

N40.2

Necking Machine

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The shape makes the difference

At their headquarters in Eislingen/Fils, HINTERKOPF, the long-established packaging specialist develops and builds machines that are in worldwide use for the fully-automated production of cans, tubes and sleeves made from aluminum and plastics. Besides printing, coating and washing machines the HINTERKOPF product range also comprises capping and trimming machines and last but not least necking machines for aluminum cans and bottles.

In the necking process a can is given its final shape. In numerous steps the shoulder is formed, the edge is flanged, a thread can be cut if so required, the opening is face-milled so that it can be used as a seal face, and a snap-in groove for the closure can be rolled in just below the shoulder.

As all these necking processes are done on the finished decorated and coated can, the machine, the tools, the lacquers and the forming technology have to meet highest demands. It is vital that the lacquer has the right elasticity, the tools have to be perfectly dimensioned and designed.

Premium quality and lasting satisfaction of your customers is ensured with necking machines and the expertise of HINTERKOPF.





N40.2 – highest flexibility

The advanced N40.2 necking machine sets new standards in terms of precision, flexibility, quality and ease of operation and maintenance.

In the N40-series machines N40.2 and N40.3 a variable stroke and a new concept enables highest production speed. With the necking machine **N40.2**, even complex shapes can be produced with high quality and with a production speed **up to 220 cans/min.**

The bearing arrangement of the machine consisting of linear ball slides makes the machine more precise than other machines on the market and more precise also than its predecessor model, the N30, although its production speed and the number of necking steps are higher.

