SF6 Dead Tank Breakers by TK

(TK Switchgear is No1. Breaker manufacture in China)

Nov. 20,2023

JSHP Transformer USA acts as TK's sales rep/distributor for US market to provide the sales and warranty support with 3rd party service companies, like RESA, NASS.

Item No.	Specification	Qty		Lead times exWork
1	TKDV-38: The doghouse vacuum breaker (2000A, 31.5KA)	**1 Set**		**6 months ARO**
2	TKD1-72.5/145 (3150A, 40KA)	**1 set**		**8 months ARO**
3	TKD1-245 (4000A, 50KA)	**1 set**		**8 months ARO**
4	TKD1-362 (5000A, 50KA/63kA)	**1 set**		**8/12 months ARO**
5	TKD1-550 (5000A, 63KA)	**1 set**		**12 months ARO**

TK Switchgear Introduction PPT can be downloaded here :
http://taikai-usa.com/resources/taikai_Switchgear_PPT.pdf

Notes:

1. The breakers can be quoted US dollars, DDP to Port Houston, TX USA
   (including Ocean shipping to Houston , US duty tax)
2. Sales/local/use tax NOT included.
3. TKD1-245 ,-362,-550 will ship without SF6 filled and without full assembled. The site assembly , SF6 filling , and the testing is needed and its cost is not included here.
4. TK Dead tank brochure is attached here
5. The web site www.taikai-usa.com for more info

July, 2023





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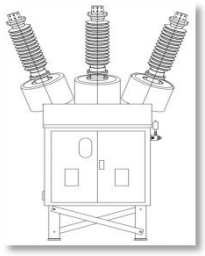
Dead Tank Circuit Breaker

Product List

72.5kV



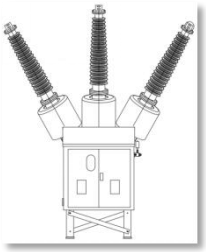
Features and Application
- Self-blast interrupter
- Temperature range:
  - SF6 solution: –30°C to +50°C
  - Mixed gas solution (SF_6+CF_4): –50°C to +50°C

- Design per IEEE and IEC standards
- 10 years, condition-based maintenance cycle
- Spring-spring mechanism

	40kA	31.5kA
Gang Operated	TKD1-72.5	TKD1-72.5M*

*M stands for mixed gas solution

145kV



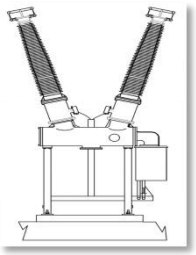
Features and Application
- Self-blast interrupter
- Temperature range:
  - SF6 solution: –30°C to +50°C
  - Mixed gas solution (SF_6+CF_4): –50°C to +50°C

- Design per IEEE and IEC standards
- 10 years, condition-based maintenance cycle
- Spring-spring mechanism

	40kA	31.5kA
Gang Operated	TKD1-145	TKD1-145M*

*M stands for mixed gas solution

245kV



Features and Application
- Thermal expansion+puffer assist interrupter
- Temperature range:
  - Without tank heater: –30°C to +50°C
  - With tank heater:–50°C to +50°C

- Design per IEEE and IEC standards
- 10 years, condition-based maintenance cycle
- Spring-hydraulic mechanism or spring-spring mechanism

	40kA/50kA	40kA/50kA
Independent Pole Operated	TKD1-245I*	TKD1-245HI*
Gang Operated	TKD1-245	TKD1-245H*

*I stands for independent pole operated
*H stands for tank heaters

More than
Energy Transmission

For more information please contact:
Shandong Taikai High Voltage Switchgear Co., Ltd.
1888 Longteng Rd, High-tech Development Zone,
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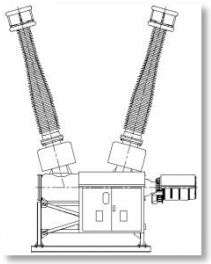
Phone: +86 15315280855

