

Cabinet-built single drives, ACS880-07

Our cabinet-built single drives are built to order, meeting customer needs despite any technical challenges. Designed on ABB's common drives architecture, this compact drive comes in different sizes for easy assembly and commissioning.

These single drives are customized to the precise needs of industries such as oil and gas, mining, metals, chemicals, cement, power plants, material handling, pulp and paper, woodworking and marine. Typical applications include cranes, extruders, winches, conveyors, mixers, compressors, pumps and fans. The drive configuration contains a rectifier, DC link, inverter, fuses and a main switch, all built into a compact cabinet. The features and options include extended inputs and outputs, fieldbus options, du/dt filtering, EMC filtering and a brake resistor.

Induction motors, synchronous motors and induction servo motors are all supported as standard without the need for additional software. The drive can control the motors in either open loop or closed loop, through its high precision motor control platform, direct torque control (DTC). Built-in safety features reduce the need for external safety components.

Main features

- Compact design for easy cabinet assembly and maintenance
- Main switch and fuses
- Cabling solutions include bottom and top entry and exit
- Enclosure classes IP22, IP42 and IP54 for different environments, with option for air intake through bottom of the cabinet and channeled air outlet on the top of the cabinet
- Integrated safety including safe torque off (STO) as standard and the optional safety functions module, FSO-12 (TÜV Nord certified)
- Supports various motor types including synchronous reluctance motors
- Drive composer PC tool for commissioning and configuration
- Intuitive and easy to operate control panel with USB connection
- Device panel for optional switches and pilot lights
- Primary control program – common software used throughout the ACS880 drive series
- Control unit supporting a wide range of fieldbuses, feedback devices and input/output options
- Removable memory unit for easy maintenance
- Coated boards as standard
- Extensive, programmable digital and analog inputs and outputs
- Line choke
- Long lifetime capacitors
- Cooling fans with speed control or on-off control
- Braking option inside the module or cabinet
- EMC filter option
- du/dt and common mode filter options for motor protection
- Cabinet light and heater option
- Marine construction option



ACS880-07, frame sizes R6 to R8 and R11, IP22



ACS880-07, frame size 1xD8T+2xR8i, IP22

Ratings, types and voltages

Cabinet-built drives, ACS880-07

$U_N = 500$ V AC (range 380 to 500 V AC). Power ratings are valid at nominal voltage 480 V AC, 60 Hz

Nominal ratings						Type designation	Frame size
Light-duty use (10% overload for 1 min)			Heavy-duty use (50% overload for 1 min)				
I_{Ld}	P_{Ld}		I_{2Hd}	P_{Hd}			
A	Hp	kW	A	Hp	kW		

$U_N = 500$ V (range 380 to 500 V). Power ratings are valid at nominal voltage 480 V 60 Hz

96	75	55	77	60	45	ACS880-07-0096A-5+C129	R6
124	100	75	96	75	55	ACS880-07-0124A-5+C129	R6
156	125	90	124	100	75	ACS880-07-0156A-5+C129	R7
180	150	110	156	125	90	ACS880-07-0180A-5+C129	R7
240	200	132	180	150	110	ACS880-07-0240A-5+C129	R8
302	250	200	260	200	132	ACS880-07-0302A-5+C129	R9
361	300	200	302	250	200	ACS880-07-0361A-5+C129	R9
414 ¹⁾	350	250	361 ²⁾	300	200	ACS880-07-0414A-5+C129	R9
450	375	315	330	275	200	ACS880-07-0460A-5+C129	R10
483	400	315	361	300	250	ACS880-07-0503A-5+C129	R10
573	450	400	414	350	250	ACS880-07-0583A-5+C129	R10
623	500	450	477	400	315	ACS880-07-0635A-5+C129	R10
705	600	500	566	450	400	ACS880-07-0715A-5+C129	R11
807	700	560	625	500	450	ACS880-07-0820A-5+C129	R11
857	725	560	697 ⁴⁾	600	500	ACS880-07-0880A-5+C129	R11
1027	900	710	800	700	560	ACS880-07-1070A-5+C129+H359 ¹⁾	D8T+2×R8i
1267	1100	900	987	850	710	ACS880-07-1320A-5+C129+F255+H359 ²⁾	2×D8T+2×R8i
1392	1200	900	1085	900	710	ACS880-07-1450A-5+C129+F255+H359 ²⁾	2×D8T+2×R8i
1517	1350	1000	1182	1000	800	ACS880-07-1580A-5+C129+F255+H359 ²⁾	2×D8T+2×R8i
1728	1500	1200	1346	1200	900	ACS880-07-1800A-5+C129+F255+H359 ²⁾	2×D8T+3×R8i
1901	1700	1300	1481	1300	1000	ACS880-07-1980A-5+C129+F255+H359 ²⁾	2×D8T+3×R8i

