Power and productivity for a better world[™]



ABB Ex motors and drives The selection process flow

Motors are directly connected to the machines in the potentially explosive atmosphere. All products that are installed in potentially explosive atmosphere must be certified by an approved certification body.

Drives are always installed outside of the potentially explosive atmosphere. Hence drives are not Ex certified, but the safety functions in the drives are ATEX certified. The combination of ABB motor and ABB drive are certified as well (IECEx/ATEX).

www.abb.com/drives

	Globally, a "Zone" sys potentially explosive a Protection Directive 1 international standard EN 60079-10-x defin In all cases, Zone cla responsibility of the o the potentially explos The correct Ex motor on the EPL/protection category required usi right.	stem is used areas. The W 999/92/EC a 999/92/EC a ds IEC 60079 e these Zone ssification is wher of the ive atmosph can be chose n level or pro- ng the table	to classify /orker and the 0-10-x, es. the site where ere exists. Sen based duct on the	StandardIEC 60079-0EN 60079-0GroupI(Mines)II(Gas)	EPL Ma Mb Ga Gb Gb C Da Db C C C C C C C C C	 Protection Very high Nigh Very high Senhance Nery high Senhance 	Installation zone acc. to IEC 60079-10-x EN 60079-10-x On level Zones The Zone classification is not used in mines. 0 0 1 0 1 2 0 2 1 2 0 2 1 2 2 1 2 2 2 2	ATR 2014/34/EU (fo Equipment group I (Mines)	EX Directive rmer directive 94/9 Equipment cat M1 M2 1G 2G 3G 1D 2D 3D	Main motor/EC)protectiontypesegoryRequirements according toEN 1127-2No electric motors allowedEx d/Ex de, Ex p, Ex eEx nANo electric motors allowedEx tb IP 65Ex tc, IP 65/IP 55
motor and drive	ABB drives tested ABB Ex motors ACS880, ACS800 and Certifications avail Safety functions not re but available: ACS880: +Q97 ACS880/ACS800 ca multidrives: +L513/L514 and +0	with ACS550 able equired 1 abinet/	ABB drives r ABB drives r ABB c NON TES Motor therma and Certifie relay Additional s	Ex motor not tested wi x motors TED DRIVES al sensor (+8 ed PTC/Pt10 needed safety functio eded	ith 13) 0		ABB Ex motor with ABB drive ALL DRIVES Motor thermal sensor and Certified PTC/F relay and Drives m contactor neede The VSD must be able the switching frequ	Non (+813) 2t100 ain ed to limit ency	non Nor Add The Sv	-ABB Ex motor with ABB drive ABB drive ABB drive ABB drives are able to limit the witching frequency
	DriveSize too The tool calculates of drive and moto	correct r.		Motor is applical	selec ble s	cted b peed	Manual sizing by calculating the need range and choosing the	ded torque he right dri	in duty po ve accord	oint for ingly.
2			Load capa	acity curv	ves				manı	Follow motor

filters Insulation and

Selection of motor winding insulation and converter output filters as well as elimination of bearing currents for ABB Ex motors and drives.

Supply voltage	Motor framesize	Winding insulation	Motor bearings	Drive filters
≤ 500 V	≤ IEC 250	ABB standard insulation	Standard bearing	No filter needed
	IEC 280 - 315	ABB standard insulation	Insulated non-drive end bearing	No filter needed
	IEC 355 - 450	ABB standard insulation	Insulated non-drive end bearing	Common mode filter
≤ 600 V	≤ IEC 250	ABB standard insulation	Standard bearing	du/dt filter
		ABB special insulation (variant code 405	Standard bearing	No filter needed
	IEC 280 - 315	ABB standard insulation	Insulated non-drive end bearing	du/dt filter
		ABB special insulation (variant code 405	Insulated non-drive end bearing	No filter needed
	IEC 355 - 450	ABB standard insulation	Insulated non-drive end bearing	du/dt filter, common mode filte
		ABB special insulation (variant code 405	Insulated non-drive end bearing	Common mode filter
≤ 690 V	≤ IEC 250	ABB special insulation (variant code 405	Standard bearing	du/dt filter
	IEC 280 - 315	ABB special insulation (variant code 405	Insulated non-drive end bearing	du/dt filter
	IEC 355 - 450	ABB special insulation (variant code 405	Insulated non-drive end bearing	du/dt filter, common mode filte
600 - 690 V with cable length over 150 m	n <= IEC 250	ABB special insulation	Standard bearing	No filter needed
	IEC 280 - 315	ABB special insulation	Insulated bearing	No filter needed
	IEC 355 - 450	ABB special insulation	Insulated bearing	Common mode filter

Follow motor manufacturer's and ABB drives' instructions

The maximum motor cable length for DTC control in ACS880 varies by frame size.

Frames R1 - R3 can have 150 m cable Frames R4 - R9 can have 300 m cable Frames R10 \rightarrow can have 500 m cable



Cable types for drive input

PE 000

Cable types

for motor

Follow ABB Motors and drive manufacturer's cable and EMC recommendations

Follow motor manufacturer's and ABB drives' cable and EMC recommendations