Dead Tank Circuit Breaker

Product List

362kV



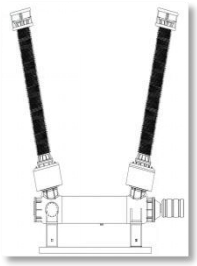
Features and Application

- Thermal expansion+puffer assist interrupter
- Temperature range:
  - Without tank heater: –30°C to +50°C
  - With tank heater: –50°C to +50°C
- Design per IEEE and IEC standards
- 10 years, condition-based maintenance cycle
- Spring-hydraulic mechanism or spring-spring mechanism

	50kA/63kA	50kA
Independent Pole Operated	TKD1-362	TKD1-362H*

*H stands for tank heaters

550kV



Features and Application

- Thermal expansion+puffer assist interrupter
- Temperature range:
  - Without tank heater: –30°C to +50°C
  - With tank heater: –50°C to +50°C
- Design per IEEE and IEC standards
- 10 years, condition-based maintenance cycle
- Spring-hydraulic mechanism

	63kA	63kA
Independent Pole Operated	TKD1-550	TKD1-550H*

*H stands for tank heaters

More than
Energy Transmission

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Vacuum Circuit Breaker

Type TKDV1-38, up to 38kV, 2000A and 31.5kA

TAIKAI type TKDV1-38 is a well designed outdoor circuit breaker using vacuum interrupters and spring mechanism for power transmission and distribution systems up to 38kV, 2000A, 31.5kA.

The station type breaker is used for control and protection of power utilities. It is purposely designed and tested to withstand harsh environments such as low temperature (-50 ℃), regions with frequent seismic activities, highly polluted areas or high corrosive environments.

The circuit breaker consists of two main compartments:

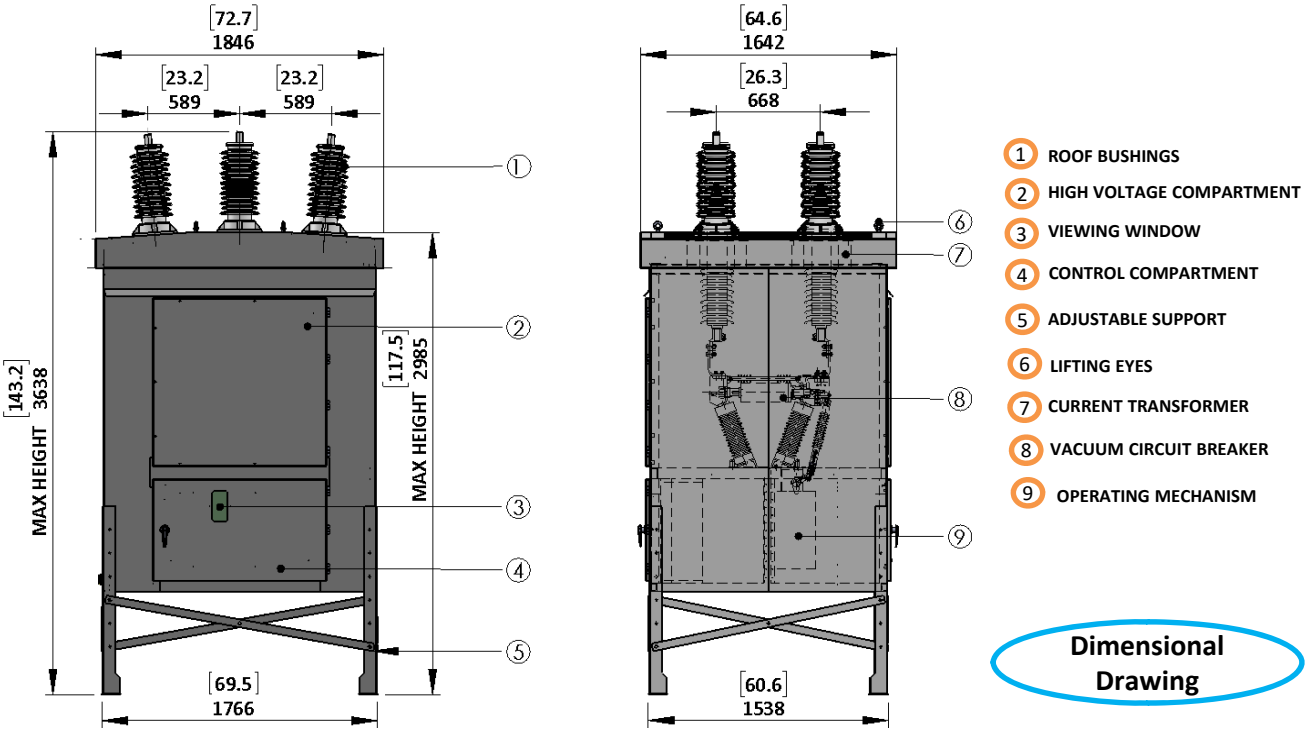
•High voltage compartment, where the interrupters, bushings and optional current transformers are located.