12-pulse connection³⁾

950	800	630	741	600	500	ACS880-07-0990A-5+A004+H359 ^{1,3)}	2×D7T+2×R8i
1267	1100	900	987	850	710	ACS880-07-1320A-5+A004+H359 ^{1,3)}	2×D8T+2×R8i
1392	1200	900	1085	900	710	ACS880-07-1450A-5+A004+H359 ^{1,3)}	2×D8T+2×R8i
1517	1300	1000	1182	1000	800	ACS880-07-1580A-5+A004+H359 ^{1,3)}	2×D8T+2×R8i
1728	1500	1200	1346	1200	900	ACS880-07-1800A-5+A004+H359 ^{1,3)}	2×D8T+3×R8i
1901	1700	1300	1481	1300	1000	ACS880-07-1980A-5+A004+H359 ^{1,3)}	2×D8T+3×R8i

¹⁾ 130% overload

²⁾ 125% overload

³⁾ 140% overload

⁴⁾ 144% overload

Ratings, types and voltages

Cabinet-built drives, ACS880-07

$U_N = 690$ V (range 525 to 690 V). Power ratings are valid at nominal voltage 690 V, 50 Hz

Nominal ratings						Type designation	Frame size
Light-duty use (10% overload for 1 min)			Heavy-duty use (50% overload for 1 min)				
I_{Ld}	P_{Ld}		I_{2Hd}	P_{Hd}			
A	Hp	kW	A	Hp	kW		

$U_N = 690$ V (range 525 to 690 V). Power ratings are valid at nominal voltage 690 V, 50 Hz

58	60	55	49	50	37	ACS880-07-0061A-7	R6
80	75	75	61	60	45	ACS880-07-0084A-7	R6
93	100	90	84	75	55	ACS880-07-0098A-7	R7
113	125	110	98	100	75	ACS880-07-0119A-7	R7
135	150	132	119	125	90	ACS880-07-0142A-7	R8
165	200	160	142	150	110	ACS880-07-0174A-7	R8
200	250	200	174	200	132	ACS880-07-0210A-7	R9
257	250	250	210	250	160	ACS880-07-0271A-7	R9
320	300	315	255	250	250	ACS880-07-0330A-7	R10
360	350	355	325	300	315	ACS880-07-0370A-7	R10
420	450	400	360 ⁴⁾	350	355	ACS880-07-0430A-7	R10
455	450	450	415	450	400	ACS880-07-0470A-7	R11
505	500	500	455	450	450	ACS880-07-0522A-7	R11
571	600	560	505	500	500	ACS880-07-0590A-7	R11
630	700	630	571 ⁴⁾	600	560	ACS880-07-0650A-7	R11
705	750	630	571 ⁴⁾	600	560	ACS880-07-0721A-7	R11
768	850	710	598	650	560	ACS880-07-0800A-7+H359 ¹⁾	1xD8T+2xR8i
864	1000	800	673	775	630	ACS880-07-0900A-7+H359 ¹⁾	1xD8T+2xR8i
1114	1200	1100	868	950	800	ACS880-07-1160A-7+H359 ¹⁾	2xD8T+2xR8i
1392	1500	1250	1085	1200	1000	ACS880-07-1450A-7+H359 ¹⁾	2xD8T+3xR8i
1584	1750	1500	1234	1350	1200	ACS880-07-1650A-7+H359 ¹⁾	2xD8T+3xR8i
1872	2000	1800	1459	1600	1400	ACS880-07-1950A-7+H359 ¹⁾	3xD8T+4xR8i
2208	2450	2000	1720	1900	1600	ACS880-07-2300A-7+H359 ¹⁾	3xD8T+4xR8i
2496	2750	2400	1945	2150	1900	ACS880-07-2600A-7+H359 ¹⁾	4xD8T+5xR8i
2746	3000	2600	2139	2350	2000	ACS880-07-2860A-7+H359 ¹⁾	4xD8T+5xR8i

