



ME样本



上海电气
SHANGHAI ELECTRIC

上海人民电器厂
SHANGHAI RENMIN ELECTRICAL APPARATUS WORKS

用途与分类

ME系列万能式空气断路器(以下简称断路器)是我厂从联邦德国AEG公司引进的产品,断路器具有结构紧凑,体积小、重量轻,系列性强,零部件互换性好,保护系统齐全,技术经济指标高,维护使用万便等特点;

断路器技术性能符合IEC 947-2, VDE 0660, GB 14048.2。

断路器适用于额定工作电压A.C至380V、660V、50Hz; D.C至440V的配电电路作不频繁转换之用;对线路及电气设备的过载,欠电压和短路进行保护;并具有分级选择保护。能直接起动电动机并保护电动机,发电机和整流装置等免受过载,短路和欠电压等不正常情况的危害;

正常工作条件

1. 周围最高空气温度不超过40℃。
2. 周围空气温度24h的平均值不超过35℃。
3. 周围空气温度不低于-5℃。
4. 安装地点海拔不超过2000m
5. 大气相对湿度在周围空气温度在40℃时不超过50%;在较低温度下可以有较高的相对湿度;最湿月的月平均最大相对湿度为90%,同时该月的月平均最低温度为25℃;并考虑到因温度变化发生在产品表面上的凝露;
6. 污染等级不超过三级
7. 断路器应按成套或户内单独安装与垂直面的倾斜度不超过5°;



安装、使用

安装前先以500V兆欧表检查断路器绝缘电阻,在周围空气温度 $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$ 和相对湿度为50%~70%时应不小于10M Ω ,否则应处理,待绝缘电阻达到要求后方可使用。

安装前应检查断路器的规格是否符合要求。

检查断路器在闭合和断开过程中,其可动部分与灭弧室的零件应无卡住和碰擦现象。并且指示标牌能正确的指示断路器的上作状态。

固定式断路器安装时,其底座应居于垂直位置,用安装螺钉固定。同时必须可靠接地,接地螺钉处有⊥符号标记;

安装时应考虑断路器的安全间距。

联接断路器至回路接线柱的母线,离接线200-250mm处应用绝缘件固定,以免电动力造成损害。

对各个转动或滑动部分加注润滑油或润层脂。

清理尘埃,以保持断路器的绝缘良好。

订货须知

1. 断路器的型号、规格、极数
2. 主电路电压
3. 操作方式:右侧直接手动;正面直接手动;正面快速手动;电动机操作;电动机予储能带释能操作。及其电压值。
4. 欠电压瞬时脱扣器:欠电压延时脱扣器及其电压值。
5. 分励脱扣器;闭锁电磁铁及其电压值。
6. 过载长延时+短路瞬时;过载长延时+短路短延时;短路短延时;短路瞬时;及整定电流值,无过电流脱扣器。
7. 第6点+锁扣或+锁扣及信号开关。
8. 固定水平联结;固定垂直联结,抽屉式水平联结;抽屉式垂直联结
9. 订货数量及交货日期

Structure

ME Series breaker is maintainable frame breaker. There are three outline sizes.

The breaker is installed in block shape. Its features are: compact, small, light, being series and reasonable costs.

Five operation modes of ME series breaker:

1. directly manual operation on right side;
2. directly manual operation on front face;
3. speedy manual operation on front face;
4. motor operation;
5. motor operation with pre-storage and relief of energy

Motor operating device is an AC-DC series motor, incorporated with a set of energy storage close device electrical control apparatus to control the breaker closing. The other function of the control apparatus is to avoid the second closing operation after the breaker has been closed. It takes about 700 ms from issue of the command of closing operation to its completion.

Motor operation with pre-storage and relief of energy is divided into two steps: The first is storage of energy by operating the energy storage button. The second is close operation by pushing the close button when the breaker is needed to be closed. It takes 100 ms.

Kinds of over-current release of the breakers: overload long delay (b-release); short-circuit short delay (S"zz"-release); short-circuit instantaneous (S-r-release); These releases can consist of bS"zz"-release; bS-release; S"zz"-release; S-release; and no over-current release.

As required, the overload long delay release may be with a reclosure locker (W₁), or a reclosure locker with signal switch (W₂), which has a N.O. and a N.C contacts.

The short-circuit instantaneous release may also be with locker (W₃), or locker with a signal switch (W₄).

主要结构

ME系列断路器是一种可维护型的框架式断路器,其外形分为三个结构尺寸;

断路器为立体布置形式,结构紧凑、体积小、重量轻、系列性强,具有较高的技术经济指标。

ME系列断路器的操作方式有右侧手动直接操作;正面手动直接操作;正面手动快速操作;电动机快速操作;电动机予储能带释能操作等五种形式。

电动机操作采用交直流串激电机配上一套储能闭合装置,通过电动操作控制装置控制断路器闭合。控制装置具有在闭合操作完成后能防止第二次闭合操作。从闭合操作指令发出到闭合操作完成时间约700ms。

电动机予储能带释能操作,其操作分二个过程;第一个过程为储能,只需操动储能按钮即可完成。第二个过程为闭合操作,当需要断路器闭合时,只需接通闭合操作按钮即可完成;从指令发出到闭合操作完成时间约100ms。

断路器的过电流脱扣器有过载长延时(b-脱扣器),短路短延时(s"zz"-脱扣器),短路瞬时(s-脱扣器)。可组合成:a. bs"zz"-脱扣器;b. bs-脱扣器;c. s"zz"-脱扣器;d. s-脱扣器;e. 无过电流脱扣器。

根据用户需要过载长延时脱扣器可加装锁扣装置(W₁)或锁扣装置加信号开关(W₂)。信号开关有一常开一常闭触头。

短路瞬时脱扣器也可加装锁扣装置(W₃)或锁扣装置加信号开关(W₄)。

After the trouble in the circuit is eliminated, the locker must be reset manually, otherwise the release is still in releasing position.

The short-circuit short delay release may be with a signal switch but not a locker.

The breaker is equipped with a tripping release (a-release) to open the breaker. Two a-releases in same or in different control voltage can be equipped on the breaker at most. In that case an under voltage release or a locking magnet are not provided.

Operating voltage range of a-release is in $0.5 - 1.1 U_c$.

The breaker may be provided with a under-voltage release (r-release), which has two kinds: instantaneous and delay. The delay type is abbreviated "c", which is R-C delay. The delay time to is $1.5 \pm 0.05s$, or up to $5 \pm 0.05s$ as required. When the supply voltage of r-release is in $0.85-1.1U_c$, the breaker should be closed, and the breaker is open under $0.35U_c$. Reset characteristics of r"c"-release is 60% delay time.

Locking magnet's (t-magnet) function:

Even if there is an issue of closing command, the breaker is still in open position, as t-magnet is deenergized. Only t-magnet is energized, the breaker can be closed.

The breaker generally is provided with 2 HS5 auxiliary switches, or 3 HS5 auxiliary switches at most, as required.

