

Aotto

清洗机&涂油机 选型手册

Washer & Oiler
Selection Guide

Aotto 奥图股份



济南奥图自动化股份有限公司
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济南奥图自动化股份有限公司
Jinan Aotto Automation Co., Ltd.

Since **2000**



公司简介 Company Profile

济南奥图自动化股份有限公司始创于2000年，秉承“致力创新、追求卓越”的理念，坚持“产品领先”的发展战略，为汽车、机械、家电和轻工等行业持续提供优质的自动化设备、服务和整体解决方案。

Jinan Aotto Automation Co., Ltd, established in 2000, persists in concept of “devoting to innovation and pursuing excellence” and development strategy of “product leadership”, provides outstanding automation equipment, services and turnkey solutions to industries such as automobile, machinery, and home appliance industry.

公司被认定为山东省技术开发中心和软件企业、高新技术企业，现已拥有40多项发明和实用新型专利，并多次荣获山东省著名商标、省市科技进步奖和创新型企业等荣誉称号。

The company is awarded as technical development center and software enterprise and high-tech enterprise provincial level, has over 40 invention and utility model patents at present, famous trademark of Shandong Province, science and technology progress award and innovation enterprise of Shandong Province.

公司核心产品包括机器人自动化冲压生产线、机械手自动化冲压生产线，汽车纵梁生产线、机加工上下料、物料搬运、高强度热成形、多工位、线尾自动装筐系统、锻造等自动化生产线，清洗机、涂油机、垛料翻转机、重载电动无轨运输车、端拾器、银压设备升级改造和非标自动化设备，公司自动化产品现已遍布全国二十多个省、自治区和直辖市，并远销东南亚、南亚、中亚及欧洲等多个国家和地区。

Core products of the company include robot automation stamping production line, manipulator automation stamping production line, truck carling, machine tool loader and unloader, material handling, high-strength steel hotforming, press line transfer, automatic packing system and forging automation system production line, washer, oiler, bundle turnover, heavy duty motordriven trackless vehicle, tooling, stamping machine retrofitting. Automatic products of the company have been sold over 20 provinces, automatic regions and municipalities in China, and sold to various countries and regions in Asia, and Europe.

合作伙伴 Partners



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◆ 清洗机 Washer



□ 产品型号 | Model

A B W S H 4 - 2000 × 1

板料厚度, 单位mm
Blank thickness, unit: mm

板料宽度, 单位mm
Blank width, unit: mm

湿式清洗机辊组数量, 干式清洗机不标记
The number of roller groups for wet washer
Cross brush washer is not marked

C 卷料清洗机
Coil washer

L 激光落料线清洗机
Laser blanking line washer

H 高速冲压线清洗机
High speed stamping line washer

R 板料清洗机
Blank washer

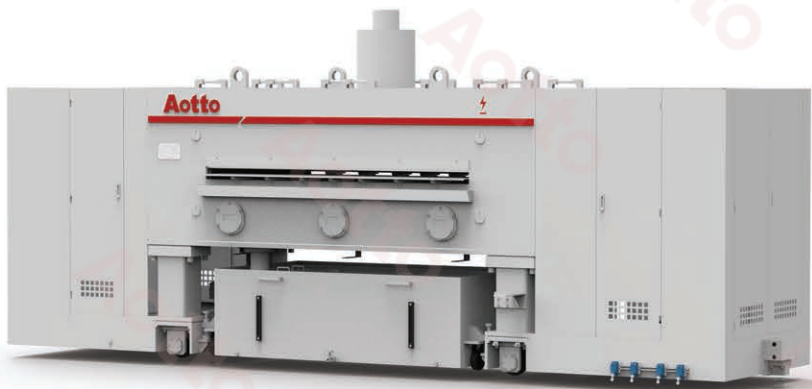
干式清洗机不标记
Cross brush washer is not marked

S 湿式清洗机
Wet washer
G 干式清洗机
Cross brush washer

ABW Aotto清洗机
Aotto Blank washer

□ 卷料清洗机 | Coil Washer

产品介绍 | Product Introduction



■ 适用场景 | Application

卷料清洗机主要用于开卷线校平前的清洗工序，经过清洗后的钢板可有效去除表面杂质，防止杂质污染校平机等后续设备，降低产线维护成本，提高钢板表面质量。

Coil washer is mainly used in cleaning process before the leveling of the uncoiling line. After cleaning, it can effectively remove the impurities from the blank surface, prevent it from contaminating the subsequent equipments such as leveling machine, reduce the maintenance cost, and improve the steel blank surface quality.

