



冷弯薄壁轻钢结构房屋及住宅加工设备

ROLL FORMING LIGHT GAUGE STEEL STRUCTURE HOUSING PRODUCTION EQUIPMENT

为改变而来
COMES FOR CHANGE



微信公众账号
Wechat official account



官方网站
Official website

佛山市孚瑞美科技有限公司
FRAMEMAC CO.,LTD.

地址(Address): 佛山市南海区狮山科技工业园
Address: Shisan science and technology industrial park, nanhai district, foshan city

电话(Tel.): +86 757 81230272

传真(Fax): +86 757 81230272

邮编(P.C.): 528225

邮箱(E-mail): sales@framemac.com

网址(Web): www.framemac.com

佛山市孚瑞美科技有限公司
FRAMEMAC CO.,LTD.

为改变而来

COMES FOR CHANGE

以速度和稳定著称的轻钢结构生产设备前列品牌。
Forefront brand of LSS frame construction equipment,
and specialized in speed & stability.



产品通过欧盟 CE 安全认证



孚瑞美简介 FrameMac Introduction

佛山市孚瑞美科技有限公司位于中国重要的制造业基地、粤港澳大湾区重要节点城市佛山市南海区，是一家集研发、生产、销售的轻钢结构建筑智能制造设备的专业公司，提供软硬件一体化的全自动轻钢结构房屋生产解决方案。

公司自创立起注重团队建设及人才培养，经多年共同努力现已拥有一批经验丰富的骨干开发创新的研发团队，并一直与国内多家技术服务公司、大学（如：瑞典 SFO、北方工大等）保持良好的技术合作关系。为我们自主研发过程中提供优良的技术支持。凭借丰富的冷弯设备精工制造经验与成熟的软件开发能力，我们将持续为您提供更多更好的产品，亦可根据您的需要制定特别方案，以应对市场不断的发展和需求，为您提供更大成功提供最有利的保证。

孚瑞美一直坚持“质量第一、信誉第一、客户至上”为方针，结合先进的管理理念，持续的技术创新，不断吸收国外同行业先进的设计理念及品控制程程序及超前的服务意识，坚持为客户提供不仅仅是机器设备，更是提供更大的产业价值。

孚瑞美愿和各界朋友广泛合作，成为您最可靠、最值得信赖的合作伙伴，共同开拓轻钢结构房屋市场的广阔空间，共同发展。

Foshan FrameMac Technology Co., Ltd. is located in the important manufacturing base of China, Nanhai District, Foshan City, an important node city of Guangdong, Hong Kong, Macao and Taiwan District. It is a professional company that integrates R&D, production and sales of light steel structure building intelligent manufacturing equipment, and provides automatic light steel construction frame production solution integrating software and hardware.

Since its establishment, the company has focused on team building and talent cultivation. After years of joint efforts, the company now has a group of experienced and innovative technical teams. And has been maintaining a good technical cooperation relationship with many domestic and foreign technical service companies, universities (such as: Sweden SFO, North University of Technology, etc.), providing us with better technical support in the development process. Relying on the rich experience of cold bending equipment and mature software development, we will continue to provide you with more and better products, and you can also develop special solutions according to your needs to meet the market's constant innovation and development needs. Greater success provides the most effective guarantee.

FrameMac has always adhered to the level of "Quality First, Credit First, Customer Supreme", combining advanced management concepts, continuous technological innovation, continuously absorbing the top design concepts, quality control procedures and advanced service awareness of foreign counterparts. Providing customers with more than just machines, but providing greater value.

FrameMac is willing to cooperate with friends from all walks of life to become your most reliable and trustworthy partner. Jointly explore the broad space of the light steel structure housing market and develop together.

冷弯薄壁型钢建筑住宅体系的特点

Roll forming light gauge steel structure walled steel building residential system

●结构整体预制程度高，像造汽车一样造房子

冷弯薄壁型钢建筑住宅体系已有一套成熟的技术体系，包括生产配套用的设计软件及独立的加工设备，全面完整的配套材料供应，所有结构构件已可以实现安全工厂预制化，甚至可以实现工厂预拼装，现场安装就是简单的装配过程，真正实现住宅结构设计、生产安全成品化、产业化。

The structure is prefabricated as a whole, and the house is built like a car

The cold-formed thin-walled steel building residential system already has a mature technical system, including production supporting software and independent processing equipment, and a comprehensive and stable supporting material supply chain. All structural materials can be fully prefabricated and even pre-assembled at the factory, on-site installation is a simple assembly process that truly realizes residential structural design, complete production and industrialization.

