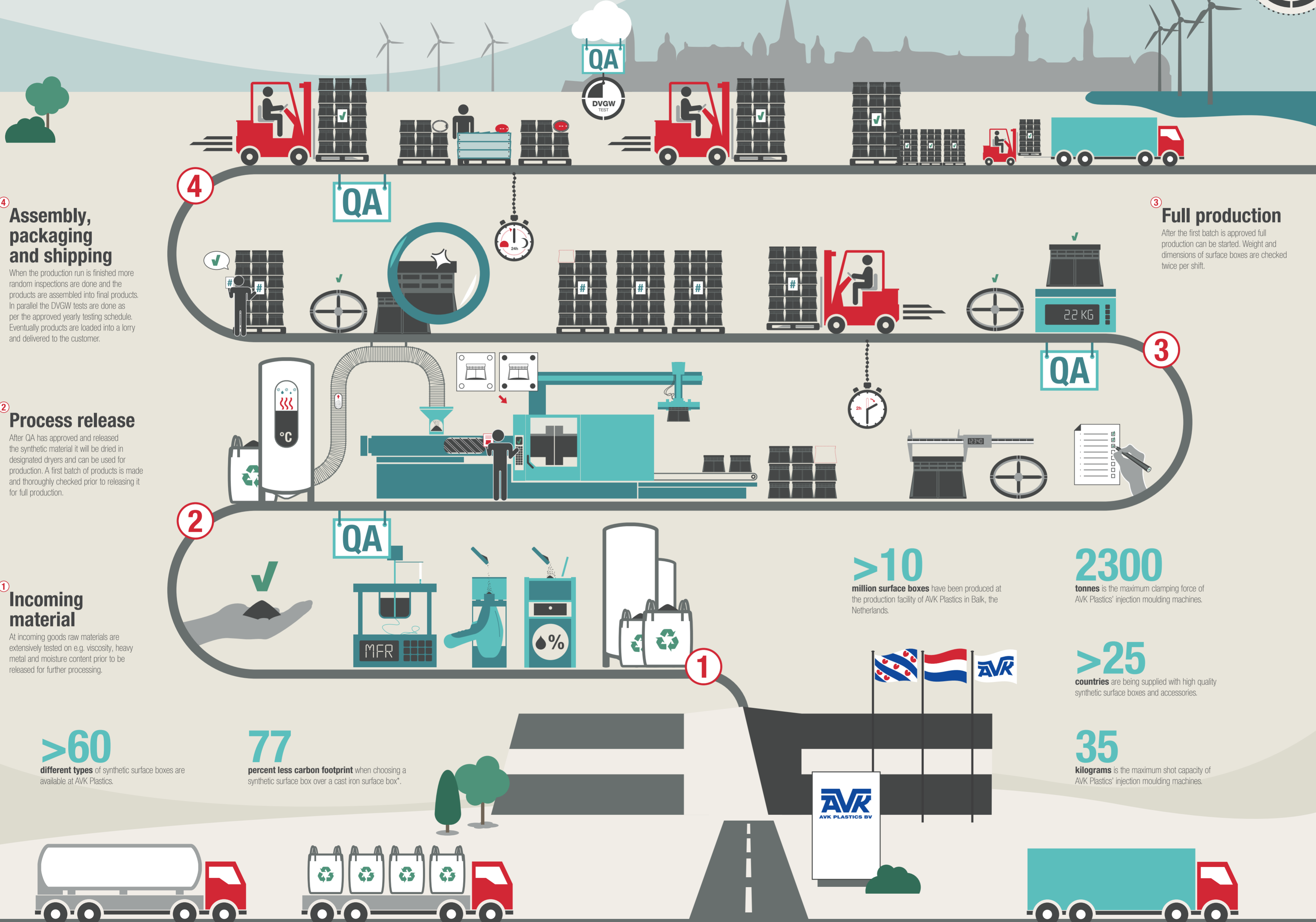


AVK Plastics Production Process

This infographic illustrates the complete production process of synthetic surface boxes and accessories at AVK Plastics.



