



**ENKOTEC**

Complete Nail Manufacturing Solutions



more than just machines.

# From Wire to World-Class Nails.

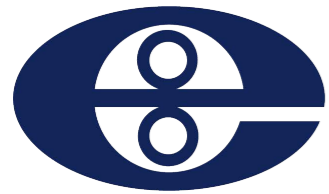
Every nail begins as wire.

What transforms it into a high-performance fastening solution is precision, control and intelligent engineering.

ENKOTEC connects every stage of wire nail production into one highly efficient, system — from payoff to packaging.

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**ENKOTEC**

## *Engineering Excellence in Nail Production*

For decades, ENKOTEC has been a global leader in rotary nail production technology. Our machines operate around the world, producing millions of nails every hour with unmatched consistency and performance.

We do not simply manufacture machinery.  
We engineer complete production ecosystems.

From wire payoff to packaged nails, ENKOTEC solutions are designed to:

- Maximise output
- Minimise downtime
- Reduce total production cost
- Ensure long-term reliability
- Enable intelligent, data-driven manufacturing

Our rotary forming principle has redefined what nail production efficiency means. Today, enhanced with digital intelligence and automation, it continues to set the benchmark for the industry.

Just as important as our technology are the people behind it. Our expert engineers, technicians and support staff are here to support our customers at every stage — from installation and training to spare parts supply and production optimisation.

That is why ENKOTEC is:

**more** than just machines.



## The Advantages of Continuous Motion

Conventional nail machines rely on impact-based forming.

ENKOTEC machines are built on a rotary forming principle; a continuous process that delivers measurable advantages.

### Continuous Production

Wire straightening, cutting, and head forming occur in one uninterrupted rotary movement.

### Reduced Mechanical Stress

Continuous motion reduces vibration and shock loads, extending machine and tooling lifetime.

### Higher Stability at High Speed

The rotary principle enables production speeds of up to 2,500 nails per minute while maintaining precision.

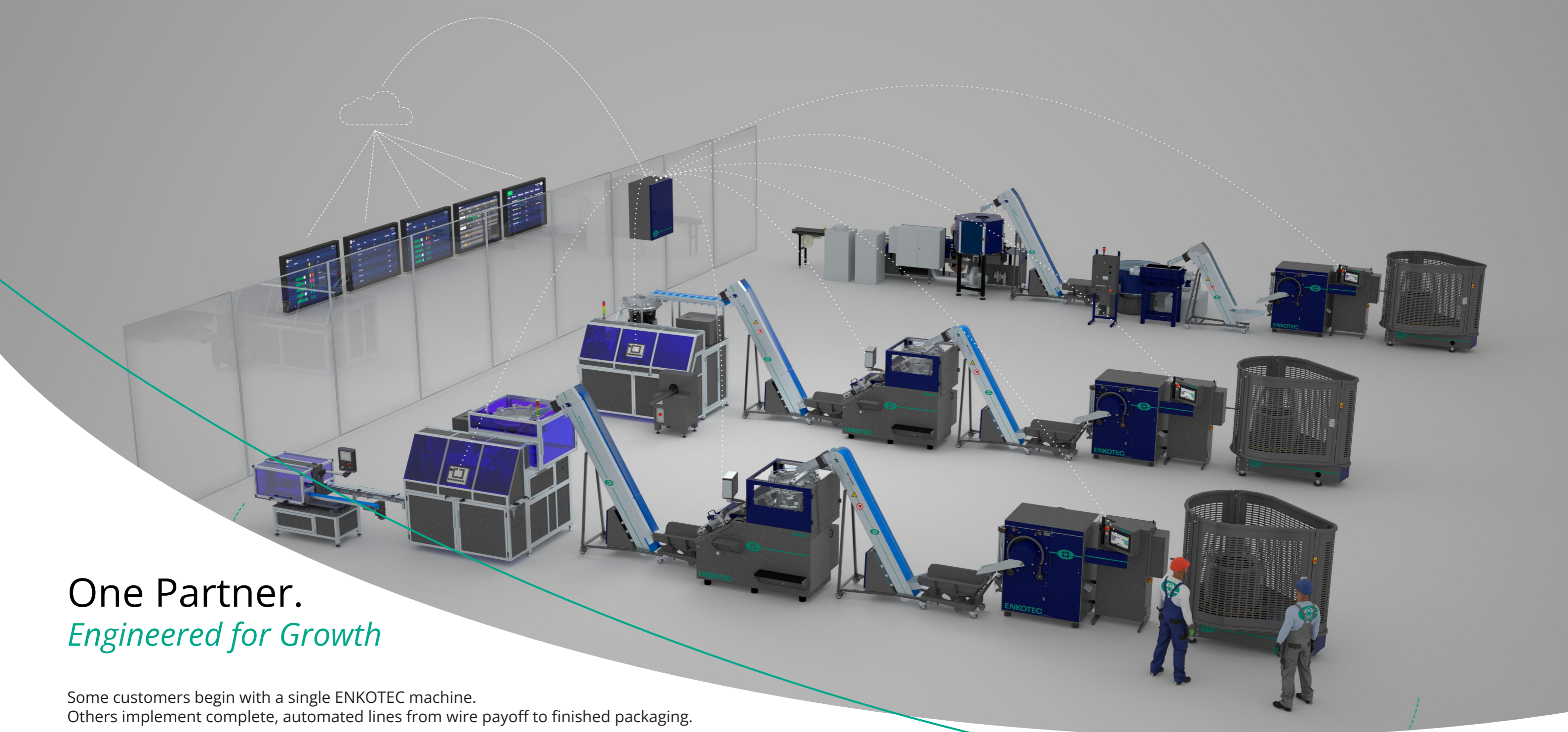
### Lower Energy Consumption

Optimised mechanical efficiency means lower operational costs per nail.

### Clean, Oil-Free Operation

Low-noise and oil-free production create a better working environment and lower maintenance needs.

Rotary technology is not just a feature — it is the foundation of ENKOTEC's competitive advantage.



# One Partner. *Engineered for Growth*

Some customers begin with a single ENKOTEC machine. Others implement complete, automated lines from wire payoff to finished packaging.

An ENKOTEC production line, or ENKOLine, can include various combinations of the following components:

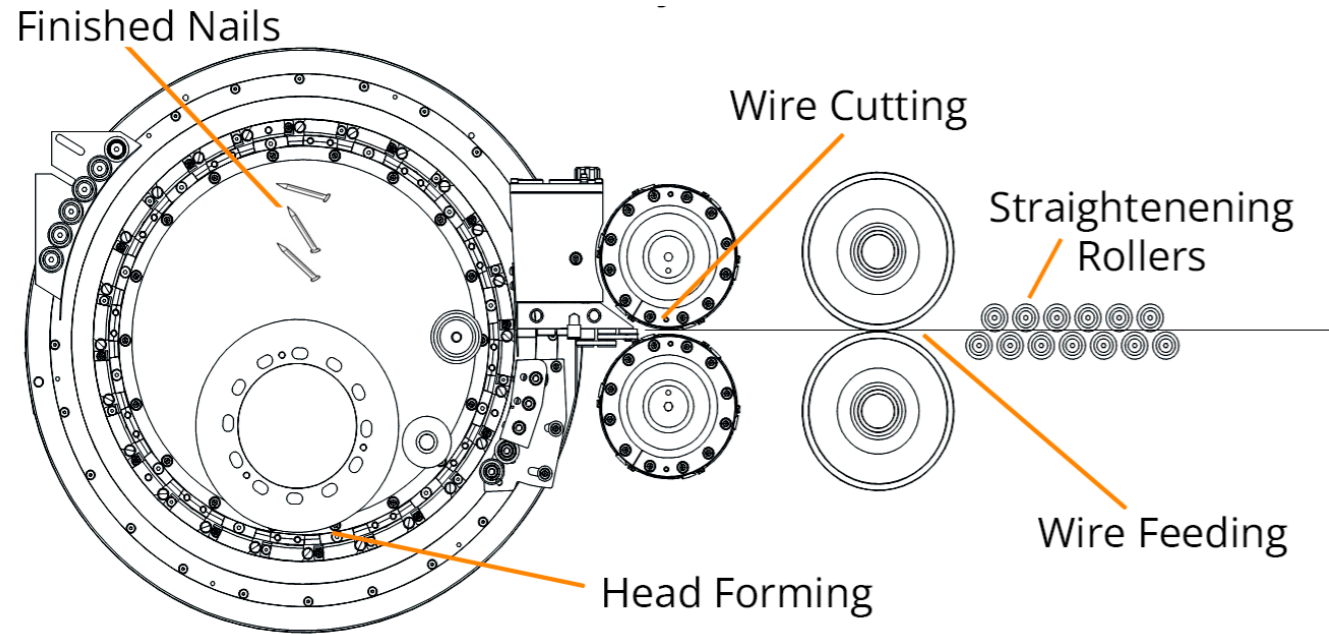
- ENKOPayoff – controlled wire feeding
- ENKONail / ENKONail+ – high-speed nail manufacturing
- ENKORoll – thread rolling (ring or screw shank)
- ENKOLLator – coil or strip collation
- ENKOPack – automated counting and packaging
- ENKOSmart Factory – digital performance monitoring

Each machine is designed to perform independently, and to integrate effortlessly when production requirements grow.

