金属板材加工柔性制造单元和系统 Sheet Metal Flexible Manufacturing Unit and System

FMC FMS PB-FMC

Yawei 亚威

股票代码 002559

Stock Code 002559

自动化 事半功倍

Automation Get Twice the Result with Half the Effort

产品目录 Product Catalogue

多年来，亚威股份一直致力于金属板材加工自动化，智能化，追求更多功能，更低能耗和最少的维护费用。我们拥有全系列的钣金加工成套设备，根据您的需求，可以为您量身定制，提供全程的解决方案；我们拥有全球销售服务网络，为您提供周到快捷的服务。

Over the years, Yawei has been dedicated to sheet metal processing automation, intelligence, pursues more functions, less power consumption and minimal maintenance costs. We have a full range of sheet metal processing equipment. Based on your needs, we can be customized for you, and provide you with full solutions. We have a worldwide sales and service network, to provide you with thoughtful and efficient service.

你能得到 You Can Expect

当新的需求变化来临时，柔性加工具有提高生产效率和多种加工手段

When change and new demand comes, flexible manufacturing has the feature of improved productivity and a variety of processing methods

- **更小的厂房与占地面积，同时提供更高的产能**
- **将改动设定的时间缩至最短**
- **更少的储存空间和半成品制造流程**
- **快速并自动实施制造工件的转换**
- **高等级并且平均的零件质量**
- **缩短交货期并适应新产品的需求**
- **不因物流安排失误致使产能损失**
- Less space occupied, higher capacity
- Minimized setting time for changes
- Less storage space and semi-finished products manufacturing processes
- Quick and automatic converting between work piece
- High grade and average quality of the parts
- Shorten delivery time and meet the needs of new products
- No loss caused by logistical arrangement errors

Yawei金属板材柔性制造系统是建立在柔性制造单元（冲压单元、冲剪单元、折弯单元等）基础上，配有大型立体仓库，自动上下料，分选码垛装置以及其他辅助装置，由数控系统对各单元及全线实现自动控制，24小时的无人化生产已不再是梦想；大型料库实现金属板料及工件的自动输入、输出和储存；繁琐耗时的材料搜索由系统自动完成，繁重的人工上下料搬运由上下料装置取代；完成的工件无需手工分拣，自动分拣系统可为您代劳。您不仅节约了人工成本，更提高了设备生产效率。

丰富的加工信息提示及强大的自诊断信息极大地方便了用户对整条线的自我维护，并极大的提高了整条线的安全可靠性。

先进的信息管理技术更是加强了对钣金加工制造的过程管理，并可与客户的生产管理系统及技术研发网络进行无缝连接，提高设备使用效率。

Yawei sheet metal flexible manufacturing system is based on flexible manufacturing unit (punching unit, punching & shear combi, press brake unit, etc.), equips with a large material library, automatic loading and unloading, sorting and stacking devices and other assistant devices. Each unit and whole system automatically controlled by CNC system, making 24-hour production without human no longer a dream. The large material library realizes automatic input, output and storage of the sheet and work piece. Cumbersome and time-consuming searching for material is done automatically by the system. Heavy manual loading and unloading handling is replaced by automatic loading and unloading system. Instead of manual sorting, the finished parts will be sorted by sorting system automatically. Not only save labor costs, but also improve the efficiency of production equipment.

Abundant processing information tips and powerful information self-diagnostic greatly facilitate the user to maintain the entire system, and greatly improve the safety and reliability of the whole system.

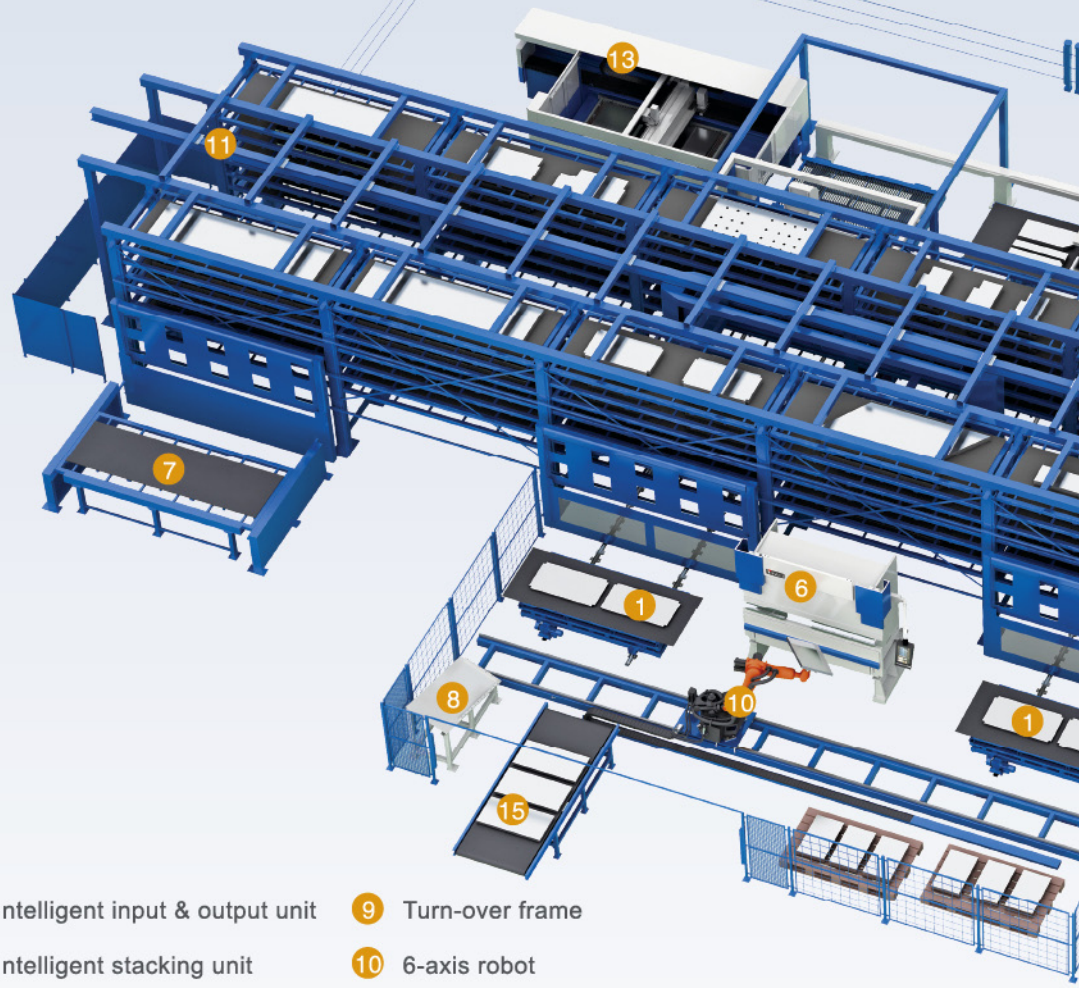
Advanced information management technology also strengthens the sheet metal manufacturing process management, and can be seamlessly connected with the customer's production management system and technology R & D network, Improve the use efficiency of equipment.

全能型金属板材柔性制造系统（FMS）

Versatile Sheet Metal Flexible Manufacturing System (FMS)

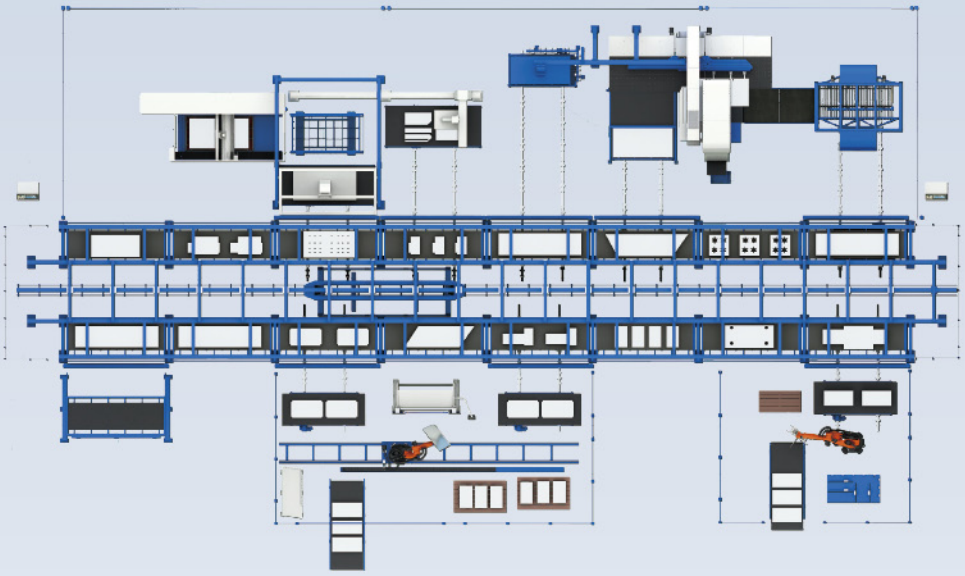
全能型金属板材柔性制造系统（FMS）按照特定的工艺需求，将各金属板材制造单元统筹运行，对物流进行自动化管理。此系统整合了亚威股份各类高性能的钣金加工机床、机器人应用技术和数据处理技术。由于系统组合方式的模块化和多样化，使得此系统可以广泛应用于各类金属板材的自动化生产。

Versatile sheet metal flexible manufacturing system(FMS), designed on the base of dedicated process requirements, integrates the running of each sheet metal flexible manufacturing cell, controls the logistics automatically. This system integrates various types of high-performance sheet metal processing machine tools, robot application technology and data processing technology from Yawei.Due to the modular system and diverse combinations, this system can be widely used in various kinds of sheet metal automation production.



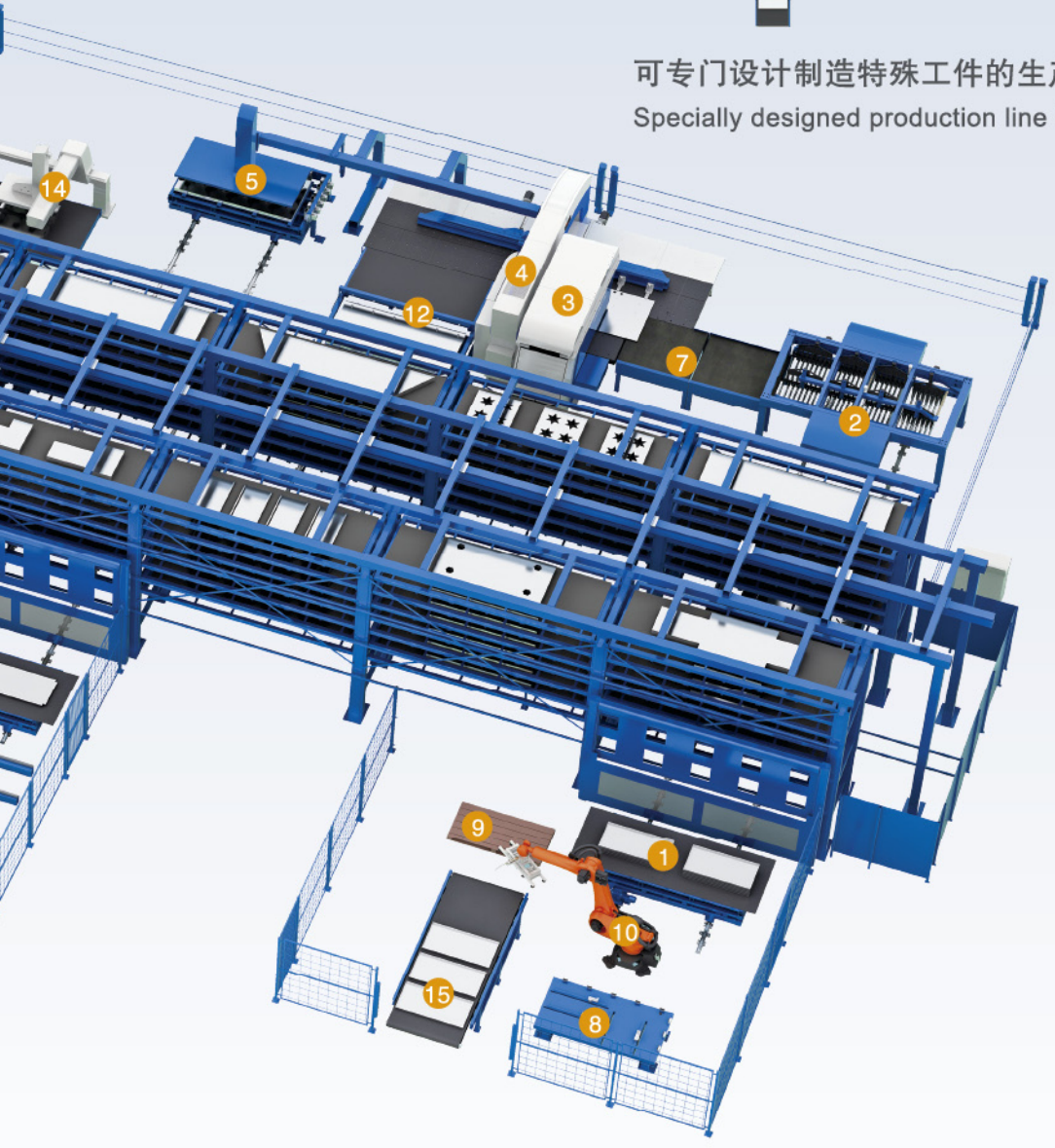
1. 智能进出料单元
2. 智能码垛单元
3. 直角裁剪单元
4. 高性能伺服冲床
5. 智能上料单元
6. 伺服折弯机
7. 废料分离单元
8. 对中台
9. 翻面架
10. 六轴机器人
11. 智能大型料库
12. 平推式下料装置
13. 激光切割机
14. 智能取料单元
15. 出料传送带

1. Intelligent input & output unit
2. Intelligent stacking unit
3. Right angle shear
4. Servo turret punch
5. Intelligent loading unit
6. Servo pressbrake
7. Scrape separation unit
8. Centering table
9. Turn-over frame
10. 6-axis robot
11. Intelligent material library
12. Pushing type unloading device
13. Laser cutting machine
14. Intelligent material picking unit
15. Discharging conveyor



可专门设计制造特殊工件的生产线

Specially designed production line for particular work piece

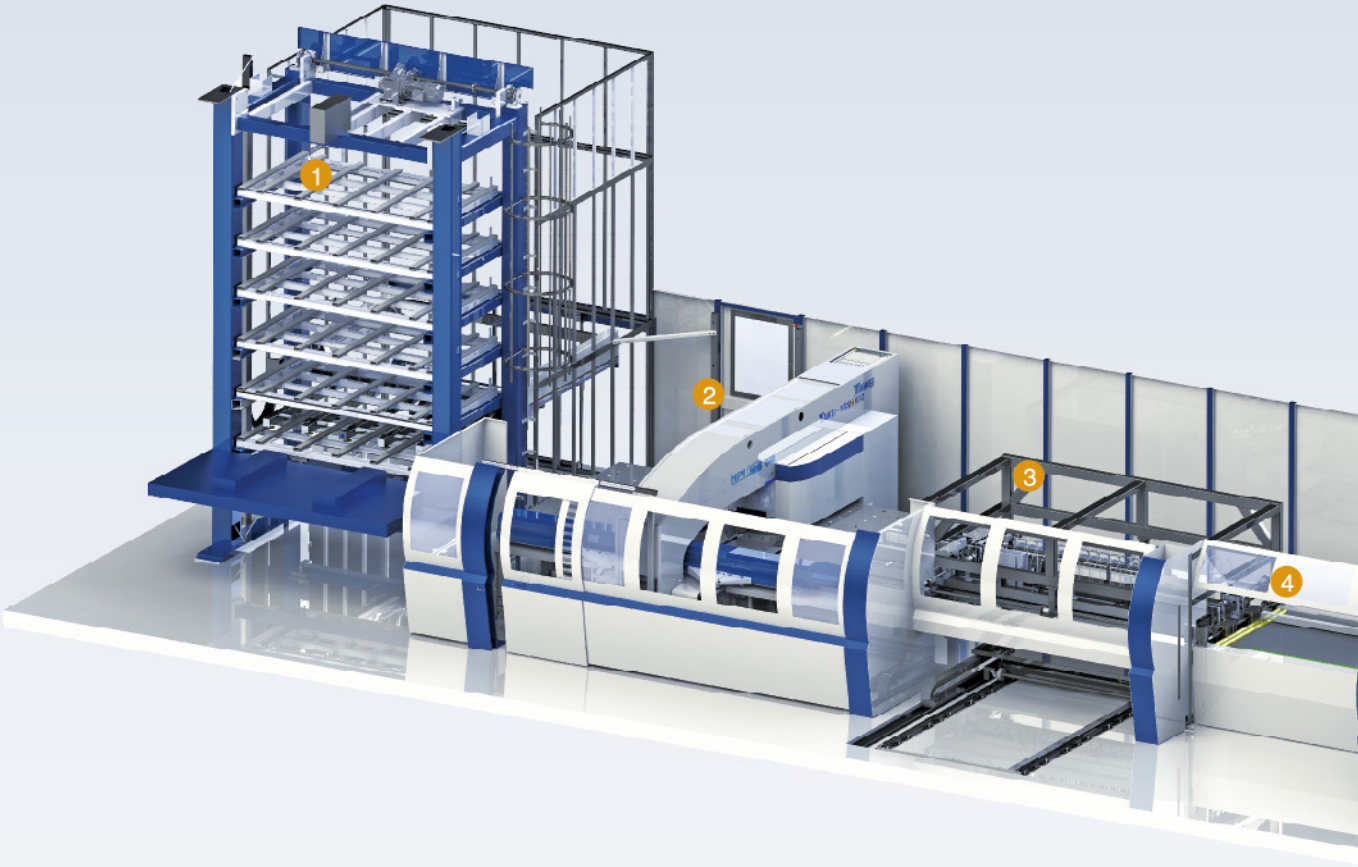


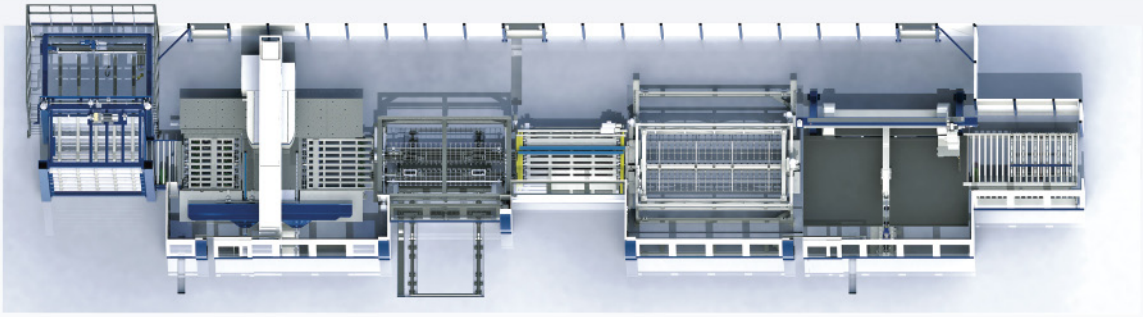
金属门板加工系统（FMS）

Metal Door Flexible Manufacturing System

金属门板加工系统（FMS）是制造金属门板类钣金件的专用系统，根据工艺需要，整合了立体仓库、数控转塔冲床、自动翻面机、分料传输机、自动送料折边机以及机器人焊接码垛单元。它可以使多种不同材料迅速到达工作定点，且中间会存在多种单元组合以及缓冲。

Metal door flexible manufacturing system (FMS), a dedicated metal door manufacturing system, according to processing requirements, integrates the material library, CNC turret punch, automatic turn-over machine, separated conveyor, automatic feeding and folding machine, robot welding and stacking unit. This system can move various kinds of materials to the working position quickly, and consists of various unit combinations and buffer.