4 Assembly, packaging and shipping
When the production run is finished more random inspections are done and the products are assembled into final products. In parallel the DVGW tests are done as per the approved yearly testing schedule. Eventually products are loaded into a lorry and delivered to the customer.

2 Process release
After QA has approved and released the synthetic material it will be dried in designated dryers and can be used for production. A first batch of products is made and thoroughly checked prior to releasing it for full production.

1 Incoming material
At incoming goods raw materials are extensively tested on e.g. viscosity, heavy metal and moisture content prior to be released for further processing.

3 Full production
After the first batch is approved full production can be started. Weight and dimensions of surface boxes are checked twice per shift.

>60
different types of synthetic surface boxes are available at AVK Plastics.

77
percent less carbon footprint when choosing a synthetic surface box over a cast iron surface box*.

>10
million surface boxes have been produced at the production facility of AVK Plastics in Balk, the Netherlands.

2300
tonnes is the maximum clamping force of AVK Plastics' injection moulding machines.

>25
countries are being supplied with high quality synthetic surface boxes and accessories.

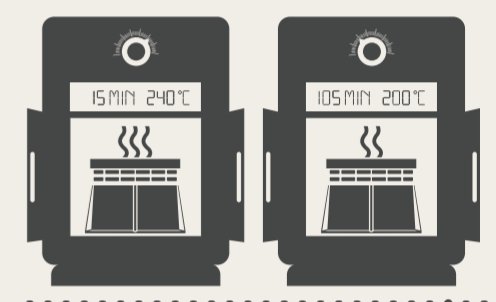
35
kilograms is the maximum shot capacity of AVK Plastics' injection moulding machines.

DVGW tests
AVK Surface boxes are submitted to multiple DVGW tests. The testing is done in accordance with both DVGW VP310-1 & -2. Third party inspection carried out by an independent laboratory is done on a yearly basis.

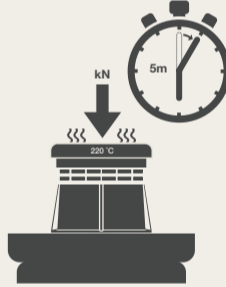
The thermoplastic compound used in production is to pass the following tests:
 • Full notch creep test (FNCT); minimum period till breakage = 60h.
 • Resistance to chemicals; absorption of the hot testing oil ≤ 10%

After the raw material is approved synthetic surface boxes need to undergo the following tests successfully before the DVGW approval will be awarded:

Form resistance in heat
The main reason to test form resistance in heat is to confirm the surface boxes are resistant to the high temperatures used during installation in tarmac. Surface box heated in an oven for 15min. at 240 °C and afterwards 105min. at 200 °C.



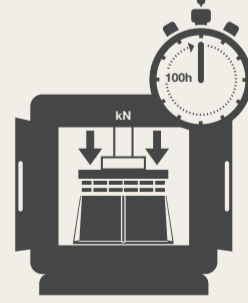
Form resistance under pressure
Heated plate (220 °C) is pressurised with 0.15N/mm² on the surface box. The plate simulates a roller compacting the tarmac.



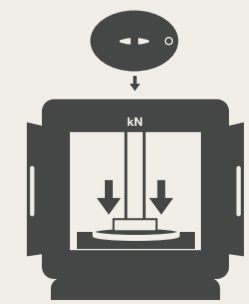
Impact strength
A test weight of 6 kg is dropped from a height of 6 meters on top of a conditioned surface box (24h @ -20°C). The test simulates the impact strength during winter periods.



Creep
Depending on type and size of surface box a certain amount of kN is pressed on top of the surface box for 100 hours. This simulates a heavy lorry parked on a surface box for a weekend.



Strength of lid
The lid of the surface box is pressurised with a certain amount of kN. The test forces applied exceed real life loading conditions.



*calculation based on Lifecycle Assessment methodology by ISO 14040-44 standards. A fictional cast iron version based on figures known by AVK is used in this calculation.