锁扣装置在线路故障排除后，需手动复位，否则脱扣器始终处于脱扣位置。

短路短延时脱扣器不能加装锁扣装置，但可加装信号开关。

断路器还装有可远距离操作使断路器断开的分励脱扣器(a-脱扣器)。在断路器上可同时装置2只不同或相同控制电压的a-脱扣器。此时不能再装欠电压脱扣器或闭锁电磁铁。a-脱扣器的动作电压范围为 $0.5-1.1 U_c$ 。

断路器可装有欠电压脱扣器(r-脱扣器)。r-脱扣器分瞬时与延时，延时简称"c"，采用阻容延时，延时时间为 $1.5 \pm 0.05s$ 。用户需要还可以做到 $5 \pm 0.15s$ 。r-脱扣器的电源电压在 $0.85-1.1U_c$ 时应保证断路器闭合，在 $0.35U_c$ 及以下时，应保证断路器断开。r"c-脱扣器的返回特性为 ≤ 0.6 倍延时时间。

闭锁电磁铁(t-电磁铁)作用是断路器在断开位置时，t-电磁铁在失电情况下，即使有合闸指令，断路器仍处在断开位置。只有当t-电磁铁通电后断路器才会合闸。

断路器一般装有2只HS5辅助开关，用户需要时最多可装有3只HS5辅助开关。

1.structure size	结构尺寸	1						2			3			
2.type	型号	ME	ME	ME	ME	ME	ME	ME	ME	ME	ME	ME	ME	
		630	800	1000	1250	1600	1605	2000	2500	2505	3200	3205	3205B*	
3.rated insulation voltage U_i 额定绝缘电压 U_i		~ 660V.1Gr												
4.raled working vottage U_e 额定工作电压 U_e		~ 660V...440 V												
5.rated working current I_e	额定工作电	35°C	630	800	1000	1250	1600	1900	2000	2500	2900	3200	3900	4000
	流 I_e	45°C	630	800	1000	1250	1530	1810	2000	2500	2900	3200	3900	4000
fixed type	固定式	55°C	630	800	1000	1250	1460	1720	2000	2400	2900	3200	3900	4000
drawer type	抽屉式	35°C	630	800	1000	1250	1600	1900	2000	2500	2900	3200	3900	4000
		45°C	630	800	1000	1250	1530	1720	2000	2400	2900	3200	3900	4000
		55°C	630	800	1000	1250	1460	1620	2000	2300	2770	3200	3750	3800

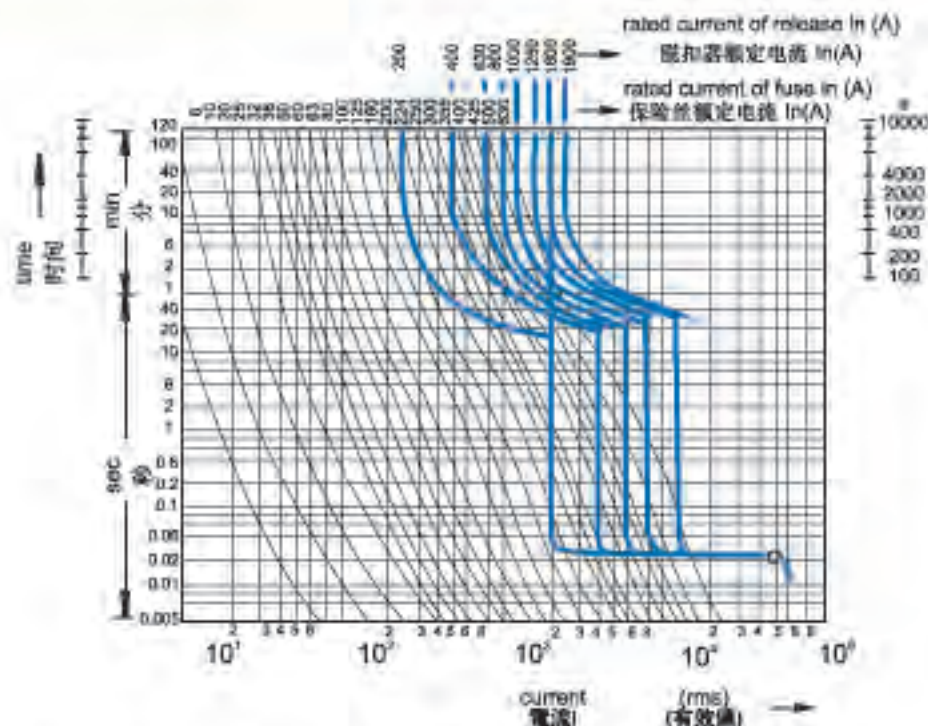
incoming supply either from top or bottom, short-circuit short delay protection (delay time 300 ms) 电源为上进线或下进线, 短路短延时保证 (延时时间300ms) $\cos\phi=0.25, 50KA$ 时, $\cos\phi=0.2, 80KA$ 时, $T=1.5ms$													
6.rated make and break capacity complies with IEC 157-1, P-2, VDE0660, o-t-co-t-co 通断能力符合 IEC157-1P-2, VDE0660, o-t-co-t-co	~380V	50	50	50	50	50	50	80	80	80	80	80	80
	~440V	50	50	50	50	50	50	80	80	80	80	80	80
	~660V	50	50	50	50	50	50	80	80	80	80	80	80
7.rated make capacity 接通能力	~380V	105	105	105	105	105	105	180	180	180	180	180	180
	~660V	105	105	105	105	105	105	180	180	180	180	180	180
8.rated short-time withstand current(1s) 额定短时耐受电流 (1s)		30	30	50	50	50	50	80	80	80	80	80	80
9.tripping release 分励脱扣器	~380V.~220V.510VA	-220V.-110V.220W											
10.under-voltage release 欠电压脱扣器	~380V.~220V.30VA	-220V.-110V.10W											
11.locking magnet 闭锁电磁铁	~380V.~220V.30VA	-220V.-110V.10W											
12.magnet for relief of energy 释能电磁铁	~380V.~220V.510VA	-220V.-110V.220W											
13.operating motor 操作电动机	~220V. 700VA	-220V.400W.110V 550W											

