Edge Banding Machine Homag with
Ligmatech - Typ KAR 310 + ZHR 01
Used Machine - year 2010

HOMAG KAR 310/7/A20 M.-nr.: 0-200-23-3836

HOMAG SINGLE-SIDED EDGE BANDING MACHINE

Single-sided edge banding machine for processing
straight workpiece edges and for gluing
and finishing various edge materials
in longitudinal and cross-feed mode.

OVERVIEW OF THE UNIT EQUIPMENT:
- RELEASE AGENT SPRAY UNIT
- JOINTING MILLING UNIT
- A20 GLUING UNIT WITH 2 ROLLERS
- HL84 CROSS-CUT UNIT
- PRE-MILLING UNIT
- MANUAL FK11 SHAPE MILLING UNIT
- FREE-SPACE UNIVERSAL MILLING UNIT
- PN10 PROFILE SCRAPING BLADE
- FINISHING UNIT

1. BASIC MACHINE:
- Continuous machine stand for mounting the machining units
- Fixed stop side on the left
- Gray paint finish RDS 240 80 05
- Adjustable infeed guide
- Pneumatically controlled infeed stop
- Top pressure:
- Driven by composite V-belt
- Manual height adjustment
- Digital position indicator
- Workpiece transport device:
- Transport chain with rubber pad, 80 mm wide
- Hardened Precision guide and guide surfaces
- Magnetically braked conveyor chain
- Workpiece support with roller rail, extendable by approx. 800 mm
- Noise protection for the joining and assembly parts with individual extraction
- Feed rate ¦ 18 - 25 m/min
- Maximum feed rate with FK11 ¦ 20 m/min
- Working height ¦ 950 mm
- Pneumatic connection ¦ 7-8 bar
- Total length ¦ 7755 mm
- Floor conditions must correspond to the floor plan and extraction plan,
No.: 5-027-01-2300

2. WORKPIECE AND EDGE PARAMETERS:
- Minimum workpiece width:
- For workpiece thickness 12-22 mm ¦ 60 mm*
- For workpiece thickness 23-40 mm ¦ 105 mm*
*Depending on the workpiece length

- Workpiece projection ¦ 30 mm
- Workpiece thickness ¦ 12 - 40 mm
(Workpiece thickness optional) ¦ 8 - 60 mm
- Edge material: roll ¦ 0.3 - 3 mm
- Edge cross-section max: ¦
- For PVC ¦ 135 mm²
- For veneer ¦ 100 mm²
- Roll diameter max. ¦ 830 mm
- Edge material: strip ¦ 0.4 - 20 mm
- Edge cross-section max: ¦
- For strip ¦ 900 mm²
- If no radius is specified, R=2 mm and

bevel 20° will be used and delivered.
- The operator is responsible for providing suitable materials
(boards, edges, glue).

3. UNIT EQUIPMENT

3.1 RELEASE AGENT SPRAYING UNIT TOP/BOTTOM:
- Prevents glue from adhering to the
workpiece surface
- Only release agents approved by Homag
may be used, see technical
data sheet no. 9-021-08-5090

3.2 JOINTING MILLING UNIT:
- For jointing workpieces before gluing
- 2 motors, each 3 kW, 150 Hz, 9000 rpm
- Electro-pneumatic control of both motors
- Workpiece blow-off device
- Includes tools:
- 2 I-DIA jointing cutter heads D = 125 x 43 x 30 mm,
KN, Z = 2x3

3.3 GLUING UNIT A20 WITH 2 ROLLERS:
Consisting of:
WORKPIECE PREHEATING
- For heating the workpiece edge before applying glue
- For improving the gluing quality
QUICK-MELT APPLICATION UNIT
- Electronic temperature control with LED display
- Automatic glue temperature reduction when work is interrupted (time freely selectable)
- Melting capacity up to max. 12 kg/h
- Glue roller drive when feed stops
- Glue container lifts when feed stops
- Glue container clamp is workpiece-activated
QUICK CLAMPING SYSTEM
- For quickly changing the application unit

