

Metal-Asia

Comprehensive Equipment Analysis for Prefabricated Housing Production

Hundegger, ExpoAsia & Alternative Suppliers: Specifications, Pricing, and Market Overview

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1. NFA (NUT- UND FALZAUTOMAT) — AUTOMATIC TENONING MACHINE

1.1 Purpose and Operating Principle

The **NFA** performs the first technological stage — preparation of kiln-dried edged boards with thickness of 25 mm. The machine simultaneously executes three operations: cutting longitudinal side grooves (quarter-joints) for tight board-to-board connection, milling ventilation grooves 3 mm deep on the upper surface to create air channels, and planing the board to thickness for leveling. These air channels improve the thermal insulation properties of the finished panel by approximately **20%** compared to solid wood.

1.2 Technical Specifications

Parameter	Value
Manufacturer	Hans Hundegger AG, Germany
Model	NFA (Nut- und Falzautomat)
Number of spindles	4 pcs.
Grooving unit motor power	2 × 5 kW (floating arrangement)
Milling spindle power	13 kW
Planing spindle power	13 kW (horizontal, adjustable)
Feed speed	up to 50 m/min
Board thickness	20 – 40 mm
Board width	100 – 300 mm (optimal: 120 – 300 mm)
Total installed power	~39 kW
Tool type	Swivelling knife heads for dual-sided grooves
Operator	1 person

1.3 Pricing and Availability

Option	Estimated Price	Year of Manufacture	Operating Hours
New	Per enquiry (part of MHM line)	2024 – 2025	—
Used (as part of line)	~€80,000 – 120,000 (as package)	2012 – 2018	5,000 – 15,000 hrs

The NFA is supplied exclusively as part of the MHM production line and is not sold separately. A complete used line from 2012 (commissioned 2018, 9,000 operating hours) was previously traded at approximately **€350,000 – 450,000**.

2. WANDMASTER — NAILING SYSTEM

2.1 Purpose and Operating Principle

The **WandMaster** is the heart of the MHM technology. The system automatically forms multi-layer wall panels from pre-profiled boards. Boards are laid layer by layer in crosswise orientation (longitudinal → transverse → longitudinal, etc.) and joined with **aluminium grooved nails** using pneumatic guns. The system automatically recognizes board width and positions nails precisely at layer intersection points, ensuring optimal static characteristics. Nails penetrate only two layers, preventing thermal bridges.

2.2 Technical Specifications

Parameter	Value
Manufacturer	Hans Hundegger AG, Germany
Model	WandMaster
Pneumatic gun quantity	2 pcs.
Fastener type	Aluminium grooved nails (fed individually)
Max. finished panel thickness	36 cm (340 mm)
Max. panel size	3.25 × 6.0 m
Min. panel size	2.0 × 2.0 m
Power	~5 kW
Panel thickness range	115 – 340 mm
Operator	1 person (manual board loading)

2.3 Consumables — Aluminium Nails

Parameter	Value
Material	Aluminium (alloy)
Type	Grooved nails with ring shank
Length	50 / 60 / 80 mm
Consumption	~15 – 25 pcs./m ² (depends on thickness)
Price	€800 – 1,200 / tonne (volume-dependent)
Suppliers	SPAX (Germany), specialized fastener manufacturers

3. PBA (PANEL BOARD AUTOMAT) — PORTAL CNC MACHINING CENTER

3.1 Purpose and Operating Principle

The **PBA** is the final and most complex unit of the line. The portal CNC machining center performs precision processing of finished multi-layer panels: trimming to length and width, cutting openings for doors and windows, grooving for electrical and plumbing services, drilling holes. Processing accuracy is **±1 mm**. The PBA operates under **CAMBIUM** software, which provides optimized nesting and direct CAD integration.

3.2 Technical Specifications

Parameter	PBA (Standard)	PBA-Drive / PBA-X (Modern)
Manufacturer	Hans Hundegger AG, Germany	Hans Hundegger AG, Germany
Max. blank length	up to 16,500 mm	Rail-length dependent

Parameter	PBA (Standard)	PBA-Drive / PBA-X (Modern)
Max. blank width	up to 3,660 mm	3,500 / 4,000 / 5,000 mm
Max. blank height	up to 400 mm	650 mm
Max. panel thickness	up to 370 mm	up to 480 mm
X-axis speed	~60 m/min	~35 m/min
Y-axis speed	~60 m/min	~40 m/min
Z-axis speed	~30 m/min	~35 m/min
5-axis chain saw	15 kW, 360° rotation, 0-90° tilt	35 kW
End milling unit	11 kW	35 kW, HSK 80-E
Disc planing unit	22 kW, disc Ø350 mm	Integrated in milling unit
Circular saw unit	22 kW, disc Ø1000 mm, 4-axis	Up to 1,100 mm
Drilling unit	3 kW	3 kW
Total power	~63 kW	~80 – 100 kW
Tool magazine	Up to 26 positions	Up to 26 + 4 large positions
Software	CAMBIUM	CAMBIUM + CAD interface