*we can supply the goods according to the agreement

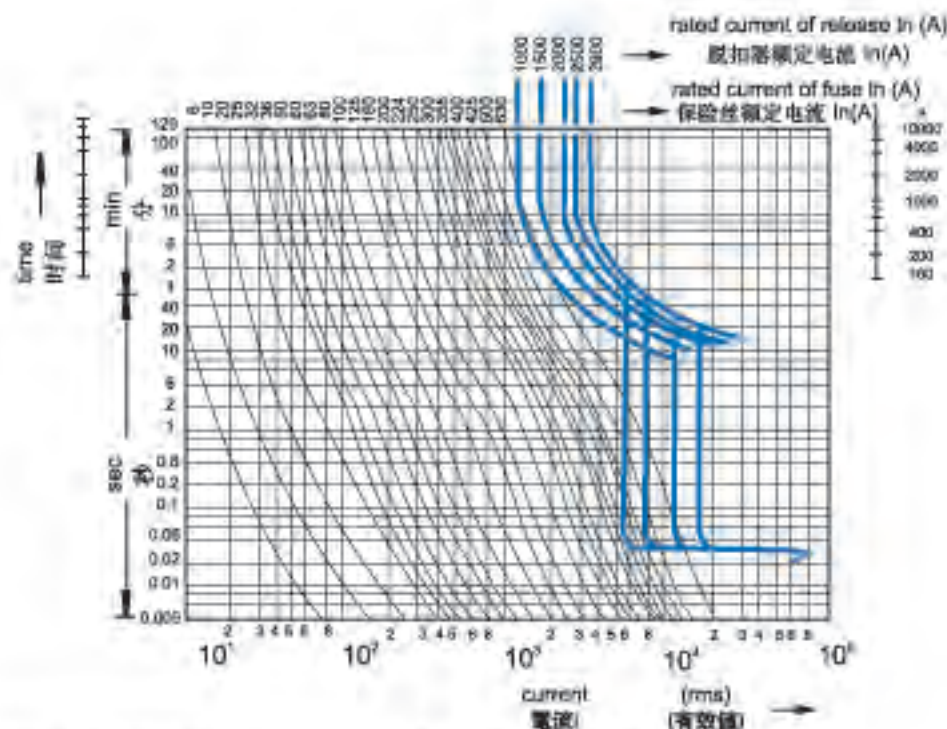
*协议供货

1.structure size 结构尺寸		1						2			3		
2.type 型号		ME	ME	ME	ME	ME	ME	ME	ME	ME	ME	ME	ME
		630	800	1000	1250	1600	1605	2000	2500	2505	3200	3205	3205B
14.b-release setting range(A) 过载脱扣器整定电流调节范围A	200-300-400	*	*										
	350-500-630	*	*	*									
	500-650-800		*										
	500-750-1000			*	*	*							
	750-1000-1250				*								
	900-1200-1600					*							
	900-1400-1900						*						
	1000-1500-2000							*					
	1500-2000-2500								*				
	1900-2400-2900									*			
15.S"zz"release setting range(kA) 短路短延时脱扣器整定电流调节范围kA	3-4-5	*	*	*	*	*							
	5-6.5-8	*	*	*	*	*	*						
	8-10-12						*	*	*	*			
	8-12-16										*		
	10-15-20											*	*
16.S-release setting range(kA) 短路瞬时脱扣器整定电流调节范围kA	2-3-4	*	*	*	*								
	4-5-6	*	*	*	*	*	*	*	*				
	6-9-12						*	*	*	*			
	8-12-16									*	*		
	10-15-20											*	

1.structure size 结构尺寸		1					2	
2.type 型号		ME	ME	ME	ME	ME	ME	ME
		630/IV	800/IV	1000/IV	1250/IV	1600/IV	2000/IV2500/IV	
15.b-release setting range(A) 过载脱扣器整定电流调节范围A	200-300-400	*	*	*	*	*		
	350-500-630	*	*	*	*	*		
	500-650-800		*					
	500-750-1000			*	*	*		
	750-1000-1250				*			
	900-1400-1900					*		
	1000-1500-2000						*	*
	1500-2000-2500							*
16.S"zz"release setting range(kA) 短路短延时脱扣器整定电流调节范围kA	3-4-5	*	*	*	*	*		
	5-6.5-8	*	*	*	*	*		
	8-10-12						*	*
17.S-release setting range(kA) 短路瞬时脱扣器整定电流调节范围kA	1.5-2-3	*	*	*				
	2-3-4	*	*	*	*	*		
	4-6-8	*	*	*	*	*		
	6-9-12						*	*

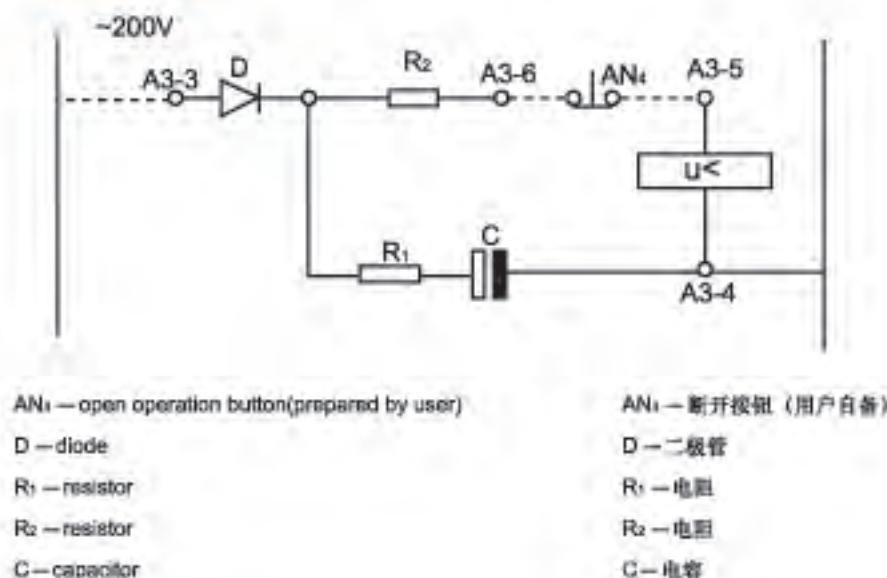


tripping characteristics of circuit-breakers Type ME 630 to ME 1605 and
current-time characteristics of quenching-ribbon fuses Type NT
ME 630-1605 型断路器的脱扣器特性曲线和带有时间/电流特性曲线的NT型熔断器

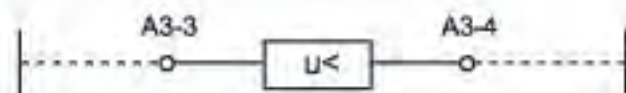


tripping characteristics of circuit-breakers Type ME 2000 to ME 2505 and
current-time characteristics of quenching-ribbon fuses Type NT
ME 2000-2505 型断路器的脱扣器特性曲线和带有时间/电流特性曲线的NT型熔断器

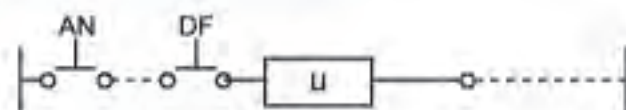
The circuit of delay type under-voltage release 电器延时式欠电压脱扣器线路图



The circuit of instantaneous under-voltage and locking magnet 欠电压瞬时脱扣器和闭锁电磁铁线路图



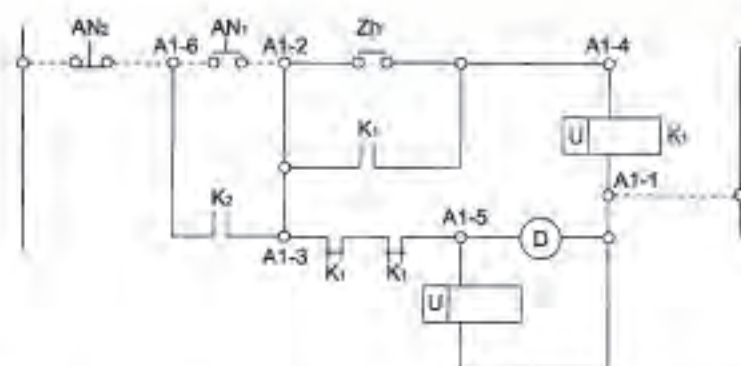
The circuit of tripping release 分励脱扣器线路图



AN — tripping button(prepared by user)
DF — auxiliary switch

AN — 分励按钮 (用户自备)
DF — 辅助开关

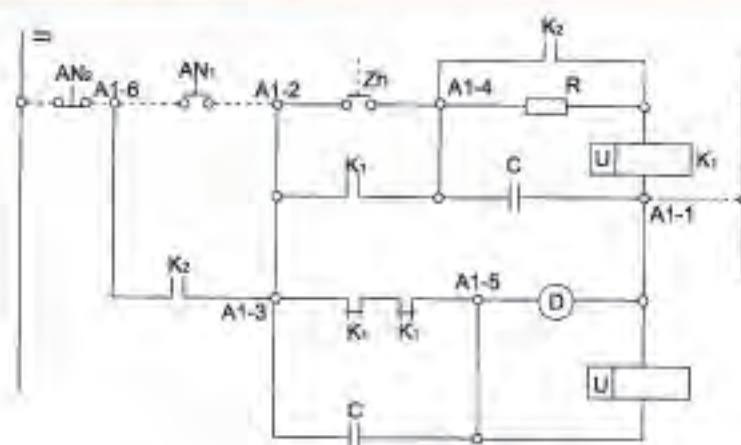
The control circuit of motor A.C. operation (with SU control device)
电动机交流操作(附SU控制装置)控制线路图



AN₁— close operation button (prepared by user)
AN₁— open operation button (prepares by user)
K₁— contactor against the second close operat
K₂— close operation contactor
Zh— limit switch

