转速维持时间的定时误差: ≤ ±1.0%。
 - 12. 空载时最大噪声: 80dB(电主轴); 85dB(机械轴)。

Main technical data

- 1. maximum diameter of grinding wheel: 750mm
- 2. maximum thickness of grinding wheel: 400mm
- 3. hole diameter of grinding wheel: 20mm ~ 305mm(to customers' requirements)
- 4. maximum testing speed: 24000r/min(corresponding effective load no less

than 20Kg)

5. maximum effective load: 400Kg(corresponding testing rotation no less than

3000r/min)

- 6. circular run-out of main spindle: ≤0.03mm
- 7. accuracy of testing speed: ≤±2%
- 8. static stability of testing speed: ≤±2%
- 9. accuracy of rotation measure of wheel breading: ≤±0.5%
- 10. time lasting of maximum testing speed: $0S \sim 120S$ (stepless adjusting)
- 11. accuracy of time lasting of testing speed: ≤±1.0%
- 12. maximum noise without load: 80dB(electrical main spindle); 85dB(mechanical spindle).



2.5 磨具生产设备

2.5 Production equipment

2.5.1 MY 系列上压式油压机

2.5.1 MYS Series Cylinder-down Oil presses



产品简介

MY 系列上压式油压机为四柱上压式结构,具有操纵方便,可靠性好,能耗低等特点。液压系统元件集成式安装,具有高效、低耗、可靠性好等特点。本机设有专用的电气控制柜,除依据机械部分的要求必须分散装于各处的电器元件外,其它电器均集中安装在电气控制箱内,操作人员只需操纵相应的开关、按钮,即可对机器进行控制;控制箱上还设有信号灯,以便操作者随时掌握机器的工作情况。

Introduction of products

MY Series Cylinder-above Oil Press adopts 4-piller press-above structure and has features such as easy operation,good reliability,low power consumption. The hydraulic system includes integrated elements and works efficiently with less energy comsuption, good reliability. This machine is equipped with electrical control cabinet, besides according to mechanical requirement some of electrical components have to scattered, others are all installed in cabinet, the operator only need to operate corresponding switch and button to control machine. There is signal light on control cabinet, it's convenient for operator to know machine condition at any time.

主要技术参数 Main technical data

型号 Model	MY-63	MY-100	MY-160	MY-200	MY-250	MY-315
公称压力(KN) Normal pressure	630	1000	1600	2000	2500	3150
油缸行程(mm) Cylinder stroke	250	250	250	250	280	350
活塞 / 杆径(mm) Piston/diamater	Ф 200/Ф 125	Ф220/Ф160	Ф280/Ф220	Ф320/Ф240	Ф360/Ф280	Ф400/Ф320
工作台面(mm) Worktable size	400*360	400*400	600*600	600*600 670*600	650*650	660*730 800*800
最高加热温度(℃) Max heating temperature	250	250	250	250	250	250
主机重量(Kg) Host weight	1100	1440	2500	3000	3500	6000



2.6 超硬材料生产设备

2.6 Superhard materials production equipment

2.6.1 超高压油泵

2.6.1 Ultra-high pressure oil pump

产品简介

JB 系列、SF 系列超高压油泵和 WZ 系列往复增压器是我公司为工业级人造金刚石、宝石级金刚石、单晶及聚晶立方氮化硼、高品质复合片 (PDC、PCBN、NPD) 等超硬材料合成六面顶压机专门研制的超高压增压装备,是传统增压器的更新换代产品,用于六面顶压机的超高压增压及精准补压。

JB 系列超高压油泵额定压力范围为: 90~120MPa, 排量范围为: 0.5~9mL/r; SF 系列超高压油泵额定压力为: 120MPa, 最大排量为: 2mL/r; WZ 系列往复增压器额定压力为: 120MPa, 流量范围为: 10~20L/min。

Introduction of products

JB series,SF series of ultra-high pressure oil pump and WZ series of reciprocating type supercharger were specially designed and developed for the synthetic diamond ,single crystal , poly-crystalline CBN ,and PDC/PCBN etc. super-hard materials synthetic press as the ultra-high pressure matching equipment.It is a renewal product of traditional supercharger. which are used for super high pressure supercharger and precise supercharger of Cubic press.

The rated pressure range of JB series ultra-high pressure oil pump is 90-120 MPa, and the flow range is 0.5-9 mL/r; the rated pressure of SF series ultra-high pressure oil pump is 120 MPa, the maximum output volume is 2 mL/r; and the rated pressure of WZ series reciprocating superchargers is 120 MPa, and the flow range is 10-20 L/min.

2.6.1.1 JB 系列超高压油泵 2.6.1.1 JB Series Ultra High Pressure Oil Pumps



产品简介

荣获十余项国家专利,已在实际生产中普遍性使用。 近年来根据实际应用不断对产品进行改进,在兼顾成本的 条件下,不断提高油泵使用寿命,在保证油泵工作压力的 情况下,降低了事故发生率,延长了维修间隔。

2.6.1.2 SF 系列伺服超高压油泵 2.6.1.2 SF Series of Servo Ultra High Pressure Oil Pump



产品简介

SF 系列伺服电机控制超高压油泵是在 JB 系列超高压油泵基础上开发出的新一代产品,与原 JB 系列超高压油泵相比,保压补压更平稳,控压精度提高 5 倍以上,噪音可降低 50%。

Introduction of products

SF series of servo motor controlled ultra-high pressure oil pump is a new generation product developed on the basis of JB series ultra-high pressure oil pump. Compared with the original JB series ultra-high pressure oil pump, the pressure retaining and pressure replenishing is more stable, the pressure control accuracy is increased by more than 5 times, and the noise can be reduced by 50%.

