

TECHNICAL CATALOG

Medium voltage AC drives

ABB industrial drives

ACS2000, 300 to 3000 HP, 4kV



—

**The flexibility you require.
The reliability you expect.**

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ACS2000 medium voltage drive



The ACS2000 is designed for high reliability, easy installation and fast commissioning, reducing the total cost of ownership.

With the integration of an Active Front End (AFE) combined with multilevel control, the ACS2000 is an Ultra Low Harmonic (ULH) design that minimizes line side harmonics without the use of expensive, specialized transformers with the added benefit of a smaller overall package.

With its compact packaging, the ACS2000 can be retrofitted to control standard induction motors via a direct connection to the line supply (direct-to-line). Alternatively, a simple two winding input isolation transformer can be applied to allow for connection to various line side supply voltages.

The ACS2000 direct-to-line configuration combines the cost savings of a transformer-less variable speed drive system with the benefits of Voltage Source Inverters (VSIs), including excellent availability and reliability, high and constant power factor and superior dynamic control performance.

The heritage of ABB's VSI topology, along with a patented HV-IGBT-based multi-level control, provides a proven track record for reliable and motor friendly medium voltage AC drive performance. When your processes run more

Key product features

- Suitable for use with or without an input isolation transformer
- Meets IEEE 519 and IEC 61000-2-4
- Direct-to-line configuration (transformer-less) allows 3 in and 3 out power cabling for quick and easy installation
- Multi-level switching topology and built-in dV/dt filtering enables use with new or existing induction motors
- Regenerative option and ability to maintain near unity power factor across the entire speed range provides additional energy savings
- Modular construction provides high reliability and low maintenance costs
- Configurable disconnect option package for a flexible, self contained switchgear solution

Features and benefits

Features	Advantages	Benefits
Operation without transformer (direct-to-line)	No transformer required	Reduces capital expenditure, light weight, compact
	Easy retrofit to fixed-speed motors	Minimizes investment
	Easy and fast commissioning	Reduces overall cost of project
	Compact and light drive system	Lowers transportation costs; less space required in electrical room
Active Front End (AFE)	Ultra low harmonic (ULH) footprint	Harmonic emissions compliant with all relevant standards
	Allows operation with an input isolation transformer or for direct connection to the line supply	Flexibility of installation
Energy savings	Maintains near unity power factor across the entire speed range	Reduces energy loss in distribution system, avoiding utility penalties and the need for larger cables
	Regenerative braking option	Minimizes energy consumption
Multilevel topology	Patented multilevel topology	Low parts count boosts drive availability
	Provides near sinusoidal current and voltage waveforms	Compatible with standard new or existing motors
Voltage Source Inverter (VSI) topology	Excellent availability, reliability and efficiency	Higher uptime of plant or process
	High and constant power factor	Eliminates utility penalties
	Superior dynamic control performance	Safe ride through during supply voltage dips and better process control
Direct Torque Control (DTC)	Precise and reliable process control with superior performance	Higher productivity
Compact size	Requires less space in electrical room	Frees up valuable floorspace

4kV Technical data

Direct-to-line, low harmonic drives

Motor data *				Converter data		Converter length and weight (approx. values)			
Normal data		Heavy data		Type code	Power kVA	Direct-to-line		For operation with external transformer	
P _N hp (kW)	I _N A	P _{hd} hp (kW)	I _{hd} A			Length ¹ in (mm)	Weight lbs (kg)	Length in (mm)	Weight lbs (kg)
4,000 - 4,160 V **									
300 (224)	40	220 (164)	30	ACS2000-040-A01A-x1-010	280	77.5 (1,968)	4,570 (2,073)	77.5 (1,968)	4,570 (2,073)
350 (261)	47	257 (191)	35	ACS2000-040-A01B-x1-010	326	77.5 (1,968)	4,570 (2,073)	77.5 (1,968)	4,570 (2,073)
400 (298)	54	293 (219)	39	ACS2000-040-A01C-x1-010	373	77.5 (1,968)	4,570 (2,073)	77.5 (1,968)	4,570 (2,073)
450 (336)	61	330 (246)	44	ACS2000-040-A01D-x1-010	420	77.5 (1,968)	4,570 (2,073)	77.5 (1,968)	4,570 (2,073)
500 (373)	67	367 (274)	49	ACS2000-040-A01E-x1-010	466	77.5 (1,968)	4,570 (2,073)	77.5 (1,968)	4,570 (2,073)
600 (448)	81	440 (328)	59	ACS2000-040-A01F-x1-010	560	77.5 (1,968)	4,570 (2,073)	77.5 (1,968)	4,570 (2,073)
700 (522)	94	513 (383)	69	ACS2000-040-A01G-x1-010	653	77.5 (1,968)	4,570 (2,073)	77.5 (1,968)	4,570 (2,073)
800 (597)	108	587 (438)	79	ACS2000-040-A01H-x1-010	746	77.5 (1,968)	4,570 (2,073)	77.5 (1,968)	4,570 (2,073)
900 (671)	121	660 (492)	89	ACS2000-040-A01J-x1-010	839	77.5 (1,968)	4,570 (2,073)	77.5 (1,968)	4,570 (2,073)
1000 (746)	135	733 (547)	99	ACS2000-040-A01K-x1-010	933	77.5 (1,968)	4,570 (2,073)	77.5 (1,968)	4,570 (2,073)
1250 (933)	168	916 (684)	123	ACS2000-040-A02A-x1-010	1,166	114.8 (2,916)	6,750 (3,672)	114.8 (2,916)	6,750 (3,672)
1500 (1119)	202	1100 (821)	148	ACS2000-040-A02B-x1-010	1,399	114.8 (2,916)	6,750 (3,672)	114.8 (2,916)	6,750 (3,672)
1750 (1306)	236	1283 (957)	173	ACS2000-040-A02C-x1-010	1,632	114.8 (2,916)	6,750 (3,672)	114.8 (2,916)	6,750 (3,672)
2000 (1492)	269	1467 (1094)	197	ACS2000-040-A02D-x1-010	1,865	114.8 (2,916)	6,750 (3,672)	114.8 (2,916)	6,750 (3,672)
2250 (1679)	303	1650 (1231)	222	ACS2000-040-A03A-x1-010	2,099	137.2 (3,486)	9,000 (4,082)	137.2 (3,486)	9,000 (4,082)
2500 (1865)	337	1833 (1368)	247	ACS2000-040-A03B-x1-010	2,332	137.2 (3,486)	9,000 (4,082)	137.2 (3,486)	9,000 (4,082)
2750 (2052)	370	2,017 (1504)	272	ACS2000-040-A03C-x1-010	2,565	137.2 (3,486)	9,000 (4,082)	137.2 (3,486)	9,000 (4,082)
3000 (2238)	404	2200 (1641)	296	ACS2000-040-A03D-x1-010	2,798	137.2 (3,486)	9,000 (4,082)	137.2 (3,486)	9,000 (4,082)

Notes:

* Indicative information referring to typical 4-pole motor, under nominal supply voltage conditions.

The ratings apply at 40°C. At higher temperatures (up to 50°C) the derating is 1.5% / 1°C.

Light-overload use (normal duty)

P_N: Typical motor power in light-overload use.

I_N: Continuous current rating of particular sub-frame allowing 110% I_N at 40°C for 1 minute every 10 minutes.

Heavy-duty use

P_{hd}: Typical motor power in heavy-duty use.

I_{hd}: Continuous current rating of particular sub-frame allowing 150% I_{hd} at 40°C for 1 minute every 10 minutes.