●节能环保，居住舒适，造型丰富

冷弯薄壁型钢建筑住宅体系所采用材料均为绿色建材，其中钢结构材料可 100% 回收，其他配套材料也可大部分回收，满足生态环境要求，有利于健康，尤其采用平作施工方式，可以减少废弃对农村土地、河流等大自然环境造成的污染，符合当前环保意识。

由于住宅体系采用的高效节能墙体，其保温隔热性能优越，具有优良的保温隔热效果，外墙保温和墙体内部填充材料结合采用，有效的避免墙体的“冷桥”现象，达到了更好的保温效果；由于薄壁型钢墙体，保温材料及石膏板等组成的节能墙体，还具有呼吸功能，可调节室内空气湿度，其湿度性能可高达 40 分贝，而且它的墙体厚度比传统结构小得多，大大提高了室内的使用面积（约可增加使用面积 5-8%），屋顶层具有通风功能，可以使室内空间形成流动的空气，保证室内的通风及散热需求。由于使用了优良的保温节能结构和材料，冷弯薄壁型钢建筑住宅体系节能指标达到绿色建筑标准，比传统砖混结构能耗减少 65%，使得室内居住舒适度大大提高，是真正的节能建筑。

Energy saving, comfortable living and rich style

The materials used in the cold-formed thin-walled steel building residential system are all green building materials, among which the steel structural materials can be 100% recycled, and other supporting materials can also be mostly recycled to meet the ecological environment requirements and be beneficial to health. In particular, dry construction methods can reduce the pollution caused by waste on rural land, rivers and other natural environments, and meet current environmental awareness.

Due to the high-efficiency energy-saving wall used in the residential system, the thermal insulation material is mainly made of glass wool, which has good thermal insulation effect. The combination of external wall insulation board and wall built-in fibreglass cotton effectively avoids the phenomenon of "cold bridge" of the wall and achieves better insulation effect. It consists of cold-formed thin-walled steel, thermal insulation material and gypsum board. The energy-saving wall also has a breathing function, which can adjust the indoor air dry humidity. Its sound insulation effect can be as high as 40 decibels; and its wall thickness is much smaller than that of traditional buildings, greatly improving the use area of the house (approx. Area 5-8%). The roof has a ventilation function, which can form a flowing air circulation inside the house to ensure the ventilation and heat dissipation requirements inside the roof. Thanks to the use of excellent insulation and energy-saving structures and materials, the cold-formed thin-walled steel building residential system has easily reached the building energy-saving standard proposed by the Ministry of Housing and Urban-Rural Development, which reduces energy consumption by 65% compared with traditional brick-concrete structures, which greatly improves the comfort level of indoor living. It is a true low energy building.



●运输成本低，施工快捷

所有住宅构件、工厂都可以按部件统一编号并打包送到施工现场。由于钢结构本身自重轻，非常适应山地和运输比较困难的地区，保证全过程不需要大型机械，可大大减少运输成本；型钢建筑住宅体系属于全干作业现场装配式施工，工期短且现场环节少，一幢 300 平方米左右的建筑，完成从地基到封顶的全过程，达到入住标准只需 8 个工人 50 个工作日就可完成。

Low transportation costs and quick construction

All residential components and factories can be packaged and sent to the construction site according to the uniform label of the components. Because the steel structure itself is light in weight, it is very suitable for mountainous areas and areas where transportation is difficult. The whole process of transportation does not require large machinery, which can greatly reduce transportation costs. The steel construction residential system belongs to all dry-site assembly-type construction, with short construction period and environmental security. The impact is small. A building of about 300 square meters completes the whole process from foundation to decoration. It takes only 8 workers and 50 working days to reach the standard of occupancy.

