Three examples of the wide range of EtherCAT P I/O products with IP 67 protection:

EtherCAT junction, digital input box (8-channel) and analog input box (4-channel) for ±10V/0…20 mA.
EtherCAT P with a wide range of IP 67 I/O options

Minimised cabling and assembly costs at the field level

The extensive IP 67-rated I/O range available for EtherCAT P minimises wiring requirements and facilitates the highly flexible, decentralised data acquisition of all I/O signals in a machine or system. It is based on the one-cable solution EtherCAT P, which integrates proven EtherCAT technology with a power supply for connected devices.

With EtherCAT P, Beckhoff combines ultra-fast EtherCAT communication and power supply (2 × 24 V DC/3A) in a standard 4-wire Ethernet cable. It enables direct power supply for both EtherCAT P slaves and the connected sensors and actuators in such a way that separate power lines can be eliminated, considerably simplifying system cabling. This makes EtherCAT P the ideal sensor, actuator and measurement bus, providing advantages both for connecting small remote I/O stations in terminal boxes and for decentralised I/O components located throughout the actual process.

EtherCAT P Box modules for all data acquisition requirements
A full range of EtherCAT P system and I/O components in protection class IP 67 is currently available for the 24 V I/O level. For connecting sensors and actuators, users can integrate any of the wide range of well-established EP Box modules from Beckhoff in the new EPP versions for EtherCAT P. These include a variety of 4, 8 and 16-channel digital input box modules; 4, 8, 16 and 24-channel digital output modules; numerous 4, 8 and 16-channel IP 67 I/Os with combined digital inputs/outputs; as well as RS232 and RS422/RS485 serial interfaces. There are also new EPP Box modules for analog input and output quantities, such as ±10V/0...20 mA, differential/absolute pressures, and data from resistance sensors, thermocouples and incremental encoders.

Free and flexible choice of topology, as enabled by EtherCAT, is equally possible with EtherCAT P. The following IP 67 infrastructure components are available to set up the required network architecture in the field:

- EPP1111 EtherCAT P Box with ID switch
- EPP1322 EtherCAT P junction with power feed-in and junctions with or without power refresh (EPP1332/EPP1342)
- EPP9001 EtherCAT P/EtherCAT connector with power transmission
- EPP9022 EtherCAT P Box for diagnosing Uc (system and sensor supply) and Uv (peripheral voltage for actuators)

Significant benefits for machine engineering applications
EtherCAT P – which is now fully supported by the EtherCAT Technology Group (ETG) – reduces material costs for machinery, time and cost of installation as well as the frequency of errors in the installation process. In the machine itself it also minimises the installation space required for drag chains, cable trays and control cabinets. The entire automation process benefits from the reduced size of sensors or actuators, made possible by the new EtherCAT P cables. Overall, equipment manufacturers now have considerably more freedom when designing their machinery and more leverage to reduce machine footprint.