** 4.16 kV, +10% to -10%

Dimensions (h x l x d) includes standard fan

Frame 1 Dimensions:
inches: 90.0 x 77.5 x 46.8
mm: 2285 x 1968 x 1190

Frame 2 Dimensions:
inches: 98.0 x 114.8 x 46.8
mm: 2489 x 2916 x 1190

Frame 3 Dimensions:
inches: 98.0 x 137.2 x 46.8
mm: 2489 x 3486 x 1190

¹⁾ With fused disconnect/contacter option, add 28 in (698mm) to length

4kV Technical data

Direct-to-line, regenerative drives

Motor data *				Converter data		Converter length and weight (approx. values)			
Normal duty		Heavy duty		Type code	Power kVA	Direct-to-line		For operation with external transformer	
P _N hp (kW)	I _N A	P _{hd} hp (kW)	I _{hd} A			Length ¹ in (mm)	Weight lbs (kg)	Length in (mm)	Weight lbs (kg)
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500 (373)	67	367 (274)	49	ACS2000-040-A01E-x1-010	466	77.5 (1,968)	4,570 (2,073)	77.5 (1,968)	4,570 (2,073)
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Drive options

Option description	Plus code (prefix)	Plus code (suffix)	Selection description	Frame size
Motor side				
Motor space heater control and protection	MHP	0006	6A, 110-240V (Consult ABB for current ratings)	ALL
Speed encoder interface	SEN	0001	Manufacturers selection	ALL
Line side				
Line side disconnect / contactor	ICO	0002	Fused disconnect and line side vacuum contactor	ALL
Line side current transformer	CTL	0001	Differential CT's for line side monitoring	ALL
Cabinets				
Cabinet color	COL	0101	ANSI 61 (light grey)	ALL
		0003	Customer specific	ALL
Enclosure protection class	EPC	0112	IP21/NEMA 1	ALL
		0042	IP42	ALL
Corrosion protected busbars	CPB	0000	Copper/blank	ALL
		0020	Copper/corrosion protected	ALL
Cooling circuit				
Main fan redundancy ¹⁾	RMC	0002	Yes	ALL
Auxiliary supply				
Auxiliary Supply Configuration	ASC	0010	Internally supplied from MV main supply (4160: 480V CPT)	ALL
Control Supply Configuration	CSC	0010	From auxiliary supply	ALL
		0001	Single supply (customer supplied UPS)	ALL
Control power ride-through	CPR	0001	100ms control ride-through	ALL
		0004	15min control ride-through (battery based UPS)	ALL
Space heater for converter	SHT	0001	Single phase supply (120V)	ALL
		0002	Single phase supply (240V)	ALL

¹⁾ For air cooled drives, if one fan fails this fan will be substituted by the redundant fan. For water cooled drives, if one pump fails this pump will be substituted by the redundant pump.

²⁾ Requires option ICO0002.

Supervisory control system

Fieldbus adapter modules	FAB	0008	Modbus RTU	ALL
		0009	Profibus	ALL
		0005	Modbus/TCP	ALL
		0012	Anybus ControlNet Module	ALL
		0013	Anybus DeviceNet Module	ALL
		0014	Anybus Ethernet IP Module	ALL
Control I/O extension	CEO	0001	Extension 1	ALL
Enhanced customer interface	CIT	0030	30 spare terminals	ALL
Controls on front door: Run pilot light - red lamp	LRU	0001	Yes	ALL
Controls on front door: Door-mounted speed pot	PSP	0001	Yes	ALL
Controls on front door: Local/remote switch	SLR	0001	Yes	ALL

Drive options

Option description	Plus code (prefix)	Plus code (suffix)	Selection description	Frame size
Controls on front door: Forward/Reverse switch	SFR	0001	Yes	ALL
Control and Protection				
Motor temperature supervision	TSM	0005	Motor supervision, 5 PT100 inputs	ALL
		0008	Motor supervision, 8 PT100 inputs	ALL
Motor protection relay	LVM	0001	Multilin 369	ALL
Software				
Software Diagnostic tool ¹⁾ (DriveWindow + RUSB card)	DRW	0001	Yes	ALL
Additional scope and services				
Packing				
Packing	PAK	0000	DOM - domestic land packing	ALL
		0001	EXP - export sea freight packing	ALL
Testing				
Factory acceptance test	FAT	0011	Standard factory acceptance test (including visual inspection)	ALL
Visual inspection	VIS	0011	Visual inspection by customer	ALL

¹⁾ To order DriveWindows as a separate scope of supply, utilize part number 2UEA001557

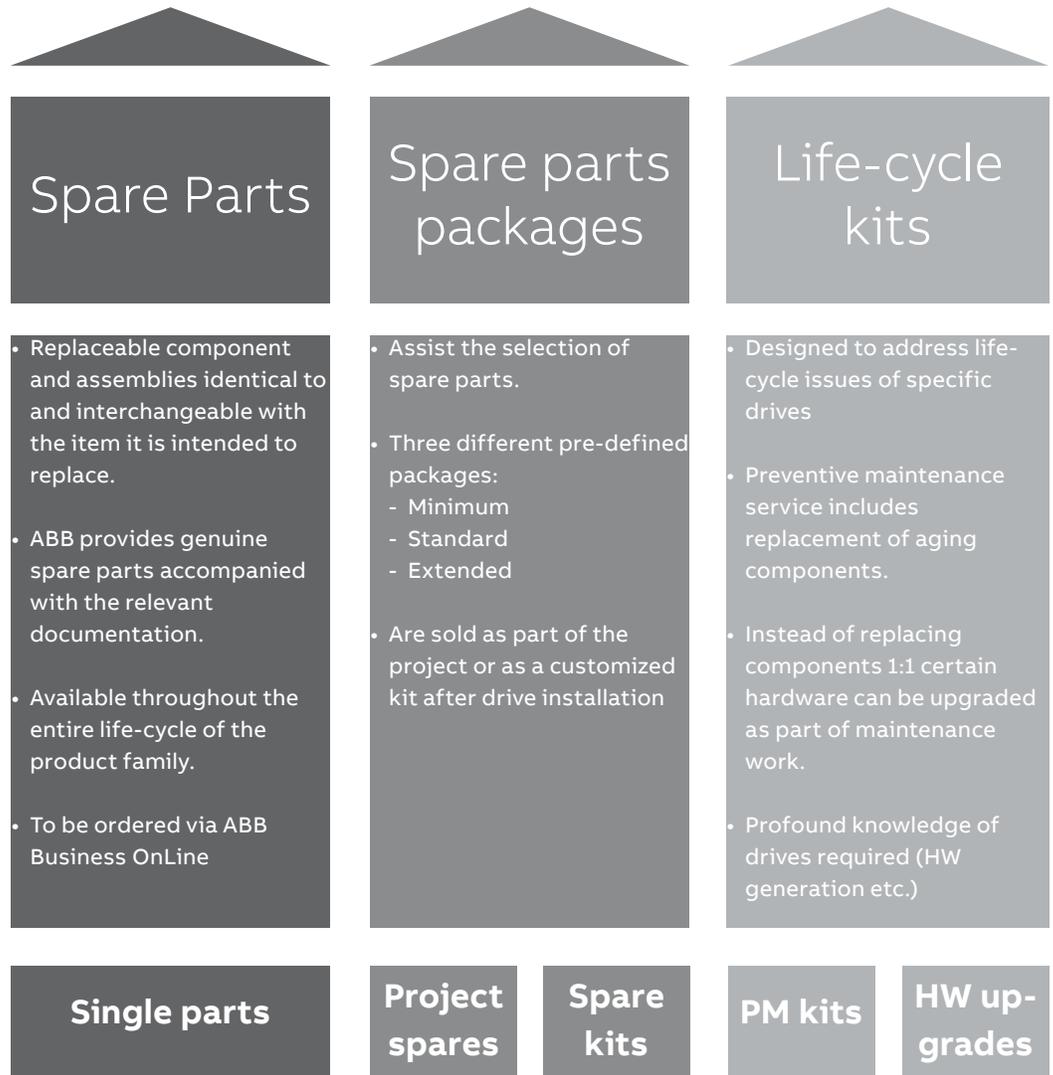
* Indicates recommended option

Project spares

Value proposition

The right part, at the right place, at the right time.