The result:

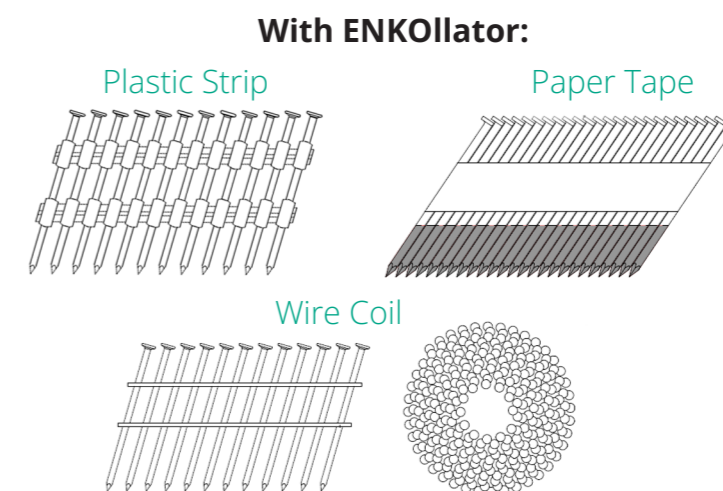
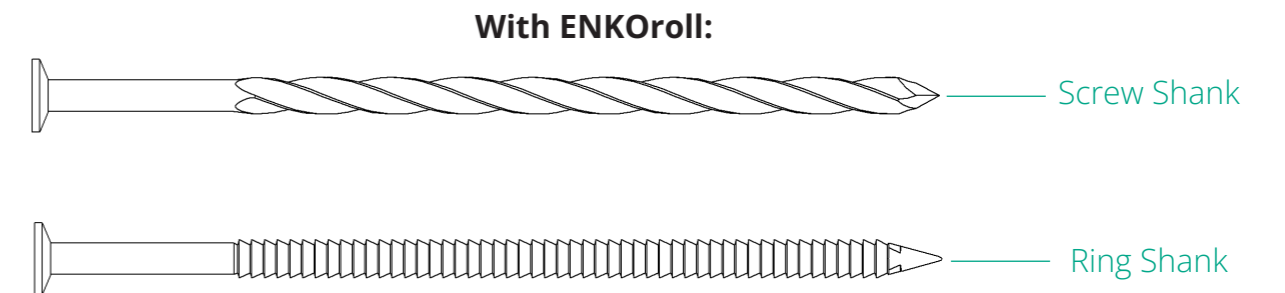
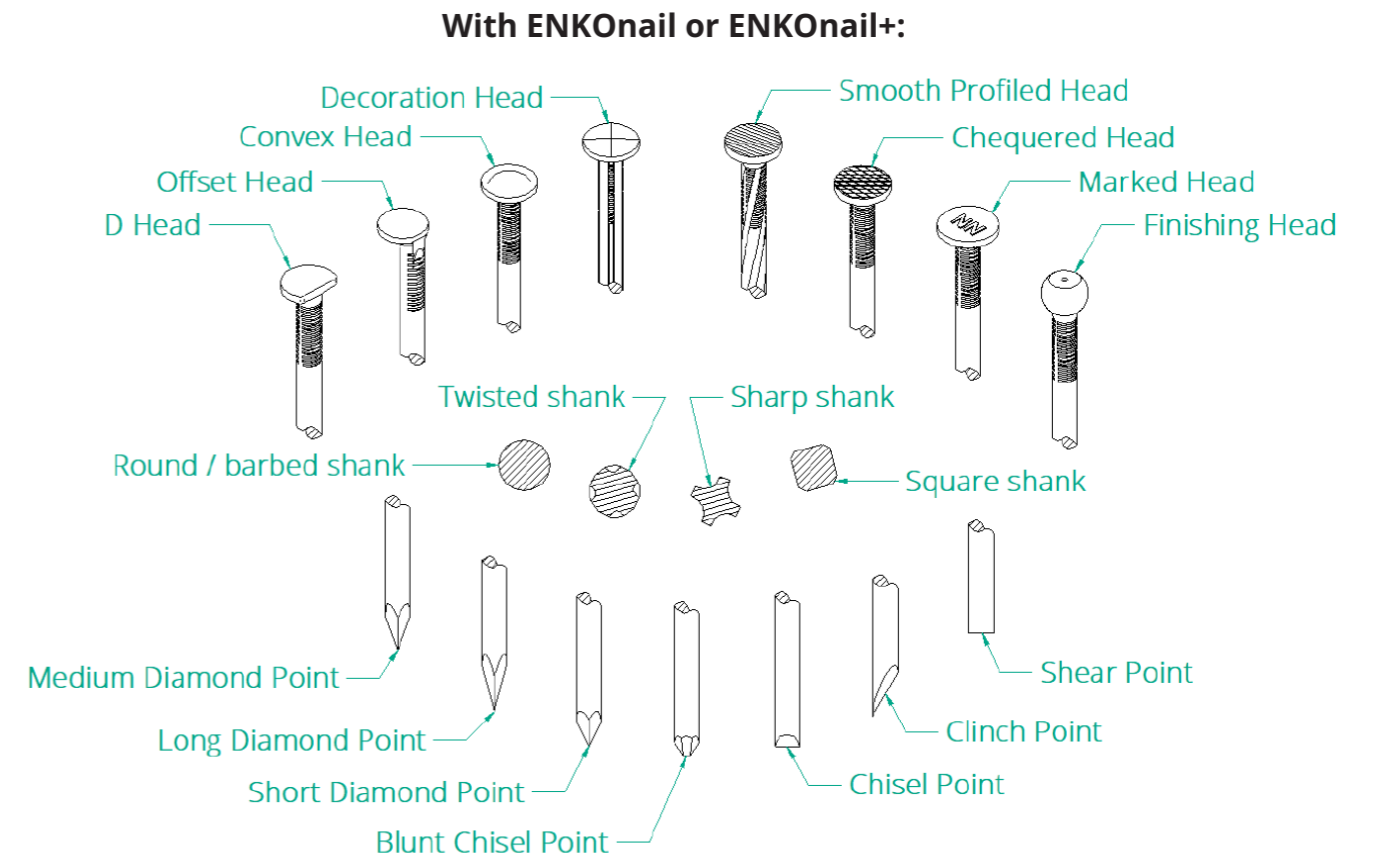
- Maximum line efficiency
- Controlled material flow
- Optimised space utilization
- Reduced manual handling
- Higher Overall Equipment Effectiveness (OEE)

Whether starting with a single machine or building a fully integrated production line, ENKOTEC solutions are engineered to scale. We grow with our customers, supporting performance, expansion and optimisation at every stage.



## What can you produce with ENKOTEC machines?

ENKOTEC machines let manufacturers produce a wide range of nails with different heads, shanks, points and collation options for construction, pallets, roofing, and specialty uses. They offer high speed, precision, and flexible setups to match production needs worldwide.



## The Rotary Principle Explained

ENKOTEC nail machines are based on a unique rotary forming principle that differs fundamentally from conventional nail manufacturing technology.

Traditional nail machines use a “cut-and-hammer” process, where each nail is produced one at a time. The wire is fed into the machine, the nail head is formed by impact, and the wire is then clipped to form the point before the cycle begins again.

ENKOTEC rotary machines operate in a continuous process:

The wire is straightened, cut to length and transferred through a rotating die ring, where the nail heads are formed in a smooth rolling motion.

This continuous production flow allows nails to be manufactured at significantly higher speeds while maintaining excellent consistency and quality.

The rotary forming principle means:

- Triple capacity
- Better nail quality
- Reliable production
- Smaller footprint
- Increased user-friendliness
- Fewer operators needed
- Oil-free process

## ENKOnail+ NX03 Series Nail Machines

Building on ENKOTEC's proven rotary forming principle, the ENKOnail+ series is the next generation of high-performance nail manufacturing machines. Designed for efficiency, precision and reliability, the ENKOnail+ delivers consistently high output while maintaining excellent nail quality.

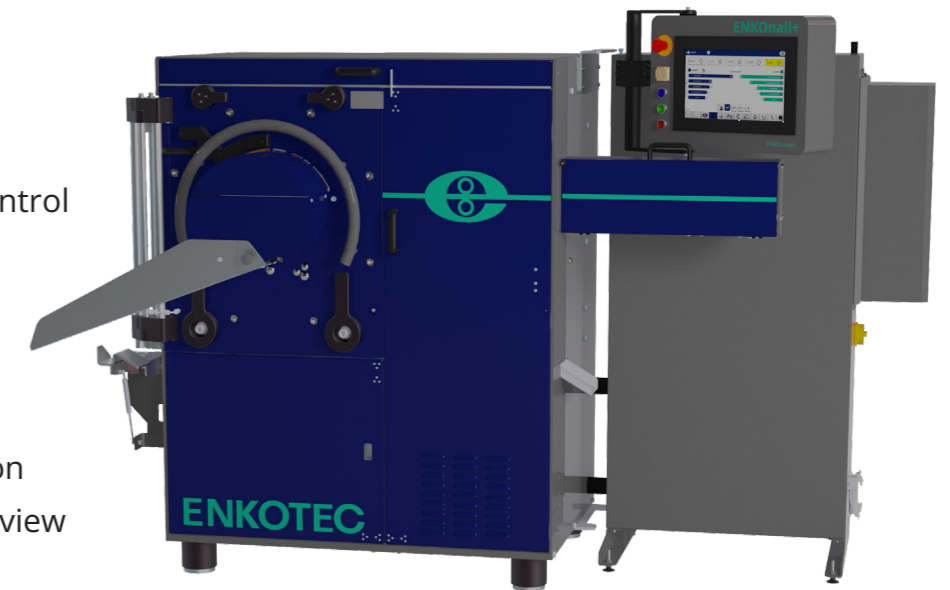
With the integration of the ENKOsmart software platform, the ENKOnail+ brings digital intelligence to nail production. Advanced sensor technology enables real-time monitoring of machine performance and supports data-driven decision-making to optimise production efficiency.

The ENKOnail+ machines feature a modernised tooling system and an integrated PLC control system with an intuitive touchscreen interface for machine adjustments, performance monitoring and troubleshooting. The nail machine comes with an ENKOpayoff, with the controls fully integrated into the nail machine, ensuring stable and controlled wire feeding.

