The Nuremberg drive expert gets your vehicles to run: efficiently, emission optimized and cost saving. Take advantage of our long-standing know-how in the electrical drive engineering for your hybrid or electrical drive solution.

Baumüller is an established expert since over 80 years for innovative electrical automation and drive systems. With our more than 40 locations worldwide and due to the intensive cooperation with customers worldwide we are a reliable and competent technology and service partner everywhere on-site.

Always on the move with Baumüller

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6 Mobile working machines
7 Busses
8 Hybrid ship propulsions
10 powerMELA®
12 AC synchronous motors embedded DSE
14 AC disc motor DSM
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18 Motors for mobile use DS2, DA, DST2, PM4
22 Our technology in your drives
Small vehicles

You want your vehicles efficiently, environmentally friendly and reliable? Then count on the electrical drives of Baumüller. We will support you with consulting, engineering and developing services and will have the right component for small vehicles of 400 W up to 6.3 kW. With our experience in the electrical drive engineering sector we will find the applicable solution for your vehicle.

Examples of uses: Floor cleaning machines, e-bikes, pedelecs, wheelchair drives, stair lifts, golf caddies, fun vehicles etc.

Benefits:
The weight and noise optimized drives for electrical small vehicles provide a high power ratio and at the same a compact structure. The efficiency of your vehicles is enhanced by the recuperation of brake energy and a performance optimized operation. The high-quality Baumüller components are robust and due to their compactness and the versions without housing provide high flexibility during integration.

Products: DSA, DSE and b maXX 2400
Do you and your customers attach importance to fine particular matter, low noise level and minimal operating costs? Then use the electrical drives of Baumüller. We provide a long experience equipping electrical vehicles and besides consulting, engineering and developing services we possess a wide choice of drive components especially for the mobile use.

**Examples of uses:** Cleaning machines, mowers, multi-purpose vehicles, transporters etc.

**Benefits:**
Municipal and special vehicles with up to 40 kW need electrical drive solutions for less operational costs, zero emission and a low noise level. The robust drives of Baumüller provide a high power density and a high efficiency due to their type of construction including buried magnets. Combined with the recuperation of braking energy the running time can be increased. The Baumüller drives are flexible due to their high speed setting range and the high starting torque improves the driving comfort.

**Products:** DSM, DSE, b maXX mobile & powerMELA®
We provide a compact and powerful solution for all kinds of mobile applications with our drive concept powerMELA® which we developed in cooperation with the Sensor Technik Wiedemann GmbH especially for the mobile use. We will provide you with our long experience in electrical drive engineering, during the conception and engineering as well as during the development of your drive concept.

**Examples of uses:** Snow groomers, agricultural machines, construction machines, rail vehicles etc.

**Products:** DSM and powerMELA®

**Power range:** 400 W – 280 kW

The Baumüller drives allow fully electronic and hybrid drive solutions and therewith a low noise level as well as low-emission during operation. The installation space of the drives was optimized and can flexibly be integrated in the construction. Electrical decentralized auxiliary drives replace inefficient hydraulic systems in the vehicle and allow the integration of new functions. The high starting torque improves the driving comfort. The recuperation of braking energy leads to highly economic solutions. This way you receive an efficient and robust drive system especially for mobile machines. Due to the pooling of know how within the Baumüller group we furthermore support you by doing all kinds of repair works and services.
Fixed routes, foreseeable periods of use, frequent braking: City busses are perfect for the use of electric and hybrid drive systems. Select powerMELA® which is a powerful drive concept existing of a permanently excited and a four-quadrant converter. Go for less environmental impact and a more efficient operation.

**Benefits:**
- Recuperation of the brake energy
- Hybrid drive concepts as well as also fully electronic drives
- High power density, compact and robust construction
- Compactness due to the integration of the converter and the compact construction of the electronic motor
- Innovative, direct cooling concept
- Minimal installation space
- Low motor weight, converter and gear – 300 kg, only
- Permanently excited synchronous motor including deeply buried magnets
- High torque via the entire speed range
- Precise motor control
- No interruption of tractive force when switching
- Higher dynamics and an increased drive comfort
Hybrid ship propulsions with Baumüller motors

The challenge
The motor reaches its perfect performance with a specific speed. With every deviation from this speed the power efficiency drops. Often even within the double-digit percent range. Consequently the fuel consumption rises.

