



N45.5

Necking Machine for DWI

N45.5

SHAPE MATTERS

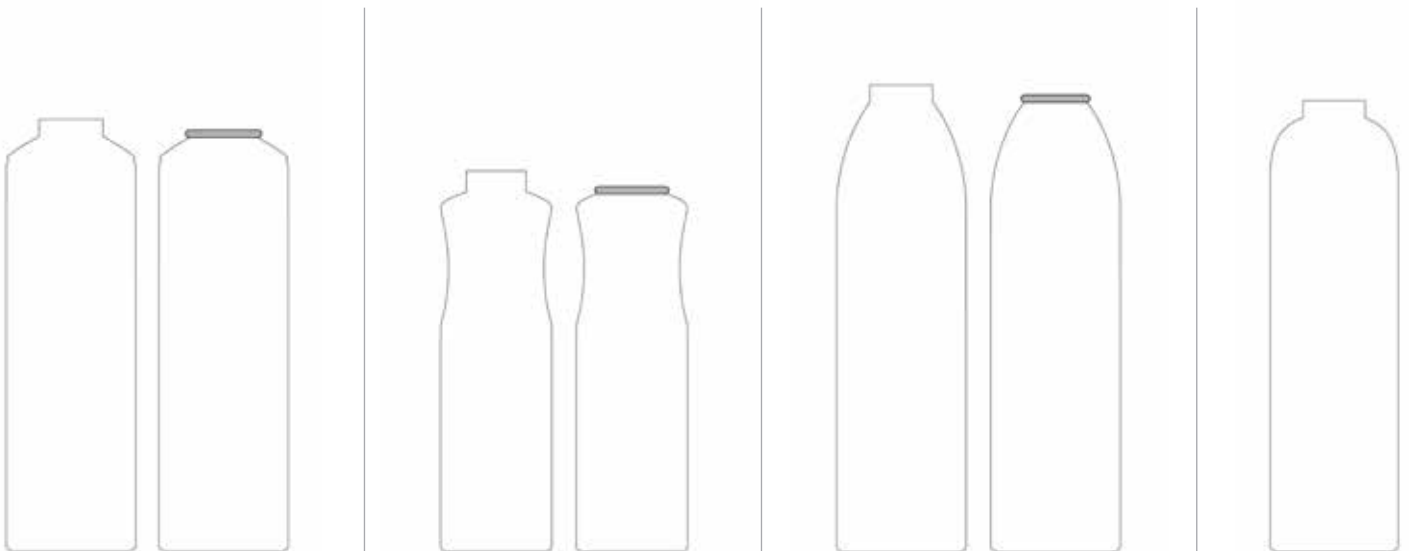
At their headquarters in Eislingen/Fils, HINTERKOPF, the long-established packaging specialist develops and builds machines that are in worldwide use for the fully-automated production of cans, tubes and sleeves made from aluminum and plastics. Besides printing, coating and washing machines the HINTERKOPF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

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, and a snap-in groove for the cover can be rolled in just below the shoulder. More and more

often the products get an individual shaping on the whole length of the body and are made with thinner walls (e.g. DWI), for environmental and cost reasons. Both these requests lead to significantly more necking steps, which are now available in machines from HINTERKOPF.

As all these necking processes are accomplished on the decorated and coated can, the machine, 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.