2.6.1.3 WZ 系列往复增压器 2.6.1.3 WZ Series of reciprocating type supercharger



产品简介

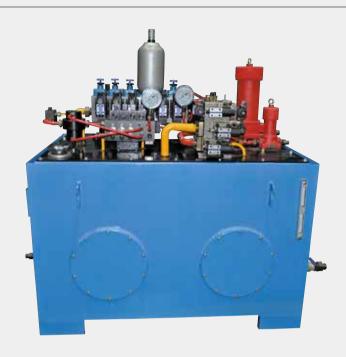
流量提升空间大,有效弥补了 JB 系列超高压油泵流量局限性,主要应用于满足大缸径六面顶压机的大流量快速超压工艺要求,可配合小流量超高压油泵使用,实现快速超压、精准补压。

Introduction of products

The flow lifting space is large, which effectively compensates for the flow limitation of JB series ultra-high pressure oil pumps. It is mainly used to meet the requirements of large flow and fast boosting pressure technology of large cylinder diameter Cubic press. It can cooperate with small flow and ultra-high pressure oil pumps to realize fast boosting pressure and precise added pressure.



2.6.2 六面顶压机液压站 2.6.2 Hydraulic Station of Cubic press



产品简介

YYZ 系列液压站是我公司为工业级人造金刚石、宝石级金刚石、单晶、聚晶、立方氮化硼及复合片 (PDC、PCBN) 等超硬材料合成压机研制的高精度液压控制系统。由插装阀构成的主控阀系统、配有大通径超高压单向阀的配流阀组和高精度卸压阀组成。配套增压源为超高压油泵和往复增压器,可满足 Φ420mm ~ Φ1000mm 缸径压机宽范围使用。

Introduction of products

YYZ series of hydraulic station is specially designed and developed for the synthetic diamond ,single crystal,poly-crystalline CBN,and PDC/PCBN etc. super-hard materials synthetic press as high precision hydraulic control system.

Compatible with ultra-high pressure oil pump. It is suitable for \$\phi650mm^\phi1000mm\$ bore press. The main control valve system is composed of cartridge valve, valve group with large diameter and ultra-high pressure one-way valve and high precision relief valve. Super-high pressure oil pump and reciprocating supercharger are the matching supercharger sources, which can meet the wide range of 420mm to 1000mm cylinder diameter press.

六面顶压机液压站技术参数 Specifications of hydraulic control system.

序号 num	项目 classify	参数 parameter	
1	空程泵流量(L/min) Pump flow	90 ~ 180	
2	最高系统压力(MPa) Maximum system pressure	25	
3	回程压力(MPa) Return pressure	2 ~ 10	
4	电机总功率(kW) Total motor power r capacity	30 ~ 63.5	
5	电源容量(KVA) Power capacity	40	
6	电磁阀电压(V) Valve voltage	AC220	
7	液压油型号 Hydraulic oil model	46 ~ 68#	
8	油箱容积(L) Fuel tank capacity	> 1080	



2.6.3 LMD-II 型电控柜 2.6.3 LMD-II type Electrical Control System Product



产品简介

LMD-II型电控柜是我公司为工业级人造金刚石、宝石级金刚石、单晶、聚晶、立方氮化硼及复合片 (PDC、PCBN)等超硬材料合成压机研制的高精度电气控制系统。其控制精度高、可靠性好、故障率低、操作简单、控制界面通俗易懂,可大幅降低人为操作失误,并具有多种保护和预防措施,从而大幅提高了合成效率和质量。

LMD-II型电控柜为高精度标准配置,满足恒功率、恒电压和压力控制要求。另外,提供温度扩展、位移扩展、压力扩展等选配功能,可满足各类工艺需求。

Introduction of products

LMD-II type of electrical control system is specially designed and developed for the synthetic diamond ,single crystal , poly-crystalline CBN ,and PDC/PCBN etc. super-hard materials synthetic press as high precision electrical control system . it has characters of high control precision , best reliability , low failure rate , and easy operation , and also with user-friendly control interface. It is convenient for manual operation and reduces manual operation errors. It has many protection and prevention measures , which greatly increase the efficiency and quality of diamond synthesis.

LMD-II type of electronic control system is a high-precision standard configuration, which meets the requirements of constant power, constant voltage and pressure control. In addition, it can provide temperature expansion, displacement expansion, pressure expansion and other matching functions to meet all kinds of process requirements.



