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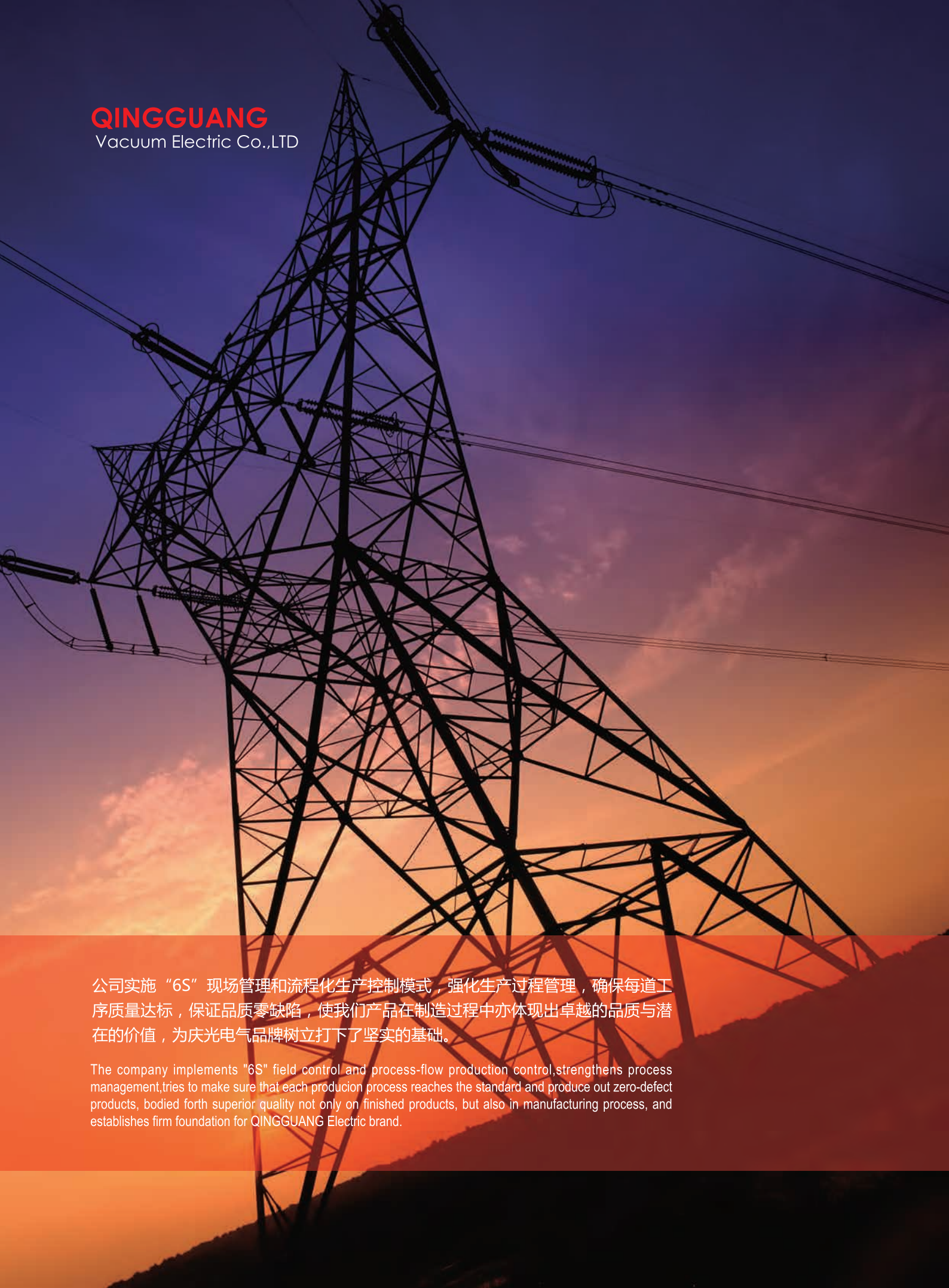
VACUUM INTERRUPTER, EMBEDDED POLE

真空灭弧室 / 固封极柱 • 选型手册

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QINGGUANG
Vacuum Electric Co., Ltd
庆光真空电气有限公司



QGvac® 庆光
Qingguang Vacuum



QINGGUANG
Vacuum Electric Co.,LTD

公司实施“6S”现场管理和流程化生产控制模式，强化生产过程管理，确保每道工序质量达标，保证品质零缺陷，使我们产品在制造过程中亦体现出卓越的品质与潜在的价值，为庆光电气品牌树立打下了坚实的基础。

The company implements "6S" field control and process-flow production control,strengthens process management,tries to make sure that each production process reaches the standard and produce out zero-defect products, bodied forth superior quality not only on finished products, but also in manufacturing process, and establishes firm foundation for QINGGUANG Electric brand.



BRIEF 企业简介 introduction

庆光真空电气有限公司主要从事中高压真空灭弧室、固封极柱产品的研发、生产与销售，是国内无源真空器件行业的领先制造商。

公司坚持“质量为本，铸就经典品质；科技创新，推动持续发展”的经营宗旨。公司非常注重人力资源建设，始终把人才队伍建设放在战略的高度上，把人才视为公司最宝贵的财富，把人才建设和企业的发展紧密联系在一起。公司积极开展与科研院所和高等院校的合作，不断创新思维，不断提高创新能力，持续投入资金搞科技创新，把科技创新作为公司持续发展的原动力并持之以恒，坚持地把科技创新作为公司发展的长期战略规划。专利号：201220637049.4《一种新型带铁芯结构的杯状纵磁匀布式真空灭弧室触头》获得国家专利。

公司强调流程控制，注重产品品质，产品严格按照《JB/T 8738-2008 高压交流开关设备用真空灭弧室》、《DL/T403-200 12kv-40.5kv 高压真空断路器订货技术条件》、《GB/T 11022—1999 高压开关设备和控制设备标准的共用技术要求》标准生产。从设计、工艺、装备、检测、零部件控制、人员培训着手，建立完善质量管理体系，抓好从零件进厂到产品出厂的每一个环节，ERP 系统贯穿于整个生产过程。

公司坚持“创造、创新、创辉煌”的发展理念，为国内外用户提供更环保、更小型化、科技含量更高的产品。

Qingguang Vacuum Electric Co., Ltd. is principally engaged in the light in vacuum pressure vacuum interrupter, embedded pole product development, production and sales, is the industry leader in passive vacuum device manufacturer .

Companies adhere to the "quality-oriented , cast classic quality ; technological innovation, promote sustainable development " business purposes . Company attaches great importance to human resources development, always put talent team construction on a strategic height , and talent as the company's most valuable asset , the talent -building and enterprise development are closely linked. Companies actively carry out cooperation in research institutes and universities , innovative thinking , and constantly improve the innovation ability , continue to invest funds in scientific and technological innovation , scientific and technological innovation as the driving force behind the company's continued and sustained development , adhere to the scientific and technological innovation as the development of the company the long-term strategic planning. Patent No.: 201220637049.4 " a new cup with a longitudinal magnetic core structure uniformly distributed vacuum interrupter contacts " to obtain national patents.

Company emphasizes process control, focus on product quality , products strictly in accordance with the "JB / T 8738-2008 voltage AC switchgear vacuum interrupter "DL/T403-200 12kv-40.5kv voltage vacuum circuit breaker ordering technology", " GB / T 11022-1999 high-voltage switchgear and control equipment standards common technical requirements " standard. From design, technology , equipment , testing , parts control, personnel training started , establish and improve the quality management system , do a good job from the parts into the plant to every aspect of manufactured products , ERP systems throughout the entire production process .

Companies adhere to the " creativity, innovation , brilliant " concept of development , in order to provide customers with more environmentally friendly, more compact , higher-tech products.



PROCESS 工艺设备 Equipment

多年的生产工艺技术奠定了庆光电气的制造能力，技术与设备的完美结合缔造了庆光电气的品质基础。优秀的员工团队精确的生产管理、规范的作业流程严格的过程控制精准的校验设备，庆光实现高效、规模生产。

Lay the manufacturing ability of Qingguang electrical production technology for many years, combination of technology and equipment to create the perfect quality base Qingguang electrical.

Excellent staff team, production management, the precise specification of the process, strict process control check equipment precision, Qingguang to achieve high efficiency, the scale of production.



EMBEDDED 固封极柱优势 Pole Superiority

优点 1：低回路电阻，连接可靠与传统组装式极柱相比，固封极柱的零部件、导体搭接面、连接用紧固件的数量都大大减少，从而简化了主回路的装配环节，降低了回路电阻，提高了主导点回路连接的可靠性。

优点 2：小型化设备采用固封极柱，可缩小断路器的相间距，从而使断路器及开关柜进一步小型化。

优点 3：保护真空灭弧室真空灭弧室被环氧树脂完全封闭后，外界环境对真空灭弧室的影响被降低到最低，其外绝缘能力可以免受灰尘、凝露、潮气、小动物和污秽的影响。可以为真空灭弧室提供更加充分的保护，使其在装配和运输过程免受意外机械冲撞。

Advantage 1: low loop resistance, reliable connection assembled as compared with the conventional pole, embedded pole parts, the conductor faying surfaces, the number of fasteners are connected with the greatly reduced, thereby simplifying the assembly of the main circuit part of reduce the circuit resistance and improve the reliability of the leading point of the circuit connection.

Advantage 2: miniaturization of equipment using embedded pole, circuit breaker phase spacing can be reduced, so that the circuit breakers and switchgear further miniaturization.

Advantage 3: Protect vacuum interrupter epoxy vacuum interrupter after being completely closed, the impact of the external environment on the vacuum interrupter chamber is reduced to a minimum, the outer insulation capability can be from dust, condensation, moisture, small animals and contamination effects. Can provide a more adequate protection for the vacuum interrupter, so that in the process of assembly and transport from accidental mechanical impact.

QINGGUANG

VACUUM ELECTRIC

真空灭弧室 / 固封极柱

公司主要从事中高压真空灭弧室、固封极柱产品的研发、生产与销售，是国内无源真空器件行业的领先制造商。

The company mainly engaged in high-voltage vacuum interrupters, solid seal pole product development, production and sales, is a leading manufacturer of passive domestic vacuum device industry.





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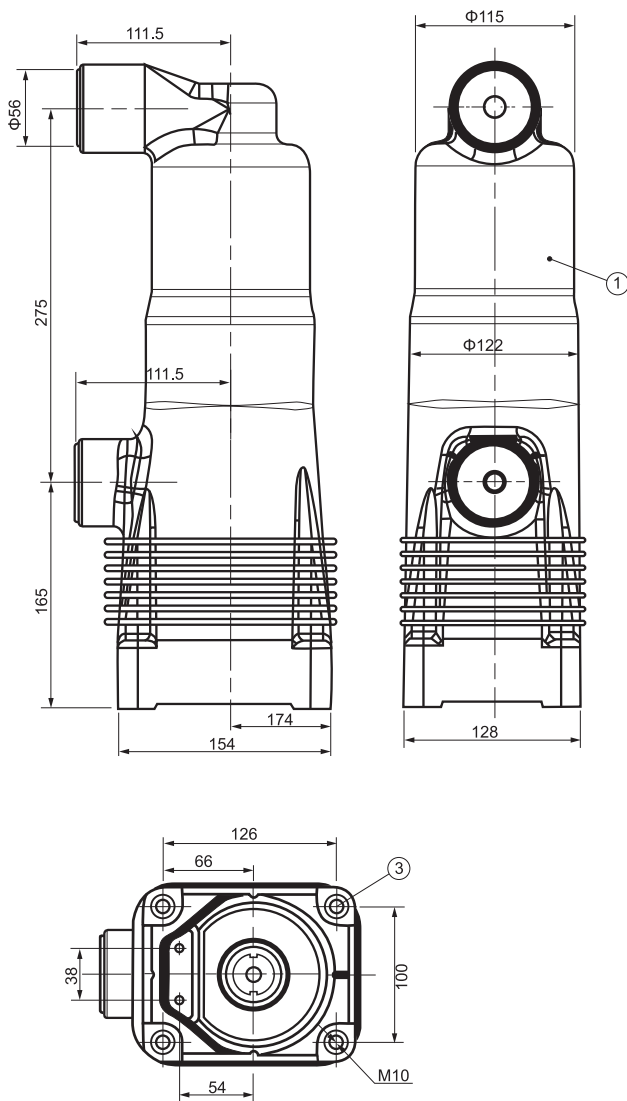
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外形尺寸

Outline Dimension

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QG5001 ES-12/1250-25
QG5001 ES-12/1600-31.5



注：* 为需要时提供的额定参数值。
Note: *rated characteristics to be given on request”

主要技术参数

Main Technica Data

参数值

Value

额定电压 Rated voltage	12kV
额定电流 Rated normal current	630A/1250A 1600A
额定频率 Rated frequency	50Hz
额定短路开断电流 Rated normal current	25kA/31.5kA
额定短路开断电流开断次数 Rated lightning impulse voltage	30 次
额定短路关合电流 Rated short-circuit making current	80kA
额定峰值耐受电流 Rated peak withstand current	80kA
额定短时耐受电流（4 秒） Rated short-time withstand current(4s)	25kA/31.5kA
额定单个电容器组开断电流 Rated sing capacitor unit breaking current	630A*
额定背对背电容器组开断电流 Rated back to back capacitor breaking current	400A*
短时（1min）工频耐受电压 Short-time(1min)power-frequency withstand voltage	48kV
雷电冲击耐受电压（峰值） Lighting impulse voltage(peak)	85kV
额定触头压力下的回路电阻 Circuit resistance at rated contact force	≤ 20 μ Ω
机械寿命 Mechanical life	30000 次
触头自闭力 Contact antomatic blocking baility	100 ± 30N
额定开距下的触头反力 Force required to hold contacts open at full stroke	200 ± 30N
触头允许磨损厚度 Contace-wear allowance tickness	3mm
局部放电量 Part discharge	≤ 1PC
额定操作顺序 Rated operating sequence	O-0.3s-CO-180s-CO

配用的真空开关的机械参数

MECHANICAL DATA REQUIRED FOR MATCHED VACUUM SWITCHGEAR

触头开距 Contact stroke	9 ± 1mm
触头接触行程 Contact tiavel	4 ± 1mm
平均分闸速度 Average opening speed	1.1 ± 0.2m/s
平均合闸速度 Average closing speed	0.7 ± 0.2m/s
额定触头压力 Rated contace pressure	3000 ± 200N
触头合闸弹跳时间 Contact closing bonnce time	≤ 2ms
触头分合闸不同期 Out of simultaneity of contact closing and opning	≤ 1ms