Thanks to the rotary production process, the ENKOnail+ series achieves exceptionally high production speeds.. Combined with ENKOsmart, operators gain greater insight and control, enabling your team to maximise productivity and maintain consistent production performance.

### Key Advantages

- High production capacity
- Low production costs
- Sensor-based nail quality control
- Stable production process
- High machine utilisation
- Long tooling lifetime
- Automated manufacturing
- Oil-free, low-noise production
- Real-time performance overview
- Interactive digital manual
- Intuitive operator interface



ENKOnail+ NX03 Machine Types												
	NS03	NP03	NH03	NR03	NK03	NI03	NJ03	NQ03(-D)	NU03	NT03-D	NM03	NL03
<b>Capacity</b> (nails per minute)	2,000	2,500	2,000	2,000	1,800	1,500	1,250	1,650	1,500	1,650	1,250	900
<b>Nail Length a) c)</b>	25-45 mm 1"-1¾"	30-55 mm f) 1¼"-2 1/8"	32-63 mm d) 1¼"-2½"	38-63 mm d) 1½"-2½"	38-88 mm e) 1½"-3½"	38-88 mm e) 1½"-3½"	38-63 mm 1½"-2½"	38-88 mm e) 1½"-3½"	40-90 mm 1 5/8"-3½"	50-90 mm 2"-3½"	60-101,6 mm 2¾"-4"	75-130 mm 3"-5 1/8"
<b>Shank Diameter</b> (Wire Ø)	1.8-2.3 mm .071"-.091"	1.8-2.3 mm .071"-.091"	1.8-2.5 mm .071"-.100"	2.2-2.9 mm .087"-.114"	2.2-2.9 mm .087"-.114"	2.4-3.84 mm .094"-.151"	2.4-4.0 mm .094"-.160"	2.2-3.4 mm b) .087"-.134"	2.4-3.84 mm .094"-.151"	2.4-3.2 mm .094"-.126"	2.8-4.2 mm .110"-.165"	2.8-4.2 mm .110"-.165"
<b>Compressed Air</b> 6 Bar/87 psi	500 l/min./132.1 gpm /30 m³/h		250l/min./92.4 gpm/21 m³/h	200 l/min. / 52.8 gpm / 12.0 m³/h							350 l/min./92.4 gpm/15 m³/h	
<b>Motor Size</b>	7,5 kW											
<b>Tensile Strength</b> (Recommended)	Wire Ø < 2.5 mm / .100": 800-900 N/mm² or 116,000-130,000 psi Wire Ø > 2.5 mm / .100": 750-850 N/mm² or 109,000-123,000 psi											
<b>Weight</b>	2,320 kg											
<b>Dimensions</b> (L X W X H)	2,500 x 1150 x 1,700 mm											
<b>Upset Ratio (L/d)</b>	Max 2.5											

a) Max. nail lengths depending on nail specs. b) Max. nail diameter depending on nail specs. c) Nail sensor is applicable for nail lengths > than 42 mm. d) Nail lengths 65 mm under special conditions. e) Nail lengths 90 mm under special conditions. f) Nail lengths 57 mm under special conditions. g) Nail shank diameters up to Ø 4.00 mm on request.

## ENKOnail MX01 Series Nail Machines

Built with ENKOTEC's proven rotary forming principle, the ENKOnail series delivers reliable and efficient nail manufacturing for a wide range of production requirements. Designed for stable operation and cost-effective production, the machines provide consistently high output while maintaining excellent nail quality.

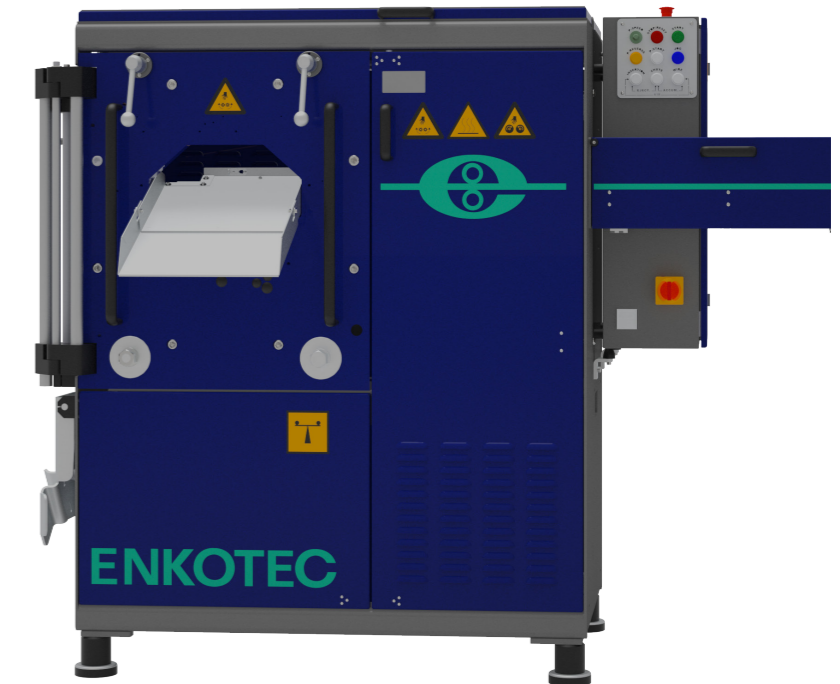
The ENKOnail series is particularly well suited for short and medium-size production runs, offering flexibility without compromising performance. Its robust mechanical design ensures dependable operation and long service life in demanding production environments.

The machine comes with an ENKOpayoff, with integrated controls, ensuring controlled wire feeding directly within the nail machine. The turntable is driven by a helical bevel geared motor, providing smooth and reliable power transmission. Production speed is regulated by a speed control arm, allowing precise adjustment during operation.

With the efficiency of the rotary process and a robust mechanical design, the ENKOnail series provides a dependable solution for high-quality reliable nail production with low operating costs.

### Key Advantages

- High production capacity
- Low production costs
- Stable production process
- High machine utilisation
- Long tooling lifetime
- Automated manufacturing
- Oil-free, low-noise production
- Fast tooling changeovers



ENKOnail MX01 Machine Types			
	MI01	MM01	MMH01
<b>Capacity</b>	1,000 nails per minute	850 nails per minute	780 nails per minute
<b>Nail Length <sup>a)</sup></b>	38-88 mm / 1½"-3½" <sup>b)</sup>	60-101,6 mm / 2 <sup>3</sup> / <sub>8</sub> "-4"	70-101,6 mm / 2 <sup>3</sup> / <sub>4</sub> "-4"
<b>Shank Diameter (Wire Ø)</b>	Ø 2.0-3.8 mm / .079"-.150"	Ø 2.8-4.2 mm/ .110"-.165"	Ø 3.6-4.5 mm / .142"-.177"
<b>Compressed Air</b>	200 l/min./52.8 gpm/12m <sup>3</sup> /h 6 bar/87 psi		250 l/min./66.1 gpm/ 15m <sup>3</sup> /h 6 bar/87 psi
<b>Tensile Strength Recommended</b>	Wire Ø < 2.5 mm: 800-900 N/mm <sup>2</sup> or 116,000-130,000 psi Wire Ø > 2.5 mm: 750-850 N/mm <sup>2</sup> or 109,000-123,000 psi		Wire Ø < 4.2 mm: 750-850 N/mm <sup>2</sup> or 109,000-123,000 psi Wire Ø > 4.2 mm: 600-700 N/mm <sup>2</sup> or 87,000-102,000 psi
<b>Motor Size</b>	9.0 kW		
<b>Weight</b>	1,700 kgs/3,750 lbs		
<b>Dimensions (L X W X H)</b>	1,990 x 1,080 x 1,570 mm 6' 6.4" x 3' 6.5" x 5' 1.8"		
<b>Upsetting Ratio (L/d)</b>	Max 2.5		

**a)** Max. nail length depending on nail specifications. **b)** Nail lengths up to 90 mm under special conditions.

## ENKOpayoff Wire Decoiling Unit

The ENKOpayoff is a wire payoff (decoiling) unit supplied with every ENKOTEC nail manufacturing machine. It ensures stable wire feeding and optimal wire rod utilisation, supporting smooth and reliable production.

The ENKOpayoff gets its name from the fact that it quite literally “pays off” to have one. Designed specifically for ENKOTEC’s high-speed nail manufacturing machines, it provides consistent wire supply for stable machine operation.

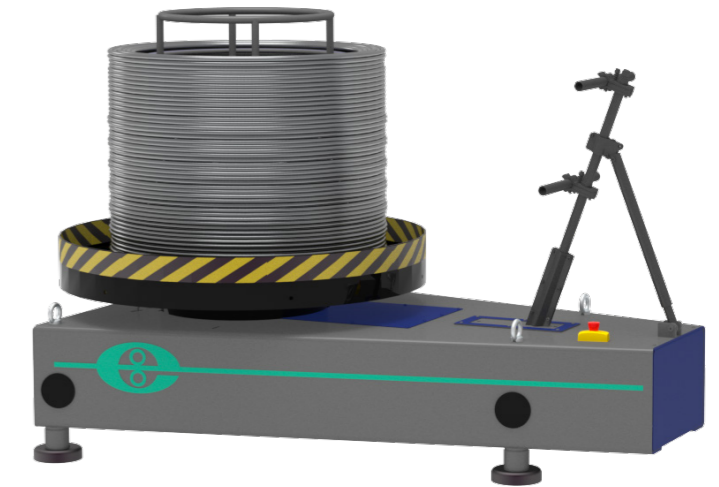
The turntable is driven by a helical bevel geared motor, while a speed control arm with a non-contact sensor automatically adjusts the rotation speed according to the wire demand from the nail machine. An electro-magnetic spring-loaded brake stops the turntable instantly when the unit is switched off.