•Control compartment, where operating mechanism and control units are located.

Features

•Excellent quality and reasonable price.
•The equipment is suitable for an ambient temperature range of -50℃ to +50℃ . The internal temperature is controlled by heaters located in both high voltage compartment and control compartment.
• Adjustable support legs provide a maximum height 3680mm (144.9 in) and a minimum height of 3200mm(125.9 in).
• The unit is shipped fully assembled from the factory, ready for installation.
• Additional current transformers can be installed for controlling and monitoring.
• Large hinged doors provide easy access to the components inside during maintenance.
• Vacuum circuit breakers are more environmental friendly.
• Meets the latest ANSI, IEC, NEMA, UL and CSA standards.

Station Type Breaker



Dimensional Drawing

Note: Typical weight with porcelain bushings and maximum BCTs is 1820 kg (3572 lb).

Technical Data

Application standards	IEEE, IEC	Short circuit making current (kA)	80
Rated voltage(kV)	Up to 38	Opening time(ms)	≤30
Frequency(Hz)	60	Closing time(ms)	≤60
Rated current(A)	2000	Reclosing time(ms)	≤300
Short circuit breaking current (kA)	31.5	Interrupterting time	3 cycles(50ms)
Power frequency withstand volatge(kV) – (1min)	80	Standard operating duty	O-0.3s-CO-180s-CO
Lightning Impulse withstand voltage (kV)	200	Mechanical Endurance	10000 operations
2 μ-sec chopped wave impulse withstand voltage(Kv)	258	Operating temperature(˚C)	-50 to +50

Dead Tank Circuit Breaker

Type TKD1, up to 145kV, 3150A and 40kA

TAIKAI type TKD1 outdoor dead tank circuit breakers reflect a sophisticated design characterised by self-blast interrupters and spring mechanism for power transmission and distribution systems up to 145kV, 3150A, 40kA.

The circuit breakers are purposely designed and tested per IEEE C37 and IEC 62271 for usage under both normal conditions and harsh environmental conditions such as extreme temperature (-50 ℃), regions with frequent seismic activities, high pollution or serious corrosion.

TKD1 dead tank circuit breakers include:

- TKD1-72.5/145 SF_6 solution
- TKD1-72.5M/145M mixed gas solution (SF_6+CF_4) for extreme temperature (-50 ℃)

Main Features:

- Bushing current transformers.
- Advanced self-blast interrupters.
- Verified ambient temperatures ranging from -50 ℃ to +50 ℃ with mixed gas solution(-30 ℃ to +50 ℃ with SF_6 solution).
- High seismic designs (0.5 g).
- High strength composite bushings.
- Capacitive current (LC and CC) switching capacity reaches class C2 with SF_6 solution and class C1 with mixed gas solution.
- IP54 and IK10 control cabinet construction.
- The maximum height of circuit breaker is 4,750mm (187 in) and the minimum height is 3,729mm (146.8 in) with adjustable supports.
- Shipped fully assembled from the factory (polymer bushings may be removed for export transport).

