NML150

Tube filling machine with a capacity of 150 tubes per minute

NORDEN

a **coesia** company

THE WORLD'S LEADING SUPPLIER OF TUBE FILLING SYSTEMS

Getting your tube filling system up and running is the start of our commitment to you. We offer future proof systems, where down-time and maintenance is drastically reduced. Therefore we can surely say that your investment will be worthwhile.

Norden is the world's leading supplier of high-performance tube filling systems. Today 5,000 Norden machines around the world are filling more than 8,000,000 tubes an hour. Whilst operating globally we still maintain very close relationships with our customers. We exist solely to make sure you get more out of your production lines to sharpen your competitive edge.

For over 80 years we have focused exclusively on advancing tube filling systems and have introduced many innovations along the way. Our long involvement with tube handling gives you access to extensive technological and application expertise. We're here to stay and well-equipped to be your long-term partner.

NML150 – SHIFT TO A NEW PRODUCTION LEVEL WITH NORDEN

Designed for the dynamic Asian market's needs, the NML150 is targeting players that are shifting to a new production level, looking to long term production reliability with Norden quality attributes yet expecting price effective configurations.

- A modern set up with new generation of Norden EasyWare
- Filling up to 150 tubes per minute
- 80 years of Norden experience inside
- Convenient service and maintenance
- Training to get the most out of your tube filling system.
- Upgrades to keep you competitive
- Global service network – Local language spoken by the staff*
- The parts you need, when you need them
- Production reports, including OEE-data

*Contact details per country to be found at nordenmachinery.com

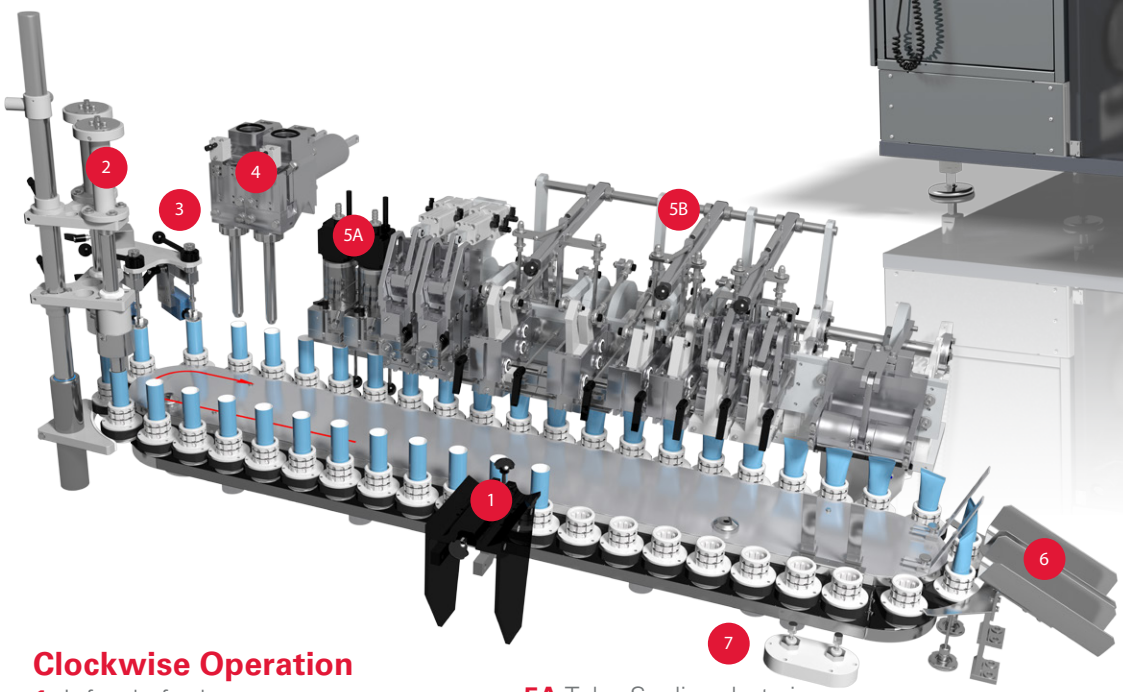
NML150 –MACHINE LAYOUT AND FEATURES

Flexibility & Control with Norden EasyWare Production reports, including OEE-data

Keep full control of your machine with a 10" touch screen operator panel in colour. A streamlined information process, offering full overview of machine performance. The state-of-the-art new Norden EasyWare control system means less steps towards the production data needed, and is including collection of OEE-data.