■ 特点 | Characteristics

- 整体式结构。
Integral structure.
- 大流量清洗油，有效去除杂物。
High flow cleaning oil effectively removes impurities.
- 无油带，垛料无积油。
No oil residue on stacked materials.
- 超薄油膜，激光切割无黑烟。
Ultra-thin oil film, no black smoke during laser cutting.
- 输送速度智能匹配开卷速度。
Conveying speed intelligently matched with the uncoiling speed.

■ 技术参数 | Specification

名称 / Description	单位 / Unit	数据 / Parameter
最大卷料宽度 /Max. coil width	mm	2000
适用卷料厚度/Coil thickness	mm	0.5~3.0
最大传输速度 /Max. transmission speed	m/min	60
油膜厚度/Oil film thickness	g/m2	0.3~1.5, 0.8~1.5
引入辊数量/Pinch roller quantity	pair	1
引入辊材质/Pinch roller material	-	无纺布/Non-woven fabric
引入辊直径/Pinch roller diameter	mm	220
刷辊数量/Brush roller quantity	pair	1
刷辊材质/Brush roller material	-	高密度尼龙/High-density nylon
刷辊直径/Brush roller diameter	mm	210
挤干辊数量/Squeezing roller quantity	pair	2
挤干辊材质/Squeezing roller material	-	无纺布/Non-woven fabric
挤干辊直径/Squeezing roller diameter	mm	220
油雾收集器/Oil mist collection	-	离心式/Centrifugal type
离线功能/Offline function	-	标配/Standard
清洗油过滤精度/Oil filter accuracy	μm	20 (Optional: 50)
过滤器/Oil filter	-	双筒过滤器/Double drum filter

□ 激光落料线清洗机 | Laser Blanking Line Washer

产品介绍 | Product Introduction



■ 适用场景 | Application

激光落料线清洗机主要用于激光落料线中码垛前的清洗工序，经过清洗后的钢板可有效清除表面杂质、激光切割产生的焊渣等，显著提高工件表面质量。

The laser blanking line washer is mainly used in cleaning process before stacking. After cleaning, it can effectively remove impurities from the blank surface, welding slag produced by laser cutting, etc., significantly improving the blank surface quality.

■ 特点 | Characteristics

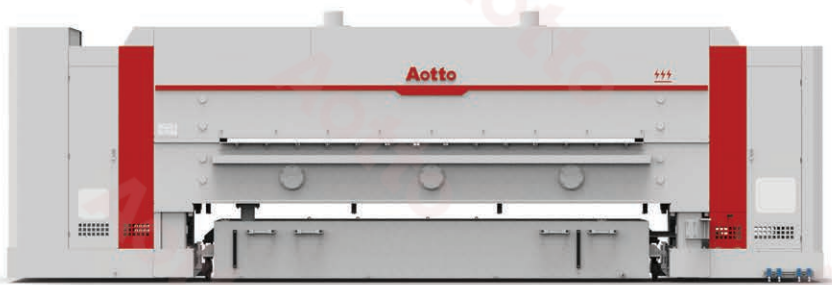
- 采用上下箱体分离结构，上部箱体可以电动升降，当板料因毛刺过大或变形卡在清洗机内部时，可以快速取出卡料，恢复生产。
With separate machine body structure, the upper body can be elevated electrically. If the blank was jammed in washer due to too large burr or deformation, the jammed blank can be taken out quickly, and production is resumed.
- 挤干辊可以磨细维修，重新调整驱动变频电机的速度后继续使用，降低了使用成本。
Squeezing rollers can be grinded individually after weariness, so could continue working after resynchronizing the motor speed, reduce cost.

