



## Mounting and Safety Instructions for Motor Series DTL 85



- Please read all instructions before unpacking.
- Unpacking, mounting and start-up procedures should be carried out by instructed and qualified personnel only.
- The magnetic components of these motors pose a hazard to people and material.
- People with cardiac pacemakers and such should not work on the magnetic components since the strong magnetic fields can cause these devices to malfunction.

### I. General Instructions

1. The motors of the motor series DTL 85 are precision products whose magnetic components pose a hazard. Therefore they require appropriate handling during transportation, storage, mounting, start-up and application.
2. The motors are designed exclusively for servo applications for operating with suitable converters that are adapted to the motor with a feedback device that is installed by the user.
3. The connection to a power supply without such a converter is by no means permissible. The limit values specified in the respective motor data sheet must be maintained necessarily. Exceeding the specified electrical and thermal limit values leads to a deterioration of the motor and can cause damage to the application.
4. The motors of the series DTL 85 are designed by the manufacturer to be bearingless. The user must ensure a stable load bearing.
5. The motors have an unlimited storage life in the delivered packaging as long as they are located in permanently dry and climate-controlled rooms (permissible storage temperature: +5°C to +55°C).

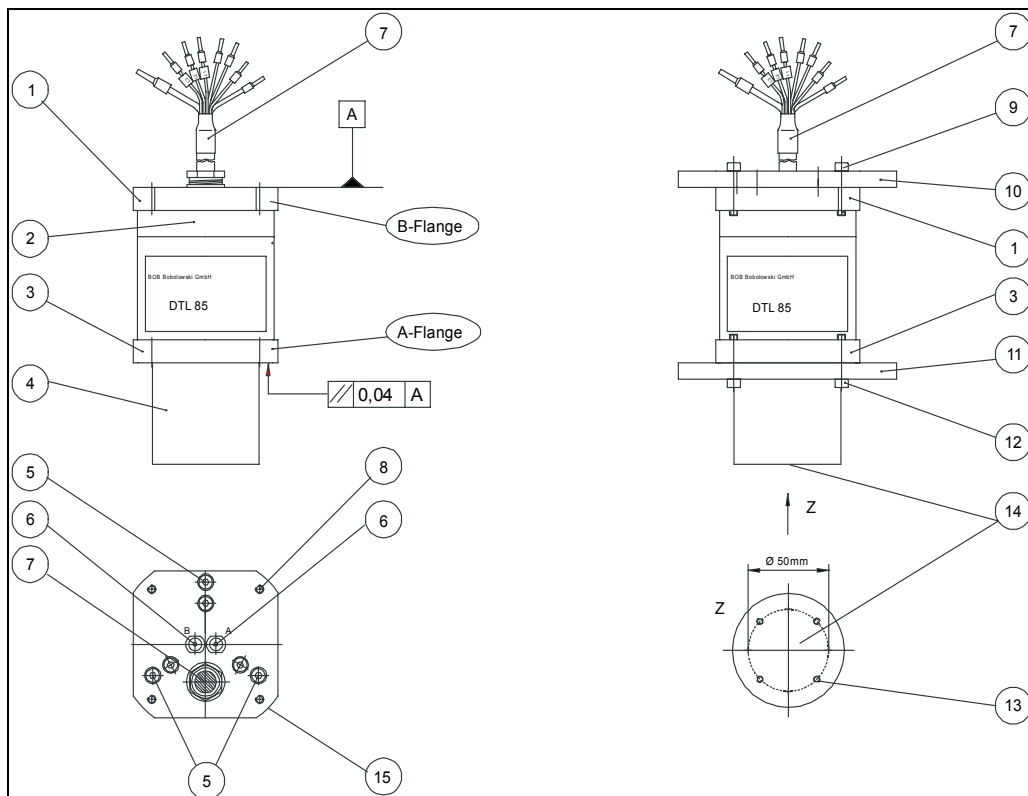


Illustration 1



6. While unpacking it is important to note that magnets are freely accessible at the front side of the secondary unit (3). Bringing ferromagnetic components in proximity to these magnets poses a hazard to the assembly personnel and can cause damage to the motor.
7. During the delivery, the primary unit (illustration 1(1)+(4)) and the secondary unit (illustration 1 (2)+(3)) of the motor are linked by 3 transport security screws M5x12 (illustration 1(5)). Both units are centered against each other by screwing in the flange of the primary unit (1).  
The motor must be mounted into the bearing of the user application with the two units (primary and secondary) arranged exactly as delivered!