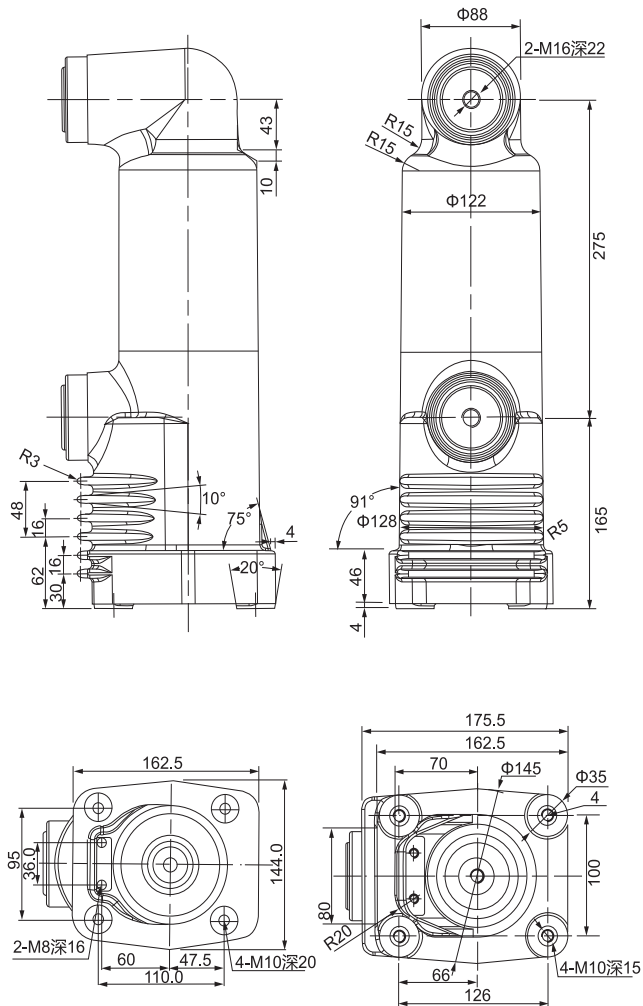
QG5008 EP-12 固封极柱

QG5008 EP-12 Embedded Pole

外形尺寸

Outline Dimension

QG5008 EP-12/630-25
QG5008 EP-12/1250-25
QG5008 EP-12/1600-31.5



注：* 为需要时提供的额定参数值。
Note: * rated characteristics to be given on request

主要技术参数

Main Technica Data

参数值

Value

额定电压 Rated voltage	12kV
额定电流 Rated normal current	630A/1250A 1600A
额定频率 Rated frequency	50Hz
额定短路开断电流 Rated normal current	25kA/31.5kA
额定短路开断电流开断次数 Rated lightning impulse voltage	30 次
额定短路关合电流 Rated short-circuit making current	80kA
额定峰值耐受电流 Rated peak withstand current	80kA
额定短时耐受电流（4 秒） Rated short-time withstand current(4s)	25kA/31.5kA
额定单个电容器组开断电流 Rated sing capacitor unit breaking current	630A*
额定背对背电容器组开断电流 Rated back to back capacitor breaking current	400A*
短时（1min）工频耐受电压 Short-time(1min)power-frequency withstand voltage	48kV
雷电冲击耐受电压（峰值） Lighting impulse voltage(peak)	85kV
额定触头压力下的回路电阻 Circuit resistance at rated contact force	$\leq 20 \mu \Omega$
机械寿命 Mechanical life	30000 次
触头自闭力 Contact antomatic blocking baility	100 ± 30N
额定开距下的触头反力 Force required to hold contacts open at full stroke	200 ± 30N
触头允许磨损厚度 Contace-wear allowance tickness	3mm
局部放电量 Part discharge	≤ 1 PC
额定操作顺序 Rated operating sequence	O-0.3s-CO-180s-CO

配用的真空开关的机械参数

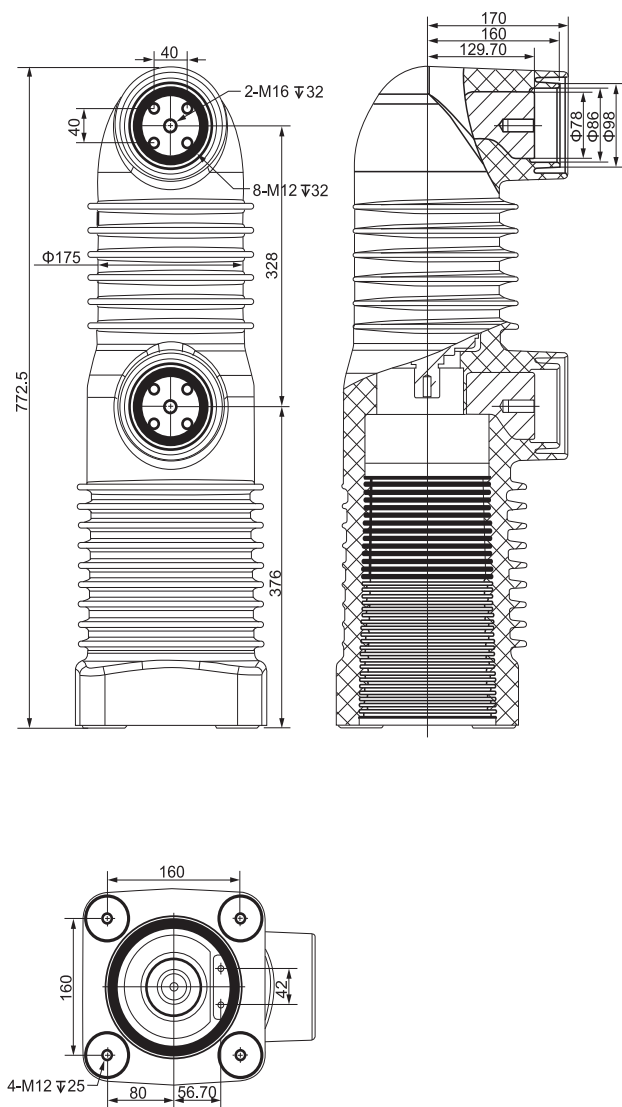
MECHANICAL DATA REQUIRED FOR MATCHED VACUUM SWITCHGEAR

触头开距 Contact stroke	9 ± 1mm
触头接触行程 Contact tiavel	4 ± 1mm
平均分闸速度 Average opening speed	1.1 ± 0.2m/s
平均合闸速度 Average closing speed	0.7 ± 0.2m/s
额定触头压力 Rated contace pressure	3000 ± 200N
触头合闸弹跳时间 Contact closing bonnce time	≤ 2 ms
触头分合闸不同期 Out of simultaneity of contact closing and opning	≤ 1 ms

外形尺寸

Outline Dimension

QG5010 EP-40.5/1250-25
QG5010 EP-40.5/1600-25
QG5010 EP-40.5/2000-31.5
QG5010 EP-40.5/2500-31.5



注：* 为需要时提供的额定参数值。
Note: * rated characteristics to be given on request.

主要技术参数

Main Technica Data

参数值

Value

额定电压 Rated voltage	40.5kV
额定电流 Rated normal current	1250A/1600A 2000A/2500A
额定频率 Rated frequency	50Hz
额定短路开断电流 Rated normal current	25kA/31.5kA
额定短路开断电流开断次数 Rated lightning impulse voltage	20 次
额定短路关合电流 Rated short-circuit making current	80kA
额定峰值耐受电流 Rated peak withstand current	80kA
额定短时耐受电流（4 秒） Rated short-time withstand current(4s)	25kA/31.5kA
额定单个电容器组开断电流 Rated sing capacitor unit breaking current	630A*
额定背对背电容器组开断电流 Rated back to back capacitor breaking current	400A*
短时（1min）工频耐受电压 Short-time(1min)power-frequency withstand voltage	95kV
额定冲击耐受电压（峰值） Rated impulse voltage(peak)	185kV
额定触头压力下的回路电阻 Circuit resistance at rated contact force	$\leq 20 \mu \Omega$
机械寿命 Mechanical life	10000 次
触头自闭力 Contact antomatic blocking baility	200 ± 50N
额定开距下的触头反力 Force required to hold contacts open at full stroke	400 ± 50N
触头允许磨损厚度 Contance-wear allowance tickness	3mm
局部放电量 Part discharge	$\leq 5PC$
额定操作顺序 Rated operating sequence	O-0.3s-CO-180s-CO

配用的真空开关的机械参数

MECHANICAL DATA REQUIRED FOR MATCHED VACUUM SWITCHGEAR

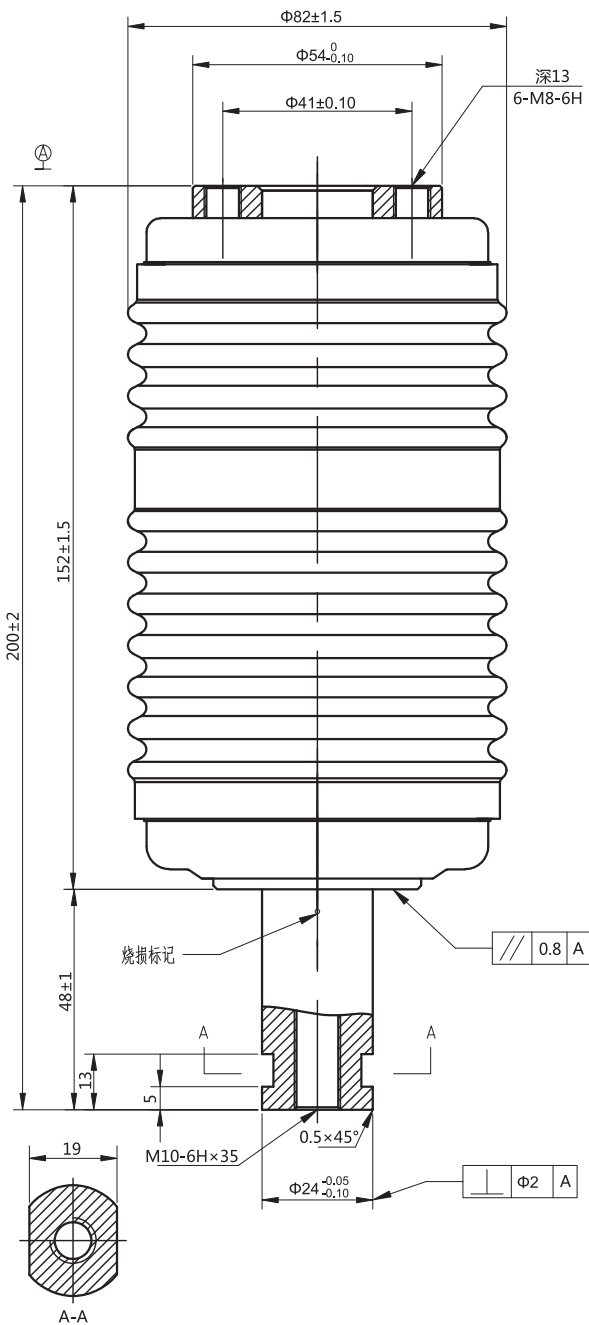
触头开距 Contact stroke	18 ± 2mm
平均分闸速度 Average opening speed	1.7 ± 0.2m/s
平均合闸速度 Average closing speed	1.7 ± 0.2m/s
额定触头压力 Rated contance pressure	3500 ± 300N
触头合闸弹跳时间 Contact closing bonnce time	$\leq 3ms$
触头分合闸不同期 Out of simultaneity of contact closing and opning	$\leq 2ms$

QG1005 TD-12 户内断路器用真空灭弧室

QG1005 TD-12 Vacuum Interrupter For Indoor Circuit Breaker

外形尺寸 Outline Dimension

QG1005 TD-12/630-12.5



注：* 为需要时提供的额定参数值。
Note: * rated characteristics to be given on request.

主要技术参数 Main Technica Data

参数值 Value

额定电压 Rated voltage	12kV
额定电流 Rated normal current	630A
额定频率 Rated frequency	50Hz
额定短路开断电流 Rated normal current	12.5KA
额定短路关合电流 Rated short-circuit making current	31.5KA
额定峰值耐受电流 Rated peak withstand current	31.5KA
额定短时耐受电流 Rated short-time withstand current	12.5KA
额定短路持续时间 Rated back to back capacitor unit breaking current	4S
额定单个电容器组开断电流 Rated sing capacitor unit breaking current	400A*
额定背对背电容器组开断电流 Rated back to back capacitor breaking current	400A*
额定短时（1min）工频耐压 Rated Short-time withstand voltage	42KV
额定触头压力下限时的回路电阻 Contact automatic blocking ability loop electrical resistance	≤ 20 μ Ω
额定短路开断电流开断次数 Rated lightning impulse withstand voltage	30 次
额定雷电冲击耐受电压 Rated Lighting impulse voltage	75KV
机械寿命 Mechanical life	10000 次
触头自闭力 Contact antomatic blocking baility	80 ± 15N
额定开距时的触头反力 Force required to hold contacts open at full stroke	130 ± 20N
触头允许磨损厚度 Contace-wear allowance tickness	3mm
内部气体压力 Internal gas pressure	≤ 1.33x10 ⁻³ Pa

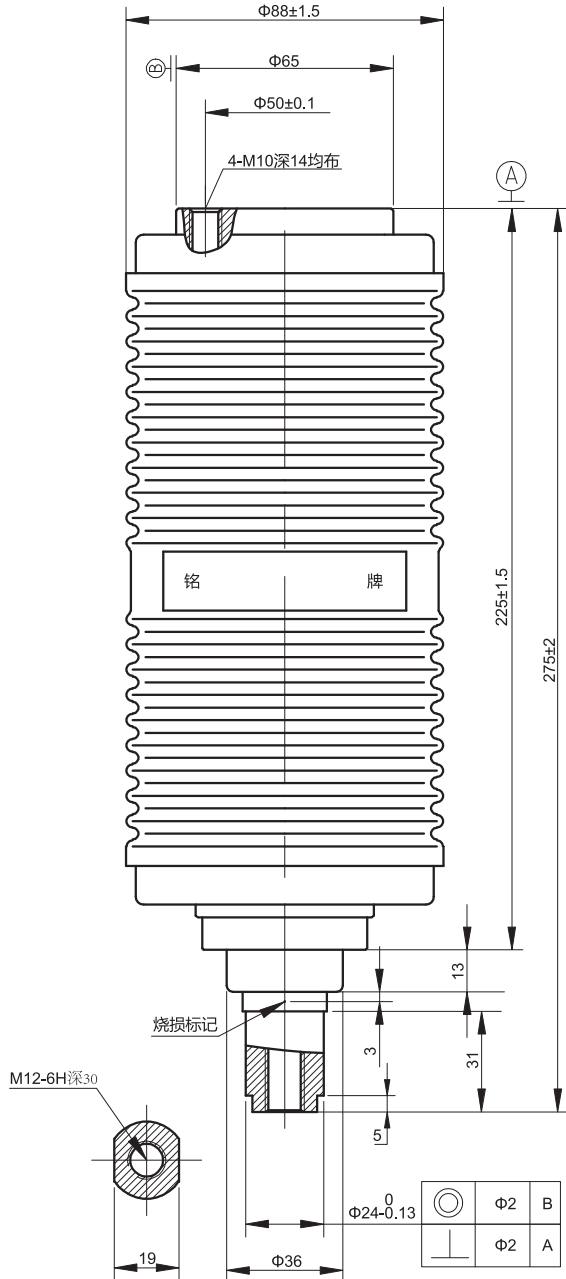
配用的真空开关的机械参数 MECHANICAL DATA REQUIRED FOR MATCHED VACUUM SWITCHGEAR

触头开距 Contact stroke	9 ± 1mm
平均分闸速度 Average opening speed	1.1 ± 0.2m/s
平均合闸速度 Average closing speed	0.6 ± 0.2m/s
额定触头压力 Rated contace pressure	1000 ± 100N
触头合闸弹跳时间 Contact closeing bonnce time	≤ 2ms
三相同期性 Three-pole simultaneity	≤ 1ms

外形尺寸
Outline Dimension

QG203 TD-12/1250-20

QG203 TD-12/1250-25



注：* 为需要时提供的额定参数值。
Note: *rated characteristics to be given on request.