Service offerings



What are Project Spares?

Project spares are predefined spare part packages that are sold with the drive project. They are designed to assist in the selection of spare parts during the sales phase of new drives. Three different service levels exist.

Minimum Spare Part Package The minimum package is recommended in the case of redundant drives, where a failure of one drive does not have any impact on production. This package also covers the requirements for “commissioning spares” or maintenance spares.

Standard Spare Part Package

The standard spare part package is recommended for non-critical applications, where a failure of the drive system does not necessarily cause an immediate production stop. This package also covers the requirement for “two-year spares”.

Extended Spare Part Package

The extended package is recommended for “critical, non-redundant” drive systems, where a failure of the drive causes a complete production stop. This package also covers the requirements for “five-year spares”.

Drive Services

Spare part packages

Component Type	Minimum spare part package	Standard spare part package	extended spare part package
Power Supply (Mini)	1	1	1
Power Supply (QUINT)	1	1	1
Power Supply (IPS 24V)	1	1	1
LV Fuse	6	6	6
MV Fuse Kit	1	1	1
Filter Mat	1	1	1
Phase Module	1	1	1
Main Control Board		1	1
Interface Board		1	1
I/O Board		1	1
Power Supply Buffer		1	1
Fan		1	1
Crowbar Module			1
Current Transducer			1
3 Phase Voltage Measurement Board			1
Power Supply (IPS single 27V)			1
Voltage Divider			1
Over Voltage Detection			1
Control Panel, CDP-312R			1
Pressure Switch			1
Temperature Sensor			1
HV Relay			1
Charging Transformer			1
EMC Filter Capacitor			1
EMC Filter Choke			1

Technical specifications

Power Section	
Topology	5 level Voltage Source Inverter
Rectifier Type	HV IGBT
Regenerative Mode	Optional
Input Voltage Rating	4160V +/- 10%
Voltage Sag	-30% (with derating)
Input Voltage unbalance	<2%
Input Frequency	50/60Hz, +/- 5%
Max Available Short Circuit Current	50kA
Supply minimum short circuit capacity	20 times installed peak power
Input Protection	Fuses - DTL
Basic Impulse Level	60kV
Input Surge Protection	MOV Surge Arresters - DTL, AFE; consult factory for other configurations
Input impedance	LCL filter topology DTL
Typical Line Harmonics	Compliant with IEEE 519, EN 61000 -2-4, GB/T 14549-93
Input Power Factor	Controlled to 1.0 - DTL, AFE
Busbar	4kV - Copper blank, Optional Copper with tin plating
Precharge Circuit	Via auxiliary power supply. Coordination with MV switchgear required if integrated disconnect option not chosen.
DC Link Capacitors	Foil/thin film type
Output Switching Device	HV IGBT
Motor Type	Induction
Maximum motor cable length	< 1000ft (300m); Contact factory for longer cable lengths
Motor current THD	< 5% for typical motors
Control	
Auxiliary Supply Voltage	400 VAC, 480 VAC, 600 VAC, +/-10%, 50/60Hz, external supply
Auxiliary Power Consumption (minimum supply recommended)	4kV DTL: Frame 1: 6 kVA Frame 2: 11 kVA Frame 3: 16 kVA
Control Voltage	24VDC; power derived from 3 phase auxiliary power or optional 120V or 230V 1 phase control power
Digital Inputs	(qty 4 fixed and 10 programmable) - 20 -240VAC, 20-150VDC, 8-25mA
Digital Outputs	(qty 2 fixed and 4 programmable) - 6amp@ 24VDC or 120VAC
Analog Inputs	(qty 2 fixed and 2 programmable) - 0-10V or 0-20mA, 10 bit resolution
Analog Outputs	(qty 2 programmable) - 0-20mA, 12 bit resolution; scalable to 4-20mA
HMI	CDP 312 keypad - four line, 16 character start, stop, local/remote, reset
Door Mounted Controls	Standard - Supply On, Supply Off, Ground Switch De-Energized, Fault/Alarm 4kV options - Run Light, Speed Potentiometer, Local/Remote Switch
Control power ride through	5 cycle ride through standard; extended ride through via optional battery powered UPS

Performance	
Control Software	DTC (Direct Torque Control)
Zero speed starting torque	0-speed starting torque 100 % (for max. 10 s) - with encoder 70 % (< 5 % motor speed) - without encoder 100 % (> 12 % motor speed)
Speed accuracy with encoder	0.01% static, 0.2 to 0.5% dynamic
Speed accuracy without encoder	0.1% static, 0.5 to 1% dynamic
Torque Response Time	5ms at 70% of full speed
Maximum Motor Cable Distance	< 1000 ft (300m); for longer distance consult ABB
Output Frequency Range	0...75 Hz
Protection	Overvoltage, Overcurrent, Short Circuit, Overtemperature Motor stall, Overspeed, communication (I/O Watchdog), ground fault main circuit breaker supervision/trip, Auxiliary voltage fault, Emergency off signal supervision
Cooling/Ambient	
Cooling method	Forced air cooling, Roof-vented fan unit
Air flow rate	4kV DTL Frame 1 : 5000 ft ³ /min (8500 m ³ /h) Frame 2 : 10000 ft ³ /min (17000 m ³ /h) Frame 3 : 15000 ft ³ /min (25485 m ³ /h)
Ambient operating temperature range	5 to 40 C, 50C available with derating
Transportation and Storage	-25C to +55C
Operational Altitude	< 2000 m above sea level, for higher altitudes please consult factory Higher with derating
Relative Humidity	5 to 85%, non-condensing
Cabinet/Enclosure	
Protection Class	IP 21, IP 42, NEMA 1 Gasketed
Color	ANSI 61 Gray - whole cabinet
Cabinet Material	Corrosion protected, coated steel enclosure, 12 gauge
Main power cable entry	Top or bottom entry/exit
Control cable entry	Top or bottom entry/exit
Safety	Mechanical interlocking of doors for MV Sections
Design Standards	cUL, NEMA, ANSI, IEEE, IEC, EN, CE
Audible Noise	< 85dba, consult user manual for test description

Technical specifications

Auxiliary power supply

The drive requires auxiliary power for cooling fans and control hardware. The total auxiliary power can be fed to the drive by a 3-phase power supply. As an option the control hardware can be supplied separately by a 1-phase supply that is backed up by a UPS.

If only a 3-phase supply provides the auxiliary power, the values for the auxiliary supply and the external UPS must be added to obtain the total power to be supplied.