3.3 Pricing

Option	Estimated Price	Year	Operating Hours
New PBA-X 3100	€400,000 – 500,000	2024 – 2025	—
New PBA-X 3600	€450,000 – 600,000	2024 – 2025	—
Used PBA-C	€115,000 – 140,000	2005 – 2015	5,000 – 20,000 hrs
Used PBA (in line)	€150,000 – 200,000	2012 – 2018	5,000 – 15,000 hrs

4. GLOBAL MARKET OVERVIEW

4.1 MHM Technology Adoption

The **Massiv-Holz-Mauer (MHM)** technology represents a method of producing wall panels from solid wood without adhesive. Unlike traditional CLT panels where layers are glued, MHM boards are connected with **aluminium nails**, making the technology fully ecological. According to MHM Entwicklungs GmbH, approximately **30 production lines** operate in Europe, with over **7,000 buildings** constructed using this technology.

4.2 Key MHM Producers Worldwide

Producer	Region	Capacity	Notes
Wood Massiv	Moscow Region	~5,000 m ³ /year	Official MHM representative
PSK Forest	Moscow Region	~3,000 m ³ /year	Construction + production
Lesprom	Kirov Region	~4,000 m ³ /year	Full cycle

4.3 Hundegger Equipment Sourcing Channels

Channel	Conditions	Risks
European dealers (used)	hoechsmann.com, resale.info	Sanctions-related restrictions
Direct from Germany	info.de@hundegger.de	Export license requirements
Transit via third countries	Via intermediaries	10-15% price increase, delays
Local resellers	stanki.ru, v-hold.ru	Limited selection, 20-30% markup

5. CHINESE MARKET: SUPPLIERS AND ALTERNATIVES

5.1 Chinese CLT Equipment Manufacturers

Direct MHM line analogues **do not exist** in China. However, Chinese manufacturers offer CLT panel production equipment (with gluing) that can be adapted:

Manufacturer	Model/Line	Price	Capacity
Luhong Wood Machine	4-side planer-moulder	\$15,000 – 30,000	—
V-HOLD (China)	4-side planers MB series	\$3,000 – 15,000	—
Qingdao Flyhigh Machinery	CLT pressing line	800,000 – 1,500,000 RUB	15,000 m ³ /year
LESPT (RF/CN)	CLT line 3200×12000×350 mm	2,000,000 – 3,000,000 RUB	30,000 m ³ /year

5.2 ExpoAsia CLT Line vs European MHM

Parameter	Hundegger MHM	ExpoAsia CLT Line
Technology	Nail-fastened (no glue)	PUR adhesive bonding
Ecological rating	Highest (100% natural)	Medium (adhesive present)
Line price	€450,000 – 1,200,000	\$200,000 – 500,000
CNC accuracy	±1 mm	±1.5 mm
Software/CNC	CAMBIUM (CAD-integrated)	Standard controllers
After-sales service	Limited internationally	Direct from ExpoAsia

Parameter	Hundegger MHM	ExpoAsia CLT Line
Production capacity	4,300 m ³ /year	15,000 – 30,000 m ³ /year

6. ALTERNATIVE MANUFACTURERS

6.1 SCM Group (Italy)

Model	Purpose	Key Specifications	Estimated Price
AREA XL	5-axis CNC for CLT	16,000×3,600×400 mm, 63 kW, 60 tools	€500,000 – 700,000
AREA X	5-axis CNC (medium)	Up to 36,000 mm length, 4,500 mm width	€350,000 – 500,000
OIKOS XL+	6-axis for beams/columns	Section up to 1,250×610 mm, 6-axis	€400,000 – 600,000

6.2 Ledinek (Slovenia)

Parameter	Value
Max. panel size	16 m × 3.6 m × 0.36 m
Capacity	up to 50,000 m ³ /year
Output per shift	100 m ³
Includes	Finger jointing, planing, gluing, pressing, sanding
Price	€2,000,000 – 3,500,000

7. HS CODES AND CUSTOMS CLEARANCE

7.1 HS Codes

Equipment	HS Code	Duty Rate
CNC machining center	8465.20.0000	0%
Planing/milling machine	8465.92.0000	0%
Assembly machine	8465.94.0000	0%
Nailing units	8465.99.1000	0%
Spare parts	8466.92.0000	0%

7.2 Customs Payments Example (Line Value €400,000)

Payment	Calculation	Amount
Customs duty	0%	€0
VAT	20% × €400,000	€80,000
Customs fee	Fixed	~€50
Broker services	Service	€300 – 500

8. DELIVERY LOGISTICS

8.1 Transport Options

Mode	Transit Time	Cost	Notes
Road transport	11 – 16 days	Per m ³ rates	Door-to-door
Rail freight	18 – 25 days	Per m ³ rates	To terminal + road
Sea container	35 – 45 days	\$1,100 – 1,200 per 40' HC	Via Hamburg/Bremerhaven
Consolidated cargo	14 – 21 days	\$400 – 600/m ³	European consolidation

