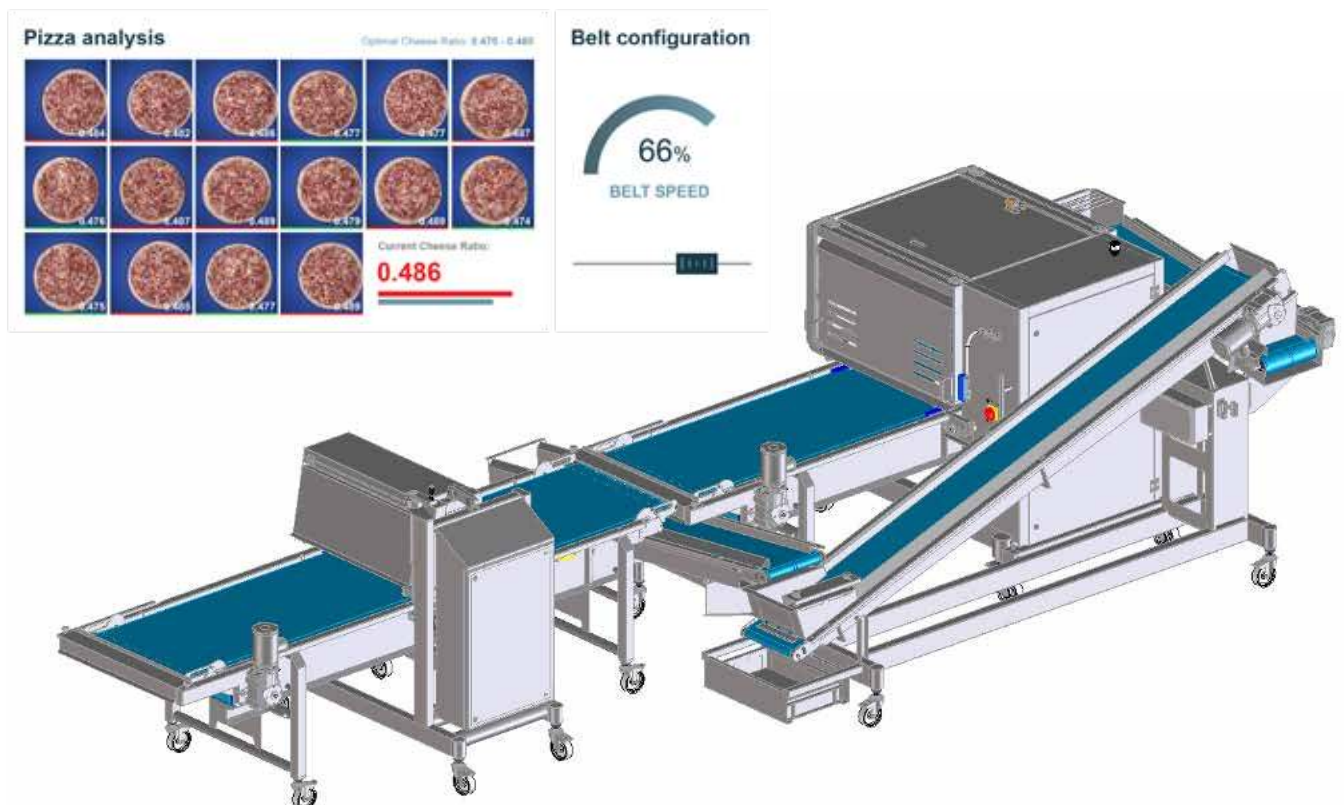# AMF TROMP
SMART APPLICATOR

A new smart & intelligent automation service for your pizza topping process and applicators

Reduce waste, give away and operator cost to assure the perfect pizza every time! Every product is analysed real-time, and the amount of cheese topping will increase or reduce according to specifications. Without operator handling and without hands touching products! That is Smart Applicator – a new service by AMF Tromp.

DIGITALIZATION – INTELLIGENT & SMART AUTOMATION

Business Drivers lead to this vision
Your drivers to be successful, have challenged AMF Tromp to develop new tools and products for you, to create value. Higher efficiency, optimal asset utilization, sustainability and digitalization have driven us to innovate in this Industry 4.0 era. Internet of Things, Cloud solutions and more automation, are some of the components that will change the bakery and food processing industry as well. The route to an autonomous bakery, with fully automated processes, independent smart working and learning machines and little operators or human handling, producing 24/7 is the dot on the horizon AMF Tromp foresees for the future.

