ABB 드라이브 선택 가이드

AC/DC, LV/MV 드라이브
0.18 ~ 21000 kW

Industrial IT enabled

ABB

ABB 드라이브 포트폴리오

서비스

예방정비(PM) 키트

제품 수명관리 서비스

모션콘트롤 드라이브

ACS M1

표준 드라이브

ACS 550

ACS 510

초소형 드라이브

ACS 350

ACS 150

ACS 55

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ACS 5000

ACS 1000

MV 드라이브

ACS 800

DTC 드라이브

DCS 800

DC 드라이브

DCS 400

ABB 초소형 드라이브
ACS55, 0.18 ~ 2.2 kW / 0.25 ~ 3 hp

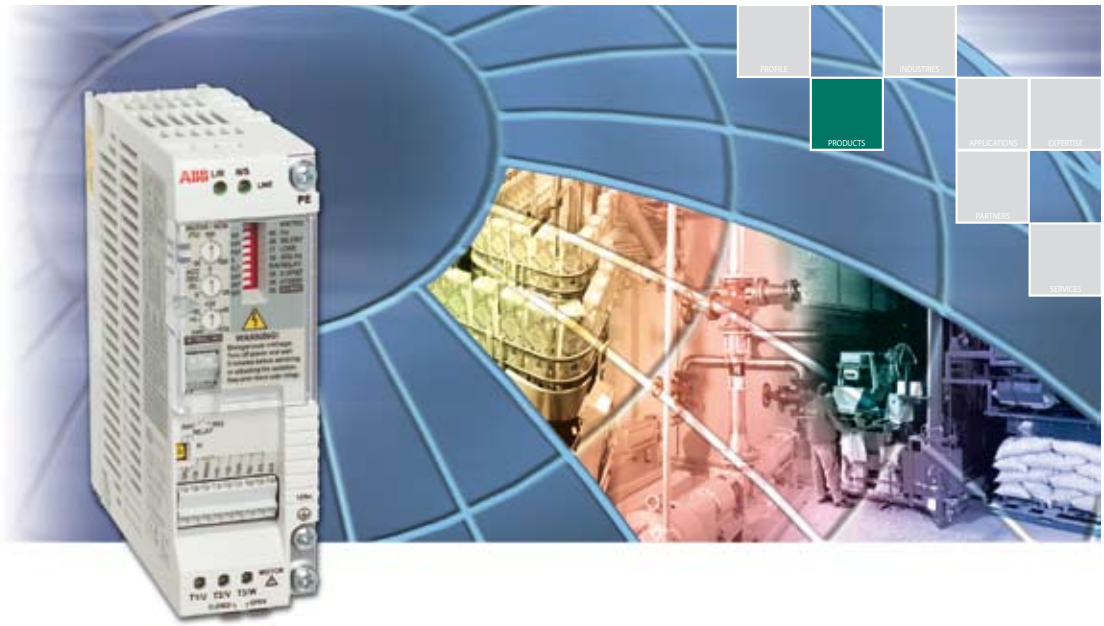

ABB 초소형 드라이브

ABB 초소형 드라이브는 OEM 방식의 기계장치 및 판넬 제작자를 위하여 설계된 제품입니다. ACS50은 다른 계전품들과 함께 유통망 또는 특약점 등을 통하여 구입할 수 있습니다. ACS50은 옵션 품목을 포함하여 충분한 재고를 확보하여 언제나 신속하고 편리하게 제품을 구입할 수 있습니다.

하이라이트

- 프로그램 불필요 – 쉽고 간단한 인터페이스
- 컴팩트하고 날씬한 디자인
- 표준형 DIN-rail 취부(측면 및 후면 취부 가능)
- 폭 넓은 제품 인증으로 어느 환경에서나 사용 가능
- 정속 운전(드라이브의 온도에 따라 스위칭 주파수 자동 선택)

전압, 용량

- 1-상, 100 ~ 120 V ±10%
  0.18 ~ 0.37 kW (0.25 ~ 0.5 hp)
- 1-상, 200 ~ 240 V ±10%
  0.18 ~ 2.2 kW (0.25 ~ 3 hp)

응용 분야

- 팬
- 펌프
- 출입문 제어
- 물류
- 컨베이어

옵션

- 입력/출력 초오크
- 포텐션메터(Potentiometer)

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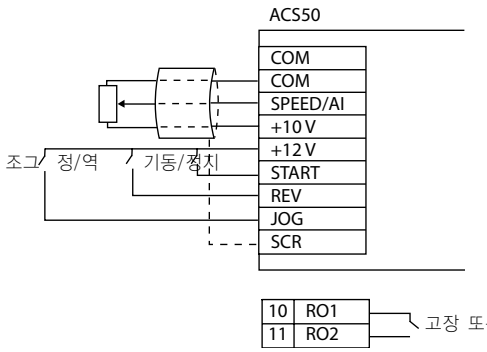
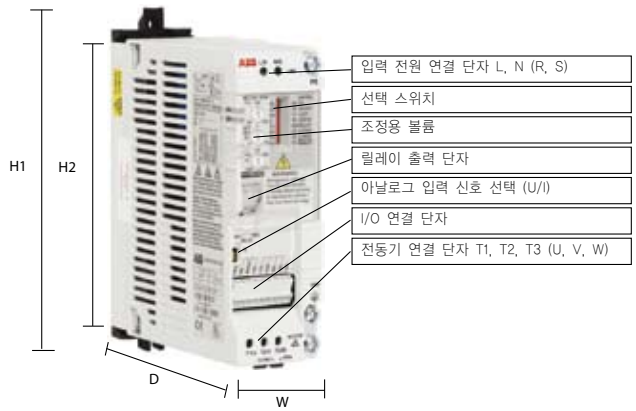
용량, 타입, 전압, 치수

용량		출력 전류		입력	타입코드	프레임					
P_N kW	P_N hp	정격 A	최대 A	전류 A		사이즈	H1 mm	H2 mm	W mm	D mm	중량 kg
EMC 필터 내장, 입력: 1-상, 200/240 V, +10/-15%, 출력: 3-상, 200/240 V											
0.18	0.25	1.4	2.1	4.4	ACS55-01E-01A4-2	A	170	146.5	45	128	0.65
0.37	0.5	2.2	3.3	6.9	ACS55-01E-02A2-2	A	170	146.5	45	128	0.7
0.75	1.0	4.3	6.5	10.8	ACS55-01E-04A3-2	B	170	146.5	67.5	128	0.7
1.5	2	7.6	11.4	18.2	ACS55-01E-07A6-2	D	226	203	70	159	1.1
2.2	3	9.8	14.7	22	ACS55-01E-09A8-2	D	226	203	70	159	1.1
EMC 필터 없음, 입력: 1-상, 200/240 V, +10/-15%, 출력: 3-상, 200/240 V											
0.18	0.25	1.4	2.1	4.4	ACS55-01N-01A4-2	A	170	146.5	45	128	0.65
0.37	0.5	2.2	3.3	6.9	ACS55-01N-02A2-2	A	170	146.5	45	128	0.7
0.75	1.0	4.3	6.5	10.8	ACS55-01N-04A3-2	B	170	146.5	67.5	128	0.7
1.5	2	7.6	11.4	18.2	ACS55-01N-07A6-2	C	194	171	70	159	1.1
2.2	3	9.8	14.7	22	ACS50-01N-09A8-2	C	194	171	70	159	1.1
EMC 필터 내장, 입력: 1-상, 110/120 V, +10/-15%, 출력: 3-상, 200/240 V											
0.18	0.25	1.4	2.1	6.4	ACS55-01E-01A4-1	A	170	146.5	45	128	0.65
0.37	0.5	2.2	3.3	9.5	ACS55-01E-02A2-1	A	170	146.5	45	128	0.7
EMC 필터 없음, 입력: 1-상, 110/120 V, +10/-15%, 출력: 3-상, 200/240 V											
0.18	0.25	1.4	2.1	6.4	ACS55-01N-01A4-1	A	170	146.5	45	128	0.55
0.37	0.5	2.2	3.3	9.5	ACS55-01N-01A4-1	A	170	146.5	45	128	0.6

H = DIN-rail 취부용 클립을 포함한 높이
H2 = 클립을 제외한 높이
W = 폭
D = 깊이





전동기 결선(출력)

전압	3-상, 0 ~ U_{SUPPLY} (110/120 V 유닛은 0 ~ 230 V)
주파수	0 ~ 120/130 Hz
과부하 용량	150% (60 s)
스위칭 주파수	
표준	5 kHz, 16 kHz 까지 설정 가능(용량 저감없이 자동으로 드라이브의 온도 조건에 맞추어 조정)
가속 시간	0.1 ~ 30 s
감속 시간	0.1 ~ 30 s

제어 결선

1개의 아날로그 입력	
전압 신호	0 (2) ~ 10 V, 200 kΩ single-ended
전류 신호	0 (4) ~ 20 mA, 100 Ω single-ended
포텐션메터 레퍼런스 값	10 V ±2% 최대. 10 mA, 1 kΩ ≤ R ≤ 10 kΩ
응답 시간	≤ 60 ms
분해능	0.1%
정밀도	±1%
3개의 디지털 입력	12 V DC의 내부 전원 또는 12 ~ 24 V DC의 외부 전원 사용, PNP
입력 임피던스	1.5 Ω
응답 시간	≤ 9 ms
1개의 릴레이 출력	
스위칭 전압	12 ~ 250 V AC 또는 최대 30 V DC
최대 연속 전류	2 A

표준 및 적용 규격

CE, UL, cUL, C-Tick 및 GOST R 인증

주위 환경

보호등급	IP20
주위온도	
0 ~ 40℃	스위칭 주파수 5 kHz 에서 정격 출력 전류
~ 50℃	용량 저감
-20℃	제한적인 범위 내에서 운전 가능
상대습도	95% 이하(결로현상 없을 것)

보다 자세한 내용은 ACS50(55) 초소형 드라이브 카달로그(code 3AKR01074767)를 참조하시기 바랍니다.

ABB 초소형 드라이브

ACS150, 0.37 ~ 4 kW / 0.5 ~ 5 hp

ABB 초소형 드라이브

ABB 초소형 드라이브는 OEM 방식의 기계장치 및 판넬 제작자를 위하여 설계된 제품입니다. ACS150은 다른 계전품들과 함께 유통망 또는 특약점 등을 통하여 구입할 수 있습니다. ACS150은 옵션 품목을 포함하여 충분한 재고를 확보하여 언제나 신속하고 편리하게 제품을 구입할 수 있습니다.

하이라이트

- 플래쉬_드롭(FlashDrop)
- 일체형 인터페이스
- 일체형 포텐션메터
- C3 등급의 EMC 필터 내장
- 브레이크 초퍼 내장
- 일렬배치(Side-by-side)
- PCB 코팅

전압, 용량

- 1-상, 200 ~ 240 V ±10%
  0.37 ~ 2.2 kW (0.5 ~ 3 hp)
- 3-상, 200 ~ 240 V ±10%
  0.37 ~ 2.2 kW (0.5 ~ 3 hp)
- 3-상, 380 ~ 480 V ±10%
  0.37 ~ 4 kW (0.5 ~ 5 hp)

응용 분야

- 팬
- 펌프
- 출입문 제어
- 물류
- 컨베이어

옵션

- 플래쉬_드롭(FlashDrop)
- 입력/출력 초오크
- C2 등급의 EMC 필터
- NEMA 1 키트

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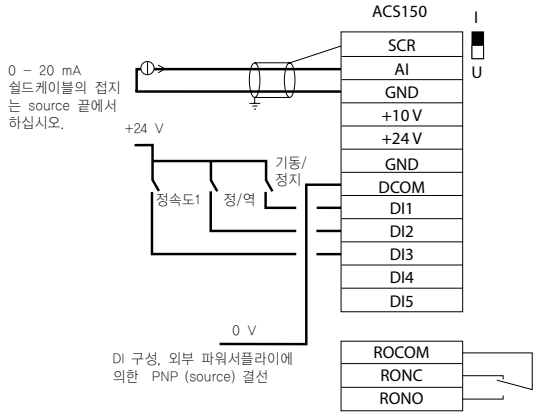
용량, 타입, 전압, 크기

용량			타입코드	프레임 사이즈	IP20 UL open				NEMA 1			
P_N kW	P_N hp	I_{2N} A			H2 mm	W mm	D mm	중량 kg	H5 mm	W mm	D mm	중량 kg
1-상 입력 전압 200 – 240 V 유닛												
0.37	0.5	2.4	ACS150-01X-02A4-2	R0	202	70	142	1.1	280	70	142	1.5
0.75	1	4.7	ACS150-01X-04A7-2	R1	202	70	142	1.3	280	70	142	1.7
1.1	1.5	6.7	ACS150-01X-06A7-2	R1	202	70	142	1.3	280	70	142	1.7
1.5	2	7.5	ACS150-01X-07A5-2	R2	202	105	142	1.5	282	105	142	1.9
2.2	3	9.8	ACS150-01X-09A8-2	R2	202	105	142	1.5	282	105	142	1.9
3-상 입력 전압 200 – 240 V 유닛												
0.37	0.5	2.4	ACS150-03X-02A4-2	R0	202	70	142	1.1	280	70	142	1.5
0.55	0.75	3.5	ACS150-03X-03A5-2	R0	202	70	142	1.1	280	70	142	1.5
0.75	1	4.7	ACS150-03X-04A7-2	R1	202	70	142	1.3	280	70	142	1.7
1.1	1.5	6.7	ACS150-03X-06A7-2	R1	202	70	142	1.3	280	70	142	1.7
1.5	2	7.5	ACS150-03X-07A5-2	R1	202	70	142	1.3	280	70	142	1.7
2.2	3	9.8	ACS150-03X-09A8-2	R2	202	105	142	1.5	282	105	142	1.9
3-상 입력 전압 380 – 480 V 유닛												
0.37	0.5	1.2	ACS150-03X-01A2-4	R0	202	70	142	1.1	280	70	142	1.5
0.55	0.75	1.9	ACS150-03X-01A9-4	R0	202	70	142	1.1	280	70	142	1.5
0.75	1	2.4	ACS150-03X-02A4-4	R1	202	70	142	1.3	280	70	142	1.7
1.1	1.5	3.3	ACS150-03X-03A3-4	R1	202	70	142	1.3	280	70	142	1.7
1.5	2	4.1	ACS150-03X-04A1-4	R1	202	70	142	1.3	280	70	142	1.7
2.2	3	5.6	ACS150-03X-05A6-4	R1	202	70	142	1.3	280	70	142	1.7
3	4	7.3	ACS150-03X-07A3-4	R1	202	70	142	1.3	280	70	142	1.7
4	5	8.8	ACS150-03X-08A8-4	R1	202	70	142	1.3	280	70	142	1.7

X = 타입코드 선정 시 E 또는 U 선택.
E = EMC 필터 연결, U = EMC 필터 분리.
H2 = 고정 플레이트를 포함하고 클램핑 플레이트를 제외한 높이.
H5 = 고정 플레이트, NEMA 1 결선 박스 및 후드를 포함한 높이.
W = 폭, D = 깊이



전동기 결선(출력)

전압	3-상, 0 ~ U_{supply}
주파수	0 ~ 500 Hz
과부하 용량 (주위온동 최대 40°C)	고부하 사용 시 1.5 x I_{2N}, 매 10분당 1분 기동 시 1.8 x I_{2N}, 2 초
스위칭 주파수	
표준	4 kHz
선택 가능	4 ~ 16 kHz, 4 kHz 스텝
가속 시간	0.1 ~ 1800 초
감속 시간	0.1 ~ 1800 초
제동	제동초퍼 표준 내장

프로그램 가능한 제어 결선

1개의 아날로그 입력	
전압 신호	0 (2) ~ 10 V, R_{in} 〉 312 kΩ
전류 신호	0 (4) ~ 20 mA, R_{in} = 100 W
포텐션메터 레퍼런스 값	10 V ±1% 최대. 10 mA, R 〈 10 kW
분해능	0.1 %
정밀도	±2%
보조전압	24 V DC ±10%, 최대 200 mA
5개의 디지털 입력	12 ~ 24 V DC의 내부 및 외부 공급전원으로 동작, PNP 및 NPN, 펄스입력 0 ~ 10 kHz
입력 임피던스	2.4 kΩ
1개의 릴레이 출력	
타입	NO + NC
최대 스위칭 전압	250 V AC/30 V DC
최대 스위칭 전류	0.5 A/30 V DC; 5 A/230 V AC
최대 연속 전류	2 A rms

표준 및 적용 규격

UL, cUL, CE, C-Tick 및 GOST R 인증

주위 환경

보호등급	IP20 / NEMA 1(옵션)
주위온도	–10 ~ 40°C (14 ~ 104°F), 결빙 현상 없음 50°C (122°F) 에서 10% 용량 저감
상대습도	95% 이하 (결로현상 없을 것)

보다 자세한 내용은 ACS150 초소형 드라이브 카달로그(code 3AKR01074766)를 참조하시기 바랍니다.

ABB 초소형 벡터 드라이브

ACS350, 0.37 ~ 11 kW / 0.5 ~ 15 hp

ABB 초소형 벡터 드라이브

ABB 초소형 벡터 드라이브는 기계장치 제작자를 위하여 설계되었습니다. ACS350은 표준품 제작에 있어서 중요한 대당 제작 시간을 감안하여 설치, 파라미터 설정 및 시운전 시간을 매우 짧게 가져갈 수 있도록 디자인되었습니다. ACS350은 사용자 친화적으로 제작되었으며, 매우 지능적으로 동작합니다. 또한, 외부의 많은 요구사항들을 수용하기 위하여 다양한 기능을 제공합니다.

ABB 초소형 벡터 드라이브는 기계장치 응용분야에 있어서 다양한 범위의 요구사항에 대응할 수 있도록 설계되었습니다. ACS350은 식/음료, 물류, 섬유, 인쇄, 고무 및 플라스틱 그리고 목공과 같은 분야에 이상적으로 사용할 수 있는 드라이브입니다.

하이라이트

- 플래쉬_드롭(FlashDrop)
- 순차제어 프로그램(Sequence programming)
- C3 등급의 EMC 필터 내장
- 브레이크 초퍼 내장
- 동일한 높이 및 깊이
- 일렬배치(Side-by-side)
- 한글 디스플레이

전압, 용량

- 1-상, 200 ~ 240 V ± 10%
  0.37 ~ 2.2 kW (0.5 ~ 3 hp)
- 3-상, 200 ~ 240 V ±10%
  0.37 ~ 4 kW (0.5 ~ 5 hp)
- 3-상, 380 ~ 480 V ±10%
  0.37 ~ 11 kW (0.5 ~ 15 hp)

옵션

- 사용자 인터페이스
  - 기본 제어_패널
  - 고급 제어_패널
  - 포텐션메터(Potentiometer)
- 플래쉬_드롭(FlashDrop)
- 필드버스
  - PROFIBUS DP
  - DeviceNet
  - CANopen
  - Modbus
- 엔코더 인터페이스
- NEMA 1 키트
- 입력/출력 초오크
- C2 등급의 EMC 필터
- DriveWindow Light 2 소프트웨어

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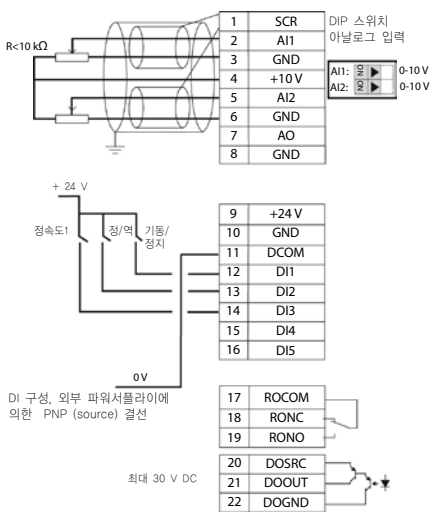
용량, 타입, 전압, 크기

용량			타입코드	프레임 사이즈	IP20 UL open				NEMA 1			
P_N kW	P_N hp	I_{2N} A			H2 mm	W mm	D mm	중량 kg	H5 mm	W mm	D mm	중량 kg
1-상 입력 전압 200 – 240 V 유닛												
0,37	0,5	2,4	ACS350-01X-02A4-2	R0	202	70	161	1,1	280	70	169	1,5
0,75	1	4,7	ACS350-01X-04A7-2	R1	202	70	161	1,3	280	70	169	1,7
1,1	1,5	6,7	ACS350-01X-06A7-2	R1	202	70	161	1,3	280	70	169	1,7
1,5	2	7,5	ACS350-01X-07A5-2	R2	202	105	165	1,5	282	105	169	1,9
2,2	3	9,8	ACS350-01X-09A8-2	R2	202	105	165	1,5	282	105	169	1,9
3-상 입력 전압 200 – 240 V 유닛												
0,37	0,5	2,4	ACS350-03X-02A4-2	R0	202	70	161	1,1	280	70	169	1,5
0,55	0,75	3,5	ACS350-03X-03A5-2	R0	202	70	161	1,1	280	70	169	1,5
0,75	1	4,7	ACS350-03X-04A7-2	R1	202	70	161	1,3	280	70	169	1,7
1,1	1,5	6,7	ACS350-03X-06A7-2	R1	202	70	161	1,3	280	70	169	1,7
1,5	2	7,5	ACS350-03X-07A5-2	R1	202	70	161	1,3	280	70	169	1,7
2,2	3	9,8	ACS350-03X-09A8-2	R2	202	105	165	1,5	282	105	169	1,9
3	4	13,3	ACS350-03X-13A3-2	R2	202	105	165	1,5	282	105	169	1,9
4	5	17,6	ACS350-03X-17A6-2	R2	202	105	165	1,5	282	105	169	1,9
3-상 입력 전압 380 – 480 V 유닛												
0,37	0,5	1,2	ACS350-03X-01A2-4	R0	202	70	161	1,1	280	70	169	1,5
0,55	0,75	1,9	ACS350-03X-01A9-4	R0	202	70	161	1,1	280	70	169	1,5
0,75	1	2,4	ACS350-03X-02A4-4	R1	202	70	161	1,3	280	70	169	1,7
1,1	1,5	3,3	ACS350-03X-03A3-4	R1	202	70	161	1,3	280	70	169	1,7
1,5	2	4,1	ACS350-03X-04A1-4	R1	202	70	161	1,3	280	70	169	1,7
2,2	3	5,6	ACS350-03X-05A6-4	R1	202	70	161	1,3	280	70	169	1,7
3	4	7,3	ACS350-03X-07A3-4	R1	202	70	161	1,3	280	70	169	1,7
4	5	8,8	ACS350-03X-08A8-4	R1	202	70	161	1,3	280	70	169	1,7
5,5	7,5	12,5	ACS350-03X-12A5-4	R3	202	169	169	2,5	299	169	177	3,1
7,5	10	15,6	ACS350-03X-15A6-4	R3	202	169	169	2,5	299	169	177	3,1
11	15	23,1	ACS350-03X-23A1-4	R3	202	169	169	2,5	299	169	177	3,1

X = 타입코드 선정 시 E 또는 U 선택.
E = EMC 필터 연결. U = EMC 필터 분리.
H2 = 고정 플레이트를 포함하고 클램핑 플레이트를 제외한 높이.
H5 = 고정 플레이트, NEMA 1 결선 박스 및 후드를 포함한 높이.
W = 폭, D = 깊이



전동기 결선(출력)

전압	3-상, 0 ~ U_{SUPPLY}
주파수	0 ~ 500 Hz
과부하 용량 (주위온도 최대 40°C)	고부하 사용 시 1,5 x I_{2N}, 매 10분당 1분 기동 시 1.8 x I_{2N}, 2 초
스위칭 주파수	
표준	4 kHz
선택 가능	4 ~ 16 kHz, 4 kHz 스텝
속도 제어	
정상 상태	전동기 슬립의 20 %
과도 상태	100 % 토오크 스텝 시 1% s 미만
토오크 제어	
토오크 스텝 상승 시간	정격 토오크에서 10ms 미만
비 선형성	정격 토오크에서 ± 5%

프로그램 가능한 제어 결선

2개의 아날로그 입력	
전압 신호	
단극성	0 (2) ~ 10 V, R_{in} 〉 312 kΩ
양극성	–10 ~ 10 V, R_{in} 〉 312 kΩ
전류 신호	
단극성	0 (4) ~ 20 mA, R_{in} = 100 Ω
양극성	–20 ~ 20 mA, R_{in} = 100 Ω
포텐션메터 레퍼런스 값	10 V ±1% 최대. 10 mA, R 〈 10 kΩ
분해능	0,1%
정밀도	±1%
1개의 아날로그 출력	0 (4) ~ 20 mA, 부하 〈 500 Ω
보조전압	24 V DC ±10%, 최대. 200 mA
5개의 디지털 입력	12 ~ 24 V DC의 내부 및 외부 공급전원으로 동작, PNP 및 NPN, 펄스입력 0 ~ 10 kHz
입력 임피던스	2,4 kΩ
1개의 릴레이 출력	
타입	NO + NC
최대 스위칭 전압	250 V AC/30 V DC
최대 스위칭 전류	0,5 A/30 V DC; 5 A/230 V AC
최대 연속 전류	2 A rms
1개의 디지털 출력	
타입	트랜지스터 출력
최대 스위칭 전압	30 V DC
최대 스위칭 전류	100 mA/30 V DC, 단락 보호
주파수	10 Hz ~ 16 kHz
분해능	1 Hz
정밀도	0,2%

표준 및 적용 규격

UL, cUL, CE, C-Tick 및 GOST R 인증

주위 환경

보호등급	IP20 / NEMA 1(옵션)
주위온도	–10 ~ 40°C (14 to 104°F), 결빙 현상 없음 50°C (122°F) 에서 10% 용량 저감
상대습도	95% 이하 (결로현상 없을 것)

보다 자세한 내용은 ACS350 초소형 벡터드라이브 카달로그(code 3AKR01074765)를 참조하시기 바랍니다.

ABB 표준 드라이브
ACS510, 0.75 ~ 132 kW

ACS510 표준 드라이브

ABB의 ACS510 표준 드라이브는 신속한 납기, 간편하고 빠른 설치, 사용자 위주의 신속한 시운전 기능과 고장없는 드라이브의 사용을 약속합니다.

ABB 표준 드라이브는 일반적인 펌프와 팬과 같은 자승 저감 토오크 및 컨베이어와 같은 정토오크 분야를 중심으로 산업 전반에 걸쳐 다양하게 사용할 수 있습니다. ABB 표준 드라이브는 주문 제작이나 별도의 엔지니어링 없이도 간편하게 설치와 자체 시운전이 가능한 이상적인 드라이브 입니다.

하이라이트

- 한글 디스플레이
- 플래쉬_드롭(FlashDrop)
- 도움말 기능의 제어_패널
- 하모닉 저감용 스윙 초오크(Swinging choke)
- V/f 제어
- 열악한 환경에도 견딜수 있는 코팅 PCB
- C2 등급의 EMC 필터 (1차 환경) 표준 내장
- 내장형 Modbus를 포함한 다양한 필드버스 프로토콜 지원
- R1, R2 프레임 제동 초퍼 표준 내장

전압, 용량

- 3-상, 380 ~ 480 V ± 10% /-15%
  0.75 ~ 132 kW

옵션

- 플래쉬_드롭(FlashDrop)
- 필드버스(fieldbus)
  - DeviceNet
  - LONWORKS
  - PROFIBUS DP
  - CANopen
  - ControlNet
  - Ethernet
- 제어_패널 고정 킷
- 고효율 인버터(3.7 ~ 220 kW) 지원

3.7 ~ 132 kW: ACS510 적용
132 ~ 220 kW: ACS800 적용

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타입, 용량, 크기

용량			타입코드	프레임 사이즈
일반 사용				
P_N kW	P_N hp	I_{2N} A		
3-상 입력 전압 380 – 480 V, 벽걸이형 유닛				
1,1	1,5	3,3	ACS550-01-03A3-4	R1
1,5	2	4,1	ACS550-01-04A1-4	R1
2,2	3	5,4	ACS550-01-05A6-4	R1
3	4	6,9	ACS550-01-07A2-4	R1
4	5,4	8,8	ACS550-01-09A4-4	R1
5,5	7,5	11,9	ACS550-01-012A-4	R1
7,5	10	15,4	ACS550-01-017A-4	R2
11	15	23	ACS550-01-025A-4	R2
15	20	31	ACS550-01-031A-4	R3
18,5	25	38	ACS550-01-038A-4	R3
22	30	45	ACS550-01-046A-4	R3
30	40	59	ACS550-01-060A-4	R4
37	50	72	ACS550-01-072A-4	R4
45	75	87	ACS550-01-088A-4	R4
55	100	125	ACS550-01-125A-4	R5
75	125	157	ACS550-01-157A-4	R6
90	150	180	ACS550-01-180A-4	R6
110	150	205	ACS550-01-195A-4	R6
132	200	246	ACS550-01-246A-4	R6

벽걸이형 유닛

프레임 사이즈	외형 및 중량								
	IP21 / UL type 1					IP54 / UL type 12			
	H1 mm	H2 mm	W mm	D mm	중량 kg	H mm	W mm	D mm	중량 kg
R1	369	330	125	212	6,5	449	213	234	8,2
R2	469	430	125	222	9	549	213	245	11,2
R3	583	490	203	231	16	611	257	253	18,5
R4	689	596	203	262	24	742	257	284	26,5
R5	739	602	265	286	34	776	369	309	38,5
R6	880	700	300	400	69	924	410	423	80

전동기 결선(출력)

전압	3-상, 0 ~ U_{SUPPLY}
주파수	0 ~ 500 Hz 고마크: 0 ~ 50 Hz +N688 0 ~ 55 Hz +N689
연속 부하 용량 (주위온도 최대 40°C에서의 정토오크)	정격 출력 전류 I_{2N}
과부하 용량 (주위온도 최대 40°C)	일반 사용 시 1,1 x I_{2N} 매 10분당 1분 항상 1,5 x I_{2N} 매 60초당 2초
스위칭 주파수 0,75 – 37 kW 45 – 110 kW 132 kW	표준 4 kHz 1, 4, 8, 12 kHz 1, 4, 8 kHz 1, 4 kHz
속도 제어 오픈 루프 오픈 루프	 전동기 슬립의 20% 100% 토오크 상승 시 < 1% s

프로그램 가능한 제어 결선

2개의 아날로그 입력 전압 신호 전류 신호 포텐션메터 레퍼런스 값 최대 지연 시간 분해능 정밀도	 0 (2) ~ 10 V, R_{in} > 312 kΩ single-ended –10 ~ 10 V, R_{in} > 312 kΩ single-ended 10 V ±2% 최대. 10 mA, R < 10 kΩ 12 ~ 32 ms 0,1% ±1%
2개의 아날로그 출력 정밀도	0 (4) ~ 20 mA, 부하 < 500 Ω ±3%
보조 전압	24 V DC ±10%, 최대. 250 mA
6개의 디지털 입력 입력 임피던스 최대 지연 시간	12 ~ 24 V DC의 내부 및 외부 공급전원으로 동작, PNP 및 NPN 2,4 kΩ 5 ms ± 1ms
3개의 출력 릴레이 최대 스위칭 전압 최대 스위칭 전류 최대 연속 전류	 250 V AC/30 V DC 6 A/30 V DC; 1500 V A/230 V AC 2 A rms
직렬 통신 RS 485	 Modbus 프로토콜, 표준 내장

표준 및 적용 규격

CE 인증, 고마크 인증
RoHS 수용

주위 환경

보호등급	IP21, IP54(옵션)
주위온도	–15 ~ 40°C, 결빙 현상 없음 40 ~ 50°C 에서 용량 저감
상대습도	95% 이하 (결로현상 없을 것)

제품에 대한 보다 자세한 정보는 ACS510 표준 드라이브 카달로그 (code 3AKR01085112)을 참조하시기 바랍니다..

ABB 표준 드라이브

ACS550, 0.75 ~ 355 kW / 1 ~ 500 hp

ABB 표준 드라이브

ABB 표준 드라이브는 사용이 매우 간편하고 효율적인 구매, 설치, 시스템 구성으로 시간을 절약할 수 있으며, ABB의 특약점 등에서 손쉽게 구입할 수 있습니다. ABB 표준 드라이브는 사용자와 공정간 인터페이스를 위한 다양한 필드버스 통신 모듈 및 드라이브의 선정, 시운전, 유지 보수를 위한 소프트웨어 툴을 구비하고 있으며, 공용 예비품 등을 갖추고 있습니다.

ABB 표준 드라이브는 일반적인 펌프와 팬과 같은 자승 저감 토오크 및 컨베이어와 같은 정토오크 분야를 중심으로 산업 전반에 걸쳐 다양하게 사용할 수 있습니다. ABB 표준 드라이브는 주문 제작이나 별도의 엔지니어링 없이도 간편하게 설치와 자체 시운전이 가능한 이상적인 드라이브 입니다.

하이라이트

- 한글 디스플레이
- 플래쉬_드롭(FlashDrop)
- 도움말 기능의 제어_패널
- 하모닉 저감용 스윙 초오크(Swinging choke)
- 벡터 제어(ACS550)
- 열악한 환경에도 견딜수 있는 코팅 PCB
- C2 등급의 EMC 필터 (1차 환경) 표준 내장
- 내장형 Modbus를 포함한 다양한 필드버스 프로토콜 지원
- UL, cUL, CE, C-Tick 및 GOST R 인증
- RoHS 수용
- R1, R2 프레임 제동 초퍼 표준 내장

전압, 용량

- 3-상, 380 ~ 480 V ± 10% /-15%
  0.75 ~ 355 kW (0.5 ~ 355 hp)
- 3-상, 208 ~ 240 V ±10% /-15%
  0.75 ~ 75 kW (0.8 ~ 100 hp)

옵션

- 플래쉬_드롭(FlashDrop)
- 필드버스(fieldbus)
  - DeviceNet
  - LONWORKS
  - PROFIBUS DP
  - CANopen
  - ControlNet
  - Ethernet
- 제어_패널 고정 킷
- DriveWindow Light 2 소프트웨어

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타입, 용량, 크기

용량						타입코드	프레임 사이즈
일반 사용			고부하 사용				
P_N kW	P_N hp	I_{2N} A	P_{hd} kW	P_{hd} hp	I_{2hd} A		
3-상 입력 전압 380 – 480 V, 벽걸이형 유닛							
1,1	1,5	3,3	0,75	1	2,4	ACS550-01-03A3-4	R1
1,5	2	4,1	1,1	1,5	3,3	ACS550-01-04A1-4	R1
2,2	3	5,4	1,5	2	4,1	ACS550-01-05A4-4	R1
3	4	6,9	2,2	3	5,4	ACS550-01-06A9-4	R1
4	5,4	8,8	3	4	6,9	ACS550-01-08A8-4	R1
5,5	7,5	11,9	4	5,4	8,8	ACS550-01-012A-4	R1
7,5	10	15,4	5,5	7,5	11,9	ACS550-01-015A-4	R2
11	15	23	7,5	10	15,4	ACS550-01-023A-4	R2
15	20	31	11	15	23	ACS550-01-031A-4	R3
18,5	25	38	15	20	31	ACS550-01-038A-4	R3
22	30	45	18,5	25	38	ACS550-01-045A-4	R3
30	40	59	22	30	45	ACS550-01-059A-4	R4
37	50	72	30	40	59	ACS550-01-072A-4	R4
45	75	87	37	60	72	ACS550-01-087A-4	R4
55	100	125	45	75	87	ACS550-01-125A-4	R5
75	125	157	55	100	125	ACS550-01-157A-4	R6
90	150	180	75	125	156	ACS550-01-180A-4	R6
110	150	205	90	125	162	ACS550-01-195A-4	R6
132	200	246	110	150	192	ACS550-01-246A-4	R6
3-상 입력 전압 380 – 480 V, 스탠딩형 유닛							
160	200	289	132	200	224	ACS550-02-289A-4	R7
200	300	368	160	250	302	ACS550-02-368A-4	R8
250	400	486	200	350	414	ACS550-02-486A-4	R8
280	450	526	250	400	477	ACS550-02-526A-4	R8
315	500	602	280	450	515	ACS550-02-602A-4	R8
355	500	645	315	500	590	ACS550-02-645A-4	R8
3-상 입력 전압 208 – 240 V, 벽걸이형 유닛							
0,75	1,0	4,6	0,75	0,8	3,5	ACS550-01-04A6-2	R1
1,1	1,5	6,6	0,75	1,0	4,6	ACS550-01-06A6-2	R1
1,5	2,0	7,5	1,1	1,5	6,6	ACS550-01-07A5-2	R1
2,2	3,0	11,8	1,5	2,0	7,5	ACS550-01-012A-2	R1
4,0	5,0	16,7	3,0	3,0	11,8	ACS550-01-017A-2	R1
5,5	7,5	24,2	4,0	5,0	16,7	ACS550-01-024A-2	R2
7,5	10,0	30,8	5,5	7,5	24,2	ACS550-01-031A-2	R2
11,0	15,0	46,2	7,5	10,0	30,8	ACS550-01-046A-2	R3
15,0	20,0	59,4	11,0	15,0	46,2	ACS550-01-059A-2	R3
18,5	25,0	74,8	15,0	20,0	59,4	ACS550-01-075A-2	R4
22,0	30,0	88,0	18,5	25,0	74,8	ACS550-01-088A-2	R4
30,0	40,0	114	22,0	30,0	88,0	ACS550-01-114A-2	R4
37,0	50,0	143	30,0	40	114	ACS550-01-143A-2	R6
45,0	60,0	178	37,0	50	150	ACS550-01-178A-2	R6
55,0	75,0	221	45,0	60	178	ACS550-01-221A-2	R6
75,0	100	248	55,0	75	192	ACS550-01-248A-2	R6

벽걸이형 유닛

프레임 사이즈	외형 및 중량								
	IP21 / UL type 1					IP54 / UL type 12			
	H1 mm	H2 mm	W mm	D mm	중량 kg	H mm	W mm	D mm	중량 kg
R1	369	330	125	212	6,5	449	213	234	8,2
R2	469	430	125	222	9	549	213	245	11,2
R3	583	490	203	231	16	611	257	253	18,5
R4	689	596	203	262	24	742	257	284	26,5
R5	739	602	265	286	34	776	369	309	38,5
R6	880	700	300	400	69	924	410	423	80

스탠딩형 유닛

R7	1507	n/a	250*)	520*)	115
R8	2024	n/a	347*)	617*)	230

*) 외형 치수는 서가형 디자인에 해당됩니다. 횡설치의 경우는 너비와 깊이를 바꾸어 참조하십시오..
n/a = 적용 불가

전동기 결선(출력)

전압	3-상, 0 ~ U_{SUPPLY}
주파수	0 ~ 500 Hz
연속 부하 용량 (주위온도 최대 40°C에서의 정토오크)	정격 출력 전류 I_{2N}
과부하 용량 (주위온도 최대 40°C)	일반 사용 시 1.1 x I_{2N} 매 10분당 1분 고부하 사용 시 1,5 x I_{2hd} 매 10분당 1분 항상 1,8 x I_{2hd} 매 60초당 2초
스위칭 주파수 0,75 – 37 kW 45 – 110 kW 132 – 355 kW	표준 4 kHz 1, 4, 8, 12 kHz 1, 4, 8 kHz 1, 4 kHz
속도 제어 오픈 루프 폐 루프 오픈 루프 폐 루프	 전동기 슬립의 20% 전동기 정격 속도의 0.1% 100% 토오크 상승 시 〈 1% s 100% 토오크 상승 시 0.5% s
토오크 제어 오픈 루프 폐 루프 오픈 루프 폐 루프	 정격 토오크에서 〈 10 ms 정격 토오크에서 〈 10 ms 정격 토오크에서 ± 5% 정격 토오크에서 ± 2%

프로그램 가능한 제어 결선

2개의 아날로그 입력 전압 신호 전류 신호 포텐션메터 레퍼런스 값 최대 지연 시간 분해능 정밀도	 0 (2) ~ 10 V, R_{in} 〉 312 kΩ single-ended –10 ~ 10 V, R_{in} 〉 312 kΩ single-ended 10 V ±2% 최대. 10 mA, R 〈 10 kΩ 12 ~ 32 ms 0,1% ±1%
2개의 아날로그 출력 정밀도	0 (4) ~ 20 mA, 부하 〈 500 Ω ±3%
보조 전압	24 V DC ±10%, 최대. 250 mA
6개의 디지털 입력 입력 임피던스 최대 지연 시간	12 ~ 24 V DC의 내부 및 외부 공급전원으로 동작, PNP 및 NPN 2.4 kΩ 5 ms ± 1ms
3개의 출력 릴레이 최대 스위칭 전압 최대 스위칭 전류 최대 연속 전류	 250 V AC/30 V DC 6 A/30 V DC; 1500 V A/230 V AC 2 A rms
직렬 통신 RS 485	 Modbus 프로토콜, 표준 내장

표준 및 적용 규격

UL, cUL, CE, C-Tick 및 GOST R 인증
RoHS 수용

주위 환경

보호등급	IP21 / IP54 (≤110 kW)
주위온도	–15 ~ 40°C, 결빙 현상 없음 40 ~ 50°C 에서 용량 저감
상대습도	95% 이하 (결로현상 없을 것)

제품에 대한 보다 자세한 정보는 ACS550 표준 드라이브 카달로그(code 3AKR01074763)을 참조하시기 바랍니다..

ABB 산업용 드라이브

ACS800, 단독 드라이브, 0.55 ~ 5600 kW

ABB 산업용 드라이브

ABB 산업용 드라이브는 일반 산업 분야 및 펄프&제지, 철강, 광산, 시멘트, 전력, 화학 그리고 석유&가스와 같은 공정 산업 분야에 적합하게 설계되었습니다. ABB 산업용 드라이브는 사용자, OEM 및 시스템 설치자의 요구에 맞추어 높은 유연성을 갖춘 AC 드라이브로서 산업 분야의 높은 요구와 사용자 주문 제작과 같은 중요 부분에의 동시 공급이 가능합니다.

ACS800 단독 드라이브

단독 드라이브는 하나의 AC 드라이브 유닛안에 정류기, 리액터, DC 링크 및 인버터를 모두 포함하고 있습니다. 단독 드라이브는 완제품 형태의 AC 드라이브로서 벽걸이형, 수직 자립형 및 판넬형으로 구성되어 있습니다. 단독 드라이브의 보호등급은 최소 IP21이며, 보다 높은 보호등급이 옵션으로 선택 가능합니다.

하이라이트

- 높은 유연성
- 다양한 프로그램 방법
- 모든 것 내장
- 다양한 구성 및 옵션. ABB의 엔지니어링 기술이 집약된 맞춤형의 판넬형 드라이브
- 각기 다른 산업분야를 위한 다양한 응용 프로그램
- 냉각을 위한 공간 및 공기가 제한된 환경에서 사용 가능한 수냉식 드라이브 제공

전압, 용량

- 3-상 230V / 0.55 ~ 200kW
- 3-상 400V / 1.1 ~ 2800kW
- 3-상 500V / 1.5 ~ 3360kW
- 3-상 690V / 5.5 ~ 5600kW

응용분야

- 펌프, 팬
- 크레인, 윈치(winch)
- 와인더(winder)
- 컨베이어
- 압출기, 컴프레셔
- 시험_설비(test benches)
- 공정 라인
- 롤러_테이블(roller table)
- 프레스
- 믹서
- 트러스터(thruster), 추진기 등등...

옵션

- 응용프로그램(Application programs)
- EMC 필터, du/dt 필터, 사인_필터
- 필드버스, I/O 확장 모듈
- PC tool

3AKR01085543 REV A KR 21.2.2008

기술 사양

ACS800 단독 드라이브

벽걸이형 드라이브, ACS800-01,
- 용량: 0.55 ~ 160 kW (208 ~ 690 V)
- 보호등급: IP21 표준, IP55 옵션
- 선급 인증

벽걸이형, 회생형 드라이브, ACS800-11
- 용량: 5.5 ~ 110 kW (208 ~ 690 V)
- 보호등급: IP21

벽걸이형, 저하모닉 드라이브, ACS800-31
- 용량: 5.5 ~ 110 kW (208 ~ 690 V)
- 보호등급: IP21

수직 자립형 드라이브, ACS800-02
- 용량: 45 ~ 560 kW (208 ~ 690 V)
- 보호등급: IP21
- 확장형 외함 옵션 (주전원 스위치 및 휴즈 포함)

판넬형 드라이브, ACS800-07
- 용량: 45 ~ 2800 kW (380 ~ 690 V)
- 보호등급: IP21 표준, IP22/IP42/IP54 옵션

판넬형, 수냉식 드라이브, ACS800-07LC
- 용량: 200 ~ 5600 kW (380 ~ 690 V)
- 보호등급: IP42 표준, IP54 옵션
- 선급 인증

판넬형, 회생형 드라이브, ACS800-17
- 용량: 45 ~ 2500 kW (380 ~ 690 V)
- 보호등급: IP21 표준, IP22/IP42/IP54 옵션

판넬형, 저하모닉 드라이브, ACS800-37
- 용량: 45 ~ 2700 kW (380 ~ 690 V)
- 보호등급: IP21 표준, IP22/IP42/IP54 옵션

입력 결선(전원)

전압 정격	3-상, U_{2IN} = 208 ~ 240 V, ± 10%, (ACS800-07, -07LC, -17, -37 제외) 3-상, U_{3IN} = 380 ~ 415 V, ± 10% 3-상, U_{5IN} = 380 ~ 500 V, ± 10% 3-상, U_{7IN} = 525 ~ 690 V, ± 10%
주파수	48 ~ 63 Hz
역율	$\cos\varphi_1$ = 0.98 (기본) $\cos\varphi$ = 0.93...0.95 (종합)
역율 ACS800-11 / -31/ -17/ -37	$\cos\varphi_1$ = 1 (기본) $\cos\varphi$ = 0.99 (종합)
효율 (정격 부하 시)	
ACS800-0x	98%
ACS800-1x/3x	97%

전동기 결선(출력)

주파수	0...±300 Hz (0...±120 Hz du/dt 필터 사용 시)
약계자 영역	8...300 Hz
전동기 제어	ABB's Direct Torque Control (DTC)

주위 환경

주위온도	
운송	-40...+70℃
보관	-40...+70℃
운전	-15...+50℃, 결빙 없음 40...50℃ 출력 전류 저감 (1% / 1℃)
ACS800-07LC	0...+55℃, 결빙 없음 +45...55℃ 출력 전류 저감 (0.5% / 1℃)
냉각 방식	건조한 청정 공기 수냉식, 직접 (ACS800-07LC) 최고 +42℃ 컨버터 회로, 깨끗한 물 +42℃...+48℃ 출력 전류 저감

표준 및 적용 규격

CE, UL, CSA, C-Tick, GOST R

EMC: EN 61800-3 /A11 (2000), EN 61800-3 (2004)

2차 환경, 비_제한 구역, 카테고리 C3 – 표준 -07 (프레임 사이즈 nxR8i), -07LC, -17, 및 -37 (프레임 사이즈 R7i – nxR8i), 나머지는 옵션
1차 환경, 제한 구역, 카테고리 C2 – 입력 전류 1000 A까지 옵션

보다 자세한 내용은 ACS800 산업용 드라이브 카달로그(code 3AKR01081901)를 참조하시기 바랍니다..

저하모닉에 대한 간단한 해결 방법

ABB의 저하모닉 드라이브는 드라이브와 관련된 분야에서 가장 간단한 해결 방법을 제공합니다. 이 드라이브의 저하모닉 완화 기술은 외부의 필터나 다중-펄스 형태의 변압기의 사용이 필요 없습니다. 저하모닉 드라이브는 5.0 % 이하의 총 전류 왜곡률로 드라이브 입력단의 특별히 낮은 저하모닉을 형성합니다.

저하모닉 드라이브는 사용자에게 간단하고 최소의 비용으로 엄격한 전력의 품질을 유지할 수 있는 솔루션입니다.

- 하모닉의 최소화를 위한 가장 간단한 방법
- 네트워크에 직접 연결
- 다중-펄스 형태의 변압기 필요 없음
- 별도의 외부 필터 필요 없음
- EN 61000-3-12 및 IEEE519 만족
- 역율 1 – 역율 보상 장치 필요 없음

완벽한 네트워크 전류 – 깨끗한 네트워크

6-펄스 형태의 다이오드 브릿지 정류기를 가진 일반적인 형태의 주파수 변환기의 네트워크 측의 전류는 사인파형이 아니며, 특별히 5차 및 7차 고조파가 형성됩니다. 이것의 전형적인 전류 왜곡률은 총 30 ~ 50 %를 보여줍니다. ABB의 저하모닉 드라이브는 DTC 이론 및 로-패스(low pass) 필터를 적용하여 전류 고조파를 5 % 미만으로 제한합니다. 깨끗한 사인파 형태의 전류로 인하여 네트워크 전압 역시 아주 작거나 일그러짐이 없는 전압 파형을 형성할 것 입니다.

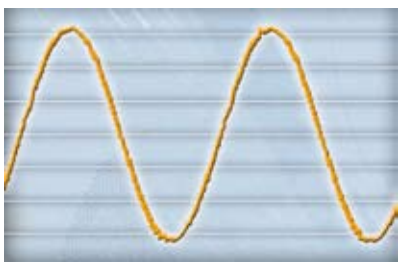

그림 1. 저하모닉 드라이브의 네트워크 측 전류 파형

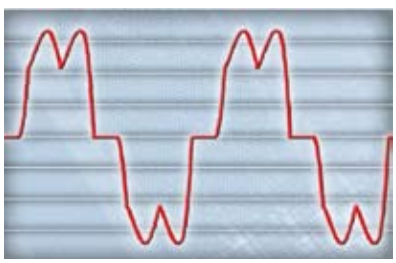

그림 2. 일반적인 드라이브의 네트워크 측 전류 파형

벽걸이형, 저하모닉 드라이브 ACS800-31, ~ 110 kW

ACS800-31은 완벽한 벽걸이형태의 저하모닉 드라이브 패키지 입니다. ACS800 시리즈 중 하나로서, 모든 주요한 기능 및 EMC 필터, I/O 옵션 모듈 등을 드라이브안에 내장형으로 제공합니다. ACS800-31의 공급 용량은 고부하 기준으로 5.5 kW ~ 110 kW까지 이며, 보호등급은 IP21입니다.

판넬형, 저하모닉 드라이브 ACS800-37, ~ 2800 kW

ACS800-37 판넬형 저하모닉 드라이브의 공급 용량은 45 W ~ 2,800 kW까지 입니다. 다른 판넬형태의 드라이브와 같이 다양한 범위의 표준화된 구성이 가능하며, IP21, IP22, IP42, IP54 및 IP54R의 보호등급을 선택적으로 제공합니다.

기술 사양

입력 결선(전원)

전압 정격	3-상, U_{2IN} = 208 ~ 240 V, ± 10%, (ACS800-31 만 해당) 3-상, U_{3IN} = 380 ~ 415 V, ± 10% 3-상, U_{5IN} = 380 ~ 500 V, ± 10% 3-상, U_{7IN} = 525 ~ 690 V, ± 10% (600 V UL, CSA)
역율	$\cos\varphi_1$ = 1 (기본) $\cos\varphi$ = 0.99 (종합)
효율 (정격 부하 시)	97%

전동기 결선(출력)

전압	3-상, 출력 전압 0...U_{2IN}//U_{3IN}//U_{5IN}//U_{7IN}
주파수	0...±300 Hz (0...±100 Hz, ACS800-37 du/dt 필터 사용 시)
약계자 영역	8...300 Hz
전동기 제어	ABB's Direct Torque Control (DTC)

표준 및 적용 규격

CE
저전압 기준 73/23/EEC 수정안 93/68/EEC
기계장치 기준 98/37/EC
EMC 지시 89/336/EEC 수정안 93/68/EEC
품질보증 시스템 ISO 9001
환경관리 시스템 ISO 14001
UL, cUL 508A 또는 508C, CSA C22.2 NO.14-95, C-Tick

EMC: EN 61800-3/A11 (2000), EN 61800-3 (2004)

2차 환경, 비_제한 구역, 카테고리 C3 – ACS800-37 (프레임 사이즈 R7i-nxR8i) 표준 설치, 나머지는 옵션
1차 환경, 제한 구역, 카테고리 C2 – 입력 전류 1000 A까지 옵션

용량, 전압, 크기 및 중량에 대한 자세한 내용은 ACS800 산업용 드라이브 카달로그(code 3AKR01081901)를 참조하시기 바랍니다.

ABB 산업용 드라이브
ACS800 회생형 드라이브, 5.5 ~ 2500 kW

완벽한 회생형 드라이브

ACS800 회생형 드라이브는 액티브 서플라이 유닛을 내장하여 구동 및 회생 모드에서 최대의 전원 전력의 흐름을 보장합니다. 회생형 드라이브는 LCL 라인 필터 및 충전 회로부와 같은 모든 기능들이 드라이브 유닛안에 완벽한 하나의 패키지로 구성되어 있습니다.

벽걸이형, 회생형 드라이브 ACS800-11, 5.5 ~ 110 kW

벽걸이형 ACS800-11은 IP21의 보호등급 아래 LCL 필터, EMC 필터 등 필요한 모든 기능 및 옵션들을 포함한 패키지 형태의 완벽한 단독 드라이브 형태로 제공됩니다.

판넬형, 회생형 드라이브 ACS800-17, 45 ~ 2500 kW

판넬형 ACS800-17은 회생운전에 필요한 모든 것들을 케비넷 내부에 갖춘 형태의 드라이브로서, 폭 넓은 정격 용량은 물론 다른 판넬형 드라이브가 가진 기능 및 옵션 품목들을 제공합니다. 보호등급은 IP21부터 IP22, IP42, IP54, IP54R까지 가능합니다.

고성능

ACS800 회생형 드라이브는 응용분야의요구에 대하여 특별한 적합성을 보여줍니다. DTC 제어 방법으로 구동과 회생 사이의 전이가 빠르게 이루어 집니다. 액티브 서플라이 유닛은 출력 전압의 증가(boost)가 가능하며, 이것은 공급 전압이 정격 이하로 떨어졌을 때 전동기 측에 전전압을 공급할 수 있음을 의미합니다.

DTC 제어와 조합된 액티브 서플라이 유닛은 전원 전압의 빠른 변화를 보상해 줄 수 있습니다. 이것은 네트워크의 전압강하에 따른 휴즈의 용단이나 구성품의 소손에 대한 위험 부담을 줄여줍니다.

에너지 절감

기계 및 제동저항과 같은 다른 종류의 제동방법들과 비교해 볼 때, 회생형 드라이브는 주목할 만한 에너지 절감 효과를 보여줍니다. 제동에너지는 네트워크로 되돌려 보내지며, 열로서 소모되지 않습니다. 만약 제동에 대한 비중이 크다면, 열손실에 대한 처리가 문제점을 가져 올 것입니다. ACS800 회생형 드라이브는 별도의 제동장치를 필요로하지 않으므로 설치 작업이 간편하며, 설치공간 또한 최소화될 수 있습니다.

3AKR01085543 REV A KR 21.2.2008

기술 사양

입력 결선(전원)

전압	3-상, U_{2IN} = 208 ~ 240 V, ± 10%,
정격	(ACS800-17 제외)
	3-상, U_{3IN} = 380 ~ 415 V, ± 10%
	3-상, U_{5IN} = 380 ~ 500 V, ± 10%
	3-상, U_{7IN} = 525 ~ 690 V, ± 10%
	(600 V UL, CSA)
주파수	48 ~ 63 Hz
역율	$\cos\varphi_1$ = 1 (기본)
	$\cos\varphi$ = 0.99 (종합)
효율 (정격 부하 시)	
	97%

전동기 결선(출력)

전압	3-상 출력 전압 0...U_{2IN}/U_{3IN}/U_{5IN}/U_{7IN}
주파수	0...±300 Hz
	(0...±100 Hz ACS800-17 du/dt 필터 사용 시)
약계자 영역	8...300 Hz
전동기 제어	ABB's Direct Torque Control (DTC)
토오크 제어:	토오크 스텝 상승 시간:
오픈 루프	정격 부하 시 <5 ms
폐 루프	정격 부하 시 <5 ms
	비 선형성:
오픈 루프	정격 토오크 시 ±4%
폐 루프	정격 토오크 시 ±1%
속도 제어:	정상 상태 정밀도:
오픈 루프	전동기 슬립의 10%
폐 루프	정격 속도의 0.01%
	과도 상태 정밀도:
오픈 루프	100% 토오크 스텝 시 0.3...0.4% sec
폐 루프	100% 토오크 스텝 시 0.1...0.2% sec

표준 및 적용 규격

CE
저전압 기준 73/23/EEC, 수정 안 93/68/EEC
기계장치 기준 98/37/EC
EMC 지시 89/336/EEC, 수정 안 93/68/EEC
품질 보드 시스템 ISO 9001
환경 관리 시스템 ISO 14001
UL, cUL 508A 및 508C, CSA C22.2 NO.14-95, C-Tick, GOST R

주위 환경

주위온도	
운송	-40...+70℃
보관	-40...+70℃
운전	-15...+50℃, 결빙 없음
	40...50℃ 출력 전류 저감
	(1% / 1℃)
냉각 방식:	건조한 청정 공기
고도	
0...1000 m	용량 저감 없음
1000...4000 m	용량 저감 ~ (1% / 100 m)
	(690 V 유닛 1000~2000 m 용량 저감)
상대습도	5 ~ 95%, 결로 현상 없을 것
보호등급	
IP21	표준: ACS800-11/-17
IP22, IP42, IP54, IP54R	옵션: ACS800-17
R = 배기용 공기덕트 연결 방식	
색상	ACS800-11: NCS 1502-Y
	ACS800-17: RAL 7035
오염 기준	전도성 먼지 허용하지 않음
보관	IEC60721-3-1, Class 1C2 (화학 가스),
	Class 1S2 (고체 입자)
운송	IEC60721-3-2, Class 2C2 (화학 가스),
	Class 2S2 (고체 입자)
운전	IEC60721-3-3, Class 3C1/3C2* (화학 가스),
	Class 3S2 (고체 입자)
진동	3 ~ 13.2 Hz: ±1 mm 진폭(피크)
선급 분류	13.2 ~ 100 Hz: 0.7 g 가속

C = 화학적 활동 물질
S = 기계적 활동 물질
* 코팅 PCB 기준

EMC: EN 61800-3/A11 (2000), EN 61800-3 (2004)

2차 환경, 비_제한 구역, 카테고리 C3 – 표준 ACS800-17 (프레임 사이즈 R7i-nxR8i), 나머지는 옵션

1차 환경, 제한 구역, 카테고리 C2 – 입력 전류 1000 A까지 옵션

보다 자세한 내용은 ACS800 산업용 드라이브 카달로그(code 3AKR01081901)를 참조하시기 바랍니다..

ABB 산업용 드라이브

ACS800, 드라이브 모듈, 0.55 ~ 2000 kW

ABB 산업용 드라이브

ABB 산업용 드라이브는 일반 산업 분야 및 펄프&제지, 철강, 광산, 시멘트, 전력, 화학 그리고 석유&가스와 같은 공정 산업 분야에 적합하게 설계되었습니다. ABB 산업용 드라이브는 사용자, OEM 및 시스템 설치자의 요구에 맞추어 높은 유연성을 갖춘 AC 드라이브로서 산업 분야의 높은 요구와 사용자 주문 제작과 같은 중요 부분에의 동시 공급이 가능합니다.

ACS800 드라이브 모듈

ACS800 단독 드라이브와 멀티드라이브 모듈은 케비넷 내부에 설치하는 용도로 설계되었습니다. 드라이브 모듈은 기계 장치를 제작하며 필요한 소프트웨어의 기능에 따라 드라이브 판넬을 직접 제작하는 시스템 설치자 및 OEM 제작자를 대상으로 DTC 전동기 제어, adaptive programming 및 다양한 내/외장형 옵션과 같은 ABB의 드라이브 테크놀로지를 제공합니다. ABB는 케비넷 내부 설치와 관련된 자료를 함께 공급하며, 이것에는 판넬 설치 방법 및 보조 장치들에 대한 내용들이 그림과 함께 자세하게 설명되어 있습니다. 유연성 및 프로그램 능력을 갖춘 모듈은 다양한 산업분야에서 사용자의 요구를 충족시켜 줄 것입니다.

하이라이트

- 시스템 설치자 및 판넬 제작자에게 맞게 최적화
- 높은 유연성
- 다양한 프로그램 방법
- 다양한 구성 및 옵션
- 각기 다른 산업분야를 위한 다양한 응용 프로그램

전압, 용량

- 3-상 208~240V / 0.55 ~ 200kW
- 3-상 480~415V / 1.1 ~ 1600kW
- 3-상 380~500V / 1.5 ~ 2000kW
- 3-상 525~690V / 5.5 ~ 1900kW

응용분야

- 펌프, 팬
- 크레인, 윈치(winch)
- 롤러_테이블(roller table)
- 와인더(winder)
- 컨베이어
- 압출기, 컴프레셔
- 시험_설비(test benches)
- 공정 라인
- 프레스
- 믹서 등등...

옵션

- 응용프로그램(Application programs)
- Rittal TS8용 조립 킷
- 출력 필터(du/dt), 사인_필터
- 필드버스, I/O 확장 모듈
- PC tool

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기술 사양

ACS800 단독 드라이브 모듈

ACS800-04 시리즈
- 용량: 0.55 ~ 1900 kW (208 ~ 690 V)
- 보호등급: IP00, IP20
- R2-R6 프레임 사이즈 선급 인증

ACS800-14 시리즈
- 용량: 110 ~ 1800 kW (380 ~ 690 V)
- 보호등급: IP00
- 회생 기능 제공
- 저하모닉 솔루션

ACS800 멀티드라이브 모듈

인버터 모듈
- ACS800-x04 시리즈
- 용량: 1.1 ~ 2000 kW (380 ~ 690 V)
- 보호등급: IP00

6-/12-펄스 다이오드 서플라이 모듈
- ACS800-304 (6-펄스) 시리즈,
- ACS800-704 (6-/12-펄스) 시리즈
- 용량: 145 ~ 4200 kW (380 ~ 690 V)
- 보호등급: IP00

싸이리스터 서플라이 모듈
- ACS800-404 시리즈
- 용량: 470 ~ 3150 kW (380 ~ 690 V)
- 보호등급: IP00
- 회생 기능 제공

IGBT 서플라이 모듈 + LCL 필터
- ACS800-204 모듈 + LCL 필터
- 용량: 60 ~ 1817 kW (380 ~ 690 V)
- 보호등급: IP00
- 회생 기능 제공
- 저하모닉 솔루션

입력 결선(전원)

전압 정격	3-상, U_{2IN} = 208 ~ 240 V, ± 10%, (멀티드라이브 및 nxR8i ACS800-04 모듈 제외) 3-상, U_{3IN} = 380 ~ 415 V, ± 10% 3-상, U_{5IN} = 380 ~ 500 V, ± 10% 3-상, U_{7IN} = 525 ~ 690 V, ± 10%
주파수	48 ~ 63 Hz
역율	$\cos\varphi_1$ = 0.98 (기본) $\cos\varphi$ = 0.93...0.95 (종합)
역율 IGBT 서플라이	$\cos\varphi_1$ = 1 (기본) $\cos\varphi$ = 0.99 (종합)
효율 (정격 부하 시) ACS800-04 ACS800-x04	 98% 98% 97% IGBT 서플라이 유닛 사용 시

전동기 결선(출력)

주파수	0...±300 Hz (0...±120 Hz 외장형 du/dt 및 사인 필터 사용 시) (0...±100 Hz 내장 du/dt 필터 사용 시)
약계자 영역	8...300 Hz
전동기 제어	ABB's Direct Torque Control (DTC)

주위 환경

주위온도	
운송	-40...+70 °C
보관	-40...+70 °C
운전	
ACS800-04	-15...+50 °C, 결빙 없음 40...50 °C 출력 전류 저감 (1% / 1 °C)
ACS800-x04	0...+50 °C, 결빙 없음 40...50 °C 출력 전류 저감 (1% / 1 °C)
냉각 방식	건조한 청정 공기

표준 및 적용 규격

CE, UL, CSA, C-Tick, GOST R

EMC: EN 61800-3 /A11 (2000), EN 61800-3 (2004)

2차 환경, 비_제한 구역, 카테고리 C3 - ACS800-04 프레임 R8까지 옵션
1차 환경, 제한 구역, 카테고리 C2 - 입력 전류 1000 A까지 옵션

보다 자세한 내용은 ACS800 산업용 드라이브 모듈 카달로그 (code 3AKR01085111, 3AFE68404592)를 참조하시기 바랍니다..

ABB 산업용 드라이브
ACS800, 모션 컨트롤 드라이브, 0.55 ~ 2000 kW

지능적이며 정확한 모션 컨트롤

ACS800 모션 컨트롤 드라이브는 산업용 드라이브 테크놀로지를 적용한, 정밀한 위치 제어 및 동기 제어를 위한 비용절감 효과가 뛰어난 드라이브 입니다. 지능적이며 집약적인 모션 컨트롤 기능과 다양한 제어 능력으로 물체 이송, 포장, 프린팅 플라스틱 성형과 같은 응용분야에서 요구하는 외부 모션 컨트롤러에 대한 필요성을 종식시켰습니다.

모션 컨트롤 드라이브는 비동기 전동기를 위한, 정밀한 위치제어, 동기화, DTC 능력과 높은 주기적인 과부하 능력 등을 하나의 패키지 안에 제공합니다.

모션 컨트롤 주요 기능:

- **4 가지 제어 모드 – 2 가지 제어 장소**
  - 속도 및 토오크 제어
  - 위치 제어 및 동기화
- **위치 변조**
- **각각의 위치 레퍼런스를 위한 16 개의 표**
  - 목표 위치 레퍼런스
  - 위치 설정 속도
  - 가속 및 감소
  - 위치 설정 장치
- **귀환(Homing)**
  - 표준 및 진보된 연속 귀환
  - 3 가지 사전설정 귀환값
- **주기적인 교정**
  - 마스터 레퍼런스 교정
  - 운전값 교정
  - Master/Follower 거리 교정
- **동기화 레퍼런스 (마스터 운전 위치)**
  - 2번째 엔코더 입력 이용
  - Master/Follower 광케이블 링크 이용
- **동적인 제한기**
- **위치값을 위한 선택 가능한 물리 단위**
  (mm, inch, 인크리멘트, degree, 분해능)
- **전기적인 기어 기능**
  - 전동기 기어(Motor gear)
  - 부하 기어(Load gear)
  - 동기 기어(Synchron gear)
- **CAM 디스크 기능**
- **가상 마스터(Virtual Master)**

ACS800-04 단독 드라이브 모듈

ACS800-04 드라이브는 모듈 형태의 단독 드라이브로서 사용자의 케비넷 내부에 설치하는 용도로 최적화되어 있습니다. 케비넷의 설치 공간을 최소화하고, 설치가 간편하며, 최대의 유연성을 가지도록 설계되었습니다. 용량 및 전압과 관련하여 모든 드라이브가 동일한 사용자 인터페이스와 I/O를 제공하므로, 시스템의 설계 및 교육을 쉽고 동일하게 진행할 수 있습니다.

- 산업용 드라이브 테크놀로지 적용
- IP20 보호 등급
- 컴팩트한 디자인
- 일렬 배치 가능(Side by side mounting)

주요 기능 내장:

- 하모닉 필터링용 초오크 표준 내장
- 제동 초퍼
- EMC 필터
- 다양한 I/O 확장 모듈
- 필드버스 모듈
- 펄스 엔코더(HTL 및 TTL) 및 리졸버(resolver) 인터페이스 모듈(2 개의 엔코더 동시 지원)

기타 사용 가능한 옵션:

- 플랜지 설치 (IP55 보호 등급의 경우 모듈 측면에 방열판 위치)
- 전동기 돌발 기동 방지(EN954-1, 카테고리 3 에 준함)

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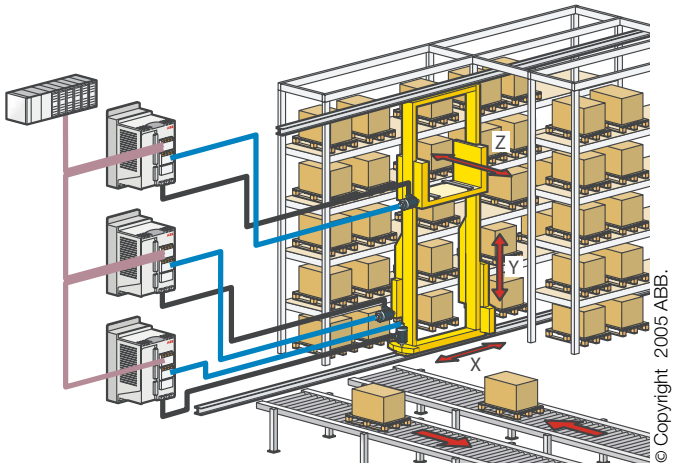
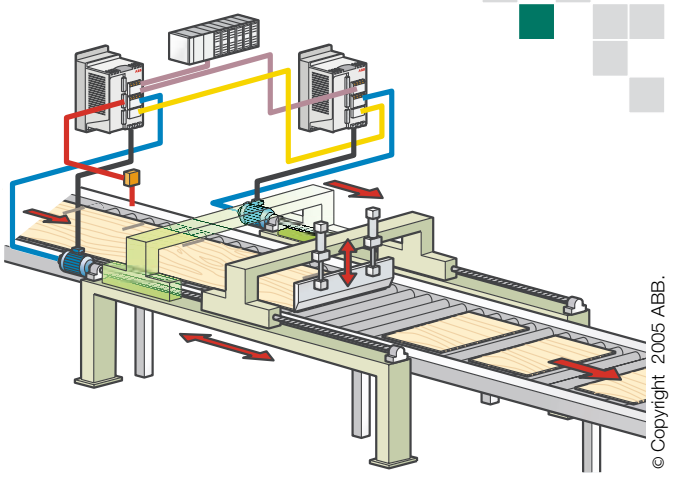
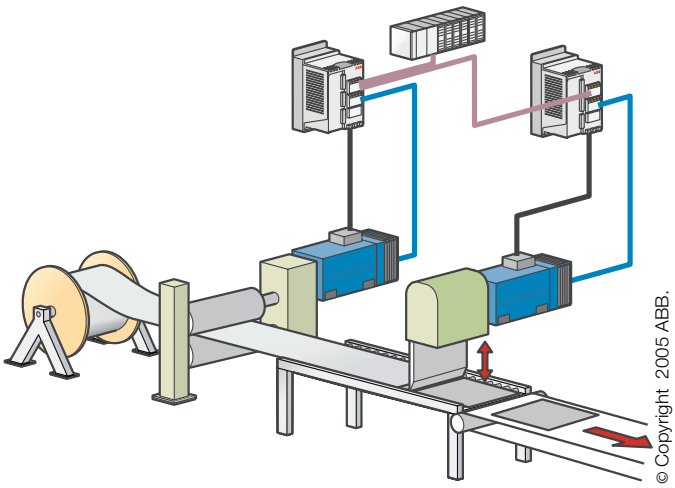


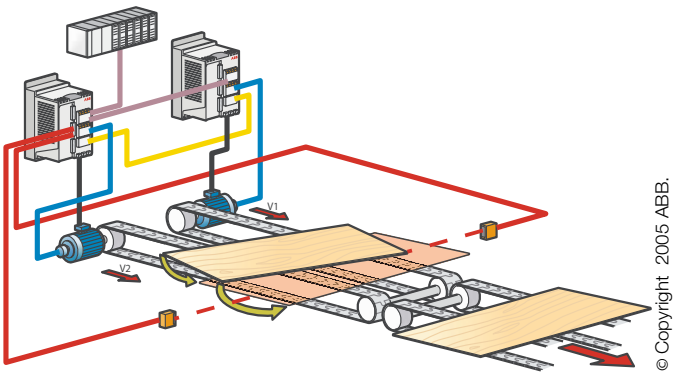
위치제어 드라이브를 이용한 자동창고 시스템



동기화 및 CAM 디스크 기능을 이용한 플라잉셰어(Flying shear) 어플리케이션



제단기계에서 위치 제어를 이용한 길이 설정 및 절단



주기적인 교정 기능을 이용한 병렬운전 컨베이어 시스템의 동기화

기술 사양

입력 전원 및 전동기 결선	
입력전압	3-상, U_{2IN} = 208 ~ 240 V, ± 10% 3-상, U_{3IN} = 380 ~ 415 V, ± 10% 3-상, U_{5IN} = 380 ~ 500 V, ± 10% 3-상, U_{7IN} = 525 ~ 690 V, ± 10%
주파수	48 ~ 63 Hz
역율	$\cos\varphi_1$ = 0.98 (기본) $\cos\varphi$ = 0.93...0.95 (종합)
효율 (정격 부하 시)	98%
출력 전압	3-상 출력 전압 0...U_{2N}/U_{3IN}/U_{5IN}/U_{7IN}
주파수	0...±300 Hz(0...±120 Hz du/dt 필터 사용 시)
약계자 영력	8...300 Hz

기술 데이터 – 제어	
전동기 제어	DTC(Direct Torque Control) 제어
DTC	
제어 루프	25 μ s
토오크 제어	토오크 스텝 상승 시간:
오픈 루프	〈5 ms, 정격 부하 시
폐 루프	〈5 ms, 정격 부하 시
	비 선형성:
오픈 루프	±4%, 정격 부하 시
폐 루프	±1%, 정격 부하 시
제어 푸프	1 ms
속도 제어	정상 상태 정밀도:
오픈 루프	전동기 슬립의 10%
폐 루프	정격 속도의 0.01%
	과도 상태 정밀도:
오픈 루프	100% 토오크 스텝 시 0.3...0.4%sec
폐 루프	100% 토오크 스텝 시 0.1...0.2%sec
제어 루프	1 ms
위치 제어	
제어 루프	1 ms
동기화	
제어 루프	1 ms

이외 용량, 전압, 크기 및 중량에 대한 자세한 내용은 ACS800-04 산업용 인버터 모듈 카달로그(code 3AKR01085111)를 참조하시기 바랍니다.

ABB 고성능 모션컨트롤 드라이브

ACSM1, 0.75 ~ 45 kW / 1 ~ 60 hp

ABB 고성능 모션컨트롤 드라이브

ABB 고성능 모션컨트롤 드라이브는 기계에서 요구하는 속도, 토오크 제어 및 모션 컨트롤 기능을 제공합니다. 다양한 피드백 장치와 함께 유도전동기, 동기 및 비동기 서보전동기, 고토오크 전동기를 제어할 수 있습니다. 컴팩트한 하드웨어와 유연성있는 프로그램은 최적의 솔루션을 보장합니다. 혁신적인 메모리 유닛 컨셉은 드라이브의 유연한 구성을 가능하게 합니다.

하이라이트

- 기계장치 요구 기능에 순응
- 동기전동기 및 유도전동기에 적용
- 다양한 피드백 인터페이스 제공
- 메모리 유닛을 이용한 드라이브의 간편한 운용
- 안전 토오크 오프(Safe torque off) 기능

2가지 제어 기능

- 속도 및 토오크 제어
- 모션 컨트롤

모듈화, 컴팩트 디자인

- 4가지 컴팩트한 프레임 사이즈
- 최적의 설치 및 냉각 방식
- 외장형 옵션과의 유연한 조합
  (입력 초오크, EMC 필터, 제동 저항)
- 기계장치 환경 및 표준에 따른 범 세계적인 호환성

제어 및 통신

- 다양한 표준 결선을 위한 제어 인터페이스
- 드라이브의 완벽한 구성 및 설정 내용을 메노리 유닛에 저장
- 플러그-인 방식의 제어 옵션을 이용한 확장성 (아날로그 I/O, 디지털 I/O, 피드백 인터페이스, 마스터 통신)

솔루션 프로그래밍

다중 파라미터 프로그래밍이 가능한 속도와 위치제어 기능 이외에, 드라이브의 기능은 테크놀로지 함수블럭 및 사전 제작된 솔루션 프로그램을 이용하여 쉽게 변경하거나 확장할 수 있습니다.