N45.5 READY FOR DWI AND LEIGHT WEIGHT CANS

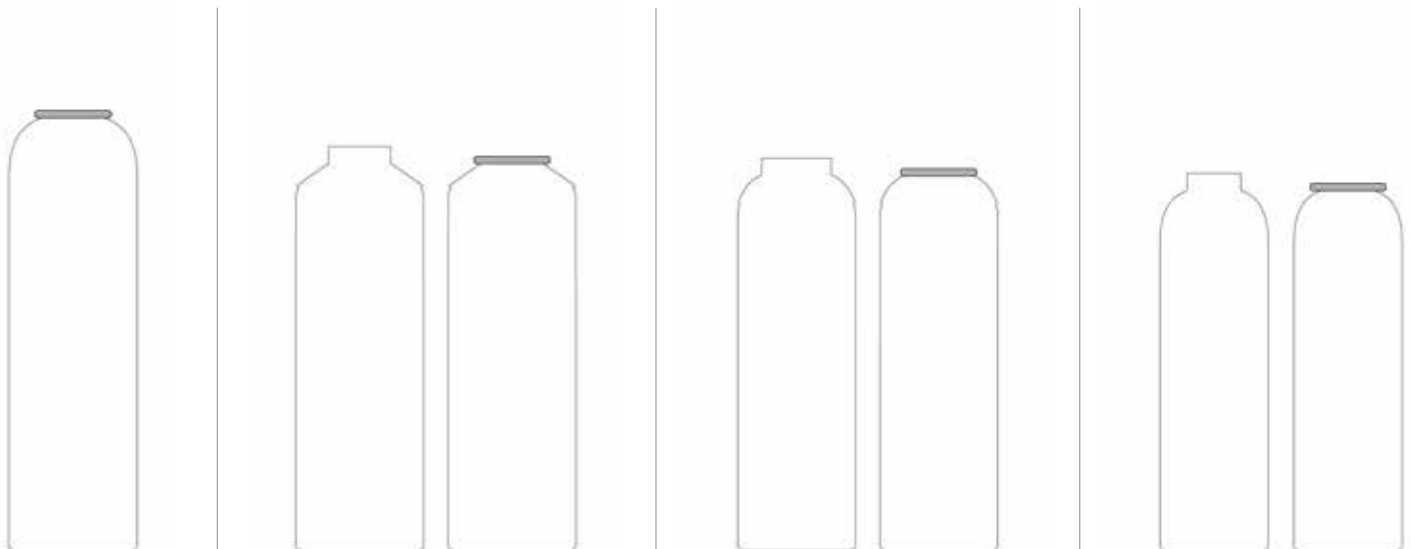
The necking machine N45.5 from HINTERKOPF with its 45 stations opens up entirely new possibilities for the shaping of bottles and cans made of aluminum. In addition to very complex product forms **also thin-walled products, e.g. made by the DWI-process**, can be shaped in only one necking machine.

The proven hardware and control concept of the N40-series necking machines has been adopted and extended, ensuring also for the N45.5 highest precision and quality, flexibility, and the ease of use in operation and maintenance.

With the variable working stroke of 58 to 143 mm and with product diameters from 35 to 66 mm, a large variety of aluminum bottles, cans or other products can be shaped efficiently, with a speed of up to 230 parts/min.



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



N45.5

45 PROCESSING STATIONS: FOR DWI AND COMPLEX SHAPES

The manufacturers of consumer goods are increasingly using thin-walled aluminum for cans and bottles in order to save the valuable raw aluminum and also to reduce cost. Adding up to the 30% savings in material, recycled aluminum can alternatively be used with the DWI process.

Consumers today ask for premium design with a recognition value, i.e. with individual shaping of the product packaging. For HINTERKOPF's customers, the makers of aluminum cans or bottles, both facts mean that significantly more necking steps are required to shape the thin-walled and/or complex shaped bottles or cans.

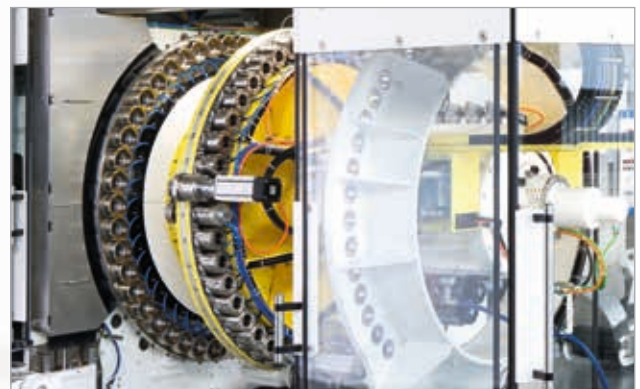
The necking machine N45.5 contains 43 processing stations, again 5 more than the N40-series of