Combi Beam – this time saver is allowing greater uptime in production

The Combi Beam is allowing switches between plastic/laminate and metal tubes in one machine. This will be a true time saver for your production when you need to switch between sealing types. It incorporates both hot air sealing and metal folding stations for plastic, plastic-laminated, aluminium-laminated and aluminium tubes.

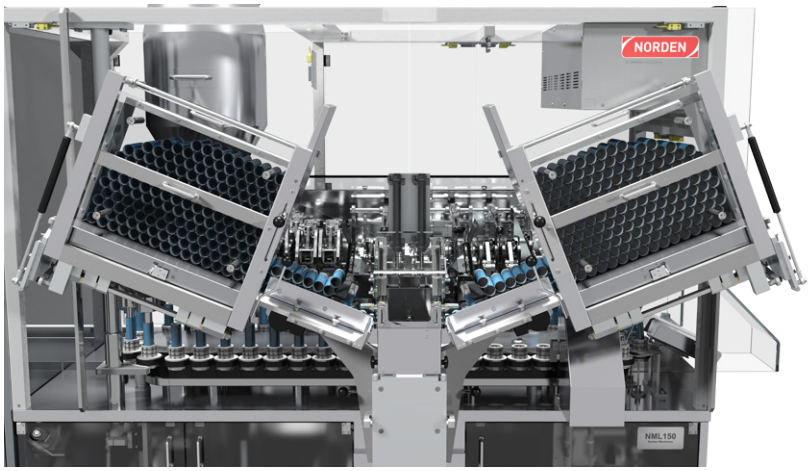


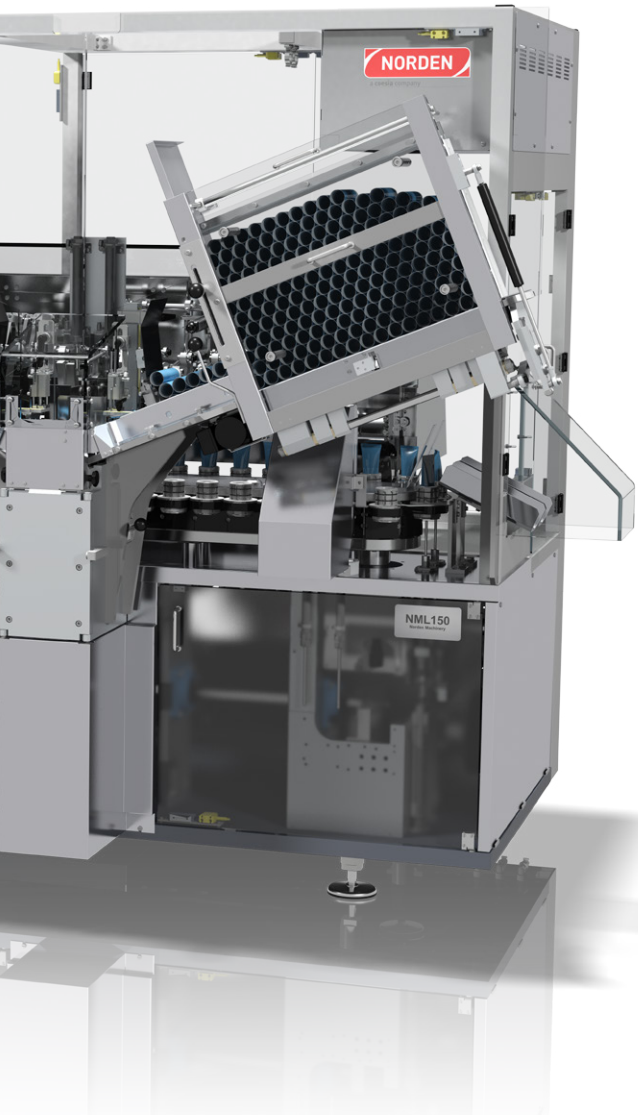
Clockwise Operation

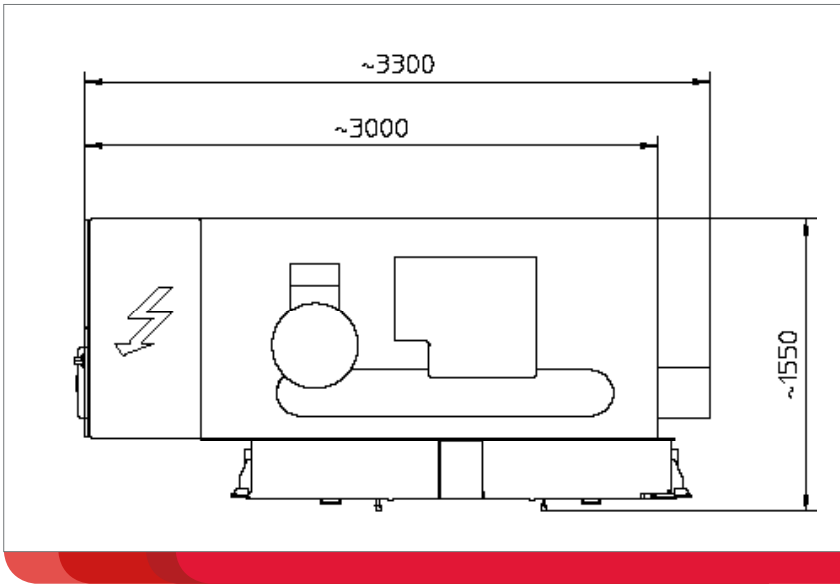
1. Infeed of tubes
2. Tube cleaning
3. Tube print orientation
4. Twin head tube filling
5A. Tube Sealing, hot air
5B. Tube sealing, metal folding