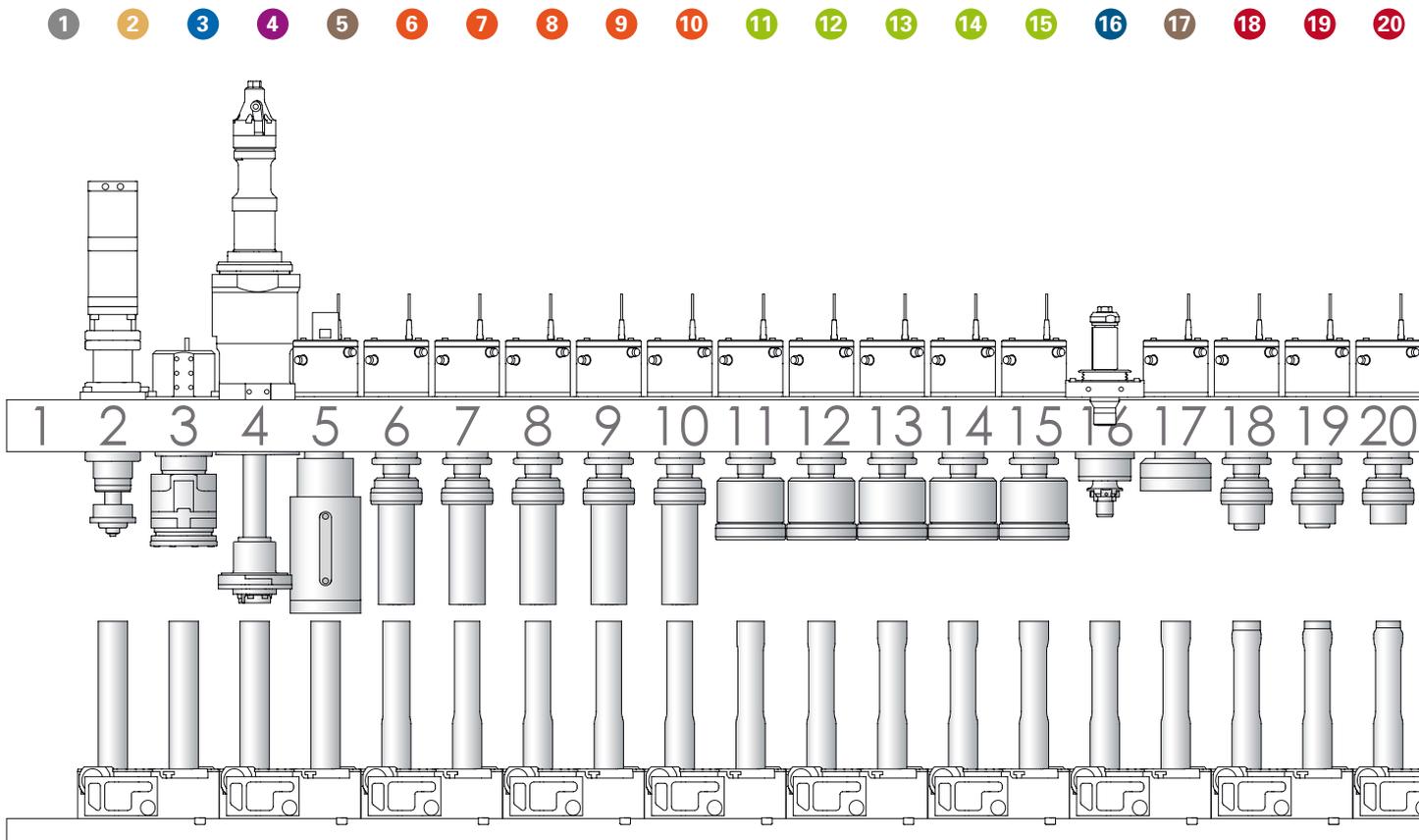


Moveable and adjustable (in height and angle) infeed and exit conveyors for good access



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40 processing stations for individual shaping

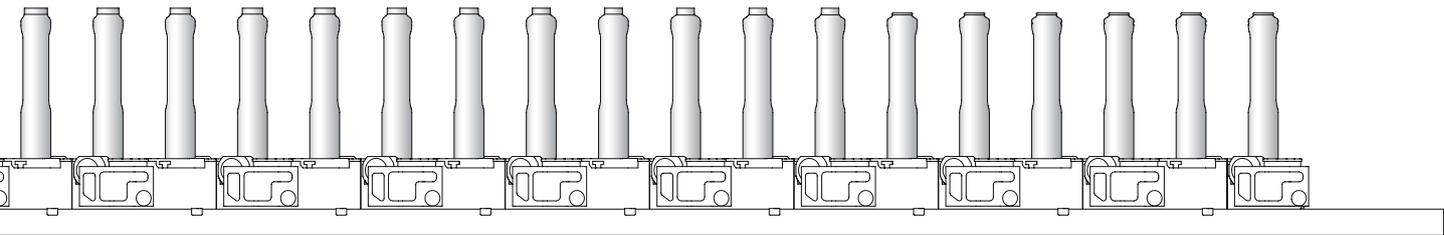
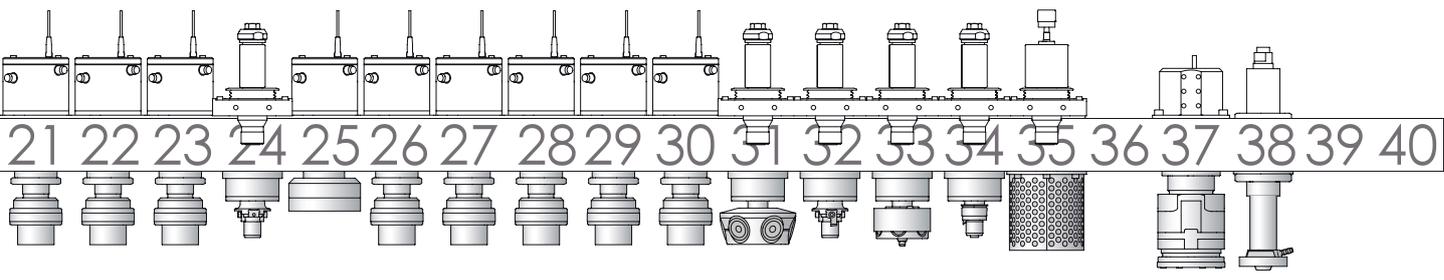
Higher demands in respect to value and differentiation of consumer products lead to increased requirements on the overall design and appearance of the product's packaging. For HINTERKOPF's customers, manufacturers of aluminum cans and bottles, this results in **higher requirements** on the decoration and **in particular the product shape**.

New market requirements not only demand the forming of can or bottle necks, but the respective body has to be necked as well, for example by the formation of a characteristic "waist". To do so, the body of the completely decorated and lacquered cylinder first undergoes a narrowing process (deep necking, in e.g. 3–6 steps), then the body above the waist is widened again gradually (again in 3–6 necking steps). Once this is accomplished, the shoulder and neck can be shaped.

