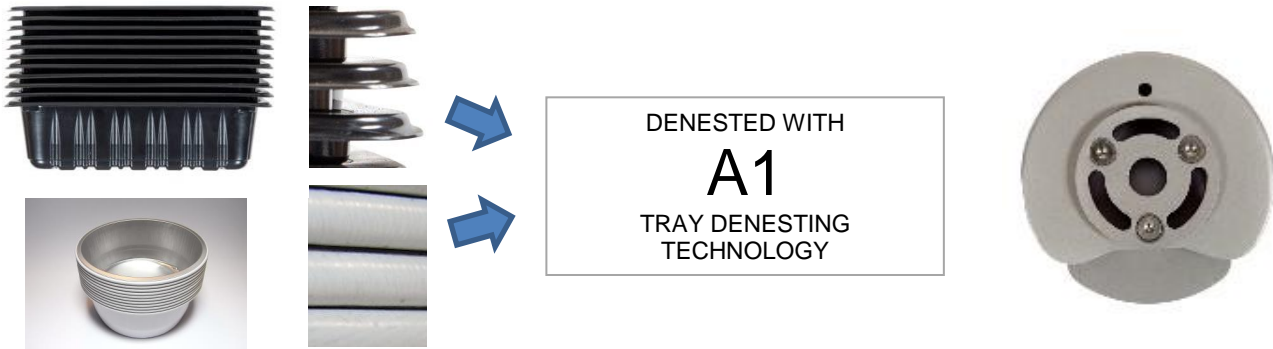


JKT SPEED-DISP A1 Tray Quality and uniformity 2017-01

A guide to assess and evaluate traditional plastic or aluminum trays, and whether they are suitable for denesting with the SPEED-DISP A1 tray denesting technology.

Plastic trays manufactured with the stacked trays having a horizontal space between the tray rim's.
 Aluminum trays manufactured with the stacked trays having physical contact around the tray rim. No horizontal space between the stacked trays.



For Any request regarding industrial tray denesting, JKT always asks for a stack of tray samples. Subsequent JKT will evaluate and judge the tray in question. A TRAY EVALUATION RAPPORT will be prepared, informing about the trays quality, and also informing if the tray is suitable for automatic, industrial tray denesting, using the patented SPEED-DISP A1 tray denesting technology.

A normal assessment will always follow the basic principle "one SPEED-DISP tray denester, to one tray." However, it is often possible to denest the same tray, but manufactured with several different heights in the same SPEED-DISP tray denesting head. If the tray has the same length and width, and has the same shape around the trays rim, the height of the tray can vary.

Our success with the SPEED-DISP A1 tray denesting technology is not least due to our demands to the trays to be denested is not bigger, than the tray manufacturers won't have any problems to meet the requirements.

For all types of trays to be denested it applies that the trays should be uniform in material, shape, dimension, surface and geometry. The uniformity will in practice vary and can't be defined completely, because the tray during the manufacture is produced within a tolerance. Temperature, humidity, transport and storage conditions may also affect the trays form and consistency, and thereby affect the tray denesting suitability.

A tray produced with stacking lugs, is considered to be correctly stacked when the stacking lugs are used, according to the manufacturer's instructions. Trays with A-B stacking. All the trays in the stack shall be stacked in A-B-A-B-A-B order. When a new tray stack is placed on top of the existing stack in the tray magazine, the new tray stack shall be compatible with the A-B stacking. Several tray stacks on an automatic charge conveyor must also be matched to appropriate stacking. The same also applies to the A-B-C / A-B-C-D stacking lugs. And all other variations

A tray may have many different designs. It may be square, rectangular, round, oval or otherwise shaped. A tray must be at level across the top surface, and plan on the stacking lugs underside. If a tray "flips" when placed upside down on a flat surface, this is considered as an error in the tray geometry. If the trays stacking lugs are not in the same level, the difference shall be defined by a specified tolerance. Trays with deviations can be denested, but it requires, that the deviation is defined clearly and is identical on all the trays.

JKT always ask for the tray manufacturer's data sheet on the tray in question. With information about the tray's nominal L x B x H measurements, and manufacturing tolerances, as well as the tray centricity tolerances.

The height of the tray stack and the number of trays, which can be loaded onto the tray magazine in our SPEED-DISP tray denesting machine is assessed, based on the rigidity and strength of the trays stacking lugs and/or tray edge. As well as depending on the supporting points, which are selected for A1 denesting tools. If the trays are weak, the tray stack cannot be high. With stronger trays the tray stack can be higher. JKT always aim to have the tray stack as high as possible.

The SPEED-DISP A1 tray denesting machine is manufactured specifically to denest the actual tray samples. It is up to the customer to make sure, that the trays which are subsequently used in the customer's production, are identical to the original tray samples. JKT will store and register the original tray samples. These samples will always be regarded as sovereign reference trays, with reference to the manufactured SPEED-DISP A1 tray denesting machine.