AN₁— 闭合操作按钮(用户自备)
AN₂— 切断按钮(用户自备)
K₁— 防二次闭合操作接触器
K₂— 闭合操作接触器
Zh— 终点开关

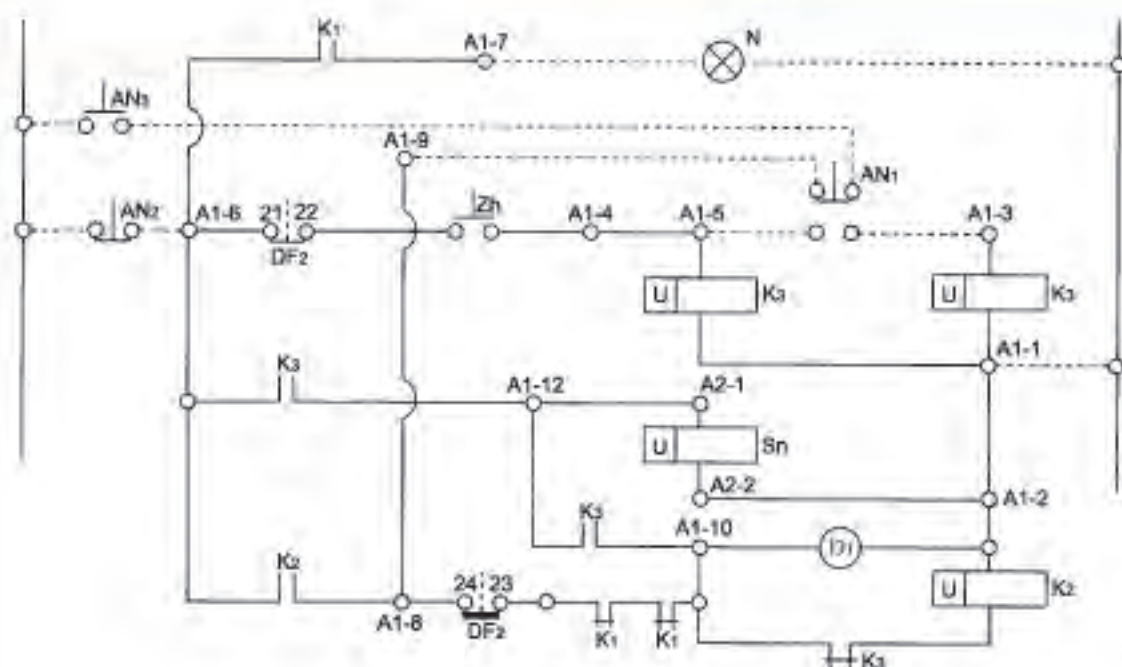
The control circuit of motor D.C. operation (with SU control device)
电动机直流操作(附SU控制装置)控制线路图



AN₁— close operation button (prepared by user)
AN₁— open operation button (prepares by user)
K₁— contactor against the second close operat
K₂— close operation contactor
Zh— limit switch
C— capacitor
R— current-limited resistor

AN₁— 闭合操作按钮(用户自备)
AN₂— 切断按钮(用户自备)
K₁— 防二次闭合操作接触器
K₂— 闭合操作接触器
Zh— 终点开关
C— 电容
R— 限流电阻

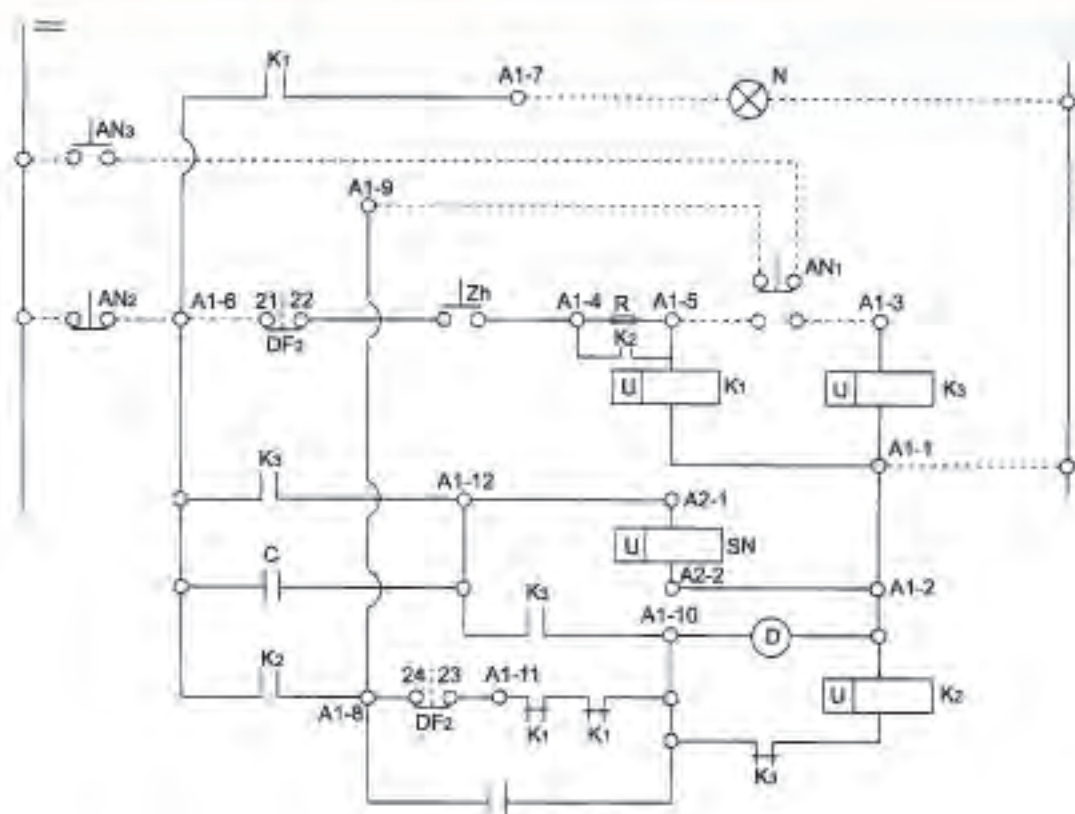
The control circuit of motor A.C. operation with pre-storage and relief of energy (with SU control device)
电动机预储能带释能交流操作(附SU控制装置)控制线路图



AN₁ — close operation button (prepared by user)
AN₂ — open operation button (prepares by user)
AN₃ — energy storage button (prepared by user)
K₁ — contactor against the second close operation
K₂ — contactor for energy storage
K₃ — close operation contactor
SN — magnet for energy relief
DF — auxiliary switch
N — indicator of energy storage
Zh — limit switch

AN₁ — 闭合操作按钮(用户自备)
AN₂ — 切断按钮(用户自备)
AN₃ — 储能按钮(用户自备)
K₁ — 防二次闭合操作接触器
K₂ — 储能操作接触器
K₃ — 闭合操作接触器
SN — 释能电磁铁
DF — 辅助开关
N — 储能信号灯
Zh — 终点开关

The control circuit of motor D.C. operation with pre-storage and relief of energy (with SU control device)
电动机预储能带释能直流操作(附SU控制装置)控制线路图



AN₁ — close operation button (prepared by user)
 AN₂ — open operation button (prepares by user)
 AN₃ — energy storage button (prepared by user)
 K₁ — contactor against the second close operation
 K₂ — contactor for energy storage
 K₃ — close operation contactor
 SN — magnet for energy relief
 DF — auxilliary switch
 N — indicator of energy storage
 Zh — limit switch
 C — capacitor
 R — current-limited resistor

AN₁ — 闭合操作按钮(用户自备)
 AN₂ — 切断按钮(用户自备)
 AN₃ — 储能按钮(用户自备)
 K₁ — 防二次闭合操作接触器
 K₂ — 储能操作接触器
 K₃ — 闭合操作接触器
 SN — 释能电磁铁
 DF — 辅助开关
 N — 储能信号灯
 Zh — 终点开关
 C — 电容
 R — 限流电阻

1. Terminals no. 7 - 8, 9 - 10, the under-voltage release and locking magnet connect DF contact in series by user.

2. When you use one tripping release, use terminals no. 9 - 10, terminals no. 5 - 6, (or 19 - 20) are in free position. When you use two tripping release, terminals no. 5 - 6, 14 - 15 (or 15 - 16, 19 - 20) are in free position. Only in the case that a delay type under-voltage release and a tripping release are used, we don't need a delay type under-voltage release button (short-circuited), Terminals no. 9 - 10 are connected to a tripping release.