드라이브 툴

DriveSize는 기계 설계자로 하여금 요구되는 움직임 및 속도 프로파일과 전형적인 기계장치의 응용을 위한, 최적의 ACSM1 드라이브, 전동기 및 기어 조합을 선정할 수 있도록 도와줍니다.

- DriveStudio는 드라이브에 대한 프로그램 및 시운전이 가능한 전문가용 툴입니다.
- 제어_패널(Assistant control panel)은 간단한 드라이브의 구성에 편리하게 사용할 수 있습니다.

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타입, 용량, 크기

기능 / 프레임 사이즈	A	B	C	D
전류 & 용량				
정격 전류	2.5 - 7.0 A	9.5 - 16 A	24 - 46 A	60 - 90 A
최대 출력 전류	5.3 - 14.7 A	16.6 - 28 A	42 - 81 A	105 - 158 A
정격 용량	0.75 - 3 kW	4 - 7.5 kW	11 - 22 kW	30 - 45 kW
크기 *)	364 x 146 x	380 x 223 x	467 x 225 x	467 x 225 x
(H x D x W/mm)	90	100	165	220
중량 (kg)	3	5	10	17
제동 초퍼	●	●	●	●
제동 저항	□	□	□	□
입력 초오크	□	□	□	□
EMC 필터	□	□	□	□
설치 & 냉각				
분리 가능한 전원 연결 커넥터	●	●	–	–
분리 가능한 제어 연결 커넥터	●	●	●	●
공랭식 선택	■	■	■	■
– 후판 설치	●	●	●	●
– DIN-rail 설치	●	●	–	–
냉각판 선택	–	–	■	■

● = 표준 ■ = 제품에 따라 선택적 적용
□ = 외장형, 옵션 – = 적용 불가
*) 크기와 중량은 옵션을 제외한 내용입니다.

용량					타입코드	프레임 사이즈
P_N [1] kW	P_N [1] hp	I_{2N} [2] A	$I_{2cont8k}$ [3] 8 kHz A	I_{2max} [4] A		
0.75	1	2.5	2.5	5.3	ACSM1-04x[5]x[6]-02A5-4	A
1.1	1.5	3	3	6.3	ACSM1-04x[5]x[6]-03A0-4	A
1.5	2	4	4	8.4	ACSM1-04x[5]x[6]-04A0-4	A
2.2	3	5	5	10.5	ACSM1-04x[5]x[6]-05A0-4	A
3	3	7	5.5	14.7	ACSM1-04x[5]x[6]-07A0-4	A
4	5	9.5	9.5	16.6	ACSM1-04x[5]x[6]-09A5-4	B
5.5	7.5	12	12	21	ACSM1-04x[5]x[6]-012A-4	B
7.5	10	16	13	28	ACSM1-04x[5]x[6]-016A-4	B
11	15	24	24	42	ACSM1-04x[5]x[6]-024A-4	C
15	20	31	31	54	ACSM1-04x[5]x[6]-031A-4	C
18.5	25	40	35	70	ACSM1-04x[5]x[6]-040A-4	C
22	30	46	38	81	ACSM1-04x[5]x[6]-046A-4	C
30	40	60	55	105	ACSM1-04x[5]x[6]-060A-4	D
37	50	73	60	128	ACSM1-04x[5]x[6]-073A-4	D
45	60	90	65	150	ACSM1-04x[4]x[5]-090A-4	D

[1] P_N: 대표 전동기 용량. 프레임 사이즈 A, B는 입력 초오크의 사용과 무관하며, 프레임 사이즈 C, D는 입력 초오크 사용 시 용량.
[2] I_{2N}: 정격 출력 전류.
[3] $I_{2cont8k}$: 40℃ (104℉)에서 스위칭 주파수 8 kHz 일때의 연속 출력 전류.
[4] I_{2max}: 단시간 최대 출력 전류.
[5] x[4]) A = 공랭식 C = 냉각판(Cold plate)
[6] x[5]) 제어 모드(토오크, 속도, 모션)

입력 결선(전원)

공급 전압	3-상 380 ~ 480 V +10 /– 15%
주파수	50 ~ 60 Hz +/– 5%
고조파 왜곡(THD)	전원 입력측에 초오크(외장형, 옵션) 사용 시 EN 61000-3-2, IEC 61000-3-12 초안, IEC 61000-3-4를 충족함

DC 결선

DC 전압 레벨	436 ~ 712 V DC
충전	내부(internal)

전동기 결선(출력)

전동기 종류	비동기 전동기(표준 유도전동기, 서보전동기) 및 동기전동기(서보전동기, 고토오크 전동기)
출력 주파수	0 ~ 500 Hz
스위칭 주파수	2 ~ 16 kHz, 표준 4 kHz 4 kHz 이상에서 출력 전류 저감

제동 저항 결선

제동 초퍼	전 용량에 표준 내장
제동 저항	외장형 저항(옵션)을 연결하여 사용

운전 조건

보호 등급	IP20 – EN 60529; Open Type – UL 508.
EMC (EN 61800-3에 따름)	노이즈 발산: – 표준: 필터링 없음 – 필터 사용 시 : Category C2
표준 및 적용 규격	CE, UL, cUL, CSA, C-Tick

제어 인터페이스

제어 전원	내부 및 외부 24 V DC
PC-툴 / 제어_패널	연결 인터페이스 표준
상태 표시	7-쎄그먼트 디스플레이, 표준
메모리 유닛	표준
Drive to drive 링크	RS-485 표준, 전기적 신호
디지털 I/O	6 x DI, 3 x DI/O, 1 x RO
아날로그 I/O	2 x AI, 2 x AO
써미스터 입력	PTC, KTY
Safe torque off (EN 61800-5-2)	SIL 3 / IEC 61508, Cat. 4 EN 954-1, EN ISO 13849-1: PL e
옵션 슬롯	3개의 확장 슬롯 제공(아날로그 및 디지털 I/O, 피드백 인터페이스, 필드버스 인터페이스)

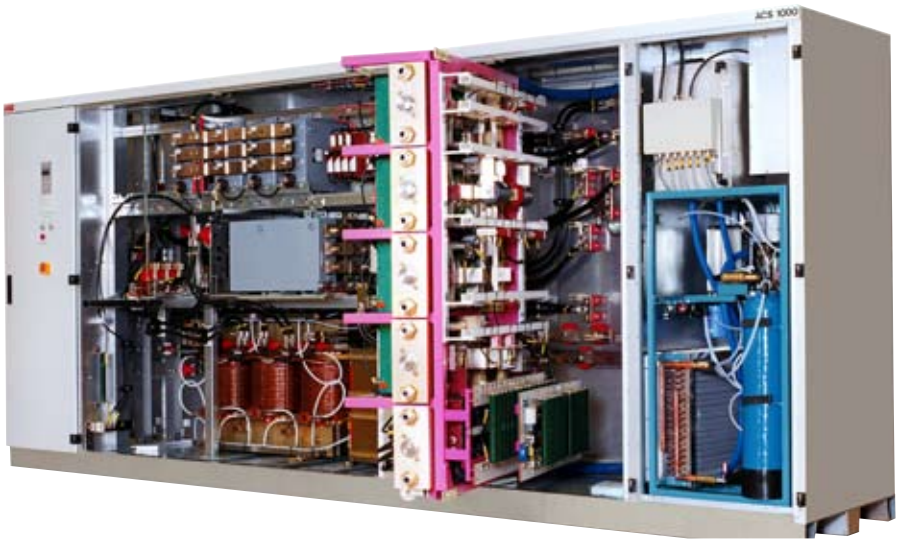
제어 및 통신 옵션

아날로그 & 디지털 확장 모듈	
FIO-01	4 x DI/O, 2 x RO
FIO-11	3 x AI, 1 x AO, 2 x DO
피드백 인터페이스 모듈	
FEN-01	2 입력 (TTL 인크리멘탈 엔코더), 1 출력
FEN-11	2 입력 (SinCos 앱솔루트, TTL 인크리멘탈 엔코더), 1 출력
FEN-21	2 입력 (리졸버, TTL 인크리멘탈 엔코더), 1 출력
통신 모듈	
FPBA-01	PROFIBUS
FCAN-01	CANopen
FDNA-01	DeviceNet
FENA-01	Ethernet/IP

제품에 대한 보다 자세한 정보는 ACSM1 고성능 모션컨트롤 드라이브 카달로그(code 3AKR01086225)를 참조하시기 바랍니다..

ABB MV 드라이브

ACS1000, 농형 유도전동기 제어용, 315 ~ 5000 kW



ACS1000

ACS1000은 대부분의 고압 모터 응용 분야인 펌프, 팬, 콤프레셔, 압출기, 콘베이어 등에 현재 사용중인 모터에 그대로 적용이 가능합니다.
ACS1000은 깨끗한 사인파의 전압 및 전류 출력이므로 표준 모터를 그대로 사용할 수 있으며, 모터 용량의 저감이나 전압 스트레스 또는 커먼모드 모터 절연이 필요하지 않습니다.

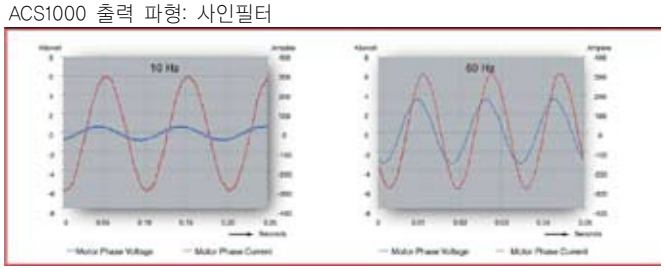
출력 사인필터: 정현파 출력

ACS1000은 깨끗한 사인파의 전압 및 전류 출력이므로 표준 모터를 그대로 사용할 수 있으며, 모터 용량의 저감이나 전압 스트레스 또는 커먼모드 모터 절연이 필요하지 않습니다. 또한 기존의 실드되지 않은 케이브을 사용할 수 있습니다.

IGCT 고압 전력 스위칭 소자

ABB는 고압 드라이브를 위한 최고의 기술을 접목시켜 IGCT라는 새로운 전력소자를 개발하였습니다. IGCT는 IGBT와 같은 고속 스위칭을 실현하며, GTO와 같은 낮은 전도 손실률을 갖습니다. IGCT는 다른 토폴로지와 비교했을 때 간단하고 보다 능률적인 전압원 인버터(VSI)로서 사용할 수 있습니다.

ACS1000 출력 파형: 사인필터



ACS1000의 주요 특장점 및 솔루션

	입력 부분	컨버터	모터
ACS1000	• IEEE519–1992 및 IEC61000–3–12 규정 충족 • 0.97의 기본파 역율 • 입력 변압기 내부 또는 외부에 설치 가능(전기실 내 열 발생량을 저감) • 24–펄스 다이오드 브릿지 정류기 네트워크 요구에 따라 선택 가능	• 최고의 신뢰도를 위한 IGCT 전력 반도체 소자 기술 적용 • 작은 외형 사이즈 • EMC 요구 규정을 충족함 • 정현파 출력 전압과 전류	• 일반 표준 유도 전동기에 적용 • DTC와 사인필터에 의한 낮은 모터 소음 • 모터 절연에 영향을 주는 전압 스트레스와 커먼모드 전압이 없음
이점	• 페널티 및 시스템 손상을 예방 가능: 5, 7고조파는 12–펄스 입력 다이오드 브릿지에 의해 발생하지 않음 • 추가적인 고가의 역율 보상장치가 필요하지 않음 • 6가닥의 변압기 케이블만 필요함	• 고 신뢰성 및 고효율의 컨버터 디자인 • 기존 설비(모터 등) 그대로 사용 가능 • 건강 및 안전 관련 법규 준수 및 시스템 적용 • 주변 장치 전자파 방사 방지	• 드라이브를 위한 신규 모터 설계 및 엔지니어링” 비용 지출이 없음 • 모터 용량 저감이 없음 • 장거리 모터 케이블 사용시에도 전압 반사현상이 없음 • 모터 절연 보호 및 베어링 손상 예방 • 쉴드 모터 케이블이 요구되지 않음

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ACS1000 정격 용량 표

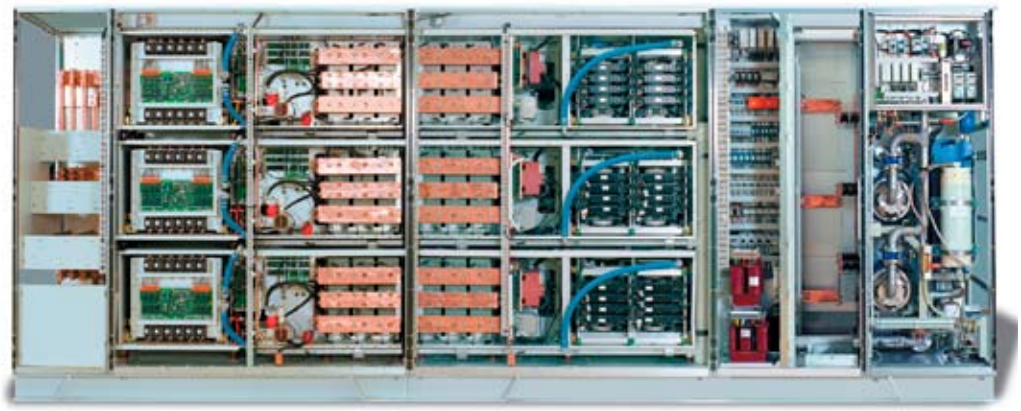
모터 전압 kV	타입코드	전동기 출력 HP	정격 전류 A
2.3	ACS1012-A1-A0-00	400	100
	ACS1012-A1-B0-00	450	100
	ACS1012-A1-C0-00	500	113
	ACS1012-A1-D0-00	600	138
	ACS1012-A1-E0-00	700	163
	ACS1012-A1-F0-00	800	188
	ACS1012-A1-G0-00	900	201
	ACS1012-A1-H0-00	1000	226
	ACS1012-A2-J0-00	1250	289
	ACS1012-A2-K0-00	1500	339
	ACS1012-A3-L0-00	please contact ABB	
	ACS1012-A3-M0-00	please contact ABB	
	ACS1012-A3-N0-00	please contact ABB	
3.3	ACS1013-A1-A0-00	450	70
	ACS1013-A1-B0-00	500	79
	ACS1013-A1-C0-00	550	87
	ACS1013-A1-D0-00	600	96
	ACS1013-A1-E0-00	700	105
	ACS1013-A1-F0-00	750	122
	ACS1013-A1-G0-00	800	131
	ACS1013-A1-H0-00	900	149
	ACS1013-A2-J0-00	1000	166
	ACS1013-A2-K0-00	1250	192
	ACS1013-A2-L0-00	1350	210
	ACS1013-A2-M0-00	1500	236
	ACS1013-A2-N0-00	1650	262
	ACS1013-A2-P0-00	1750	297
	ACS1013-A3-Q0-00	2000	332
	ACS1013-A3-R0-00	2250	276
	ACS1013-W1-S0-00	2500	420
	ACS1013-W1-T0-00	3000	472
	ACS1013-W1-U0-00	3350	525
	ACS1013-W2-V0-00	3500	586
	ACS1013-W2-W0-00	4000	656
	ACS1013-W2-X0-00	4500	744
	ACS1013-W3-Y0-00	5000	831
	ACS1013-W3-Z0-00	6000	936
	ACS1013-W3-10-00	6700	1041
4.0	ACS1014-A1-A0-00	400	58
	ACS1014-A1-B0-00	450	58
	ACS1014-A1-C0-00	500	65
	ACS1014-A1-D0-00	600	79
	ACS1014-A1-E0-00	700	94
	ACS1014-A1-F0-00	800	108
	ACS1014-A1-G0-00	900	115
	ACS1014-A1-H0-00	1000	130
	ACS1014-A2-J0-00	1250	166
	ACS1014-A2-K0-00	1500	195
	ACS1014-A3-L0-00	1750	224
	ACS1014-A3-M0-00	2000	260
	ACS1014-A3-N0-00	2250	289
	ACS1014-W1-P0-00	2500	332
	ACS1014-W1-Q0-00	3000	390
	ACS1014-W2-R0-00	3500	447
	ACS1014-W2-S0-00	4000	520
	ACS1014-W2-T0-00	4500	577
	ACS1014-W2-U0-00	5000	650
	ACS1014-W3-V0-00	5500	707
	ACS1014-W3-W0-00	6000	767
	ACS1014-W3-X0-00	6700	837

ACS1000 데이터

표준 및 국제 규격 승인	EN(IEC), CE, UL, cUL을 포함한 모든 일반 사항
인버터 타입	고속 스위칭 전력 반도체 (IGCT: Integrated Gate Commutated Thyristor) 3-레벨 전압형 인버터(VSI) – 병렬 또는 직렬 연결된 소자가 없는 통합 게이트 전류 사이리스터
입력	50/60Hz의 MV 전압 입력(1000V~22,900Vac), 입력 변압기의 1차 전원에 적용 변동율: 정격전압 ±10% 용량 저감 안전 운전
보조 전압	400Vac ±10%, 50/60Hz 3상
UPS 전원	제어전원(110~240Vac ±10%, 1상)을 위한 UPS가 준비되면 백업 배터리를 대체할 수 있음
출력 전압	표준: 사인파 0~2.3kV, 0~3.3kV, 0~4.0kV 옵션: Step-up 변압기와 함께 높은 전압 (6.0~13.8kV)
출력 주파수	0~66Hz(±82.5Hz 옵션)
주파수 분해능	0.01Hz
입력 브릿지	표준: 12-펄스 옵션: 24-펄스 옵션: 내장형 건식 입력 변압기
효율	일반적으로 98% 이상
입력 역율	기본파: 0.97 이상 전체: 0.96 이상
과부하 용량	표준: 정격 용량의 110%, 매 10분 동안 내 1분 적용 옵션: 표준 이상의 과부하 용량 필요시 (ABB와 개별 상의)
주위 온도	+0~40℃(32~104℉) +40℃ 이상 용량 저감(1.5%/1℃)
습도	5~95%, 결로 현상 없을 것
고도	2000m 이하, 2000m 이상 용량 저감 (1%/100m)
외함 구조	공냉식: IP21(표준), IP22, IP31, IP32, IP42 수냉식: IP31(표준), IP54
통신 프로토콜	Profibus, Modbus, Modbus+, Interbus S, DeviceNet, LonWorks, Ethernet, ControlNet, CANopen, ABB CS31, ABB AF100 등
IndustrialIT 적용 가능	레벨 1
옵션 제어 결선	I/O 확장 가능
보호 기능	과전류, 단락, 접지 고장, 입력 결상, 과열, 출력 결상, 과전압, 저전압, 모터 과부하, 모터 저부하, 구속 보호 등
옵션	• 신뢰성 강화를 위한 예비(Redundant) 냉각팬 (공냉식/수냉식) 및 펌프(수냉식) • 모터 제동 및 짧은 감속 시간을 위한 제동 초퍼 • Synchro Bypass(동기 절체 운전): 4대의 모터까지 동기 절체 운전 가능 – 모터를 ACS1000으로 기동하고 전원 라인과 주파수 및 전압을 동기하여 절체 운전
디지털 입력(DI)	22~250VAC/22~150VDC, 전기적(Galvanic) 절연
디지털 출력(RO)	22~250VAC/VDC, 무전압 C 접점 250VAC: 4A, 24VDC: 6A, 48VDC: 1A, 120VDC: 0.3A
아날로그 입력(AI)	0(4)~20mA 또는 0(2)~10V 전기적 절연 입력(10bit) Rin=100Ω(전류), Rin=200Ω(전압) 0~10V(옵션: PT100)
아날로그 출력(AO)	0(4)~20mA, 전기적 절연, 부하 임피던스: 250Ω
보조 전압: 24VDC ±10%	2 x 180mA, 단락회로 보호
원격 제어	2 x AI, 3 x AO, 6 x DI, 4 x RO
프로세스 인터페이스	1 x DI: 프로세스 정지/준비 신호 외부장치 인터록 가능 3(5) x AI: 전동기 온도 감시
주 차단기 제어 인터페이스	3 x DO: 차단기 제어(투입/차단)용 3 x DI: 차단기 상태 표시용
가감속 시간	0~1800 초

ABB MV 드라이브

ACS5000, 유도 및 동기전동기 제어용, 6.0 ~ 6.9 kV



ACS5000

ACS5000은 ABB 드라이브 명성 그대로 ACS 플랫폼을 바탕으로 제작되었으며, 전 세계에 수 천대 드라이브가 운전되고 있습니다. 기존 ABB 고압 드라이브 제품에 멀티레벨-휴즈리스 전압소스(VSI-MF) 인버터 토폴로지와 전력전자-빌딩블록(PEBB) 시스템을 조합하여 드라이브 기술에 새로운 변혁을 이룩하였습니다. ACS5000은 다음과 같은 특징을 가지고 있습니다.

- 최소의 소자수로 인한 최고의 신뢰성
- 멀티레벨-휴즈리스 토폴로지, IGCT 및 DTC로 인한 최고의 시스템 효율
- 고전력 밀도로 인한 작은 회형 사이즈
- 36-펄스 구성으로 최상의 네트워크 구현
- 최고의 효율성, 간단한 설치, 시운전 및 유지/보수로 인한 낮은 비용
- DTC 기술의 최고 성능
- 표준 모터 적용

고압 드라이브를 위한 최고의 전력 반도체

ABB의 다른 고압(MV) AC 드라이브 제품과 같이 ACS5000은 진보되고 검증된 IGCT 전력 반도체소자를 스위칭 소자로 사용합니다. IGCT 사용은 적은 숫자의 소자를 사용하며, 복잡함을 피하고 본질적인 기능에 충실하여 더욱 효율적이고 신뢰성 있는 드라이브의 제작을 가능하게 하였습니다.

휴즈리스 설계

ACS5000은 고가격, 낮은 신뢰도, 열화 특성을 가진 고압 전력 휴즈를 사용하지 않습니다. 보다 빠르고 신뢰성 있게 전력 소자를 보호하기 위하여 인버터 출력 차단과 동시에 메인 입력을 빠른 속도로 차단할 수 있는 IGCT를 사용하며, 휴즈보다 200배 빠른 25μs 이내의 응답성을 가지고 있습니다.

긴 수명의 DC 포일-커패시터

진보된 자기회복(self healing) 기능과 친환경의 포일-커패시터는 DC 링크에서 장시간 사용이 가능하도록 설계되었습니다. ABB는 이러한 테크놀로지 기술의 적용으로 전해 DC 링크 커패시터를 바탕으로 한 저 신뢰성의 유지보수가 필요한 타사 제품과 명확한 차별화를 유지하고 있습니다.

작은 설치 공간

ACS5000은 간단한 구성으로 6.9kV 전동기 구동이 가능하도록 첨단의 토폴로지를 적용하였습니다. 멀티레벨-휴즈리스 전압원(VSI-MF) 인버터는 전력 반도체 소자의 직렬연결 없이도 고압 전동기에 적용이 가능하게 하였으며, 최소의 전력소자를 사용하여 설계함으로써 제어 시스템, 냉각 장치 및 보조 장치를 포함하여 전 드라이브의 전력 밀도가 1MVA/m^3 이내로 구현되어 고압 드라이브 시장에서 타의 추종을 불허합니다.

전동기 친화성

ACS5000 토폴로지는 최적화된 스위칭 레벨 수를 간은 멀티레벨 출력 파형을 내보냅니다. 이로 인하여 일반 표준 전동기를 신뢰성 저감없이 6.9kV까지 사용할 수 있도록 해줍니다.

네트워크 친화성

ACS5000은 36-펄스의 입력 다이오드 정류기를 사용함으로써 고조파를 최소화합니다. IEEE, IEC, EN에서 정의되는 전류와 전압 고조파 왜곡에 대한 규정의 엄격한 요구 사항들을 충족시켜 줍니다. 이는 신규 드라이브 적용 시, 고가의 고조파 분석 및 네트워크 필터의 설치가 필요하지 않음을 의미합니다.

강력한 성능과 고효율

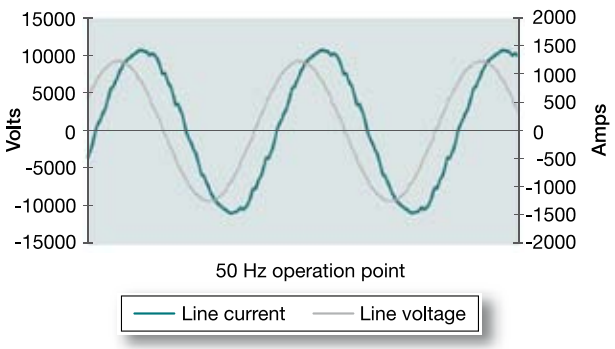
낮은 에너지 손실과 함께 빠르고 정확한 프로세스제어로 최고의 성능을 구현합니다. ACS5000 제어 플랫폼은 ABB 드라이브의 최고의 성공적인 제어방식인 직접 토오크 제어(DTC)를 사용하여 고도의 정밀한 토오크 및 스피드 성능을 구현할 뿐 아니라, 현존하는 고압 드라이브에서 가장 낮은 손실률을 가진 드라이브 입니다. 드라이브의 제어는 어떠한 조건에서도 빠르고 부드럽게 동작하며 전동기의 가청 소음은 다른 어떠한 제어 방식보다 조용합니다.

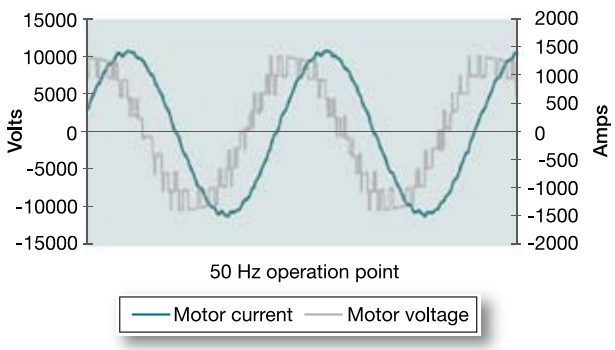
절연 변압기의 유연성

공냉식 ACS5000은 별도로 분리하여 설치할 수 있는 입력 변압기 또는 작은 용량은 내장된 입력변압기를 선택 사용할 수 있습니다.

VSI-MF 토폴로지

IGCT 및 PEBB(Power Electronic Building Block, 전력전자-빌딩블록) 기술의 성공을 바탕으로 ABB는 멀티레벨-휴즈리스 전압원 인버터(VSI-MF) 토폴로지를 개발하였습니다.
전력전자-빌딩블록을 통하여 6.9kV까지의 고전압 전동기를 효율적으로 신뢰성있게 제어가 가능하게 되었습니다.





ACS5000 데이터

표준 및 국제 규격 승인	EN, IEC, CE를 포함한 모든 일반 사항
인버터 형식	멀티레벨-휴즈리스 전압형 인버터(VSI-MF) 9-레벨 선간 직/병렬 소자 적층 없는 고속 스위칭 전력 반도체 IGCT(Integrated Gate Commutated Thyristor) 소자
입력	50/60Hz 고압(MV) 입력 변압기 변동율: 정격전압 ±10% 정격 전압의 -25%까지 적용 전동기 용량 저감 후 안전 운전 가능
보조 전원	400~480Vac ±10%, 50/60Hz 3상 (690Vac 까지 수냉식에 적용)
UPS(무정전 전원 장치) 전원	UPS 제어전원 공급(가능 시) 110~240Vac 1상 또는 110/220VDC 선택적으로 짧은 시간의 순시정전 보상이 가능한 "백업 커패시터 장치" 를 사용할 수 있습니다.
출력 전압	표준: 6.0~6.9kV 옵션: 4.16kV
출력 주파수	0~77Hz(최대 200Hz 옵션)
전동기	유도 전동기, 동기 전동기 및 영구자석 전동기 1700~7000 kVA 공냉식 5200~21500 kVA 수냉식
입력 브릿지	36-펄스
효율	공칭 효율 98.5% 이상(보조 전원 포함)
입력 역율	기본파: 0.96 이상 전체: 0.95 이상
주위 온도	+1~40℃(34~104℉), +40℃ 이상 용량 저감
외함 구조	공냉식: IP21(표준), IP22, IP31, IP32, IP42 수냉식: IP32(표준), IP54
제어 인터페이스(옵션)	모든 일반적인 필드버스 지원 Profibus, Modbus, DeviceNet, ABB AF100 등
IndustrialIT 적용 가능	호환 레벨 1
보호 기능	컨버터: 과전류, 단락, 지락, 결상, 과전압, 저전압, 과열, 출력주파수, 네트워크 외란, 냉각계통 감시 전동기: 과부하, 저부하, 스톨(구속) 보호
옵션	• 전동기 감시 I/O – 고장/알람: 과열, 베어링 진동 – PT100: 권선 및 베어링 온도 • 변압기 감시 I/O – 고장/알람: 과열, Buchholz – PT100: 권선 온도 • 드라이브 외부제어 하드웨어 신호 – 레퍼런스: 기동/정지, 속도/토오크 등 – 상태 피드백 신호: 준비/운전중 – 아날로그 신호: 전류/전압/전력 등 • 공냉식 드라이브 이중화 냉각팬 • 동기 바이패스(Synchronous bypass) 기능 – 6대 전동기까지 기동 가능 • 제동 초퍼 • 내장형 변압기, 입력 전압 범위 – 6.0~6.9kV, 50/60Hz – 10.0~11.0kV, 50/60Hz

ABB DC 드라이브
DCS400, DC 드라이브, 20 ~ 1000 A

차세대 디지털 DC 드라이브 – DCS400

DCS400 시리즈는 ABB가 저렴한 가격, 빠른 납기, 빠른 응답, 제품의 친근감 그리고 신뢰성에 바탕을 두고 설계하였습니다.

- 아날로그 컨버터와 같이 사용하기 쉬우면서도 디지털 컨버터의 모든 장점을 살렸습니다.
- 다양한 부하 용도에 쉽게 적용할 수 있습니다.
- 컨버터에 대한 특별한 지식없이 쉽게 설치, 사용할 수 있습니다.

간편하고 빠른 설치

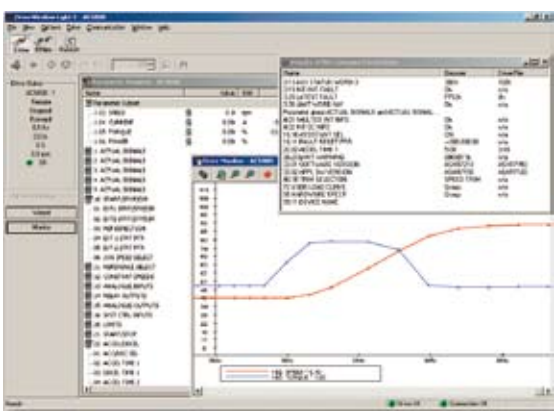
IGBT 테크놀로지에 의해 집약된 계자 여자기는 ABB만의 특허로써 컨버터 설치 시 세 가닥의 입력과 네 가닥의 출력 케이블만 결선하면 됩니다. 따라서 케이블을 절약할 수 있으며, 신속하게 결선할 수 있습니다.

- 하단부의 케이블 인/입구는 전원 케이블을 빠르고 손쉽게 연결할 수 있도록 해줍니다.
- 230~500 V 50~60 Hz의 전원전압, 115~230 V의 제어전원 정격을 가지고 있으므로 지구촌 어느곳에서나 바로 사용할 수 있습니다.

최적 설계

DCS400의 컴팩트한 디자인은 사용자에게 공간 절약의 효과를 주어 동일한 공간에 보다 많은 장치를 설치할 수 있습니다.

- 유닛의 폭이 단지 270mm에 불과합니다.
- 모든 케이블의 결선이 유닛의 하단부에서 이루어지므로 측면 공간의 사용이 자유롭습니다.
- 휴즈와 초오크를 포함한 계자여자기를 유닛안에 내장하여 한층 더 소형화를 이루었습니다.
- 전동기의 전원 전압과 계자여자기의 공급전압을 조율하는 변압기가 불필요합니다.
- DCS400은 어떤 DC 컨버터보다도 최초 설치 및 운전 시간이 빠릅니다.
- 제어_패널로 우전이 가능합니다.
- 자체적인 튜닝 기능에 의하여 전기자 전류, 속도 그리고 계자 전류 및 자속 등 전동기의 데이터와 공정 데이터의 입력이 가능합니다.
- 특별한 분야에 대한 응용 매크로를 제공하므로, 사용자가 손쉽게 선택하여 사용할 수 있습니다.



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정격 전류

DCS400 용량 선정 시 운전 주기에 따른 부하 등급, 주위 온도, 설치 고도 및 요구되는 기술 사양들을 고려해야 합니다.

DCS 400 컨버터 파워 스펙트럼

과부하 내량: 150%

DCS401 2상한 운전 컨버터

타입	연속 정격 전기자 전류 I_{DC}[A]	계자 전류 I_f[A]	모듈 프레임 사이즈
DCS401-0020	20	0.1 ... 4	A1
DCS401-0045	45	0.1 ... 6	
DCS401-0065	65		
DCS401-0090	90		
DCS401-0125	125		
DCS401-0180	180	0.3 ... 16	A2
DCS401-0230	230		
DCS401-0315	315	0.3 ... 16	A3
DCS401-0405	400		
DCS401-0500	500		
DCS401-0610	610	0.3 ... 20	A4
DCS401-0740	740		
DCS401-0900	900		

DCS402 4상한 운전 컨버터

타입	연속 정격 전기자 전류 I_{DC}[A]	계자 전류 I_f[A]	모듈 프레임 사이즈
DCS402-0025	25	0.1 ... 4	A1
DCS402-0050	50	0.1 ... 6	
DCS402-0075	75		
DCS402-0100	100		
DCS402-0140	140		
DCS402-0200	200	0.3 ... 16	A2
DCS402-0260	260		
DCS402-0350	350	0.3 ... 16	A3
DCS402-0450	450		
DCS402-0550	550		
DCS402-0680	680	0.3 ... 20	A4
DCS402-0820	820		
DCS402-1000	1000		

외형 치수						모듈 프레임 사이즈
mm			inches			
높이	깊이	폭	높이	깊이	폭	
310	200	270	12.50	8.00	10.75	A1
310	270	270	15.75	10.50	10.75	A2
400	310	270	15.75	12.50	10.75	A3
580	345	270	23.00	13.74	10.75	A4

컨버터 정격

정격 공급 전압	230 ~ 500 V AC ±10%, 3상
정격 주파수	50 또는 60 Hz
다이나믹 주파수 범위	50 Hz: ±5 Hz; 60 Hz: ±5 Hz
DC 전류	20 ~ 1000 A
계자 출력 전압	50 ~ 440 V
운전 조건:	
주위 온도	+5 ~ +40℃ (41 ~ 104 ℉)
보관 시 온도	−40 ~ +55℃ (−40 ~ 131 ℉)
상대 습도	5 ~ 95 %, 결로현상 없음
보호 등급	IP 00

I/O 구성

8 디지털 입력	
5 디지털 출력	
2 아날로그 입력	정밀도 0.05 %, 분해능 12 비트
2 아날로그 출력	정밀도 0.05 %, 분해능 12 비트
1 타코제너레이터 입력	정밀도 0.05 %, 분해능 12 비트
1 엔코더 입력	
±10 V 레퍼런스 전원	
필드버스 통신 모듈 사용 가능	

보호 기능

- 속도 피드백 신호 결상
- 온도 과열
- 과부하
- 과속도
- 전기자 과전류
- 전기자 과전압
- 전기자 전류 리플
- 최소 계자 전류
- 최대 계자 전류
- 전동기 구속

DriveWindow Light

- PC 기반의 시운전 및 유지 보수 툴
- 온라인 운전 기능
- 고장 기록 및 진단 기능
- 피드백 신호 표기 및 분석
- 파라미터 프로그래밍

DCS400-PAN 제어_패널

- 자체 운전 기능, 운전 데이터 및 파라미터 표시 기능
- 착탈 가능
- 파라미터 프로그래밍
- 신호 설정 및 피드백 표시 기능
- 시운전 정보 제공
- 고장 발견 및 기록

ABB DC 드라이브

DCS800, 고성능 DC 드라이브, 20 ~ 5200 A

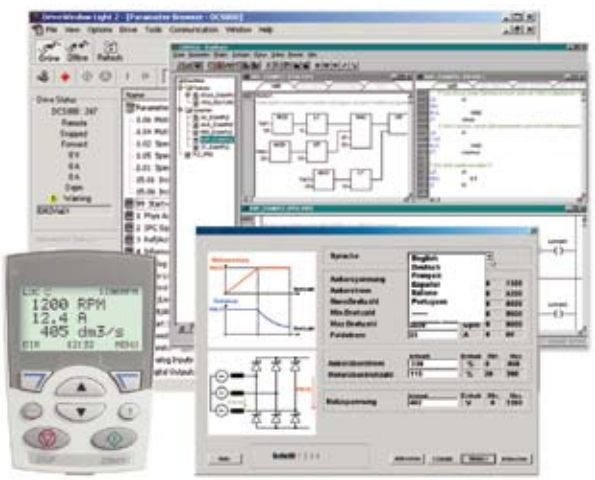
DCS800 DC 드라이브는?

DCS800 DC 드라이브는 구매, 설치, 구성 및 사용이 간편하여 시간을 절약할 수 있습니다.
DCS800은 일반 사용자 인터페이스 및 프로세스용 필드버스 인터페이스, 제품 선정 소프트웨어, 시운전 및 유지/보수 툴과 예비품을 보유하고 있습니다.

특징	내용
표준 제어_패널 (Assistand Control Panel)	2개의 소프트키, 패널의 상태에 따라 기능 변경 도움말 "Help" 버튼 내장 실시간 시계, 고장 시간 기록 변경된 파라미터 보기 메뉴
시운전 도우미	DriveWindow Light 및 DCS800 제어_패널에서 사용 가능
다수의 자동 동조 기능	속도, 전기자 전류, 계자 전류 제어 및 약계자 설정
결선	설치 간단, 케이블 연결이 쉬움 다양한 I/O 및 플러그인 옵션(Fieldbus, I/O)
고장 진단 기능	고장 발생 시 동작
진보된 DC 운영 패턴	병렬/직렬 12-펄스, 순차 제어 및 다중_배열
진보된 전동기 제어	전원 전압 레벨 및 급격한 전압 강화 관리
필드버스(Fieldbus)	RS485를 이용한 Modbus 내장 옵션: 플러그인 타입의 필드버스 모듈
최고의 전동기 전압	동적인 변화를 줄임으로써 전동기 전압을 상승시킬수 있음
ACS800 인터페이스	ACS800의 모든 하드웨어 옵션 및 PC툴을 동일한 +코드로 주문, 사용 가능

하이라이트

- 드라이브의 직접적인 내용 확인 및 사용이 가능한 제어_패널(Assistant Control Panel).
- 약계자운전 영역에서 역동적인 운전을 완벽하게 제어
- ACS800용 PC 툴 사용 가능(DDCS 통신 이용).
- 설치 및 시운전 비용 절감.
- 외부에 추가 하드웨어 결선이 필요없는 내장형 계자여자기 (내부 3상 전원 연결).
- Adaptive program 및 IEC1131 기반의 PLC 프로그램을 이용한 추가 소프트웨어 기능 제공.
- 표준 내장의 Modbus 및 다수의 내장형 필드버스 어댑터를 이용한 유연성있는 필드버스 시스템 구성.



정격 전류

50 Hz 및 60 Hz 네트워크에서 DCS800의 정격 전류는 아래와 같습니다. 추가 설명은 표 아래 내용을 참조하시기 바랍니다. 각각의 특징은 주위 온도 최대 40° C 에 해발 고도 최대 1000m 를 기준으로 합니다.

유닛 타입 단방향 (2-Q) 컨버터	IDC I	P_{out} ④		유닛 타입 양방향 (4-Q) 컨버터	IDC I	P_{out} ④		내장형 계자여자기 전류	냉각팬 전압	냉각 공기량	손실 P_{Loss}	프레임 크기
	[A]	[kW]	[kW]		[A]	[kW]	[kW]	[A]	[V AC]	[m³/h]	[kW]	
400 V / 500 V / 525 V		400V	500V			400V	500V					
DCS800-S01-0020-04/05	20	9	12	DCS800-S02-0025-04/05	25	10	13	6	without fan	300	0.11	D1
DCS800-S01-0045-04/05	45	21	26	DCS800-S02-0050-04/05	50	21	26	6		300	0.17	D1
DCS800-S01-0065-04/05	65	30	38	DCS800-S02-0075-04/05	75	31	39	6		300	0.22	D1
DCS800-S01-0090-04/05	90	42	52	DCS800-S02-0100-04/05	100	42	52	6		300	0.28	D1
DCS800-S01-0125-04/05	125	58	73	DCS800-S02-0140-04/05	140	58	73	6		300	0.38	D1
DCS800-S01-0180-04/05	180	84	104	DCS800-S02-0200-04/05	200	83	104	15	115/230; 1-ph	300	0.56	D2
DCS800-S01-0230-04/05	230	107	133	DCS800-S02-0260-04/05	260	108	135	15		300	0.73	D2
DCS800-S01-0315-04/05	315	146	183	DCS800-S02-0350-04/05	350	145	182	20		600	0.91	D3
DCS800-S01-0405-04/05	405	188	235	DCS800-S02-0450-04/05	450	187	234	20		600	1.12	D3
DCS800-S01-0470-04/05	470	213	280	DCS800-S02-0520-04/05	520	218	276	20		600	1.32	D3
DCS800-S01-0610-04/05	610	284	354	DCS800-S02-0680-04/05	680	282	354	25		950	1.76	D4
DCS800-S01-0740-04/05	740	344	429	DCS800-S02-0820-04/05	820	340	426	25	230; 1-ph ①	950	2.14	D4
DCS800-S01-0900-04/05	900	049	522	DCS800-S02-1000-04/05	1000	415	520	25		1900	2.68	D4
DCS800-S01-1200-04/05	1200	558	696	DCS800-S02-1200-04/05	1200	498	624	25 ③		800	5.10	D5
DCS800-S01-1500-04/05	1500	698	870	DCS800-S02-1500-04/05	1500	623	780	25 ③	230; 1-ph	800	5.30	D5
DCS800-S01-2000-04/05	2000	930	1160	DCS800-S02-2000-04/05	2000	830	1040	25 ③		800	6.60	D5
DCS800-S01-2050-05	2050	953	1189	DCS800-S02-2050-05	2050	851	1066	-		1600	8.00	D6
DCS800-S01-2500-04/05	2500	1163	1450	DCS800-S02-2500-04/05	2500	1038	1300	-	400-500; 3-ph	1600	9.00	D6
DCS800-S01-3000-04/05	3000	1395	1740	DCS800-S02-3000-04/05	3000	1245	1560	-		1600	11.10	D6
DCS800-S01-3300-04/05	3300	1535	1914	DCS800-S02-3300-04/05	3300	1370	1716	-		4200	11.70	D7
DCS800-S01-4000-04/05	4000	1860	2320	DCS800-S02-4000-04/05	4000	1660	2080	-	400/690; 3-ph	4200	13.00	D7
DCS800-S01-5200-04/05	5200	2418	3016	DCS800-S02-5200-04/05	5200	2158	2704	-		4200	19.00	D7
600 V / 690 V		600V	690V			600V	690V					
DCS800-S01-0290-06	290	203		DCS800-S02-0320-06	320	200		-	115/230; 1-ph	600	0.91	D3
DCS800-S01-0590-06	590	413		DCS800-S02-0650-06	650	405		-	230; 1-ph ①	950	1.86	D4
DCS800-S01-0900-06/07	900	630	720	DCS800-S02-0900-06/07	900	563	648	25 ③		800	5.10	D5
DCS800-S01-1500-06/07	1500	1050	1200	DCS800-S02-1500-06/07	1500	938	1080	25 ③	230; 1-ph	800	6.30	D5
DCS800-S01-2000-06/07	2000	1400	1600					25 ③		800	8.10	D5
DCS800-S01-2050-06/07	2050	1435	1640	DCS800-S02-2050-06/07	2050	1281	1476	-		1600	9.20	D6
DCS800-S01-2500-06/07	2500	1750	2000	DCS800-S02-2500-06/07	2500	1563	1800	-	525-690; 3-ph ②	1600	10.20	D6
DCS800-S01-3000-06/07	3000	2100	2400	DCS800-S02-3000-06/07	3000	1875	2160	-		1600	12.20	D6
DCS800-S01-3300-06/07	3300	2310	2640	DCS800-S02-3300-06/07	3300	2063	2376	-		4200	13.10	D7
DCS800-S01-4000-06/07	4000	2800	3200	DCS800-S02-4000-06/07	4000	2500	2880	-	400/690; 3-ph	4200	15.10	D7
DCS800-S01-4800-06/07	4800	3360	3840	DCS800-S02-4800-06/07	4800	3000	3456	-		4200	19.50	D7
800 V		800V				800V						
DCS800-S01-1900-08	1900	1739		DCS800-S02-1900-08	1900	1558		-		1600	9.00	D6
DCS800-S01-2500-08	2500	2288		DCS800-S02-2500-08	2500	2050		-	400-500; 3-ph	1600	10.70	D6
DCS800-S01-3000-08	3000	2745		DCS800-S02-3000-08	3000	2460				1600	12.70	D6
DCS800-S01-3300-08	3300	3020		DCS800-S02-3300-08	3300	2706		-		4200	13.40	D7
DCS800-S01-4000-08	4000	3660		DCS800-S02-4000-08	4000	3280		-	400/690; 3-ph	4200	15.60	D7
DCS800-S01-4800-08	4800	4392		DCS800-S02-4800-08	4800	3936		-		4200	20.00	D7
990 V		990V				990V						
DCS800-S01-2050-10	2050	2378		DCS800-S02-2050-09	2050	2132		-		4200	9.70	D7
DCS800-S01-2600-10	2600	3016		DCS800-S02-2600-09	2600	2704		-	400/690; 3-ph	4200	12.10	D7
DCS800-S01-3300-10	3300	3828		DCS800-S02-3300-09	3300	3432		-		4200	16.60	D7
DCS800-S01-4000-10	4000	4640		DCS800-S02-4000-09	4000	4160		-		4200	20.20	D7
1200 V	자료 별도 요청											

① 추가 + 코드에 따라 115 V 선택 가능
② 추가 + 코드에 따라 400–500 V 선택 가능
③ 선택 품목 FEX425 내장형 계자 여자기; 3–상 또는 1–상, 별도 공급 전원 최대 500 V AC
④ 정격은 입력 전압의 –10% 를 기준으로 합니다.

높은 유용성과 저가 비용

유지 보수 스케줄에 따른 계획된 유지 보수는 매우 경제적인 방법입니다.
장비의 높은 유용성 뿐만 아니라 저가 비용으로 서비스 부품을 제공합니다. 때문에 예방 정비 키트 (PM Kit) 는 각각의 예비 부품을 구입하는 것보다 15%~40% 저렴합니다.

목적

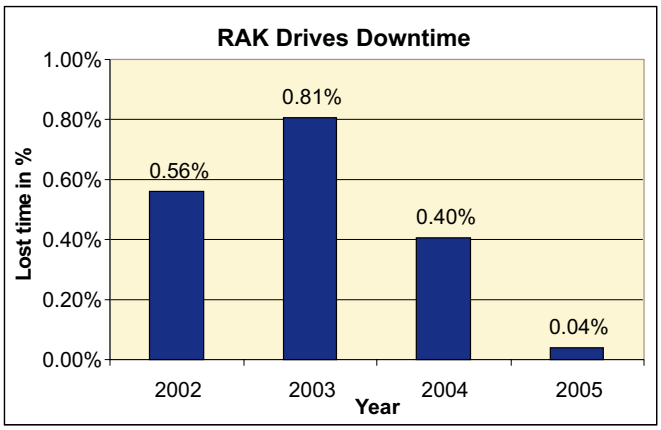
고장 발생이 없고 신뢰성 있는 운영으로 제지 기계 드라이브 시스템의 높은 유용성을 보장하기 위하여 제작되었습니다.

해결

유지보수는 2004년~2005년에 먼저 계획된 대로 생산에 영향을 주지 않고, 정기 점검이 수행되었습니다.

이익

드라이브 유용성은 2004년~2005년에 두드러지게 향상되었습니다.



ACV700 드라이브 케비넷

예비 유지보수 프로그램의 혜택

기타 고객들이 예비 유지보수로부터 받을 수 있는 혜택 :

- 서비스 엔지니어의 제품 이해도 증가
- 추후 유지보수 작업에 필요한 것을 인지
- 예비 부품 재고를 최신 것으로 업데이트

고객 만족

2005년 RAK PM1 ACV700 드라이브 수행은 매우 성공적이었으며, 고객 또한 이에 대한 만족을 표시하였습니다. 유지보수 프로그램에 따른 유지보수 작업과 전담 엔지니어를 통한 지속적인 도움은 문제 발생이 없고, 양쪽에게 예상 가능한 win-win 상황을 만들어 줍니다.

앞으로의 유지보수

RAK는 ABB드라이브 유지보수 스케줄을 도입하여 유지보수 프로그램에 따라 ABB 드라이브를 유지보수합니다. PM1 드라이브의 유지보수에서 얻은 결과를 토대로 RAK은 현재 ACS600과 SAMI STAR 싱글 드라이브의 예비 유지보수에 초점을 맞추고 있습니다.

제품 수명 관리 서비스
ACS600의 드라이브 유지보수

SP20 ACS600용 PM kit

예방 정비 키트(PM kit)

예방 정비 키트(Preventive Maintenance Kits)는 계획된 보수 작업을 위해 필요한 모든 대체품을 포함하고 있습니다. 각각의 키트 내용은 유지보수 계획과 크기, 특정 드라이브의 특징에 맞게 정의 내려집니다.

장점

- 정비 스케줄에 따라 정품 서비스 부품 제공
- 패키지로 구성되어 주문이 간단
- 개별적인 부품 구입보다 경제적
- 정비 비용의 감소
- 정비 재료 예산의 계획이 편리함
- 정비 실행 효율의 증가

서비스 제공

예방정비 키트(PM)에는 예비 유지보수를 위해 필요한 중요 부품들이 들어 있습니다
예방정비 키트는 드라이브의 사용 기간이나 수량에 따라 선택할 수 있으며, 정비를 위한 모든 부품은 이용 가능합니다.
모든 예방정비 키트는 주문을 정확하고 쉽게 만들 수 있도록 타입 코드를 가지고 있습니다

예방 정검전 준비 사항

예방정비 키트는 일반적인 예비품과는 달리 lead-time에 기초를 두고 공급되 반드시 예비 유지보수의 진행에 잘 맞추어서 주문하여야 합니다.
예방정비 키트의 내용물이나 배달시간, 가격 등 더 많은 정보는 www.abb.com/partsonline 에서 찾아볼 수 있습니다

	Every 3rd year	Every 6th year	Every 9th year	Every 12th year
Cooling fan (MD and SD R8, R9, IP54, ACW600)	X			
DSU, TSU cooling fan (B1-B5)	X			
DC reactor cooling fan (B4-B5)	X			
Cooling fan (SD R2-R7)		X		
Cooling water pump (ACW600)		X		
Electrolytic capacitors (NGDR)			X	
Flat cables (NINT, NXPP)			X	
Electrolytic capacitors (DC circuit)				X

주!) 각각의 PM 키트에 옵션 품목은 포함되어 있지 않음.

ABB 인버터

Drive^{IT} 저압 AC 표준 드라이브
ACS550 인버터

농형 유도 전동기의 속도 및 토오크 제어용
벡터인버터 : 0.75~335 kW

ABB Korea

드라이브를 선정하는 두 가지 방법

선택 1 : 15쪽에 있는 ABB 사무소와 연락을 취하셔서 원하는 사양을 말씀해 주십시오.

또는

선택 2 : 아래의 7단계를 참고로 주문 코드를 작성하십시오. 주문 코드 작성에 필요한 정보가 각 쪽에 수록되어 있습니다.

타입코드 : ACS550 - 01 - 03A3 - 4 + B055

1 제품 시리즈

2 용량 및 형식 (정격전류)

3 전압 (-2 : 208~240V , -4 : 380~480V)

4 외형 크기

5 구조

01-벽걸이형
02-스탠딩형

6 옵션 (선택 사양)

없음 = IP21 / UL type 1(표준)
B055 = IP54 / UL type 12

7 외장 옵션 (선택 사양)

목 차

ABB 표준 드라이브, ACS550

ABB 표준 드라이브

ACS550 - 01 - 03A3 - 4 + B055

ABB 표준 드라이브란?

ABB 표준 드라이브는 사용이 매우 간편하고, 효율적인 구매, 설치, 시스템 구성으로 시간을 절약 할 수 있으며, ABB 특약점에서 손쉽게 구입할 수 있습니다.
ABB 표준 드라이브는 필드버스 및 드라이브 측정, 시운전, 유지보수를 위한 공용 드라이브와 스패어 파트를 갖추고 있어 사용자와 공정간의 인터페이스가 가능합니다.

ABB 표준 드라이브 사용처

ABB 표준 드라이브는 일반적인 펌프와 팬 같은 자승 저감 분야 및 컨베이어, 섬유기계, 일반산업기계와 같은 정토크 분야를 중심으로 산업 전반에 걸쳐 폭 넓게 사용됩니다.
ABB 표준 드라이브는 주문제작이나 별도의 엔지니어링 없이도 간편하게 설치와 자체 시운전이 가능한 이상적인 드라이브 입니다.
ABB 표준 드라이브는 엔코더 없이 정밀한 속도제어는 물론 토오크 제어가 가능합니다.

ABB 표준 드라이브는

- 신속한 납기
- 간편하고 빠른 설치
- 사용자 스스로 신속한 시운전 가능
- 고장 없는 드라이브의 사용을 약속합니다.

특장점

- 한글로 디스플레이 되는 키패드로 드라이브 조작이 더욱 간편 해졌습니다.
- 고조파를 일반 리액터보다 25% 가량 줄일 수 있는 스윙 쵸오크를 모든 용량이 표준으로 장착하고 있습니다.
- 센서리스 벡터 제어
- 1, 2차 환경 통합 RFI 필터가 표준으로 내장되어 있습니다.
- Modbus는 표준 내장 되어 있으며, 각종 필드버스 방식은 내장 스냅온 형식의 필드버스 어댑터로 지원 (선택사양)
- 미주 및 유럽의 국제 공인 시험기관인 UL, cUL, CE 인증

ACS550의 특징

특징	내용	이점
표준 제어 파넬	두개의 소프트 버튼으로 판넬의 상태에 따른 기능 변경 '도움말' 기능 내장 시계를 내장하여 오류 및 시간별 파라미터 설정 확인 가능 변경된 파라미터 메뉴	손쉬운 시운전 빠른 셋업 설치 간편한 구성 신속한 오류 진단 빠른 파라미터 변경 내역 검색
제동쵸퍼	11kW까지 내장됨	경비절감
쵸오크 (리액터)	스윙 쵸오크 – 부하에 최적의 인덕턴스 값을 맞추어 고조파를 줄입니다.	최고 25%까지 전 고조파 왜곡방출 (THD) 감소
연결성	간단한 설치 : 손쉬운 케이블 연결 멀티플 I/O와 플러그 인 옵션을 이용한 외부 필드버스 시스템의 간편한 연결	설치 시간의 감소 케이블 연결성 확보
진단기능	오류 발생 시 동작	빠른 오류 진단
EMC	1, 2차 환경 RFI 필터 기본 내장	외부 필터를 추가할 필요 없음
필드버스	RS485를 사용한 내장형 모드버스 표준 내장 플러그인 형식의 필드버스 어댑터 선택	비용 절감
자동최적화 기능	소음 최적화 : 드라이브 온도가 떨어지면 드라이브의 스위칭 주파수가 자동으로 증가합니다 제어 냉각 팬 : 온도에 따라 필요한 경우 냉각 팬 동작	전동기 및 인버터의 소음 감소 및 에너지 효율의 증대
유지보수	동작 시간 및 모터 회전 모니터링	드라이브, 모터, 운전되는 부하의 유지 보수 주기 및 시간을 인버터가 알려줌
유니트 설치판	유니트 별로 박스에 제공됨	설치판에 나사 구멍 위치가 표시 되어 있어 쉽고 빠른 설치 가능
센서리스 벡터제어	고성능의 모터 컨트롤 기능	다양한 애플리케이션에 폭넓게 사용가능
시운전 도우미	파라미터 리스트 없이도 기본적인 세팅이 가능하도록 도와주는 사용자 가이드	쉬운 파라미터 설정
도움말 기능 (Help)	파라미터 및 각종 고장에 대한 도움말	파라미터에 대한 설명 및 고장에 대한 조치 방법을 한글로 알려줌

용량, 형식, 전압

ACS550 - 01 - 03A3 - 4 + B055

타입 코드

상단의 타입 코드와 우측의 인버터 형식과 같이 ACS550의 reference no. 는 전력 용량과 프레임 사이즈로 구성되어 있어 드라이브 형식을 분명하게 알 수 있습니다.
먼저 타입 코드를 선택한 후, 다음 쪽과 같이 프레임사이즈 (항목 8)를 선택하여 드라이브 외형치수를 결정합니다.

전압

ACS550은 두 가지 전압계열을 지원합니다.
4 = 380-480V
2 = 208-240V

선택 전압에 따라 상기 타입 코드에 "4" 또는 "2"를 입력하십시오.

일반사용(normal use)과 고부하사용(heavy-duty use) 시

펌프, 팬, 컨베이어, 압출기 등과 같은 일반적인 부하의 경우는 "일반사용"을 선택하십시오. 높은 과부하 용량이 필요한 경우 "고부하사용"을 선택하십시오.
또한, 인버터의 용량은 전동기 전류를 기준하여 선정합니다. 15쪽에 수록된 ABB 사무소에 연락을 취하시면 도움을 받으실 수 있습니다.

P_N for kW = 일반 사용 시 기준전압 400V
P_N for hp = 일반 사용 시 기준전압 460V
P_{hd} for kW = 고부하 사용 시 기준전압 400V
P_{hd} for hp = 고부하 사용 시 기준전압 460V

3상 공급전압 380V-480V
벽걸이형 유니트

용량						타입코드	프레임 크기
일반사용			고부하사용				
P_N kW	P_N hp	I_{2N} A	P_{hd} kW	P_{hd} hp	I_{2hd} A		
1.1	1.5	3.3	0.75	1	2.4	ACS550-01-03A3-4	R1
1.5	2	4.1	1.1	1.5	3.3	ACS550-01-04A1-4	R1
2.2	3	5.4	1.5	2	4.1	ACS550-01-05A4-4	R1
3	3	6.9	2.2	3	5.4	ACS550-01-06A9-4	R1
4	5	8.8	3	3	6.9	ACS550-01-08A8-4	R1
5.5	7.5	11.9	4	5	8.8	ACS550-01-012A-4	R1
7.5	10	15.4	5.5	7.5	11.9	ACS550-01-015A-4	R2
11	15	23	7.5	10	15.4	ACS550-01-023A-4	R2
15	20	31	11	15	23	ACS550-01-031A-4	R3
18.5	25	38	15	20	31	ACS550-01-038A-4	R3
22	30	44	18.5	25	38	ACS550-01-044A-4	R4
30	40	59	22	30	44	ACS550-01-059A-4	R4
37	50	72	30	40	59	ACS550-01-072A-4	R4
45	75	96	37	60	77	ACS550-01-096A-4	R5
55	100	124	45	75	96	ACS550-01-124A-4	R6
75	125	157	55	100	124	ACS550-01-157A-4	R6
90	150	180	75	125	156	ACS550-01-180A-4	R6
110	150	195	90	125	162	ACS550-01-195A-4	R6

스탠딩 유니트

132	200	245	110	150	192	ACS550-02-245A-4	R7
160	200	289	132	200	224	ACS550-02-289A-4	R7
200	300	368	160	250	302	ACS550-02-368A-4	R8
250	400	486	200	350	414	ACS550-02-486A-4	R8
280	450	526	250	400	477	ACS550-02-526A-4	R8
315	500	602	280	450	515	ACS550-02-602A-4	R8
355	500	645	315	500	590	ACS550-02-645A-4	R8

3상 공급전압 208V-240V
벽걸이형 유니트

용량						타입코드	프레임 크기
일반사용			고부하사용				
P_N kW	P_N hp	I_{2N} A	P_{hd} kW	P_{hd} hp	I_{2hd} A		
1.1	1.0	4.6	0.75	0.8	3.5	ACS550-01-04A6-2	R1
1.5	1.5	6.6	1.1	1.0	4.6	ACS550-01-06A6-2	R1
2.2	2.0	7.5	1.5	1.5	6.6	ACS550-01-07A5-2	R1
3.0	3.0	11.8	2.2	2.0	7.5	ACS550-01-012A-2	R1
4.0	5.0	16.7	3.0	3.0	11.8	ACS550-01-017A-2	R1
5.5	7.5	24.2	4.0	5.0	16.7	ACS550-01-024A-2	R2
7.5	10.0	30.8	5.5	7.5	24.2	ACS550-01-031A-2	R2
11.0	15.0	46.2	7.5	10.0	30.8	ACS550-01-046A-2	R3
15.0	20.0	59.4	11.0	15.0	46.2	ACS550-01-059A-2	R3
18.5	25.0	74.8	15.0	20.0	59.4	ACS550-01-075A-2	R4
22.0	30.0	88.0	18.5	25.0	74.8	ACS550-01-088A-2	R4
30.0	40.0	114	22.0	30.0	88.0	ACS550-01-114A-2	R4
37.0	50.0	143	30.0	40	114	ACS550-01-143A-2	R6
45.0	60.0	178	37.0	50	150	ACS550-01-178A-2	R6
55.0	75.0	221	45.0	60	178	ACS550-01-221A-2	R6
75.0	100	248	55.0	75	192	ACS550-01-248A-2	R6

외형 및 크기

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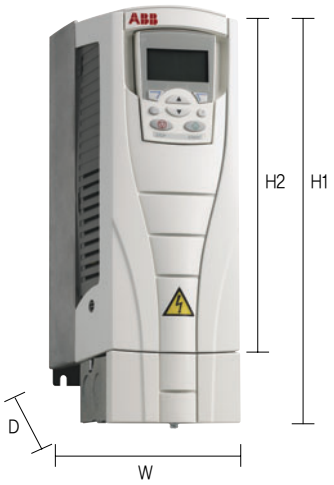
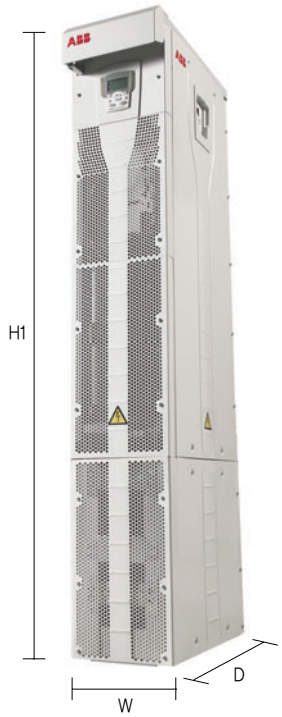
벽걸이형



스탠딩형



H1 = 단자함이 있는 경우의 높이
H2 = 단자함이 없는 경우의 높이
(판넬 내 설치 시 단자함 제거 가능)
W = 너비
D = 깊이

벽걸이형 유니트

프레임 크기	외형 및 중량								
	IP 21 / UL type 1					IP 54 / UL type 12			
	H1 mm	H2 mm	W mm	D mm	Weight kg	H mm	W mm	D mm	Weight kg
R1	369	330	125	212	6.5	441	215	238	8.2
R2	469	430	125	222	9	541	215	245	11.2
R3	583	490	203	231	16	604	257	276	18.5
R4	689	596	203	262	24	723	257	306	26.5
R5	739	602	265	286	34	776	369	309	38.5
R6	880	700	300	400	69	924	410	423	80

스탠딩 형

R7	1507	n/a	250 *)	520 *)	115
R8	2024	n/a	347 *)	617 *)	230

*) 서가형으로 설치한 경우의 외형치수 입니다.
횡설치의 경우는 너비와 깊이를 바꾸어 참조하십시오.
n/a = 적용하지 않음

구조

ACS550 - 01 - 03A3 - 4 + B055

상기 타입 코드의 "01" 은 드라이브의 설치 방법 및 전력등급에 따라 달라집니다.
아래 표에서 필요한 사양을 선택하십시오.

01

- 벽걸이형 프레임사이즈 R1-R6
- 0.75 - 110 kW
- IP 21
- EMC 필터 내장
- 표준형 소프트웨어
- Modbus 통신 내장
- 케이블 단자함
- R1-R2 프레임 브레이크 쵸퍼 내장
- 표준 키패드 (제어파넬)

02

- 스탠딩형, 프레임사이즈 R7-R8
- 110-355kW
- IP 21
- EMC 필터 내장
- 표준형 소프트웨어
- Modbus 통신 내장
- 받침대 유니트
- 표준 키패드 (제어파넬)

IP 54 유니트의 경우

- IP 54 가 필요한 경우, 형태에 따라 '01' 을 선택 후, 7쪽을 참조하여 적절한 '옵션' 코드를 확인하십시오.
- 스탠딩형 (02형)은 IP 54 구조가 지원되지 않습니다. 이는 판넬형으로 구성 시 가능합니다.

표준 제어파넬

표준 사양으로 공급되는 표준 제어파넬은 탈·부착이 가능하며 다국어 지원이 됩니다. 영어는 물론, 한국어, 중국어, 태국어도 지원하고 있습니다. 또한 문자와 숫자 혼합 표시 기능을 갖추고 있어 보다 쉽고 편리하게 드라이브를 프로그래밍 할 수 있습니다.
제어파넬은 다양한 보조 기능을 갖추고 있으며, 내장된 도움말 기능은 설정 및 파라미터 내용에 대한 사용자의 이해를 돕습니다. 또한 시계가 내장되어 있어 고장 발생 시간이나 드라이브의 운전, 정지 시간 등을 확인할 수 있습니다.
제어파넬은 백업을 위한 파라미터 복사나 다른 드라이브로 다운로드 할 경우에도 사용됩니다. 또한 넓은 디스플레이 화면과 부드러운 키 작동 및 핸드폰 버튼과 같은 형식으로 디자인되어 있어 더욱 쉽게 조작할 수 있습니다.

■ ACS-CP-01

선택사양 (옵션)

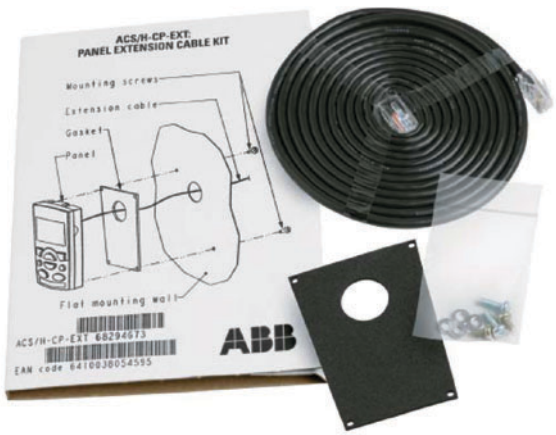
컨트롤 인터페이스

ACS550 - 01 - 03A3 - 4 + B055

판넬 마운팅 킷

판넬 도어에 제어 파넬을 설치 할 수 있도록 해주는 판넬 마운팅킷입니다.

■ ACS/H-CP-EXT



사양 선택 방법

다음 표는 ACS550 계열에서 지원되는 사양입니다. 표에 나와 있듯이 각각 네쌍의 선택사양 조합이 있습니다. 위 타입 코드에 있는 B055 대신 이 코드를 사용합니다. 주문하는 사양이 많을 경우에는 이 코드를 추가하시면 됩니다.

지원 사양

보호등급	B055	IP 54	
제어 파넬	0J400	제어파넬이 필요하지 않을 경우	
	J404	기본 제어파넬	ACS-CP-C
	–	판넬 마운팅 킷	ACS/H-CP-EXT
I/O 사양[1]	L511	릴레이 출력 확장모듈	OREL-01
필드버스[2]	K451	DeviceNet	RDNA-01
	K452	LonWorks	RLON-01
	K454	Profibus-DP	RPBA-01
	K457	CANOpen	RCAN-01
	K462	ControlNet	RCNA-01

[1] 릴레이에는 한슬롯만 가능
[2] 필드버스 아답터에 한 슬롯만 가능. Modbus는 표준 내장입니다.

기본 제어 파넬

기본 제어파넬은 숫자가 한 줄로 디스플레이 되어지는 것이 특징입니다. 이 제어파넬을 사용하여 드라이브 제어, 파라미터 값 설정, 다른 드라이브로의 다운로드가 가능합니다.

■ ACS-CP-C

선택사양

플러그 인 타입

ACS550 - 01 - 03A3 - 4 + B055

릴레이 출력 확장 모듈

플러그 인 옵션은 세 개의 릴레이 출력을 추가로 제공합니다. 예를 들어, 펌프 및 팬 제어, 기타 여러 제어 기능에 사용할 수 있습니다.
릴레이의 온/오프는 표준 제어파넬의 시계를 기준으로 프로그램 됩니다.
필드버스를 통하여 본 시스템의 외부 장치들의 통신 및 제어도 가능합니다.

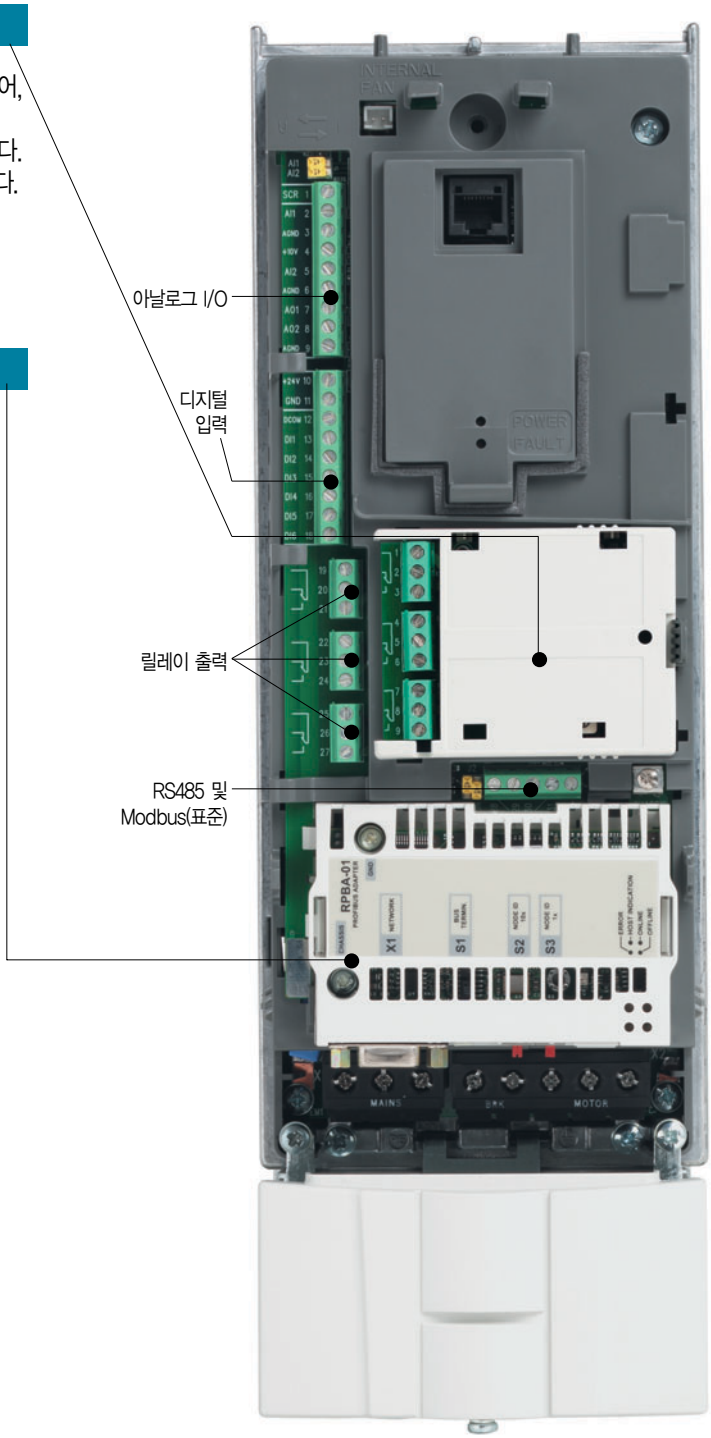
- OREL-01

플러그 인 필드버스 모듈

플러그 인 필드버스 옵션은 자동화 시스템의 연결성을 가능하게 해 줍니다. 일반적으로 많은 양의 케이블을 줄여주기 때문에 결과적으로 비용은 절감 되면서 시스템 신뢰도는 높아집니다.

ACS550은 다음의 필드버스 옵션을 지원합니다.
(타입코드는 7쪽을 참조하세요)

- DeviceNet (디바이스 넷)
- LonWorks (론워크)
- Profibus-DP (프로피버스-디피)
- CANOpen (캔오픈)
- ControlNet (컨트롤넷)



선택사양

외부 사양

외부 사양 주문 시에는 개별 주문 및 타입 코드가 필요합니다. 주문 및 타입 코드는 각 표의 마지막 단을 참조하십시오.

DriveWindow Light 2

DriveWindow Light 2는 빠른 시운전 및 드라이브 운전에 사용하는 PC 소프트웨어로 프로그래밍, 모니터링, 고장 해제 및 유지보수 기능을 갖추고 있습니다. 또한 셋업 및 컨트롤 기능을 하며 Win98, WinNT, Win2000, WinXP에서 사용 가능합니다.

DriveWindow Light 2는 온/오프라인 상에서 운영 할 수 있으며, 추가 적인 PC장비가 필요하지 않습니다. PC의 RS-232 포트를 사용합니다. DriveWindow Light 2는 ACS140, ACS160, ACS400, ACS550, ACS600, ACS800, DCS400에서 사용 가능합니다.

Drive Window Light 2 의 특징

- 시운전 마법사
- 온/오프상에서 드라이브의 파라메터 확인 및 변경 가능
- 파라미터의 백업 및 복구
  고장 시, 파라미터의 복구로 시간을 절약할 수 있음
- 그래프 기능으로 신호값의 정확한 모니터링
- I/O 상태표
- 드라이브의 원격 운전

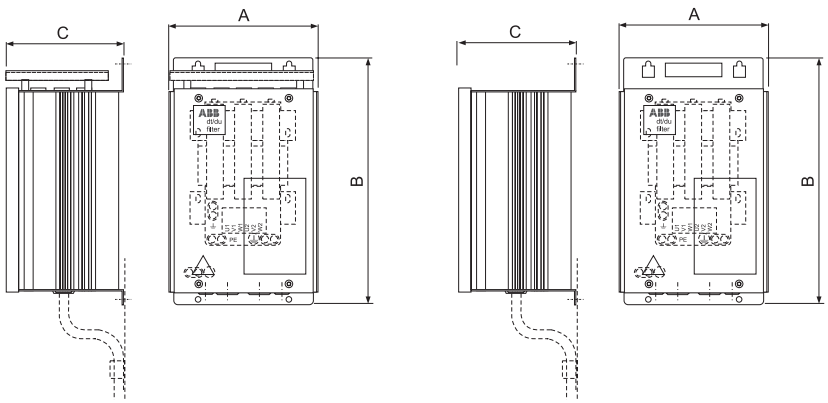
출력 필터 (Du/Dt Filter)

출력 Du/Dt 필터는 표준보다 장거리의 모터 케이블이 필요할 때 사용합니다. 케이블의 길이는 표준 케이블 길이의 1.5배 가량 됩니다.
(아래 표 참조). 출력 쵸오크 사용시 최대 스위칭 주파수는 4kHz 입니다.