The necking machine N40.2 contains 40 working stations, 10 more than its predecessor N30, which is still available, thus enabling the more detailed shaping of products such as cans, bottles and the like. Since the N40.2 is even more compact than its predecessor model and despite the higher functionality, it can be integrated into every existing production line.

With a **speed of up to 220 parts/min.** and a large usable working stroke, the N40.2 represents a very **efficient and flexible solution** for all kinds of aluminum cans and bottles.

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|------------------|-------------------|-----------------------------|
| 1 Loading | 16 Length milling | 31 Flatshoulder rolling |
| 2 Bottom forming | 17 Lubrication | 32 Length/ Diameter milling |
| 3 Camera | 18 Necking | 33 Curl rolling |
| 4 Positioning | 19 Necking | 34 Curl milling |
| 5 Lubrication | 20 Necking | 35 Gorge rolling |
| 6 Long necking | 21 Necking | 36 Empty |
| 7 Long necking | 22 Necking | 37 Camera inspection |
| 8 Long necking | 23 Necking | 38 Leak testing |
| 9 Long necking | 24 Length milling | 39 Unloading |
| 10 Long necking | 25 Lubrication | 40 Empty |
| 11 Expanding | 26 Necking | |
| 12 Expanding | 27 Necking | |
| 13 Expanding | 28 Necking | |
| 14 Expanding | 29 Necking | |
| 15 Expanding | 30 Necking | |

Example for an arrangement of the work stations of the N40.2 necking machine.
The configuration of the stations with tools depends on the manufactured product.



N40.2

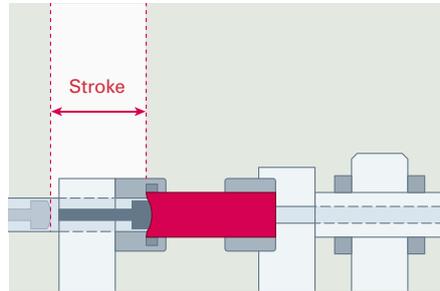
Necking Machine

Variable stroke with optimum speed

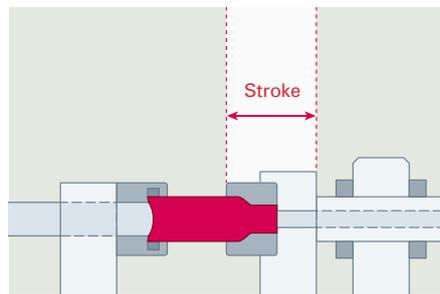
In order to create a can with a waist on the lower body, a large working stroke of the necking machine is needed. However, since **all sorts of aerosol cans and bottles need to be shaped on this one necking machine**, it does not always require the maximum stroke.

HINTERKOPF therefore developed a **variable stroke** for the N40 machines, allowing the use of one single machine for shaping cylinders over their complete wall length or just for making the usual type of aerosol cans, each with its optimum speed. This way overall output is optimized and flexibility is increased tremendously – see the table below.

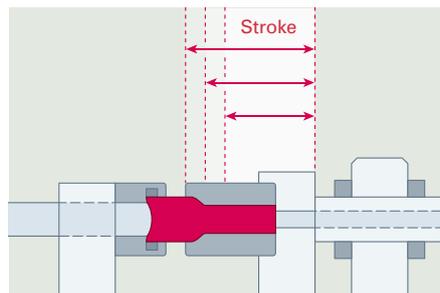
With a usable working stroke of 87–184 mm and a speed of up to 220 parts/min. **the N40.2 is ideally suited for all types of cans**, particularly also for long cans with complex shaping.