Advantages:

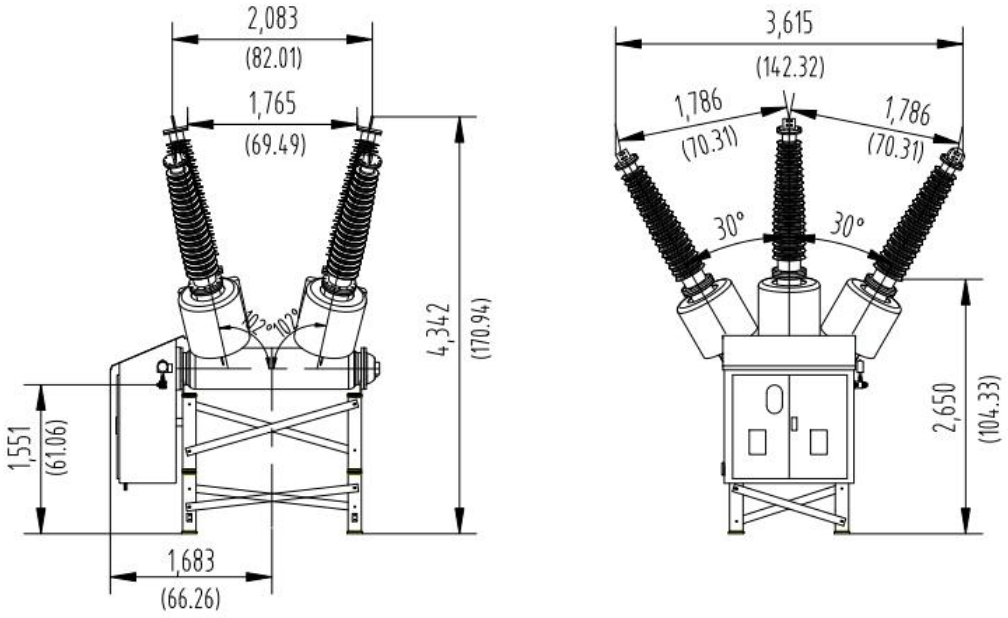
- Excellent quality and competitive prices.
- Easy installation and commissioning.
- High gas tightness performance with less than 0.5% annual leakage rate.
- 10,000 switching operations for mechanical endurance.
- Galvanized steel frame.
- Long maintenance cycle (10 years after in service or after being operated 2,000 times) and high reliability.

Options:

- High altitude designs.
- Tank heaters for ambient temperatures below -30 ℃ (type TKD1-72.5/145).

TKD1-145 circuit breaker with polymer bushings

TKD1-145/145M Dimensional Drawing



Note: Dimensions are shown in mm (inch).
Typical weight is approximately 4,500kg (9,920 lbs).

Technical Data

Ratings	TKD1-72.5	TKD1-72.5M	TKD1-145	TKD1-145M
Applicable Standards	IEEE and IEC			
Rated Maximum Voltage (kV)	72.5		145	
Rated Power Frequency (Hz)	60			
Rated Continuous Current (A)	3150			
Rated Short-circuit and Short-time Current (kA)	40	31.5	40	31.5
Rated Closing and Latching Current (kA)	104	82	104	82
Rated Power Frequency Withstand Volatge (kV) (1min)	160		315	
Rated Lightning Impulse Withstand Voltage (kV)	350		750	
Rated Chopped Wave Impulse Withstand Voltage (kV)	452		838	
Rated Interrupting Time (ms)	60			
Minimum Reclosing Time (ms)	300			
Rated Standard Operating Sequence	O-0.3s-CO-180s-CO			
Mechanical Endurance	10,000 operations			
Temperature Range (˚C)	-30 to +50	-50 to +50	-30 to +50	-50 to +50

More than
Energy Transmission

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Web: www.taikai-usa.com

Dead Tank Circuit Breaker

Type TKD1, up to 245kV, 4000A and 50kA

TAIAKI type TKD1 245kV outdoor dead tank circuit breaker is a kind of three-phase AC 60Hz outdoor switchgear, which is used for the control and protection of 245kV, 4000A, 50kA power transmission system, with superior electrical endurance and mechanical endurance. The circuit breaker interrupter utilizes the principle of "thermal expansion+puffer assist", and the breaker can be equipped with spring-hydraulic or spring-spring mechanism.