2-ROLL MANUAL MAGAZINE
- For solid edges, strips, and rolls
- Automatic strip separation via
vacuum suction cups
- 1 edge feeder
- 2 roll holders
- MANUAL edge change
- Roll separator
- Edge monitoring with feed stop
- Manual magazine height adjustment via spindle
+/- 5 mm
- Edge sequence control for pre-selection Edge channels in any order. If an
edge channel is empty, the next selected channel is activated (with multiple magazines)

PRESSURE ZONE C
- 1 driven pre-press roller, diameter 150 mm
- 6 post-press rollers, diameter 70 mm
- Pneumatic pressure adjustment
- Central adjustment for various edge thicknesses

3.4 TRIMMING UNIT BEVEL/STRAIGHT HL84/0.8 KW:
- For trimming edge overhangs on the front and rear edges
- Upright trimming stop
- 2 motors, each 0.8 kW, 200 Hz, 12,000 rpm
- Pneumatic adjustment for converting from bevel to straight trimming
- Tools included:
- 2 carbide trimming saws with HSK25, diameter 120 mm

3.5 PRE-MILLING UNIT 1.5 KW:
- For pre-milling PVC and flush milling solid edges
- 2 motors stacked, each with 1.5 kW, 200 Hz, and 12,000 rpm
- Height adjustment via top pressure
- Up-rotating operation
- Swivel range +/- 1 degree
- Includes tools:
- 2 70 x 25 mm carbide milling cutters, HSK25, Z=4

3.6 MANUAL SHAPE MILLING UNIT FK11:
- For machining edge overhangs on the top and bottom edges of workpieces
as well as for milling the front and rear edges of workpieces

MANUALLY ADJUSTABLE I-INTERCHANGEABLE HEAD SET
- 2 interchangeable heads
- For manual adjustment to different edge thicknesses on chamfer milling machines
and/or for manual conversion of chamfer milling machines for radius milling
- Max. edge thickness for chamfer with radius tool:

- At R 1.5 = 0.6 mm
- At R 2.0 = 0.8 mm
- At R 3.0 = 1.0 mm

- Chamfer angle approx. 15 degrees
- Tool included
- 2 I-DIA chamfer/radius cutters, base diameter
62 mm, Z=4 with integrated chip collection
for chamfer 15° and R=.. mm

3.7 FREE SPACE FOR UNIVERSAL MILLING UNIT UF10_:
- Free space for installing a universal milling unit
UF10 (for grooving and rebating workpieces)

3.8 PROFILE SCRAPING BLADE PN10:
- For chamfering or rounding pre-milled PVC edges
- Pneumatic adjustment for lateral
retraction from the work area
- Scanning from above, below, and sideways
- Pneumatically controlled blow nozzles
- Includes tools:
- 2 quick-change heads with WPL profile blades for R = .. mm

3.9 FINISHING UNIT_:_
- For finishing the long edge,
consisting of:
- GLUE JOINT BLADE
- For removing glue residue
- Includes carbide blade
- Buffing unit
- For cleaning the edges

4. power control PC22:
Modern control system based on a Windows PC
Hardware:
- PLC control according to the international standard IEC 61131
- Integrated path control for contactless
control of the processing units
- Windows XP (US) embedded operating system
- Industrial PC with at least 2 x 1.6 GHz and 1024 MB RAM
- 19-inch TFT flat screen with touchscreen
Control for selecting and setting all
necessary production parameters, such as
program selection, edge selection, and changing the workpiece thickness
- PC keyboard and mouse
- 1 permanently installed hard drive
- 1 hard drive for data backup (optional)
- USB port
- Digital fieldbus system for inputs/outputs and decentralized units
- ETHERNET network connection via additional
card and network software (optional)