主要技术参数
Main Technica Data

参数值
Value

额定电压 Rated voltage	12kV
额定电流 Rated normal current	1250A
额定频率 Rated frequency	50Hz
额定短路开断电流 Rated normal current	20/25kA
额定短路关合电流 Rated short-circuit making current	50/63kA
额定峰值耐受电流 Rated peak withstand current	50/63kA
额定短时耐受电流 Rated short-time withstand current	20/25kA
额定短路持续时间 Rated back to back capacitor unit breaking current	4S
额定单个电容器组开断电流 Rated sing capacitor unit breaking current	400A*
额定背对背电容器组开断电流 Rated back to back capacitor breaking current	400A*
额定短时（1min）工频耐压 Rated Short-time withstand voltage	42KV
额定触头压力下限时的回路电阻 Contact automatic blocking ability loop electrical resistance	≤ 20 μ Ω
额定短路开断电流开断次数 Rated lightning impulse withstand voltage	30 次
额定雷电冲击耐受电压 Rated Lighting impulse voltage	75KV
机械寿命 Mechanical life	10000 次
触头自闭力 Contact antomatic blocking bailly	120 ± 50N
额定开距时的触头反力 Force required to hold contacts open at full stroke	200 ± 50N
触头允许磨损厚度 Contace-wear allowance tickness	3mm
内部气体压力 Internal gas pressure	≤ 1.33x10 ⁻³ Pa

配用的真空开关的机械参数
MECHANICAL DATA REQUIRED FOR MATCHED VACUUM SWITCHGEAR

触头开距 Contact stroke	11 ± 1mm
平均分闸速度 Average opening speed	0.6 ± 0.2m/s
平均合闸速度 Average closing speed	1.1 ± 0.2m/s
额定触头压力 Rated contace pressure	2000 /2500 ± 200N
触头合闸弹跳时间 Contact closing bonnce time	≤ 2ms
三相同期性 Three-pole simultaneity	≤ 1ms

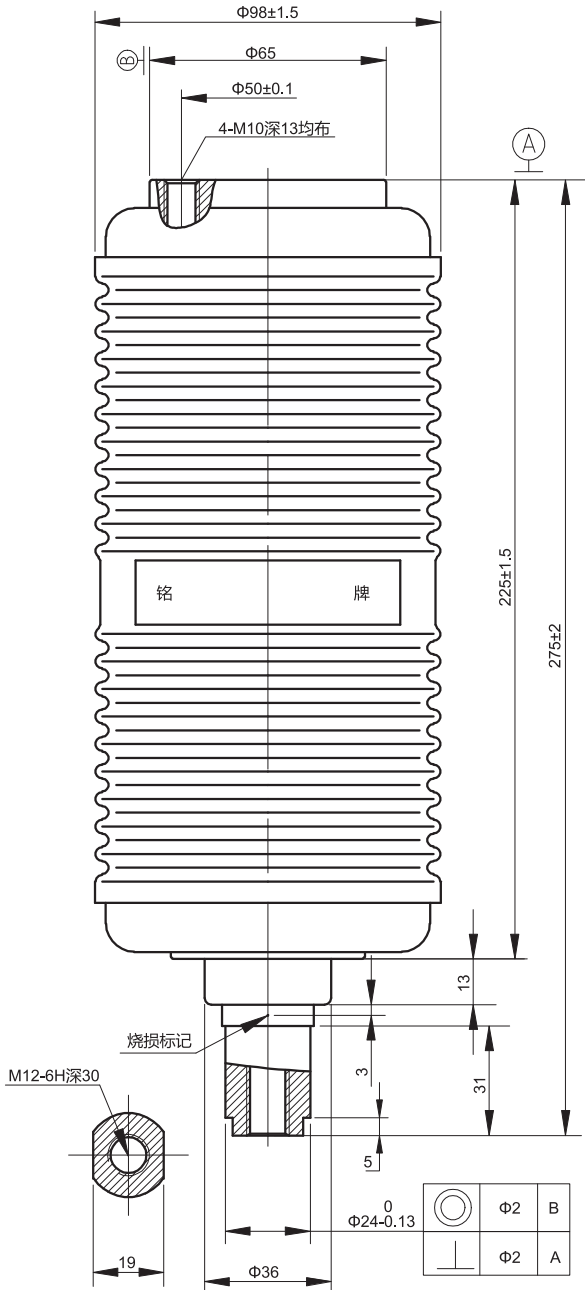
QG308 TD-12 户内断路器用真空灭弧室

QG308 TD-12 Vacuum Interrupter For Indoor Circuit Breaker

外形尺寸 Outline Dimension

QG308 TD-12/1600-31.5

QG308 TD-12/1250-31.5



注：* 为需要时提供的额定参数值。
Note: *rated characteristics to be given on request.

主要技术参数 Main Technica Data

参数值 Value

额定电压 Rated voltage	12kV
额定电流 Rated normal current	1250/1600A
额定频率 Rated frequency	50Hz
额定短路开断电流 Rated normal current	31.5kA
额定短路关合电流 Rated short-circuit making current	80kA
额定峰值耐受电流 Rated peak withstand current	80kA
额定短时耐受电流 Rated short-time withstand current	31.5kA
额定短路持续时间 Rated back to back capacitor unit breaking current	4S
额定单个电容器组开断电流 Rated sing capacitor unit breaking current	400A*
额定背对背电容器组开断电流 Rated back to back capacitor breaking current	400A*
额定短时（1min）工频耐压 Rated Short-time withstand voltage	42KV
额定触头压力下限时的回路电阻 Contact automatic blocking ability loop electrical resistance	$\leq 20 \mu \Omega$
额定短路开断电流开断次数 Rated lightning impulse withstand voltage	30 次
额定雷电冲击耐受电压 Rated Lighting impulse voltage	75KV
机械寿命 Mechanical life	10000 次
触头自闭力 Contact antomatic blocking baility	120 ± 50N
额定开距时的触头反力 Force required to hold contacts open at full stroke	200 ± 50N
触头允许磨损厚度 Contace-wear allowance tickness	3mm
内部气体压力 Internal gas pressure	$\leq 1.33 \times 10^{-3} \text{Pa}$

配用的真空开关的机械参数

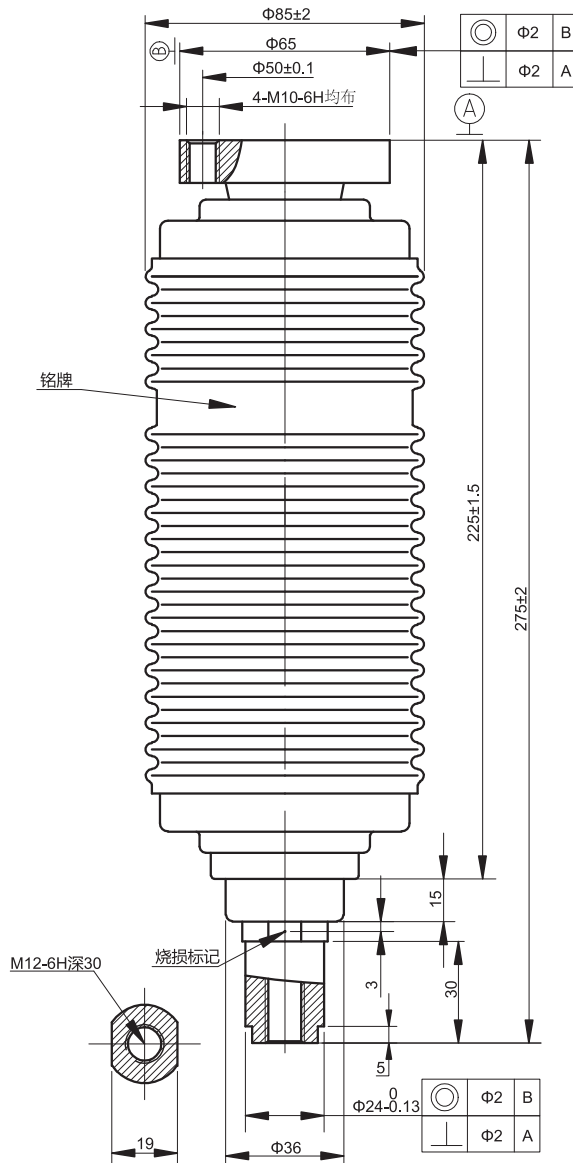
MECHANICAL DATA REQUIRED FOR MATCHED VACUUM SWITCHGEAR

触头开距 Contact stroke	11 ± 1mm
平均分闸速度 Average opening speed	0.6 ± 0.2m/s
平均合闸速度 Average closing speed	1.1 ± 0.2m/s
额定触头压力 Rated contace pressure	3100 ± 200N
触头合闸弹跳时间 Contact closing bonnce time	$\leq 2\text{ms}$
三相同期性 Three-pole simultaneity	$\leq 1\text{ms}$

外形尺寸
Outline Dimension

QG1203 TD-12/1250-20

QG1203 TD-12/1250-25



注：* 为需要时提供的额定参数值。
Note: * rated characteristics to be given on request.

主要技术参数
Main Technica Data

参数值
Value

额定电压 Rated voltage	12kV
额定电流 Rated current	1250A
额定频率 Rated frequency	50Hz
额定短路开断电流 Rated normal current	20/25kA
额定短路关合电流 Rated short-circuit making current	50/63kA
额定峰值耐受电流 Rated peak withstand current	50/63kA
额定短时耐受电流 Rated short-time withstand current	20/25kA
额定短路持续时间 Rated back to back capacitor unit breaking current	4S
额定单个电容器组开断电流 Rated sing capacitor unit breaking current	400A*
额定背对背电容器组开断电流 Rated back to back capacitor breaking current	400A*
额定短时（1min）工频耐压 Rated Short-time withstand voltage	42KV
额定触头压力下限时的回路电阻 Contact automatic blocking ability loop electrical resistance	≤ 20 μ Ω
额定短路开断电流开断次数 Rated lightning impulse withstand voltage	30 次
额定雷电冲击耐受电压 Rated Lighting impulse voltage	75KV
机械寿命 Mechanical life	10000 次
触头自闭力 Contact antomatic blocking bailly	120 ± 50N
额定开距时的触头反力 Force required to hold contacts open at full stroke	200 ± 50N
触头允许磨损厚度 Contace-wear allowance tickness	3mm
内部气体压力 Internal gas pressure	≤ 1.33x10 ⁻³ Pa

配用的真空开关的机械参数

MECHANICAL DATA REQUIRED FOR MATCHED VACUUM SWITCHGEAR

触头开距 Contact stroke	11 ± 1mm
平均分闸速度 Average opening speed	0.6 ± 0.2m/s
平均合闸速度 Average closing speed	1.1 ± 0.2m/s
额定触头压力 Rated contace pressure	2000 /2500 ± 200N
触头合闸弹跳时间 Contact closing bonnce time	≤ 2ms
三相同期性 Three-pole simultaneity	≤ 1ms

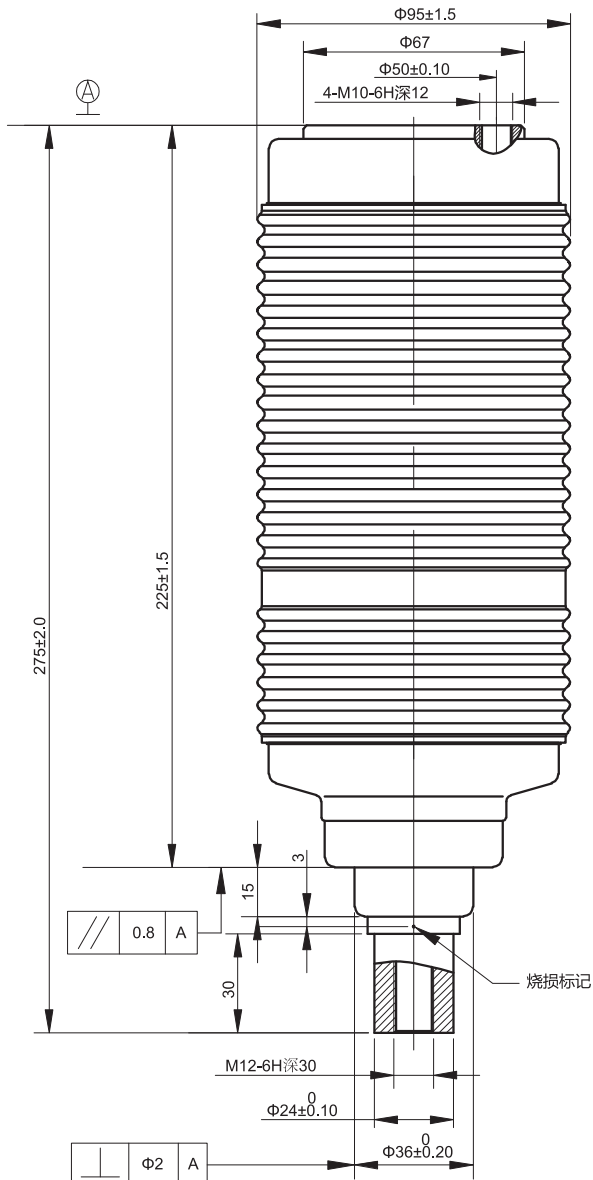
QG310 TD-12 户内断路器用真空灭弧室

QG310 TD-12 Vacuum Interrupter For Indoor Circuit Breaker

外形尺寸 Outline Dimension

QG310 TD-12/1600-31.5

QG310 TD-12/1250-31.5



注：* 为需要时提供的额定参数值。
Note: * rated characteristics to be given on request.