●安全耐用，维护成本低

冷弯薄壁型钢建筑住宅体系的墙体及屋架结构与外墙板三者之间通过紧密的“板肋结构”，同时所有结构材料均采用高强度钢材，抗水平荷载和垂直荷载的能力大大提高，抗震、抗风性能非常优越，更适宜在地震多发区、山区等环境恶劣条件下使用。经过试验证明可抵御 9 度地震（9 度时满足不倒塌的要求）和 40km/s 的阵风，使居住者生命财产安全得到有效保障。

由于结构件全部采用冷弯薄壁型钢体系制造，钢板采用高强度冷轧镀锌板制造，有效避免腐蚀施工和使用过程中的锈蚀的影响，增加了结构件的使用寿命，装配采用高强度自攻螺丝（或不锈钢拉铆钉）紧固连接，抗震性能佳，所有结构部件均在复合墙体内部，不暴露，不变色，建筑使用寿命更长，建筑维护周期为 70 年（室内期限为 50 年），理想状态下大型型钢建筑住宅体系的使用寿命可达 100 年。

Safe and durable, low maintenance cost

The wall and roof structure of the cold-formed thin-walled steel building residential system form a solid "rib structure" between the truss structure and the outer wall panel, and all structural materials are made of high-strength steel, which is resistant to horizontal loads and vertical loads. It is improved, so it is earthquake-resistant, wind-resistant and lightly damaged. It is more suitable for use in harsh environments such as earthquake-prone areas and mountainous areas. The test proved to be able to withstand the 9-degree earthquake (9 degrees to meet the requirements of non-collapse) and 40km/s hurricane, so that the occupants' lives and property can be effectively protected. Since the structural members are all composed of cold-formed thin-walled steel component system, the steel zone is made of high-strength cold-rolled galvanized sheet, which effectively avoids the influence of corrosion of the steel plate during construction and use, increases the service life of the light steel component, and adopts high strength for assembly. Self-tapping screws (or stainless steel rivets) do not need to be welded, and have excellent corrosion resistance. All structures are sealed inside the composite wall, which is not easy to corrode, mildew, and not afraid of insects. The building structure has a long service life and the building height is below 3 layers. The design life of load-bearing components is 70 years (for domestic specifications). Under ideal conditions, the structural life of steel-formed residential buildings can reach 100 years.

●用材省，自重轻，基础造价低

冷弯薄壁型钢建筑住宅体系呈现屋顶及墙体轻薄，材料强度高，厚度薄，用钢量比普通砖混建筑更少，基本用钢量 30 kg/m² 左右，一些临时性的房屋建筑则更少。

Materials are used, the weight is light, and the basis cost is low

Low-rise cold-formed thin-walled steel building residential system roof and wall structure, high material strength, thin thickness, less steel than ordinary steel frame construction, basic steel capacity of about 30 kg/m², some temporary single-story buildings Less.

目前中国低层冷弯薄壁型建筑住宅市场发展的现状分析

Analysis of the current situation of the development of low-rise cold-formed thin-walled residential housing market in China

●有利的方面

- ①政府的支持力度加大。在灾后重建、新农村建设中均有引入。“绿色建筑、美丽城市、低碳生活”等可持续发展理念为其奠定了良好的发展基础。
- ②国内大型企业已投入这种住宅体系的产品配套化生产，建造成本有望降低。
- ③国家近年颁布实施的全国绿色建筑行动计划对轻钢住宅行业将会是一个巨大的推动。④，目前国内绝大多数地区对红砖、灰沙、碎石等建筑材料管制越来越严。
- ⑤国家政策支持，市场广阔。（如：灾后重建、新农村建设、新农村建设、旅游度假、房地产业开发、部队营房、星级酒店、建筑更新改造等）

●不足方面

- ①受国家土地政策的调整影响较大。对有国有土地的建设者由于产权办理不明确，不敢修建。
- ②国内现在还没有一套完整、成体系的建筑设计、工程验收规范。没有专业验收机构和专业的验收人员，导致很多建筑得不到规范再建。（以逐步完善中）
- ③市场教育还不够。国内部分地区多数人对轻钢建筑住宅不了解，认知度差。
- ④施工标准和设计专业人员的素质。需要通过各种项目逐步提高和培训。
- ⑤总体来说，推动这种科技含量高、资源消耗低、环境污染少、安全性能优异的低层冷弯薄壁型建筑住宅的“部品标准化、供应系列化、生产工厂化、施工装配化、服务订制化”的住宅产业化发展，还需要经历一个过程；但受政策影响下，未来的三到五年绝对会是中国建筑业的风口之一。