The solution
Ships having a hybrid drive can control the performance of the electronic motor. The diesel engine is supported and therefore operates within the optimal operating point. This way you reach the maximum efficiency.

You would like to save up to 25 % fuel? You want to reduce the emission values of your ships? You want to improve the maneuverability? Then switch to a hybrid or electronic drive.
**Benefits:**
- Better maneuverability due to a constant torque
- Low fuel consumption
- Emission savings
- Smaller diesel engine
- Motors with wing mounts especially to be integrated in ships
- Low installation effort
- Five different drive modes (including nose propeller, electrical, electrical with diesel support, diesel-operated with electrical support, diesel drive exclusively)
- Among others, a certification in accordance with Lloyd-Register is possible
- Hybrid or fully electrically

**Examples of projects implemented**

**Ms Nadorias**
- Year 2013 | Length 135 m | Width 11,45 m
- Draft 3,78 m | Tonnage 4327 t
- Motor Mitsubishi S12A2-MPTA 863 pk@1940 rpm
- Hybrid Baumüller DST2–400, 285 kW

**Sil–Jeske–B**
- Year 2015 | Length 23,95 m | Width 8,00 m
- Draft 2,80 m
- Motor Mitsubishi
- Hybrid Baumüller DST2–315, 2 x 255 kW

**Mts Felicia**
- Year 2009 | Length 86 m | Width 9,50 m
- Draft 3,20 m | Tonnage 1650 t
- Motor Caterpillar C-18 – 650 kW
- Hybrid Baumüller DST2–315, 285 kW

**Roro Terra 2**
- Year 2014 | Length 135 m | Width 11,45 m
- Draft 4,30 m | Tonnage 1090 t
- Motors 2 x Catapllar type C18
- Hybrid Baumüller DST2–400, 2 x 285 kW

**Products:**
- DST2
- DS2
- DA
- powerMELA®
Baumüller profits from its long-lasting experience of motor engineering as well as of the production of electronic motors and in cooperation with the Sensor Technik Wiedemann GmbH developed the drive concept powerMELA®. The combination of a permanently excited synchronous motor and an integrated converter is a compact solution for hybrid and electronic mobile machines and vehicles.

Principle
The drive system powerMELA® exists of a permanently excited synchronous motor and an integrated four-quadrant converter. Within the hybrid concept with powerMELA® DC voltage is generated in the main power supply by a diesel engine with the help of a combination of generator and converter. Full electrical solutions can be operated with battery supply only. The electronic motors are operated from the main power supply that operates the vehicle. This way up to 30 % of fuel can be saved with hybrid solutions. Furthermore, auxiliary units can be supplied from the main power supply. This way, hydraulic and solid-mechanical solutions are replaced. Oil which is harmful to the environment disappears from the system, the maintenance efforts drop and the hydraulics are replaced by electrical drives with high efficiency. By the additional isolation of the stator to the housing the drive system reaches protection class II in the IT networks. Additional protection devices are not required, consequentially.
Benefits:

- Good partial load behavior in the system
- Fuel savings of about 30 % are possible
- High power density by deeply buried magnets
- Efficiency-optimized electronic motor (η to 97 %)
- Robust construction (protection type up to IP69K): High reliability
- High continuous power due to a direct oil line cooling (different oils permitted)
- Energy storage can be integrated optionally
- One DC connector only: No extensive cabling, less space requirements, less weight
- Easy scaling and networking due to protective insulation
- The protective insulated construction allows the use of much smaller anti-interference capacitors; each powerMELA® component is interference-suppressed – therefore no further anti-interference measures are required.