## II. Permissible Mounting Positions of the Motor



### Caution!

It is important to note the correct flow direction of the coolant in the different mounting positions as well as the exact positioning of both coolant connections A and B in the horizontal mounting as shown in illustration 2C.

**Mounting positions other than those shown in illustration 2 are not permissible!**

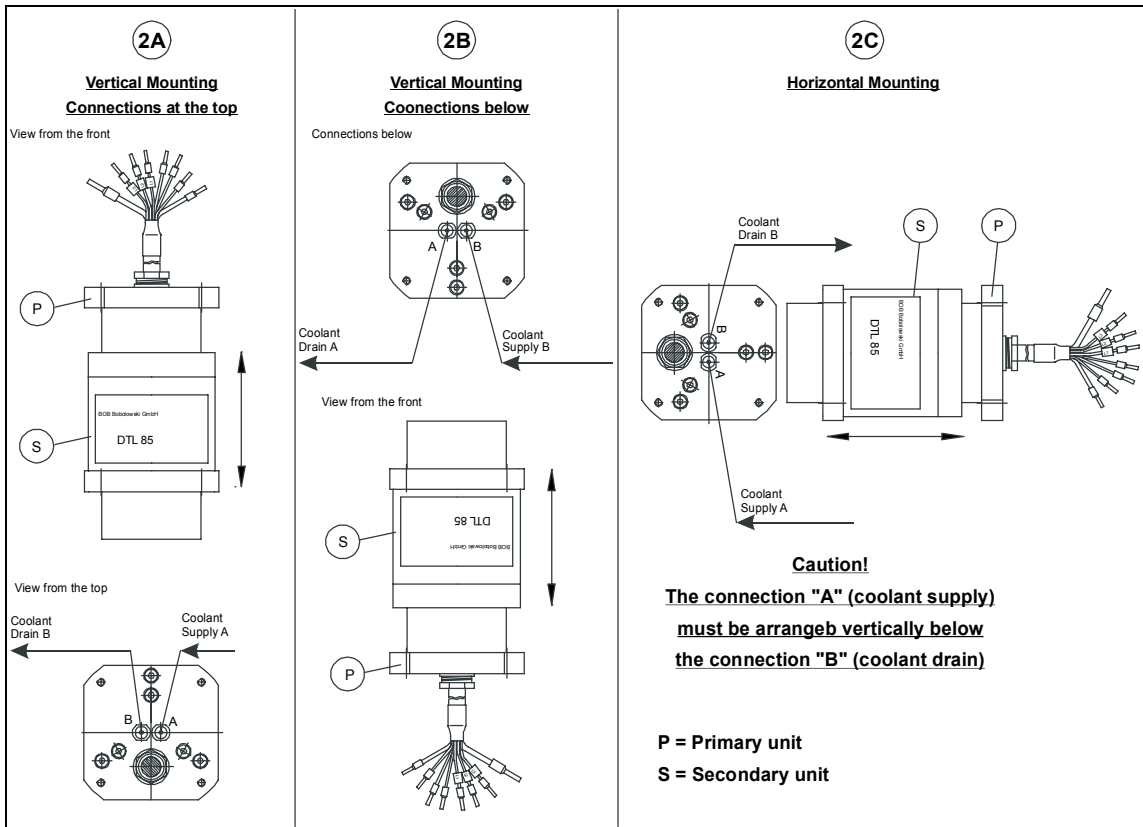
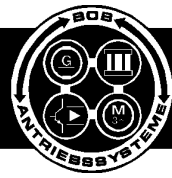




Illustration 2

## III. Mounting the motor in the user application

1. The user application is to be designed such that the transport security screws (illu. 1 (5)) remain accessible even after the mounting.
2. Both the mounting surfaces for the motor flanges must be arranged parallel to each other (illu.1).
3. Corrosion inhibition oil protects the steel flange of the secondary unit (illu. 1 (3)) from rust for purposes of transport and storage. During the mounting this flange must be treated with a suitable anticorrosive to prevent rust from building on the contact surface.



