

KRONES handle specifications for external handle applicator (Variostick)



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1 General information

1.1 Basic information

This specification includes a wide range of packaging options.

These possible combinations of materials and material properties normally require approval by KRONES.

With standard equipment, in terms of packaging, customer materials that are already available can be checked and released for start-up by KRONES. If the customer does not yet have any packaging materials, KRONES shall provide recommendations (pack-specific suggestions), which have to be confirmed by the customer. The drawings prepared by KRONES apply.

After the customer's on-site acceptance inspection under production conditions has been completed (see specifications for acceptance inspection), the packaging material to be used is recorded, the record is signed by both parties and the material is released for processing on the relevant machine.

If there are any subsequent changes to the material and packaging, the customer must inform KRONES about the matter and obtain approval.

KRONES reserves the right to perform tests under conditions closely simulating production if changes are made to material or packaging by the customer. The test materials required for this purpose must be provided by the customer.

The quantities for this test must be coordinated in advance with KRONES. For example, they could be as follows:

1 shift (1 day, about 8 hours) + sufficient amount of packaging material.

Test results are recorded and given to the customer. Manual samples and/or finished packs are provided for examination. If the results are satisfactory for the customer, this is recorded in writing and signed by the customer and KRONES. Approval is given for processing on the corresponding machine again. If the tests show that the defects which are the subject of the customer's complaint are caused not by the design of the machine, but rather by the material, which is outside of KRONES specifications, KRONES reserves the right to bill the customer for costs incurred at standard market rates.

1 General information

1.2 Environment/site

	Min	Max	Unit	Note
Ambient temperature	16	35	°C	The adhesion of the tape adhesive depends greatly on temperature. Temperatures > 35°C result in insufficient adhesion.
Ambient temperature with tape heating special assembly	5	35	°C	Pre-heating of the tape on a rail.
Air humidity	40	70	% rel. AH	The adhesion of the tape adhesive depends greatly on the humidity level. Condensate on the pack will result in inadequate adhesion.
Air pressure/installation altitude	0	2,000	m above sea level	The requirement for a vacuum for the tape guide system means that a minimum ambient pressure level is required.
Air quality	-	-	-	Do not install next to units which heavily contaminate the air (diesel soot and carbon dust), since this will result in insufficient adhesion. To be installed in the dry section only! Do not install in the wet section because aggressive cleaning media (such as acetic acid) may have a negative effect on component functions.
Compressed air supply unit	6		bar	Requirements for the compressed air to be used: Oil-free, dust-free and water-free. Residual particle size < 5 µm. Achievable with FESTO standard air service unit. Water or oil in the compressed air provided by the customer may have a negative effect on the functionality of pneumatic components. Pneumatic cylinders may become slower. Valves may fail prematurely.
Power supply/mains				KRONES electrical specification

2 Adhesive tape for handles

2.1 Adhesive tape

	Min	Max	Unit	Note
Manufacturer/type	Independent			
Material	- Mono-oriented polypropylene (MOPP) - PET (polyester) preferred			
Adhesive	- Synthetic adhesive, solvent-free - Adhesive based on natural rubber			
Length of handle	360 300 *	530	mm	Limited due to max. take-off wheel diameter of 170 mm. *Min. length of handle for pre-prepared adhesive tape
Handle width	25	± 0.25	mm	Usual width, the same as competitors
Film thickness	50		µm	Usual thickness, the same as competitors. No guarantee processing will be possible or of handle strength if thinner film is used. Will be accepted only with handle material according to KRONES specification.
Total thickness	72		µm	No guarantee processing will be possible or of handle strength if thinner film is used. Will be accepted only with handle material according to KRONES specification.
Base colour	transparent			Due to P.E. sensor detection of label!
Adhesive strength	6	-	N/25 mm	
Adhesive strength on PE	5.5	-	N/25 mm	
Tensile strength	350	-	N/25 mm	
Elongation at rupture	35	-	%	
Type of adhesive tape rolls	Cross-wound			
Maximum adhesive tape roll sabre	-	10	mm	Length unwound to 1 m
Internal diameter of adhesive tape roll	152.4		mm	6" core
Maximum external diameter of adhesive tape roll	-	380	mm	
Maximum width of adhesive tape roll	-	350	mm	



Preferably application of the handle by adhesive tape on a bottle



Application of the handle by adhesive tape in a hollow (between two containers), foil equipped with greater rupture strength