Benefits of the mechanical-electrical system to the mechanical-hydraulic system

- Lower transmission losses in the drive system
- Higher efficiency of the used electronic motors
- Increase of the overall efficiency of the drive system
- Increase of the energy efficiency by isolating the operating conditions and by the temporary storage of remaining energy in a mechanical-electrical system
- Easy replacement of hydraulic components
- A maximum torque even at low speed: Significant improvement of the driving dynamics
- Flexible order and controllability of the components: Greater flexibility of the construction
- Reduction of noise level as there are no hydraulic components
The new DSE synchronous motors are available either as a housing version or as a built-in motor, which makes the integration of the functional unit significantly easier for the designers. With its buried magnets and a rotational speed range up to 9000 rpm, the motor convinces with a very high power density.

Applications: Mobile drives, print, packing, medical engineering, productronic applications

**Applikationen:** Mobile Antriebe, Druck, Verpackung, Productronic, Medizintechnik
Electronic motor, the machine module and the application should be a functional and constructional unit

The motor series DSE of Baumüller DirectMotion GmbH was developed to provide a product that goes easy on resources and is compact for the manufacturers of machines and devices as well as for the final users.

The DSE allows the users to develop a functional unit from motor and mechanics. This way he can implement the constructive unit of the function modules together with an optimized material use and cost-effective.

This motor series is available as a built-in motor version or as a housing version. DSE motors feature a wide range of sizes and power spectrums. Customer-specific versions will be configured on request.

Technical data – DSE

<table>
<thead>
<tr>
<th>Frame size</th>
<th>Frame length [mm]</th>
<th>Pn [W]</th>
<th>nN [min⁻¹]</th>
<th>Mmax [Nm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>45 mm</td>
<td>13</td>
<td>250</td>
<td>6000</td>
<td>1.2</td>
</tr>
<tr>
<td></td>
<td>21</td>
<td>470</td>
<td>6000</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>43</td>
<td>820</td>
<td>6000</td>
<td>3.8</td>
</tr>
<tr>
<td></td>
<td>80</td>
<td>1500</td>
<td>6000</td>
<td>7.0</td>
</tr>
<tr>
<td>71 mm</td>
<td>21</td>
<td>–</td>
<td>2400</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>43</td>
<td>–</td>
<td>5000</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>80</td>
<td>–</td>
<td>4000</td>
<td>–</td>
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<tr>
<td></td>
<td></td>
<td>–</td>
<td>7500</td>
<td>35</td>
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<tr>
<td>100 mm</td>
<td>21</td>
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<td>3200</td>
<td>–</td>
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<td></td>
<td>43</td>
<td>–</td>
<td>5000</td>
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<tr>
<td></td>
<td>80</td>
<td>–</td>
<td>8000</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td></td>
<td>–</td>
<td>15000</td>
<td>80</td>
</tr>
</tbody>
</table>

Technical characteristics:
- Sizes 45–100
- Stator lengths 13–80 mm
- Voltage range 24–540 V DC
- Motor torques 0.2–80 Nm
- Speed range up to 9000 min⁻¹ *

Due to the adaptation of the winding within the nominal power range the maximum nominal speed or the maximum torque can be reached.

The decisive factor are the accordant data sheets.

*) Maximum speed range with 12 slots / 5 pole pairs
Specified values for the standard series with 18 slots / 8 pole pairs

Subject to alteration
3-phase alternating current disc motors DSM

In the case of applications for which commutator direct current motors with carbon brushes are not suitable, brushless disc motors can be used. The required electrical control system can also be put in the motor casing for special applications.

3-phase alternating current disc motors are available in two versions – ironless and iron core

**Ironless**
- High overload capacity thanks to ironless motor winding
- High torque due to NeFeBr perma magnets
- High power with low construction volume and extremely short design
- Free of detent torque and very quiet due to ironless motor winding
- Practically constant torque over a wide speed range

**Ironcore**
- High torque thanks to NeFeBr perma magnets
- Can be used as a torque motor thanks to variable winding design
- Very high power with low construction volume and extremely short design
- Low detent torque thanks to rotor optimization
- Optionally available with brake, tachometer, encoder and gearbox

