

Nessie® Wood Concept, type NWC



The Nessie Wood Concept is a compact and flexible high pressure humidification unit designed for lumber drying, dust suppression and saw blade lubrication

Optimum profitability in the lumber business depends on human knowledge and experience of handling a living material. However, automation has become an indispensable tool for optimising the drying and sawing process.

With the NWC, a range of new benefits are available for lumber drying and wood processing.

The NWC operates at pressures between 80-100 bar / 1160-1450 psi, producing extremely small water droplets evaporating immediately.

Design and function

The Nessie® Wood Concept is a turnkey system – complete and compact by design. It consists of a tank, a pump, an electric motor, valves and a control system. Among a range of thought-through design details can be mentioned:

- The pump is solely water lubricated. Consequently, the pump requires no service or maintenance throughout its entire life.
- An inlet filter filters off impurities. In that way both nozzles and pumps are safeguarded, cutting down service costs. Moreover, no possible contamination of the water will damage the lumber.
- The high pressure water humidification unit is supplied with up to 8 outputs due to customer specifications, for control of one or several kilns, and even several sawing machines can be connected. More outputs can be added in case of increasing demand.
- The unit is equally well fit for installation in new applications as well as retrofit in existing kilns.
- The high pressure water humidification unit comes with an electric motor as standard. However, the unit can be supplied with a frequency converter motor, type FCM 300 from Danfoss for optimized process control.

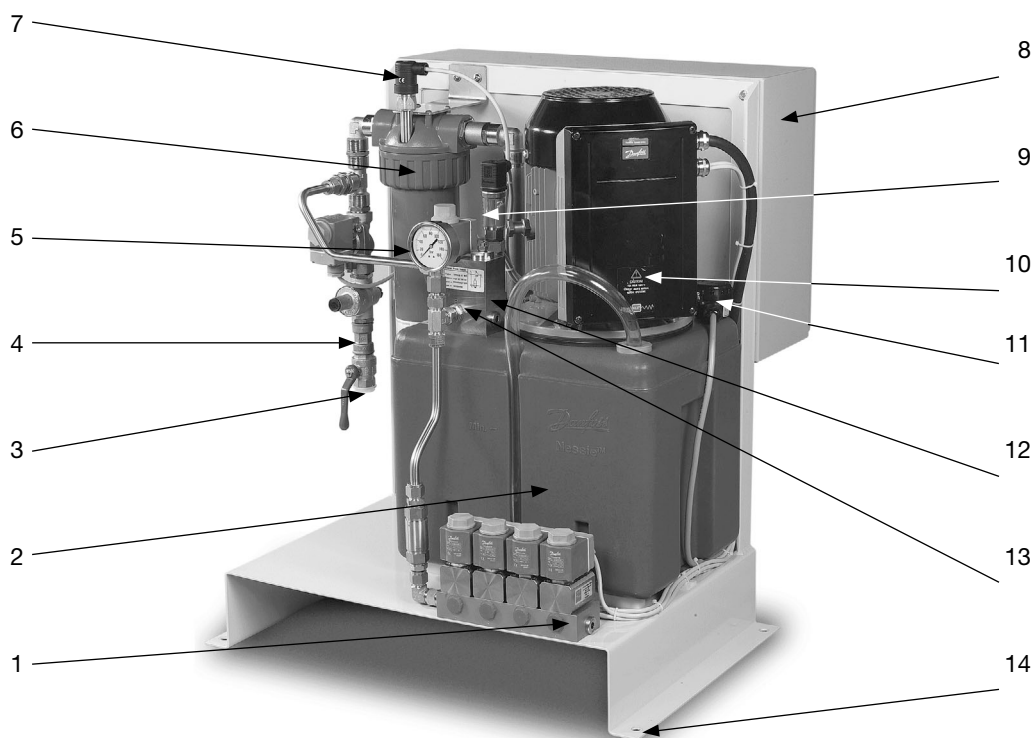
Performance

The NWC is available in the following versions:

	NWC 020	NWC 040	NWC 063	NWC 100	NWC 125	NWC 250	NWC 320
Motor rev.1500 rpm, L/hour	110	300	500	800	1050	2100	2700
Motor rev.1800 rpm, gpm	0.57	1.54	2.53	4.18	4.84	11.45	14.53
Motor w.frequency converter L/hour (gpm)	25-130 (0.11-0.57)	85-350 (0.32-1.54)	150-575 (0.66-2.53)	260-950 (1.14-4.18)	350-1100 (1.54-4.84)	210-1680 (0.92-7.39) max. 70 bar 1000 psi	270-3200 (1.19-14.08) max. 70 bar 1000 psi

The NWC is supplied with up to 8 pressure outputs.