TYPES OF PAIN POINTS & CHALLENGES

REDUCE GIVE-AWAY / LOWER INGREDIENT COST

HIGH LABOUR COST PER LINE

CONSISTENCY IN PROCESS

INCOMPLETE / LOW QUALITY PRODUCTS

Your challenges - Our solutions
New technologies have the possibility to make machines smarter by use of AI & Machine Learning. A smart machine is:
▪ Intelligent
▪ Secure
▪ Managed
▪ Connected

Our lead developers at AMF Tromp had a vision developing new services for our customers today: *"doing smart things with data, coming from machines, and create value with that"*.

Software-as-a-service is something you know already from the larger software companies in the world, and subscription based services are common good these days. AMF added the latest and a strong innovation to the pizza topping market for your process to become Smart.

Pizza Topping - Automated to be smart and self-learning
The current way of decorating pizza, with Waterfall application of cheese and toppings, is often done by manual and operator checks and intervention, the operator in always control of the process and quality.

Variation in your consistency has many reasons, we can eliminate variation by automating certain factors and guarantee more certainty.
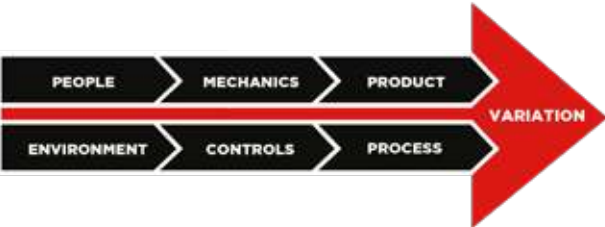
Moving to more **digital solutions** – we automated the process of:
▪ Quality checks during production
▪ Cheese topping quality, quantity & weight check
▪ Changing the applicator settings during production

For Waterfall applicators of AMF Tromp and other applicators were the operator in now in control, we can automate it and make your machine SMART!

The AMF Tromp Smart Applicator will automate, improve and gradually take over control, and learn the machine how to act and react. This is machine learning.

Real-time quality control and weight measurements
▪ Reduce give-away of expensive ingredient like cheese up to 3% per year
▪ Reduce waste of valuable cheese by re-circulation
▪ Reduce labour cost and manual intervention
▪ Real-time weight measuring and management

▪ Direct impact on quality and end result – perfect pizza's within spec.
▪ Eliminate incomplete or fault products – OEE result improves

Continuous improvement by the Smart Applicator of AMF Tromp, with a learning machine, that will continue to improve itself, every day and day again.

SMART APPLICATOR – A SUBSCRIPTION BASED SERVICE WITH CONTINUOUS RESULTS AND IMPROVEMENT

Intelligent Solution - a Managed Service

AMF Tromp Smart Applicator monitors product, takes digital images of each products (pizza) – and Artificial Intelligence calculates and improves settings, controls the 'baseline quantity'. Immediateley the machine settings change automatically and the smart part is: the Machine Learns and improves the rest of production runs during the day or night.