The circuit breakers are purposely designed per IEEE C37 and IEC 62271 for usage under both normal conditions and harsh environmental conditions such as extreme temperature (-50℃), regions with frequent seismic activities, high pollution or serious corrosion.

TAIKAI TKD1 245kV dead tank circuit breakers include:

- TKD1-245 SF_6 solution (-30℃ - +50℃)
- TKD1-245H SF_6 solution (with tank heaters) for extreme temperature (-50℃ - +50℃)

Main Features

- Bushing current transformers
- Silicone rubber composite bushing with high strength and self-cleaning capability
- Thermal expansion+puffer assist type interrupter with excellent short-circuit current interrupting capability
- Spring-spring mechanism easy to operate and with highly reliable mechanical endurance
- Spring-hydraulic mechanism for maintenance free and high universality,interchangeability and reliability
- Low temperature to -50℃ with tank heaters
- High seismic withstand capability (0.5 g)
- Excellent current carrying capacity up to 4000A
- Capacitive current (LC/CC) switching capability of Class C2
- Mechanical endurance of 10,000 operations
- Control cabinet designed to IP54 and IK10
- Product shipped fully assembled from the factory (Bushings shall be removed for transport)

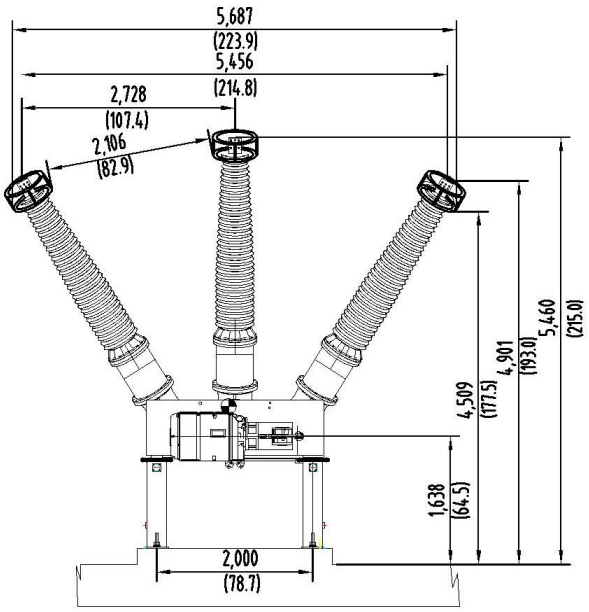
Advantages

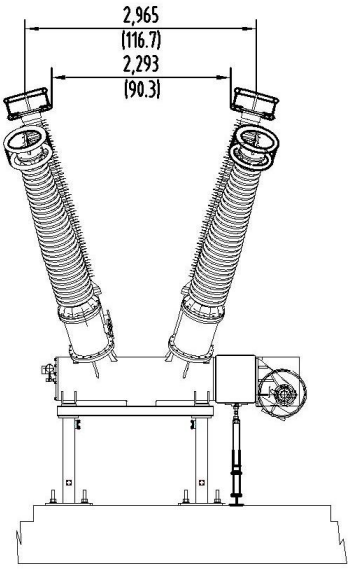
- Excellent quality and competitive price
- High gas tightness performance with annual leakage rate less than 0.5%
- Class M2 mechanical endurance and Class C2 capacitive switching capability
- Short-circuit and short-time current up to 50kA
- Galvanized steel frame with strong corrosion resistance
- Easy installation and short commissioning time
- Long maintenance cycle (10 years or 2,000 operations) and high reliability

Options

- High altitude design
- 40kA of short-circuit current
- Tank heaters for temperature below -30℃
- Independent pole operation
- Spring-hydraulic or spring-spring mechanism

TKD1-245/245H Typical Dimensional Drawing for Reference (Gang Operation)





Note: Dimensions are shown in mm (inch).