3. With locking signals switch of b-release and s-release, terminals no. 13, 14, 15, 21, 22, 23, are changed into: Structure size 1 terminal

13. for b no-release locker with signal switch

15. for s no-release locker with signal switch

14. common contact

Structure size 2

terminal no. 21 for b-release locker with signal switch

23 for s no-release locker with signal switch or signal switch

22 common contact

Structure size 3

terminals no. 22, 23 for s-release locker with signal switch or signal switch

1. 端子号7-8, 9-10, 欠压脱扣器及闭锁电磁铁出厂时不串接DF常开接点。

2. 如断路器只用一只分励脱扣器, 接线端子号为9-10, 因而端子号5-6(或19-20)为空闲, 如果二只分励脱扣器, 端子号5-6及14-15(或15-16及19-20)均为空闲, 只对于使用欠压延时脱扣器和分励脱扣器时, 欠压延时脱扣器的按钮取消(即短接), 而端子号9-10接分励脱扣器。

3. 对带有b-脱扣器及S-脱扣器锁扣信号, 端子号13, 14, 15, 21, 22, 23改接为: 结构尺寸1, b-脱扣器锁扣信号接端子号13; S-脱扣器锁扣信号或告警信号接端子号15; 端子号14为公用接点。结构尺寸2, b-脱扣器锁扣信号接端子号21; S-脱扣器锁扣信号或告警信号接端子号23; 端子号22为公用接点。结构尺寸3, S-脱扣器锁扣信号或告警信号接端子号22, 23。

The safe clearance for the breakers (including arc distance) as follow

断路器安全间距(包括电弧距离)参见表

type 断路器型号	fixed horizontal connection and drawer type(mm) 固定式水平连接及抽屉式安全间距				fixed vertical connection (mm) 固定式垂直连接安全间距			
	A	B	C	D	A1	B	C	D
ME 630/800/1250/1600	250	100	100	120	250	100	100	120
ME 1605	250	100	100	120				
ME 2000/2500/3200	350	100	100	120	500	100	100	120
ME 2505/3205/3205B	350	100	100	120				

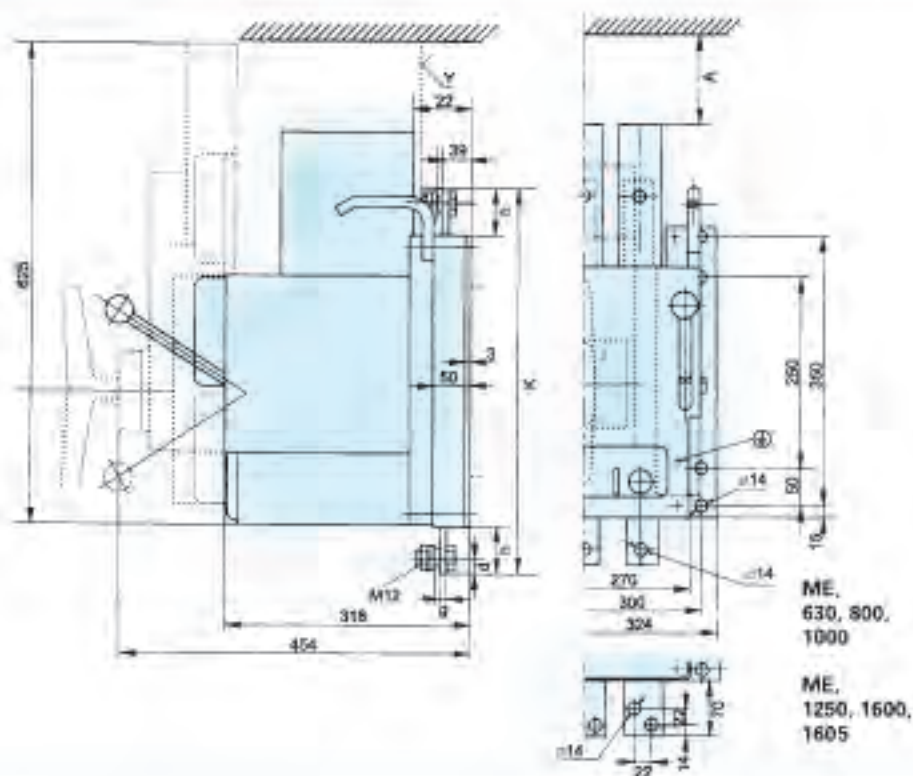
Notes: 1. reliable insulation between live parts and grounding parts should be ensured.

2. the data in the reference is based on:

AC up to 380V DC up to 440V (determined after test)

注: 1 所有带电零件与接地零件之间必须可靠绝缘。

2 本表为交流至380V直流至440V待试验确定。



vertical connection(attention:insulation partition Y)
垂直接线(注意:绝缘隔板Y)

F = auxiliary switch

G = SU control device

H = operation mechanism on front face

K = operation mechanism of motor

L = device for energy relief

Y = insulation partition for vertical connection(prepared by user)

