

HACB45 智能型万能式断路器 INTELLIGENT UNIVERSAL CIRCUIT BREAKER



■ 用途及适用范围 Applicable range

HACB45 系列智能型万能式断路器(以下简称断路器), 适用于交流 50HZ, 额定电压至 660V(690V)及以下, 额定电流 630A~6300A 的配电网络中, 用来分配电能和保护线路及电源设备免受过载、欠电压、短路、单相接地等故障的危害。断路器具备智能化保护功能, 选择性保护精确, 能提高供电可靠性, 避免不必要的停电。同时带有开放式通讯接口, 可进行“四遥”, 以满足控制中心和自动化系统的要求。断路器在海拔 2000 米时脉冲耐压 8000V(不同海拔按标准修正, 最高不超过 12000V) 该断路器不带智能控制器及传感器可作隔离作用 断路器符合 GB14048.2《低压开关设备和控制设备 低压断路器》和 IEC60947-2《低压开关设备和控制设备 断路器》等标准

HACB45series intelligent universal circuit breaker(hereinafter referred to as circuit breaker), is applicable to distribution network of AC 50Hz, rated voltage up to 660V(690V) and/or below rated current 630A~6300A, to distribute the electric energy and protect the circuit and powered device against the overload, under voltage, short circuit and single phase earth, etc... The circuit breaker has obvious features like intelligent protection, accurate selective protection, improving the reliability of power supply, avoiding the unnecessary failure. Meanwhile, this circuit breaker has

open communication interface, which can perform the “our-remote”function, to meet the requirements of control center and automated system. When the circuit breaker is used in the area where the altitude is 2000m, the pulse withstand voltage reaches 8000V(it should be corrected according to the different altitudes, but the max value should not exceed 12000V), this circuit breaker is not mounted with the intelligent controller and sensor, but it can serve as the isolator. The circuit breaker conforms to standards such as GB14048.2 Low Voltage Switchgear and Controlgear Low Voltage Circuit Breaker and IEC60947-2 Low Voltage Switchgear and Controlgear Circuit Breaker.

■ 分类 Classification

按安装方式分 According to mounting way

- a. 固定式 Fixed type
- b. 抽屉式 Withdrawable type

按极数分: 三极、四极 According to pole no :three-pole and four-pole

按操作方式分 According to operation way

- a. 电动操作 Electric operation
- b. 手动操作 (检修、维护用) Manual operation (for maintenance)

按智能脱扣器种类分 type of release

智能控制器、欠电压脱扣器、瞬时(或延时)脱扣器、分励脱扣器
Intelligent release, under voltage release, instantaneous (or time-realy) release, shunt release

■ 技术数据与性能 Technical data and performance

a. 断路器的额定电流 Rated current of breaker

壳架等级额定电流 Inm(A) Frame size Inm(A)	额定电流 In(A) Rated current
2000	400、630、800、1000、1250、1600、2000
3200	2000、2500、2900、3200
4000	3200、3600、4000
6300	4000、5000、6300

b. 断路器的额定短路分断能力及短时耐受电流, 断路器飞弧距离为“零”(即断路器外无飞弧)
Rated short circuit breaker capaticy and short-time withstand current of circuit breaker. Flashover distance of breaker is zero, that is, no flashover.

壳架等级额定电流 Inm(A) Frame size Inm(A)	2000	3200	4000	6300	
额定极限短路分断能力 Rated ultimate short-circuit breaking capability	400V	80	100	100	120
Icu (kA) 0-CO	690V	50	65	65	80

额定短路接通能力 Rated short-circuit making capability n x Icu (kA)/cosΦ	400V	176/0.2	220/0.2	220/0.2	264/0.2
	690V	105/0.25	143/0.2	143/0.2	187/0.2
额定运行短路分断能力 Rated operating short-circuit breaking capability Ics (kA)0-CO-CO	400V	50	65	65	80
	690V	40	50	50	70
额定短时耐受电流 Rated short-time withstand current Icw(kA) Is 延时 0.4s, 0-CO	400V	50	65	65/80 (MCR)	85/100 (MCR)
	690V	40	50	50/65 (MCR)	65/75 (MCR)
注: 表中分断能力上下进线相同 Note: In the table, the inlet and outlet lines are same in the breaking capability.					

◎ 智能型过电流控制器保护特性和功能 Protection characteristics and functions of intelligent over current controller

过电流控制器保护特性 Protection characteristics of over current controller

a. 控制器的整定值 Ir(I/In)及误差 The setting value Ir(I/In)and error of controller

长延时 Long time delay	短延时 Short time delay		瞬时 Instantaneous		接地故障 Earth fault	
Ir1	Ir2	误差 Error	Ir3	误差 Error	Ir4	
(0.4-1) In	(0.4-1.5) In	±10%	In-50kA (Inm=2000A) In-75kA (Inm=3200-4000A) In-100kA (Inm=6300A)	±15%	Inm=2000-4000A (0.2-0.8) In 最大(Max)1200A 最小 (Min)160A	Inm=6300A (0.2In-2000A)
注: 当同时具有(要求)三段保护时, 整定值不能交叉。 Note: When three-section protections exist or is required at the same time, the setting value can't be cross.						

b. 时过电流保护反时限动作特性, $I^2TL=(1.5I_r)^2t_L$, 其 (1.05-2.0) Ir1 的动作时间见表五, 其时间误差为 ±15%。

注: tL-长延时 1.5Irs 的整定时间, TL-长延时的动作时间。

b. ng-time inverse operation characteristic of over current protection $I^2TL=(1.5I_r)^2t_L$, the operating time of (1.05-2.0)Ir1 is shown as table 5, the time error is ±15%.

Note: tL Setting time of long time delay 1.5Irs, TL operating time of long time delay

1.05Ir1	1.3Ir1	1.5Ir1 整定时间 (setting time)s	15	30	60	120	240	480
>2h 不动作 No operate (>2h)	<1h 动作 Operate (1h)	2.0Ir1 动作时间 s 2.0Irs operating time s	8.4	16.9	33.7	67.5	135	270

c. 短延时过电流保护特性 Short-time delay operation characteristic of over current protection

短延时过电流保护为定时限, 如要求低倍数为反限时, 其特性按: $I^2Ts(8I_r)^2t_s$ 为一般延时设计时间; 当过载电流 >8Ir 时, 自动转换为定时限特性, 时限误差为 ±15%。

The short time delay over current protection is the definite time lag, if it is required that the low multiple is the inverse time lag, the characteristic that is $I^2Ts(8I_r)^2t_s$ is the general design time of time delay; when the overload current is more than 8Ir, it switches into definite time lag automatically, the characteristic of definite time lag is shown as table 6, the time-limit error is ±15%.

延时时间 Delay time (s)				可返回时间 Returnable time (s)			
0.1	0.2	0.3	0.4	0.06	0.14	0.23	0.35