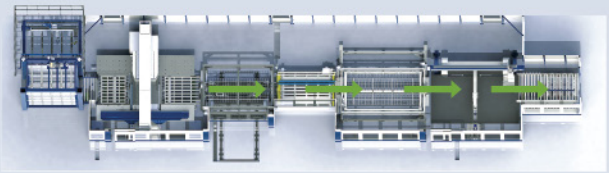




可专门设计制造特殊工件的生产线

Specially designed production line for particular work piece

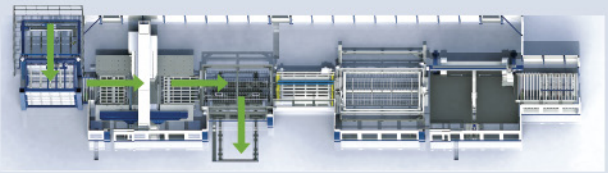
生产方式一：
Production mode 1:



此为全线加工模式，从原料到折弯成品工件一气呵成，同时拥有翻边功能和不需折弯工件的中途输出功能，适用于多种复杂工件的混合加工，极高的板材利用率和极高的生产效率。

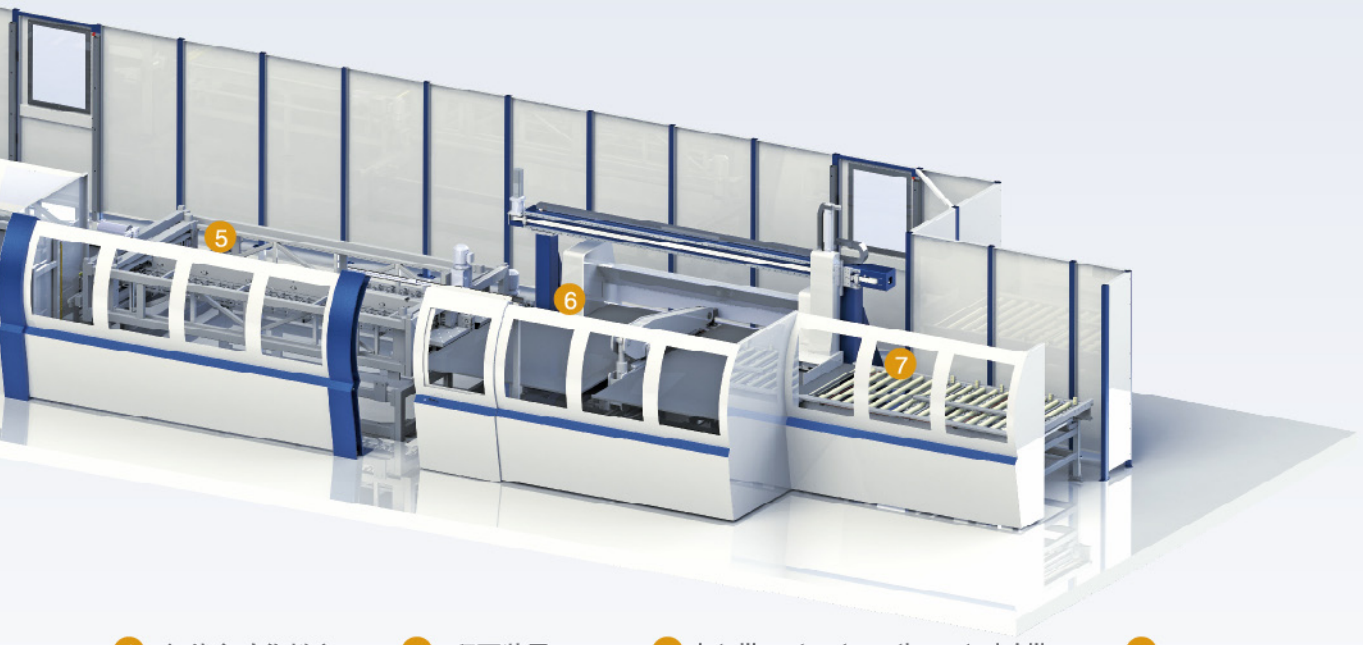
Whole line production mode. With functions of turn over and no-bending work piece output, this line can process from raw material to finished work piece at a dash. Suitable for the mix processing of variety of complex work pieces with high material utilization and productivity.

生产方式二：
Production mode 2:



此为单一运行模式，主要利用料库、冲床、输出堆垛装置，自动化生产无需折弯的工件，灵活适用于不需折弯的工件生产。

Single operation mode. Utilizing the material library, turret punch and stacking device, the line can manufacture work pieces without bending automatically, which can apply to the work pieces don't require bending process.



1. 智能自动化料库
2. 数控伺服转塔冲床
3. 输送堆垛装置
4. 翻面对中台
5. 翻面装置
6. 折边中心
7. 对中出料单元

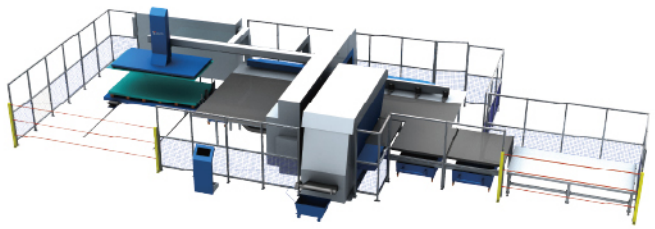
1. Intelligent automatic material library
2. CNC servo turret punch
3. Conveying and stacking device
4. Turn-over and centering table
5. Turn-over frame
6. Folding center
7. Centering and output unit

AMS.HS 冲剪系统

AMS.HS Punch & Shear Combi System

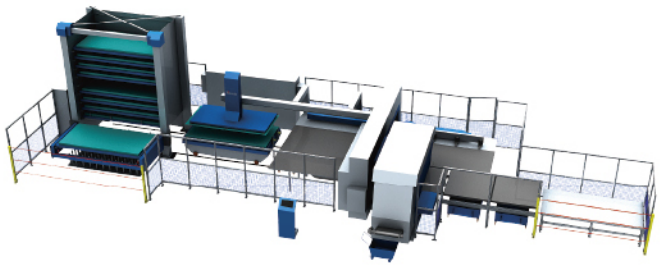
AMS.HS板料冲剪自动化加工系统将冲压加工和剪切加工结合到一起，负责对工件进行快速和高质量的加工和分离并送入落料台或者堆垛装置进行堆垛。板料冲剪自动化加工系统以其高效、精确、快捷适用于许多薄板件金属制品行业，在国内外都有着广受欢迎的销售市场。

AMS.HS sheet metal punch & shear combination system integrates turret punch and shear machine, takes charge of rapid and high quality processing for work piece and separation for stacking. Sheet metal punch & shear combination system is popular in domestic and overseas market with its efficiency, precision, quickness, which can apply to many thin sheet products industry.



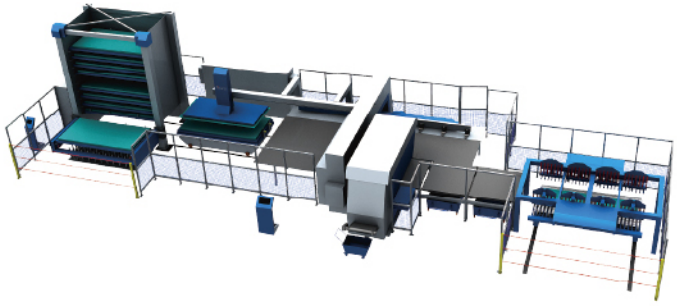
标准型板料冲剪自动化加工系统
Standard Sheet Metal Punch & Shear Combination System

- 具备自动上料、冲压加工、剪切加工和分拣落料基本功能
- With basic functions of automatic loading, punching processing, shearing processing and sorting blanking



扩展1型板料冲剪自动化加工系统
Extension Type 1 Sheet Metal Punch & Shear Combination System

- 带有智能立体板料库，可将指定库位板料堆运送至移动台车上，可以实现自动上料、冲压加工、剪切加工和分拣落料等功能
- With intelligent three-dimensional material library, feeds specified sheet material to moving trolley, realizing automatic loading, punching, shearing and sorting and blanking functions



扩展2型板料冲剪自动化加工系统
Extension Type 2 Sheet Metal Punch & Shear Combination System

- 具有扩展1型所有功能的同时，系统末尾配有自动分选堆垛装置，除了上述功能外，可以自动分选堆垛剪切下来的工件，并由台车输送出来
- With the expansion of all the functions of the 1 and automatic sorting device at the end of system. Besides the above functions, sheared work pieces can be sorted and carried out by trolley automatically

典型行业 客户案例

Customer Installations

天翔电气

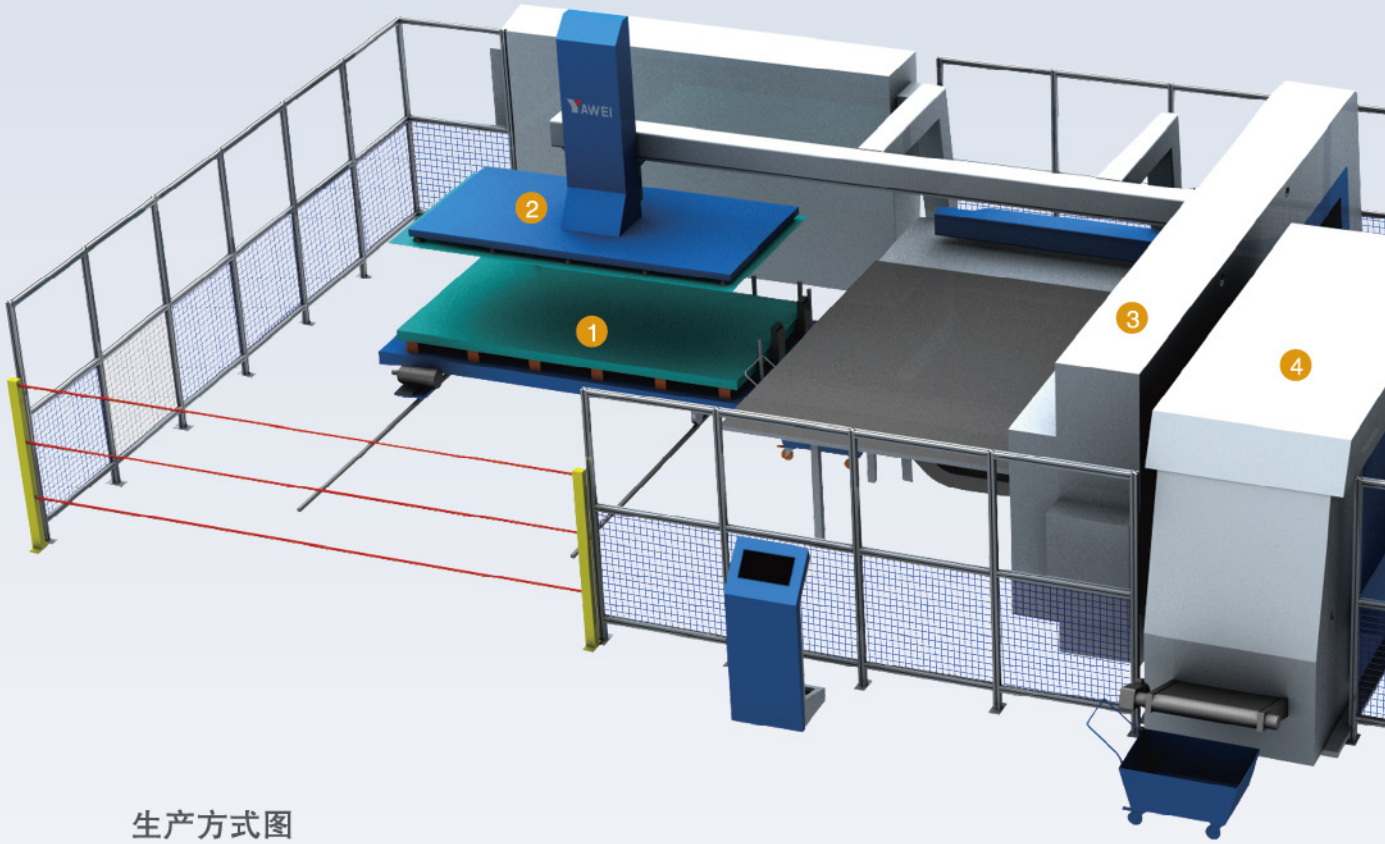
Tian Xiang Electric

宇通客车

Yutong Car Limited Company

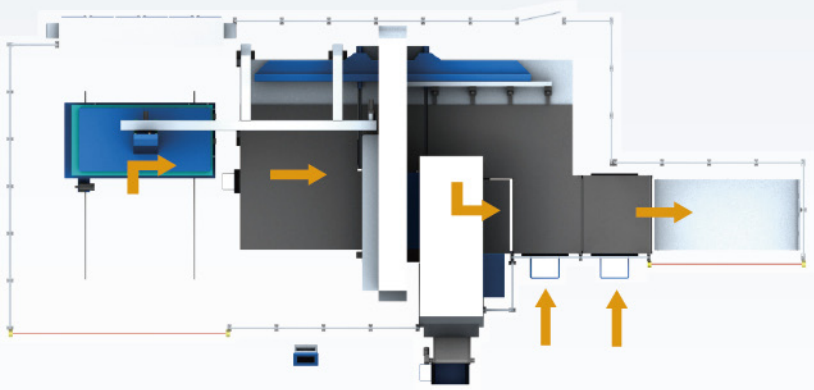
长城开关

Greatwall Switch Company



生产方式图

Figure of production mode

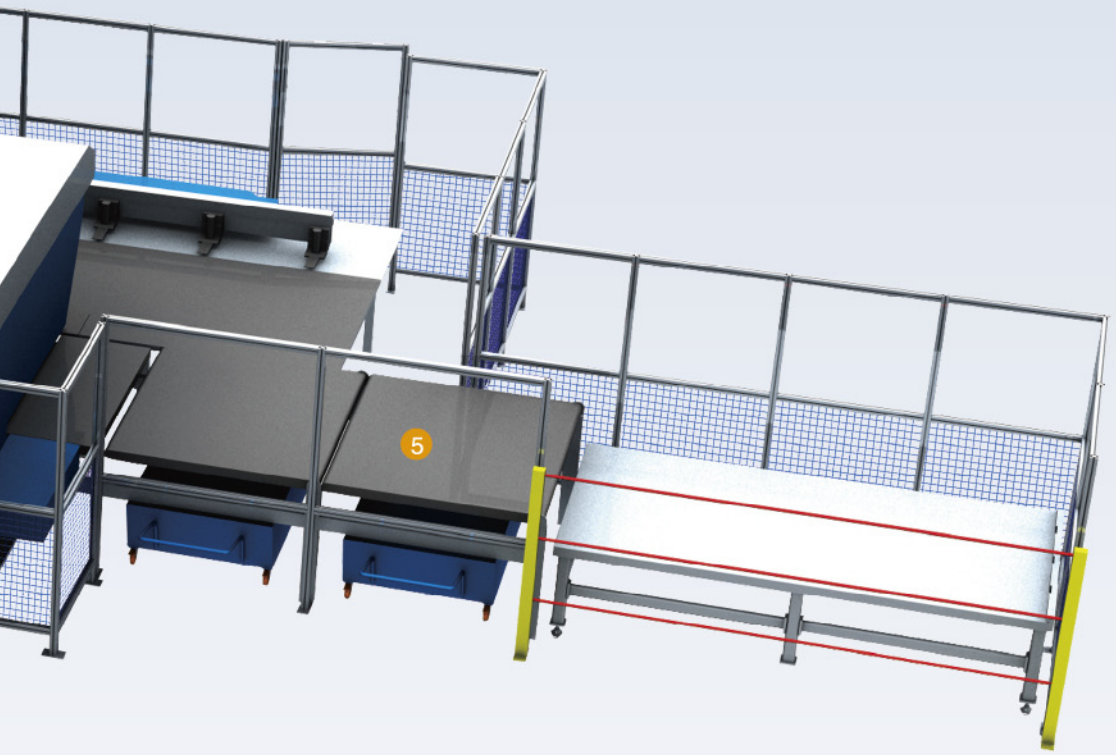


标准型冲剪系统

Standard Punch & Shear Combi System

标准型板料冲剪自动化加工系统整合了冲剪复合加工、自动上料和分拣出料装置，可自动完成金属板材的冲压和剪切加工；集中控制系统合理控制各加工主机，使系统的加工效率最大化。

Standard sheet metal punch & shear automation system integrates punch & shear combination, automatic loading and sorting blanking device, punching and shearing sheet metal automatically. Reasonable control of the main processing machine by centralized-control system, maximizes the procesing efficiency.