2 Adhesive tape for handles

2.2 Label

	Min	Max	Unit	Note
Carton type	Paper			White/grey, CXM type specially suitable for self-adhesive adhesive labels.
Grammage	210	220	g/m ²	Minimum/maximum thickness due to handling in the magazine.
Label length	130 150 190 210 230 ± 0.5	-	mm	
Label width	25 ± 0.25	-	mm	
Label thickness	0.2	-	mm	
Label transparency	-	-		No transparency is permitted because the end of the label is used as a print mark to determine the timing of the cut. Alternatives only if requested and tested.
Total length of label magazine	-	780	mm	
Length to minimum fill level sensor	-	120	mm	
Max. effective length between filling	-	660	mm	
Corresponds to number of labels	-	3,300	Qty	
Max. time between filling of magazine	-	41	min.	At 80 clock pulses/min
Max. time between filling of magazine	-	55	min.	At 50 clock pulses/min

3 Pre-prepared handle

	Min	Max	Unit	Note
Manufacturer/type	- SUPERTAPE (integrated handles) - Alimac C105 HL (KRONES recommendation)			
Material	- Mono-oriented polypropylene (MOPP) - Polyester PET			
Adhesive	Solvent-free synthetic adhesive			
Label length	90	400	mm	
Label grammage	90	120	g/m ²	Alternative: PE foam labels, thickness approx. 1 mm
Label transparency				No transparency is permitted because the end of the label is used as a print mark to determine the timing of the cut. Alternatives only if requested and tested.
Type of adhesive tape rolls	Cross-wound			
Maximum adhesive tape roll sabre	-	10	mm	Length unwound to 1 m
Internal diameter of adhesive tape roll	152.4		mm	6" core
Maximum external diameter of adhesive tape roll	-	380	mm	
Maximum width of adhesive tape roll	-	350	mm	

4 Shape and position of adhesive tape on pack

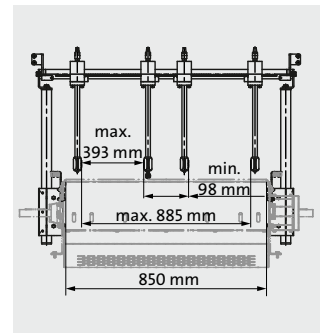
	Min	Max	Einheit	Bemerkung
Position of tape relative to print mark (in direction of operation)	-5	5	mm	
Position of tape relative to centre of pack (perpendicular to direction of operation)	-5	5	mm	Pre-requisite: Pack arrangement not distorted after the shrinkage process.
Loop formation is possible				Yes

5 Pack

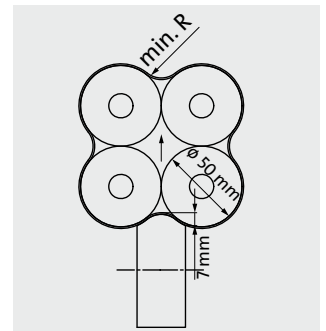
Processing range	Min	Max	Unit	Note
Max. container diameter	-	130	mm	Dependent on formation; see "Processing range" drawing
Min. container diameter	50	-	mm	For the 2x2 pack the min. bottle diameter is 75 mm and 50 mm for cans, otherwise the two top compression belts will not reach the lid.
Max. container height	-	380	mm	Required because of the height adjustment system; other dimensions on request, with special lengths for the lifting spindles
Min. container height	90	-	mm	Required because of the height adjustment system; other dimensions on request, with special lengths for the lifting spindles
Minimum distance between 2 packs	105	-	mm	Limited by standard container guide.
Max. distance from 2 packs, outside	-	866.8	mm	Required because of standard dimension of 850 mm for pack conveyor and distance of 70
Max. pack width, 2-lane	-	380	mm	Required because of standard dimension of 850 mm for pack conveyor and distance of 70
Pack length function in dependency on output				With 80 clock pulses the max. pack length is 240 mm. Check if requested.
Average distance of packs	360	-	mm	Required because of collision of the application plates.
Permissible pack weight	-	12	kg	Permissible maximum weight depending on handle; lower values if necessary due to insufficiently dimensioned film material
Surface of pack film	-	-	-	Good adhesion properties for MOPP self-adhesive adhesive tape, minimum holding force of 5.5 N/25 mm
Pack film	-	-	-	Damage in the case of printed films caused by the application of the adhesive tape cannot be completely ruled out because the speeds of the adhesive tape and foil can vary considerably depending on the output and there is always a mechanical tool (application arm, roll) in contact with the pack.
Requirement for pack curvature	-	-	-	
Maximum radius of concave pack	15	-	mm	See drawing: To achieve complete adhesion with the application arm tools it is necessary that the internal contour of the pack is not below a certain minimum radius. Possible, e.g. if the longitudinal shrinkage of the film is excessive.
Maximum radius of convex pack	25	-	mm	See drawing: To achieve complete adhesion with the application arm tools it is necessary that the external contour of the pack is not below a certain minimum radius. The limit in this case is the smallest bottle diameter of 50 mm that can be processed on the Variopac.