Software:
- Menu-driven operation with Windows standard

- woodCommander software package with
- Convenient, graphically supported creation and storage of
  Data files Machine programs with keyboard and mouse
- Tool data management via tool macros
- Operator guidance system (BDL) for displaying necessary manual adjustments
  on the machine during conversions
- Error messages in plain text
- WoodScout diagnostic system (optional)
- Schuler MDE Basic for machine data acquisition
  Remote diagnostics via modem:
- Billing according to a separate remote service contract
- Telephone line (analog) must be installed on site
- Interventions in the machine control system by unauthorized persons release HOMAG from warranty obligations and product liability

5. ELECTRICAL EQUIPMENT:
- Operating voltage 400 volts, 50/60 Hz.
- Control cabinet attached
- Installed according to European standard EN 60204
- Electronic frequency converter with motor brake function
- Country-specific operating voltage adjustment via transformer (optional)
- Residual current circuit breaker only permitted in conjunction with an all-current sensitive/selective residual current circuit breaker

If the performance of this device is insufficient, we recommend A residual current monitoring device must be installed on site.
- Specified ambient temperature: +10 to +40°C

6. SAFETY AND PROTECTIVE DEVICES:
- EC conformity (CE) according to the Machinery Directive
98/37/EC for single-machine operation.
- For interlinked machine operation (cells/
factory systems), an additional EC conformity assessment (on-site) is required.
To be carried out by the user (customer) themselves or optionally by the supplier. Sales No. 8945
- Wood dust tested, TRK value max. 2 mg/m3 when adhering to the extraction performance to be provided by the customer according to the extraction plan

7. HOMAG QUALITY PACKAGE:
- TÜV certificate according to DIN EN ISO 9001:2000
- The machine is run in and delivered according to the HOMAG standard program
- Energy-saving function:
- When the machine is not in operation, the control voltage is switched off for a preset time
- The function can be switched on and off

8. DOCUMENTATION:
- Documentation on CD-ROM
- Operating and maintenance instructions also available in printed form

G.0001 Number: 0171 1 x left
SLIDING CARRIAGE

- For perpendicular insertion of workpieces during single-sided machining
- Foldable
- Workpiece dimensions max. 500 x 1600 mm

G.0004 Number: 1510 1 x left
AUTOMATIC JOINTING MILLING ADJUSTMENT DEVICE
- Automatic adjustment of the jointing cutters to the workpiece center
- Automatic workpiece protrusion adjustment
G.0007 Number: 0646 1 x left
WORKPIECE SUPPORT - SCISSORS DESIGN
- With roller support, extendable max. 1000 mm

G.0010 Number: 0841 1 x left
WORKPIECE THICKNESS 60 MM INSTEAD OF 40 MM
- Preparation of the base machine and all units for workpiece thickness 60 mm
- For Reduced feed rate max. 20 m/min
- 2 I-DIA jointing cutters, 63 mm high

G.0013 Number: 0843 1 x left
WORKPIECE THICKNESS 8 MM KAL200/300/KFL500
- Preparation of the base machine for workpiece thickness min. 8 mm instead of 12 mm
- Only longitudinal machining without corner rounding and without profile scraper possible
- Only for workpieces without surface layer overhang

G.0016 Number: 0844 1 x left
REMOTE CONTROL
The following functions are selectable:
- Setup mode
- Feed start
- Emergency stop switch

G.0019 Number: 0893 1 x left
PRE-INSTALLATION FOR BOOMERANG ZHR05
- Feed lock and mechanical interface adaptation

V.01 Number: 2189 1 x left
COMPACT GLUING UNIT PU34 ANST. HOT MELT ADHESIVE
Instead of the standard hot melt adhesive unit
Caution: For A12/A20, edge thickness max. 6 mm
- PU melting unit
- Chemcoat anti-oxidation coating of the melting container
- Temperature control

- Melting capacity max. 6 kg/h depending on the adhesive
- Container size 2 kg

QA34 glue application unit for PU
- Electronic temperature control
- Chemcoat anti-oxidation coating of the application unit
- Fill level monitoring

- Release agent sprayer top/bottom
- Application via spray nozzles in front of the formatting part
- Manual adjustment for workpiece protrusion changes