Default Configuration

Auxiliary supply voltage (3 phase)	400 VAC, 480 VAC, 600 VAC +/- 10%
Auxiliary supply frequency	50 / 60 Hz
Auxiliary power consumption	4kV DTL Frame 1 - 6 kVA Frame 2 - 11 kVA Frame 3 - 16 kVA

Single phase control supply

When external control power is desired, option code +CSC0001 must be selected, which shall have the following specs:

1-phase auxiliary control voltage	120 VAC +/- 10%
1-phase auxiliary supply frequency	50 / 60 Hz
1-phase auxiliary power consumption	Approximately 0.5 kVA

Technical specifications

Customer supplied MV MCB (breaker or vacuum contactor) (standard)

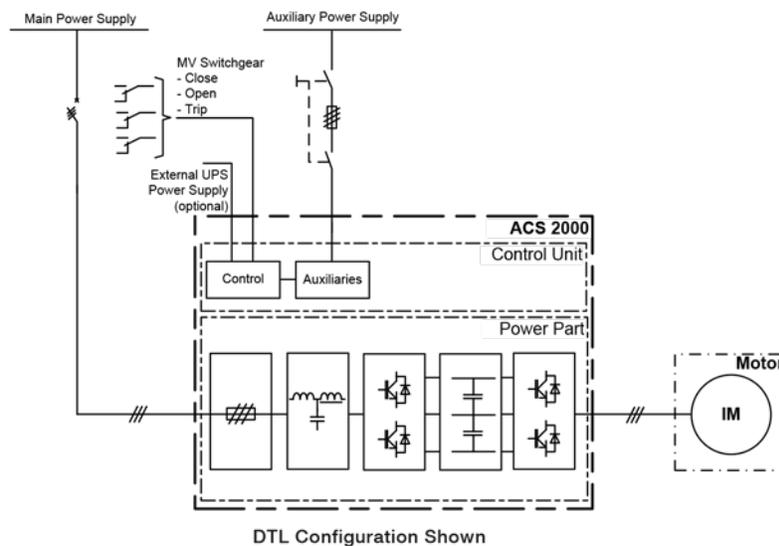
The ACS2000 needs to have direct and exclusive control over the MV Switchgear. The close, open and / or trip command must be wired directly from the frequency converter to the MV Switchgear. It is not permitted to wire the trip command

through any PLC or DCS system if it is not certified to meet SIL 3 level requirements.

The MV MCB (breaker or vacuum contactor) needs to be equipped with the following features:

- 1 normally open and 1 normally closed contact to provide status feedback to the drive

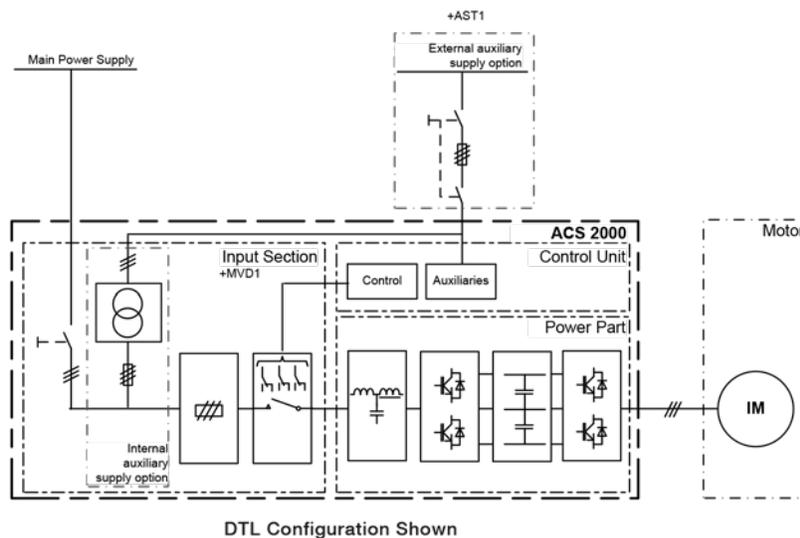
See publication MV Switchgear - document number 2UEB000095 for technical specifications



Integral MV fused disconnect / vacuum contactor package (optional)

ABB can also offer a fused disconnect / contactor option for a flexible, self contained solution where no control coordination is required upstream. It provides a visible blade switch

disconnect and integral input contactor with options such as motor protection relay, auxiliary power transformer and other customer controls.



Technical specifications

Environment

Operation	
Ambient temperature	+ 0...+ 40 °C (32...104 °F) Above +40 °C (+104 °F) the rated output power decreases by 1.5 % for each additional 1 °C up to the maximum permitted temperature of +50 °C (+122 °F). Example: If the ambient temperature is 50 °C the derating is calculated as $100\% - 1.5\% / ^\circ\text{C} \cdot 10\text{ }^\circ\text{C} = 85\%$. Hence, the maximum output current is 85% of the rated value.
Sound pressure level	Fan: < 85 dB (A), consult user manual for test description Operation conditions are according to IEC 60721-3-3 'Stationary use at weather-protected locations' (otherwise indicated).

Standards

The ACS 2000 complies with following codes and standards:	
Drive standards	IEC 60146 IEC 61800 IEC 60721
Safety standards	UL 347A
Line and motor interface	ANSI C84.1 NEMA MG1
Network harmonics standards *	IEEE 519 IEC 61000 GB/T 14549-93

* minimum SCC > 20 times installed power, purely inductive

Specifications

Power Cable	2UEB000093 (4kV)
Induction Motor	2UEB000250 (4kV)
MV Switchgear	2UEB000095 (4kV)

Typical application load torque profiles

MV Drive Selection

The drive selection and pricing tables are based on two (2) types of service duty ratings.1

1) Normal Duty

Used for Variable Torque (VT) applications only.

Drives with this rating are designed for 100% continuous operation, with 110% overload for one (1) minute, once every 10 minutes.

2) Heavy Duty

Used for Constant Torque (CT) or Variable Torque (VT) applications.

Drives with this rating are designed for 100% continuous operation, with 150% overload for one (1) minute, once every 10 minutes.

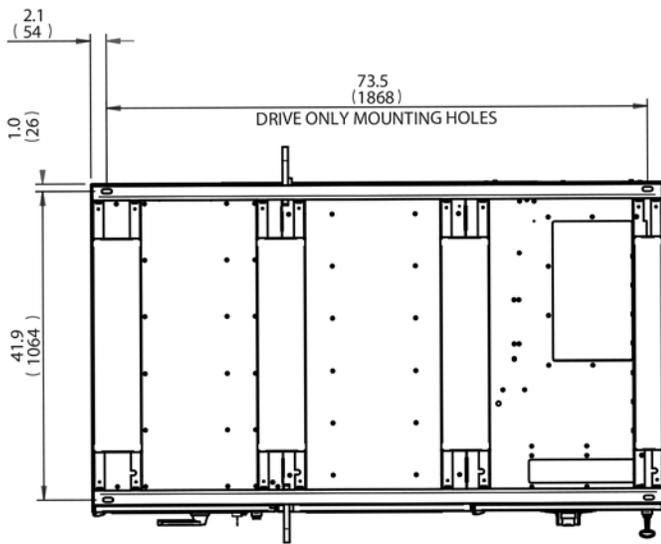
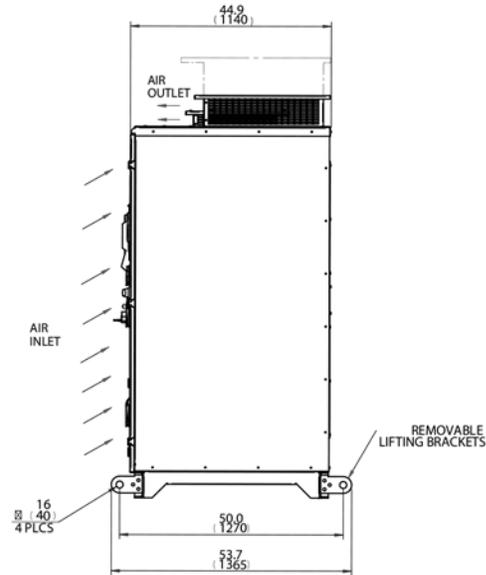
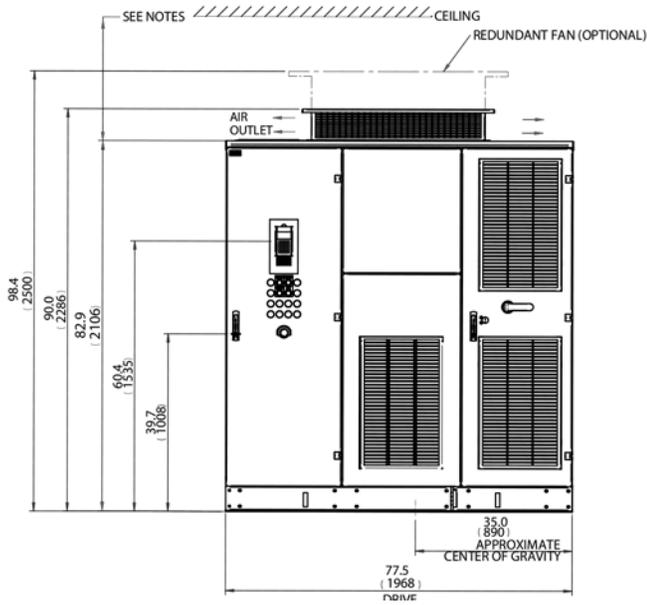
3) Non-standard Duty - Contact ABB