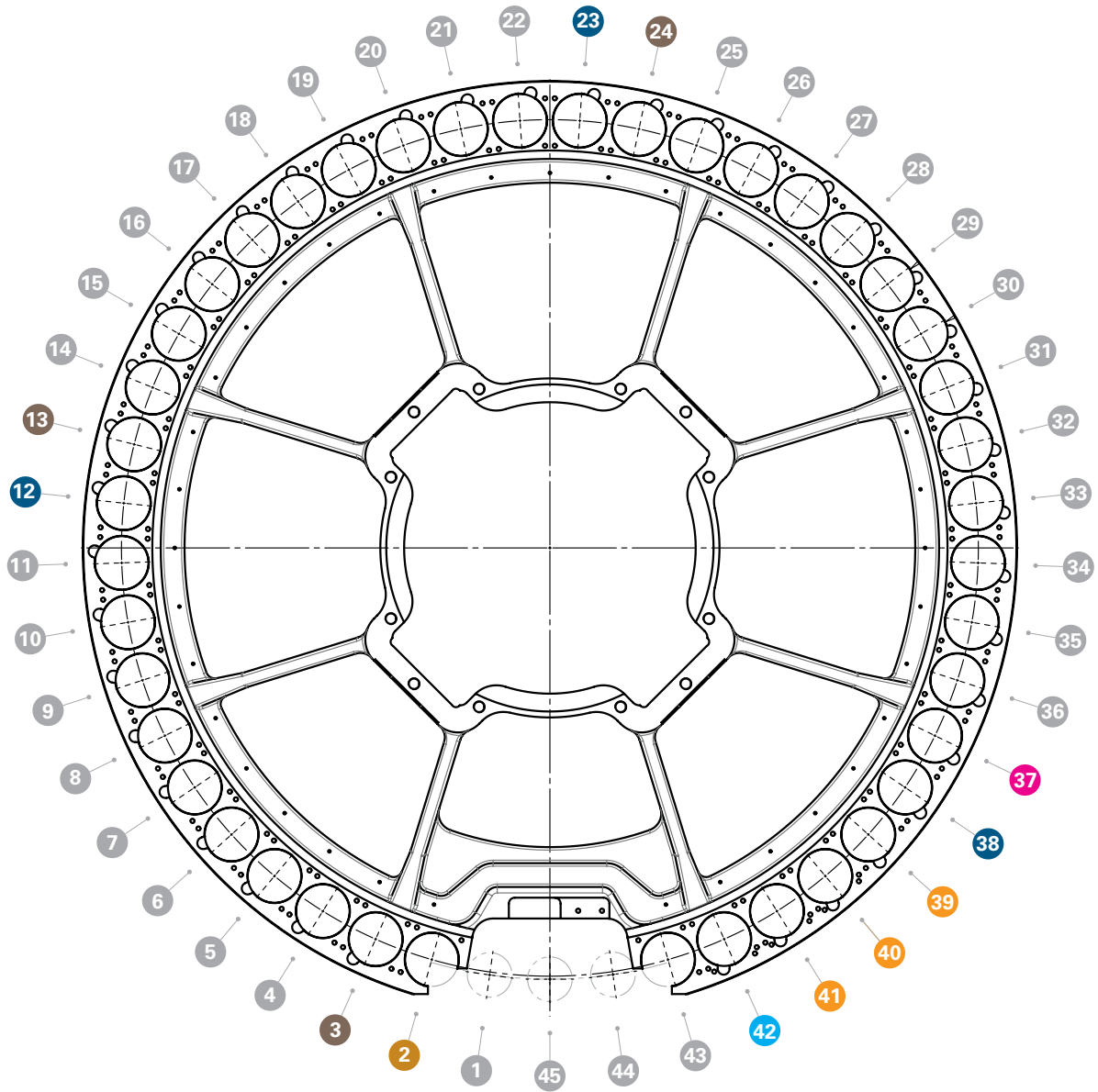
HINTERKOPF and thus enables the shaping of such complex aluminum packaging.

Even for "normal" cans and bottles the increased number of workstations is very useful: The limitation of the shaping forces through the fast necking speed and a larger number of auxiliary functions (e.g. lubricating a can inside and outside) can be realized more easily, providing a safer production and a higher yield.

Another important aspect is that the change-over time is significantly reduced when actually not needed tools can remain installed in fixed positions.

The N45.5 has the same outer dimensions as the N40 machines and can therefore be integrated alternatively to a N40 machine, be it in a new or an existing production line, thus providing more options for extended use – ready for any request to come.





Example for an arrangement of the work stations of the N45.5 necking machine. The configuration of the stations with tools depends on the manufactured product.

- | | | | | | |
|------------------|----------------|---------------|----------------|---------------------|-----------------|
| 1 Loading | 9 Necking 06 | 16 Necking 11 | 24 Lubrication | 32 Necking 25 | 40 Curl rolling |
| 2 Bottom forming | 10 Necking 07 | 17 Necking 12 | 25 Necking 18 | 33 Necking 26 | 41 Curl milling |
| 3 Lubrication | 11 Necking 08 | 18 Necking 13 | 26 Necking 19 | 34 Necking 27 | 42 Camera |
| 4 Necking 01 | 12 Milling | 19 Necking 14 | 27 Necking 20 | 35 Necking 28 | 43 Empty |
| 5 Necking 02 | 13 Lubrication | 20 Necking 15 | 28 Necking 21 | 36 Necking 29 | 44 Unloading |
| 6 Necking 03 | 14 Necking 09 | 21 Necking 16 | 29 Necking 22 | 37 Shoulder rolling | 45 Empty |
| 7 Necking 04 | 15 Necking 10 | 22 Necking 17 | 30 Necking 23 | 38 Milling | |
| 8 Necking 05 | | 23 Milling | 31 Necking 24 | 39 Curl rolling | |

