

## The new all-inclusive motor ECI 42.40 Compact



What is your particular drive application? What can the new ebm-papst "All-inclusive Motor" do for you? We would be delighted to show you personally the ECI 42.40 Compact with all features and would like to discuss with you what ebm-papst technology and engineering services can get moving for you. We look forward to cooperating with you.

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Simple to connect, ready to start

# The technological top class as industrial standard

*With the new ECI 42.40 Compact, a drive showpiece from ebm-papst has been unveiled which will set new standards in a wide range of different drive applications. The ECI 42.40 Compact combines our high-tech competence in the area of automotive engineering, our motor system competence above all least our ability to manufacture both in a highly efficient and consistent manner. A new industrial standard is the result of all of this: an intelligent, compact all-inclusive motor which can be used to operate a wide range of different applications – without additional development costs.*



### All-inclusive: the “ready-to-use” solution

EC technology including drive and control electronics together with ebm-papst know-how, engineering and service: the highly dynamic EC internal rotor motor in size 42 is perfect for everyone looking for an integrated, ready-to-use motor system for their drive tasks and for those who rely on a motor design which has already proven itself in large quantities, for example as active steering motors for the automotive industry or in the field of conveyor technology. You can now replace your brush-commutated solutions with a superior EC system and ensure that your products have a clear innovative advantage and therefore competitive advantage too.

### The highest quality thanks to fully-automated production

This is another factor which makes ebm-papst the leader in terms of technology. The new ECI 42.40 Compact is the only motor in its power class which is produced using highly efficient, automated production methods and with process monitoring at every stage of the assembly process. This ensures not only the highest quality but also a thoroughly marketable price – even if relatively small quantities are required.

### Perfect integration in a wide range of different applications

Given that in the case of the new ECI 42.40 Compact the electronic motor commutation and a digital 4 quadrant speed controller are already integrated in a space-saving manner, it offers maximum flexibility. A wide range of different applications can be covered without a high level of development costs. The digital speed controller offers excellent service features for this purpose. Using flash technology, the software can be individually installed during the manufacturing process. This therefore makes it possible to carry out quickly and easily inexpensive fine tuning according to your individual requirement profiles, functionalities and parameterisations.



Drive electronics



Fully automated rotor production line with 100% process monitoring

### The highest levels of performance in small spaces

With the ECI 42.40 Compact, you have a top-class integrated product which has been completely checked and tested and which is synonymous with a high level of process safety. Furthermore, this motor offers high performance levels even in a small space. In addition to its nominal torque of 100 mNm, it is the compelling choice thanks to its excellent dynamics throughout the whole speed range and a high overload-protected starting torque. An ideal unit in a motor/gearbox combination, the ECI 42.40 Compact is also extremely robust, reliable and extremely quiet in operation. All in all, a highly compact drive system which is the clear leader in all technical areas.

### The innovative rotor design

Unlike traditional rotor designs, the new ECI 42.40 Compact features bar magnets inserted into pockets. This not only makes it possible to manufacture the rotor more efficiently and allows a high degree of utilisation on the part of the sheet metal, it also makes it possible to manufacture the magnets at lower costs. In addition, the pockets offer mechanical protection and high rotational speeds can also be demanded without further design changes.

### The highly compact stator

The stator too is manufactured in a fully automated manner. This includes the connection of the coil ends using a printed circuit board. Thanks to single-tooth winding (needle winding), a very high filling grade and therefore a favourable degree of utilisation is achieved.

### The integrated electronics

The integrated electronic system of the motor houses all of the brains behind the ECI 42.40 Compact in a small space – more precisely in one sixth of the area previously required. The microprocessor-controlled electronic system controls the different motor management tasks. 3 Hall sensors provide the microcontroller with exact rotor position signals for the exact commutation of the motor current. The 4 quadrant controller combines an power stage (with peak currents) and protective functions such as locked rotor and overload protection.

### The optimum gearbox

The ECI 42.40 Compact together with single-stage and multi-stage planetary transmission systems offers one of the quietest-running motor/transmission combinations available on the market. The compact system is the convincing choice thanks to its extremely high power density, high reduction ratios per stage and not least the extremely high modularity of a transmission unit.



### Gearbox

- 1-, 2- and 3-stage
- Nominal torque from 0.3 to 10 Nm
- Compact system with the highest power density on the market
- Extremely quiet-running motor/gearbox combination
- Extremely high modularity with possible ratios: 3.2:1, 5:1, 21.2:1, 30:1 and 150:1
- Due to the compact electronic system, few ratios are necessary

### Stator

- Needle-wound stator with very high filling grade
- Very high degree of material utilisation
- Automatic connection of the winding strands using a printed circuit board for a highly efficient production process

### Rotor

- Fully automated, process-monitored rotor assembly
- High precision, low residual unbalance
- Rotor package with pockets for accommodating high-quality rare earth bar magnets
- Precision ball-bearing system with reliable assembly process in case of axial loads
- Typical service life: over 20,000 hours (motor without gearbox)

### Drive electronics

- Digital rotational speed controller
- Flash technology providing the following programming possibilities: fine tuning, speed range, overload capability, control dynamics etc. specifically during production
- Speed sensing using integrated Hall sensors
- Intelligent matching to customer requirements without high expenses