Application	Description	Torque profile	Load torque			Duty
			Breakaway	Acceleration	Peak running	
Agitator	Liquid	CT	100	100	100	Heavy
	Slurry	CT	150	100	100	Heavy
Blower	Centrifugal, damper closed	VT	30	50	40	Normal
	Centrifugal, damper open	VT	40	110	100	Normal
	Positive displacement, rotary, bypassed	VT	40	40	100	Normal
Compressor	Axial-vane, loaded	VT	40	100	100	Normal
	Centrifugal	VT	40	100	100	Normal
	Reciprocating, start unloaded	CT	100	50	100	Heavy
	Screw, start unloaded	CT	100	50	100	Heavy
Conveyor	Belt loaded	CT	150	130	100	Heavy
	Drag	CT	175	150	100	Contact Factory
	Screw	CT	200	100	100	Contact Factory
Edger	Start unloaded	VT	40	30	200	Contact Factory
Fan	Centrifugal, ambient, damper closed	VT	25	60	50	Normal
	Centrifugal, ambient, damper open	VT	25	110	100	Normal
	Centrifugal, hot gas, damper close	VT	25	60	100	Normal
	Centrifugal, hot gas, damper open	VT	25	200	175	Contact Factory
	Propeller, axial flow	VT	40	110	100	Normal
Kiln	Rotary, loaded	CT	250	125	125	Contact Factory
Mill	Cold rolling	CT	150	110	200	Contact Factory
	Hot Rolling	CT	40	30	200	Contact Factory
	Wire rod	CT	90	50	200	Contact Factory
Mixer	Chemical	CT	175	75	100	Contact Factory
	Liquid	CT	100	100	100	Heavy
	Slurry	CT	150	125	100	Heavy
	Solids	CT	175	125	150	Contact Factory
Pump	Centrifugal, discharge open	VT	40	100	100	Normal
	Centrifugal, discharge closed	VT	40	75	75	Normal
	Oil field flywheel	CT	150	200	200	Contact Factory
	Propeller	VT	40	100	100	Normal
	Reciprocating, positive displacement	CT	175	30	175	Contact Factory
	Screw, started dry	VT	75	30	100	Normal
	Screw, primed, discharge open	CT	150	100	100	Heavy
	Slurry, discharge open	CT	150	100	100	Heavy
	Turbine, centrifugal, deep well	VT	50	100	100	Normal
	Vane type, positive displacement	CT	150	150	175	Contact Factory
Separators	Air, fan type	VT	40	100	100	Normal

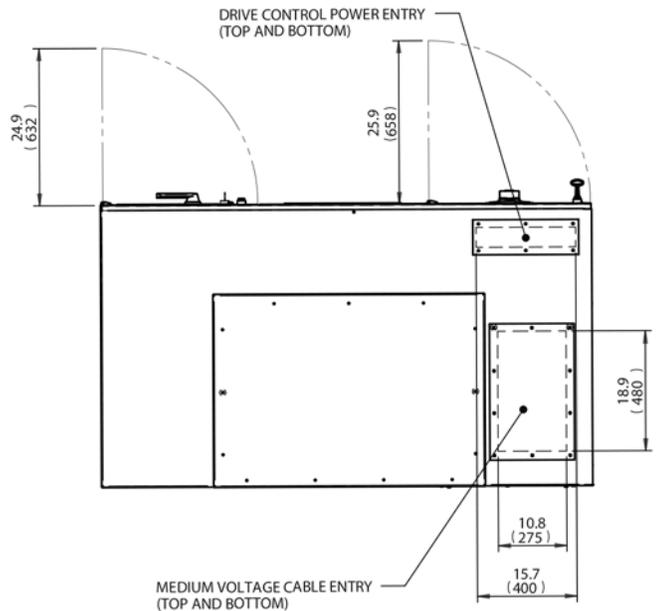
1 Some applications may require a non-standard duty rating due to requirements such as high starting torque or "ultra heavy" overload. Contact factory for assistance to quote an optimized solution.