F = 辅助开关

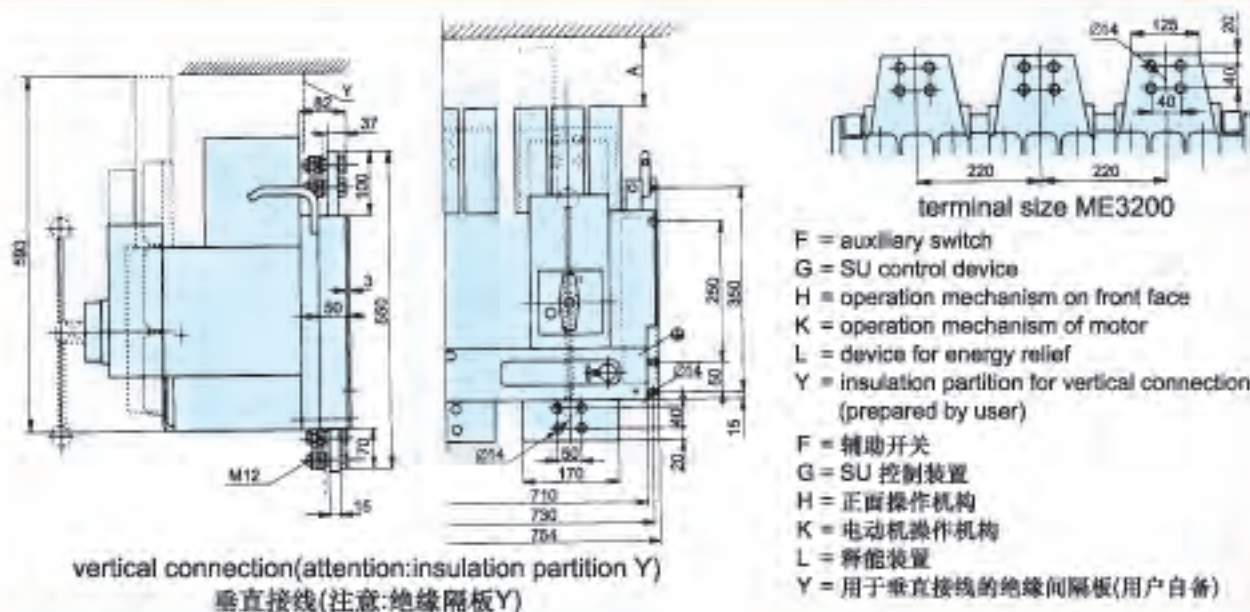
G= SU 控制裝置

H= 正面操作机构

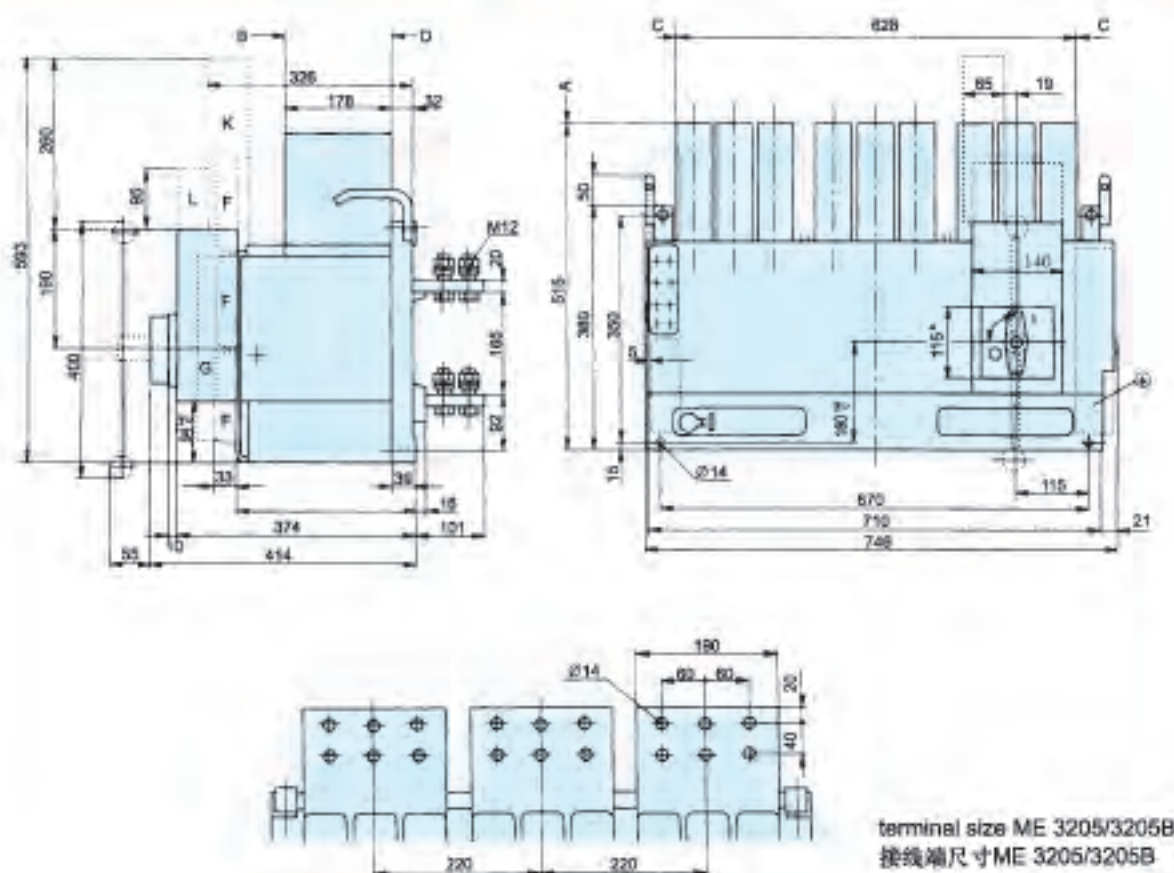
K=电动机操作机构

L = 释能装置

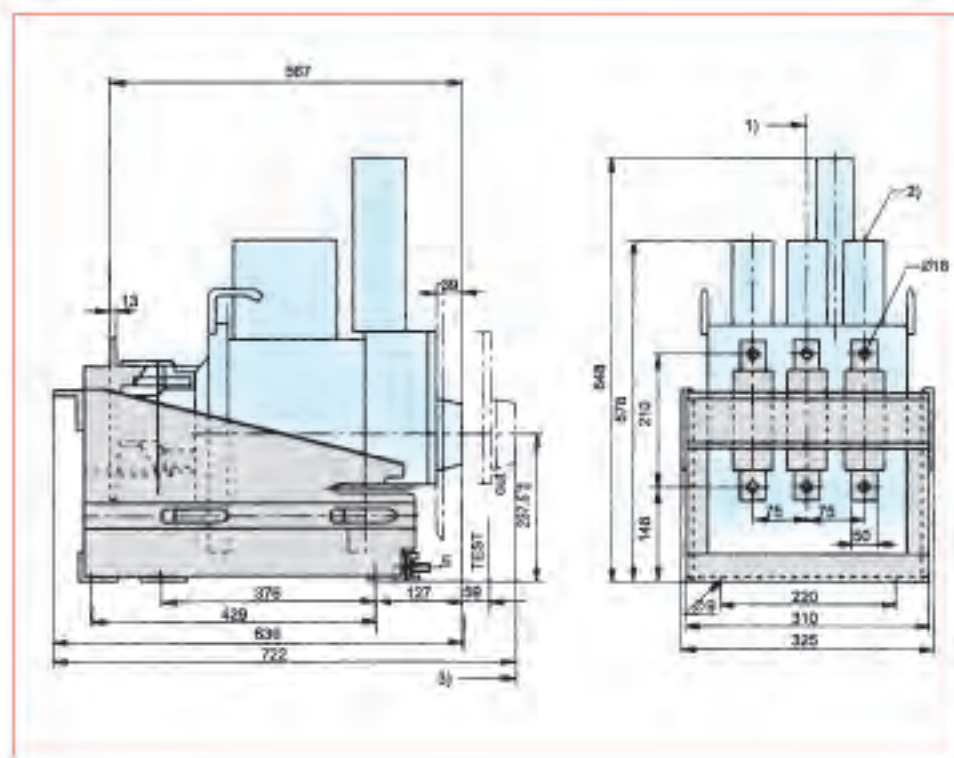
Y= 用于垂直接线的绝缘间隔板(用户自备)



The outline size of ME3205/3205B fixed type breakers
ME3200/3205B 固定式断路器外形尺寸图



Outline size of ME630/800/1000/1250/1600 drawer type breakers
ME630/800/1000/1250/1600 抽屉式断路器外形尺寸图