12-pulse connection³⁾

768	850	710	598	650	560	ACS880-07-0800A-7+A004+H359 ¹⁾	2xD7T+2xR8i
912	1000	800	711	775	630	ACS880-07-0950A-7+A004+H359 ¹⁾	2xD8T+2xR8i
1114	1200	1100	868	950	800	ACS880-07-1160A-7+A004+H359 ¹⁾	2xD8T+2xR8i
1392	1500	1250	1085	1200	1000	ACS880-07-1450A-7+A004+H359 ¹⁾	2xD8T+3xR8i
1584	1750	1500	1234	1350	1200	ACS880-07-1650A-7+A004+H359 ¹⁾	2xD8T+3xR8i
1872	2000	1800	1459	1600	1400	ACS880-07-1950A-7+A004+H359 ¹⁾	4xD8T+4xR8i
2208	2450	2000	1720	1900	1600	ACS880-07-2300A-7+A004+H359 ¹⁾	4xD8T+4xR8i
2496	2750	2400	1945	2150	1900	ACS880-07-2600A-7+A004+H359 ¹⁾	4xD8T+5xR8i
2746	3000	2600	2139	2350	2000	ACS880-07-2860A-7+A004+H359 ¹⁾	4xD8T+5xR8i

UL Type 1

Frame size	Height (H)		Width (W)		Depth (D)		Weight	
	UL type 1	IP21	UL type 1	IP21	UL type 1	IP21	UL type 1	IP21
	(in)	(mm)	(in)	(mm)	(in)	(mm)	(lbs)	(kg)
R6	84.5	2145	16.9	430*	26.5	673	528	240
R7	84.5	2145	16.9	430*	26.5	673	550	250
R8	84.5	2145	16.9	430*	26.5	673	583	265

* Add 200 mm (7.9 in) if equipped with 1st environment (C2) filter option +E202

Add 400 mm (15.8 in) if equipped with circuit breaker option (+F289)

R9	84.5	2145	32.7	830	27.5	698	825	375
R10	84.5	2145	32.7	830	27.5	698	1170	530
R11	84.5	2145	32.7	830	27.5	698	1280	580
1xD8T+2xR8i	84.5	2145	83.9	2130	27.5	698	3590	1630

Add 400 mm (15.7 in) width if equipped with breaking chopper (D150) The number of brake choppers depends on required braking power

2xD8T+2xR8i	84.5	2145	107.5	2730	28.1	714	5020	2280
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Add 400 mm (15.7 in) width if equipped with breaking chopper (D150) The number of brake choppers depends on required braking power

Includes common motor terminal cabinet (H359)

Includes air circuit breaker (F255) as standard with UL listed (C129) option

2xD8T+3xR8i	84.5	2145	119.3	3030	28.1	714	5435	2470
3xD8T+4xR8i	84.5	2145	150.8	3830	28.1	714	7099	3220
4xD8T+5xR8i	84.5	2145	190.2	4830	28.1	714	8597	3900

Includes common motor terminal cabinet (H359)

Includes air circuit breaker (F255) as standard with UL listed (C129) option

UL Type 12

Frame size	Height (H)		Width (W)		Depth (D)		Weight	
	UL type 12	IP55	UL type 12	IP55	UL type 12	IP55	UL type 12	IP55
	(in)	(mm)	(in)	(mm)	(in)	(mm)	(lbs)	(kg)
R6	91.2	2315	16.9	430*	26.5	673	528	240
R7	91.2	2315	16.9	430*	26.5	673	550	250
R8	91.2	2315	16.9	430*	26.5	673	583	265