Dimensional Drawings

4kV, direct to line (regenerative and non-regenerative) Frame 1



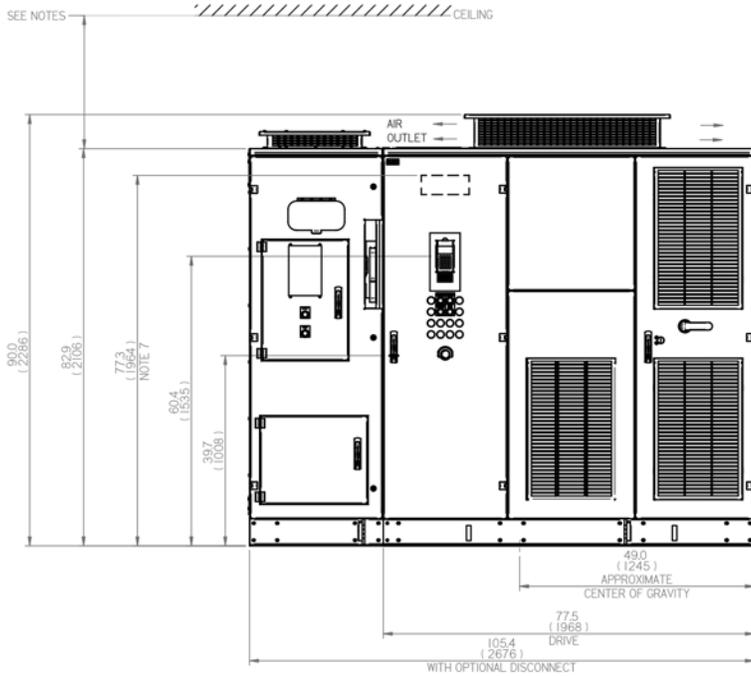
BOTTOM VIEW



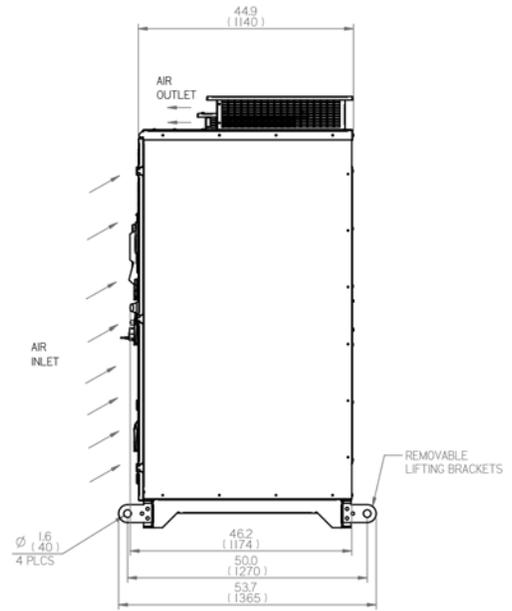
TOP VIEW

Dimensional Drawings

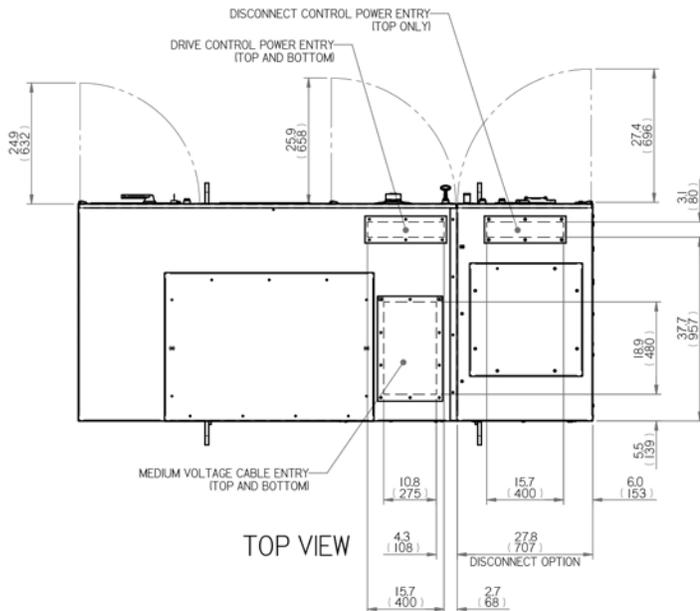
4kV, direct to line (regenerative and non-regenerative) Frame 1 with fused disconnect/vacuum contactor option



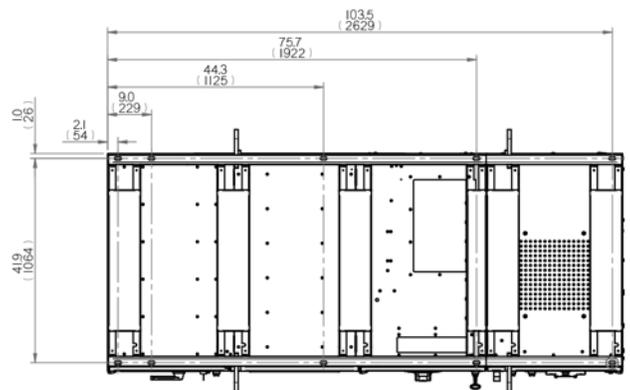
FRONT VIEW



RIGHT VIEW



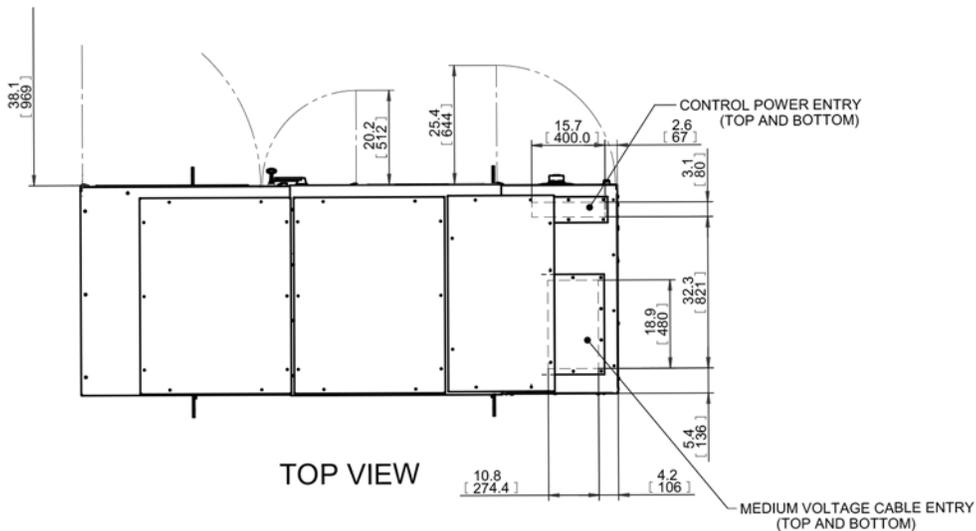
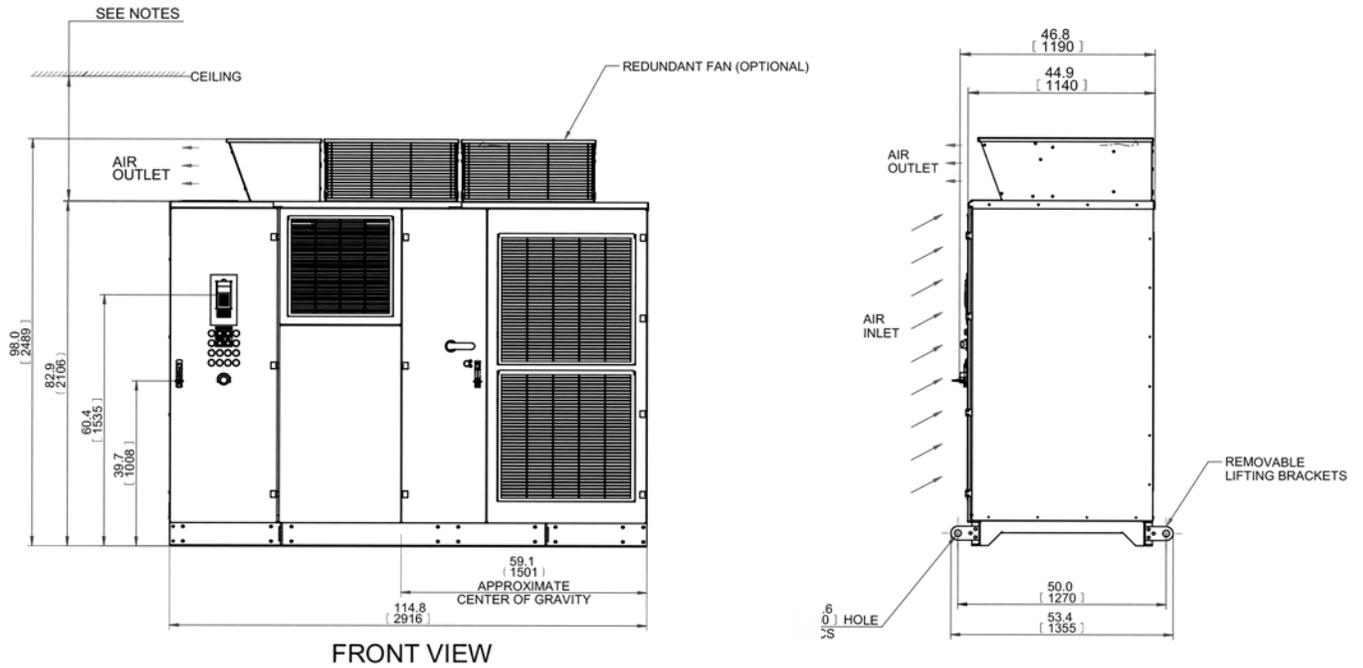
TOP VIEW