4. The motor is inserted in the **delivery state** into the user application (illustration 1). **First** the B-flange of the primary unit (illustration 1 (1)) is connected to the fixed mounting surface (illustration 1 (10)) with 4 screws M5 (illustration 1 (9)) loosely by hand. **After that** the A-flange of the secondary unit (illustration 1 (3)) is connected to the moving and guided mounting surface (illustration 1 (11)) of the user application with 4 screws M5 (illustration 1 (12)) loosely by hand. In this state the motor is still free to move so that it can be arranged mechanically free of stress between the parallel mounting plates of the user application. In the mechanically stress-free state the 8 fastening screws of both the flanges are tightened professionally. This will prevent the dimensional tolerances from working negatively during the operation.  
It is recommended to drill the mounting holes in the user application in accordance with DIN ISO 2768-1 tolerance class m (5.4 mm + 0.1). This ensures that the screws can be fastened by hand without any expenditure of energy.
5. After removing the 3 transport security screws M5x12 (illustration 1 (5)) the secondary unit of the motor in the user application is free to move and the motor is thus mounted (centered).  
**Caution!** If the motor is mounted in the user application under mechanical stress it is possible that the mounting is overstressed. As a result, after the transport security is removed, the secondary unit may drag at the primary unit instead of running freely.
6. In order to stabilize the motor mechanically the primary unit of the motor has  **four threads M4 / 6 deep (illustration 1 (13)) in the stabilization disc** (illustration 1 (14)). Any vibrations that are likely to occur are damped by a rigid connection with the user application.
7. The cooling system is connected by tubes with an outer diameter of 6 mm and an inner diameter of 4 mm to the water connections (illustration 1 (6)). The cooling water connections are marked on the motor with "A" and "B". It is important to note the mounting position of the motor during the processes of mounting and cooling water connection in order to guarantee the required cooling (see illustration 2).
8. **Caution!** 
  - **Maximum permissible working pressure in the cooling circuit < 0.3 MPa!**
  - **Permissible temperature range for the cooling water supply: +15°C to +25°C**
  - **The material in the cooling circuit consists of bright AlMgSi1. While using coolant additives the user must take care to see that no chemical incompatibilities exist with this material.**
  - **Permissible range of the pH-value of the cooling water is from pH-value 5,5 up to pH-value 8,0.**
  - **Any contamination of the cooling water with metal particles has to be observed, due to the fact that this can lead to a deposition of seed crystal and this will result in blockage of the motor cooling circuit.**
  - **All specifications in the data sheet refer to the use of water as the coolant without any additives.**
9. The flexible connecting cable (illustration 1 (7)) of the motor is suitable for thermal stress < 90°C. It must be placed permanently (static). In case of continuous movements such as those occurring in e.g. a drag chain, conversion to an appropriate cable must follow before the point of movement. The cable must also not be dragged or pulled during the transport of the motor. The conductor marking (U, V, W) specified on the cable applies to an electrical three-phase clockwise system and conforms to a movement of the secondary unit in the direction of the stabilization disc (illustration 1 (14)).  
  
The connection cables must be connected appropriately by the qualified personnel.
10. Before the start-up procedure the application must be checked for even and easy running. Before turning the motor on for the first time the current limit of the converter must be reduced so far that e.g. no disturbances can occur in the application by allocation errors in the phasing (phase position) or feedback.



11. For demounting the motor from the user application the secondary unit is brought into the upper position and connected with the primary unit by means of three screws M5x12 (illustration 1 (5)). In this state the motor can be demounted from the user application.

#### IV. Warning!



- Unpacking, mounting and start-up procedures should be carried out by instructed and qualified personnel only, since the magnetic components of the motor pose a hazard.
- People with cardiac pacemakers and such should not work on the magnetic components since the strong magnetic fields can cause these devices to malfunction.
- During the works no ferromagnetic components such as e.g. watches, piercings, spectacles, zippers etc. should be worn on the body. Also the pockets of the work clothes should not contain any ferromagnetic tools, writing implements, bunches of keys etc.
- While carrying out any work on the motor, power to the motor must be switched off!
- The electric and cooling system connections must be made only by the appropriate qualified personnel.
- An improper electric connection poses the danger of an electric shock.
- Before the electric start-up the cooling circuit must be inspected for any leakage.
- The separation of primary and secondary unit of the motor by removing the transport security screws (illustration 1 (5)) is permissible only after the installation in a user application. Otherwise the motor can be damaged by the magnetic forces existing between the primary and secondary unit.
- Inappropriate handling of the motor poses the risk of injury due to the magnetic forces existing between the primary and secondary unit!
- Before each start-up of the motor the cooling circuit must be started in order to avoid thermal damages to the motor.
- The built-in temperature sensor must be connected before every start-up procedure to the terminals at the converter provided for this purpose. Otherwise the thermal safety shutdown does not function.
- The manufacturer will not accept claims against guarantees in the case of inappropriate handling.

Steinen, 10th of April 2006 POb / RK / RN

This document is subject to change without notification.  
The latest valid version is permanently available on our internet homepage.