Can bottom forming on one working station with a bottom forming punch



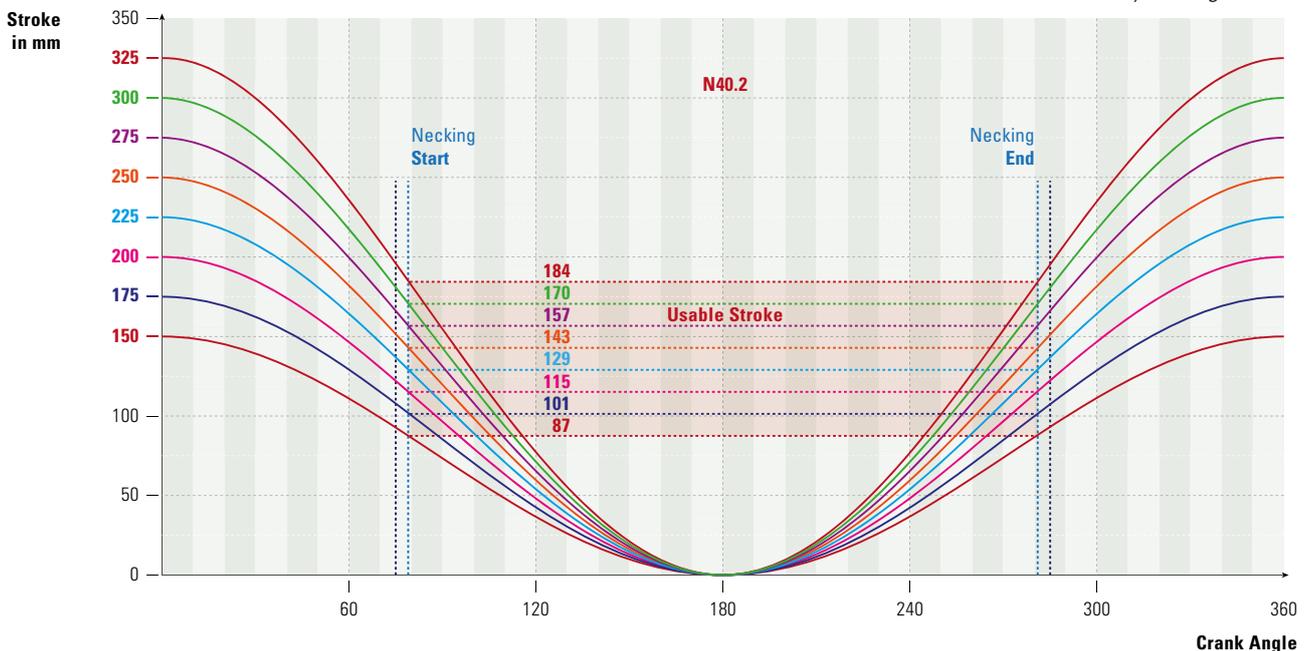
Short stroke for the forming of the upper neck of the can



Different lengths of the stroke can be chosen for shaping the can body

Stroke in mm	Usable Stroke in mm	max. Speed 1/min.
150	87	220
175	101	200
200	115	175
225	129	160
250	143	150
275	157	140
300	170	135
325	184	130

Different characteristic lines can be chosen to obtain the necessary working stroke.





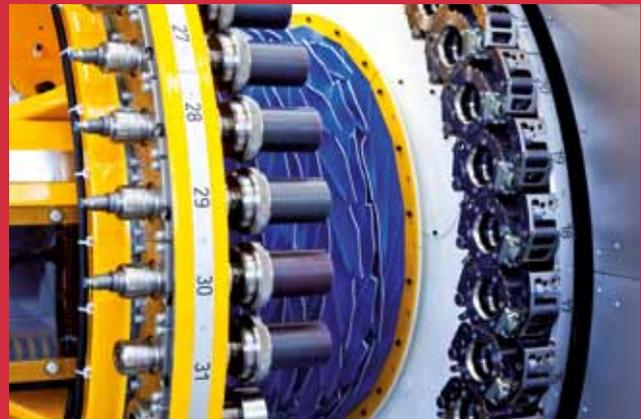
Technology and overall concept

Besides rotation-symmetric necking processes, also asymmetric embossing processes of the cylinder wall of cans or bottles can be accomplished.

An automatic quality check of the finished can by a camera system is of course an option, a tightness check of the product in one of the work stations is under consideration.

Besides an extremely precise, fast and reliable mechanical machine base, an advanced necking machine like the N40.2 requires much more: synchronized product handling including infeed and exit conveyors, the necking tools, the clamping chucks and also the entire safety concept with integrated protective housing, they altogether form a well-aligned concept.

The controls and the operating system with 2 touch panels allow an easy operation during the production process, as well as for engineering purposes.