Two control configurations are available: PD01, with a PLC-controlled touchscreen integrated into ENKOnail+ and ENKOnail machines, and PD02, supplied with an external control unit.

An optional ENKOTEC wire coil stand allows easy handling and secure positioning of strapped wire coils without drums. For high-speed operation, the use of a protective fence or ENKOfence is recommended to ensure maximum operator safety.

### Key Advantages

- Stable and controlled wire feeding
- Optimised wire rod utilisation
- Helical bevel geared motor drive
- Non-contact sensor speed control
- Electro-magnetic safety brake
- Integrated PLC control (PD01) or external control unit (PD02)
- Optional wire coil stand for drumless coils



### ENKOpayoff Specifications

ENKOpayoff Specifications	
<b>Weight of coil/reel (W)</b>	Max 2,000 kg / 4,400 lbs
<b>Outside diameter of coil/reel (D)</b>	1,000 mm/39" (1,300 mm/51" on request)
<b>Inside diameter of coil/reel (d)</b>	Min 380 mm / 15" - Max 620 mm / 23" *)
<b>Height of coil/reel (H)</b>	$H \leq D \times 1.2$
<b>Height of turntable</b>	490 mm / 19"
<b>Diameter of turntable</b>	1,000 mm / 39" (1,300 mm / 51" on request)
<b>Total weight of payoff</b>	500 kg / 1,100 lbs
<b>Number of rotations, turntable</b>	0-150 rpm
<b>Braking time</b>	3 seconds

\*) For machines with payoff coils of quickly varying diameter, wire speeds of 2.2 m/sec should not be exceeded.

## ENKOrroll Thread Rolling Machines

The ENKOrroll TR01 thread rolling machine is designed for the high-speed production of nails with screw shank (**SS**) or ring shank (**RS**) profiles. Built for reliability and precision, the TR01 ensures consistent profile formation while maintaining high production efficiency.

Thanks to its unique feeding system, the ENKOrroll TR01 can achieve production speeds of up to 3,000 nails per minute. The actual capacity depends on the nail type, selected profile and feeding rate from the integrated feeder bowl, which is supplied with the machine.

Engineered for stable operation in demanding production environments, the ENKOrroll TR01 supports efficient thread rolling with minimal downtime.

The machine is equipped with connections for exhaust ventilation and cooling systems, ensuring stable operating conditions and a clean working environment.

With its robust design and high processing speed, the ENKOrroll TR01 provides a reliable and cost-effective solution for producing high-quality threaded nails.

### Key Advantages

- High production speed
- Precise and consistent nail profiling
- Cost-effective production
- Stable and reliable operation
- Fast tooling changeovers
- Clean working environment
- Low noise level
- Intuitive digital interface (HMI) for machine adjustments
- Remote connectivity to HMI for service and support
- Digital manual integrated in the HMI



### ENKOrroll Specifications

	TR01-ST	TR01-ST DH/Offset	TR01-SH Ring Shank	TR01-SH Screw Shank
Wire diameter	Ø2.3 – Ø4.50mm 0.090"-0.177" <i>(4 feeding screws for different nail diameter intervals)</i>	Ø2.75 – Ø3.40mm 0.108"- 0.133" <i>(1 feeding screw covers the entire nail diameter range)</i>	a) Ø2.10 – Ø2.35mm / 0.083" – 0.093" b) Ø2,30 – Ø3,05mm / 0.091" – 0.120" <i>(2 feeding screws for different nail diameter intervals)</i>	<b>Contact ENKOTEC for details</b>
Nail length	<b>RS:</b> 38–105 mm/1.5" – 4.1" <b>SS:</b> 45–105 mm/1.77" – 4.1"	50–100mm 1.97"- 3.94"	a) 27–57mm / 1.07"-2.25 b) 29-57mm / 1.14"-2.25"	
Profile height (max-min)	33 - 76 mm 1.3"-3.0"	45 - 76 mm 1.8"-3.0"	a) 22–52mm / 0.87"-2.05" b) 24–52 mm / 0.95"-2.05"	
Max. Capacity*	<b>RS:</b> 3000 nails per minute <b>SS:</b> 2500 nails per minute	1750 nails per minute	2500 nails per minute	
Tooling type	Type 75, Ring 7", 5.5", -3", Shoe Type 75-3			
Dimensions	1950mm x 1120mm x 1840mm / 77.0" x 44.0" 72.5"			
Main motor	18kW, 900Nm			
Compressed air	Approx. 215 l/min. / 13 m <sup>3</sup> /h / 5,5 bar / 87 psi			
Machine weight	1840 kg / 4057 pounds			

\* Depending on nail sizes, head types and nail feeder capacity.

## ENKOLLator: Wire Coil Collator CWC03

Building on ENKOTEC's expertise in high-speed nail production, the ENKOLLator type CWC03 is the next-generation wire coil collator designed for efficiency, precision, and reliability. Engineered with servo-driven cutting and coiling units, it produces bright and electro-galvanized coil nails with smooth shank, ring shank, screw shank, and spiral shank, delivering consistent quality at high throughput.

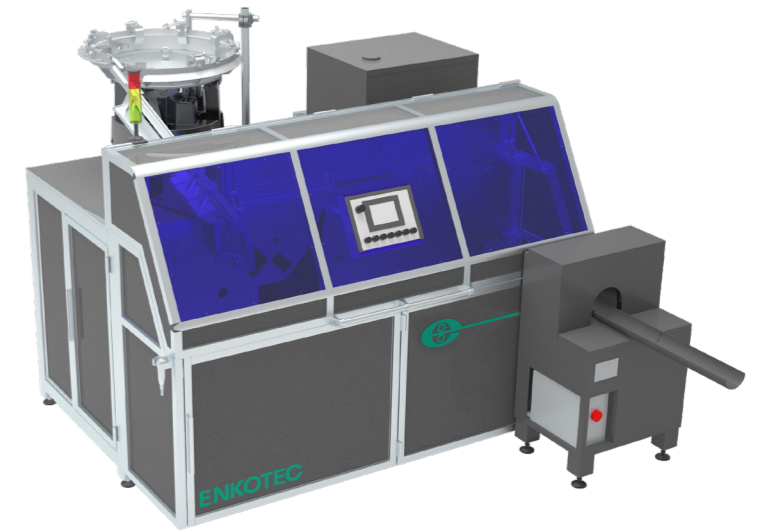
Loose nails are fed from the ENKOTEC-designed feeder bowl into a pair of guide tracks and transported to two rotating welding electrodes, where resistance welding connects the nails at speeds of up to 3,000 nails per minute. After welding, strips are cut to the required length and automatically coiled. Finished coils can be removed manually or automatically using an optional extension unit, with additional modules available for:

- jumbo coils up to Ø220 mm
- high-load coils up to Ø370 mm
- conical coils
- automatic coil strapping
- high-power welding unit for galvanized nails

The ENKOLLator CWC03 combines advanced servo-drive technology with compact construction and operator-friendly design. Machine parameters are fully adjustable and storable via HMI, while a closed cooling circuit ensures highly stable welding performance and extended tool lifetime.

### Key Advantages

- High production efficiency with low energy consumption
- Servo-driven automation for precise operation
- Compact footprint for space-saving installation
- Operator-friendly, built on extensive experience
- Minimal changeover times for maximum uptime
- Extremely long tool lifetimes
- Closed-circuit cooling for consistent welding performance
- Integrated inline coating unit



### ENKOLLator CWC03 Specifications

ENKOLLator CWC03 Specifications	
<b>Output per Minute</b>	<i>Up to 3,000 nails</i>
<b>Nails per Coil</b>	<i>Up to 1,500 pcs. depending on nail size</i>
<b>Nail Length</b>	<i>25 - 100 mm / 1" - 3.9"</i>
<b>Wire Diameter</b>	<i>Ø2.0 - 4.0 mm / 0.079" - 0.157"</i>
<b>Air Consumption</b>	<i>Approx. 800 l/min. / 210 gpm. / 48 m<sup>3</sup>/h / 6 bar / 87 psi.</i>
<b>Power Consumption</b>	<i>From 2,2 KW/h depending on nail size</i>
<b>Dimensions</b>	<i>L=2,500 mm, W=1,800 mm, H=2,200 mm L = 8' 3", W = 6', H = 7' 3"</i>
<b>Weight</b>	<i>1,500 kg / 3,307 lbs.</i>

## ENKOLLator: Plastic Strip Collator CPS01

The ENKOLLator CPS01 harnesses ENKOTEC's engineering expertise to deliver a high-performance plastic strip collator designed for precision, efficiency, and reliability. Engineered and built by BAUSSMANN, the CPS01 uses servo-driven technology across all processes to produce plastic-collated nails at speeds of up to 2,000 nails per minute.

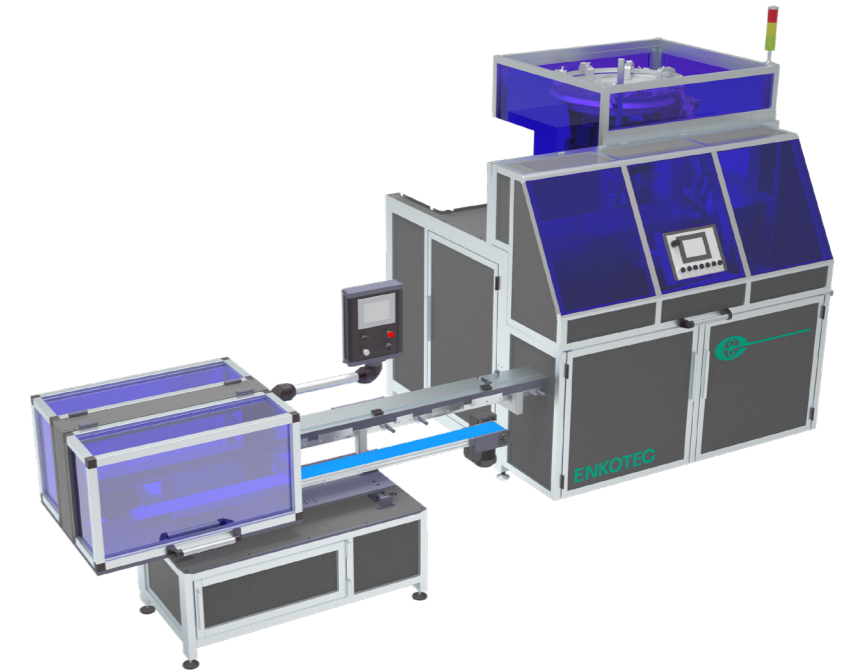
The machine handles bright, electro-galvanized, hot-dipped galvanized, and stainless steel nails, in smooth, ring, or screw shank variants. Loose nails are fed into the machine via the ENKOTEC- designed feeder bowl into guide tracks, where they are positioned accurately and transported to two plastic extruding heads. Water-cooled pressure wheels shape and cool the plastic into a durable strip. After forming, the strip is cut to length and coated using a dosing pump.

