for the record
NEWBILT machinery

SITE REQUIREMENTS

for the

Newbilt Duplex System

Modern Vinyl production equipment

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1. Scope of the Site Requirements

These site requirements refer to the media supply and utility specifications necessary for the installation and the operation of a Newbilt Duplex System for 12” Vinyl replication system consisting of:

- two Newbilt machinery Vinyl presses
- one Newbilt Vinyl extruder
- one hydraulic system for two Newbilt Vinyl presses

Not considered in these site requirements are

- steam generator
- Chillers resp. cooling water supply systems
- Compressed air generators

2. Environmental Conditions

2.1. Ambient room condition

2.1.2. Room conditions

Ambient air temperature range	20 – 26 °C
Ambient air humidity range	35 – 60 % r.H.

3. Media Supply

3.1. Media Quality

3.1.1. Power quality

Typical operating voltage	400 V AC + 6 % / - 10 %, 3Ph + N + PE
Or for the US market	460 V AC + 6 % / - 10 %, 3Ph + PE
Typical operating frequency	50 Hz or 60 Hz, ± 1%

Only shielded equipment may be connected to the same branch as the machines.
No peaks are permitted in the ground conductor either.
No equipment generating and emitting strong noise fields (e.g., arc welding, high-frequency heating) may be placed near the machines.

3.1.2. Water quality

Cooling water

Typical inlet pressure	10 bar
Typical outlet pressure	ideally no back pressure
Typical inlet temperature	+ 20 °C to + 25 °C
Hardness	7° to 8° dH
pH range	7-9
Particle size	max. 200 µm
Particle concentration	max. 10 parts per cm^3
Chlorine concentration	max. 20 mg/l
CO_2 concentration	max. 15 mg/l
Specific conductivity	max. 500 µS/cm

3.1.3. Compressed air quality

Typical incoming pressure	6 to 10 bar
Air quality	free of water
Impurities size	max. 5 µm
Impurities concentration	max. 25 mg/m^3
Dew point	max. 3 °C

3.1.3. steamed air quality

Output pressure	10 bar with reservoir 16 bar without reservoir; requires pressure limiter nearby press
Typical incoming pressure	10 bar
Temperature	180 °c

3.2. Newbilt Vinyl Press

Two Newbilt Vinyl Presses are required for one Newbilt Duplex System.
The following values are **valid for one Newbilt Vinyl press**.

3.2.1. Electrical power Newbilt Vinyl Press

Supplied from extruder

Operating voltage	24 V DC
Operating frequency	50 Hz or 60 Hz ± 1%
Total connected load	1 kVA
Average power consumption	0,5 kW

3.2.2. Cooling water Newbilt Vinyl Press

Water flow	up to 100 l/min
Inlet pressure	10 bar
Outlet pressure	max. 2 bar, open system
Inlet connection	G 1 " inner thread on machine
Outlet connection	G 1 " inner thread on machine
Inlet water temperature	+ 20 °C to + 25 °C
Used cool water	about 53 l/min
Average outlet water temp.	about 60°C
Needed cooling capacity	up to 125 kW according of cycle time.

3.2.3. Compressed air Newbilt Vinyl Press

Consumption	6 m^3/h
Incoming pressure	6 to 10 bar
Operating pressure	min. 6 bar
Connection	G 3/8 " inner thread on machine

3.2.3. Saturated steam vapor Newbilt Vinyl Press

Consumption	150 to 180 kg/h (Duplex up to 360 kg/h)
Pressure	min. 10 bar
Operating pressure	between 9.5 to 10.5 bar
Connection	G 1 " inner thread on machine

3.3. Newbilt Vinyl Extruder

3.3.1. Electrical power Newbilt Vinyl Extruder

Operating voltage	400 V AC + 6 % / - 10 %, 3 Ph + N + PE
Or for US market	460 V AC + 6 % / - 10 %, 3 Ph + PE
Operating frequency	50 Hz or 60 Hz ± 1%
Total connected load	15 kVA
Average power consumption	8 kW

3.3.2. Compressed air Newbilt Vinyl Extruder

Consumption	2 m^3/h
Incoming pressure	6 to 10 bar
Operating pressure	6 bar
Connection	G 3/8 " inner thread on machine