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- 1 Tool plate with tools and clamping chucks
- 2 Easy tool exchange
- 3 Simple user guidance with touch panel

Technical data
Characteristics
Operating range

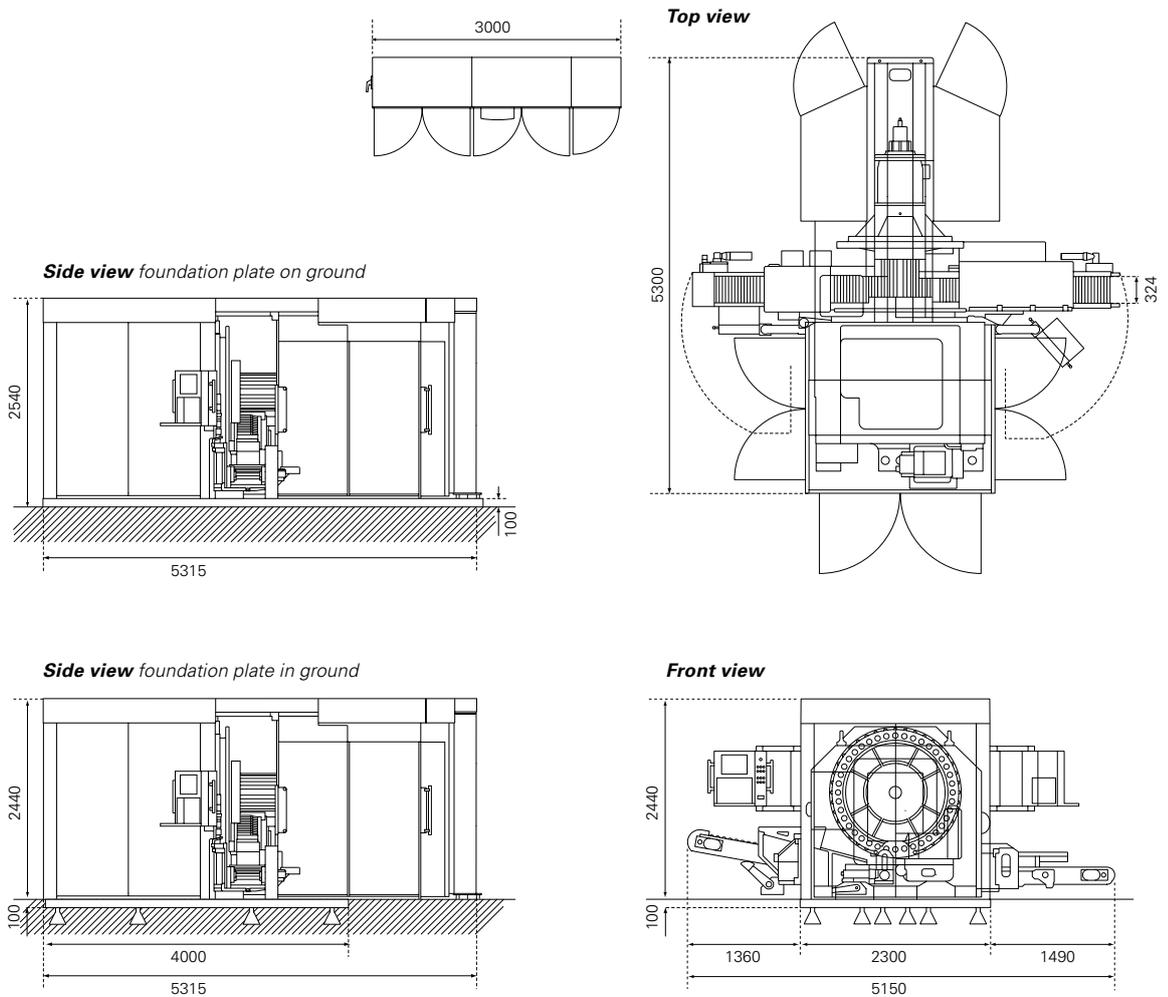
Stations:
 40

Can diameter:
 35–53 mm
 45–66 mm

**Trimmed
 can length:**
 70–300 mm

**Longitudinal
 adjustment:**
 90–320 mm

Weight:
 20 000 kg
 without
 foundation
 plate



*Information is subject
 to change.*



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