선정표

타입코드	최대 케이블 mm^2	I A	필터사용시 최대 케이블 길이 (m)	필터가 없을 때 최대 케이블 길이 (m)	출력 필터 타입코드
ACS550-01-03A3-4	10	15	150	100	NOCH-0016-6X
ACS550-01-04A1-4	10	15	150	100	NOCH-0016-6X
ACS550-01-05A4-4	10	15	150	100	NOCH-0016-6X
ACS550-01-06A9-4	10	15	150	100	NOCH-0016-6X
ACS550-01-08A8-4	10	15	150	100	NOCH-0016-6X
ACS550-01-012A-4	10	15	150	100	NOCH-0016-6X
ACS550-01-015A-4	10	15	250	200	NOCH-0016-6X
ACS550-01-023A-4	10	15	250	200	NOCH-0030-6X
ACS550-01-031A-4	16	28	250	200	NOCH-0030-6X
ACS550-01-038A-4	16	28	250	200	NOCH-0030-6X
ACS550-01-044A-4	35	65	300	200	NOCH-0070-6X
ACS550-01-059A-4	35	65	300	200	NOCH-0070-6X
ACS550-01-072A-4	35	65	300	200	NOCH-0070-6X

X는 보호등급을 나타냅니다. 0 = IP00, 2 = IP22, 5 = IP54



선정표

출력 필터 타입코드	A mm	B mm	C mm	중량 kg
NOCH-0016-62/65	199	323	154	6
NOCH-0030-62/65	249	348	172	9
NOCH-0070-62/65	279	433	202	15.5

주) 출력 Du/Dt 필터가 드라이브의 EMC 성능을 향상 시켜주는 것은 아닙니다. 현장의 EMC의 필요조건을 충족하려면 RFI 필터를 사용하십시오. 보다 자세한 사항은 ACS550 사용자 설명서를 참조하십시오.

선택사양

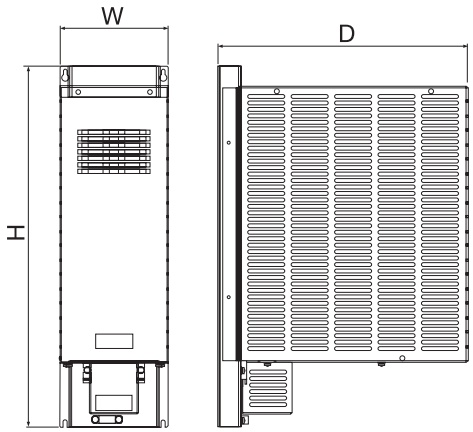
외부 사양

제동 유니트, 제동 쵸퍼

R1과 R2 프레임은 제동 쵸퍼가 표준으로 내장되어 있습니다. R1은 최소 80Ω 이상 R2는 최소 53Ω 이상 저항기를 사용하십시오. 저항기 용량은 부하에 따라 제동력을 산정하여 선정하십시오.
그 외 다른 프레임은 제동 쵸퍼와 제동 저항이 내장된 컴팩 사이즈의 제동 유니트로 구성되어 있습니다. 자세한 내용은 ACS-BRK 제동 유니트 설치 및 시운전 가이드를 참고하십시오.

제동 유니트 기술 데이터

AC 드라이브 입력 전압	저항 (Ω)	연속출력 (W)	최대 출력 (W/20s)	제동 유니트 타입 코드
200-240 V AC	32	2000	4500	ACS-BRK-C
380-480 V AC			12000	
200-240 V AC	10.5	7000	14000	ACS-BRK-D
380-480 V AC			42000	



외형크기

폭 (W) mm	높이 (H) mm	깊이 (D) mm	중량 kg	제동 유니트 타입 코드
150	500	347	7.5	ACS-BRK-C
270	600	450	20.5	ACS-BRK-D

기술 데이터

냉각

ACS550은 냉각팬에 설치 되어 있습니다.
냉각공기는 부식성 물질이 포함되지 않고 주위 온도가 최고 40℃ 미만인 양질의 공기가 공급되어야 합니다. (50℃에서는 저감)
보다 자세한 환경 제한 조건은 12쪽을 참조하십시오.

냉각 공기량 ; 380-480V 유니트

타입 코드	프레임 크기	열손실		공기흐름	
		W	BTU/Hr	m^3/h	ft^3/min
ACS550-01-03A3-4	R1	40	137	44	26
ACS550-01-04A1-4	R1	52	178	44	26
ACS550-01-05A4-4	R1	73	249	44	26
ACS550-01-06A9-4	R1	97	331	44	26
ACS550-01-08A8-4	R1	127	434	44	26
ACS550-01-012A-4	R1	172	587	44	26
ACS550-01-015A-4	R2	232	792	88	52
ACS550-01-023A-4	R2	337	1151	88	52
ACS550-01-031A-4	R3	457	1561	134	79
ACS550-01-038A-4	R3	562	1919	134	79
ACS550-01-044A-4	R4	667	2278	280	165
ACS550-01-059A-4	R4	907	3098	280	165
ACS550-01-072A-4	R4	1120	3825	280	165
ACS550-01-096A-4	R5	1440	4918	168	99
ACS550-01-124A-4	R6	1940	6625	405	238
ACS550-01-157A-4	R6	2310	7889	405	238
ACS550-01-180A-4	R6	2810	9597	405	238
ACS550-01-195A-4	R6	3050	10416	405	238
ACS550-02-245A-4	R7	3850	13148	540	318
ACS550-02-289A-4	R7	4550	15539	540	318
ACS550-02-368A-4	R8	6850	23394	1220	718
ACS550-02-486A-4	R8	7850	26809	1220	718
ACS550-02-526A-4	R8	7600	25955	1220	718
ACS550-02-602A-4	R8	8100	27663	1220	718
ACS550-02-645A-4	R8	9100	31078	1220	718

냉각 공기량 ; 208-240V 유니트

타입 코드	프레임 크기	열손실		공기흐름	
		W	BTU/Hr	m^3/h	ft^3/min
ACS550-01-04A6-2	R1	55	189	44	26
ACS550-01-06A6-2	R1	73	249	44	26
ACS550-01-07A5-2	R1	81	276	44	26
ACS550-01-012A-2	R1	118	404	44	26
ACS550-01-017A-2	R1	161	551	44	26
ACS550-01-024A-2	R2	227	776	88	52
ACS550-01-031A-2	R2	285	973	88	52
ACS550-01-046A-2	R3	420	1434	134	79
ACS550-01-059A-2	R3	536	1829	134	79
ACS550-01-075A-2	R4	671	2290	280	165
ACS550-01-088A-2	R4	786	2685	280	165
ACS550-01-114A-2	R4	1014	3463	280	165
ACS550-01-143A-2	R6	1268	4331	405	238
ACS550-01-178A-2	R6	1575	5379	405	238
ACS550-01-221A-2	R6	1952	6666	405	238
ACS550-01-248A-2	R6	2189	7474	405	238

최소 이격 거리

외함 구조	상부 mm	하부 mm	좌/우 mm
벽취부형	200	200	25/25
스탠딩형	200	0	0

기술 데이터

휴즈 결선

ABB 표준 드라이브에는 표준형 휴즈를 사용할 수 있습니다. ABB에서 추천하는 휴즈의 사양은 아래의 표를 참고하시기 바랍니다.

380 – 480V 유니트용 입력 보호 휴즈

타입 코드	프레임 크기	IEC 휴즈		UL 휴즈	
		A	휴즈 타입*)	A	휴즈 타입
ACS550-01-03A3-4	R1	10	gG	10	UL Class T
ACS550-01-04A1-4	R1	10	gG	10	UL Class T
ACS550-01-05A4-4	R1	10	gG	10	UL Class T
ACS550-01-06A9-4	R1	10	gG	10	UL Class T
ACS550-01-08A8-4	R1	10	gG	15	UL Class T
ACS550-01-012A-4	R1	16	gG	15	UL Class T
ACS550-01-015A-4	R2	16	gG	20	UL Class T
ACS550-01-023A-4	R2	25	gG	30	UL Class T
ACS550-01-031A-4	R3	35	gG	40	UL Class T
ACS550-01-038A-4	R3	50	gG	50	UL Class T
ACS550-01-044A-4	R4	50	gG	60	UL Class T
ACS550-01-059A-4	R4	63	gG	80	UL Class T
ACS550-01-072A-4	R4	80	gG	90	UL Class T
ACS550-01-096A-4	R5	125	gG	125	UL Class T
ACS550-01-124A-4	R6	160	gG	175	UL Class T
ACS550-01-157A-4	R6	200	gG	200	UL Class T
ACS550-01-180A-4	R6	250	gG	250	UL Class T
ACS550-01-195A-4	R6	250	gG	250	UL Class T
ACS550-02-245A-4	R7	250	gG	250	UL Class T
ACS550-02-289A-4	R7	315	gG	315	UL Class T
ACS550-02-368A-4	R8	400	gG	400	UL Class T
ACS550-02-486A-4	R8	500	gG	500	UL Class T
ACS550-02-526A-4	R8	630	gG	630	UL Class T
ACS550-02-602A-4	R8	630	gG	630	UL Class T
ACS550-02-645A-4	R8	800	gG	800	UL Class T

*) IEC-60269 표준에 의거

208 – 240V 유니트용 입력 보호 휴즈

타입 코드	프레임 크기	IEC 휴즈		UL 휴즈	
		A	휴즈 타입*)	A	휴즈 타입
ACS550-01-04A6-2	R1	10	gG	10	UL Class T
ACS550-01-06A6-2	R1	10	gG	10	UL Class T
ACS550-01-07A5-2	R1	10	gG	10	UL Class T
ACS550-01-012A-2	R1	16	gG	15	UL Class T
ACS550-01-017A-2	R1	25	gG	25	UL Class T
ACS550-01-024A-2	R2	25	gG	30	UL Class T
ACS550-01-031A-2	R2	40	gG	40	UL Class T
ACS550-01-046A-2	R3	63	gG	60	UL Class T
ACS550-01-059A-2	R3	63	gG	80	UL Class T
ACS550-01-075A-2	R4	80	gG	100	UL Class T
ACS550-01-088A-2	R4	100	gG	110	UL Class T
ACS550-01-114A-2	R4	125	gG	150	UL Class T
ACS550-01-143A-2	R6	200	gG	200	UL Class T
ACS550-01-178A-2	R6	250	gG	250	UL Class T
ACS550-01-221A-2	R6	315	gG	300	UL Class T
ACS550-01-248A-2	R6	315	gG	350	UL Class T

기술 사양

ACS550 - 01 - 03A3 - 4 + B055

입력 결선 (전원)

전압 및 정격	3상, 380–480 V, +10/–15%, 0.75–355 kW 3상, 200–240 V, +10/–15%, 0.75–75 kW 입력 전압 자동 인식
주파수	48 – 63 Hz
역율	0.98

전동기 결선 (출력)

전압	3상, 0–U_{supply}
주파수	0 – 500 Hz
연속 부하 용량 (주위온도 최대 40℃ 에서의 정토크)	정격 출력 전류 I_2
과부하 용량 (주위온도 최대 40℃ 기준)	일반사용 시 1.1 × I_{2N} 10분 당 1분 고부하사용 시 1.5 × I_{2hd} 10분 당 1분 항상 1.8 × I_{2hd} 60초당 2초
스위칭 주파수	
표준	표준 4 kHz
선택	0.75–110 kW 1 kHz, 4 kHz, 8 kHz, 12 kHz ~ 355 kW 1 kHz, 4 kHz 자동변조 1~12 kHz
가속 시간	0.1 – 1800 초
감속 시간	0.1 – 1800 초
속도 제어	
스태틱 정도(정특성)	모터의 정격 슬립의 20% 이내
다이나믹 정도(동특성)	100% 토오크 상승시 <1% s 이내
토오크 제어	
토오크 스텝 상승시간	정격 토오크에서 < 10 ms
Non-linearity	정격 토오크에서 ± 5%

주위 환경

주위 온도	
–15 – 40 ℃	결빙현상 없을 것
40 – 50℃	f_{switch} 4 kHz, 저감 시 ABB와 협의 하십시오.
고도	
출력전류	0 – 1000 m 정격 전류 운전 가능 1000 m – 2000 m 이상의 경우 100 m 당 1%씩 감소
상대 습도	95% 미만 (결로 현상 없을 것)
보호 등급	IP 21 또는 IP 54
색상	NCS 1502-Y, RAL 9002, PMS 420 C
오염도	IEC 721-3-3 전도성 먼지가 없을 것
운송	Class 1C2 (화학 가스), Class 1S2 (고체 입자)
보관	Class 2C2 (화학 가스), Class 2S2 (고체 입자)
운전	Class 3C2 (화학 가스), Class 3S2 (고체 입자)

프로그램 가능한 제어 결선

2개의 아날로그 입력	
전압신호	0 (2) – 10V, R_{in} >312kΩ single-ended
전류신호	0 (4) – 20mA, R_{in} > 100 Ω single-ended
Potentiomenter(볼륨)기준 전압	10 V ± 2% max. 10 mA, R < 10 kΩ
응답시간	12···32 ms
분해능	0.1%
정밀도	± 1%
2개의 아날로그 출력	0 (4) – 20 mA, load < 500 Ω
보조 전압	24 V DC ± 10%, max. 250 mA
6개의 디지털 입력	12 V···24 V DC 의 내부 및 외부 공급 전원으로 동작, PNP 및 NPN 결선 가능
입력 임피던스	2.4 kΩ
응답 시간	5 ms ± 1 ms
3개의 릴레이 출력	
최대 스위칭 전압	250 V AC / 30 V DC
최대 스위칭 전류	6 A / 30 V DC ; 1500 V A / 230 V AC
최대 지속 전류	2 A rms
직렬 통신	
RS 485	모드버스(Modbus) 프로토콜

보호 기능

과전압 트립	
운전시 V DC	842 (corr. to 595 V input)
기동시 V DC	661 (corr. to 380 – 415 V input), 765 (corr. to 440 – 480 V input)
부족전압 트립	
운전시 V DC	333 (corr. to 247 V input)
기동시 V DC	436 (corr.to 380 – 415 V input), 505 (corr. to 440 – 480 V input)

표준 및 적용규격

Low Voltage Directive 73/23/EEC (저전압 규정)
Machinery Directive 98/37/EC
EMC Directive 89/336/EEC (EMC 규정)
품질 인증 시스템 ISO 9001 과 환경 인증 시스템 ISO 14001, CE, UL, cUL획득

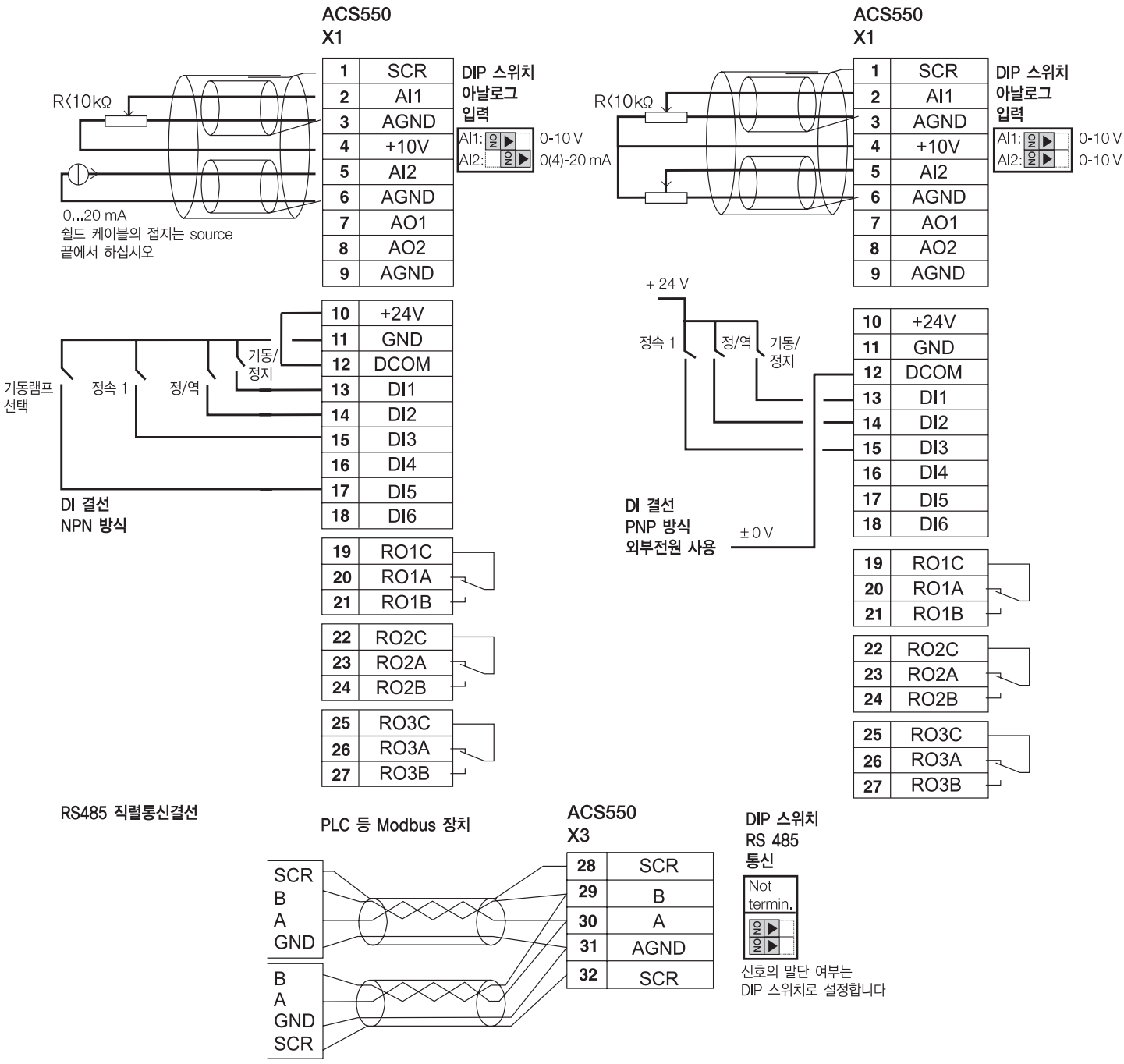
EMC (EN61800-3)

1차 환경기준은 프레임 사이즈 R3, R4 의 경우 케이블 길이를 30m로 제한하며, R1, R2, R5, R6의 경우 100m로 제한함.
2차 환경기준은 표준으로 케이블 길이를 100m 이내로 제한함.
모터 케이블의 길이가 긴 경우, 선택 사양인 외부 EMC 필터를 추가로 사용하실 수 있습니다.

제어 케이블 결선도

ACS550 - 01 - 03A3 - 4 + B055

결선방식의 예입니다. 자세한 사항은 ACS550 사용 설명서의 '설치' 편을 참고하십시오.
사용 설명서에서 사용하려는 I/O의 기능에 따라 매크로를 선정하여 결선하면 편리합니다.



Low voltage AC drives

ABB industrial drives
ACS800, drive modules
0.55 to 2900 kW
Catalog

Power and productivity
for a better world™

Selecting and ordering your drive

Build up your own ordering code using the type designation key below or contact your local ABB drives sales office and let them know what you want. Use page 3 as a reference section for more information.

Type designation: ACS800 - 04 - XXXX - 2 + XXXX

Product series	ACS800	-	04	-	XXXX	-	2	+	XXXX
Types and construction			X04				3		
Ratings			14				5		
Voltages			04LC				7		
Options			X04LC						

Contents
ABB industrial drives, drive modules

ABB industrial drives

ACS800	-	04	-	XXXX	-	2	+	XXXX
		X04				3		
		14				5		
		04LC				7		
		X04LC						

ABB industrial drives

ABB industrial drives are designed for industrial applications, and especially for applications in process industries such as the pulp and paper, metals, mining, cement, power, chemical, and oil and gas industries. ABB industrial drives are highly flexible AC drives that can be configured to meet the precise needs of these applications, and hence order-based configuration is an integral part of the offering. These drives cover a wide range of powers and voltages, including voltages up to 690 V. ABB industrial drives come with a wide range of built-in options. A key feature of these drives is programmability, which makes adaptation to different applications easy.

Industrial design

ABB industrial drives are designed with current ratings to be used in industrial environments for applications requiring high overloadability. The heart of the drive is DTC, direct torque control, that provides high performance and significant benefits: e.g. accurate static and dynamic speed and torque control, high starting torque and long motor cables. Built-in drive options make the installation work fast and easy.

One of the most significant design criteria of ABB industrial drives has been the long lifetime. Wearing parts such as fans and capacitors have been selected accordingly. Together with the extensive protection features this results in excellent reliability in the demanding industrial market.

Drive modules

Drive modules are designed to be built into a customer's own cabinet. The modules typically have an IP00 or IP20 enclosure class. ABB's module package also includes cabinet assembly documentation.

Type designation

This is the unique reference number that clearly identifies your drive by construction, power rating voltage and selected options. Using the type designation you can specify your drives from the wide range of options available, customer specific options are added to the type designation using the corresponding + code.

ABB's module offering - common features

ABB industrial drive modules are meant for system integrators and/or machine builders who are making their own applications, which include the cabinet structure as well as the software features needed.

ACS800 modules include everything that is required for a complete drive, there is always a built-in harmonic filtering choke, for example. There is also a wide selection of built-in options such as EMC filtering and different I/O and communication options. In addition to these a selection of external accessories is also available. All the modules can be mounted side by side.

In addition to the modules being designed for cabinet assembly, cabinet assembly documentation is included. The documentation gives examples of different cabinet installations, examples of drawings, and hints on the selection of auxiliary equipment. The flexibility and programmability of the modules makes them very viable for various application needs in different areas of industry.

Functional safety

The ABB functional safety solution complies with the requirements of the European Union machinery directive 2006/42/EC. This directive is associated with standards such as IEC 62061 (Safety Integrity Level) and ISO 13849-1 (Performance Level), which require both a documented and proven safety performance and life cycle approach to safety. Safe torque-off is a certified solution offering SIL2 and PL d (Cat.2) safety levels.

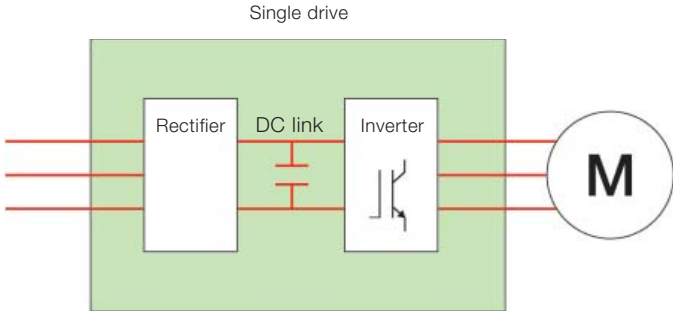
ABB drives can be provided, as an option, with the safe torque-off function. Safe torque-off can be used for the prevention of unexpected startup and represents a cost-effective and certified solution for basic safety. Other safety functions include safe stop 1 (SS1) and safely-limited speed (SLS), which can be used to achieve SIL2 or PL d (Cat.3) safety levels.

Other products:
Please also see the separate catalogs
ACS800 multidrives, code 3AFE68248531 EN,
ACS800 single drives, code 3AFE68375126 EN.

ACS800-X4 single drive modules

ACS800-X4 units are complete single drive module products that are optimised for assembly in customers' own cabinets.

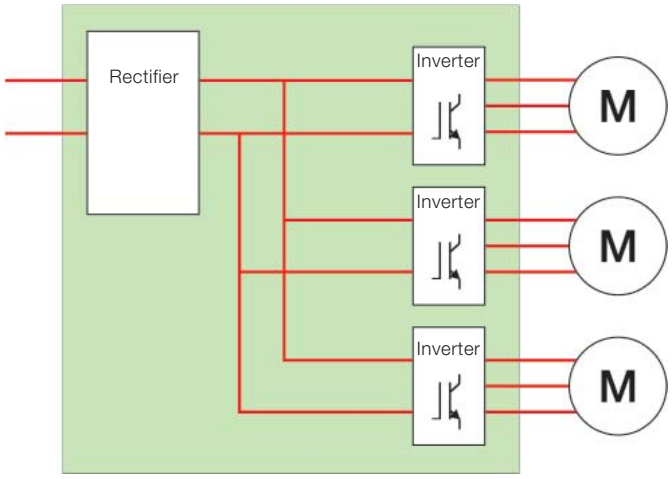
The single drive configuration contains a rectifier, DC link and an inverter in one single AC drive unit.



The ACS800-X4 is designed to minimise the amount of cabinet space used and to make cabinet assembly as easy as possible. The power range is from 0.55 to 1900 kW.

ACS800-X04 multidrive modules

The multidrive principle is based on a standard DC bus arrangement enabling single power entry and common braking resources for several drives. There are several possibilities on the supply side starting from a simple diode supply unit up to highly sophisticated IGBT supply units.



The multidrive construction simplifies the total installation and provides many advantages such as:

- Savings in cabling, installation and maintenance costs
- Space savings
- Reduced component count and increased reliability
- Reduced line currents and simpler braking arrangements
- Energy circulation over the common DC busbar, which can be used for motor-to-motor braking without the need for a braking chopper or regenerative supply unit.
- The common supply of the multidrive enables the implementation of overall safety and control functions.

With their compact and modular design and wide range of powers, voltages and options, ABB multidrive modules offer optimised and simple cabinet installation. The power range is from 1.1 to 2900 kW.

Liquid-cooled modules

The ACS800 liquid-cooled drive modules with direct liquid cooling and robust design are an ultimate solution for various applications where space savings and silent operation is a must.

Since the coolant takes care of 98% of the heat losses, no additional filtered air-cooling is needed.

This decreases the noise level and increases the total efficiency of the converter installation. The high-efficiency liquid cooling removes the need for air-conditioning in the installation rooms, bringing the installation and operation costs down. The possibility to have totally enclosed cabinet structure makes the ACS800 liquid-cooled drive modules perfect for harsh environmental conditions.

The ACS800 liquid-cooled multidrive modules are available from 1.1 to 2240 kW at 380 to 690 V supply voltage while the ACS800 liquid-cooled single drive modules from 200 to 2240 kW at 380 to 690 V supply voltage.

Drive modules main features

Feature	Advantage	Benefit
Compact and complete		
Compact size, everything integrated	Less space and installation work required.	No need to install extra components such as input chokes or EMC filter. Possibility for side by side mounting.
Wide range of options available	Standard solutions available from ABB that meets most of the customer needs.	Flexible product portfolio for customer specific solutions.
Versatile braking options	Always the optimal braking option available. In most types no need for external braking chopper thus reducing size and installation cost.	Brake chopper built-in in all frame sizes (standard/optional).
Optimised products for cabinet assembly	Possible to use any kind of customer specific cabinet.	Easy to make the cabinet assembly saving time and money.
User interface		
User-friendly customer interface	Easy and fast commissioning and operation.	Control panel has clear, alphanumeric display with startup assistant that guides through the startup procedure. Easy to use PC tools available for commissioning, maintenance, monitoring and programming.
Versatile connections and communications	Standard I/O covers most requirements. Connectable to commonly used fieldbuses.	Extensive standard and optional I/O. I/O fulfills PELV (EN 50178).
Extensive programmability	Flexibility. Possible to replace relays or even PLC in some applications.	Two levels of programmability: 1. Parameter programming (standard) 2. Adaptive programming (free block programming) - Standard feature - More blocks available as options - All I/Os are programmable
Industrial design		
Wide power and voltage range	One product series suits everywhere meaning less training and fewer spare parts, and a standardised interface to drives.	
Galvanic isolation of I/O	Safe and reliable operation without separate isolators and relays.	Isolated input signals and relay outputs as standard.

Drive modules main features

Feature	Advantage	Benefit
Industrial design		
Robust main circuit design	Suitable for heavy industrial use. Reliable. Long motor cables can be used without extra output filters.	Components dimensioned for heavy duty and long lifetime. Advanced thermal model allows high overloadability.
Extensive protections	Enhanced reliability, fewer process interruptions. Possibility to also protect motors and process.	Several adjustable limits to protect other equipment also.
Functional safety	Certified safety features according to Machinery Directive 2006/42/EC. Safe operation and maintenance.	Safe torque-off available as built-in option.
All terminals designed for industrial use	Adequate size even for large aluminium cables. No need for special tools in I/O cabling.	
Worldwide approvals: CE, UL, cUL, CSA, C-Tick, GOST R	Safe products that can be used everywhere in the world.	
Right performance for every application		
DTC, accurate dynamic and static speed and torque control	Excellent process control even without pulse encoder - improved product quality, productivity, reliability and lower investment cost.	
DTC - allows high overloadability and gives high starting torque	Reliable, smooth start without overdimensioning the drive.	
DTC, fast control	No unnecessary trips and process interruptions.	Fast reaction to load or voltage variations prevents tripping. Rides through power interruptions by using kinetic energy of the load.
DTC, flux optimization and sophisticated motor model	Excellent motor and drive efficiency - cost savings.	Optimal flux in the motor reduces losses.
DTC, mechanics friendly	Less stress for mechanics improves reliability.	No shock torques. No torque ripple - minimized risk for torsional vibration. Active oscillation damping.
Both positioning/synchronizing control and normal speed/torque control available in the same hardware	Same hardware and similar user interface for different applications meaning less training and fewer spare parts as well as easier system design and documentation.	
Made in ABB		
Global market leader in AC drives. Long experience.	Well proven, safe and reliable solutions. Application know-how.	
World wide service and support network	Professional support available around the world.	

Technical data

ACS800	-	04	-	XXXX	-	2	+	XXXX
		X04				3		
		14				5		
						7		

Mains connection	
Supply voltage	3-phase, U_{2IN} = 208 to 240 V, ± 10%, except multidrive and nxR8i ACS800-04 modules 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%
Frequency	48 to 63 Hz
Power factor	$\cos\varphi_1$ = 0.98 (fundamental) $\cos\varphi$ = 0.93 to 0.95 (total)
IGBT supply unit (ISU)	$\cos\varphi_1$ = 1 (fundamental) $\cos\varphi$ = 0.99 (total)
Efficiency (at nominal power)	
ACS800-04	98%
ACS800-X04	98%
	97% with IGBT supply unit (ISU)

Motor connection	
Voltage for > 500 V units	3-phase output voltage 0 to $U_{2IN}/U_{3IN}/U_{5IN}/U_{7IN}$ please see “Filter selection table for ACS800” under the du/dt filters on page 42
Frequency	0 to ± 300 Hz 0 to ± 300 Hz, also with built-in du/dt filters in R8i module. (0 to ± 120 Hz with external du/dt filters in R2i to R7i)
Field weakening point	8 to 300 Hz
Motor control	ABB’s 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% 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	
ACS800-04	-15 to +50 °C, no frost allowed 40 to 50 °C at reduced output current (1% /1 °C)
ACS800-04 nxR8i, -X04, -14	0 to +50 °C, no frost allowed 40 to 50 °C at reduced output current (1% /1 °C)
Cooling method:	Dry clean air
Altitude	
0 to 1000 m	Without derating
1000 to 4000 m	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	
IP00	Standard for -04 and 04(M) frame sizes R7, R8 and nxR8i
IP20	Standard for -04 frame sizes R2 to R6 and option for some -04(M) variants
Paint colour	NCS 1502-Y (RAL 9002, PMS 420 C)
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 or 3C2* (chemical gases), Class 2S2 (solid particles)
Operation	IEC 60721-3-3, Class 3C2 (chemical gases), Class 3S2 (solid particles without airinlet filters)

C = chemically active substances
S = mechanically active substances
* = coated circuit boards

Product compliance
CE, UL, cUL, CSA; C-Tick and GOST R 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

EMC according to EN 61800-3
2nd environment, unrestricted distribution category C3 - as option in ACS800-04 up to frame size R8 1st environment, restricted distribution category C2 as option up to 1000 A input current

Available options are shown in the summary of features and options table. Please see pages 58-60.

Technical data

ACS800	-	04LC X04LC	-	XXXX	-	3 5 7	+	XXXX

Mains connection	
Supply voltage	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%
Frequency	48 to 63 Hz
Power factor	$\cos\varphi_1$ = 0.98 (fundamental) $\cos\varphi$ = 0.93 to 0.95 (total)
Efficiency (at nominal power)	> 98%
Motor connection	
3-phase supply voltage	Output voltage: 0 to U_{3IN} /U_{5IN}/U_{7IN}
Frequency	0 to ± 300 Hz
Field weakening point	8 to 300 Hz
Motor control	ABB's 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% sec. with 100% torque step
Closed loop	0.1 to 0.2% sec. with 100% torque step
Enclosure	
Degree of protection	IP00
Paint color module front	Light beige RAL 7035

Environmental limits	
Ambient temperature	
Transportation	-40 to +70 °C
Storage	-40 to +70 °C
Operation in totally enclosed cabinet	0 to 55 °C, no frost allowed 45 to 55 °C at reduced output power (0.5% /1 °C)
Relative humidity	5 to 95%, no condensation allowed
Vibration	0.7 g, 13.2 Hz to 100 Hz, 1 mm displacement 2 to 13.2 Hz
Cooling Method	Liquid-cooled, closed loop
Internal cooling circuit	Drinking water +42 °C max, 42 to 48 °C at reduced output power (1.0% /1 °C)
External cooling circuit with optimal liquid cooling unit	Industrial or sea water +38 °C max, 38 to 45 °C at reduced output power (1.0% /1 °C)
Altitude	
0 to 1000 m	Without derating
1000 to 4000 m	With derating ~ (1%/100 m) (690 V units 1000 to 2000 m with derating)
Storage	IEC 60721-3-1, class 1C2 (chemical gases), Class 1S2 (solid particles)
Transportation	IEC 60721-3-2, Class 2C2 or 3C2* (chemical gases), Class 2S2 (solid particles)
Operation	IEC 60721-3-3, Class 3C2 (chemical gases), Class 3S2 (solid particles without air inlet filters)

C = chemically active substances
S = mechanically active substances
* = coated circuit boards

Product compliance

CE, UL, CSA, GOST-R
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

EMC according to EN 61800-3

2nd environment, unrestricted distribution category C3 - as option in ACS800-04 up to frame size R8
1st environment, restricted distribution category C2 as option up to 1000 A input current

Single drive modules
ACS800-04/-04M/-14

ACS800-04 single drive modules

ACS800-04 drives are single drive modules that are optimised for building into customers' own cabinets. They have been designed to minimise the cabinet space used, make cabinet assembly as easy as possible, and give maximum flexibility. The power range is from 0.55 to 1900 kW. All the drives, regardless of the power and voltage, have the same customer interface and I/O making system design and training easier.

The units have everything necessary built-in. That includes, for example, built-in chokes for harmonic filtering as standard, built-in braking chopper and built-in EMC filtering (both are optional in some frame sizes), making cabinet assembly easier. There is also a wide selection of different I/O and communications options.

In addition to these there is a selection of external accessories available.

To optimise the use of the cabinet space, most of the ACS800-04 modules can be mounted side by side. The modules themselves are not only designed for cabinet assembly, but covering documentation is also available. This documentation provides examples of different cabinet installations and circuit drawings, and hints on the selection of auxiliary equipment.

Optimised for cabinet assembly - frame sizes R2 to R6

The R2 to R6 frame size units are designed for cabinet wall mounting. The power range starts from 0.55 kW and extends up to 200 kW. The voltage range is from 230 to 690 V. The enclosure class of the modules is IP20 as standard.

Flange mounting is available as an option. It separates the airflow to the control section and the heatsink, and makes it possible to mount the heatsink of the drive outside the enclosure. With this option the heatsink side of the module has IP55 enclosure class. Safe torque-off (complies with the European Union machinery directive 2006/42/EC) is also available as option.

Compact power - frame sizes R7 and R8

Frame size R7 and R8 modules have a very narrow bookshelf design. They are designed to be mounted either on the cabinet wall or floor. The power range is from 45 to 560 kW and the voltage range is from 230 to 690 V. The enclosure class is IP00.

The modules have top entry for the input power connections to optimise the use of space and cable routing in the cabinet.

The output power connections are on the side to make access to the cables as easy as possible and to give sufficient space for cable bending. The outputs can be placed either on the left or right hand side of the module. I/O connections can be located in the most optimal place in the cabinet as they are in a separate unit.

Single drive modules
ACS800-04/-04M/-14

Ultimate flexibility - ACS800-04M variant with frame sizes R7 and R8

The ACS800-04M is similar in many respects to the frame size R7 and R8 ACS800-04, but it has even more variants available. For this reason the configuration rules are also different. In addition to the normal bookshelf mounting, the ACS800-04M also offers flat (sideways) mounting as an alternative for installations where the available depth inside the cabinet is limited. In frame size R7 the ACS800-04M also offers a version where the motor connections are from the bottom of the module. This makes it possible to use a narrower cabinet in some installations.

In addition to the normal IP00 enclosure, the ACS800-04M offers also IP20 as an option for some mounting variants. Safe torque-off (complies with the European Union Machinery Directive 2006/42/EC) is also available as option.

High ratings - frame sizes D4 to nxD4 supply side and nxR8i inverter units

The construction includes separate IP00 enclosure supply and inverter modules. The modules are of the extremely compact bookshelf design, making the width of the drive very competitive. The wheels in every module make manoeuvring very easy. Modules are also connected to the separate cabling part by quick connectors, enabling each module to be pulled out quickly and easily by just disconnecting a couple of bolts without the need to disconnect any cables. The inverter modules and supply modules are parallel connected.

Supply units have load switch as standard; a contactor is also available as a built-in option. The supply module structure is designed to be either 6-pulse or 12-pulse.

The control unit and I/O connections can be located in the most optimal place in the cabinet as they are in a separate unit.

The power range for these higher rated ACS800-04 packages is from 400 to 1900 kW, and the voltage range is from 380 to 690 V.

Main standard hardware features:

Common:

- Optimised design for cabinet assembly
- Easy access to power terminals
- Compact design
- Side by side mounting (excl. versions with side exit)
- Harmonic filtering choke inside
- Long lifetime cooling fan and capacitors
- Extensive, programmable I/O with galvanically isolated inputs
- Three I/O and fieldbus extension slots inside
- Large power terminals allowing use of a wide range of cable sizes
- Block programming possibility

Frame sizes R2 to R6:

- Power range 0.55 to 200 kW
- Voltage range 230 to 690 V
- Mounting on the cabinet wall
- IP20 enclosure class
- Built-in brake chopper (R2 to R3; at 690 V also R4)
- Easy access to I/O terminals (control board inside the module)

Single drive modules
ACS800-04/-04M/-14

Frame sizes R7 and R8:
- Power range 45 to 560 kW
- Voltage range 230 to 690 V
- Mounting on the cabinet wall or floor
- IP00 enclosure class
- Input power cable connection from the top for optimising cabinet size and cabling inside cabinet
- Motor cable connection on the side of the module (side selectable) for maximized flexibility and optimised cabinet design (with ACS800-04M, frame size R7, bottom exit can also be selected)
- Modular design allowing a wide variety of variants
- Free location and easy access of I/O terminals (control board outside the module)
- Instructions available for installing modules in Rittal TS8 cabinet

Frame sizes nxD4 + nxR8i:
- Power range 400 to 1900 kW
- Voltage range 380 to 690 V
- Mounting on the cabinet floor
- IP00 enclosure class
- Wheels to make module manoeuvring easy
- Load switch
- du/dt filters inside of the module
- Common mode filters for motor protection
- Plug connector mechanical kits
- Free location and easy access of I/O terminals (control board outside the module)

Options for ACS800-04

Built-in options:
- Analogue and digital I/O extension modules
- Fieldbus modules
- Pulse encoder interface module
- Control solution software
- Safe torque-off (STO)
- Control panel

Options for frame sizes R2 to R6:
- Built-in brake chopper (R4 to R6)
- EMC filter for 2nd environment, unrestricted distribution according to EN 61800-3 (Category C3)
- EMC filter for 1st environment, restricted distribution according to EN 61800-3 (Category C2)
- Flange mounting (except not for -0205-3 and -0255-5)

Options for frame sizes R7 and R8:
- Built-in brake chopper
- IP20 enclosure class (for some -04M mounting variants)
- EMC filter for 2nd environment, unrestricted distribution according to EN 61800-3 (Category C3)
- EMC filter for 1st environment, restricted distribution according to EN 61800-3 (Category C2) (-04M only requires also EMC enclosure)
- Bottom exit of motor cables (frame size R7 -04M only)
- Flat (= sideways) mounting (-04M only)
- Various output busbar options (ACS800-04M)
- Common mode filters for motor protection

Options for frame sizes nxD4 + nxR8i:
- Brake chopper module
- Built-in contactor

Examples of external options:
- Control panel and mounting platform
- Brake resistor
- Output filters
- Remote monitoring tool
- Control panel mounting platform for cabinet door or inside the cabinet
- Front-end AC fuses (nxR8i only)
- Air circuit breaker (nxR8i only)
- DC-fuses, fuse bases, mechanical kits (nxR8i only)
- Mechanical accessories in Rittal TS8 (nxR8i only)
  - IP21 to IP54 cabinet door/roof mechanical kits
  - Mechanical cabinet accessories kits

Single drive modules
ACS800-04/-04M/-14

ACS800-14 single drive modules

The ACS800-14 drives are regenerative single drive modules equipped with active supply unit. They are full performance regenerative drives in a compact package. All important features and options including LCL line filter module(s), IGBT supply module(s), inverter module(s), common mode filters are in the package. The power range is from 75 to 1700 kW. All the drives, regardless of the power and voltage, have the same customer interface and I/O, making system design and training easier.

Main standard hardware features

- Frame sizes R7i to nxR8i control board outside of the module
- Extensive, programmable I/O
- Three I/O and fieldbus extension slots
- Inputs galvanically isolated
- Optimised design for cabinet assembly
- Modular design allowing wide variety of variants
- Compact design
- Long lifetime cooling fan and capacitors
- du/dt filters as standard in parallel connected R8i and in single or parallel connected 690 V inverter units
- Mounting on the cabinet wall frame size R7i and on the cabinet floor for R8i
- Wheels and plug connectors in the R8i inverter, and coated boards

Main optional hardware features

Inverter frame size R7i:

- Prevention of unexpected startup
- DC fuses, fuse bases or DC-fuse switch
- Assembly plates for R7i units
- du/dt filters
- Common mode filter for motor protection -on-off control for cooling fan with internal charging option

Inverter frame sizes R8i to nxR8i:

- Prevention of unexpected startup
- DC fuses, fuse bases or DC-fuse switch + charging circuitry -du/dt filters as options in 400/500 V
- Mechanical accessories in Rittal TS8 cabinets
  - IP21 to IP54 cabinet door/roof mechanical kits
  - Accessories kits
- Common mode filters for motor protection

Ratings, types and voltages
ACS800-04, single drive modules, U_N = 230 V

ACS800	-	04	-	XXXX	-	2	+	XXXX

Nominal ratings		No-overload use	Light-overload use		Heavy-duty use		Noise level	Heat dissipation	Air flow	Type designation	Frame size
$I_{cont.\ max}$ A	I_{max} A	$P_{cont.\ max}$ kW	I_N A	P_N kW	I_{hd} A	P_{hd} kW	dB(A)	W	m^3/h		
U_N = 230 V (Range 208 to 240 V). The power ratings are valid at nominal voltage 230 V.											
5.1	6.5	1.1	4.7	0.75	3.4	0.55	62	100	35	ACS800-04-0001-2	R2
6.5	8.2	1.5	6	1.1	4.3	0.75	62	100	35	ACS800-04-0002-2	R2
8.5	10.8	1.5	7.7	1.5	5.7	1.1	62	100	35	ACS800-04-0003-2	R2
10.9	13.8	2.2	10.2	2.2	7.5	1.5	62	120	35	ACS800-04-0004-2	R2
13.9	17.6	3	12.7	3	9.3	2.2	62	140	35	ACS800-04-0005-2	R2
19	24	4	18	4	14	3	62	160	69	ACS800-04-0006-2	R3
25	32	5.5	24	5.5	19	4	62	200	69	ACS800-04-0009-2	R3
34	46	7.5	31	7,5	23	5.5	62	250	69	ACS800-04-0011-2	R3
44	62	11	42	11	32	7.5	62	340	103	ACS800-04-0016-2	R4
55	72	15	50	11	37	7.5	62	440	103	ACS800-04-0020-2	R4
72	86	18.5	69	18.5	49	11	65	530	250	ACS800-04-0025-2	R5
86	112	22	80	22	60	15	65	610	250	ACS800-04-0030-2	R5
103	138	30	94	22	69	18.5	65	810	250	ACS800-04-0040-2	R5
141	164	37	132	37	97	30	65	1190	405	ACS800-04-0050-2	R6
166	202	45	155	45	115	30	65	1190	405	ACS800-04-0060-2	R6
202	282	55	184	55	141	37	65	1440	405	ACS800-04-0070-2	R6
214	326	55	211	55	170	45	71	2900	540	ACS800-04(M)-0080-2	R7
253	404	75	248	75	202	55	71	3450	540	ACS800-04(M)-0100-2	R7
295	432	90	290	90	240 [4]	55	71	4050	540	ACS800-04(M)-0120-2	R7
405	588	110	396	110	316	90	72	5300	1220	ACS800-04(M)-0140-2	R8
447	588	132	440	132	340	90	72	6100	1220	ACS800-04(M)-0170-2	R8
528	588	160	516	160	370	110	72	6700	1220	ACS800-04(M)-0210-2	R8
613	840	160	598	160	480	132	72	7600	1220	ACS800-04(M)-0230-2	R8
693	1017	200	679	200	590 [2]	160	72	7850	1220	ACS800-04(M)-0260-2	R8
720	1017	200	704	200	635 [3]	200	72	8300	1220	ACS800-04(M)-0300-2	R8

Enclosure
Degree of protection:
IP00 standard for 04 and 04(M) frame sizes R7, R8 and nxR8i
IP20 standard for -04 frame sizes R2 to R6, option for some 04(M) variants
Paint color: RAL 9002/PMS 420C

Dimensions

Frame size	Height mm	Width mm	Depth mm	Weight kg
R2	370	165	193 [6]	8
R3	420	173	232 [6]	13
R4	490	240	253 [6]	24
R5	602	265	276	32
R6	700	300	399	64
R7	1121/1152/1126 [7]	427/632/264 [7]	473/259/467 [7]	100
R8	1564/1596 [8]	562/779 [8]	568/403 [8]	205

Nominal ratings	
$I_{cont.max}$	Rated current available continuously without overloadability at 40 °C.
I_{max}	Maximum output current. Available for 10 s at start, otherwise as long as allowed by drive temperature. Note: max. motor shaft power is 150% P_{hd}.
Typical ratings: No-overload use	
$P_{cont.max}$	Typical motor power in no-overload use.
Light-overload use	
I_N	Continuous current allowing 110% I_N for 1 min/5 min at 40 °C.
P_N	Typical motor power in light-overload use.
Heavy-duty use	
I_{hd}	Continuous current allowing 150% I_{hd} for 1 min/5 min at 40 °C.
P_{hd}	Typical motor power in heavy-duty use.

The current ratings are the same regardless of the supply voltage within one voltage range.

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

Notes:
1) 50% overload available if T_{amb} < 25 °C. If T_{amb} = 40 °C, max overload is 37%.
2) 50% overload available if T_{amb} < 30 °C. If T_{amb} = 40 °C, max overload is 40%.
3) 50% overload available if T_{amb} < 20 °C. If T_{amb} = 40 °C, max overload is 30%.
4) 50% overload available if T_{amb} < 35 °C. If T_{amb} = 40 °C, max overload is 45%.
5) Higher value available if output frequency is above 41 Hz.
6) Please note that use of control panel or I/O extension or communication options increases the depth.
7) Bookshelf (in ACS800-04M +H354)/flat (+H360)/bottom exit (+H352) version.
8) Bookshelf (in ACS800-04M +H354)/flat (+H360) mounting.
9) Single module only.
10) Cable connections need additional space (about 200 mm) behind the module.

Ratings, types and voltages
ACS800-04, single drive modules, U_N = 400 V

ACS800	-	04	-	XXXX	-	3	+	XXXX

Nominal ratings		No-overload use	Light-overload use		Heavy-duty use		Noise level	Heat dissipation	Air flow	Type designation	Frame size
$I_{cont.\ max}$ A	I_{max} A	$P_{cont.\ max}$ kW	I_N A	P_N kW	I_{hd} A	P_{hd} kW	dB(A)	W	m³/h		
U_N = 400 V (Range 380 to 415 V). The power ratings are valid at nominal voltage 400 V.											
5.1	6.5	1.5	4.7	1.5	3.4	1.1	62	100	35	ACS800-04-0003-3	R2
6.5	8.2	2.2	5.9	2.2	4.3	1.5	62	120	35	ACS800-04-0004-3	R2
8.5	10.8	3	7.7	3	5.7	2.2	62	140	35	ACS800-04-0005-3	R2
10.9	13.8	4	10.2	4	7.5	3	62	160	35	ACS800-04-0006-3	R2
13.9	17.6	5.5	12.7	5.5	9.3	4	62	200	35	ACS800-04-0009-3	R2
19	24	7.5	18	7.5	14	5.5	62	250	69	ACS800-04-0011-3	R3
25	32	11	24	11	19	7.5	62	340	69	ACS800-04-0016-3	R3
34	46	15	31	15	23	11	62	440	69	ACS800-04-0020-3	R3
40	46	22	39	18.5	28	15	62	520	69	ACS800-04-0023-3	R3
44	62	22	41	18.5	32	15	62	530	103	ACS800-04-0025-3	R4
55	72	30	50	22	37	18.5	62	610	103	ACS800-04-0030-3	R4
59	72	30	57	30	41	22	62	660	103	ACS800-04-0035-3	R4
72	86	37	69	30	49	22	65	810	250	ACS800-04-0040-3	R5
86	112	45	80	37	60	30	65	990	250	ACS800-04-0050-3	R5
103	138	55	100	55	69	37	65	1190	250	ACS800-04-0060-3	R5
145	170	75	141	75	100	45	65	1440	250	ACS800-04-0075-3	R5
166	202	90	155	75	115	55	65	1940	405	ACS800-04-0100-3	R6
202	282	110	184	90	141	75	65	2310	405	ACS800-04-0120-3	R6
225	326	110	220	110	163	90	65	2810	405	ACS800-04-0135-3	R6
260	326	132	254	132	215	110	65	3260	405	ACS800-04-0165-3	R6
290	351	160	285	160	234	132	65	4200	405	ACS800-04-0205-3	R6
206	326	110	202	110	163	90	71	3000	540	ACS800-04(M)-0140-3	R7
248	404	132	243	132	202	110	71	3650	540	ACS800-04(M)-0170-3	R7
289	432	160	284	160	240 [1]	132	71	4300	540	ACS800-04(M)-0210-3	R7
445	588	200	440	200	340	160	72	6600	1220	ACS800-04(M)-0260-3	R8
521	588	250	516	250	370	200	72	7150	1220	ACS800-04(M)-0320-3	R8
602	840	315	590	315	477	250	72	8100	1220	ACS800-04(M)-0400-3	R8
693	1017	355	679	355	590 [2]	315	72	8650	1220	ACS800-04(M)-0440-3	R8
720	1017	400	704	400	635 [3]	355	72	9100	1220	ACS800-04(M)-0490-3	R8
879	1315	500	844	500	657	400	73	13000	3120	ACS800-04-0610-3	1xD4 + 2xR8i
1111	1521	630	1067	630	831	450	74	17200	3840	ACS800-04-0770-3	2xD4 + 2xR8i
1255	1877	710	1205	710	939	500	74	18500	3840	ACS800-04-0870-3	2xD4 + 2xR8i
1452	1988	800	1394	800	1086	630	74	23900	3840	ACS800-04-1030-3	2xD4 + 2xR8i
1770	2648	1000	1699	1000	1324	710	75	27500	5040	ACS800-04-1230-3	2xD4 + 3xR8i
2156	2951	1200	2070	1200	1613	900	76	35400	5760	ACS800-04-1540-3	3xD4 + 3xR8i
2663	3984	1450	2556	1450	1992	1120	76	42700	6960	ACS800-04-1850-3	3xD4 + 4xR8i

Enclosure

Degree of protection:
IP00 standard for 04 and 04(M) frame sizes R7, R8 and nxR8i
IP20 standard for -04 frame sizes R2 to R6, option for some 04(M) variants
Paint color: RAL 9002/PMS 420C

Dimensions

Frame size	Height mm	Width mm	Depth mm	Weight kg
R2	370	165	193 [6]	8
R3	420	173	232 [6]	13
R4	490	240	253 [6]	24
R5	602	265	276	32
R6	700	300	399	64
R7	1121/1152/1126 [7]	427/632/264 [7]	473/259/467 [7]	100
R8	1564/1596 [8]	562/779 [8]	568/403 [8]	205
D4	1480	234	400 [10]	180
2xD4	1480	234 [9]	400 [10]	360
3xD4	1480	234 [9]	400 [10]	540
2xR8i	1397	245 [9]	596	300
3xR8i	1397	245 [9]	596	450
4xR8i	1397	245 [9]	596	600

Nominal ratings	
$I_{cont.max}$	Rated current available continuously without overloadability at 40 °C.
I_{max}	Maximum output current. Available for 10 s at start, otherwise as long as allowed by drive temperature. Note: max. motor shaft power is 150% P_{hd}.
Typical ratings: No-overload use	
$P_{cont.max}$	Typical motor power in no-overload use.
Light-overload use	
I_N	Continuous current allowing 110% I_N for 1 min/5 min at 40 °C.
P_N	Typical motor power in light-overload use.
Heavy-duty use	
I_{hd}	Continuous current allowing 150% I_{hd} for 1 min/5 min at 40 °C.
P_{hd}	Typical motor power in heavy-duty use.

The current ratings are the same regardless of the supply voltage within one voltage range.

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

Notes:

1) 50% overload available if T_{amb} < 25 °C. If T_{amb} = 40 °C, max overload is 37%.
2) 50% overload available if T_{amb} < 30 °C. If T_{amb} = 40 °C, max overload is 40%.
3) 50% overload available if T_{amb} < 20 °C. If T_{amb} = 40 °C, max overload is 30%.
4) 50% overload available if T_{amb} < 35 °C. If T_{amb} = 40 °C, max overload is 45%.
5) Higher value available if output frequency is above 41 Hz.
6) Please note that use of control panel or I/O extension or communication options increases the depth.
7) Bookshelf (in ACS800-04M +H354)/flat (+H360)/bottom exit (+H352) version.
8) Bookshelf (in ACS800-04M +H354)/flat (+H360) mounting.
9) Single module only.
10) Cable connections need additional space (about 200 mm) behind the module.

Ratings, types and voltages
ACS800-04, single drive modules, U_N = 500 V

ACS800	-	04	-	XXXX	-	5	+	XXXX

Nominal ratings		No-overload use	Light-overload use		Heavy-duty use		Noise level	Heat dissipation	Air flow	Type designation	Frame size
$I_{cont.max}$ A	I_{max} A	$P_{cont.max}$ kW	I_N A	P_N kW	I_{hd} A	P_{hd} kW	dB(A)	W	m³/h		
U_N = 500 V (Range 380 to 500 V). The power ratings are valid at nominal voltage 500 V.											
4.9	6.5	2.2	4.5	2.2	3.4	1.5	62	120	35	ACS800-04-0004-5	R2
6.2	8.2	3	5.6	3	4.2	2.2	62	140	35	ACS800-04-0005-5	R2
8.1	10.8	4	7.7	4	5.6	3	62	160	35	ACS800-04-0006-5	R2
10.5	13.8	5.5	10	5.5	7.5	4	62	200	35	ACS800-04-0009-5	R2
13.2	17.6	7.5	12	7.5	9.2	5.5	62	250	35	ACS800-04-0011-5	R2
19	24	11	18	11	13	7.5	62	340	69	ACS800-04-0016-5	R3
25	32	15	23	15	18	11	62	440	69	ACS800-04-0020-5	R3
34	46	18.5	31	18.5	23	15	62	530	69	ACS800-04-0025-5	R3
38	46	22	37	22.0	27	19	62	590	69	ACS800-04-0028-5	R3
42	62	22	39	22	32	18.5	62	610	103	ACS800-04-0030-5	R4
48	72	30	44	30	36	22	62	810	103	ACS800-04-0040-5	R4
56	72	37	54	37	39	22	62	950	103	ACS800-04-0045-5	R4
65	86	37	61	37	50	30	65	990	250	ACS800-04-0050-5	R5
79	112	45	75	45	60	37	65	1190	250	ACS800-04-0060-5	R5
96	138	55	88	55	69	45	65	1440	250	ACS800-04-0070-5	R5
145	170	90	141	90	100	55	65	2150	250	ACS800-04-0105-5	R5
157	202	90	145	90	113	75	65	2310	405	ACS800-04-0120-5	R6
180	282	110	163	110	141	90	65	2810	405	ACS800-04-0140-5	R6
225	326	132	220	132	163	110	65	3260	405	ACS800-04-0165-5	R6
260	326	160	254	160	215	132	65	3800	405	ACS800-04-0205-5	R6
290	351	200	285	200	234	160	65	4500	405	ACS800-04-0255-5	R6
196	326	132	192	132	162	110	71	3000	540	ACS800-04(M)-0170-5	R7
245	384	160	240	160	192	132	71	3800	540	ACS800-04(M)-0210-5	R7
289	432	200	284	200	224	160	71	4500	540	ACS800-04(M)-0260-5	R7
440	588	250	435	250	340	200	72	6850	1220	ACS800-04(M)-0320-5	R8
515	588	315	510	315	370	250	72	7800	1220	ACS800-04(M)-0400-5	R8
550	840	355	545	355	490	315	72	7600	1220	ACS800-04(M)-0440-5	R8
602	840	400	590	400	515 [2]	355	72	8100	1220	ACS800-04(M)-0490-5	R8
684	1017	450	670	450	590 [2]	400	72	9100	1220	ACS800-04(M)-0550-5	R8
718	1017	500	704	500	632 [3]	450	72	9700	1220	ACS800-04(M)-0610-5	R8
883	1321	630	848	630	660	500	73	14000	3120	ACS800-04-0760-5	1xD4 + 2xR8i
1050	1524	710	1008	710	785	560	74	17200	3840	ACS800-04-0910-5	2xD4 + 2xR8i
1258	1882	900	1208	900	941	630	74	19900	3840	ACS800-04-1090-5	2xD4 + 2xR8i
1372	1991	1000	1317	1000	1026	710	74	23800	3840	ACS800-04-1210-5	2xD4 + 2xR8i
1775	2655	1250	1704	1200	1328	900	75	29400	5040	ACS800-04-1540-5	2xD4 + 3xR8i
2037	2956	1450	1956	1400	1524	1120	76	35000	5760	ACS800-04-1820-5	3xD4 + 3xR8i
2670	3901	1900	2563	1850	1997	1400	76	45400	6960	ACS800-04-2310-5	3xD4 + 4xR8i

Enclosure

Degree of protection:
IP00 standard for 04 and 04(M) frame sizes R7, R8 and nxR8i
IP20 standard for -04 frame sizes R2 to R6, option for some 04(M) variants
Paint color: RAL 9002/PMS 420C

Dimensions

Frame size	Height mm	Width mm	Depth mm	Weight kg
R2	370	165	193 [6]	8
R3	420	173	232 [6]	13
R4	490	240	253 [6]	24
R5	602	265	276	32
R6	700	300	399	64
R7	1121/1152/1126 [7]	427/632/264 [7]	473/259/467 [7]	100
R8	1564/1596 [8]	562/779 [8]	568/403 [8]	205
D4	1480	234	400 [10]	180
2xD4	1480	234 [9]	400 [10]	360
3xD4	1480	234 [9]	400 [10]	540
2xR8i	1397	245 [9]	596	300
3xR8i	1397	245 [9]	596	450
4xR8i	1397	245 [9]	596	600

Nominal ratings	
$I_{cont.max}$	Rated current available continuously without overloadability at 40 °C.
I_{max}	Maximum output current. Available for 10 s at start, otherwise as long as allowed by drive temperature. Note: max. motor shaft power is 150% P_{hd}.
Typical ratings: No-overload use	
$P_{cont.max}$	Typical motor power in no-overload use.
Light-overload use	
I_N	Continuous current allowing 110% I_N for 1 min/5 min at 40 °C.
P_N	Typical motor power in light-overload use.
Heavy-duty use	
I_{hd}	Continuous current allowing 150% I_{hd} for 1 min/5 min at 40 °C.
P_{hd}	Typical motor power in heavy-duty use.

The current ratings are the same regardless of the supply voltage within one voltage range.

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

Notes:

1) 50% overload available if T_{amb} < 25 °C. If T_{amb} = 40 °C, max overload is 37%.
2) 50% overload available if T_{amb} < 30 °C. If T_{amb} = 40 °C, max overload is 40%.
3) 50% overload available if T_{amb} < 20 °C. If T_{amb} = 40 °C, max overload is 30%.
4) 50% overload available if T_{amb} < 35 °C. If T_{amb} = 40 °C, max overload is 45%.
5) Higher value available if output frequency is above 41 Hz.
6) Please note that use of control panel or I/O extension or communication options increases the depth.
7) Bookshelf (in ACS800-04M +H354)/flat (+H360)/bottom exit (+H352) version.
8) Bookshelf (in ACS800-04M +H354)/flat (+H360) mounting.
9) Single module only.
10) Cable connections need additional space (about 200 mm) behind the module.

Ratings, types and voltages
ACS800-04, single drive modules, U_N = 690 V

ACS800	-	04	-	XXXX	-	7	+	XXXX

Nominal ratings		No-overload use	Light-overload use		Heavy-duty use		Noise level	Heat dissipation	Air flow	Type designation	Frame size
$I_{cont.\ max}$ A	I_{max} A	$P_{cont.\ max}$ kW	I_N A	P_N kW	I_{hd} A	P_{hd} kW	dB(A)	W	m³/h		
U_N = 690 V (Range 525 to 690 V). The power ratings are valid at nominal voltage 690 V.											
13	14	11	11.5	7.5	8.5	5.5	62	300	103	ACS800-04-0011-7	R4
17	19	15	15	11	11	7.5	62	340	103	ACS800-04-0016-7	R4
22	28	18.5	20	15	15	11	62	440	103	ACS800-04-0020-7	R4
25	38	22	23	18.5	19	15	62	530	103	ACS800-04-0025-7	R4
33	44	30	30	22	22	18.5	62	610	103	ACS800-04-0030-7	R4
36	54	30	34	30	27	22	62	690	103	ACS800-04-0040-7	R4
51	68	45	46	37	34	30	65	840	250	ACS800-04-0050-7	R5
57	84	55	52	45	42	37	65	1010	250	ACS800-04-0060-7	R5
79	104	75	73	55	54	45	65	1220	405	ACS800-04-0070-7	R6
93	124	90	86	75	62	55	65	1650	405	ACS800-04-0100-7	R6
113	172	110	108	90	86	75	65	1960	405	ACS800-04-0120-7	R6
134	190	132	125	110	95	90	65	2660	405	ACS800-04-0145-7	R6
166	245	160	155	132	131	110	65	3470	405	ACS800-04-0175-7	R6
190	245	160	180	160	147	132	65	4180	405	ACS800-04-0205-7	R6
134	190	132	125	110	95	90	71	2800	540	ACS800-04(M)-0140-7	R7
166	263	160	155	132	131	110	71	3550	540	ACS800-04(M)-0170-7	R7
166/203 [5]	294	160	165/195 [5]	160	147	132	71	4250	540	ACS800-04(M)-0210-7	R7
175/230 [5]	326	160/200 [5]	175/212 [5]	160/200 [5]	163	160	71	4800	540	ACS800-04(M)-0260-7	R7
315	433	315	290	250	216	200	72	6150	1220	ACS800-04(M)-0320-7	R8
353	548	355	344	315	274	250	72	6650	1220	ACS800-04(M)-0400-7	R8
396	656	400	387	355	328	315	72	7400	1220	ACS800-04(M)-0440-7	R8
445	775	450	426	400	387	355	72	8450	1220	ACS800-04(M)-0490-7	R8
488	853	500	482	450	426	400	72	8300	1220	ACS800-04(M)-0550-7	R8
560	964	560	537	500	482	450	72	9750	1220	ACS800-04(M)-0610-7	R8
628	939	630	603	630	470	500	73	13900	3120	ACS800-04-0750-7	1xD4 + 2xR8i
729	1091	710	700	710	545	560	73	17100	3120	ACS800-04-0870-7	1xD4 + 2xR8i
885	1324	800	850	800	662	630	73	18400	3120	ACS800-04-1060-7	1xD4 + 2xR8i
953	1426	900	915	900	713	710	74	20800	3840	ACS800-04-1160-7	2xD4 + 2xR8i
1258	1882	1200	1208	1200	941	900	75	27000	5040	ACS800-04-1500-7	2xD4 + 3xR8i
1414	2115	1400	1357	1400	1058	1000	75	32500	5040	ACS800-04-1740-7	2xD4 + 3xR8i
1774	2654	1700	1703	1700	1327	1250	76	40100	6240	ACS800-04-2120-7	2xD4 + 4xR8i
1866	2792	1900	1791	1800	1396	1400	76	43300	6960	ACS800-04-2320-7	3xD4 + 4xR8i

Enclosure

Degree of protection:
IP00 standard for 04 and 04(M) frame sizes R7, R8 and nxR8i
IP20 standard for -04 frame sizes R2 to R6, option for some 04(M) variants
Paint color: RAL 9002/PMS 420C

Dimensions

Frame size	Height mm	Width mm	Depth mm	Weight kg
R2	370	165	193 [6]	8
R3	420	173	232 [6]	13
R4	490	240	253 [6]	24
R5	602	265	276	32
R6	700	300	399	64
R7	1121/1152/1126 [7]	427/632/264 [7]	473/259/467 [7]	100
R8	1564/1596 [8]	562/779 [8]	568/403 [8]	205
D4	1480	234	400 [10]	180
2xD4	1480	234 [9]	400 [10]	360
3xD4	1480	234 [9]	400 [10]	540
2xR8i	1397	245 [9]	596	300
3xR8i	1397	245 [9]	596	450
4xR8i	1397	245 [9]	596	600

Nominal ratings	
$I_{cont.max}$	Rated current available continuously without overloadability at 40 °C.
I_{max}	Maximum output current. Available for 10 s at start, otherwise as long as allowed by drive temperature. Note: max. motor shaft power is 150% P_{hd}.
Typical ratings: No-overload use	
$P_{cont.max}$	Typical motor power in no-overload use.
Light-overload use	
I_N	Continuous current allowing 110% I_N for 1 min/5 min at 40 °C.
P_N	Typical motor power in light-overload use.
Heavy-duty use	
I_{hd}	Continuous current allowing 150% I_{hd} for 1 min/5 min at 40 °C.
P_{hd}	Typical motor power in heavy-duty use.

The current ratings are the same regardless of the supply voltage within one voltage range.

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

Notes:

1) 50% overload available if T_{amb} < 25 °C. If T_{amb} = 40 °C, max overload is 37%.
2) 50% overload available if T_{amb} < 30 °C. If T_{amb} = 40 °C, max overload is 40%.
3) 50% overload available if T_{amb} < 20 °C. If T_{amb} = 40 °C, max overload is 30%.
4) 50% overload available if T_{amb} < 35 °C. If T_{amb} = 40 °C, max overload is 45%.
5) Higher value available if output frequency is above 41 Hz.
6) Please note that use of control panel or I/O extension or communication options increases the depth.
7) Bookshelf (in ACS800-04M +H354)/flat (+H360)/bottom exit (+H352) version.
8) Bookshelf (in ACS800-04M +H354)/flat (+H360) mounting.
9) Single module only.
10) Cable connections need additional space (about 200 mm) behind the module.

Ratings, types and voltages
ACS800-14, single drive modules, U_N = 400 to 690 V

ACS800	-	14	-	XXXX	-	3 5 7	+	XXXX

Nominal ratings		No-overload use	Light-overload use		Heavy-duty use		Noise level	Heat dissipation	Air flow	Type designation	Frame size
$I_{cont.max}$ A	$I_{cont.max}$ A	$P_{cont.max}$ kW	I_N A	P_N kW	I_{hd} A	P_{hd} kW	dB(A)	kW	m³/h		
U_N = 400 V (Range 380 to 415 V)											
202	293	110	194	90	151	75	74	6.3	1300	ACS800-14-0140-3	R7i + R7i + ALCL-04-5
250	363	132	240	132	187	90	74	6.9	1300	ACS800-14-0170-3	R7i + R7i + ALCL-05-5
292	400	160	280	160	218	110	75	7	3160	ACS800-14-0210-3	R8i + R8i + ALCL-12-5
370	506	200	244	200	277	132	75	9	3160	ACS800-14-0260-3	R8i + R8i + ALCL-13-5
469	642	250	450	250	351	200	75	11	3160	ACS800-14-0320-3	R8i + R8i + ALCL-14-5
565	773	315	542	315	423	250	75	14	3160	ACS800-14-0390-3	R8i + R8i + ALCL-15-5
704	963	400	675	355	526	250	75	19	3160	ACS800-14-0490-3	R8i + R8i + ALCL-15-5
919	1258	500	882	500	688	355	77	22	6400	ACS800-14-0640-3	2xR8i + 2xR8i + ALCL-24-5
1111	1521	630	1067	630	831	450	77	28	6400	ACS800-14-0770-3	2xR8i + 2xR8i + ALCL-25-5
1379	1888	800	1324	710	1037	560	77	36	6400	ACS800-14-0960-3	2xR8i + 2xR8i + ALCL-25-5
1535	2102	900	1474	800	1149	630	78	39	10240	ACS800-14-1070-3	3xR8i + 3xR8i +2xALCL-24-5
1978	2707	1200	1899	1100	1479	800	78	51	10240	ACS800-14-1380-3	3xR8i + 3xR8i +2xALCL-24-5
2610	3573	1600	2506	1400	1953	1100	79	67	12800	ACS800-14-1810-3	4xR8i + 4xR8i +2xALCL-24-5
U_N = 500 V (Range 380 to 500 V)											
200	291	132	192	132	150	90	74	6	1300	ACS800-14-0170-5	R7i + R7i + ALCL-04-5
245	356	160	235	160	183	110	74	8	1300	ACS800-14-0210-5	R7i + R7i + ALCL-05-5
302	347	200	289	200	226	132	75	8	3160	ACS800-14-0260-5	R8i + R8i + ALCL-12-5
365	457	250	350	250	273	160	75	10	3160	ACS800-14-0320-5	R8i + R8i + ALCL-13-5
455	530	315	437	315	340	200	75	12	3160	ACS800-14-0400-5	R8i + R8i + ALCL-14-5
525	660	355	504	355	393	250	75	14	3160	ACS800-14-0460-5	R8i + R8i + ALCL-15-5
595	648	400	571	400	445	315	75	16	3160	ACS800-14-0510-5	R8i + R8i + ALCL-15-5
670	972	500	643	450	501	315	75	19	3160	ACS800-14-0580-5	R8i + R8i + ALCL-15-5
892	1294	630	856	630	667	450	77	24	6400	ACS800-14-0780-5	2xR8i + 2xR8i + ALCL-24-5
1005	1458	710	956	630	752	500	77	28	6400	ACS800-14-0870-5	2xR8i + 2xR8i + ALCL-25-5
1313	1906	900	1261	900	982	710	77	36	6400	ACS800-14-1140-5	2xR8i + 2xR8i + ALCL-25-5
1528	2217	1120	1467	1120	1143	800	78	41	10240	ACS800-14-1330-5	3xR8i + 3xR8i +2xALCL-24-5
1884	2734	1400	1809	1300	1409	1000	78	52	10240	ACS800-14-1640-5	3xR8i + 3xR8i +2xALCL-24-5
2486	3608	1800	2387	1700	1860	1300	79	68	12800	ACS800-14-2160-5	4xR8i + 4xR8i +2xALCL-25-5
U_N = 690 V (Range 525 to 690 V)											
132	192	110	127	110	99	90	74	7	1300	ACS800-14-0160-7	R7i + R7i + ALCL-04-7
150	218	132	144	132	112	90	74	8	1300	ACS800-14-0200-7	R7i + R7i + ALCL-05-7
201	238	200	193	160	150	132	75	11	3160	ACS800-14-0260-7	R8i + R8i + ALCL-12-7
279	311	250	268	250	209	200	75	12	3160	ACS800-14-0320-7	R8i + R8i + ALCL-13-7
335	431	315	322	250	251	200	75	16	3160	ACS800-14-0400-7	R8i + R8i + ALCL-14-7
382	503	355	367	355	286	270	75	17	3160	ACS800-14-0440-7	R8i + R8i + ALCL-15-7
447	525	450	429	400	334	315	75	18	3160	ACS800-14-0540-7	R8i + R8i + ALCL-15-7
659	727	630	632	630	493	450	77	32	6400	ACS800-14-0790-7	2xR8i + 2xR8i + ALCL-24-7
729	985	710	700	710	545	500	77	33	6400	ACS800-14-0870-7	2xR8i + 2xR8i + ALCL-25-7
896	1002	900	840	800	655	350	77	36	6400	ACS800-14-1050-7	2xR8i + 2xR8i + ALCL-25-7
1112	1425	1120	1037	1120	831	800	78	48	10240	ACS800-14-1330-7	3xR8i + 3xR8i +2xALCL-24-7
1256	1477	1250	1206	1200	940	900	78	51	10240	ACS800-14-1510-7	3xR8i + 3xR8i +2xALCL-24-7
1657	1879	1700	1591	1600	1240	1200	79	67	12800	ACS800-14-1980-7	4xR8i + 4xR8i +2xALCL-25-7

Dimensions

Frame size	Height mm	Width mm	Depth [1] mm	Weight kg
R7i [1]	963	170	408	38
R8i	1397	245 [2]	596	130
2xR8i	1397	245 [2]	596	260
3xR8i	1397	245 [2]	596	390
4xR8i	1397	245 [2]	596	520

[1] Dimensions do not include cooling fan
[2] Single module only

Frame size	Height mm	Width mm	Depth mm	Weight kg
ALCL-0x-x	810	304	292	72
ALCL-1x-x	1397	240	499	180
ALCL-2x-x	1397	240	573	305

Nominal ratings	
$I_{cont.max}$	Rated current available continuously without overloadability at 40 °C.
I_{max}	Maximum output current. Available for 10 s at start, otherwise as long as allowed by drive temperature. Note: max. motor shaft power is 150% P_{hd}.
Typical ratings: No-overload use	
$P_{cont.max}$	Typical motor power in no-overload use.
Light-overload use	
I_N	Continuous current allowing 110% I_N for 1 min/5 min at 40 °C.
P_N	Typical motor power in light-overload use.
Heavy-duty use	
I_{hd}	Continuous current allowing 150% I_{hd} for 1 min/5 min at 40 °C.
P_{hd}	Typical motor power in heavy-duty use.

The current ratings are the same regardless of the supply voltage within one voltage range.

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

Multidrive modules
ACS800-X04

The ACS800 multidrive module product range includes rectifier- and DC-supplied inverter modules and accessories especially designed for integrators, machine builders and panel builders.

The ACS800 multidrive principle based on a common DC bus arrangement enables single power entry and common braking resources for several drives. Common braking includes the possibility for regenerative braking and motor-to-motor braking depending on the motor loads in the line-up.

Special design for system integrators

The design of these modules is based on much smaller inverter modules.

The modules have a plug-in connector, meaning fast and easy assembling. The modules are also equipped with wheels, so they can easily be pulled out of the cabinet and pushed back for maintenance purposes.

This concept also allows pre-installation of the power cables in the empty cabinet.

Inverter and diode modules can be freely connected parallel for higher output current. This means a limited number of different module sizes and fewer spare parts.

The modularity, compact size and simplicity of the modules means a lot of savings for cabinet builders in terms of minimizing the number of cabinets and the widths.

Besides the compact design, the ACS800 DC-supplied inverter and rectifier units include an extensive selection of options.

Product range

Inverter modules

Inverter modules are available in 7 different frame sizes. Frame sizes R2i to R7i start from 1.1 to 110 kW, and all the powers from 90 to 2000 kW are different configurations of R8i units, single or in parallel. The voltage range covers 380 V, 500 V and 690 V.

Supply modules

Supply modules are available as diode-, thyristor- or IGBT-based solutions.

In the diode supply units (DSU) only four different types of unit, either in single or parallel, cover the power range of 145 to 4200 kW in 380 to 690 V.