Technical Data

Ratings	TKD1-245	TKD1-245H
Applicable standards	IEEE,IEC	
Rated maximum voltage (kV)	245	
Rated power frequency (Hz)	60	
Rated continuous current (A)	4000	
Rated short-circuit and short-time current (kA)	40*/50	
Rated power frequency withstand volatge (kV) (1min)	460	
Rated full wave withstand voltage (kV)	1050	
Rated chopped wave impulse withstand voltage (kV)	1160	
Rated closing and latching current (kA)	130	
Rated interrupting time (cycles)	2	
Rated standard operating duty	O-0.3s-CO-180/15s*-CO	
Mechanical endurance	10,000 operations	
Temperature range (˚C)	-30 to +50	-50 to +50

Note:
*40kA of rated short-circuit and short-time current is optional.
*O-0.3s-CO-15s-CO of operating duty is available on request.

More than
Energy Transmission

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Phone: +86 15315280855

Dead Tank Circuit Breaker

Type TKD1, up to 362kV, 4000A and 50kA

TAIKAI type TKD1 362kV outdoor dead tank circuit breaker is independently designed with compact structure, superior electrical endurance and mechanical endurance. The interrupter of circuit breaker adopts the "thermal expansion+ puffer assist" technology with strong arc extinguishing capability. The breaker is equipped with spring-hydraulic mechanism, and is well suited for 362kV, 4000A, 50kA power transmission system.

The circuit breakers are purposely designed per IEEE C37 and IEC 62271 for usage under both normal conditions and harsh environmental conditions such as extreme temperature (-50℃), regions with frequent seismic activities, high pollution or serious corrosion.

TAIKAI TKD1 362kV dead tank circuit breakers include:

- TKD1-362 SF_6 solution(-30℃ - +50℃)
- TKD1-362H SF_6 solution (with tank heaters) for extreme temperature (-50℃ - +50℃)

Main Features

- Bushing current transformers
- Silicone rubber composite bushing with high strength and self-cleaning capability
- Thermal expansion+puffer assist type interrupter with excellent interrupting capability
- Spring-hydraulic mechanism for maintenance free and high universality, interchangeability and reliability
- Low temperature to -50℃ with tank heaters
- High seismic withstand capability (0.5 g)
- Excellent current carrying capacity up to 4000A
- Capacitive current (LC/CC) switching capability of Class C2
- Control cabinet designed to IP54 and IK10
- Product shipped assembled from the factory (Bushings shall be removed for transport)