主要技术参数 Main Technica Data

参数值 Value

额定电压 Rated voltage	12kV
额定电流 Rated current	1250/1600A
额定频率 Rated frequency	50Hz
额定短路开断电流 Rated normal current	31.5kA
额定短路关合电流 Rated short-circuit making current	80kA
额定峰值耐受电流 Rated peak withstand current	80kA
额定短时耐受电流 Rated short-time withstand current	31.5kA
额定短路持续时间 Rated back to back capacitor unit breaking current	4S
额定单个电容器组开断电流 Rated sing capacitor unit breaking current	400A*
额定背对背电容器组开断电流 Rated back to back capacitor breaking current	400A*
额定短时（1min）工频耐压 Rated Short-time withstand voltage	42KV
额定触头压力下限时的回路电阻 Contact automatic blocking ability loop electrical resistance	≤ 20 μ Ω
额定短路开断电流开断次数 Rated lightning impulse withstand voltage	30 次
额定雷电冲击耐受电压 Rated Lighting impulse voltage	75KV
机械寿命 Mechanical life	10000 次
触头自闭力 Contact antomatic blocking bailly	120 ± 50N
额定开距时的触头反力 Force required to hold contacts open at full stroke	200 ± 50N
触头允许磨损厚度 Contace-wear allowance tickness	3mm
内部气体压力 Internal gas pressure	≤ 1.33x10 ⁻³ Pa

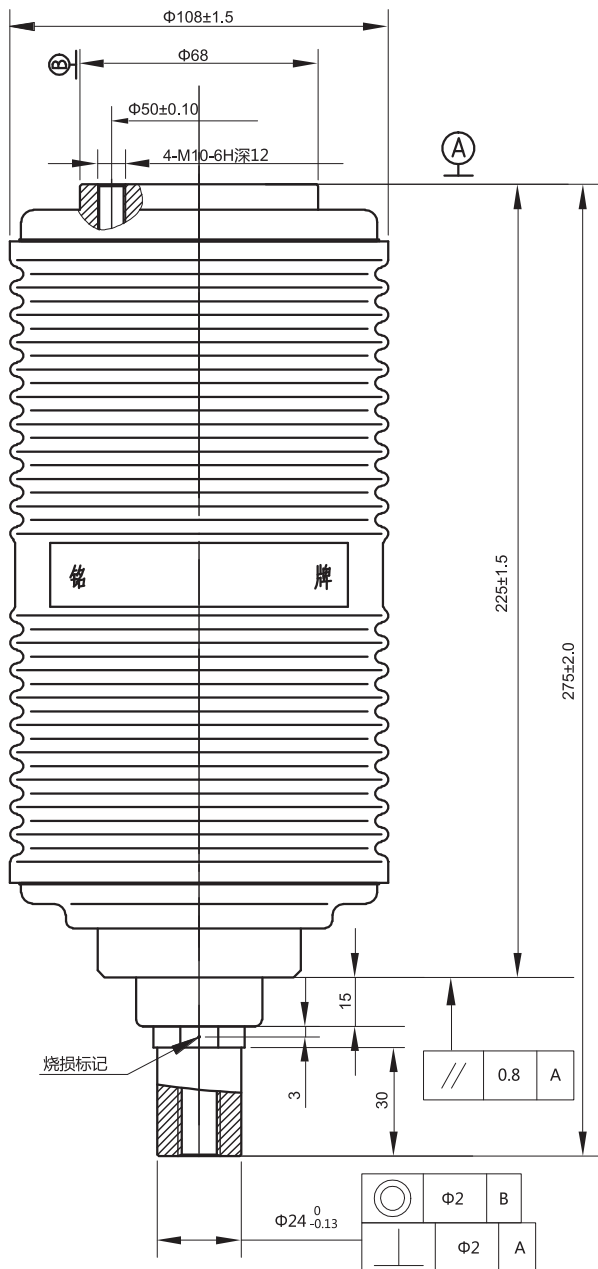
配用的真空开关的机械参数

MECHANICAL DATA REQUIRED FOR MATCHED VACUUM SWITCHGEAR

触头开距 Contact stroke	11 ± 1mm
平均分闸速度 Average opening speed	0.6 ± 0.2m/s
平均合闸速度 Average closing speed	1.1 ± 0.2m/s
额定触头压力 Rated contace pressure	3100 ± 200N
触头合闸弹跳时间 Contact closeing bonnce time	≤ 2ms
三相同期性 Three-pole simultaneity	≤ 1ms

外形尺寸
Outline Dimension

QG316 TD-12/2000-31.5



注：* 为需要时提供的额定参数值。
Note: * rated characteristics to be given on request.

主要技术参数
Main Technica Data

参数值
Value

额定电压 Rated voltage	12kV
额定电流 Rated current	2000A
额定频率 Rated frequency	50Hz
额定短路开断电流 Rated normal current	31.5KA
额定短路关合电流 Rated short-circuit making current	80KA
额定峰值耐受电流 Rated peak withstand current	80KA
额定短时耐受电流 Rated short-time withstand current	31.5KA
额定短路持续时间 Rated back to back capacitor unit breaking current	4S
额定单个电容器组开断电流 Rated sing capacitor unit breaking current	400A*
额定背对背电容器组开断电流 Rated back to back capacitor breaking current	400A*
额定短时（1min）工频耐压 Rated Short-time withstand voltage	48KV
额定触头压力下限时的回路电阻 Contact automatic blocking ability loop electrical resistance	≤ 20 μ Ω
额定短路开断电流开断次数 Rated lightning impulse withstand voltage	30 次
额定雷电冲击耐受电压 Rated Lighting impulse voltage	85KV
机械寿命 Mechanical life	10000 次
触头自闭力 Contact antomatic blocking baility	135 ± 50N
额定开距时的触头反力 Force required to hold contacts open at full stroke	190 ± 50N
触头允许磨损厚度 Contace-wear allowance tickness	3mm
内部气体压力 Internal gas pressure	≤ 1.33x10 ⁻³ Pa

配用的真空开关的机械参数
MECHANICAL DATA REQUIRED FOR MATCHED VACUUM SWITCHGEAR

触头开距 Contact stroke	10+2.0mm
平均分闸速度 Average opening speed	1.1 ± 0.2m/s
平均合闸速度 Average closing speed	0.7 ± 0.2m/s
额定触头压力 Rated contace pressure	3100 ± 100N
触头合闸弹跳时间 Contact closing bonnce time	≤ 2ms
三相同期性 Three-pole simultaneity	≤ 1ms

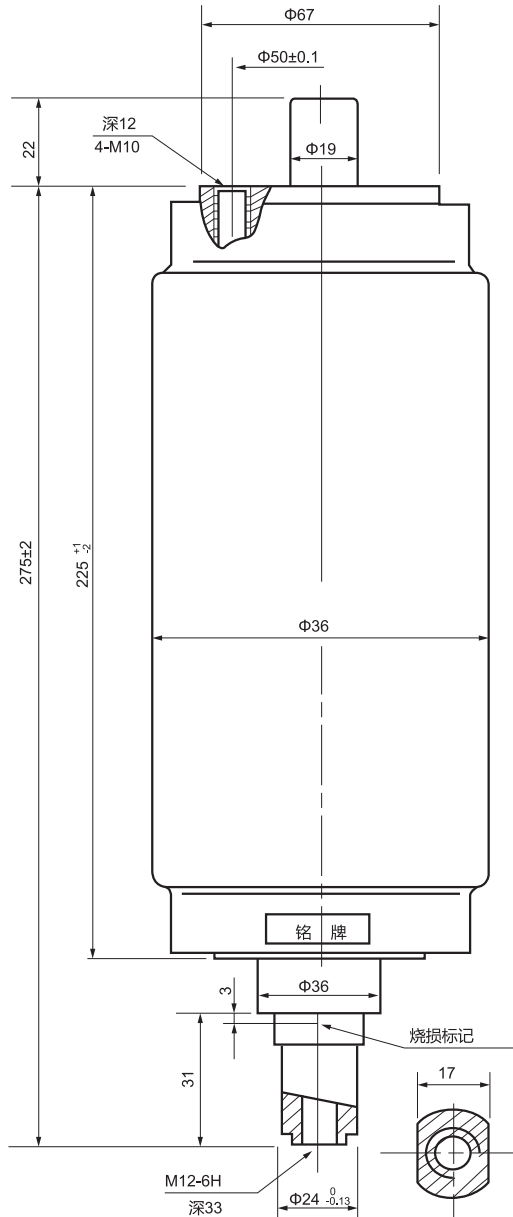
QG306 BD-12 户内断路器用真空灭弧室

QG306 BD-12 Vacuum Interrupter For Indoor Circuit Breaker

外形尺寸 Outline Dimension

QG306 BD-12/1250-20

QG306 BD-12/1250-25



注：* 为需要时提供的额定参数值。
Note: *rated characteristics to be given on request.

主要技术参数 Main Technica Data

参数值 Value

额定电压 Rated voltage	12kV
额定电流 Rated current	1250A
额定频率 Rated frequency	50Hz
额定短路开断电流 Rated normal current	20/25kA
额定短路关合电流 Rated short-circuit making current	50/63kA
额定峰值耐受电流 Rated peak withstand current	50/63kA
额定短时耐受电流 Rated short-time withstand current	20/25kA
额定短路持续时间 Rated back to back capacitor unit breaking current	4S
额定单个电容器组开断电流 Rated sing capacitor unit breaking current	400A*
额定背对背电容器组开断电流 Rated back to back capacitor breaking current	400A*
额定短时（1min）工频耐压 Rated Short-time withstand voltage	42KV
额定触头压力下限时的回路电阻 Contact automatic blocking ability loop electrical resistance	$\leq 20 \mu \Omega$
额定短路开断电流开断次数 Rated lightning impulse withstand voltage	30 次
额定雷电冲击耐受电压 Rated Lighting impulse voltage	75KV
机械寿命 Mechanical life	10000 次
触头自闭力 Contact antomatic blocking baility	120 ± 50N
额定开距时的触头反力 Force required to hold contacts open at full stroke	200 ± 50N
触头允许磨损厚度 Contace-wear allowance tickness	3mm
内部气体压力 Internal gas pressure	$\leq 1.33 \times 10^{-3} \text{Pa}$

配用的真空开关的机械参数

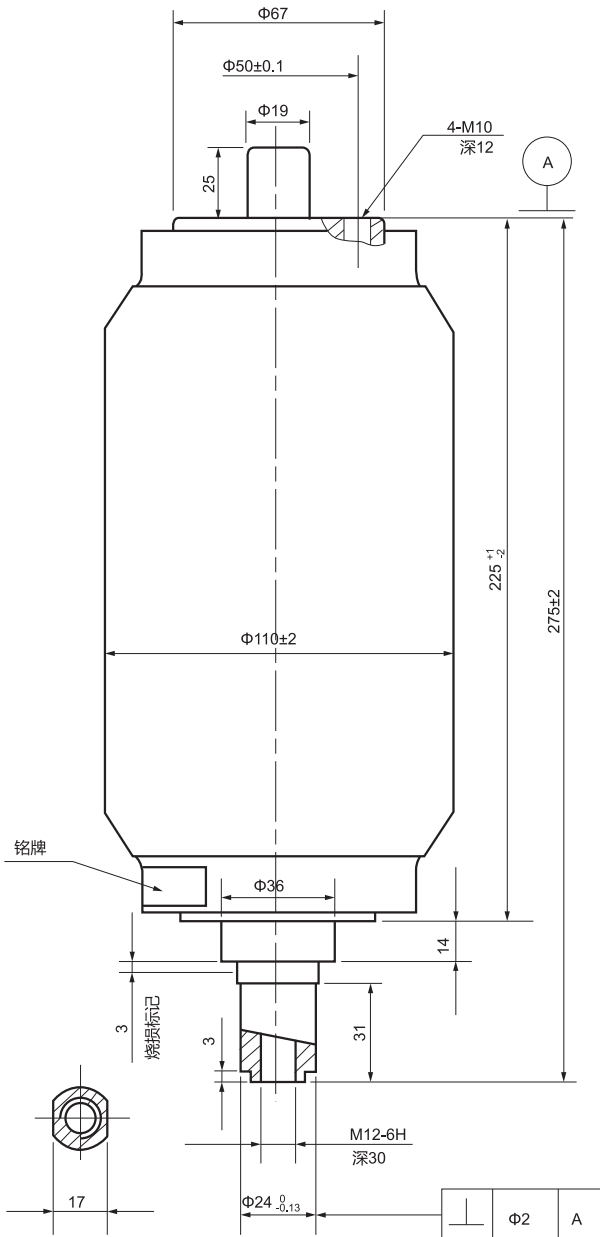
MECHANICAL DATA REQUIRED FOR MATCHED VACUUM SWITCHGEAR

触头开距 Contact stroke	11 ± 1mm
平均分闸速度 Average opening speed	0.6 ± 0.2m/s
平均合闸速度 Average closing speed	1.1 ± 0.2m/s
额定触头压力 Rated contace pressure	2000/2500 ± 200N
触头合闸弹跳时间 Contact closing bonnce time	$\leq 2\text{ms}$
三相同期性 Three-pole simultaneity	$\leq 1\text{ms}$

外形尺寸
Outline Dimension

QG305 BD-12/1250-31.5

QG305 BD-12/1600-31.5



注：* 为需要时提供的额定参数值。
Note: * rated characteristics to be given on request.

主要技术参数
Main Technica Data

参数值
Value

额定电压 Rated voltage	12kV
额定电流 Rated current	1250/1600A
额定频率 Rated frequency	50Hz
额定短路开断电流 Rated normal current	31.5KA
额定短路关合电流 Rated short-circuit making current	80KA
额定峰值耐受电流 Rated peak withstand current	80KA
额定短时耐受电流 Rated short-time withstand current	31.5KA
额定短路持续时间 Rated back to back capacitor unit breaking current	4S
额定单个电容器组开断电流 Rated sing capacitor unit breaking current	400A*
额定背对背电容器组开断电流 Rated back to back capacitor breaking current	400A*
额定短时（1min）工频耐压 Rated Short-time withstand voltage	42kV
额定触头压力下限时的回路电阻 Contact automatic blocking ability loop electrical resistance	$\leq 20 \mu \Omega$
额定短路开断电流开断次数 Rated lightning impulse withstand voltage	30 次
额定雷电冲击耐受电压 Rated Lighting impulse voltage	75kV
机械寿命 Mechanical life	10000 次
触头自闭力 Contact antomatic blocking baility	120 ± 50N
额定开距时的触头反力 Force required to hold contacts open at full stroke	200 ± 50N
触头允许磨损厚度 Contace-wear allowance tickness	3mm
内部气体压力 Internal gas pressure	$\leq 1.33 \times 10^{-3} \text{Pa}$

配用的真空开关的机械参数

MECHANICAL DATA REQUIRED FOR MATCHED VACUUM SWITCHGEAR

触头开距 Contact stroke	11 ± 1mm
平均分闸速度 Average opening speed	1.1 ± 0.2m/s
平均合闸速度 Average closing speed	0.6 ± 0.2m/s
额定触头压力 Rated contace pressure	3100 ± 200N
触头合闸弹跳时间 Contact closing bonnce time	$\leq 2\text{ms}$
三相同期性 Three-pole simultaneity	$\leq 1\text{ms}$

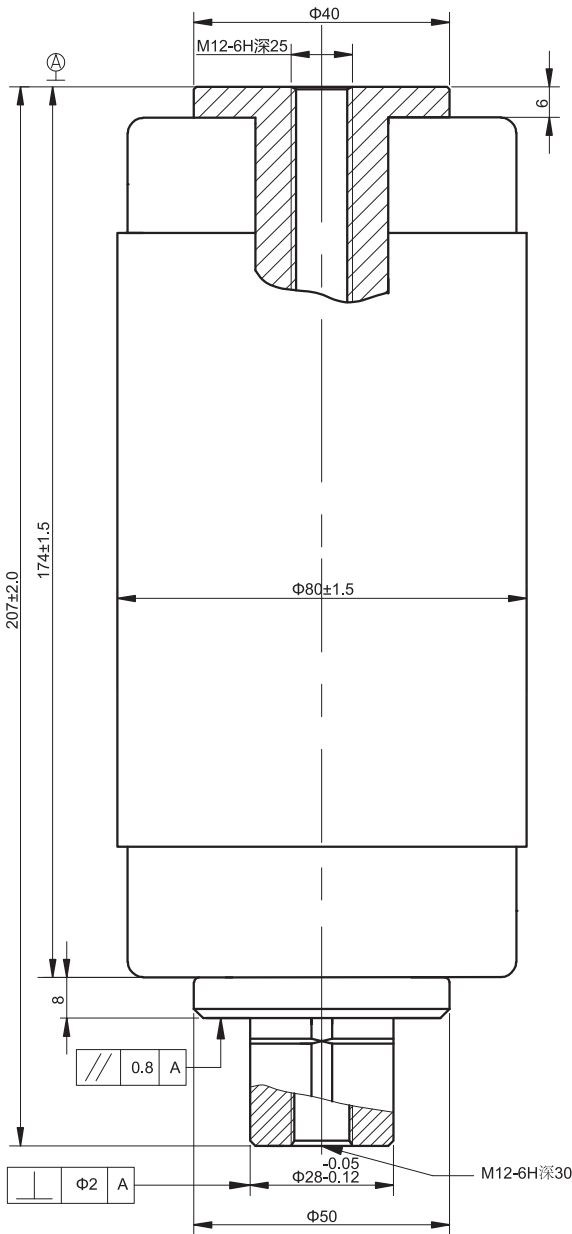
QG5003 TD-12 户内断路器用真空开关管

QG5003 TD-12 Vacuum Interrupter For Indoor Circuit Breaker

外形尺寸

Outline Dimension

QG5003 固封极柱专用 TD-12/630-25
QG5003 固封极柱专用 TD-12/1250-25



注: * 为需要时提供的额定参数值。
Note: *rated characteristics to be given on request

说明: 额定绝缘测试及使用时需要加绝缘保护, 如置于 SF6 气体、绝缘油或固封等其他绝缘介质中。
Explanation: Rated insulation values requires external insulation such as SF6, insulation oil or solid dielectric material etc.