1. 交流电机控制上料台车
2. 伺服控制上料装置
3. 伺服转塔冲床
4. 伺服直角剪
5. 分拣落料装置（标配两级）

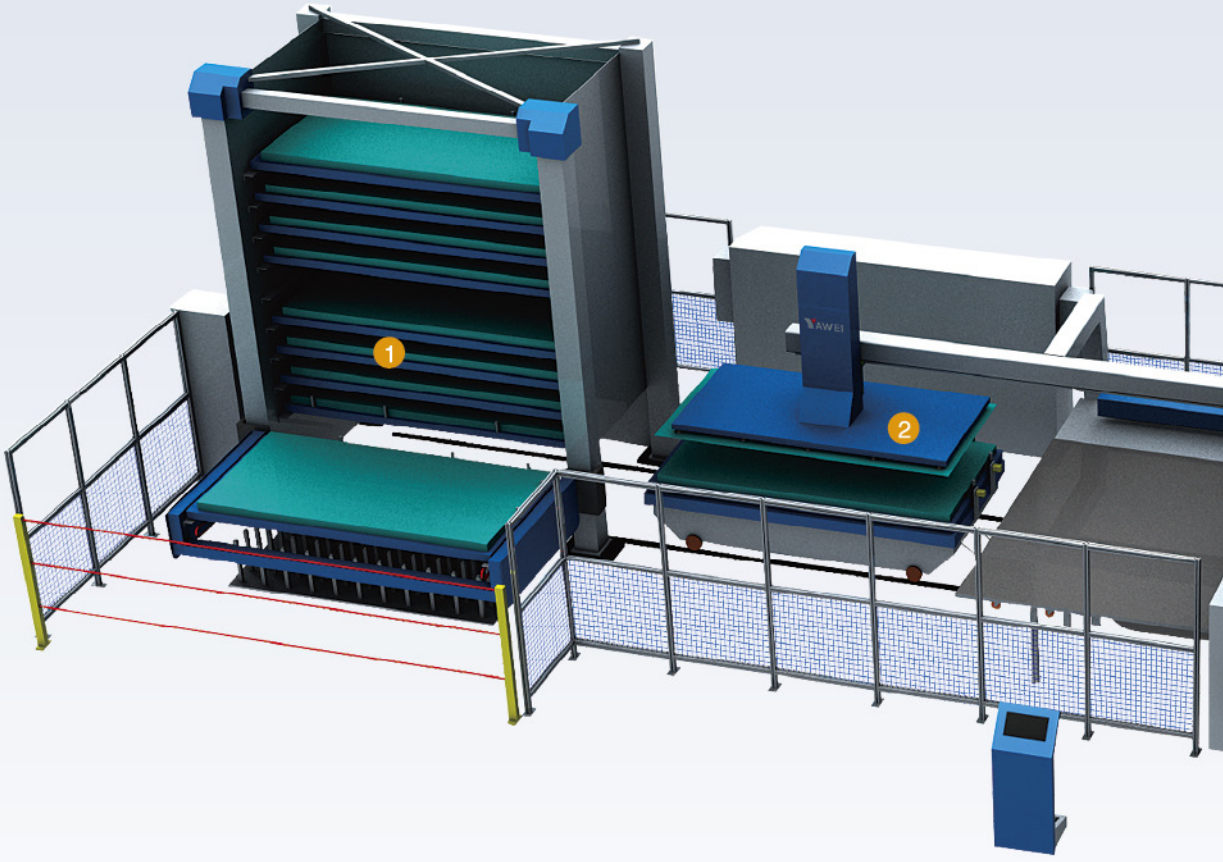
1. AC motor controlled feeding trolley
2. Servo controlled loading device
3. Servo turret punch
4. Servo right angle shear
5. Sorting blanking device(standard two steps)

扩展1型冲剪系统

Extension Type 1 of Punch & Shear Automation System

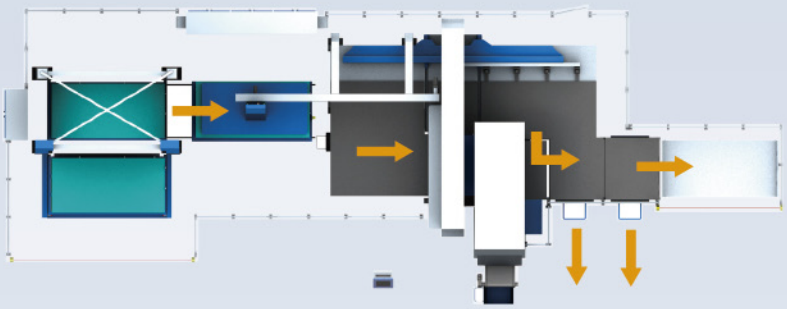
扩展1型板料冲剪自动化加工系统整合了智能立体板料库、冲剪复合加工、自动上料和分拣出料装置，可自动完成金属板材的出料、冲压和剪切加工；集中控制系统合理控制各加工主机，使系统的加工效率最大化。

Extension sheet metal punch & shear automation system integrates intelligent three-dimensional material library, punch & shear combination, automatic loading and sorting blanking device, can handle the sheet feeding, punching and shearing automatically. Reasonable control of each main processing machine by centralized-control system, maximizes the procesing efficiency.



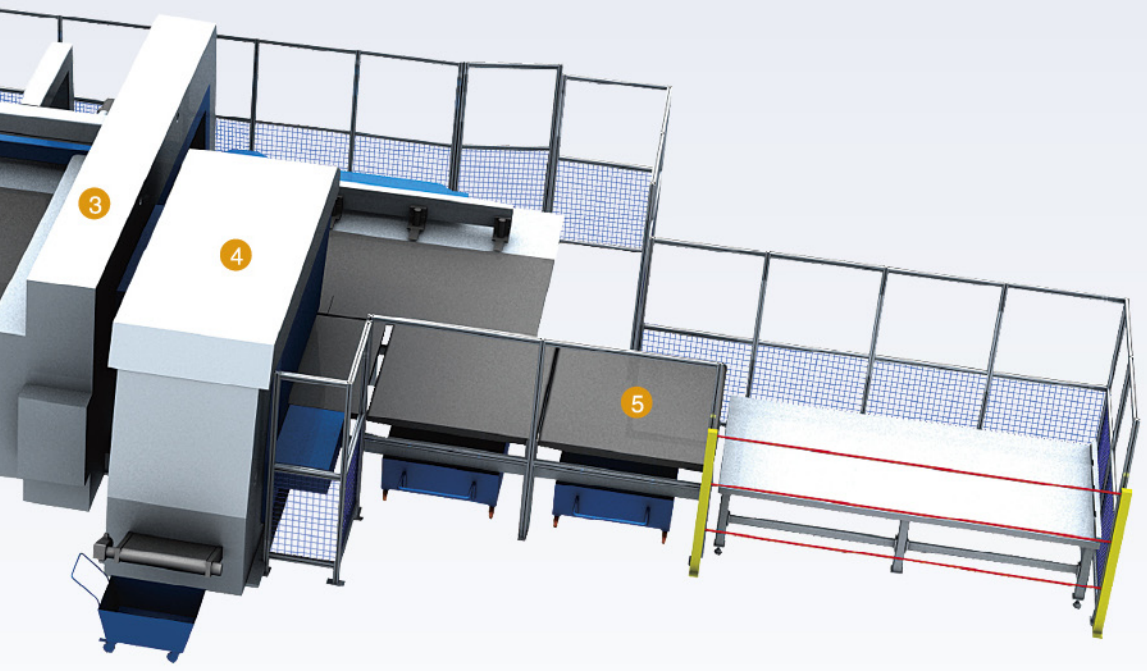
生产方式图

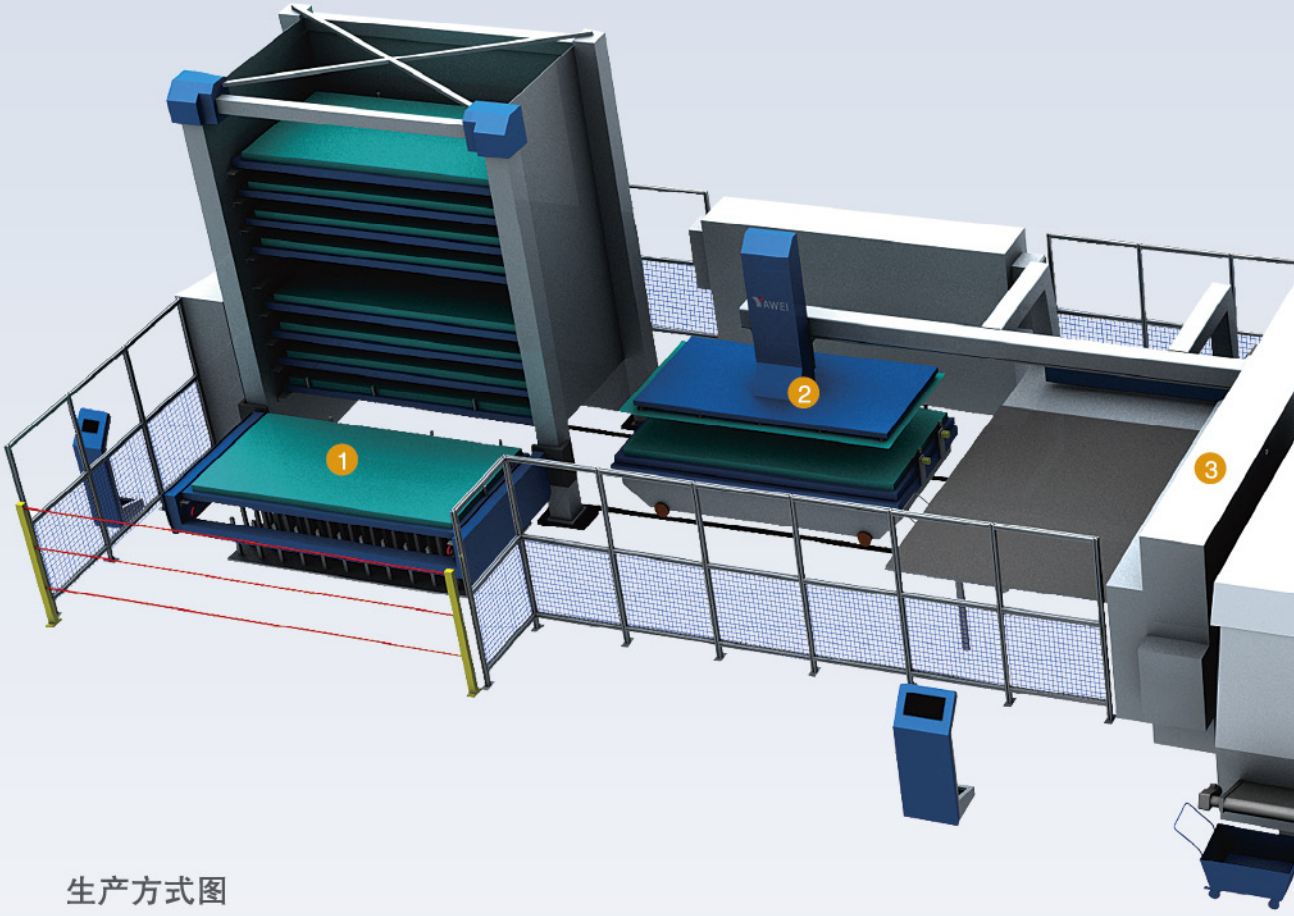
Figure of production mode



1. 智能立体板料库
2. 伺服控制上料装置
3. 伺服转塔冲床
4. 伺服直角剪
5. 分拣落料装置（标配两级）

1. Intelligent three-dimensional material library
2. Servo controlled loading device
3. Servo turret punch
4. Servo right angle shear
5. Sorting and blanking device (standard two steps)



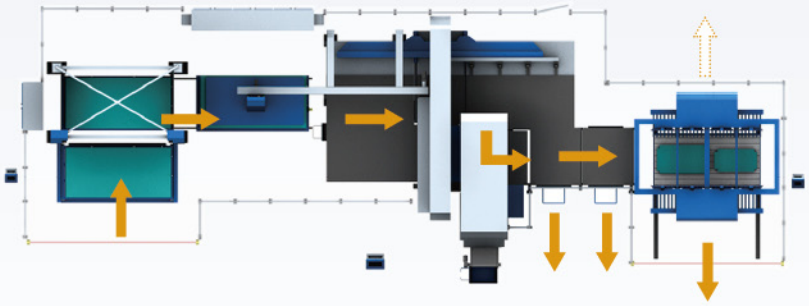


生产方式图

(虚箭头表示可以选择的出料方向)

Figure of production mode

(Virtual arrows indicate optional discharing direction)

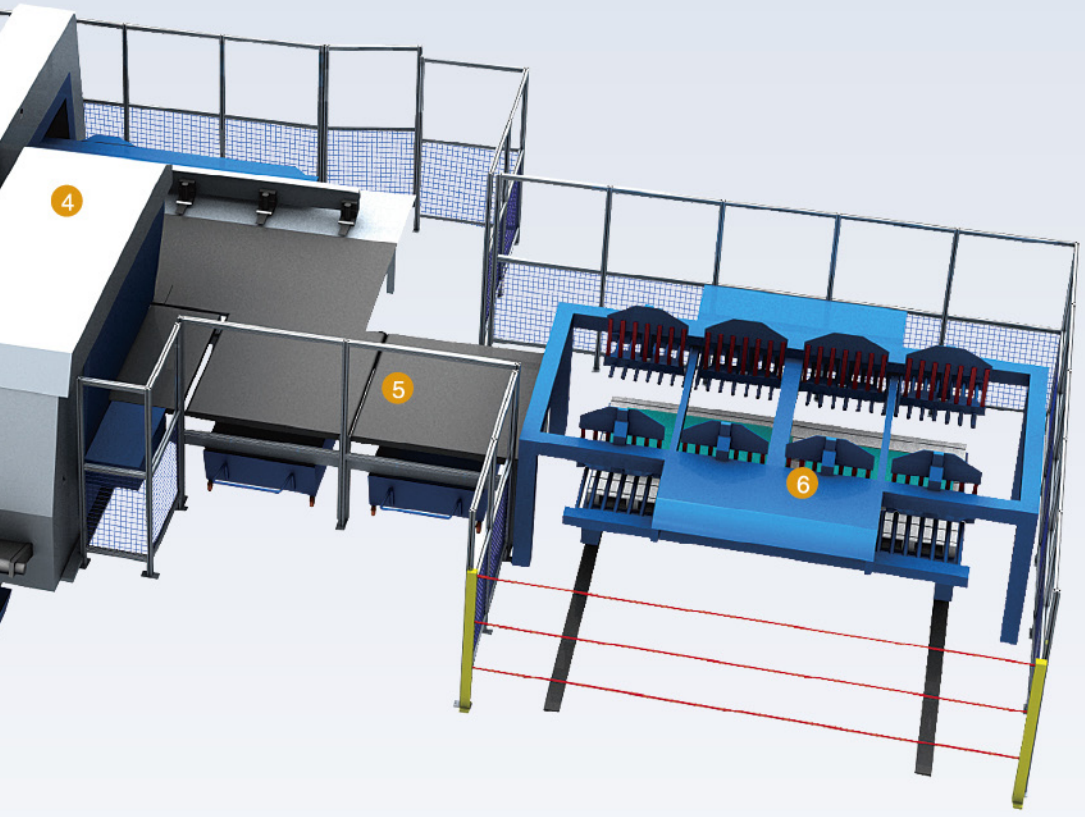


扩展2型冲剪系统

Extension Type 2 of Punch & Shear Automation System

扩展2型冲剪自动化加工系统整合了智能立体板料库、冲剪复合加工、自动上料、分拣出料和自动分选堆垛，可自动完成金属板材的出料、冲压、剪切加工和自动分选堆垛；集中控制系统合理控制各加工主机，使系统的加工效率最大化。

Standard sheet metal punch & shear automation system integrates intelligent three-dimensional material library, punch & shear combination, automatic loading and sorting blanking device, can handle the sheet feeding, punching, shearing and stacking automatically. Reasonable control of the main processing machine by centralized-control system, maximizes the processing efficiency.



1. 智能立体板料库
2. 伺服控制上料装置
3. 伺服转塔冲床
4. 伺服直角剪
5. 分拣落料装置（标配两级）
6. 自动分选堆垛装置

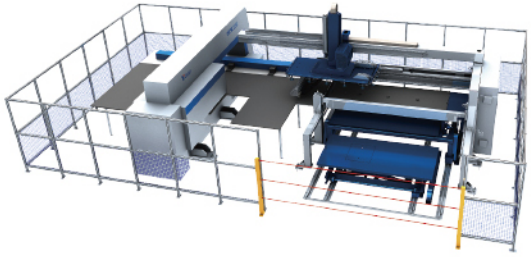
1. Intelligent three-dimensional material library
2. Servo controlled loading device
3. Servo turret punch
4. Servo right angle shear
5. Sorting blanking device (standard two steps)
6. Automatic sorting blanking device

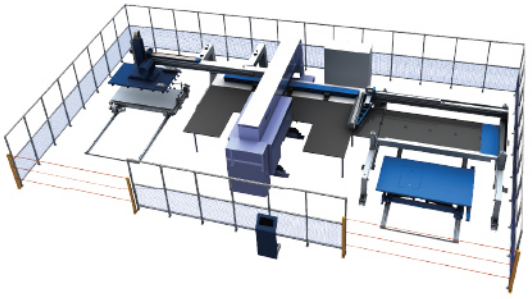
AMS.H/FMC冲压系统/单元

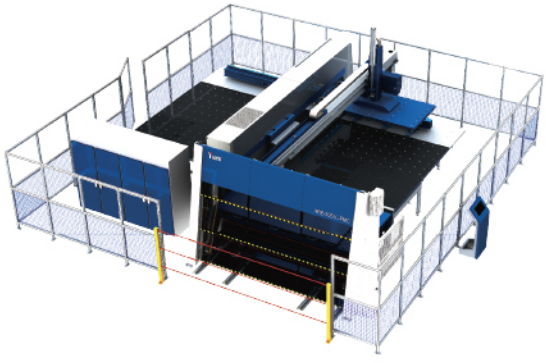
AMS.H / FMC Punching System / Unit

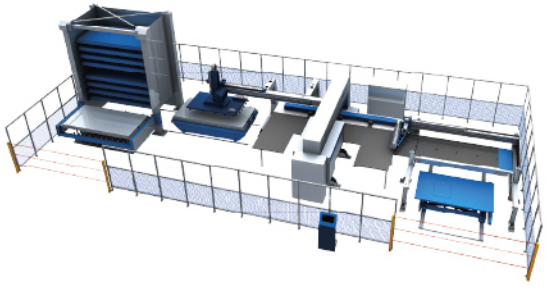
AMS.H/FMC板料冲压自动化加工系统/单元整合了冲压加工、上料和出料装置，可自动完成金属板材的冲压加工和堆垛；先进的控制系统将各部分功能单元有效地融合到一起，使得板材加工的效率提升到新的高度。

AMS.H / FMC sheet metal punching automatic processing system / unit integrates punching, loading and discharging device can automatically complete sheet metal punching and stacking. Advanced control system effectively integrates the various parts of the functional units together, improving sheet metal processing efficiency to a high level.