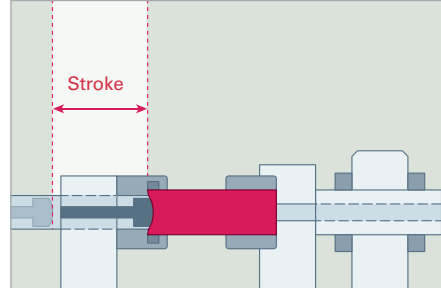
N45.5

VARIABLE STROKE WITH OPTIMUM SPEED

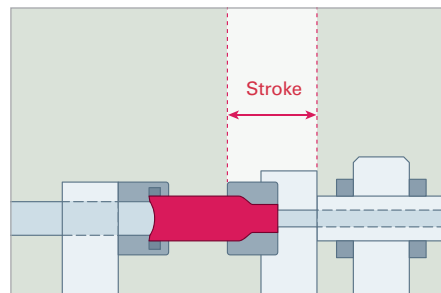
HINTERKOPF is using the proven variable stroke mechanism from the N40 machine as well in the N45.5: Using this mechanism, both aerosol cans with shaping along the whole body and "simple" products can be manufactured in the most efficient way, i.e. each with their respective maximum speed (see the table below).

With a variable working stroke of 38 to 143 mm, a production speed of up to 230 parts/min. and a large range of diameters from 35 to 66 mm the N45.5 is a highly efficient, flexible machine for the shaping of demanding cans and bottles made of aluminum, including thin-walled products made by the DWI method.

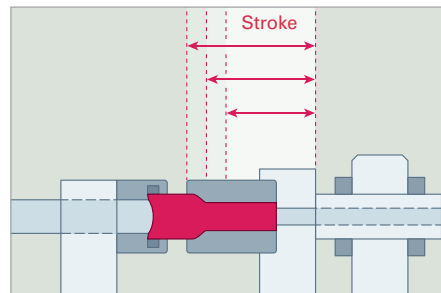
Stroke in mm	Usable Stroke in mm	max. Speed 1/min.
100	58	230
125	73	210
150	87	200
175	101	190
200	115	180
225	129	170
250	143	140



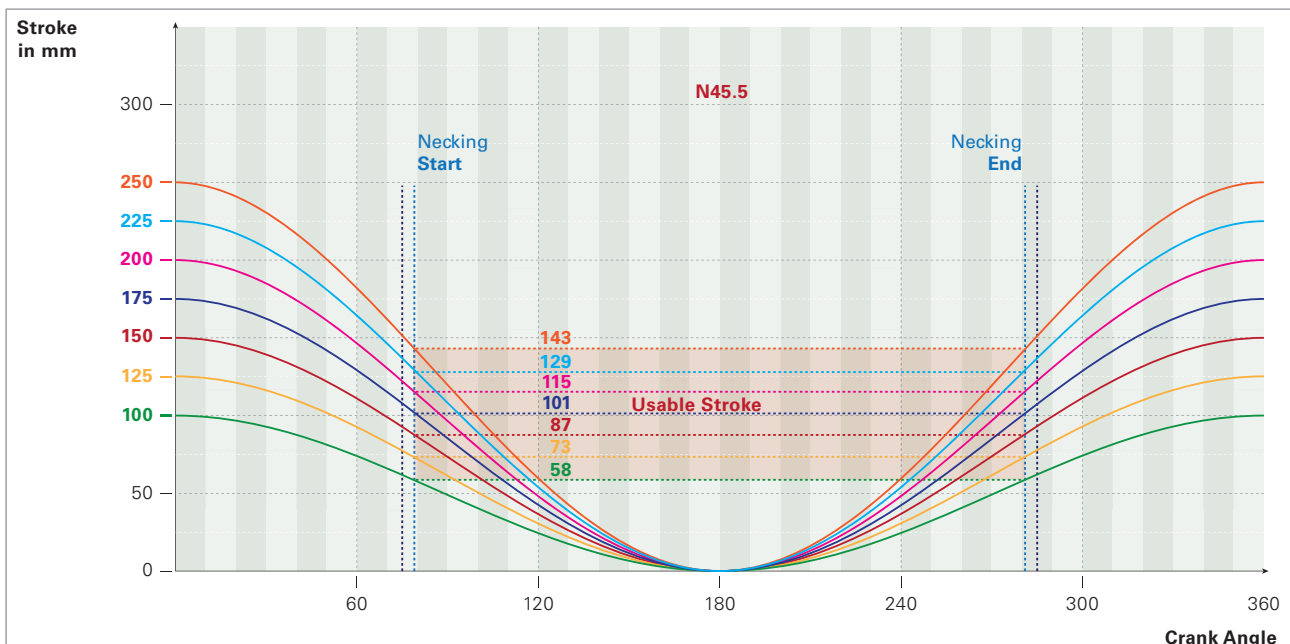
Can bottom forming on one working station with a bottom forming punch