The basic features of the diode rectifier unit include automatic adaptation to 6 or 12-pulse operation and automatic control to charge the inverter capacitor banks during startup.

The mechanical dimensions are the same in each module, making engineering and assembling very easy.

The thyristor supply unit (TSU) is used in regenerative drive systems. It contains two 6-pulse thyristor bridges in antiparallel connections. 12-pulse units can also be configured. The power range is from 470 to 3150 kW in 380 to 690 V.

An IGBT Supply unit (ISU) is used in fully regenerative drive systems. In power control it gives the same firm and gentle performance as DTC gives in motor control. The power module is hardware compatible with the inverter module. In passive mode the converter operates as the rectifier. In the active mode the IGBTs are controlled to keep the DC voltage constant and the line current sinusoidal.

Harmonic content remains extremely low due to DTC control and LCL filtering.

The power range is from 2.7 to 2900 kW in 380 to 690 V. Modules are single or parallel connected.

Braking choppers and resistors

In resistor braking whenever the voltage in the intermediate circuit of a frequency converter exceeds a certain limit, a braking chopper connects the circuit to a braking resistor.

Standard resistors are also available, but non-standard resistors can be used, however they must be checked case-by-case.

The power range is from 230 to 2400 kW in 380 to 690 V.

Multidrive modules
ACS800-X04

Main standard hardware features

– Frame sizes R2i to R5i control board inside of the module
– Frame sizes R7i to nxR8i control board outside of the module
– Extensive, programmable I/O
– Three I/O and fieldbus extension slots
– Inputs galvanically isolated
– Optimised design for cabinet assembly
– Modular design allowing wide variety of variants
– Compact design
– Long lifetime cooling fan and capacitors
– du/dt filters as standard in parallel connected R8i and in single or parallel connected 690 V inverter units
– Mounting on the cabinet wall frame size R2i to R7i and on the cabinet floor for R8i and the D3/D4 supply module
– Wheels and plug connectors in the R8i inverter and
– D3/D4 supply module
– Coated boards
– LCL-filter units in ISUs

Main optional hardware features

Inverter frame sizes R2i to R7i:

– Prevention of unexpected startup
– DC fuses, fuse bases or DC-fuse switch
– Mechanics for tilted position assembly in R2i to R5i frame size
– Assembly plates for R7i units
– du/dt filters
– Common mode filter for motor protection
– On-off control for cooling fan with internal charging option
– Mechanical accessories in Rittal TS8 cabinets (only for R7)
  - IP21 to IP54 cabinet door/roof mechanical kits
  - Accessories kits
– Safe torque-off

Inverter frame sizes R8i to nxR8i:

– Prevention of unexpected startup
– DC fuses, fuse bases or DC-fuse switch + charging circuitry
– du/dt filters as options in 400/500 V
– Mechanical accessories in Rittal TS8 cabinets
  - IP21 to IP54 cabinet door/roof mechanical kits
  - Accessories kits
– Common mode filters for motor protection
– Safe torque-off (STO)

DSU frame sizes D3 to nxD4:

– Contactor (inside the module)
– RFI filter up to 1000 A
– Front end AC-fuses
– Air circuit breaker
– Mechanical accessories in Rittal TS8 cabinets
  - IP21 to IP54 cabinet door/roof mechanical kits
  - Accessories kits

ACS800-104, R8i **ACS800-704, D4**

Ratings, types and voltages
ACS800-X04, drive module, U_N = 400 V

ACS800	-	X04	-	XXXX	-	3	+	XXXX

Nominal ratings		No-overload use	Light-overload use		Heavy-duty use		Heat dissipation	Type designation	Frame size
$I_{cont.\ max}$ A	I_{max} A	$P_{cont.\ max}$ kW	I_N A	P_N kW	I_{hd} A	P_{hd} kW	kW		
U_N = 400 V (Range 380 to 415 V). The power ratings are valid at nominal voltage 400 V.									
5.1	6.5	1.5	4.7	1.5	3.4	1.1	0.1	ACS800-104-0003-3	R2i
6.5	8.2	2.2	5.9	2.2	4.3	1.5	0.1	ACS800-104-0004-3	R2i
8.5	10.8	3	7.7	3	5.7	2.2	0.1	ACS800-104-0005-3	R2i
10.9	13.8	4	10.2	4	7.5	3	0.1	ACS800-104-0006-3	R2i
13.9	17.6	5.5	12.7	5.5	9.3	4	0.2	ACS800-104-0009-3	R2i
19	24	7.5	18	7.5	14	5.5	0.3	ACS800-104-0011-3	R3i
25	32	11	24	11	19	7.5	0.3	ACS800-104-0016-3	R3i
34	46	15	31	15	23	11	0.4	ACS800-104-0020-3	R3i
44	62	22	41	18.5	32	15	0.5	ACS800-104-0025-3	R4i
55	72	30	50	22	37	18.5	0.6	ACS800-104-0030-3	R4i
72	86	37	69	30	49	22	0.8	ACS800-104-0040-3	R5i
86	112	45	80	37	60	30	1	ACS800-104-0050-3	R5i
103	138	55	94	45	69	37	1.2	ACS800-104-0060-3	R5i
147	220	75	141	75	110	55	1.4	ACS800-104-0105-3	R7i
178	252	90	171	90	133	55	1.7	ACS800-104-0125-3	R7i
208	312	110	200	110	156	75	1.9	ACS800-104-0145-3	R7i
250	374	132	240	132	187	90	2.1	ACS800-104-0175-3	R7i
292	400	160	280	160	218	110	2.7	ACS800-104-0210-3	R8i
370	506	200	355	200	277	132	3.7	ACS800-104-0260-3	R8i
469	642	250	450	250	351	200	4.9	ACS800-104-0320-3	R8i
565	773	315	542	315	423	220	6.1	ACS800-104-0390-3	R8i
741	1014	400	711	400	554	315	8	ACS800-104-0510-3	R8i
1111	1521	630	1067	630	831	450	12	ACS800-104-0770-3	2xR8i
1452	1988	800	1394	800	1086	630	15	ACS800-104-1030-3	2xR8i
2156	2951	1200	2070	1200	1613	900	23	ACS800-104-1540-3	3xR8i
2845	3894	1600	2731	1600	2128	1120	30	ACS800-104-2050-3	4xR8i
3537	4842	2000	3396	2000	2646	1400	37	ACS800-104-2570-3	5xR8i
4223	5780	2400	4054	2400	3159	1600	44	ACS800-104-3080-3	6xR8i

Dimensions

Frame size	Height mm	Width mm	Depth mm	Weight kg	Noise level dB(A)	Air flow m³/h
R2i	401	165	193 [3]	9	62	35
R3i	466	173	232 [3]	12	62	69
R4i	525	240	252 [3]	15	62	103
R5i	673	265	276 [3]	23	65	168
R7i [1]	963	170	408	38	64	800
R8i	1397	245	596	130	72	1280
2xR8i	1397	245 [2]	596	260	74	2560
3xR8i	1397	245 [2]	596	390	76	3840
4xR8i	1397	245 [2]	596	520	76	5120
5xR8i	1397	245 [2]	596	650	77	6400
6xR8i	1397	245 [2]	596	780	78	7680

[1] Dimensions do not include cooling fan.
[2] Single module only.
[3] The depth is without control panels and options.

Type	Height mm	Width mm	Depth mm
RDCU control unit *)	282	126	41

*) Delivered with R7i to nxR8i

Nominal ratings	
$I_{cont.max}$	Rated current available continuously without overloadability at 40 °C.
I_{max}	Maximum output current. Available for 10 s at start, otherwise as long as allowed by drive temperature.
Typical ratings: No-overload use	
$P_{cont.max}$	Typical motor power in no-overload use.
Light-overload use	
I_N	Continuous current allowing 110% I_N for 1 min/5 min at 40 °C.
P_N	Typical motor power in light-overload use.
Heavy-duty use	
I_{hd}	Continuous current allowing 150% I_{hd} for 1 min/5 min at 40 °C.
P_{hd}	Typical motor power in heavy-duty use.

The current ratings are the same regardless of the supply voltage within one voltage range.

The ratings apply in 40 °C ambient temperature. In lower temperatures the ratings are higher (except I_{max}).

The rated current of the ACS800 must be higher than or equal to the rated motor current to achieve the rated motor power given in the table.

Ratings, types and voltages
ACS800-X04, supply module, U_N = 400 V

ACS800	-	X04	-	XXXX	-	3 7	+	XXXX

Nominal ratings				No-overload use	Light-overload use		Heavy-duty use		Heat dissipation	Type designation	Frame size
$I_{cont.\ max}$ A (AC)	$I_{cont.\ max}$ A (DC)	I_{max} A (DC)	S_N kVA	$P_{cont.\ max}$ kW (DC)	I_N A (DC)	P_N kW (DC)	I_{hd} A (DC)	P_{hd} kW (DC)	kW		
U_N = 400 V (Range 380 to 415 V). The power ratings are valid at nominal voltage 400 V.											
IGBT supply module (ISU)											
5.3	6.4	9.3	3.8	3.8	6.2	3.7	4.7	2.7	0.3	ACS800-204-0003-3	R2i + RLCL-01-5
11.3	13.7	19.9	8.1	8.0	13.2	8.0	9.9	5.8	0.5	ACS800-204-0008-3	R2i + RLCL-02-5
27.7	33.6	48.7	20.0	19.8	32.3	20	24.3	14.3	0.8	ACS800-204-0021-3	R3i + RLCL-03-5
44.9	54.4	78.7	32.2	31.9	52.2	32	39.4	23.1	1.3	ACS800-204-0031-3	R4i + RLCL-11-5
84.0	101.9	147.4	60.3	59.7	97.8	60	73.7	43.3	2.2	ACS800-204-0061-3	R5i + RLCL-12-5
182	221	330	131	130	212	124	165	97	3.8	ACS800-204-0135-3	R7i + ALCL-04-5
224	272	406	161	159	261	153	203	119	4.2	ACS800-204-0155-3	R7i + ALCL-05-5
284	344	471	204	202	331	194	258	151	5.9	ACS800-204-0200-3	R8i + ALCL-12-5
378	458	627	272	269	440	258	343	201	8	ACS800-204-0260-3	R8i + ALCL-13-5
473	573	784	340	336	550	323	429	252	10.3	ACS800-204-0330-3	R8i + ALCL-14-5
630	764	1046	453	448	733	430	571	335	14.6	ACS800-204-0440-3	R8i + ALCL-15-5
945	1146	1568	679	672	1100	646	857	503	20.5	ACS800-204-0660-3	2xR8i + ALCL-24-5
1235	1497	2049	888	879	1437	844	1120	657	28.3	ACS800-204-0860-3	2xR8i + ALCL-25-5
1833	2223	3042	1318	1304	2134	1252	1662	976	41.7	ACS800-204-1270-3	3xR8i + 2xALCL-24-5
2419	2933	4015	1739	1722	2816	1653	2194	1288	54.8	ACS800-204-1680-3	4xR8i + 2xALCL-25-5
3591	4354	5960	2581	2555	4180	2453	3257	1911	81	ACS800-204-2490-3	6xR8i + 3xALCL-25-5
6-pulse diode supply unit (DSU)											
286	350	462	198	183	335	175	280	147	1.5	ACS800-304-0320-7	D3
408	500	700	283	262	480	251	400	210	2.4	ACS800-304-0450-7	D3
571	700	924	396	367	670	351	560	293	3.8	ACS800-704-0640-7	D4
816	1000	1400	566	524	960	503	800	419	5	ACS800-704-0910-7	D4
1143	1400	1848	792	733	1340	702	1120	587	7.6	ACS800-704-1370-7	2xD4
1518	1860	2604	1052	974	1790	938	1490	780	10	ACS800-704-1810-7	2xD4
2278	2790	3906	1578	1461	2685	1406	2230	1168	15	ACS800-704-2720-7	3xD4
3037	3720	5208	2104	1949	3580	1875	2980	1561	20	ACS800-704-3630-7	4xD4
3796	4650	6510	2630	2436	4475	2344	3720	1949	25	ACS800-704-4540-7	5xD4
6-pulse regenerative thyristor supply unit (TSU)											
981	1202	1947	680	639	1136	604	880	468	6.3	ACS800-404-0680-3	2xB4 + choke
1617	1980	3208	1120	1053	1872	995	1450	721	10.2	ACS800-404-1120-3	2xB4 + choke
2449	3000	4860	1697	1595	2838	1509	2244	1193	16.5	ACS800-404-1700-3	2xB5 + choke
2858	3500	5670	1980	1861	3311	1760	2618	1392	20.8	ACS800-404-2100-3	2xB5 + choke
12-pulse diode supply unit (DSU)											
571	700	924	396	367	670	351	560	293	3.8	ACS800-704-0640-7	D4
816	1000	1400	566	524	960	503	800	419	5	ACS800-704-0910-7	D4
1143	1400	1848	792	733	1340	702	1120	587	7.6	ACS800-704-1370-7	2xD4
1518	1860	2604	1052	974	1790	938	1490	780	10	ACS800-704-1810-7	2xD4
2278	2790	3906	1578	1461	2685	1406	2230	1168	15	ACS800-704-2720-7	3xD4
3037	3720	5208	2104	1949	3580	1875	2980	1561	20	ACS800-704-3630-7	4xD4
3796	4650	6510	2630	2436	4475	2344	3720	1949	25	ACS800-704-4540-7	5xD4

Dimensions

Frame size	Height mm	Width mm	Depth mm	Weight kg	Noise level dB(A)	Air flow m³/h
IGBT supply unit (ISU)						
R2i	401	165	193	9	62	35
R3i	466	173	232	12	62	69
R4i	525	240	252	15	62	103
R5i	673	265	276	23	65	250
R7i[1]	963	170	408	38	72 [4]	800
R8i	1397	245	596	130	74 [4]	1280
2xR8i	1397	245 [2]	596	260	76 [4]	2560
3xR8i	1397	245 [2]	596	390	78 [4]	3840
4xR8i	1397	245 [2]	596	520	78 [4]	5120
6xR8i	1397	245 [2]	596	780	80 [4]	7680
LCL-filter for IGBT supply unit (ISU)						
RLCL-01-5	850	173	137	15	69	-
RLCL-02-5	850	173	137	15	69	-
RLCL-03-5	850	173	137	20	69	-
RLCL-11-5	920	265	169.5	40	69	-
RLCL-12-5	920	265	169.5	50	69	-
ALCL-0X-X	810	304	292	72	-	480
ALCL-1X-X	1397	240	499	180	-	400
ALCL-2X-X	1397	240	573	305	-	1280

Frame size	Height mm	Width mm	Depth mm	Weight kg	Noise level dB(A)	Air flow m³/h
6-pulse diode supply unit (DSU)						
D3	1480	234	400 [3]	130	65	720
D4	1480	234	400 [3]	180	65	720
2XD4	1480	234 [2]	400 [3]	360	67	1440
3XD4	1480	234 [2]	400 [3]	540	68	2160
4XD4	1480	234 [2]	400 [3]	720	69	2880
5XD4	1480	234 [2]	400 [3]	900	70	3600
6-pulse regenerative thyristor supply unit (TSU)						
2XB4	1808	340 [2]	430	110 [2]	72 [5]	2000
2XB5	1808	420 [2]	430	150 [2]	75 [5]	3400
DC chokes for 6-pulse regenerative supply unit (TSU)						
choke B4	771	348	449	110	-	600
choke B5	991	348	449	150	-	700
12-pulse diode supply unit (DSU)						
D4	1480	234	400 [3]	180	65	720
2XD4	1480	234 [2]	400 [3]	360	67	1440
3XD4	1480	234 [2]	400 [3]	540	68	2160
4XD4	1480	234 [2]	400 [3]	720	69	2880
5XD4	1480	234 [2]	400 [3]	900	70	3600

[1]) Dimensions do not include cooling fan.
[2]) Single module only.
[3]) Cable connections need additional space (about 200 mm) behind the module.
[4]) Supply modules + filters.
[5]) Supply modules + choke.

Ratings, types and voltages
ACS800-X04, drive module, U_N = 500 V

ACS800	-	X04	-	XXXX	-	5	+	XXXX

Nominal ratings		No-overload use	Light-overload use		Heavy-duty use		Heat dissipation	Type designation	Frame size
$I_{cont.max}$ A	I_{max} A	$P_{cont.max}$ kW	I_N A	P_N kW	I_{hd} A	P_{hd} kW	kW		
U_N = 500 V (Range 380 to 500 V). The power ratings are valid at nominal voltage 500 V.									
4.9	7	2.2	4.5	2.2	3.4	1.5	0.1	ACS800-104-0004-5	R2i
6.2	8	3	5.6	3	4.2	2.2	0.1	ACS800-104-0005-5	R2i
8.1	11	4	7.7	4	5.6	3	0.2	ACS800-104-0006-5	R2i
11	14	5.5	10	5.5	7.5	4	0.2	ACS800-104-0009-5	R2i
13	18	7.5	12	7.5	9.2	5.5	0.3	ACS800-104-0011-5	R2i
19	24	11	18	11	13	7.5	0.3	ACS800-104-0016-5	R3i
25	32	15	23	15	18	11	0.4	ACS800-104-0020-5	R3i
34	46	18.5	31	18.5	23	15	0.5	ACS800-104-0025-5	R3i
42	62	22	39	22	32	18.5	0.6	ACS800-104-0030-5	R4i
48	72	30	44	30	36	22	0.8	ACS800-104-0040-5	R4i
65	86	37	61	37	50	30	1	ACS800-104-0050-5	R5i
79	112	45	75	45	60	37	1.2	ACS800-104-0060-5	R5i
96	138	55	88	55	69	45	1.4	ACS800-104-0070-5	R5i
115	172	75	110	55	86	55	1.1	ACS800-104-0105-5	R7i
135	202	90	130	90	101	55	1.3	ACS800-104-0125-5	R7i
166	248	110	159	110	124	75	1.7	ACS800-104-0145-5	R7i
208	312	132	200	132	156	90	2	ACS800-104-0175-5	R7i
250	374	160	240	160	187	110	2.2	ACS800-104-0215-5	R7i
315	457	200	302	200	236	132	3.2	ACS800-104-0260-5	R8i
365	530	250	350	250	273	160	4	ACS800-104-0320-5	R8i
455	660	315	437	315	340	200	5.4	ACS800-104-0400-5	R8i
525	762	355	504	355	393	250	5.9	ACS800-104-0460-5	R8i
700	1016	500	672	500	524	355	7.8	ACS800-104-0610-5	R8i
1050	1524	710	1008	710	785	560	12	ACS800-104-0910-5	2xR8i
1372	1991	1000	1317	1000	1026	710	15	ACS800-104-1210-5	2xR8i
2037	2956	1450	1956	1450	1524	1120	22	ACS800-104-1820-5	3xR8i
2688	3901	2000	2580	1850	2011	1400	29	ACS800-104-2430-5	4xR8i
3343	4850	2400	3209	2400	2500	1600	36	ACS800-104-3030-5	5xR8i
3990	5790	2900	3830	2900	2985	2000	43	ACS800-104-3640-5	6xR8i

Dimensions

Frame size	Height mm	Width mm	Depth mm	Weight kg	Noise level dB(A)	Air flow m^3/h
R2i	401	165	193 [3]	9	62	35
R3i	466	173	232 [3]	12	62	69
R4i	525	240	252 [3]	15	62	103
R5i	673	265	276 [3]	23	65	168
R7i [1]	963	170	408	38	64	800
R8i	1397	245	596	130	72	1280
2xR8i	1397	245 [2]	596	260	74	2560
3xR8i	1397	245 [2]	596	390	76	3840
4xR8i	1397	245 [2]	596	520	76	5120
5xR8i	1397	245 [2]	596	650	77	6400
6xR8i	1397	245 [2]	596	780	78	7680

[1] Dimensions do not include cooling fan.
[2] Single module only.
[3] The depth is without control panels and options.

Type	Height mm	Width mm	Depth mm
RDCU control unit *)	282	126	41

*) Delivered with R7i to nxR8i

Nominal ratings	
$I_{cont.max}$	Rated current available continuously without overloadability at 40 °C.
I_{max}	Maximum output current. Available for 10 s at start, otherwise as long as allowed by drive temperature.
Typical ratings: No-overload use	
$P_{cont.max}$	Typical motor power in no-overload use.
Light-overload use	
I_N	Continuous current allowing 110% I_N for 1 min/5 min at 40 °C.
P_N	Typical motor power in light-overload use.
Heavy-duty use	
I_{hd}	Continuous current allowing 150% I_{hd} for 1 min/5 min at 40 °C.
P_{hd}	Typical motor power in heavy-duty use.

The current ratings are the same regardless of the supply voltage within one voltage range.

The ratings apply in 40 °C ambient temperature. In lower temperatures the ratings are higher (except I_{max}).

The rated current of the ACS800 must be higher than or equal to the rated motor current to achieve the rated motor power given in the table.

Ratings, types and voltages
ACS800-X04, supply module, U_N = 500 V

ACS800	-	X04	-	XXXX	-	5 7	+	XXXX

Nominal ratings				No-overload use	Light-overload use		Heavy-duty use		Heat dissipation	Type designation	Frame size
$I_{cont.\ max}$ A (AC)	$I_{cont.\ max}$ A (DC)	I_{max} A (DC)	S_N kVA	$P_{cont.\ max}$ kW (DC)	I_N A (DC)	P_N kW (DC)	I_{hd} A (DC)	P_{hd} kW (DC)	kW		
U_N = 500 V (Range 380 to 500 V). The power ratings are valid at nominal voltage 500 V.											
IGBT supply module (ISU)											
5.1	6.1	8.9	4.4	4.4	5.9	4.3	4.4	3.1	0.3	ACS800-204-0004-5	R2i + RLCL-01-5
10.8	13.0	18.9	9.3	9.2	12.5	9.2	9.4	6.7	0.6	ACS800-204-0009-5	R2i + RLCL-02-5
27.7	33.6	48.4	24.0	23.8	32.2	23.8	24.2	17.1	0.9	ACS800-204-0021-5	R3i + RLCL-03-5
39.2	47.4	68.7	33.9	33.6	45.5	33.6	34.3	24.3	1.5	ACS800-204-0031-5	R4i + RLCL-11-5
78.3	94.7	137.9	67.8	67.1	91.0	67.1	69.0	48.8	2.4	ACS800-204-0061-5	R5i + RLCL-12-5
180	218	327	156	154	210	148	163	115	4	ACS800-204-0165-5	R7i + ALCL-04-5
220	267	399	191	189	256	181	200	141	4.4	ACS800-204-0195-5	R7i + ALCL-05-5
270	327	475	234	231	314	222	245	173	6.2	ACS800-204-0230-5	R8i + ALCL-12-5
360	436	633	312	309	419	296	327	231	8.4	ACS800-204-0310-5	R8i + ALCL-13-5
450	546	792	390	386	524	370	408	289	10.6	ACS800-204-0390-5	R8i + ALCL-14-5
600	727	1056	520	514	698	494	544	385	14.9	ACS800-204-0520-5	R8i + ALCL-15-5
900	1091	1584	779	772	1048	741	816	577	21.2	ACS800-204-0780-5	2xR8i + ALCL-24-5
1176	1426	2069	1018	1008	1369	968	1067	754	28.9	ACS800-204-1020-5	2xR8i + ALCL-25-5
1746	2117	3072	1512	1497	2032	1437	1584	1120	42.7	ACS800-204-1510-5	3xR8i + 2xALCL-24-5
2304	2794	4054	1995	1975	2682	1896	2090	1478	56.1	ACS800-204-2000-5	4xR8i + 2xALCL-25-5
3420	4147	6017	2962	2932	3981	2815	3102	2193	83	ACS800-204-2960-5	6xR8i + 3xALCL-25-5
6-pulse diode supply unit (DSU)											
286	350	462	247	229	335	219	280	183	1.5	ACS800-304-0320-7	D3
408	500	700	353	327	480	314	400	262	2.4	ACS800-304-0450-7	D3
571	700	924	495	458	670	439	560	367	3.8	ACS800-704-0640-7	D4
816	1000	1400	707	655	960	629	800	524	5	ACS800-704-0910-7	D4
1143	1400	1848	990	917	1340	877	1120	733	7.6	ACS800-704-1370-7	2xD4
1518	1860	2604	1315	1218	1790	1172	1490	976	10	ACS800-704-1810-7	2xD4
2278	2790	3906	1972	1827	2685	1758	2230	1460	15	ACS800-704-2720-7	3xD4
3037	3720	5208	2630	2436	3580	2344	2980	1951	20	ACS800-704-3630-7	4xD4
3796	4650	6510	3287	3045	4475	2930	3720	2436	25	ACS800-704-4540-7	5xD4
6-pulse regenerative thyristor supply unit (TSU)											
981	1202	1947	850	792	1137	749	881	580	6.3	ACS800-404-0850-5	2xB4 + choke
1617	1980	3208	1400	1304	1872	1233	1450	955	10.2	ACS800-404-1400-5	2xB4 + choke
2449	3000	4860	2120	1976	2838	1869	2240	1478	16.5	ACS800-404-2120-5	2xB5 + choke
2858	3500	5670	2475	2305	3310	2180	2618	1724	20.8	ACS800-404-2600-5	2xB5 + choke
12-pulse diode supply unit (DSU)											
571	700	924	495	458	670	439	560	367	3.8	ACS800-704-0640-7	D4
816	1000	1400	707	655	960	629	800	524	5	ACS800-704-0910-7	D4
1143	1400	1848	990	917	1340	877	1120	733	7.6	ACS800-704-1370-7	2xD4
1518	1860	2604	1315	1218	1790	1172	1490	976	10	ACS800-704-1810-7	2xD4
2278	2790	3906	1972	1827	2685	1758	2230	1460	15	ACS800-704-2720-7	3xD4
3037	3720	5208	2630	2436	3580	2344	2980	1951	20	ACS800-704-3630-7	4xD4
3796	4650	6510	3287	3045	4475	2930	3720	2436	25	ACS800-704-4540-7	5xD4

Dimensions

Frame size	Height mm	Width mm	Depth mm	Weight kg	Noise level dB(A)	Air flow m³/h
IGBT supply unit (ISU)						
R2i	401	165	193	9	62	35
R3i	466	173	232	12	62	69
R4i	525	240	252	15	62	103
R5i	673	265	276	23	65	250
R7i [1]	963	170	408	38	72 [4]	800
R8i	1397	245	596	130	74 [4]	1280
2xR8i	1397	245 [2]	596	260	76 [4]	2560
3xR8i	1397	245 [2]	596	390	78 [4]	3840
4xR8i	1397	245 [2]	596	520	78 [4]	5120
6xR8i	1397	245 [2]	596	780	80 [4]	7680
LCL-filter for IGBT supply unit (ISU)						
RLCL-01-5	850	173	137	15	69	-
RLCL-02-5	850	173	137	15	69	-
RLCL-03-5	850	173	137	20	69	-
RLCL-11-5	920	265	169.5	40	69	-
RLCL-12-5	920	265	169.5	50	69	-
ALCL-0X-X	810	304	292	72	-	480
ALCL-1X-X	1397	240	499	180	-	400
ALCL-2X-X	1397	240	573	305	-	1280

Frame size	Height mm	Width mm	Depth mm	Weight kg	Noise level dB(A)	Air flow m³/h
6-pulse diode supply unit (DSU)						
D3	1480	234	400 [3]	130	65	720
D4	1480	234	400 [3]	180	65	720
2XD4	1480	234 [2]	400 [3]	360	67	1440
3XD4	1480	234 [2]	400 [3]	540	68	2160
4XD4	1480	234 [2]	400 [3]	720	69	2880
5XD4	1480	234 [2]	400 [3]	900	70	3600
6-pulse regenerative thyristor supply unit (TSU)						
2XB4	1808	340 [2]	430	110 [2]	72 [5]	2000
2XB5	1808	420 [2]	430	150 [2]	75 [5]	3400
DC chokes for 6-pulse regenerative supply unit (TSU)						
choke B4	771	348	449	110	-	600
choke B5	991	348	449	150	-	700
12-pulse diode supply unit (DSU)						
D4	1480	234	400 [3]	180	65	720
2XD4	1480	234 [2]	400 [3]	360	67	1440
3XD4	1480	234 [2]	400 [3]	540	68	2160
4XD4	1480	234 [2]	400 [3]	720	69	2880
5XD4	1480	234 [2]	400 [3]	900	70	3600

[1]) Dimensions do not include cooling fan.
[2]) Single module only.
[3]) Cable connections need additional space (about 200 mm) behind the module.
[4]) Supply modules + filters.
[5]) Supply modules + choke.

Ratings, types and voltages
ACS800-X04, drive module, U_N = 690 V

ACS800	-	X04	-	XXXX	-	7	+	XXXX

Nominal ratings		No-overload use	Light-overload use		Heavy-duty use		Heat dissipation	Type designation	Frame size
$I_{cont.max}$ A	I_{max} A	$P_{cont.max}$ kW	I_N A	P_N kW	I_{hd} A	P_{hd} kW	kW		
U_N = 690 V (Range 525 to 690 V). The power ratings are valid at nominal voltage 690 V.									
13	14	11	12	7.5	8.5	5.5	0.3	ACS800-104-0011-7	R4i
17	19	15	16	11	11	7.5	0.3	ACS800-104-0016-7	R4i
22	28	18.5	21	15	15	11	0.4	ACS800-104-0020-7	R4i
25	38	22	24	18.5	19	15	0.5	ACS800-104-0025-7	R4i
33	44	30	32	22	22	18.5	0.6	ACS800-104-0030-7	R4i
36	54	30	35	30	27	22	0.7	ACS800-104-0040-7	R4i
51	68	45	49	37	34	30	0.8	ACS800-104-0050-7	R5i
57	84	55	55	45	42	37	1	ACS800-104-0060-7	R5i
69	104	55	66	55	52	45	1.1	ACS800-104-0075-7	R7i
88	132	75	84	75	66	55	1.3	ACS800-104-0105-7	R7i
105	158	90	101	90	79	75	1.6	ACS800-104-0125-7	R7i
132	198	110	127	110	99	90	2	ACS800-104-0145-7	R7i
150	224	132	144	132	112	90	2.3	ACS800-104-0175-7	R7i
170	254	160	163	160	127	110	2	ACS800-104-0215-7	R7i
215	322	200	206	200	161	160	3.6	ACS800-104-0260-7	R8i
289	432	250	277	250	216	200	4.8	ACS800-104-0320-7	R8i
336	503	315	323	315	251	240	6.1	ACS800-104-0400-7	R8i
382	571	355	367	355	286	270	7	ACS800-104-0440-7	R8i
486	727	450	467	450	364	355	7.5	ACS800-104-0580-7	R8i
729	1091	710	700	710	545	500	13	ACS800-104-0870-7	2xR8i
953	1425	900	914	900	713	710	15	ACS800-104-1160-7	2xR8i
1414	2116	1400	1358	1400	1058	1000	22	ACS800-104-1740-7	3xR8i
1866	2792	1900	1792	1800	1396	1400	29	ACS800-104-2320-7	4xR8i
2321	3472	2300	2228	2200	1736	1600	35	ACS800-104-2900-7	5xR8i
2770	4144	2800	2659	2700	2072	2000	42	ACS800-104-3490-7	6xR8i

Dimensions

Frame size	Height mm	Width mm	Depth mm	Weight kg	Noise level dB(A)	Air flow m³/h
R2i	401	165	193 [3]	9	62	35
R3i	466	173	232 [3]	12	62	69
R4i	525	240	252 [3]	15	62	103
R5i	673	265	276 [3]	23	65	168
R7i [1]	963	170	408	38	64	800
R8i	1397	245	596	130	72	1280
2xR8i	1397	245 [2]	596	260	74	2560
3xR8i	1397	245 [2]	596	390	76	3840
4xR8i	1397	245 [2]	596	520	76	5120
5xR8i	1397	245 [2]	596	650	77	6400
6xR8i	1397	245 [2]	596	780	78	7680

[1] Dimensions do not include cooling fan.
[2] Single module only.
[3] The depth is without control panels and options.

Type designation	Height mm	Width mm	Depth mm
RDCU control unit *)	282	126	41

*) Delivered with R7i to nxR8i

Nominal ratings	
$I_{cont.max}$	Rated current available continuously without overloadability at 40 °C.
I_{max}	Maximum output current. Available for 10 s at start, otherwise as long as allowed by drive temperature.
Typical ratings: No-overload use	
$P_{cont.max}$	Typical motor power in no-overload use.
Light-overload use	
I_N	Continuous current allowing 110% I_N for 1 min/5 min at 40 °C.
P_N	Typical motor power in light-overload use.
Heavy-duty use	
I_{hd}	Continuous current allowing 150% I_{hd} for 1 min/5 min at 40 °C.
P_{hd}	Typical motor power in heavy-duty use.

The current ratings are the same regardless of the supply voltage within one voltage range.

The ratings apply in 40 °C ambient temperature. In lower temperatures the ratings are higher (except I_{max}).

The rated current of the ACS800 must be higher than or equal to the rated motor current to achieve the rated motor power given in the table.

Ratings, types and voltages
ACS800-X04, supply module, U_N = 690 V

ACS800	-	X04	-	XXXX	-	7	+	XXXX

Nominal ratings				No-overload use	Light-overload use		Heavy-duty use		Heat dissipation	Type designation	Frame size
$I_{cont.\ max}$ A (AC)	$I_{cont.\ max}$ A (DC)	I_{max} A (DC)	S_N kVA	$P_{cont.\ max}$ kW (DC)	I_N A (DC)	P_N kW (DC)	I_{hd} A (DC)	P_{hd} kW (DC)	kW		
U_N = 690 V (Range 525 to 690 V). The power ratings are valid at nominal voltage 690 V.											
IGBT supply module (ISU)											
119	144	216	142	141	139	135	108	105	4.6	ACS800-204-0155-7	R7i + ALCL-04-7
135	164	245	161	160	157	153	122	119	5.2	ACS800-204-0175-7	R7i + ALCL-05-7
180	218	327	215	213	210	204	163	159	8.3	ACS800-204-0220-7	R8i + ALCL-12-7
250	303	453	299	296	291	284	227	221	9.4	ACS800-204-0300-7	R8i + ALCL-13-7
300	364	544	359	355	349	341	272	266	13.3	ACS800-204-0360-7	R8i + ALCL-14-7
400	485	726	478	473	466	454	363	354	14.6	ACS800-204-0480-7	R8i + ALCL-15-7
600	727	1088	717	710	698	682	544	531	26.6	ACS800-204-0720-7	2xR8i + ALCL-24-7
784	951	1422	937	928	913	890	711	694	28.5	ACS800-204-0940-7	2xR8i + ALCL-25-7
1164	1411	2111	1391	1377	1355	1322	1056	1030	42.3	ACS800-204-1390-7	3xR8i + 2xALCL-24-5
1536	1862	2786	1836	1817	1788	1745	1393	1359	55.7	ACS800-204-1840-7	4xR8i + 2xALCL-25-7
2280	2764	4136	2725	2698	2654	2590	2068	2018	83	ACS800-204-2730-7	6xR8i + 3xALCL-25-7
6-pulse diode supply unit (DSU)											
286	350	462	341	316	335	303	280	253	1.5	ACS800-304-0320-7	D3
408	500	700	488	452	480	434	400	361	2.4	ACS800-304-0450-7	D3
571	700	924	683	632	670	605	560	506	3.8	ACS800-704-0640-7	D4
816	1000	1400	976	904	960	867	800	723	5	ACS800-704-0910-7	D4
1143	1400	1848	1366	1265	1340	1211	1120	1012	7.6	ACS800-704-1370-7	2xD4
1518	1860	2604	1815	1681	1790	1617	1490	1346	10	ACS800-704-1810-7	2xD4
2278	2790	3906	2722	2521	2685	2426	2230	2015	15	ACS800-704-2720-7	3xD4
3037	3720	5208	3629	3361	3580	3235	2980	2693	20	ACS800-704-3630-7	4xD4
3796	4650	6510	4537	4202	4475	4043	3720	3361	25	ACS800-704-4540-7	5xD4
6-pulse regenerative thyristor supply unit (TSU)											
711	871	1411	850	784	824	742	637	574	6.3	ACS800-404-0850-7	2xB4 + choke
1171	1435	2325	1400	1292	1353	1219	1050	946	10.2	ACS800-404-1400-7	2xB4 + choke
2176	2664	4316	2600	2399	2519	2269	1993	1795	16.5	ACS800-404-2600-7	2xB5 + choke
2858	3500	5670	3415	3152	3311	2982	2618	2358	20.8	ACS800-404-3600-7	2xB5 + choke
12-pulse diode supply unit (DSU)											
571	700	924	683	632	670	605	560	506	3.8	ACS800-704-0640-7	D4
816	1000	1400	976	904	960	867	800	723	5	ACS800-704-0910-7	D4
1143	1400	1848	1366	1265	1340	1211	1120	1012	7.6	ACS800-704-1370-7	2xD4
1518	1860	2604	1815	1681	1790	1617	1490	1346	10	ACS800-704-1810-7	2xD4
2278	2790	3906	2722	2521	2685	2426	2230	2015	15	ACS800-704-2720-7	3xD4
3037	3720	5208	3629	3361	3580	3235	2980	2693	20	ACS800-704-3630-7	4xD4
3796	4650	6510	4537	4202	4475	4043	3720	3361	25	ACS800-704-4540-7	5xD4

Dimensions

Frame size	Height mm	Width mm	Depth mm	Weight kg	Noise level dB(A)	Air flow m³/h
IGBT supply unit (ISU)						
R7i [1]	963	170	408	38	72 [4]	800
R8i	1397	245	596	130	74 [4]	1280
2xR8i	1397	245 [2]	596	260	76 [4]	2560
3xR8i	1397	245 [2]	596	390	78 [4]	3840
4xR8i	1397	245 [2]	596	520	78 [4]	5120
6xR8i	1397	245 [2]	596	780	80 [4]	7680
LCL-filter for IGBT supply unit (ISU)						
ALCL-0X-X	810	304	292	72	-	480
ALCL-1X-X	1397	240	499	180	-	400
ALCL-2X-X	1397	240	573	305	-	1280
6-pulse diode supply unit (DSU)						
D3	1480	234	400 [3]	130	65	720
D4	1480	234	400 [3]	180	65	720
2XD4	1480	234 [2]	400 [3]	360	67	1440
3XD4	1480	234 [2]	400 [3]	540	68	2160
4XD4	1480	234 [2]	400 [3]	720	69	2880
5XD4	1480	234 [2]	400 [3]	900	70	3600

[1]) Dimensions do not include cooling fan.
[2]) Single module only.
[3]) Cable connections need additional space (about 200 mm) behind the module.
[4]) Supply modules + filters.
[5]) Supply modules + choke.

Frame size	Height mm	Width mm	Depth mm	Weight kg	Noise level dB(A)	Air flow m³/h
6-pulse regenerative thyristor supply unit (TSU)						
2XB4	1808	340 [2]	430	110 [2]	72 [5]	2000
2XB5	1808	420 [2]	430	150 [2]	75 [5]	3400
DC chokes for 6-pulse regenerative supply unit (TSU)						
choke B4	771	348	449	110	-	600
choke B5	991	348	449	150	-	700
12-pulse diode supply unit (DSU)						
D4	1480	234	400 [3]	180	65	720
2XD4	1480	234 [2]	400 [3]	360	67	1440
3XD4	1480	234 [2]	400 [3]	540	68	2160
4XD4	1480	234 [2]	400 [3]	720	69	2880
5XD4	1480	234 [2]	400 [3]	900	70	3600

Nominal ratings	
$I_{cont.max}$	Rated current available continuously without overloadability at 40 °C.
I_{max}	Maximum output current.
S_N	Nominal apparent power.
Typical ratings: No-overload use	
$P_{cont.max}$	Power in no-overload use.
Light-overload use	
I_N	Continuous current allowing 110% I_N for 1 min/5 min at 40 °C.
P_N	Power in light-overload use.
Heavy-duty use	
I_{hd}	Continuous current allowing 150% I_{hd} for 1 min/5 min at 40 °C.
P_{hd}	Power in heavy-duty use.

The current ratings are the same regardless of the supply voltage within one voltage range.

The ratings apply in 40 °C ambient temperature. In lower temperatures the ratings are higher (except I_{max}).

Liquid-cooled modules
ACS800-04LC/-X04LC

ACS800	-	04LC X04LC	-	XXXX	-	3 5 7	+	XXXX

Solutions for high power drives
The liquid-cooled ACS800 frequency converter modules offer robust design for high-power applications. The liquid-cooled ACS800 product family provides advanced reliability and availability in all industry sectors.

Customer specific design
The liquid-cooled ACS800 is available for single and system drive purposes. The modular hardware design and advanced software features enable the most sophisticated drive solutions. Our customised solutions provide the optimum customer benefits for any demanding application. Our product know-how is at your service.

Advanced liquid-cooling
The ACS800 can utilize direct liquid-cooling which makes the converter extremely compact and silent. Liquid-cooling reduces the need for high-power filtered air cooling in the installation rooms. Along with the high efficiency, direct liquid-cooling offers low noise and easy heat transfer without air filtering problems.

Support for cabinet assembly
A full selection of both mechanical and electrical installation kits is available for liquid-cooled ACS800 frequency converter modules. These make cabinet installation into RITTAL TS8 cabinets efficient and easy. A large variety of support material such as dimensional drawings and circuit diagrams is also available for making cabinet assembly, planning and implementation as straightforward and rapid as possible. It is also possible to use optional installation racks instead of cabinets. Installation racks are a compact and cost efficient way to assemble a full liquid-cooled ACS800 frequency converter drive system inside a closed environment such as, for example, a container without an existing air-conditioning system.

Full selection of drive module products
The liquid-cooled ACS800 frequency converter module product family includes diode and regenerative IGBT supply units, a large variety of inverter units, high power dynamic braking unit modules, and liquid cooling units for all demanding customer needs. Both diode supply units and regenerative IGBT supply units are available with a wide power range and high power density. When high capacity braking is needed and the drive cannot be equipped with a regenerative supply unit, it is possible to use three-phase liquid-cooled dynamic braking unit modules. With a liquid cooling unit it is possible to add supply, inverter and brake unit piping and heat exchangers to the same closed-loop cooling system. The liquid-cooled modules are available in both multidrive and single drive modules.

ACS800-704LC, D4

ACS800-104LC, R8i

Ratings, types and voltages
ACS800-04LC, single drive module, U_N= 400 to 690 V

ACS800	-	04LC	-	XXXX	-	3 5 7	+	XXXX

Nominal ratings		No-overload use	Light-overload use		Heavy-duty use		Heat dissipation	Mass flow [1]	Type designation	Frame size
$I_{cont.max}$ A	I_{max} A	$P_{cont.max}$ kW	I_N A	P_N kW	I_{hd} A	P_{hd} kW	kW	l/min		
U_N = 400 V (Range 380 to 415 V) The power ratings are valid at nominal voltage 400 V.										
563	674	315	540	315	421	200	8.7	32	ACS800-04LC-0390-3	1xD3 + 1xR8i
678	837	355	651	355	507	250	10	32	ACS800-04LC-0470-3	1xD3 + 1xR8i
889	1037	500	853	400	665	355	14	32	ACS800-04LC-0620-3	1xD3 + 1xR8i
1103	1279	630	1059	560	825	450	16	45	ACS800-04LC-0760-3	1xD4 + 2xR8i
1329	1590	710	1276	710	994	500	21	45	ACS800-04LC-0920-3	1xD4 + 2xR8i
1742	1994	900	1673	900	1303	710	26	45	ACS800-04LC-1210-3	1xD4 + 2xR8i
1973	2347	1120	1894	1120	1476	900	28	77	ACS800-04LC-1370-3	2xD4 + 3xR8i
2587	2941	1400	2484	1400	1935	1120	37	77	ACS800-04LC-1790-3	2xD4 + 3xR8i
3414	3906	2000	3277	2000	2553	1400	51	90	ACS800-04LC-2370-3	2xD4 + 4xR8i
U_N = 500 V (Range 380 to 500 V). The power ratings are valid at nominal voltage 500 V.										
546	673	355	524	355	408	315	8.7	32	ACS800-04LC-0470-5	1xD3 + 1xR8i
630	838	400	605	400	471	355	10	32	ACS800-04LC-0550-5	1xD3 + 1xR8i
840	1042	560	806	560	628	400	13	32	ACS800-04LC-0730-5	1xD3 + 1xR8i
1070	1280	710	1027	710	800	560	16	45	ACS800-04LC-0930-5	1xD4 + 2xR8i
1235	1589	900	1185	900	924	630	19	45	ACS800-04LC-1070-5	1xD4 + 2xR8i
1646	1996	1120	1581	1120	1232	710	25	45	ACS800-04LC-1430-5	1xD4 + 2xR8i
1833	2344	1250	1760	1250	1371	900	29	58	ACS800-04LC-1590-5	1xD4 + 3xR8i
2444	2943	1600	2347	1600	1828	1250	36	77	ACS800-04LC-2120-5	2xD4 + 3xR8i
3226	3885	2240	3097	2240	2413	1600	49	90	ACS800-04LC-2790-5	2xD4 + 4xR8i
U_N = 690 V (Range 525 to 690 V). The power ratings are valid at nominal voltage 690 V.										
583	872	560	560	500	436	400	12	32	ACS800-04LC-0700-7	1xD3 + 1xR8i
790	1182	710	759	710	591	560	17	45	ACS800-04LC-0940-7	1xD3 + 2xR8i
898	1344	900	863	900	672	630	19	45	ACS800-04LC-1070-7	1xD3 + 2xR8i
1143	1710	1120	1097	1120	855	710	22	45	ACS800-04LC-1370-7	1xD4 + 2xR8i
1334	1996	1250	1281	1250	998	900	28	58	ACS800-04LC-1590-7	1xD4 + 3xR8i
1697	2538	1600	1629	1600	1269	1250	34	58	ACS800-04LC-2030-7	1xD4 + 3xR8i
2239	3350	2240	2150	2000	1675	1600	44	90	ACS800-04LC-2680-7	2xD4 + 4xR8i

[1] Pressure loss 100 kPa. Hydrostatic pressure loss 120 kPa due to 2 m height difference.

Dimensions

Frame size	Height mm	Width mm	Depth [1] mm	Weight kg
D3	975	311	474	140
D4	975	311	474	210
R8i	918	214	478	115

Nominal ratings	
$I_{cont.max}$	Rated current available continuously without overloadability at 42 °C liquid temperature.
I_{max}	Maximum output current. Available for 10 s at start, otherwise as long as allowed by drive temperature. Note: max. motor shaft power is 150% P_{hd}.
Typical ratings: No-overload use	
$P_{cont.max}$	Typical motor power in no-overload use.
Light-overload use	
I_N	Continuous base current allowing 110% overload for 1 min /5 min.
P_N	Typical motor power in light-overload use.
Heavy-duty use	
I_{hd}	Continuous base current allowing 150% overload for 1 min /5 min.
P_{hd}	Typical motor power in heavy-duty use.
Losses	
P_{loss}	Power loss conducted to coolant.

The current ratings are the same regardless of the supply voltage within one voltage range.

Ratings, types and voltages
ACS800-X04LC, drive module, U_N= 400 V

ACS800	-	X04LC	-	XXXX	-	3	+	XXXX

Inverter unit modules (INU)

Nominal ratings		No-overload use	Light-overload use		Heavy-duty use		Losses [1]	Mass flow [2]	Type designation	Frame size
$I_{cont.\ max}$ A	I_{max} A	$P_{cont.\ max}$ kW	I_N A	P_N kW	I_{hd} A	P_{hd} kW	P_{loss} kW	l/min		
U_N = 400 V (Range 380 to 415 V). The power ratings are valid at nominal voltage 400 V.										
5.1	6.5	1.5	4.7	1.5	3.4	1.1	0.1	6	ACS800-104LC-0003-3	R2i
6.5	8.2	2.2	5.9	2.2	4.3	1.5	0.1	6	ACS800-104LC-0004-3	R2i
8.5	10.8	3	7.7	3	5.7	2.2	0.1	6	ACS800-104LC-0005-3	R2i
10.9	13.8	4	10.2	4	7.5	3	0.1	6	ACS800-104LC-0006-3	R2i
13.9	17.6	5.5	12.7	5.5	9.3	4	0.2	6	ACS800-104LC-0009-3	R2i
19	24	7.5	18	7.5	14	5.5	0.3	6	ACS800-104LC-0011-3	R3i
25	32	11	24	11	19	7.5	0.3	6	ACS800-104LC-0016-3	R3i
34	46	15	31	15	23	11	0.4	6	ACS800-104LC-0020-3	R3i
44	62	22	41	18.5	32	15	0.5	6	ACS800-104LC-0025-3	R4i
55	72	30	50	22	37	18.5	0.6	6	ACS800-104LC-0030-3	R4i
72	86	37	69	30	49	22	0.8	6	ACS800-104LC-0040-3	R5i
86	112	45	80	37	60	30	1.0	6	ACS800-104LC-0050-3	R5i
103	138	55	94	45	69	37	1.2	6	ACS800-104LC-0060-3	R5i
176	251	90	169	90	132	55	1.6	13	ACS800-104LC-0120-3	R7i
214	251	110	205	110	160	75	2.1	13	ACS800-104LC-0150-3	R7i
250	335	132	240	132	187	90	2.3	13	ACS800-104LC-0170-3	R7i
300	448	160	288	160	224	110	2.6	13	ACS800-104LC-0210-3	R7i
350	524	200	336	200	262	132	3.8	13	ACS800-104LC-0240-3	R8i
444	558	250	426	250	332	160	5.0	13	ACS800-104LC-0310-3	R8i
563	674	315	540	315	421	200	5.9	13	ACS800-104LC-0390-3	R8i
678	837	355	651	355	507	250	7.3	13	ACS800-104LC-0470-3	R8i
889	1037	500	853	400	665	355	9.2	13	ACS800-104LC-0620-3	R8i
1103	1279	630	1059	560	825	450	11.4	26	ACS800-104LC-0760-3	2xR8i
1329	1590	710	1276	710	994	500	14.2	26	ACS800-104LC-0920-3	2xR8i
1742	1994	900	1673	900	1303	710	17.9	26	ACS800-104LC-1210-3	2xR8i
1973	2347	1120	1894	1120	1476	900	20.9	39	ACS800-104LC-1370-3	3xR8i
2587	2941	1400	2484	1400	1935	1120	26.6	39	ACS800-104LC-1790-3	3xR8i
3414	3906	2000	3277	2000	2553	1400	34.8	52	ACS800-104LC-2370-3	4xR8i

Nominal ratings				No-overload use	Light-overload use		Heavy-duty use		Losses [1]				Mass flow [2]	Type designation	Frame size
$I_{cont.\ max}$ A (AC)	$I_{cont.max}$ A (DC)	I_{max} A (DC)	S_N kVA	$P_{cont.\ max}$ kW (DC)	I_N A (DC)	P_N kW	I_{hd} A (DC)	P_{hd} kW	P_{loss} kW	$P_{lossISU}$ kW	$P_{lossLCL}$ kW	$P_{loss\ tot}$ kW	l/min		
U_N = 400 V (Range 380 to 415 V). The power ratings are valid at nominal 400 V.															
IGBT supply unit modules (ISU)															
341	413	471	245	243	397	233	309	181	-	4.4	3.0	7.4	22	ACS800-204LC-0240-3	R8i
454	550	627	326	323	528	310	411	241	-	5.6	3.1	8.7	22	ACS800-204LC-0330-3	R8i
567	687	784	408	403	660	387	514	302	-	6.7	3.4	10.1	22	ACS800-204LC-0410-3	R8i
756	917	1046	543	538	880	516	686	402	-	8.9	4.0	12.9	22	ACS800-204LC-0540-3	R8i
1134	1375	1568	815	807	1320	775	1028	604	-	13.5	5.6	19.1	40	ACS800-204LC-0820-3	2xR8i
1482	1797	2049	1065	1054	1725	1012	1344	789	-	17.3	7.9	25.3	40	ACS800-204LC-1070-3	2xR8i
2200	2667	3042	1581	1565	2560	1503	1995	1171	-	25.7	12.0	37.8	66	ACS800-204LC-1580-3	3xR8i
2903	3520	4015	2087	2066	3379	1983	2633	1545	-	33.8	15.8	49.7	80	ACS800-204LC-2090-3	4xR8i
6-pulse, diode supply unit modules (DSU)															
572	700	980	396	378	672	363	560	303	3.6	-	-	-	19	ACS800-304LC-0680-7	1xD3
898	1100	1540	622	594	1056	570	880	475	5.9	-	-	-	19	ACS800-304LC-1070-7	1xD3
1143	1400	1960	792	756	1344	726	1120	605	7.2	-	-	-	19	ACS800-704LC-1370-7	1xD4
1796	2200	3080	1245	1188	2112	1141	1760	951	11.8	-	-	-	19	ACS800-704LC-2150-7	1xD4
2126	2604	3646	1473	1407	2500	1350	2083	1125	13.0	-	-	-	38	ACS800-704LC-2540-7	2xD4
3200	3919	5487	2217	2117	3762	2032	3135	1694	19.7	-	-	-	38	ACS800-704LC-3820-7	2xD4
12-pulse, diode supply unit modules (DSU)															
1143	1400	1960	792	756	1344	726	1120	605	7.2	-	-	-	19	ACS800-704LC-1370-7	1xD4
1796	2200	3080	1245	1188	2112	1141	1760	951	11.8	-	-	-	19	ACS800-704LC-2150-7	1xD4
2126	2604	3646	1473	1407	2500	1350	2083	1125	13.0	-	-	-	38	ACS800-704LC-2540-7	2xD4
3200	3919	5487	2217	2117	3762	2032	3135	1694	19.7	-	-	-	38	ACS800-704LC-3820-7	2xD4

[1] In totally enclosed cabinet 98% of losses are conducted to coolant, 2% to ambient air.
[2] Pressure loss 100 kPa. Hydrostatic pressure loss 120 kPa due to 2 m height difference.

Nominal ratings	
$I_{cont.max}$	Rated current available continuously without overloadability at 42 °C liquid temperature.
I_{max}	Maximum output current. Available for 10 s at start, otherwise as long as allowed by drive temperature. Note: max. motor shaft power is 150% P_{hd}.
S_n	Nominal apparent power.
No-overload use	
$P_{cont.max}$	Typical motor power in no-overload use.
Light-overload use	
I_N	Continuous base current allowing 110% overload for 1 min /5 min.
P_N	Typical motor power in light-overload use.

Heavy-duty use	
I_{hd}	Continuous base current allowing 150% overload for 1 min /5 min.
P_{hd}	Typical motor power in heavy-duty use.
Losses	
P_{loss}	Power loss conducted to coolant.
$P_{lossISU}$	Power loss of supply module(s).
$P_{lossLCL}$	Power loss of supply LCL filter.
$P_{loss\ tot}$	Sum of $P_{lossISU}$ and $P_{lossLCL}$.

The current ratings are the same regardless of the supply voltage within one voltage range.

Ratings, types and voltages
ACS800-X04LC, drive module, U_N= 500 V

ACS800	-	X04LC	-	XXXX	-	5	+	XXXX

Inverter unit modules (INU)

Nominal ratings		No-overload use	Light-overload use		Heavy-duty use		Losses [1]	Mass flow [2]	Type designation	Frame size
$I_{cont.\ max}$ A	I_{max} A	$P_{cont.\ max}$ kW	I_N A	P_N kW	I_{hd} A	P_{hd} kW	P_{loss} kW	l/min		
U_N = 500 V (Range 380 to 500 V). The power ratings are valid at nominal voltage 500 V.										
4.9	6.5	2.2	4.5	2.2	3.4	1.5	0.1	6	ACS800-104LC-0004-5	R2i
6.2	8.2	3	5.6	3	4.2	2.2	0.1	6	ACS800-104LC-0005-5	R2i
8.1	10.8	4	7.7	4	5.6	3	0.2	6	ACS800-104LC-0006-5	R2i
10.5	13.8	5.5	10	5.5	7.5	4	0.2	6	ACS800-104LC-0009-5	R2i
13.2	17.6	7.5	12	7.5	9.2	5.5	0.3	6	ACS800-104LC-0011-5	R2i
19	24	11	18	11	13	7.5	0.3	6	ACS800-104LC-0016-5	R3i
25	32	15	23	15	18	11	0.4	6	ACS800-104LC-0020-5	R3i
34	46	18.5	31	18.5	23	15	0.5	6	ACS800-104LC-0025-5	R3i
42	62	22	39	22	32	18.5	0.6	6	ACS800-104LC-0030-5	R4i
48	72	30	44	30	36	22	0.8	6	ACS800-104LC-0040-5	R4i
65	86	37	61	37	50	30	1.0	6	ACS800-104LC-0050-5	R5i
79	112	45	75	45	60	37	1.2	6	ACS800-104LC-0060-5	R5i
96	138	55	88	55	69	45	1.4	6	ACS800-104LC-0070-5	R5i
138	206	90	132	90	103	55	1.3	13	ACS800-104LC-0120-5	R7i
162	242	110	156	110	121	75	1.6	13	ACS800-104LC-0140-5	R7i
199	252	132	191	132	149	90	2.0	13	ACS800-104LC-0170-5	R7i
250	335	160	240	160	187	110	2.5	13	ACS800-104LC-0220-5	R7i
300	448	200	288	200	224	160	2.7	13	ACS800-104LC-0260-5	R7i
378	558	250	363	250	283	200	4.4	13	ACS800-104LC-0330-5	R8i
438	558	315	420	315	328	250	5.2	13	ACS800-104LC-0380-5	R8i
546	673	355	524	355	408	315	6.0	13	ACS800-104LC-0470-5	R8i
630	838	400	605	400	471	355	7.0	13	ACS800-104LC-0550-5	R8i
840	1042	560	806	560	628	400	8.9	13	ACS800-104LC-0730-5	R8i
1070	1280	710	1027	710	800	560	11.5	26	ACS800-104LC-0930-5	2xR8i
1235	1589	900	1185	900	924	630	13.6	26	ACS800-104LC-1070-5	2xR8i
1646	1996	1120	1581	1120	1232	710	17.4	26	ACS800-104LC-1430-5	2xR8i
1833	2344	1250	1760	1250	1371	900	20.1	39	ACS800-104LC-1590-5	3xR8i
2444	2943	1600	2347	1600	1828	1250	25.9	39	ACS800-104LC-2120-5	3xR8i
3226	3885	2240	3097	2240	2413	1600	33.8	52	ACS800-104LC-2790-5	4xR8i

Nominal ratings				No-overload use	Light-overload use		Heavy-duty use		Losses [1]				Mass flow [2]	Type designation	Frame size
$I_{cont.\ max}$ A (AC)	$I_{cont.max}$ A (DC)	I_{max} A (DC)	S_N kVA	$P_{cont.\ max}$ kW (DC)	I_N A (DC)	P_N kW	I_{hd} A (DC)	P_{hd} kW	P_{loss} kW	$P_{lossISU}$ kW	$P_{lossLCL}$ kW	$P_{loss\ tot}$ kW	l/min		
U_N = 500 V (Range 380 to 500 V). The power ratings are valid at nominal 500 V.															
IGBT supply unit modules (ISU)															
324	393	475	281	278	377	267	294	208	-	4.5	3.0	7.5	22	ACS800-204LC-0280-5	R8i
432	524	633	374	370	503	356	392	277	-	5.7	3.1	8.8	22	ACS800-204LC-0370-5	R8i
540	655	792	468	463	629	444	490	346	-	6.8	3.4	10.2	22	ACS800-204LC-0470-5	R8i
720	873	1056	624	617	838	593	653	462	-	9.0	4.0	13.0	22	ACS800-204LC-0620-5	R8i
1080	1309	1584	935	926	1257	889	980	693	-	13.7	5.6	19.3	40	ACS800-204LC-0940-5	2xR8i
1411	1711	2069	1222	1210	1643	1162	1280	905	-	17.6	7.9	25.5	40	ACS800-204LC-1220-5	2xR8i
2095	2540	3072	1814	1796	2439	1724	1900	1344	-	26.1	12.0	38.2	66	ACS800-204LC-1810-5	3xR8i
2765	3352	4054	2394	2370	3218	2276	2508	1773	-	34.3	15.8	50.2	80	ACS800-204LC-2390-5	4xR8i
6-pulse, diode supply unit modules (DSU)															
572	700	980	396	378	672	363	560	303	3.6	-	-	-	19	ACS800-304LC-0680-7	1xD3
898	1100	1540	622	594	1056	570	880	475	5.9	-	-	-	19	ACS800-304LC-1070-7	1xD3
1143	1400	1960	792	756	1344	726	1120	605	7.2	-	-	-	19	ACS800-704LC-1370-7	1xD4
1796	2200	3080	1245	1188	2112	1141	1760	951	11.8	-	-	-	19	ACS800-704LC-2150-7	1xD4
2126	2604	3646	1473	1407	2500	1350	2083	1125	13.0	-	-	-	38	ACS800-704LC-2540-7	2xD4
3200	3919	5487	2217	2117	3762	2032	3135	1694	19.7	-	-	-	38	ACS800-704LC-3820-7	2xD4
12-pulse, diode supply unit modules (DSU)															
1143	1400	1960	990	945	1344	908	1120	756	7.2	-	-	-	19	ACS800-704LC-1370-7	1xD4
1796	2200	3080	1556	1486	2112	1426	1760	1188	11.8	-	-	-	19	ACS800-704LC-2150-7	1xD4
2126	2604	3646	1841	1758	2500	1688	2083	1407	13.0	-	-	-	38	ACS800-704LC-2540-7	2xD4
3200	3919	5487	2771	2646	3762	2540	3135	2117	19.7	-	-	-	38	ACS800-704LC-3820-7	2xD4

[1] In totally enclosed cabinet 98% of losses are conducted to coolant, 2% to ambient air.
[2] Pressure loss 100 kPa. Hydrostatic pressure loss 120 kPa due to 2 m height difference.

Nominal ratings	
$I_{cont.max}$	Rated current available continuously without overloadability at 42 °C liquid temperature.
I_{max}	Maximum output current. Available for 10 s at start, otherwise as long as allowed by drive temperature. Note: max. motor shaft power is 150% P_{hd}.
S_n	Nominal apparent power.
No-overload use	
$P_{cont.max}$	Typical motor power in no-overload use.

Light-overload use	
I_N	Continuous base current allowing 110% overload for 1 min /5 min.
P_N	Typical motor power in light-overload use.
Heavy-duty use	
I_{hd}	Continuous base current allowing 150% overload for 1 min /5 min.
P_{hd}	Typical motor power in heavy-duty use.
Losses	
P_{loss}	Power loss conducted to coolant.
$P_{lossISU}$	Power loss of supply module(s).
$P_{lossLCL}$	Power loss of supply LCL filter.
$P_{loss\ tot}$	Sum of $P_{lossISU}$ and $P_{lossLCL}$.

The current ratings are the same regardless of the supply voltage within one voltage range.

Ratings, types and voltages
ACS800-X04LC, drive module, U_N= 690 V

ACS800	-	X04LC	-	XXXX	-	7	+	XXXX

Inverter unit modules (INU)

Nominal ratings		No-overload use	Light-overload use		Heavy-duty use		Losses [1]	Mass flow [2]	Type designation	Frame size
$I_{cont.max}$ A	I_{max} A	$P_{cont.max}$ kW	I_N A	P_N kW	I_{hd} A	P_{hd} kW	P_{loss} kW	l/min		
U_N = 690 V (Range 525 to 690 V). The power ratings are valid at nominal voltage 690 V.										
13	14	11	12	7.5	8.5	5.5	0.3	6	ACS800-104LC-0011-7	R4i
17	19	15	16	11	11	7.5	0.3	6	ACS800-104LC-0016-7	R4i
22	28	18.5	21	15	15	11	0.4	6	ACS800-104LC-0020-7	R4i
25	38	22	24	18.5	19	15	0.5	6	ACS800-104LC-0025-7	R4i
33	44	30	32	22	22	18.5	0.6	6	ACS800-104LC-0030-7	R4i
36	54	30	35	30	27	22	0.7	6	ACS800-104LC-0040-7	R4i
51	68	45	49	37	34	30	0.8	6	ACS800-104LC-0050-7	R5i
57	84	55	55	45	42	37	1.0	6	ACS800-104LC-0060-7	R5i
83	124	75	79	55	62	55	1.2	13	ACS800-104LC-0100-7	R7i
106	158	90	101	90	79	75	1.6	13	ACS800-104LC-0130-7	R7i
126	188	110	121	110	94	90	1.8	13	ACS800-104LC-0150-7	R7i
158	236	132	152	132	118	110	2.4	13	ACS800-104LC-0190-7	R7i
180	270	160	173	160	135	132	2.7	13	ACS800-104LC-0220-7	R7i
204	306	200	196	200	153	160	2.4	13	ACS800-104LC-0240-7	R7i
258	386	250	248	250	193	200	4.8	13	ACS800-104LC-0310-7	R8i
347	518	315	333	315	259	250	5.5	13	ACS800-104LC-0410-7	R8i
403	604	355	387	355	302	315	6.4	13	ACS800-104LC-0480-7	R8i
458	686	450	440	400	343	355	8.2	13	ACS800-104LC-0550-7	R8i
583	872	560	560	500	436	400	8.9	13	ACS800-104LC-0700-7	R8i
790	1182	710	759	710	591	560	12.7	26	ACS800-104LC-0940-7	2xR8i
898	1344	900	863	900	672	630	15.9	26	ACS800-104LC-1070-7	2xR8i
1143	1710	1120	1097	1120	855	710	17.4	26	ACS800-104LC-1370-7	2xR8i
1334	1996	1250	1281	1250	998	900	24.0	39	ACS800-104LC-1590-7	3xR8i
1697	2538	1600	1629	1600	1269	1250	25.8	39	ACS800-104LC-2030-7	3xR8i
2239	3350	2240	2150	2000	1675	1600	34.3	52	ACS800-104LC-2680-7	4xR8i

Nominal ratings				No-overload use	Light-overload use		Heavy-duty use		Losses [1]				Mass flow [2]	Type designation	Frame size
$I_{cont.max}$ A (AC)	$I_{cont.max}$ A (DC)	I_{max} A (DC)	S_N kVA	$P_{cont.max}$ kW (DC)	I_N A (DC)	P_N kW	I_{hd} A (DC)	P_{hd} kW	P_{loss} kW	$P_{lossISU}$ kW	$P_{lossLCL}$ kW	$P_{loss\ tot}$ kW	l/min		
U_N = 690 V (Range 525 to 690 V). The power ratings are valid at nominal 690 V.															
IGBT supply unit modules (ISU)															
216	262	386	258	256	251	245	196	191	-	5.0	2.6	7.6	22	ACS800-204LC-0260-7	R8i
300	364	604	359	355	349	341	272	266	-	5.6	3.1	8.7	22	ACS800-204LC-0360-7	R8i
360	436	686	430	426	419	409	327	319	-	7.6	3.4	11.0	22	ACS800-204LC-0430-7	R8i
480	582	872	574	568	559	545	435	425	-	8.3	4.3	12.6	22	ACS800-204LC-0570-7	R8i
720	873	1344	860	852	838	818	653	637	-	15.2	4.4	19.6	40	ACS800-204LC-0860-7	2xR8i
941	1141	1710	1124	1113	1095	1069	853	833	-	16.2	6.7	22.9	40	ACS800-204LC-1120-7	2xR8i
1397	1694	2538	1669	1653	1626	1587	1267	1236	-	24.1	7.4	31.5	58	ACS800-204LC-1670-7	3xR8i
1843	2235	3350	2203	2181	2145	2094	1672	1631		31.8	13.4	45.2	80	ACS800-204LC-2200-7	4xR8i
6-pulse, diode supply unit modules (DSU)															
572	700	980	683	652	672	626	560	522	3.6	-	-	-	19	ACS800-304LC-0680-7	1xD3
898	1100	1540	1073	1025	1056	984	880	820	5.9	-	-	-	19	ACS800-304LC-1070-7	1xD3
1143	1400	1960	1366	1305	1344	1252	1120	1044	7.2	-	-	-	19	ACS800-704LC-1370-7	1xD4
1796	2200	3080	2147	2050	2112	1968	1760	1640	11.8	-	-	-	19	ACS800-704LC-2150-7	1xD4
2126	2604	3646	2541	2426	2500	2329	2083	1941	13.0	-	-	-	38	ACS800-704LC-2540-7	2xD4
3200	3919	5487	3824	3652	3762	3506	3135	2921	19.7	-	-	-	38	ACS800-704LC-3820-7	2xD4
12-pulse, diode supply unit modules (DSU)															
1143	1400	1960	1366	1305	1344	1252	1120	1044	7.2	-	-	-	19	ACS800-704LC-1370-7	1xD4
1796	2200	3080	2147	2050	2112	1968	1760	1640	11.8	-	-	-	19	ACS800-704LC-2150-7	1xD4
2126	2604	3646	2541	2426	2500	2329	2083	1941	13.0	-	-	-	38	ACS800-704LC-2540-7	2xD4
3200	3919	5487	3824	3652	3762	3506	3135	2921	19.7	-	-	-	38	ACS800-704LC-3820-7	2xD4

[1] In totally enclosed cabinet 98% of losses are conducted to coolant, 2% to ambient air.
[2] Pressure loss 100 kPa. Hydrostatic pressure loss 120 kPa due to 2 m height difference.

Nominal ratings	
$I_{cont.max}$	Rated current available continuously without overloadability at 42 °C liquid temperature.
I_{max}	Maximum output current. Available for 10 s at start, otherwise as long as allowed by drive temperature. Note: max. motor shaft power is 150% P_{hd}.
S_n	Nominal apparent power.
No-overload use	
$P_{cont.max}$	Typical motor power in no-overload use.
Light-overload use	
I_N	Continuous base current allowing 110% overload for 1 min /5 min.
P_N	Typical motor power in light-overload use.

Heavy-duty use	
I_{hd}	Continuous base current allowing 150% overload for 1 min /5 min.
P_{hd}	Typical motor power in heavy-duty use.
Losses	
P_{loss}	Power loss conducted to coolant.
$P_{lossISU}$	Power loss of supply module(s).
$P_{lossLCL}$	Power loss of supply LCL filter.
$P_{loss\ tot}$	Sum of $P_{lossISU}$ and $P_{lossLCL}$.

The current ratings are the same regardless of the supply voltage within one voltage range.

Ratings and dimensions

Dimensions (INU, ISU, DSU)

Frame size	Height mm	Width mm	Depth [1] mm	Weight kg
D3	975	311	474	140
D4	975	311	474	210
R2i	401	165	193 [1]	9
R3i	466	173	232 [1]	12
R4i	535	240	252 [1]	15
R5i	673	265	276 [1]	23
R7i	880	210	475	85
R8i	880	210	475	127
2xR8i	880	210 [2]	475	254
3xR8i	880	210 [2]	475	381
4xR8i	880	210 [2]	475	508

[1] The depth is without control panels and options.
[2] Single module only

Liquid cooling unit

Nominal ratings				Cooling information/Losses			Cooling media		
P_{max} kW	Internal mass flow at 120 kPa l/min	External mass flow l/min	External pressure loss kPa	P_{loss} kW	$P_{loss\ coolant}$ kW	$P_{loss\ air}$ kW	Internal liquid qty l	External liquid qty l	Type designation
Range 380 to 690 V									
70	100	103	125	0.4	0.3	0.1	8	3	ACS800-1007LC-0070
195	300	384	130	0.9	0.7	0.2	28	8	ACS800-1007LC-0195

As standard, liquid-cooling unit includes: industrial cabinet construction, IEC standard compatibility, pipe connections on right hand side with DIN flanges and industrial water heat exchanger.

P_{max}	Maximum nominal cooling power.
Internal massflow	Coolant massflow when cooling circuit is internal.
External massflow	Coolant massflow when cooling circuit uses an external cooling method.
P_{loss}	Power loss conducted to coolant.
$P_{loss\ coolant}$	Power loss conducted to coolant.
$P_{loss\ air}$	Power loss emitted to air (ambient space).

Dimensions

Height mm	Width mm	Depth mm	Weight kg	Type designation
2003	330	644	200	ACS800-1007LC-0070
2003	630	644	400	ACS800-1007LC-0195

ACS800-1007LC-0195

Brake options

Brake chopper

The ACS800 series has built-in brake choppers up to frame size R8 (up to 560 kW at 690 V). Above this brake choppers are available as separate brake chopper modules. The brake chopper is part of the standard delivery for the frame sizes R2 and R3 and at 690 V also R4. For the other frames a brake chopper is a selectable option.

Braking control is integrated into the ACS800 series

It controls the braking, supervises the system status and detects failures such as brake resistor and resistor cable short circuits, chopper short circuit, and calculated resistor overtemperature.

Brake resistor

The SACE/SAFUR brake resistors are separately available for all ACS800 types. Resistors other than the standard resistors may be used providing the specified resistance value is not decreased, and the heat dissipation capacity of the resistor is sufficient for the drive application.