LMD-II 型电控柜技术参数

Specifications of LMD-II type Electrical Control System

序号	技术参数
1	压力控制范围 0.00 ~ 150.00MPa,调节精度 0.01MPa,保压控制精度 ±0.1MPa。 Pressure control range is 0.0 ~ 150.00MPa,regulation accuracy is 0.01MPa,control accuracy is ±0.1MPa。
2	功率控制范围 0.00 ~ 60.00kW,调节精度 1W,控制精度 ±3W。 Heating power range is 0.0 ~ 60.00kW,regulation accuracy is 1W,control accuracy is ±3W。
3	位移控制范围 0.00 ~ 200.00mm,调节精度 0.01mm,控制精度 0.10mm。 Displacement control range is 0.0 ~ 200.00mm,regulation accuracy is 0.01mm,control accuracy is 0.1mm。
4	可设置 1000 条(每条 31 段) "压力—时间"、"加热—时间"工艺曲线,每段时间长达 30 天以上,可在线实时修改合成工艺。 1000 lines can be set, each with 31 segments of technology curves of pressure-time, power-time, and real-time tracking control of the synthesis process is achieved.
5	满足合成过程中压力曲线保持和跳步、功率曲线保持和跳步,并具有压力微调、功率微调等功能。 Pressure curves and power curves in the synthesis process can be kept and can jump; it also has the functions of pressure tuning, power tuning, etc.
6	实时检测并显示一次电流、二次电流、锤头电压、加热电压、合成压力、合成电阻、补压次数、合成时间、剩余时间、运行状态等过程参数。 Real-time detection is exerted and process parameters are displayed, such as voltage, current, pressure , resistance, etc.
7	可设置压力保护、功率保护、电流保护、电压保护、电阻保护等约 50 种不同类型的报警。About 50 different types of alarms can be set for the synthesis process protection.
8	可设置充液结束压力、补压控制参数、卸压控制参数,加热控制参数、回程压力、回程时间等过程控制参数。 About 30 different types of control parameters can be set for the synthesis process protection.
9	可以在线修改合成工艺设置、报警与控制参数,确保合成过程稳定可靠。 On-line modification of synthesis process settings, alarm and control parameters can ensure that the synthesis process is stable and reliable.
10	可记录 1000 组历史曲线,并可实时在线查询历史记录及相应合成参数。 More than 1000 historical curves can be recorded, and historical curves and the corresponding synthesis parameters can be tracked online real-time.



3 固结磨具 3 bonded abrasives

3.1 磨轧辊砂轮 3.1 Roll Grinding Wheels



产品简介

磨轧辊砂轮主要用于热轧钢板、冷轧钢板、硅钢片、中厚板、连铸连轧及有色金属板材加工等生产线上轧辊的磨削加工。

Introduction of products

Roll grinding wheels are mainly used for grinding work rolls in the production of hot-rolled steel plates, cold rolled steel plates, silicon steel sheets, heavy plates, continuous casting and rolling plates and nonferrous metal plates.

3.2 齿轮磨砂轮 3.2 Gear Grinding Wheels



产品简介

主要用于精密数控机床,配套进口磨齿机,动平衡好, 修正量少。

Introduction of products

High performing wheels with excellent dynastic balance and less wheel dredding for the use on CNC gear grinders.



3.3 磨螺纹砂轮 3.3 Thread Grinding Wheels



产品简介

采用白鸽先进的工艺制造的这种砂轮具有组织均匀, 硬度合适,几何尺寸精确及棱角保持性好等特点。主要用 于磨削优质螺距组、螺纹杆、螺栓、螺钉、开关及管用螺 纹丝锥。

Introduction of products

Thread grinding wheels are mainly used for grinding fine pitch groups, threaded rods, bolts, screws and thread taps with uniform structure, correct hardness, precise geometry and durable edges.

3.4 磨曲轴砂轮 3.4 Crankshaft Grinding Wheels



产品简介

磨曲轴砂轮主要用于磨削汽车、拖拉机及运输机械发动机的各种曲轴。它们中的一部分也适于磨凸轮轴。

Introduction of products

Crankshaft grinding wheels are mainly used for grinding various crankshafts of automobiles, tractors and other vehicles. Some of them are suitable for grinding vcamshafts.



3.5 碟形砂轮 3.5 Dish Grinding Wheels



产品简介

主要适用于刃磨铣刀、铰刀、插齿刀和其它工具磨的刀具。直径大于 200mm 的碟形砂轮主要用于磨插齿刀。

Introduction of products

Dish grinding wheels are mainly used to sharpen milling cutters, reamers, shaper cutters and other cutting tools. The wheels of diameter greater than 200mm are mainly used for shaper cutters.

3.6 珩磨油石 3.6 Honing Sticks



产品简介

珩磨油石主要应用在轴承、液压机械、汽车制造等行业。 超精后的粗糙度可达到 RaO.2-0.01。

Introduction of products

Honing sticks are mainly used in bearings, hydraulic machinery, automotive industry etc.. The roughness can be up to Ra 0.2-0.01 after ultra-precision polishing.



4 成都工具所有限公司

4 Tools and Related Products

4.1 石油专用管螺纹车刀

4.1 Thread Turning Tools for Oil Pipe



产品简介

该系列刀具可优质高效加工各类石油套管、油管、钻杆、抽油杆、采油树、封隔器、隔热管等石油管材以及钻采设备的螺纹,包括符合多种标准的油套管的V形圆螺纹、偏梯扣螺纹、全部规格的石油钻杆螺纹、管线管螺纹等,还可根据用户需要设计制造各种特殊扣型螺纹刀具。该系列刀具具有良好的切削加工性能,根据不同的被加工工件材质,应用范围包括 J55、N80、P110、抗 S 管、高强度管、不锈钢、镍基合金等多种合金材质管材。

Introduction of products

This product series can be applied in thread machining of oil casing, tubing, drill pipe, sucker rod, sealing packer, insulated pipe for various oil pipes and drilling equipments efficiently. CTRI is capable of providing V shaped round thread for standard oil casing, full specifications of oil drill pipe thread, pipeline thread, and also make special threading tools on the basis of client's requirements. This products series show great cutting performance. According to different component materials, products can be used for various alloy steel including J55, N80, P110, anti-S tube, high strength tube, stainless steel, nickel base alloy etc.