V.04 Number: 2458 1 x left
MAGAZINE EXTENSION A6/A-E12/A20 ON 6 ROLLS
- Instead of a single roll
- Edge thickness: 6 x 3 mm
- Roll diameter 6 x 830 mm
- Automatic or manual roll change
- Remaining length monitoring at 2400 mm

V.0401 Number: 2474 1 x left
EDGE PRESSURE HOLDER, INFINITELY ADJUSTABLE
- For automatic adjustment for different edge heights

N.01 Number: 4013 1 x left
AUTOMATION PACKAGE CHAMFER/RADIUS AMBITION 2264/2274
- Automatic adjustment of the infeed guide
- Automatic adjustment of the pressure zone
- Pneumatic adjustment of the trimming motors for flush or overhang trimming
- Pneumatic adjustment of the pre-trimming unit for flush or overhang trimming
- Automatic adjustment from chamfer to radius trimming during profile trimming
- Pneumatic adjustment FA11 for lateral retraction from the work area
- Electronic height adjustment

N.04 Number: 3719 1 x left
IN-INTERCHANGEABLE HEAD SET, AUTOMATICALLY ADJUSTABLE / FK
- 2 interchangeable heads for Mounted on the FK 11/13/21/23 profile milling unit
- For automatic adjustment to different edge thicknesses when chamfering and/or
For automatic conversion from chamfering to radius milling
- Max. edge thickness for chamfering with radius tool:
- At R 1.5 = 0.6 mm
- At R 2 = 0.8 mm
- At R 3 = 1.0 mm
- Chamfer angle approx. 15 degrees
- Designed for I-tools with integrated extraction
- Without tools
- The cross-cutting of softforming profiles depends on the profile

N.0401 Number: 3727 1 x left
I - DIA CHAMFER CUTTER SET FOR FK 45 DEGREE Z=4
- 2 DIA cutters, base diameter 62 mm, 45 degrees, Z=4

N.07 Number: 3745 1 x left
WORKPIECE GUIDE FOR FK DEVICE
with additional clamping for workpiece length
min. 120 mm for single-sided machines.

N.10 Number: 4508 1 x left

MULTI-DRAW BLADE MN21 AUTOMATIC
- For max. 5 different profiles
- Top, bottom, and side scanning for
beveling or rounding pre-milled PVC edges
- Electro-pneumatically controlled blow nozzles
- For automatic bevel/radius conversion and for lateral
retraction of the upper and lower tools from the work area
- Height adjustment with top pressure
- Edge thickness max. 3 mm
- Workpiece thickness min. 13 mm at R=3 mm
min. 10 mm b. Chamfer 0.5x45 degrees
- Incl. Extraction box for PVC chips
- 2 carbide knives designed for a 20-degree bevel,
R=1.5 / R=2 / R=3 / R=5

N.1001 Number: 4538 1 x left
PROFILE KNIFE SET FOR MN20/21 CUSTOM-MADE
6 profile knives for special profiles instead of
standard knives, e.g., R=1.7 mm
Specify precise radii
Additional charge
R=1.0 / R=1.5 / R=2 / Bevel

E.01 Service: 6365 1 x
SETUP IN THE GAP FOR AMBITION
- Significantly increase production time by converting from a longitudinal program to a transverse program between two parts (conversion per unit)
- The machine does not need to be run empty
- The control system automatically calculates the gap required for the conversion of each unit and blocks the machine inlet during this time
- Only in conjunction with automation package
- Recommended in conjunction with feedback

E.04 Service: 6382 1 time
WOODSCOUT DIAGNOSTIC SYSTEM
Software package for graphic

LIGMATECH ZHR01/L/085

ZHR01 Return Feed - BOOMERANG (R) - Optimat
for small to medium-sized edge banding machines
Patented system
EP 1 188 697; HK 1 044 324

Technical specifications of the base machine
Make:
Type:
Machine no.:
Machine length:
Stop side: left

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Working height: ... mm
Feed rate: ... m/min

Use:
The ZHR01 return feed enables one-person operation on single-sided through-feed machines.