冲床单侧型冲压单元(FMC)
CNC Turret Punch Single Side Punch Unit (FMC)

- 具备自动上料、冲压加工和自动下料堆垛功能，上料和下料装置集成在冲床一侧，占用场地少，效率高
- With automatic loading, punching processing and automatic discharging & stacking functions. Loading and unloading device is integrated at the same side, high efficiency with less space

冲床双边型冲压单元(FMC)
CNC Turret Punch Double Sids Punch Unit (FMC)

- 具备自动上料、冲压加工和自动下料堆垛功能，上料装置和下料装置分别在冲床两边，可扩展性强，效率高
- With automatic loading, punching processing and automatic discharging & stacking functions. Loading and unloading device is integrated at the different sides, high efficiency with strong extendibility

冲床单侧紧凑型冲压单元(FMC)
CNC Turret Punch Compact Single Side Punch Unit (FMC)

- 具备自动上料、冲压加工和自动下料堆垛功能；特殊设计上下料与订制冲床融合成一体，占用场地极少，效率高
- With automatic loading, punching processing and automatic discharging & stacking functions. Special designed device is integrated with CNC Turret Punch, high efficiency with minimal space

板料冲压自动化加工系统
Sheet Metal Punch Automatic Processing System

- 带有智能立体板料库，可将指定库位板料堆运送至移动台车上，可以实现自动上料、冲压加工和下料堆垛等功能，自动化程度高
- With intelligent 3D material library, sheet in specified location can be delivered to a mobile trolley, realizing automatic loading, punching, discharging and stacking functions with high automation

典型行业 客户案例

Customer Installations

特锐德电气
Te Ruide Electric

鲲鹏电力
Kun Peng Electric

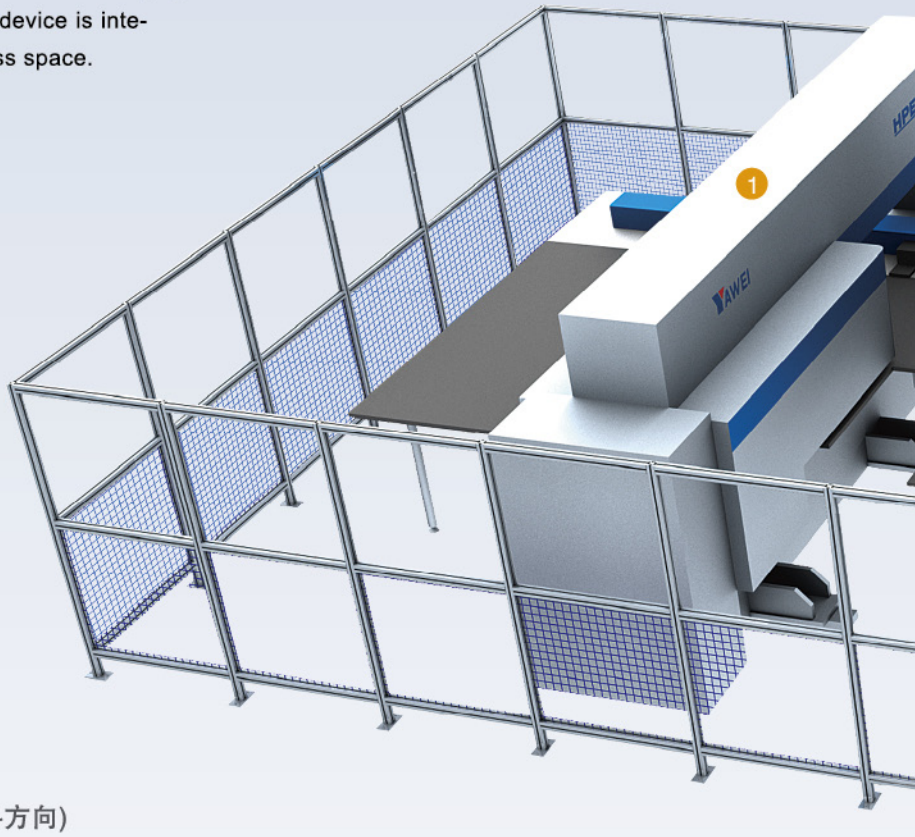
广日电气
Guang Ri Electric

冲床单侧型冲压单元 (FMC)

CNC Turret Punch Single Side Punch Unit (FMC)

冲床单侧型冲压单元(FMC)具备自动上料、冲压加工和自动下料堆垛功能，上料和下料装置集成在冲床一侧，占用场地少，效率高。

CNC Turret Punch single side punch unit (FMC) integrates automatic loading, punching processing and automatic discharging & stacking functions. Loading and unloading device is integrated at the same side, high efficient with less space.

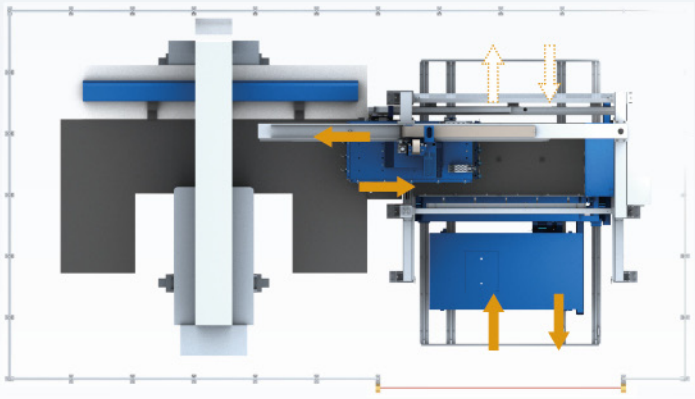


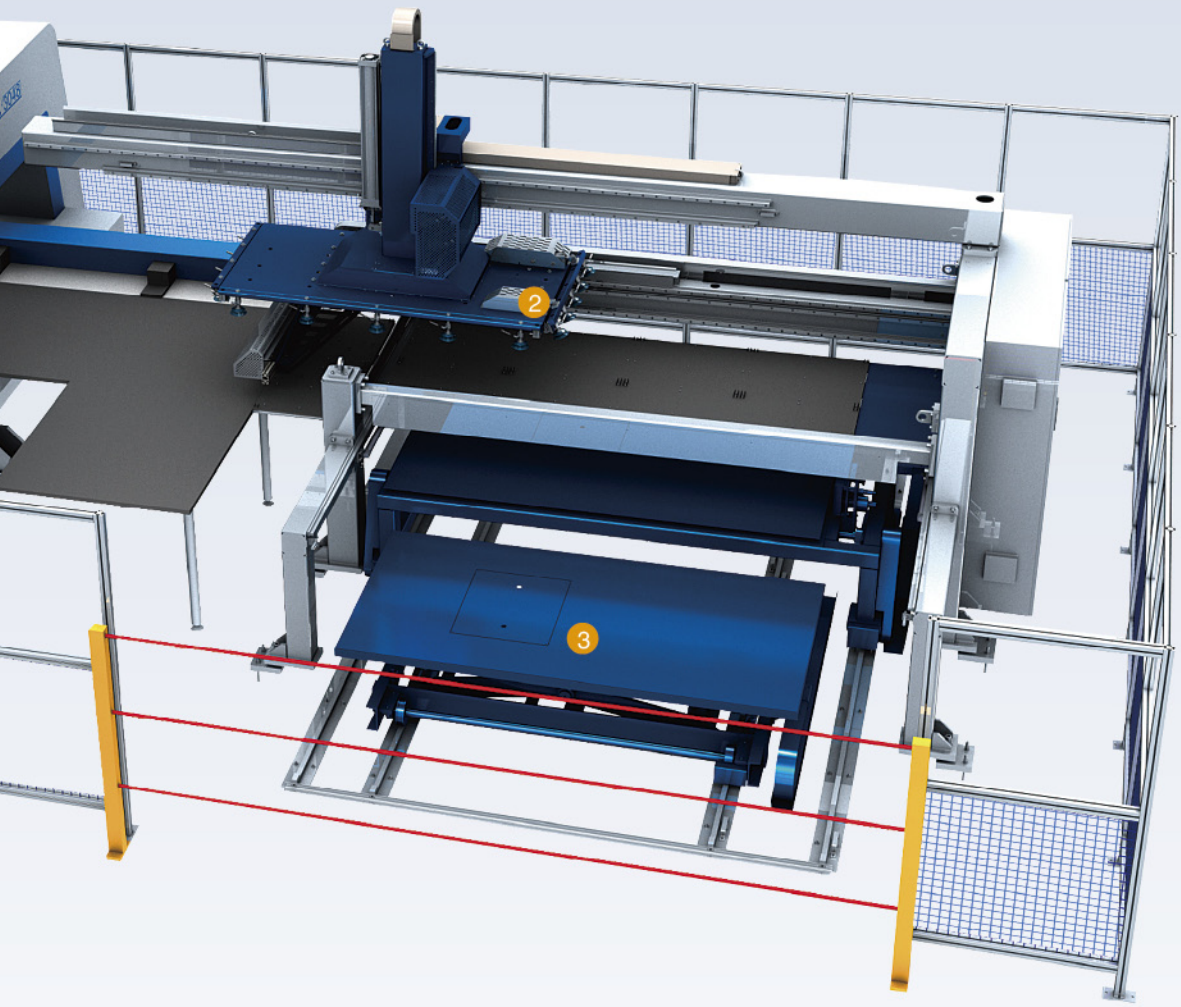
生产方式图

(虚箭头表示可以选择的出料方向)

Figure of production mode

(Virtual arrows indicate optional discharing direction)





1 数控转塔冲床
2 冲床单侧上下料装置
3 交互式上下料台车

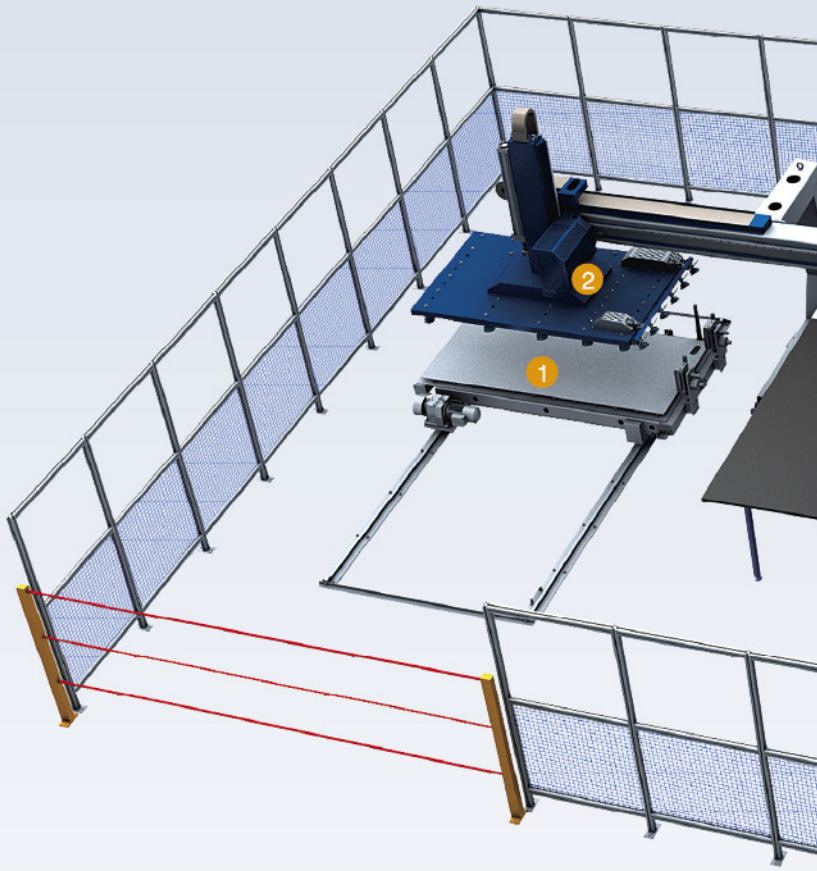
1 CNC Turret Punch
2 Single side loading and unloading device
3 Interactive loading and unloading trolley

冲床双边型冲压单元 (FMC)

CNC Turret Punch Double Side Punch Unit (FMC)

冲床双边型冲压单元具备自动上料、冲压加工和自动下料堆垛功能；上料装置和下料装置分别在冲床两边，可扩展性强；效率高。

CNC Turret Punch double sides punch unit (FMC) integrates automatic loading, punching process and automatic, discharging & stacking functions. Loading and unloading device is integrated at the different sides, high efficiency with strong extendibility.

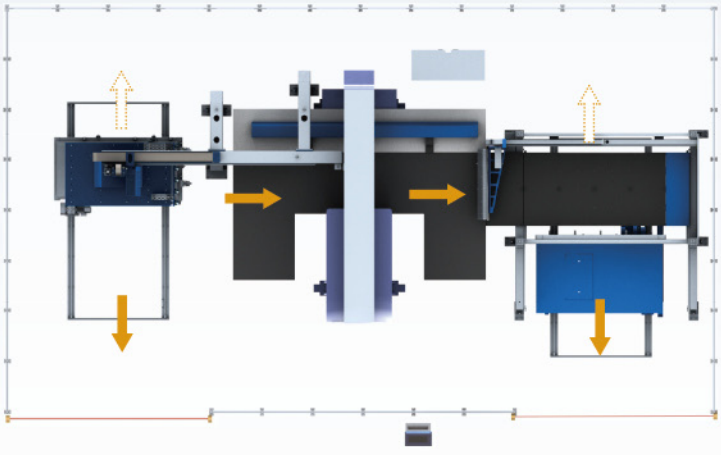


生产方式图

(虚箭头表示可以选择的出料方向)

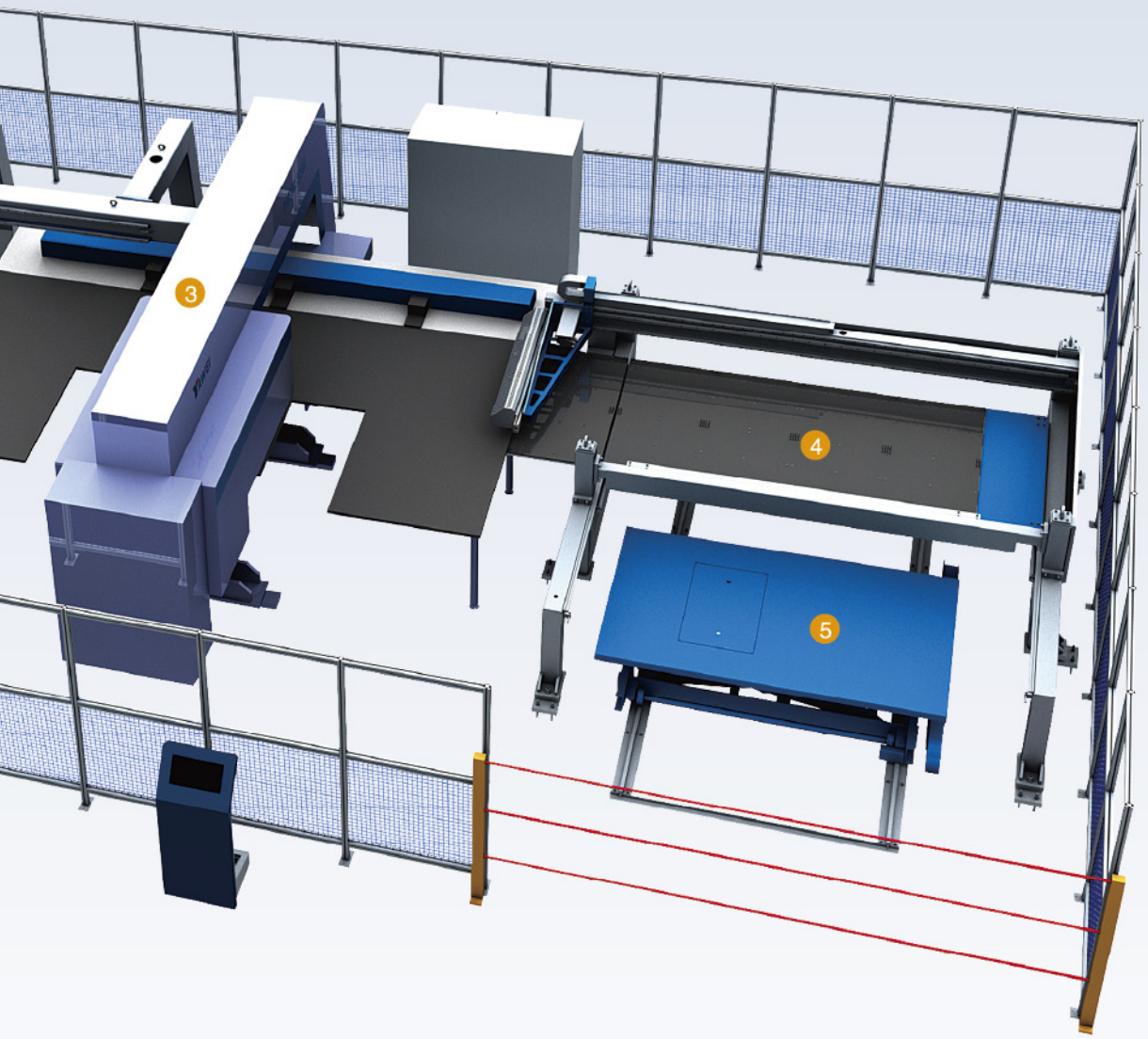
Figure of production mode

(Virtual arrows indicate optional discharing direction)



1 上料台车
2 上料装置
3 数控转塔冲床
4 下料装置
5 下料升降台车

1 Loading trolley
2 Loading device
3 CNC Turret Punch
4 Unloading device
5 Unloading lifting trolley

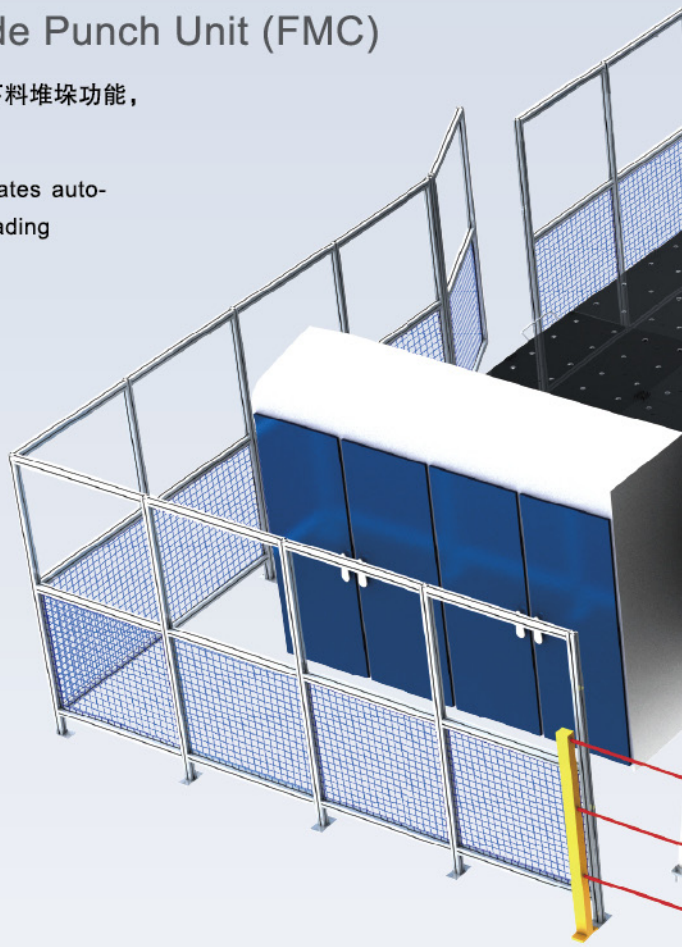


冲床单侧紧凑型冲压单元

CNC Turret Punch Compact Single Side Punch Unit (FMC)

冲床单侧紧凑型冲压单元(FMC)具备自动上料、冲压加工和自动下料堆垛功能，特殊设计上下料与订制冲床融合成一体，占用场地极少，效率高。

CNC Turret Punch compact single side punch unit (FMC) integrates automatic loading, punching, discharging and stacking functions. Loading and unloading device is integrated with CNC Turret Punch with less space occupied and high efficiency.