4.2 可转位螺纹车刀

4.2 Indexable Thread Turning Cutting Tool



产品简介

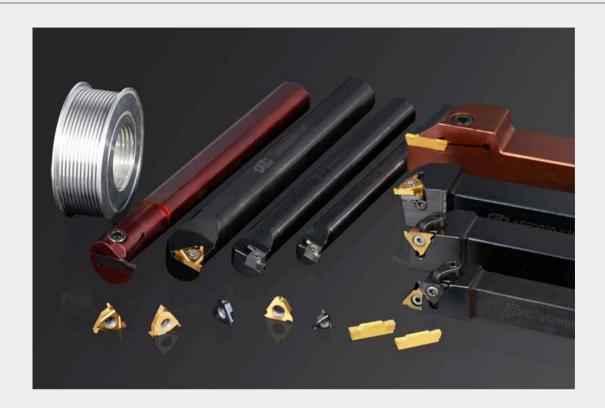
可转位螺纹车刀涵盖各种螺纹型式,包括:局部剖面60°截顶形螺纹,局部剖面55°截顶形螺纹,公制螺纹(ISO),统一螺纹(UN),惠氏螺纹(W),英国管螺纹(BSPT),爱克母螺纹和矮牙爱克母(ACME、STACME),美国石油管螺纹(API),美国管螺纹(NPT),公制梯形螺纹(TR),公制锯齿螺纹(3°/30°)以及英制和美制锯齿螺纹(7°/45°)(B.S.BUTTRESS,ABUTT),同时承接各种非标螺纹定制服务。其刀具精度和切削性能已达国际同类产品水平,根据加工对象材料的不同可提供适用于不锈钢、铸铁、铸钢、高强度钢及有色金属的螺纹刀具牌号。

Introduction of products

Indexable thread turning cutting tools have a wide range of threading types such as ISO, UN, W, BSPT, ACME,STACME, API, NPT, TR, 3°/30°, 7°/45°, B.S.BUTTRESS, ABUTT, and other non-standard special threading types. The cutting precision and cutting performance have reached international level. Different threading cutting tools grades are available for stainless steel, cast iron, cast steel, high strength steel and non-ferrous metal etc.



4.3 浅槽(成型槽)加工专用数控刀具 4.3 Groove Machining Cutting Tool Profile CNC cutting tool



产品简介

本公司开发的硬质合金可转位切槽系列刀具适应各种槽型的成型加工,具有精度等级高、加工效率高、交货时间短等特点和优势。本公司开发的切槽刀按加工空间分为内孔槽刀、外圆槽刀、端面槽刀三类;按槽型结构分为平头槽刀和仿形槽刀两类;按刀片定位方式分为平装、立装两类。加工槽宽为0.5~3.5mm、深度为0.5~4mm,尤其针对内孔槽加工,本公司推出的槽刀可以加工最小孔径为8mm。同时可以根据客户需求设计开发各种异形槽加工成型刀具。

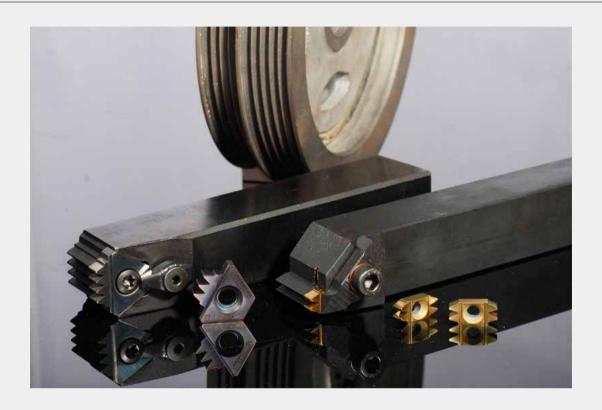
Introduction of products

Carbide indexable groove cutting tools developed by CTRI can be adapted to varieties of groove profile processing and demonstrate high accuracy, better efficiency and short lead time etc. According to different parts to be processed, we divide the grooving tools as inner hole groove inserts, cylindrical groove inserts, and face groove inserts. Based on the groove structure, we divide inserts into flat groove insert and profile grooving insert; also, products can be divided into on-edge and horizontal design in terms of inserts positioning. The groove width can be 0.5~3.5mm and depth is 0.5~4mm, and CTRI groove inserts can be used to machine inner hole as small as 8mm. non-standard cutting tools based on customer's special requests are available.



4.4 汽车皮带轮楔槽加工专用刀具

4.4 Pulley Groove Cutting Tools for Automobiles Application



产品简介

本公司开发的单齿、双齿及多齿(三、四、五齿)结构汽车皮带轮楔槽加工专用数控刀具,使皮带轮加工实现了多楔槽、台阶、倒角一次精密成型加工。该类刀具的开发应用大大提高了皮带轮成品的尺寸精度和表面质量,减少换刀次数和用刀种类,大大缩短单件产品加工时间,让用户在皮带轮加工中极大的提高了生产效率和产品质量,降低了制造成本。

Introduction of products

Pulley groove inserts developed by CTRI including single cutting edge, double cutting edges and multiple cutting edges (three, four and five edges) are specially designed for carbide automobile belt pulley cutting and make one time cutting possible for precise machining of groove, bore, and radius. This application greatly improves accuracy and surface quality of the pulley. It reduces times of changing inserts, shortens machining time per component, improves efficiency and product quality, and thus reduces production cost.