■ 技术参数 | Specification

名称 / Description	单位 / Unit	数据 / Parameter
最大板料宽度 /Max. blank width	mm	2000
最小板料长度 /Min. blank length	mm	650
适用板料厚度 /Blank thickness	mm	0.5~3.0
最大传输速度 /Max. transmission speed	m/min	60
油膜厚度 /Oil film thickness	g/m ²	0.8~1.5
引入辊数量 /Pinch roller quantity	pair	1
引入辊材质 /Pinch roller material	-	无纺布 /Non-woven fabric
引入辊直径 /Pinch roller diameter	mm	220
刷辊数量 /Brush roller quantity	pair	1
刷辊材质 /Brush roller material	-	高密度尼龙 /High-density nylon
刷辊直径 /Brush roller diameter	mm	210
挤干辊数量 /Squeezing roller quantity	pair	2
挤干辊材质 /Squeezing roller material	-	无纺布 /Non-woven fabric
挤干辊直径 /Squeezing roller diameter	mm	220
油雾收集器 /Oil mist collection	-	离心式 /Centrifugal type
离线功能 /Offline function	-	标配 /Standard
清洗油过滤精度 /Oil filter accuracy	μm	20 (Optional: 50)
过滤器 /Oil filter	-	双筒过滤器 /Double drum filter

□ 高速冲压线清洗机 | High Speed Stamping Line Washer

产品介绍 | Product Introduction



■ 适用场景 | Application

高速冲压线清洗机主要用于汽车钢板冲压前的清洗工序，经过清洗后的钢板不仅能去除表面的灰尘杂物，还能在其表面均匀地涂上一层防锈油膜，从而增加钢板冲压成型时的润滑性，提高板料的冲压质量。

High speed stamping line washer is mainly used in cleaning process before steel blank stamping. After cleaning, it can effectively remove dust and foreign object from blank surface, but also can apply a layer of rust preventing oil film to its surface uniformly so as to increase lubricity during stamping, and to improve stamping parts quality.

■ 特点 | Characteristics

- 有效降低冲压件不合格率。料片超净，提高冲压质量，柔性清洗，料片无损伤。
Flexible cleaning, without blank scraps, improves stamping quality and effectively reduces the defect rate of stamped parts.
- 减少产线停机时间。油膜超薄，免擦模具、皮带，分体式结构，便于生产维护。
Thinner oil film, wipe-free for dies and belts; Separate machine body structure for easily production and maintenance, and reduce the downtime.

■ 技术参数 | Specification

名称 / Description	单位 / Unit	数据 / Parameter
最大板料宽度 / Max. blank width	mm	4200
最小板料长度 / Min. blank length	mm	650
适用板料厚度 / Blank thickness	mm	0.5~3.0
最大传输速度 / Max. transmission speed	m/min	150
油膜厚度 / Oil film thickness	g/m2	0.3~1.0
引入辊数量 / Pinch roller quantity	pair	1
引入辊材质 / Pinch roller material	-	无纺布 / Non-woven fabric
引入辊直径 / Pinch roller diameter	mm	280
刷辊数量 / Brush roller quantity	pair	1
刷辊材质 / Brush roller material	-	高密度尼龙 / High-density nylon
刷辊直径 / Brush roller diameter	mm	230
挤干辊数量 / Squeezing roller quantity	pair	2
挤干辊材质 / Squeezing roller material	-	无纺布 / Non-woven fabric
挤干辊直径 / Squeezing roller diameter	mm	350, 380
油雾收集器 / Oil mist collection	-	离心式 / Centrifugal type
离线功能 / Offline function	-	标配 / Standard
清洗油过滤精度 / Oil filter accuracy	μm	20 (Optional: 50)
过滤器 / Oil filter	-	双筒过滤器 / Double drum filter

□ 板料清洗机 | Blank Washer

产品介绍 | Product Introduction



■ 适用场景 | Application

板料清洗机主要用于汽车钢板冲压前的清洗工序，经过清洗后的钢板不仅能去除表面的灰尘杂物，还能在其表面均匀地涂上一层防锈油膜，从而增加钢板冲压成型时的润滑性，提高板料的冲压质量。

Blank washer is mainly used in cleaning process before steel blank stamping. After cleaning, it can effectively remove dust and foreign object from blank surface, but also can apply a layer of rust preventing oil film on its surface uniformly so as to increase lubricity during stamping, and to improve stamping parts quality.

■ 特点 | Characteristics

- 采用上下箱体分离结构，上部箱体可以电动升降，当板料因毛刺过大或变形卡在清洗机内部时，可以快速取出卡料，恢复生产。
With separate machine body structure, the upper body can be elevated electrically. If the blank was jammed in washer due to too large burr or deformation, the jammed blank can be taken out quickly, and production is resumed.
- 挤干辊可以磨细维修，重新调整驱动变频电机的速度后继续使用，降低了使用成本。
Squeezing rollers can be grinded individually after weariness, so could continue working after resynchronizing the motor speed, reduce cost.