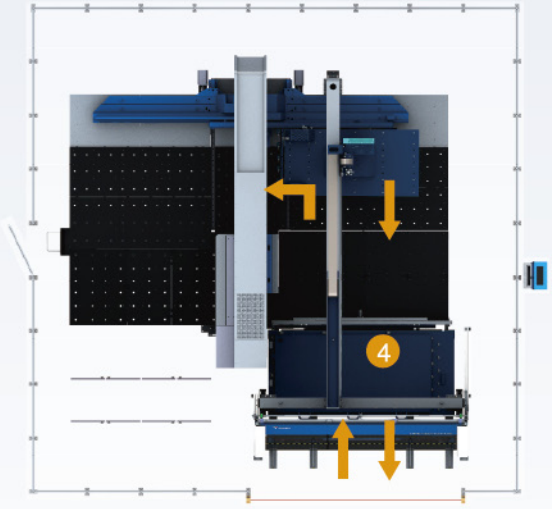


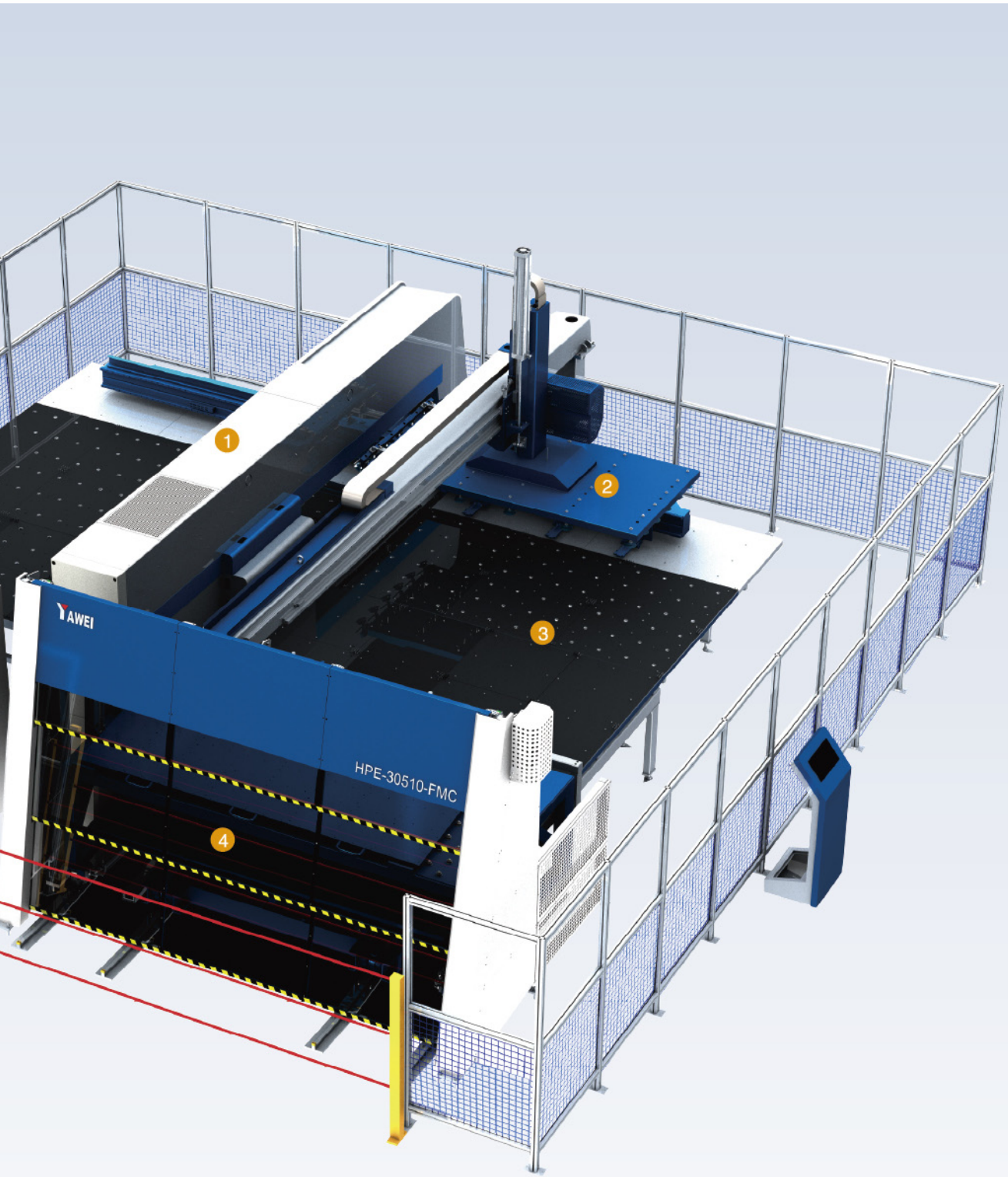
生产方式图

(虚箭头表示可以选择的出料方向)

Figure of production mode

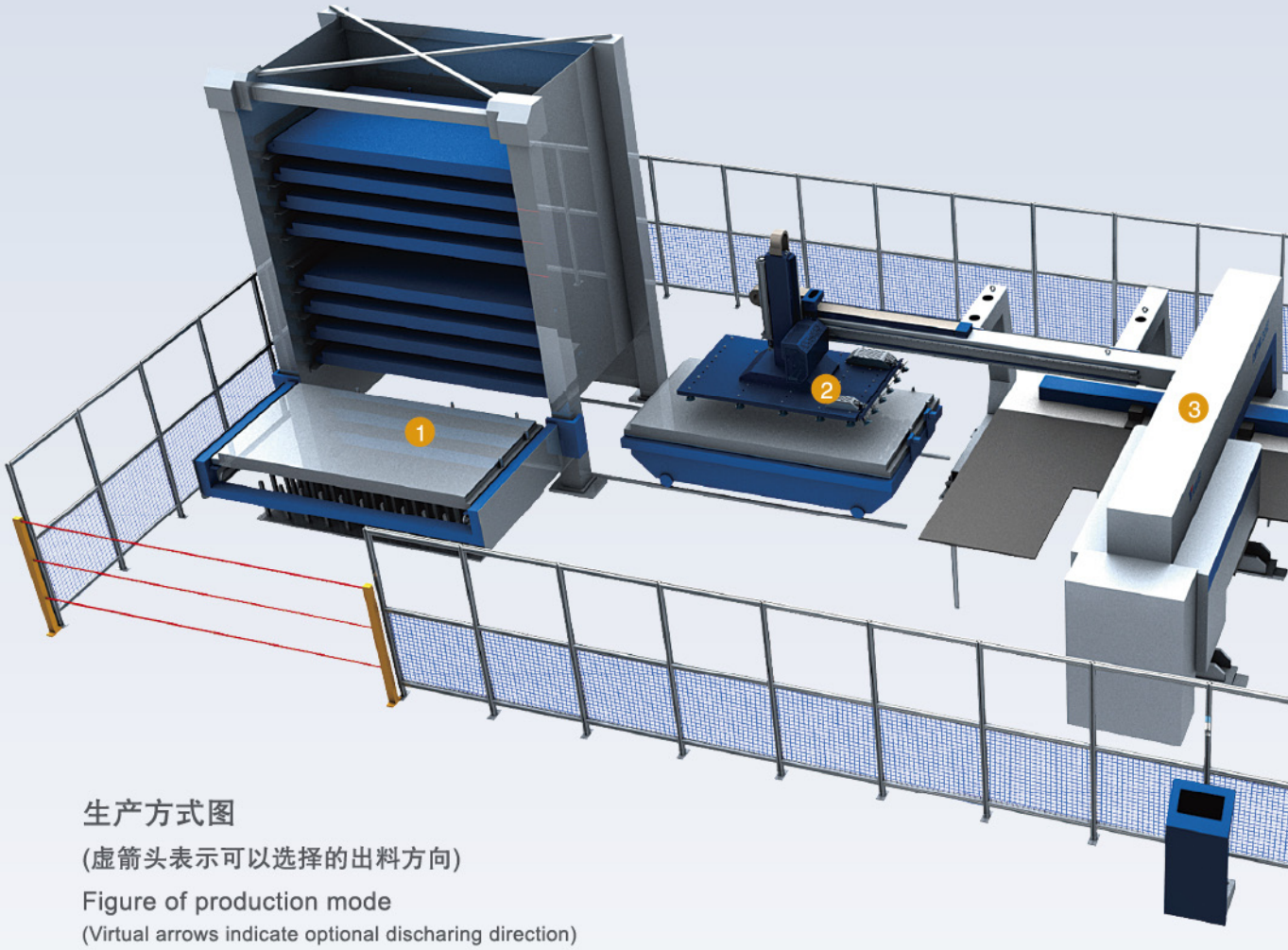
(Virtual arrows indicate optional discharing direction)





1 数控转塔冲床
2 上料装置
3 下料移动工作台
4 交互式上下料台车

1 CNC Turret Punch
2 Loading device
3 Unloading moveable worktable
4 Unloading lifting trolley

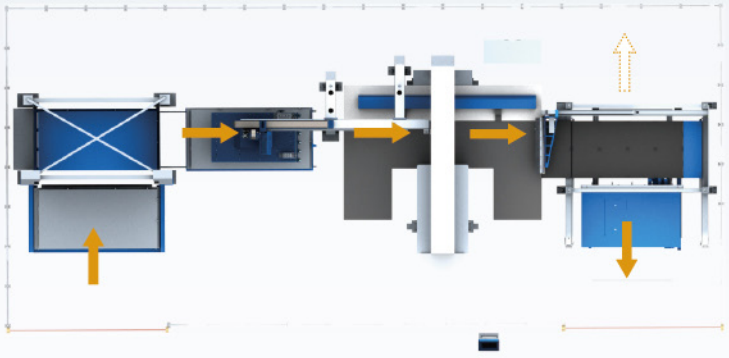


生产方式图

(虚箭头表示可以选择的出料方向)

Figure of production mode

(Virtual arrows indicate optional discharing direction)

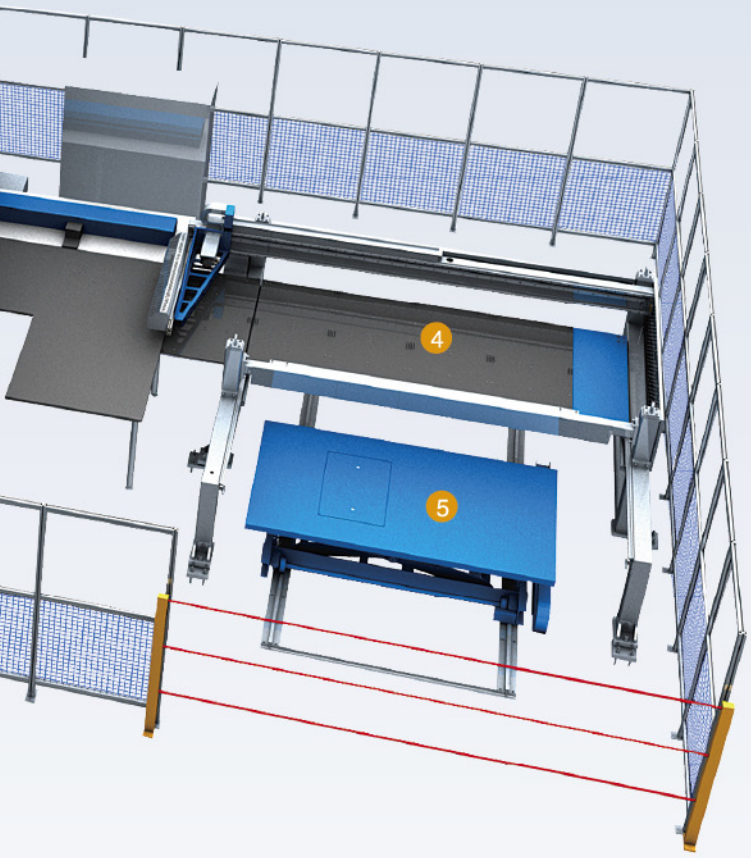


板料冲压自动化加工系统

Sheet Metal Punch Automatic Processing System

带有智能立体板料库，可将指定库位板料堆运送至移动台车上，可以实现自动上料、冲压加工和下料堆垛等功能，自动化程度高。

With intelligent 3D material library, you can deliver sheet in specified location to a mobile trolley, can achieve automatic loading, punching, discharging and stacking functions, highly automatized.



1. 智能立体板料库
2. 上料装置
3. 数控转塔冲床
4. 下料装置
5. 下料升降台车

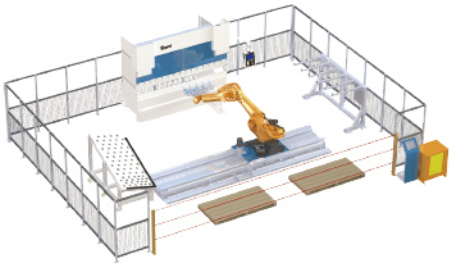
1. Intelligent 3D material library
2. Loading device
3. CNC Turret Punch
4. Unloading device
5. Unloading lifting trolley

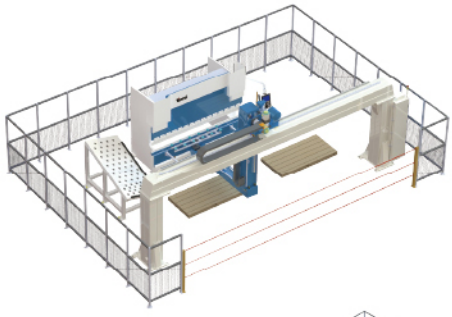
PBH-FMC数控板料折弯柔性加工单元

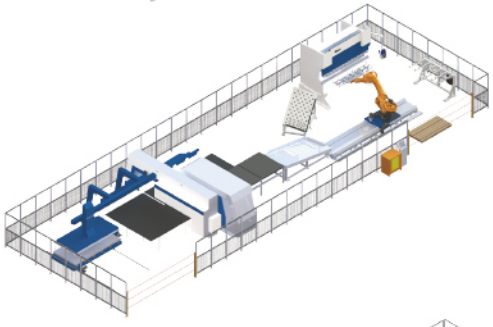
PBH-FMC CNC Sheet Metal Bending Flexible Processing Unit

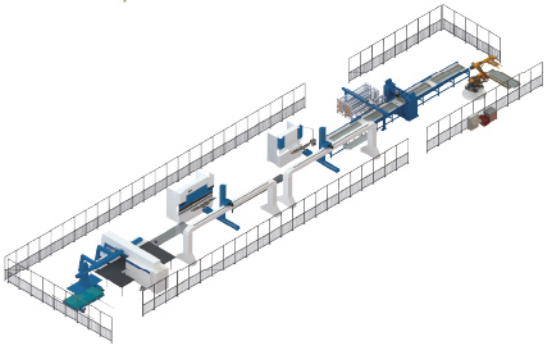
PBH–FMC数控板料折弯柔性加工单元是通过PLC控制系统将数控折弯机、机器人有机地结合起来，可以实现板料的自动抓取、对中、折弯和码垛，有效地降低人工操作的劳动强度，并能提高生产效率。可根据用户工件的折弯工艺要求，定制折弯单元方案，最大限度满足客户需求。

PBH-FMC CNC sheet metal flexible processing unit, utilizing PLC control system to combine CNC press brake and robot, can realize the automatic sheet grabbing, centering, bending and stacking. Effectively reduce the labor intensity and enhance productivity. Based on the requirements of customer, specially design the bending unit to fulfill the customer's demands.









数控板料折弯柔性加工单元–六轴机器人型
CNC Sheet Bending Flexible Processing Unit—6-Axis Robot Type

- 配置六轴机器人配合数控折弯机自动折弯，配有对中台和翻面架等辅件，满足自动折弯的工艺要求。六轴机器人带有移动底座，加大机器人的移动范围
- Equip with 6-axis robot to cooperate with CNC press brake. With centering table and turn-over frame to fulfill the requirement of automatic bending. The rail of 6-axis robot can enhance its moving range

数控板料折弯柔性加工单元–龙门机器人型
CNC Sheet Bending Flexible Processing Unit—Gantry Robot Type

- 配置龙门机器人配合数控折弯机自动折弯，配有对中台和翻面托架等辅件，满足自动折弯的工艺要求
- Equip with gantry robot to cooperate with CNC press brake. With centering table and turn-over frame to fulfill the requirement of automatic bending

AMS.HSP系列板料冲剪折弯自动化加工系统
AMS.HSP Series Sheet Punch & Shear & Bend Combo System

- AMS.HSP系列板料冲剪折弯自动化加工系统将冲剪单元和机器人折弯单元整合在一起，可完成金属板材的自动冲压、剪切、折弯和码垛
- AMS.HSP series sheet punch & shear & bend combi system, integrates the punch & shear unit and robot bending unit, to realize the automatic sheet punching, shearing, bending and stacking