* Add 200 mm (7.9 in) if equipped with 1st environment (C2) filter option +E202
Add 400 mm (15.8 in) if equipped with circuit breaker option (+F289)

R9	91.2	2315	32.7	830	27.5	698	825	375
R10	91.2	2315	32.7	830	27.5	698	1170	530
R11	91.2	2315	32.7	830	27.5	698	1280	580
1xD8T+2xR8i	91.2	2315	83.9	2130	27.5	698	3590	1630

Add 400 mm (15.7 in) width if equipped with braking chopper (D150) The number of brake choppers depends on required braking power

2xD8T+2xR8i	91.2	2315	107.5	2730	28.1	714	5020	2280
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Add 400 mm (15.7 in) width if equipped with braking chopper (D150) The number of brake choppers depends on required braking power
Includes common motor terminal cabinet (H359)

Includes air circuit breaker (F255) as standard with UL listed (C129) option

2xD8T+3xR8i	91.2	2315	119.3	3030	28.1	714	5435	2470
3xD8T+4xR8i	91.2	2315	150.8	3830	28.1	714	7099	3220
4xD8T+5xR8i	91.2	2315	190.2	4830	28.1	714	8597	3900

Includes common motor terminal cabinet (H359)

Includes air circuit breaker (F255) as standard with UL listed (C129) option

¹⁾ 130% overload

²⁾ 125% overload

³⁾ 140% overload

⁴⁾ 144% overload

Light-overload use

I_{Ld}	Continuous current allowing 10% I_{Ld} for 1 min/5 min at 40 °C.
P_{Ld}	Typical motor power in light-overload use.

Heavy-duty use

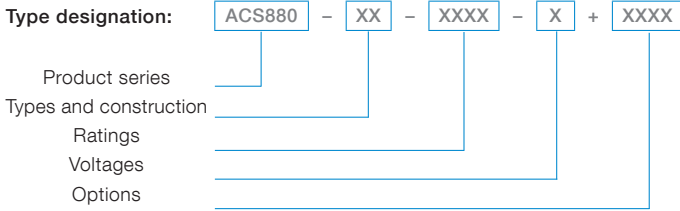
I_{Hd}	Continuous current allowing 50% I_{Hd} for 1 min/5 min at 40 °C.
P_{Hd}	Typical motor power in heavy-duty use.

The ratings apply at 40 °C ambient temperature. At higher temperatures (up to 50 °C) the derating is 1%/1 °C.

Operation above 150 Hz might require type specific derating.

How to select a drive

Many of the features for the ACS880 single drives are built-in as standard, making selection easy. A wide range of options are available to optimize the drive for different requirements. To choose the right drive for your application, please refer to the rating tables or use ABB's DriveSize dimensioning tool (page 47). The selected drive



has a unique type designation, which identifies the drive by construction, power and voltage range. The options are added to the type designation with a "plus" code. Build up your own ordering code using the type designation key or contact your local ABB drives sales office and let them know your needs/requirements.



Technical data

Mains connection

Voltage and power range	3-phase, $U_{N2} = 208$ to 240 V, +10/-15% (-01) 3-phase, $U_{N3} = 380$ to 500 V, +10/-15% (-01), ±10% (-07,-17,-37) 3-phase, $U_{N7} = 525$ to 690 V, +10/-15% (-01), ±10% (-07,-17,-37) 0.75 to 350 hp (0.55 to 250 kW) (-01) 50 to 3000 hp (45 to 2800 kW) (-07) 250 to 4250 hp (250 to 3200 kW) (-17, -37)
Frequency	50/60 Hz ±5%
Power factor (ACS880-01, -07)	$\cos\phi_1 = 0.98$ (fundamental) $\cos\phi = 0.93$ to 0.95 (total)
Power factor (ACS880-17, -37)	$\cos\phi_1 = 1$ (fundamental)
Efficiency (at nominal power)	98% (-01,-07) 97% (-17,-37)