4.5 深孔加工刀具(深孔钻) 4.5 Deep Hole Machining Tool (Deep Hole Drill)



产品简介

可以提供 B 型、P 型机夹式、焊接式深孔钻、扩孔钻和配套钻杆,以及其他非标定制深孔加工刀具,提供更具针对性的深孔加工方案,并提供深孔加工刀具应用技术支持及服务。

Introduction of products

CTRI can provide B type, P-type clamped /welded deep hole drilling, reaming drill, complete set of drill pipe, and other non-standard deep hole machining tools. We provide more individualized deep-hole drilling scheme and technical support in deep hole machining application. Besides.



4.6 金属陶瓷轴承成型刀具 4.6 Cermet Bearing Profile Cutting Tool



产品简介

金属陶瓷材料是一种性能和使用范围介于陶瓷和硬质合金之间的刀具材料。它克服了陶瓷强度、韧性和抗塑性变形能力低的特点,具有陶瓷的高硬度、低密度、对钢的摩擦系数小、抗氧化性能、抗酸碱腐蚀性能优良等特点,同时还兼有硬质合金强度高、抗冲击性能强的特点。其材料硬度可达到 HRA93,抗弯强度 2200Mpa。已广泛应用与轴承车加工、金属切削刀具、耐磨件及密封件等领域。

我公司生产的金属陶瓷轴承成型刀具,主要用于轴承套圈加工上的成型加工,主要加工套圈的滚道、密封槽、倒角、大小油沟等。目前主要为轴承套圈车加工自动线配套,可为各种型号的深沟球轴承、圆锥滚子轴承、滚针轴承及其他类型的非标成型车加工及数控车加工提供全套解决方案。

Introduction of products

Cermet, a kind of insert material whose performance and application is between ceramics and carbide. It overcomes ceramics' disadvantage of low strength, low toughness and low resistance to plastic deformation while demonstrates ceramics' advantage of high hardness, low density, low friction coefficient to steel, good anti-oxidization, anti-corrosion, anti-wear and anti-chemical material diffusion; this material also has high strength and anti-impact property of carbide; this material's hardness can reach to HRA93, bending strength can arrive to 2200MPa. Nowadays, cermet material has been widely used in bearing turning, metal cutting, wear parts and sealing parts field.

Cermet bearing profile inserts produced by CTRI are mainly used to do the profile turning on bearing rings to machine track, seal groove, chamfer, front groove, rear groove and so on. Now our products are widely applied in bearing rings turning production line, and we can provide systematic solution for non-standard profile turning and CNC turning of Deep Groove Ball Bearing (DGBB), Tapered Roller Bearing(TRB) and Multi-roll Bearing (MRB) etc.



4.7 第二代 QPQ 复合处理技术与装备

4.7 Second Generation of QPQ Complex Salt Bath Treatment Technology and Equipment





产品简介

成都工具研究所有限公司经过10多年的潜心试验研究,终于在原有 QPQ 技术(该技术曾获国家科技进步二等奖)基础上成功开发了第二代 QPQ 技术——深层 QPQ 技术,其化合物层深度由原有 QPQ 技术的15~20 微米增加到30~40微米,甚至更深。第二代 QPQ 技术环保、无污染,可完美替代普通镀铬、镀镍工艺。耐磨性比淬火及渗碳淬火高10倍以上。抗饰性比镀硬铬高20倍以上。解决硬化变形是其特长,工件几乎不变形。可以同时替代热处理和防锈两道工序。

该技术广泛应用于汽车、摩托车、纺织机械、工程机械、 化工机械、轻工机械、石油机械、枪械、机床、仪器仪表、 齿轮、模具、工具、精密机械、军工、航空、航天等几十 个行业。

向用户提供详细的技术资料,成套的工艺文件,设备 图纸,成套专用设备,期有偿供应生产用盐,免费技术培训, 现场咨询服务,达到稳定投产,并实行终身免费技术服务。

Introduction of products

Chengdu Tool Research Institute Co., Ltd successfully developed the second generation of QPQ technology on the basis of original QPQ technology (used to be Second Prize of National Science and Technology) after 10 years of painstaking experiments and exploration. The second generation of QPQ technology -- deep layer QPQ technology, whose compound layer depth is increased from 15-20 microns to 30-40 microns, or even deeper. The second generation of QPQ technology can be a perfect alternative to ordinary chrome plating and nickel plating process with environmental friendly protection and no pollution. Wear resistance is 10 times higher than quenching and carburizing quenching. The corrosion-resistance is 20 times higher than that of hard chromium plating. The expertise of second generation of QPQ is solving the hardening deformation and therefore no component deformation will be caused. It can simultaneously replace two process including heat treatment and anti-rust.

This technology has wide application in over 10 industries, namely, automobile, motorcycle, textile machinery, engineering machinery, chemical machinery, light industry machinery, petroleum machinery, gun machinery, machine tools, meters and instruments, gears, dies, tools, precise machinery, military, aviation, aerospace etc.

We provide customers with detailed technical data, complete sets of technical documents, drawings of equipment, complete sets of special equipment, compensated supply of production salt, free technical training, on-site consulting service and hence, put into operation to reach stabilized production, and also free lifetime technical service.