主要技术参数

Main Technica Data

参数值

Value

额定电压 Rated voltage	12kV
额定电流 Rated current	630/1250A
额定频率 Rated frequency	50Hz
额定短路开断电流 Rated normal current	25kA
额定短路关合电流 Rated short-circuit making current	63kA
额定峰值耐受电流 Rated peak withstand current	63kA
额定短时耐受电流 Rated short-time withstand current	25kA
额定短路持续时间 Rated back to back capacitor unit breaking current	4S
额定单个电容器组开断电流 Rated sing capacitor unit breaking current	400A*
额定背对背电容器组开断电流 Rated back to back capacitor breaking current	400A*
额定短时 (1min) 工频耐压 Rated Short-time withstand voltage	48kV
额定触头压力下限时的回路电阻 Contact automatic blocking ability loop electrical resistance	≤ 20 μ Ω
额定短路开断电流开断次数 Rated lightning impulse withstand voltage	30 次
额定雷电冲击耐受电压 Rated Lighting impulse voltage	85kV
机械寿命 Mechanical life	20000 次
触头自闭力 Contact antomatic blocking bailly	120 ± 50N
额定开距时的触头反力 Force required to hold contacts open at full stroke	190 ± 60N
触头允许磨损厚度 Contace-wear allowance tickness	3mm
内部气体压力 Internal gas pressure	≤ 1.33x10 ⁻³ Pa

配用的真空开关的机械参数

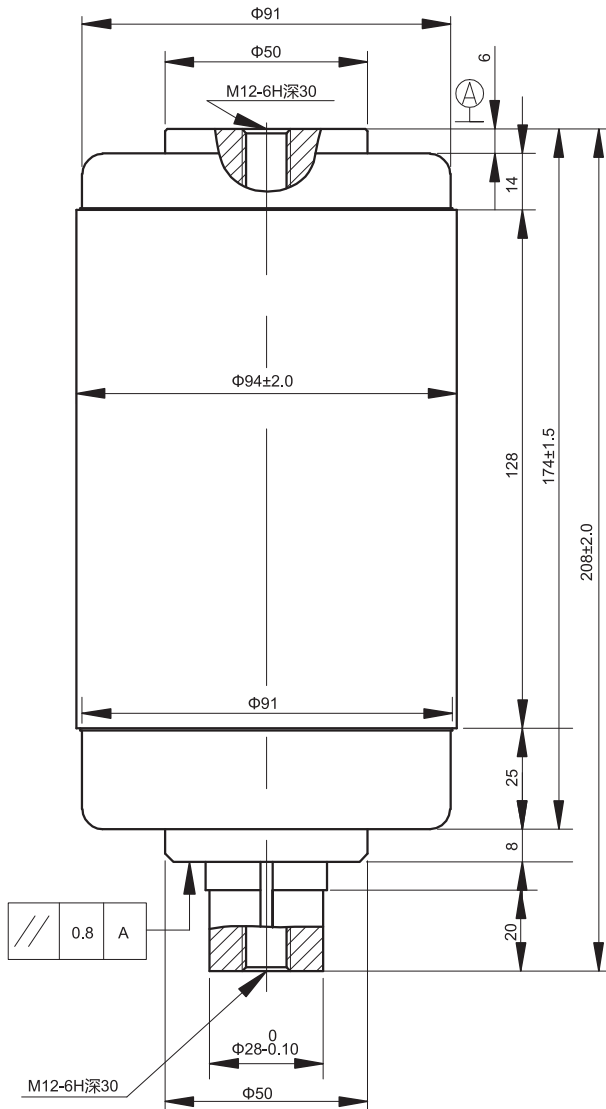
MECHANICAL DATA REQUIRED FOR MATCHED VACUUM SWITCHGEAR

触头开距 Contact stroke	9 ± 1mm
平均分闸速度 Average opening speed	1.0 ± 0.25m/s
平均合闸速度 Average closing speed	0.65 ± 0.15m/s
额定触头压力 Rated contace pressure	2000 ± 200N
触头合闸弹跳时间 Contact closing bonnce time	≤ 2ms
三相同期性 Three-pole simultaneity	≤ 1ms

外形尺寸
Outline Dimension

QG5002 固封极柱专用 TD-12/1250-31.5

QG5002 固封极柱专用 TD-12/1600-31.5



注：* 为需要时提供的额定参数值。
Note: *rated characteristics to be given on request

说明：额定绝缘测试及使用时需要加绝缘保护，如置于 SF6 气体、绝缘油或固封等其他绝缘介质中。
Explanation: Rated insulation values requires external insulation such as SF6, insulation oil or solid dielectric material etc.

主要技术参数
Main Technica Data

参数值
Value

额定电压 Rated voltage	12kV
额定电流 Rated current	1250/1600A
额定频率 Rated frequency	50Hz
额定短路开断电流 Rated normal current	31.5KA
额定短路关合电流 Rated short-circuit making current	80KA
额定峰值耐受电流 Rated peak withstand current	80KA
额定短时耐受电流 Rated short-time withstand current	31.5KA
额定短路持续时间 Rated back to back capacitor unit breaking current	4S
额定单个电容器组开断电流 Rated sing capacitor unit breaking current	400A*
额定背对背电容器组开断电流 Rated back to back capacitor breaking current	400A*
额定短时（1min）工频耐压 Rated Short-time withstand voltage	48kV
额定触头压力下限时的回路电阻 Contact automatic blocking ability loop electrical resistance	$\leq 20 \mu \Omega$
额定短路开断电流开断次数 Rated lightning impulse withstand voltage	30 次
额定雷电冲击耐受电压 Rated Lighting impulse voltage	85kV
机械寿命 Mechanical life	20000 次
触头自闭力 Contact antomatic blocking bailly	120 ± 50N
额定开距时的触头反力 Force required to hold contacts open at full stroke	190 ± 60N
触头允许磨损厚度 Contact-wear allowance tickness	3mm
内部气体压力 Internal gas pressure	$\leq 1.33 \times 10^{-3} \text{Pa}$

配用的真空开关的机械参数

MECHANICAL DATA REQUIRED FOR MATCHED VACUUM SWITCHGEAR

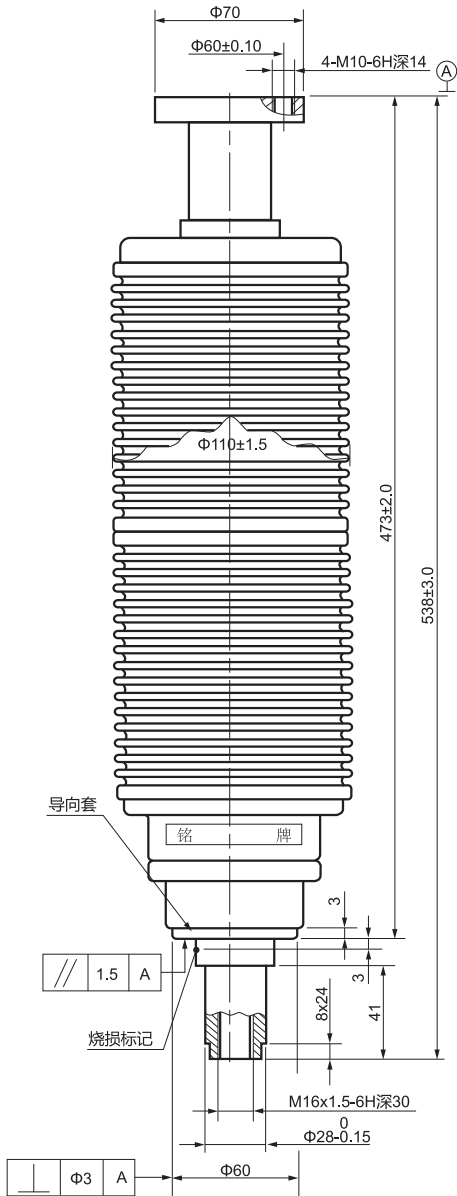
触头开距 Contact stroke	± 1mm
平均分闸速度 Average opening speed	1.0 ± 0.25m/s
平均合闸速度 Average closing speed	0.65 ± 0.15m/s
额定触头压力 Rated contace pressure	3150 ± 200N
触头合闸弹跳时间 Contact closing bonnce time	$\leq 2\text{ms}$
三相同期性 Three-pole simultaneity	$\leq 1\text{ms}$

QG6002 TD-40.5 户内断路器用真空开关管

QG6002 TD-40.5 Vacuum Interrupter For Indoor Circuit Breaker

外形尺寸
Outline Dimension

- QG6002 TD-40.5/1600-25
- QG6002 TD-40.5/2000-25
- QG6002 TD-40.5/1600-31.5
- QG6002 TD-40.5/2000-31.5



注：* 为需要时提供的额定参数值。
Note: *rated characteristics to be given on request.

主要技术参数
Main Technica Data

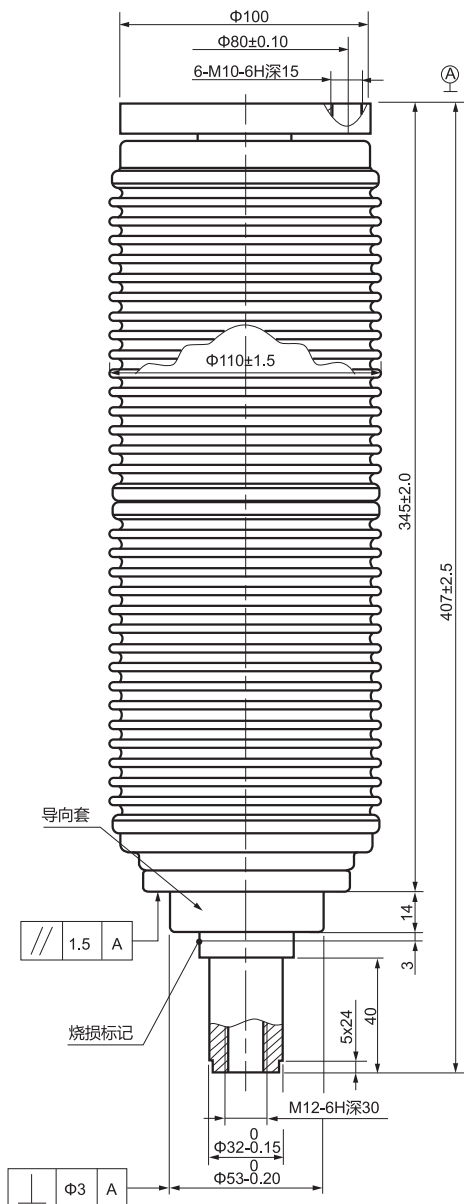
主要技术参数 Main Technica Data	参数值 Value
额定电压 Rated voltage	40.5kV
额定电流 Rated current	1600/2000A
额定频率 Rated frequency	50Hz
额定短路开断电流 Rated normal current	25/31.5kA
额定短路关合电流 Rated short-circuit making current	63/80kA
额定峰值耐受电流 Rated peak withstand current	63/80kA
额定短时耐受电流 Rated short-time withstand current	25/31.5kA
额定短路持续时间 Rated back to back capacitor unit breaking current	4S
额定单个电容器组开断电流 Rated sing capacitor unit breaking current	400A*
额定背对背电容器组开断电流 Rated back to back capacitor breaking current	400A*
额定短时（1min）工频耐压 Rated Short-time withstand voltage	95kV
额定触头压力下限时的回路电阻 Contact automatic blocking ability loop electrical resistance	≤ 20 μ Ω
额定短路开断电流开断次数 Rated lightning impulse withstand voltage	30 次
额定雷电冲击耐受电压 Rated Lighting impulse voltage	185kV
机械寿命 Mechanical life	10000 次
触头自闭力 Contact antomatic blocking bailly	250 ± 50N
额定开距时的触头反力 Force required to hold contacts open at full stroke	330 ± 60N
触头允许磨损厚度 Contact-wear allowance tickness	3mm
内部气体压力 Internal gas pressure	≤ 1.33x10 ⁻³ Pa

配用的真空开关的机械参数
MECHANICAL DATA REQUIRED FOR MATCHED VACUUM SWITCHGEAR

触头开距 Contact stroke	22 ± 2mm
平均分闸速度 Average opening speed	1.6 ± 0.2m/s
平均合闸速度 Average closing speed	0.75 ± 0.2m/s
额定触头压力 Rated contance pressure	3100 ± 200N
触头合闸弹跳时间 Contact closing bonnce time	≤ 2ms
三相同期性 Three-pole simultaneity	≤ 2ms

外形尺寸 Outline Dimension

QG6001 TD-40.5/1600-25
QG6001 TD-40.5/2000-25
QG6001 TD-40.5/1600-31.5
QG6001 TD-40.5/2000-31.5



注：* 为需要时提供的额定参数值。
Note: * rated characteristics to be given on request.