BOTTOM VIEW

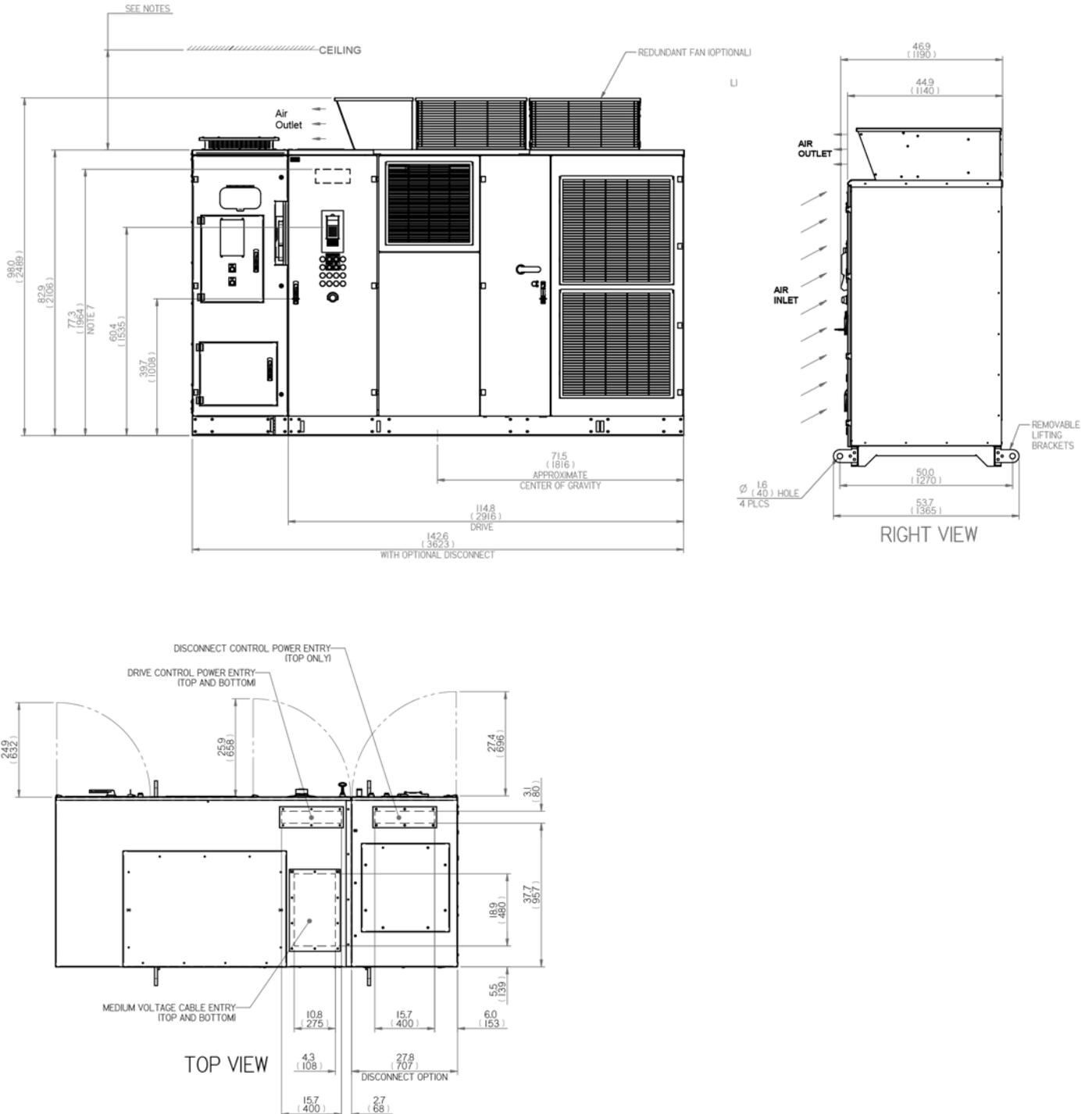
Dimensional Drawings

4kV, direct to line (regenerative and non-regenerative) Frame 2



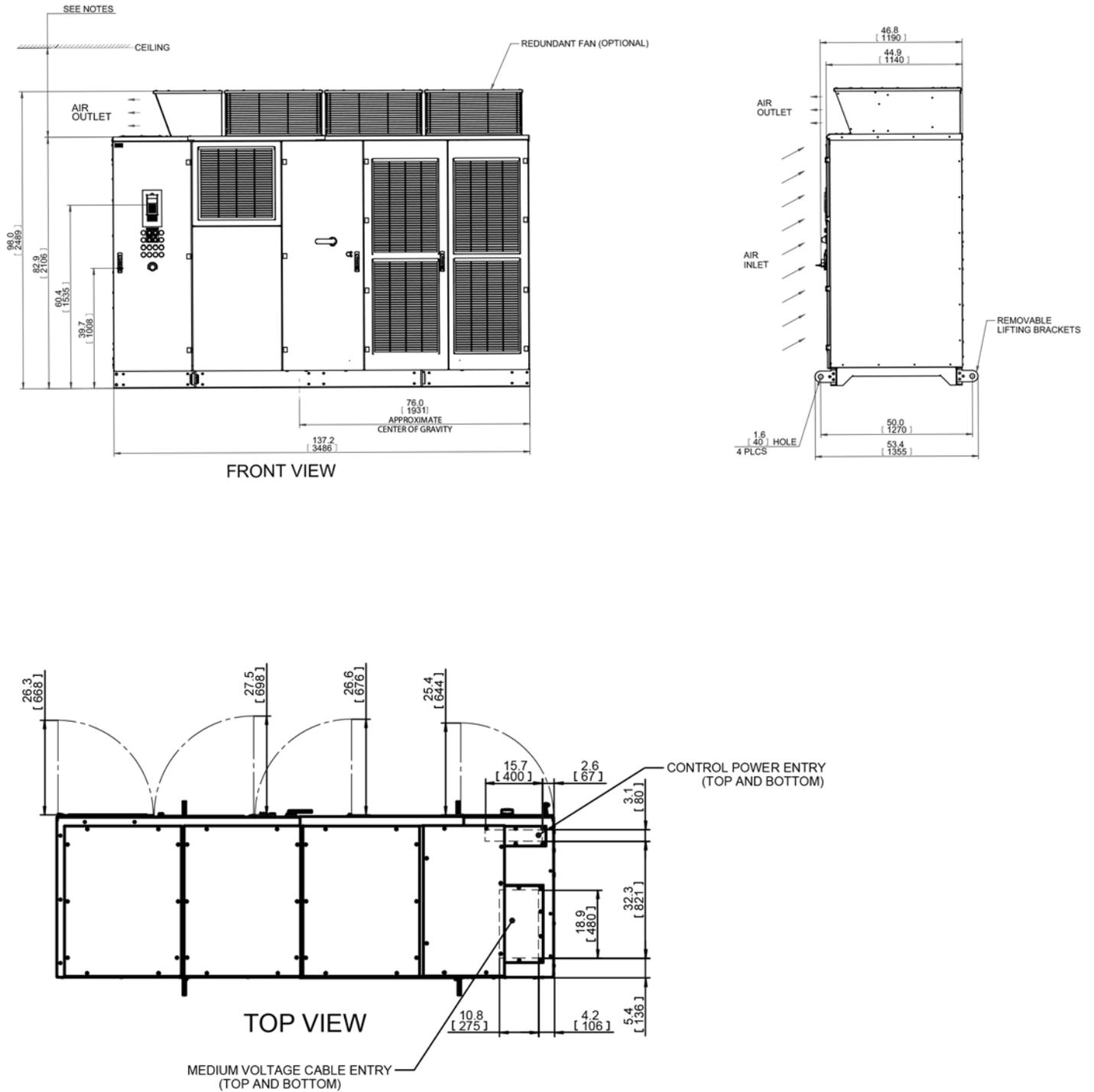
Dimensional Drawings

4kV, direct to line (regenerative and non-regenerative) Frame 2 with fused disconnect/vacuum contactor option