4.8 超硬刀具 4.8 Super-hard Cutting Tools



产品简介

超硬系列刀具相比常规合金刀具在其加工实用性上有一定的优势。具有显著的特点:"高速切削"切削灰铸铁 V > 500 米 / 分,"硬态"加工可切削 HRC > 62 的淬硬钢,其工件表面粗糙度 Ra < 0.6um;"以车代磨"加工电子转子紫铜换向器,工件表面粗糙度 Ra=0.1um,超过磨削;"干式切削"采用该刀具切削加工时一般不需要冷却液。同时耐用度是一般硬质刀具的几十倍至几百倍。

我公司生产的超硬系列刀具,品种丰富,包括.PCD刀片、CBN 刀片、整体 CBN 刀片、陶瓷刀片等,还可根据客户要求进行异形及非标刀具的设计制作。

Introduction of products

Compared with the conventional carbide cutting tools, the super-hard cutting tools have some advantages in terms of practical application.

Remarkable characteristics are:

"high cutting speed cutting", Cutting gray cast iron V > 500 m / min; "super-hard ", can be used to machine hardened steel whose HRC is over 62 and component surface smoothness Ra< 0.6um;

"turning instead of grinding", to machine electronic rotor copper commutator, the surface roughness of the component Ra=0.1um, which is better than grinding;

"dry cutting", coolant is not necessary with this cutting tools;

The durability and wear resistance is several times or even hundreds of times over general carbide cutting tools.

CTRI provides large varieties of super-hard cutting tools including PCD bits, CBN inserts, full face CBN inserts, ceramic inserts etc. Also, non-standard cutting tools based on customer's special requests are available.



4.9 金刚石木工刀具

4.9 PCD Woodworking Tool



产品简介

金刚石 (PCD) 木工刀具刀头材料是聚晶金刚石复合片。可用于木质、竹质材料、树脂及其相关制成品及绝大多数非金属材料的加工。应用的行业如地板加工(包括强化木地板、实木及实木叠压地板、竹地板、木塑地板刀具等)、家具业(修边刀、门框刀、各种镂铣刀、划线锯等)、刨花板生产、电子行业线路板切割等。

产品以以金刚石 (PCD) 系列成形刀具和金刚石 (PCD) 圆锯片为主,也有少量硬质合金刀具。

金刚石 (PCD) 木工刀具特点:

- (1)刀具耐用度高、寿命长,是硬质合金刀具的几十倍、 其至上百倍。
 - (2) 可加工硬质合金难加工或无法加工的材料。
- (3) 加工时不粘刀,被加工产品光洁度好,形状保持性好、精度高。
- (4) 加工效率高,可适用于高速切削加工(切削速度可达到:5000m/min,进给速度可达到:120m/min)。
- (5) 传统硬质合金刀具存在需要频繁修磨的问题。使用金刚石(PCD) 木工刀具可大大减少换刀次数、调试废品以及机床调整时间,最大限度提高生产率及质量。

Introduction of products

The material of PCD woodworking is polycrystalline diamond compact. It can be used for wood, bamboo material, resin and related products, most non metallic materials processing. Applied industries include floor processing (enhanced wood floor, solid wood, solid wood laminate flooring, bamboo flooring, wood flooring tooling etc.), the furniture industry (trimming tools, framing tools, router milling tools, lineation saw etc), particleboard production, electronic circuit board industry and so on.

Main products are PCD series profile tools, PCD circular saw tools and some carbide tools.

PCD Woodworking Tools characteristics:

- (1) Higher durability and better life performance, several times or even hundreds of times than carbide cutting tools;
- (2) Can be used for materials that carbide cutting tools are not achievable:
- (3) No sticking on the cutting tools, better component smoothness, good profile and high accuracy;
- (4) High efficiency, applicable for high speed machining (cutting speed: 5000m/min; feeding: 120m/min)
- (5) Traditional carbide tools need to be frequently resharpened. PCD woodworking tools require fewer times of changing inserts, debug waste and machine adjustment time, can improve production efficiency and quality.

4.10 精密复杂硬质合金成型刀具 4.10 Precised Complex Carbide Profile Cutting Tools



产品简介

精密复杂刀具硬质合金化,可提高工件表面质量,增加刀具使用寿命,提高效率。我公司产品主要涉及汽轮机、发电机装备、航空航天等制造行业。特别是在叶片加工,各类叶根,汽轮机转子,发电机转子等关键零件部件加工方面提供成熟、有效的解决方案。

Introduction of products

Carbide profile cutting tool improves component's surface quality, increases cutting tools life performance and productivity. Main products CTRI develops are used in manufacturing industry including turbines, generators equipment and aerospace etc. CTRI provides experienced and systematic solutions in key spare parts such as turbine processing, various root processing, turbine rotor and generator rotor etc.

4.11 焊管加工刀具 4.11 Cutting Tools for Welded Pipe



产品简介

我公司开发生产的各类焊管加工刀具用硬质合金铣边刀片、去毛刺刀片、倒角刀片、切槽切断刀片,具有强度高、抗冲击力强、寿命长等特点。广泛应用于各类焊管铣边、去毛刺、倒角等加工。在80m/min 左右的生产速度,1200°C 左右的高温熔融状态下,刀片将焊缝内外毛刺(毛刺高度3-5mm)一次清除干净,并使焊管内外达到一定精度。

Introduction of products

Carbide edge milling inserts, deburring inserts, chamfer, groove and cutting off inserts for welded pipe developed by CTRI demonstrate great impact resistance and high life performance etc. Those are widely used in various pipe milling, deburring, chamfering and other processing. Under 80m/min production speed and around 1200°C high temperature, inserts can clearly remove internal and external burring (3-5mm burr height) and reach certain accuracy.