6. Discharge of tubes
7. Reject function for faulty tubes

Feeding of tube sizes from Ø10 mm up to Ø50 mm with Hinged Cassettes

A cost efficient and ergonomic system for loading tube transport boxes at a convenient height for the operators is with the hinged cassettes. The special design has been developed to assure reliable and easy feeding of small tubes.

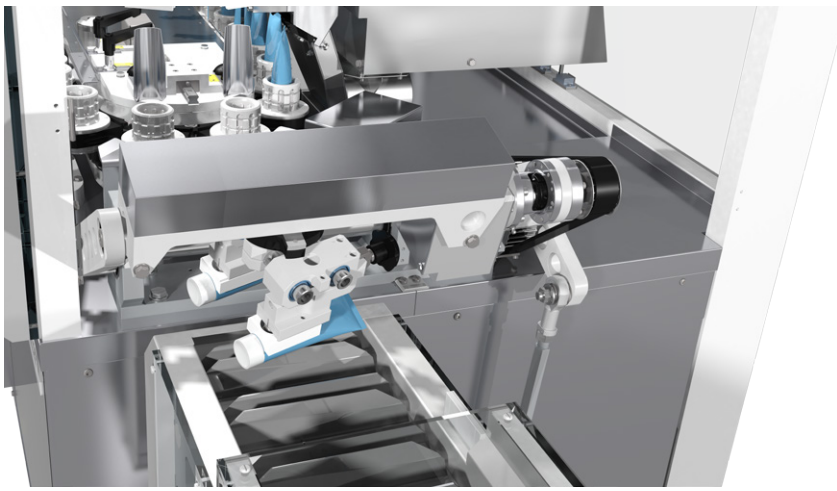






Pick & Place discharge of tubes

The Pick & place unit is contributing to an easy and direct transfer to a cartoner. The Pick & place unit is available for turning the tube and placing it onto a conveyor of an L-shaped line layout, or a straight line layout.