8.2 Complete Line Delivery (Estimated)

Parameter	Value
Total cargo volume	~80 – 120 m ³
Total weight	~35 – 50 tonnes
Containers required	2 – 3 × 40' HC
Total delivery time	14 – 21 days from dispatch

9. INSTALLATION AND COMMISSIONING

9.1 Work Breakdown

Stage	Duration	Cost (USD)
Foundation preparation	Pre-delivery	\$3,000 – 5,000
Equipment installation	5 – 7 days	\$5,000 – 8,000
Electrical connection	3 – 5 days	\$2,000 – 3,500
Pneumatic connection	1 – 2 days	\$1,000 – 1,500
Dust extraction	2 – 3 days	\$2,500 – 4,000
Commissioning	5 – 10 days	\$3,000 – 6,000
Personnel training	5 – 7 days	\$2,000 – 3,500

9.2 Total Installation Cost

Option	Cost	Timeline
Economy (in-house + local)	\$12,000 – 15,000	3 – 4 weeks
Standard (service company)	\$18,000 – 25,000	2 – 3 weeks
Premium (ExpoAsia specialists)	\$28,000 – 45,000	2 – 3 weeks

10. PACKING LIST

Item	Description	Weight (kg)	Volume (m³)
1	NFA tenoning machine	3,500	12
2	WandMaster nailing system	4,200	15
3	PBA portal (structure)	12,000	25
4	PBA machining table	3,800	18
5	PBA control cabinet	150	1
6	Dust extraction system	2,500	15
7	Tool set	200	1.5
8	Spare parts (1 year)	180	0.8
9	Documentation and software	5	0.02
TOTAL		~27,000	~90

11. INVESTMENT SUMMARY

Option 1: Used Hundegger MHM Line (Recommended)

Item	Amount
MHM line (used, 2015, 8,000 hrs)	€400,000
Delivery (road)	€16,000
Customs (VAT 20%)	€80,000
Installation (standard)	€20,000
Foundation preparation	€5,000
Dust extraction	€8,000
Compressor	€3,000
Tools and spares	€10,000

Item	Amount
Training	€5,000
Contingency (10%)	€54,700
TOTAL	~€602,000

Option 2: New Hundegger MHM Line

Item	Amount
MHM line (new)	€1,100,000
Delivery	€20,000
Customs (VAT 20%)	€220,000
Installation (premium)	€40,000
Other costs	€50,000
TOTAL	~€1,430,000

Option 3: ExpoAsia CLT Line (Alternative)

Item	Amount (USD)
CLT line (China)	350,000
Delivery (sea + rail)	15,000
Customs (VAT 20%)	70,000
Installation	12,000
TOTAL	~\$447,000

12. PROFITABILITY ANALYSIS

12.1 Production Parameters

Parameter	Value
Line capacity (1 shift)	4,300 m ³ /year
Line capacity (2 shifts)	8,000 – 9,000 m ³ /year
Panel output per shift	~150 – 200 m ²
House kits per month	15 – 20 houses (100 m ² each)

12.2 Production Economics

Parameter	Value
Panel production cost	\$280 – 390/m ³
Market panel price	\$500 – 720/m ³
Margin	\$170 – 330/m ³
Revenue (4,300 m ³ /year)	\$2,150,000 – 3,100,000
Profit (4,300 m ³ /year)	\$720,000 – 1,430,000
Payback (Option 1)	6 – 10 months
Payback (Option 2)	15 – 20 months

13. RISK ASSESSMENT

13.1 Key Risks

Risk	Probability	Impact	Mitigation
Payment restrictions	High	High	Payment via partner jurisdictions
Delivery delays	Medium	Medium	Order 3-4 months ahead, insurance
Lack of Hundegger service	High	High	Train personnel, 2-year spare parts stock
Skilled labor shortage	Medium	Medium	Operator training, motivation
Currency fluctuation	High	Medium	Fix rate in contract

13.2 Final Recommendations

- Optimal choice:** Used Hundegger MHM line (2012-2018, <15,000 hrs) — payback under 1 year
- Equipment sourcing:** Monitor hoechsmann.com, resale.info, stanki.ru
- Customs:** Prepare full document package (contract, invoice, packing list, certificate of origin)
- Logistics:** Road transport preferred (11-16 days, door-to-door)
- Installation:** Allow 2-3 weeks, budget minimum \$18,000
- Spare parts:** Purchase 2-year consumables stock with the line
- China:** Consider only as temporary solution or for capacity expansion

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LEAD MARKET ANALYST, TIMBER PROCESSING EQUIPMENT, EXPOASIA

Expertise: Market analysis of CLT/MHM equipment suppliers, technical audit of Chinese manufacturers, comparative evaluation of European and Asian lines. **Principle:** «Before every shipment we conduct a physical factory inspection in



Qingdao — checking spindle power, guide rail clearance, and actual frame steel thickness. We never accept manufacturer data sheets without measurement.»

EXPERT PROFILE

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