4.12 高温合金加工刀具 4.12 The High-temperature Alloy Machining Tool



产品简介

我公司针对钛合金、镍基合金、不锈钢等难加工材料 开发的系列刀具,具有优异的耐磨性、韧性和红硬性。此 类产品广泛应用于航空航天、核电、石油、燃气轮机、水 轮机等军用与民用高端制造领域,我公司产品品质在国内 居于领先水平,大量替代同类进口刀具,具有极高的性价比。

Introduction of products

Cutting tools developed for hard-to-machine material such as titanium alloys, nickel-based alloys, stainless steel show excellent wear resistance, toughness and red hardness. Such products are widely used in aerospace, nuclear power, oil, gas turbine, turbine, other military and civilian high-end manufacturing. The quality of our products is beyond domestic leading level and can be used as alternatives for imported cutting tools with extremely good cost performance.

4.13 汽车零件加工刀具 4.13 Automotive Parts Machining Tool



产品简介

汽车发动机刀具主要用于汽车缸体、缸盖、曲轴、凸轮轴、连杆等汽车零部件的加工,本公司开发了专门针对铸铁及铝件加工的硬质合金材料 GY70 和 GY83 及 PVD 涂层,使刀具的耐用度和稳定性得到极大的提高。

Introduction of products

Automobile engine tool is mainly used for machining automotive block, cylinder heads, crankshafts, camshafts, connecting rods and other auto parts. CTRI has specifically developed carbide grade GY83, GY70 and PVD coating to machine cast iron and aluminum parts to improve durability and stability.

4.14 无心车系列刀具

4.14 Bars Peeling processing Tool



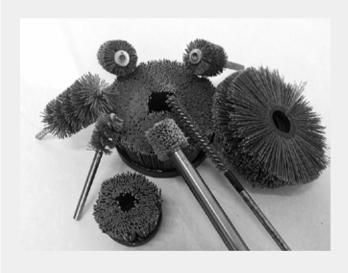
4.15 毛刷系列产品 4.15 Brushes Series Product

产品简介

我公司生产的无心车系列刀片,主要应用于钢棒外表的银亮剥皮,刀片具有良好的耐磨性、韧性,高温红硬性以及很高的抗冲击性能等,适用于不锈钢、轴承钢、弹簧钢、合金工具钢、碳素工具钢、高速工具钢等多种钢材的外圆

Introduction of products

Centerless Turning Series inserts developed by CTRI are mainly applied in bar peeling and products show good wear resistance, toughness, high temperature and red hardness and high impact resistance, etc., and are suitable for stainless steel, bearing steel, spring cylindrical machining steel, alloy tool steel, carbon tool steel, high speed tool steel and etc



产品简介

含磨料尼龙刷是一种工业用刷。主要用于去毛刺、刃口钝化和表面精整加工。根据加工要求,可制成轮刷,盘刷,碗刷,孔刷,笔刷等各种形式。

加工零件时,众多的含磨料尼龙丝相当于同等数量的柔性锉刀,可任意弯曲,自然贴合到工件轮廓上,进入沟槽孔等一般工具难以进入的地方,将毛刺去掉,锐边倒钝为光滑的圆弧,达到去毛刺、刃口钝化和表面抛光的理想效果。

主要用于汽车、摩托车发动机行业;液压件、空调压缩机行业,工具等行业。

Introduction of products

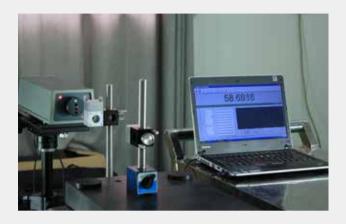
Abrasive nylon brush is an industrial brush that is mainly used for de-burring, edge buffing and surface finishing process. According to processing requirements, it can be made into wheel brushes, disc brushes, cup brushes, tube brushes, end brushes and other varieties. When machining the components, many abrasive nylon is equivalent to the same number of flexible rasp that can be bent and naturally fit to the component profile and enter into groove holes where other general tools are inaccessible, remove the burrs, sharp edges and blunt down to a smooth arc, and finally achieve the ideal results of deburring, edge buffing and surface finish.

This product is mainly used in automotive, motorcycle engine industry; hydraulic parts, air-conditioning compressor industry, and tools industries etc.



4.16 MJS 系列激光干涉仪

4.16 MJS Calibration Laser Interferometer Series



产品简介

我公司是国内重要的大型精密测量仪器研发生产企业, 长期从事精密测量仪器领域的共性基础技术研究及其高新 技术产品的开发和生产;激光干涉测量技术是公司在精密 测量领域的突出代表及重点发展方向,拥有多项发明专利 及专有技术。

用途:

- (1) MJS 系列激光干涉仪是检定数控机床、坐标测量机位置精度的理想工具。检定时可按照规定标准处理测量数据并打印出误差曲线,为机床的修正提供可靠依据。
- (2) MJS 系列激光干涉仪配有各种附件,可测量小角度、平面度、直线度、 平行度、垂直度等形位误差,在现场使用尤为方便。
- (3) MJS 系列激光干涉仪可方便地安装在测长机上,取代原测长机的坐标系统,作为一般计量室中的长度基准。
- (4) MJS 系列激光干涉仪又是一种高精度的位移传感器,可直接安装于坐标镗、螺丝磨等精密机床及坐标测量机上作为坐标系统,使定位精度大为提高。
- (5) MJS 系列激光干涉仪具有对光栅、磁栅、线纹尺、感应同步器等精密测量元件的检测和刻划功能,仪器可按预定的间距自动完成检测和刻划工作。
- (6) MJS 系列激光干涉仪与圆分度器结合使用是一套高精度长度—角度比相计,可作为机床传动链,丝杆螺旋线等误差的测量系统。

