

# KeDrive for Plastics.

Servo drives for  
the plastics industry.



**KEBA**<sup>®</sup>

Automation by innovation.

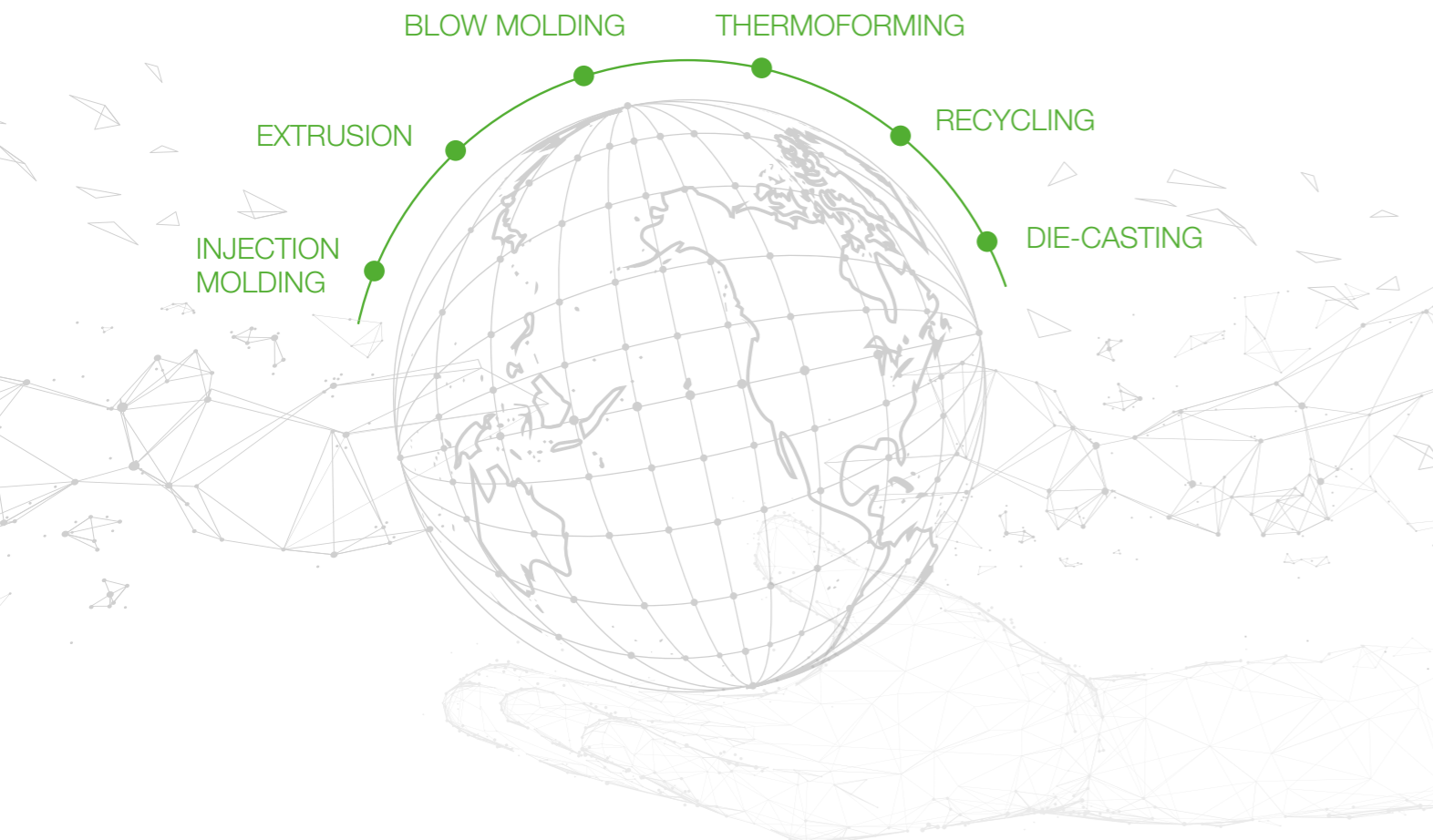
## Our passion. Your success.

Over 30 years of experience  
in controlling complex processes

Our state-of-the-art control system KePlast is perfectly designed for all designed for all plastics processing machines with high demands in control technology.

KEBA's complete automation solutions are outstanding due to our industry expertise, particularly in injection molding machines (i-series) as well as in further applications in the plastics industry, such as extrusions, blow molding, thermoforming and recycling machines. The associated processes and technologies result in synergies with these machine types in control technologies (p-series) as well as optimized hardware solutions.