Technical data – DSM

<table>
<thead>
<tr>
<th>Type</th>
<th>$P_n$ [W]</th>
<th>$P_{hp}$</th>
<th>$n_n$ [min⁻¹]</th>
<th>$M_n$ [Nm]</th>
<th>$T_bf$ [lbf ft]</th>
<th>Voltage [VDC]</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSM 115</td>
<td>400</td>
<td>0.54</td>
<td>1500 - 4500</td>
<td>0.6 - 1.5</td>
<td>0.4 - 1.1</td>
<td>12 - 60</td>
</tr>
<tr>
<td>DSM 117</td>
<td>600</td>
<td>0.8</td>
<td>350 - 3500</td>
<td>1.5 - 10</td>
<td>1.1 - 7.4</td>
<td>12 - 540</td>
</tr>
<tr>
<td>DSM 130</td>
<td>1500</td>
<td>2.0</td>
<td>350 - 4000</td>
<td>4 - 12</td>
<td>2.9 - 8.9</td>
<td>12 - 540</td>
</tr>
<tr>
<td>DSM 150</td>
<td>2000</td>
<td>2.7</td>
<td>350 - 4000</td>
<td>2.5 - 18</td>
<td>1.8 - 13</td>
<td>12 - 540</td>
</tr>
<tr>
<td>DSM 170</td>
<td>2700</td>
<td>3.6</td>
<td>350 - 3500</td>
<td>5 - 25</td>
<td>3.7 - 18</td>
<td>12 - 540</td>
</tr>
<tr>
<td>DSM 190</td>
<td>4500</td>
<td>6.0</td>
<td>350 - 3500</td>
<td>8 - 45</td>
<td>5.9 - 33</td>
<td>24 - 540</td>
</tr>
<tr>
<td>DSM 190N2</td>
<td>6300</td>
<td>8.4</td>
<td>350 - 3000</td>
<td>15 - 80</td>
<td>11 - 59</td>
<td>24 - 540</td>
</tr>
</tbody>
</table>

The values specified are maximum values. See technical documentation for details. Subject to alteration
Powerful wheel hub gears

Powerful and compact

The PGR 500 and PGR 1500 models are powerful wheel hub gears of the series PGR. The PGR 500 is intended for the use of a maximum wheel load of 700 kg and an output torque of 160 Nm 1 at a maximum value of 500 Nm 2). PGR 1500 is intended for the use of a wheel load of 2100 kg and an output torque of 800 Nm 1) at a maximum value of 2000 Nm 2).

1) Nominal torque, 2) Peak torque

Multilevel and variable

Single and multilevel versions of the PGR with different ratios are available – optionally even a decoupled version. Assorted characteristics of the configurable industrial process and control offer an optimal adaption to the customer-specific applications. In combination with a variably selectable drive motor thereby a highly efficient and compact drive unit is developed.

Possible applications:
- City vehicles
- Utility vehicles
- Industrial trucks
- Lifting platform
- Lifting trucks
- Municipal vehicles
- Road sweepers
- Caddys

Technical data – PGR

<table>
<thead>
<tr>
<th>PGR 500</th>
<th>PGR 1500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheel load [kg]</td>
<td>700</td>
</tr>
<tr>
<td>Levels</td>
<td>1</td>
</tr>
<tr>
<td>Ratio i</td>
<td>4, 7</td>
</tr>
<tr>
<td>Efficiency η [%]</td>
<td>96</td>
</tr>
<tr>
<td>Ground approx. m [kg]</td>
<td>6,9</td>
</tr>
<tr>
<td>Nominal torque at the output TNm [Nm]</td>
<td>160</td>
</tr>
<tr>
<td>Acceleration torque at the output TJa [Nm]</td>
<td>450</td>
</tr>
<tr>
<td>Peak torque at the output Tj [Nm]</td>
<td>500</td>
</tr>
<tr>
<td>Admissible average drive speed nN [min⁻¹]</td>
<td>6000</td>
</tr>
<tr>
<td>Top speed nmax [min⁻¹]</td>
<td>6000</td>
</tr>
<tr>
<td>Axial force F2a [N]</td>
<td>2500</td>
</tr>
<tr>
<td>Radial force F2Rmax [N]</td>
<td>7000</td>
</tr>
<tr>
<td>Service life Lh [h]</td>
<td>20000</td>
</tr>
<tr>
<td>Running noise at n1=3000 min⁻¹ Lp [dB(A)]</td>
<td>&lt; 65</td>
</tr>
</tbody>
</table>