The product we offer is a managed service

- A hardware unit with lights – for camera detection on your production line
- A subscription based on our intelligent & Smart Service (SaaS)
- Installation & comissioning on your production line(s)
- Training & Support – 1st line and 2nd line
- Data safety, integrety and storage assured by AMF Tromp – with Azure® Cloud platform
- New value added services to come
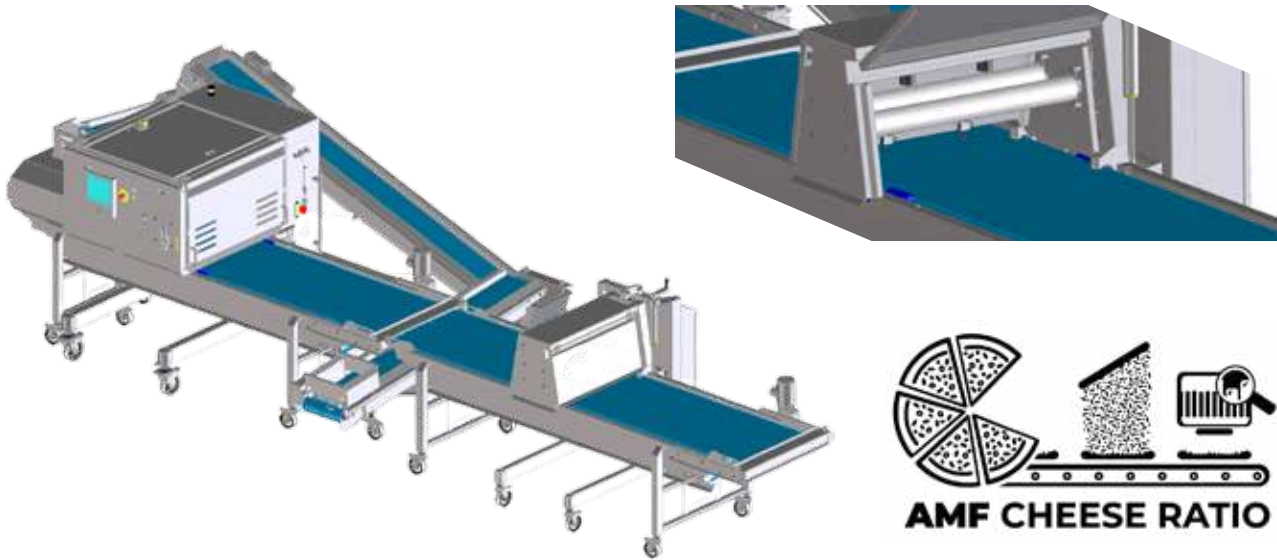
AMF CHEESE RATIO

AMF Cheese Ratio optimizes the topping quantity and quality

AMF Cheese Ratio is the new market standard indicator or KPI, that indicates the amount of cheese or topping strewed on pizza's on the production belt. The ratio is determined in your specification, and measured by our solution during production. Anomalies are detected by use of camara imaging and Artificial Intelligence (AI).

- Real-time data analysis by Smart Applicator
- Visual detection of anaomalies
- Machine settings change automatically – no operator intervention
- The applicator is trained – with Machine Learning – to improve constantly
- Resulting in more perfect products, less give-away and waste, less operator intervention

Pizza analysis
Optimal Cheese Ratio: 0.470 - 0.480

0.484 0.482 0.486 0.477 0.477 0.487
0.476 0.487 0.489 0.479 0.489 0.474
0.475 0.485 0.477 0.489

Current Cheese Ratio:
0.486

Belt configuration
66%
BELT SPEED

Value calculation & Return-on-Investment (ROI)

Value is created every time your waste levels go down, and give-away of expensive ingredients is avoided. AMF Tromp will calculate your ROI of this investment / use of the subscription based service.

We can save up to 3% of toppings, like cheese, per year. This means in many production environments, savings of many thousands Euro's / Dollars per year.

*Most use cases have an **ROI of less than 1 year**! How often did you earn back an investment that quick?*

Your options in Smart Applicator

We offer many options and configurations, to personalize your Smart Applicator by AMF Tromp.

AMF - SMART PROCESS SOLUTIONS

PERFECT PIZZA & FAST ROI
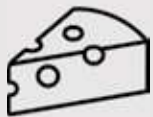
4000 p/hr

Shift 16 hrs

Avg. price € 7 p/kg

Avg. 50 gr per pizza

€ $ Cost per day € 22.400

With AMF - Smart Process Solutions 3% savings per day!

Return on investment: < 1 year!

AMF BAKERY SYSTEMS — **TROMP**

WWW.AMFBAKERY.COM/SMART

This table below shows current and future development options, available for Pizza & Food producers worldwide:

Applicators	Working width	Pizza shape	Pizza sizes	Toppings	Contract period
Tromp + any other	600	Round	8"- 12 "	Cheese	2 years
	800	Mini	Tbd	Tomato sauce (phase 2)	3 years
	1000	Square	Tbd	Vegetables (phase 2)	4 years
	1200	Oval	Tbd	Protein (phase 2)	5 years
				Other (phase 2)	

WHY AMF BAKERY SYSTEMS?

We engineer customer driven solutions for bakers all around the world

We listen to our customers and design products that are:
▪ sanitary, wash-down designs
▪ low maintenance (direct drives and minimal parts)
▪ easy to operate by bakers and operators

Our products are reliable and robust, with over 100 years of industry experience

Standard and easy to implement solutions, as well as customer build

We deliver turnkey solutions ready to improve production capacity and profit

Our value stands for low risk investment

We offer localized support, globally

We love to know what we can do for you !