特点

- (1) 特殊制作的进口激光器,激光器的工作寿命可达 2.5万小时。
 - (2) 先进的稳频系统提高了系统稳定性。
 - (3) 独特的细分技术,分辨率高,工作可靠。
 - (4) 激光的波长自动修正, 特别适合于现场使用。
 - (5)丰富的应用软件、迅速地按相关标准处理测量数据。
 - (6) 模块化的结构, 体积小, 重量轻。

Introduction of products

CTRI is an important domestic research and production enterprise for large precision measurement instruments and has long been engaged in common basic technology research and high technology products development in the field of precision measuring instruments. Laser interferometry is CTRI's outstanding representative in the field of precision measurement and key development direction that owns a number of invention patents and proprietary technology. So far, hundreds of laser interferometer have been sold and CTRI is the only domestic supplier for mass production of laser Interferometer.

Application:

- (1) MJS series laser interferometer is an ideal tool to test the position accuracy of CNC machine and coordinate measuring machine. The test data can be processed in accordance with the prescribed standard and error curve can be printed out, thus provides a reliable basis for the correction of the machine.
- (2) MJS series laser interferometer provides a variety of accessories and measures geometric error evaluation such as small angle, flatness, straightness, parallelism and the verticality. It is particularly convenient in production field.
- (3) MJS series laser interferometer can be easily installed on the measuring machine, replacing the coordinate system of the original length measuring machine as the standard of general measurement office.
- (4) MJS series laser interferometer is a high precision displacement sensor and can be installed directly to precision machines such as coordinate boring machine, screw grinding and coordinate measuring machine as a coordinate system, so that the positioning accuracy can be greatly improved.
- (5) MJS series laser interferometer demonstrates the detection and ruling function on precision measuring elements such as grating, magnetic grid, lined ruler, inductosyn. The instrument can automatically detect at a predetermined interval.
- (6) The combination of MJS series laser interometer and circular protractor is a high precision length-angle phase meter, can work as a measurement system for machine transmission chain and screw helix. Features:
- (1) Specially imported laser, the working life of the laser can be up to 25000 hours;
- (2) Advanced frequency stabilization system improves the stability;
- (3)A unique subdivision technique, high resolution and reliable operation;
- (4) The wavelength of the laser is automatically corrected, especially suitable for field application;
- (5) Rich application software, quickly deal with the measurement data according to relevant standards;
- (6) Modular structure, small volume and light weight.



4.17 主动量仪产品

4.17 In Process Gauge



产品简介

- (1) 操作方便, 切换信号控制点采用按钮式切换显示, 可快速准确调整触发点尺寸。
- (2) 全集成电路模块化设计,安装调试方便,是目前国内体积最小,功能最强的主动量仪。
 - (3) 精度高、稳定性好。
 - (4) 适用于连续或断续面的主动测量。
- (5) 超差返修功能,使对仅有 2 μm 的零件磨削余量, 也能进行准确返修。
- (6)测量装置有分体式结构,具有大收张量,大测量范围的特点,此类量仪系列均由指示控制仪及主动测量装置组成,不同的配置,可组合成不同功能的成套量仪。

技术参数:

- (1) 测量装置电磁收张量: 单臂 6~8mm。
- (2) 示值范围: 单表量程自动切换。
- (3) 精档 -10 ~ 0 ~ 50 μm 分度值 l μm。
- (4) 粗档 50 ~ 500 μm 分度值 10 μm。
- (5) 示值误差: 精档 1μm 粗档 10μm。
- (6) 信号变动性: 0.2 μm/30 次。
- (7) 稳 定 性: 1μm/4h。
- (8) 控制信号数: 5个。
- (9)触点容量: 250VAC 5A; 或模拟信号 10mv/1 μ (可 调 5 \sim 20mv/1 μ) $_{\circ}$
- (10) 工作电压: 交流 100V 110V 200V 220V ±20%V 频率 50HZ。

Introduction of products

- (1) Convenient operation, switch buttons are used to control switch signals which can quickly and accurately adjust the trigger point.
- (2) Integrated circuit modular design, easy to install and debug, the smallest and most powerful in process gauge;
- (3) High accuracy and reliable stability;
- (4) Applicable in interrupted and smooth surface measuring;
- (5) Compensation function even for component with $2\mu m$ grinding allowance;
- (6) In process gauge employs separated structure with large retraction and wider measuring ranges. All series of gauges are consisted of electronic amplifier and in process configuration. A complete set of gauges with different functions can be configured.

Technical Parameter:

- (1) Gauge Electromagnetic tensor: 6-8mm per finger;
- (2) Display Ranges: automatic switching of single meter
- (3) Fine Scale: -10~0~50µm, lµm per scale
- (4) Rough Scale: 50~500μm, 10μm per scale
- (5) Display Deviation: Fine scale lum, rough scale, 10 µm
- (6) Signal Changes: 0.2μm/30 times
- (7) Stability: 1µm/4h
- (8) Control Signals: 5
- (9) Contact Capability: 250VAC 5A; Analog signal $10mv/1\mu(Adjustable 5\sim 20mv/1\mu)$
- (10) Input voltage 100V,220V, 200v, 110V ±20%V; frequency, 50HZ





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