We have bundled our know-how and our passion for plastics into the new KeDrive D3 servo drive package – a compact and powerful multi-axis drive solution optimized for the use with plastics and injection molding machines.



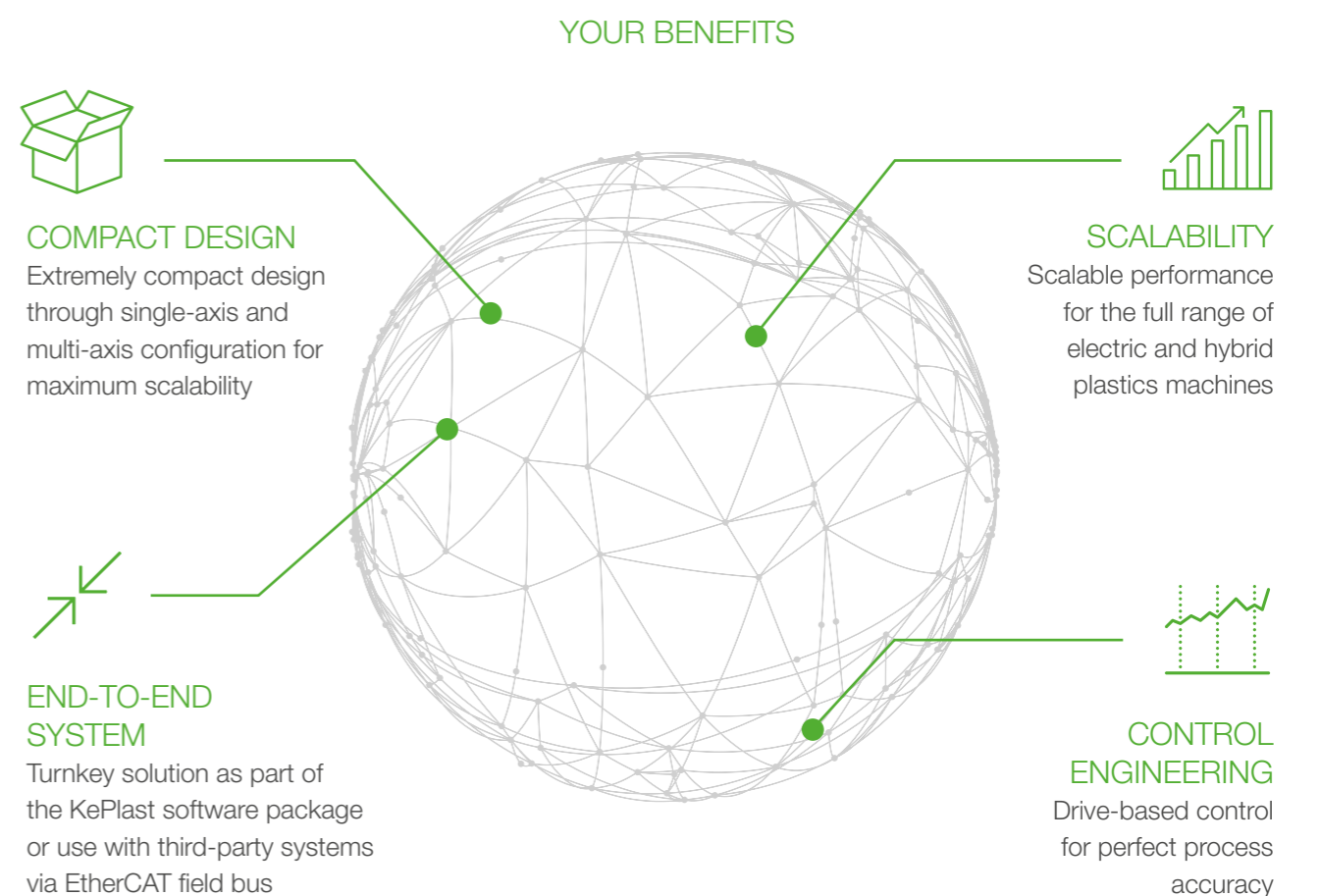
## Because technology matters.