Motor connection

Voltage	3-phase output voltage 0 to $U_{N2}/U_{N3}/U_{N5}/U_{N7}$
Frequency	0 to ±500 Hz ^{1) 2)}
Motor control	Direct torque control (DTC)
Torque control:	Torque step rise time: Open loop <5 ms with nominal torque Closed loop <5 ms with nominal torque Non-linearity: Open loop ± 4% with nominal torque Closed loop ± 3% with nominal torque
Speed control:	Static accuracy: Open loop 10% of motor slip Closed loop 0.01% of nominal speed Dynamic accuracy: Open loop 0.3 to 0.4% seconds with 100% torque step Closed loop 0.1 to 0.2% seconds with 100% torque step

Product compliance

- CE
- Low Voltage Directive 2006/95/EC
- Machinery Directive 2006/42/EC
- EMC Directive 2004/108/EC
- Quality assurance system ISO 9001 and Environmental system ISO 14001
- RoHS
- UL, cUL 508A or cUL 508C and CSA C22.2 NO.14-10, C-Tick, EAC ⁴⁾
- Functional safety: STO TÜV Nord certificate
- ATEX-certified Safe Disconnection Function, Ex II (2) GD ⁵⁾
- Marine type approvals for -01

EMC according to EN 61800-3:2004 + A1:2012

Categories C3 and C2 with internal option

Environmental limits

Ambient temperature	Transport -40 to +70 °C Storage -40 to +70 °C Operation (air-cooled) -15 to +55 °C, no frost allowed (-01) 0 to +50 °C, no frost allowed (-07, -17, -37) +40 to 55 °C with derating (-01) ³⁾ +40 to 50 °C with derating of 1%/1 °C (-07,-17,-37)
Cooling method	Air-cooled Dry clean air
Altitude	0 to 1,000 m Without derating 1,000 to 4,000 m With derating of 1%/100 m ⁶⁾
Relative humidity	5 to 95%, no condensation allowed
Degree of protection	IP20 Option (-01) IP21 Standard (-01) IP22 Standard (-07, -17, -37) IP42, IP54 Option (-07, -17, -37) IP55 Option (-01)
Paint color	RAL 9017/9002 (-01), RAL 9017/7035 (-07, -17, -37)
Contamination levels	No conductive dust allowed
Storage	IEC 60721-3-1, Class 1C2 (chemical gases), Class 1S2 (solid particles)
Transportation	IEC 60721-3-2, Class 2C2 (chemical gases), Class 2S2 (solid particles)
Operation	IEC 60721-3-3, Class 3C2 (chemical gases), Class 3S2 (solid particles)
Functional safety	Standard Safe torque off (STO according EN/IEC 61800-5-2) IEC 61508 ed2: SIL 3, IEC 61511: SIL 3, EN/IEC 62061: SIL CL 3, EN ISO 13849-1: PL e
With internal safety option safety functions module	Safe stop 1 (SS1), safely-limited speed (SLS), safe stop emergency (SSE), safe brake control, (SBC) and safe maximum speed (SMS), prevention of unexpected startup (POUS), Safe direction (SDI), Safe speed monitor (SSM), EN/IEC 61800-5-2, IEC 61508 ed2: SIL 3, IEC 61511: SIL 3, EN/IEC 62061: SIL CL 3, EN ISO 13849-1: PL e TÜV Nord certified
Fieldbus communication	PROFIsafe over profinet, certified

C = Chemically active substances
S = Mechanically active substances

¹⁾ For higher operational output frequencies please contact your local ABB office

²⁾ Operation above 120 Hz might require type specific derating, please contact your local ABB office

³⁾ Please see pages 12 to 13 for further details

⁴⁾ EAC has replaced GOST R

⁵⁾ Codes +L513/+L514, +Q971 for -07, -17, -37

⁶⁾ Derating reduced by lower than 40 °C ambient temperature

Contact us

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

www.abb.com/drives

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