Min. container diameter with a 2x2 pack formation



Max. width dimensions of the pack conveyor

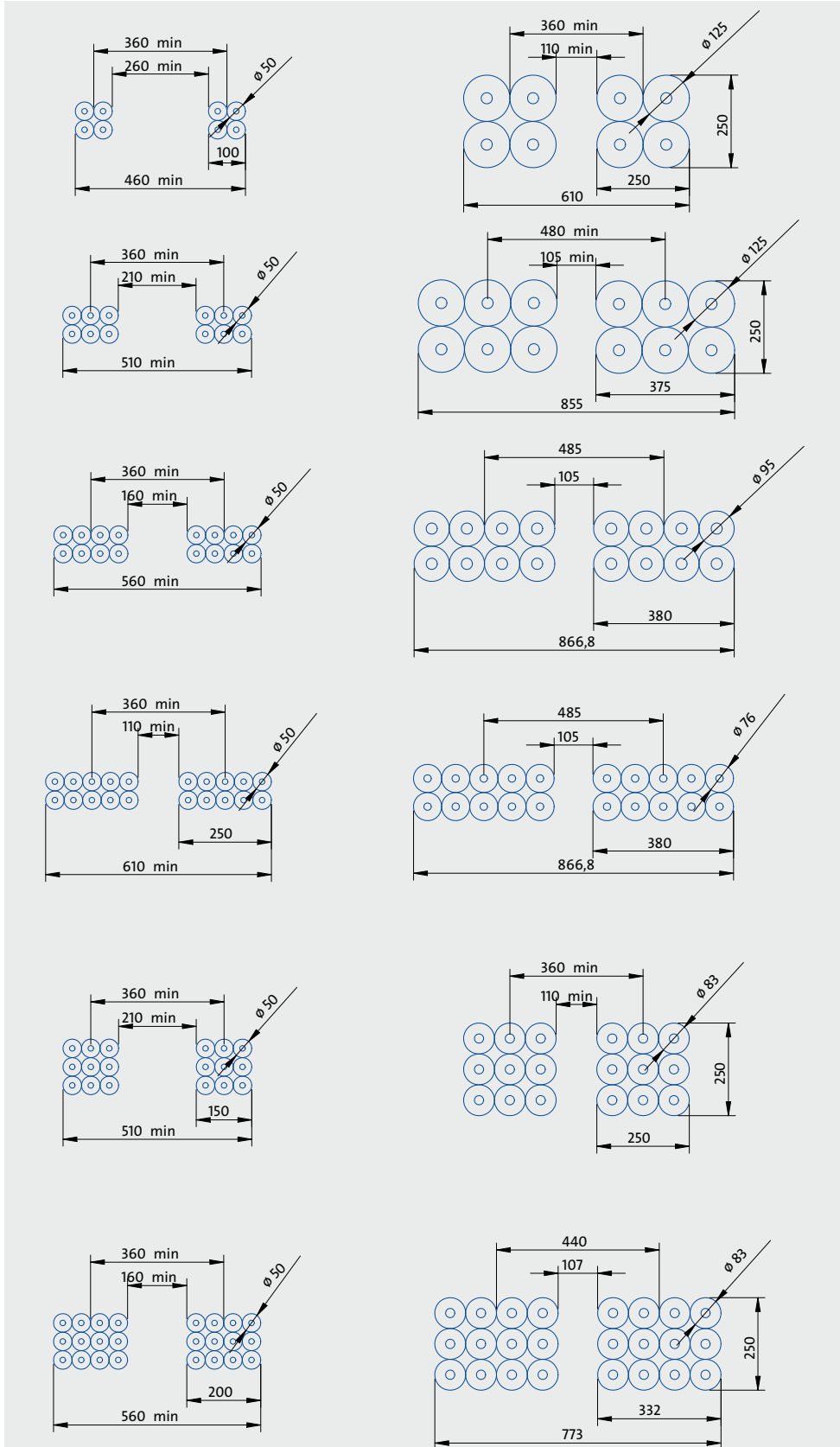


Max. radius of convex pack

5 Pack

5.1 2-lane processing range

Limited by pack length



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6 Storage of the packaging material

	Min	Max	Unit	Note
Storage at the machine				Adhesive tape rolls and labels must be stored at the machine at least 24 hours before preparation.
General storage environments				Protection against direct sunlight, high temperatures, mechanical damage, dust and humidity. Storage in original packaging.
Storage temperature of adhesive tape	18	21	°C	Adhesive suitability of the tape depends greatly on temperature. Adhesive begins to flow, thermal decomposition of adhesive.
Air humidity	40	60	% rel. AH	
Storage duration				Max. 1 year under optimum conditions
Conveyor				Packed individually in cartons on pallet.

7 Installation height of the transport level

	Min	Max	Unit	Note
Installation height	550	1,250	mm	Screening in 100 mm steps; Tolerance ± 50 mm