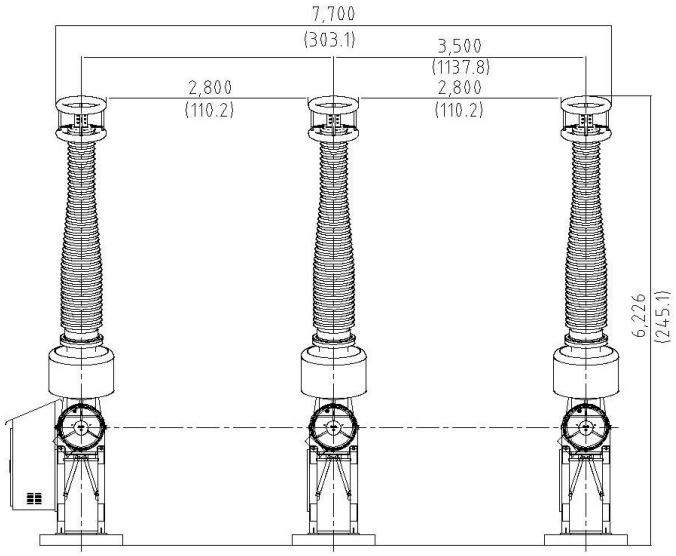
Advantages

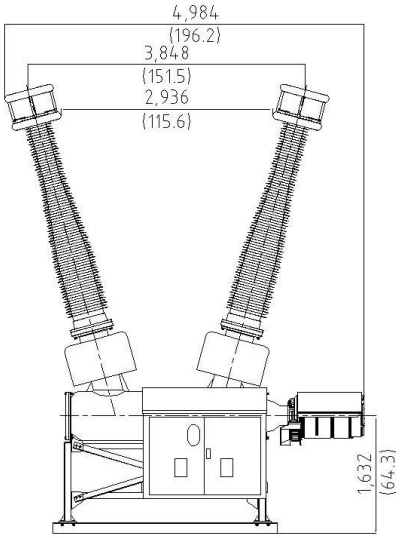
- Compact design with smaller footprints for new or existing substation layouts
- Excellent quality and competitive price
- Robust and reliable mechanism
- High gas tightness performance with annual leakage rate less than 0.5%
- Class M2 mechanical endurance and Class C2 capacitive switching capability
- Galvanized steel frame with strong corrosion resistance
- Easy installation and short commissioning time
- Long maintenance cycle (10 years or 2,000 operations) and high reliability. The critical interrupter components (stationary & moving arcing contacts and nozzles) only need to be inspected after 2,000 operations at rated load current

Options

- High altitude design
- Tank heaters for temperature below -30℃
- Spring-spring mechanism

TKD1-362/362H Typical Dimensional Drawing for Reference





Note: Dimensions are shown in mm (inch).

Technical Data

Ratings	TKD1-362	TKD1-362H
Applicable standards	IEEE,IEC	
Rated maximum voltage(kV)	362	
Rated power frequency(Hz)	60	
Rated continuous current(A)	5000	
Rated short-circuit and short-time current(kA)	50/63	
Rated power frequency withstand volatge(kV) (1min)	555	
Rated full wave withstand voltage (kV)	1300	
Rated chopped wave impulse withstand voltage(kV)	1680	
Rated closing and latching current (kA)	130	
Rated interrupting time(cycles)	2	
Rated standard operating duty	O-0.3s-CO-180s-CO	
Mechanical endurance	10,000 operations	
Temperature range(˚C)	-30 to +50	-50 to +50

More than
Energy Transmission

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Dead Tank Circuit Breaker

Type TKD1, up to 550kV, 5000A and 63kA

TAIKAI type TKD1 550kV outdoor dead tank circuit breaker is independently designed with high current carrying capability, superior electrical and mechanical endurance. The interrupter of circuit breaker adopts the "thermal expansion+ puffer assist" technology with strong arc extinguishing capability. The breaker is equipped with spring-hydraulic mechanism, and is well suited for 550kV, 5000A, 63kA power transmission system.

The circuit breakers are purposely designed per IEEE C37 and IEC 62271 for usage under both normal conditions and harsh environmental conditions such as extreme temperature (-50℃), regions with frequent seismic activities, high pollution or serious corrosion.

TAIKAI TKD1 550kV dead tank circuit breakers include:

- TKD1-550 SF_6 solution (-30℃ - +50℃)
- TKD1-550H SF_6 solution (with tank heaters) for extreme temperature (-50℃ - +50℃)

Main Features

- Bushing current transformers
- Silicone rubber composite bushing with light weight, high strength and self-cleaning capability
- Thermal expansion+puffer assist type interrupter with excellent interrupting capability
- Spring-hydraulic mechanism for maintenance free and high universality, interchangeability and reliability
- Low temperature to -50℃ with tank heaters
- High seismic withstand capability (0.5 g)
- Excellent current carrying capacity up to 5000A
- Horizontal structure layout, horizontal movement of mechanism, high linear transmission efficiency
- Control cabinet designed to IP55 and IK10
- Low radio interference level (≤ 500 μV)
- Product shipped assembled from the factory (Bushings shall be removed for transport)