电梯门板柔性生产线
Elevator Door Panel Flexible Production Line

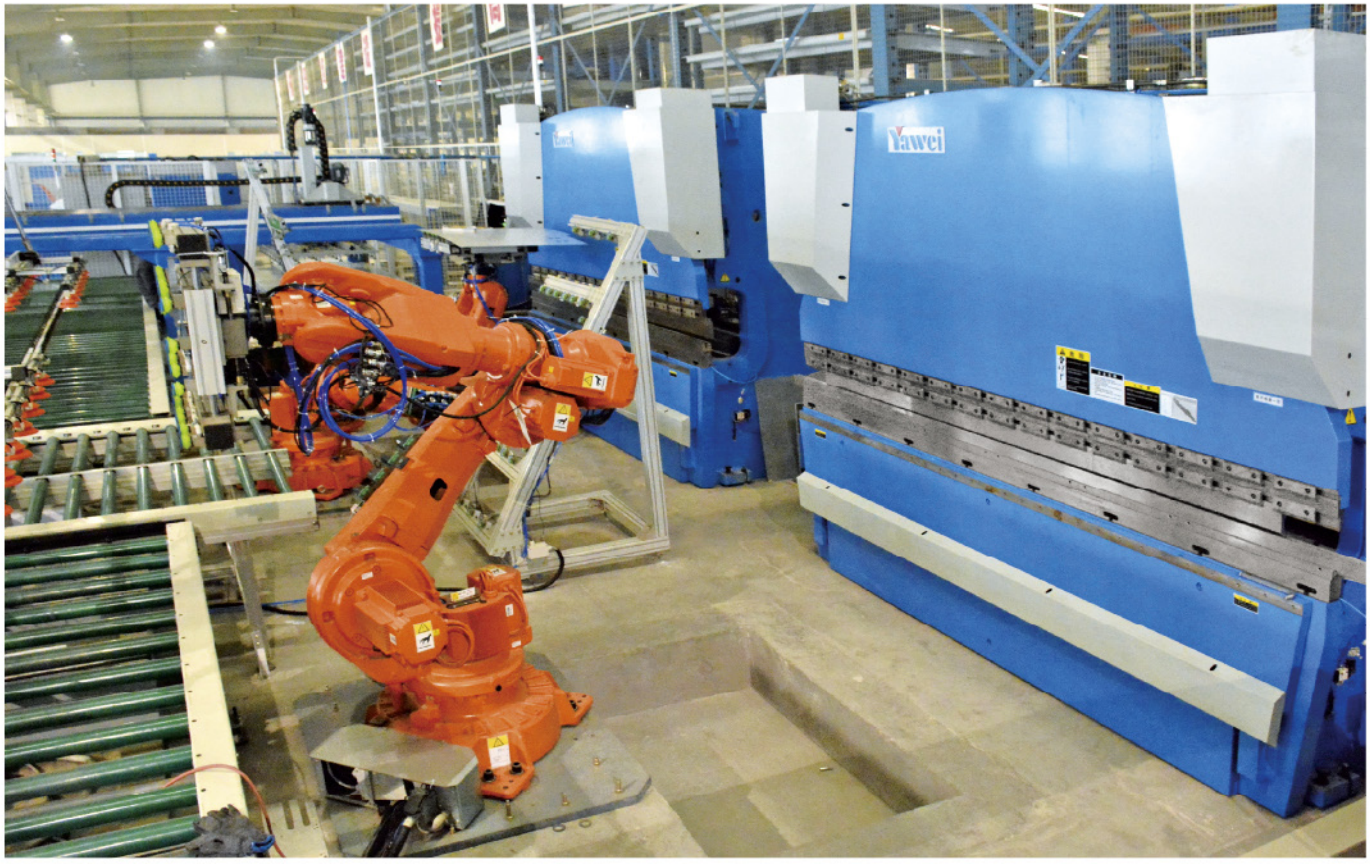
- 本加工系统的目的是提高电梯门板、轿壁等大型平板钣金件折弯的柔性自动化生产程度，可实现金属板材的自动冲压、折弯、焊接
- The automatic processing system is used to raise the automation level of those large sheet metal parts, e.g. elevator door, car enclosure,etc

典型行业 客户案例

Customer Installations

永日电梯
Yong Ri Elevator

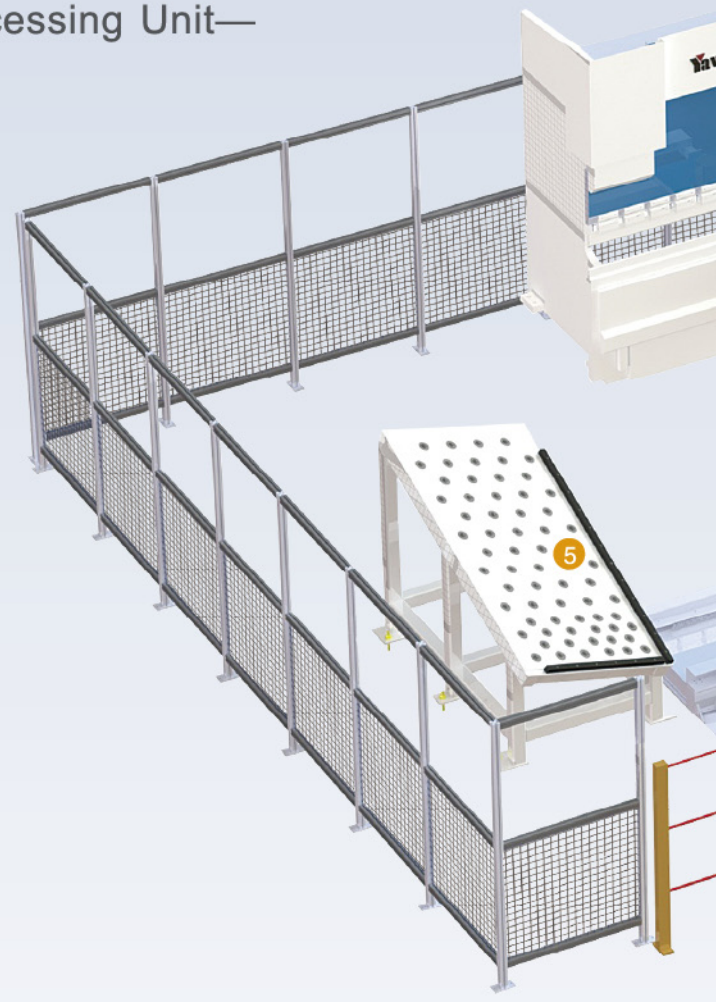
欣华恒
XinHuaHeng Enterprise



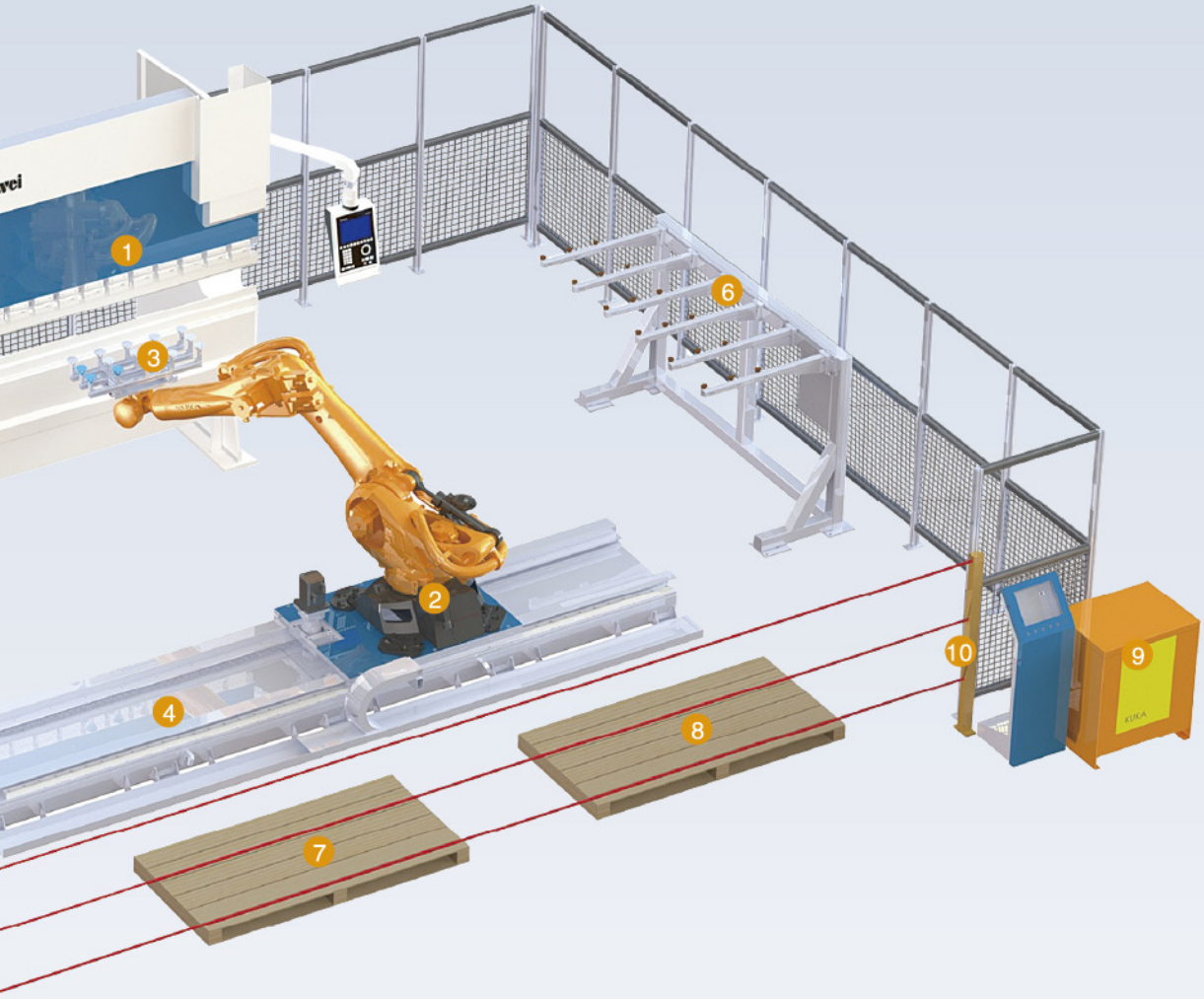
太平洋电器
Pacific Electric

数控板料折弯柔性加工单元
— 六轴机器人型

CNC Sheet Bending Flexible Processing Unit—
6-Axis Robot Type



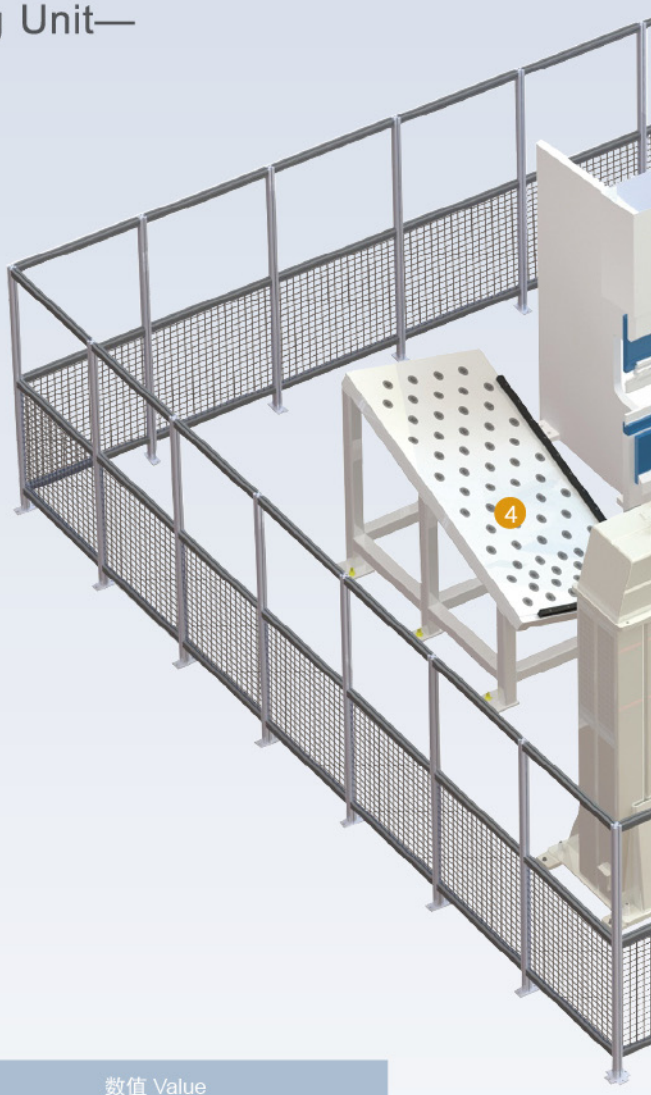
参数项 Name		单位 Unit	数值 Value
机器人负载	Robot loading capacity	kg	210
机器人轴数	Robot axis		6+1
移动导轨行程	Robot rail stroke	mm	3800
最大工件尺寸	Max. Work piece dimension	mm	3000×1250
最小板厚	Min. Sheet thickness	mm	0.8
最大工件重量	Max. Work piece weight	kg	130
最大板料上料高度	Max. Sheet loading height	mm	400
最大成品堆垛高度	Max. Stacking height	mm	900
相配折弯机系列	Press brake required		PBH–300–4100以下 Below PBH-300-4100



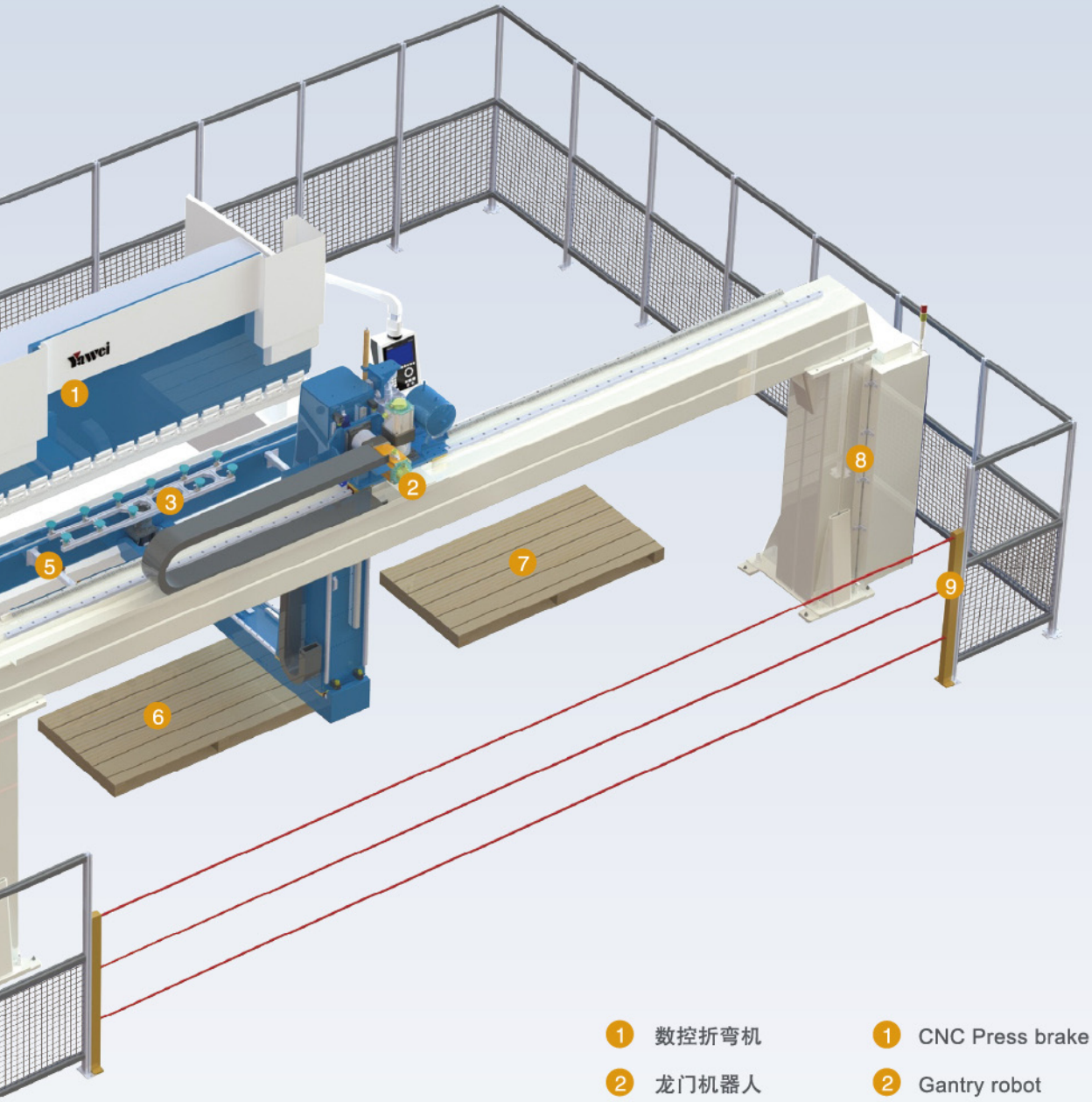
1 数控折弯机	1 CNC Press brake
2 六轴机器人	2 6-axis robot
3 气动吸盘抓手	3 Pneumatic sucker gripper
4 移动导轨	4 Robot rail
5 对中台	5 Centering table
6 翻面架	6 Turn–over frame
7 上料托盘	7 Loading tray
8 成品堆垛托盘	8 Stacking tray
9 电气系统	9 Electrical system
10 安全防护	10 Safety protection

数控板料折弯柔性加工单元
— 龙门机器人型

CNC Sheet Metal Flexible Processing Unit—Gantry Robot Type



参数项 Name		单位 Unit	数值 Value
机器人负载	Robot loading capacity	kg	50
机器人轴数	Robot axis		5
最大工件尺寸	Max. Work piece dimension	mm	2000×1000
最小工件尺寸	Min. Work piece dimension	mm	0.8
最大工件重量	Max. Work piece weight	kg	20
最大板料上料高度	Max. Sheet loading height	mm	600
最大成品堆垛高度	Max. Stacking height	mm	1200
相配折弯机系列	Press brake required		PBH–110–4100以下 Below PBH-300-4100



1	数控折弯机	1	CNC Press brake
2	龙门机器人	2	Gantry robot
3	气动吸盘抓手	3	Pneumatic sucker gripper
4	对中台	4	Centering table
5	翻面托架	5	Turn-over frame
6	上料托盘	6	Loading tray
7	成品堆垛托盘	7	Stacking tray
8	电气系统	8	Electrical system
9	安全防护	9	Safety protection

AMS.HSP系列板料冲剪折自动化加工系统

AMS.HSP Series Sheet Punch & Shear & Bend Combo System

AMS.HSP系列板料冲剪折弯自动化加工系统将冲剪单元和机器人折弯单元整合在一起，可完成金属板材的自动冲压、剪切、折弯和码垛。

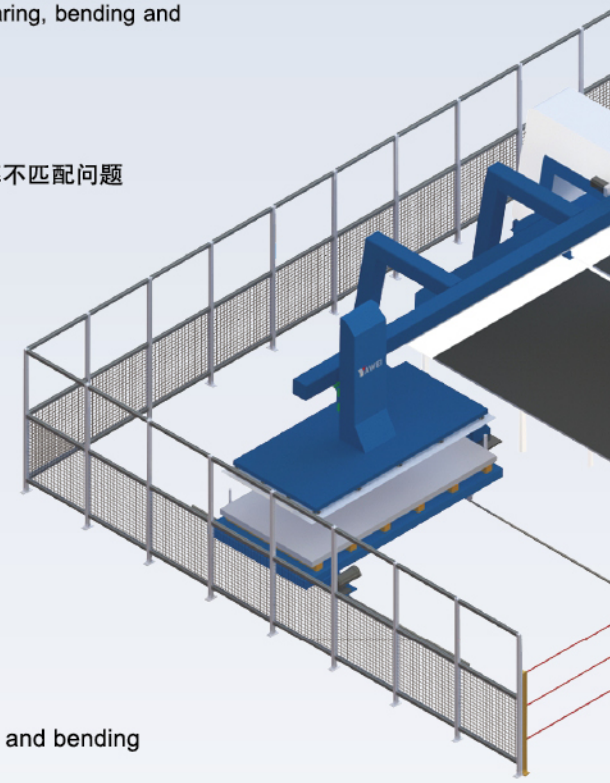
AMS.HSP series sheet punch & shear & bend combo system, integrates the punch & shear unit and robot bending unit, to realize the automatic sheet punching, shearing, bending and stacking.