Favorable aspects

The government's support has increased. In the post-disaster reconstruction, new rural construction has been introduced, and the concept of sustainable development such as "green construction, rural city, low-carbon life" has laid a good foundation for development. State-owned large enterprises have already invested in the production of parts of this residential system, and construction costs are expected to decrease. The country's increasingly stringent national environmental protection policy in recent years will be a huge boost for the light steel residential industry. For example, most of the domestic areas are increasingly requiring traditional building materials such as red brick, river sand and gravel. The stricter it is. Promoted by national policies, the market just needs. [eg post-disaster reconstruction, new rural construction, new rural construction, tourism and vacation, real estate development, military barracks, roof construction, building roof renovation, etc.]

Insufficient aspects

Affected by the regulation of the national land policy. For those who own the land, they are not convinced because the property rights are not clear. There is no complete and systematic architectural design and engineering acceptance specification in China. There are no professional acceptance agencies and professional inspection personnel, which has caused many architects to ignore and abandon them. (now in the gradual improvement) Market education can't keep up. Most people in some parts of China knew too little about light steel structure buildings, and their awareness is poor. Construction, installation and design professionals are extremely scarce and need to be rigorously trained and trained through specific projects. In general, the promotion of this low-grade cold-formed thin-walled building with high technology content, low resource consumption, low environmental pollution and excellent safety performance is standardized, supply series, production factory, construction assembly, service order. The modernization of the housing industry needs to go through a process; but under the influence of policies, the next three to five years will definitely be one of the outposts of the Chinese construction industry.

FRAMEMAC

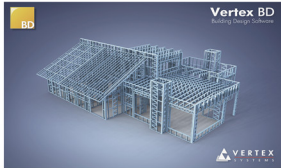
设计软件 Design software

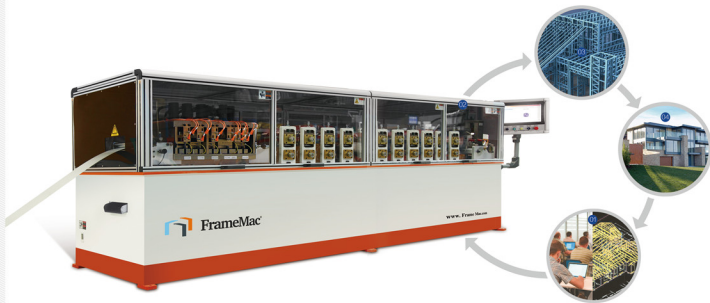
FrameMac 与国际上多家世界顶级冷弯薄壁轻钢结构建筑设计软件公司保持良好的合作关系，如澳大利亚威达公司的 Vertex BD 设计软件，有不同于以下的功能：

- ①自动生成墙体、楼面、屋面的框架结构，减少设计时间
- ②可进行 2D 及 3D 建筑设计，自动生成建模。保证 100% 的准确性
- ③软件自带工程分析功能，对结构参数自动计算
- ④自动生成框架条件 3D 图及 3D 的漫游效果图
- ⑤自动生成，根据设计可自动生成标准建筑框架图及安装详图
- ⑥自动生成精确的零件下料表和材料清单
- ⑦自动生成加工数据，包括生成铣床代码，（CNC 加工代码）与 FrameMac 设备实现无缝对接
- ⑧软件为中文版本，方便易懂，设计人员只需通过相关的培训就能掌握使用

FrameMac has a good relationship with many of the world's top cold-formed thin-walled light steel structure design software companies. For example, Vertex BD design software from Australia Veda is not limited to the following functions:

Automatically generate frame structure of wall, floor and roof to reduce design time 2D and 3D architectural design, automatic 3D modeling, 100% accuracy The software comes with engineering analysis function, which automatically calculates the structural bearing capacity. Automatically generate 3D drawings of frame members and 3D decoration renderings. Automatic dismantling, according to the design, it can automatically build the frame and installation plan of the building. Automatically generate accurate roof blanking tables and bills of materials. Automatically generate machining data, including automatic generation of component tags, and (CNC machining code) seamlessly interface with FrameMac devices. The software is in Chinese, easy to understand, and the designer can use it only through relevant training





