Complete regenerative drives
The ACS800 regenerative drives are equipped with an active supply unit. It allows full power flow both in motoring and generating modes at a voltage range from 208 to 690 V (ACS800-17LC: 380 to 690 V). This complete regenerative solution includes everything that is needed, including the line filter, in one compact package.

Wall-mounted regenerative drive
ACS800-11, 5.5 to 110 kW
With the wall-mounted ACS800-11 the user gets everything in a single and complete IP21 package. All important features and options such as LCL filter and EMC filter are built inside the drive.

Cabinet-built regenerative drive
ACS800-17, 45 to 2500 kW
The ACS800-17 is a cabinet-built solution for drive applications where regenerative operation is required. It covers a wide power range and, like other cabinet-built drives, it has a wide range of built-in features and options. It is available with IP21, IP22, IP42, IP54, IP54R protection classes and module package.

Liquid-cooled regenerative drive
ACS800-17LC, 75 to 5200 kW
The ACS800-17LC is a cabinet-built drive that is equipped with both liquid cooling and regenerative capabilities. Liquid cooling eliminates the need for air cooling in equipment rooms and delivers effective heat transfer for high overall efficiency. Direct liquid cooling also allows to make the drive extremely compact and silent. This drive can be provided with DNV, LR and ABS marine certifications and comes in IP42 as standard, with optional IP54.

High performance
The ACS800 regenerative drives are especially suitable for demanding industrial applications. Transition between motoring and generating is fast due to the DTC control method.

The active supply unit is able to boost output voltage, which guarantees full motor voltage even when the supply voltage is below nominal. The active supply unit combined with DTC control can even compensate for fast variations in line voltage. There is no risk of fuse blow or component damage due to voltage drops in the network.

Energy savings
The regenerative drive offers significant energy savings compared with other braking methods such as mechanical and resistor braking, as energy is fed back to the supply network. No external brake resistor is needed, which translates into simplified installation and no wasted heat.
### Mains connection

**Voltage and power range**
- 3-phase, $U_{2IN} = 208$ to $240$ V, ± 10%
- 3-phase, $U_{3IN} = 380$ to $415$ V, ± 10%
- 3-phase, $U_{5IN} = 380$ to $500$ V, ± 10%
- 3-phase, $U_{7IN} = 525$ to $690$ V, ± 10% (600 V UL, CSA)

**Frequency**
- 48 to 63 Hz

**Power factor**
- $\cos \varphi_1 = 1$ (fundamental)
- $\cos \varphi_1 = 0.99$ (total)

**THDI (total harmonic distortion of current)**
- < 5%

**Efficiency (at nominal power)**
- 97%

### Motors connection

**Frequency**
- 0 to ± 300 Hz
- 0 to ± 120 Hz with external du/dt filters

**Field weakening point**
- 8 to 300 Hz

**Motor control software**
- ABB’s direct torque control (DTC)

**Torque control**
- Open loop: <5 ms with nominal torque
- Closed loop: <5 ms with nominal torque
- Non-linearity: ± 4% with nominal torque
- ± 3% with nominal torque

**Speed control**
- Static accuracy: 10% of motor slip
- 0.01% of nominal speed
- Dynamic accuracy:
  - Open loop: 0.3 to 0.4/sec. with 100% torque step
  - Closed loop: 0.1 to 0.2/sec. with 100% torque step

### Environmental limits

**Ambient temperature**
- Transport:
  - -40 to +70 °C
- Storage:
  - -40 to +70 °C
- Operation:
  - 0 to +50 °C; no frost allowed
  - 40 to 50 °C at reduced output current (1%/1 °C)
- ACS800-17LC:
  - 0 to +45 °C; no frost allowed
  - 45 to 55 °C at reduced output current (0.5%/1 °C)

**Cooling method**
- Air-cooled: Dry clean air
- Liquid-cooled: Direct liquid-cooling
  - Inlet water temperature with liquid cooling-unit (optional):
    - +45 °C max. customer circuit, fresh water or sea water
    - +38 °C to +45 °C at reduced output current 1%/1 °C
  - Inlet water temperature without liquid-cooling unit:
    - +48 °C max converter circuit, fresh water
    - +42 to +48 °C at reduced output current 1%/1 °C

**Altitude**
- 0 to 1000 m
- 1000 to 4000 m: without derating with derating (~ 1%/100 m)
- (690 V units 1000 to 2000 m with derating)

**Relative humidity**
- 5 to 95%, no condensation allowed

**Degree of protection**
- ACS800-11/-17: IP21
- ACS800-17LC: IP22, IP22R, IP42, IP42R, IP54 and IP54R
- IP42
- IP54

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### Paint colour
- ACS800-11: NCS 1502-Y
- ACS800-17/-17LC: RAL 7035

### Contamination levels
- Storage:
  - IEC 60721-3-1, Class 1C2 (chemical gases), Class 1S2 (solid particles)
  - IEC 60721-3-2, Class 2C2 (chemical gases), Class 2S2 (solid particles)
  - IEC 60721-3-3, Class 3C2 (chemical gases), Class 3S2 (solid particles without air inlet filters)

### Transportation
- Vibration:
  - IEC 60068-2-6, 10 to 58 Hz: 0.075 mm displacement amplitude
  - 58 to 150 Hz: 10 m/s² (1 g)
  - 2 to 13.2 Hz: ± 1.0 mm amplitude (peak)
  - 13.2 to 100 Hz: 0.7g acceleration

### Operation
- Vibration marine classification:
  - C = chemically active substances
  - S = mechanically active substances

### Product compliance
- CE
  - Low Voltage Directive 2006/95/EC
  - Machinery Directive 2006/42/EC
  - EMC Directive 2006/108/EC
- Quality assurance system ISO 9001 and Environmental system ISO 14001
- ACS800-11/-17: UL, cUL 508A or 508C and CSA C22.2 NO.14-95, C-Tick, GOST R
- ACS800-17LC: UL, CSA
- Marine type approvals for ACS800-17LC: ABS, DNV, Lloyd’s Register

### EMC according to EN 61800-3
- 2nd environment, unrestricted distribution category C3 as option
- 1st environment, restricted distribution category C2 as option up to 1000 A input current

For more information please contact your local ABB representative or visit:

- [www.abb.com/drives](http://www.abb.com/drives)
- [www.abb.com/drivespartners](http://www.abb.com/drivespartners)

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