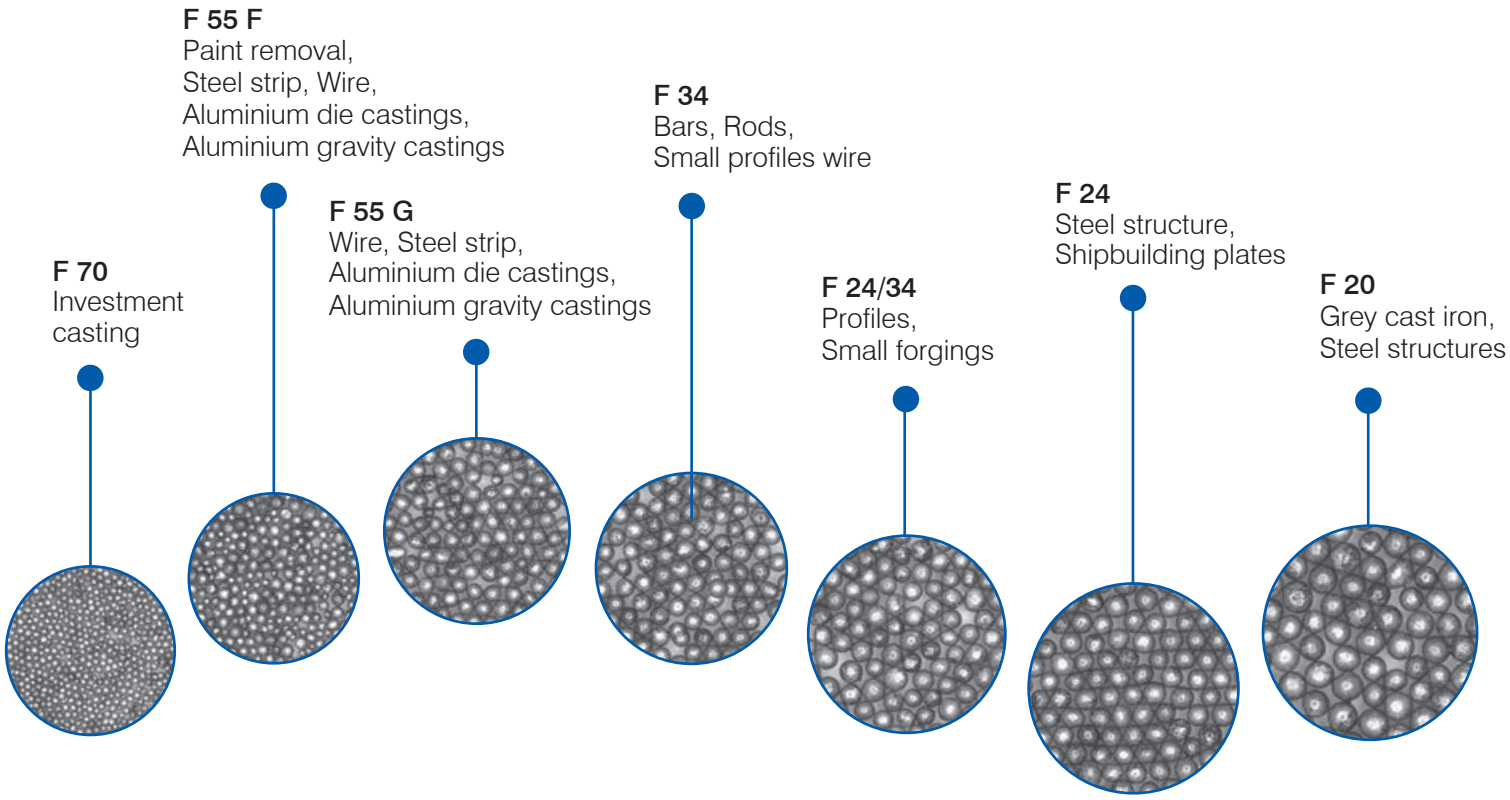
FERROSAD

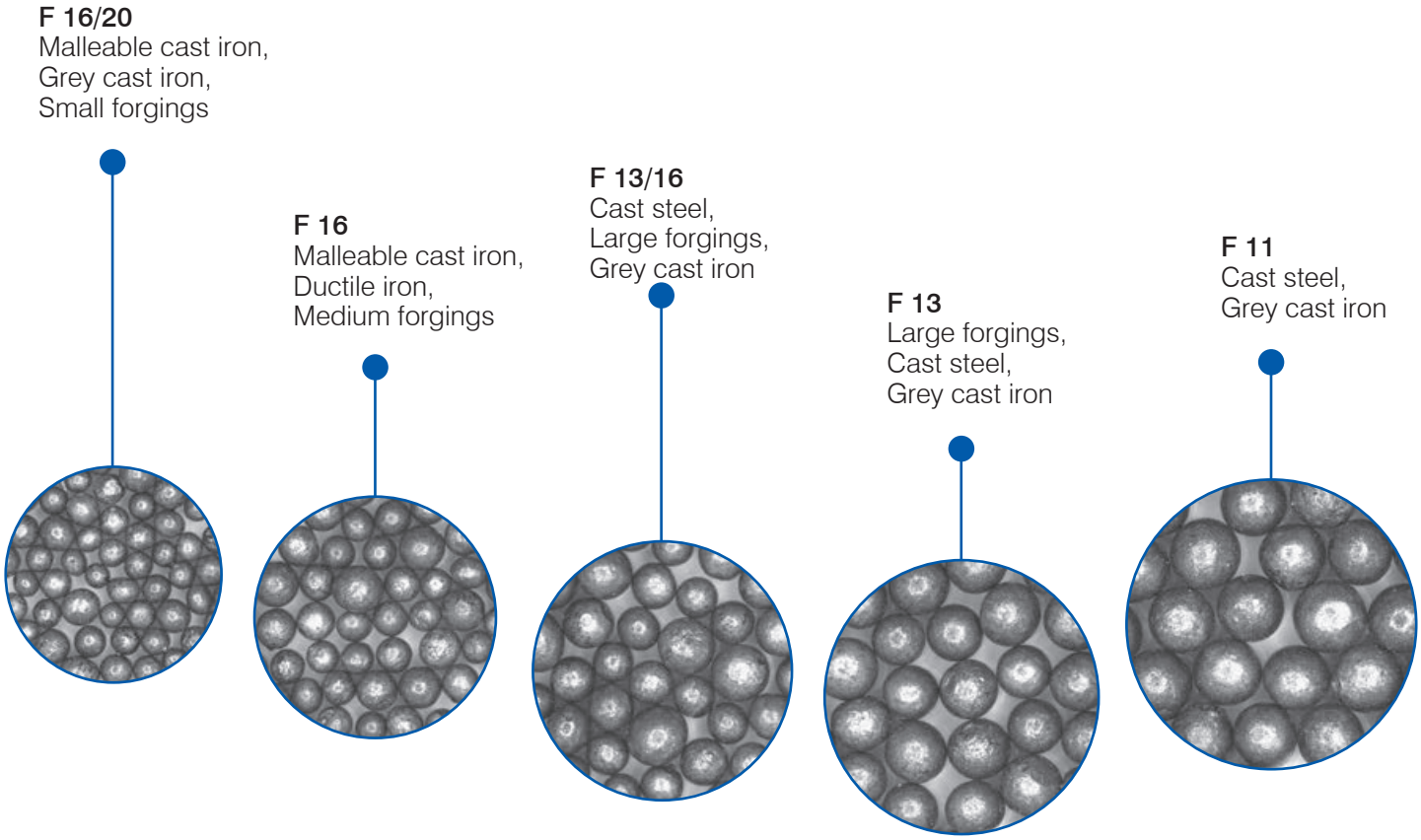
A SMALL GRAIN THAT MAKES A BIG DIFFERENCE



FERROSAD made from the finest steel

Quality is the key to the success of FERROSAD. As with any product, the quality depends on the component parts. We only use clean deep drawing quality scrap with low values of phosphorus and sulphur. In manufacturing FERROSAD we control additions of high quality alloys which, in the correct combinations guarantee high quality. FERROSAD has the right hardness and breaks down more slowly than shot with higher carbon levels due to its controlled levels of carbon and high manganese content. FERROSAD has a tough, wear resistant bainitic microstructure which is virtually free of shrinkage and slag inclusions. FERROSAD is categorised as a bright spherical metallic cast steel shot which does not suffer from quench cracks. After a few cycles in the machine, the operating mix achieves its optimum hardness for the best blasting results which in turn generates increased productivity and efficiency.