主要技术参数 Main Technica Data

参数值 Value

额定电压 Rated voltage	40.5kV
额定电流 Rated current	1600/2000A
额定频率 Rated frequency	50Hz
额定短路开断电流 Rated normal current	25/31.5kA
额定短路关合电流 Rated short-circuit making current	63/80kA
额定峰值耐受电流 Rated peak withstand current	63/80kA
额定短时耐受电流 Rated short-time withstand current	25/31.5kA
额定短路持续时间 Rated back to back capacitor unit breaking current	4S
额定单个电容器组开断电流 Rated sing capacitor unit breaking current	400A*
额定背对背电容器组开断电流 Rated back to back capacitor breaking current	400A*
额定短时（1min）工频耐压 Rated Short-time withstand voltage	95kV
额定触头压力下限时的回路电阻 Contact automatic blocking ability loop electrical resistance	≤ 20 μ Ω
额定短路开断电流开断次数 Rated lightning impulse withstand voltage	20 次
额定雷电冲击耐受电压 Rated Lighting impulse voltage	185kV
机械寿命 Mechanical life	10000 次
触头自闭力 Contact antomatic blocking baility	250 ± 50N
额定开距时的触头反力 Force required to hold contacts open at full stroke	330 ± 60N
触头允许磨损厚度 Contact-wear allowance tickness	3mm
内部气体压力 Internal gas pressure	≤ 1.33x10 ⁻³ Pa

配用的真空开关的机械参数

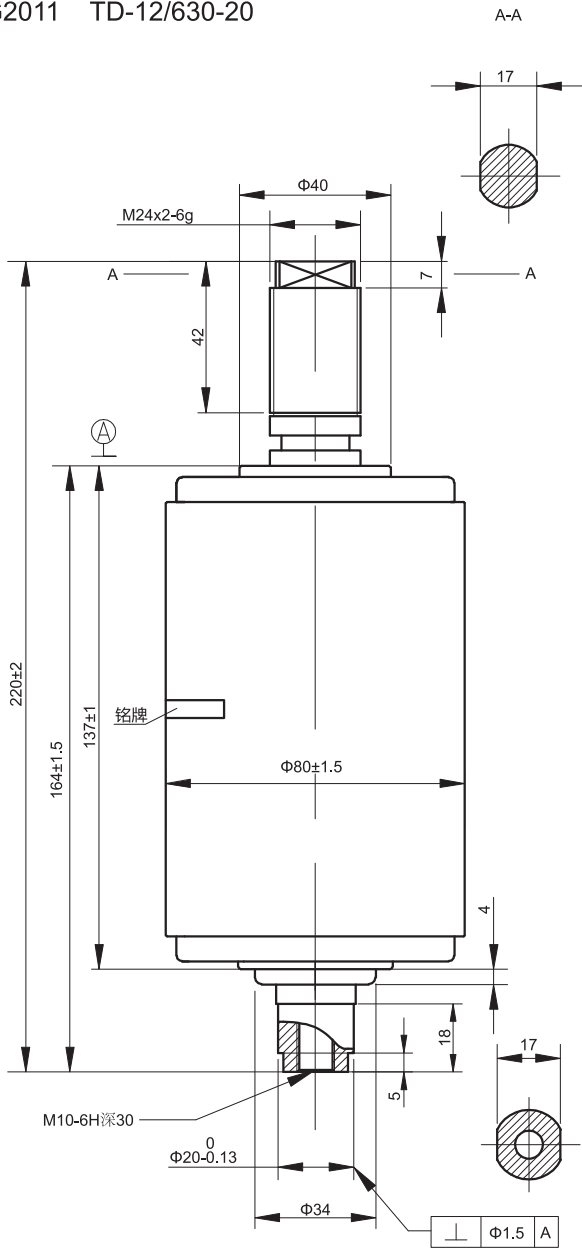
MECHANICAL DATA REQUIRED FOR MATCHED VACUUM SWITCHGEAR

触头开距 Contact stroke	22 ± 2mm
平均分闸速度 Average opening speed	1.6 ± 0.2m/s
平均合闸速度 Average closing speed	0.75 ± 0.2m/s
额定触头压力 Rated contace pressure	3100 ± 200N
触头合闸弹跳时间 Contact closing bonnce time	≤ 2ms
三相同期性 Three-pole simultaneity	≤ 2ms

QG202 TD-12 Vacuum Interrupter For Outdoor Circuit Breaker

外形尺寸
Outline Dimension

QG2011 TD-12/630-20



注：* 为需要时提供的额定参数值。
Note: * rated characteristics to be given on request

说明：额定绝缘测试及使用时需要加绝缘保护，如置于 SF6 气体、绝缘油或固封等其他绝缘介质中。
Explanation: Rated insulation values requires external insulation such as SF6, insulation oil or solid dielectric material etc.

主要技术参数
Main Technica Data

参数值
Value

额定电压 Rated voltage	12kV
额定电流 Rated current	630A
额定频率 Rated frequency	50Hz
额定短路开断电流 Rated normal current	20kA
额定短路关合电流 Rated short-circuit making current	50kA
额定峰值耐受电流 Rated peak withstand current	50kA
额定短时耐受电流 Rated short-time withstand current	20kA
额定短路持续时间 Rated back to back capacitor unit breaking current	4S
额定单个电容器组开断电流 Rated sing capacitor unit breaking current	400A*
额定背对背电容器组开断电流 Rated back to back capacitor breaking current	400A*
额定短时（1min）工频耐压 Rated Short-time withstand voltage	42kV
额定触头压力下限时的回路电阻 Contact automatic blocking ability loop electrical resistance	$\leq 20 \mu \Omega$
额定短路开断电流开断次数 Rated lightning impulse withstand voltage	30 次
额定雷电冲击耐受电压 Rated Lighting impulse voltage	75kV
机械寿命 Mechanical life	10000 次
触头自闭力 Contact antomatic blocking baility	80 ± 30N
额定开距时的触头反力 Force required to hold contacts open at full stroke	140 ± 40N
触头允许磨损厚度 Contace-wear allowance tickness	3mm
内部气体压力 Internal gas pressure	$\leq 1.33 \times 10^{-3} \text{Pa}$

配用的真空开关的机械参数
MECHANICAL DATA REQUIRED FOR MATCHED VACUUM SWITCHGEAR

触头开距 Contact stroke	9 ± 1mm
平均分闸速度 Average opening speed	0.6 ± 0.2m/s
平均合闸速度 Average closing speed	1.1 ± 0.2m/s
额定触头压力 Rated contace pressure	2000 ± 200N
触头合闸弹跳时间 Contact closing bonnce time	$\leq 2\text{ms}$
三相同期性 Three-pole simultaneity	$\leq 1\text{ms}$

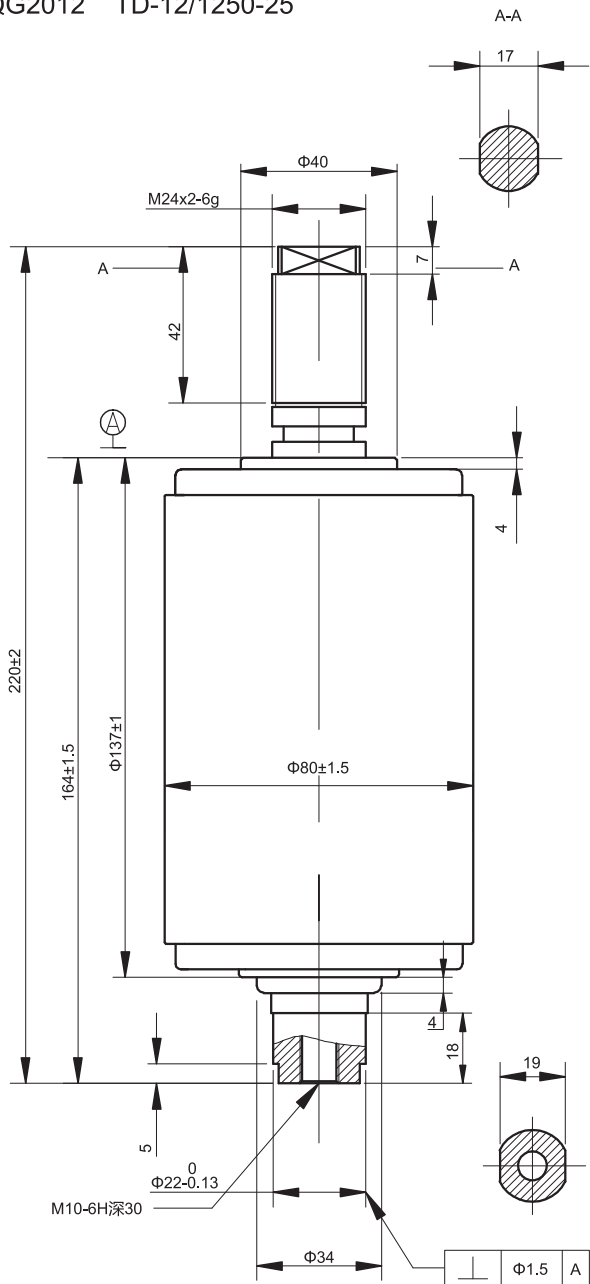
QG2012 TD-12 户外断路器用真空灭弧室
QG2012 TD-12 Vacuum Interrupter For Outdoor Circuit Breaker

外形尺寸
Outline Dimension

主要技术参数
Main Technica Data

参数值
Value

QG2012 TD-12/1250-25



注：* 为需要时提供的额定参数值。
Note: *rated characteristics to be given on request

说明：额定绝缘测试及使用时需要加绝缘保护，如置于 SF6 气体、绝缘油或固封等其他绝缘介质中。
Explanation: Rated insulation values requires external insulation such as SF6, insulation oil or solid dielectric material etc.

额定电压 Rated voltage	12kV
额定电流 Rated current	630A
额定频率 Rated frequency	50Hz
额定短路开断电流 Rated normal current	20kA
额定短路关合电流 Rated short-circuit making current	50kA
额定峰值耐受电流 Rated peak withstand current	50kA
额定短时耐受电流 Rated short-time withstand current	20kA
额定短路持续时间 Rated back to back capacitor unit breaking current	4S
额定单个电容器组开断电流 Rated sing capacitor unit breaking current	400A*
额定背对背电容器组开断电流 Rated back to back capacitor breaking current	400A*
额定短时（1min）工频耐压 Rated Short-time withstand voltage	42kV
额定触头压力下限时的回路电阻 Contact automatic blocking ability loop electrical resistance	$\leq 20 \mu \Omega$
额定短路开断电流开断次数 Rated lightning impulse withstand voltage	30 次
额定雷电冲击耐受电压 Rated Lighting impulse voltage	75kV
机械寿命 Mechanical life	10000 次
触头自闭力 Contact antomatic blocking bailly	80 ± 30N
额定开距时的触头反力 Force required to hold contacts open at full stroke	140 ± 40N
触头允许磨损厚度 Contact-wear allowance tickness	3mm
内部气体压力 Internal gas pressure	$\leq 1.33 \times 10^{-3} \text{Pa}$

配用的真空开关的机械参数
MECHANICAL DATA REQUIRED FOR MATCHED VACUUM SWITCHGEAR

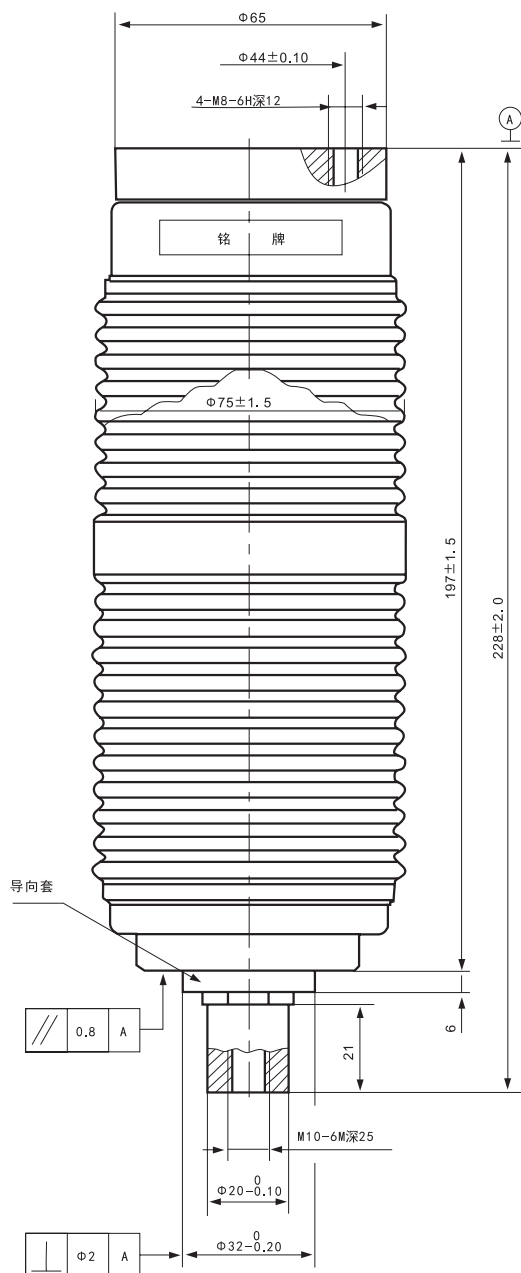
触头开距 Contact stroke	9 ± 1mm
平均分闸速度 Average opening speed	0.6 ± 0.2m/s
平均合闸速度 Average closing speed	1.1 ± 0.2m/s
额定触头压力 Rated contace pressure	2000 ± 200N
触头合闸弹跳时间 Contact closing bonnce time	$\leq 2\text{ms}$
三相同期性 Three-pole simultaneity	$\leq 1\text{ms}$

外形尺寸 Outline Dimension

主要技术参数 Main Technica Data

参数值
Value

QG1020 TD-12/630-20



注: * 为需要时提供的额定参数值。
Note: * rated characteristics to be given on request

说明: 额定绝缘测试及使用时需要加绝缘保护, 如置于 SF6 气体、绝缘油或固封等其他绝缘介质中。
Explanation: Rated insulation values requires external insulation such as SF6, insulation oil or solid dielectric material etc.

额定电压 Rated voltage	12kV
额定电流 Rated current	630A
额定频率 Rated frequency	50Hz
额定短路开断电流 Rated normal current	20kA
额定短路关合电流 Rated short-circuit making current	50kA
额定峰值耐受电流 Rated peak withstand current	50kA
额定短时耐受电流 Rated short-time withstand current	20kA
额定短路持续时间 Rated back to back capacitor unit breaking current	4S
额定单个电容器组开断电流 Rated sing capacitor unit breaking current	400A [*]
额定背对背电容器组开断电流 Rated back to back capacitor breaking current	400A [*]
额定短时（1min）工频耐压 Rated Short-time withstand voltage	42kV
额定触头压力下限时的回路电阻 Contact automatic blocking ability loop electrical resistance	≤ 20 μ Ω
额定短路开断电流开断次数 Rated lightning impulse withstand voltage	30 次
额定雷电冲击耐受电压 Rated Lighting impulse voltage	75kV
机械寿命 Mechanical life	10000 次
触头自闭力 Contact antomatic blocking baility	80 ± 30N
额定开距时的触头反力 Force required to hold contacts open at full stroke	140 ± 40N
触头允许磨损厚度 Contace-wear allowance tickness	3mm
内部气体压力 Internal gas pressure	≤ 1.33x10 ⁻³ Pa