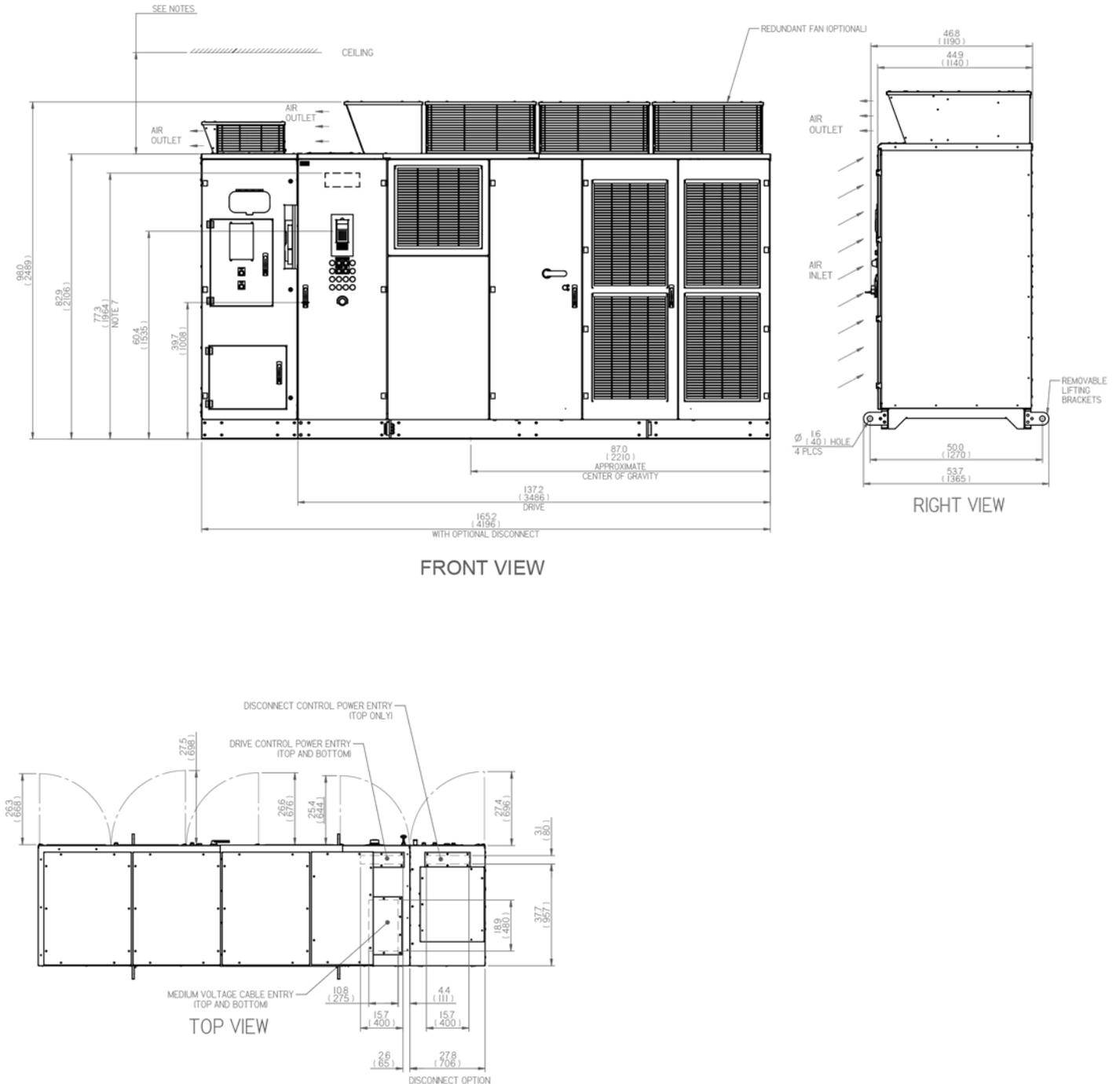
Dimensional Drawings

4kV, direct to line (regenerative and non-regenerative) Frame 3



Dimensional Drawings

4kV, direct to line (regenerative and non-regenerative) Frame 3 with fused disconnect/vacuum contactor option



A scalable product line with a range of power to meet any general purpose application

**ACS2000, 4kV
Frame 1 up to 1000 hp**

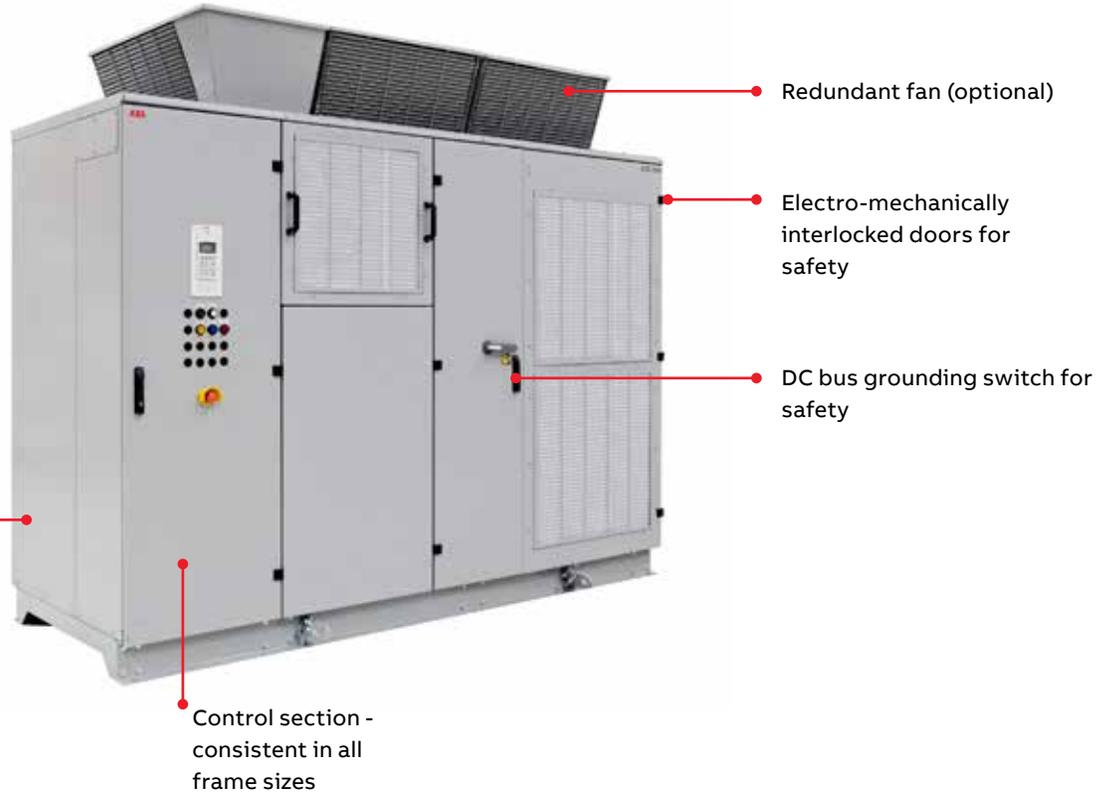


**ACS2000, 4kV
Frame 1 with fused
disconnect and vacuum
contactor option**



A scalable product line with a range of power to meet any general purpose application

ACS2000, 4kV
Frame 2 up to 2000 hp



ACS2000, 4kV
Frame 3 up to 3000 hp





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

www.abb.com/drives

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