Rotation direction at the output and input: Counter-clockwise
Lubrication: Lubricated for life
Installation position: Horizontal

Environmental temperature: -20 to +50 °C
Permissible housing temperature 90°C at maximum
Protection class: Up to IP67 depending on the motor

Housing surface: KTL coating
Housing color: Similar to RAL 9005

Subject to alteration

www.baumueller.com
The b maXX mobil has been designed for four quadrant operation which means it can brake in either direction and both regenerate and drive power. For mobile applications, the vibration resistant controller can be used at temperatures between -25° and +65° Celsius. Communication takes place via CAN bus; there are also digital input and outputs available. b maXX mobil is particularly suitable for battery-driven vehicles, electric boats and forklifts as well as for many other battery-supplied applications in the industry.
The b maXX mobil is suitable for example, for use as a wheel hub drive in combination with the disc motors DSM. These motors are compactly designed, enjoy highly dynamic running characteristics and have low maintenance requirements. With this controller and motor combination Baumüller offers a space-saving and high-performance complete solution.

**Technical data – b maXX mobil * with galvanic isolation**

<table>
<thead>
<tr>
<th>Protection</th>
<th>I_n [A]</th>
<th>I_{max} [A]</th>
<th>Battery voltage [V]</th>
<th>Dimensions [mm]</th>
<th>±10% control voltage [VDC]</th>
</tr>
</thead>
<tbody>
<tr>
<td>048–40−x−IP20</td>
<td>IP20</td>
<td>40</td>
<td>80</td>
<td>12–48</td>
<td>244x194x90</td>
</tr>
<tr>
<td>048−60−x−IP20</td>
<td>IP20</td>
<td>60</td>
<td>120</td>
<td>12–48</td>
<td>244x194x90</td>
</tr>
<tr>
<td>048−125−x−IP20</td>
<td>IP20</td>
<td>125</td>
<td>250</td>
<td>12–48</td>
<td>244x194x90</td>
</tr>
<tr>
<td>048−225−x−IP20</td>
<td>IP20</td>
<td>225</td>
<td>450</td>
<td>12–48</td>
<td>244x194x90</td>
</tr>
<tr>
<td>048−40−x−IP66</td>
<td>IP66</td>
<td>40</td>
<td>80</td>
<td>12–48</td>
<td>280x200x91</td>
</tr>
<tr>
<td>048−60−x−IP66</td>
<td>IP66</td>
<td>60</td>
<td>120</td>
<td>12–48</td>
<td>280x200x91</td>
</tr>
<tr>
<td>048−125−x−IP66</td>
<td>IP66</td>
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<td>250</td>
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<td>280x200x91</td>
</tr>
<tr>
<td>048−225−x−IP66</td>
<td>IP66</td>
<td>225</td>
<td>450</td>
<td>12–48</td>
<td>280x200x91</td>
</tr>
<tr>
<td>120−50−x−IP20</td>
<td>IP20</td>
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<td>100</td>
<td>12–120</td>
<td>244x194x90</td>
</tr>
<tr>
<td>120−100−x−IP20</td>
<td>IP20</td>
<td>100</td>
<td>200</td>
<td>12–120</td>
<td>244x194x90</td>
</tr>
<tr>
<td>120−150−x−IP20</td>
<td>IP20</td>
<td>150</td>
<td>300</td>
<td>12–120</td>
<td>244x194x90</td>
</tr>
<tr>
<td>120−50−x−IP66</td>
<td>IP66</td>
<td>50</td>
<td>100</td>
<td>12–120</td>
<td>280x200x91</td>
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<tr>
<td>120−100−x−IP66</td>
<td>IP66</td>
<td>100</td>
<td>200</td>
<td>12–120</td>
<td>280x200x91</td>
</tr>
<tr>
<td>120−150−x−IP66</td>
<td>IP66</td>
<td>150</td>
<td>300</td>
<td>12–120</td>
<td>280x200x91</td>
</tr>
</tbody>
</table>