Please note that some pictures in this brochure include functions that are optional equipment.

SPECIFICATIONS

Basic machine

- NML150 filling machine is indexing working with 85 mm pitch, oval racetrack.
- Built on a frame of massive steel plates.
- All doors and covers are in Plexiglass PMMA.
- Machine table is covered with stainless steel.
- Bottom plate is painted with a grey paint.
- Framework for covers made of aluminium.
- Indexing mechanism in closed oil bath casting.
- Tube holder links are lined with Teflon and are furnished with magnets to ensure that the tube holders remain in the same position in the links during indexing.
- Tube holder links are attached to a steel cord polyurethane-timing belt.
- 44 tube holders in the tube transport are standard.
- Max production speed: 150 tubes/minute.

Standard equipment

- Semi-automatic tube infeed with an inclined chute.
- Tube infeed has a vacuum assisted tilter mechanism and a mechanical cam controlled push rod for automatically inserting tubes into the tube holder chain.
- Tube print registration with teach-in photocell. A photoelectric tube print registration station ensures correct positioning of the tube decoration prior to sealing.

  – Control function: If tube orientation is not executed the tube will be marked faulty.
- Tube print orientation driven by a stepper motor. Tubes may be stopped in any position through 360 degrees. Stop position set from the control system.
- Two volumetric pump units in stainless steel. Parts in contact with the fill product are made of ASTM 316L (DIN 1.4404, BS 316S12 or SIS 2348).

  – Control function: A sensor for checking that the pump stroke movement is executed. If the stroke is not fully performed the tube will be faulty marked, and the machine will stop.
  – Control function: If the tube is marked as faulty or the station is empty – no filling.
- Pump insert size depends on the filling volume.

  (Choose one alternative)

Filling volumes (ml):	Piston diameter (mm):
1–5	15
1.5–14	20
3.5–50	30
15–165	45
25–300	60

- Filling nozzle, type depends on the product to be filled. Available nozzles types are blow-off, cut-off, combination blow-off and cut-off.
- Product hopper made of stainless steel ASTM 316L: Size 90L.
- Bottom up filling by means of a mechanical cam.
- One side coding 6 characters, 0–9 character total 60 characters per channel.
- Automatic reject station for faulty tubes, avoiding unnecessary machine stops.
- Automatic discharge of tube with tail first on gable.
- Size parts for one tube and one fill product.
- Tube holder design depends on tube size, material, cap design and required machine speed. The type is chosen according to delivered tube samples.
- Every size setting position in the machine is marked with identification number. The corresponding number is to be found in the size setting tables.
- One set of "first aid" spare parts and tools.

Control System

- Norden EasyWare based on Schneider Electric motion control system PacDrive 3 with separate touch screen operator panel.
- Operator panel a 10" touch screen in colour.
- Safety functions (emergency stop and guard switches). All doors are electrically interlocked during operation.
- Main controller is backed up by UPS.
- Supervision for release of overload clutch in the tube transport – machine stops.
- Alarm signalling system with a three-colour lamp and a buzzer

  – Red flashing: stop due to machine fault.
  – Green continuous: machine is running correctly or runs by the jogging system.
  – Green flashing: jogging mode, the machine stands still.
  – Yellow/Orange flashing: warning, low level.
  – Buzzer: short signal when machine starts on jogging mode.
- All alarms stated text on the operator panel, with full description of the detected issue.
- Electrical variable machine speed
- Jogging device with low speed forward
- All electrical format changeovers from HMI.
- Production statistics (OEE) on HMI.
- Fifty (50) programmable format tables
- Parameters of functions may be set from the HMI
- HMI functions are secured by 7 different levels
- Consecutive faults-machine stops.
- Low air pressure – machine stops

Tube size

- Tube length 50–250 mm
- Tube diameter 10–50 mm

The above specification is Norden standard. Please note that the final specification will depend on the options chosen.