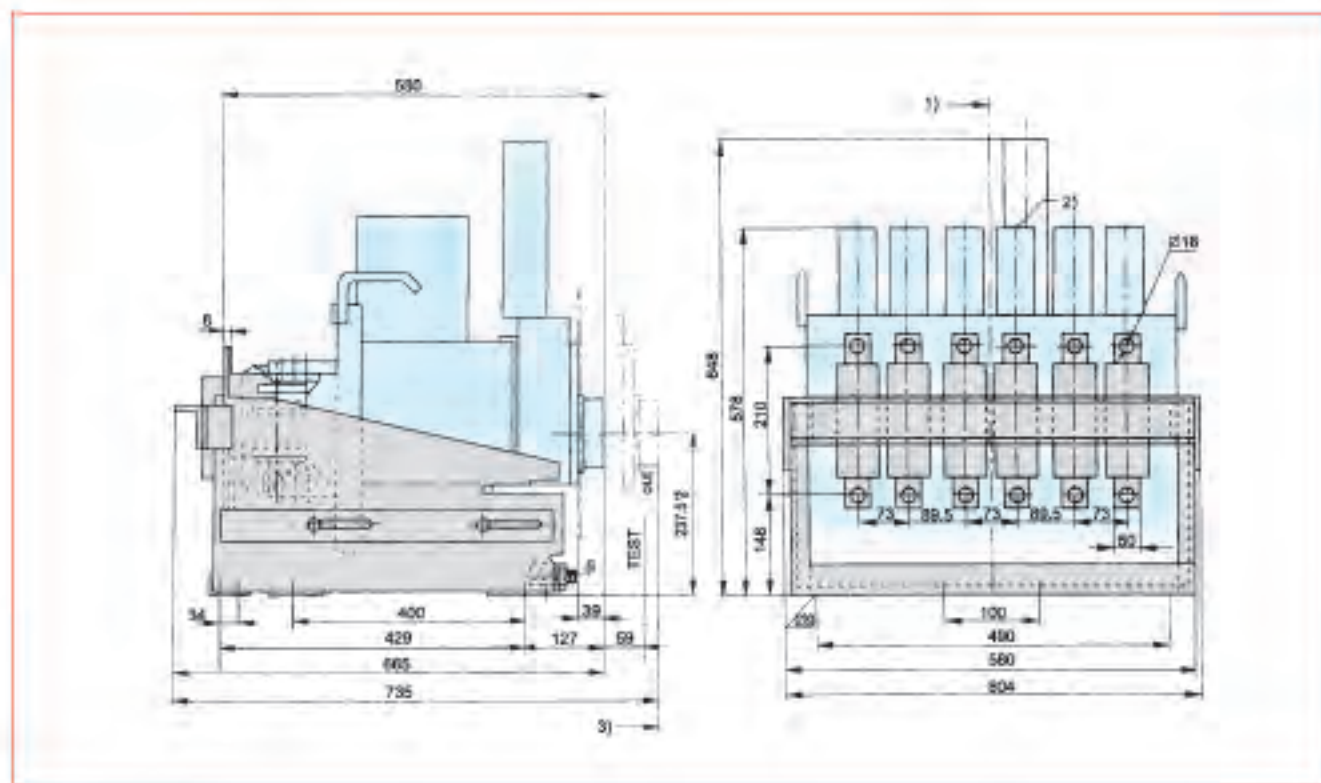
size of gate hole
开孔尺寸

ME 630 ... ME 3205

1. central line of operation mechanism
2. safe clearances A, B, C, D, see fixed type
3. distance of breakers pulling-out

1. 操作机械中心线
2. 安全间距A、B、C、D 参见固定式
3. 开关拉出距离

Outline size of ME2000/2500 drawer type breakers ME2000/2500 抽屉式断路器外形尺寸图

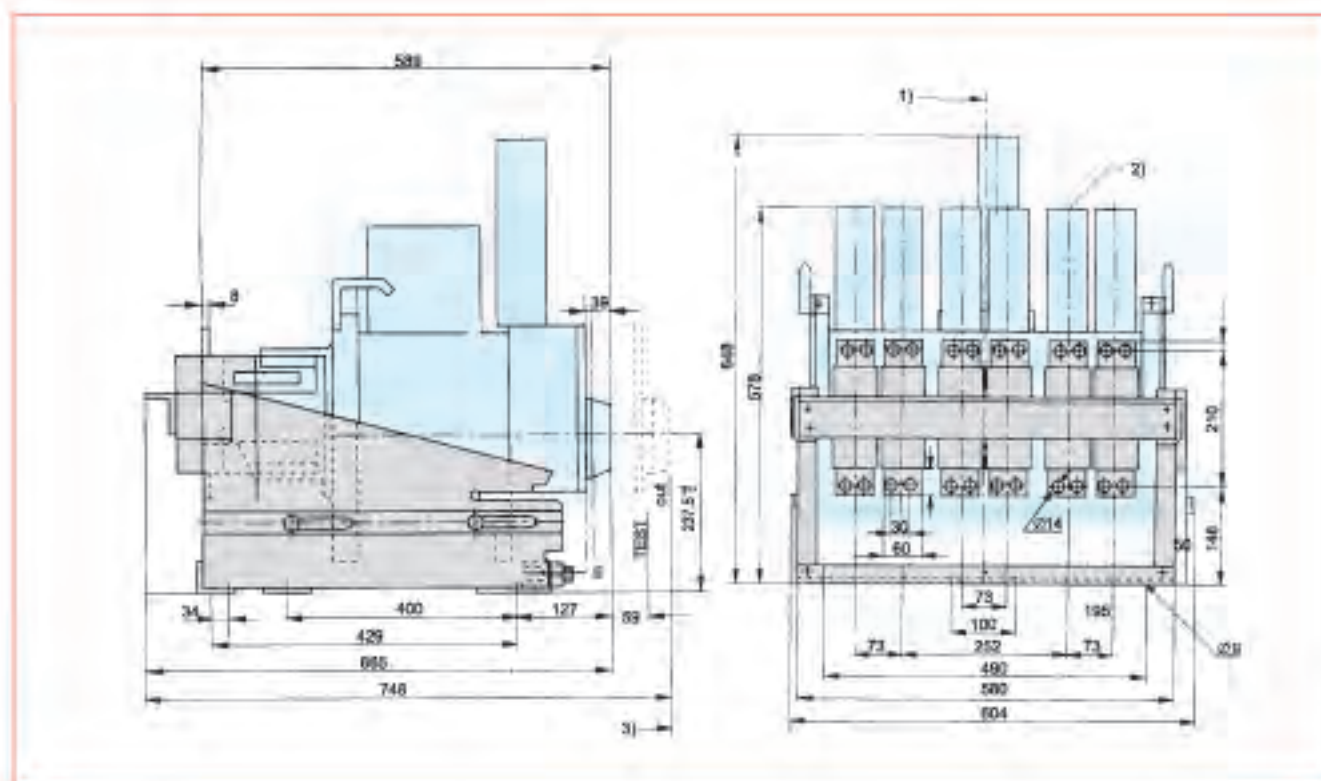


- 1.central line of operation mechanism
- 2.safe clearances A,B,CD,see fixed type
- 3.distance of breakers pulling-out.