The optional PSC02 strip handling unit takes over the coated nail strips from the CPS01, storing them in a rotating wheel for proper drying. Once dried, strips are stacked in up to 10-strip stacks on a conveyor, where operators can easily pick and pack them into cartons.

Compact, operator-friendly, and engineered for consistent high performance, the ENKOLLator CPS01 ensures minimal scrap, high OEE, and smooth integration into production lines. Machine adjustments are intuitive via touch panel, while the closed cooling circuit guarantees stable operation during the plastic moulding process.

### Key Advantages

- High efficiency with low energy consumption
- Servo-driven automation for precise operation
- Operator-friendly construction built on extensive experience
- Minimal changeover times for maximum uptime
- Extremely long tool lifetimes
- Low scrap and high overall equipment effectiveness (OEE)
- Closed cooling circuit for stable plastic forming



ENKOLLator CPS01 Specifications	
<b>Output per Minute</b>	<i>Up to 2,000 nails</i>
<b>Nails per Strip</b>	<i>20 – 40 pcs</i>
<b>Nail Length</b>	<i>45 – 100 mm / 1.77"– 3.9"</i>
<b>Wire Diameter</b>	<i>Ø2.5– 4.0 mm / 1"– 0.157"</i>
<b>Air Consumption</b>	<i>Approx. 800 l/min. / 210 gpm. / 48 m³/h 6 bar / 87 psi.</i>
<b>Power Consumption</b>	<i>From 2,2 KW/h</i>
<b>Dimensions</b>	<i>L=2,318 mm, W=2,160 mm, H=2,599 mm L = 7' 7", W = 7' 1", H = 8' 6"</i>
<b>Weight</b>	<i>2,100 kg / 4,629 lbs.</i>

## ENKOLLator: Paper Tape Collator CTS02

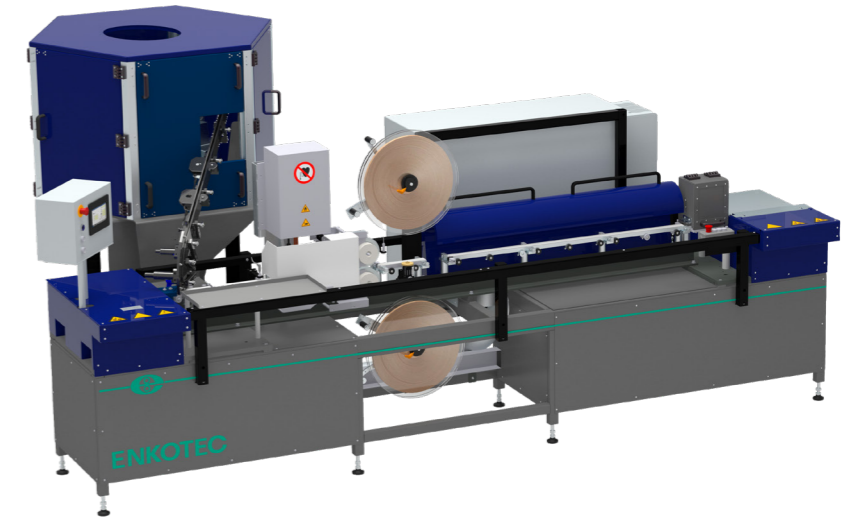
The ENKOLLator CTS02 is a high-capacity paper tape collator engineered for precision, efficiency, and reliable performance in modern nail production. The CTS02 can operate as a standalone unit or as part of an in-line setup, providing maximum flexibility for a variety of production environments. With speeds of up to 1,650 nails per minute, production capacity depends on nail dimensions and the feeding rate of the ENKOTEC-designed high-capacity feeder bowl.

The machine features a robust, operator-friendly design, offering easy access to all key processes. Nail flow from the feeder to the collator is fully optimized for specific nail ranges, and fine-tuning the nail angle is straightforward, ensuring consistent, high-quality collated strips. The CTS02 can handle both D-head and Offset nails with exceptional head rotation and alignment, guaranteeing perfect function in the nail gun. For increased efficiency, high-volume tape coils can be used to minimize changeover times.

The CTS02 is equipped with a standalone induction heater, chiller, and cooling system to ensure stable tape adhesion and consistent strip quality. ENKOTEC also provides an optional inline standalone tip coating unit, which integrates directly with the collator for precise nail tip treatment. In addition, the ENKOClean Vibron cleaning system can be used to wash and dry nails prior to collation, further enhancing tape adhesion and reducing production waste. All units are CE marked, and a noise-reduction cabin around the feeder is available as an optional feature for quieter operation.

### Key Advantages

- Cost-effective and efficient production
- High-quality, reliable nail collating
- ENKOTEC-designed high-capacity feeder bowl
- Scrap minimisation through optimised machine design
- Easy strip angle adjustments
- Excellent head alignment for perfect nail function
- High cooling capacity for consistent tape adhesion
- Intuitive HMI touch panel for operation and adjustments



### ENKOLLator CPS01 Specifications

ENKOLLator CPS01 Specifications	
<b>Output per Minute</b>	Up to 2,000 nails
<b>Nails per Strip</b>	20 – 40 pcs
<b>Nail Length</b>	45 – 100 mm / 1.77" – 3.9"
<b>Wire Diameter</b>	Ø2.5 – 4.0 mm / 1" – 0.157"
<b>Air Consumption</b>	Approx. 800 l/min. / 210 gpm. / 48 m <sup>3</sup> /h 6 bar / 87 psi.
<b>Power Consumption</b>	From 2,2 KW/h
<b>Dimensions</b>	L=2,318 mm, W=2,160 mm, H=2,599 mm L = 7' 7", W = 7' 1", H = 8' 6"
<b>Weight</b>	2,100 kg / 4,629 lbs.

## ENKOclean: Vibron Nail Washing System

The ENKOclean Vibron has been specifically designed to complement the ENKOLLator CTS02 paper tape collator, ensuring optimal nail cleaning and drying for high-quality collated strips. It can operate either in-line with the CTS02 or as a standalone unit, delivering a production speed of up to 2,000 nails per minute, with capacity dependent on nail size.

Nails are thoroughly washed in a vibrating phosphate solution, removing impurities and preparing the surface for optimal tape adhesion. Drying is performed in a vibration spiral using corn cob mesh (30–40) combined with heated air, completing the full wash and dry cycle in approximately 20 minutes. This ensures nails are clean, dry, and ready for collating with consistent quality.

The ENKOclean Vibron system includes:

### Vibrating Washing Machine

- Reinforced, heat-treated steel tub for durability
- Polyurethane lining with AISI 304 stainless steel outer skin
- Double-sided motor vibration system for uniform cleaning

### Vibrating Cob Dryer

- Body constructed from AISI 304 stainless steel
- Inlet dripping canal with integrated rinsing section
- Outlet sieving canal for efficient separation of drying media

### Recycling Tanks (Washing and Rinsing)

- AISI 304 stainless steel construction for corrosion resistance
- 380-litre capacity
- Nibs recovery basket in AISI 304 stainless steel
- Min and max level gauge control for safe and consistent operation

### Key Advantages

- Cost-effective and efficient production
- High-quality, reliable nail collation
- ENKOTEC-designed high-capacity feeder bowl
- Scrap minimisation through optimised machine design
- Easy strip angle adjustments
- Excellent head alignment for perfect nail function
- High cooling capacity for consistent tape adhesion
- Intuitive HMI touch panel for operation and adjustments



### ENKOclean Vibron Specifications

ENKOclean Vibron Specifications	
<b>Wire Diameter</b> <i>(Intervals)</i>	Ø2.1 – 4.2 mm
<b>Nail Length</b>	38 – 105 mm
<b>Capacity</b>	Up to 2,000 nails per minute
<b>Dimensions</b> <i>(L x W x H)</i>	2,950 x 2,950 x 1,700 mm
<b>Power Consumption</b>	15 KW

## ENKOpack: Vision / Robot Packing ASP01

The ENKOpack ASP01 is an automated strip packing unit designed to operate in combination with the ENKOTEC CTS02 paper collator, providing efficient and reliable packing of collated nail strips.

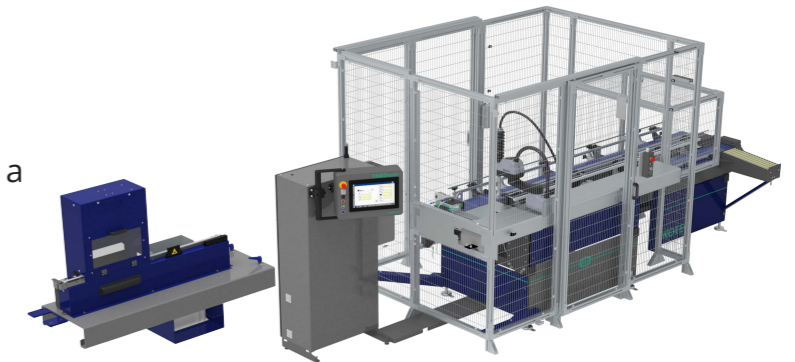
Developed for high productivity, the ENKOpack: ASP01 enables a complete collating and packing line to be operated with minimal operator involvement. In a configuration with two ENKOTEC lines, a single operator can manage an output of up to 3,300 nails per minute, significantly improving production efficiency.