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



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

TECHNOLOGY AND OVERALL CONCEPT

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

The new compact rotary tools with direct drives, used for milling, edge flanging or shoulder rolling can be installed at almost any working position of the tool plate of the N45.5. Up to 8 of these rotary tools can be used. As the exhaust suction is arranged within the inner area of the tool plate, easy access for maintenance or tool exchanges is ensured.

Besides an extremely precise, fast and reliable mechanical machine base, advanced necking machines require much more: synchronized product handling including infeed and exit conveyors, the necking tools, the lightweight clamping chucks and the entire safety, including the protective housing, altogether they form a well-aligned concept for the N45.5 machine.

The controls and the operating system with 2 touch panels allow an easy operation during the production process, as well as for engineering purposes. An automatic quality check of the finished product by a camera and a quick exchange system for the tooling are available as options.

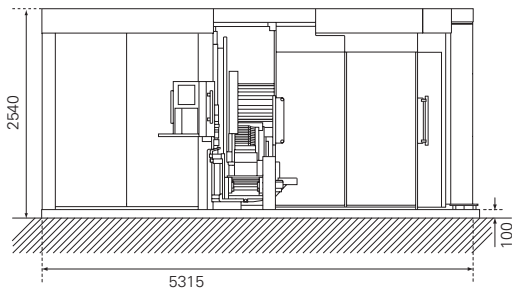
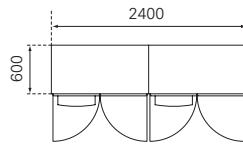


- 1 Easy tool exchange
- 2 Simple user guidance with touch panel

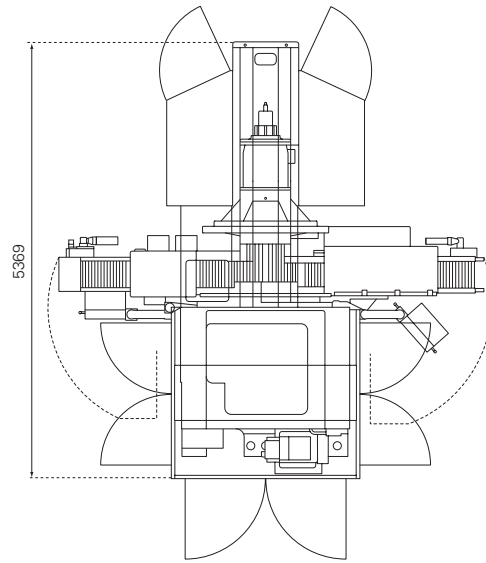


TECHNICAL DATA
NECKING MACHINE FOR DWI N45.5

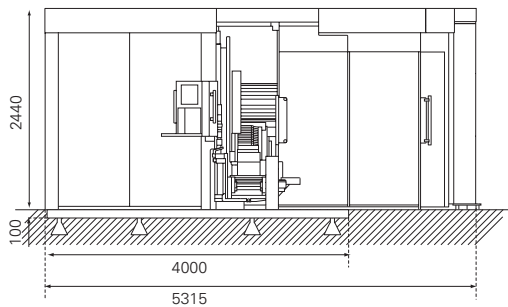
Stations	45
Can diameter	35 – 53 mm und 45 – 66 mm
Trimmed can length	95 – 260 mm
Longitudinal adjustment	90 – 280 mm
Weight	22,000 kg without foundation plate



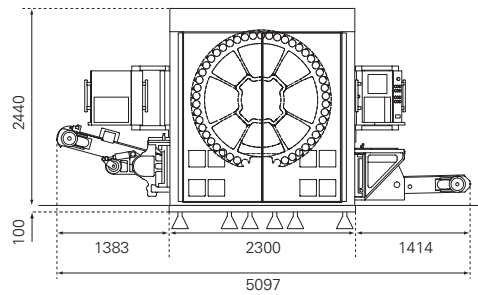
Side view foundation plate on ground



Top view



Side view foundation plate in ground



Front view



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Information is subject to change.