Various options might replace the standard equipment.

Technical data to be changed without notice.

Tube sealing unit options

- Hot Air sealing unit for plastic, plastic-laminated and aluminium-laminated tubes. Plain or crimped closure.
- Combination sealing unit, incorporating both hot air sealing and metal folding stations, for plastic, plastic-laminated, aluminium-laminated and aluminium tubes.
- Metal folding unit for aluminium tubes

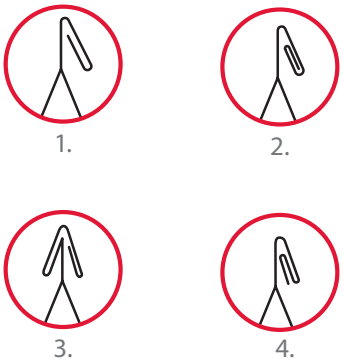
Hot Air sealing

For plastic and laminate tubes

Metal folding

For aluminium tubes

Metal folding types



OPTIONAL EQUIPMENT

- Servo driven main drive
- Electrical cabinet in stainless steel
- Material certificate for wet parts

Infeed

- Cassette infeed
- Hinged cassette infeed

Tube control

- Tube cleaning
- Sterile filter
- Code reading systems

Control system

- Audit trail. Registering all database is registering all critical changes of the machine settings. Including possibility to create individual login users.

Products and product feeding

- Product level control
- Heated product hopper
- Hopper lid
- Stirring device
- Pressure equalizing system
- Corner trimming

Filling

- Complete extra pump unit to allow fast product changeover
- Two colour filling
- Servodrive system of filling pumps
- Servolift at filling
- Pump for abrasive products

Sealing and coding

- Coding on both sides of the tube
- Exhaust collector for trim waste
- Water cooling unit

Discharge

- Pick & place unit for L-shaped line layout, for direct transfer to cartoner
- Pick & place unit for straight line layout, for direct transfer to cartoner
- Cap first discharge for line configu-

TECHNICAL SPECIFICATION

Standard data	
Running capacity (max tubes/min)	150[1]
Filling volume	1–300 ml
Dosing accuracy	±0.1–0.5 %
Tube length	50–250 mm
Tube diameter	10–50 mm
Operation	Clockwise

Operational data	M	HA
Power consumption (max, kW)	5	10
Air consumption[3] (Nm^3/h)	11[2]	90[2]
Water consumption[4] (l/min)	–	8

Material data	
Frame	Aluminium
Electrical cabinet	Painted graphite grey (Stainless steel is optional)
Doors and covers	Plexiglas (PMMA)
Filling pump	Stainless steel
Filling pump parts, in contact with the product	ASTM 316L (DIN 1.4404, BS 316S12 or SIS 2348)

Dimensions and weight	
Net weight, approx.	4650 kg
Gross weight (case), approx.	50 00 kg
Volume, approx.	19.0 m^3
Lenght x Width x Height (mm)	3300 x 1550 x 2350* *height including hopper

1 Depending on tube size, filling product and quality of tube and filling material
2 Depending on tube size and material
3 Air pressure MPa 0.6 (6 bar)
4 Water pressure – min 2 bar in to the machine and max 0.5 bar counter pressure at water outlet

NML150 / 201804

COESIA headquarter COESIA/NORDEN hub Local representative

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Coesia is a group of innovation-based industrial solutions companies operating globally, headquartered in Bologna, Italy.

Coesia's companies are leaders in the sectors of:
- **Advanced automated machinery and materials**
- **Industrial process solutions**
- **Precision gears**

Coesia's customers are leading players in a broad range of industries, including Consumer Goods, Tobacco, Healthcare, Aerospace, Racing & Automotive and Electronics.

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Get more out of tubes

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