■ 技术参数 | Specification

名称 / Description	单位 / Unit	数据 / Parameter
最大板料宽度/Max. blank width	mm	2000,3000,4200
最小板料长度/Min. blank length	mm	650
适用板料厚度/Blank thickness	mm	0.5~3.0
最大传输速度/Max. transmission speed	m/min	80,120
油膜厚度/Oil film thickness	g/m ²	0.8~1.5
引入辊数量/Pinch roller quantity	pair	1
引入辊材质/Pinch roller material	-	无纺布/Non-woven fabric
引入辊直径/Pinch roller diameter	mm	220,280
刷辊数量/Brush roller quantity	pair	1
刷辊材质/Brush roller material	-	高密度尼龙/High-density nylon
刷辊直径/Brush roller diameter	mm	210,230
挤干辊数量/Squeezing roller quantity	pair	2
挤干辊材质/Squeezing roller material	-	无纺布/Non-woven fabric
挤干辊直径/Squeezing roller diameter	mm	220,380
油雾收集器/Oil mist collection	-	离心式/Centrifugal type
离线功能/Offline function	-	标配/Standard
清洗油过滤精度/Oil filter accuracy	μm	20 (Optional: 50)
过滤器/Oil filter	-	双筒过滤器/Double drum filter

干式清洗机 | Cross Brush Washer

产品介绍 | Product Introduction



适用场景 | Application

干式清洗机主要用于汽车钢板、拼焊板、铝板冲压前的清洗工序，经过清洗后的钢板能有效去除表面的灰尘杂物，板料无油膜残存，提高板料的冲压质量。

Cross brush washer is mainly used in cleaning process of steel blank, tailored blank and aluminum blank before stamping. After cleaning, it can effectively remove dust and debris from blank surface, and no oil film residue, improving the quality of the blank.

特点 | Characteristics

- 性价比高，投资和运行成本低。
Cost-effective, low investment and operation costs.
- 适用范围广，铝板、钢板、拼焊板等。
Wide applicability, suitable for aluminum blank, steel blank, tailored blank, etc.
- 柔性清洗，清洁质量高。
Flexible cleaning, with high cleaning quality.
- 智能控制，毛刷自清洁、自动调整重合度。
Intelligent control. Self-cleaning brushes with automatic overlap adjustment.

技术参数 | Specification

名称 / Description	单位 / Unit	数据 / Parameter
最大板料宽度/Max. blank width	mm	2000,3000,4200
最小板料宽度/Min. blank width	mm	400
最小板料长度/Min. blank length	mm	350
适用板料厚度/Blank thickness	mm	0.5~3.0
最大传输速度/Max. transmission speed	m/min	60,120,150
毛刷最大运行速度/Max. brush running speed	m/min	180
毛刷带数量/Number of brush belts	pair	4
毛刷带材质/Material of brush belts	-	高密度尼龙/High-density nylon
毛刷带自清洁功能/Self-cleaning function of brush belts	-	标配/Standard
油雾收集器/Oil mist collection	-	机械式/Mechanical type
离线功能/Offline function	-	标配/Standard

◆ 涂油机 Oiler



□ 产品型号 | Model

A B S T-2000 × 1

板料厚度, 单位mm
Blank thickness, unit: mm

板料宽度, 单位mm
Blank width, unit: mm

板料涂油机不标记
Blank oiler is not marked
T 多工位涂油机
Transfer line oiler

ABS Aotto涂油机
Aotto Blank oiler

□ 板料涂油机 | Blank Oiler

产品介绍 | Product Introduction



■ 适用场景 | Application

板料涂油机主要用于汽车钢板冲压成型前的涂油工序,可根据工艺要求对钢板表面进行定区域、定量喷涂拉延油,保证工件拉伸质量。

Blank oiler is mainly used in oil applying process before blank stamping. It can apply drawing oil in specific area on the blank surface according to technological requirements so as to ensure work piece drawing quality.

■ 特点 | Characteristics

- 采用中英文人机界面,完善的自诊断系统,外掀式架构设计及独特的皮带传动方式,更方便客户操作与维护。
Features Chinese & English HMI, advanced self-diagnostic system, outward opening design and unique belt driving for easier operation and maintenance.
- 可对每个喷枪独立编程、精确控制油膜厚度和喷涂区域,既节约成本,又保证工件质量。
Each nozzle can be programmed individually to precisely control oil film thickness and spray area, reducing costs while ensuring part quality.
- 具有油箱加热,及油路保温功能,确保喷涂不受外界环境影响,避免了因涂油机油温不稳定造成的喷涂量变化。
With oil tank heating and oil pipe heat preservation function, the spraying oil volume is stable.