Function:
Workpieces coming from the base machine
are picked up by a roller conveyor using a take-up belt. Once the
rear edge of the workpiece has left the machine, it is lifted by several supports and guided transversely onto the second roller conveyor segment, where it is deposited again.
This second roller conveyor segment is arranged in the opposite direction to the first roller conveyor segment and is lowered by
65 mm in height. Following the return segment, the parts are transported further by a conveyor belt and run onto a non-driven roller conveyor at the operator's location. The workpieces are moved parallel without rotation and returned (option 0009).
For flexible use, the machine is equipped with two operating modes as standard:
Return mode and through-feed mode.
Design:
Conveyor belt: L=.... mm, W=900 mm
Non-driven roller conveyor: L=2000 mm, W=900 mm

Workpiece parameters:
- Length: 300 ... 2500 mm
- Width: 50 ... 1450 mm
- Thickness: 8 ... 60 mm
- The length is always the dimension of the part in the transport direction
of the base machine.
- The width is always the dimension of the part
perpendicular to the transport direction of the base machine.
- 4-sided processing:
- Min. part size: 300 x 300 mm
- Max. part size: 1450 x 1450 mm
Larger parts can be returned or removed during 4-sided processing with manual assistance for transverse offset
and rotation.
- Weight: Part length <= 700 mm: max. 30 kg
Part length > 700 mm: max. 50 kg
- Surface weight: max. 25 kg/m²

Technical parameters:
- Working height: 835 to 960 +/-30 mm
- Feed rate: 8 to 25 m/min
(Other feed rates upon request)

Pneumatics:
Operating pressure: 6 bar
Air consumption: 50 Nl/min
Electrical system:
Control system: Moeller microcontroller

Including interlinking for return lines;
Remote control optional (see option 0017)
Operating voltage: 400 V, 50 Hz
Control voltage: 24 V DC (according to VDE)
Total connected load: approx. 2.5 kW
Specified
ambient temperature: +5 ... +35 degrees Celsius

Note on feed linking:
- The machine is equipped with a manually
adjustable feed speed as standard.
For edge banders with a variable feed, electrical feed adjustment (option 6150) is recommended, as otherwise the necessary synchronization of the feeds must always be done manually.
Paint finish: Robust textured paint
---------- gray RDS 240 80 05
Floor requirements:
- Tensile/compressive strength
- Standard concrete C16/20 XC1
- Minimum thickness 180 mm

Notes:
- Conditions for proper operation are:
- The parts must exit the base machine at right angles
- The deflection of the passing parts
must not be so severe that they touch the parts
on the return conveyor, which is 65 mm lower
- Please note the part spacing at
different speeds. We will be happy to provide an overview of these upon request.

Certification:
Machine with CE mark in accordance with the EC Machinery Directive 2006/42/EC.
The machine complies with the statutory accident prevention regulations (UVV).

G.0001 Number: 0062 1 x left
BELT CLEANING (SIMPLE)
The belt cleaning system is used to remove chips and dust adhering to the belt.
This cleaning system is not suitable for removing fresh glue contamination.
The belt cleaning system is mounted on the underside of the belt, opposite
to the motors.
The belt cleaning system consists of a fixed brush strip.
The falling dirt is not vacuumed away.

G.0004 Number: 6150 1 x left
ELECTRONIC FEED ADJUSTMENT
The infeed feed of the Ligmatech return conveyor is electronically adjusted to the outfeed feed of an upstream third-party machine (especially the KAM edge banding machine) using a frequency converter.

Requirement:
The upstream machine (KAM) must provide an analog signal proportional to the feed rate

in the range of 0 to +10 volts.

G.0007 Number: 0009 1 x left
Pivoting pin for narrow parts, sensor-controlled
Automatically adjustable pivot pin, between the base and main machine, which allows for easy rotation of short, narrow parts.
Part dimensions when rotated:
Length