FRAMEMAC 设备简介 Equipment introduction

冷弯成型 (Cold Roll Forming) 是通过一定顺序安装多组 (上下) 辊状成型模具, 把相应的金属卷带, 以连续的方式通过特定轮廓辊式模具, 以轧制成与设计形状一致的一种柔性加工工艺。冷弯成型又叫滚压成型、滚轧成型、辊弯成型、辊压成型等, 台湾则叫滚轧成型机, 是一种最环保节能、安全高效的一种钣金加工工艺。

孚瑞美冷弯薄壁轻钢成型机组包括: 材料自动开卷放料机、材料校平装置、成型主机、自动冲孔、切圆、收料台及控制柜组成。根据设计师对型建造的具体要求, 配有: 滚弯冲孔机、倒角、翻板开卷机、小芯剪切、管校孔、翻板切口、剪切等冲压模具及送料装置。采用计算机 CNC 自动控制, 具有使用范围广、产品精度高、自动化效率高、节约成本、自动化程度高等优点。针对目前市场上装配式建筑不断创新、结构形式多样化等特点, 我公司还可根据客户要求设计制造特殊要求的专用设备。

Cold Roll Forming is to install a plurality of sets of (upper and lower) roll-shaped forming dies in a certain order, and the corresponding metal coils are passed through a specific contour roll mold in a continuous manner to be rolled to conform to the design shape. A flexible processing process. Cold forming is also called roll forming, roll forming, roll forming, roll forming, etc. Taiwan is called a roll forming machine. It is the most environmentally friendly, energy-saving, safe and efficient sheet metal processing technology.

Furumei cold-formed thin-walled light steel forming unit includes: material automatic unwinding and discharging machine, material leveling device, forming main machine, automatic punching, cutting, receiving table and control cabinet. According to the specific requirements of light steel villa construction, it is equipped with: simple screw hole, chamfer, web through hole, small edge shear, pipeline hole, web shrinkage, shearing and other stamping dies and coding device. It adopts computer CNC automatic control, has the advantages of wide application range, high product precision, high degree of automation, saving material and high degree of automation. In view of the continuous innovation of the prefabricated buildings on the market and the diversified structure of the structure, our company can also design and manufacture special equipments with special requirements according to customer requirements.

FRAMEMAC 设备特点 Features

Comes For Change
为改变而来

- FrameMac 凭借丰富的冷弯设备制造经验，采用模块化的设计理念，尽最大可能保证设备配件的标准化，以实现快速生产交付，同时保证零部件在生产过程的工作均在加工中心上完成，降低人为误差，保证设备品质的可持续性。
- CNC 控制系统源于国际主流同类设备的设计思路，使用独立自主知识产权的控制软件，实现数据联动以及远程联网诊断和维护。
- 尽可能地选择最高端和最可靠的配置，确保设备品质卓越可靠安全，关键部件全部甄选国内外知名品牌的，履行我们的品牌路线。
- 持续不断创新，持续改善的产品建设理念，精心为广大用户提供高精度、重度的设备。

FrameMac relies on its rich experience in the manufacture of cold-bending equipment and adopts a modular design concept to ensure the standardization of equipment parts as much as possible to achieve rapid production and delivery, while ensuring that the parts in the production process are completed on the machining center. Human dependence, to ensure the sustainability of equipment quality.

The CNC control system is designed in the same way as the mainstream mainstream equipment in the world. It uses independent and independent intellectual property control software to realize data linkage and remote network diagnosis and maintenance.

Choose the highest-end and most reliable configuration as much as possible to ensure the quality and reliability of the equipment. All key components are selected from well-known brands at home and abroad to fulfill our brand route.

Due to continuous innovation and continuous improvement of product construction concept, we provide high-precision and sturdy equipment for our customers.