The machine packs one strip per cycle at speeds of up to 55 strips per minute, delivering precise and consistent horizontal stacking of strips into cartons. The flexible packing system accommodates a wide range of box formats, including cartons with or without handles.

To ensure consistent product quality, all strips are vision inspected in a closed cabinet before the packing process begins. Any strip outside specification is automatically rejected before entering the carton. A bypass function allows operators to access the packing area when required, without interrupting the nail flow from the collator, helping maintain continuous production.

### Key Advantages

- High-speed packing of individual nail strips (up to 55 strips/minute)
- Automated packing with minimal operator supervision
- Flexible horizontal strip stacking into a wide range of carton types
- Vision inspection of all strips before packing
- Automatic rejection of strips outside specification
- Intuitive HMI touch panel with packing and quality recipes



ENKOpack Automated Strip Packing ASP01	
<b>Output</b>	Up to 55 strips per minute
<b>Nail Types</b>	D-head, Offset head
<b>Strip length</b>	Min 100 mm Max 200 mm / Min 4" Max 8" Point to Point
<b>Nail Length</b>	50 - 100 mm / 2" - 3 15/16"
<b>Dimensions ex. Electrical cabinet</b>	L=4,025 mm, H=2,240 mm, W=2,060 mm / 13' 2,5" x 7' 4,2" x 6' 9,1"
<b>Weight</b>	825 kg / 1,819 lbs.
<b>Compressed Air</b>	Approx. 272 l/min. / 72 gpm. / 16,3 m <sup>3</sup> /h / 6 bar / 72 psi.
<b>Box Sizes</b>	L=190-305 mm, H=65-165mm, W=100-260 mm / 7.5"-12.0" x 2.6"-6.5" x 3.9"-10.2"
<b>Total Length (for collator, vision, coating, and robot)</b>	CTS02 + Vision + coating + ASP01 = 12,050mm / 39' 6,4"

ENKOpack Vision inspection	
<b>Vision Control</b>	Angle - Tape Placement - Head Alignment - Nail in Strips
<b>Electric control.</b>	Supply only from ASP01 electrical cabinet
<b>Strip Length (Point to Point)</b>	Min 100 mm Max 200 mm / Min 4" Max 8"
<b>Nail Length</b>	50 - 100 mm / 2"- 4"
<b>Dimensions</b>	L=1,630 mm, H=1,150 mm, W=540 mm / 5' 4,2" x 3' 9,3" x 1' 9,3"
<b>Weight</b>	160 kg / 1,181 lbs.

## ENKOpack: NCP02

The ENKOpack NCP02 is an automated nail counting and packaging system designed for efficient in-line operation with ENKOTEC nail manufacturing machines and thread rolling machines. The system enables continuous production by accurately counting and packing nails directly from the production process.

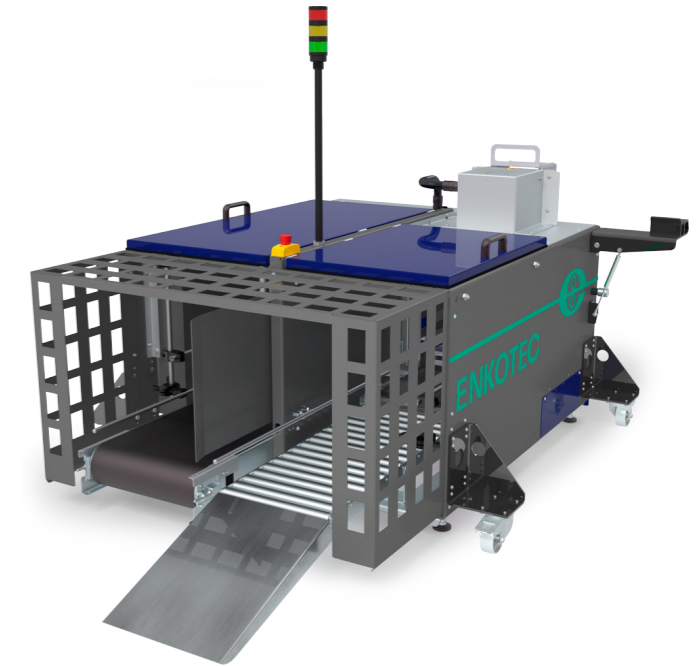
Nail counting is controlled via a signal (10–24V) from the preceding machine, ensuring synchronised operation and reliable process control. The NCP02 automatically feeds empty cartons, fills them with the predefined number of nails and transports them onwards via integrated conveyor systems.

To ensure optimal packing density, the system features a programmable vibrating unit, which compacts the nails efficiently within the carton.

The flexible design allows seamless integration into a complete automated production line, supporting consistent output and efficient material handling. With its accurate counting system and robust automation, the ENKOpack NCP02 provides a reliable and flexible solution for high-quality nail packaging.

### Key Advantages

- Fully automated feeding, filling and transport of nail cartons
- Accurate nail counting ( $\pm 10$  nails) with pre-selection capability
- Synchronised operation with upstream machines
- Programmable vibration for optimal carton filling
- Reliable PLC-controlled process
- Clear system status indication via tower light



ENKOpack: NCP02 Specifications	
<b>Carton Size</b>	Length: 75 - 305 mm / 3" - 12" Width: 100 - 305 mm / 4" - 12" Height: 90 - 435 mm / 3.5" - 17" *) The carton/box must have 2 flaps
<b>Weight Capacity</b>	Max. approx. 25.00 kg Min. 1.00 - 1.25 kg Depending on machine type and nail dimension
<b>Accuracy</b>	$\pm 10$ nails
<b>Box Capacity</b>	Max. 10 boxes/minute Plastic or cardboard
<b>Dimensions</b>	L=1515 mm / 59.6", B=1385 mm / 54.5", H=1330 mm / 52.4"
<b>Weight</b>	340 kg / 750 lbs.
<b>Compressed Air</b>	Approx. 120 l/min. / 32 gpm. / 7 m <sup>3</sup> /h 6 bar / 87 psi.

\*) Height measured as carton height with open upper flaps and depending on carton length & width.

## ENKOpack: NCP03

The ENKOpack NCP03 is a flexible nail counting and packaging system designed for seamless in-line operation with ENKOTEC nail manufacturing machines. By receiving a counting signal (10–24V) from the upstream nail machine, the system ensures accurate and synchronised packaging directly from production.

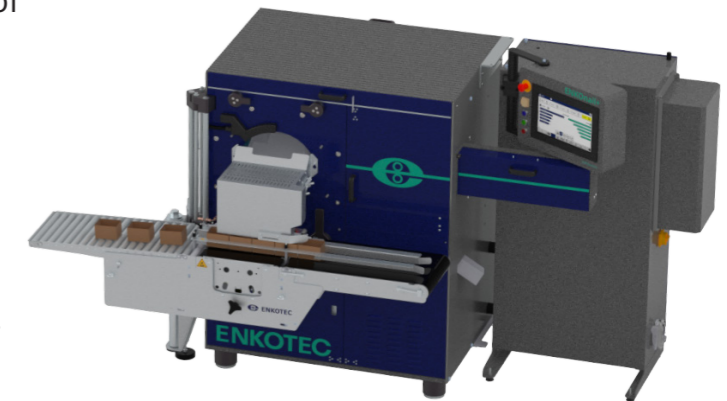
The NCP03 automatically feeds, fills and transports both cartons and bags, providing a versatile solution for different packaging requirements. Nails are counted and dosed precisely before being compacted using a programmable vibrating unit, ensuring efficient filling and optimal packing density.

Designed for integration into fully automated production lines, the ENKOpack NCP03 supports continuous operation with a high degree of flexibility. Depending on the machine configuration, operation and setup can be managed either directly via the integrated touchscreen interface or via a local control panel, ensuring intuitive and efficient control.

With its combination of accurate counting, flexible packaging formats and seamless machine integration, the ENKOpack NCP03 provides a reliable solution for automated nail packaging.

### Key Advantages

- Automated feeding, filling and handling of cartons and bags
- Accurate nail counting ( $\pm 10$  nails) with pre-selection capability
- Flexible packaging formats for different production needs
- Reliable PLC-controlled counting process
- Integrated operation via machine touchscreen or local control panel
- Clear system status and operator guidance



ENKOpack NCP03 Specifications	
<b>Box/Bag</b>	Length: 75 - 305 mm / 3" - 12" Width: 100 - 305 mm / 4" - 12" Height: 90 - 435 mm / 3.5" - 17" *) The box must have 2 flaps Bags must be within box size limits during filling
<b>Weight Capacities</b>	Box: Min. 1 - 1.25 kg / Max. approx. 25 kg Bag: Min. 10 kg / Max. approx. 25 kg Depending on machine type and nail dimension
<b>Accuracy</b>	$\pm 10$ nails
<b>Box &amp; Bag Capacities</b>	Max. 10 boxes/minute / Max. 2 bags/minute Plastic or cardboard box
<b>Dimensions</b>	L=1,990 mm / 78.3", Width=512 mm / 20.1" (1,376 mm / 54.2") **) H=1,492 mm / 58.7" (**) When NCP03 is open for access to nail machine
<b>Weight</b>	180 kg / 396 lbs.
<b>Compressed Air</b>	Approx. 120 l/min. / 32 gpm. / 7 m <sup>3</sup> /h 6 bar / 87 psi.