JKT calibrate and test the SPEED-DISP tray denester, with the trays that were delivered to JKT as tray samples, at ordering the machine. If the trays later to be used, are not comparable to those provided at the order, and the SPEED-DISP A1 machine therefore does not work properly, the JKT function guarantee will no longer be valid.

The SPEED-DISP is developed and manufactured to obtain a quality in denesting of industrial trays without problems. By use of the patented A1 tray denesting technology in combination with trays of a proper quality, no tray denesting problems will occur.

The quality of the tray denesting, can be defined by known errors and their known causes. It is up to the customer to assess the possibility for tray denesting errors and if their causes can be accepted and thus meet customer demands for quality in the tray denesting.

REASONS for failure in the tray denesting.

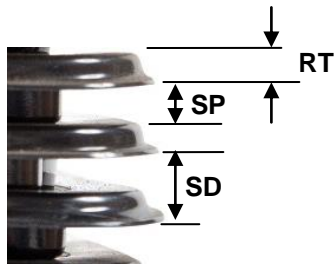
The tray is jammed in the tray denesting machine, and is not denested.
The tray is deformed after denesting.

Causes that can result in failure in the tray denesting.

1. The trays are not stacked correctly. Wrong use of the stacking lugs.
2. The stated tolerances are exceeded.
3. The trays are not uniform in shape and size.
4. The trays are too weak. The support points cannot bear the weight of the tray stack.
5. The tray stack placed in the machine is too big.
6. Failure in the power supply, electrical or compressed air.
7. The machine is worn out or even out of adjustment.
8. Missing maintenance or cleaning.
9. Improper operation of the tray denesting machine.

It is extremely important that the client understands the explanation above, and thereby accept the question of tray quality in finding the right denesting solution.

In the case of any doubts or questions about a trays suitability and denesting in a SPEED-DISP A1 tray denesting machine, JKT always offers to evaluate the tray, and subsequently prepare a detailed tray evaluation report.



For trouble-free denesting of plastic trays it requires, the trays don't have variations in the dimensions, geometry and tolerances. Besides what else JKT has confirmed as being acceptable.

SP

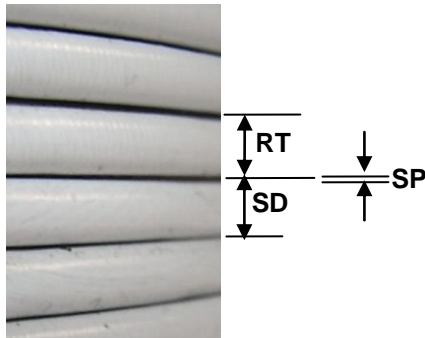
Space (daylight) / distance between the trays with a minimum of 0.5 mm.

Trays with a smaller distance can also be denested. The shorter the distance, the greater are the requirements for uniformity of the trays.

- RT** Rim thicknes
- SD** Stacking distance
- L** Tray lenght
- W** Tray width
- H** Tray height
- Ø** Tray diameter

Aluminum trays typically have no gap between the stacked trays. Therefor there is no **information** about the **SP** measurement.

The A1 tray denesting tool, also denest aluminum trays.



For trouble-free denesting of aluminium trays it requires that the trays don't have variations of the dimensions, geometry and tolerances.

Besides what else JKT has confirmed as being acceptable.

SP

Space is not informed with aluminium trays.

- RT** Rim thicknes
- SD** Stacking distance
- L** Tray lenght
- W** Tray width
- Ø** Tray diameter

The most frequently occurring problem in the A1 tray denesting is when some trays in the tray stack are compressed. Typically in the corners of the tray.

This may be due to an incorrect use of the stacking lugs, or rough handling of the tray stack. Pay attention to this, during the manual handling of the trays, and when a new tray stack is loaded in the trays magazine.



Traditional plastic tray.

Correctly stacked trays.

Uniform horizontal space between all the trays in the tray stack.

The trays will be denested without any problems.



The same tray stack as above.

Stacking failure.

Some of the trays are pressed together. There is no longer a horizontal space between the compressed trays.

Compressed trays, will cause in failure and stop in the tray denesting.

When JKT, after compilation of the TRAYS EVALUATION report does not find the assessed trays suitable for denesting with SPEED-DISP A1 technology, it's often due to the trays measurement and centricities tolerances are exceeding the stated. Trays are made of thin foil material so no kind of stability is achieved. Stacking lugs may have such a poor quality that they are not useful as supporting points. In the case where tray types are not suitable for denesting with the SPEED-DISP A1 technology, the TRAY EVALUATION rapport clearly state the reasons why.