■ 技术参数 | Specification

名称 / Description	单位 / Unit	数据 / Parameter
最大板料宽度/Max. blank width	mm	2000,3000,4200
最小板料宽度/Min. blank width	mm	300
最小板料长度/Min. blank length	mm	300
适用板料厚度/Blank thickness	mm	0.5~3.0
最大传输速度/Max. transmission speed	m/min	80,120,150
油膜厚度/Oil film thickness	g/m ²	1~5
系统过滤精度/Oil filter accuracy	μm	20 (Optional: 10)
喷油方式/Oil spraying method	-	单/双面涂油/Single or double side spraying
喷油区域/Oil spraying area	mm	100×100,150×150,200×200
油温控制/Oil temperature control	-	标配/Standard
油雾收集器/Oil mist collection	-	离心式、静电式/Centrifugal type, electrostatic type
离线功能/Offline function	-	标配/Standard

□ 多工位涂油机 | Transfer Line Oiler

产品介绍 | Product Introduction



■ 适用场景 | Application

多工位涂油机主要用于多工位生产线中汽车钢板冲压成型前的涂油工序,可根据工艺要求对钢板表面进行定区域、定量喷涂拉延油,保证工件拉伸质量。

Transfer line oiler is mainly used in oiling process before blank stamping. It can spray drawing oil on the blank surface in specific area according to the process requirements to ensure the drawing quality of the blank.

■ 特点 | Characteristics

- 高效冷却: 通过涂油减少板材与模具之间的摩擦力,有效控制模具温度,提升工件质量。
Efficient cooling: Reduces friction between blank and die, effectively controlling die temperature and improving workpiece quality.
- 提升产能: 同等条件下,多工位专用涂油机可将实际生产中的冲压次数从18 SPM提升至接近自动化线的极限30 SPM,大幅提高生产效率。
Enhancing production capacity: Under the same conditions, increasing the stroke in actual production from 18 SPM to 30 SPM.
- 精准涂油: 采用先进的喷嘴技术和智能控制系统,确保每次涂油量均匀、准确,满足不同材料和工艺的需求。
Precise oiling: Utilizes advanced nozzle technology and intelligent control systems to ensure uniform and accurate oiling each time, meeting the requirements of different materials and processes.
- 保护模具: 减少摩擦力的同时,也减轻了模具的磨损,延长了模具的使用寿命,降低了维护成本。
Die protection: Reduces friction and die wear, extending die service life and lowering maintenance costs.

■ 技术参数 | Specification

名称 / Description	单位 / Unit	数据 / Parameter
最大板料宽度/Max. blank width	mm	2000
最小板料宽度/Min. blank width	mm	350
最小板料长度/Min. blank length	mm	200
适用板料厚度/Blank thickness	mm	0.5~3.0
最大传输速度/Max. transmission speed	m/min	90
油膜厚度/Oil film thickness	g/m ²	1~5
系统过滤精度/Oil filter accuracy	μm	20 (Optional: 10)
喷油方式/Oil spraying method	-	单/双面涂油/Single or double side spraying
喷油区域/Oil spraying area	mm	100×100,150×150,200×200
油温控制/Oil temperature control	-	标配/Standard
油雾收集器/Oil mist collection	-	离心式/Centrifugal type
离线功能/Offline function	-	无/Non

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产品框架

Product Framework



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专注汽车冲压自动化整体解决方案25年+
Focus on the overall solution of automotive stamping automation for 25 years.



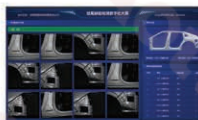
Aosaff

提供安全防护整体解决方案。
Providing safety guarding turnkey solutions.



AVIZ

提供冲压数字化整体解决方案。
Provide a digital overall solution for stamping.



Aovita

提供智能抓取标准产品。
Making efforts in creating the first brand in tooling industry.



Atrey

专业提供高端激光切割装备及服务。
Providing advanced cutting devices and services.



Aotto

智能制造管理软件
INDUSTRY 4.0 SOLUTIONS
FOR PRESS SHOP