适用场合

- 大批量零件生产
- 工件需要翻面折弯
- 冲压折弯工艺较复杂
- 工件尺寸规格变化较大

工艺特点

- 冲剪出料缓存，缓解冲剪与折弯效率不匹配问题
- 原板料不需要定尺板料



Occasions applicable

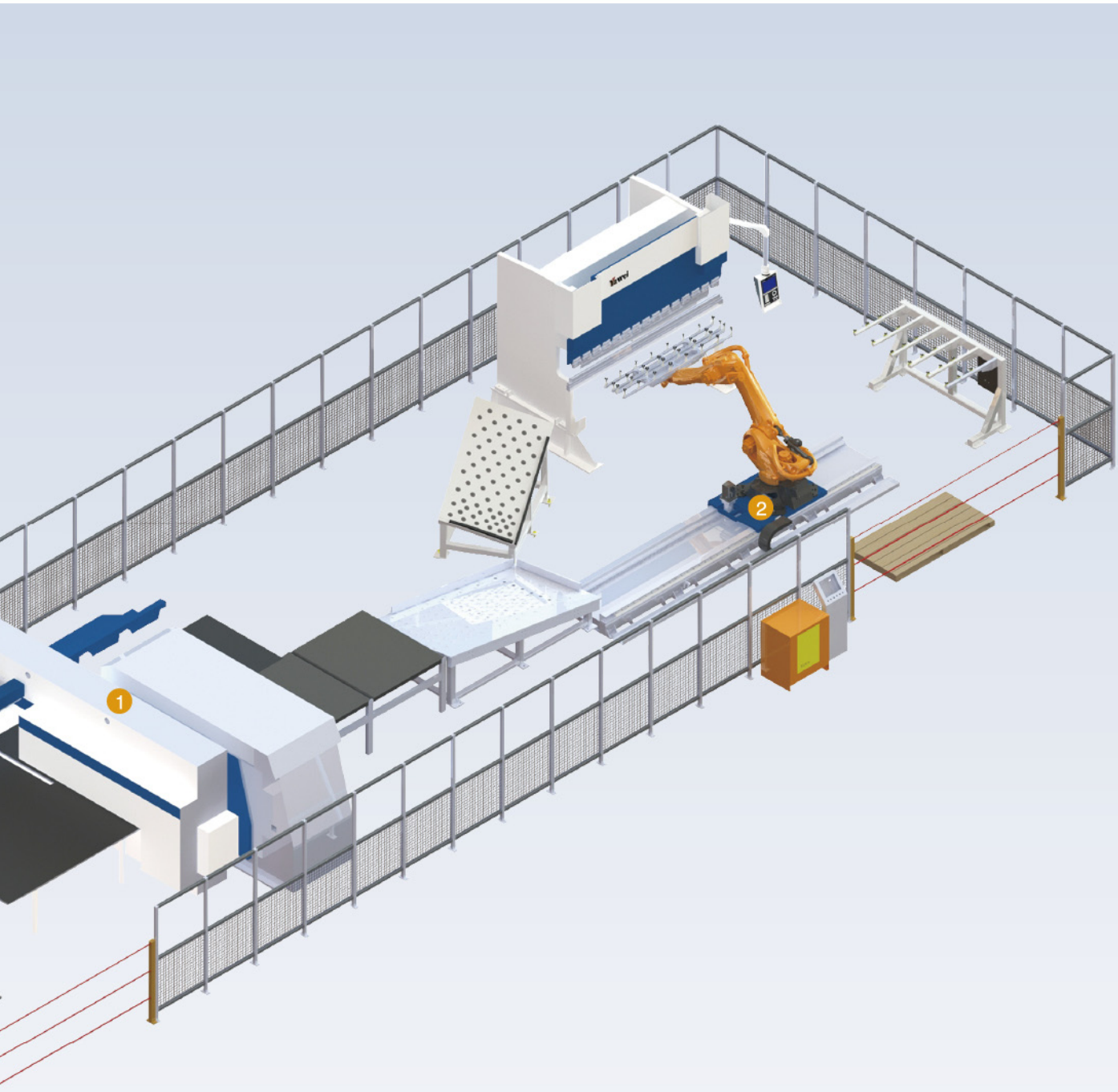
- Accessory volume-production
- Work pieces with turn-over bending
- Complex punching and bending process
- Large dimension range of work piece

Features

- Unloading buffer to relief the mismatching between punch & shear and bending
- No need for sheets of specified dimension

1. 冲剪单元
2. 折弯单元

1. Punch & shear unit
2. Bending unit



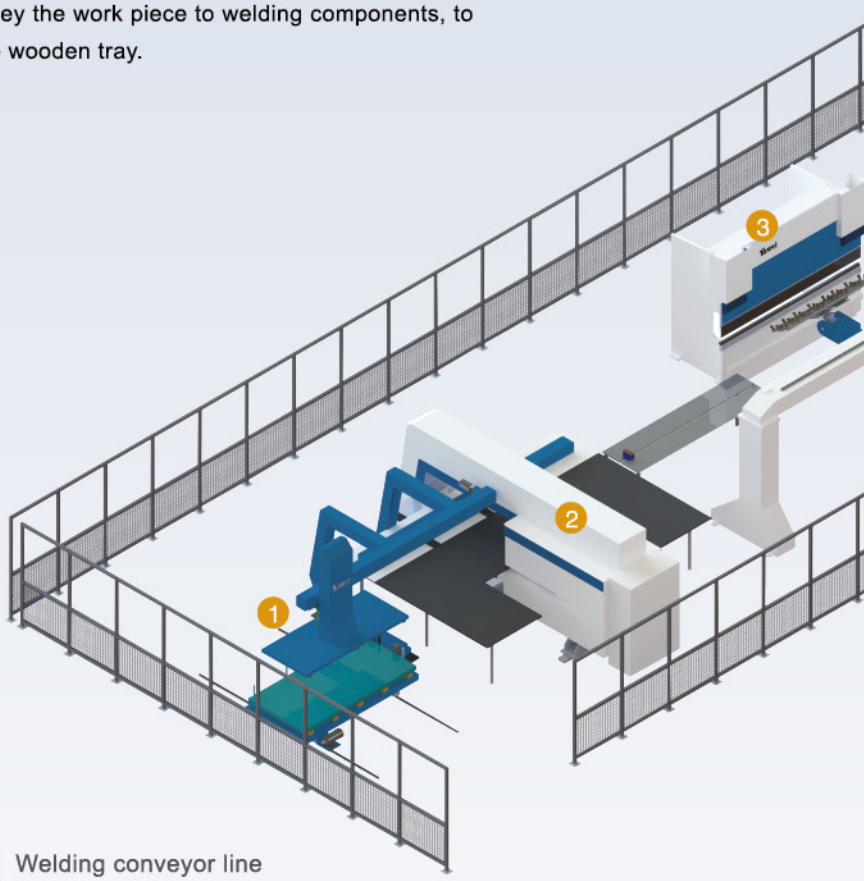
参数项 Name		单位 Unit	数值 Value
最大冲压力	Max. Punching pressure	kN(T)	294(30)
X、Y轴行程内冲压加工尺寸（X轴不含再定位）	Punching dimension within X,Y axis stroke (not include X axis re-positioning)	mm	3050×1525
X、Y轴行程内剪切加工尺寸（X轴不含再定位）	Shearing dimension within X,Y axis stroke (not include X axis re-positioning)	mm	2500×1500
最大加工板料厚度（Q235A）	Max. Sheet processing thickness (Q235A)	mm	6.35（冲压 punching） 4（剪切 shearing）
机器人负载	Robot loading capacity	kg	210
机器人轴数	Robot axis		6+1

电梯门板柔性生产线

Elevator Door Panel Flexible Production Line

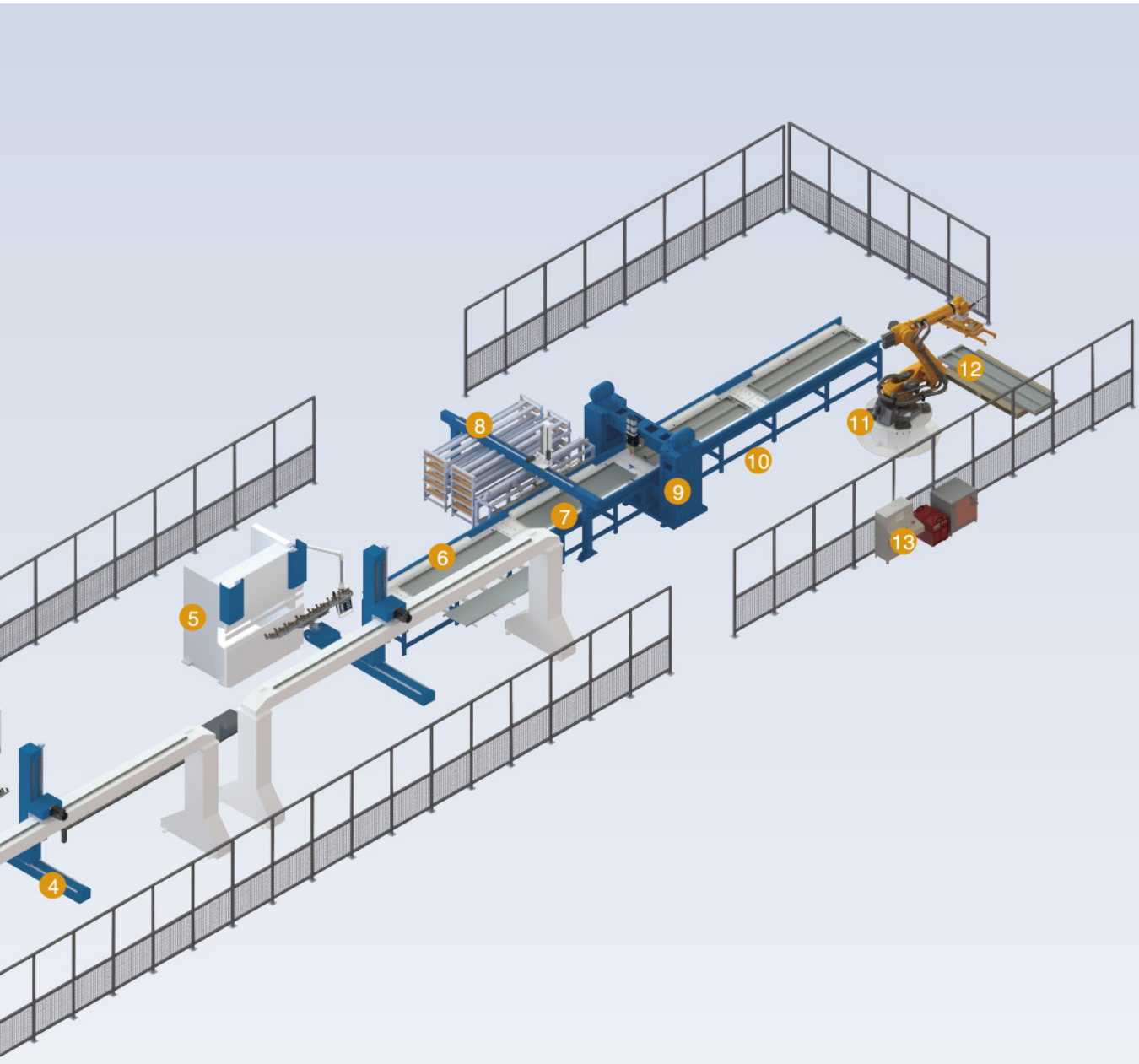
本加工系统的目的是提高电梯门板、轿壁等大型平板钣金件折弯的柔性自动化生产程度，整个系统包括：原料板材由自动上料系统抓取，转到数控冲床完成冲压加工，加工后的板材分别由两台龙门式折弯机器人和两台折弯机完成长边和短边折弯加工。折完短边后，转运至焊接输送线，依次完成加强筋电阻焊接、伺服电弧焊接加强筋与底板搭边处、机器人点焊底板各搭边处并码垛于木质托盘上。

The automatic processing system is used to raise the automation level of those large sheet metal parts,e.g. elevator door, car enclosure,etc. The system actions includes: the grabbing of raw material, the punching on CNC turret punch, the bending by two sets of gantry robots and press brakes. When the bending of short edge finishes, convey the work piece to welding components, to do the welding process and finally stack on the wooden tray.



1. 自动上料抓手
2. 数控冲床
3. 数控折弯机（长边）
4. 龙门式折弯机器人
5. 数控折弯机（短边）
6. 焊接输送线
7. 加强筋安装系统
8. 加强筋料库
9. 加强筋龙门电阻焊
10. 清枪站
11. 焊接码垛机器人
12. 木制托盘
13. 电气控制系统

1. Loading manipulator
2. CNC turret punch
3. CNC pressbrake (long edge)
4. Gantry robot type
5. CNC press brake (short edge)
6. Welding conveyor line
7. Reinforce rib installction system
8. Material library for reinforce rib
9. Electric resistance welding for reinforce rib
10. Welding gun cleaning station
11. Welding & stacking robot
12. Wooden tray
13. Electrical controller



板材材质 Sheet material		冷轧钢板 Cold-roll steel sheet
最大尺寸板材	Max. Sheet size	1250×2500mm
最小板材尺寸	Min. Sheet size	400×1000mm
最大板材厚度	Max. Sheet thickness	2.5mm
最小板材厚度	Min. Sheet thickness	0.5mm
折弯后工件厚度	Work piece thickness after bending	30-45mm
折弯后整体宽度	Total width after bending	370-650mm
上料固定工作台最大载重	Max. Capacity of loading worktable	2000kg
上料台车最大堆高	Max. Stacking height of loading pallet	300mm
上料台车最大载重	Max. Loading capacity of loading pallet	2000kg
加强筋与底板焊点距离	Distance between reinforce rib and welding point	250-300mm

选配-功能部件

Optional-Function Part

选配项 Optional Parts

机器人抓手快换装置
Robot Gripper Fast Exchanging Device

机器人抓手快换装置通过使机器人自动更换不同的吸盘抓手，使机器人的应用更具柔性。抓手快换装置包括一个主盘用来安装在机器人手臂末端法兰盘上，还包括多个工具盘用来安装各个不同的抓手。

- 机器人抓手更换可以在数秒内完成，大大降低停工时间
- 通过在应用中使用1个以上的抓手，从而使柔性增加
- 根据机器人的负载可选择相应负载的抓手快换装置

With the gripper fast changing device, the robot can change the pneumatic gripper automatically. Thus make the robot application more flexible. The gripper fast changing device includes one main plate locates on the flange that at the end of robot arm. And many tool plates to install variety grippers.

- Robot gripper changing can be finished in few seconds, which can short the breakdown time greatly
- Using more than one grippers to make the system more flexible
- The loading capacity of gripper can be chosen according to the loading capacity of robot

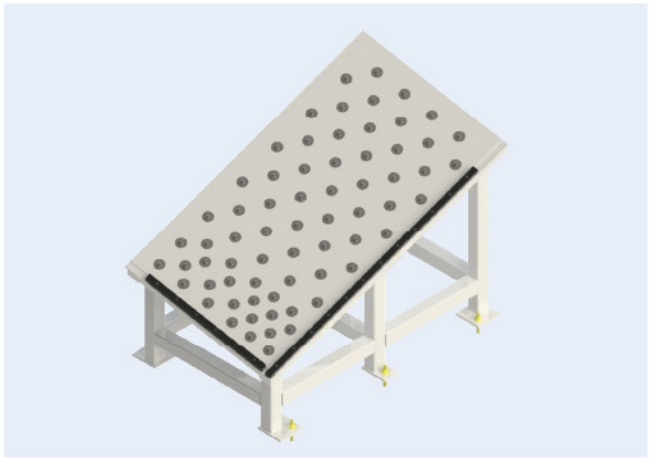
机器人视觉定位装置
Robot Visual Positioning Device

通过视觉产品（光源、镜头、相机、采集卡）引导机器人自动变换抓手位置，精确抓取工件，实现机器视觉与机器人之间通讯以及坐标系转换。

- 采用C#，VisionPro软件开发的定制化操作界面，运行效率高
- COGNEX 500W像素，工业CCD
- 定位精度 0.5mm–1mm
- 识别工件范围 1000mm × 750mm

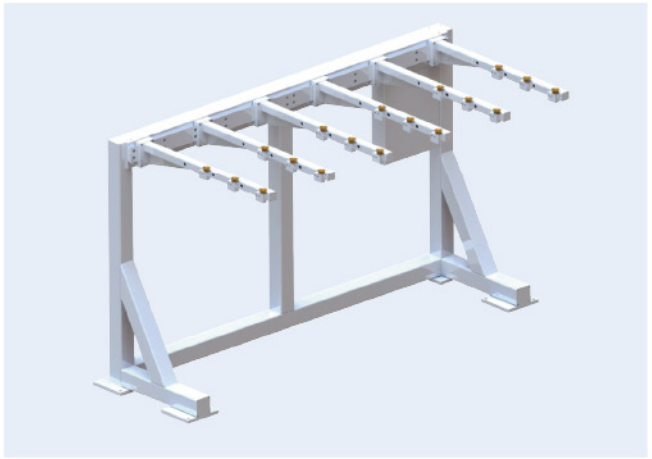
With help of visual devices (e.g. Optical source, camera, collecting card), the robot will able to change the gripper locations automatically, grab the work piece accurately, and realize the communication and axes converting between machine visualization and robot.