FRAMEMAC

产品特点 Product characteristics

Comes For Change
为改变而承

- 主要针对国内外不同厂家材料特性不同的特点，对材料进行高精度的整平，消除材料内应力，使产品在加工过程更为稳定高效
- 料架为液压自动扩张装置，添加材料方便快捷安全，减少安全事故发生
- 料架无动力，带有可调刹车装置，不会对材料表面造成损伤
- 操作、保养维护简单，电子自动感应开卷放料

According to the characteristics of different materials at home and abroad, the material is leveled with high precision, the internal stress is eliminated, and the product is more stable and efficient in the processing process.

The material frame is hydraulic automatic expansion and increase, and the loading and unloading materials are convenient, fast and safe, and safety accidents are reduced.

The frame has no power and is equipped with adjustable braking device, which is not easy to cause damage to the material surface.

Operation, maintenance and maintenance is simple, electronic automatic induction unroll material.

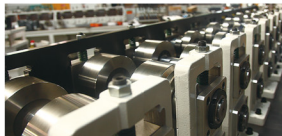


FRAMEMAC

技术参数 Technical Parameters

Comes For Change
为改变而承

截面类型	C型	C型	C型
截面尺寸	70 (75) mm	89mm	140 (150) mm
用料厚度	0.7-1.2mm	0.7-1.2mm	0.8-1.6mm
操作系统	17寸带Linux系统的触摸屏		
生产控制软件	自主知识产权的FrameMac LGS控制软件		
设计软件	可适配国内外知名品牌建筑软件		
标准生产速度	300-900m/h		
最大生产速度	1500m/h		
主机功率	7.5kw	7.5kw	10kw
电源要求	3相380V 50Hz 可根据需求配置		
液压动力功率	5.5kw	5.5kw	7.5kw
设备总功率	16.5kw	16.5kw	21kw
液压油附容量	120L		
液压冷却	自冷 (高温度作业时可选配强制冷却装置: 风冷、空调制冷)		
液压温度控制	高寒地区可选配恒温装置		
冲压模具	圆孔、矩形孔、小圆孔、管状孔、地脚孔、腰形孔、切口		
产品精度 ±	0.5mm		
喂料机	标配		
机器尺寸	4900*1050*1500mm	4900*1000*1500mm	5000*1150*1600mm
机器重量	4300kg	4600kg	5500kg
开卷机	2000kg 自动开卷	2000kg 自动开卷	3000kg 自动开卷



FRAMEMAC 服务理念 Service philosophy

Comes For Change
为改变而来

FrameMac 坚持以伙伴身份与客户合作，积极提供有效的解决方案。保证产品性能可靠、技术先进性并且操作方便，促进用户在激烈的市场竞争中处于更高的地位。同时 FrameMac 基于高精度、低运行及维护成本的设计理念，使用户可获得更丰厚的经济效益，保证设备能够长期稳定的使用并能获得全面的技术支持与专业的培训。

FrameMac insists on working with customers as a partner to actively provide effective solutions. To ensure reliable product performance, advanced technology and easy operation, and to promote users to stand in a higher position in the fierce market competition. At the same time, FrameMac is based on the design concept of high precision, high efficiency, low operation and maintenance cost, which enables users to obtain more economic benefits, ensure long-term stable use of equipment and obtain comprehensive technical support and professional training.

一站式技术服务

包括全套建筑设计、结构设计、施工图、加工图在内一站式技术服务；既可提供丰富的建筑产品库直接生产建造，也可以进行个性化的定制设计。

One-stop Technical Design Service

Including a full set of architectural designs, structural designs, One-stop technology for construction drawings and machining drawings Services; Rich in building products The library is directly produced and constructed, and it can also be used Customized design.

专业技术培训

从深度的轻钢体系设计软件培训到施工工法和现场施工管理的全套专业技术培训。

Professional and technical training

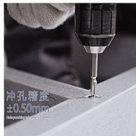
Training from the depth of light steel system design software Full access to construction methods and on-site construction management Set of professional and technical training.

专利技术支撑

自主研发的创新轻钢结构体系专利支持，实现轻钢结构建筑的升级。

Patent technology support

Innovative light steel structure system independently developed Patent support, the realization of light steel structure building upgrade.



Comes For Change
为改变而来

好设备生产好龙骨
Good equipment to produce good keel
好龙骨支撑好建筑
A good keel supports a building

FRAMEMAC

以品质产品造就美好世界！
Quality products to create a better world

案例 Case

