

# PRECISION IN PLASTICS

## EXCELLENCE IN PRODUCTION

*From Drive to Software*  
*Complete Smart Solutions for Plastics*

*Extrusion*  
*Blow Moulding*  
*Blown Film*  
*Injection*  
*Calenders*  
*Winding - Unwinding*  
*Puller (Caterpillar)*  
*Dosing*

**EMF Motor®**

# We Create Value

We deliver ***innovative, reliable, and customized solutions*** tailored to the needs of the extrusion industry.

With 40+ years of industry know-how, we help you get more out of your plastic machinery.

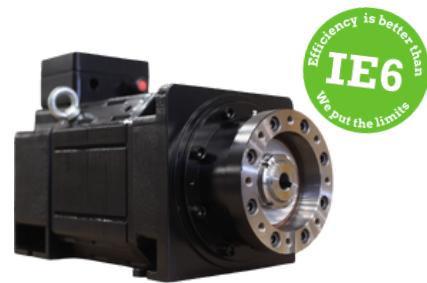
Our plastic application solutions combine rock-solid performance with pinpoint precision—enhancing the efficiency of your entire production line.

From single components to full systems, we offer flexible, one-source solutions that bring you speed, reliability, and a serious competitive edge.

**Let's manufacture smarter, faster, better—*together*.**

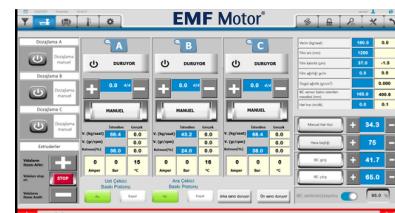
## Plastics Machine Upgrades

We modernize software and hardware components to extend machine life and increase output capacity. At the same time, we significantly reduce energy consumption.



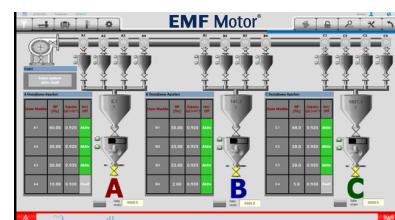
## Software Development

We design and implement advanced software to boost production performance and efficiency.



## IoT Solutions for Extrusion Equipment

We integrate smart technologies for real-time monitoring, data analytics, and predictive maintenance.



## Motion & Process Automation Consulting

We provide expert consulting to ensure seamless, efficient operation of your automation systems.



# APPLICATIONS

## Solutions for Extrusion



*Smarter Extrusion. Greater Efficiency*

### Custom Temperature Control Software



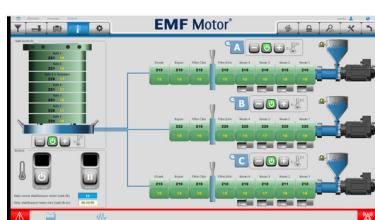
- Engineered for your machine
  - precision, consistency, and savings
- Precise, Stable, and Reliable Temperature Control
- Custom software ensures optimal thermal performance
- Power Distribution → Balanced energy use, reduced spikes, stable operation
- Power Limit → Controlled consumption, cost savings, contract safety
- Combined Effect → Continuous stability, efficient performance, penalty-free operation