For ACS800 units, no separate fuses in the brake circuit are required if the following conditions are met:

- The ACS800 mains cable is protected with fuses
- No mains cable/fuse overrating takes place

U_N = 230 V (Range 208 to 240 V)

ACS800 type designation	Brake chopper power	Brake resistor(s)			
	Continuous P_{brcont} [kW]	Type designation	R [Ohm]	E_r [kJ]	P_{rcont} [kW]
ACS800-04-0001-2	0.6	SACE08RE44	44	210	1
ACS800-04-0002-2	0.8	SACE08RE44	44	210	1
ACS800-04-0003-2	1.1	SACE08RE44	44	210	1
ACS800-04-0004-2	1.5	SACE08RE44	44	210	1
ACS800-04-0005-2	2.2	SACE15RE22	22	420	2
ACS800-04-0006-2	3	SACE15RE22	22	420	2
ACS800-04-0009-2	4	SACE15RE22	22	420	2
ACS800-04-0011-2	5.5	SACE15RE13	13	435	2
ACS800-04-0016-2	11	SAFUR90F575	8	1800	4.5
ACS800-04-0020-2	17	SAFUR90F575	8	1800	4.5
ACS800-04-0025-2	23	SAFUR80F500	6	2400	6
ACS800-04-0030-2	28	SAFUR125F500	4	3600	9
ACS800-04-0040-2	33	SAFUR125F500	4	3600	9
ACS800-04-0050-2	45	2 x SAFUR125F500	2	7200	18
ACS800-04-0060-2	56	2 x SAFUR125F500	2	7200	18
ACS800-04-0070-2	68	2 x SAFUR125F500	2	7200	18

ACS800 type designation	Brake chopper power				Brake resistor(s)			
	5/60 s P_{br5} [kW]	10/60 s P_{br10} [kW]	30/60 s P_{br30} [kW]	Continuous P_{brcont} [kW]	Type designation	R [Ohm]	E_r [kJ]	P_{rcont} [kW]
ACS800-04(M)-0080-2	68	68	68	54	SAFUR 160F380	1.78	3600	9
ACS800-04(M)-0100-2	83	83	83	54	SAFUR 160F380	1.78	3600	9
ACS800-04(M)-0120-2	105	67	60	40	2xSAFUR200F500	1.35	10800	27
ACS800-04(M)-0140-2	135	135	135	84	2xSAFUR160F380	0.89	7200	18
ACS800-04(M)-0170-2	135	135	135	84	2xSAFUR160F380	0.89	7200	18
ACS800-04(M)-0210-2	165	165	165	98	2xSAFUR160F380	0.89	7200	18
ACS800-04(M)-0230-2	165	165	165	113	2xSAFUR160F380	0.89	7200	18
ACS800-04(M)-0260-2	223	170	125	64	4xSAFUR160F380	0.45	14400	36
ACS800-04(M)-0300-2	223	170	125	64	4xSAFUR160F380	0.45	14400	36

U_N = 400 V (Range 380 to 415 V)

ACS800 type designation	Brake chopper power	Brake resistor(s)			
	Continuous P_{brcont} [kW]	Type designation	R [Ohm]	E_r [kJ]	P_{rcont} [kW]
ACS800-04-0003-3	1.1	SACE08RE44	44	210	1
ACS800-04-0004-3	1.5	SACE08RE44	44	210	1
ACS800-04-0005-3	2.2	SACE08RE44	44	210	1
ACS800-04-0006-3	3	SACE08RE44	44	210	1
ACS800-04-0009-3	4	SACE08RE44	44	210	1
ACS800-04-0011-3	5.5	SACE15RE22	22	420	2
ACS800-04-0016-3	7.5	SACE15RE22	22	420	2
ACS800-04-0020-3	11	SACE15RE22	22	420	2
ACS800-04-0023-3	11	SACE15RE22	22	420	2
ACS800-04-0025-3	23	SACE15RE13	13	435	2
ACS800-04-0030-3	28	SACE15RE13	13	435	2
ACS800-04-0035-3	28	SACE15RE13	13	435	2
ACS800-04-0040-3	33	SAFUR90F575	8	1800	4.5
ACS800-04-0050-3	45	SAFUR90F575	8	1800	4.5
ACS800-04-0060-3	56	SAFUR90F575	8	1800	4.5
ACS800-04-0075-3	70	SAFUR80F500	6	2400	6
ACS800-04-0100-3	83	SAFUR125F500	4	3600	9
ACS800-04-0120-3	113	SAFUR125F500	4	3600	9
ACS800-04-0135-3	132	SAFUR200F500	2.7	5400	13.5
ACS800-04-0165-3	132	SAFUR200F500	2.7	5400	13.5
ACS800-04-0205-3	160	SAFUR200F500	2.7	5400	13.5

ACS800 type designation	Brake chopper power				Brake resistor(s)			
	5/60 s P_{br5} [kW]	10/60 s P_{br10} [kW]	30/60 s P_{br30} [kW]	Continuous P_{brcont} [kW]	Type designation	R [Ohm]	E_r [kJ]	P_{rcont} [kW]
ACS800-04(M)-0140-3	135	135	100	80	SAFUR200F500	2.70	5400	13.5
ACS800-04(M)-0170-3	165	150	100	80	SAFUR200F500	2.70	5400	13.5
ACS800-04(M)-0210-3	165	150	100	80	SAFUR200F500	2.70	5400	13.5
ACS800-04(M)-0260-3	240	240	240	173	2XSAFUR210F575	1.70	8400	21
ACS800-04(M)-0320-3	300	300	300	143	2xSAFUR200F500	1.35	10800	27
ACS800-04(M)-0400-3	375	375	273	130	4xSAFUR125F500	1.00	14400	36
ACS800-04(M)-0440-3	473	355	237	120	4xSAFUR210F575	0.85	16800	42
ACS800-04(M)-0490-3	500	355	237	120	4xSAFUR210F575	0.85	16800	42

Brake options

U_N = 500 V (Range 380 to 500 V)

ACS800 type designation	Brake chopper power	Brake resistor(s)			
	Continuous P_{brcont} [kW]	Type designation	R [Ohm]	E_r [kJ]	P_{rcont} [kW]
ACS800-04-0004-5	1.5	SACE08RE44	44	210	1
ACS800-04-0005-5	2.2	SACE08RE44	44	210	1
ACS800-04-0006-5	3	SACE08RE44	44	210	1
ACS800-04-0009-5	4	SACE08RE44	44	210	1
ACS800-04-0011-5	5.5	SACE08RE44	44	210	1
ACS800-04-0016-5	7.5	SACE15RE22	22	420	2
ACS800-04-0020-5	11	SACE15RE22	22	420	2
ACS800-04-0025-5	15	SACE15RE22	22	420	2
ACS800-04-0028-5	15	SACE15RE22	22	420	2
ACS800-04-0030-5	28	SACE15RE13	13	435	2
ACS800-04-0040-5	33	SACE15RE13	13	435	2
ACS800-04-0045-5	33	SACE15RE13	13	435	2
ACS800-04-0105-5	83	SAFUR80F500	6	2400	6
ACS800-04-0050-5	45	SAFUR90F575	8	1800	4.5
ACS800-04-0060-5	56	SAFUR90F575	8	1800	4.5
ACS800-04-0070-5	68	SAFUR90F575	8	1800	4.5
ACS800-04-0105-5	83	SAFUR80F500	6	2400	6
ACS800-04-0120-5	113	SAFUR125F500	4	3600	9
ACS800-04-0140-5	135	SAFUR125F500	4	3600	9
ACS800-04-0165-5	160	SAFUR125F500	4	3600	9
ACS800-04-0205-5	160	SAFUR125F500	4	3600	9
ACS800-04-0255-5	200	SAFUR200F500	2.7	5400	13.5

ACS800 type designation	Brake chopper power				Brake resistor(s)			
	5/60 s P_{br5} [kW]	10/60 s P_{br10} [kW]	30/60 s P_{br30} [kW]	Continuous P_{brcont} [kW]	Type designation	R [Ohm]	E_r [kJ]	P_{rcont} [kW]
ACS800-04(M)-0170-5	165	132 [2]	120	80	SAFUR200F500	2.70	5400	13.5
ACS800-04(M)-0210-5	198	132 [2]	120	80	SAFUR200F500	2.70	5400	13.5
ACS800-04(M)-0260-5	198 [1]	132 [2]	120	80	SAFUR200F500	2.70	5400	13.5
ACS800-04(M)-0320-5	300	300	300	300	2xSAFUR125F500	2.00	7200	18
ACS800-04(M)-0400-5	375	375	375	234	2XSAFUR210F575	1.70	8400	21
ACS800-04(M)-0440-5	473	473	450	195	2xSAFUR200F500	1.35	10800	27
ACS800-04(M)-0490-5	480	480	470	210	2xSAFUR200F500	1.35	10800	27
ACS800-04(M)-0550-5	600	400 [4]	300	170	4xSAFUR125F500	1.00	14400	36
ACS800-04(M)-0610-5	600 [3]	400 [4]	300	170	4xSAFUR125F500	1.00	14400	36

U_N = 690 V (Range 525 to 690 V)

ACS800 type designation	Brake chopper power	Brake resistor(s)			
	Continuous P_{brcont} [kW]	Type designation	R [Ohm]	E_r [kJ]	P_{rcont} [kW]
ACS800-04-0011-7	8	SACE08RE44	44	210	1
ACS800-04-0016-7	11	SACE08RE44	44	210	1
ACS800-04-0020-7	16	SACE08RE44	44	210	1
ACS800-04-0025-7	22	SACE15RE44	44	210	1
ACS800-04-0030-7	28	SACE15RE22	22	420	2
ACS800-04-0040-7	22/33 [8]	SACE15RE22	22	420	2
ACS800-04-0050-7	45	SACE15RE13	13	435	2
ACS800-04-0060-7	56	SACE15RE13	13	435	2
ACS800-04-0070-7	68	SAFUR90F575	8	1800	4.5
ACS800-04-0100-7	83	SAFUR90F575	8	1800	4.5
ACS800-04-0120-7	113	SAFUR90F575	6	2400	6
ACS800-04-0145-7	160	SAFUR80F500	6	2400	6
ACS800-04-0175-7	160	SAFUR80F500	6	2400	6
ACS800-04-0205-7	160	SAFUR80F500	6	2400	6

ACS800 type designation	Brake chopper power				Brake resistor(s)			
	5/60 s P_{br5} [kW]	10/60 s P_{br10} [kW]	30/60 s P_{br30} [kW]	Continuous P_{brcont} [kW]	Type designation	R [Ohm]	E_r [kJ]	P_{rcont} [kW]
ACS800-04(M)-0140-7	125 [5]	110	90	75	SAFUR80F500	6.00	2400	6
ACS800-04(M)-0170-7	125 [6]	110	90	75	SAFUR80F500	6.00	2400	6
ACS800-04(M)-0210-7	125 [6]	110	90	75	SAFUR80F500	6.00	2400	6
ACS800-04(M)-0260-7	135 [7]	120	100	80	SAFUR80F500	6.00	2400	6
ACS800-04(M)-0320-7	300	300	300	260	SAFUR200F500	2.70	5400	13.5
ACS800-04(M)-0400-7	375	375	375	375	SAFUR200F500	2.70	5400	13.5
ACS800-04(M)-0440-7	430	430	430	385	SAFUR200F500	2.70	5400	13.5
ACS800-04(M)-0490-7	550	400	315	225	2xSAFUR125F500	2.00	7200	18
ACS800-04(M)-0550-7	550	400	315	225	2xSAFUR125F500	2.00	7200	18
ACS800-04(M)-0610-7	550	400	315	225	2xSAFUR125F500	2.00	7200	18

Brake resistor type designation	Height mm	Width mm	Depth mm	Weight kg
SACE08RE44	365	290	131	6.1
SACE15RE22	365	290	131	6.1
SACE15RE13	365	290	131	6.8
SAFUR80F500	600	300	345	14
SAFUR90F575	600	300	345	12
SAFUR160F380	1320	300	345	25
SAFUR180F460	1320	300	345	32
SAFUR125F500	1320	300	345	25
SAFUR200F500	1320	300	345	30
SAFUR210F575	1320	300	345	27

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Maximum braking power of the ACS800 equipped with the standard chopper and the standard resistor.

P_{br5}	5 s/1 min
P_{br10}	10 s/1 min
P_{br30}	30 s/1 min

The drive and the chopper will withstand this braking power for 5/10/30 seconds every one minute. Note: The braking energy transmitted to the resistor during any period shorter than 400 seconds may not exceed E_r. (E_r varies depending on the resistor).

P_{brcont}	Continuous brake chopper power. The value applies to the minimum resistance value. With a higher resistance value the P_{brcont} may increase in some ACS800-02/07 units.
R	Resistance value for the listed resistor type. Note: This is also the minimum allowable resistance value for the brake resistor.
E_r	Energy pulse that the resistor assembly will withstand (400 s duty cycle). This energy will heat the resistor element from 40 °C to the maximum allowable temperature.
P_{rcont}	Continuous power (heat) dissipation of the resistor when placed correctly. Energy E_r dissipates in 400 seconds.

[1] 240 kW possible if ambient below 33 °C.
[2] 160 kW possible if ambient below 33 °C.
[3] 630 kW possible if ambient below 33 °C.
[4] 450 kW possible if ambient below 33 °C.
[5] 135 kW possible if ambient below 33 °C.
[6] 148 kW possible if ambient below 33 °C.
[7] 160 kW possible if ambient below 33 °C.
[8] 22 kW with standard 22 ohm resistor, 33 kW with 32 to 37 ohm resistor.

All brake resistors are to be installed outside the converter module.
The SACE brake resistors are built-in an IP21 metal housing.
The SAFUR brake resistors are built-in an IP00 metal frame.

Brake options
Brake chopper and resistor options for ACS800-04 in frame sizes 2xR8i

Type designation	Nominal ratings					Duty cycle (1 min/5 min)		Duty cycle (10 s/60 s)		E_r	Brake chopper type	Resistor type
	$P_{br.\ max}$ kW	R ohm	I_{max} A	I_{rms} A	$P_{cont.}$ kW	$P_{br.}$ kW	I_{rms} A	$P_{br.}$ kW	I_{rms} A	kJ		
U_N = 400 V (Range 380 to 415 V)												
ACS800-04-0610-3	706	2x1.2	1090	298	192	606	936	706	1090	-	2xNBRA659	-
ACS800-04-0770-3	706	2x1.2	1090	298	192	606	936	706	1090	-	2xNBRA659	-
ACS800-04-0870-3	1058	3x1.2	1635	447	288	909	1404	1059	1635	-	3xNBRA659	-
ACS800-04-1030-3	1058	3x1.2	1635	447	288	909	1404	1059	1635	-	3xNBRA659	-
ACS800-04-0610-3	706	2x1.2	1090	168	108	333	514	575	888	24000	2xNBRA659	2x(2xSAFUR180F460)
ACS800-04-0770-3	706	2x1.2	1090	168	108	333	514	575	888	24000	2xNBRA659	2x(2xSAFUR180F460)
ACS800-04-0870-3	1058	3x1.2	1635	252	162	500	771	862	1332	36000	3xNBRA659	3x(2xSAFUR180F460)
ACS800-04-1030-3	1058	3x1.2	1635	252	162	500	771	862	1332	36000	3xNBRA659	3x(2xSAFUR180F460)
U_N = 500 V (Range 380 to 500 V)												
ACS800-04-0760-5	806	2x1.43	1142	272	218	634	782	806	996	-	2xNBRA659	-
ACS800-04-0910-5	806	2x1.43	1142	272	218	634	782	806	996	-	2xNBRA659	-
ACS800-04-1090-5	1208	3x1.43	1713	408	327	951	1173	1209	1494	-	3xNBRA659	-
ACS800-04-1210-5	1208	3x1.43	1713	408	327	951	1173	1209	1494	-	3xNBRA659	-
ACS800-04-0760-5	806	2x1.35	1210	134	108	333	412	575	710	21600	2xNBRA659	2x(2xSAFUR200F500)
ACS800-04-0910-5	806	2x1.35	1210	134	108	333	412	575	710	21600	2xNBRA659	2x(2xSAFUR200F500)
ACS800-04-1090-5	1208	3x1.35	1815	201	162	500	618	862	1065	32400	3xNBRA659	3x(2xSAFUR200F500)
ACS800-04-1210-5	1208	3x1.35	1815	201	162	500	618	862	1065	32400	3xNBRA659	3x(2xSAFUR200F500)
U_N = 690 V (Range 525 to 690 V)												
ACS800-04-0750-7	807	2x2.72	828	214	238	596	534	808	722	-	2xNBRA669	-
ACS800-04-0870-7	807	2x2.72	828	214	238	596	534	808	722	-	2xNBRA669	-
ACS800-04-1060-7	1211	3x2.72	1242	321	357	894	801	1212	1083	-	3xNBRA669	-
ACS800-04-1160-7	1211	3x2.72	1242	321	357	894	801	1212	1083	-	3xNBRA669	-
ACS800-04-0750-7	807	2x1.35	1670	194	108	333	298	575	514	21600	2xNBRA669	2x(2xSAFUR200F500)
ACS800-04-0870-7	807	2x1.35	1670	194	108	333	298	575	514	21600	2xNBRA669	2x(2xSAFUR200F500)
ACS800-04-1060-7	1211	3x1.35	2505	291	162	500	447	862	771	32400	3xNBRA669	3x(2xSAFUR200F500)
ACS800-04-1160-7	1211	3x1.35	2505	291	162	500	447	862	771	32400	3xNBRA669	3x(2xSAFUR200F500)

Dimensions

Frame size	Height mm	Width mm	Depth mm	Weight kg
NBRA659	584	334	240	26
NBRA669	584	334 [1)]	240	26 [1)]
SAFUR180F460	1320	300 [1)]	345	32 [1)]
SAFUR125F500	1320	300 [1)]	345	25 [1)]
SAFUR200F500	1320	300 [1)]	345	30 [1)]
SAFUR210F575	1320	300 [1)]	345	27 [1)]

[1)] Single drive module only.

$P_{br,max}$	Maximum braking power of the NBRA-6xx chopper and SAFUR resistor combination. The chopper will withstand this braking power for one minute every ten minutes.
P_{br}	Maximum braking power of the drive with the specified resistor(s). The drive and the chopper will withstand this braking power for a period of time indicated by the duty cycle.
E_r	Short energy pulse that the resistor assembly withstands every 400 seconds.

This energy will heat the resistor element from 40 °C (104 °F) to the maximum allowable temperature.
Note: The braking energy transmitted to the resistor during any period shorter than 400 seconds may not exceed E_r.

The standard resistor therefore withstands continuous braking of $P_{br,max}$ typically 20 to 40 seconds ($t = E_r/P_{br,max}$).

R	Recommended brake resistor resistance. Also nominal resistance of corresponding SAFUR resistor.
I_{max}	Maximum peak current per chopper during braking. Current is achieved with minimum resistor resistance.
I_{rms}	Corresponding rms current per chopper during load cycle.

Heat loss of brake chopper is 1% of braking power.
Heat loss of section with brake resistors is the same as braking power.

Brake options
3-phase high power brake units

Resistors values		Ratings R_{min}							Ratings R_{max}							Type designation	Frame size
		No-overload use				Cycle load (1 min/5 min)			No-overload use				Cycle load (1 min/5 min)				
R_{min}	R_{max}	I_{dc}	I_{rms}	$P_{contmax}$	I_{max}	I_{dc}	I_{rms}–R_{min}	P_{br}–R_{min}	I_{dc}	I_{rms}	$P_{contmax}$	I_{max}	I_{dc}	I_{rms}–R_{max}	P_{br}–R_{max}		
Ohm	Ohm	A DC	A DC	kW	A DC	A DC	A DC	kW	A DC	A DC	kW	A DC	A DC	A DC	kW		
U_N = 400 V (Range 380 to 415 V)																	
3.5	4.1	390	155	250	185	500	176	320	390	143	250	156	422	148	270	ACS800-604-0250-3	R7i
1.7	2.1	781	310	500	370	999	351	640	781	282	500	312	627	291	530	ACS800-604-0500-3	R8i
1.2	1.4	1171	465	750	555	1499	527	960	1171	424	750	468	1241	436	800	ACS800-604-0750-3	R8i
1.7	2.1	1562	621	1000	740	1998	702	1290	1562	565	1000	625	1655	581	1060	ACS800-604-1000-3	2xR8i
1.2	1.4	2342	931	1510	1110	2997	1053	1930	2342	847	1510	937	2482	872	1600	ACS800-604-1510-3	2xR8i
1.2	1.4	3514	1396	2260	1665	4496	1580	2890	3514	1271	2260	1405	3723	1308	2400	ACS800-604-2260-3	3xR8i
1.2	1.4	4685	1862	3010	2220	5994	2106	3860	4685	1694	3010	1874	4964	1744	3190	ACS800-604-3010-3	4xR8i
1.2	1.4	5856	2327	3770	2775	7493	2633	4820	5856	2118	3770	2342	6205	2180	3990	ACS800-604-3770-3	5xR8i
U_N = 500 V (Range 380 to 500 V)																	
4.3	5.2	390	155	310	185	500	176	400	390	143	310	156	422	148	340	ACS800-604-0310-5	R7i
2.2	2.6	781	310	630	370	999	351	800	781	284	630	312	635	293	670	ACS800-604-0630-5	R8i
1.4	1.7	1171	465	940	555	1499	527	1210	1171	430	940	468	1277	449	1030	ACS800-604-0940-5	R8i
2.2	2.6	1562	621	1260	740	1998	702	1610	1562	568	1260	625	1671	587	1340	ACS800-604-1260-5	2xR8i
1.4	1.7	2342	931	1880	1110	2997	1053	2410	2342	860	1880	937	2555	898	2060	ACS800-604-1880-5	2xR8i
1.4	1.7	3514	1396	2830	1665	4496	1580	3620	3514	1289	2830	1405	3832	1347	3080	ACS800-604-2830-5	3xR8i
1.4	1.7	4685	1862	3770	2220	5994	2106	4820	4685	1719	3770	1874	5110	1795	4110	ACS800-604-3770-5	4xR8i
1.4	1.7	5856	2327	4710	2775	7493	2633	6030	5856	2149	4710	2342	6387	2244	5140	ACS800-604-4710-5	5xR8i
U_N = 690 V (Range 525 to 690 V)																	
6.0	7.1	390	155	430	185	500	176	550	390	143	430	156	422	148	470	ACS800-604-0430-7	R7i
3.0	3.6	781	310	870	370	999	351	1110	781	283	870	312	833	293	920	ACS800-604-0870-7	R8i
2.0	2.4	1171	465	1300	555	1499	527	1660	1171	425	1300	468	1249	439	1390	ACS800-604-1300-7	R8i
3.0	3.6	1562	621	1730	740	1998	702	2220	1562	567	1730	625	1665	585	1850	ACS800-604-1730-7	2xR8i
2.0	2.4	2342	931	2600	1110	2997	1053	3330	2342	850	2600	937	2498	878	2770	ACS800-604-2600-7	2xR8i
2.0	2.4	3514	1396	3900	1665	4496	1580	4990	3514	1275	3900	1405	3746	1316	4160	ACS800-604-3900-7	3xR8i
2.0	2.4	4685	1862	5200	2220	5994	2106	6650	4685	1700	5200	1874	4995	1755	5540	ACS800-604-5200-7	4xR8i
2.0	2.4	5856	2327	6500	2775	7493	2633	8320	5856	2125	6500	2342	6244	2194	6930	ACS800-604-6500-7	5xR8i

Dimensions

Frame size	Height mm	Width mm	Depth mm	Weight kg	Noise level dB(A)	Air flow m³/h
R2i	401	165	193 [3]	9	62	35
R3i	466	173	232 [3]	12	62	69
R4i	525	240	252 [3]	15	62	103
R5i	673	265	276 [3]	23	65	168
R7i [1]	963	170	404	37	64	800
R8i	1397	235	596	130	72z	1280
2xR8i	1397	245 [2]	596	260	74	2560
3xR8i	1397	245 [2]	596	390	76	3840
4xR8i	1397	245 [2]	596	520	76	5120
5xR8i	1397	245 [2]	596	650	77	6400

[1] Dimensions do not include cooling fan.
[2] Single module only.
[3] The depth is without control panels and options.

Resistor	
R_{min}	Minimum allowed resistance value of the brake resistor for one phase of the brake module.
R_{max}	Resistance value of the brake resistor for one phase of the brake module corresponding to the maximum achieved continuous braking power.

Note: Connect one resistor per brake module phase.
For example, a brake unit of frame size 2xR8i including two brake modules –> 2 x 3 resistors are needed.

Typical ratings: No-overload use	
I_{dc}	Total input DC current of brake unit.
I_{rms}	Total rms DC output phase current of brake unit.
I_{max}	Peak brake current (DC) per chopper module phase.
$P_{cont.max}$	Maximum continuous braking power per brake unit.
Cyclic load (1 min/5 min)	
I_{dc}	Total input DC current of brake unit during a period of 1 minute with braking power P_{br}
I_{rms}	Total rms DC current per brake unit phase during a period of 1 minute with braking power P_{br}.
P_{br}	Short term braking power per brake unit allowed for 1 minute every 5 minutes.

Brake options
Multidrive module brake units

Brake unit type designation	Nominal ratings					Duty cycle (1 min/5 min)		Duty cycle (10 s/60 s)		Noise level	Air flow	Resistor type designation
	$P_{br.\ max}$ kW	R ohm	I_{max} A	I_{rms} A	$P_{cont.}$ kW	$P_{br.}$ kW	I_{rms} A	$P_{br.}$ kW	I_{rms} A	dB(A)	m^3/h	
U_N = 400 V (Range 380 to 415 V)												
Only the chopper												
Chopper-0210-3 (NBRA658)	230	1.7	384	109	70	230	355	230	355	64	660	-
Chopper-0320-3 (NBRA659)	353	1.2	545	149	96	303	468	353	545	64	660	-
Chopper-0640-3 (2xNBRA659)	706	0.6	1090	298	192	606	936	706	1090	67	1320	-
Chopper-0960-3 (3xNBRA659)	1058	0.4	1635	447	288	909	1404	1059	1635	68	1980	-
Chopper-1280-3 (4xNBRA659)	1411	0.3	2180	596	384	1212	1872	1412	2180	69	2640	-
Chopper-1600-3 (5xNBRA659)	1764	0.24	2725	745	480	1515	2340	1765	2725	70	3300	-
Chopper-1920-3 (6xNBRA659)	2117	0.2	3270	894	576	1818	2808	2118	3270	71	3960	-
Chopper with the resistor												
Chopper-0210-3 (NBRA658)	230	1.7	384	65	42	130	200	224	346	66	2500	2 x SAFUR210F575
Chopper-0320-3 (NBRA659)	353	1.2	545	84	54	167	257	287	444	66	2500	2 x SAFUR180F460
Chopper-0640-3 (2xNBRA659)	706	0.6	1090	168	108	333	514	575	888	69	5000	2 x (2 x SAFUR180F460)
Chopper-0960-3 (3xNBRA659)	1058	0.4	1635	252	162	500	771	862	1332	70	7500	3 x (2 x SAFUR180F460)
Chopper-1280-3 (4xNBRA659)	1411	0.3	2180	336	216	667	1028	1150	1776	71	10000	4 x (2 x SAFUR180F460)
Chopper-1600-3 (5xNBRA659)	1764	0.24	2725	420	270	833	1285	1437	2220	72	12500	5 x (2 x SAFUR180F460)
Chopper-1920-3 (6xNBRA659)	2117	0.2	3270	504	324	1000	1542	1724	2664	73	15000	6 x (2 x SAFUR180F460)
U_N = 500 V (Range 380 to 500 V)												
Only the chopper												
Chopper-0260-5 (NBRA658)	268	2.15	380	101	81	268	331	268	331	64	660	-
Chopper-0400-5 (NBRA659)	403	1.43	571	136	109	317	391	403	498	64	660	-
Chopper-0800-5 (2xNBRA659)	806	0.72	1142	272	218	634	782	806	996	67	1320	-
Chopper-1200-5 (3xNBRA659)	1208	0.48	1713	408	327	951	1173	1209	1494	68	1980	-
Chopper-1600-5 (4xNBRA659)	1611	0.36	2284	544	436	1268	1564	1612	1992	69	2640	-
Chopper-2000-5 (5xNBRA659)	2014	0.29	2855	680	545	1585	1955	2015	2490	70	3300	-
Chopper-2400-5 (6xNBRA659)	2417	0.24	3426	816	654	1902	2346	2418	2988	71	3960	-
Chopper with the resistor												
Chopper-0260-5 (NBRA658)	268	2.00	408	45	36	111	137	192	237	66	2500	2 x SAFUR125F500
Chopper-0400-5 (NBRA659)	403	1.35	605	67	54	167	206	287	355	66	2500	2 x SAFUR200F500
Chopper-0800-5 (2xNBRA659)	806	0.68	1210	134	108	333	412	575	710	69	5000	2 x (2 x SAFUR200F500)
Chopper-1200-5 (3xNBRA659)	1208	0.45	1815	201	162	500	618	862	1065	70	7500	3 x (2 x SAFUR200F500)
Chopper-1600-5 (4xNBRA659)	1611	0.34	2420	268	216	667	824	1150	1420	71	10000	4 x (2 x SAFUR200F500)
Chopper-2000-5 (5xNBRA659)	2014	0.27	3025	335	270	833	1030	1437	1775	72	12500	5 x (2 x SAFUR200F500)
Chopper-2400-5 (6xNBRA659)	2417	0.23	3630	402	324	1000	1236	1724	2130	73	15000	6 x (2 x SAFUR200F500)
U_N = 690 V (Range 525 to 690 V)												
Only the chopper												
Chopper-0400-6 (NBRA 669)	404	2.72	414	107	119	298	267	404	361	64	660	-
Chopper-0800-6 (2xNBRA669)	807	1.36	828	214	238	596	534	808	722	67	660	-
Chopper-1200-6 (3xNBRA669)	1211	0.91	1242	321	357	894	801	1212	1083	68	1320	-
Chopper-1600-6 (4xNBRA669)	1615	0.68	1656	428	476	1192	1068	1616	1444	69	1980	-
Chopper-2000-6 (5xNBRA669)	2019	0.54	2070	535	595	1490	1335	2020	1805	70	2640	-
Chopper-2400-6 (6xNBRA669)	2422	0.45	2484	642	714	1788	1602	2424	2166	71	3300	-
Chopper with the resistor												
Chopper-0400-6 (NBRA 669)	404	1.35	835	97	54	167	149	287	257	66	2500	2 x SAFUR200F500
Chopper-0800-6 (2xNBRA669)	807	0.68	1670	194	108	333	298	575	514	69	5000	2 x (2 x SAFUR200F500)
Chopper-1200-6 (3xNBRA669)	1211	0.45	2505	291	162	500	447	862	771	70	7500	3 x (2 x SAFUR200F500)
Chopper-1600-6 (4xNBRA669)	1615	0.34	3340	388	216	667	596	1150	1028	71	10000	4 x (2 x SAFUR200F500)
Chopper-2000-6 (5xNBRA669)	2019	0.27	4175	485	270	833	745	1437	1285	72	12500	5 x (2 x SAFUR200F500)
Chopper-2400-6 (6xNBRA669)	2422	0.23	5010	582	324	2000	894	1724	1542	73	15000	6 x (2 x SAFUR200F500)

Dimensions

Frame size	Height mm	Width mm	Depth mm	Weight kg
NBRA658	584	334	240	26
NBRA659	584	334 [1)]	240	26 [1)]
NBRA669	584	334 [1)]	240	26 [1)]
SAFUR180F460	1320	300 [1)]	345	32 [1)]
SAFUR125F500	1320	300 [1)]	345	25 [1)]
SAFUR200F500	1320	300 [1)]	345	30 [1)]
SAFUR210F575	1320	300 [1)]	345	27 [1)]

[1)] Single drive module only.

Brake options
Liquid cooled 3-phase high power brake modules

Resistor data		Nominal ratings		No-over-load use	Cycle load (1 min/5 min)			Losses [1]	Noise level	Mass flow	Type designation	Frame size
R_{min} Ohm	R_{max} Ohm	I_{dc} A DC	I_{rms} A DC	$P_{cont.\ max}$ kW	I_{dc} A DC	I_{rms} A DC	P_{br} kW	P_{loss} kW	dB(A)	l/min		INU
U_N = 400 V (Range 380 to 415 V)												
3 x 3,5	3 x 4,1	390	155	250	500	176	320	2.5	62	13	ACS800-604LC-0250-3	R7i
3 x 1,7	3 x 2,1	781	310	500	999	351	640	5.0	62	13	ACS800-604LC-0500-3	R8i
3 x 1,2	3 x 1,4	1171	465	750	1499	527	960	7.5	62	13	ACS800-604LC-0750-3	R8i
2 x (3 x 1,7)	2 x (3 x 2,1)	1562	621	1000	1998	702	1290	10.0	64	26	ACS800-604LC-1000-3	2xR8i
2 x (3 x 1,2)	2 x (3 x 1,4)	2342	931	1510	2997	1053	1930	15.1	64	26	ACS800-604LC-1510-3	2xR8i
3 x (3 x 1,2)	3 x (3 x 1,4)	3514	1396	2260	4496	1580	2890	22.6	66	39	ACS800-604LC-2260-3	3xR8i
4 x (3 x 1,2)	4 x (3 x 1,4)	4685	1862	3010	5994	2106	3860	30.1	67	52	ACS800-604LC-3010-3	4xR8i
U_N = 500 V (Range 380 to 500 V)												
3 x 4,3	3 x 5,2	390	155	310	500	176	400	2.5	62	13	ACS800-604LC-0310-5	R7i
3 x 2,2	3 x 2,6	781	310	630	999	351	800	5.0	62	13	ACS800-604LC-0630-5	R8i
3 x 1,4	3 x 1,7	1171	465	940	1499	527	1210	7.5	62	13	ACS800-604LC-0940-5	R8i
2 x (3 x 2,2)	2 x (3 x 2,6)	1562	621	1260	1998	702	1610	10.0	64	26	ACS800-604LC-1260-5	2xR8i
2 x (3 x 1,4)	2 x (3 x 1,7)	2342	931	1880	2997	1053	2410	15.1	64	26	ACS800-604LC-1880-5	2xR8i
3 x (3 x 1,4)	3 x (3 x 1,7)	3514	1396	2830	4496	1580	3620	22.6	66	39	ACS800-604LC-2830-5	3xR8i
4 x (3 x 1,4)	4 x (3 x 1,7)	4685	1862	3770	5994	2106	4820	30.1	67	52	ACS800-604LC-3770-5	4xR8i
U_N = 690 V (Range 525 to 690 V)												
3 x 6	3 x 7,1	390	155	430	500	176	550	2.8	62	13	ACS800-604LC-0430-7	R7i
3 x 3	3 x 3,6	781	310	870	999	351	1110	5.7	62	13	ACS800-604LC-0870-7	R8i
3 x 2	3 x 2,4	1171	465	1300	1499	527	1660	8.5	62	13	ACS800-604LC-1300-7	R8i
2 x (3 x 3)	2 x (3 x 3,6)	1562	621	1730	1998	702	2220	11.3	64	26	ACS800-604LC-1730-7	2xR8i
2 x (3 x 2)	2 x (3 x 2,4)	2342	931	2600	2997	1053	3330	17.0	64	26	ACS800-604LC-2600-7	2xR8i
3 x (3 x 2)	3 x (3 x 2,4)	3514	1396	3900	4496	1580	4990	25.4	66	39	ACS800-604LC-3900-7	3xR8i
4 x (3 x 2)	4 x (3 x 2,4)	4685	1862	5200	5994	2106	6650	33.9	67	52	ACS800-604LC-5200-7	4xR8i

Dimensions

Frame size	Height [1] mm	Width [2] mm	Depth mm	Weight kg
R7i	2003	400/700	644	300
R8i	2003	400/700	644	300
2xR8i	2003	800/1400	644	600
3xR8i	2003	1200/2100	644	900
4xR8i	2003	1600/2800	644	1200

[1] Pressure release lids require an additional 400 mm.
[2] First values for bottom exit and latter values for top exit.

Resistor	
R_{min}	Minimum allowed resistance value of the brake resistor for one phase of the brake module.
R_{max}	Resistance value of the brake resistor for one phase of the brake module corresponding to the maximum achieved continuous braking power.
Nominal ratings	
I_{dc}	Total input DC current of brake unit.
I_{rms}	Total rms DC output phase current of brake unit.
No-overload use	
$P_{cont.max}$	Typical motor power in no-overload use.
Cyclic load	
I_{dc}	Total input DC current of brake unit during a period of 1 minute with braking power P_{br}
I_{rms}	Corresponding RMS current per chopper during load cycle.
P_{br}	Short term braking power per brake unit allowed for 1 minute every 5 minutes.
Losses	
P_{loss}	Power loss conducted to coolant.

EMC filters

EMC - Electromagnetic Compatibility and modules

The electrical/electronic equipment must be able to operate without problems within an electromagnetic environment. This is called immunity. The ACS800 is designed to have adequate immunity against interference from other equipment. Likewise, the equipment must not disturb or interfere with any other product or system within its locality. This is called emission. Each ACS800 model can be equipped with a built-in filter to reduce high frequency emission.

EMC standards

The EMC product standard (EN 61800-3 + Amendment A11(2000)) covers the specific EMC requirements stated for drives (tested with motor and cable) within the EU.

EMC standards such as EN 55011, or EN 61000-6-3/4, apply to industrial and household equipments and systems including drive component inside. Drive units complying with requirements of EN 61800-3 are always complient with comparable categories in EN 55011 and EN 61000-6-3/4, but not necessarily vice versa. EN 55011 and EN 61000-6-3/4 do not specify cable length nor require a motor to be connected as a load. The emission limits are comparable according to the following table, EMC standards.

1st environment vs 2nd environment

1st environment (category C1 and C2)

1st environment includes domestic premises. It also includes establishments directly connected without intermediate transformer to a low-voltage power supply network which supplies buildings used for domestic purposes.

2nd environment (category C3 and C4)

2nd environment includes all establishments other than those directly connected to a low-voltage power supply network which supplies buildings used for domestic purposes.

Selecting an EMC filter

The following table gives the correct filter selection.

EMC standards

EN61800-3:2004 product standard	EN 55011, product family standard for industrial, scientific and medical (ISM) equipment	EN61000-6-4, generic emission standard for industrial environments	EN61000-6-3, generic emission standard for residential, commercial and light-industrial environment
Category C1 (1st environment)	Group 1 Class B	Not applicable	Applicable
Category C2 (1st environment)	Group 1 Class A	Applicable	Not applicable
Category C3 (2nd environment)	Group 2 Class A	Not applicable	Not applicable
Category C4 (2nd environment)	Not applicable	Not applicable	Not applicable

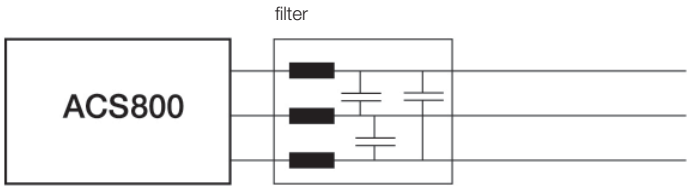
Type designation	Voltage	Frame sizes	1st environment, restricted distribution, C2, grounded network (TN)	2nd environment, C3, grounded network (TN)	2nd environment, C3, floating network (IT)
ACS800-04	400-500	R2-R6	+E202	+E200/+E210 (R6 frame size)	- *)/+E210 (R6 frame size)
	690	R2-R6	-	+E200/+E210 (R6 frame size)	- *)/+E210 (R6 frame size)
ACS800-04(M)	400-500	R7-R8	+E202 1)	+E210	+E210
	690	R7-R8	-	+E210	+E210
ACS800-04	400-500	R7-R8	-	+E210	+E210
	690	R7-R8	-	+E210	+E210

1) Includes externally mounted components.
*) These drives are category C4 equipment and EMC plan for installation is required.

Sine filters

ABB sine filter solution

The ACS800 sine filter solution is an ACS800 industrial drive equipped with a sine filter. It enjoys most of the premium features of the standard ACS800 industrial drive. The LC filter suppresses the high frequency components of the output voltage.



This means that the output voltage waveform is almost sinusoidal without high voltage peaks.

Filters are available in IP00 degree of protection over the whole power range. Up to ACS800-04 frame size R6 power range, filters are available also with IP23 enclosure class.

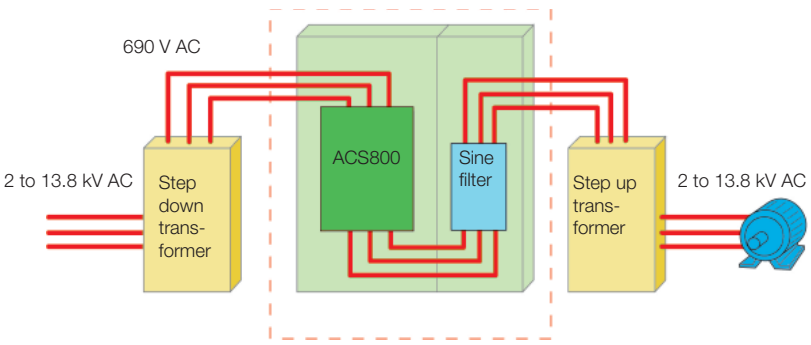
The ABB sine filter solution can be used in a variety of applications:

- Motor does not have adequate insulation for VSD duty
- Total motor cable length is long e.g. there are a number of parallel motors
- Step up applications e.g. medium voltage motor needs to be driven
- Step down applications
- There are industry specific requirements for peak voltage level and voltage rise time
- Motor noise needs to be reduced
- Maximum safety and reliability is needed in e.g. EX applications
- Submersible pumps with long motor cables e.g. in the oil industry

Main features

- Optimized LC design that takes into account switching frequency, voltage drop and filtering characteristics
- Proven technology as ABB has delivered hundreds of sine filter solutions over the last 20 years
- Cost effective solution
- Standard software has all the parameters that need to be set

Feature	Benefit	Note
Sinusoidal output voltage	No additional stress on the motor insulation: non-VSD compliant motors can be used, motor reliability and lifetime are maximized.	
	Allows the use of transformers in the drive output to match any required motor voltage.	Voltage drop at motor cable can be compensated with transformer i.e. there are no restrictions to motor cable length.
	Standard distribution transformer can be used in step up solutions.	High starting torque is available with special transformer design.
	Less motor noise.	
AP programming, advanced IR-compensation and flux control	The effects of load changes to motor voltage can be compensated i.e. the motor always has the optimum voltage.	Scalar control is required with sine filters.



Sine filters
Types and ratings for ACS800-04(M)

$I_{cont.max}$ A	$P_{cont.max}$ kW	Noise level dB(A)	Heat dissipation W	Air flow m³/h	Type designation	Filter size	Degree of protection	Filter height mm	Filter width mm	Filter depth mm	Filter weight kg	Frame size
U_N = 400 V (Range 380 to 415 V). The power ratings are valid at nominal voltage 400 V.												
8.5	3	67	180	35 [1]	ACS800-04-0005-3	NSIN 0006-5	IP00/IP23	160/234	155/230	120/170	6/9	R2
19	7.5	68	350	69 [1]	ACS800-04-0011-3	NSIN 0016-5	IP00/IP23	280/460	240/470	190/270	15/26	R3
25	11	68	450	69 [1]	ACS800-04-0016-3	NSIN 0020-5	IP00/IP23	280/460	240/470	200/270	19/30	R3
33	15	68	560	69 [1]	ACS800-04-0020-3	NSIN 0025-5	IP00/IP23	280/460	240/470	210/270	21/32	R3
39	18.5	69	630	69 [1]	ACS800-04-0023-3	NSIN 0030-5	IP00/IP23	280/460	240/470	220/270	26/37	R3
44	22	69	630	103 [1]	ACS800-04-0025-3	NSIN 0030-5	IP00/IP23	280/460	240/470	220/270	26/37	R4
54	26	69	730	103 [1]	ACS800-04-0030-3	NSIN 0040-5	IP00/IP23	315/460	300/470	228/270	34/45	R4
58	28	69	730	103 [1]	ACS800-04-0035-3	NSIN 0040-5	IP00/IP23	315/460	300/470	228/270	34/45	R4
72	35	73	950	250 [1]	ACS800-04-0040-3	NSIN 0050-5	IP00/IP23	315/510	300/580	240/325	37/53	R5
86	42	73	1100	250 [1]	ACS800-04-0050-3	NSIN 0060-5	IP00/IP23	320/510	300/580	270/325	53/69	R5
102	52	73	1500	250 [1]	ACS800-04-0060-3	NSIN 0070-5	IP00/IP23	415/510	360/580	210/325	66/82	R5
125	63	75	1800	250 [1]	ACS800-04-0075-3	NSIN 0100-5	IP00/IP23	415/620	360/700	225/425	69/99	R5
164	84	75	2200	405 [1]	ACS800-04-0100-3	NSIN 0120-5	IP00/IP23	415/620	360/700	240/425	75/105	R6
199	102	75	2700	405 [1]	ACS800-04-0120-3	NSIN 0140-5	IP00/IP23	450/620	400/700	500/525	120/165	R6
225	110	79	3900	1105 [2]	ACS800-04-0135-3	NSIN 0315-6	IP00	2060	400	600	230	R6
260	130	79	5500	1105 [2]	ACS800-04-0205-3	NSIN 0315-6	IP00	2060	400	600	230	R6
206	100	79	4100	1240 [2]	ACS800-04(M)-0140-3	NSIN 0315-6 [3]	IP00	2060	400	600	230	R7
248	120	79	4900	1240 [2]	ACS800-04(M)-0170-3	NSIN 0315-6 [3]	IP00	2060	400	600	230	R7
266	130	79	5600	1240 [2]	ACS800-04(M)-0210-3	NSIN 0315-6 [3]	IP00	2060	400	600	230	R7
445	215	80	8800	1920 [2]	ACS800-04(M)-0260-3	NSIN 0485-6 [3]	IP00	2060	400	600	250	R8
521	250	80	9700	3220 [2]	ACS800-04(M)-0320-3	NSIN 0900-6 [3]	IP00	2120	1000	600	690	R8
602	295	80	11100	3220 [2]	ACS800-04(M)-0400-3	NSIN 0900-6 [3]	IP00	2120	1000	600	690	R8
693	340	80	12100	3220 [2]	ACS800-04(M)-0440-3	NSIN 0900-6 [3]	IP00	2120	1000	600	690	R8
720	350	80	12600	3220 [2]	ACS800-04(M)-0490-3	NSIN 0900-6 [3]	IP00	2120	1000	600	690	R8
U_N = 500 V (Range 380 to 500 V). The power ratings are valid at nominal voltage 500 V.												
8.1	4.4	67	200	35 [1]	ACS800-04-0006-5	NSIN 0006-5	IP00/IP23	160/234	155/230	120/170	6/9	R2
19	11	68	440	69 [1]	ACS800-04-0016-5	NSIN 0016-5	IP00/IP23	280/460	240/470	190/270	15/26	R3
25	15	68	550	69 [1]	ACS800-04-0020-5	NSIN 0020-5	IP00/IP23	280/460	240/470	200/270	19/30	R3
33	20	68	600	69 [1]	ACS800-04-0025-5	NSIN 0025-5	IP00/IP23	280/460	240/470	210/270	21/32	R3
37	23	68	600	69 [1]	ACS800-04-0028-5	NSIN 0025-5	IP00/IP23	280/460	240/470	210/270	21/32	R3
42	26	69	700	103 [1]	ACS800-04-0030-5	NSIN 0030-5	IP00/IP23	280/460	240/470	220/270	26/37	R4
47	29	69	900	103 [1]	ACS800-04-0040-5	NSIN 0040-5	IP00/IP23	315/460	300/470	228/270	34/45	R4
56	34	69	900	103 [1]	ACS800-04-0045-5	NSIN 0040-5	IP00/IP23	315/460	300/470	228/270	34/45	R4
65	40	73	1100	250 [1]	ACS800-04-0050-5	NSIN 0050-5	IP00/IP23	315/510	300/580	240/325	37/53	R5
79	48	73	1300	250 [1]	ACS800-04-0060-5	NSIN 0060-5	IP00/IP23	320/510	300/580	270/325	53/69	R5
94	60	73	1800	250 [1]	ACS800-04-0070-5	NSIN 0070-5	IP00/IP23	415/510	360/580	210/325	66/82	R5
125	78	75	2500	250 [1]	ACS800-04-0105-5	NSIN 0100-5	IP00/IP23	415/620	360/700	225/425	69/99	R5
155	99	75	2500	405 [1]	ACS800-04-0120-5	NSIN 0120-5	IP00/IP23	415/620	360/700	240/425	75/105	R6
177	114	75	3500	405 [1]	ACS800-04-0140-5	NSIN 0140-5	IP00/IP23	450/620	400/700	500/525	120/165	R6
225	137	79	4600	1105 [2]	ACS800-04-0165-5	NSIN 0315-6	IP00	2060	400	600	230	R6
260	160	79	6100	1105 [2]	ACS800-04-0255-5	NSIN 0315-6	IP00	2060	400	600	230	R6
196	125	79	4300	1240 [2]	ACS800-04(M)-0170-5	NSIN 0315-6 [3]	IP00	2060	400	600	230	R7
245	150	79	5400	1240 [2]	ACS800-04(M)-0210-5	NSIN 0315-6 [3]	IP00	2060	400	600	230	R7
258	160	79	6200	1240 [2]	ACS800-04(M)-0260-5	NSIN 0315-6 [3]	IP00	2060	400	600	230	R7
440	275	80	9600	1920 [2]	ACS800-04(M)-0320-5	NSIN 0485-6 [3]	IP00	2060	400	600	250	R8
515	320	80	11100	3220 [2]	ACS800-04(M)-0400-5	NSIN 0900-6 [3]	IP00	2120	1000	600	690	R8
550	345	80	11100	3220 [2]	ACS800-04(M)-0440-5	NSIN 0900-6 [3]	IP00	2120	1000	600	690	R8
602	375	80	11900	3220 [2]	ACS800-04(M)-0490-5	NSIN 0900-6 [3]	IP00	2120	1000	600	690	R8
684	430	80	13400	3220 [2]	ACS800-04(M)-0550-5	NSIN 0900-6 [3]	IP00	2120	1000	600	690	R8
700	440	80	14100	3220 [2]	ACS800-04(M)-0610-5	NSIN 0900-6 [3]	IP00	2120	1000	600	690	R8
U_N = 690 V (Range 525 to 690 V). The power ratings are valid at nominal voltage 690 V.												
13	10.6	67	400	103 [1]	ACS800-04-0011-7	NSIN 0011-7	IP00/IP23	280/460	240/470	190/270	20/31	R4
17	14	67	460	103 [1]	ACS800-04-0016-7	NSIN 0020-7	IP00/IP23	280/460	240/470	220/270	26/37	R4
22	18	68	560	103 [1]	ACS800-04-0020-7	NSIN 0020-7	IP00/IP23	280/460	240/470	220/270	26/37	R4
25	21	68	650	103 [1]	ACS800-04-0025-7	NSIN 0025-7	IP00/IP23	320/510	300/580	222/325	35/51	R4
31	26	69	740	103 [1]	ACS800-04-0030-7	NSIN 0040-7	IP00/IP23	320/510	300/580	235/325	40/56	R4
34	29	70	820	103 [1]	ACS800-04-0040-7	NSIN 0040-7	IP00/IP23	320/510	300/580	235/325	40/56	R4
48	40	73	1000	250 [1]	ACS800-04-0050-7	NSIN 0060-7	IP00/IP23	330/510	300/580	275/325	57/73	R5
52	46	73	1200	250 [1]	ACS800-04-0060-7	NSIN 0060-7	IP00/IP23	330/510	300/580	275/325	57/73	R5
79	69	75	1500	405 [1]	ACS800-04-0070-7	NSIN 0070-7	IP00/IP23	415/510	360/580	240/325	75/91	R6
93	82	75	1900	405 [1]	ACS800-04-0100-7	NSIN 0120-7	IP00/IP23	500/510	420/580	290/325	126/142	R6
104	92	75	2300	405 [1]	ACS800-04-0120-7	NSIN 0120-7	IP00/IP23	500/510	420/580	290/325	126/142	R6
134	113	79	3800	1105 [2]	ACS800-04-0145-7	NSIN 0210-6 [3]	IP00	2060	400	600	250	R6
148	125	79	4700	1105 [2]	ACS800-04-0175-7	NSIN 0210-6 [3]	IP00	2060	400	600	250	R6
130	115	78	4000	540 [2]	ACS800-04(M)-0140-7	NSIN 0210-6 [3]	IP00	2060	400	600	250	R7
142	125	79	4600	540 [2]	ACS800-04(M)-0170-7	NSIN 0210-6 [3]	IP00	2060	400	600	250	R7
169	150	79	6000	1240 [2]	ACS800-04(M)-0210-7	NSIN 0210-6 [3]	IP00	2060	400	600	250	R7
315	280	80	9000	1920 [2]	ACS800-04(M)-0320-7	NSIN 0485-6 [3]	IP00	2060	400	600	250	R8
336	300	80	9700	1920 [2]	ACS800-04(M)-0400-7	NSIN 0485-6 [3]	IP00	2060	400	600	250	R8
367	330	80	10700	1920 [2]	ACS800-04(M)-0440-7	NSIN 0485-6 [3]	IP00	2060	400	600	250	R8
444	395	80	12300	1920 [2]	ACS800-04(M)-0550-7	NSIN 0485-6 [3]	IP00	2060	400	600	250	R8

Nominal ratings

$I_{cont.max}$ Rated current of the drive-filter combination available continuously without overload at 40 °C.

Typical ratings

$P_{cont.max}$ Typical motor power.

Notes: Noise level is a combined value for the drive and the filter. Heat dissipation is a combined value for the drive and the filter.

[1] Air flow of the drive.
[2] Combined air flow of the drive and the filter.
[3] Dimensions are approximations for a cabinet that can house the filter. Weight is on approximate total weight of the cabinet and the filter. The filter is delivered as loose items including choke module, capacitors and cooling fan.

du/dt filters

du/dt filtering suppresses inverter output voltage spikes and rapid voltage changes that stress motor insulation. Additionally, du/dt filtering reduces capacitive leakage currents and high frequency emission of the motor cable as well as high frequency losses and bearing currents in the motor.

The need for du/dt filtering depends on the motor insulation. For information on the construction of the motor insulation, consult the manufacturer. If the motor does not fulfil the following requirements, the lifetime of the motor might decrease.

Insulated N-end (non-driven end) bearings and/or common mode filters are also required for motor bearing currents with motors bigger than 100 kW. For more information please see the ACS800 hardware manuals.

Filter selection table for ACS800

Motor type	Nominal mains voltage (U_N)	Motor insulation requirement
ABB M2 and M3 motors	$U_N \leq 500$ V	Standard insulation system.
	500 V < $U_N \leq 600$ V	Standard insulation system in conjunction with du/dt filtering or reinforced insulation.
	600 V < $U_N \leq 690$ V	Reinforced insulation system in conjunction with du/dt filtering.
ABB form-wound HXR and AM motors	380 V < $U_N \leq 690$ V	Standard insulation system.
ABB random-wound HXR and AM motors	380 V < $U_N \leq 690$ V	Check motor insulation system with the motor manufacturer. du/dt filtering with voltages over 500 V.
Non-ABB Random-wound and Form-wound	$U_N \leq 420$ V	Insulation system must withstand $\hat{U}_{LL}$=1300 V.
	420 V < $U_N \leq 500$ V	If the insulation system withstands $\hat{U}_{LL}$=1600 V and Δt=0.2 µs, du/dt filtering is not required. With du/dt filtering, the insulation system must withstand $\hat{U}_{LL}$=1300 V.
	500 V < $U_N \leq 600$ V	If the insulation system withstands $\hat{U}_{LL}$=1800 V, du/dt filtering is not required. With du/dt filtering, the insulation system must withstand $\hat{U}_{LL}$=1600 V.
	600 V < $U_N \leq 690$ V	If the motor insulation system withstands $\hat{U}_{LL}$=2000 V and Δt=0.3 µs, du/dt filtering is not required. With du/dt filtering, the insulation system must withstand $\hat{U}_{LL}$=1800 V.

Symbol	Explanation
U_N	Nominal mains voltage.
$\hat{U}_{LL}$	Peak line to line voltage at motor terminals.
Δt	Rise time, i.e. interval during which line to line voltage at motor terminals changes from 10 to 90% of full voltage range.

du/dt filters

External du/dt filters for ACS800-04(M)

ACS800			du/dt filter type (3 filters included in kits marked *) Unprotected (IP00)							
			NOCH0016-60	NOCH0030-60	NOCH0070-60	*NOCH0120-60	*NOCH0260-60	FOCH0260-70	FOCH0320-50	FOCH0610-70
400 V	500 V	690 V								
-0003-3										
-0004-3	-0004-5									
-0005-3	-0005-5									
-0006-3	-0006-5		1							
-0009-3	-0009-5									
-0011-3	-0011-5	-0011-7								
	-0016-5									
-0016-3	-0020-5	-0016-7								
-0020-3		-0020-7		1						
-0023-3		-0025-7								
-0025-3	-0025-5	-0030-7								
	-0028-5									
-0030-3	-0030-5	-0040-7								
-0035-3										
-0040-3	-0040-5	-0050-7			1					
	-0045-5									
-0050-3	-0050-5	-0060-7								
	-0060-5									
-0060-3	-0070-5	-0070-7								
		-0100-7				1				
-0075-3	-0105-5									
		-0120-7								
-0100-3	-0120-5					1				
-0120-3	-0140-5						1			
-0135-3	-0165-5	-0140-7								
-0140-3	-0170-5	-0145-7								
	-0205-5	-0170-7								
		-0175-7								
		-0205-7								
-0165-3										
-0170-3	-0210-5	-0210-7						1		
-0205-3	-0255-5									
-0210-3	-0260-5	-0260-7								
-0260-3	-0320-5								1	
-0320-3	-0400-5	-0320-7								
		-0400-7								
-0400-3	-0440-5	-0440-7								
-0440-3	-0490-5	-0490-7								1
-0490-3	-0550-5	-0550-7								
	-0610-5	-0610-7								
0610-3 [2]	-0760-5 [2]	-0750-7 [2]								
-0770-3 [2]	-0910-5 [2]	-0870-7 [2]								
-0870-3 [2]	-1090-5 [2]	-1060-7 [2]								
-1030-3 [2]	-1210-5 [2]	-1160-7 [2]								
-1230-3 [2]	-1540-5 [2]	-1500-7 [2]								
-1540-3 [2]	-1820-5 [2]	-1740-7 [2]								
-1850-3 [2]	-2310-5 [2]	-2120-7 [2]								
		-2320-7 [2]								

[2] du/dt filters are built-in as standard

Applicability

Separate filters need to be mounted separately. Unprotected IP00 filters must be placed into an enclosure of adequate degree of protection.

External du/dt filters for multidrive modules

ACS800			du/dt filter type (3 filters included in kits marked *) Unprotected (IP00)				
			NOCH0016-60	NOCH0030-60	NOCH0070-60	*NOCH0120-60	FOCH0260-70
400 V	500 V	690 V					
-0003-3							
-0004-3	-0004-5						
-0005-3	-0005-5						
-0006-3	-0006-5		1				
-0009-3	-0009-5						
-0011-3	-0011-5	-0011-7					
	-0016-5						
-0016-3	-0020-5	-0016-7					
-0020-3		-0020-7		1			
		-0025-7					
-0025-3	-0025-5	-0030-7					
-0030-3	-0030-5	-0040-7					
-0040-3	-0040-5	-0050-7			1		
-0050-3	-0050-5	-0060-7					
	-0060-5						
-0060-3	-0070-5					1	
-0105-3 [1]							
-0125-3 [1]							
-0145-3 [1]							1
-0175-3 [1]							
	-0105-5 [1]					1	
	-0125-5 [1]						
	-0145-5 [1]						
	-0175-5 [1]						1
	-0215-5 [1]						
		-0075-7 [1]					
		-0105-7 [1]				1	
		-0125-7 [1]					
		-0145-7 [1]					
		-0175-7 [1]					1
		-0215-7 [1]					
-0210-3 [1]							
-0260-3 [1]	-0260-5 [1]	-0260-7 [2]					
-0320-3 [1]	-0320-5 [1]	-0320-7 [2]					
-0390-3 [1]	-0400-5 [1]	-0400-7 [2]					
-0510-3 [1]	-0460-5 [1]	-0440-7 [2]					
	-0610-5 [1]	-0580-7 [2]					
-0770-3 [2]	-0910-5 [2]	-0870-7 [2]					
-1030-3 [2]	-1210-5 [2]	-1160-7 [2]					
-1540-3 [2]	-1820-5 [2]	-1740-7 [2]					
-2050-3 [2]	-2430-5 [2]	-2320-7 [2]					

[1] du/dt filters are built-in as option
[2] du/dt filters are built-in as standard
In ACS800-14 du/dt filters as standard in parallel connected R8i and in single on parallel connected 690 V inverter units.

Dimensions and weights of the du/dt filters

du/dt filter	Height mm	Width mm	Depth mm	Weight kg
NOCH0016-60	195	140	115	2.4
NOCH0030-60	215	165	130	4.7
NOCH0070-60	261	180	150	9.5
NOCH0120-60**	200	154	106	7
NOCH0260-60**	383	185	111	12
FOCH0260-70	382	340	254	47
FOCH0320-50	662	319	293	65
FOCH0610-70	662	319	293	65

** 3 filters included, dimensions apply for one filter.

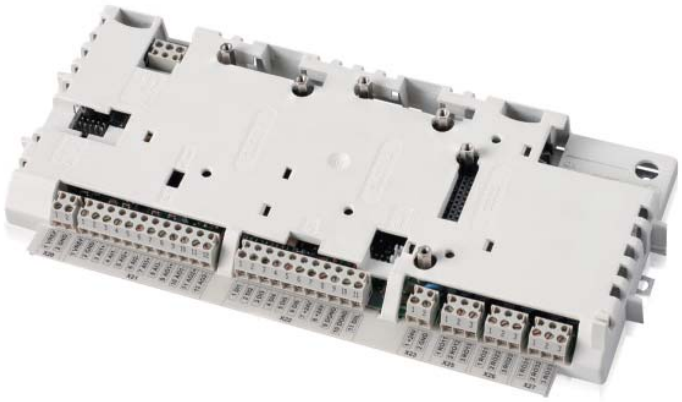
Standard user interface
Standard I/O

Analog and digital I/O channels are used for different functions such as control, monitoring and measurement purposes (e.g. motor temperature). In addition, optional I/O extension modules are available providing additional analog or digital I/O connections.

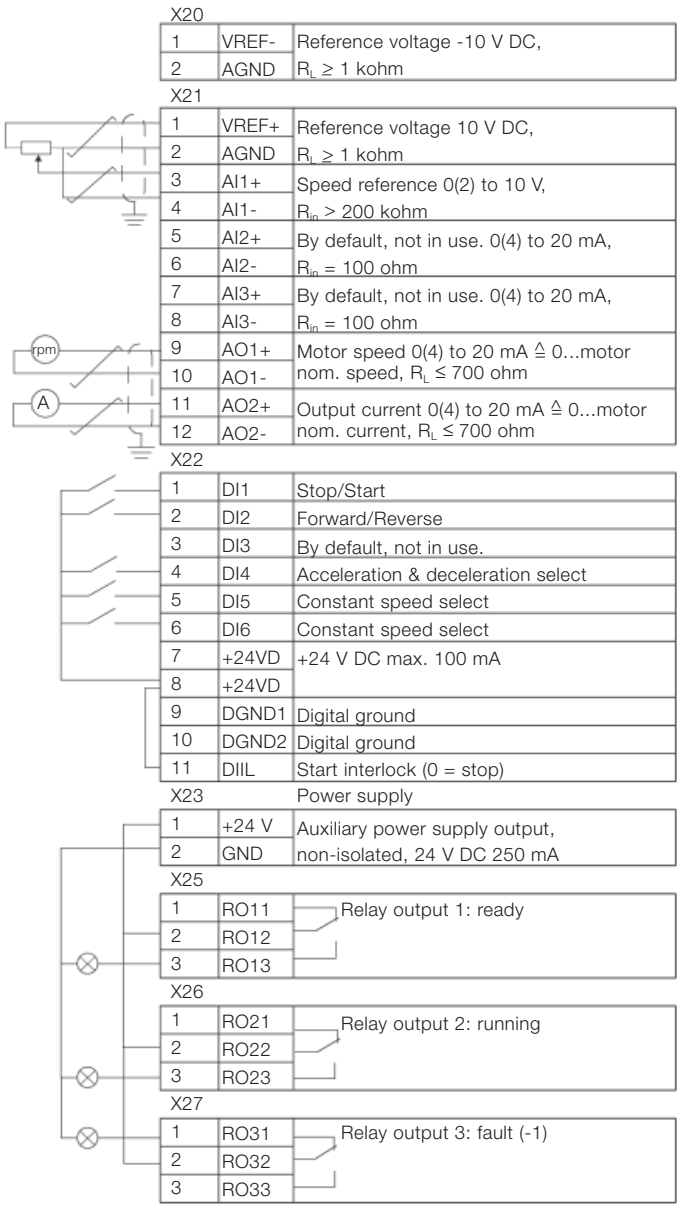
Below are the standard drive control I/O of the ABB industrial drive with Factory macro. For other ACS800 application macros and control programs the functions may be different.

Standard I/O on RMIO board

- 3 analog inputs: differential, common mode voltage ± 15 V, galvanically isolated as a group
  - One ± 0(2) to 10 V, resolution 12 bit
  - Two 0(4) to 20 mA, resolution 11 bit
- 2 analog outputs:
  - 0(4) to 20 mA, resolution 10 bit
- 7 digital inputs: galvanically isolated as a group (can be split in two groups)
  - Input voltage 24 V DC
  - Filtering (HW) time 1 ms
- 3 digital (relay) outputs:
  - Changeover contact
  - 24 V DC or 115/230 V AC
  - Max. continuous current 2 A
- Reference voltage output:
  - ± 10 V ± 0.5%, max. 10 mA
- Auxiliary power supply output:
  - +24 V ± 10%, max. 250 mA



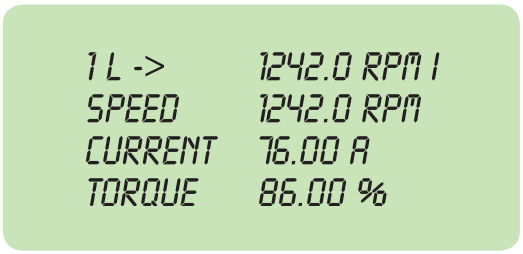
Control unit RDCU with RMIO inside

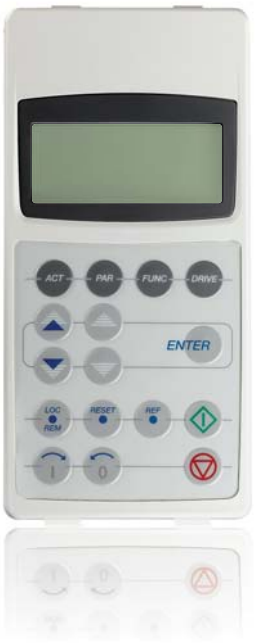


Options
Control panel
Control panel mounting platforms

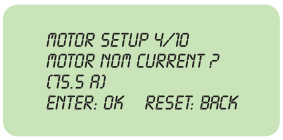
The industrial drive control panel has a multil-ingual alphanumeric display (4 lines x 20 characters) with plain text messages in 14 languages.

The control panel is removable and can be mounted on the drive enclosure or remotely.





Startup assistant



Easy commissioning with the startup assistant in standard control program. The startup assistant actively guides you through the commissioning procedure step by step. It also has a unique on-line help function.

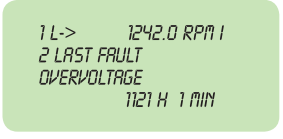
Actual value display

The control panel can display three separate actual values simultaneously.

Examples of these are:

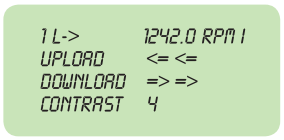
- Motor speed
- Frequency
- Current
- Torque
- Power
- References
- DC bus voltage
- Output voltage
- Heatsink temperature
- Operating hours
- Kilowatt hours

Fault memory



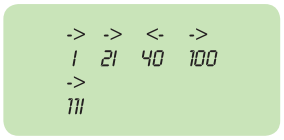
A built-in fault memory stores information relating to the latest 64 faults, each with a time stamp.

Parameter copying



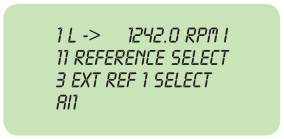
The parameter copy feature allows all drive parameters to be copied from one frequency converter to another to simplify commissioning.

Centralised control



One panel can control up to 31 drives.

Easy programming



Parameters are organised into groups for easy programming.

Control panel mounting platforms (+J410 and +J413)

On the reverse of the control panel are screw holes from where the control panel can be fixed to a cabinet door. Panel-mounting platforms, which allow the panel to be removed, are also available. There are two variants of the panel-mounting platform:

RPMP-11 (+J410) for door mounting
RPMP-21 (+J413) for panel mounting inside the cabinet

Options
Optional I/O

Standard I/O can be extended by using analog and digital extension modules or pulse encoder interface modules which are mounted in the slots on the ASC800 control board. The control board has two slots available for extension modules. More extension modules can be added with the I/O extension adapter which has three slots. The available number and combination of I/O's depends on the control software used. The standard application software supports 1 analog and 3 digital extension modules.

Optional I/O

Analog I/O extension module RAIO-01 (+L500)
- 2 analog inputs: galvanically isolated from 24 V supply and ground
  - ± 0(2) to 10 V, 0(4) to 20 mA or ± 0 to 2 V, resolution 12 bits
- 2 analog outputs: galvanically isolated from 24 V supply and ground
  - 0(4) to 20 mA, resolution 12 bit

Digital I/O extension module RDIO-01 (+L501)
- 3 digital inputs: individually galvanically isolated
  - Signal level 24 to 250 V DC or 115/230 V AC
- 2 relay (digital) outputs:
  - Changeover contact
  - 24 V DC or 115/230 V AC
  - Max. 2 A

Pulse encoder interface module RTAC-01 (+L502)
- 1 incremental encoder input:
  - Channels A, B and Z (zero pulse)
  - Signal level and power supply for the encoder is 24 or 15 V
  - Single ended or differential inputs
  - Maximum input frequency 200 kHz

Pulse encoder interface module RTAC-03 (+L517)
- 1 TTL incremental encoder input:
  - Channels A, B and Z (zero pulse)
  - Signal level and power supply for the encoder is 24 or 5.5 V
  - Differential inputs
  - Maximum input frequency 200 kHz

I/O extension adapter AIMA-01
- Three slots for I/O extension modules
- Connection to the ACS800 control board through optic link
- Dimensions: 78 × 325 × 28 mm
- Mounting: onto 35 × 7.5 mm DIN rail
- External power supply connection
- Supply voltage: 24 V DC ± 10%
- Current consumption: depends on connected I/O extension modules

Analog I/O extension module RAIO-01

Pulse encoder interface module RTAC-01

I/O extension adapter AIMA-01 with RDIO-01

Options
Fieldbus communication

ABB industrial drives have connectivity to major automation systems. This is achieved with a dedicated concept between the fieldbus systems and ABB drives.

The fieldbus gateway module can easily be mounted inside the drive. Because of the wide range of fieldbus adapter module offering you can freely select your communication protocol for the integration of automation system and ABB AC drives.

Manufacturing flexibility

Drive control
The drive control word (16 bit) provides a wide variety of functions from start, stop and reset to ramp generator control. Typical setpoint values such as speed, torque and position can be transmitted to the drive with 15 bit accuracy.

Drive monitoring
A set of drive parameters and/or actual signals, such as torque, speed, position, current etc., can be selected for cyclic data transfer providing fast data for operators and the manufacturing process.

Drive diagnostics
Accurate and reliable diagnostic information can be obtained via the alarm, limit and fault words, reducing the drive downtime and therefore also the downtime of the manufacturing process.

Drive parameter handling
Total integration of the drives in the production process is achieved by single parameter read/write up to complete parameter set-up or download.

Reduced installation and engineering effort

Cabling
Substituting the large amount of conventional drive control cabling with a single twisted pair reduces costs and increases system reliability.

Design
The use of fieldbus communication reduces engineering time at installation due to the modular structure of the hardware and software.

Commissioning and assembly
The modular machine configuration allows pre-commissioning of single machine sections and provides easy and fast assembly of the complete installation.

Fieldbus adapter modules

Option	Option code	Fieldbus protocol	Device profile	Baud rate
RCAN-01	+K457	CANopen®	Drives and motion control ABB Drives*)	10 kbit/s - 1 Mbit/s
RCNA-01	+K462	ControlNet	AC/DC drive ABB Drives*)	5 Mbit/s
RDNA-01	+K451	DeviceNet™	AC/DC drive ABB Drives*)	125 kbit/s - 500 kbit/s
RECA-01	+K469	EtherCAT®	Drive and motion control ABB Drives *)	100 Mbit/s
REPL-02	+K470	Ethernet PowerLink	Drive and motion control ABB Drives *)	100 Mbit/s
RETA-01	+K466	Ethernet IP, Modbus TCP	ABB Drives*), AC/DC drive ABB Drives*)	10 Mbit/s/ 100 Mbit/s
RETA-02	+K467	PROFINET IO, Modbus TCP	PROFIdrive ABB Drives*)	10 Mbit/s/ 100 Mbit/s
RLON-01	+K452	LonWorks®, LonTalk®	Variable speed motor drive	78 kbit/s
RMBA-01	+K458	Modbus RTU	ABB Drives*)	600 bit/s - 19.2 kbit/s
RPBA-01	+K454	PROFIBUS DP, DPV1	PROFIdrive ABB Drives*)	9.6 kbit/s - 12 Mbit/s
NIBA-01	+K453	InterBUS-S I/O, PCP	ABB Drives*)	500 kbit/s

*) Vendor specific profile

Options
Remote monitoring tool

Physically accessing operating drives can sometimes be challenging, especially when the drives are installed in remote locations. With the NETA-21 remote monitoring tool, accessing the drives to monitor and tune performance is as easy as using a computer or mobile device (such as a tablet or smartphone). NETA-21 provides access to the drives via Ethernet, ensuring easy and secure access to its web-based user interface. The Ethernet connection can be part of a local area network, wireless network, or internet network.

Monitor the process the way you want to

NETA-21 allows user to monitor and configure drive parameters, monitor runtime data, I/O communication, and energy consumption, to name a few of the features. Logging process and drive data allows for those processes to be tuned for optimal efficiencies. The NETA-21 remote monitoring tool provides the capability to log process data directly to its built-in SD card, or optionally, the data can be sent to a centralized database or external server.

The built-in alarm function provides additional assurance that if process variables shift outside of defined limits, that the NETA-21 will automatically notify maintenance crews. The alarms are recorded along with a time stamp to the SD memory card, further assisting maintenance with process troubleshooting.

Easy to use

The NETA-21's software can be updated locally or remotely as well, using a simple FTP connection. Connecting the NETA-21 to a DDCS network is simple using the optional NEXA-21 extension module. This module connects to the base of the NETA-21 and provides plug-and-play connectivity to DDCS network, allowing up to ten ACS800 drives to be connected to one NEXA-21 extension module. With this configuration, the DriveWindow startup and maintenance tool (v. 2.4) can be used to configure the connected drives via Ethernet connection.

NETA-21

Standard control program

Standard control program
Based on direct torque control technology, the ACS800 offers highly advanced features as standard. The ACS800 standard control program provides solutions to virtually all AC drives applications such as pumps, fans, extruders and conveyors to name few.

Adaptive programming
In addition to parameters, industrial drives have the possibility for function block programming as standard. Adaptive programming with 15 programmable function blocks makes it possible to replace e.g. relays or even a PLC in some applications. Adaptive programming can be done either by standard control panel or DriveAP, a user-friendly PC tool.

The standard application macros
The ACS800 features built-in, pre-programmed application macros for configuration of such parameters as inputs, outputs and signal processing.

- FACTORY SETTINGS for basic industrial applications
- HAND/AUTO CONTROL for local and remote operation
- PID CONTROL for closed loop processes
- SEQUENTIAL CONTROL for repetitive cycles
- TORQUE CONTROL for processes where torque control is required
- USER MACRO 1 & 2 for user's own parameter settings

Software features
A complete set of standard software features offers premium functionality and flexibility.

- Accurate speed control
- Accurate torque control without speed feedback
- Adaptive programming
- Automatic reset
- Automatic start
- Constant speeds
- Controlled torque at zero speed
- DC hold
- DC magnetizing
- Diagnostics
- Flux braking
- Flux optimization
- IR compensation
- Master/follower control
- Mechanical brake control
- Motor identification
- Parameter lock
- Power loss ride-through
- Process PID control
- Programmable I/O
- Scalar control
- Speed controller tuning
- Startup assistant
- Support for sine filter in the drive output
- Trim function
- User-selectable acceleration and deceleration ramps
- User adjustable load supervision/limitation

Pre-programmed protection functions
A wide range of features provides protection for the drive, motor and the process.

- Ambient temperature
- DC overvoltage
- DC undervoltage
- Drive temperature
- Input phase loss
- Overcurrent
- Power limits
- Short circuit

Programmable protection functions
- Adjustable power limits
- Control signal supervision
- Critical frequencies lock-out
- Current and torque limits
- Earth fault protection
- External fault
- Motor phase loss
- Motor stall protection
- Motor thermal protection
- Motor underload protection
- Panel loss

Optional control programs
Control solutions for different applications

ABB provides a set of ready-made control solutions for specific industrial drive applications. Such software adds application-dedicated features and protection without an external PLC - improving productivity and reducing costs. Function blocks are easy to program using the DriveAP PC tool.

Main advantages of ABB's control solutions
- Application-dedicated features
- Improved production
- No external PLC
- User-friendly
- Easy to use
- Energy savings
- Smooth power loss ride-through
- Reduced costs
- Adaptive protection

Multiblock control program
The multiblock control program has been specially designed for system integrators and local engineering because of its flexibility, easy programming, large number of I/O, master-follower link and fieldbus interfaces. Integrated into the drive control board there are over 200 function blocks on 3 time levels: 20 ms, 100 ms and 500 ms. These benefits mean that it is not always necessary to have separate PLC for drive and process control. Function blocks are easy to program using the DriveAP PC tool.

Extended I/O
An analog and digital I/O extension is typically installed on the AIMA-01 I/O extension adapters. Three extension modules can be installed on each I/O extension adapter. The maximum number of I/O connections is 62.

Motion control program
The motion control program is a cost-effective solution for precision positioning and synchronization. Intelligent integrated motion control functions and versatile controllability eliminate the need for an external motion controller, even in the most demanding applications, such as materials handling, packaging, printing and the plastics industry.

Motion control program has four operating modes – speed, torque, positioning and synchronization – and also provides the possibility for switching online between two selected modes.