x = Resolver = RES
# = Encoder = EN0
= SINCOS 1 Vss = SIN

**Technical data – b maXX mobil * without galvanic isolation**

<table>
<thead>
<tr>
<th>Protection</th>
<th>I_n [A]</th>
<th>I_{max} [A]</th>
<th>Battery–voltage [V]</th>
<th>Dimensions [mm]</th>
<th>±10% Control voltage [VDC]</th>
</tr>
</thead>
<tbody>
<tr>
<td>48−40−X−IP20−NI</td>
<td>IP20</td>
<td>40</td>
<td>80</td>
<td>12–48</td>
<td>244x194x90</td>
</tr>
<tr>
<td>48−60−X−IP20−NI</td>
<td>IP20</td>
<td>60</td>
<td>120</td>
<td>12–48</td>
<td>244x194x90</td>
</tr>
<tr>
<td>48−125−X−IP20−NI</td>
<td>IP20</td>
<td>125</td>
<td>250</td>
<td>12–48</td>
<td>244x194x90</td>
</tr>
<tr>
<td>48−225−X−IP20−NI</td>
<td>IP20</td>
<td>225</td>
<td>450</td>
<td>12–48</td>
<td>244x194x90</td>
</tr>
</tbody>
</table>
DS2–100–200 – General Purpose (Synchronous)

- Perfect acceleration characteristics
- High power density
- Excellent smooth running characteristics
- High variability thanks to modular system
- High level of efficiency
- Permanent field servo motors
- Unventilated IP54, ventilated IP23, IP54
- Water-cooled IP54
- Encoders: resolver, SinCos-encoder (optional)
- Optionally with brake

DS motors are available as air- and water-cooled model.

Technical data – DS2 100–200

<table>
<thead>
<tr>
<th>Type</th>
<th>P_N</th>
<th>n_N</th>
<th>J</th>
<th>M_0</th>
<th>M_0max</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>[kW]</td>
<td>[hp]</td>
<td>[min^-1]</td>
<td>[kgm^2]</td>
<td>[lb ft]</td>
</tr>
<tr>
<td>DS2-100</td>
<td>5.3–47</td>
<td>7–63</td>
<td>1000–3000</td>
<td>0.010–0.022</td>
<td>0.24–0.52</td>
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<tr>
<td>DS2-132</td>
<td>14–105</td>
<td>19–141</td>
<td>1000–3000</td>
<td>0.045–0.084</td>
<td>1.1–2.0</td>
</tr>
<tr>
<td>DS2-160</td>
<td>30–155</td>
<td>40–208</td>
<td>1000–3000</td>
<td>0.15–0.25</td>
<td>3.6–5.9</td>
</tr>
</tbody>
</table>

Subject to alterations. The stated data are maximum values. For details please have a look in the technical documentations.
DA-100–280 – General Purpose (Asynchronous)

- Excellent smooth running characteristics
- Model as asynchronous cage rotor
- Extremely flexible due to modular design
- Large field weakening range
- High level of efficiency
- Compact and robust design
- High torque accuracy
- Unventilated IP54, ventilated IP23, IP54
- Water-cooled IP54
- Encoders: resolver 2-pole, SinCos-encoder (optional)
- All types optionally with brake

The DA main drives are available as air- and water-cooled model.