Description



No.	Item	Description
1	1-8 high pressure outputs	Connection: G 3/8" internal thread
2	Water tank (buffer tank)	Volume: 25 litres/6.6 gal. Material: plastic
3	Tap water supply/inlet	On/off ball valve. Connection: G 3/4" internal thread
4	Check valve	Protection against water hammer in the water supply line
5	Manometer	Visual control for output pressure
6	Filter	20" 10 µm absolute filter. Manufacturer: Ametek
7	Pressure switch	Monitor device for filter element change
8	Control box	Control box and power supply box
9	Pressure transmitter	Pressure monitoring for FCM motor (optional)
10	Electric motor	Electric motor as standard. Option: frequency converter motor FCM
11	Monitor device	Water temperature and water level monitoring
12	Hose (transparent)	Tank drain, visual water level monitoring
13	Power pack valve, Danfoss type VPH 15E	2/2-way directional control and pressure relief valve
14	Fixing holes	4 × Ø10 mm/4 × Ø0.39 inch

Technical data

Supply voltage:

- for electric motor (standard):
3 × 400/460/575 V - 50/60 Hz
- for FCM motor: 3 × 380-480 V - 50/60 Hz

Control voltage:

- 24 V d.c. input
(zero potential switch required)

Main fuse:

- CE-version: max. 40 Amp., 2.5 mm²
- UL/CSA versions:
JDDZ max. 60 Amp., type K5

Power requirement:

- 0.55 - 11 kW / 0.75 - 15 hp
(pump and pressure dependent)

Control box:

- Automatic control of unit:
 - operation, warning and failure indication
 - filter change indication
 - operational status indication to external controller
- Required connections:
 - power supply
 - zero potential switch fro controller

Water inlet pressure:

- min. 2 bar and max. 10 bar / min. 29 psi and max. 145 psi.

Temperature conditions:

- Ambient temperature: max. 40°C / 104°F
- Media temperature: min. +3°C and max. +20°C / min. +37°F and max. +68°F
- Storage temperature: min. -40°C - +70°C / min. -40°F and max. +158°F
- Transport temperature: In transport temp. lower than -10°C/+14°F, consideration must be given to the reduced strength of plastic materials.

Enclosure grade for control box:

- IP 65/NEMA 12

Approvals:

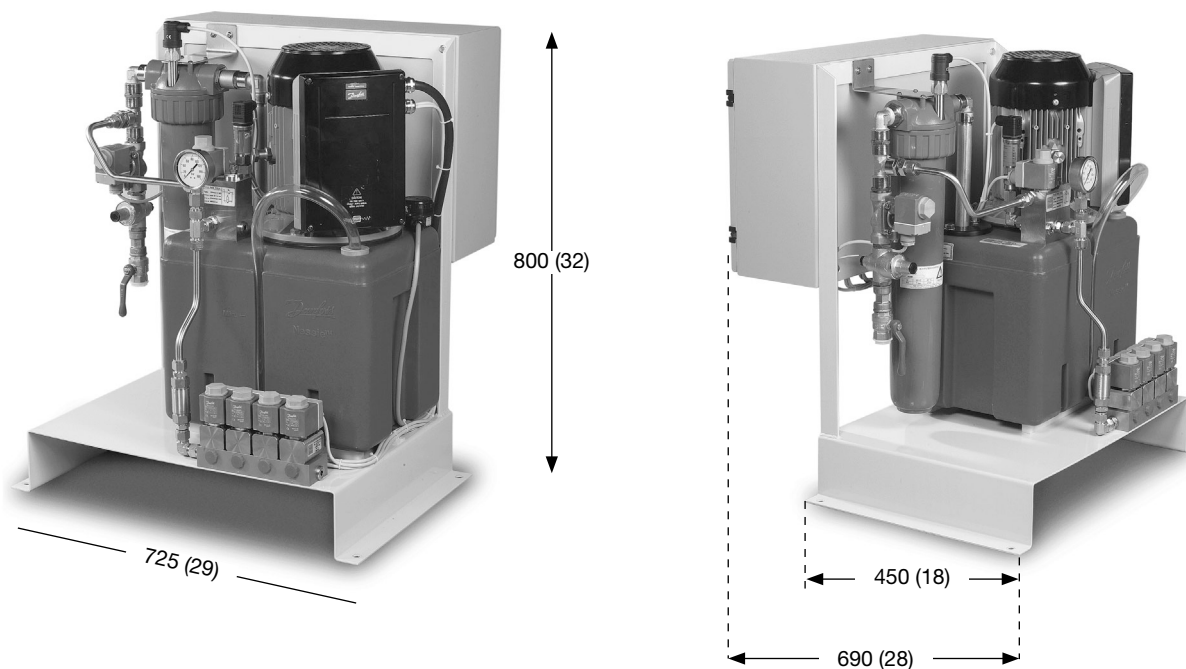
- NWC unit is CE approved.
- NWC can be delivered in UL and CSA version

Noise Level

Noise levels (sound pressure) measured at a 1 m./3.3 ft. distance at 1500 rpm and 100 bar/ 1450 psi:

- NWC 25-2/4/6.3: 62 dB(A)
- NWC 25-10/12.5: 65 dB(A)

Dimensions, mm (inch)



Water quality and filtration

The NWC units are designed for ordinary drinking water, i.e. water containing no additives (EU ordinary Water Directive, 80/778 EEC) and without abrasive elements.

The water supplied to the NWC unit must be filtered using a 10 µm absolute, β_{10} -value > 5000 filter.

See also Danfoss Tech Note: "Water Quality in relation to the Nessie® Wood Concept, type NWC"

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