\*) Height measured as carton height with open upper flaps and depending on carton length & width.

## ENKOveyor: Magnetic

The ENKOveyor: Magnetic, type CM01, is a magnetic conveyor designed for the efficient transportation of ferromagnetic nails between ENKOTEC machines. It enables the seamless transfer from the nail machine to downstream equipment such as thread rolling machines, collators or other in-line systems.

The conveyor is equipped with a vibrating hopper, available with capacities of 150 kg or 500 kg (other sizes available on request). A level sensor with adjustable hopper speed ensures controlled material flow and stable feeding throughout the production process.

Constructed in stainless steel, the ENKOveyor: Magnetic is designed for automated and reliable operation in demanding environments and integrates easily into complete ENKOTEC production lines. The conveyor system is controlled directly from the receiving machine, ensuring synchronised and efficient operation.

Based on a magnetic conveying principle with no moving parts, the ENKOveyor offers low maintenance requirements and high operational reliability. The conveyor comes in two standard sizes:

- Size 1 – suited for ENKOClean washing and drying systems (12 MAG)
- Size 2 – suited for ENKOTEC thread rolling machines and collators (17 MAG)

*Additional sizes and customised solutions available on request.*

### Key Advantages

- Seamless in-line integration with ENKOTEC production systems
- Reliable material flow with sensor-controlled hopper speed
- Magnetic conveying system with no moving parts
- Low maintenance and high operational reliability
- Available in multiple sizes for different applications
- Optional stand-alone configuration



### ENKOveyor: Magnetic CM01 Technical Specifications

ENKOveyor: Magnetic CM01 Technical Specifications	
<b>Motor</b>	0,25 kW, 220/480V, 50 and 60 Hz
<b>Conveyor Speed</b>	Up to 3500 nails/min.
<b>Hopper Capacity</b>	150 kg/330 lbs. or 500 kg/1.100 lbs
<b>Demag. coil</b>	110V, 50 and 60 Hz
<b>Noise Level</b>	Less than 70 db (A)
<b>Weight</b>	350 kg/772 lbs

## ENKOveyor: Belt

The ENKOveyor belt conveyors are designed for efficient transportation of nails from ENKOTEC nail machines or thread rolling machines to boxes or bins. With a flexible and adjustable design, the conveyors can be adapted to a wide range of customer-specific layouts, ensuring reliable material flow and seamless integration into both stand-alone and in-line production setups.

Two versions are available, offering different levels of automation:

### ENKOveyor: Smart Belt – CB02

The ENKOveyor CB02 is an advanced belt conveyor featuring intelligent sensor-based control to support automated production, reduce operator intervention and improve overall equipment effectiveness (OEE). This belt can integrate with the ENKOsmart platform, unlocking more capabilities.

### ENKOveyor: Standalone Belt – CB03

The ENKOveyor CB03 is a robust and cost-efficient belt conveyor designed for simple and reliable nail transportation. This version is compatible with a range of machinery and has only basic transportation functionality.

### Key Advantages

- Reliable and efficient nail transport from machine to box or bin
- Flexible and adjustable design for a wide range of production setups
- Suitable for both stand-alone and in-line operation

### ENKOveyor Smart (CB02):

- Sensor-controlled operation for automated nail bin filling
- Automatic stop and start during bin change
- Integrated buffer capacity for continuous production
- Increased OEE through reduced operator intervention



### Technical Specifications

Technical Specifications	
<b>Motor</b>	<i>Drum motor 85 W, 400 V±10%@50 Hz or 460V±10%@60 Hz</i>
<b>Conveyor Speed</b>	<i>0,18 m/sec., capacity up to 20 kg/min.</i>
<b>Conveyor Belt</b>	<i>C-C 1500 mm, 280 mm wide high friction temperature resistant endless belt</i>
<b>Buffer capacity (CB02 ONLY)</b>	<i>Max 3500 nails</i>
<b>Dimensions</b>	<i>Max bin height 1000 mm, conveyor adjustable 0-32° up</i>
<b>Noise Level</b>	<i>Less than 70 dB(A)</i>
<b>Weight</b>	<i>70 kg/172 lbs</i>

# ENKOsmart Software Platform

## Digital Intelligence for Nail Production

ENKOsmart is ENKOTEC's digital software platform, developed to enhance and optimise nail manufacturing processes.

Fully integrated into the high-performance ENKOnail+ and ENKOrroll machines, the ENKOsmart platform combines advanced sensor technology with real-time monitoring to provide greater control over the production process. By tracking key parameters, the system enables immediate adjustments, ensuring consistent nail quality while reducing waste.

As a solution aligned with Industry 4.0, the ENKOsmart platform supports more efficient and data-driven manufacturing. The platform collects data on machine performance and connects it with actionable insights. This helps manufacturers improve productivity, reduce downtime and operate more responsibly.

ENKOsmart also streamlines daily operations with automatic start/stop functions, reducing the need for manual intervention and enabling more stable production flows.

### Key Advantages

- Real-time monitoring through advanced sensor technology
- Consistent nail quality through immediate process adjustments
- Automatic start/stop functions reducing manual intervention
- Reduced wire usage and scrap through quality control monitoring
- Intuitive touchscreen interface with access to production data
- Integrated digital manuals with video-based guidance
- Improved efficiency and reduced downtime



The ENKOsmart platform system features an intuitive touchscreen interface which is integrated into the machines. This provides easy access to machine controls, production data and maintenance tools. The interface also features digital manuals, including video tutorials, to guide operators through troubleshooting and routine tasks, and make operation more efficient and accessible.

In addition, the Quality Control module helps minimise wire usage and reduce scrap by monitoring production accuracy in real time. If nails fall outside of specification, the machine will stop automatically to prevent the continued production of incorrect products. This enables more efficient use of materials, less waste, and contributes to lower energy consumption.

By providing full visibility of the production process, the ENKOsmart software platform allows manufacturers to quickly troubleshoot and identify opportunities for optimisation — helping save both time and cost while maintaining high production standards.

# ENKOsmart Factory

## More Intelligent Manufacturing

Transform your nail production with ENKOsmart Factory, ENKOTEC's advanced Manufacturing Execution System (MES), designed to optimise performance, reduce downtime and enable data-driven decision-making across your entire production setup.

From real-time monitoring to long-term performance analysis, ENKOsmart Factory brings Industry 4.0 into your factory — helping you maximise output while minimising waste.

### What is ENKOsmart Factory?

ENKOsmart Factory is a Manufacturing Execution System that uses digital technology to collect, analyse and visualise production data. By monitoring daily operations, the system provides both a real-time overview and long-term insights into efficiency and manufacturing performance.

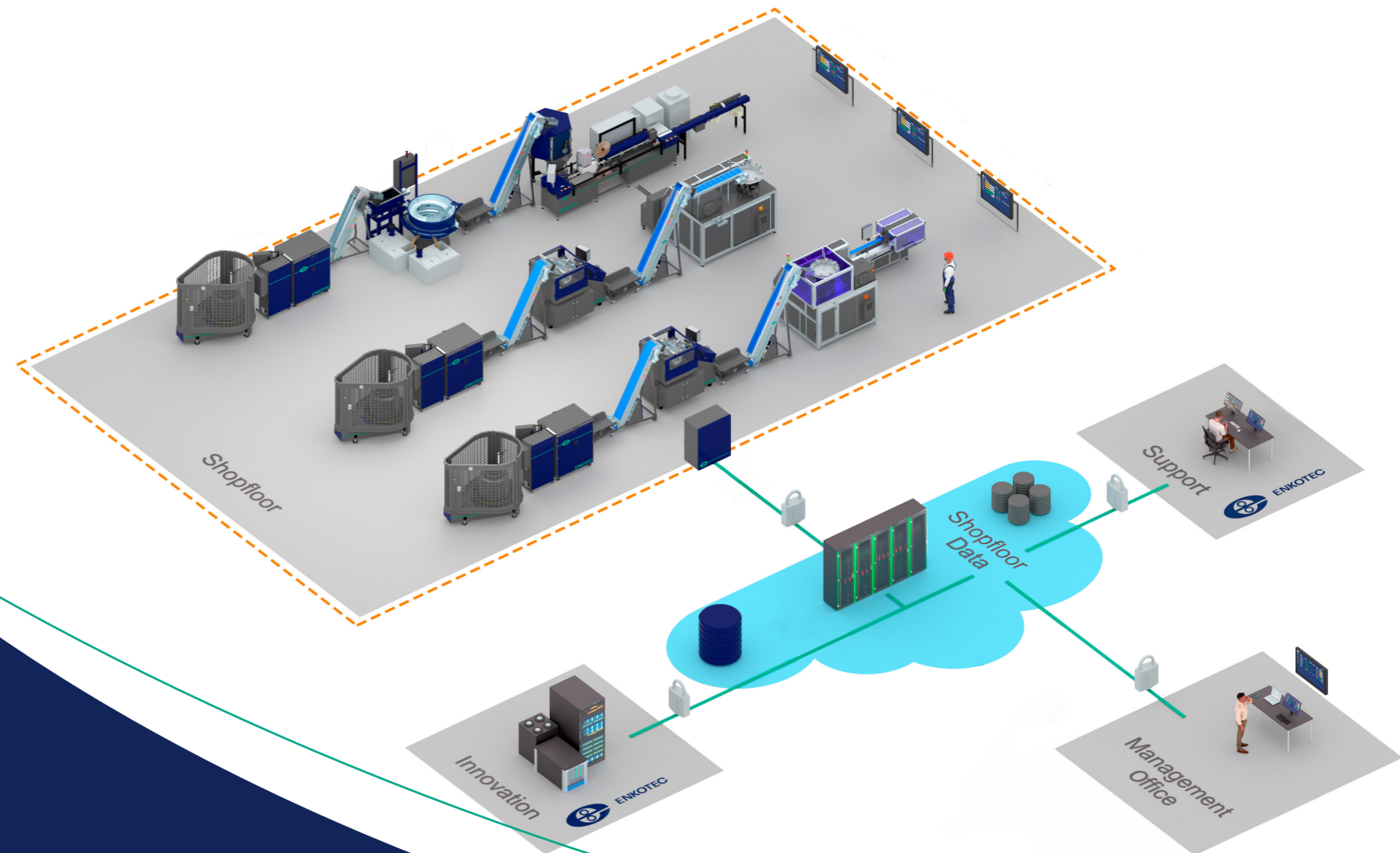
This enables manufacturers to better understand their processes, identify improvements and continuously optimise production.