### Direct Drive & Main Extruder Motors

Gearless, high-torque, precision

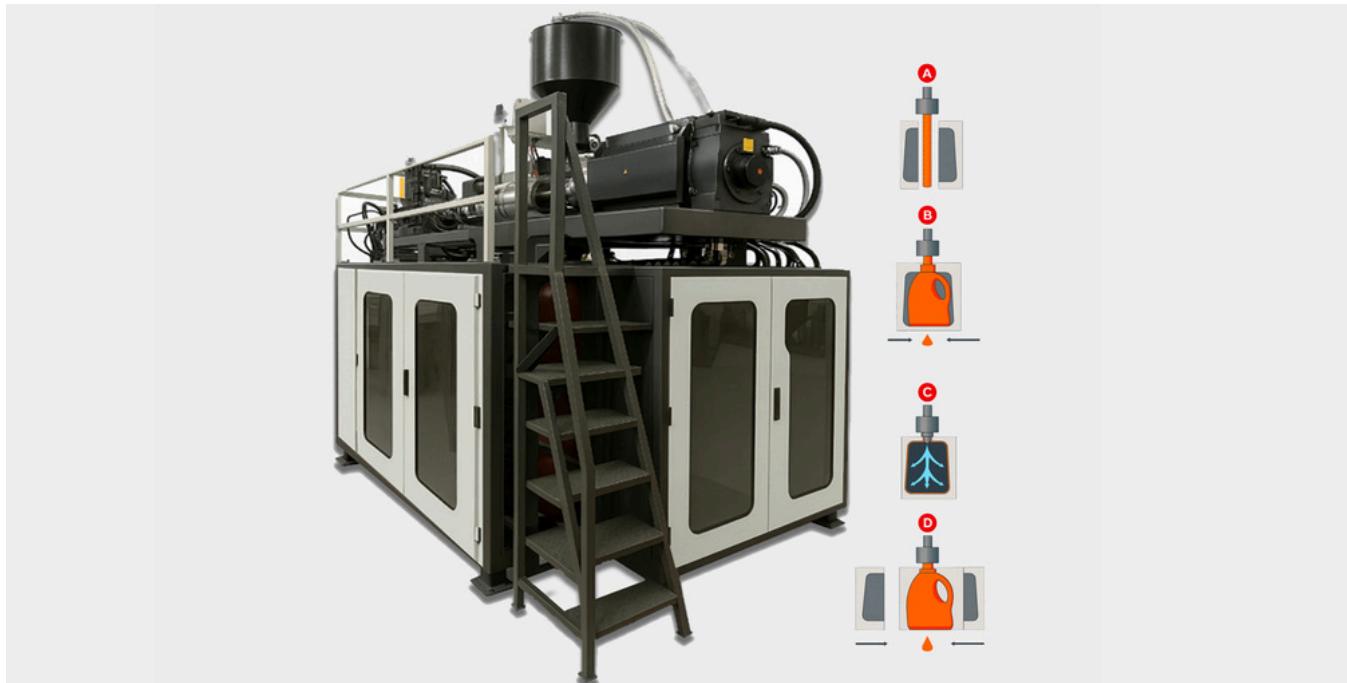
**No need water cooling** for main extrusion drive

- Up to 30% Energy Savings: Direct drive motors reduce losses and boost efficiency **beyond IE6**
- Super Low Maintenance Cost, Long-Life Operation  
No Gearbox, No Beltdrive —  
No frequent servicing
- Higher Productivity & Performance:  
66 - 88 Pole Motor  
Faster response, smoother extrusion
- Seamless, Reliable, and Efficient Operation:  
Designed for 24/7 industrial duty —  
No interruptions



# APPLICATIONS

## Solutions for Blow Molding



### Software Solutions for Fully Electric Blow Molding Machines

- End-to-end advanced, fully integrated control software
- Seamless integration of motion, process, and automation systems
- High efficiency, flexibility, and reliable production

### Parison Control

- Ultra-precise control at up to 500 points
- Seamless integration of advanced software with Direct Drive technology
- Ensured maximum accuracy and consistency in wall thickness distribution

### Direct Drive for Blow Molding

- Stable Torque from 0 rpm  
Precise parison & wall thickness control
- Gearless Design  
No gearbox, no belts, no losses,  
**no water cooling**
- Energy Savings up to 30%  
**beyond IE6**
- Silent & Vibration-Free  
Higher product quality, less scrap
- Industry 4.0 Ready  
Real-time monitoring & predictive maintenance

# APPLICATIONS

## Solutions for Blown Film



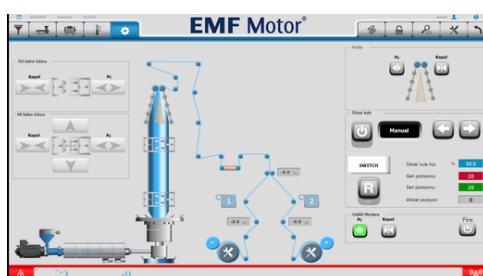
### IBC Control

- Manual & Automatic Modes → Flexible operation for different production needs.
- Real-Time Ultrasonic Measurement → Tracks cage height, bubble diameter, and bubble-to-cage gap.
- Target vs Actual Comparison → Continuously aligns product dimensions with set targets.
- Automatic Adjustments →
  - Calibration cage opening adapts to maintain correct width.
  - Bubble inflation/deflation maintains optimal gap.

**Benefit:** Stable bubble geometry = consistent film dimensions, reduced variation, and optimized processing.

### Direct Drive for Blown Film

- Stable Torque at 0 rpm  
Perfect bubble stability and thickness control
- Ultra-Precise Speed Regulation  
± 1% accuracy ensures consistent film quality
- Gearless & Compact Design  
No gearbox, belts, or couplings  
Less space, no mechanical losses
- Energy Savings up to 30%  
Highest efficiency—**beyond IE6**
- Reduced downtime, **no water cooling**
- Silent & Vibration-Free Operation  
Smoother process, higher film quality, less scrap



### Pullers

- High-performance drive systems for stable and consistent pulling force
- Maintenance-Free

# APPLICATIONS

## Continuous Gravimetric Blender & Extrusion Control



### Continuous gravimetric blender and extrusion control

- Recipe can be changed during operation  
→ No waste, no scrap during recipe transitions
- Extended Kalman Filter for ultra-precise dosing.