CHEMICAL ANALYSIS	HARDNESS: HV1 IN ACCORDANCE WITH ISO 11125-3
C = ca. 0,10 % Si = ca. 0,15 % Mn = ca. 1,15 % P = ca. 0,015 % S = ca. 0,015 %	When new: 390 – 430 HV1 In operation: 440 – 480 HV1 Bulk weight: 4,35 – 4,55 kg/dm³ Depending on grain size



Selecting the correct size of FERROSAD

To achieve an optimum blast finish, the degree of coverage is extremely important. The number of particles of shot in a given volume increases with decreasing size of shot. This means the amount of shot striking the surface will greatly increase. To get the highest possible degree of coverage requires selection of the smallest size possible to achieve the clean. This must be balanced against the need to deliver the right kinetic energy to achieve the clean as this decreases with the size of shot. If too small a shot is selected then blast time will increase and the surface finish will be poorer. The general rule is to select the smallest shot size which will achieve the required surface finish in the shortest time possible.

... In short as fine as possible, but as coarse as necessary.

FERROSAD

FOR OPTIMUM RESULTS YOU NEED THE OPTIMUM OVERVIEW

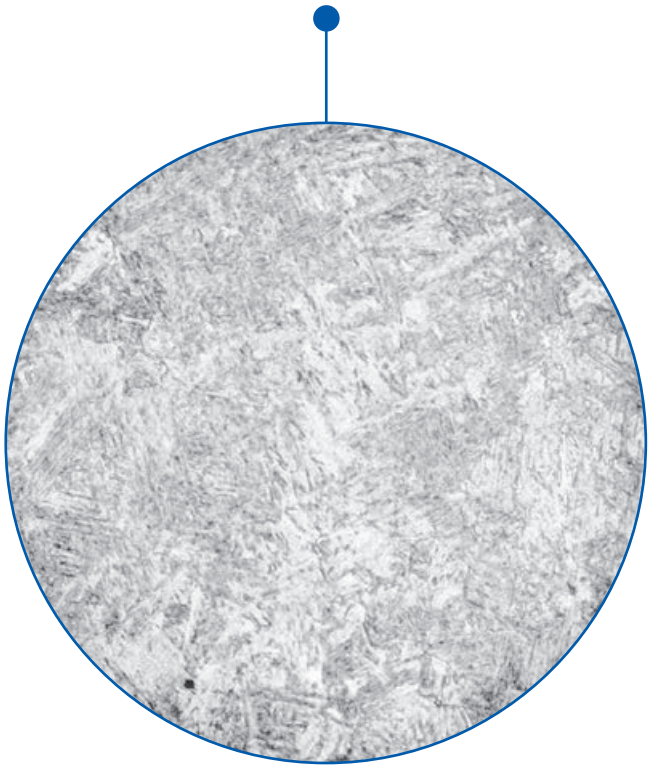
MATERIAL TO BE BLASTED	SURFACE	GRAIN SIZES (possibly mixes)	
		Projected velocity	
		50–60 m/sec	70–80 m/sec
Cast steel			
desanding	clean, free from foundry sand	F 13	F 13-16
descaling	clean, free from foundry sand and scale	F 13	F 13-16
Grey cast iron			
burned on sand	clean, dressed	F 13	F 13-16
heavily sanded	clean, free from foundry sand	F 13-16	F 13-16-20
normal	clean, free from foundry sand	F 16-20	F 16-20-24
small pieces	clean, free from foundry sand	F 20-24-34	F 24-34-55G
Malleable cast iron			
normal	clean, free from scale	F 16-20	F 20-24
small	clean, free from scale	F 16-20-24-34	F 20-24-34-55G
Heavy metal castings	clean, free from foundry sand	F 20-24-34	F 24-34-55G
Forgings			
coarse	clean, free from scale	F 13-16	F 13-16-20
medium	clean, free from scale	F 16-20	F 16-20-24
small	clean, free from scale	F 20-24-34	F 24-34-55G
Hardened pieces,	clean, free from scale	F 24-34	F F34-55G
Slab ingots	well descaled	F 16-20	F 20-24
Billets	well descaled	F 16-20	F 20-24
Steel bar or rod	**Peak-to-Valley** height in µ		
Fine profiles	bright metallic 35–50	F 24-34	F 34-55G
Wire	bright metallic 25–35	F 55G-55F	F 55G-F55F
	bright metallic 35–45	F 24-34	F 34-55G
Steel strip			
SEL strip	bright metallic 18–30	F 55G-F55F	F 55G-F55F
stainless steel strip	bright metallic 18–25	F 55G-F55F	F 55G-F55F
Shipbuilding plates	SA 2,5 - SA 3 40–70	F 20-24	F 20-24-34
Steel Fabrications	SA 2,5 - SA 3 40–70	F 20-24	F 20-24-34
Pickled, cast iron	bright metallic	F 13-16	F 16-20
Pickled, steel sheet	bright metallic	F 20-24	F 24-34