- Customized operation interface developed by C#, VisionPro software can achieve higher running efficiency
- COGNEX 5 million pixels, Industry CCD
- Positioning accuracy 0.5mm-1mm
- Work piece recognition range 1000mm×750mm



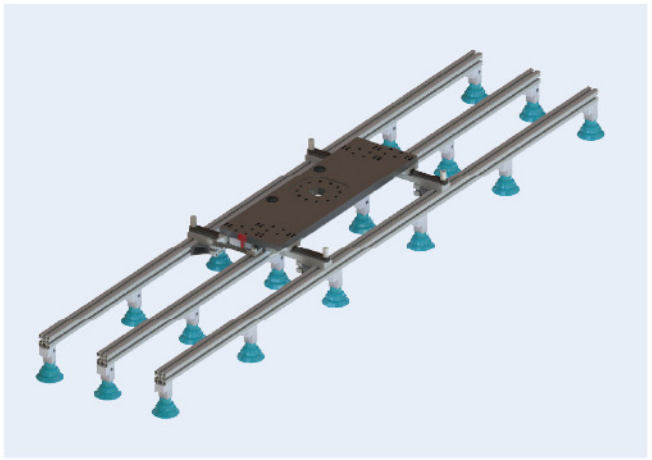
对中台 / Centering Table

- 碳钢喷塑结构，台面倾斜布置，方便产品自动对中
- Mild steel ink jet structure, tilt design, convenient for sheet automatic centering



翻面架 / Turning over Bracket

- 碳钢喷塑结构，机器人将需要翻面的工件放在正面吸盘上，再从翻面抓取工件
- Mild steel ink jet structure. Locating the work piece to be turned over at the obverse sucker, and grab it again from reverse side



可变距抓手 / Variable Pitch Gripper

- 根根据客户折弯工件的尺寸范围定制，可实现对多种工件的抓取折弯，节约抓手更换时间，提高自动化效率
- Customized according to size range of bending workpiece, to realize grabbing and bending for various workpieces, saving grip changing time and improving automation efficiency

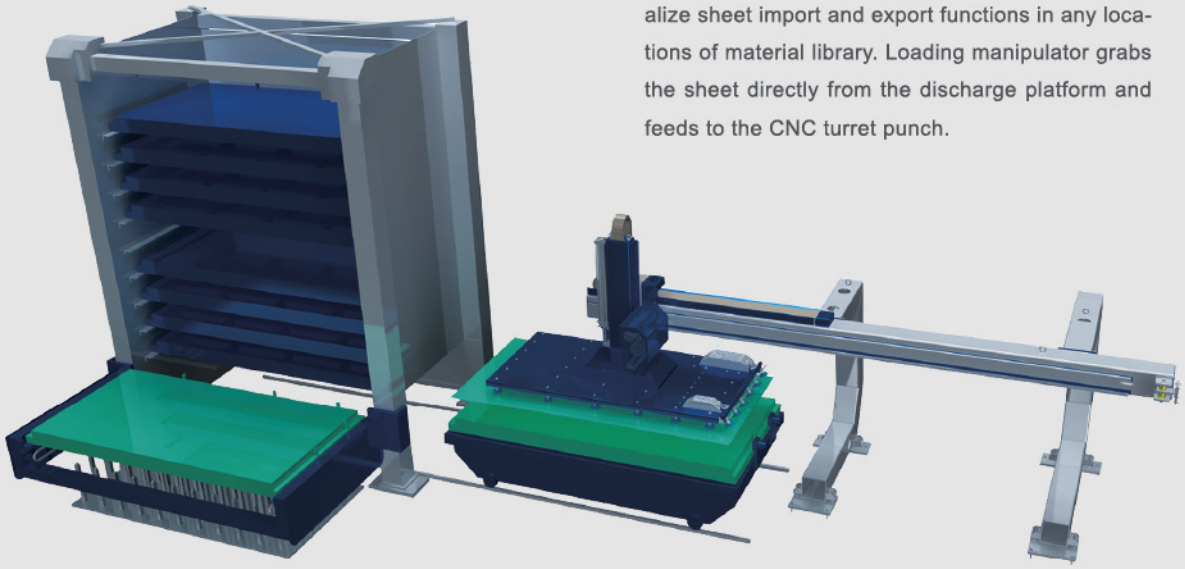
选配-功能部件

Optional-Function Part

单元库+上料装置　Material Library+ Loading Device

单元库加常规上料的搭配模式，能够实现任何库位原材料的导入导出功能，上料机械手直接从出料台车上抓取板料用于与冲床对接。

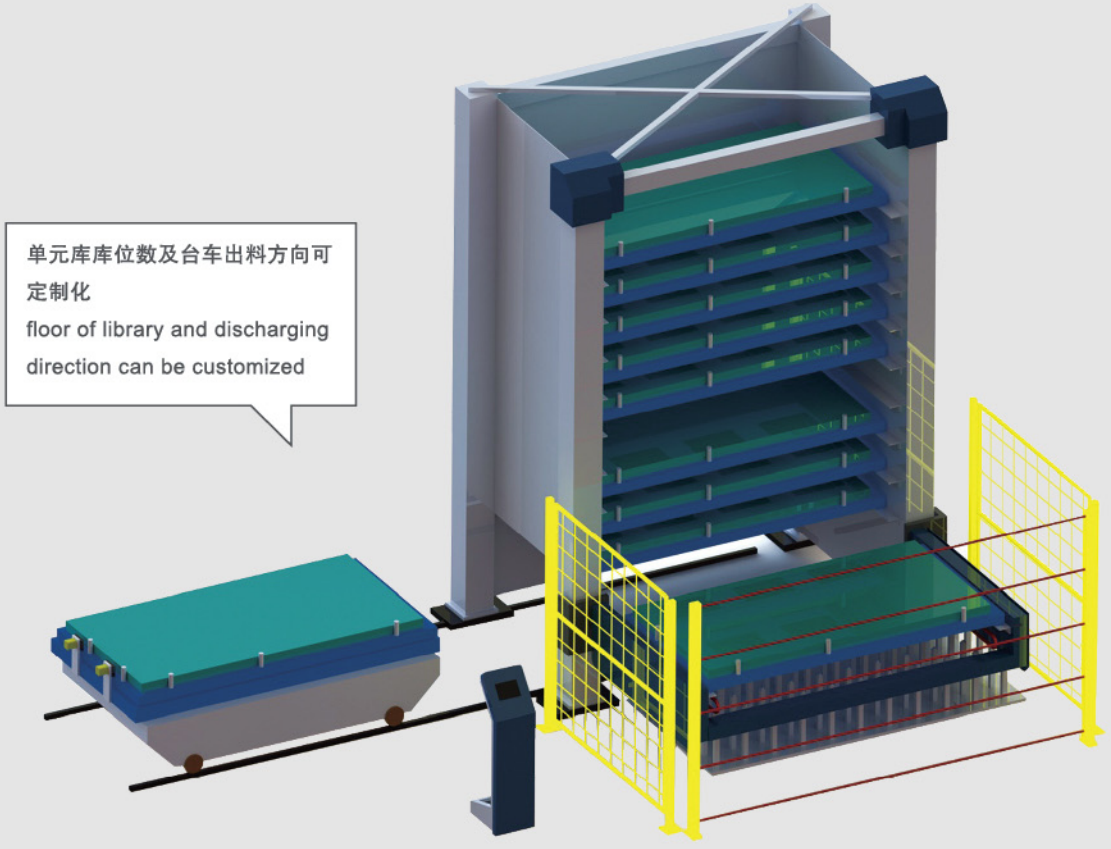
Material library with regular loading device, can realize sheet import and export functions in any locations of material library. Loading manipulator grabs the sheet directly from the discharge platform and feeds to the CNC turret punch.



参数项 Name		单位 Unit	配置1 Configuration 1	配置2 Configuration 1
最大储存板料尺寸	Max.Stock sheet size	mm	3050×1525	2500×1250
最小储存板料尺寸	Min.Stock sheet size	mm	800×400	800×400
每层最大装载高度（不含托盘）	Max. Loading height of each layer (without tray)	mm	220	220
库位数	Library	层数 layer	6（可定制 customized）	6（可定制 customized）
每层最大承载	Max. Loading weight of each layer	Kg	3000	3000
进料机速度	Import speed	m/min	15	15
出料台车速度	Discharge speed	m/min	15	15
提升机速度	Elevator speed	m/min	20	20
功率	Power	kw	10	10
料库总高（标配货位数6）	Total height(standard 6 layers)	mm	5000	5000

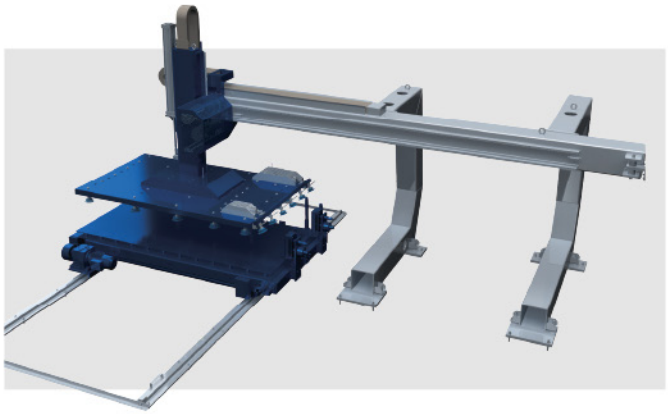
新型智能立体板料库单元主要由料库库体、堆垛机、出料台车及外围安全保护护栏等组成。整垛原材料可以采用叉车上料或者行车起吊的方式放置于板料纠偏装置上，板料纠偏装置用于对原材料进行再定位，定位好的原材料可以由堆垛机导入指定库位，同时堆垛机也可以将任何一个库位的板料导入到料库底层的出料台车上，出料台车可以从料库侧面输送出来与冲床的上料机械手对接。出料台车上设置磁力分张装置，能够保证板材的分离。同时台车上配有板料检测装置，能够检测托盘中有无原材料，如果没有，设备会报警并停止上料。可以根据客户需要加装登高梯及顶部安全护栏等。

New intelligent 3D material library unit consists of library body, stacker, discharging trolleys, safety fence and other components. The entire stack of raw material can be loaded on the sheet correcting device by forklifts or traveling crane. The raw material will be corrected before imported to specified location by stacker. The stacker can export sheets from any level in the library into the discharging trolley, which will transport the sheets from side of the library and dock with the loading manipulator. Discharging trolley equips with a sheet detection device, to ensure the separation of sheets. Meanwhile discharging trolley equips with a sheet detection device, can detect whether there is sheet on the tray. if not, the device will alarm and stop feeding. A climb ladder and top safety fence can be equipped according to customer's requirements.



选配-功能部件

Optional-Function Part



单台车+上料装置

Sheet Library + Loading Device

单台车加常规上料的搭配模式，可以采取行车起吊或叉车叉取的方式进行原材料的上料。上料机械手直接从上料台车上抓取板材用于与冲床对接。

Single trolley with regular loading device, can load raw materials on trolley by forklifts or traveling crane. Loading manipulator grabs the sheets directly from the trolley and feeds to the CNC turret punch.

参数项 Name		单位 Unit	配置1 Configuration 1	配置2 Configuration 2
最大抓取板料尺寸	Max. Grab size	mm	3050×1525	2500×1250
最小抓取板料尺寸	Min. Grab size	mm	800×400	800×400
最大抓取板料厚度	Max. Grab thickness	mm	4	4
水平最大移动速度	Max. Horizontal speed	m/min	80	80
垂直最大移动速度	Max. Vertical speed	m/min	28	28
上料台车承载	Max. Weight on loading trolley	kg	3000	3000
上料台车最大堆高	Max. Height on loading trolley	mm	220	220
台车移动速度	Trolley speed	m/min	20	20

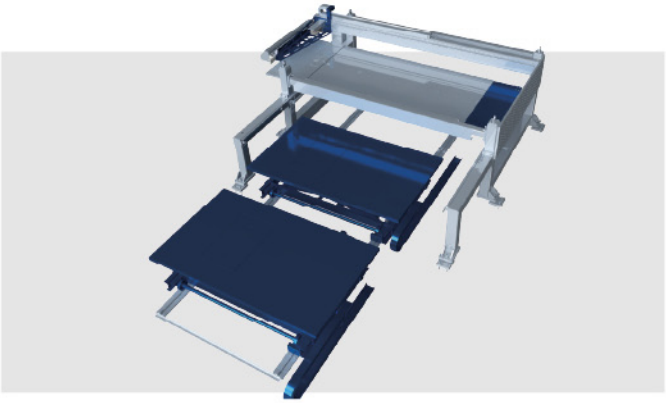
单升降台车+下料装置

Single Lifting Trolley + Unloading Device

下料装置加单下料升降台车的搭配模式，下料升降台车可以开至下料装置任意一侧进行卸料。

Unloading device with single unloading lifting trolley. Unloading lifting trolley can unload sheets to any side of the unloading device.

参数项 Name		单位 Unit	配置1 Configuration 1	配置2 Configuration 2
最大下料板料尺寸	Max. Discharge size	mm	3050×1525	2500×1250
最小下料板料尺寸	Min. Discharge size	mm	800×400	800×400
最大下料板料厚度	Max. Discharge thickness	mm	4	4
水平最大移动速度	Max. Horizontal speed	m/min	54	54
下料升降台车承载	Max. Weight on unloading trolley	kg	3000	3000
下料升降台车最大堆高	Max. Height on unloading trolley	mm	220	220
台车移动速度	Trolley speed	m/min	20	20

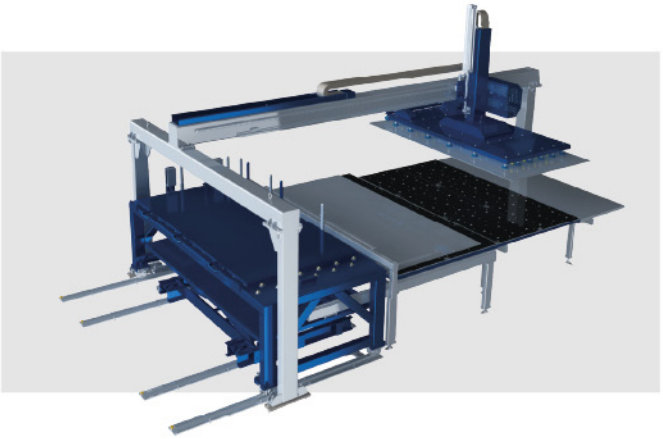


双升降台车+下料装置
Double Lifting Trolley + Unloading Device

下料装置加双下料升降台车的搭配模式，下料升降台车可以分别开至下料装置两侧卸料。节省了客户对半成品卸料所占用的停机时间。

Unloading device with double unloading lifting trolley. Unloading lifting trolley can discharge sheets to both sides of unloading device, which can shorten the breakdown time of semi-finished products discharging.

参数项 Name		单位 Unit	配置1 Configuration 1	配置2 Configuration 2
最大下料板料尺寸	Max. Discharge size	mm	3050×1525	2500×1250
最小下料板料尺寸	Min. Discharge size	mm	800×400	800×400
最大下料板料厚度	Max. Discharge thickness	mm	4	4
水平最大移动速度	Max. Horizontal speed	m/min	54	54
下料升降台车承载	Max. Weight on unloading trolley	kg	3000	3000
下料升降台车最大堆高	Max. Height on unloading trolley	mm	220	220
台车移动速度	Trolley speed	m/min	20	20



紧凑单侧上下料+单上料台车+单下料台车
Compact Single Side Loading and Unloading Device + Single Loading Trolley + Single Unloading Trolley

紧凑型上下料装置，搭配订制冲床，上下料占用了冲床的一侧，占用场地极少。上下料台车可以交互开出。

Compact loading and unloading device with CNC turret punch. Loading and unloading device locates at one side of the CNC turret punch with minimal space. Loading and unloading trolley can drive out interactively.

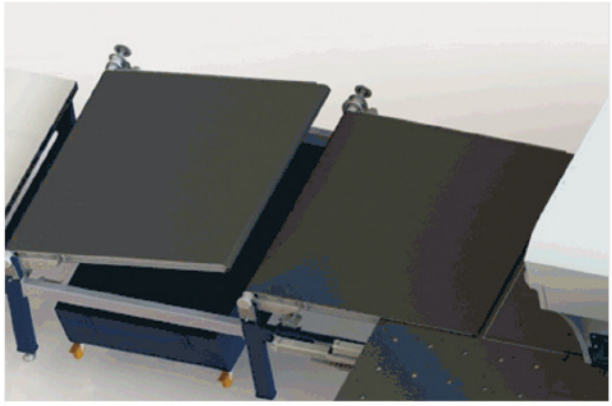
参数项 Name		单位 Unit	配置 Configuration
最大板材规格	Max. Sheet size	mm	3050×1525
不含再定位最大加工规格	Max. Processing size without re-position	mm	1850×1525
最小板材规格	Min. Sheet size	mm	800×400
储料台最大堆重	Max. Weight in storage	kg	3000
料台最大堆高（含木托盘）	Max. Stacking height(include wooden tray)	mm	220
上料吸盘的最大移动速度	Max. Loading sucker speed	m/min	70
循环上下料占用停机时间	Cycle loading and unloading time	s	18

选配-功能部件

Optional-Function Part

冲剪系统用分拣下料

Sorting and Blanking Device for Punch & Shear System



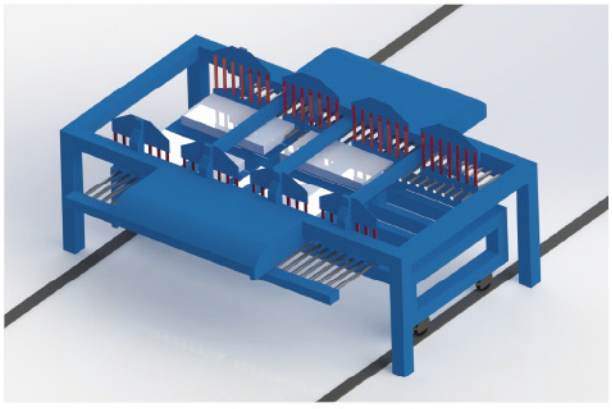
传送带式分选落料，用于直角剪后，落料剪切下料的工件

Conveyor type sorting device, locating after right angle shearing machine, is used to sort the sheared work pieces

- 传送带式分选落料系统，用于分选落料剪切下来的工件
- 标配两级，可选配多级，由控制系统自动分选落料
- 分选零件尺寸可达到800 × 1500mm
- 分选速度快，工件传送平稳
- Conveyor type sorting device is used to sort the sheared work pieces
- Standard two-stage sorting device, optional multi-stage sorting device. Sorting automatically controlled by controller
- Max. Part size up to 800×1500mm
- Fast speed sorting, and smooth conveying

冲剪系统用自动分选堆垛装置

Punch and Shear System with Automatic Sorting Stacking Device



- 对开辊子式的自动分选码垛装置
- 自动分选堆垛剪切下来的工件至特殊的交互台车上
- 更快的零件传送，更快的堆垛位置改变，更快的堆垛周期，更强的布局规划能力
- Roller type automatic sorting stacking
- Automatically sort the sheared pieces to a special interactive trolley
- Faster parts delivery, rapid stacking, shorter cycle time, stronger layout planing ability

参数项 Name		单位 Unit	配置1 Configuration 1	配置2 Configuration 2
最大堆垛板料尺寸	Max. Stacker size	mm	4500×1500	3000×1500
最小堆垛板料尺寸	Min. Stacker size	mm	400×100	400×100
最大堆垛高度	Max. Stacking height	mm	140	140

控制系统

Control System

- 适用于各种复杂加工工艺和高端应用场合的数控系统西门子840DSL，具体高度的系统开放性、灵活性，满足各种加工场合的应用
- 极佳的动态性能和加工精度
- 全新且具有亚威风格的操作界面，让用户具有更佳的操作体验
- Advanced Siemens 840D SL controller, suitable for various complex processing technology and high-end applications, can satisfy all kinds of machining occasions application with high openness and flexibility
- Excellent dynamic performance and machining precision
- New operation interface of Yawei style, better operating experience for customers

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