#### Key Advantages:

- Insensitive to Bulk Density Changes → No frequent recalibration like volumetric systems
- Consistent Output → Uniform quality & reliable process repeatability
- High Dosing Precision → Reduced raw material consumption, zero product loss
- Data-Driven Quality Control → Continuous operational data for optimization

#### How It Works:

- Each ingredient is independently weighed & dosed into the cascade mixer.
- The system monitors hopper weight to detect fluctuations from extruder demand.

- Independent feeder control ensures:
- Accurate blend ratios
- Stable hopper material level
- Seamless synchronization with extruder

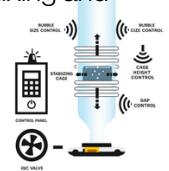
**Result:** Always matches production needs

→ **No interruptions, no waste**



### Cascade Mixer Action

All components are simultaneously dosed in correct proportions, guaranteeing homogeneous mixing and consistent high product quality.

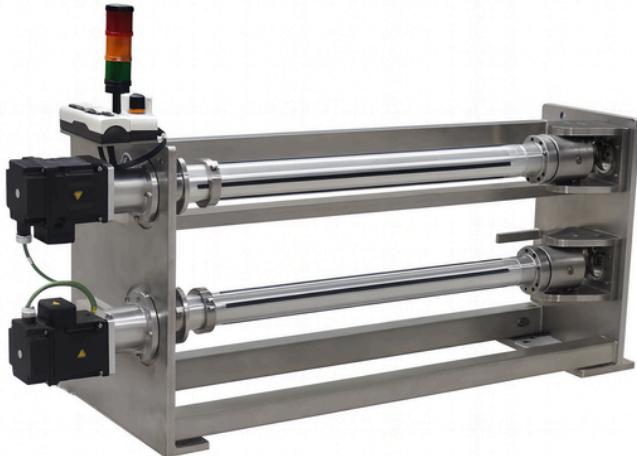


### Line Control

- Superior accuracy and synchronization across the entire production line
- Consistent, reliable, and optimized production performance
- Real-time data monitoring and predictive maintenance

# APPLICATIONS

## Solutions for Winder-Unwinder & Calender



### Direct Drive Technology by EMF Motor

*High precision. Zero maintenance. Silent operation.*

- Our high-pole Direct Drive motors deliver **perfect control, efficiency**, and **reliability** across winding, unwinding, and calendering applications.

#### Advantages

- Constant Torque from 0.1 rpm – stable performance at ultra-low speeds
- Direct Torque Control – no gearboxes, couplings, shafts, or oil lubrication
- Silent & Vibration-Free – smooth running, higher product quality
- Up to 96% Efficiency – no transmission losses, energy sharing, braking energy recovery
- Compact & Reliable – fewer components, minimal failures, easy integration
- Smart Control Ready – software-based tension and pressure regulation, predictive maintenance

### Winder / Unwinder Applications

- $\pm 1\%$  tension accuracy, stable from 0.1 rpm
- Direct torque control – no need for load cells or dancers
- Perfect roll consistency and superior material handling
- Torque range: 20 – 8,000 Nm

Speed: 0.1 – 1,000 rpm

### Calender Applications

- Stable torque at low speeds ensures perfect pressure and thickness control
- Consistent film, sheet, textile quality
- Eliminates vibration in sensitive calendering zones
- Optional absolute encoder & integrated thrust bearings for axial load support
- Energy savings up to 30% — beyond IE6



## THE GERMAN PATENTED & AWARD-WINNING DIRECT DRIVE TECHNOLOGY

**“** We believe that smart factories need more than sensors and software – they need efficient, precise, and sustainable drive systems at their core.

Our German patented Direct Drive Technology is the keystone for IoT and sustainability, delivering maximum efficiency and reliability without gearboxes or water cooling. This is how we empower the future of smart and sustainable manufacturing. **”**

**EMF Motor Family**

# EMF Motor<sup>®</sup>

## TÜRKİYE

EMF MOTOR A.S.

📍 Ramazanoğlu Mah. Sanayi Cad. No:9  
TR34906 İstanbul, Pendik - Türkiye

📞 +90 216 595 19 00

## GERMANY

EMF 97 GmbH

📍 Küferstraße 9,  
D67551 Worms - Germany  
📞 +49 6247 2420422

🌐 [www.emfmotor.com](http://www.emfmotor.com)

✉️ [info@emfmotor.com](mailto:info@emfmotor.com)