OPERATING MIX				CONSUMPTION VALUES					
Nominal grain size	Medium	Fine	Seperating grain size	Consumption in kg per impeller wheel. Drive motors at full capacity (ampere value = full capacity at 380 Volt), for motors with different ratings in kW					
%	%	%	mm	7 14	11 21	15 28	18 35	22 42	37 kW 70 Amp.
70	20–25	5	0,4–0,6	–––––	3,00	4,00	4,5–5,5	5,0–6,0	8,0–10,0
60	25–35	5	0,4–0,6	–––––	3,00	4,00	4,5–5,5	5,0–6,0	8,0–10,0
70	20–25	5	0,5–0,8	–––––	–––––	4,0–5,0	5,0–6,0	6,0–7,0	8,0–10,0
60	25–35	5	0,5–0,6	2,5–3,5	3,0–4,0	4,0–5,0	5,0–6,0	6,0–7,0	8,0–10,0
55	30–40	10	0,3–0,5	2,0–2,5	2,0–3,0	2,5–3,5	3,5–4,5	4,5–5,5	–––––
50	35	10–15	0,2–0,4	1,5–2,0	1,5–2,5	2,0–3,0	3,0–4,0	4,0–5,0	–––––
55	35	10	0,3–0,5	2,0–2,5	2,0–3,0	2,5–3,5	3,0–4,0	3,5–4,5	–––––
50	35	10–15	0,2–0,3	1,5–2,0	1,5–2,5	2,0–3,0	2,5–3,5	–––––	–––––
50	35	10–15	0,2–0,4	1,5–2,5	2,0–3,0	2,0–3,5	2,5–4,0	–––––	–––––
60	25–35	5	0,5–0,6	2,5–3,5	3,0–4,0	4,0–5,0	5,0–6,0	6,0–7,0	8,0–10,0
55	30–40	10	0,2–0,5	1,5–2,5	2,0–3,0	2,5–3,5	3,0–4,0	3,5–4,5	–––––
55	30–40	10	0,2–0,3	1,0–2,0	1,5–2,5	2,0–3,0	2,5–3,5	–––––	–––––
45	35–45	10	0,16–0,2	1,0–2,0	1,5–2,5	2,0–3,0	2,5–3,5	–––––	–––––
55	30–40	10	0,2–0,3	–––––	1,5–2,5	2,0–3,0	2,5–3,5	3,0–4,0	5,0–7,0
55	30–40	10	0,2–0,3	–––––	1,5–2,5	2,0–3,0	2,5–3,5	3,0–4,0	5,0–7,0
50	30–40	10	0,16–0,2	1,00	1,0–1,5	1,5–2,0	2,0–2,5	2,5–3,5	–––––
50	30–40	10	0,10–0,16	1,00	1,0–1,5	1,5–2,0	2,0–2,5	2,5–3,5	–––––
50	30–40	10	0,16–0,2	1,00	1,0–1,5	1,5–2,0	2,0–2,5	2,5–3,5	4,0–6,0
45	35–45	10	0,1–0,16	1,00	1,0–1,5	1,5–2,0	2,0–2,5	2,5–3,0	3,0–5,0
45	35–45		0,1–0,16	1,00	1,0–1,5	1,5–2,0	2,0–2,5	2,5–3,0	3,0–5,0
50	30–40	10	0,2–0,3	1,00	1,5–2,5	2,0–3,0	2,5–3,5	3,0–4,0	5,0–7,0
50	30–40	10	0,2–0,3	1,00	1,5–2,5	2,0–3,0	2,5–3,5	3,0–4,0	5,0–7,0
65	25–35	5	0,3–0,5	1,5–2,5	2,0–3,0	2,5–3,5	3,0–4,0	3,5–4,5	–––––
65	20–30	10	0,2–0,4	1,0–2,0	1,5–2,5	2,0–3,0	2,5–3,5	–––––	–––––