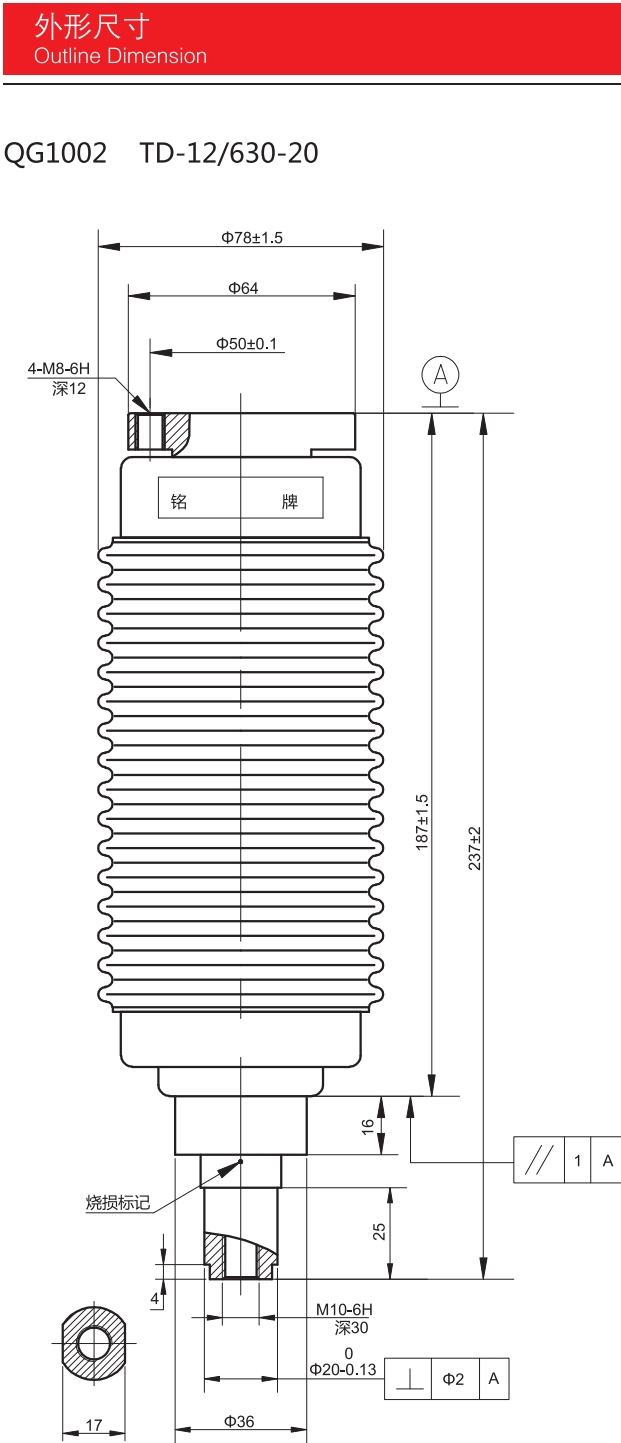
配用的真空开关的机械参数

MECHANICAL DATA REQUIRED FOR MATCHED VACUUM SWITCHGEAR

触头开距 Contact stroke	$9 \pm 1\text{mm}$
平均分闸速度 Average opening speed	$0.6 \pm 0.2\text{m/s}$
平均合闸速度 Average closing speed	$1.1 \pm 0.2\text{m/s}$
额定触头压力 Rated contact pressure	$2000 \pm 200\text{N}$
触头合闸弹跳时间 Contact closing bounce time	$\leq 2\text{ms}$
三相同期性 Three-pole simultaneity	$\leq 1\text{ms}$

QG1002 TD-12 户外断路器用真空灭弧室

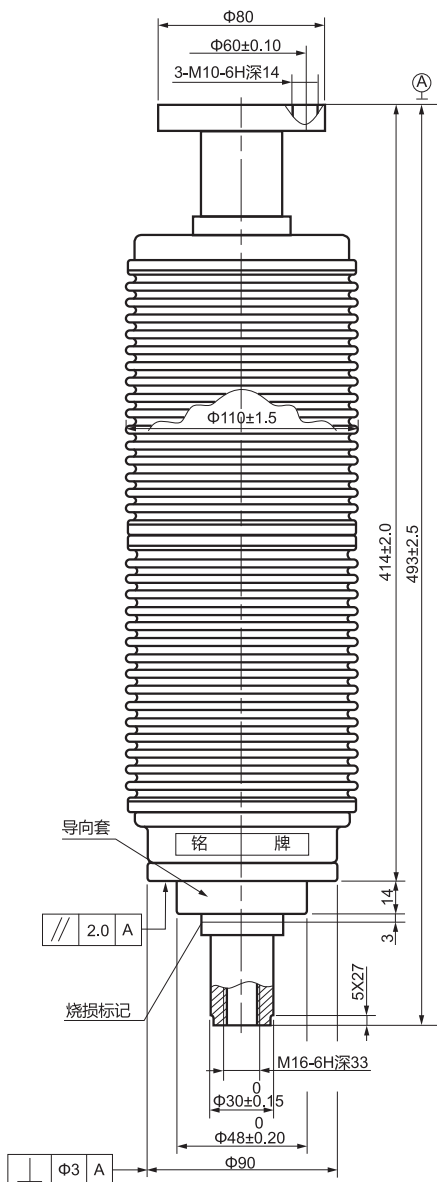
QG1002 TD-12 Vacuum Interrupter For Outdoor Circuit Breaker

外形尺寸 Outline Dimension	主要技术参数 Main Technica Data	参数值 Value
QG1002 TD-12/630-20	额定电压 Rated voltage	12kV
	额定电流 Rated current	630A
	额定频率 Rated frequency	50Hz
	额定短路开断电流 Rated normal current	20kA
	额定短路关合电流 Rated short-circuit making current	50kA
	额定峰值耐受电流 Rated peak withstand current	50kA
	额定短时耐受电流 Rated short-time withstand current	20kA
	额定短路持续时间 Rated back to back capacitor unit breaking current	4S
	额定单个电容器组开断电流 Rated sing capacitor unit breaking current	400A [*]
	额定背对背电容器组开断电流 Rated back to back capacitor breaking current	400A [*]
	额定短时（1min）工频耐压 Rated Short-time withstand voltage	42kV
	额定触头压力下限时的回路电阻 Contact automatic blocking ability loop electrical resistance	≤ 20 μ Ω
	额定短路开断电流开断次数 Rated lightning impulse withstand voltage	30 次
	额定雷电冲击耐受电压 Rated Lighting impulse voltage	75kV
	机械寿命 Mechanical life	10000 次
	触头自闭力 Contact antomatic blocking bailly	80 ± 30N
	额定开距时的触头反力 Force required to hold contacts open at full stroke	140 ± 40N
	触头允许磨损厚度 Contact-wear allowance tickness	3mm
	内部气体压力 Internal gas pressure	≤ 1.33x10 ⁻³ Pa
配用的真空开关的机械参数 MECHANICAL DATA REQUIRED FOR MATCHED VACUUM SWITCHGEAR		
	触头开距 Contact stroke	9 ± 1mm
	平均分闸速度 Average opening speed	0.6 ± 0.2m/s
	平均合闸速度 Average closing speed	1.1 ± 0.2m/s
	额定触头压力 Rated contace pressure	2000 ± 200N
	触头合闸弹跳时间 Contact closing bonnce time	≤ 2ms
	三相同期性 Three-pole simultaneity	≤ 1ms

注：* 为需要时提供的额定参数值。
Note: *rated characteristics to be given on request.

外形尺寸 Outline Dimension

QG6003	TD-40.5/1600-25
QG6003	TD-40.5/2000-25
QG6003	TD-40.5/1600-31.5
QG6003	TD-40.5/2000-31.5



注: * 为需要时提供的额定参数值。
Note: * rated characteristics to be given on request.

主要技术参数 Main Technica Data

参数值
Value

额定电压 Rated voltage	40.5kV
额定电流 Rated current	1600/2000A
额定频率 Rated frequency	50Hz
额定短路开断电流 Rated normal current	25/31.5kA
额定短路关合电流 Rated short-circuit making current	63/80kA
额定峰值耐受电流 Rated peak withstand current	63/80kA
额定短时耐受电流 Rated short-time withstand current	25/31.5kA
额定短路持续时间 Rated back to back capacitor unit breaking current	4S
额定单个电容器组开断电流 Rated sing capacitor unit breaking current	400A [*]
额定背对背电容器组开断电流 Rated back to back capacitor breaking current	400A [*]
额定短时（1min）工频耐压 Rated Short-time withstand voltage	95kV
额定触头压力下限时的回路电阻 Contact automatic blocking ability loop electrical resistance	≤ 25 μ Ω
额定短路开断电流开断次数 Rated lightning impulse withstand voltage	20 次
额定雷电冲击耐受电压 Rated Lighting impulse voltage	185kV
机械寿命 Mechanical life	10000 次
触头自闭力 Contact antomatic blocking baility	250 ± 50N
额定开距时的触头反力 Force required to hold contacts open at full stroke	330 ± 60N
触头允许磨损厚度 Contace-wear allowance tickness	3mm
内部气体压力 Internal gas pressure	≤ 1.33x10 ⁻³ Pa

配用的真空开关的机械参数

MECHANICAL DATA REQUIRED FOR MATCHED VACUUM SWITCHGEAR

触头开距 Contact stroke	$22 \pm 2\text{mm}$
平均分闸速度 Average opening speed	$1.6 \pm 0.2\text{m/s}$
平均合闸速度 Average closing speed	$0.75 \pm 0.2\text{m/s}$
额定触头压力 Rated contact pressure	$3100 \pm 200\text{N}$
触头合闸弹跳时间 Contact closing bounce time	$\leq 2\text{ms}$
三相同期性 Three-pole simultaneity	$\leq 2\text{ms}$

QG605 TF-12 负荷开关用真空灭弧室

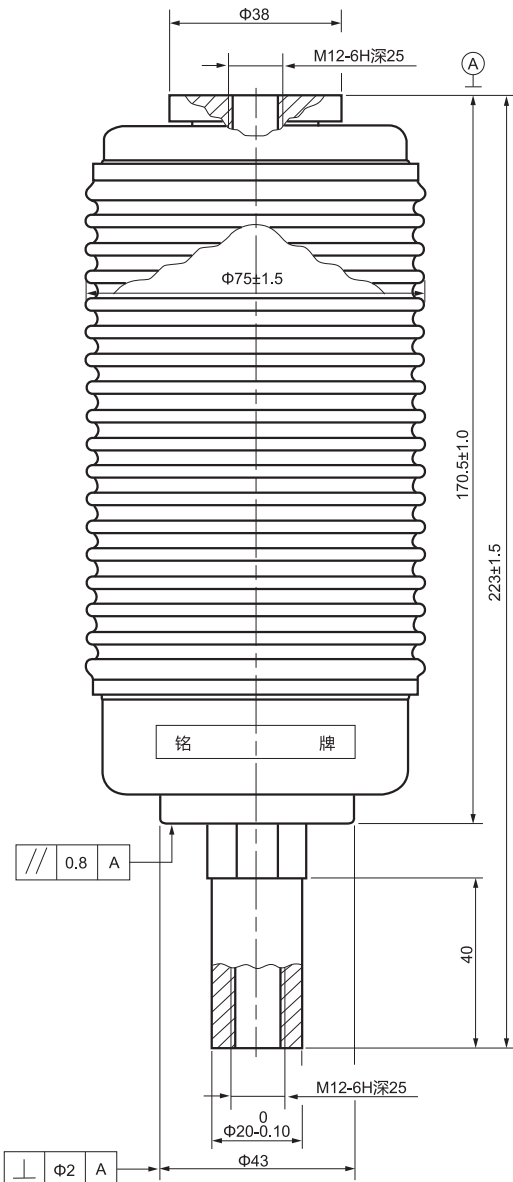
QG605 TF-12 Vacuum Interrupter For Load Switch

外形尺寸

Outline Dimension

QG605 TF-12/630-16

QG605 TF-12/630-20



主要技术参数

Main Technica Data

参数值

Value

额定电压 Rated voltage	12kV
额定电流 Rated current	630A
额定频率 Rated frequency	50Hz
额定短时工频耐受电压 (1min) Rated short-time power-frequency withstand voltage(1min)	42kV
额定雷电冲击耐受电压 Rated lighting impulse voltage	75kV
额定短时耐受电流 Rated short-time withstand current	16/20kA
额定峰值耐受电流 Rated peak withstand current	40/50kA
额定短路关合电流 Rated short-circuit making current	40/50kA
额定环闭开断电流 Rated loop-closed breaking current	630A
额定有功负载开断电流 Rated active load breaking current	630A
额定电缆充电开断电流 Rated electric cable be charged breaking current	10A
额定单个电容器组开断电流 Rated sing capacitor unit breaking current	400A [*]
额定短路持续时间 Rated back to back capacitor unit breaking current	4s
机械寿命 Mechanical life	10000 次
触头自闭力 Contact antomatic blocking baility	70 ± 40N
额定开距下的触头反力 Force required to hold contacts open at full stroke	120 ± 50N
额定工作压力下限回路电阻 Circuit resistance at rated contact force	≤ 45 μ Ω
触头允许磨损厚度 Contace-wear allowance tickness	3mm
内部气体压力 Internal gas pressure	≤ 1.33 × 10 ⁻³ Pa
运动部分质量 Weight of moving parts	≤ 0.7kg

配用的真空开关的机械参数

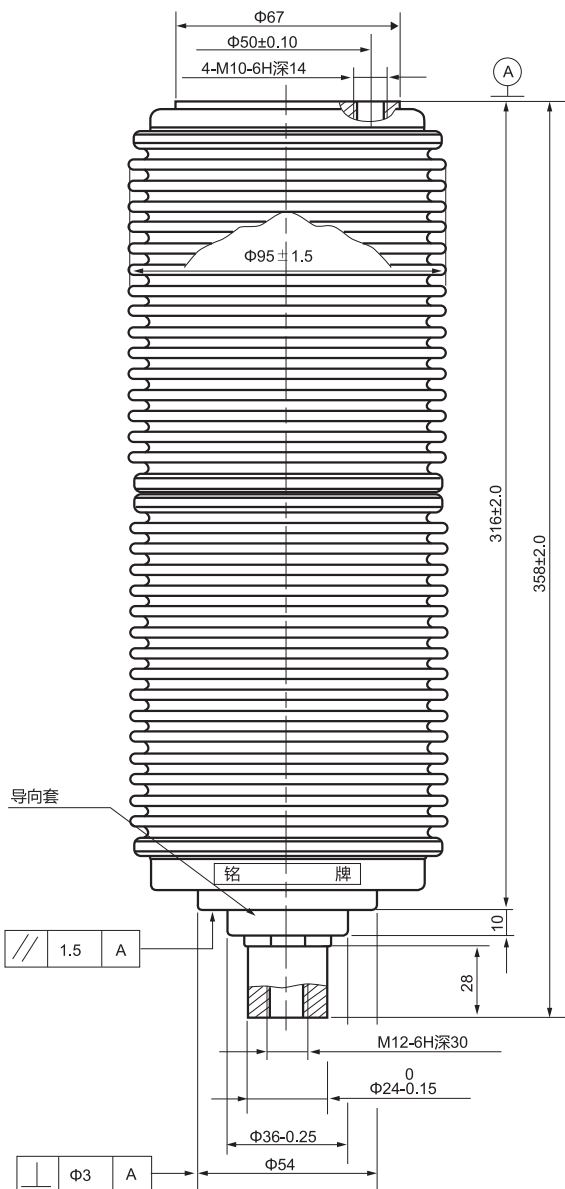
MECHANICAL DATA REQUIRED FOR MATCHED VACUUM SWITCHGEAR

触头开距 Contact stroke	9 ± 1mm
平均分闸速度 Average opening speed	1.0 ± 0.2m/s
平均合闸速度 Average closing speed	0.65 ± 0.2m/s
额定触头压力 Rated contace pressure	700/900 ± 50N
触头合闸弹跳时间 Contact bouncing duration at closing operation	≤ 2ms
触头分闸反弹幅值 Contact bouncing bank amplitude of opening operation	≤ 2mm
三相同期性 Three-pole simultaneity	≤ 1ms

外形尺寸
Outline Dimension

QG6005 TF-40.5/1250-20

QG6005 TF-40.5/1250-25



注：* 为需要时提供的额定参数值。
Note: * rated characteristics to be given on request.