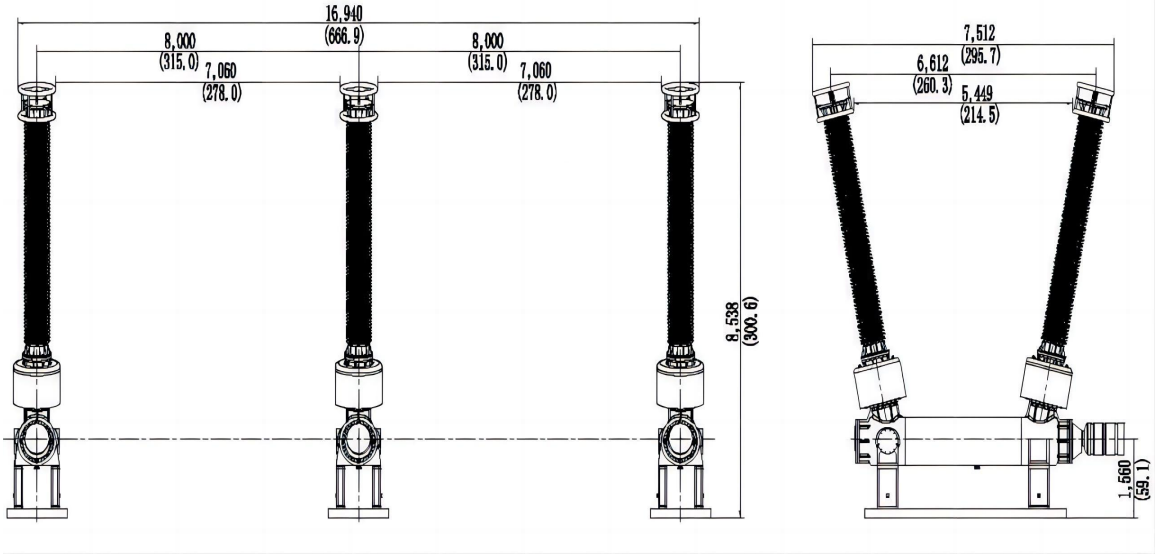
Advantages

- Compact design with smaller footprints for new or existing substation layouts
- Excellent quality and competitive price
- The spring-hydraulic mechanism adopts modular and integrated structure and variable cross-section buffer system, which greatly improves the mechanical reliability
- High gas tightness performance with annual leakage rate less than 0.1%
- Class E2 electrical endurance, Class M2 mechanical endurance and Class C2 capacitive current (LC/CC) switching capability
- Aluminum alloy enclosure with no eddy current loss
- Galvanized steel frame with strong corrosion resistance
- Easy installation and short commissioning time
- Long maintenance cycle
- High self-production rate and short production cycle

Options

- High altitude design
- Tank heaters for temperature below -30℃
- Closing resistor or synchronous control device
- Porcelain bushing

TKD1-550/550H Typical Dimensional Drawing for Reference (Composite Bushing)



Note: Dimensions are shown in mm (inch).

Technical Data

Ratings	TKD1-550	TKD1-550H
Applicable standards	IEEE,IEC	
Rated maximum voltage(kV)	550	
Rated power frequency(Hz)	60	
Rated continuous current(A)	5000	
Rated short-circuit and short-time current(kA)	63	
Rated power frequency withstand volatge(kV) (1min)	740	
Rated full wave withstand voltage (kV)	1675	
Rated closing and latching current (kA)	171	
Rated interrupting time(cycles)	3	
Rated standard operating duty	O-0.3s-CO-180s-CO	
Mechanical endurance	10,000 operations	
Temperature range(˚C)	-30 to +50	-50 to +50

More than
Energy Transmission

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