

MOTOR DATA SHEET

Motor type: **3SIE160L6**

Series: **IE3**



19-08-2025

ELECTRICAL PARAMETERS

| U | CONN. | f | P | | Duty | I | n | T | TL/T | TB/T | IL/I | Efficiency at load [%] | | | Power factor at load [-] | | |
|-----|-------|----|----|----|------|------|-----|-------|------|------|------|------------------------|------|------|--------------------------|------|------|
| V | - | Hz | kW | HP | - | A | rpm | Nm | - | - | - | 2/4 | 3/4 | 4/4 | 2/4 | 3/4 | 4/4 |
| 400 | Δ | 50 | 11 | 15 | S1 | 21.4 | 970 | 108.3 | 2.2 | 3.0 | 7.0 | 91.4 | 91.4 | 90.3 | 0.68 | 0.77 | 0.82 |
| 690 | Y | 50 | 11 | 15 | S1 | 12.4 | 970 | 108.3 | 2.2 | 3.0 | 7.0 | 91.4 | 91.4 | 90.3 | 0.68 | 0.77 | 0.82 |

GENERAL DATA

| | | | |
|---------------------------------------|-----------------|--------------------------------------|-----------|
| Efficiency class | IE3 | Sound pressure level [dB] | 61 |
| Frame size | 160 | Sound power level [dB] | 74 |
| Number of poles | 6 | Terminal box position | top |
| Starting method | DOL or Y/Δ | Possibility of terminal box rotation | yes |
| Insulation class | F | Bearing on D-side | 63092Z |
| Frequency converter supply | yes | Bearing on ND-side | 63092Z |
| Mounting arrangement | IMB3/B5/B35/B14 | Bearings regreasing | on demand |
| Cooling method | IC411 | Housing - material | aluminium |
| Weight (IMB3) [kg] | 114 | Feet - material | aluminium |
| Moment of inertia [kgm ²] | 0.123 | Bearing shields - material | cast iron |
| Direction of rotation | CW/CCW | Painting | RAL5010 |
| Degree of protection | IP55 | Climatic execution | N |

ENVIRONMENTAL CONDITIONS

| | | | |
|--------------------------|-----------|------------------------------|------------|
| Ambient temperature [°C] | up to +40 | Altitude above sea level [m] | up to 1000 |
| Relative humidity [%] | up to 95 | | |

ACCESSORY

| | | | |
|--------------------------------|-----------|---------------------------------|-----------|
| Number of terminals or cables | 6 | Temperature sensors in bearings | on demand |
| Cable glands/inlets | 1 | Winding heaters | on demand |
| Temperature sensors in winding | on demand | Optional accessories | on demand |

STANDARDS

IEC 60034-1

CERTIFICATES

on demand

| Enclosure size | 50% fan speed [dBA] ⁽¹⁾ | Full fan speed [dBA] ⁽¹⁾ |
|--------------------|------------------------------------|-------------------------------------|
| C2 | 55 | 65 |
| C4 | 56 | 71 |
| D3h ⁽²⁾ | 58 | 71 |

¹ Values are measured 1 m (3.28 ft) from the unit.

² Details, see separate design guide VLT AQUA DriveFC 202 90–710 kW

Drives are equipped with fans, which contribute to the airflow in enclosures and surroundings.

Table 90: Air Flow Through the Drive

| Enclosure size | IP protection rating | Size [mm (in)] | Air flow [m ³ /hr] | Effect [W] |
|----------------|----------------------|-------------------|-------------------------------|------------|
| A2 | 20/21 | 70x70 (2.75x2.75) | 30.6 | 3.6 |
| A3 | 20/21 | 80x80 (3.15x3.15) | 37/59 | 4.0 |
| A4 | 55/66 | 70x70 (2.75x2.75) | 23 | 2.9 |
| A5 | 55/66 | 92x92 (3.6x3.6) | 96 | 4.2 |
| B1 | 21/55/66 | 127x127 (5x5) | 310 | 18 |
| B2 | 21/55/66 | 140x140 (5.5x5.5) | 370 | 22 |
| B3 | 20/21 | 120x120 (4.7x4.7) | 244 | 12 |
| B4 | 20/21 | 127x127 (5x5) | 310 | 18 |
| C1 | 21/55/66 | 172x150 (6.8x5.9) | 420 | 22 |
| C2 | 21/55/66 | 172x150 (6.8x5.9) | 420 | 22 |
| C3 | 20 | 120x120 (4.7x4.7) | 244 | 12 |
| C4 | 20 | 127x127 (5x5) | 310 | 18 |

10.14 dU/dt Conditions

To avoid damage to motors without phase insulation paper or other insulation reinforcement designed for operation of the drive, install a VLT® dU/dt filter MCC 102 or a VLT® Sine-wave Filter MCC 101 on the output of the drive.

When a transistor in the inverter bridge switches, the voltage across the motor increases by a dU/dt ratio depending on:

- Motor inductance.
- Motor cable (type, cross-section, length, shielded, unshielded).

The natural induction causes an overshoot voltage peak in the motor voltage before it stabilizes. The level depends on the voltage in the DC link. Switching on the IGBTs causes peak voltage on the motor terminals. The rise time and the peak voltage affect the service life of the motor. If the peak voltage is too high, motors without phase coil insulation can be adversely affected over time.

With short motor cables (a few meters), the rise time and peak voltage are lower. The rise time and peak voltage increase with cable length.

The drive complies with IEC 60034-25 and IEC 60034-17 for motor design.