Pump control program
Incorporating all functions commonly required at pumping facilities, pump control program eliminates the need for an external PLC and can help to save energy, reduce downtime, and prevent pump jamming and pipeline blocking. It is easy-to-use software, designed to meet the needs of water and waste utilities, industrial plants and other pump users.

Application base control program
The application base control program is a simple, ready-made application that can easily be modified using a special function block programming tool. The application engineer can easily modify the time levels and insert new functions to control the I/O, start/stop commands, and references etc. This is the most flexible software product for tailor-made customer applications.

Winder and inline control programs
Winder and inline control programs utilize the accurate speed and torque control of the drive in controlling product tension within a process by adjusting the speed or torque, based on the dancer or tension feedback. This precise control ensures high-quality handling of web material. The result is a straightforward, cost-effective solution in web handling applications. Winder control program supports adaptive programming with 15 blocks.

Optional control programs
Control solutions for different applications

Rod pump and PCP/ESP pump control programs
These pump control programs have been specially developed in close cooperation with the oil industry for artificial oil lifting applications. The products not only increase the production and pump efficiency, but also reduce the stress on the complete pump system. The benefits provided include enhanced equipment protection, optimised fluid production, and overall improvement of system performance.

Permanent magnet synchronous motor (PMSM) control program
This control program is available with standard control application and system control application. The motor control software is specially made for permanent magnet low-speed – high-torque motors. This offers precise and reliable control at low speed without speed feedback. Permanent magnet software supports adaptive programming with 15 blocks.

Centrifuge control program
Practical programmable sequences for conventional centrifuges. Integrated decanter control for the accurate speed difference control of two shafts, where direct communication via the fibre optic link between bowl and scroll is used. Centrifuge control program supports adaptive programming with 15 blocks.

Crane control program
This control program is designed for different kinds of crane motions - mainly for hoist, trolley and long travel motions.

The ABB crane control program is a flexible control platform, which enables a wide range of connectivity for start, stop and reference logic. Adaptive programming with 15 blocks gives additional flexibility for tailor-made modifications outside the ready-made parameter structure. This is like having a small PLC inside the drive.

Reliable, integrated brake control logic for smooth open and close logic without jerks improves operational safety and performance. Brake acknowledge, torque memory and pre-magnetisations are the key software elements that ensure reliable control.

Different functions as standard increase the safety level of the crane. These include integrated speed match, speed monitor, fast stop, slowdown and end limit logic.

The master-follower logic for up to five motors enables common drum or separate motors with load sharing, or with separate drums and separate motors with shaft synchro control. Fast switchover logic between stand-alone and master-follower logic increases the operational productivity. Internal homing control logic for position-controlled cranes can also be done with ready-made parameters. The position measurement enables position actual signals in millimeters for further logic.

The load speed control enables optimization of the hoist speed for different loads.

The integrated service counters for maintenance logic enable the different counters to provide information.

An easy-to-use, ready-made solution specifically for cranes.

Cranedrive control program
A cranedrive control with optimal operational safety and performance built into the drive.

- A fixed, standard and ready-made crane application for different crane applications such as harbor cranes.
- Optimal operational safety and performance built into the drive.
- Ready-to-use with proven crane functionality.
- Available as single-drive or multi-drive with dynamic and regenerative braking.

Standard, ready-to-use crane solution.

Optional control programs
Control solutions for different applications

Master/follower control
Reliable control via the fibre optic link of several drives controlled by one master. This is needed if the motor shafts are coupled together, for example. The master/follower function enables the load to be evenly distributed between the drives.

Spinning control and traverse control program
Spinning control and traverse control program make a perfect pair for the precise control of spinning and traverse drives in textile machines.

System control program
This control program is aimed at multi-motor machines producing or processing metal, paper, plastics, textile, rubber and cement, and for numerous other demanding applications. Fast communication with the overriding controller can exchange operative data (references, command words) and support data (configuration data, diagnostics). Proprietary (DDCS, Drive bus) and generic (PROFIBUS, InterBUS-S, DeviceNet) protocols enable linking of drives to controllers, PLC and PCs.

Winch control program
ABB industrial drives with winch control program replace traditional and costly hydraulic winch controllers, thereby eliminating high maintenance costs and performance inefficiencies, while improving operator and overall system reliability.

The electrical interface can be traditional I/O based or fieldbus gateways from an overriding PLC and can be used to control the winch directly from control stands located on the port, starboard and upper deck of the vessel.

Anchor control provides stepless speed control of the anchor whether is being raised or lowered.

The tension within the mooring ropes can be controlled either manually (hand-mooring) or automatically (auto-mooring) by automooring sequence.

Ro-Ro quarter ramp control logic is for lifting or lowering the gate ramp, with protection to slowdown the speed and torque before closing the gate ramp in the upper end position.

DriveSize

Dimensioning tool

DriveSize is designed to help select the optimal motor, drive and transformer for the application. Based on user supplied data, the tool calculates and suggests which drive and motors to use. Additionally, the tool can be used to compute currents, network harmonics, and to create documents about dimensioning based on the load data provided. DriveSize uses the technical specifications contained in the ABB motor and drive catalogs.

DriveSize provides default values that can be changed by the user, and provides different options for drive selection. Shortcut keys can be used to quickly navigate around the tool.

Motors, drives, and transformers

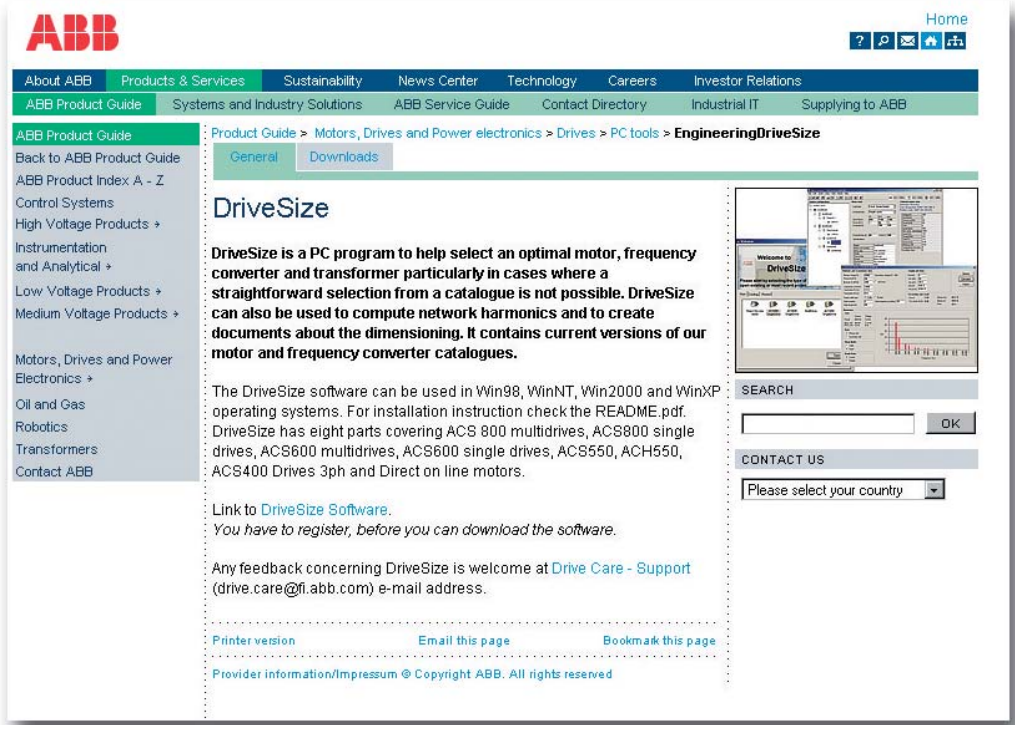
DriveSize can accommodate technical information for the following:

- 3-phase standard, customized, EX, and user defined motors
- ABB low voltage AC drives
- Transformers

Highlights

- Select optimal motor, drive, and transformer
- Calculate network harmonics for a single supply unit, or the whole system
- Import user defined motor database
- View dimensioning results graphically and numerically
- Print and save results

DriveSize can be downloaded free from www.abb.com/drives. Follow the PC Tools link.



DriveWindow

Startup and maintenance tool

A tool for the entire life cycle DriveWindow is designed to support the daily operation of ABB low voltage industrial drives. The tool provides users with capabilities to view, edit, and set drive parameters, as well as advanced functions like drive backup and data logger views. DriveWindow connects to drives using a disturbance free high speed fiber optic network.

Drive startup and maintenance

DriveWindow is used to configure drive parameters during drive commissioning. Drive parameter configuration files can be saved and used to commission new drives or kept as backups. DriveWindow provides a complete listing of the drive parameters and their corresponding values allowing users to view and edit individual parameters. Using the built-in data and fault loggers, users are able to monitor signals and real-time status of the drive. This data can be used for graphical trending of the drive's performance. The data and fault loggers come with functions allowing users to process the data.

PC based drive control

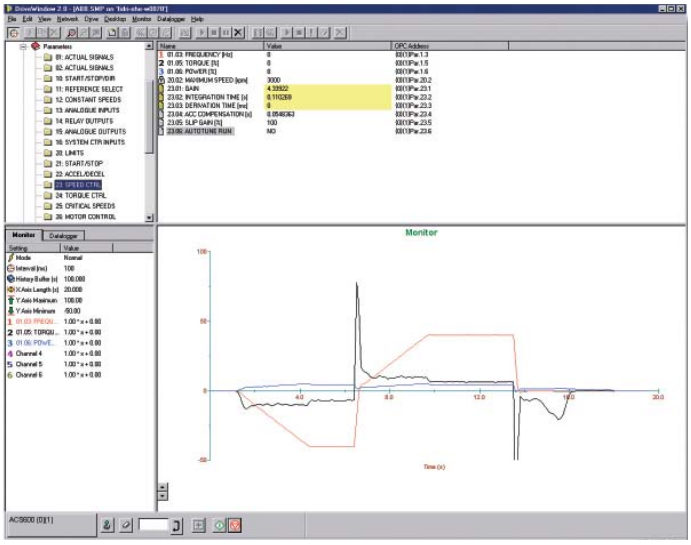
DriveWindow provides a built-in drive control panel allowing users to start, stop, set the direction, speed, and torque reference values of the connected drive.

High speed data access

High speed connections between DriveWindow and drives via the DDCS fiber optic network can be made. The fast access enables oscilloscope-like functionality in the data logger view, where drive information can be viewed graphically and also saved to file.

Highlights

- View and set drive parameters
- Monitor drive signals, graphically and numerically
- Use high speed data connection to the drive
- Save and compare drive configuration files
- Control the drive using the built-in control panel
- Tune the drives performance OPC server
- Connects via USB to the DDCS network



DriveAP

Programming tool

DriveAP is a programming tool for creating, editing and documenting adaptive and multi-block programs. Fifteen function blocks are available for adaptive programming, and over 200 function blocks as well as PROFIBUS and drives I/O blocks may be edited using multi-block programming.

DriveAP supports IEC 61131 and only requires users to have a basic knowledge of block programming in order to use the tool. No special programming knowledge is needed.

Adaptive programs are easy to document either as printed copies or as stored files on the PC.

Operating modes

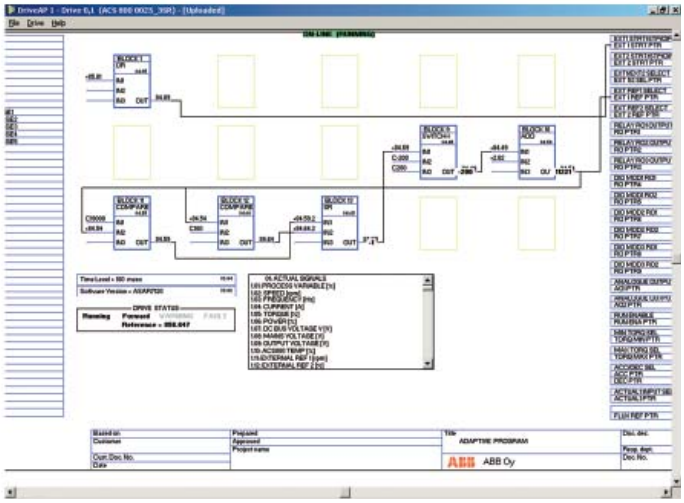
Stand-alone mode, DriveAP is not connected to a drive. The adaptive programming and multi-block programming can be done in the office and later downloaded to the drive.

Off-line mode, DriveAP is connected to a drive. The adaptive programming and multi-block programming can be carried out in batch mode.

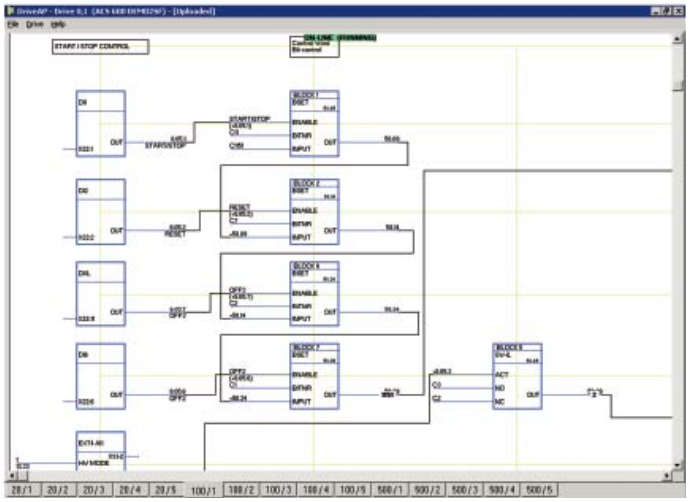
On-line mode, DriveAP is connected to a drive. Changes to the adaptive or multi-block programs are written immediately to the drive and the actual values are shown on the screen in real-time.

DriveAP featues

- Create and modify adaptive programs
- Create and modify multi-block programs
- Document programs
- Read existing program from the drive
- Stand-alone mode
- Off-line mode
- On-line mode



DriveAP with adaptive program of standard application.



DriveAP with multiblock programming application.

DriveAnalyzer

Startup and maintenance tool

DriveAnalyzer is a PC tool designed to perform analysis on ABB industrial single drive's performance. The results of the analysis can be used to help tune the drive to achieve better efficiencies and performance of the driven process.

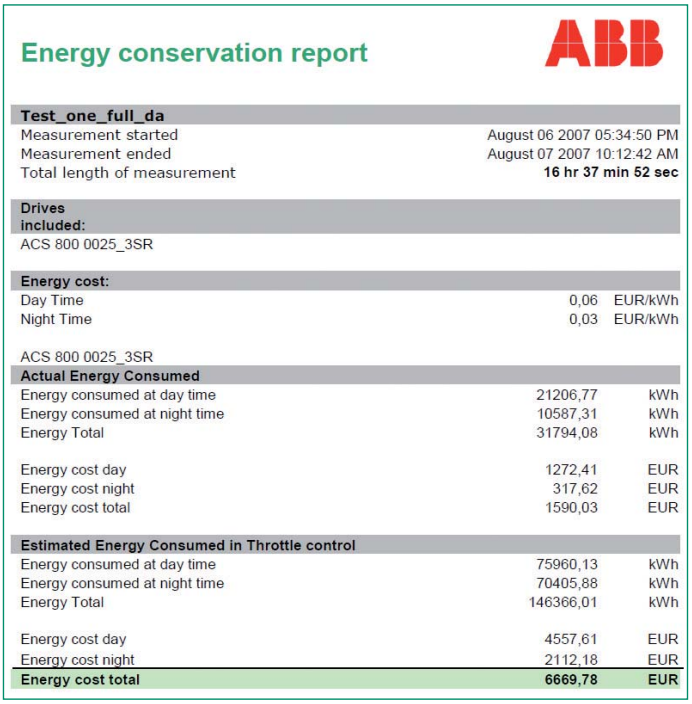
Motor mechanical loads and performance data is recorded by DriveAnalyzer as the basis for the analysis. The tool is not a fault diagnosis tool, it is designed to work with operational drives using the standard control or system control programs. Drive data is collected over time enabling duration graphing and longer run time analysis.

DriveAnlayzer connects to multiple drives collecting data on the network supply which can be used by engineers to ensure the power supply network is optimized for the driven process.

DriveAnalyzer collects data on mechanical power, torque, rotational speed, energy use (kWh), currents, frequency, electrical power, temperatures, the status word, peak value logger information and amplitude logger information.

Highlights

- Motor and drive utilization
- Motor shaft load shape and duration plots
- Machine load behavior analysis
- Power supply and network analysis
- Energy savings analysis
- Read and show peak values
- Read and show amplitude logger registers
- Export results and reports to spreadsheets



Energy conservation report

Test_one_full_da		
Measurement started	August 06 2007 05:34:50 PM	
Measurement ended	August 07 2007 10:12:42 AM	
Total length of measurement	**16 hr 37 min 52 sec**	
Drives included:		
ACS 800 0025_3SR		
Energy cost:		
Day Time	0,06	EUR/kWh
Night Time	0,03	EUR/kWh
ACS 800 0025_3SR		
Actual Energy Consumed		
Energy consumed at day time	21206,77	kWh
Energy consumed at night time	10587,31	kWh
Energy Total	31794,08	kWh
Energy cost day	1272,41	EUR
Energy cost night	317,62	EUR
Energy cost total	1590,03	EUR
Estimated Energy Consumed in Throttle control		
Energy consumed at day time	75960,13	kWh
Energy consumed at night time	70405,88	kWh
Energy Total	146366,01	kWh
Energy cost day	4557,61	EUR
Energy cost night	2112,18	EUR
Energy cost total	**6669,78**	**EUR**

DriveAnalyzer energy conservation report

DriveOPC

Integration tool
DriveOPC is a software package which allows OLE for Process Control (OPC) communication between Windows applications and ABB industrial drives. It allows Object Linking and Embedding (OLE) for Process Control (OPC) communication. This OPC server is an ideal tool for integrating ABB industrial drives and commercial PC software, and creating PC based control and monitoring systems.

Remote monitoring
DriveOPC enables remote connection over LAN (local area networks). The remote PC can be connected through its IP address (e.g. “164.12.43.33”) or by the DNS name (e.g. “Gitas213”).

OPC based software
OPC is an industry standard created in cooperation with Microsoft. It is an open architecture interface design, managed by the international OPC foundation. OPC is meant for different kinds of factory automation. DriveOPC is based on the OPC foundation data access standard 1.0A and Microsoft COM/DCOM technology. DriveOPC has full access to all drives, even when remote connection over LAN is used.

High speed communication
DriveOPC uses the DDCS communication protocol on a highspeed fibre optic network, enabling very fast communication between the PC and drives. The fibre optic network is safe and highly immune to external disturbances. The fibre optic network is connected to the PC using either a USB or communication card adapter.

DriveOPC features
– DriveOPC supports OPC’s data access 1.0A.

Read access to:
– Drive status: local, running, direction, fault, warning, reference
– Signals and parameters
– Fault logger contents
– Event logger contents
– General drive information
– Data logger settings, status and contents

Write access to:
– Drive control: local, start, stop, forward, reverse, coast stop, reset fault, home, teach-in, contactor on/off, reference
– Parameters
– Fault logger clear
– Data logger init, start, trig, clear

Summary of features and options

Power and voltage range	Ordering code	04 Frame sizes R2 to R6 230 V: 0.55 to 55 kW 400 V: 1.1 to 160 kW 500 V: 1.5 to 200 kW 690 V: 5.5 to 160 kW	04 (M) Frame sizes R7 to R8 230 V: 45 to 200 kW 400 V: 90 to 400 kW 500 V: 110 to 500 kW 690 V: 90 to 560 kW	04 Frame sizes D4+2xR8i to 3xD4+4xR8i 400 V: 400 to 1450 kW 500 V: 500 to 1900 kW 690 V: 500 to 1900 kW	14 Frame sizes R7i+R7i to 4xR8i+4xR8i 400 V: 75 to 1600 kW 500 V: 90 to 1800 kW 690 V: 90 to 1700 kW	104 (INU) Frame sizes R2i to 4xR8i 400 V: 1.1 to 2400 kW 500 V: 1.5 to 2900 kW 690 V: 5.5 to 2800 kW	204 (ISU) Frame sizes R2i to 4xR8i 400 V: 2.7 to 2555 kW 500 V: 3.1 to 2932 kW 690 V: 105 to 2700 kW	304 and 704 (DSU) Frame sizes D3 to 5xD4 400 V: 147 to 2436 kW 500 V: 183 to 3045 kW 690 V: 253 to 4202 kW
Mounting								
Wall mounting		●	●	–	● 18)	● 10)	● 10)	–
Free-standing		–	● 1)	●	● 14)	● 14)	● 14)	●
Two mounting directions: bookshelf/flat (=sideways)	H354 or H360	–	○	–	–	–	–	–
Side by side mounting		●	●	●	●	●	●	●
Flange mounting	C135	□ 19)	–	–	–	–	–	–
Separate drive control unit (RDCU)		-	●	●	●	● 11)	●	–
Wheels for easy manoeuvring of the module		-	-	●	● 12)	● 12)	● 12)	● 12)
Cabling								
Supply bottom entry (module terminals)		●	–	●	●	● 10)	●	●
Supply top entry (module terminals)		–	●	–	–	● 12)	–	–
Bottom exit (module terminals)	H352	●	○ 2)	●	●	●	–	–
Side exit (module terminals)	H354 or H360	–	● 3)	–	–	–	–	–
Top exit in the module		–	–	–	–	–	●	●
DC and brake chopper output busbars	H356	●	○	–	–	–	–	–
DC and brake chopper outputs on different sides of the module	H363	–	○	–	–	–	–	–
Vertical busbars for easy motor cable connection	H355	–	● 3)	–	–	–	–	–
Vertical busbars for easy DC/ brake chopper cable connection	H362	–	● 3)	–	–	–	–	–
Enclosure class								
IP00 (UL open chassis)		–	●	●	●	●	●	●
IP20 (UL open chassis)	B060	●	○ 4)	–	–	–	–	–
Motor control								
DTC		●	●	●	●	●	●	–
Software 5)								
Startup assistant		● 6)	● 6)	● 6)	● 6)	● 6)	–	–
Adaptive programming		● 6)	● 6)	● 6)	● 6)	● 6)	–	–
Optional software optimized for different applications or for enhanced programmability: for more details see section “Application software and programming”		□	□	□	□	□	–	–
Control panel								
Alphanumeric 4*20 character control panel	J400	X	X	■	■	■	■	■
Control panel mounting platform	J410 or J413	■	X	■	■	■	■	■
Control connections (I/O) and communications								
3 pcs analog inputs, programmable, galvanically isolated		●	●	●	● 9)	●	● 9)	● 9)
2 pcs analog outputs, programmable		●	●	●	● 9)	●	● 9)	● 9)
7 pcs digital inputs, programmable, galvanically isolated - can be divided into two groups		●	●	●	● 9)	●	● 9)	● 9)
3 pcs relay outputs, programmable		●	●	●	● 9)	●	● 9)	● 9)
Possibility for external control voltage		●	●	●	●	●	●	●
Built-in I/O extension and speed feedback modules: for more details see section “Control connections and communications”		□	□	□	□	□	–	–
Built-in adapters for several fieldbuses: for more details see section “Control connections and communications”		□	□	□	□	□	□	□

Summary of features and options

Power and voltage range	Ordering code	04	04 (M)	04	14	104 (INU)	204 (ISU)	304 and 704 (DSU)
		Frame sizes R2 to R6	Frame sizes R7 to R8	Frame sizes D4+2xR8i to 3xD4+4xR8i	Frame sizes R7i+R7i to 4xR8i+4xR8i	Frame sizes R2i to 4xR8i	Frame sizes R2i to 4xR8i	Frame sizes D3 to 5xD4
		230 V: 0.55 to 55 kW 400 V: 1.1 to 160 kW 500 V: 1.5 to 200 kW 690 V: 5.5 to 160 kW	230 V: 45 to 200 kW 400 V: 90 to 400 kW 500 V: 110 to 500 kW 690 V: 90 to 560 kW	400 V: 400 to 1450 kW 500 V: 500 to 1900 kW 690 V: 500 to 1900 kW	400 V: 75 to 1600 kW 500 V: 90 to 1800 kW 690 V: 90 to 1700 kW	400 V: 1.1 to 2400 kW 500 V: 1.5 to 2900 kW 690 V: 5.5 to 2800 kW	400 V: 2.7 to 2555 kW 500 V: 3.1 to 2932 kW 690 V: 105 to 2700 kW	400 V: 147 to 2436 kW 500 V: 183 to 3045 kW 690 V: 253 to 4202 kW
EMC filters								
EMC 1st environment (Category C2)	E202	□ 7)	X 7)	–	–	–	–	–
EMC 2nd environment, earthed networks only (Category C3)	E200	□ 15)	–	–	–	–	–	–
EMC 2nd environment, earthed and unearthed networks (Category C3)	E210	□ 16)	□	–	–	–	–	–
Line filter								
AC or DC choke		●	●	●	–	–	–	●
LCL		–	–	–	●	–	●	–
Output filters								
Common mode filter	E208	–	□	●	●	■ 14)	■ 14)	–
du/dt filters		■	■	●	● 17)	● 13)	–	–
Braking								
Brake chopper	D150	□ 8)	□	■	■	■	–	–
Brake resistor		■	■	■	■	■	–	–
Regenerative braking		–	–	–	●	–	●	–
Rectifier bridge								
6-pulse that can be connected as 12-pulse		–	–	●	–	–	–	●
Line side apparatus								
Built-in load switch		–	–	●	–	–	–	●
Built-in contactor	F250	–	–	–	–	–	–	□
Safety								
Prevention of unexpected startup	Q950	X	□	□	□	□	–	–
Safe torque-off	Q967	X	□	□	□	□	–	–
Earth fault monitoring, earthed mains		●	●	●	●	●	●	●
Earth fault monitoring, unearthed mains		–	–	–	–	–	–	–
Approvals								
CE		●	●	●	●	●	●	●
UL 21), cUL, CSA		●	●	●	●	●	●	●
GOST R		●	●	●	●	●	● /-	●
C-Tick		●	●	–	–	–	–	–
Marine		● 21)	–	–	–	–	–	–
Auxiliary option kits								
Fuses, fuse bases		–	–	■	■	■	■	■
DC-fuse switch		–	–	–	–	■	–	–
Contactor or breaker		–	–	■	■	–	■	■
Assembly kits for Rittal TS8 cabinets		–	–	■	■	■	■	■
IP21 - IP54 door/roof kits		–	–	■	■	■	■	■

● Standard
□ Option built-in
X External accessory, with plus code
■ External accessory, no plus code
o ACS800-04M option
– Not available

1) R7 frame size -04M: bottom exit version (+H352) has only wall mounting possibility.
2) Only in standard control program.
3) Option in ACS800-04M.
4) Not available for all variants.
5) Software compatibility with different option modules must be checked from ACS800 software compatibility (doc no. 64638211) in ABB Library.
6) Only in standard software.
7) Not for 690 V.
8) Standard in frame sizes R2 and R3 and at 690 V also in R4.
9) Fixed I/O in ISU and DSU.
10) Frame sizes R2i-R7i.
11) Frame sizes R2i to R5i inside of the module.
12) Frame sizes R8i-4xR8i D3-5xD4.
13) Optional in frame sizes R2i to R7i and 400 V/500 V R8i.
14) R8i-4xR8i.
15) Frame sizes R2 to R5. Note frame size R6: +E210.
16) R6 frame size only.
17) Standard in frame sizes nxR8i and R8i 690 V. Optional in frame sizes R7i (400 V, 500 V, 690 V) and R8i (400 V, 500 V).
18) Frame size R7i.
19) Not for -0205-3 and -0255-5.
20) Excludning TSU.
21) Marine type approval (DNV, Loyd's, RINA) with option +C132.

Summary of features and options

Power and voltage range	Ordering code	04LC	104LC (INU)	204LC (ISU)	304LC and 704LC (DSU)
		Frame sizes D3+R8i to 2xD4+4xR8i	Frame sizes R2i to 4xR8i	Frame sizes R8i to 4xR8i	Frame sizes D3 to 2xD4
		400 V: 200 to 2000 kW 500 V: 315 to 2240 kW 690 V: 400 to 2240 kW	400 V: 1.1 to 2000 kW 500 V: 1.5 to 2240 kW 690 V: 5.5 to 2240 kW	400 V: 180 to 2066 kW 500 V: 208 to 2370 kW 690 V: 191 to 2181 kW	400 V: 303 to 2100 kW 500 V: 303 to 2117 kW 690 V: 522 to 3652 kW
Mounting					
Cabinet mounting		■	■	■	■
Separate drive control unit (RDCU)		●	● 1)	●	●
Cabling					
Supply bottom entry (module terminals)		●	–	–	●
Supply top entry (module terminals)		–	●	●	–
Bottom exit (module terminals)		●	●	–	–
Side exit (module terminals)		–	–	–	–
Top exit in the module		–	–	●	●
Enclosure class					
IP00 (UL open chassis)		●	●	●	●
Motor control					
DTC		●	●	●	–
Software					
Startup assistant		● 2)	● 2)	●	●
Adaptive programming		●	●	●	–
Optional software optimized for different applications or for enhanced programmability: for more details see section “Application software and programming”		□	□	–	–
Control panel					
Alphanumeric 4*20 character control panel		■	■	■	■
Control panel mounting platform		■	■	■	■
Control connections (I/O) and communications					
3 pcs analog inputs, programmable, galvanically isolated		●	●	● 3)	● 3)
2 pcs analog outputs, programmable		●	●	● 3)	● 3)
7 pcs digital inputs, programmable, galvanically isolated - can be divided into two groups		●	●	● 3)	● 3)
3 pcs relay outputs, programmable		●	●	● 3)	● 3)
Possibility for external control voltage		●	●	●	●
Built-in I/O extension and speed feedback modules: for more details see section “Control connections and communications”		□	□	–	–
Built-in adapters for several fieldbuses: for more details see section “Control connections and communications”		□	□	□	□
Line filter					
AC or DC choke		●	–	–	●
LCL		–	–	●	–
Output filters					
Common mode filter		●	● 4)	● 3)	–
du/dt filters		●	● 5) ■ 6) □ 7)	-	–
Braking					
Brake chopper		■	■	–	–
Brake resistor		–	–	–	–
Regenerative braking		–	–	●	–
Rectifier bridge					
6-pulse that can be connected as 12-pulse		● 8)	–	–	● 8)
Safety					
Prevention of unexpected startup	Q950	□	□	–	–
Safe torque-off	Q967	□	□	–	–
Approvals					
CE		●	●	●	●
UL, cUL, CSA		●	●	●	●
GOST R		●	●	●	●
Marine		● 9)	● 9)	● 9)	● 9)
Auxiliary option kits					
Fuses, fuse bases		■	■	■	■
DC-fuse switch		–	■	–	–
Contactor or breaker		■	–	■	■
Assembly kits for Rittal TS8 cabinets		■	■	■	■

● Standard
□ Option built-in
■ External accessory, no plus code
– Not available

1) Frame sizes R2i-R5i inside of the module.
2) Only in standard control program.
3) Fixed I/O in ISU and DSU.
4) Not for 690 V.
5) For frame size nxR8i only.
6) For frame size R2i to R5i only.
7) For frame size R7i only.
8) For frame size D4 only.
9) Type approval (ABS, DNV, Lloyd´s)

Product brochure

ABB AC 고압 드라이브
ACS 1000, ACS 1000i
315 kW – 5 MW, 2.3 – 4.16 kV

Power and productivity
for a better world™

ACS 1000, ACS 1000i – 신뢰할 수 있는 전력 전자 제어

ACS 1000 제품 군은 가장 성공적인 가변 주파수 드라이브로서 간편하고 신뢰도 높은 전력 전자 제어 기능을 제공합니다.

유도 전동기 제어

ABB는 100년 이상의 산업 제조분야 경험을 바탕으로 편리하고 신뢰할 수 있는 전력 전자 제어 기능을 제공합니다. ACS 1000 제품군은 2.3/3.3/4.0/4.16kV 전압의 315 ~ 5,000kW 유도 전동기의 속도와 토크를 제어합니다. 냉각형태는 공랭식 및 수냉식 중 선택 가능합니다.

공랭식 드라이브는 별도 입력측 변압기와 함께 설치되거나 (ACS 1000) 내장형 변압기를 포함한 일체형 드라이브 시스템으로(ACS 1000i) 공급됩니다.

수 많은 경험

전 세계적으로 수 천번 이상 설치된 ACS 1000 제품 군은 가장 대중적이고 우수한 드라이브입니다.

ACS 1000 제품 군은 1997년 제품 출시 이후에 펌프, 팬, 컨베이어, 압출기, 압축기와 같은 고압 어플리케이션에서 신뢰성 있고 효율적인 성능으로 타사의 벤치마킹 대상이 되었습니다.

제품의 주요 특징

- 대 부분의 고압모터 응용분야에서 기존 사용중인 모터에 그대로 적용 가능
- 출 력 사인 필터 장착에 의해 깨끗한 사인파 전압 및 전류가 출력되며, 따라서 표준모터 사용가능, 모터 용량 저감 불필요, 전압 스트레스 및 커먼 모드 모터 절연 불필요
- 휴즈없는 설계로 회로보호 및 유지보수에 자유로우며 열화 작용 없음
- DTC 제어기술 플랫폼에 의한 토크 및 속도의 정밀제어 저압인버터 ACS800과 동일한 제어 플랫폼
- 상위 시스템 설계 유연성 위한 내/외장형 입력측 변압기

Fields of application

산업분야	Applications
시멘트, 광물 및 광산	컨베이어, 분쇄기, 제조분야, 팬, 펌프
석유화학, 오일 및 가스	펌프, 압축기, 압출기, 믹서, 블로어
마린	펌프, 압축기
철강	팬, 펌프
펄프 및 제지	팬, 펌프, 진공펌프, Chipper, refiners
발전소	팬, 펌프, 컨베이어, 석탄 제조 분야
수처리	펌프
기타 응용 분야	풍동 시험 설비 등의 시험 설비

간편한 기존 시스템 성능 향상

ACS 1000 제품 군은 모든 시스템에 최적화 되었습니다. 네트워크 측 다이오드 정류기, 전동기 친화적인 출력 사인 필터 및 입력측 변압기의 유연성으로 고객의 모든 니즈를 충족합니다.

네트워크 친화성

네트워크 상황에 따라 ACS 1000 제품 군 드라이브는 12 혹은 24펄스의 다이오드 정류기를 사용합니다. 따라서 IEEE, IEC, EN에서 정의되는 전류 및 전압 고조파 왜곡에 대한 엄격한 요구 사항을 만족합니다.

출력 사인 필터 – 표준 전동기 및 모든 어플리케이션을 위한 완벽한 적용

인버터 토폴로지에 의한 전압 reflection 및 common mode 전압은 고압 전동기의 실질 경고대상입니다. 이는 표준 전동기 insulation에 과도한 스트레스 및 해로운 베어링 전류를 발생시켜 위험한 결과를 낳을 수 있습니다. 따라서 미리 필요한 조치를 취하지 않을경우 인버터 switching으로 인한 하모닉에 영향을 받기 쉽습니다.

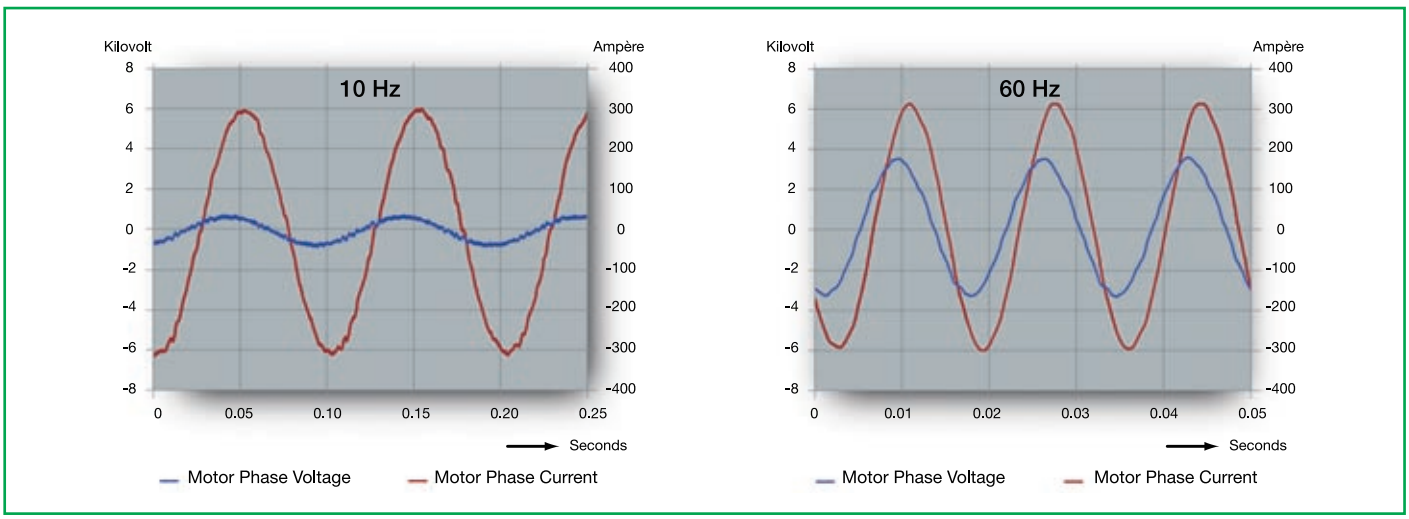
ACS 1000 및 ACS 1000i는 특유의 출력 사인필터로 위와 같은 악영향을 완전히 제거하고 전동기에 공급되는 전압 및 전류파형에 우수한 특성을 보여줍니다.

이점

- 용량 감소없이 표준 유도 전동기에 적용가능
- 기존 전동기에 그대로 적용 가능
- DOL(Direct-On-Line) 동작시와 유사한 전동기 효율성
- 전동기 소음 감소
- 표준 케이블 사용
- 제한 없는 전동기 케이블 길이

시스템 디자인 유연성

ACS 1000 제품 군은 내장형 혹은 외장형 별도의 입력 측 변압기 중 선택하여 설치가 가능합니다. 이러한 유연성으로 변압기가 건물 외부에 설치되었을 때 유입식 변압기의 사용이 가능하며 이때 입력 변압기로부터의 열 손실이 전기실로 퍼지지 않는다는 이점을 가지고 있습니다. 내장형 변압기 적용 시에는 간편한 설치 및 시운전이 가능합니다. (3선 입력-3선 출력)



ACS 1000 제품 군은 전 동작 속도 및 load 범위(오른쪽 다이어그램: 60 Hz, 100% 토크) 내에서는 물론 full 토크 및 낮은 속도(왼쪽 다이어그램: 10 Hz, 100% 토크)에서도 부드럽고 정확한 전동기 제어가 가능합니다.

부품의 높은 신뢰성 및 우수한 효율

신뢰도 높은 부품
IGCT 반도체

ACS 1000 및 ACS 1000i는 IGCT (Integrated Gate Commutated Thyristor)로 알려진 전력 반도체를 사용합니다. 이는 고압 대전력 어플리케이션을 위한 이상적인 스위치 입니다. IGCT의 사용으로 최소한의 소자로 효율적이고 신뢰성 있는 드라이브가 탄생하였습니다.

휴즈없는 설계

ACS 1000과 ACS 1000i 컨버터는 높은 가격, 낮은 신뢰도, 열화 특성을 가진 고압 전력 휴즈를 사용하지 않습니다. 대신 보다 빠르고 보다 나은 전력 소자를 보호하기 위하여 특유의 IGCT 소자를 사용합니다.

긴수명의 캐패시터

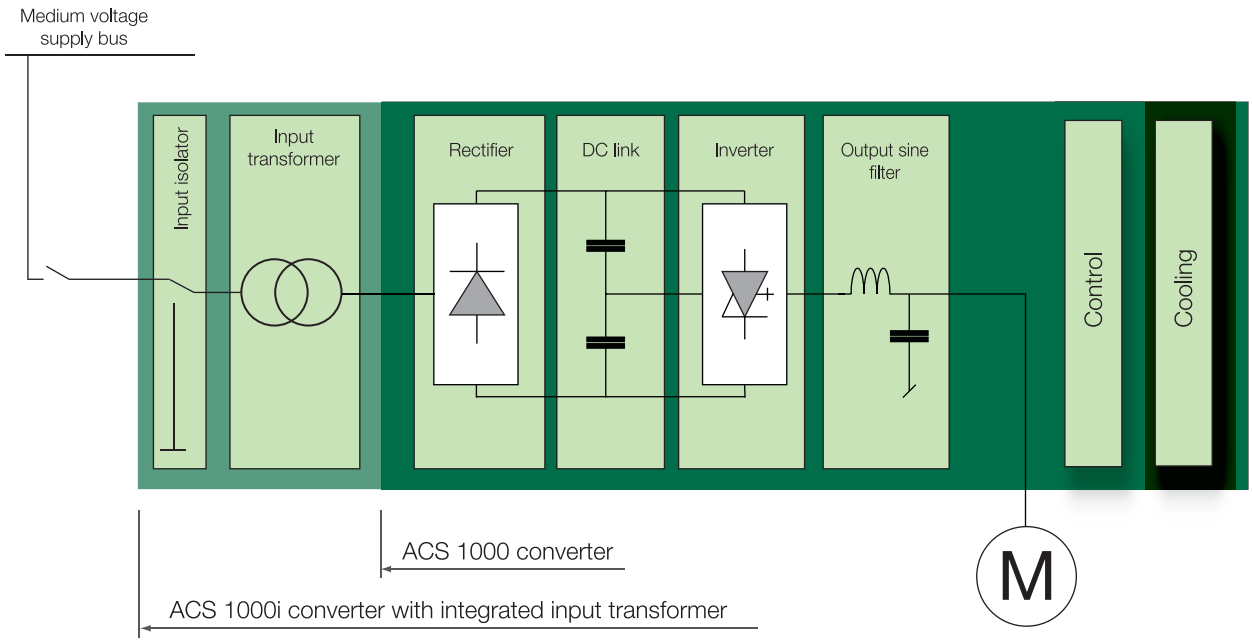
ACS 1000 및 ACS 1000i는 수명연장에 취약한 Ectrolytic capacitor를 사용하지 않습니다. 대신에 긴 수명을 위해 설계된 진보적이고, 환경친화적이고, Rapeseed Oil-filed Foil capacitor를 사용합니다.

뛰어난 전동기 제어 플랫폼

ACS 1000 드라이브 제품 군의 전동기 제어 플랫폼은 ABB의 DTC(Direct Torque Control)입니다. 이는 기동에서 풀스피드에 이르기까지 빠르고 정확한 무단계 컨트롤을 제공하며, 인코더 없이도 전 속도 범위에서 신속하게 풀토크를 전달합니다.

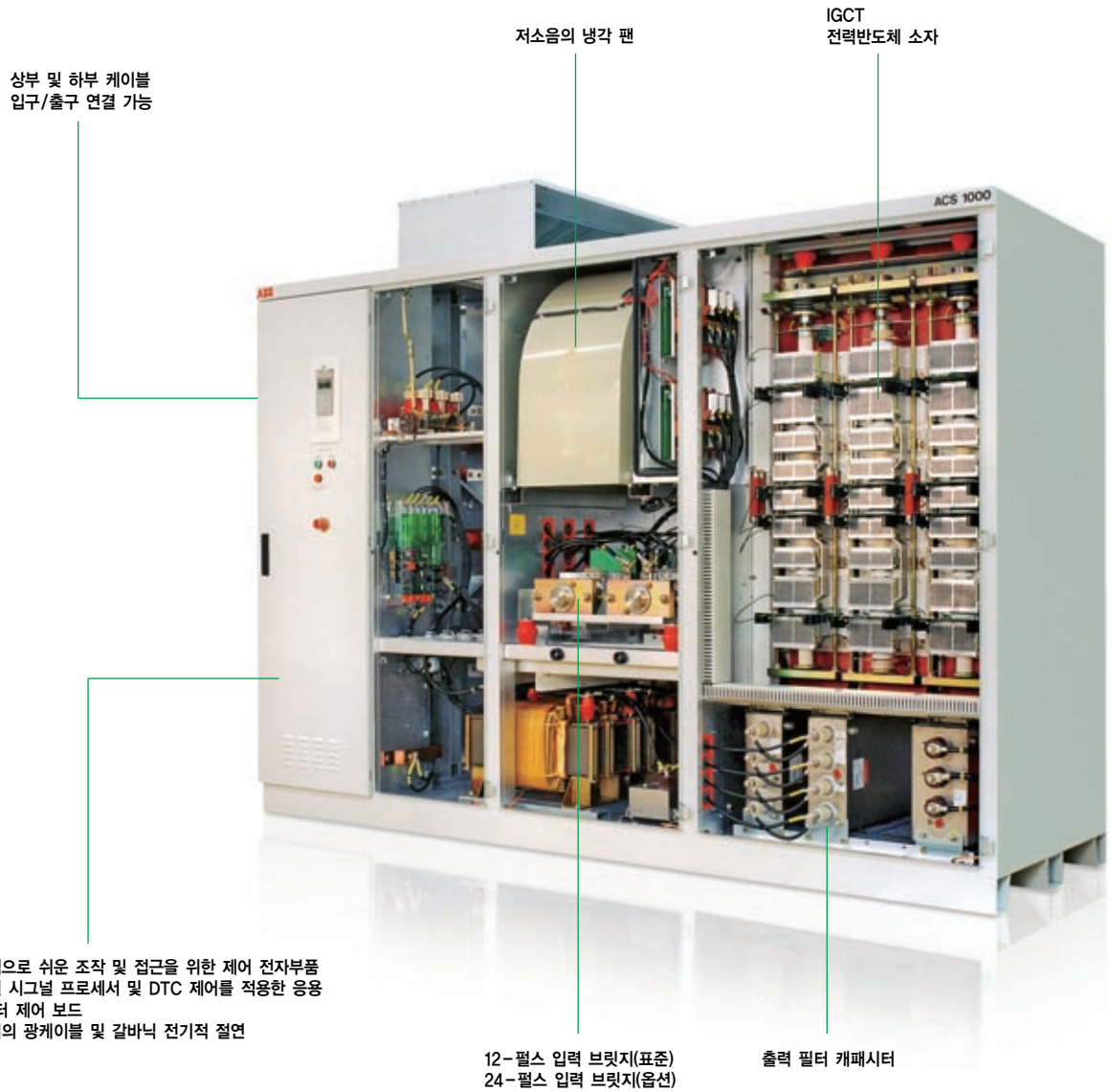
전력손실 시 연속운전

DTC 제어기술의 특수 기능으로 공급전압이 불안정한 상황에서도 안정된 연속운전이 가능합니다.



ACS 1000 드라이브 제품군은 병렬 연결식이 아닌 전력 반도체 3-레벨 인버터이며 이는 매우 단순하면서도 가장 강력하고 효율적인 드라이브 토폴로지로 입증받고 있습니다.

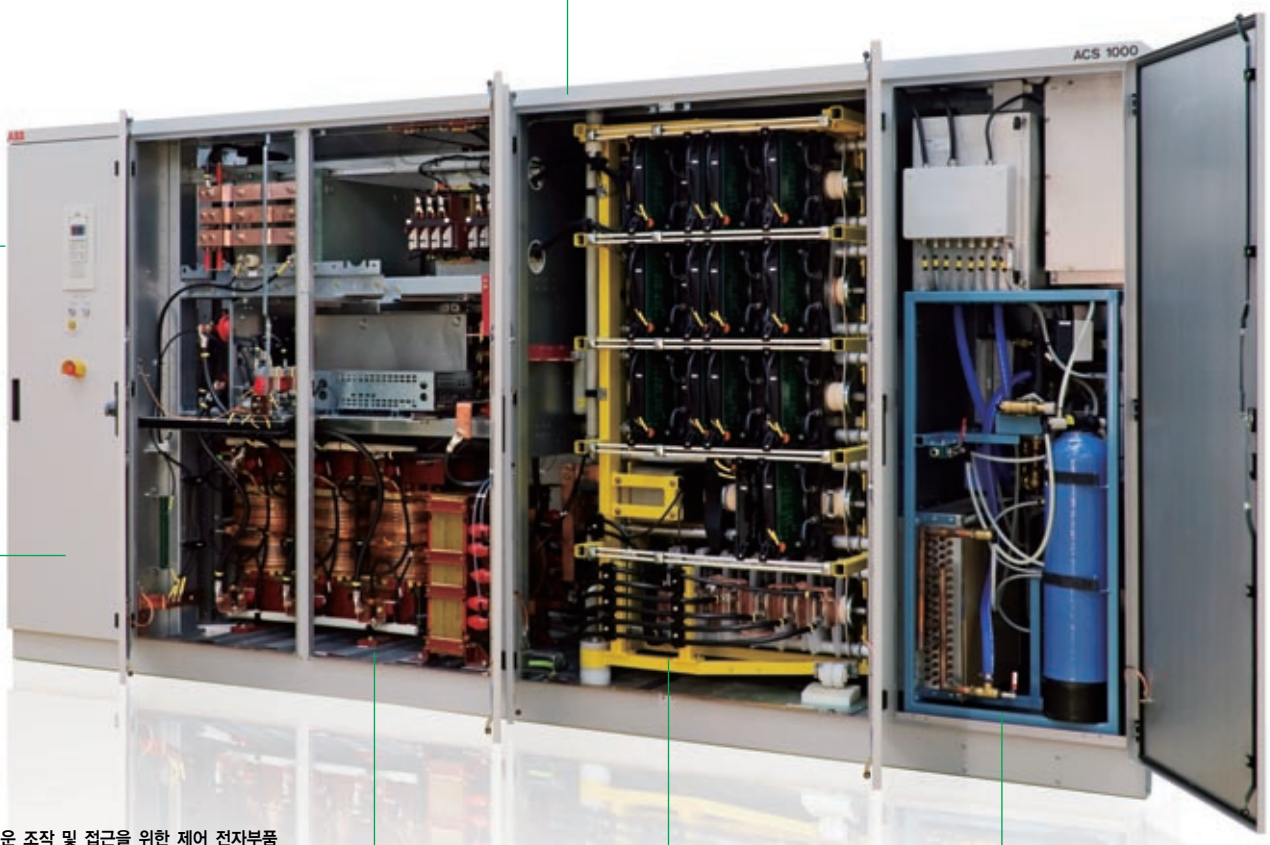
ACS 1000 (공랭식)


상부 및 하부 케이블
입구/출구 연결 가능
저소음의 냉각 팬
IGCT
전력반도체 소자
ACS 1000
스윙 프레임으로 쉬운 조작 및 접근을 위한 제어 전자부품
고속 디지털 시그널 프로세서 및 DTC 제어를 적용한 응용
제어 및 모터 제어 보드
노이즈 프리의 광케이블 및 갈바닉 전기적 절연
12-펄스 입력 브릿지(표준)
24-펄스 입력 브릿지(옵션)
출력 필터 캐패시터

ACS 1000 (수냉식)

상부 및 하부 케이블
입구/출구 연결 가능

손쉬운 유지보수를 위한 회전 프레임의 IGCT 인버터 스택



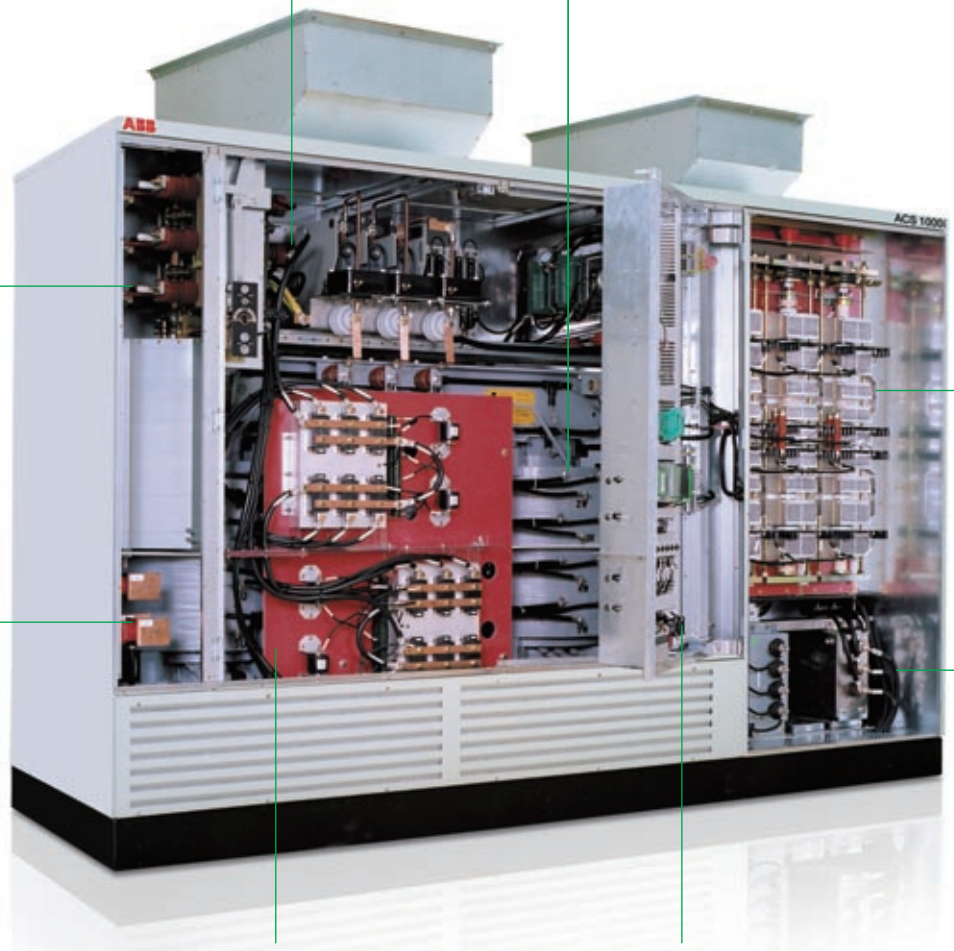
스윙 프레임으로 쉬운 조작 및 접근을 위한 제어 전자부품
고속 디지털 시그널 프로세서 및 DTC 제어를 적용한 응용
제어 및 모터 제어 보드
노이즈 프리의 광케이블 및 갈바닉 전기적 절연

출력 필터 초크

12-펄스 입력 브릿지(표준)
24-펄스 입력 브릿지(옵션)

열 교환기 및 탈이온화 장치 포함한 수냉 유닛

ACS 1000i 공랭식 내장형 입력 변압기 및 입력 콘택터 (옵션)



특징 및 장점

특징	장점	사용자 이익
다양한 입력변압기 구성이 가능		
	ACS 1000과 ACS 1000i 공랭식의 경우 내/외장형 변압기가 가능합니다. 외장형 변압기는 전기실 밖 설치가 가능합니다.	변압기를 실외에 설치함으로 전기실의 냉풍기 용량 최소화 내장형 변압기로 빠른 설치와 시운전이 가능
네트워크 및 전동기 친화성		
	12/24 펄스 정류기로 국제표준에서 요구하는 전압 및 전류 하모닉 조건을 충족합니다.	네트워크 하모닉을 최소화하여 네트워트 단에 영향이 없고 저역률에 의한 패널티의 염려가 없음
	사인 필터로 하모닉 및 common mode 전압을 제거하고 전동기의 스트레스를 줄여 우수한 파형을 나타냅니다.	전압 스트레스를 제거하여 전동기 수명 연장 전동기 스트레스 감소 및 긴 케이블을 필터 없이도 사용 가능
신뢰성 및 효율성의 부품		
	ABB의 IGCT 전력 스위칭 소자 사용으로 최소한의 소자 구성으로 최고의 신뢰성을 자랑합니다. 냉각장치는 예비 팬 및 펌프를 설치하여 사용 가능합니다.	긴 무고장 시간(MTBF)을 자랑하는 최고의 신뢰성
DTC (Direct Torque Control)		
	DTC(Direct Torque Control)는 최소한의 토크 리플 및 에너지 소모 특성을 가지며 정확하고 섬세한 전동기 성능 및 최적의 프로세스 제어를 통하여 전동기를 완벽하게 제어합니다.	빠르고 정확하며 강력한 프로세스 제어를 통한 일정한 품질의 생산품, 최소의 원자재 사용, 최소한의 기계적 마모
	DTC 제어기술의 특수 기능으로 공급전압이 불안정한 상황에서도 안정된 연속 운전이 가능합니다.	전력손실 시 연속운전
간편한 접근		
	ACS 1000 및 ACS 1000i는 전면에서 접근이 용이하도록 설계되었습니다.	간편하고 효율적인 유지보수
DriveMonitor™ (optional)		
	DriveMonitor™를 설치하면 외부에서 드라이브에 접근하여 모니터링 및 제어가 가능합니다.	사용자 편의의 모니터링 및 외부 고장 진단
서비스 지원		
	ABB는 세계 최대의 드라이브 제조/공급 업체로, 국제적인 기술지원 및 서비스 네트워크를 갖추고, 24시간 365일 서비스 및 예비품을 제공할 수 있습니다.	드라이브 전문가 및 예비품 24시간 대기

간편한 드라이브 시스템 통합

ACS 1000과 ACS 1000i는 사용자의 설비 환경에 맞추어 유연하고 손쉽게 시스템을 구현합니다.

컨트롤 인터페이스의 유연함

ABB는 오픈 커뮤니케이션 정책으로 상위 레벨 프로세스 제어가 가능하게 합니다. ACS 1000 및 ACS 1000i는 고객의 요구 사항에 맞추어 서로 다른 프로세스의 자유로운 통합, 모니터링 및 제어를 위한 주요 필드버스 어댑터를 설치할 수 있습니다.

DriveOPC

DriveOPC는 소프트웨어 패키지로, ABB 드라이브와 고객의 윈도우 기반의 프로그램과 연결이 가능하도록 해줍니다.

장점

- 표준 인터페이스
- LAN(근거리통신망)을 통한 원격제어 연결
- 확인 가능 내용:
  - 드라이브 제어
  - 신호 및 파라미터 값
  - 데이터 및 고장 이력 확인

모니터링 및 고장진단

ACS 1000과 ACS 1000i는 전세계 어디에서든 확실하게 드라이브에 액세스가 가능한 뛰어난 원격 모니터링 및 자가진단 시스템을 갖추고 있습니다.

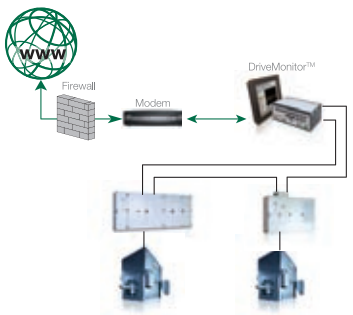
DriveMonitor™(드라이브 모니터)는 드라이브의 실시간 액세스 기능을 갖고 있으며, 모든 ABB 드라이브의 모니터링 및 진단 기능을 지원합니다.

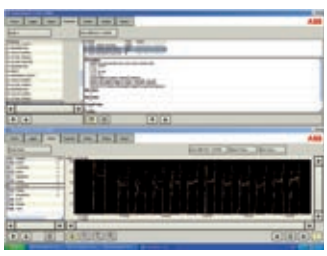
본 툴은 하드웨어 모듈과 파악된 드라이브 신호와 파라미터를 자동 선택 및 분석하는 소프트웨어 레이어를 갖추고 있습니다.

장기간의 연속 모니터링 기능은 설비 상태의 중요한 정보 전달 및 유지보수 업무 및 성능 향상을 가능하게 합니다.
컨버터 자체뿐만 아니라 전동기 및 부하를 비롯한 시스템 전반에 걸친 고장 진단 및 추적이 가능합니다.

장점

- 비용 발생이 야기되는 보수 작업 사전 감지
- 심각한 진행 – 고장(process fault)의 최소화
- 제품 생산 일정 이후의 유지보수 및 일정 최적화
- 프로세스 성능 최적화를 위한 장기적 통계 및 분석
- 근본 원인 분석
  - Mean Time to Repair (MTTP) 연장





시험 및 서비스 지원

ACS 1000과 ACS 1000i는 드라이브 시스템의 모든 제품의 수명주기가 다할 때까지 고객의 필요 사항에 대하여 지속적인 서비스와 지원을 약속합니다.

공장시험

ABB 출하 전 모든 ABB 드라이브는 믿을 수 있는 제품으로 모든 드라이브 구성이 갖추어야 할 품질 표준과 고객의 요구 사항들을 ABB의 최신 시험 설비를 통하여 완전하게 증명을 받습니다.

루틴(Routine) 시험 및 기능(Functional) 시험은 ABB의 고압 드라이브 공급 시 필수 항목입니다. 이는 국제 표준 규격 및 ABB 품질 보증 절차에 따라 이루어 집니다.

또한, 추가 옵션으로 전동기, 컨버터 및 변압기를 통합한 드라이브 시스템의 결합시험(Combined test)이 가능합니다. 현장설치 전, 부하시험을 공장에서 실시하여 드라이브 시스템 전체를 검증할 수 있으며, 프로젝트 요청에 따라 부하 또는 무부하로 실시할 수 있습니다.

설치 및 시운전

인증된 시운전 엔지니어에 의한 설비의 적합한 설치 및 시운전은 시운전(start-up) 시간을 단축시켜 주며, 안전과 신뢰성을 증가시켜 주고 제품 유지보수 비용을 절감시켜줍니다. 또한, 현장의 운영자들은 경험 있는 전문가들을 통하여 실무 교육을 받을 수 있습니다.

교육

ABB는 고압 드라이브의 교육을 제공하여 일반 교육 프로그램 뿐 아니라 고객의 특별 요청에 따른 교육 내용도 제공합니다.

제품 수명 관리

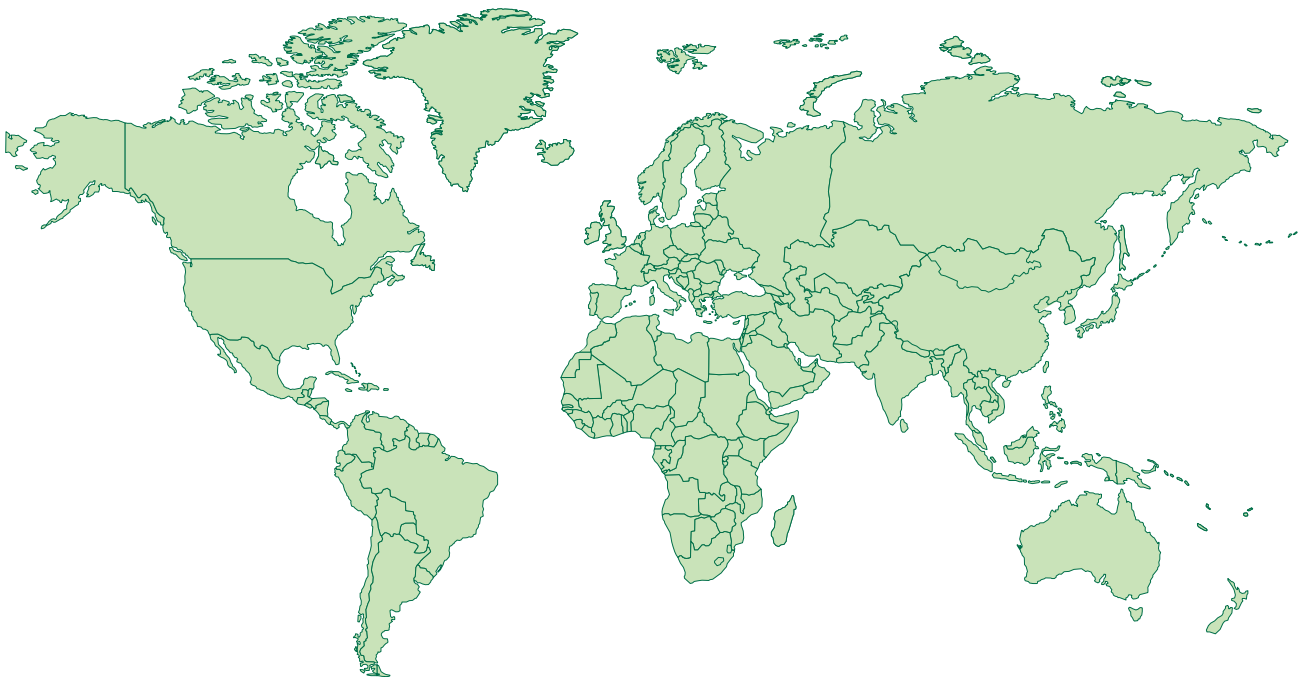
ABB 드라이브 제품수명 관리 모델은 최대 활용성을 보장하며, 유지보수 비용을 줄여주고 드라이브의 수명을 연장시켜 주어 시스템 설비의 가치를 극대화시켜 줍니다.

제품 수명 관리
- 제품 수명이 다할 때까지 예비품 및 전문 기술 제공
- 신뢰성 향상을 위한 효율적인 제품 지원 및 유지보수 제공
- 구 제품에 기능을 추가 제공

국제 네트워크 및 현지 서비스 망

서비스는 고객에게 신뢰성과 효율적인 드라이브 시스템을 제공하는 것입니다. ABB 그룹은 100여개 국가에서 세계적인 네트워크 서비스를 설치 운영하고 있습니다.

ABB 고압 드라이브 서비스
- 설치 및 시운전 감독
- 현장 지원
- 전 세계적인 서비스 네트워크
- 예비품(Spare parts) 및 재고관리 네트워크
- 교육
- 원격(Remote) 고장 진단
- 24 시간 x 365 일 지원 Call 서비스
- 사용자 주문형 유지보수 계약



ACS 1000, ACS 1000i 드라이브 사양

인버터 형식
고속 스위칭이 가능한 3-레벨 VSI – IGCT(Integrated Gate Commutated Thyristors), 직/병렬 소자 없는 통합 게이트

전동기
유도 전동기:
ACS 1000: 315 ~ 2,000kW 공랭식
1,800 ~ 5,000kW 수냉식
ACS 1000i: 315 ~ 2,000kW 공랭식

적용 규격
모든 공통 국제 규격 EN (IEC), CE, UL, cUL, GOST

입력
ACS 1000:
50Hz / 60Hz의 고압(MV) 레벨 전압 입력
(1,000V ~ 22,900Vac), 입력 변압기의 1차 측에 적용
변동율: 정격전압 ±10%, 용량저감 안전운전

ACS 1000i:
전압 범위: 4.16 – 7.2kV, 60Hz / 6.0 – 6.6kV, 50Hz,
요청에 따라 최대 11kV 까지 가능

변동율: 정격전압 ±10%, 용량저감 안전운전

보조 전원
400 Vac ±10%, 50/60Hz, 3ph
480 Vac ±10%, 60Hz, 3ph
575 Vac ±10%, 60Hz, 3ph

UPS (무정전전원장치)
제어 전원(110 ~ 240 Vac ±10%, 1ph)을 위한 UPS가 공급 되는 경우 내부 백업 배터리 대체 가능

출력 주파수
0 ~ ±66Hz (±82.5Hz 옵션)

출력 전압
표준: 사인파, 0 ~ 2.3kV,
0 ~ 3.3kV, 0 ~ 4.0/4.16kV
표준 : NEMA MG1기준 – 4.0kV
옵션 : 4.16kV
옵션: Step-Up 변압기 사용하여
6.0kV ~ 13.8kV 전동기 사용 가능

입력 브릿지
ACS 1000 표준: 12-펄스
옵션: 24-펄스
ACS 1000i 표준: 24-펄스

효율
ACS 1000 일반적으로 > 98%
ACS 1000i 일반적으로 > 96% (내장형 변압기 포함)

입력역율
기본파: > 0.97
전체: > 0.96

과부하 용량
표준: 일반 적용, 매 10분 동안 1분 정격 용량의 110%
옵션: 표준 이상의 과부하 용량 필요시 ABB와 상의 요망

주위 온도
+1℃ ~ 40℃ (34℉ ~ 104℉)
40℃ 이상 시 용량 저감 (1.5%/1℃)

외함 등급
ACS 1000
공냉: IP21, IP22, IP31, IP32, IP42
수냉: IP31, IP54
ACS 1000i IP21, IP42

제어 인터페이스[옵션]
- 모든 일반적인 필드버스 지원
  Profibus, Modbus, Allen-Bradley DeviceNet, Ethernet,
  ABB Advant Fieldbus AF100 등
- 다양한 추가 I/O 사용 가능

표준 보호 기능
보조 전압 문제, 캐비넷 온도 감시, 과전류, 짧은 circuit 감지, earth fault, 입력 상 손실, 출력 상 손실, 과전압, 전동기 과부하, 전동기 저부하, 진동, 전동기 정지 및 과속 방지, 통신 문제, 주요 차단기 감시, 등

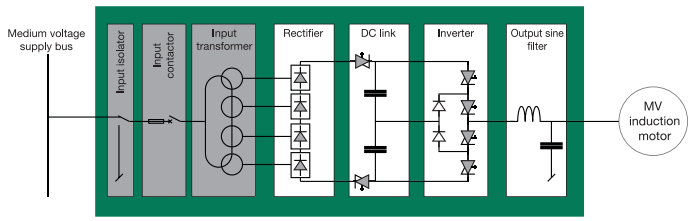
마린 사양
- 선급 인증 : ABS, CCS, DNV
- 기계 : 진동 댐퍼, 선박 손잡이, 결로방지 히터
  도어 고정(90˚)

예시 옵션
- 전동기 감시 I/O
  - 고장/알람: 과열, 베어링 진동
  - PT 100: 권선 및 베어링 온도
- 변압기 감시 I/O
  - 고장/알람: 과열, Buchholz
  - PT 100: 권선 온도
- 드라이브 외부제어 하드웨어 신호
  - 레퍼런스: 기동/정지, 속도/토오크 등
  - 상태 피드백 신호: 준비/운전중
  - 아날로그 신호: 전류/전압/전력 등
- 신뢰성을 강화하기 위한 예비 냉각팬
- 전동기의 빠른 제동 및 감속 시간 단축을 위한 제동 초퍼
- 양방향 바이패스 기능
  (최대 4개까지 전동기를 순차적으로 소프트 기동 가능)
- ABB DriveMonitor™ : 원격 모니터링 진단

ACS 1000i 데이터 (변압기 내장형)

모터 데이터			컨버터	컨버터 데이터			
전압 **	축동력 *		타입코드	전력	전류 *	길이	무게 ***
kV	kW	hp		kVA	A	mm	kg
3,300V - 공랭식							
3.3	315	420	ACS 1043-A1-A	400	70	3300	3900
3.3	355	480	ACS 1043-A1-B	450	79	3300	3900
3.3	400	540	ACS 1043-A1-C	500	87	3300	3900
3.3	450	600	ACS 1043-A1-D	550	96	3300	3900
3.3	500	670	ACS 1043-A1-E	600	105	3300	3900
3.3	560	750	ACS 1043-A1-F	700	122	3300	4300
3.3	630	840	ACS 1043-A2-G	750	131	3300	4300
3.3	710	950	ACS 1043-A2-H	850	149	3300	4300
3.3	800	1'070	ACS 1043-A2-J	950	166	3300	4300
3.3	900	1210	ACS 1043-A2-K	1100	192	3300	4300
3.3	1000	1340	ACS 1043-A2-L	1200	210	3300	5100
3.3	1120	1500	ACS 1043-A3-M	1350	236	3300	5100
3.3	1250	1680	ACS 1043-A3-N	1500	262	3300	5100
3.3	1400	1880	ACS 1043-A3-P	1700	297	3300	5500
3.3	1500	2010	ACS 1043-A3-Q	1900	332	3300	5500
4,000V / 4,160V - 공랭식							
4.0	300	400	ACS 1044-A1-A	400	58	3300	4000
4.0	340	450	ACS 1044-A1-B	400	58	3300	4000
4.0	370	500	ACS 1044-A1-C	450	65	3300	4000
4.0	450	600	ACS 1044-A1-D	550	79	3300	4000
4.0	520	700	ACS 1044-A1-E	650	94	3300	4000
4.0	600	800	ACS 1044-A1-F	750	108	3300	4000
4.0	670	900	ACS 1044-A1-G	800	115	3300	4000
4.0	750	1000	ACS 1044-A1-H	900	130	3300	4000
4.0	930	1250	ACS 1044-A2-J	1150	166	3300	4900
4.0	1120	1500	ACS 1044-A2-K	1350	195	3300	4900
4.0	1300	1750	ACS 1044-A3-L	1550	224	3300	5600
4.0	1490	2000	ACS 1044-A3-M	1800	260	3300	5600
4.0	1680	2250	ACS 1044-A3-N	2000	289	3300	5600
4.0	2010	2700	ACS 1044-A3-P	2330	347	3300	5600

참조사항:
* 최대값 표기
** 출력 전압이 높을 경우 Step-Up 변압기 사용 가능
*** 무게는 추정 값 입니다. (6.0 ~ 6.6 kV/50Hz 입력전압)



Typical ACS 1000i diagram

일반 외형	Frame size A1	Frame size A2/A3
캐비넷 높이	2050 mm (6 ft 7 in) 냉각팬 제외	2150 mm (7 ft 1 in) 냉각팬 제외
	2517 mm (8 ft 3 in) 팬 후드 포함	2562 mm (8 ft 4 in) 팬 후드 포함
	2617 mm (8 ft 6 in) 예비(redundant) 팬 후드 및 IP 42 포함	2662 mm (8 ft 7 in) 예비(redundant) 팬 후드 및 IP 42
캐비넷 깊이	1121 mm (3 ft 8 in)	1121 mm (3 ft 8 in)

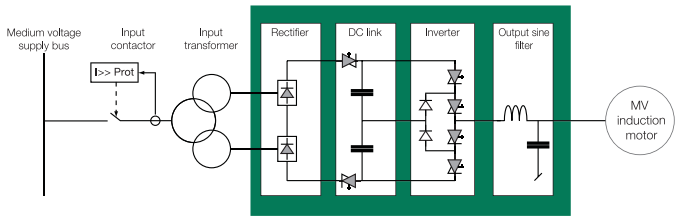
ACS 1000 유도 전동기용 데이터 (변압기 외장형)

모터 데이터			컨버터	컨버터 데이터			
전압 **	축동력 *		타입코드	전력	전류 *	길이	무게 ***
kV	kW	hp		kVA	A	mm	kg
2,300V - 공랭식							
2.3	300	400	ACS 1012-A1-A	400	100	3000	1600
2.3	340	450	ACS 1012-A1-B	400	100	3000	1600
2.3	370	500	ACS 1012-A1-C	450	113	3000	1600
2.3	450	600	ACS 1012-A1-D	550	138	3000	1600
2.3	520	700	ACS 1012-A1-E	650	163	3000	1600
2.3	600	800	ACS 1012-A1-F	750	188	3000	1600
2.3	670	900	ACS 1012-A1-G	800	201	3000	1600
2.3	750	1000	ACS 1012-A1-H	900	226	3000	1600
2.3	930	1250	ACS 1012-A2-J	1150	289	3000	1750
2.3	1120	1500	ACS 1012-A2-K	1350	339	3000	1750
2.3	1300	1750	ACS 1012-A3-L	1550	389	3000	2000
2.3	1490	2000	ACS 1012-A3-M	1800	452	3000	2000
2.3	1680	2250	ACS 1012-A3-N	2000	502	3000	2000
3,300V - 공랭식							
3.3	315	420	ACS 1013-A1-A	400	70	3000	1600
3.3	355	480	ACS 1013-A1-B	450	79	3000	1600
3.3	400	540	ACS 1013-A1-C	500	87	3000	1600
3.3	450	600	ACS 1013-A1-D	550	96	3000	1600
3.3	500	670	ACS 1013-A1-E	600	105	3000	1600
3.3	560	750	ACS 1013-A1-F	700	122	3000	1600
3.3	630	840	ACS 1013-A1-G	750	131	3000	1600
3.3	710	950	ACS 1013-A1-H	850	149	3000	1600
3.3	800	1070	ACS 1013-A2-J	950	166	3000	1750
3.3	900	1210	ACS 1013-A2-K	1100	192	3000	1750
3.3	1000	1340	ACS 1013-A2-L	1200	210	3000	1750
3.3	1120	1500	ACS 1013-A2-M	1350	236	3000	1750
3.3	1250	1680	ACS 1013-A2-N	1500	262	3000	1750
3.3	1400	1880	ACS 1013-A2-P	1700	297	3000	1750
3.3	1600	2150	ACS 1013-A3-Q	1900	332	3000	2000
3.3	1800	2410	ACS 1013-A3-R	2150	376	3000	2000
3.3	2000	2680	ACS 1013-A3-S	2400	420	3000	2000
3,300V - 수냉식							
3.3	2000	2680	ACS 1013-W1-S	2400	420	4200	3300
3.3	2250	3020	ACS 1013-W1-T	2700	472	4200	3300
3.3	2500	3350	ACS 1013-W1-U	3000	525	4200	3300
3.3	2800	3750	ACS 1013-W2-V	3350	586	4700	3680
3.3	3150	4220	ACS 1013-W2-W	3750	656	4700	3680
3.3	3550	4760	ACS 1013-W2-X	4250	744	4700	3680
3,300V - 수냉식							
3.3	4000	5360	ACS 1013-W3-Y	4750	831	4700	3680
3.3	4500	6030	ACS 1013-W3-Z	5350	936	4700	3680
3.3	5000	6710	ACS 1013-W3-1	5950	1041	4700	3680

ACS 1000 유도 전동기용 데이터 (변압기 외장형)

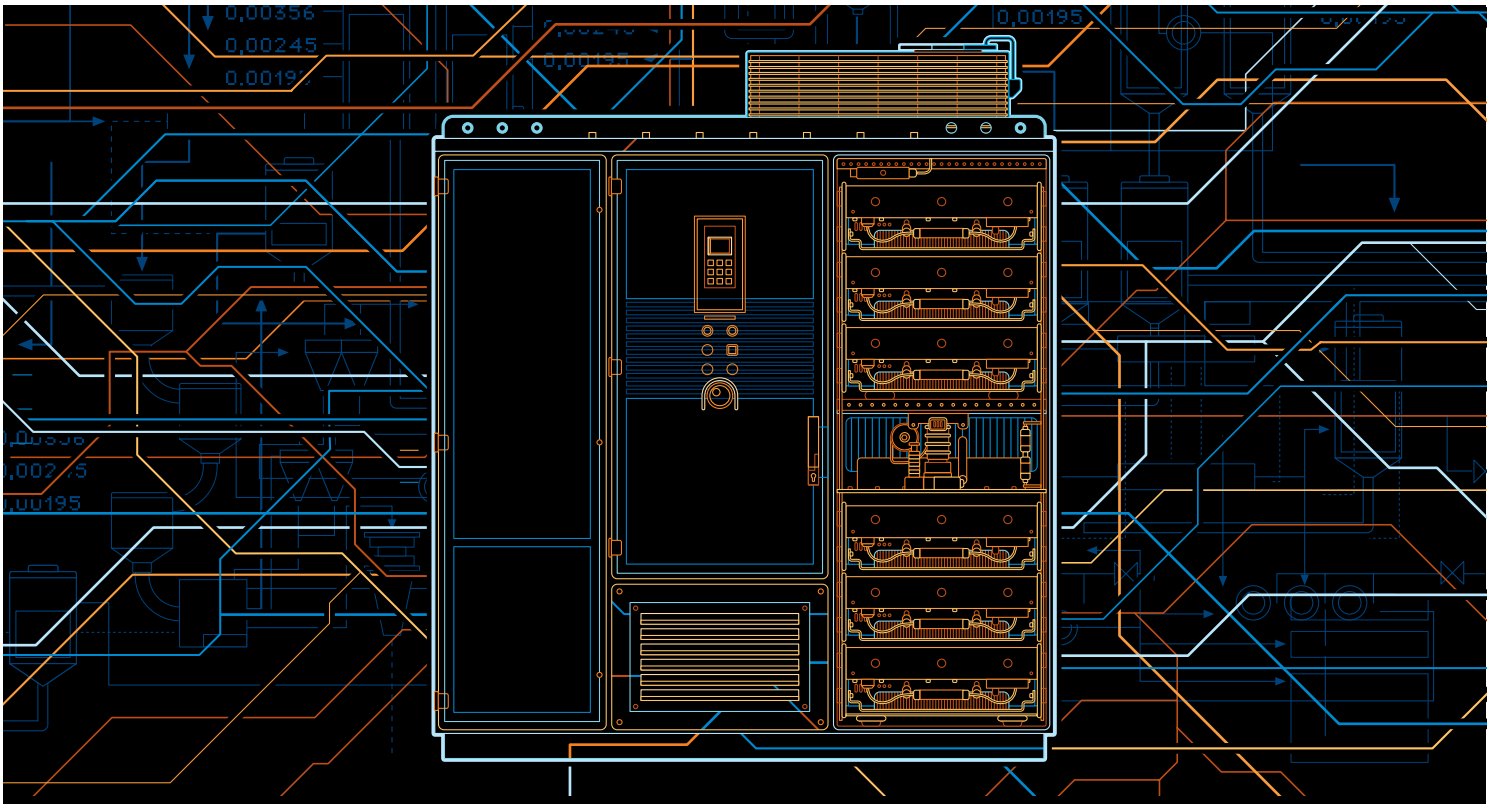
모터 데이터			컨버터	컨버터 데이터			
전압 **	축동력 *		타입코드	전력	전류 *	길이	무게 ***
kV	kW	hp		kVA	A	mm	kg
4,000V - 공랭식							
4.0	300	400	ACS 1014-A1-A	400	58	3000	1600
4.0	340	450	ACS 1014-A1-B	400	58	3000	1600
4.0	370	500	ACS 1014-A1-C	450	65	3000	1600
4.0	450	600	ACS 1014-A1-D	550	79	3000	1600
4.0	520	700	ACS 1014-A1-E	650	94	3000	1600
4.0	600	800	ACS 1014-A1-F	750	108	3000	1600
4.0	670	900	ACS 1014-A1-G	800	115	3000	1600
4.0	750	1000	ACS 1014-A1-H	900	130	3000	1600
4.0	930	1250	ACS 1014-A2-J	1150	166	3000	1750
4.0	1120	1500	ACS 1014-A2-K	1350	195	3000	1750
4.0	1300	1750	ACS 1014-A3-L	1550	224	3000	2000
4.0	1490	2000	ACS 1014-A3-M	1800	260	3000	2000
4.0	1680	2250	ACS 1014-A3-N	2000	289	3000	2000
4.0	1860	2500	ACS 1014-A3-P	2300	330	3000	2000
4,000V - 수냉식							
4.0	1860	2500	ACS 1014-W1-P	2300	332	4200	3300
4.0	2240	3000	ACS 1014-W1-Q	2700	390	4200	3300
4.0	2610	3500	ACS 1014-W2-R	3100	447	4700	3680
4.0	2980	4000	ACS 1014-W2-S	3600	520	4700	3680
4.0	3360	4500	ACS 1014-W2-T	4000	577	4700	3680

참조사항:
* 최대값 표기
** 출력 전압이 높을 경우 Step-Up 변압기 사용 가능
*** 무게는 추정 값 입니다.
**** 요청에 따라 전동기 축동력은 최대 5600kW까지 가능



Typical ACS 1000 diagram

일반 외형	공냉식	수냉식
캐비넷 높이	2005mm (6 ft 6 in)	2020mm (6 ft 6 in)
	2070mm (6 ft 8 in) 연결구 포함	2070mm (6 ft 8 in) 연결구 포함
	2285mm (7 ft 6 in) 에어덕트 포함	
캐비넷 깊이	900mm (3 ft)	900mm (3 ft)



250 kW – 3200 kW, 4.0 – 6.9 kV

ACS2000 Medium Voltage Drive

The flexibility you require. The reliability you expect.

