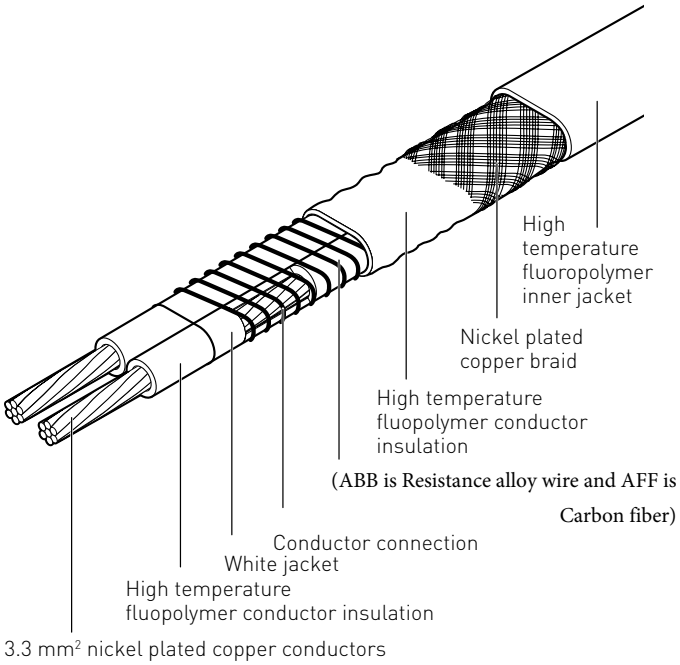
ABB/AFF

HIGH-Constant power heating cables in parallel

HEATING CABLE CONSTRUCTION



ABB/AFF is a family of Constant power heating cables designed for pipe and equipment heat-tracing in industrial applications.

ABB/AFF can be used for frost protection and process temperature maintenance requiring high power output and/or high temperature exposure. ABB/AFF can provide process temperature maintenance up to 230°C (depending on cable type) and can withstand routine steam purges and temperature exposure to 260°C with power off.

Constant power heating cables are parallel heaters formed by a coiled resistor alloy or Carbon fiber heating element wrapped around
two parallel conductors. The distance between conductor contact points forms the heating zone length. This parallel construction allows it to be cut-to-length and terminated on-site. The power output of ABB/AFF heating cables decreases with increasing temperature. ABB/AFF heating cables can be overlapped once. The relatively flat power temperature curve of ABB ensures a low start-up current and high output at elevated temperatures. ABB/AFF cables are approved for use in hazardous areas. Approvals are listed below.

APPLICATION

Area classification	Hazardous, Zone 1, Zone 2 (Gas), Zone 21, Zone 22 (Dust) Ordinary
Traced surface type	Carbon steel Stainless steel Painted or unpainted metal
Chemical resistance	Organics and corrosives For aggressive organics and corrosives consult your local SANTO representative

SUPPLY VOLTAGE

ABB2/AFF2:208-277Vac
ABB4/AFF4:400-480Vac

APPROVALS

The ABB/AFF heating cables are approved for use in hazardous areas by Baseefa Ltd.

The ABB/AFF heating cables are approved by DNV for use on ships and mobile off-shore units.

EAC (Russia, Kazakhstan, Belarus)
For other countries contact your local SANTO representative.

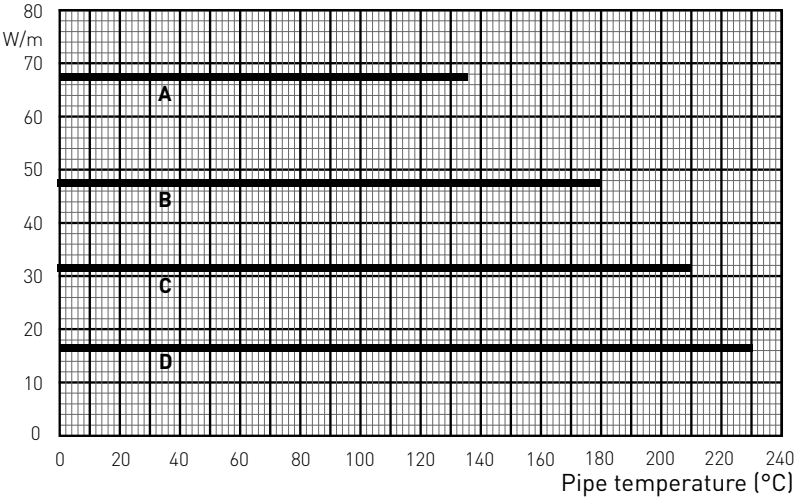
SPECIFICATIONS

	Cable	208 V	230 V	254 V	277 V	400 V	480 V
Maximum maintain or continuous exposure temperature (power on)	5ABB2/AFF2-CT	235°C	230°C	225°C	225°C	–	–
	10ABB2/AFF2-CT	220°C	210°C	200°C	195°C	–	–
	15ABB2/AFF2-CT	200°C	180°C	145°C	105°C	–	–
	20ABB2/AFF2-CT	150°C	150°C	–	–	–	–
	5ABB4/AFF4-CT	–	–	–	–	230°C	230°C
	10ABB4/AFF4-CT	–	–	–	–	215°C	205°C
	15ABB4/AFF4-CT	–	–	–	–	195°C	160°C
	20ABB4/AFF4-CT	–	–	–	–	150°C	150°C
Maximum continuous exposure temperature (power off)	260°C						
Temperature classification	To be established using the principles of stabilized design or the use of a temperature limiting device.						
Minimum installation temperature	–60°C						
Minimum bend radius	at –60°C: 20 mm | at +20°C: 20 mm						
Minimum clearance	15mm						