主要技术参数
Main Technica Data

参数值
Value

额定电压 Rated voltage	40.5kV
额定电流 Rated normal current	1250A
额定频率 Rated frequency	50Hz
额定短时工频耐受电压 (1min) Rated short-time power-frequency withstand voltage(1min)	95kV
额定雷电冲击耐受电压 Rated lighting impulse voltage	185kV
额定短时耐受电流 Rated short-time withstand current	20/25kA
额定峰值耐受电流 Rated peak withstand current	50/63kA
额定短路关合电流 Rated short-circuit making current	50/63kA
额定环闭开断电流 Rated loop-closed breaking current	1250A
额定有功负载开断电流 Rated active load breaking current	1250A
额定电缆充电开断电流 Rated electric cable be charged breaking current	21A
额定单个电容器组开断电流 Rated sing capacitor unit breaking current	2000A*
额定短路持续时间 Rated back to back capacitor unit breaking current	4s
机械寿命 Mechanical life	10000 次
触头自闭力 Contact antomatic blocking baility	150 ± 40N
额定开距下的触头反力 Force required to hold contacts open at full stroke	210 ± 50N
额定工作压力下限回路电阻 Circuit resistance at rated contact force	≤ 30 μ Ω
触头允许磨损厚度 Contance-wear allowance tickness	3mm
内部气体压力 Internal gas pressure	≤ 1.33 × 10 ⁻³ Pa
运动部分质量 Weight of moving parts	≤ 3.0kg

配用的真空开关的机械参数

MECHANICAL DATA REQUIRED FOR MATCHED VACUUM SWITCHGEAR

触头开距 Contact stroke	20 ± 1mm
平均分闸速度 Average opening speed	1.6 ± 0.2m/s
平均合闸速度 Average closing speed	0.8 ± 0.2m/s
额定触头压力 Rated contance pressure	1800/2200 ± 200N
触头合闸弹跳时间 Contact bouncing duration at closing operation	≤ 2ms
触头分闸反弹幅值 Contact bouncing bank amplitude of opening operation	≤ 1mm
三相同期性 Three-pole simultaneity	≤ 2ms

QG1028 TF-12 Vacuum Interrupter For Load Switch

Outline Dimension

Main Technical Data

Value

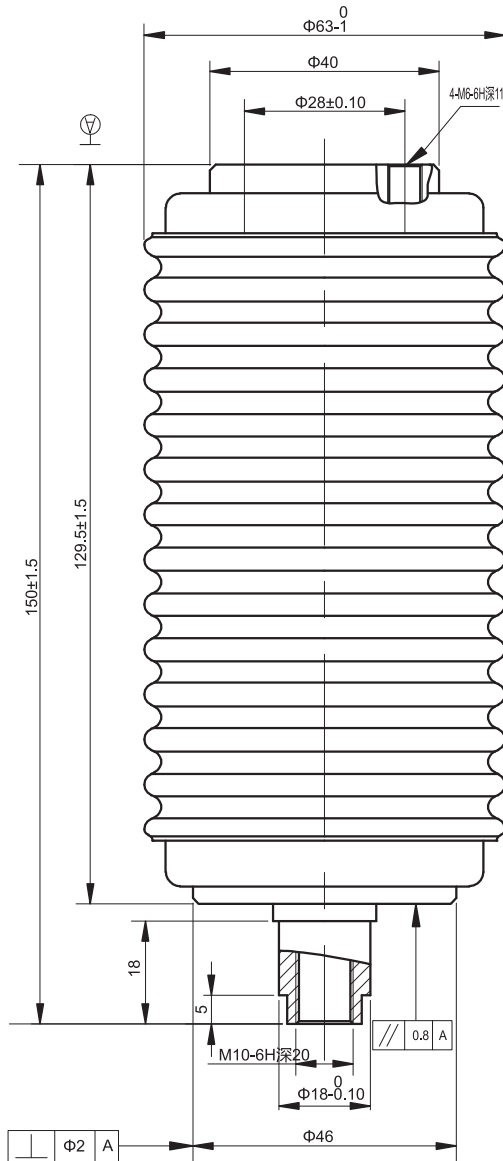
Technical drawing of a mechanical part, likely a bearing housing, showing a cross-section. The drawing includes dimensions for diameters ($\Phi 62$, $\Phi 50$, $\Phi 67 \pm 1.5$, $\Phi 34$, $\Phi 46$, $\Phi 50$, $\Phi 62$), lengths (13, 17, 18, 22, 9.5, 47, 163 ± 1.0 , 213 ± 1.5), and a material specification (T.黑色 Q04-2). A note indicates "M20x1.5-6g" for a thread. A symbol (M) A (M) is shown at the bottom left.

说明: 额定绝缘测试及使用时需要加绝缘保护, 如置于 SF6 气体、绝缘油或固封等其他绝缘介质中。
Explanation: Rated insulation values requires external insulation such as SF6 insulation oil or solid dielectric material etc.

触头开距 Contact stroke	$6 \pm 1\text{mm}$
平均分闸速度 Average opening speed	$1.0 \pm 0.2\text{m/s}$
平均合闸速度 Average closing speed	$0.65 \pm 0.2\text{m/s}$
额定触头压力 Rated contact pressure	$900 \pm 50\text{N}$
触头合闸弹跳时间 Contact bouncing duration at closing operation	$\leq 2\text{ms}$
触头分闸反弹幅值 Contact bouncing bank amplitude of opening operation	$\leq 2\text{mm}$
三相同期性 Three-pole simultaneity	$\leq 1\text{ms}$

外形尺寸
Outline Dimension

QG602 TF-12/630-20



注：* 为需要时提供的额定参数值。
Note: * rated characteristics to be given on request.

主要技术参数
Main Technica Data

参数值
Value

额定电压 Rated voltage	12kV
额定电流 Rated normal current	630A
额定频率 Rated frequency	50Hz
额定短时工频耐受电压 (1min) Rated short-time power-frequency withstand voltage(1min)	42kV
额定雷电冲击耐受电压 Rated lighting impulse voltage	75kV
额定短时耐受电流 Rated short-time withstand current	20kA
额定峰值耐受电流 Rated peak withstand current	50kA
额定短路关合电流 Rated short-circuit making current	50kA
额定环闭开断电流 Rated loop-cloaed breaking current	630A
额定有功负载开断电流 Rated active load breaking current	630A
额定电缆充电开断电流 Rated electric cable be charged breaking current	10A
额定单个电容器组开断电流 Rated sing capacitor unit breaking current	400A*
额定短路持续时间 Rated back to back capacitor unit breaking current	4s
机械寿命 Mechanical life	10000 次
触头自闭力 Contact antomatic blocking baility	70 ± 40N
额定开距下的触头反力 Force required to hold contacts open at full stroke	120 ± 50N
额定工作压力下限时回路电阻 Circuit resistance at rated contact force	≤ 25 μ Ω
触头允许磨损厚度 Contace-wear allowance tickness	3mm
内部气体压力 Internal gas pressure	≤ 1.33 × 10 ⁻³ Pa
运动部分质量 Weight of moving parts	≤ 1.3kg

配用的真空开关的机械参数

MECHANICAL DATA REQUIRED FOR MATCHED VACUUM SWITCHGEAR

触头开距 Contact stroke	6 ± 1mm
平均分闸速度 Average opening speed	1.0 ± 0.2m/s
平均合闸速度 Average closing speed	0.65 ± 0.2m/s
额定触头压力 Rated contace pressure	900 ± 50N
触头合闸弹跳时间 Contact bouncing duration at closing operation	≤ 2ms
触头分闸反弹幅值 Contact bouncing bank amplitude of opening operation	≤ 2mm
三相同期性 Three-pole simultaneity	≤ 1ms

安装使用说明

Installation Instructions

庆光牌真空灭弧室分为玻璃外壳、陶瓷外壳结构，主要用于额定电压为 12KV–40.5KV，额定频率为 50Hz 的户内、户外高压真空开关设备上，作为国民经济各部门配电系统中的保护和控制开关及频繁操作开关的配套产品。

Qing guang vacuum Interrupters is classified into glass cover and ceramic cover structure, is mainly used in rated voltage respectively 12kV–40.5kV, rated frequency 50Hz indoor, outdoor high vacuum switching gear, for the matching product of protection and controlling switch and frequently operation switch in various branches and sectors of a national economy electrical power distribution system.

正常使用条件 Normal Service Condition

◆ 户内开关设备用真空灭弧室 Vacuum Interrupters for indoor switches

- 周围空气温度：-45℃ ~+40℃；
 - 海拔不超过 1000m，超过 1000m 时和厂方商定；
 - 相对湿度：日平均值不大于 95%，月平均值不大于 90%；
 - 饱和蒸汽压：日平均值不大于 2.2×10^{-3} MPa，月平均值不大于 1.8×10^{-3} MPa；
 - 周围没有腐蚀性或可燃性气体，严重的污秽及剧烈震动的场所。
- a. Surrounding air temperature: -45℃ ~+40℃ ;
- b. The elevation does not surpass 1000m; please consult with the factory for the elevation over 1000m;
- c. Relative humidity: The daily average value is not bigger than 95%, the monthly mean value is not bigger than 90%; Saturated steam pressure: The daily average value is not bigger than 2.2×10^{-3} MPa, the monthly mean value is not bigger than 1.8×10^{-3} MPa;
- d. The site does not have corrosiveness or ignitable gas, serious contamination or fierce vibration.

◆ 户外开关设备用真空灭弧室 Vacuum Interrupters for outdoor

满足户外开关设备技术条件中有关使用条件的要求

Meeting the requirement of service conditions for outdoor switching gear engineering factor concerned

工作原理 Principle of work

真空灭弧室内的高真空状态是作为灭弧室带电工作时的绝缘介质和灭弧介质，当动、静触头在操作机构的控制下带电分离时，触头间产生真空电弧，并在电流过零时熄灭，从而分断电路中的电流。

insulation medium and extinguishing arc medium when the interrupters live line work. When moving and static contacts charged parting under the control of drive mechanism, vacuum arc will be generated between contacts and has extinguished at the electric current zero, thus break the current in circuit. The high vacuum condition in the vacuum interrupters is taking as.

检查与验收 Inspections and Acceptance

- 检查包装是否完好，开箱后应检查真空灭弧室外观，玻璃或陶瓷壳应完整无损，其它部位不应有机械损伤和变形。核对产品与合格证是否相符。
 - 工频耐压检查：测试前应用干布或酒精湿润的抹布，清洁灭弧室表面。测试时将真空灭弧室触头拉开至额定开距，在两端加额定工频耐压值的 70% 稳定一分钟，然后在一分钟内容升至额定工频耐受电压值，保持一分钟指示仪表指示针无突变及跳闸现象为合格，允许管内有零星火星及轻微发光的闪烁现象。
 - 经 a、b 条检验后，判为不合格的灭弧室，请及时通知我厂销售部，以便得到及时处理。
- a. Inspect whether the package is complete, after unpacking it is needed to inspect whether the appearance of vacuum interrupters, glass or ceramic cover are in good shape; and other parts should not have mechanical damage or distortion, the, checkup whether the product is what the certificate said.
- b. Power frequency withstand voltage checkout: the Interrupters surface should be cleaned by dry cloth or ethyl alcohol moist cloth before test, When testing, the vacuum interrupters contact should be pull to rated distance, and adds 70% of rated power frequency withstand voltage in the double end to be stable for 1 minute, then rises to the rated power frequency withstand voltage value in a minute, the indicating instrument indicator maintains no jumping or tripping phenomenon in a minute, that is qualified. It is allowed to have sprinkling sparks and slight shining in the tube.

- c. After examination clause a、b, if there is unqualified interrupters please inform our sales office as soon as possible in order to be prompt processing.

安装和注意事项 Installation and Points for Attention

灭弧室安装之前用棉纱蘸少许有机溶剂擦拭灭弧室的电连接部分，使其有良好的电接触，并用棉纱（或绸布）把外壳表面擦干净。

- 对于动端以内螺纹方式连接的灭弧室安装时应遵循下列程序：
 - 用板手夹住动导电杆的凹槽，固定住动导电杆，使其无法转动，以保护波纹管不受扭伤，带上导电夹，再拧入与整机相连接的螺杆，此时导电夹和连接螺杆不应拧紧。
 - 将灭弧室固定在支架上，经调整后用螺母将连接螺杆和动导电杆拧紧，此时应用板手夹住动导电杆，再拧紧螺母。
 - 调整好导电夹在动导电杆上的位置，并将导电夹上的紧固螺钉拧紧。
- 对于动端以外螺纹方式连接的灭弧室安装时应以板手夹住动导电杆的凹槽，固定住动导电杆，使其无法转动，再以外螺纹与整机相连。
- 将灭弧室静端安装于表端支架，紧固静端压板用的螺钉长度应小于压板的厚度，紧固螺钉时应对称均匀紧固。同时安装好动端支架和灭弧室动端。
- 将灭弧室安装好后，仔细检查各螺钉、螺母的紧固状态，并用棉纱擦拭灭弧室及绝缘杆上脏物，然后仔细调整断路器，使断路器的开距和超程及触头压力调到规定的范围，手动操作几次，再进行电动操作，进行空载操作数十次后，测试其机械参数，应满足灭弧室及整机的要求。
- 注意事项
 - 安装过程中，灭弧室的玻璃（或陶瓷）绝缘外壳，不应受到超过产品技术条件中规定的纵向压力，也不应受到明显的拉力和横力。
 - 安装和调整时，严禁用坚硬物体（如工具）撞击灭弧室的外壳。
 - 检查和安装灭弧室以及调试整机时，严禁灭弧室的额定开距超过产品技术条件的规范值。

Before install the interrupters, dips a little organic solvent with cotton yarn to scratch the electrical connection part of interrupters, enable it to have good electric contact, and polish the covering surface with cotton yarn (or silk cloth).

- Regarding to the interrupters which the moving end connected with female screw way should follow the procedure when installing: clamp the scoop channel of moving conductor pole with the spanner to fix the conductor pole so as to make it unable to rotate for protecting the corrugated pipe not suffering spraining, and wear conductor clamp and screw down screw bolt that connects with the entire machine, this time, the conductor clamp and connection screw rod should not be screwed tightly. Fix the interrupters on the support, screw down the connecting screw rod and moving conductor pole with nut, at this point, it is needed to clamp moving conductor pole and then, screw down the nut tightly. We adjust the position of conductor clamp at moving conductor pole, and screw down the fastening screw on the conduction clamp tightly.
- Regarding moves outside the end the thread way connection interrupters install when should grip by the spanner moves leads the telephone pole the scoop channel, the solid anchorage moves leads the telephone pole, causes it to be unable to rotate, again outside the thread and entire machine is connected.
- Installs the static end of interrupters on static end support, the bolt which uses for fastening static end clamp the length should be smaller than clamp thickness. When fastening bolt, it should be fastened symmetrically and uniformly. At the same time, installs the moving end support and moving end of the interrupters.
- After finished to installing the interrupters, carefully inspect tight condition of various bolts and nut, and delete the dunghill on interrupters and insulation pole with cotton yarn. Then, carefully adjust the circuit breaker try to make the distance between moving and static contacts and overall travel and contact pressure to the stipulated scope. After running tens of non-load operation of the electrically operated operation, then, check its mechanical parameter that should meet the requirement of interrupters and entire machine.
- Points For Attention In the installation process, the glass (or ceramics) insulated cover of interrupters should not be suffered the vertical pressure which surpasses the product engineering factor stipulated, also should not be suffered obvious pulling force and transverse force. When installing and adjustment, it is strictly prohibited to hit the interrupters cover with hard object (for example tool). When inspects and installs the interrupters as well as debugs the entire machine; it is strictly prohibited the rated distance between moving and static contact of interrupters to surpass the standard value of product engineering factor.