Power and productivity
for a better world™

The ACS2000 industrial drive

The ACS2000 medium voltage drive is part of ABB's industrial drives family that meets the needs of your industrial applications.

Our strong industrial drives family includes the features and functions you require, and make it easy for your business opportunities to work. They support you in improving your processes by integrating your variable speed process control needs into a flexible and comprehensive drive solution. These are our industrial drives, our benchmark of performance, expertise and quality.

The industrial drives cover a wide power and voltage range, including voltages up to 6.9 kV and powers up to 7 MW. At the core of the drives is ABB's Direct Torque Control (DTC) technology that enables highly accurate process control.

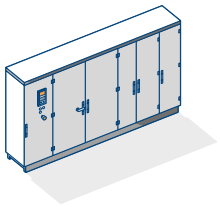
Use our industrial drives for applications such as those found in mining, cement, power, chemical, oil and gas, water and wastewater, marine, food and beverage.

Contents


MAIN SUPPLY
OFF
ON
GND SWITCH
UNLOCKED
EMERGENCY OFF
ABB

ABB Medium Voltage Drives
Product portfolio

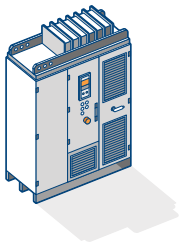
A broad range of variable speed drives for medium voltage applications allows you to select the drive that best meets your individual requirements. Get the perfect match for you.



ACS1000 industrial drive
Whatever your industry, the ACS1000 is an all-rounder to control your standard applications and optimize your processes.

Power range
315 kW – 5 MW

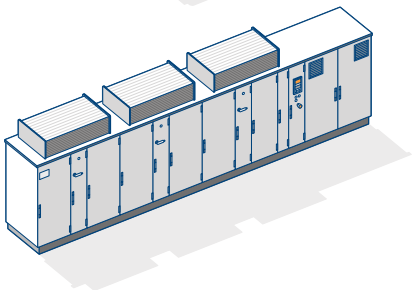
Output voltage
2.3 – 4.16 kV



ACS2000 industrial drive
The ACS2000 is an industrial all-rounder that perfectly adapts to a wide variety of standard applications across all industries.

Power range
250 kW – 3.2 MW

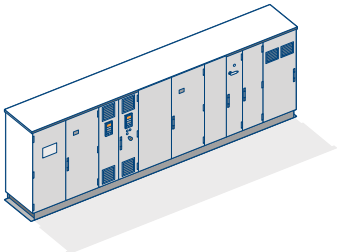
Output voltage
4.0 – 6.9 kV



ACS5000 special purpose drive
The ACS5000 effortlessly controls your high power applications such as compressors, pumps and fans.

Power range
2 MW – 36 MW
(higher on request)

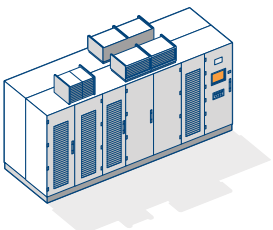
Output voltage
6.0 – 13.8 kV



ACS6000 special purpose drive
Look no further than the ACS6000 if your high performance applications require a single- or multi-motor drive solution.

Power range
5 MW – 36 MW

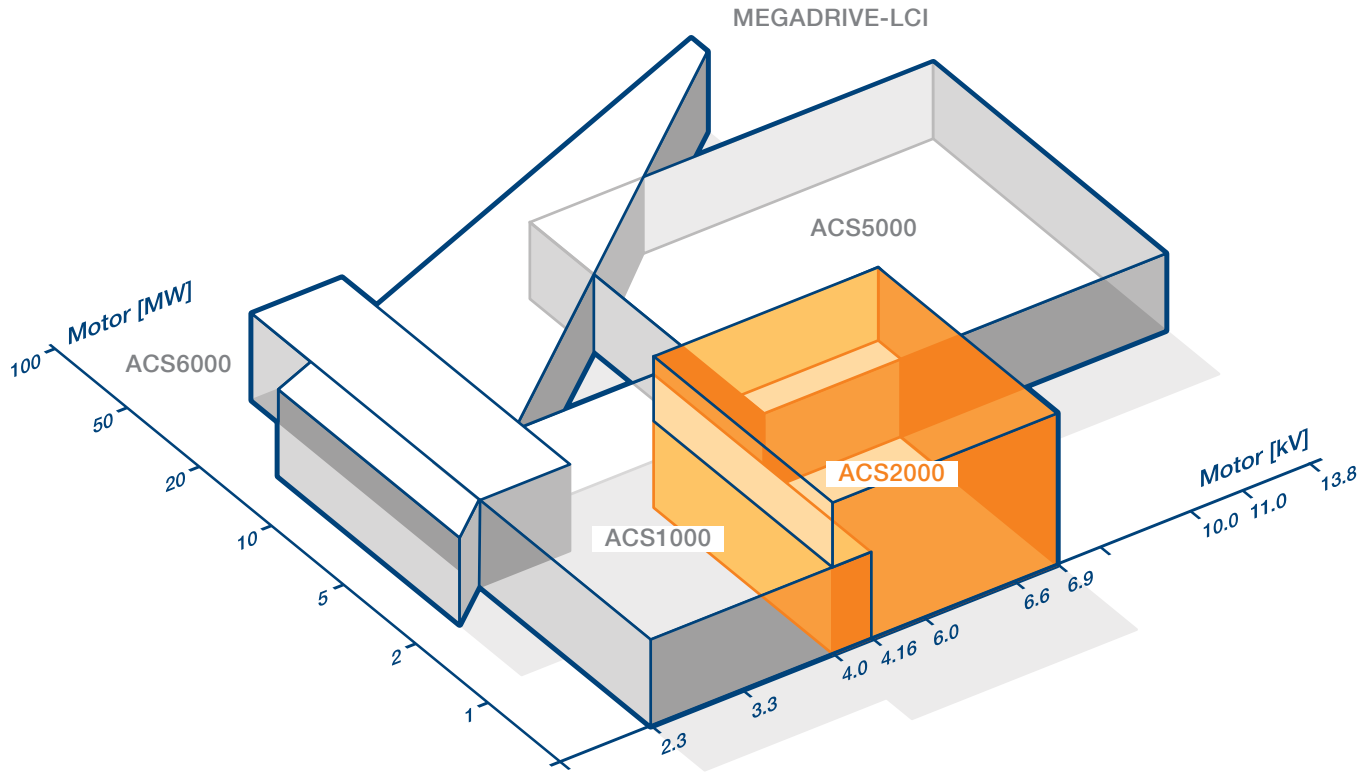
Output voltage
2.3 – 3.3 kV



MEGADRIVE-LCI special purpose drive
The well-proven technology offered in the MEGADRIVE-LCI controls your high power applications and provides soft starting of large synchronous motors.

Power range
2 MW – 72 MW
(higher on request)

Output voltage
2.1 – 10 kV



Our product portfolio comprises medium voltage drives in the range of 250 kW to more than 100 MW.

Get more using less

Our broad portfolio of medium voltage drives will help you to increase your productivity and profitability. Your processes will use only the energy required to carry out the job and no more. Precise control ensures efficient operation with high uptime and optimized use of raw materials. This will all add up to cost and time savings for you.

Delivering global support and peace of mind

Our worldwide network offers you fast service and support around the clock, providing peace of mind by always being there when you need us.

Reliable performance you can count on

Depending on your industry and application, we provide you with drive solutions that meet your individual needs and requirements. Our variable speed drives – from 250 kW to more than 100 MW – control a wide range of medium voltage applications.

Through the use of quality components and the integration of special features, our drives ensure high process availability and safety for your business. With well-proven drive technology at the heart, your operations will run smoothly and reliably every day.

ACS2000
The solution for everyday process control

The industrial all-rounder for a wide variety of standard applications provides high flexibility to configure the drive to your specific needs. Reliable motor control ensures high productivity, availability and efficiency of your operations.

Flexible and reliable

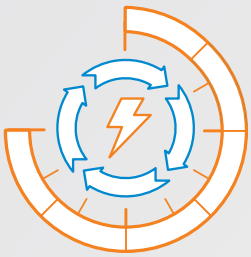
With its compact footprint, constant power factor and configuration options, the ACS2000 can be easily integrated into your systems. Different line supply connections provide perfect voltage matching and low harmonic distortion. The drive can be operated direct-to-line or with an integrated or external transformer to allow for flexibility of connection to your supply network.

The ACS2000 is available as a low harmonic drive for optimal performance or as a regenerative drive increasing your energy savings even further. Market-specific product variants make the drive compatible with common IEC and NEMA motor voltages so that you can use the drive in all your global operations.

Wide-ranging versatility makes the ACS2000 fit perfectly into different conditions and environments all over the world. Benefit from the drive's state-of-the-art design and robust control platform that ensures reliable operations every day, everywhere.


ABB
ACS 2000

ACS2000
Benefits that add value

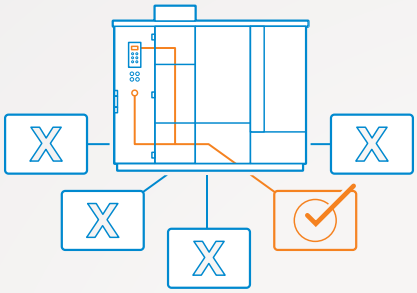


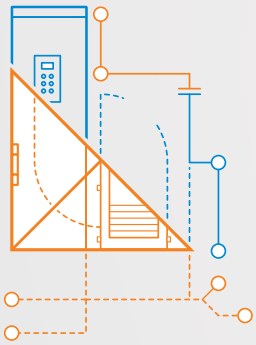
Energy efficiency

Our medium voltage drives run your motors based on the demands of your process rather than running them at full speed and ensure optimized power consumption and process efficiency. In this way you can save energy and reduce CO_2 emissions.

Best fit for your application

For your standard applications in all industries, the ACS2000 is a perfect fit. With a range of pre-engineered options, you can drive pumps, fans, conveyors, extruders and compressors, even in harsh environments. Thanks to its market-specific designs (IEC / NEMA) you can use the drive for your operations all over the world.



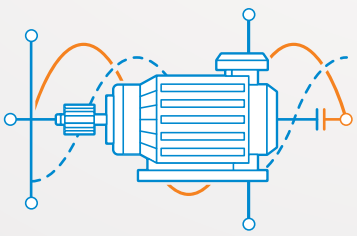


Design flexibility for smooth integration

You can easily integrate the ACS2000 into your systems by using an integrated or external transformer, or a direct-to-line connection. The drive is suitable for applications with regeneration capability, further reducing energy consumption. The design concept eliminates the need for costly harmonic analyses or the installation of network filters.

Maximum motor compatibility

You have total compatibility with common IEC and NEMA motor voltages due to our patented multilevel topology. With an optional output sine filter you can retrofit older motors or drive special applications and use long motor cables.

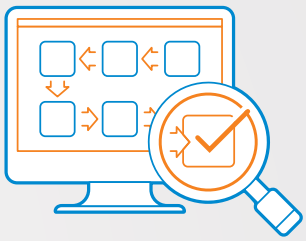


High reliability through state-of-the-art design

Availability is ensured with the latest high voltage IGBT (Integrated Gate Bipolar Transistor) technology and a fuseless design using the minimum number of power components. Reliability is further increased with the drive's power loss ride-through function.

Increased productivity due to precise process control

Reduce your energy consumption and increase process efficiency by using ABB's Direct Torque Control (DTC) technology. The drive control is immediate and smooth under all conditions ensuring optimum output and productivity.

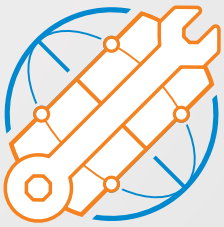


High personnel safety

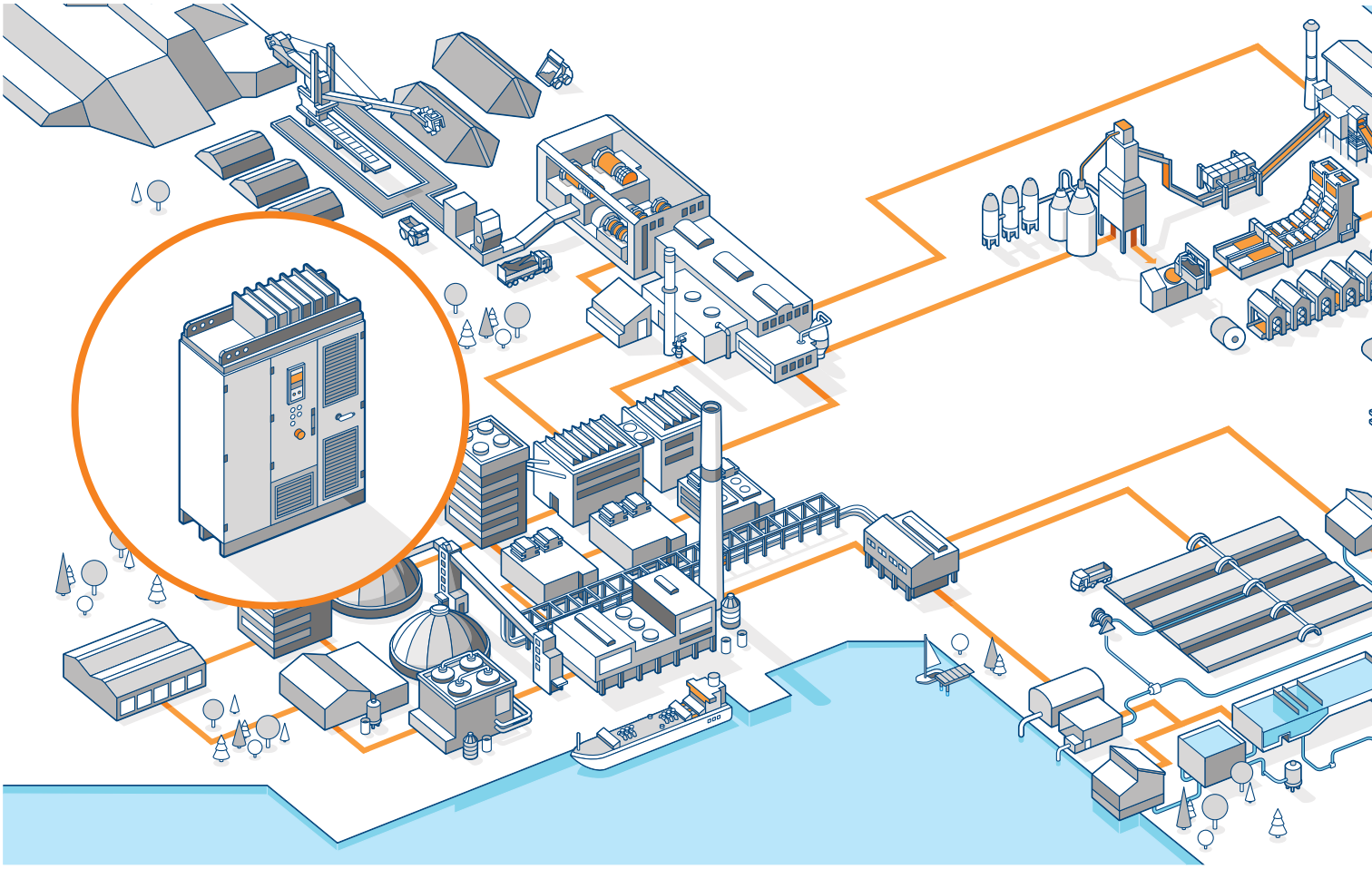
Your workforce and goods are protected from dangerous electric arcs with the ACS2000's arc resistant design. Certified functional safety features and an integrated DC grounding switch make your systems safe and reliable.

Serviceability

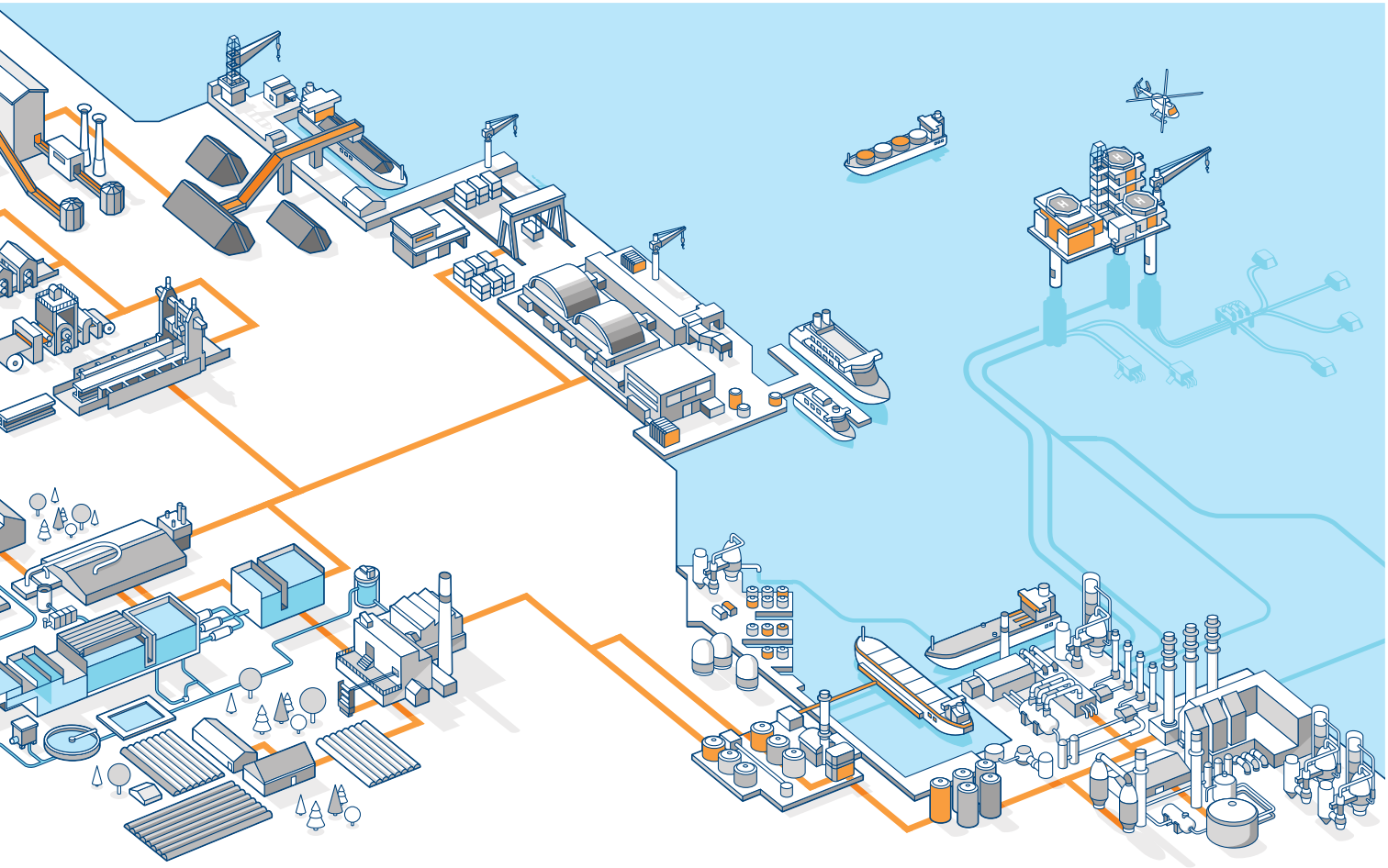
Service and maintenance for the ACS2000 is simple and smooth as you have easy front access to all components. In addition to various diagnostic tools, you will profit by convenient remote monitoring.



ACS2000
Reliability across all applications



The ACS2000 medium voltage drive provides reliable motor control for a wide range of applications.



Applications

Cement, mining and minerals

Conveyors, crushers, mills, mine hoists, fans and pumps

Chemical, oil and gas

Pumps, compressors, extruders, mixers and blowers

Metals

Fans and pumps

Marine

Fans, pumps, compressors, propulsion and thrusters

Power generation

Fans, pumps, conveyors and coal mills

Water

Pumps

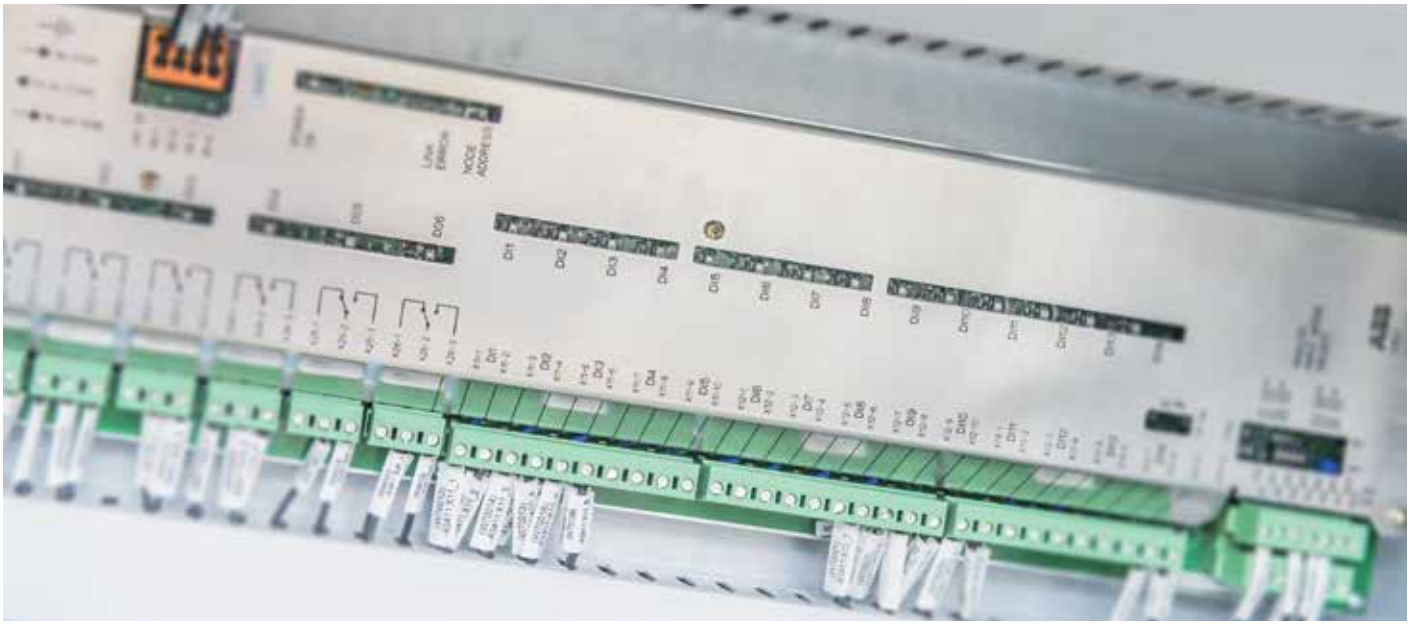
Food and beverage

Fans, pumps, sugar mills

Other applications

Test stands and wind tunnels

ACS2000
Simple drive system integration



Installing a medium voltage drive could not be easier with ABB's three cables in – three cables out concept.

Easier than you think
Along with its flexible line supply connection options and advanced software tools, the ACS2000 allows smooth and simple drive system integration into any industrial environment.

Flexible connection to grid
The ACS2000 is available with two line side connection configurations, the diode front end (DFE) and the active front end (AFE). The latter allows the operation of applications with regeneration capabilities. Both configurations are available with integrated or external transformer. In addition, the direct-to-line (DTL) variant can be connected to the grid without a transformer.

Flexible control interface
An open communication concept enables the connection to higher-level process controllers. The ACS2000 can be fitted with all major fieldbus adapters for smooth integration, monitoring and controlling of different processes.

DriveStartup
The commissioning wizard DriveStartup is an advanced tool which simplifies and speeds-up commissioning, and ensures that the correct settings are defined.

Configurable disconnect for NEMA version
We offer you a configurable disconnect option package for a flexible, self-contained switchgear solution where no control coordination is required upstream. It provides a visible blade switch disconnect and integral input contactor with options such as a motor protection relay, control power transformer and other customer controls.

ACS2000
More efficiency with drive packages

Packaged drive solutions provide you with ultimate efficiency and reliability to optimize your cost of ownership.

All in one package
Committed to supporting you in your business, we offer packaged drive solutions for applications in various industries. Customer-specific drive packages including medium voltage converters, motors and transformers can be developed as turnkey solutions meeting your individual requirements.

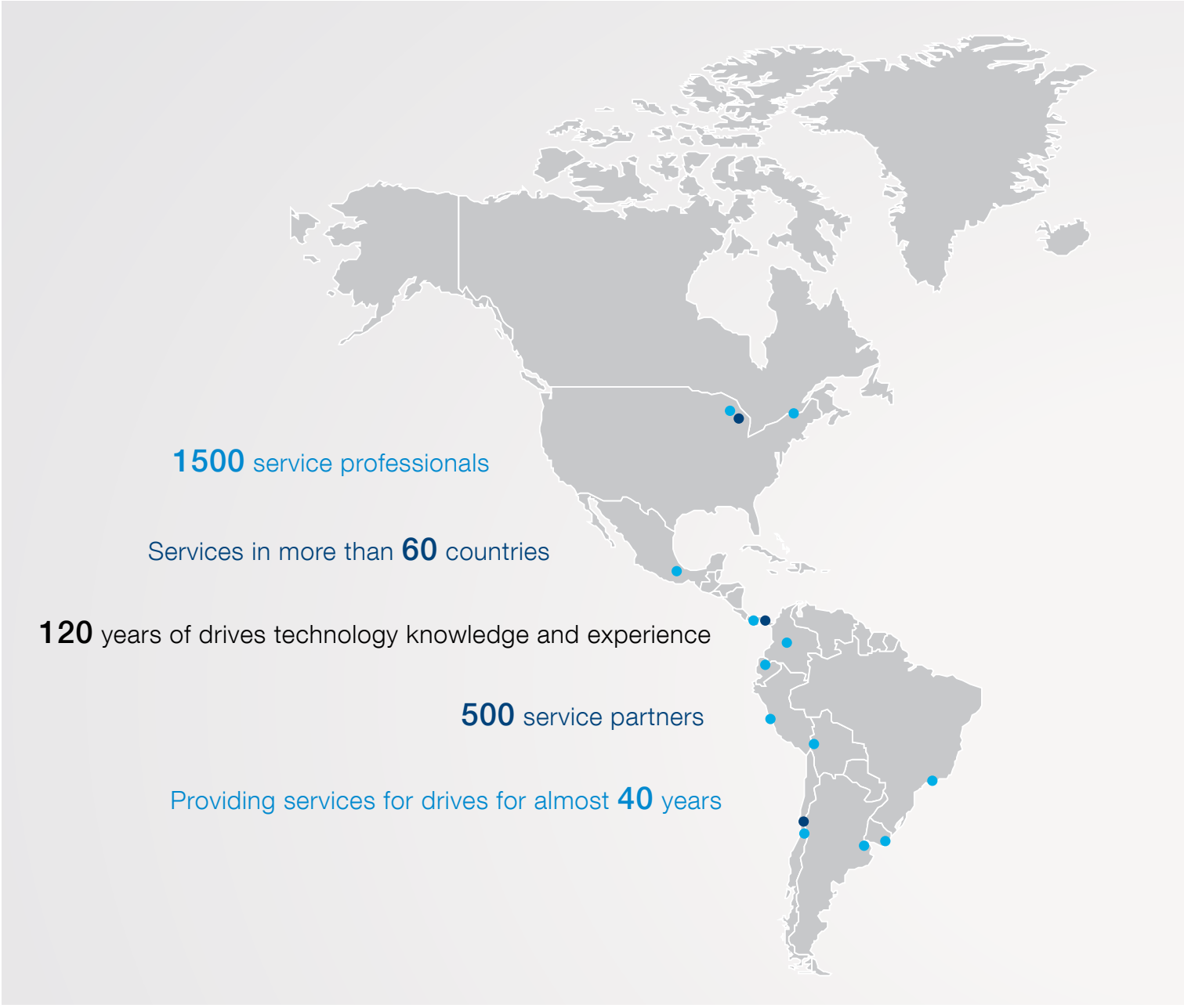
Matched performance
To ensure design integrity and an optimum match of equipment, ABB products have undergone combined tests ensuring performance predictability for your application.

Single point of contact
The combined power of the ABB offering is geared to deliver on customer expectations. We deliver motor-drive solutions that support your technical and commercial needs, from quotation through delivery and service, over the entire product life-cycle.

Converter motors
With ABB's induction motors for your applications you will benefit from high versatility, reliability and simplicity.

Converter transformers
ABB offers converter transformers for all ratings, as well as for indoor or outdoor mounting. Particularly designed for operation with variable speed drives, the transformer adapts the converter to the supply network and provides a galvanic isolation between drive and supply network.

Service and support
You choose, we respond, globally



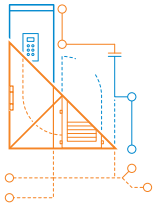
For everyone who makes the decision to choose our expert drive service solutions, we are with them every step of the way. To guide and facilitate whatever service choices suit their business, for the entire drive's lifetime. With expert service and advice and on-time delivery, every time.

For decades we have built one of the most comprehensive service networks, globally. It is well-structured to ensure you have all the experts close at hand, locally and globally. We have local drives and control service units complemented by external ABB value providers in over 60 countries. Regional service centers, training centers and authorized drive service workshops form a well-structured and large service organization, making sure that ABB drives and control service team is never too far from your site.

Regional Service Centers

Local Service Units

Technical features
Standard solution with versatile features



Design flexibility
The ACS2000 provides different line supply connections which are available for regenerative applications with an active front end (AFE) or for low harmonic applications with a diode front end (DFE). Further, the drive is suitable for IEC or NEMA markets.

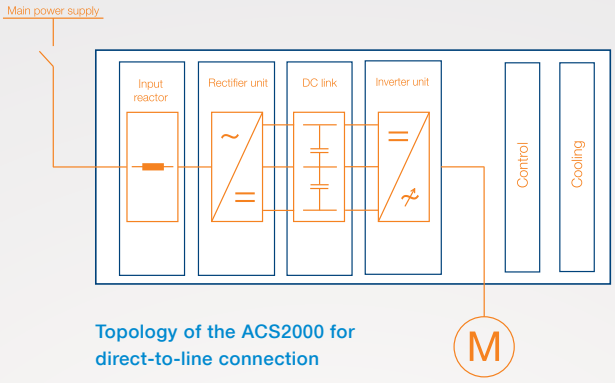
Direct-to-line
The ACS2000 direct-to-line features an active front end (AFE), which enables operation without a transformer. This can lower investment costs substantially. Due to its compact size and lighter weight compared to a drive requiring a transformer, you will save on transportation costs and need less space in the electrical room.

External transformer
For applications where a voltage-matching input transformer is needed or galvanic isolation from the power supply is required, the ACS2000 can be connected to a conventional oil or dry-type converter transformer. This solution minimizes your cooling demand in the e-house.

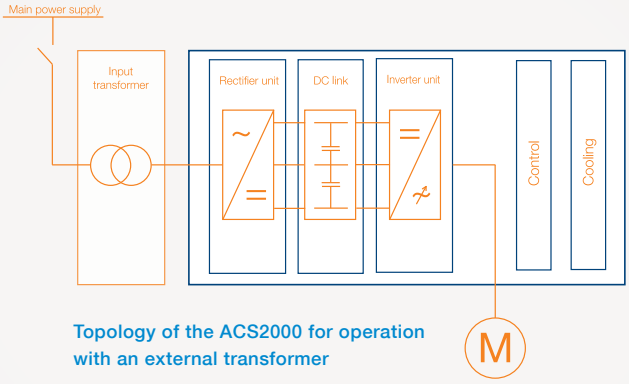
Integrated transformer
Alternatively, the ACS2000 is also available with an integrated input transformer allowing quick and easy installation and commissioning.

Market-specific designs
IEC- and NEMA-specific variants are available, covering local market requirements and making the drive suitable for use in all your operations worldwide.

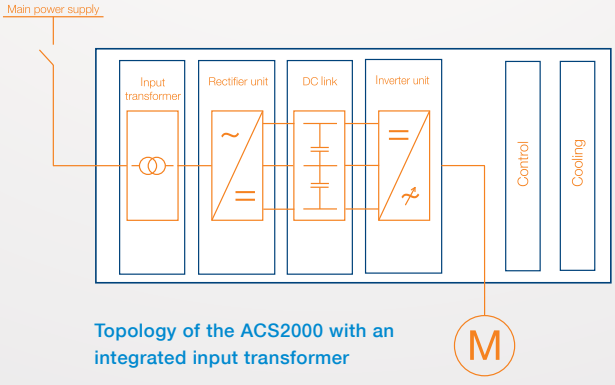
Low harmonic signature
The ACS2000 low harmonic drive features a diode front end (DFE) which meets the most stringent requirements for harmonic distortion as defined by relevant standards. This avoids the need for harmonic analysis or the installation of network filters.



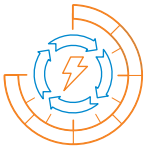
Topology of the ACS2000 for direct-to-line connection



Topology of the ACS2000 for operation with an external transformer



Topology of the ACS2000 with an integrated input transformer



Regeneration

The ACS2000 regenerative drive features an active front end (AFE) for applications with high braking energy which allows full power flow both in motoring and generating mode. Regeneration offers significant energy savings compared to other braking methods as energy is fed back to the supply network.

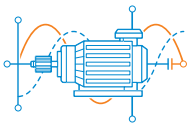
Regeneration is especially suitable for applications with frequent starts and stops. It allows energy efficient continuous braking of applications such as downhill conveyors or expanders in gas pipelines.

Power factor correction

For applications where other loads connected to the same line supply cause leading or lagging power factor, the ACS2000 is available with a static VAR compensation option. With static VAR compensation, a smooth line supply voltage profile can be maintained and reactive power penalties can be avoided.

Powerful performance with DTC

Precise and reliable process control, together with low energy consumption, result in top performance. The ACS2000 drive control platform uses ABB's award-winning Direct Torque Control (DTC), resulting in the highest torque and speed performance as well as the lowest losses ever achieved in medium voltage AC drives. Control of the drive is immediate and smooth under all conditions.



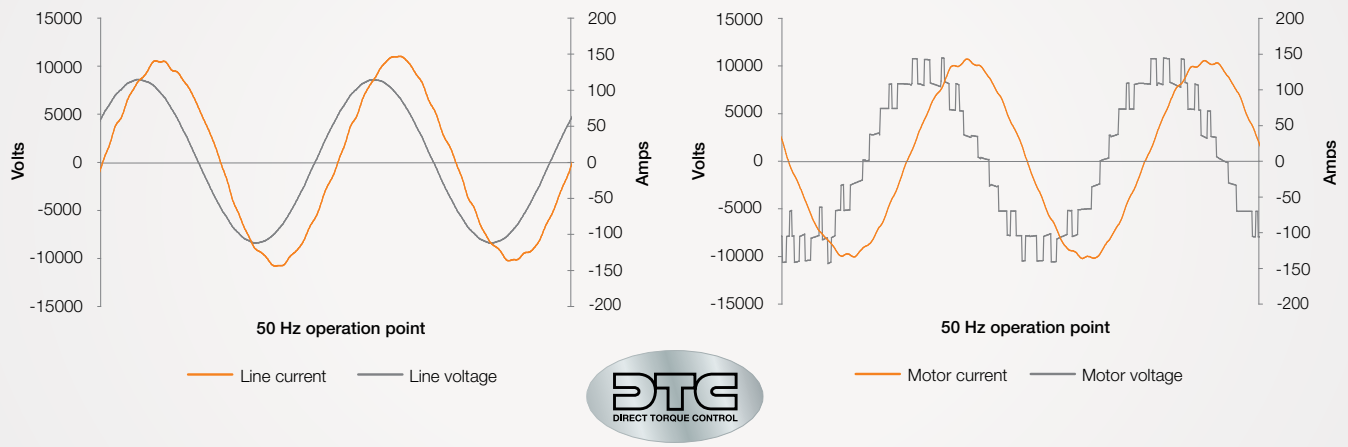
Motor friendly output waveform for use with new or existing motors

The ACS2000 provides near sinusoidal current and voltage waveforms making it compatible for use with standard motors and cable insulation. This is achieved with ABB's patented multilevel topology which utilizes one DC link enabling a multi-level output waveform with a minimum number of power components.

Output sine filter – perfect output power quality for special applications

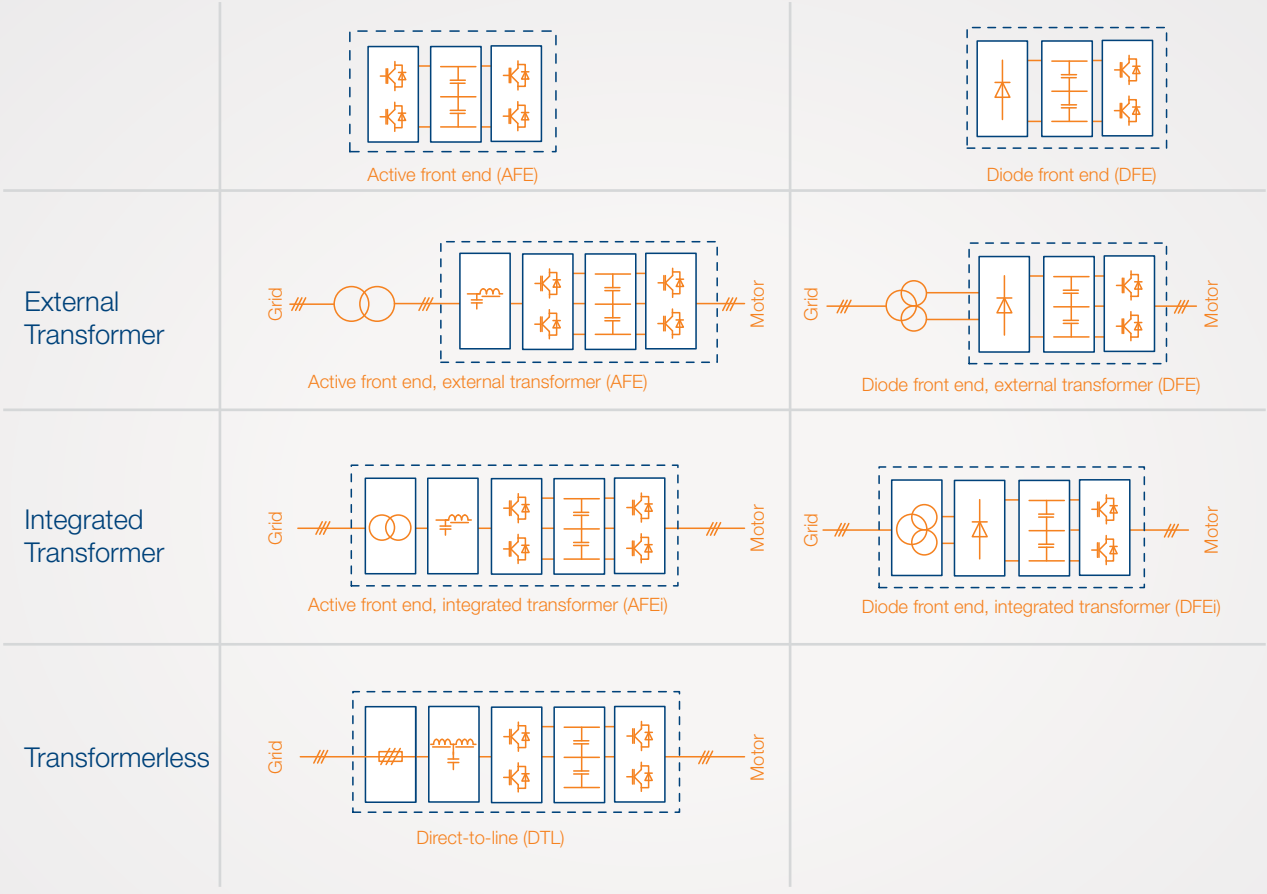
An output sine filter is optionally available. Side effects of an inverter such as voltage reflections and common mode voltages will be totally eliminated, resulting in an excellent waveform of voltage and current supplied to the motor. The output sine filter is used for very long motor cables, for retrofitting of old motors with an aged insulation system and for special applications such as electric submersible pumps (ESP) and conveyors in underground mines.

Line and motor current and voltage



ACS2000
Configurations

Different configurations of the ACS2000 adapt the drive to meet the requirements of your application and fit into your industrial environment.



Five different configurations are possible by combining either an active front end or diode front end with an external, integrated or no transformer.

ACS2000
Direct-to-line configuration

Smallest footprint and light weight is possible with the direct-to-line version.

ACS2000 direct-to-line,
800 kW, 4.0 - 4.16 kV, NEMA enclosure

Electromechanically interlocked doors for safety

DC bus grounding switch for safety

Input reactor with common mode filter for direct-to-line connection

User-friendly drive control panel for local operation
- Keypad with multi-language display
- Main supply on/off pushbuttons
- Emergency off pushbutton

ACS2000
Configuration with external transformer

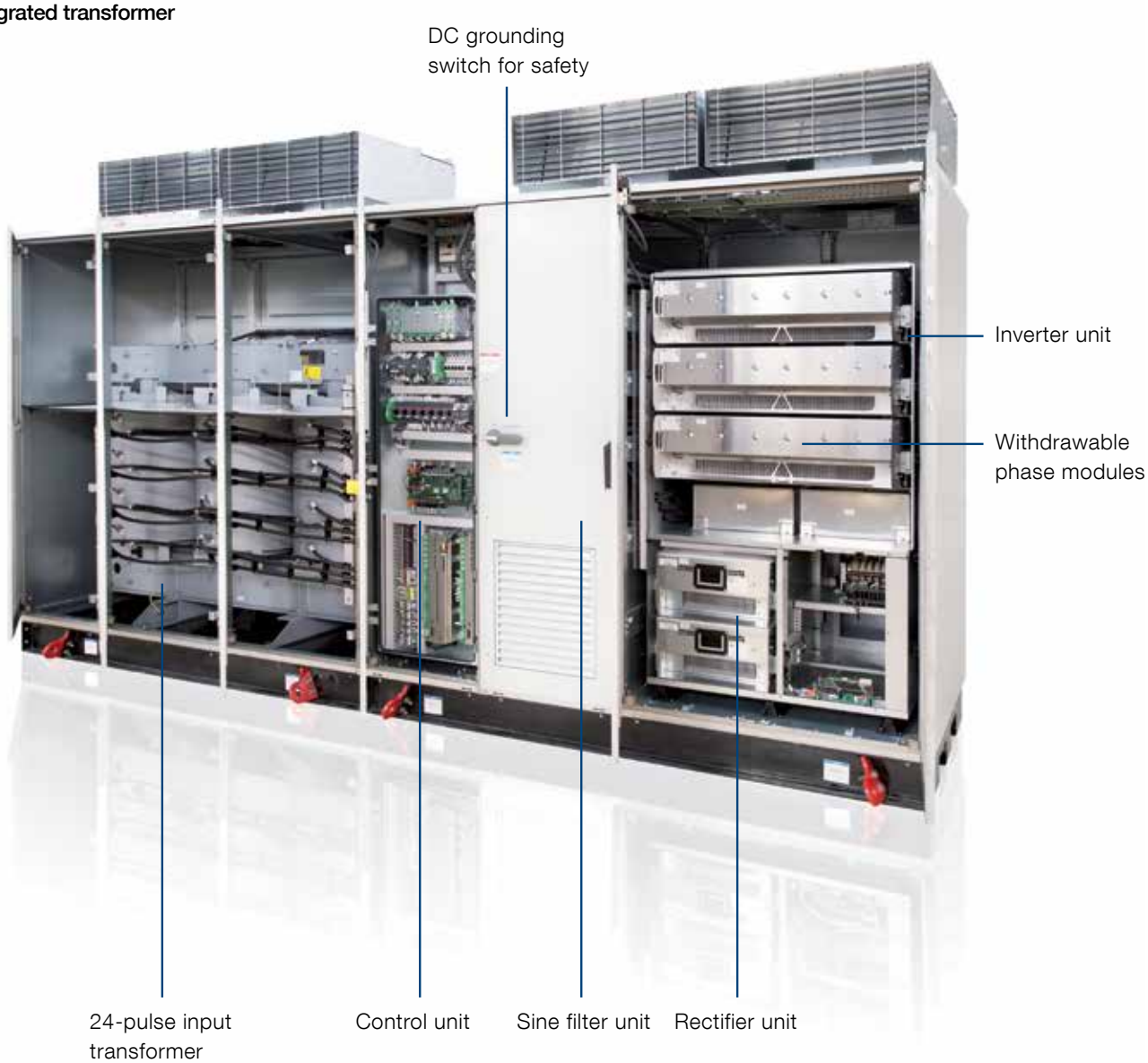
Minimized heat losses into the electrical room eliminate the need for additional ventilation systems when using an external transformer.

ACS2000, 800 kW, 6.6 kV,
for operation with an external transformer

ACS2000
Configuration with integrated transformer

Easy installation is possible with the ACS2000 with integrated transformer, simplifying the integration of the drive into your systems.

ACS2000, 1200 kW, 6.6 kV, with an integrated transformer



Technical data
At a glance

Input	
Input configuration	24-pulse diode rectifier or active front end
Input voltage	1850, 1930 V, 24-pulse diode rectifier 4.16, 6.0, 6.6, 6.9 kV, active front end
Input voltage variation	±10%, 4.16, 6.0, 6.6 kV -10 – +5%, 6.9 kV
Input frequency	50/60 Hz
Input frequency variation	<5%
Input power factor	Diode rectifier: >0.95 Active rectifier: 1
Input harmonics	Compliance with IEC 61000, IEEE 519, GB/T 14549
Auxiliary voltage	110, 220 V, DC 110, 120, 230 V, 50/60 Hz 380, 400, 415, 440, 460, 480, 575, 600 V, 50/60 Hz, 3 phase
Output	
Output power	250 – 3200 kW
Output voltage	4.16 – 6.9 kV
Output frequency	0 – 75 Hz
Motor type	Induction
Efficiency of converter	97.5%
Motor harmonics	<5% THDi, compatible to standard DOL motors
Mechanical	
Enclosure	Standard: IP21, NEMA 1 Optional: IP42
Cable entry	Top/bottom
Environmental	
Altitude	2000 m.a.s.l. (higher on request)
Ambient air temperature	+1 – +40 °C (optional 55 °C)
External cooling water temperature	n.a.
Noise	<85 dB (A)
Cooling type	Air
Standards	EN, IEC, CE, NEMA, IEEE, UL

Ratings, types and voltages
4 kV, low harmonic drive

Motor data[1]			Converter data							
Nominal rating[2]			Type code	Power kVA	direct-to-line		with external transformer		with integrated transformer	
kW	hp	A			Length mm	Weight kg	Length mm	Weight kg	Length mm	Weight kg
4000 V										
225	300	40	ACS2000-040-A01A-L1-010	310	1970	2100	1970	2100	n/a	n/a
260	350	47	ACS2000-040-A01B-L1-010	360	1970	2100	1970	2100	n/a	n/a
300	400	54	ACS2000-040-A01C-L1-010	410	1970	2100	1970	2100	n/a	n/a
335	450	61	ACS2000-040-A01D-L1-010	460	1970	2100	1970	2100	n/a	n/a
375	500	67	ACS2000-040-A01E-L1-010	515	1970	2100	1970	2100	n/a	n/a
450	600	81	ACS2000-040-A01F-L1-010	615	1970	2100	1970	2100	n/a	n/a
520	700	94	ACS2000-040-A01G-L1-010	720	1970	2100	1970	2100	n/a	n/a
595	800	108	ACS2000-040-A01H-L1-010	820	1970	2100	1970	2100	n/a	n/a
670	900	121	ACS2000-040-A01J-L1-010	880	1970	2100	1970	2100	n/a	n/a
745	1000	135	ACS2000-040-A01K-L1-010	935	2915	3700	2915	3700	n/a	n/a
935	1250	168	ACS2000-040-A02A-L1-010	1285	2915	3700	2915	3700	n/a	n/a
1120	1500	202	ACS2000-040-A02B-L1-010	1540	2915	3700	2915	3700	n/a	n/a
1305	1750	236	ACS2000-040-A02C-L1-010	1715	2915	3700	2915	3700	n/a	n/a
1490	2000	269	ACS2000-040-A02D-L1-010	1865	2915	3700	2915	3700	n/a	n/a
1680	2250	303	ACS2000-040-A03A-L1-010	2310	3485	4100	3485	4100	n/a	n/a
1865	2500	337	ACS2000-040-A03B-L1-010	2565	3485	4100	3485	4100	n/a	n/a
2050	2750	370	ACS2000-040-A03C-L1-010	2695	3485	4100	3485	4100	n/a	n/a
2240	3000	404	ACS2000-040-A03D-L1-010	2800	3485	4100	3485	4100	n/a	n/a

Ratings, types and voltages
4 kV, regenerative drive

Motor data[1]			Converter data							
Nominal rating[2]			Type code	Power kVA	direct-to-line		with external transformer		with integrated transformer	
kW	hp	A			Length mm	Weight kg	Length mm	Weight kg	Length mm	Weight kg
4000 V										
225	300	40	ACS2000-040-A01A-T1-010	310	1970	2100	1970	2100	n/a	n/a
260	350	47	ACS2000-040-A01B-T1-010	360	1970	2100	1970	2100	n/a	n/a
300	400	54	ACS2000-040-A01C-T1-010	410	1970	2100	1970	2100	n/a	n/a
335	450	61	ACS2000-040-A01D-T1-010	460	1970	2100	1970	2100	n/a	n/a
375	500	67	ACS2000-040-A01E-T1-010	515	1970	2100	1970	2100	n/a	n/a
450	600	81	ACS2000-040-A01F-T1-010	615	1970	2100	1970	2100	n/a	n/a
520	700	94	ACS2000-040-A01G-T1-010	720	1970	2100	1970	2100	n/a	n/a
595	800	108	ACS2000-040-A01H-T1-010	820	1970	2100	1970	2100	n/a	n/a
670	900	121	ACS2000-040-A01J-T1-010	880	1970	2100	1970	2100	n/a	n/a
745	1000	135	ACS2000-040-A01K-T1-010	935	2915	3700	2915	3700	n/a	n/a
935	1250	168	ACS2000-040-A02A-T1-010	1285	2915	3700	2915	3700	n/a	n/a
1120	1500	202	ACS2000-040-A02B-T1-010	1540	2915	3700	2915	3700	n/a	n/a
1305	1750	236	ACS2000-040-A02C-T1-010	1715	2915	3700	2915	3700	n/a	n/a
1490	2000	269	ACS2000-040-A02D-T1-010	1865	2915	3700	2915	3700	n/a	n/a
1680	2250	303	ACS2000-040-A03A-T1-010	2310	3485	4100	3485	4100	n/a	n/a
1865	2500	337	ACS2000-040-A03B-T1-010	2565	3485	4100	3485	4100	n/a	n/a
2050	2750	370	ACS2000-040-A03C-T1-010	2695	3485	4100	3485	4100	n/a	n/a
2240	3000	404	ACS2000-040-A03D-T1-010	2800	3485	4100	3485	4100	n/a	n/a

Notes:

[1] Indicative information: Induction motor efficiency 93%, power factor 0.86

[2] Nominal rating for no-overload operation

Dimensions:

Height: 2106 mm cabinet height
2500 mm incl. cooling fans

Depth: 1140 mm

Ratings, types and voltages
6 kV, low harmonic drive

Motor data[1]			Converter data							
Nominal rating[2]			Type code[3]	Power kVA	direct-to-line		with external transformer		with integrated transformer	
kW	hp	A			Length mm	Weight kg	Length mm	Weight kg	Length mm	Weight kg
6000 V										
250	305	30	ACS2000-060-A01A-xy-010	315	2205	2500	1730	1500	3330	3120
315	385	38	ACS2000-060-A01B-xy-010	395	2205	2500	1730	1500	3330	3120
355	435	43	ACS2000-060-A01C-xy-010	445	2205	2500	1730	1500	3330	3140
400	485	48	ACS2000-060-A01D-xy-010	500	2205	2500	1730	1500	3630	3230
450	550	54	ACS2000-060-A01E-xy-010	565	2205	2500	1730	1500	3630	3380
500	610	60	ACS2000-060-A01F-xy-010	625	2205	2500	1730	1500	3630	3410
560	680	67	ACS2000-060-A01G-xy-010	700	2205	2500	1730	1500	3630	3450
630	770	76	ACS2000-060-A01H-xy-010	790	2205	2500	1730	1500	3630	3760
710	865	85	ACS2000-060-A01J-xy-010	890	2205	2500	1730	1500	3630	3850
800	975	96	ACS2000-060-A01K-xy-010	1000	2205	2500	1730	1500	3630	4050
900	1095	108	ACS2000-060-A02A-xy-010	1125	3800	4260	2180	1800	4080	4430
1000	1220	120	ACS2000-060-A02B-xy-010	1250	3800	4260	2180	1800	4080	4640
1120	1365	135	ACS2000-060-A02C-xy-010	1400	3800	4260	2180	1800	4080	4810
1260	1535	152	ACS2000-060-A02D-xy-010	1575	3800	4260	2180	1800	4380	4950
1420	1730	171	ACS2000-060-A02E-xy-010	1775	3800	4260	2180	1800	4380	5060
1600	1950	192	ACS2000-060-A02F-xy-010	2000	3800	4260	2180	1800	4380	5300
1800	2195	217	ACS2000-060-A03A-x4-010	2250	n/a	n/a	2530	2100	4930	6090
2000	2435	241	ACS2000-060-A03B-x4-010	2500	n/a	n/a	2530	2100	4930	6110
2200	2680	265	ACS2000-060-A03C-x4-010	2750	n/a	n/a	2530	2100	4930	6570
2400	2925	289	ACS2000-060-A03D-x4-010	3000	n/a	n/a	2530	2100	4930	7030
2500	3045	301	ACS2000-060-A04A-x4-010	3125	n/a	n/a	2530	2100	5130	7030
2800	3410	337	ACS2000-060-A04B-x4-010	3500	n/a	n/a	2530	2100	5130	7620
3200	3900	385	ACS2000-060-A04C-x4-010	4000	n/a	n/a	2530	2100	5130	8200
6600 V										
250	335	27	ACS2000-066-A01A-xy-010	315	2205	2500	1730	1500	3330	3120
315	420	34	ACS2000-066-A01B-xy-010	395	2205	2500	1730	1500	3330	3120
355	475	39	ACS2000-066-A01C-xy-010	445	2205	2500	1730	1500	3330	3140
400	535	44	ACS2000-066-A01D-xy-010	500	2205	2500	1730	1500	3630	3230
450	605	49	ACS2000-066-A01E-xy-010	565	2205	2500	1730	1500	3630	3380
500	670	55	ACS2000-066-A01F-xy-010	625	2205	2500	1730	1500	3630	3410
560	750	61	ACS2000-066-A01G-xy-010	700	2205	2500	1730	1500	3630	3450
630	845	69	ACS2000-066-A01H-xy-010	790	2205	2500	1730	1500	3630	3760
700	940	77	ACS2000-066-A01J-xy-010	875	2205	2500	1730	1500	3630	3850
800	1070	87	ACS2000-066-A01K-xy-010	1000	2205	2500	1730	1500	3630	4050
900	1205	98	ACS2000-066-A02A-xy-010	1125	3800	4260	2180	1800	4080	4430
1000	1340	109	ACS2000-066-A02B-xy-010	1250	3800	4260	2180	1800	4080	4640
1120	1500	122	ACS2000-066-A02C-xy-010	1400	3800	4260	2180	1800	4080	4810
1260	1690	138	ACS2000-066-A02D-xy-010	1575	3800	4260	2180	1800	4380	4950
1420	1905	155	ACS2000-066-A02E-xy-010	1775	3800	4260	2180	1800	4380	5060
1600	2145	175	ACS2000-066-A02F-xy-010	2000	3800	4260	2180	1800	4380	5300
1800	2415	197	ACS2000-066-A03A-x4-010	2250	n/a	n/a	2530	2100	4930	6090
2000	2680	219	ACS2000-066-A03B-x4-010	2500	n/a	n/a	2530	2100	4930	6110
2200	2950	241	ACS2000-066-A03C-x4-010	2750	n/a	n/a	2530	2100	4930	6570
2400	3215	262	ACS2000-066-A03D-x4-010	3000	n/a	n/a	2530	2100	4930	7030
2500	3350	273	ACS2000-066-A04A-x4-010	3125	n/a	n/a	2530	2100	5130	7030
2800	3755	306	ACS2000-066-A04B-x4-010	3500	n/a	n/a	2530	2100	5130	7620
3200	4290	350	ACS2000-066-A04C-x4-010	4000	n/a	n/a	2530	2100	5130	8200

Notes:

1 Indicative information: Induction motor efficiency 93%, power factor 0.86

2 Nominal rating for no-overload operation

3 ‚x' indicates the different converter types
L - for direct-to-line operation
E - for operation with external transformer
J - for operation with integrated transformer
‚y' indicates the pulse number
1 - 6 pulse active front end
4 - 24 pulse diode front end

Dimensions:

Height: 2100 mm cabinet height
2490 mm incl. cooling fans
2700 mm incl. redundant cooling fans

Depth: 1140 mm

Ratings, types and voltages
6 kV, low harmonic drive (continued)

Motor data[1]			Converter data						
Nominal rating[2]			Type code[3]	Power kVA	direct-to-line		with external transformer		with integrated transformer	
kW	hp	A			Length mm	Weight kg	Length mm	Weight kg	Length mm	Weight kg
6900 V										
250	335	26	ACS2000-069-A01A-xy-010	315	2205	2500	1730	1500	3330	3120
315	420	33	ACS2000-069-A01B-xy-010	395	2205	2500	1730	1500	3330	3120
355	475	37	ACS2000-069-A01C-xy-010	445	2205	2500	1730	1500	3330	3140
400	535	42	ACS2000-069-A01D-xy-010	500	2205	2500	1730	1500	3630	3230
450	605	47	ACS2000-069-A01E-xy-010	565	2205	2500	1730	1500	3630	3380
500	670	52	ACS2000-069-A01F-xy-010	625	2205	2500	1730	1500	3630	3410
560	750	59	ACS2000-069-A01G-xy-010	700	2205	2500	1730	1500	3630	3450
630	845	66	ACS2000-069-A01H-xy-010	790	2205	2500	1730	1500	3630	3760
710	950	74	ACS2000-069-A01J-xy-010	890	2205	2500	1730	1500	3630	3850
800	1070	84	ACS2000-069-A01K-xy-010	1000	2205	2500	1730	1500	3630	4050
900	1205	94	ACS2000-069-A02A-xy-010	1125	3800	4260	2180	1800	4080	4430
1000	1340	105	ACS2000-069-A02B-xy-010	1250	3800	4260	2180	1800	4080	4640
1120	1500	117	ACS2000-069-A02C-xy-010	1400	3800	4260	2180	1800	4080	4810
1260	1690	132	ACS2000-069-A02D-xy-010	1575	3800	4260	2180	1800	4380	4950
1420	1905	149	ACS2000-069-A02E-xy-010	1775	3800	4260	2180	1800	4380	5060
1600	2145	167	ACS2000-069-A02F-xy-010	2000	3800	4260	2180	1800	4380	5300
1800	2415	188	ACS2000-069-A03A-x4-010	2250	n/a	n/a	2530	2100	4930	6090
2000	2680	209	ACS2000-069-A03B-x4-010	2500	n/a	n/a	2530	2100	4930	6110
2200	2950	230	ACS2000-069-A03C-x4-010	2750	n/a	n/a	2530	2100	4930	6570
2400	3215	251	ACS2000-069-A03D-x4-010	3000	n/a	n/a	2530	2100	4930	7030
2500	3350	262	ACS2000-069-A04A-x4-010	3125	n/a	n/a	2530	2100	5130	7030
2800	3755	293	ACS2000-069-A04B-x4-010	3500	n/a	n/a	2530	2100	5130	7620
3200	4290	335	ACS2000-069-A04C-x4-010	4000	n/a	n/a	2530	2100	5130	8200

Notes:

1 Indicative information: Induction motor efficiency 93%, power factor 0.86

2 Nominal rating for no-overload operation

3 ‚x' indicates the different converter types
L - for direct-to-line operation
E - for operation with external transformer
J - for operation with integrated transformer
‚y' indicates the pulse number
1 - 6 pulse active front end
4 - 24 pulse diode front end

Dimensions:

Height: 2100 mm cabinet height
2490 mm incl. cooling fans
2700 mm incl. redundant cooling fans

Depth: 1140 mm

Ratings, types and voltages
6 kV, regenerative drive

Motor data[1]			Converter data							
Nominal rating[2]			Type code[3]	Power kVA	direct-to-line		with external transformer		with integrated transformer	
kW	hp	A			Length mm	Weight kg	Length mm	Weight kg	Length mm	Weight kg
6000 V										
250	305	30	ACS2000-060-A01A-x1-010	315	2205	2500	1705	1550	3405	2850
315	385	38	ACS2000-060-A01B-x1-010	395	2205	2500	1705	1550	3405	2940
355	435	43	ACS2000-060-A01C-x1-010	445	2205	2500	1705	1550	3405	3030
400	485	48	ACS2000-060-A01D-x1-010	500	2205	2500	1705	1550	3405	3130
450	550	54	ACS2000-060-A01E-x1-010	565	2205	2500	1705	1550	3405	3230
500	610	60	ACS2000-060-A01F-x1-010	625	2205	2500	1705	1550	3405	3330
560	680	67	ACS2000-060-A01G-x1-010	700	2205	2500	1705	1550	3405	3450
630	770	76	ACS2000-060-A01H-x1-010	790	2205	2500	1705	1550	3405	3580
710	865	85	ACS2000-060-A01J-x1-010	890	2205	2500	1705	1550	3405	3720
800	975	96	ACS2000-060-A01K-x1-010	1000	2205	2500	1705	1550	3405	3750
900	1095	108	ACS2000-060-A02A-x1-010	1125	3800	4260	3000	2550	5200	5140
1000	1220	120	ACS2000-060-A02B-x1-010	1250	3800	4260	3000	2550	5200	5140
1120	1365	135	ACS2000-060-A02C-x1-010	1400	3800	4260	3000	2550	5200	5300
1260	1535	152	ACS2000-060-A02D-x1-010	1575	3800	4260	3000	2550	5200	5490
1420	1730	171	ACS2000-060-A02E-x1-010	1775	3800	4260	3000	2550	5200	5700
1600	1950	192	ACS2000-060-A02F-x1-010	2000	3800	4260	3000	2550	5200	5940
6600 V										
250	335	27	ACS2000-066-A01A-x1-010	315	2205	2500	1705	1550	3405	2850
315	420	34	ACS2000-066-A01B-x1-010	395	2205	2500	1705	1550	3405	2940
355	475	39	ACS2000-066-A01C-x1-010	445	2205	2500	1705	1550	3405	3030
400	535	44	ACS2000-066-A01D-x1-010	500	2205	2500	1705	1550	3405	3130
450	605	49	ACS2000-066-A01E-x1-010	565	2205	2500	1705	1550	3405	3230
500	670	55	ACS2000-066-A01F-x1-010	625	2205	2500	1705	1550	3405	3330
560	750	61	ACS2000-066-A01G-x1-010	700	2205	2500	1705	1550	3405	3450
630	845	69	ACS2000-066-A01H-x1-010	790	2205	2500	1705	1550	3405	3580
700	940	77	ACS2000-066-A01J-x1-010	875	2205	2500	1705	1550	3405	3720
800	1070	87	ACS2000-066-A01K-x1-010	1000	2205	2500	1705	1550	3405	3750
900	1205	98	ACS2000-066-A02A-x1-010	1125	3800	4260	3000	2550	5200	5140
1000	1340	109	ACS2000-066-A02B-x1-010	1250	3800	4260	3000	2550	5200	5140
1120	1500	122	ACS2000-066-A02C-x1-010	1400	3800	4260	3000	2550	5200	5300
1260	1690	138	ACS2000-066-A02D-x1-010	1575	3800	4260	3000	2550	5200	5490
1420	1905	155	ACS2000-066-A02E-x1-010	1775	3800	4260	3000	2550	5200	5700
1600	2145	175	ACS2000-066-A02F-x1-010	2000	3800	4260	3000	2550	5200	5940
6900 V										
250	335	26	ACS2000-069-A01A-x1-010	315	2205	2500	1705	1550	3405	2850
315	420	33	ACS2000-069-A01B-x1-010	395	2205	2500	1705	1550	3405	2940
355	475	37	ACS2000-069-A01C-x1-010	445	2205	2500	1705	1550	3405	3030
400	535	42	ACS2000-069-A01D-x1-010	500	2205	2500	1705	1550	3405	3130
450	605	47	ACS2000-069-A01E-x1-010	565	2205	2500	1705	1550	3405	3230
500	670	52	ACS2000-069-A01F-x1-010	625	2205	2500	1705	1550	3405	3330
560	750	59	ACS2000-069-A01G-x1-010	700	2205	2500	1705	1550	3405	3450
630	845	66	ACS2000-069-A01H-x1-010	790	2205	2500	1705	1550	3405	3580
710	950	74	ACS2000-069-A01J-x1-010	890	2205	2500	1705	1550	3405	3720
800	1070	84	ACS2000-069-A01K-x1-010	1000	2205	2500	1705	1550	3405	3750
900	1205	94	ACS2000-069-A02A-x1-010	1125	3800	4260	3000	2550	5200	5140
1000	1340	105	ACS2000-069-A02B-x1-010	1250	3800	4260	3000	2550	5200	5140
1120	1500	117	ACS2000-069-A02C-x1-010	1400	3800	4260	3000	2550	5200	5300
1260	1690	132	ACS2000-069-A02D-x1-010	1575	3800	4260	3000	2550	5200	5490
1420	1905	149	ACS2000-069-A02E-x1-010	1775	3800	4260	3000	2550	5200	5700
1600	2145	167	ACS2000-069-A02F-x1-010	2000	3800	4260	3000	2550	5200	5940

Notes:

1 Indicative information: Induction motor efficiency 93%, power factor 0.86

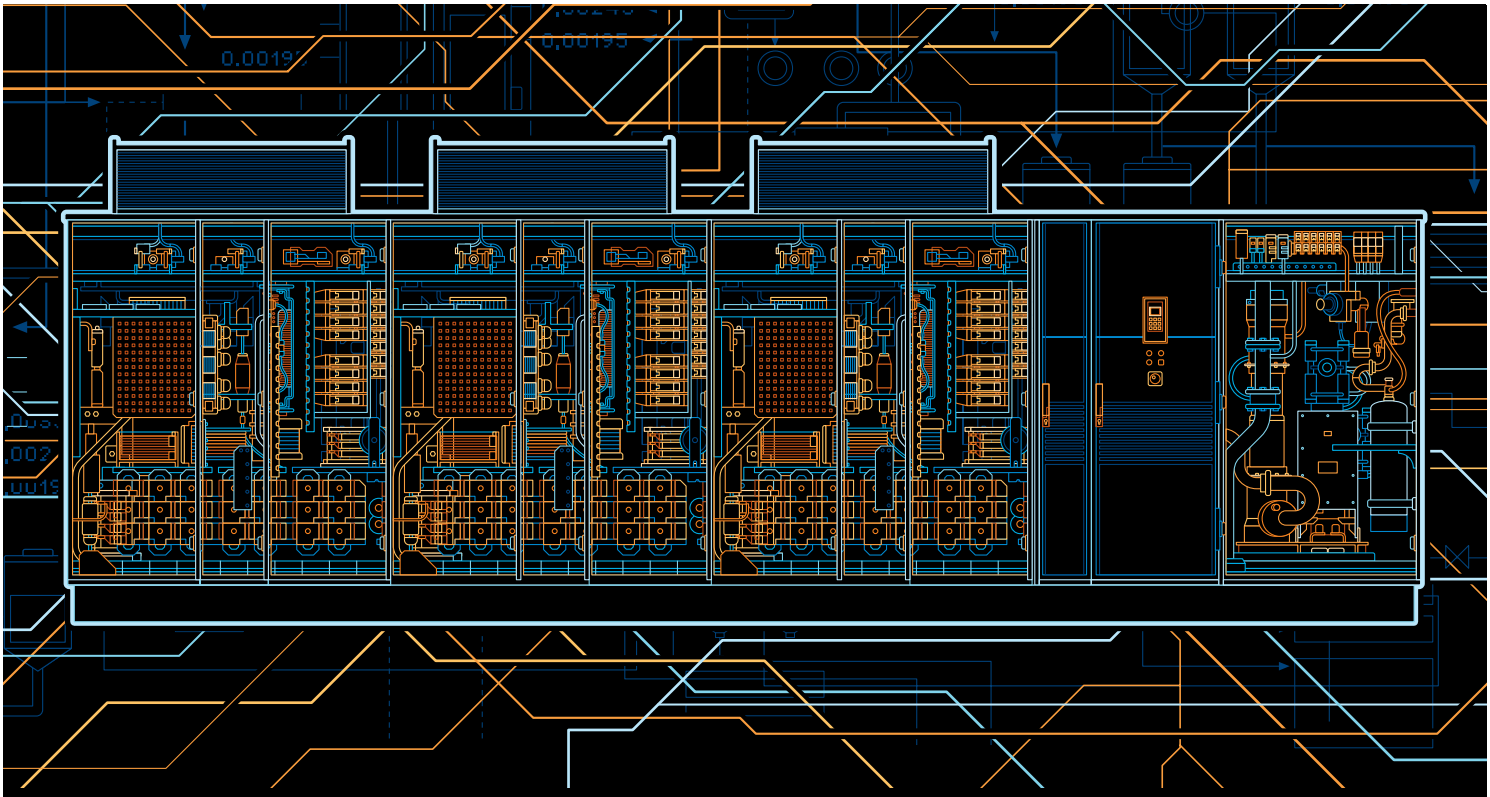
2 Nominal rating for no-overload operation

3 ‚x' indicates the different converter types
T - for direct-to-line operation
R - for operation with external transformer
N - for operation with integrated transformer

Dimensions:

Height: 2100 mm cabinet height
2490 mm incl. cooling fans
2700 mm incl. redundant cooling fans

Depth: 1140 mm



2 MW – 36 MW, 6.0 – 13.8 kV

ACS5000 Medium Voltage Drive

The power you require. The reliability you expect.