Extensive portfolio of  
drive technology for all plastics machines

We speak your industry's language –  
and we actively listen, too:

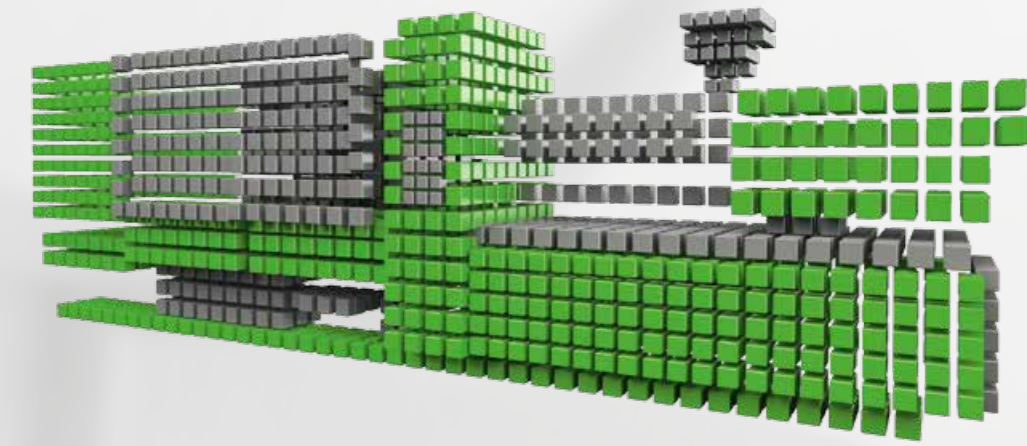
The deep, seamless integration of the KeDrive D3 servo drives into the industry-specific software of the KePlast series rounds out this solution and makes it highly attractive for machine manufacturers in the plastics sector.

For fully electric and for hybrid plastics machines, we offer a comprehensive, cost-optimized portfolio of drives and motors that provide outstanding flexibility for designing your machine configuration.



## Into the future with KeDrive D3

KeDrive D3 offers innovative benefits ideally suited to plastics processing – get ready for the challenges of the future!



### Focus on energy efficiency

In factory automation, the drive systems account for the largest share of the energy consumed.

Active energy recovery systems limit expensive energy peak loads. Optional capacitor modules store energy temporarily, intelligent energy storage systems protect against power outages.

### Condition monitoring

Use drive-based condition monitoring to realize predictive maintenance solutions and increase the productivity of your machine.

The drive unit internally collects relevant data, converts it, and compresses it based on intelligent mathematical models.

# Concentrated performance in a small package

The KeDrive D3 drive system helps you create smart, sustainable, and cost-efficient solutions for your machine configurations.

The great power range of up to 120 kW of power supply and 400A of peak current make it easy to realize electric injection molding machines with up to 500 tons of clamping force. The KeDrive D3 multi-axis system stands out for its unique combination of electrical axis with hydraulic servo pumps.

## KeDrive for plastics machines - your highlights

- // Scalable product range up to 120kW & 400A peak current
- // Single-, double- & triple axis-modules
- // Energy regeneration modules
- // High-speed EtherCAT Fieldbus
- // 125 µs closed-loop control
- // Pressure closed-loop & hydraulic servo pump

### Compact size & simple installation

The compact design of the control cabinet is always an important consideration in machine engineering – because of costs and installation requirements.

This is exactly where KeDrive D3 comes in. The flexibility of the multi-axis controller significantly reduces the space required in the control cabinet, and the simplified wiring concept reduces installation time and thus manufacturing costs.

### Optimization at all levels

The large number of single axis and double axes in combination with the matching motor selection creates a wide range of options for optimizing your machine series.

The high peak currents of the drives paired with power supply units specially designed and optimized for the processes in injection molding machines make an attractive complete package. Our experts help you to analyze your entire machine cycle and find the optimal design of your drive system.

### Control technology in drive

The sophisticated control structure of the drive as well as predictive feed-forward control provide for the greatest-possible dynamics paired with the highest precision.

These optimized structures, in combination with built-in pressure loop on drive with a cycle time of 125 µsec are used for injection molding applications, and support the fastest-possible responses to process changes. This high-speed control achieves an excellent quality of the parts as well as reliable process windows, keeping the weight of the plastic parts constant and minimizing rejects.

### Large motor portfolio

KEBA servo motors are three-phase motors for sophisticated servo applications – available for all speeds and voltages.

The servomotor is particularly well suited to highly dynamic injection molding machines. In combination with the KeDrive D3 drive system, it allows your machine to achieve its maximum performance.