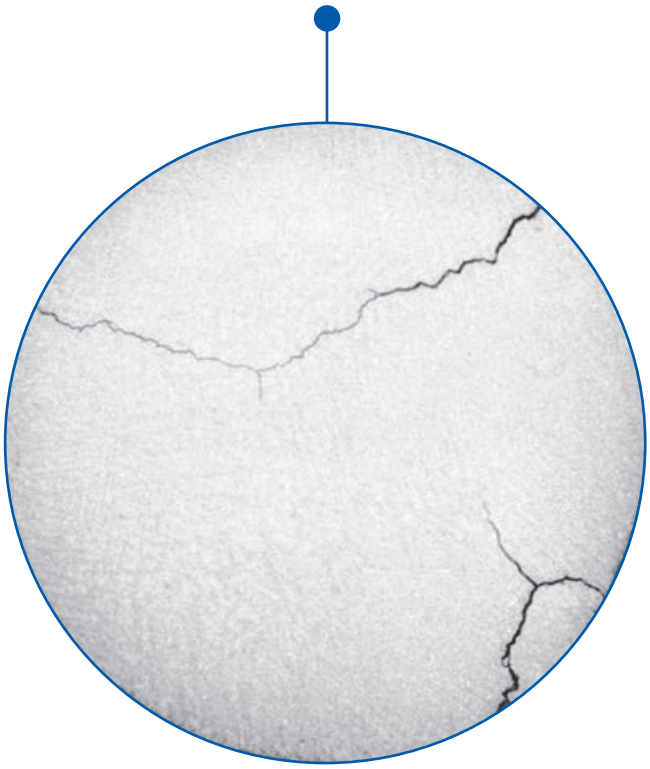
FERROSAD

HARD ON CORROSION AND GENTLE ON THE MACHINE

FERROSAD
Low carbon steel shot
with bainitic microstructure.



High carbon steel shot
often shows cracked
martensitic microstructure.



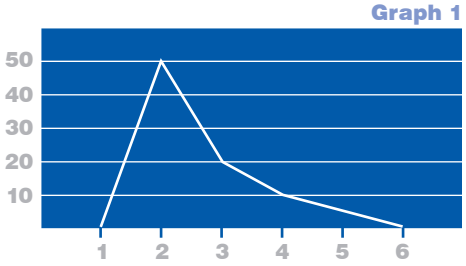
FERROSAD low carbon steel shot

FERROSAD' quality can be judged on three criteria, price, cleaning performance and low consumption. In use, further savings are generated from reduced wear on the machine parts that are in contact with the shot, i.e. blades, impellers and wear plates (lining). High carbon steel shot breaks down in use and forms angular particles which cause excessive wear on the blast machine. Our FERROSAD low carbon shot is different. The shot will not break and remains round because of the crack free bainitic microstructure. The shot hardens by cold working and is subject to abrasive wear. The shot remains round, getting smaller and smaller until it is taken out by the separator. The wear behaviour develops an ideal operating mix of coarse, medium and fine grains. This results in the optimum blasting result combined with a low wear rate on the machine itself.

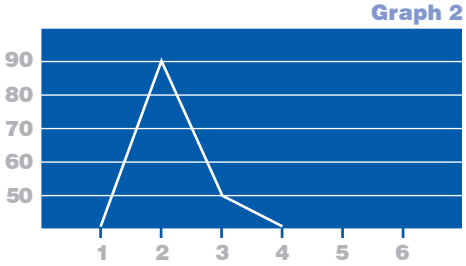
Operating Mix

A well balanced operating mix is one of the main factors in the blasting process. In a balanced operating mix, the coarse grains remove the scale and irregularities from the surface while the medium and fine shot cleans up and smooths the surface. The graphs show examples of good and bad operating mixes. **Graph 1** shows an ideal operating mix. **Graph 2** shows an operating mix where the medium and fine grains are missing resulting in poor coverage and performance. A build-up of fine grains also causes problems. If part of the operating mix is missing as in **Graph 3** this may be because of inconsistent additions of shot. The setting of the air wash separator will also affect the operating mix.