Power and productivity
for a better world™

The ACS5000 special purpose drive

The ACS5000 medium voltage drive is part of ABB's special purpose drives portfolio. Special purpose drives are engineered drives for your high power, high speed or special performance applications such as test stands, marine propulsion and thrusters, rolling mills, SAG and ball mills, large pumps, fans and compressors.

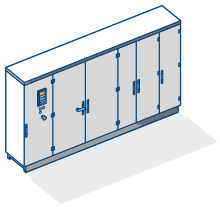
The drives cover a wide power and voltage range, including voltages up to 13.8 kV and powers of more than 100 MW.

Get a drive solution that meets the requirements of your application and ensures high productivity and optimum performance of your operations. Benefit from the built-in expertise of our special purpose drives and take your business forward with everything working like clockwork.

Contents

ABB Medium Voltage Drives
Product portfolio

A broad range of variable speed drives for medium voltage applications allows you to select the drive that best meets your individual requirements. Get the perfect match for you.



ACS1000 industrial drive
Whatever your industry, the ACS1000 is an all-rounder to control your standard applications and optimize your processes.

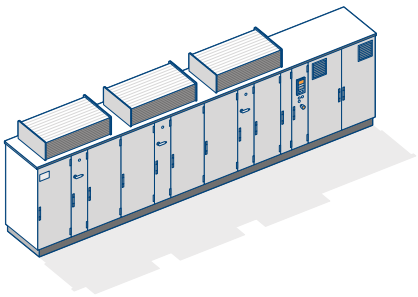
Power range
315 kW – 5 MW

Output voltage
2.3 – 4.16 kV

ACS2000 industrial drive
The ACS2000 is an industrial all-rounder that perfectly adapts to a wide variety of standard applications across all industries.

Power range
250 kW – 3.2 MW

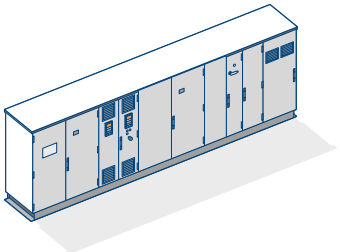
Output voltage
4.0 – 6.9 kV



ACS5000 special purpose drive
The ACS5000 effortlessly controls your high power applications such as compressors, pumps and fans.

Power range
2 MW – 36 MW
(higher on request)

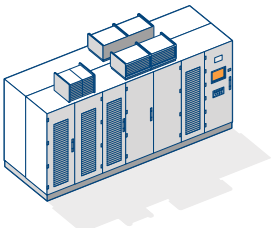
Output voltage
6.0 – 13.8 kV



ACS6000 special purpose drive
Look no further than the ACS6000 if your high performance applications require a single- or multi-motor drive solution.

Power range
5 MW – 36 MW

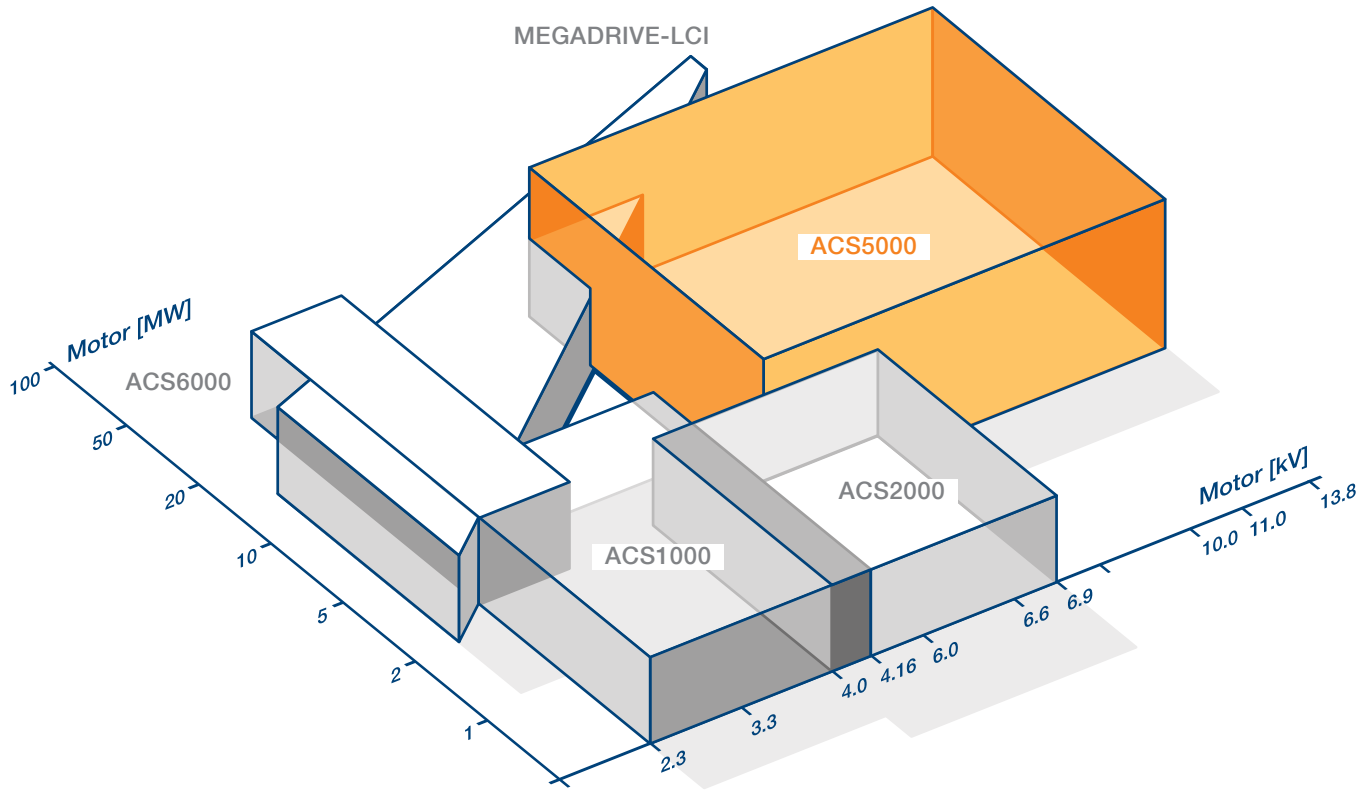
Output voltage
2.3 – 3.3 kV



MEGADRIVE-LCI special purpose drive
The well-proven technology offered in the MEGADRIVE-LCI controls your high power applications and provides soft starting of large synchronous motors.

Power range
2 MW – 72 MW
(higher on request)

Output voltage
2.1 – 10 kV



Our product portfolio comprises medium voltage drives in the range of 250 kW to more than 100 MW.

Get more using less

Our broad portfolio of medium voltage drives will help you to increase your productivity and profitability. Your processes will use only the energy required to carry out the job and no more. Precise control ensures efficient operation with high uptime and optimized use of raw materials. This will all add up to cost and time savings for you.

Delivering global support and peace of mind

Our worldwide network offers you fast service and support around the clock, providing peace of mind by always being there when you need us.

Reliable performance you can count on

Depending on your industry and application, we provide you with solutions that meet your individual needs and requirements. Our variable speed drives - from 250 kW to more than 100 MW – control a wide range of medium voltage applications.

Through the use of quality components and the integration of special features, our drives ensure high process availability and safety for your business. With well-proven drive technology at the heart, your operations will run smoothly and reliably every day.

ACS5000
High power drive for safe operations

The champion in the high power field provides advanced safety features and industry-specific functions to meet the specific needs of your application. It ensures reliable control of applications that require high powers and makes your operations efficient and safe.

Powerful and reliable

The ACS5000 medium voltage drive conforms to operations in many fields, but is particularly suited for the chemical, oil, gas and power generation industries due to its robust design. The drive comes with various industry-specific features, which integrate seamlessly with your system and increase the productivity of your processes.

Due to the ACS5000's advanced arc resistant design, you can be sure of the highest safety levels in your day to day operations for your personnel and equipment.

The compact air-cooled ACS5000 is designed to control standard motors, typically used for applications such as pumps, fans, compressors, mixers, mills and conveyors. The water-cooled ACS5000 drives your high power, high speed or special performance applications such as large pumps, fans, extruders and compressors.


ABB
ACS 5000

ACS5000
Flexible drive system integration

Customized solutions enable a smooth integration of the drive into any industrial environment.

Industry-specific options
The ACS5000 can be easily integrated into your processes and systems, thanks to a broad range of special features particularly tailored to your high power applications.

Open control system
We offer an open communication concept, enabling connection to higher level process controllers. The ACS5000 can be fitted with all major fieldbus adapters for smooth integration, monitoring and controlling of different processes, according to your requirements.

Commissioning
The commissioning wizard DriveStartup is an advanced tool that simplifies and speeds up commissioning. Standardized parameter sets and trained, certified professionals ensure smooth and fast commissioning.

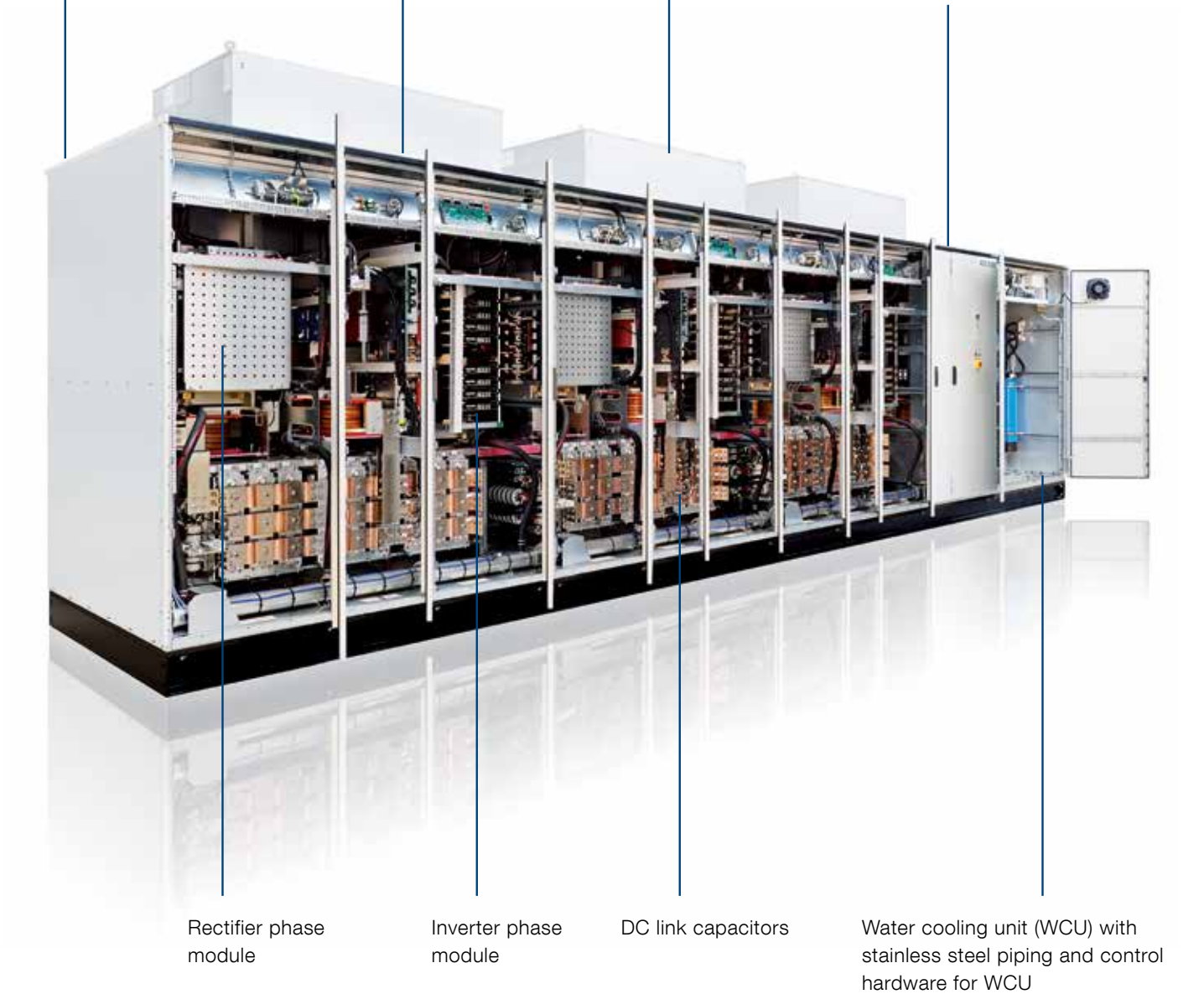
Grid compatibility
The air-cooled ACS5000 can be configured with an external or integrated input transformer.

Depending on the availability of cooling water, the water-cooled ACS5000 can be configured with a combined water cooling system of the input transformer and the converter. Even if no cooling water is available you can benefit from the high power of the ACS5000 water-cooled drive by using closed loop cooling with dedicated air blast coolers or chillers.

The ACS5000 can also be adapted for applications with very long motor cables.

ACS5000
Water-cooled, 5 – 36 MW

Thanks to water cooling and a sealed cabinet, you can reduce energy and ventilation costs. High reliability is ensured thanks to a minimized part count.



Water-cooled ACS5000, 18 MVA, 6.9 kV

ACS5000
Air-cooled, 2 – 7 MW

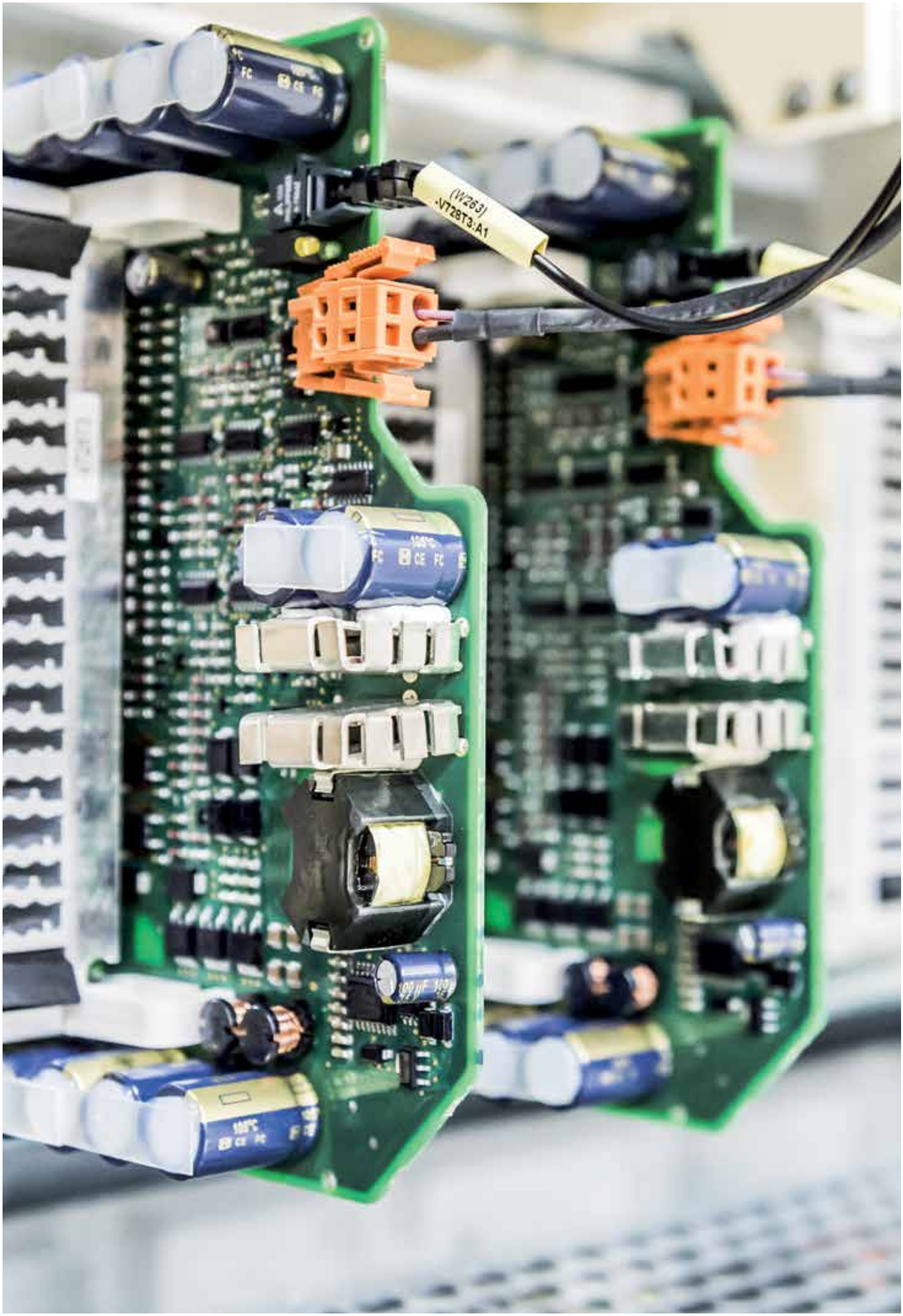
Cost optimization and simple system integration is possible with the air-cooled ACS5000.

User-friendly drive control panel for local operation
- Keypad with multi-language display
- Main supply on/off pushbuttons
- Emergency off pushbutton

Air-cooled ACS5000 for operation with integrated input transformer, 7 MVA, 6.9 kV

Technical data
At a glance

Input	
Input configuration	36-pulse diode rectifier
Input voltage	Input to diode rectifier: 1920 – 1980 V, 3700 – 3960 V Input to integrated transformer: 4.16 – 13.8 kV
Input voltage variation	±10% without derating +20/-30 with derating
Input frequency	50/60 Hz
Input frequency variation	<5%
Input power factor	>0.96
Input harmonics	IEC 61000-2-4 and IEEE 519 compliant
Auxiliary voltage	Control (optional): 110, 220 VDC or 110 – 240 VAC 50/60 Hz Auxiliary: 380 – 480 VAC 50/60 Hz, 3-phase 500 – 690 VAC 50/60 Hz, 3-phase (for water-cooled only)
Output	
Output power	2000 – 36000 kW (higher on request)
Output voltage	6.0 – 13.8 kV
Output frequency	0 – 250 Hz
Motor type	Induction, synchronous and permanent magnet
Efficiency of converter	>98.5%
Mechanical	
Enclosure	Standard air-cooled: IP21 Standard water-cooled: IP42 Optional air-cooled: IP42 Optional water-cooled: IP54
Cable entry	Top/bottom
Environmental	
Altitude	2000 m.a.s.l. (higher with derating)
Ambient air temperature	+1 – +40 °C (lower and higher with derating)
External cooling water temperature	+5 – +32 °C (lower and higher with derating)
Noise	Water-cooled: ≤75 dB (A) Air-cooled: ≤80 dB (A)
Cooling type	Air, water
Standards	EN, IEC, CE, (optional CSA)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Ratings, types and voltages
ACS5000 air-cooled

Motor data			Converter data					
Nominal rating[2]			Type code[3]	Power kVA	with external transformer		with integrated transformer	
kW[1]	hp[1]	A			Length mm	Weight kg	Length mm	Weight kg
6000 V								
1500	2010	170	ACS5000-060-A01A-x6-010	1800	3300	3000	5700	7700
1800	2410	210	ACS5000-060-A01B-x6-010	2200	3300	3000	5700	7700
2000	2680	240	ACS5000-060-A01C-x6-010	2500	3300	3000	5700	7700
2500	3350	290	ACS5000-060-A01D-x6-010	3000	3300	3000	6000	9200
2800	3750	315	ACS5000-060-A02A-x6-010	3300	3700	4000	6400	10200
3150	4220	355	ACS5000-060-A02B-x6-010	3700	3700	4000	6700	11200
3550	4760	400	ACS5000-060-A02C-x6-010	4200	3700	4000	6700	11200
4000	5360	440	ACS5000-060-A02D-x6-010	4600	3700	4000	6700	11200
4500	6030	510	ACS5000-060-A02E-x6-010	5300	3700	4000	6700	15500
5000	6700	585	ACS5000-060-A02F-x6-010	6000	3700	4000	6700	15500
6600 V								
1600	2140	170	ACS5000-066-A01A-x6-010	1900	3300	3000	5700	7700
2000	2680	210	ACS5000-066-A01B-x6-010	2400	3300	3000	5700	7700
2250	3020	240	ACS5000-066-A01C-x6-010	2800	3300	3000	6000	9200
2500	3350	290	ACS5000-066-A01D-x6-010	3300	3300	3000	6000	9200
2800	3750	315	ACS5000-066-A02A-x6-010	3600	3700	4000	6400	10200
3150	4220	355	ACS5000-066-A02B-x6-010	4100	3700	4000	6700	11200
3550	4760	400	ACS5000-066-A02C-x6-010	4600	3700	4000	6700	11200
4000	5360	440	ACS5000-066-A02D-x6-010	5000	3700	4000	6700	15500
4500	6030	510	ACS5000-066-A02E-x6-010	5800	3700	4000	6700	15500
5600	7500	585	ACS5000-066-A02F-x6-010	6700	3700	4000	6700	15500
6900 V								
1600	2140	170	ACS5000-069-A01A-x6-010	2000	3300	3000	5700	7700
2000	2680	210	ACS5000-069-A01B-x6-010	2500	3300	3000	5700	7700
2250	3020	240	ACS5000-069-A01C-x6-010	2900	3300	3000	6000	9200
2800	3750	290	ACS5000-069-A01D-x6-010	3500	3300	3000	6000	9200
3150	4220	315	ACS5000-069-A02A-x6-010	3700	3700	4000	6700	10200
3550	4760	355	ACS5000-069-A02B-x6-010	4200	3700	4000	6700	11200
4000	5360	400	ACS5000-069-A02C-x6-010	4800	3700	4000	6700	11200
4500	6030	440	ACS5000-069-A02D-x6-010	5200	3700	4000	6700	15500
5000	6700	510	ACS5000-069-A02E-x6-010	6100	3700	4000	6700	15500
6000	8040	585	ACS5000-069-A02F-x6-010	7000	3700	4000	6700	15500

Notes:

1 Indicative information referring to typical 4-pole induction motor under nominal supply voltage conditions.

2 Nominal rating for no-overload operation

3 ‚x' indicates the different converter types
E - for external transformer
J - for integrated transformer

Dimensions:

Height: 2360 mm cabinet height
2815 mm incl. cooling fans
2935 mm incl. redundant cooling fans

Depth: 1100 mm
1300 mm for integrated transformer with power >5000 kVA

Ratings, types and voltages
ACS5000 water-cooled

Motor data			Converter data					
Nominal rating[2]			Type code[3]	Power kVA	with external transformer		with combined transformer[4]	
kW[1]	hp[1]	A			Length mm	Weight kg	Length mm	Weight kg
6000 V								
6830	9150	670	ACS5000-060-W01A-x6-010	7000	7130	6800	8530	8650
8480	11360	840	ACS5000-060-W01B-x6-010	8700	7130	6800	8530	8650
10140	13590	1000	ACS5000-060-W01C-x6-010	10400	7130	6800	8530	8650
12680	16990	1250	ACS5000-060-W02A-x6-010	13000	9130	9700	9730	10450
15210	20380	1500	ACS5000-060-W02B-x6-010	15600	9130	9700	9730	10450
17750	23790	1750	ACS5000-060-W03A-E6-010	18200	13430	12200	n.a.	n.a.
20280	27180	2000	ACS5000-060-W03B-E6-010	20800	13430	12200	n.a.	n.a.
23300	31220	2300	ACS5000-060-W04A-E6-010	23900	15830	16500	n.a.	n.a.
25350	33970	2500	ACS5000-060-W04B-E6-010	26000	15830	16500	n.a.	n.a.
30420	40760	3000	ACS5000-060-W04C-E6-010	31200	15830	16500	n.a.	n.a.
6600 V								
7510	10060	670	ACS5000-066-W01A-x6-010	7700	7130	6800	8530	8650
9360	12540	840	ACS5000-066-W01B-x6-010	9600	7130	6800	8530	8650
11120	14900	1000	ACS5000-066-W01C-x6-010	11400	7130	6800	8530	8650
13940	18680	1250	ACS5000-066-W02A-x6-010	14300	9130	9700	9730	10450
16670	22340	1500	ACS5000-066-W02B-x6-010	17100	9130	9700	9730	10450
19500	26130	1750	ACS5000-066-W03A-E6-010	20000	13430	12200	n.a.	n.a.
22330	29920	2000	ACS5000-066-W03B-E6-010	22900	13430	12200	n.a.	n.a.
25640	34360	2300	ACS5000-066-W04A-E6-010	26300	15830	16500	n.a.	n.a.
27890	37370	2500	ACS5000-066-W04B-E6-010	28600	15830	16500	n.a.	n.a.
33440	44810	3000	ACS5000-066-W04C-E6-010	34300	15830	16500	n.a.	n.a.
6900 V								
7800	10450	670	ACS5000-069-W01A-x6-010	8000	7130	6800	8530	8650
9750	13070	840	ACS5000-069-W01B-x6-010	10000	7130	6800	8530	8650
11700	15680	1000	ACS5000-069-W01C-x6-010	12000	7130	6800	8530	8650
14530	19470	1250	ACS5000-069-W02A-x6-010	14900	9130	9700	9730	10450
17450	23380	1500	ACS5000-069-W02B-x6-010	17900	9130	9700	9730	10450
20380	27310	1750	ACS5000-069-W03A-E6-010	20900	13430	12200	n.a.	n.a.
23300	31220	2000	ACS5000-069-W03B-E6-010	23900	13430	12200	n.a.	n.a.
26810	35930	2300	ACS5000-069-W04A-E6-010	27500	15830	16500	n.a.	n.a.
29150	39060	2500	ACS5000-069-W04B-E6-010	29900	15830	16500	n.a.	n.a.
35000	46900	3000	ACS5000-069-W04C-E6-010	35900	15830	16500	n.a.	n.a.
11000 V								
16090	21560	870	ACS5000-110-W05A-E6-010	16500	13430	12000	n.a.	n.a.
18140	24310	980	ACS5000-110-W05B-E6-010	18600	13430	12000	n.a.	n.a.
20470	27430	1100	ACS5000-110-W05C-E6-010	21000	13430	12000	n.a.	n.a.
24180	32400	1300	ACS5000-110-W06A-E6-010	24800	15830	20000	n.a.	n.a.
27300	36580	1470	ACS5000-110-W06B-E6-010	28000	15830	20000	n.a.	n.a.
30710	41150	1650	ACS5000-110-W06C-E6-010	31500	15830	20000	n.a.	n.a.
13800 V								
17450	23380	750	ACS5000-138-W05A-E6-010	17900	13430	12000	n.a.	n.a.
20380	27310	870	ACS5000-138-W05B-E6-010	20900	13430	12000	n.a.	n.a.
23300	31220	1000	ACS5000-138-W05C-E6-010	23900	13430	12000	n.a.	n.a.
26810	35930	1150	ACS5000-138-W06A-E6-010	27500	15830	20000	n.a.	n.a.
29150	39060	1250	ACS5000-138-W06B-E6-010	29900	15830	20000	n.a.	n.a.
35000	46900	1500	ACS5000-138-W06C-E6-010	35900	15830	20000	n.a.	n.a.

Notes:

1 Indicative information referring to typical 4-pole induction motor under nominal supply voltage conditions.

2 Nominal rating for no-overload operation

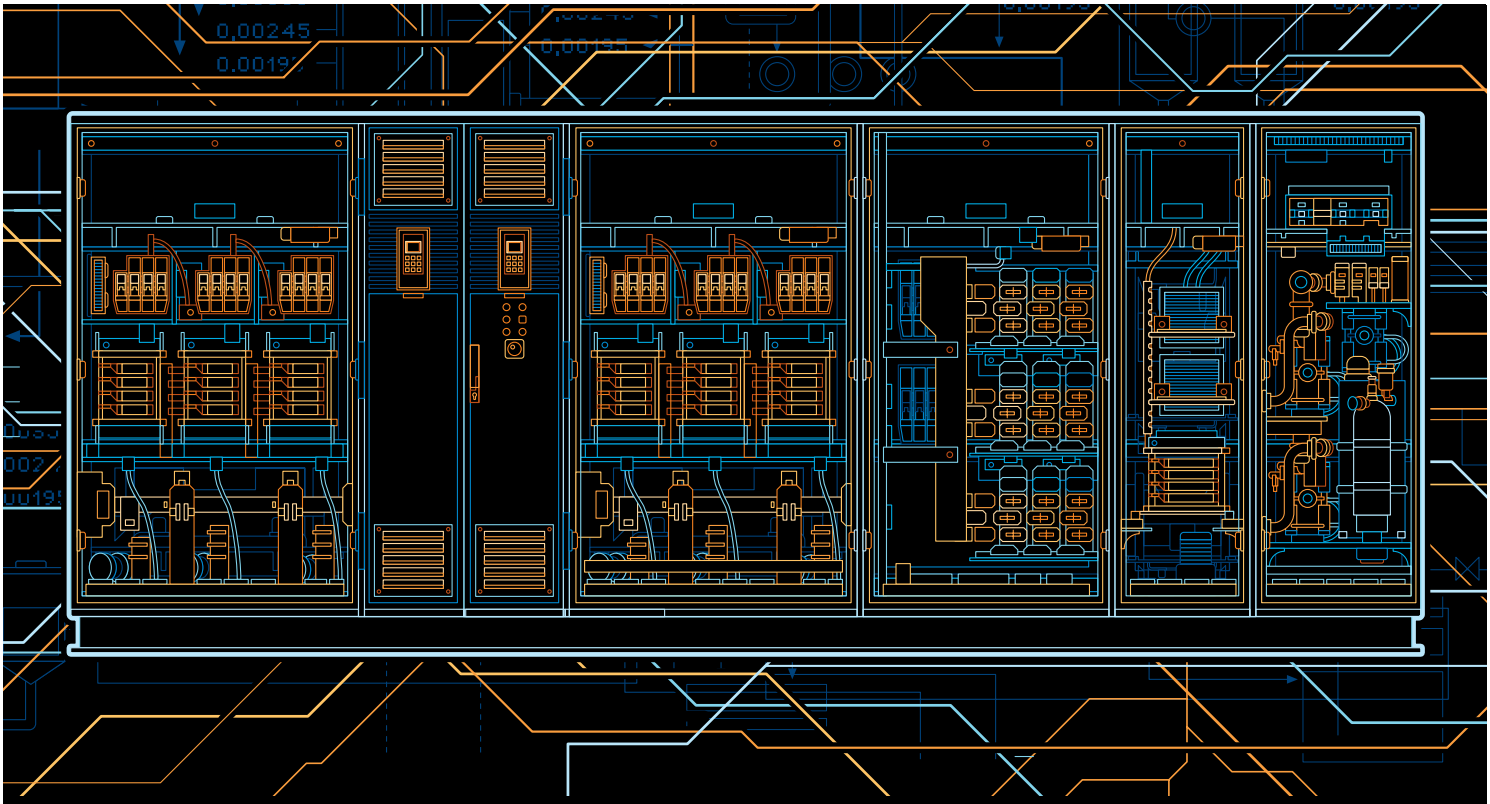
3 ‚x' indicates the different converter types
E - for external transformer
C - for combined transformer

Dimensions:

Height: 2363 mm cabinet height
2752 mm incl. cooling units
2774 mm incl. cooling units and mechanical design for offshore applications

Depth: 1600 mm

4 In combined transformer configuration the cooling system of the input transformer is connected to the cooling water system of the converter and the system has a common cooling water pump in the converter. The length and weight do not include the input transformer part.



5 MW – 36 MW, 2.3 – 3.3 kV

ACS6000 Medium Voltage Drive

The modularity you require.
The reliability you expect.

Power and productivity
for a better world™

The ACS6000 special purpose drive

The ACS6000 medium voltage drive is part of ABB's special purpose drives portfolio. These engineered drives are specifically suitable for your high power, high speed or special performance applications such as test stands, marine propulsion and thrusters, rolling mills, SAG and ball mills, large pumps, fans and compressors.

The drives cover a wide power and voltage range, including voltages up to 13.8 kV and powers of more than 100 MW.

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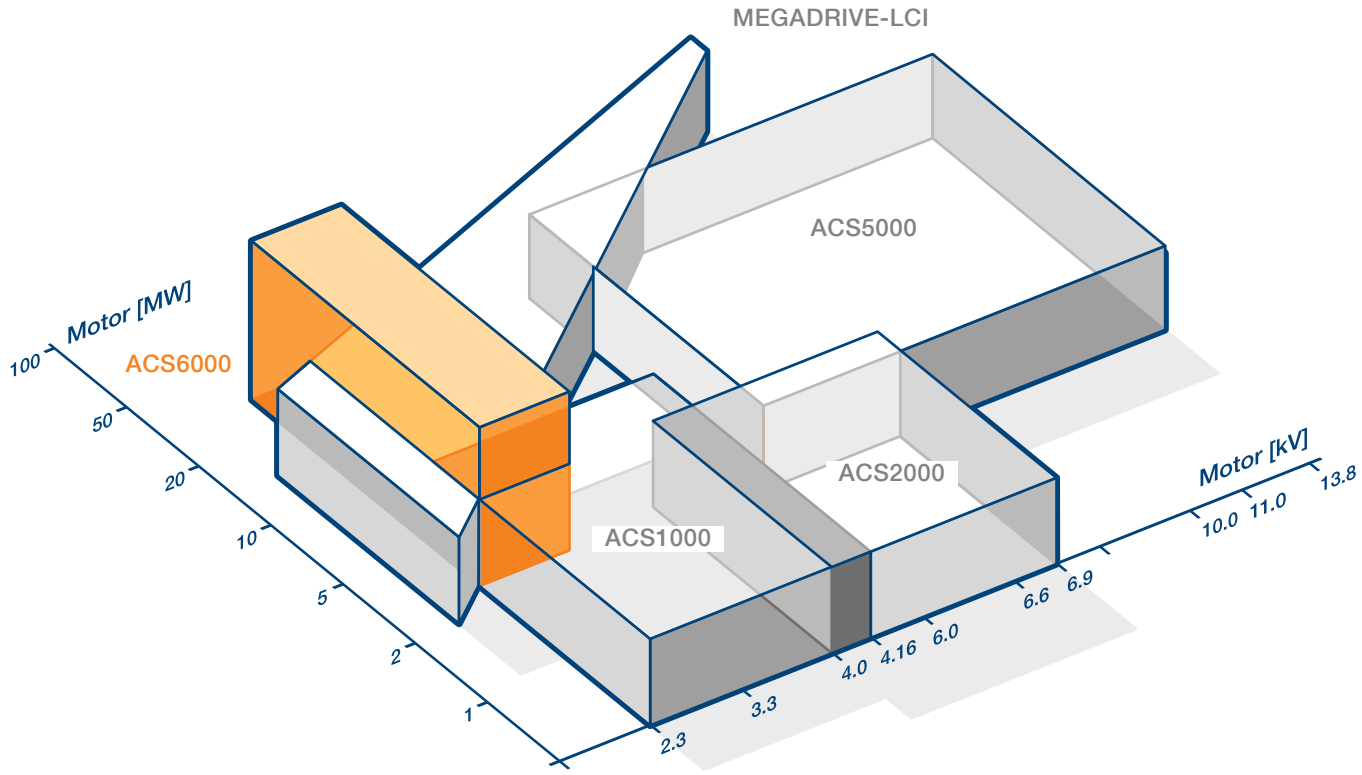
Contents


ABB



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Delivering global support and peace of mind

Our worldwide network offers you fast service and support around the clock, providing peace of mind by always being there when you need us.

Reliable performance you can count on

Depending on your industry and application, we provide you with drive solutions that meet your individual needs and requirements. Our variable speed drives – from 250 kW to more than 100 MW – control a wide range of medium voltage applications.

Through the use of quality components and the integration of special features, our drives ensure high process availability and safety for your business. With well-proven drive technology at the heart, your operations will run smoothly and reliably every day.

ACS6000
The right choice for high performance

The accomplished expert for heavy industries offers you unlimited possibilities of drive configurations to drive both single- and multi-motor applications. Industry-specific functions and unique features ensure reliable control of your processes and systems that require precision and high safety standards.

Modular and reliable

Well-proven modules, redundancy possibilities and a compact footprint have been instrumental in having the design of the ACS6000 commonly referred to as “best-in-class”. The drive is configured to fit with your needs and the specific conditions of your business.

The customized drive solutions deliver fast and accurate control of dynamic processes such as those found in the metals, marine and mining industries. Select from a wide range of industry-specific options and certifications (e.g. marine, offshore) to tailor the drive according to your requirements and get the optimum configuration by combining the engineered modules.

The drive’s multi-motor operation optimizes efficiency whilst reducing your costs and space requirements. Integration into your system is simple thanks to the flexible connection to the network through one or several transformers.


ACS 6000

ACS6000
Flexible drive system integration

Customized solutions enable a smooth integration of the drive into any industrial environment.

Easier than you think
With its modular design, you can easily integrate the ACS6000 into any industrial environment. The drive can be optimally configured for single-motor and multi-motor applications without additional control equipment. The high power density, the compact footprint and the drive's communication abilities minimize the overall installation costs.

Flexible network connections
The ACS6000 can be connected to the network through one or several transformers depending on process, power and harmonics requirements. Optionally, the integration of a harmonic filter is possible for weak networks.

Power factor correction
The drive can also provide reactive power (VAR) compensation, controlling the voltage level to stay within tight limits. A smooth network voltage profile can be maintained and reactive power penalties can be avoided.

Control system
We offer an open communication concept, enabling connection to a Programmable Logic Controller (PLC) or a Distributed Control System (DCS). Fieldbus connectivity with a wide variety of protocols is available. The ACS6000 platform offers the possibility to monitor the transformers, as well as the motors with the drive's control system.

Commissioning
You can benefit from the ACS6000s multidrive configuration as commissioning is much faster compared to using the equivalent number of single drives. The commissioning wizard DriveStartup is an advanced tool that simplifies and speeds up commissioning. Standardized parameter sets and trained, certified professionals ensure smooth and fast commissioning.

ACS6000
More efficiency with drive packages

Packaged drive solutions provide you with ultimate efficiency and reliability to optimize your cost of ownership.

All in one package
Committed to supporting you in your business, we offer packaged drive solutions for applications in various industries. Customer-specific drive packages including medium voltage converters, motors and transformers can be developed as turnkey solutions meeting your individual requirements.

Matched performance
To ensure design integrity and an optimum match of equipment, ABB products have undergone combined tests ensuring performance predictability for your application.

Single point of contact
The combined power of the ABB offering is geared to deliver on customer expectations. We deliver motor-drive solutions that support your technical and commercial needs, from quotation, through delivery and service, over the entire product life-cycle.

Converter motors
With ABB's motors for your applications you will benefit from high versatility, reliability and simplicity.

Converter transformers
ABB offers converter transformers for all ratings, as well as for indoor or outdoor mounting. Particularly designed for operation with variable speed drives, the transformer adapts the converter to the supply network and provides a galvanic isolation between drive and supply network.

ACS6000
Water-cooled, 5 - 36 MW

Cost and energy savings are possible with a water-cooled drive system that is configured to fully meet your needs.

EMC compliant cabinet for problem-free operation in electromagnetic environment

User-friendly drive control panel for local operation
- Keypad with multi-language display
- Main supply on/off pushbuttons
- Emergency off pushbutton

DC bus grounding switch and electromechanically interlocked doors of power sections for personal safety

Terminal Unit (TEU) and Control Unit (COU)
Contains the power terminals and the control swing frame

Capacitor Bank Unit (CBU)
DC capacitors for smoothing the intermediate DC voltage

Water Cooling Unit (WCU)
Supplies deionized water for cooling the main power components

Active Rectifier Unit (ARU)
Self-commutated, 6-pulse, 3-level voltage source inverter with IGCT technology

Inverter unit (INU)
Self-commutated, 6-pulse, 3-level voltage source inverter with IGCT technology

Voltage Limiter Unit (VLU)
Optional dynamic DC voltage limiter

Power Electronic Building Block (PEBB),
One phase leg of a 3-level Voltage Source Inverter (VSI) topology, which can be used both as an AC to DC or DC to AC converter

Technical data
At a glance

Input	
Input configuration	6-, 12- or 24-pulse diode rectifier 6-, 12- or 18-pulse active rectifier
Input voltage	6-pulse diode rectifier: 3300 V 12- and 24-pulse diode rectifier: 1725 V 6-, 12- and 18-pulse active rectifier: 3160 V
Input voltage variation	±10% without derating +15/-30 with derating
Input frequency	50/60 Hz
Input frequency variation	±5%
Input power factor	Diode rectifier: >0.95 Active rectifier: standard 1.0, optionally controllable
Input harmonics	Compliance with IEC61000-2-4 and IEEE 519
Auxiliary voltage	Control (optional): 110, 220 VDC or 110 – 240 VAC 50/60 Hz Auxiliary: 380 – 690 VAC 50/60 Hz, 3-phase
Output	
Output power	5000 – 36000 kW
Output voltage	2.3 – 3.3 kV
Output frequency	0 – 75 Hz (higher on request)
Motor type	Induction, synchronous and permanent magnet
Efficiency of converter	>98%
Mechanical	
Enclosure	Standard: IP32 Optional: IP42, IP54
Cable entry	Top/bottom
Environmental	
Altitude	2000 m.a.s.l. (higher with derating)
Ambient air temperature	+0 – +40 °C (lower and higher with derating)
External cooling water temperature	+5 – +32 °C (lower and higher with derating)
Noise	<75 dB (A)
Cooling type	Water
Standards	EN, IEC, CE, (optional CSA and all common marine standards)

Ratings, types and voltages
ACS6000 water-cooled

Motor data			Converter data			
Nominal rating			Type code	Power kVA	Length mm	Weight kg
kW[1]	hp[1]	A				
3300 V - induction motors, single drive with passive front end						
4300	5800	915	ACS6105-L12-1a05	5000	4900	4100
6000	8000	1300	ACS6107-L12-1a7	7000	4900	4300
7700	10300	1650	ACS6109-L12-1a9	9000	4900	4400
10000	13400	2150	ACS6114-L12-1a12	12000	6300	5300
12000	16100	2600	ACS6114-L12-2a7	14000	8600	7300
15400	20700	3300	ACS6209-L24-2a9	18000	9400	8100
20200	27100	4300	ACS6214-L24-2a12	24000	11800	9500
23200	31100	4950	ACS6214-L24-3a9	27000	13700	12600
3300 V - induction motors, single drive with active front end						
4300	5800	915	ACS6105-A06-1a05	5000	5600	4900
6000	8000	1300	ACS6107-A06-1a7	7000	5600	5100
7700	10300	1650	ACS6109-A06-1a9	9000	5600	5200
10000	13400	2150	ACS6112-A06-1a12	12000	6000	5400
12000	16100	2600	ACS6207-A12-2a7	14000	10000	9500
15400	20700	3300	ACS6209-A12-2a9	18000	10400	10300
20200	27100	4300	ACS6212-A12-2a12	24000	11200	10700
23200	31100	4950	ACS6309-A18-3a9	27000	16600	14500
3300 V - synchronous motors, single drive with passive front end						
4800	6400	915	ACS6105-L12-1s05	5000	5700	4500
6800	9100	1300	ACS6107-L12-1s7	7000	5700	4700
8700	11700	1650	ACS6109-L12-1s9	9000	5700	4800
11200	15000	2150	ACS6114-L12-1s12	12000	7100	5700
13600	18200	2600	ACS6114-L12-2s7	14000	9400	7700
17400	23300	3300	ACS6209-L24-2s9	18000	10200	8600
22400	30000	4300	ACS6214-L24-2s12	24000	10600	9900
26100	35000	4950	ACS6214-L24-3s9	27000	14500	13000
3300 V - synchronous motors, single drive with active front end						
4800	6400	915	ACS6105-A06-1s05	5000	6400	5300
6800	9100	1300	ACS6107-A06-1s7	7000	6400	5500
8700	11700	1650	ACS6109-A06-1s9	9000	6400	5600
11200	15000	2150	ACS6112-A06-1s12	12000	6800	6000
13600	18200	2600	ACS6207-A12-2s7	14000	10800	9900
17400	23300	3300	ACS6209-A12-2s9	18000	11200	10700
22400	30000	4300	ACS6212-A12-2s12	24000	12000	11100
26100	35000	4950	ACS6309-A18-3s9	27000	17400	14900
3300 V - multidrive examples with passive front end						
2 x 6000	2 x 8000	2 x 1300	ACM6207-L24-1a7-1a7	14000	8600	7450
5 x 6000	5 x 8000	5 x 1300	ACM6214-L24-1a7-1a7-1a7-1a7-1a7	28000	18900	16050
3300 V - multidrive examples with active front end						
2 x 22400	2 x 30000	2 x 4750	ACM6313-A18-2s13-2s13	36000	23600	15850
2 x 6000	2 x 8000	2 x 1300	ACM6113-A06-1a7-1a7	13000	9500	7950

Notes:

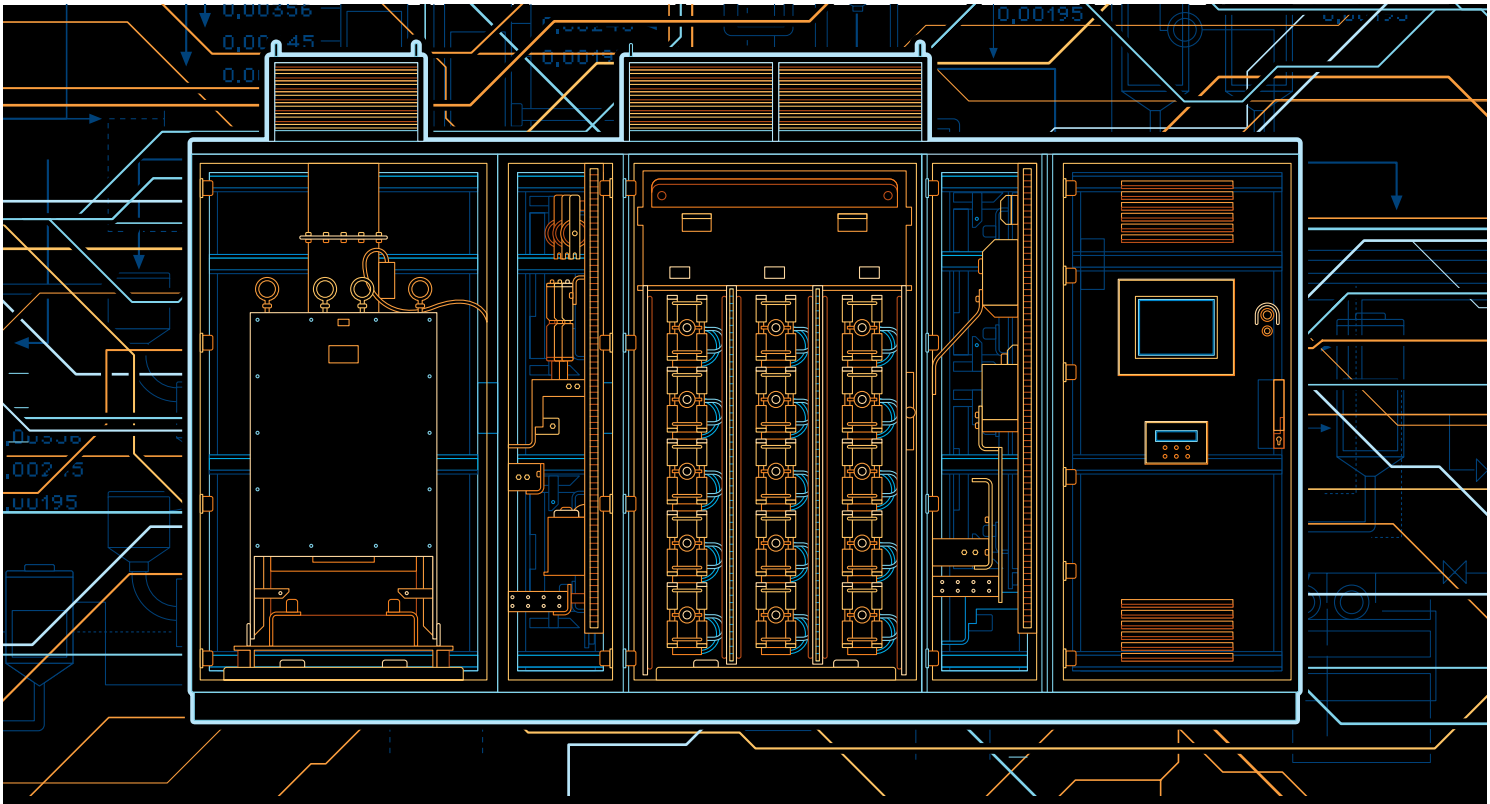
[1] Indicative information: induction motor efficiency 97.5%, power factor 0.88; synchronous motor efficiency 97.5%, power factor 1.0.

Dimensions:

Height: 2200 mm cabinet height
2500 mm incl. cooling fans on top

Depth: 1040 mm


ABB
MV DRIVES



2 MW – 72 MW, 2.1 – 10 kV

MEGADRIVE-LCI drives

The experience you require. The reliability you expect.

Power and productivity
for a better world™

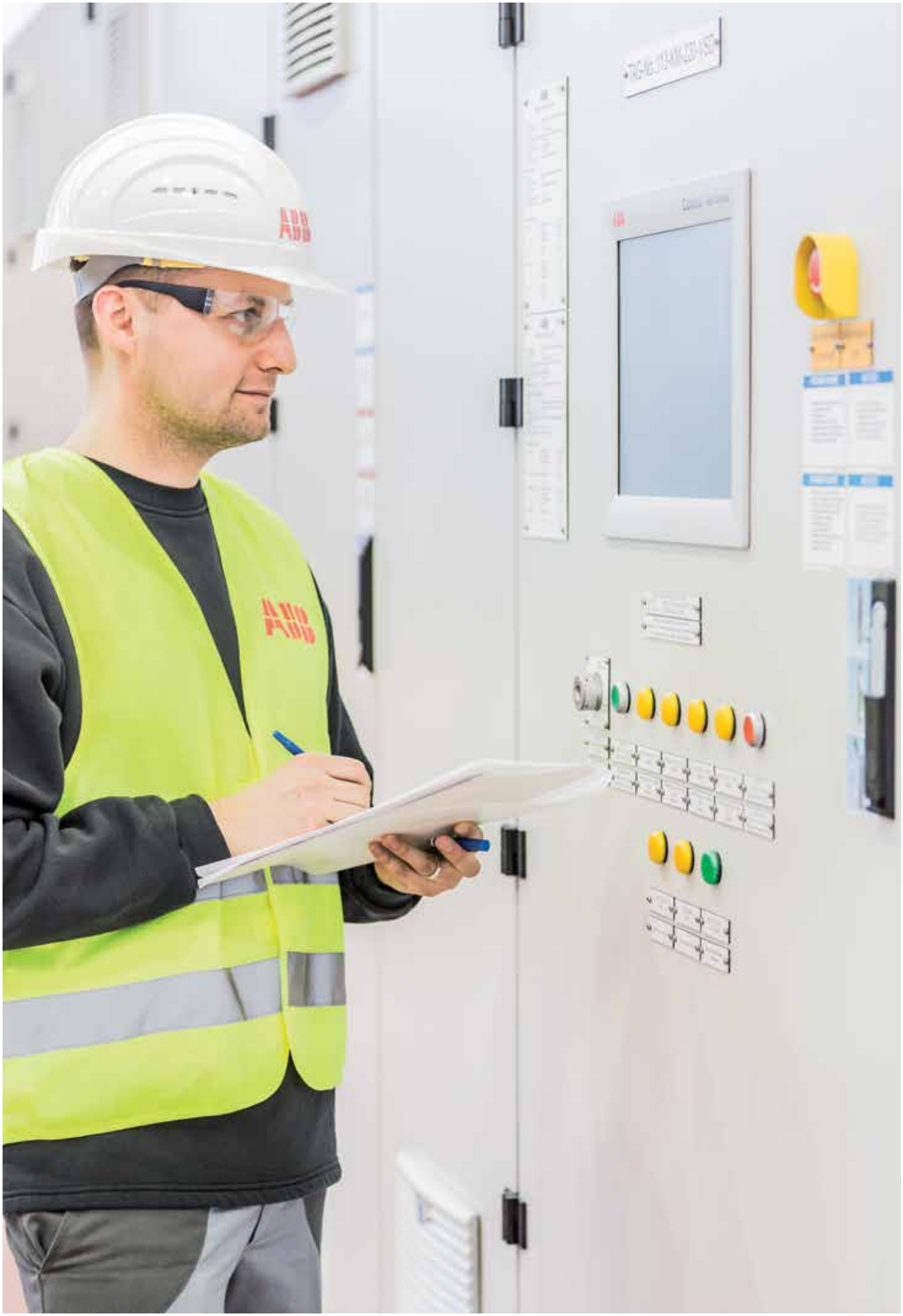
The MEGADRIVE-LCI special purpose drive

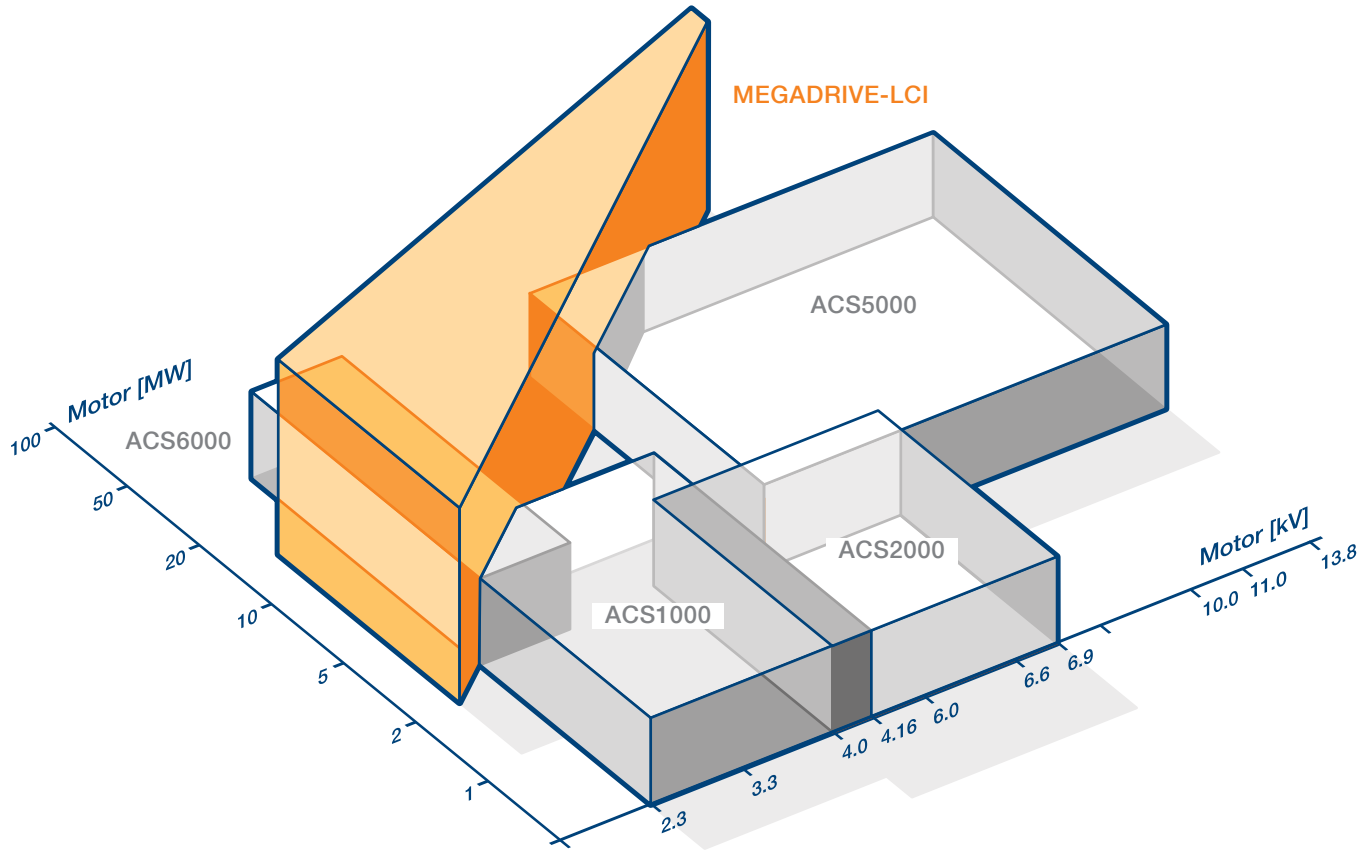
The MEGADRIVE-LCI medium voltage drive is part of ABB's special purpose drives portfolio. These engineered drives are specifically suitable for your high power, high speed or special performance applications such as test stands, marine propulsion and thrusters, rolling mills, SAG and ball mills, large pumps, fans and compressors.

The drives cover a wide power and voltage range, including voltages up to 13.8 kV and powers of more than 100 MW.

Get a drive solution that meets the requirements of your application and ensures high productivity and the optimum performance of your operations. Benefit from the built-in expertise of our special purpose drives and take your business forward with everything working like clockwork.

Contents





Our product portfolio comprises medium voltage drives in the range of 250 kW to more than 100 MW.

Get more using less

Our broad portfolio of medium voltage drives will help you to increase your productivity and profitability. Your processes will use only the energy required to carry out the job and no more. Precise control ensures efficient operation with high uptime and optimized use of raw materials. This will all add up to cost and time savings for you.

Delivering global support and peace of mind

Our worldwide network offers you fast service and support around the clock, providing peace of mind by always being there when you need us.

Reliable performance you can count on

Depending on your industry and application, we provide you with drive solutions that meet your individual needs and requirements. Our variable speed drives – from 250 kW to more than 100 MW – control a wide range of medium voltage applications.

Through the use of quality components and the integration of special features, our drives ensure high process availability and safety for your business. With well-proven drive technology at the heart, your operations will run smoothly and reliably every day.

MEGADRIVE-LCI
Large synchronous motor variable speed control

The top performer for 40 years improves your industrial operations by using variable speed control and soft starting of your large synchronous machines. Industry-specific functions and unique features ensure reliable performance of your processes and systems, even in demanding environmental conditions.

Well-proven and reliable

The well-proven technology offered in the MEGADRIVE-LCI controls your high power applications and provides soft starting of large synchronous motors, reducing the impact on your network and machinery.

The larger the process and the higher the performance demands, the greater your benefits from electronic speed control. The energy savings will offset your costs of the drive system in a short time and reduced maintenance needs will help you to save additional money and time.

Thanks to many years of successful performance, the MEGADRIVE-LCI is renowned for its high availability and reliability. The drive's simple design and proven components enable trouble-free use and maximized uptime of your processes.

Get a drive solution that gives you peace of mind by ensuring efficient operation you can count on day after day, and year after year.


ABB

MEGADRIVE-LCI
Flexible drive system integration

To design your drive system, we consider all conditions ensuring an optimized solution for you.

Mechanical system interface
Variable speed drive systems are usually operated over a wide speed control range. They are generally subjected to torque pulsations, which occur in a broad band of frequencies. Aspects that concern the transfer of the torque between motor and driven machine have to be carefully considered when designing the mechanical system interface. A torsional study can clarify whether the shaft design is acceptable.

Power supply interface
The power system interface ensures that the converter withstands disturbances from the power system and that the harmonics from the converter do not cause distortions in the network that are non-compliant with the standards.

Automation and operator interface
The automation and operator interface is the integration of the drive system controls at the plant control level. The communication with the control room can be designed with conventional wiring using analog and binary input/output modules or with communication interfaces for serial data exchange.

Environment
Country and plant-specific characteristics have to be taken into account when designing a drive system. Equipment dimensions and weight, installation restrictions, the cooling medium and the power network have to be clarified. In addition, demands on environmental compliance, protection classes, electromagnetic compatibility (EMC) and noise emission need to be considered.

MEGADRIVE-LCI
More efficiency with drive packages

Packaged drive solutions provide you with ultimate efficiency and reliability to optimize your cost of ownership.

All in one package
Committed to supporting you in your business, we offer packaged drive solutions for applications in various industries. Customer-specific drive packages including medium voltage converters, motors and transformers can be developed as turnkey solutions meeting your individual requirements.

Matched performance
To ensure design integrity and an optimum match of equipment, ABB products have undergone combined tests ensuring performance predictability for your application.

Single point of contact
The combined power of the ABB offering is geared to deliver on customer expectations. We deliver motor-drive solutions that support your technical and commercial needs, from quotation, through delivery and service, over the entire product life-cycle.

Converter motors
With ABB's motors for your applications you will benefit from high versatility, reliability and simplicity.

Converter transformers
ABB offers converter transformers for all ratings, as well as for indoor or outdoor mounting. Particularly designed for operation with variable speed drives, the transformer adapts the converter to the supply network and provides a galvanic isolation between drive and supply network.

MEGDRIVE-LCI
Air-cooled

The air-cooled MEGADRIVE-LCI is used as soft starter and for driving your applications in the lower power range.

Air outlet

Motor cable connection section including overvoltage protection

Air-cooled DC reactor

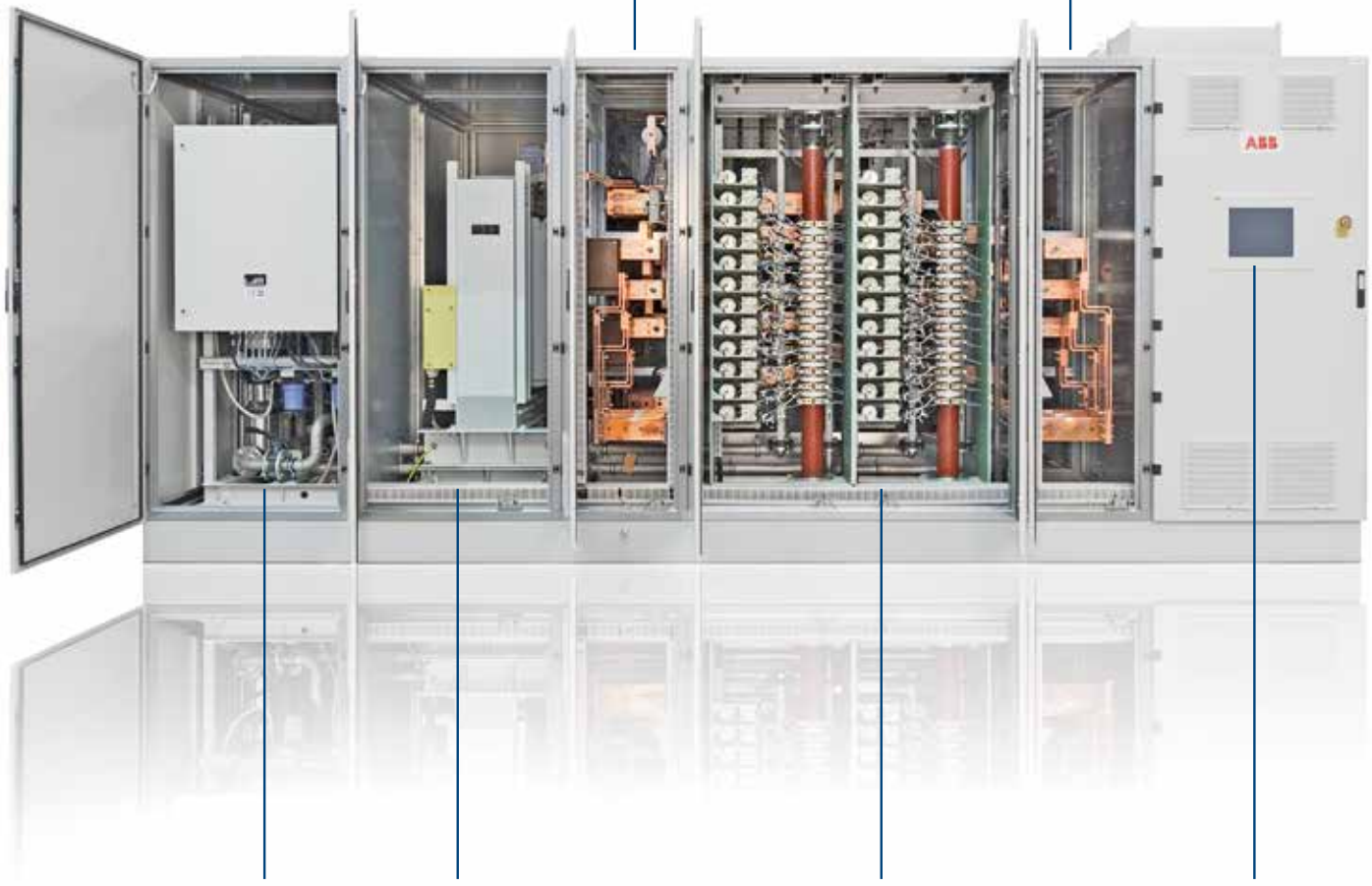
Transformer cable connection section including overvoltage protection

Air-cooled converter

User-friendly control panel for local operation
- Touch screen
- Main supply on/off pushbuttons
- Emergency off pushbutton

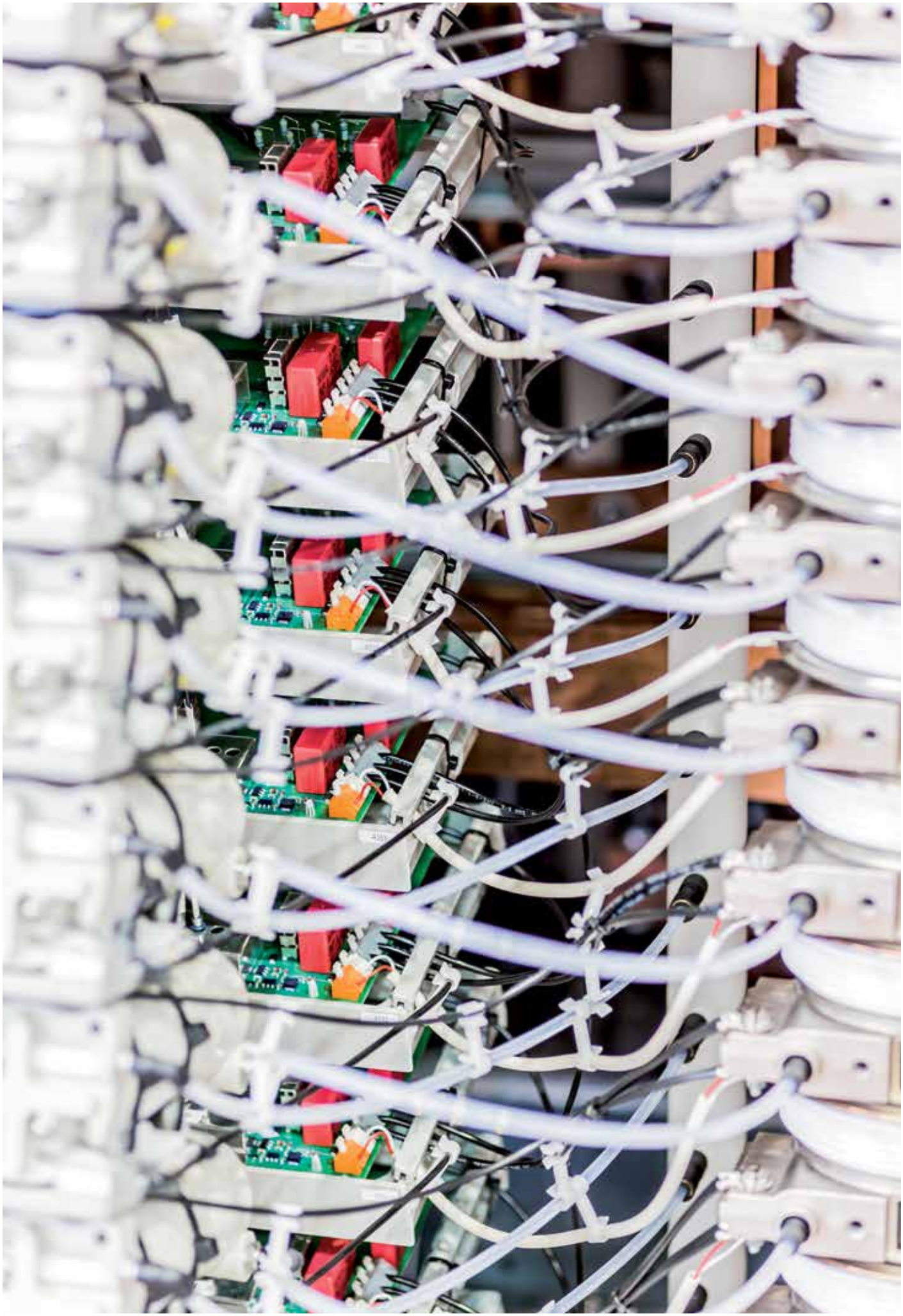
MEGDRIVE-LCI
Water-cooled

Increase efficiency with a water-cooled drive resulting in minimized losses into the equipment room and resistance to dusty and aggressive atmospheres.



Technical data
At a glance

Input	
Input configuration	6-, 12- or 24-pulse thyristor rectifier
Input voltage	Any voltage level can be applied to the appropriate primary side of the MEGADRIVE-LCI input transformer.
Input voltage variation	±10% without derating ±15% with derating (ride-through below -15%)
Input frequency	50/60 Hz
Input frequency variation	±5%
Input power factor	Approx. 0.85 inductive at rated speed/load
Input harmonics	IEC 61000-2-4, IEEE 519, GB/T 14549-93 compliance possible
Auxiliary voltage	380 – 690 VAC 50/60 Hz, 3-phase, ±10%
Control voltage	90 – 300 VDC or 90 – 265 VAC 50/60 Hz, ±10%
Output	
Output power	2000 – 72000 kW (higher on request)
Output voltage	2.1 – 2 x 10 kV
Output frequency	0 – 120 Hz
Motor type	Synchronous
Efficiency of converter	>99%
Mechanical	
Enclosure	Standard: IP30 Optional air-cooled: IP31, IP41 Optional water-cooled: IP31, IP41, IP54
Cable entry	Bottom (optional from top)
Environmental	
Altitude	1000 m.a.s.l. (higher with derating)
Ambient air temperature	+5 – +40 °C (higher with derating)
External cooling water temperature	+2 – +32 °C (lower and higher with derating)
Noise	Water-cooled: ≤75 dB (A) Air-cooled: ≤85 dB (A)
Cooling type	Air, water
Standards	EN, IEC, CE, (optional CSA)



Ratings, types and voltages
MEGADRIVE-LCI drives

Motor data			Converter data			
Nominal rating			Type code	Power kVA	Length mm	Weight kg
kW	hp	A				
Water-cooled, 12/12-pulse						
14000	19040	2350	W1212-211N465	15000	5350	8500
24000	32640	2350	W1212-372N465	26000	6250	10000
36000	48960	2350	W1212-563N465	40000	6450	11500
46000	62560	2350	W1212-714N465	50000	8050	17000
48000	65280	2350	W1212-774N465	53000	10050	19000
55000	74800	2350	W1212-855N465	60000	13850 [1]	22000
64000	87040	2350	W1212-986N465	70000	13850 [1]	23000
72000	97920	2350	W1212-1107N465	80000	13850 [1]	24000
Water-cooled, 12/12-pulse, with n+1 thyristor redundancy						
14000	19040	2350	W1212-212R465	15000	6050	9000
24000	32640	2350	W1212-373R465	26000	6250	11500
36000	48960	2350	W1212-564R465	40000	8050	14500
46000	62560	2350	W1212-715R465	50000	8050	18000
48000	65280	2350	W1212-775R465	53000	10050	20000
55000	74800	2350	W1212-856R465	60000	13850	23000
64000	87040	2350	W1212-987R465	70000	13850	24000
72000	97920	2350	W1212-1108R465	80000	13850	25000
Air-cooled, 12/12-pulse						
9100	12376	1600	A1212-211N465	10000	7250 [2]	7000
15800	21488	2000	A1212-302N452	17000	4950	8000
23900	32504	2000	A1212-453N452	26000	6750	11500

Notes:
Indicative information only
LCI depth in back to back configuration: 2250 mm
[1] increased depth to 2450 mm
[2] no back to back configuration, depth: 1125 mm

Ratings, types and voltages MEGADRIVE-LCI soft starters

Converter data						
Nominal rating			Type code	Power kVA	Length mm	Weight kg
kW	hp	A				
Air-cooled, 6/6-pulse						
4600	6256	1800	A0606-211N465	6000	5250	6000
8700	11832	1800	A0606-372N465	11000	5950	7000
13100	17816	1800	A0606-553N465	17000	5250	9500
16700	22712	2200	A0606-594N452	22000	5250	10500
20500	27880	2200	A0606-715N452	27000	6750	14000
Air-cooled, 12/12-pulse						
9200	12512	1800	A1212-211N465	12000	7450 [2]	7000
17400	23664	1800	A1212-372N465	23000	5250	9000
26200	35632	1800	A1212-553N465	34000	6750	12000
33400	45424	2200	A1212-594N452	44000	6750	13000
41000	55760	2200	A1212-715N452	54000	11950	18000
Air-cooled, 12/6-pulse						
6300	8568	1800	A1206-131/1N465	7000	7250 [2]	7000
9200	12512	1800	A1206-171/2N465	11000	7650 [2]	8500
16000	21760	1800	A1206-332/3N465	18000	5250	10000
17400	23664	1800	A1206-372/4N465	20000	5250	11000
23800	32368	2200	A1206-413/5N452	27000	6750	14000

Ratings, types and voltages MEGADRIVE-LCI gas turbine starters

Converter data						
Nominal rating			Type code	Power kVA	Length mm	Weight kg
kW	hp	A				
Air-cooled, 6/6-pulse						
4500	6120	1600	A0606-211N465	5000	3850	4500
9000	12240	2000	A0606-302N452	10000	4550	7000
11800	16048	2000	A0606-453N452	13000	6250	8500
15500	21080	2000	A0606-604N452	18000	6250	8500
Air-cooled, 12/6-pulse						
5300	7208	1800	A1206-111/1N465	6000	5850	5800
9000	12240	1800	A1206-171/2N452	10000	6250	9000
11800	16048	2000	A1206-232/3N452	13000	7450	10000
15500	21080	2000	A1206-302/4N452	18000	7450	10000

Notes:
Indicative information only
LCI depth in back to back configuration: 2250 mm
[1] increased depth to 2450 mm
[2] no back to back configuration, depth: 1125 mm