1. 操作机械中心线
2. 安全间距A、B、C、D 参见固定式
3. 开关拉出距离

Outline size of ME2505 drawer type breakers

ME2505 抽屉式断路器外形尺寸图

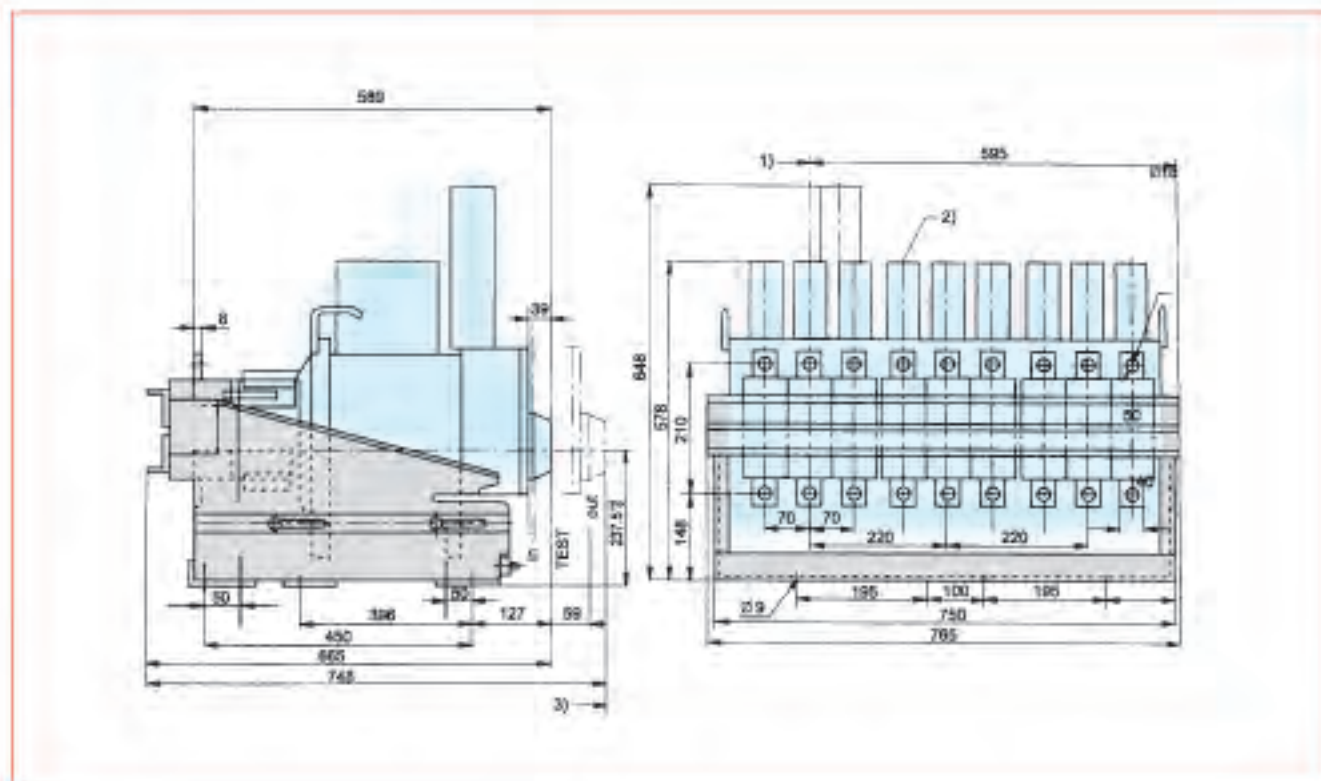


- 1.central line of operation mechanism
- 2.safe clearances A,B,CD,see fixed type
- 3.distance of breakers pulling-out.

- 1.操作机械中心线
- 2.安全间距A、B、C、D 参见固定式
- 3.开关拉出距离

Outline size of ME3200 drawer type breakers

ME3200 抽屉式断路器外形尺寸图

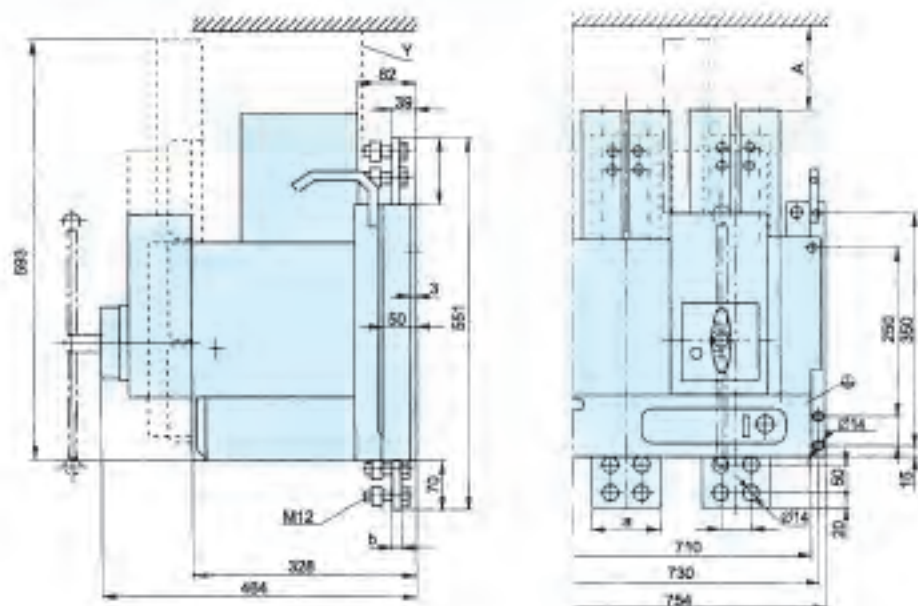
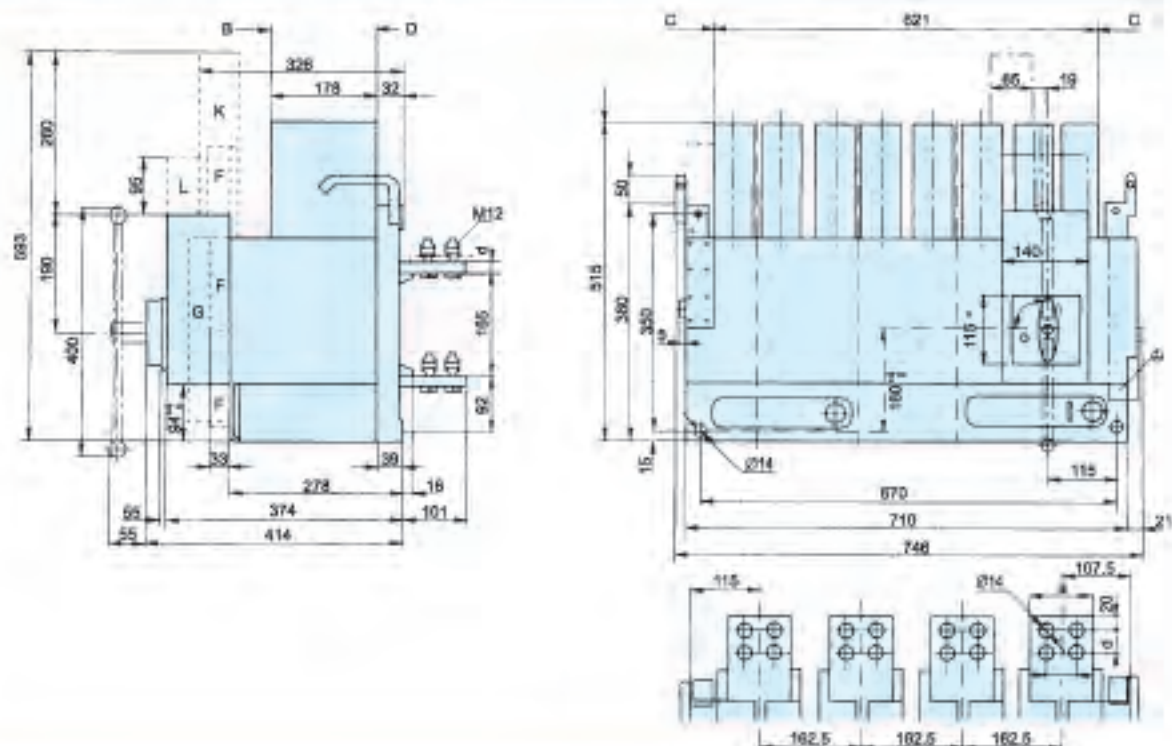


1. central line of operation mechanism
2. safe clearances A, B, C, D, see fixed type
3. distance of breakers pulling-out.

1. 操作机械中心线
2. 安全间距A、B、C、D 参见固定式
3. 开关拉出距离

Outline size of ME2000/IV,2500/IV,2505/IV fixed type breakers

ME2000/IV,2500/IV,2505/IV 固定式断路器外形尺寸图



	a	b	c
ME 2000/2500 IV	100	15	40
ME 2505 IV	120	20	60

vertical connection (attention: insulation partition Y)
垂直接线 (注意: 绝缘隔板 Y)