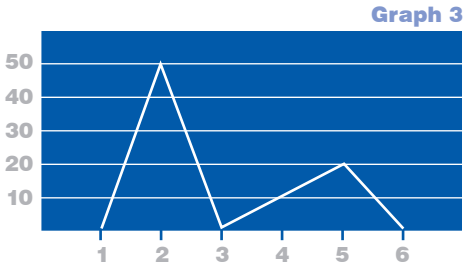
Graph 1



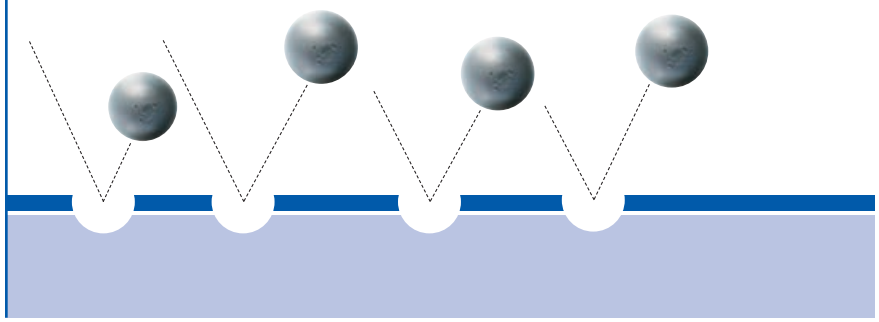
Graph 2



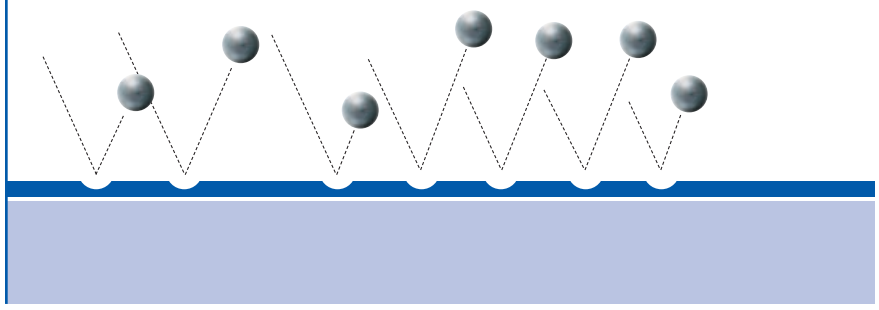
Graph 3



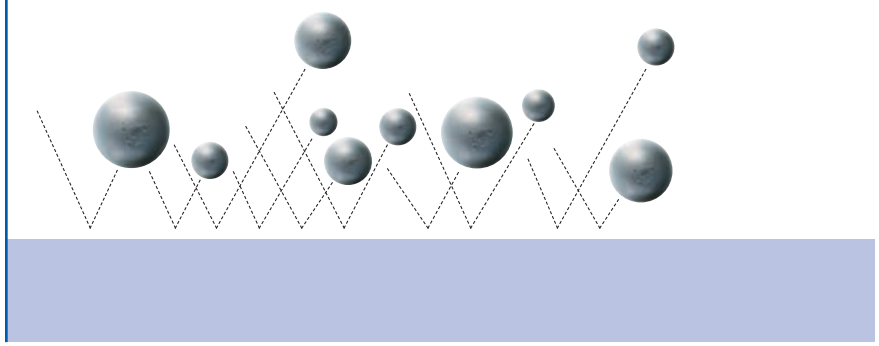
Operating mix too coarse



Operating mix too fine



Balanced operating mix



The drawings on the left show the effect of the different grain sizes on the surface. Target is always the balanced operating mix as shown in graph 3.

We provide help and advise to all customers to ensure they have the correct size of shot. We have an experienced team of sales engineers and worldwide representatives who will assist you to optimise your blasting process. Special packing is available on request though are standards are: **a pallet of 50 bags each 20 kg bags, 1000 kg bulk bags or 800 kg drums**. Each pallet can be traced back to the day of its production ensuring product quality and customer satisfaction.

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