### How It Works

Production data is collected through the ENKOsmart platform and sensors embedded in ENKOTEC machines.

The data is transmitted to a local collection point (databox) and then securely transferred to the ENKOTEC cloud, where it is processed and transformed into intuitive, easy-to-understand dashboards.

These dashboards can be accessed across the organisation — from the shop floor to management — both on-site and remotely, providing full visibility of production performance at all times.



### Turning Data into Action

With clear, real-time insights, ENKOsmart Factory enables manufacturers to:

- Monitor production performance continuously
- Identify inefficiencies and improvement opportunities
- Support more informed, data-driven decisions
- Improve overall operational efficiency

### Proven in Production

ENKOsmart Factory is already making a measurable difference in real-world nail production. Our clients use the platform to improve efficiency, monitor performance in real time and streamline daily operations.

Whether the goal is smarter production or stronger operational control, ENKOsmart Factory delivers clear and measurable value.

# Installation & Training

## *More Than a Supplier. A Partner.*

When you choose ENKOTEC, you gain more than a machine supplier — you gain a long-term partner.

With over 40 years of experience in nail manufacturing, our dedicated sales and service teams support you from the very beginning. From production layout and tooling design to installation and training, we work closely with you to ensure the best possible start.

### **Guidance & Recommendations**

We support you in designing and organising your production for maximum efficiency and profitability.

Our experienced team provides guidance on:

- Optimal production layout and line configuration
- Tooling design for specific nail types
- Efficient inventory and spare parts management
- Strategies to improve productivity and output

Whether you are setting up a new line or optimising an existing one, we help you make the right decisions from the outset.



### **Management Training**

To ensure a successful start-up, ENKOTEC offers dedicated management training prior to installation or production start.

These sessions focus on achieving the highest possible Overall Equipment Effectiveness (OEE) based on your specific setup.

Typical topics include:

- Machine characteristics and specifications
- Staff roles and responsibilities
- Operation and maintenance procedures
- Spare parts and inventory planning
- Technical documentation
- High-efficiency production strategies

### **Installation & Operator Training**

Our priority is to get your production running quickly and efficiently.

ENKOTEC service engineers will typically carry out on-site installation and commissioning, ensuring that all equipment is properly installed, tested and ready for operation.

At the same time, your operators receive hands-on training, covering:

- Daily operation of the machines
- Maintenance procedures
- Troubleshooting and fault handling

Training is based on our structured and user-friendly documentation, ensuring your team is fully prepared from day one.

### **Ongoing Support & Optimisation**

Our partnership continues long after installation.

ENKOTEC offers a wide range of support and consultancy services to help you optimise performance, reduce downtime and continuously improve your production processes.

With ongoing guidance and technical support, we help ensure that your operation stays efficient, competitive and future-ready.

# After Sales & Support

## *More Knowledge. More Performance.*

With ENKOTEC, support does not end with installation. Our comprehensive after sales services are designed to help you reach your maximum production capacity, improve efficiency and increase profitability.

Our experienced team supports you every step of the way — helping you maximise uptime, reduce costs and ensure that your nail production runs consistently.

### **Increase Your OEE with Advice & Consultancy**

ENKOTEC provides expert advice and consultancy to help you continuously improve your production performance.

Our service agreements are tailored to your specific needs, ensuring professional guidance, cost-efficient solutions and fast response times.

As an ENKOTEC partner, you benefit from decades of industry expertise, helping you to achieve:

- Higher and more consistent nail quality
- Increased uptime and production stability
- Reduced production costs

In short — improved Overall Equipment Effectiveness (OEE).

### **Optimise Your Efficiency with After Sales Support**

Our wide range of support services ensures that your production remains efficient and competitive.

We offer:

- Fast supply of high-quality tooling and spare parts
- Technical helpdesk support for efficient troubleshooting
- Customised technical manuals, tools and wear parts catalogues
- Tool engineering support for optimal nail parameters
- Tailored training programs for operators and technicians
- Access to My ENKOTEC with manuals, videos and documentation
- Service agreements adapted to your operation

### **Be Proactive with Service Agreements**

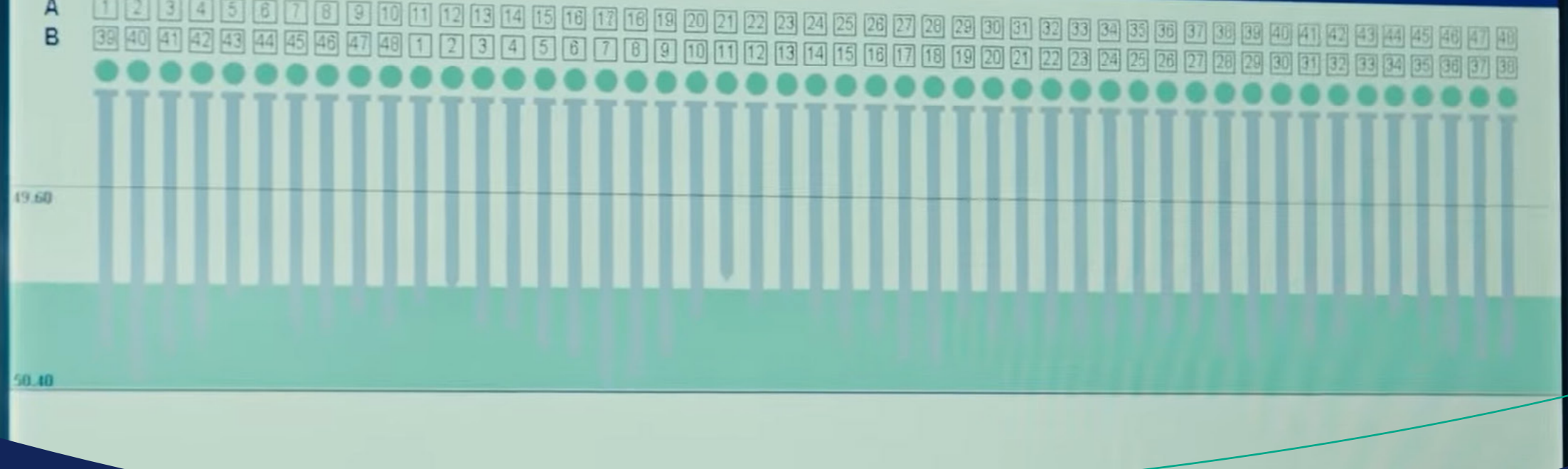
While on-demand support is always available, ENKOTEC strongly believes in a pro-active approach to production optimisation.

Our Service Agreements include scheduled visits from experienced service engineers, focusing on preventive maintenance and continuous improvement.

With a structured service approach, you can:

- Maximise equipment uptime
- Improve machine performance and nail quality
- Extend the lifetime of critical components
- Increase operator awareness and competence
- Structure maintenance activities
- Optimise inventory and production processes
- Grow Your Business
- Data-Driven Services





# Performance Improvement

## *More Advanced Technology. Measurable Results.*

At ENKOTEC, we continuously develop our service offering to help customers unlock the full potential of their production.

By combining advanced digital tools with hands-on expertise, our Service Consultants work closely with you to optimise performance, improve efficiency and drive measurable results. Through ongoing training and development, our teams remain at the forefront of modern production consultancy.

Our approach is built on a clear philosophy: fact-based decision-making. By collecting and analysing accurate production data, we create a solid foundation for understanding and improving your manufacturing processes.

### **Use Data to Grow with Performance Improvement Agreements**

Our Performance Improvement Agreements combine digital data analysis with expert consultancy to enhance your production efficiency.

Using data collected through ENKOsmart, we provide detailed insights into production performance, including downtime, machine utilisation and operator behaviour. This enables a clear understanding of where improvements can be made.

Based on this analysis, ENKOTEC Service Consultants work closely with your team to:

- Identify performance gaps and inefficiencies
- Develop targeted optimisation strategies
- Implement structured improvement plans
- Continuously monitor and refine performance

Regular interaction between your production team and ENKOTEC ensures that insights are translated into practical actions.

This collaborative approach leads to:

- Improved production efficiency
- Higher machine utilisation
- Better operator performance
- Stronger production management
- Increased overall competitiveness
- Consultancy for Continuous Optimisation

Beyond data analysis, ENKOTEC offers dedicated production consultancy services focused on long-term optimisation.

Our Service Consultants support you in:

- Analysing production processes and workflows
- Identifying improvement opportunities across the line
- Optimising machine performance and utilisation
- Strengthening operational routines and best practices

By combining data insights with practical industry experience, we help ensure that improvements are not only identified — but successfully implemented and sustained.

### **Join the Era of Industry 4.0 with ENKOsmart Factory**

As digitalisation continues to transform manufacturing, ENKOTEC provides the tools to connect your production to the Industrial Internet of Things (IIoT).

With ENKOsmart Factory, production data is collected, processed and visualised in real time, giving you full visibility of your operations — anytime, anywhere.

By combining advanced sensor technology with cloud-based solutions, the system enables precise tracking of your entire production process. This provides valuable insights that support better decision-making and continuous improvement.