3.3.3. Cooling water Newbilt Vinyl Extruder

Inlet pressure	5 to 10 bar
Outlet pressure	nearly without pressure

Machine

Water flow	approx. 4l/min
Inlet connection	G 1/2” inner tread on machine
Outlet connection	G 1/2" inner tread on machine
Inlet water temperature	20°C to 25°C
Required cooling capacity	about 2 to 3 kW

3.4. Hydraulic generator

3.4.1. Electrical power hydraulic generator

Operating voltage / frequency	a) 400 V AC ± 10 %, 3 Ph + PE / 50 Hz
	b) 460 V AC ± 10 %, 3 Ph + PE / 60 Hz
	c) 400 V AC ± 10 %, 3 Ph + PE / 60 Hz
Total connected load	15 kVA
Average power consumption	12 kW

3.4.2. Cooling water hydraulic generator

Inlet pressure	5 to 10 bar
Outlet pressure	nearly without pressure

Machine (oil cooler)

Water flow	approx. 8 l/min
Inlet connection	G 1/2 " inner thread on machine
Outlet connection	G 1/2 " inner thread on machine
Inlet water temperature	+ 20 °C to + 25 °C
Delta on water temp.	maximum about 10 °C
Required cooling capacity	up to 5 kW

3.4.3. Hydraulic oil hydraulic aggregate (to be supplied by customer)

Mineral oil based on hydraulic fluid; HLP
Minimum requirements in accordance with DIN 51524 part 2
Viscosity: ISO VG 32 or 46 cSt resp. mm2/sec, at 40°C
Quantity: 200 liter

Equivalent to brand and type: AVIA fluid RSL 46

The hydraulic aggregate is delivered without oil.

3.5. Total Media Consumption

	2 Newbilt Vinyl Presses 1 Newbilt Vinyl Extruder 1 hydraulic generator
Total connected load	32 kVA
Average power consumption	21 kW
Cooling capacity	250 kW
Cooling water peak flow rate	220 l/min
Cooling water typical flow rate	128 l/min
Compressed air consumption	14 m³/h
Saturated water steam	>360 kg/h

Note 1: The required total cooling capacity is for the largest part (about 98%) determined by the required cooling for the molds (presses). The cooling requirements for the extruder and hydraulic aggregate are therefore deemed negligible in the total.

4. Constructive Requirements

Space requirements

The recommended total floor space to operate a single NEWBILT Duplex system is about 200 m2. The footprint of each press is about 0,9 m2. The footprint of the extruder is about 0,5 m2, and that of the hydraulic aggregate about 1,0 m2. A person should be in the position to walk comfortably around the machines. The minimum distance to the nearest walls must be at least 60 cm. The hydraulic aggregate should preferably be placed outside the pressing room. A possible floor layout with connection points is shown in the attached drawing. All control cabinets and doors must always be accessible and the opening of the doors should not be blocked. Sufficient space must be planed for proper operation and maintenance of the machine including possible peripheral devices. This includes feeding in of raw material and removal of finished product.

Room height

Minimum room height	2.5 meters

Weight of the machine parts

Newbilt press	1350 kg
Newbilt extruder	660 kg
Newbilt hydraulic aggregate	600 kg

Floor and walls

The machine has to be placed on a floor with sufficient load-bearing capacity.
The floor surface must be flat but not slippery so that the machine levelling pads can adhere well on the floor. The floor cover should preferably be resistant against solvents used in the production process.

Additional rooms

Besides the production area, rooms for Vinyl storage and supply, compressor, water chiller, saturated steam, storage of raw materials and produced articles, spare parts, tools, test and measuring devices.

Safety

Safety precautions have to be taken according to local laws and regulations.
Special care has to be taken while working with flammable and hazardous materials (e.g. solvents and lacquers). Measures for personal safety and fire protection have to be taken (e.g. working benches with exhaust, personal safety equipment like overalls, gloves, goggles as well as a fire extinguishers).

5. Drawings

Attached to the site requirements are the following drawings

a) Layout of a Newbilt machinery Duplex System
b) On request a facility layout