Power Supply

Inject Axis

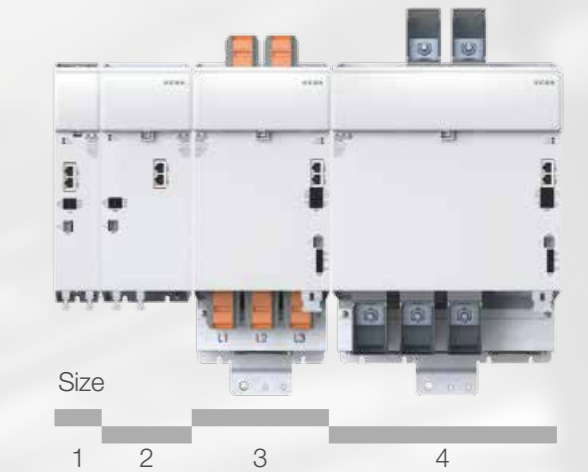
Mold Axis  
Plast Axis

Eject Axis  
Peripheral Axis

## Product range & technical data



Multi-axis drive range  
Peak current up to 400A



Several power supply packages  
Power range up to 120 kW

| KeDrive D3-DA Axis Modules  |   |   |        |    |             |                           |        |     |        |     |     |
|-----------------------------|---|---|--------|----|-------------|---------------------------|--------|-----|--------|-----|-----|
| Max. output current [A] (1) | 4.5   | 9 | 18     | 36 | 40          | 67 (72) (2)               | 100    | 135 | 240    | 280 | 400 |
| Nominal current [A]         | 1.5   | 3 | 6      | 12 | 18 (16) (2) | 24                        | 32     | 45  | 80     | 130 | 210 |
| Dimensions [mm]             | Size 1: 55x310x241, Size 2: 110x310x241, Size 3: 165x390x251, Size 4: 275x390x251 |   |        |    |             |                           |        |     |        |     |     |
| Single-Axis                 | Size 1  |   | Size 2 |    | Size 2      |                           | Size 3 |     | Size 4 |     |     |
| Double-Axis                 | Size 1  |   | Size 2 |    | Size 3      |                           | —      |     |        |     |     |
| Triple-Axis                 | Size 1  |   | Size 2 |    | —           |                           |        |     |        |     |     |
| Cooling                     | Heat-sink, cold plate   |   |        |    |             | heat-sink, liquid cooling |        |     |        |     |     |
| Interfaces                  | EtherCAT (FSoE, EoE), Encoder: Resolver, SinCos, HIPERFACE, HIPERFACE DSL, EnDAT  |   |        |    |             |                           |        |     |        |     |     |
| I/Os                        | 11DI, 4 Safety DI, 1AI for pressure sensor via module D3-XA 230/A                 |   |        |    |             |                           |        |     |        |     |     |
| Standard safety             | STO (SIL3, PLe, Kat. 4), SBC  |   |        |    |             |                           |        |     |        |     |     |
| Firmware                    | 125 µs pressure closed loop, servo pump hydraulic package                         |   |        |    |             |                           |        |     |        |     |     |

| KeDrive D3-DP Passiv Power Supply |   |        |                           |        |        |        |
|-----------------------------------|---|--------|---------------------------|--------|--------|--------|
| Max. power [kW]                   | 20  | 44     | 120 (3)                   | 90     | 180    | 240    |
| Nominal power [kW]                | 10  | 22     | 37 (3)                    | 45     | 90     | 120    |
| Dimensions [mm]                   | Size 1: 55x310x241, Size 2: 110x310x241, Size 3: 165x390x251, Size 4: 275x390x251 |        |                           |        |        |        |
| Housing                           | Size 1  | Size 2 | Size 3                    | Size 3 | Size 3 | Size 4 |
| Supply voltage                    | 3x 230 - 480V AC +/-10%   |        | 3x 400 - 480V AC +/-10%   |        |        |        |
| Integrated brake chopper          | Yes   |        |                           |        |        |        |
| Cooling                           | Heat-sink, cold-plate   |        | Heat-sink, liquid cooling |        |        |        |

| KeDrive D3-DP Active Power Regeneration |                         |     |
|---|-------------------------|-----|
| Max. power [kW]                         | 60                      | 110 |
| Nominal power [kW]                      | 30                      | 50  |
| Housing                                 | Size 3                  |     |
| Supply voltage                          | 3x 230 - 480V AC +/-10% |     |
| Charging module                         | Via D3-DL 300           |     |
| Cooling                                 | Heat-sink, cold-plate   |     |

(1) Overload for 500ms (2) For double-axis (3) Preliminary data

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