Technical data – DA-100–280

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>DA 100</td>
<td>3.5–25</td>
<td>4.7–34</td>
<td>1000–3000</td>
<td>0.02–0.03</td>
<td>0.47–0.71</td>
<td>25–86</td>
<td>18–64</td>
<td>69–138</td>
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<td>DA 132</td>
<td>10–50</td>
<td>13–67</td>
<td>1000–3000</td>
<td>0.07–0.12</td>
<td>1.7–2.8</td>
<td>73–215</td>
<td>54–159</td>
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<td>DA 160</td>
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<td>12–16.1</td>
<td>277–955</td>
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<td>764–1528</td>
<td>564–1127</td>
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</table>

Subject to alterations. The stated data are maximum values. For details please have a look in the technical documentations.
DST2-135–560 – The powerful high-torque motors

- Very good smooth running characteristics
- Energy-efficiency is maintained through wide speed/load range
- Suitable for sophisticated direct drive technology
- High torque at low velocities
- Low-noise
- Water cooling in a stainless steel design
- Compact and robust design
- Smooth housing surface – easy to keep clean
- Permanent field high-torque motors
- IP54 type of protection
- Encoder: Resolver, SinCos encoder (option)
- Other encoders on request

DST high-torque motors are available in water-cooled versions.

Technical data – DST2 135–560

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<td>bis 1200</td>
<td>bis 1609</td>
<td>bis 45000</td>
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</table>

Subject to alterations. The stated data are maximum values. For details please have a look in the technical documentation. *) in preparation, preliminary data Subject to modifications
PM4 100–132 – Powerful permanent–field synchronous

- Permanent–field synchronous motor with deeply–buried magnets
- Highly efficient motor (up to 97 %)
- Integrated or external electronic
- Robust construction (protection up to IP6K9K)
- Direct conductor cooling with insulation oil for the 80 kW and 140 kW versions
- Water cooling for the 40 kW motor, oil cooling optional
- Cooling with standard industry solutions
  Field weakening up to 6000 min⁻¹ at constant output
- High coolant inlet temperature up to 65°C

Product advantage:
- Wide range of constant output due to use of field weakening
- Mechanical protection of the magnets
- Magnetic flux density
- High power density
- Compact design

Customer benefit:
- Optimal adjustment to the load profile:
- High torque in base speed range and constant output up to double the base speed range
- Long running life through robust construction
- Very high power output
  Lower weight and volume, easier to integrate in existing mobile concepts and small fitting conditions
- Higher allowable coolant inlet temperature enables a smaller dimensioning of the heat exchanger

Technical data – PM4 100–132

<table>
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<td>3000–6000</td>
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<td>PM4–132L67F30–6</td>
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<td>3000–6000</td>
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<td>1,90</td>
<td>445</td>
<td>328</td>
<td>588</td>
<td>434</td>
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</table>

Subject to alterations. The stated data are maximum values. For details please have a look in the technical documentations. (*) in preparation, preliminary data Subject to modifications
Our technology in your traction drives

Baumüller is world’s leading in the development of electrical drive systems. Due to our varied motor product program we provide extensive manufacturing competences.

That’s why we are your partner for motors of concepts and optimization designed for ease of manufacture of quantities between 10 and over 1000 motors per year. We can react quick and efficient with innovative drive solutions upon the requests of your customers as we are a non-consolidated company. That’s why we are the perfect partner regarding challenging projects and future technologies.

Additionally to our know-how regarding industrial motor construction we have experience with mobile drives and their special requirements. Special cooling versions and fitting seal measures are developed which resist temperature, dust and humidity influences.

Our power-optimized constructions satisfy the demands of saving space and a low weight. Furthermore, vibration and shock The optimal design of the motor also considers vibration and shock loads as well as the driving profile.

You are looking for a partner for manufacturing a pre-series quantity of your electronic motor?
The design and the construction of liquid-cooled motors with a high power density has been our speciality and core business for decades. Baumüller is available of „state of the art“ testing and measuring equipment to qualify your drive. Depending on your requirements we provide motors, controllers, gears or complete systems for your vehicle. Do you require support regarding the motor design and the mounting of motor models?

Your benefits:
- Production-oriented construction and development of prototypes as well as pre-series – everything from one single source.
- Reduction of your time-to-market due to our competence
- High energy efficiency and power density of the electronic motors and low noise emissions
- Increase of competitiveness due to a combination of innovative motor concepts with new manufacturing technologies
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