THERMAL OUTPUT RATING

Nominal power output rating on insulated steel pipes at 240 V and 480 V (power output of ABB4/AFF at 400 V will be lower)

A 20ABB/AFF-CT
B 15ABB/AFF-CT
C 10ABB/AFF-CT
D 5ABB/AFF-CT



ADJUSTMENT FACTORS

		5ABB2/AFF2-CT	10ABB2/AFF2-CT	15ABB2/AFF2-CT	20ABB2/AFF2-CT
254 V	Power output	1.20	1.19	1.19	Not allowed
	Circuit length	1.05	1.04	1.04	Not allowed
277 V	Power output	1.30	1.28	1.26	Not allowed
	Circuit length	1.13	1.11	1.09	Not allowed
		5ABB4/AFF4-CT	**10ABB4/AFF4-CT**	**15ABB4/AFF4-CT**	**20ABB4/AFF4-CT**
400 V	Power output	0.72	0.73	0.74	0.75
	Circuit length	0.86	0.87	0.89	0.90

Nominal power output (W/m at 10°C)	**5ABB$_X$/AFF$_X$-CT**	**10ABB$_X$/AFF$_X$-CT**	**15ABB$_X$/AFF$_X$-CT**	**20ABB$_X$/AFF$_X$-CT**
ABB2/AFF2 at 230 V	15	30	45	61
ABB2/AFF2 at 240 V/ABB4/ABB4 at 480 V	16	33	49	65
ABB4/AFF4 at 400 V	12	24	36	49

PRODUCT DIMENSIONS (NOMINAL) AND WEIGHT

Thickness (mm)	7.5	7.5	7.5	7.5
Width (mm)	10.7	10.7	10.7	10.7
Nominal cold lead/ heating zone length (m)	1.2 (ACC2) 2.4 (ACC4)	0.9 (ACC2) 1.7 (ACC4)	0.6 (ACC2) 1.3 (ACC4)	0.5 (ACC2) 1.1 (ACC4)
Weight (g/m)	180	180	180	180

MAXIMUM CIRCUIT LENGTH BASED ON TYPE 'C' CIRCUIT BREAKERS ACCORDING TO EN 60898

ABB2/AFF2 at 230 V		5ABB2/AFF2-CT	10ABB2/AFF2-CT	15ABB2/AFF2-CT	20ABB2/AFF2-CT
Electrical protection sizing	Start-up temperature	Maximum heating cable length per circuit (m) at 230 Vac			
16 A	–20°C	195	100	70	50
	+10°C	215	110	75	55
25 A	–20°C	220*	155*	105	80
	+10°C	220*	155*	115	85
32 A	–20°C	220*	155*	130*	100
	+10°C	220*	155*	130*	110*
40 A	–20°C	220*	155*	130*	110*
	+10°C	220*	155*	130*	110*

ABB4/AFF4 at 480 V and 400 V		5ABB4/AFF4-CT	10ABB4/AFF4-CT	15ABB4/AFF4-CT	20ABB4/AFF4-CT
Electrical protection sizing	Start-up temperature	Maximum heating cable length per circuit (m) at 480 Vac and (at 400 Vac)			
16 A	–20°C	390 (335)	195 (170)	130 (115)	100 (90)
	+10°C	425 (365)	210 (185)	140 (125)	105 (95)
25 A	–20°C	450* (450)	310 (265)	205 (185)	155 (140)
	+10°C	450* (450)	320* (290)	220 (195)	165 (150)
32 A	–20°C	450* (450)	320* (320)	260* (235)	200 (180)
	+10°C	450* (450)	320* (320)	260* (250)	210 (190)
40 A	–20°C	450* (450)	320* (320)	260* (260)	225* (225)
	+10°C	450* (450)	320* (320)	260* (260)	225* (225)

ORDERING DETAILS

Part description	5ABB2-CT	10ABB2-CT	15ABB2-CT	20ABB2-CT
Part No.	2000-029	2000-030	2000-031	2000-032
Part description	5ABB4-CT	10ABB4-CT	15ABB4-CT	20ABB4-CT
Part No.	2000-033	2000-034	2000-035	2000-036
Part description	5AFF2-CT	10AFF2-CT	15AFF2-CT	20AFF2-CT
Part No.	2000-037	2000-038	2000-039	2000-040
Part description	5AFF4-CT	10AFF4-CT	15AFF4-CT	20AFF4-CT
Part No.	2000-041	2000-042	2000-043	2000-044

COMPONENTS

SANTO offers a full range of components for power connections, splices and end seals.
These components must be used to ensure proper functioning of the product and compliance with electrical requirements.